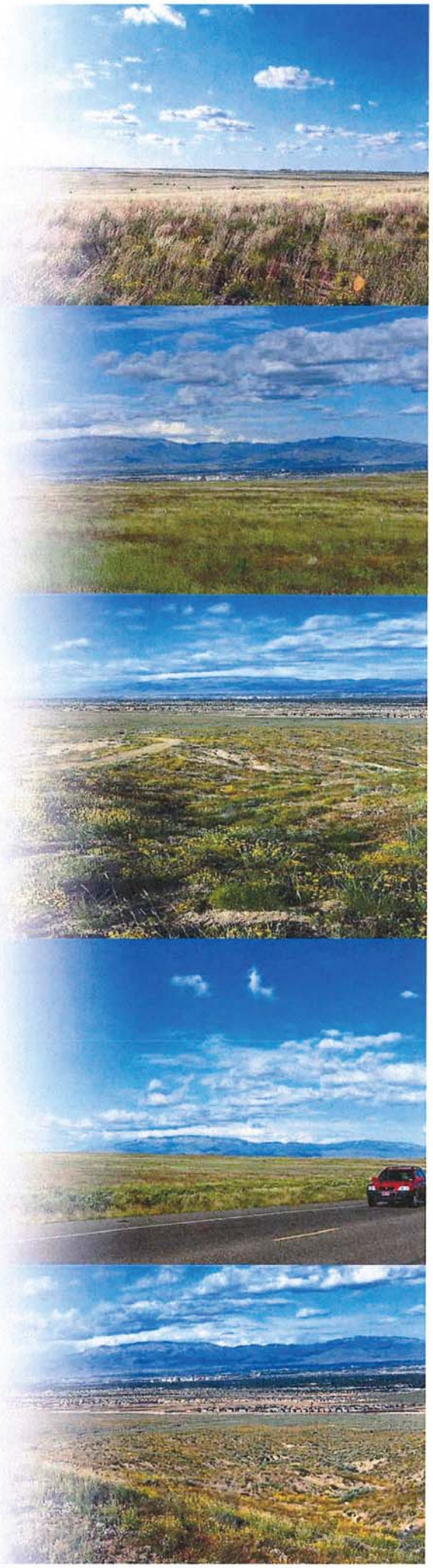
LEVEL 'A' PLANNED COMMUNITY TECHNICAL REPORT

FOR

SANTOLINA LEVEL 'A' MASTER PLAN

DRAINAGE (STORMWATER) MASTER PLAN

AUGUST 26, 2013



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I. INTRODUCTION

The Santolina Level 'A' Master Planned Community (Santolina) is a large scale master planned development located south of Interstate 40 (I-40), and west of the Rio Grande River, in the County of Bernalillo, New Mexico.

The Santolina Planned Community Level 'A' Master Plan (the "Santolina Master Plan") covers approximately 13,700 acres of land owned by Western Albuquerque Land Holdings (WALH). Santolina is located on the Southwest Mesa and is generally bounded by I-40 to the north, the Atrisco Terrace open space and the area around 118th Street on the east, Pajarito Mesa on the south, and the natural escarpment separating this property from the Rio Puerco Valley on the west.

The Santolina Plan area has been the subject of prior planning efforts, but this property has never been covered by an approved master plan. All of the lands in the Santolina Master Plan are located outside the municipal boundaries of the City of Albuquerque within the Southwest Planning Area of Bernalillo County. The existing zoning of the property is primarily County A-1, with some parcels near I-40 and Central Avenue having C-1 and M-1 zoning.

This Level 'A' Master Plan follows the Planned Community Criteria as adopted and amended by the Board of County Commission in 2012. The Level 'A' Master Plan is accompanied by a simultaneous request for Planned Community Zoning that is defined within this Master Plan. In accordance with County process, future Level 'B' and Level 'C' master plans will be required to develop the property. These plans will supply detailed development information and will refine or perhaps modify the guidelines of this conceptual master plan report.

"The Santolina Community is envisioned to have 38,810 residential units at full build-out; a potential population of 95,472, approximately 77,301 jobs, 2.0 jobs per household, and over 3,000 acres of parks and open space."

The Santolina development provides opportunities for creative and inventive drainage management solutions given the uniqueness of the site. Santolina is expected to develop in a way that embraces naturalistic, context sensitive infrastructure engineering to create a sustainable community.

This report is a supplemental technical report to the "*Level 'A' Santolina Master Plan*" submitted to the County Planning Department, under Planned Community Criteria guidelines.

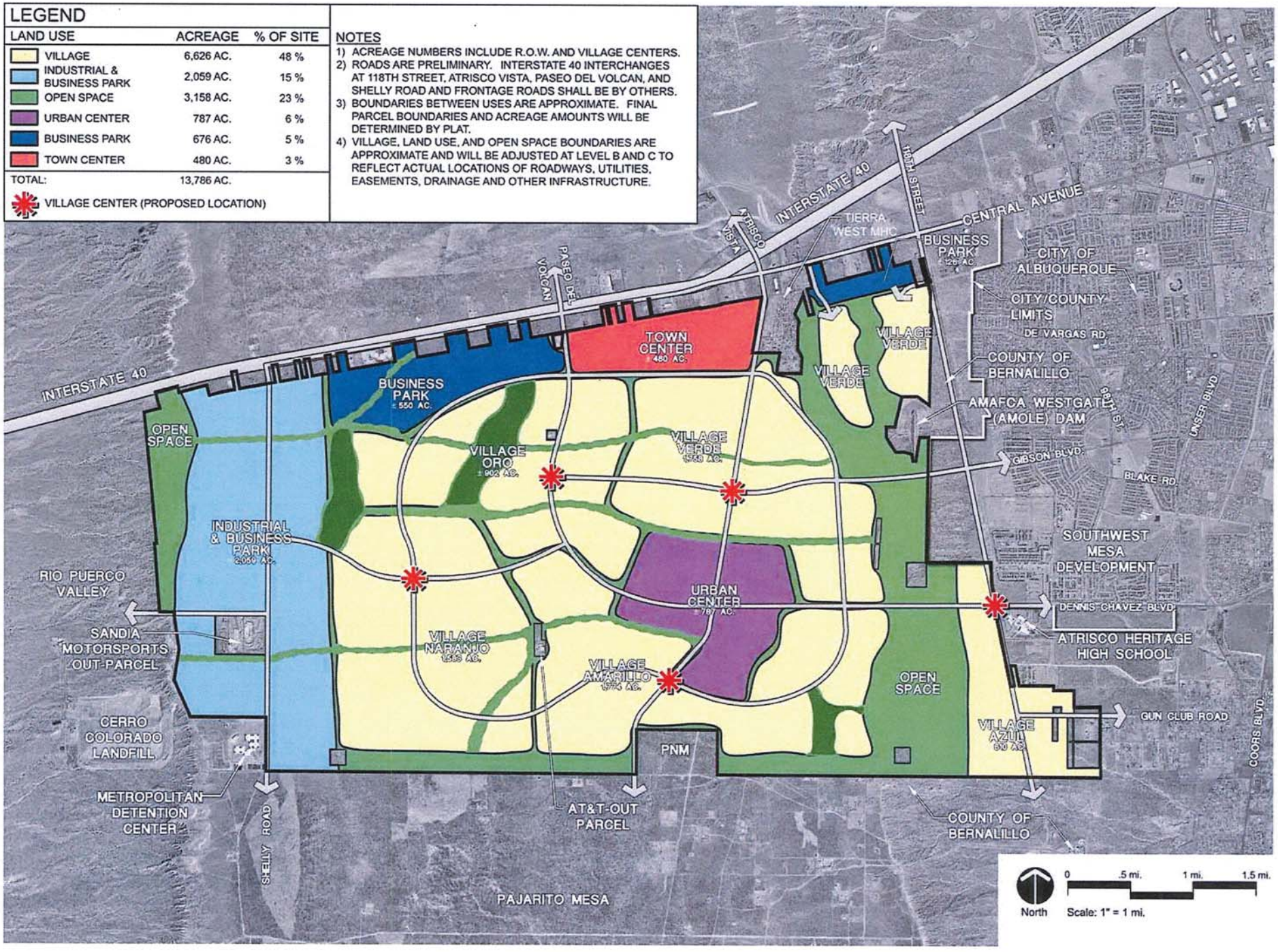
LEGEND

LAND USE	ACREAGE	% OF SITE
VILLAGE	6,626 AC.	48 %
INDUSTRIAL & BUSINESS PARK	2,059 AC.	15 %
OPEN SPACE	3,158 AC.	23 %
URBAN CENTER	787 AC.	6 %
BUSINESS PARK	676 AC.	5 %
TOWN CENTER	480 AC.	3 %
TOTAL:	13,786 AC.	

VILLAGE CENTER (PROPOSED LOCATION)

NOTES

1) ACREAGE NUMBERS INCLUDE R.O.W. AND VILLAGE CENTERS.
2) ROADS ARE PRELIMINARY. INTERSTATE 40 INTERCHANGES AT 118TH STREET, ATRISCO VISTA, PASEO DEL VOLCAN, AND SHELLY ROAD AND FRONTAGE ROADS SHALL BE BY OTHERS.
3) BOUNDARIES BETWEEN USES ARE APPROXIMATE. FINAL PARCEL BOUNDARIES AND ACREAGE AMOUNTS WILL BE DETERMINED BY PLAT.
4) VILLAGE, LAND USE, AND OPEN SPACE BOUNDARIES ARE APPROXIMATE AND WILL BE ADJUSTED AT LEVEL B AND C TO REFLECT ACTUAL LOCATIONS OF ROADWAYS, UTILITIES, EASEMENTS, DRAINAGE AND OTHER INFRASTRUCTURE.



LEVEL 'A' MASTER PLAN
(as submitted to County)

Level 'A' guidelines call for the stormwater master plan to provide *"a drainage strategy for management and maintenance of watersheds and floodplains."*

The primary goal of this Level 'A' Stormwater Management Plan is to provide framework for future development of Santolina. Specifically, major goals include:

- Provide conceptual guidance to future Level 'B' master plans and Level 'C' site development plan submittals within Santolina.
- Protect undeveloped and developed property, both onsite and downstream offsite, from flooding in the 100-year and smaller storm events.
- Provide sustainable engineering approaches for trunk and site-level infrastructure, for the control, conveyance, storage and discharge of stormwater.
- Improve water quality by the use of stormwater retention and detention facilities.
- Shallow groundwater recharge and landscaping passive irrigation by the use of water harvesting techniques.
- Provision of co-located recreational, open space and multi-purpose water storage opportunities.

County and other appropriate jurisdictions must approve all future Level 'B' master plans or Level 'C' site development plan submittals which deviate from the guidelines presented herein.

A. METHODOLOGY

The Santolina development area was divided into appropriate drainage basins related to the existing topography and anticipated use of the land. The onsite project area analysis includes approximately 13,700 acres of developable acreage, road rights-of-way, public open space, parks, and stormwater facilities. There are also major offsite basins included in this analysis. Hydrologic modeling was performed using Arid Lands Hydrologic Model (AHYMO), as detailed within the City of Albuquerque's Design Process Manual (DPM), Section 22.2. This model has been adopted by all local authorities responsible for design and management of storm water facilities including Bernalillo County, Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) and the Federal Emergency Management Agency (FEMA). Santolina falls within the jurisdictions of all of these agencies responsible for protection of the public and design of public drainage infrastructure.

PRECIPITATION. The 100-year, 6-hour storm event was selected as the design event to calculate <u>all peak flows</u>. The 100-year, 10-day or 24-hour storms were selected as the

design events to calculate the runoff volume used to design retention/detention facilities throughout the site. Specifically, the 100-year, 24-hour storm event will be used for detention calculations, while the 100-year, 10-day storm event will be used for retention calculations. Rainfall values for the study were provided from the City of Albuquerque's Development Process Manual. Rainfall depths for the 2-year, 5-year, and 100-year storm events are shown in Table 1 below.

Table 1 – Rainfall Data

STORM EVENT (YR)	1-HR	6-HR	24-HR
2	0.81	0.95	1.15
5	1.06	1.25	1.51
100	1.87	2.20	2.66

The 100-year, 10-day storm event volume was determined in this report by converting the 6-hour storm event volume into the 10-day storm event volume per equation a-9 from the City of Albuquerque's DPM, Section 22.2.

LAND TREATMENTS. Land treatments related to the amount of pervious and impervious area within the developed watershed were assigned based on land treatments specified in the DPM. These methods are widely accepted for hydrologic analyses in the region. Table 2 shows land treatment percentages relative to land use type based on zoning categories.

Table 2 – Land Treatments by Land Use Category, Developed Condition

	%A	%B	%C	%D
Residential, N=4.5 DU/AC	0%	27%	27%	46%
Commercial	0%	5%	5%	90%
Industrial/Energy	0%	15%	15%	70%
Open Space (Mesa)	0%	50%	50%	0%
Open Space (Escarpments)	0%	0%	100%	0%
Urban Center**	0%	12.5%	12.5%	75%
Mobile Home Park	0%	20%	20%	60%

*Land treatment percentages specified by criteria in the City of Albuquerque's Development Process Manual (DPM)
**Percentages are based on an assumed mix of uses in an urban center, including commercial, park, school, multi-family, etc.

SEDIMENT BULKING. Sediment bulking parameters for the existing conditions were established from the "*West I-40 Drainage Management Plan (DMP)*," prepared by Bohannan Huston on June 29, 2000. Basins on the mesa top used factors from the Amole Watershed, while the remaining basins in the escarpment areas used factors from Dam 9 of the Ladera Ponds, East of Paseo del Volcan as stated in the report. These factors were applied due to the areas having similar characteristics, such as terrain and slope. The bulking factors from the "*West I-40 Drainage Management Plan (DMP)*" are shown for the 2-year, 10-year and 100-year storm events. The 10-year bulking factors will be applied to calculate the 5-year storm events as shown later in this report. Please see Table 3 for bulking factors for existing and proposed conditions.

Table 3 – Bulking Factors

	%A	2 - YEAR	5 - YEAR	100 - YEAR
EXISTING BASINS	MESA TOP BASINS	0.0%	1.0% *	2.5%
	ESCARPMENT BASINS	0.0%	4.0% *	10.0%
DEVELOPED BASINS		0.0%	1.0%	2.5%

* Used 10 -Year Bulking Factor as established in the West I-40 DMP

II. EXISTING CONDITIONS

A. GENERAL

Currently, Santolina lies in a substantially undeveloped condition, used primarily for cattle grazing and related activities, with the land being vegetated by sparse grasses and shrubs. Sporadic developed properties lie within or around Santolina, including an Air Force facility, an AT&T facility, the Tierra West manufactured home community, the Metropolitan Detention Center, the Speedway facility and multiple small commercial developments along the I-40 South Frontage Road (Central Avenue extension).

These developed properties generally release their flows at pre-development levels, or retain flows on their own lands. None of the properties are known to be damaging single point (concentrated) flow contributors to the historic drainage patterns. There are many existing FEMA floodplains in the site; please refer to the Floodplains figure.

B. ONSITE

The Stormwater Management Plan, Existing Conditions figure, graphically portrays the existing drainage basins and major flow paths that impact Santolina in today's primarily undeveloped condition. The tables on the figure further provide the information from

hydrologic analysis of these basins. There are numerous, existing drainage crossings along Atrisco Vista and Dennis Chavez Blvd., with the larger concrete box culverts (CBC's) being shown in the Existing Conditions figure.

CLOSED BASINS. A majority of the Santolina site is located on a mesa top with escarpments located along the east and west boundaries. Large portions of the project area comprise of drainage basins that are fully contained within the mesa top (i.e., do not discharge to the Rio Grande River). These basins are referred to as 'closed basins' because all storm water runoff that is produced within the basin is also contained within the basin limits, within existing large natural land depressions. Runoff from offsite basins north of I-40 are also contained by these existing natural depressions. These closed basins are identified as existing Basins B, C, H, M and Offsite Basins A & B.

The table on the Existing Conditions figure reveals that the existing natural depressions of these closed basins have sufficient existing volume to fully capture the large storm events of this study (100-yr, 10-day event). In most cases, much greater volume in the depressions is available than the volume generated in the design storm event, as indicated by the analysis. Accordingly, these large drainage basins can be considered as if they never drain to the Rio Grande River. On the Floodplain figure, FEMA has graphically identified these depressions as "closed floodplains".

RIO PUERCO BASINS. A small portion of the site, existing Basin A, discharges westerly into the Rio Puerco watershed.

BASINS DISCHARGING TO THE SOUTH. Existing Basins D, E, F and I all free discharge southerly to the adjacent property (the Pajarito Grant lands). Eventually, most if not all of this drainage discharge flows eventually into the Rio Grande River.

BASINS DISCHARGING EASTERLY TO THE RIO GRANDE. The remaining basins, existing Basins G, K, L, M, N, O, P and Offsite Basin C, are conveyed easterly down the escarpment to existing drainage facilities. These facilities include the AMAFCA's Westgate Dam, Borrega Dam and Don Felipe Dam, AMAFCA's Powerline Channel and North Borrega Channel, Bernalillo County's Rio Bravo Channel and currently private Powerline Ponds (ultimately to be maintained by the City of Albuquerque).

C. OFFSITE

As stated in the "*West I-40 Drainage Management Plan (DMP) Update*," prepared by Bohannan Huston on December 21, 2006, all flows north of Offsite Basin C, will be diverted east into the I-40 conveyance system. The remaining flow south of that diversion, north of I-40, namely Offsite Basin C, will follow historic paths and ultimately discharge into the

Westgate Dam. The remaining offsite basins north of I-40, Offsite Basins A and B, are part of closed basins and are fully or partially contained by multiple existing natural depressions.

Flows that are not retained in offsite existing natural depressions (north of I-40) discharge into Santolina via existing drainage structures that cross I-40. Those flows combine with onsite flows and are retained onsite by existing natural depressions, as described in the previous "Onsite" subsection.

III. DEVELOPED CONDITIONS

A. GENERAL

The Stormwater Management Plan, Developed Conditions figure graphically portrays the proposed stormwater management guidelines for the Santolina master planned community. In a sustainable and ecologically beneficial manner, the plan provides for continuation of the existing and historic stormwater characteristics of the Santolina property, including:

- Continued onsite retention of 'developed condition' stormwater, as generated in the existing closed basins.
- Continued discharge of 'developed condition' stormwater to the south (Pajarito Land Grants), but at historic flow rates (or less) and frequencies.
- Continued discharge of 'developed condition' stormwater to the Rio Grande or Rio Puerco, from the escarpment areas, via historic flow paths and existing drainage facilities, but at historic flow rates (or less) and frequencies.

The Developed Conditions figure shows the basins, drainage conveyances, detention and retention facilities proposed for the fully developed condition of Santolina. The tables further show the data inputs used for watershed modeling and the resulting runoff rates and volumes generated by the 2-yr, 5-yr and 100-yr frequency storms.

In compliance with this master plan, it is anticipated that all future Level 'B' master plans and Level 'C' site development plans will provide unique stormwater solutions that meet the Level 'A' goal of sustainable and ecological development.

To this end, where practical, future development plans in Santolina are guided wherever practical toward the drainage goals and criteria of Low Impact (or Light Imprint) Development (LID). This design concept includes:

- Water Harvesting
- Engineered Natural Drainage Conveyances
- Engineered Naturalistic Drainage Storage
- Water Quality

Water harvesting techniques shall be utilized where practical throughout Santolina, particularly in the non-single family residential land uses. On a site by site basis, rainwater harvesting approaches should be employed and capable of storing runoff volumes typically from the 2-year, 24-hour storm event (approximately 1" of initial rainfall). Water harvesting techniques include small shallow ponds, swales or depressions in the site landscaping, cisterns, generally adjacent to developed site areas (i.e., parking lots, park areas, etc.), and more. High density urban development should be considered for reduced or modified application of these water harvesting principles to reflect development constraints.

Water harvesting will act as a clarifier by removing suspended solids (often floatable debris), prior to being transported to the major stormwater systems within Santolina and ultimately the River. Water shall pass through ponds or swales at rates slow enough to drop out silt and sediment. This strategy treats the early site runoff that carries higher concentrations of pollutants. Ponding or slowing down stormwater onsite from these smaller higher frequency storm events also permits beneficial use by landscape, wildlife and native vegetation, while allowing the water to infiltrate the soil. Larger storm events are allowed to pass through or around these ponds and be conveyed downstream by appropriate public drainage facilities.

OPEN SPACE. Designated 'open space' areas on the land use master plan will be largely undisturbed lands. Minor passive uses will be permitted in a manner that does not contribute to erosion or excessive concentrated runoff.

FEMA FLOODPLAINS. As shown on the Floodplains figure, several Federal Emergency Management Agency (FEMA) floodplains exist on Santolina. Upon development in the drainage basin that affects these floodplains, formal floodplain modification approvals must be sought from FEMA and approved by the County.

B. STORMWATER MANAGEMENT PLAN

DRAINAGE MANAGEMENT WITHIN CLOSED BASINS. Developing lands that are contained within existing closed basins boundaries will have their developed runoff conveyed to permanent drainage storage (retention) facilities, in keeping with historic drainage patterns. Other than evaporation and infiltration, there is no designed discharge from these

retention facilities. This concept is similar to that employed by the Mesa del Sol community and permitted by the State Engineer's Office.

These facilities can be referred to as *'stormwater retention facilities'* and will retain the 100-year, 10-day storm event. These retention facilities will generally consist of:

- Large deep earthen lined (and often landscaped) ponds
- Mild sides of typically 3:1 maximum slopes
- Aesthetically designed piping system inlets (with water quality and energy dissipation features)
- Infiltration basins to minimize/eliminate standing water
- Recreational and open space opportunities
- Naturalistic engineering design (grading, contoured edges, etc.)
- Multi-purpose water storage

The retention facilities are generally recommended to be placed in and coordinated with large, open space areas and parks, and may also include other active and passive recreational uses, such as playgrounds, benches, trails and sports fields. Due to the relatively even terrain of Santolina and the large size requirements of these retention facilities, it is probable that final design of the facilities will incorporate a series of smaller, connected retention facilities which, from a total volume standpoint, serve as one large ponding facility. The retention ponds, provided that required volumes are attained, may be placed anywhere within the closed basins area.

While not strictly applicable to 'retention ponds' of Santolina, the State Engineer's Office criteria requiring dams to discharge in 96 hours is applied to the onsite retention ponds as a logical goal for discharge of standing ponded stormwater. A time-to-discharge goal to substantially empty (not fully) the retention ponds is desirable for safety, aesthetic, mosquito control and other public nuisance reasons. Discharge is typically accomplished through infiltration, evaporation, evapotranspiration and other means.

Please refer to Developed Conditions figure for tables which identify the volume requirements of the 'engineered natural retention facilities' and basin flows and volumes. The retention facilities are assumed at a depth of 10' at this time, for illustration purposes, but this may vary depending on final design conditions.

Note that Offsite Basins A and B are cut off from draining across I-40 via proposed retention ponding sites, located just upstream of I-40. Since these lands are also owned by the developer of Santolina, appropriate easements and construction permits can be obtained

when required. The 96 hour discharge goal, described above, is also applicable to these offsite retention ponds.

DRAINAGE MANAGEMENT IN BASINS DISCHARGING SOUTH. Runoff from the mesa top basins that discharge to adjacent lands south of the site shall be managed at minimum by providing stormwater detention facilities just prior to the stormwater's departure from Santolina, i.e., the downstream terminus of the drainage basin. The Developed Conditions figure identifies the several large basins that discharge in a southerly manner. These 'detention' facilities are functionally 'dams' and will generally be comprised of the following key elements:

- Large detention ponding volume, as required to reduce the dam's outflow to historic discharge rates, or lower.
- Volumes are determined by 100-yr, 24-hr storm event analysis.
- Dam detention volumes are restricted to under 50 acre feet and embankment heights under 25', which will place the dams under AMAFCA jurisdiction.
- Full retention of small storm events (5-yr, 24-hr).
- Carefully designed outlet structures to minimize adverse erosion impacts to downstream undeveloped properties.
- Recreational and open space opportunities.
- Naturalistic engineering design (grading, contoured edges, etc.).

For both economic and sustainable design purposes, these detention facilities will generally be designed to include retention of up to the 5-year, 24-hour storm unbulked volume (while detaining and releasing the 100-year, 24-hour bulked drainage volume). This design element is provided to:

- Allow some permanent stormwater capture for increased protection of downstream natural drainage systems (from increased frequency of flows from developed lands)
- Minimization of future downstream drainage infrastructure
- Downstream water quality enhancement (by permanently holding the runoff of smaller, more frequent storm events which tend to carry more development pollutants and debris)
- Shallow groundwater recharge

This approach captures and retains only those drainage flows, from the smaller storms or the initial portion of larger storm events that do not historically reach the river. These "retained" flows represent the initial capture of rainfall by the existing undeveloped natural soil surfaces (vegetative capture, depressions, etc.), whereby reducing or eliminating excess runoff flows from the land to the drainage arroyos. All runoff exceeding this historic 'initial capture' is discharged to the River.

The Developed Conditions figure provides a table with runoff volumes for several storm events. The 5-year, 24 hour storm event is selected from the table to represent the historic "initial capture" for the following reasons:

- The hydrologic analysis demonstrates minimal or no excess runoff from this 5-yr storm event, and so most closely represents the single storm event of the initial capture phenomenon.
- The "*Quail Ranch, Phase One Conceptual Infrastructure Analysis Report*," prepared by Bohannan Huston on January 26, 2005 and reviewed with the OSE, has similar site characteristics (location, vegetation, soil type and terrain) and had recommended this 5-yr storm event based on a hydrologic analysis that showed no runoff is produced, under existing natural conditions by storm events less than or equal to the 5-year event.
- The 5-year storm event is a widely used standard and available data set for use in these hydrologic calculations.

Sediment storage volume will also be factored into the design of these detention facilities, typically to be a three year sediment volume (but to be coordinated with AMAFCA).

Dam outfall structures (principal spillways) will preserve existing downstream drainage ways and will be achieved by limiting the discharge that leaves Santolina to at or below historic conditions. To achieve this, a key feature of these detention facilities will be the design of a principal spillway outfall that will allow (a) historic runoff flowrates, or less, (b) to be discharged from the dams in a manner that most closely mimics the historic or existing condition.

The Developed Conditions figure also portrays additional supplemental stormwater management concepts within the basins, upstream of the primary detention dams. These 'intermediate' detention facilities, including potential conveyances (channels, etc.), are shown conceptually only and will be refined in future Level 'B' and 'C' development submittals to the

County. These intermediate structures will minimize the size of the primary dams and conveyances downstream by reducing the peak flows be managed.

DRAINAGE MANAGEMENT IN BASINS DISCHARGING OFF THE ESCARPMENTS. Stormwater runoff from a developed Santolina impacts both escarpments and both river systems.

The site drainage basin discharging to the westerly Rio Puerco escarpment is proposed for open space in the land use master plan. Accordingly, no stormwater facilities are proposed for this minimally impacted escarpment area.

Runoff from Santolina's mesa top area that discharges off the easterly escarpment will eventually drain to the Rio Grande River. Stormwater runoff draining easterly will be managed by both existing and proposed drainage facilities. The Proposed Conditions figure shows proposed stormwater detention dams for many of the Santolina development areas which lie on the easterly escarpment. This approach then is similar to that proposed for the Santolina drainage basins which discharge southerly to the Pajarito Land grant area and one may refer to that section for more information.

Of particular note for the easterly escarpment is the incised Amole Arroyo system. Both the east and west branches of this large arroyo cut deeply through the easterly escarpment. Both arroyo branches are natural arroyos for most of their lengths, but are affected in minor ways by existing development drainage discharges in their drainage basins. The arroyos drain to the AMAFCA Westgate Dam facility, an existing dam located at the east boundary of Santolina. The dam is further described in a following section. With development of Santolina, due to the greater and more frequent drainage flows, sandy bottom arroyo conditions and steep hydraulic slopes, it is anticipated that the existing natural arroyos will needed to be channelized in order to avoid severe erosive impacts. If channelization is required by future Level 'B' master plans, naturalistic design measures should be employed to include the use of tinted concrete, soil cement, side-only embankments with soft (sandy) bottom, and other light impact techniques.

In part due to the very large size of the Santolina master plan area, the analysis results and infrastructure portrayed in this Master Plan illustratively show large single point facilities to manage drainage, i.e., a large detention dam serving an entire drainage basin. It is hoped and anticipated that future Level 'B' and 'C' development submittals will refine this high level conceptual view to more specific stormwater management proposals. In this refinement, stormwater management tools can be distributed more broadly across drainage basins and reduced in size and visual impact to the community.

The following paragraphs provide discussion and data regarding some of the key existing AMAFCA drainage facilities and drainage basin plans serving Santolina.

WESTGATE DAM. AMAFCA's Westgate Dam lies essentially within the Santolina master plan boundary. It is an existing earthen dam facility, providing an inflow volume of 347 acre feet, and accepts an estimated 2418 cfs inflow in the large storm event, and discharges 80 cfs through its principal spillway outlet structure (see Appendix B). With the diversion of flows north of I-40, as stated in the "*West I-40 Drainage Management Plan (DMP) Update*," the drainage basin area that discharges into the Westgate Dam has been significantly decreased and the Dam may hold excess capacity at this time. The Developed Conditions figure shows only a minor increase in basin area (over the Existing Conditions) discharging to Westgate Dam. Future submittals of Level 'B' master plans may find opportunity to increase the extent of developed basins that drain to the Westgate Dam. Alternatively, and/or simultaneously, the Dam may be considered for additional uses, such as recreational or water quality purposes. Development within the Westgate Dam upstream basins may require additional analysis and modeling of the Westgate Dam drainage system to ensure that the Westgate Dam is capable of managing the developed flows and any other uses that may be envisioned. This additional analysis will be completed in future Level 'B' technical master drainage plans and reports, as required.

Due to the steeper terrain in the westerly Westgate Dam basins and a significant amount of flow, engineered natural arroyos and/or buried large diameter pipe or similar, will be essential to convey flows within the westerly Westgate Dam basins. Final recommendation for drainage management facilities within the Westgate Dams shall be refined in greater detail in the future Level 'B' and Level 'C' reports. The basins that contribute to the Westgate Dam are Basins G & I and Offsite Basin C.

DON FELIPE DAM. Azul Village lies in the extreme southeast corner of Santolina. Within Azul Village, proposed Basin N covers the northern portion of the basin area that discharges into AMAFCA's Don Felipe Dam. The "*Drainage Management Plan for Don Felipe Dam*," prepared by Bohannan Huston in July 2011, provides options on how to mitigate the increase of flows created by developing areas upstream of the Dam. When development occurs within Basin N, drainage management plans shall comply with the options recommended in that report. Santolina proposes to comply with the DMP option that places upland (intermediate) detention ponds, which are to be designed to reduce the peak flow to historic levels into the Dam, without modifying the current geometry of the Dam.

AMOLE-HUBBELL DMP. The "*Amole-Hubbell Drainage Management Plan*" prepared by Leedshill-Herkenhoff in July, 1999, addresses Basins J, L and M of Santolina. These basins discharge east into existing drainage facilities, as described in the "*Amole-Hubbell Drainage Management Plan.*" Basin J enters AMAFCA's Powerline Channel, while Basin L discharges into Bernalillo County's Rio Bravo Channel and the privately maintained Powerline Ponds. Basin M discharges into the Borrega Dam and is discussed in the section below.

Drainage management in Basins J and L, shall mirror the drainage planning of basins that discharge south off the site (see previous "Drainage Management in Basins Discharging South" section). In brief review, drainage management facilities shall be placed in these basins to retain the 5-year, 24-hour volume, while detaining the 100-year, 24-hour storm volume. Preservation of existing downstream facilities east of the project site shall also be achieved by limiting the discharge flow rate that leaves the site to be at or below historic conditions.

The privately maintained Powerline Ponds are currently designed as retention ponds but as development occurs, the ponds will need to be expanded to be detention ponds in fully developed conditions as described in the *"Amole-Hubbell Drainage Management Plan."* Once these improvements are made, the City of Albuquerque will then maintain the ponds.

BORREGA DAM. The Borrega Dam was a proposed alternative when the "*Amole-Hubbell Drainage Management Plan"* was completed in 1999. Since then, the Borrega Dam has been designed and constructed. Basin M of Santolina lies within the western portion of the basin areas that discharges into the Borrega Dam. Flows from this basin enter the AMAFCA maintained North Borrega Channel and are routed east to the Borrega Dam. Stormwater management facilities, as previously discussed, will be used to retain the 5-year, 24-hour volume storm event, while detaining the 100-year, 24-hour volume event. Runoff from the basin that discharges off of the site shall be at or below historic conditions and be compliant with the drainage requirements of the Borrega Dam.

The "*Amole-Hubbell Drainage Management Plan"* is currently being updated by AMAFCA to compile all modifications within the plan area, such as the addition of the Borrega Dam and other improvements. As development occurs within this area, drainage management design shall comply with the updated "*Amole-Hubbell Drainage Management Plan.*"

IV. OPERATION AND MAINTENANCE

The stormwater infrastructure of Santolina will primarily consist of several major elements that will require maintenance and operational management attention:

- The closed basin retention ponding system, including the retention ponds, landscaping, recreational uses, water quality and infiltration devices.
- The detention ponding system, including the detention ponds, embankments, landscaping, recreational uses, water quality and infiltration devices, and required right-of-way.
- The public stormwater infrastructure system, including the underground drainage pipes and open channels (with appurtenances) street drainage infrastructure, landscaping, recreational uses, and required right-of-way.

The County of Bernalillo is anticipated to manage the public stormwater infrastructure and closed basin ponding systems. These systems will serve large areas of the community and will be located in public right-of-way and are suitable, therefore, for public ownership, operation and maintenance. The County will oversee the studies, design and construction of these facilities.

It is anticipated that AMAFCA will own, operate and maintain the large detention dams proposed in south and east discharging basins of Santolina. AMAFCA will therefore oversee the studies, design and construction of these facilities. Westgate Dam will continue to be an active AMAFCA facility.

A maintenance agreement or covenant may be required with the County and AMAFCA for all drainage facilities and infrastructure that are proposed to allow other secondary uses, including landscaping, parks, playgrounds, sports fields, trails, etc. The agreement would define operational and maintenance responsibilities for all elements anticipated within the facility. Generally, only the strictly drainage-related aspects of the facilities will be maintained by the County or AMAFCA.

Future Level 'B' and Level 'C' master planning and final design of the integrated stormwater system is required to refine the drainage management concepts and jurisdictional elements.

V. PHASING

The Developed Conditions, 2035 Projected Development Plan figure portrays stormwater infrastructure potentially required for the Santolina 2035 Projected Development Plan Master Plan area, estimated to be fully developed in approximately 2035. The plan illustratively shows the fully developed 2035 Projected Development Plan Stormwater infrastructure; however, this infrastructure itself will in actuality be phased in and implemented over time. Final infrastructure phasing scenarios will depend on and be presented with future Level 'B' and 'C' plans.

VI. SUMMARY

Stormwater management master planning within the Santolina Master Planned Community reveals the opportunity for uniquely engineered naturalistic systems that address water harvesting, water quality enhancement, mitigation of erosion potential, recreational and open space opportunities and beneficial use of storm water for wildlife, open space and native vegetation.

Santolina strives to preserve the pre-development hydrologic history and to integrate natural drainage approaches into a modern sustainable community environment in the developed condition.

This technical report is provided in support of the Level 'A' master plan submitted to County of Bernalillo Planning Department. It establishes a Level 'A' master plan framework for the management of storm runoff within Santolina. Future Level 'B' master plans and Level 'C' site development plans will refine this conceptual level framework to best fit the more detailed master plans of future County submittals.

FIGURES

FIGURE 1 – EXISTING CONDITIONS

FIGURE 2 – TOPOGRAPHY WITH AERIAL IMAGERY AND MASTER PLAN OVERLAID

FIGURE 3 – FLOODPLAIN MAP

FIGURE 4 – DEVELOPED CONDITIONS

FIGURE 5 – DRAINAGE DETENTION FACILITY CONCEPT

FIGURE 6 – 2035 PROJECTED DEVELOPMENT PLAN DEVELOPED CONDITIONS

FIGURE 1 – EXISTING CONDITIONS

FIGURE 1: STORMWATER MANAGEMENT MASTER PLAN

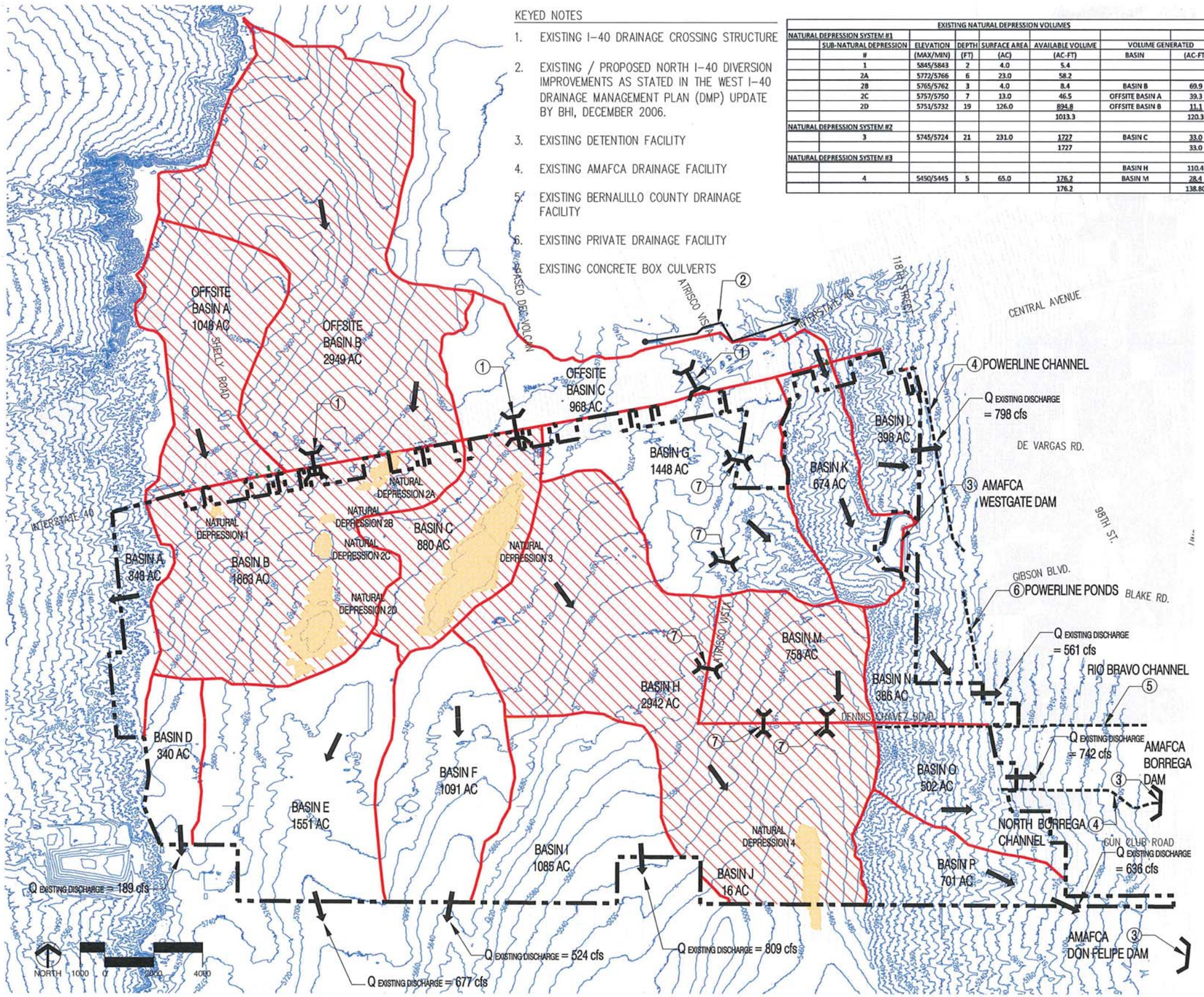
EXISTING CONDITIONS

KEYED NOTES

1. EXISTING I-40 DRAINAGE CROSSING STRUCTURE
2. EXISTING / PROPOSED NORTH I-40 DIVERSION IMPROVEMENTS AS STATED IN THE WEST I-40 DRAINAGE MANAGEMENT PLAN (DMP) UPDATE BY BHI, DECEMBER 2006.
3. EXISTING DETENTION FACILITY
4. EXISTING AMAFCA DRAINAGE FACILITY
5. EXISTING BERNALILLO COUNTY DRAINAGE FACILITY
6. EXISTING PRIVATE DRAINAGE FACILITY
7. EXISTING CONCRETE BOX CULVERTS

EXISTING NATURAL DEPRESSION VOLUMES

NATURAL DEPRESSION SYSTEM #1							
	SUB-NATURAL DEPRESSION	ELEVATION	DEPTH	SURFACE AREA	AVAILABLE VOLUME	VOLUME GENERATED	
	#	(MAX/MIN)	(FT)	(AC)	(AC-FT)	BASIN	(AC-FT)
	1	5845/5843	2	4.0	5.4		
	2A	5772/5766	6	23.0	58.2		
	2B	5765/5762	3	4.0	8.4	BASIN B	69.9
	2C	5757/5750	7	13.0	46.5	OFFSITE BASIN A	39.3
	2D	5751/5732	19	126.0	894.8	OFFSITE BASIN B	11.1
					1013.3		120.3
NATURAL DEPRESSION SYSTEM #2							
	3	5745/5724	21	231.0	1727	BASIN C	33.0
					1727		33.0
NATURAL DEPRESSION SYSTEM #3							
						BASIN H	110.4
	4	5450/5445	5	65.0	176.2	BASIN M	28.4
					176.2		138.80



LEGEND

- EXISTING NATURAL DEPRESSION
- SITE LIMITS
- EXISTING BASIN BOUNDARY
- FLOW ARROW
- EXISTING CROSSING STRUCTURE
- NORTH 1-40 DIVERSION IMPROVEMENTS
- EXISTING DRAINAGE FACILITIES
- NATURAL DEPRESSION CONTROLLED BASINS

DRAINAGE BASIN CALCULATIONS - EXISTING CONDITIONS

BASIN	AREA	PEAK FLOW	VOLUME	
		100 YR - 6 HR	100 YR - 24 HR	100 YR - 10 DAY
I.D.	(AC)	(CFS)	(AC-FT)	(AC-FT)
A	348	968	28.0	28.0
B	1863	953	69.9	69.9
C	880	576	33.0	33.0
D	340	169	12.8	12.8
E	1551	677	58.2	58.2
F	1091	524	40.9	40.9
G	1448	702	54.3	54.3
H	2942	1190	110.4	110.4
I	1086	809	40.7	40.7
J	16	21	0.6	0.6
K	674	1351	33.7	33.7
L	398	798	19.9	19.9
M	758	569	28.4	28.4
N	387	561	19.3	19.3
O	607	742	30.3	30.3
P	596	636	29.8	29.8
OFFSITE A	1048	611	39.3	39.3
OFFSITE B	2949	211	11.1	11.1
OFFSITE C	968	1144	65.9	63.1
TOTAL	19960	13131	724.5	741.7

SANTOLINA

LEVEL A MASTER PLAN

ANTIGUA LAND COMPANY

Prepared by:
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JANUARY 18, 2013

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TABLE D

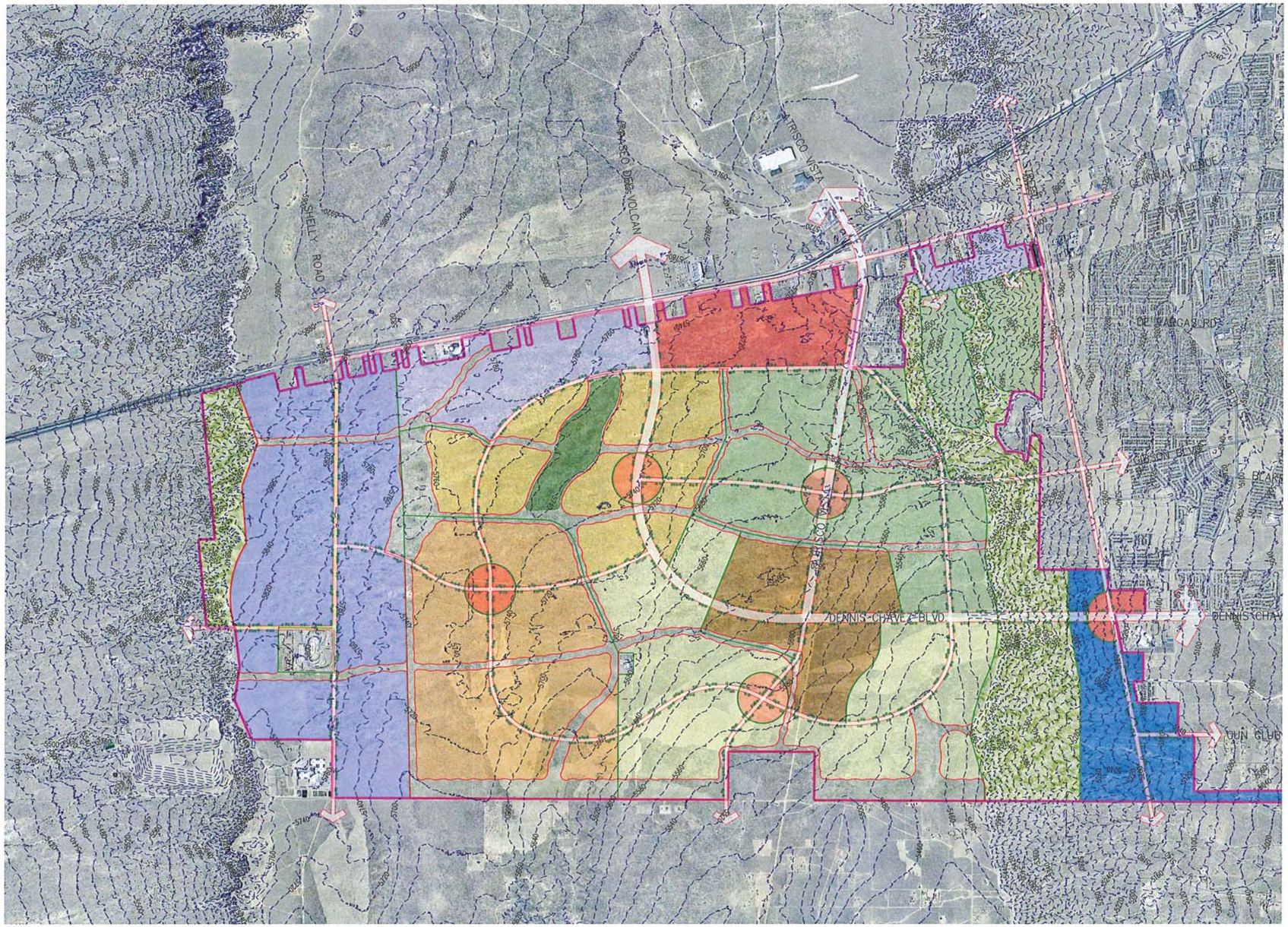
DRAINAGE BASIN CALCULATIONS - EXISTING CONDITIONS

BASIN	AREA	LAND TREATMENT				TIME OF CONCENTRATION	PEAK FLOW	VOLUMES			
							100 YR - 6 HR	2 YR - 24 HR	100 YR - 24 HR	100 YR - 10 DAY	5 YR - 24 HR
I.D.	(AC)	A	B	C	D	(HOURS)	(CFS)	(AC-FT)	(AC-FT)	(AC-FT)	(AC-FT)*
A	348	0%	50%	50%	0%	0.166	966	1.5	26.0	26.0	5.6
B	1863	100%	0%	0%	0%	0.657	953	0.0	69.9	69.9	1.6
C	880	100%	0%	0%	0%	0.510	576	0.0	33.0	33.0	0.8
D	340	100%	0%	0%	0%	0.603	189	0.0	12.8	12.8	0.3
E	1551	100%	0%	0%	0%	0.773	677	0.0	58.2	58.2	1.4
F	1091	100%	0%	0%	0%	0.700	524	0.0	40.9	40.9	1.0
G	1448	100%	0%	0%	0%	0.693	702	0.0	54.3	54.3	1.3
H	2942	100%	0%	0%	0%	0.834	1190	0.0	110.4	110.4	2.6
I	1086	100%	0%	0%	0%	0.445	809	0.0	40.7	40.7	0.9
J	16	100%	0%	0%	0%	0.160	21	0.0	0.6	0.6	0.0
K	674	50%	50%	0%	0%	0.065	1351	0.0	33.7	33.7	3.2
L	398	50%	50%	0%	0%	0.148	798	0.0	19.9	19.9	1.9
M	758	100%	0%	0%	0%	0.441	569	0.0	28.4	28.4	0.7
N	387	50%	50%	0%	0%	0.299	561	0.0	19.3	19.3	1.8
O	607	50%	50%	0%	0%	0.365	742	0.0	30.3	30.3	2.8
P	596	50%	50%	0%	0%	0.424	636	0.0	29.8	29.8	2.7
OFFSITE A	1048	100%	0%	0%	0%	0.689	511	0.0	39.3	39.3	0.9
OFFSITE B	2949	100%	0%	0%	0%	0.465	211	0.0	11.1	11.1	0.3
OFFSITE C	968	60%	15%	10%	15%	0.459	1144	10.8	65.9	83.1	18.1
TOTAL	19950						13131	12.3	724.5	741.7	47.7

* All 5 storm events are calculated using bulked factors excepts for the 5 YR - 24 HR storm event which is unbulked.

FIGURE 2 – TOPOGRAPHY WITH AERIAL IMAGERY AND MASTER PLAN OVERLAID

FIGURE 2: EXISTING TOPOGRAPHY



NOTES:

1. A 20 ' CONTOUR INTERVAL IS DISPLAYED
2. AERIAL IMAGERY IS SPRING 2010 ORTHOPHOTOGRAPHY
3. EXISTING TOPOGRAPHY IS APPROXIMATE AND ILLUSTRATIVE, SUBJECT TO CHANGE

NORTH 1000 0 2000 4000

SANTOLINA

LEVEL A MASTER PLAN

ANTIGUA LAND COMPANY

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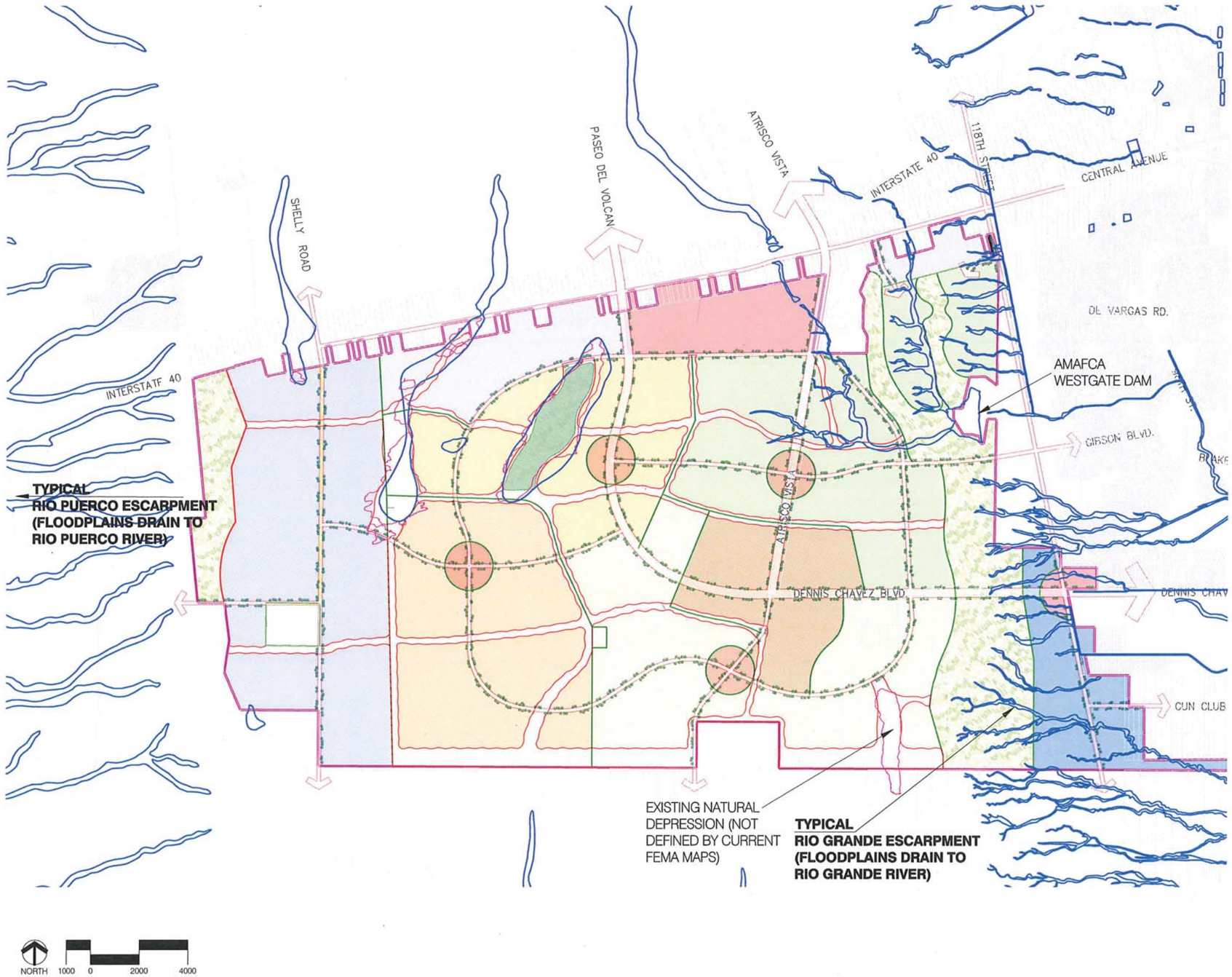
FIGURE 3 – FLOODPLAIN MAP

FIGURE 3: EXISTING FLOODPLAINS



LEGEND

- EXISTING FEMA FLOOD PLAINS (TYP)
- EXISTING NATURAL DEPRESSION (DEFINED BY CONTOUR MAPS)

NOTES:

1. 100 - YEAR FLOOD (1% CHANCE OF OCCURRENCE IN ONE YEAR) PLAIN LIMITS ARE SHOWN.

NORTH 1000 0 2000 4000

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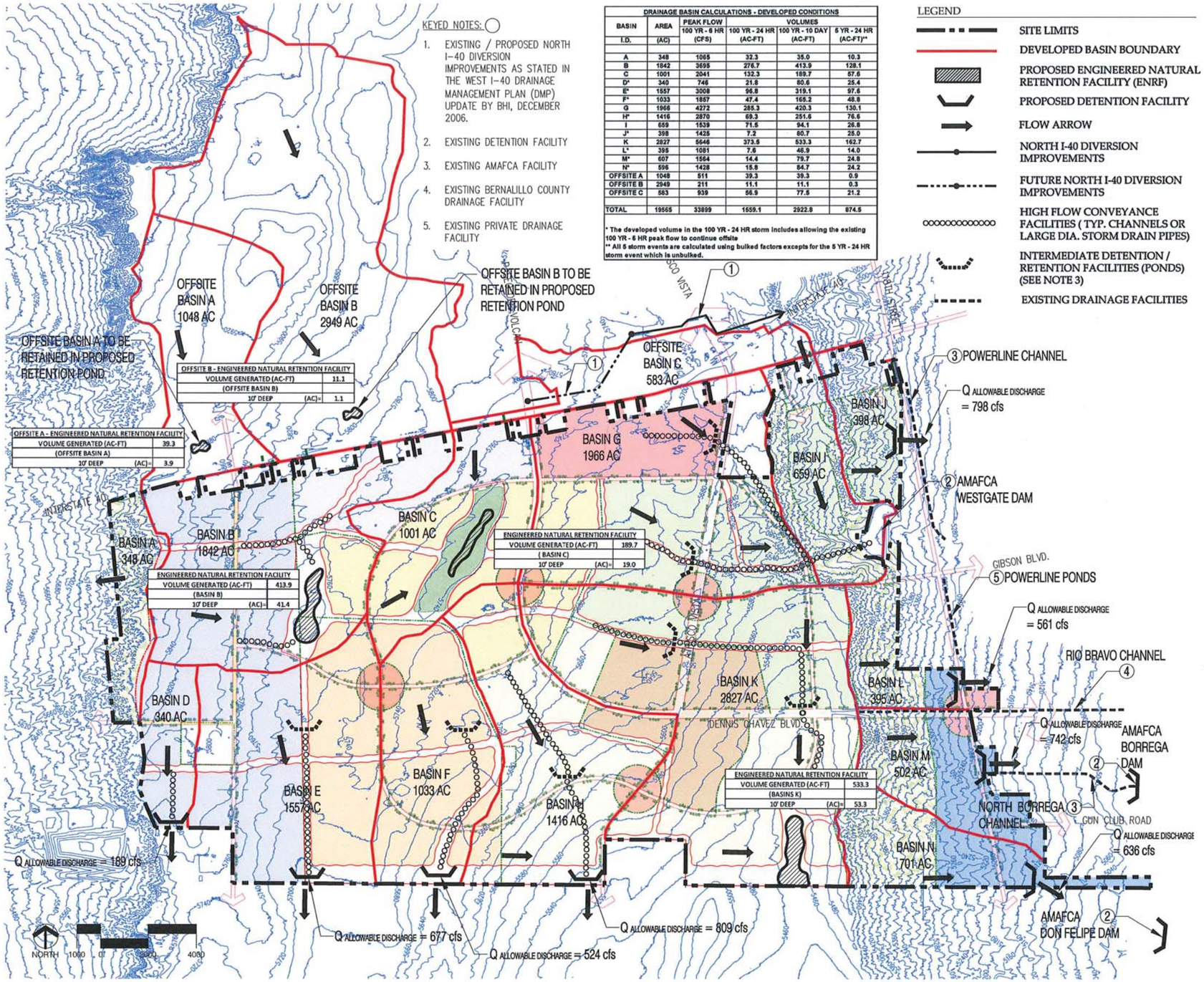
FIGURE 4 – DEVELOPED CONDITIONS

FIGURE 4: STORMWATER MANAGEMENT MASTER PLAN

DEVELOPED CONDITIONS



DRAINAGE BASIN CALCULATIONS - DEVELOPED CONDITIONS					
BASIN	AREA	PEAK FLOW		VOLUMES	
I.D.	(AC)	100 YR - 6 HR (CFS)	100 YR - 24 HR (AC-FT)	100 YR - 10 DAY (AC-FT)	5 YR - 24 HR (AC-FT)**
A	348	1065	32.3	35.0	10.3
B	1842	3695	276.7	413.9	128.1
C	1001	2041	132.3	189.7	57.6
D*	340	746	21.8	80.6	25.4
E*	1557	3008	96.8	319.1	97.6
F*	1033	1857	47.4	165.2	48.8
G	1966	4272	285.3	420.3	130.1
H*	1416	2870	69.3	251.6	76.6
I	659	1539	71.5	94.1	26.8
J*	398	1425	7.2	80.7	25.0
K	2827	5646	373.5	533.3	162.7
L*	395	1081	7.6	46.9	14.0
M*	607	1564	14.4	79.7	24.8
N*	596	1428	15.8	84.7	24.2
OFFSITE A	1048	511	39.3	39.3	0.9
OFFSITE B	2949	211	11.1	11.1	0.3
OFFSITE C	583	939	56.9	77.5	21.2
TOTAL	19565	33899	1559.1	2922.8	874.5

* The developed volume in the 100 YR - 24 HR storm includes allowing the existing 100 YR - 6 HR peak flow to continue offsite
** All 5 storm events are calculated using bulked factors excepts for the 5 YR - 24 HR storm event which is unbulked.

LEGEND

- SITE LIMITS
- DEVELOPED BASIN BOUNDARY
- PROPOSED ENGINEERED NATURAL RETENTION FACILITY (ENRF)
- PROPOSED DETENTION FACILITY
- FLOW ARROW
- NORTH I-40 DIVERSION IMPROVEMENTS
- FUTURE NORTH I-40 DIVERSION IMPROVEMENTS
- HIGH FLOW CONVEYANCE FACILITIES (TYP. CHANNELS OR LARGE DIA. STORM DRAIN PIPES)
- INTERMEDIATE DETENTION / RETENTION FACILITIES (PONDS) (SEE NOTE 3)
- EXISTING DRAINAGE FACILITIES

NOTES:

1. WITH DEVELOPMENT OF BASINS B AND C, FLOW ACROSS I40 FROM OFFSITE BASINS A AND B WILL BE CUT OFF AND RETAINED UPSTREAM OF I40 (IE, WITHIN THE OFFSITE BASINS RESPECTIVELY)
2. STORMWATER FACILITIES ARE APPROXIMATE AND ILLUSTRATIVE, SUBJECT TO CHANGE
3. THE INTERMEDIATE DETENTION / RETENTION FACILITIES AND HIGH FLOW CONVEYANCE FACILITIES ARE ILLUSTRATIVE ONLY. WITH CREATIVE USE OF OPEN SPACE CORRIDORS AND PARKS, IT IS ANTICIPATED THAT FUTURE LEVEL "B" REPORTS WILL MINIMIZE THE NUMBER OF THESE LARGE FACILITIES
4. CONVEYANCE FACILITIES (SUCH AS ABOVE GROUND CHANNELS) WILL BE DESIGNED AS ENGINEERED NATURAL ARROYOS WITH MULTI PURPOSE USES.
5. STORMWATER MANAGEMENT FACILITIES LOCATED ON THE SOUTH BOUNDARY ARE DESIGNED TO DETAIN THE 100-YR 24-HR STORM WHILE DISCHARGING HISTORIC PEAK FLOW OFFSITE.

SANTOLINA

LEVEL A MASTER PLAN

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FIGURE 5 – DRAINAGE DETENTION FACILITY CONCEPT

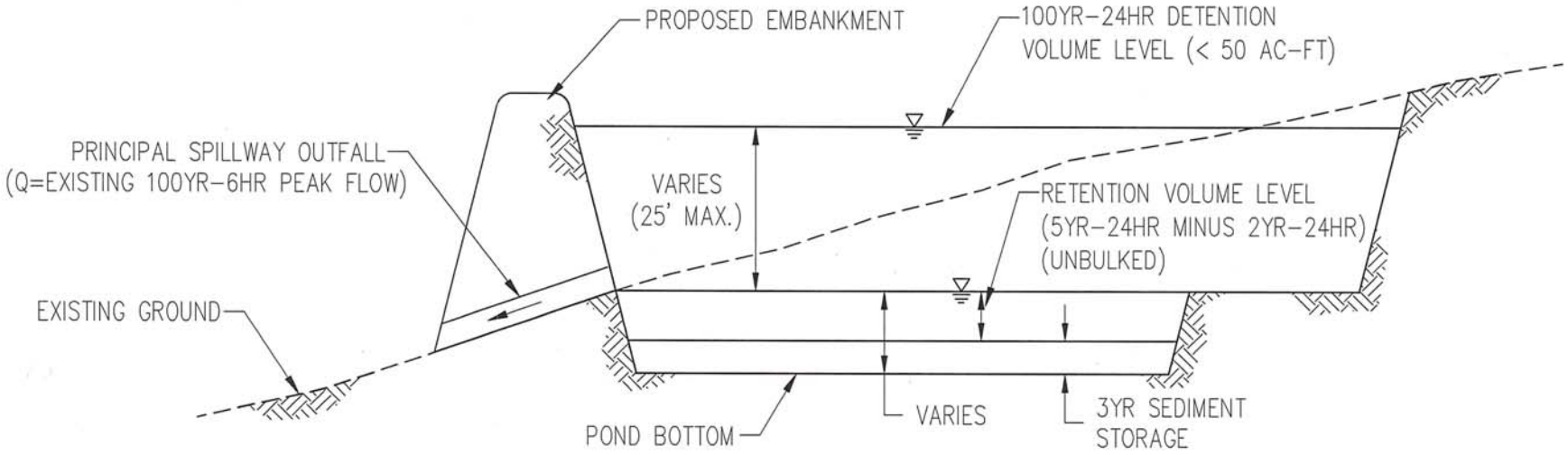

FIGURE 5 : SANTOLINA OUTFALL DRAINAGE DETENTION FACILITY CONCEPT

NOT TO SCALE

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Bohannan Huston

FIGURE 6 – 2035 PROJECTED DEVELOPMENT PLAN DEVELOPED CONDITIONS

FIGURE 6: STORMWATER MANAGEMENT MASTER PLAN

2035 PROJECTED DEVELOPMENT PLAN

DEVELOPED CONDITIONS

KEYED NOTES:

1. EXISTING / PROPOSED NORTH I-40 DIVERSION IMPROVEMENTS AS STATED IN THE WEST I-40 DRAINAGE MANAGEMENT PLAN (DMP) UPDATE BY BHI, DECEMBER 2006.
2. EXISTING DETENTION FACILITY
3. EXISTING AMAFCA FACILITY
4. EXISTING BERNALILLO COUNTY DRAINAGE FACILITY
5. EXISTING PRIVATE DRAINAGE FACILITY

DRAINAGE BASIN CALCULATIONS - DEVELOPED CONDITIONS

BASIN	AREA	PEAK FLOW	VOLUMES		
		100 YR - 6 HR	100 YR - 24 HR	100 YR - 10 DAY	5 YR - 24 HR
I.D.	(AC)	(CFS)	(AC-FT)	(AC-FT)	(AC-FT)**
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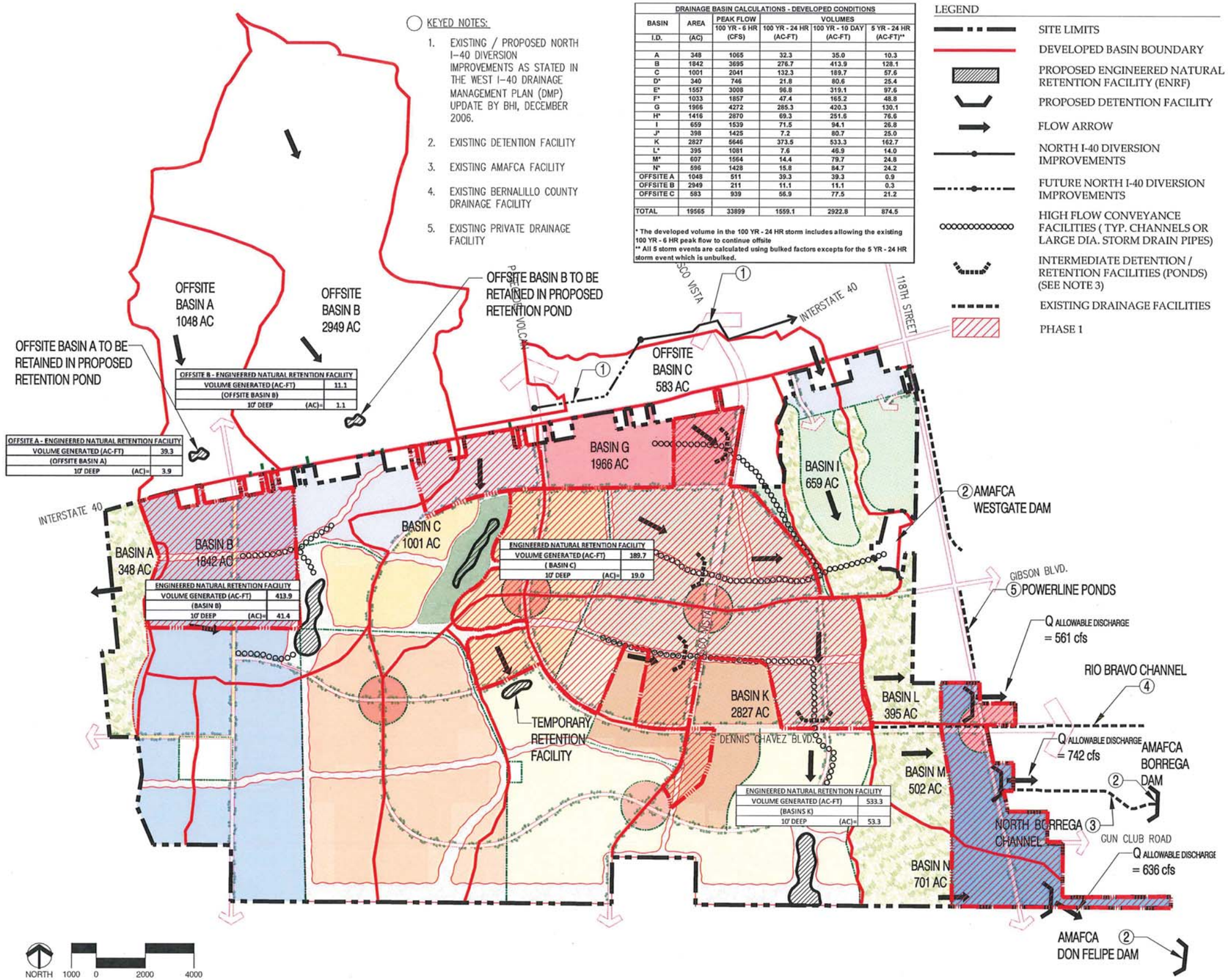
LEGEND

- SITE LIMITS
- DEVELOPED BASIN BOUNDARY
- PROPOSED ENGINEERED NATURAL RETENTION FACILITY (ENRF)
- PROPOSED DETENTION FACILITY
- FLOW ARROW
- NORTH I-40 DIVERSION IMPROVEMENTS
- FUTURE NORTH I-40 DIVERSION IMPROVEMENTS
- HIGH FLOW CONVEYANCE FACILITIES (TYP. CHANNELS OR LARGE DIA. STORM DRAIN PIPES)
- INTERMEDIATE DETENTION / RETENTION FACILITIES (PONDS) (SEE NOTE 3)
- EXISTING DRAINAGE FACILITIES
- PHASE 1



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NOTES:

1. WITH DEVELOPMENT OF BASINS B AND C, FLOW ACROSS I40 FROM OFFSITE BASINS A AND B WILL BE CUT OFF AND RETAINED UPSTREAM OF I40 (IE, WITHIN THE OFFSITE BASINS RESPECTIVELY)
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SANTOLINA

LEVEL A MASTER PLAN

ANTIGUA LAND COMPANY

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JANUARY 7, 2013

APPENDICES

APPENDIX A – AHYMO INPUT AND SUMMARY FILES

APPENDIX B – EXCERPTS OF RELATED AREA DMP'S

- WESTGATE DAM
- AMOLE HUBBEL DMP
- DON FELIPE DAM
- BORREGA DAM

APPENDIX C – REQUEST FOR CONCURRENCE LETTER FROM THE OFFICE OF THE STATE ENGINEER

APPENDIX A – AHYMO INPUT AND SUMMARY FILES

```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  2EX_6.HYM
*S*                 OUTUPUT FILE NAME:  2EX_6.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  2 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=1     RAIN QUARTER=0.0
                    RAIN ONE=0.81 IN     RAIN SIX=0.95 IN
                    RAIN DAY=1.15 IN     DT=0.033333

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


*******************************************************************************
*S******************************************************************************
*S            COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S******************************************************************************
*******************************************************************************
*S*  SEDIMENT BULK FACTOR FOR 2 YR STORM IS 0 FOR BOTH MESA AND ESCARPMENT BASINS
SEDIMENT BULK       CODE=1       BULK FACTOR=1.0

*S********************** BASIN EX.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                    PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=5500 FT   SLOPE=0.005  K=3
                    KN=0.03    CENTROID DISTANCE=2100 FT

COMPUTE NM HYD      ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S******************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=2200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=500 FT

COMPUTE NM HYD      ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.03    CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S******************************************************************************

*S********************** BASIN EX.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S******************************************************************************

*S********************** BASIN EX.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S******************************************************************************
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*S********************** BASIN EX.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                       KN=0.03    CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=7   CODE=1
*S*****************************************************************************************

*S********************** BASIN EX.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                       KN=0.03    CENTROID DISTANCE=6600 FT

COMPUTE NM HYD         ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=8   CODE=1
*S*****************************************************************************************

*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                       KN=0.03    CENTROID DISTANCE=3000 FT

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=9   CODE=1
*S*****************************************************************************************

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=10   CODE=1
*S*****************************************************************************************

*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                       KN=0.03    CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=11   CODE=1
*S*****************************************************************************************

*S********************** BASIN EX.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=12   CODE=1
*S*****************************************************************************************

*S********************** BASIN EX.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                       KN=0.03    CENTROID DISTANCE=2500 FT

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=13   CODE=1
*S*****************************************************************************************

*S********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                       KN=0.03    CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=14   CODE=1
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*S*****************************************************************************

*S********************** BASIN EX.O **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.03    CENTROID DISTANCE=4300 FT

COMPUTE NM HYD         ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=15   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.P **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.04  K=1
                       LENGTH=1600 FT   SLOPE=0.04  K=2
                       LENGTH=6900 FT   SLOPE=0.04  K=3
                       KN=0.03    CENTROID DISTANCE=3700 FT

COMPUTE NM HYD         ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=16   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.009  K=1
                       LENGTH=1600 FT   SLOPE=0.009  K=2
                       LENGTH=9300 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=17   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=18700 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=8000 FT

COMPUTE NM HYD         ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=18   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD         ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                       PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=19   CODE=1
*S*****************************************************************************

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

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FINISH
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AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 11/26/2012
     START TIME (HR:MIN:SEC) = 09:39:47      USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 2EX_6.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  2EX_6.HYM
*S*                OUTUPUT FILE NAME:  2EX_6.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  2 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=1     RAIN QUARTER=0.0
                   RAIN ONE=0.81 IN    RAIN SIX=0.95 IN
                   RAIN DAY=1.15 IN    DT=0.033333

          COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033333 HOURS      END TIME =      5.999940 HOURS
             .0000   .0007   .0014   .0021   .0028   .0035   .0043
             .0051   .0058   .0067   .0075   .0083   .0092   .0101
             .0110   .0120   .0130   .0140   .0151   .0161   .0173
             .0184   .0196   .0209   .0222   .0236   .0250   .0265
             .0281   .0298   .0315   .0338   .0362   .0387   .0443
             .0566   .0755   .1027   .1398   .1886   .2508   .3282
             .4228   .5102   .5468   .5777   .6051   .6301   .6531
             .6745   .6945   .7132   .7308   .7474   .7631   .7780
             .7921   .8054   .8181   .8301   .8415   .8442   .8466
             .8490   .8512   .8533   .8554   .8573   .8592   .8610
             .8628   .8645   .8661   .8677   .8693   .8708   .8722
             .8737   .8751   .8764   .8777   .8790   .8803   .8816
             .8828   .8840   .8851   .8863   .8874   .8885   .8896
             .8906   .8917   .8927   .8937   .8947   .8957   .8967
             .8976   .8986   .8995   .9004   .9013   .9022   .9031
             .9039   .9048   .9056   .9065   .9073   .9081   .9089
             .9097   .9105   .9112   .9120   .9128   .9135   .9143
             .9150   .9157   .9164   .9172   .9179   .9186   .9193
             .9199   .9206   .9213   .9220   .9226   .9233   .9239
             .9246   .9252   .9258   .9265   .9271   .9277   .9283
             .9289   .9295   .9301   .9307   .9313   .9319   .9325
             .9330   .9336   .9342   .9347   .9353   .9359   .9364
             .9370   .9375   .9380   .9386   .9391   .9396   .9402
             .9407   .9412   .9417   .9422   .9427   .9432   .9437
             .9442   .9447   .9452   .9457   .9462   .9467   .9472
             .9476   .9481   .9486   .9491   .9495   .9500

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 *S*****************************************************************************
 *S                        COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
♀
 *S*****************************************************************************
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 ******************************************************************************
 *S*  SEDIMENT BULK FACTOR FOR 2 YR STORM IS 0 FOR BOTH MESA AND ESCARPMENT BASIN
 SEDIMENT BULK       CODE=1       BULK FACTOR=1.0

 *S********************** BASIN EX.A **********************

 COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.05  K=1
                     LENGTH=1600 FT   SLOPE=0.05  K=2
                     LENGTH=400 FT   SLOPE=0.05  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0           .050000            1.0000
     SHALLOW FLOW PORTION          1600.0           .050000            2.0000
     CHANNEL FLOW PORTION           400.0           .050000            3.0000
     TOTAL BASIN                   2400.0           .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

 COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                                PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .166399HR    TP =   .133333HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   1101.2    CFS   UNIT VOLUME =    .9995       B =   270.01       P60 = .81000
     AREA =      .543800 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

 PRINT HYD                ID=1   CODE=1

                                   HYDROGRAPH FROM AREA EX.A


    RUNOFF VOLUME =      .05334 INCHES     =       1.5470 ACRE-FEET
    PEAK DISCHARGE RATE =      58.63 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.


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*S********************** BASIN EX.B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=5500 FT   SLOPE=0.005  K=3
                                KN=0.03    CENTROID DISTANCE=2100 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .005000            1.0000
     SHALLOW FLOW PORTION          1600.0            .005000            2.0000
     CHANNEL FLOW PORTION          5500.0            .005000            3.0000
     TOTAL BASIN                   7500.0            .005000            2.4725


     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=     .005000     CENTROUD LENGTH (FT)=         2100.0


     TIME OF CONCENTRATION (HRS)=   .6569     TIME TO PEAK (HRS)=   .4380     LAG TIME (HRS)=   .4927

COMPUTE NM HYD         ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .4380

     K =   .569341HR    TP =   .437955HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1736.8    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = .81000
     AREA =     2.910900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=2   CODE=1

                                     HYDROGRAPH FROM AREA EX.B


    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  2.9109 SQ. MI.


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

*S********************** BASIN EX.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=2200 FT   SLOPE=0.01  K=3
                                KN=0.03    CENTROID DISTANCE=500 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .010000            1.0000
     SHALLOW FLOW PORTION          1600.0            .010000            2.0000
     CHANNEL FLOW PORTION          2200.0            .010000            3.0000
     TOTAL BASIN                   4200.0            .010000            2.1724


     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      4200.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=          500.0


     TIME OF CONCENTRATION (HRS)=   .5102     TIME TO PEAK (HRS)=   .3401     LAG TIME (HRS)=   .3826

COMPUTE NM HYD         ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3401

     K =   .442162HR    TP =   .340124HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1056.4    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = .81000
     AREA =     1.375000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=3   CODE=1

                                     HYDROGRAPH FROM AREA EX.C


    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.3750 SQ. MI.


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                                KN=0.03    CENTROID DISTANCE=3500 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
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                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .008000             1.0000
     SHALLOW FLOW PORTION          1600.0            .008000             2.0000
     CHANNEL FLOW PORTION          4700.0            .008000             3.0000
     TOTAL BASIN                   6700.0            .008000             2.4217

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=    .008000     CENTROID LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .6025     TIME TO PEAK (HRS)=   .4016     LAG TIME (HRS)=   .4518

 COMPUTE NM HYD       ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4016

     K =   .522130HR    TP =   .401639HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   345.66    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = .81000
     AREA =       .531300 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

 PRINT HYD                  ID=4   CODE=1

                                     HYDROGRAPH FROM AREA EX.D

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .5313 SQ. MI.


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

 *S********************** BASIN EX.E ***********************

 COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.006  K=1
                      LENGTH=1600 FT   SLOPE=0.006  K=2
                      LENGTH=9500 FT   SLOPE=0.006  K=3
                                KN=0.03    CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .006000             1.0000
     SHALLOW FLOW PORTION          1600.0            .006000             2.0000
     CHANNEL FLOW PORTION          9500.0            .006000             3.0000
     TOTAL BASIN                  11500.0            .006000             2.6336

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=    .006000     CENTROID LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .7725     TIME TO PEAK (HRS)=   .5150     LAG TIME (HRS)=   .5794

 COMPUTE NM HYD       ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5150

     K =   .669537HR    TP =   .515028HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1229.5    CFS   UNIT VOLUME =    1.000       B =   261.30       P60 = .81000
     AREA =     2.423400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

 PRINT HYD                  ID=5   CODE=1

                                     HYDROGRAPH FROM AREA EX.E

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  2.4234 SQ. MI.


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

 *S********************** BASIN EX.F ***********************

 COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.01  K=1
                      LENGTH=1600 FT   SLOPE=0.01  K=2
                      LENGTH=9200 FT   SLOPE=0.01  K=3
                                KN=0.03    CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .010000             1.0000
     SHALLOW FLOW PORTION          1600.0            .010000             2.0000
     CHANNEL FLOW PORTION          9200.0            .010000             3.0000
     TOTAL BASIN                  11200.0            .010000             2.6250

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000     CENTROID LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .6997     TIME TO PEAK (HRS)=   .4665     LAG TIME (HRS)=   .5248

 COMPUTE NM HYD       ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
```

```
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4665

     K =   .606399HR    TP =   .466461HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   954.95    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = .81000
     AREA =     1.704700 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=6   CODE=1

                                   OUTFLOW HYDROGRAPH REACH       .00

    RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.7047 SQ. MI.


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

*S********************** BASIN EX.G ***********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                                KN=0.03    CENTROID DISTANCE=6300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     13300.0
     TOTAL BASIN SLOPE (FT/FT)=    .020000     CENTROUD LENGTH (FT)=         6300.0

     TIME OF CONCENTRATION (HRS)=   .6932     TIME TO PEAK (HRS)=   .4621     LAG TIME (HRS)=   .5199

COMPUTE NM HYD         ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4621

     K =   .600753HR    TP =   .462118HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1279.3    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = .81000
     AREA =     2.262500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=7   CODE=1

                                   HYDROGRAPH FROM AREA EX.G

    RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  2.2625 SQ. MI.


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

*S********************** BASIN EX.H ***********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                                KN=0.03    CENTROID DISTANCE=6600 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     20500.0
     TOTAL BASIN SLOPE (FT/FT)=    .017000     CENTROUD LENGTH (FT)=         6600.0

     TIME OF CONCENTRATION (HRS)=   .8340     TIME TO PEAK (HRS)=   .5560     LAG TIME (HRS)=   .6255

COMPUTE NM HYD         ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5560

     K =   .722798HR    TP =   .555998HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   2160.4    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = .81000
     AREA =     4.596900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=8   CODE=1

                                   HYDROGRAPH FROM AREA EX.H

    RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  4.5969 SQ. MI.


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

*S********************** BASIN EX.I ***********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                                KN=0.03    CENTROID DISTANCE=3000 FT
```

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     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .021000            1.0000
     SHALLOW FLOW PORTION          1600.0            .021000            2.0000
     CHANNEL FLOW PORTION          5700.0            .021000            3.0000
     TOTAL BASIN                   7700.0            .021000            2.4839

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=       7700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000      CENTROID LENGTH (FT)=          3000.0

     TIME OF CONCENTRATION (HRS)=   .4445     TIME TO PEAK (HRS)=   .2963     LAG TIME (HRS)=   .3334

COMPUTE NM HYD        ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2963

     K =   .385243HR    TP =   .296341HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1496.3    CFS   UNIT VOLUME =    .9999       B =   261.30      P60 = .81000
     AREA =     1.696900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=9   CODE=1

                                     HYDROGRAPH FROM AREA EX.I

    RUNOFF VOLUME =       .00000 INCHES      =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.6969 SQ. MI.


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

*S********************** BASIN EX.J **********************

COMPUTE LT TP        LCODE=1  NK=2  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.017  K=1
                     LENGTH=700 FT    SLOPE=0.017  K=2

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .017000            1.0000
     SHALLOW FLOW PORTION           700.0            .017000            2.0000
     CHANNEL FLOW PORTION             .0             .000000             .0000
     TOTAL BASIN                   1100.0            .017000            1.4667

     TIME OF CONCENTRATION (HRS)=   .1598     TIME TO PEAK (HRS)=   .1065     LAG TIME (HRS)=   .1198

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

COMPUTE NM HYD        ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .180000HR    TP =   .133333HR    K/TP RATIO =  1.350000     SHAPE CONSTANT, N =  2.667659
     UNIT PEAK =    47.532    CFS   UNIT VOLUME =    .9988       B =   253.50      P60 = .81000
     AREA =       .025000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=10   CODE=1

                                     HYDROGRAPH FROM AREA EX.J

    RUNOFF VOLUME =       .00000 INCHES      =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .0250 SQ. MI.


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

*S********************** BASIN EX.K **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.029  K=1
                     LENGTH=1600 FT   SLOPE=0.029  K=2
                     LENGTH=6600 FT   SLOPE=0.029  K=3
                                KN=0.03    CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .029000            1.0000
     SHALLOW FLOW PORTION             .0             .000000             .0000
     CHANNEL FLOW PORTION             .0             .000000             .0000
     TOTAL BASIN                    400.0            .029000            1.0000

     TIME OF CONCENTRATION (HRS)=   .0652     TIME TO PEAK (HRS)=   .0435     LAG TIME (HRS)=   .0489

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

COMPUTE NM HYD       ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .173333HR    TP =   .133333HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   2063.9    CFS   UNIT VOLUME =    .9994       B =   261.30      P60 = .81000
     AREA =     1.053100 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=11   CODE=1

                                        HYDROGRAPH FROM AREA EX.K


    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.0531 SQ. MI.


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

*S********************** BASIN EX.L **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.076  K=1
                     LENGTH=1600 FT   SLOPE=0.076  K=2
                     LENGTH=800 FT    SLOPE=0.076  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0           .076000            1.0000
     SHALLOW FLOW PORTION        1600.0           .076000            2.0000
     CHANNEL FLOW PORTION         800.0           .076000            3.0000
     TOTAL BASIN                 2800.0           .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108


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

COMPUTE NM HYD       ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .173333HR    TP =   .133333HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1218.8    CFS   UNIT VOLUME =    .9994       B =   261.30      P60 = .81000
     AREA =     .621900 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=12   CODE=1

                                        HYDROGRAPH FROM AREA EX.L


    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .6219 SQ. MI.


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

*S********************** BASIN EX.M **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.015  K=1
                     LENGTH=1600 FT   SLOPE=0.015  K=2
                     LENGTH=3400 FT   SLOPE=0.015  K=3
                                KN=0.03    CENTROID DISTANCE=2500 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0           .015000            1.0000
     SHALLOW FLOW PORTION        1600.0           .015000            2.0000
     CHANNEL FLOW PORTION        3400.0           .015000            3.0000
     TOTAL BASIN                 5400.0           .015000            2.3143

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      5400.0
     TOTAL BASIN SLOPE (FT/FT)=    .015000     CENTROUD LENGTH (FT)=         2500.0

     TIME OF CONCENTRATION (HRS)=   .4414     TIME TO PEAK (HRS)=   .2942     LAG TIME (HRS)=   .3310

COMPUTE NM HYD       ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .2942

     K =   .382516HR    TP =   .294243HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1051.8    CFS   UNIT VOLUME =    .9999       B =   261.30      P60 = .81000
     AREA =     1.184400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=13   CODE=1
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                                    HYDROGRAPH FROM AREA EX.M

    RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.1844 SQ. MI.


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

*S********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                              KN=0.03    CENTROID DISTANCE=4200 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .059000            1.0000
     SHALLOW FLOW PORTION       1600.0           .059000            2.0000
     CHANNEL FLOW PORTION       4000.0           .059000            3.0000
     TOTAL BASIN                6000.0           .059000            2.3684

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6000.0
     TOTAL BASIN SLOPE (FT/FT)=    .059000     CENTROUD LENGTH (FT)=         4200.0

     TIME OF CONCENTRATION (HRS)=   .2989     TIME TO PEAK (HRS)=   .1993     LAG TIME (HRS)=   .2242

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1993

     K =   .259077HR    TP =   .199290HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   792.87    CFS   UNIT VOLUME =    .9997       B =   261.30       P60 = .81000
     AREA =       .604700 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                   ID=14   CODE=1

                                    HYDROGRAPH FROM AREA EX.N

    RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .6047 SQ. MI.


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

*S********************** BASIN EX.O **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                              KN=0.03    CENTROID DISTANCE=4300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .054000            1.0000
     SHALLOW FLOW PORTION       1600.0           .054000            2.0000
     CHANNEL FLOW PORTION       5500.0           .054000            3.0000
     TOTAL BASIN                7500.0           .054000            2.4725

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4300.0

     TIME OF CONCENTRATION (HRS)=   .3649     TIME TO PEAK (HRS)=   .2433     LAG TIME (HRS)=   .2737

COMPUTE NM HYD         ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2433

     K =   .316285HR    TP =   .243296HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1018.6    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = .81000
     AREA =       .948400 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                   ID=15   CODE=1

                                    HYDROGRAPH FROM AREA EX.O

    RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S********************** BASIN EX.P **********************
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COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.04  K=1
                       LENGTH=1600 FT   SLOPE=0.04  K=2
                       LENGTH=6900 FT   SLOPE=0.04  K=3
                                KN=0.03    CENTROID DISTANCE=3700 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .040000            1.0000
     SHALLOW FLOW PORTION         1600.0           .040000            2.0000
     CHANNEL FLOW PORTION         6900.0           .040000            3.0000
     TOTAL BASIN                  8900.0           .040000            2.5429

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      8900.0
     TOTAL BASIN SLOPE (FT/FT)=    .040000      CENTROUD LENGTH (FT)=         3700.0

     TIME OF CONCENTRATION (HRS)=   .4236     TIME TO PEAK (HRS)=   .2824     LAG TIME (HRS)=   .3177

COMPUTE NM HYD         ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2824

     K =   .367097HR    TP =   .282382HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   861.79    CFS   UNIT VOLUME =    .9999        B =   261.30      P60 = .81000
     AREA =      .931300 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=16   CODE=1

                                     HYDROGRAPH FROM AREA EX.P

    RUNOFF VOLUME =      .00000 INCHES      =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .9313 SQ. MI.


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

*S********************** BASIN EX. OFF A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.009  K=1
                       LENGTH=1600 FT   SLOPE=0.009  K=2
                       LENGTH=9300 FT   SLOPE=0.009  K=3
                                KN=0.03    CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .009000            1.0000
     SHALLOW FLOW PORTION         1600.0           .009000            2.0000
     CHANNEL FLOW PORTION         9300.0           .009000            3.0000
     TOTAL BASIN                 11300.0           .009000            2.6279

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11300.0
     TOTAL BASIN SLOPE (FT/FT)=    .009000      CENTROUD LENGTH (FT)=         4800.0

     TIME OF CONCENTRATION (HRS)=   .6894     TIME TO PEAK (HRS)=   .4596     LAG TIME (HRS)=   .5171

COMPUTE NM HYD         ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4596

     K =   .597492HR    TP =   .459609HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   930.98    CFS   UNIT VOLUME =    1.000        B =   261.30      P60 = .81000
     AREA =     1.637500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=17   CODE=1

                                     HYDROGRAPH FROM AREA EX.OFF.A

    RUNOFF VOLUME =      .00000 INCHES      =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.6375 SQ. MI.


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

*S********************** BASIN EX. OFF B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=18700 FT   SLOPE=0.009  K=3
                                KN=0.03    CENTROID DISTANCE=8000 FT

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

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0160     TOTAL BASIN LENGTH (FT)=     18700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021834      CENTROUD LENGTH (FT)=         9350.0
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     TIME OF CONCENTRATION (HRS)=   .4645     TIME TO PEAK (HRS)=   .3097     LAG TIME (HRS)=   .3484

COMPUTE NM HYD       ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3097

     K =   .402559HR    TP =   .309661HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   388.83    CFS   UNIT VOLUME =    .9999       B =   261.30      P60 = .81000
     AREA =      .460780 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=18   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.B


    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .4608 SQ. MI.


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

*S********************** BASIN EX. OFF C ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.011  K=1
                     LENGTH=1600 FT   SLOPE=0.011  K=2
                     LENGTH=1600 FT   SLOPE=0.011  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .011000            1.0000
     SHALLOW FLOW PORTION         1600.0           .011000            2.0000
     CHANNEL FLOW PORTION         1600.0           .011000            3.0000
     TOTAL BASIN                  3600.0           .011000            2.0769

     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD       ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                                PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3060

     K =   .239635HR    TP =   .306050HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   291.04    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .226875 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .394119HR    TP =   .306050HR    K/TP RATIO =  1.287763     SHAPE CONSTANT, N =  2.779197
     UNIT PEAK =   1106.0    CFS   UNIT VOLUME =    .9999       B =   263.30      P60 = .81000
     AREA =     1.285625 SQ MI    IA =    .58824 INCHES    INF =   1.49706 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=19   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.C


    RUNOFF VOLUME =      .10949 INCHES     =       8.8318 ACRE-FEET
    PEAK DISCHARGE RATE =     137.76 CFS  AT   1.700 HOURS   BASIN AREA =  1.5125 SQ. MI.


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

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

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FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:39:48
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  2EX_24.HYM
*S*                 OUTUPUT FILE NAME:  2EX_24.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  2 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=2     RAIN QUARTER=0.0
                    RAIN ONE=0.81 IN    RAIN SIX=0.95 IN
                    RAIN DAY=1.15 IN    DT=0.033333

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*S*****************************************************************************
*S              COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S*****************************************************************************
*******************************************************************************
*S*  SEDIMENT BULK FACTOR FOR 2 YR STORM IS 0 FOR BOTH MESA AND ESCARPMENT BASINS
SEDIMENT BULK       CODE=1       BULK FACTOR=1.0

*S********************** BASIN EX.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                    PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=5500 FT   SLOPE=0.005  K=3
                    KN=0.03    CENTROID DISTANCE=2100 FT

COMPUTE NM HYD      ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=2200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=500 FT

COMPUTE NM HYD      ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.03    CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S*****************************************************************************
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*S********************** BASIN EX.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                       KN=0.03    CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                       KN=0.03    CENTROID DISTANCE=6600 FT

COMPUTE NM HYD         ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                       KN=0.03    CENTROID DISTANCE=3000 FT

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=10   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                       KN=0.03    CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=12   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                       KN=0.03    CENTROID DISTANCE=2500 FT

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=13   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                       KN=0.03    CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=14   CODE=1
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*S*****************************************************************************

*S********************** BASIN EX.O **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.03    CENTROID DISTANCE=4300 FT

COMPUTE NM HYD         ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=15   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.P **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.04  K=1
                       LENGTH=1600 FT   SLOPE=0.04  K=2
                       LENGTH=6900 FT   SLOPE=0.04  K=3
                       KN=0.03    CENTROID DISTANCE=3700 FT

COMPUTE NM HYD         ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=16   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.009  K=1
                       LENGTH=1600 FT   SLOPE=0.009  K=2
                       LENGTH=9300 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=17   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=18700 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=8000 FT

COMPUTE NM HYD         ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=18   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD         ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                       PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=19   CODE=1
*S*****************************************************************************

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

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FINISH
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```
AHYMO PROGRAM (AHYMO_97) -                                  - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 11/26/2012
     START TIME (HR:MIN:SEC) = 09:40:12        USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 2EX_24.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  2EX_24.HYM
*S*                OUTUPUT FILE NAME:  2EX_24.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  2 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=2      RAIN QUARTER=0.0
                   RAIN ONE=0.81 IN     RAIN SIX=0.95 IN
                   RAIN DAY=1.15 IN     DT=0.033333

          COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033333 HOURS        END TIME =     19.966470 HOURS
             .0000   .0007   .0014   .0021   .0028   .0035   .0043
             .0051   .0058   .0067   .0075   .0083   .0092   .0101
             .0110   .0120   .0130   .0140   .0151   .0161   .0173
             .0184   .0196   .0209   .0222   .0236   .0250   .0265
             .0281   .0298   .0315   .0338   .0362   .0387   .0443
             .0566   .0755   .1027   .1398   .1886   .2508   .3282
             .4228   .5102   .5468   .5777   .6051   .6301   .6531
             .6745   .6945   .7132   .7308   .7474   .7631   .7780
             .7921   .8054   .8181   .8301   .8415   .8442   .8466
             .8490   .8512   .8533   .8554   .8573   .8592   .8610
             .8628   .8645   .8661   .8677   .8693   .8708   .8722
             .8737   .8751   .8764   .8777   .8790   .8803   .8816
             .8828   .8840   .8851   .8863   .8874   .8885   .8896
             .8906   .8917   .8927   .8937   .8947   .8957   .8967
             .8976   .8986   .8995   .9004   .9013   .9022   .9031
             .9039   .9048   .9056   .9065   .9073   .9081   .9089
             .9097   .9105   .9112   .9120   .9128   .9135   .9143
             .9150   .9157   .9164   .9172   .9179   .9186   .9193
             .9199   .9206   .9213   .9220   .9226   .9233   .9239
             .9246   .9252   .9258   .9265   .9271   .9277   .9283
             .9289   .9295   .9301   .9307   .9313   .9319   .9325
             .9330   .9336   .9342   .9347   .9353   .9359   .9364
             .9370   .9375   .9380   .9386   .9391   .9396   .9402
             .9407   .9412   .9417   .9422   .9427   .9432   .9437
             .9442   .9447   .9452   .9457   .9462   .9467   .9472
             .9476   .9481   .9486   .9491   .9495   .9500   .9506
             .9511   .9517   .9523   .9528   .9534   .9539   .9545
             .9551   .9556   .9562   .9567   .9573   .9578   .9584
             .9589   .9595   .9600   .9606   .9611   .9617   .9622
             .9627   .9633   .9638   .9643   .9649   .9654   .9659
             .9665   .9670   .9675   .9681   .9686   .9691   .9696
             .9702   .9707   .9712   .9717   .9723   .9728   .9733
             .9738   .9743   .9748   .9753   .9759   .9764   .9769
             .9774   .9779   .9784   .9789   .9794   .9799   .9804
             .9809   .9814   .9819   .9824   .9829   .9834   .9839
             .9844   .9849   .9854   .9859   .9863   .9868   .9873
             .9878   .9883   .9888   .9893   .9897   .9902   .9907
             .9912   .9917   .9921   .9926   .9931   .9936   .9940
             .9945   .9950   .9955   .9959   .9964   .9969   .9973
             .9978   .9983   .9987   .9992   .9997  1.0001  1.0006
            1.0011  1.0015  1.0020  1.0024  1.0029  1.0033  1.0038
            1.0043  1.0047  1.0052  1.0056  1.0061  1.0065  1.0070
            1.0074  1.0079  1.0083  1.0088  1.0092  1.0096  1.0101
            1.0105  1.0110  1.0114  1.0119  1.0123  1.0127  1.0132
            1.0136  1.0141  1.0145  1.0149  1.0154  1.0158  1.0162
            1.0167  1.0171  1.0175  1.0180  1.0184  1.0188  1.0192
            1.0197  1.0201  1.0205  1.0209  1.0214  1.0218  1.0222
            1.0226  1.0231  1.0235  1.0239  1.0243  1.0247  1.0252
            1.0256  1.0260  1.0264  1.0268  1.0272  1.0277  1.0281
            1.0285  1.0289  1.0293  1.0297  1.0301  1.0305  1.0309
            1.0314  1.0318  1.0322  1.0326  1.0330  1.0334  1.0338
            1.0342  1.0346  1.0350  1.0354  1.0358  1.0362  1.0366
            1.0370  1.0374  1.0378  1.0382  1.0386  1.0390  1.0394
            1.0398  1.0402  1.0406  1.0409  1.0413  1.0417  1.0421
            1.0425  1.0429  1.0433  1.0437  1.0441  1.0445  1.0448
            1.0452  1.0456  1.0460  1.0464  1.0468  1.0471  1.0475
            1.0479  1.0483  1.0487  1.0491  1.0494  1.0498  1.0502
            1.0506  1.0509  1.0513  1.0517  1.0521  1.0524  1.0528
            1.0532  1.0536  1.0539  1.0543  1.0547  1.0551  1.0554
            1.0558  1.0562  1.0565  1.0569  1.0573  1.0576  1.0580
            1.0584  1.0587  1.0591  1.0595  1.0598  1.0602  1.0606
            1.0609  1.0613  1.0616  1.0620  1.0624  1.0627  1.0631
            1.0635  1.0638  1.0642  1.0645  1.0649  1.0652  1.0656
            1.0660  1.0663  1.0667  1.0670  1.0674  1.0677  1.0681
            1.0684  1.0688  1.0691  1.0695  1.0698  1.0702  1.0705
            1.0709  1.0712  1.0716  1.0719  1.0723  1.0726  1.0730
            1.0733  1.0737  1.0740  1.0743  1.0747  1.0750  1.0754
            1.0757  1.0761  1.0764  1.0767  1.0771  1.0774  1.0778
            1.0781  1.0784  1.0788  1.0791  1.0795  1.0798  1.0801
            1.0805  1.0808  1.0811  1.0815  1.0818  1.0821  1.0825
            1.0828  1.0831  1.0835  1.0838  1.0841  1.0845  1.0848
            1.0851  1.0855  1.0858  1.0861  1.0864  1.0868  1.0871
            1.0874  1.0878  1.0881  1.0884  1.0887  1.0891  1.0894
            1.0897  1.0900  1.0904  1.0907  1.0910  1.0913  1.0916
            1.0920  1.0923  1.0926  1.0929  1.0932  1.0936  1.0939
            1.0942  1.0945  1.0948  1.0952  1.0955  1.0958  1.0961
            1.0964  1.0967  1.0971  1.0974  1.0977  1.0980  1.0983
            1.0986  1.0989  1.0993  1.0996  1.0999  1.1002  1.1005
            1.1008  1.1011  1.1014  1.1017  1.1021  1.1024  1.1027
            1.1030  1.1033  1.1036  1.1039  1.1042  1.1045  1.1048
            1.1051  1.1054  1.1057  1.1060  1.1063  1.1067  1.1070
            1.1073  1.1076  1.1079  1.1082  1.1085  1.1088  1.1091
            1.1094  1.1097  1.1100  1.1103  1.1106  1.1109  1.1112
            1.1115  1.1118  1.1121  1.1124  1.1127  1.1130  1.1133
            1.1135  1.1138  1.1141  1.1144  1.1147  1.1150  1.1153
            1.1156  1.1159  1.1162  1.1165  1.1168

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*S***************************************************************************
*S                        COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S***************************************************************************

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*S*  SEDIMENT BULK FACTOR FOR 2 YR STORM IS 0 FOR BOTH MESA AND ESCARPMENT BASIN
SEDIMENT BULK       CODE=1        BULK FACTOR=1.0

*S********************** BASIN EX.A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.05  K=1
                       LENGTH=1600 FT   SLOPE=0.05  K=2
                       LENGTH=400 FT   SLOPE=0.05  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .050000            1.0000
     SHALLOW FLOW PORTION         1600.0            .050000            2.0000
     CHANNEL FLOW PORTION          400.0            .050000            3.0000
     TOTAL BASIN                  2400.0            .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD         ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                                PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .166399HR    TP =   .133333HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   1101.2    CFS   UNIT VOLUME =    .9995        B =   270.01      P60 = .81000
     AREA =      .543800 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=1   CODE=1

                                        HYDROGRAPH FROM AREA EX.A


    RUNOFF VOLUME =      .05334 INCHES     =       1.5470 ACRE-FEET
    PEAK DISCHARGE RATE =      58.63 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.


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

*S********************** BASIN EX.B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=5500 FT   SLOPE=0.005  K=3
                                KN=0.03     CENTROID DISTANCE=2100 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .005000            1.0000
     SHALLOW FLOW PORTION         1600.0            .005000            2.0000
     CHANNEL FLOW PORTION         5500.0            .005000            3.0000
     TOTAL BASIN                  7500.0            .005000            2.4725

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000     CENTROUD LENGTH (FT)=         2100.0

     TIME OF CONCENTRATION (HRS)=   .6569     TIME TO PEAK (HRS)=   .4380     LAG TIME (HRS)=   .4927

COMPUTE NM HYD         ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .4380

     K =   .569341HR    TP =   .437955HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1736.8    CFS   UNIT VOLUME =    1.000        B =   261.30      P60 = .81000
     AREA =     2.910900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=2   CODE=1

                                        HYDROGRAPH FROM AREA EX.B


    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  2.9109 SQ. MI.


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

*S********************** BASIN EX.C **********************
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COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=2200 FT   SLOPE=0.01  K=3
                                KN=0.03    CENTROID DISTANCE=500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000            1.0000
     SHALLOW FLOW PORTION         1600.0            .010000            2.0000
     CHANNEL FLOW PORTION         2200.0            .010000            3.0000
     TOTAL BASIN                  4200.0            .010000            2.1724

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      4200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000      CENTROUD LENGTH (FT)=          500.0

     TIME OF CONCENTRATION (HRS)=   .5102     TIME TO PEAK (HRS)=   .3401     LAG TIME (HRS)=   .3826

COMPUTE NM HYD         ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3401

     K =   .442162HR    TP =   .340124HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1056.4    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = .81000
     AREA =     1.375000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=3   CODE=1

                                        HYDROGRAPH FROM AREA EX.C

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.3750 SQ. MI.


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                                KN=0.03    CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .008000            1.0000
     SHALLOW FLOW PORTION         1600.0            .008000            2.0000
     CHANNEL FLOW PORTION         4700.0            .008000            3.0000
     TOTAL BASIN                  6700.0            .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=    .008000      CENTROUD LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .6025     TIME TO PEAK (HRS)=   .4016     LAG TIME (HRS)=   .4518

COMPUTE NM HYD         ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4016

     K =   .522130HR    TP =   .401639HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   345.66    CFS   UNIT VOLUME =    .9999       B =   261.30      P60 = .81000
     AREA =      .531300 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=4   CODE=1

                                        HYDROGRAPH FROM AREA EX.D

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN EX.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
                                KN=0.03    CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .006000            1.0000
     SHALLOW FLOW PORTION         1600.0            .006000            2.0000
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CHANNEL FLOW PORTION          9500.0          .006000          3.0000
TOTAL BASIN                  11500.0          .006000          2.6336

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11500.0
TOTAL BASIN SLOPE (FT/FT)=    .006000     CENTROUD LENGTH (FT)=         5400.0

TIME OF CONCENTRATION (HRS)=   .7725     TIME TO PEAK (HRS)=   .5150     LAG TIME (HRS)=   .5794

COMPUTE NM HYD       ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .5150

K =   .669537HR    TP =   .515028HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
UNIT PEAK =   1229.5    CFS   UNIT VOLUME =    1.000        B =   261.30       P60 = .81000
AREA =     2.423400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=5   CODE=1

                                HYDROGRAPH FROM AREA EX.E

RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  2.4234 SQ. MI.


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

*S********************** BASIN EX.F **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.01  K=1
                     LENGTH=1600 FT   SLOPE=0.01  K=2
                     LENGTH=9200 FT   SLOPE=0.01  K=3
                          KN=0.03    CENTROID DISTANCE=5400 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                          LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0          .010000            1.0000
SHALLOW FLOW PORTION         1600.0          .010000            2.0000
CHANNEL FLOW PORTION         9200.0          .010000            3.0000
TOTAL BASIN                 11200.0          .010000            2.6250

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11200.0
TOTAL BASIN SLOPE (FT/FT)=    .010000     CENTROUD LENGTH (FT)=         5400.0

TIME OF CONCENTRATION (HRS)=   .6997     TIME TO PEAK (HRS)=   .4665     LAG TIME (HRS)=   .5248

COMPUTE NM HYD       ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .4665

K =   .606399HR    TP =   .466461HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
UNIT PEAK =   954.95    CFS   UNIT VOLUME =    1.000        B =   261.30       P60 = .81000
AREA =     1.704700 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=6   CODE=1

                                OUTFLOW HYDROGRAPH REACH       .00

RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.7047 SQ. MI.


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

*S********************** BASIN EX.G **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=13300 FT   SLOPE=0.02  K=3
                          KN=0.03    CENTROID DISTANCE=6300 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     13300.0
TOTAL BASIN SLOPE (FT/FT)=    .020000     CENTROUD LENGTH (FT)=         6300.0

TIME OF CONCENTRATION (HRS)=   .6932     TIME TO PEAK (HRS)=   .4621     LAG TIME (HRS)=   .5199

COMPUTE NM HYD       ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .4621

K =   .600753HR    TP =   .462118HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
UNIT PEAK =   1279.3    CFS   UNIT VOLUME =    1.000        B =   261.30       P60 = .81000
AREA =     2.262500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=7   CODE=1
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                    HYDROGRAPH FROM AREA EX.G

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  2.2625 SQ. MI.


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

*S********************** BASIN EX.H **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=20500 FT   SLOPE=0.017  K=3
                          KN=0.03    CENTROID DISTANCE=6600 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     20500.0
     TOTAL BASIN SLOPE (FT/FT)=    .017000     CENTROUD LENGTH (FT)=         6600.0

     TIME OF CONCENTRATION (HRS)=   .8340     TIME TO PEAK (HRS)=   .5560     LAG TIME (HRS)=   .6255

COMPUTE NM HYD       ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5560

     K =   .722798HR    TP =   .555998HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   2160.4    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = .81000
     AREA =     4.596900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=8   CODE=1

                    HYDROGRAPH FROM AREA EX.H

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  4.5969 SQ. MI.


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

*S********************** BASIN EX.I **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.021  K=1
                     LENGTH=1600 FT   SLOPE=0.021  K=2
                     LENGTH=5700 FT   SLOPE=0.021  K=3
                          KN=0.03    CENTROID DISTANCE=3000 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .021000            1.0000
     SHALLOW FLOW PORTION       1600.0           .021000            2.0000
     CHANNEL FLOW PORTION       5700.0           .021000            3.0000
     TOTAL BASIN                7700.0           .021000            2.4839

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000     CENTROUD LENGTH (FT)=         3000.0

     TIME OF CONCENTRATION (HRS)=   .4445     TIME TO PEAK (HRS)=   .2963     LAG TIME (HRS)=   .3334

COMPUTE NM HYD       ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2963

     K =   .385243HR    TP =   .296341HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1496.3    CFS   UNIT VOLUME =    .9999       B =   261.30      P60 = .81000
     AREA =     1.696900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=9   CODE=1

                    HYDROGRAPH FROM AREA EX.I

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.6969 SQ. MI.


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

*S********************** BASIN EX.J **********************

COMPUTE LT TP        LCODE=1  NK=2  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.017  K=1
                     LENGTH=700 FT    SLOPE=0.017  K=2

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .017000            1.0000
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SHALLOW FLOW PORTION          700.0          .017000          2.0000
CHANNEL FLOW PORTION            .0           .000000           .0000
TOTAL BASIN                  1100.0          .017000          1.4667

TIME OF CONCENTRATION (HRS)=   .1598     TIME TO PEAK (HRS)=   .1065     LAG TIME (HRS)=   .1198


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

COMPUTE NM HYD        ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


TIME TO PEAK (hrs)=   .1333

K =   .180000HR    TP =   .133333HR    K/TP RATIO =  1.350000     SHAPE CONSTANT, N =  2.667659
UNIT PEAK =   47.532    CFS   UNIT VOLUME =    .9988      B =   253.50      P60 = .81000
AREA =      .025000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=10   CODE=1

                                HYDROGRAPH FROM AREA EX.J


RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .0250 SQ. MI.


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

*S********************** BASIN EX.K **********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.029  K=1
                      LENGTH=1600 FT   SLOPE=0.029  K=2
                      LENGTH=6600 FT   SLOPE=0.029  K=3
                            KN=0.03    CENTROID DISTANCE=3400 FT


Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                            LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION             400.0           .029000            1.0000
SHALLOW FLOW PORTION             .0            .000000             .0000
CHANNEL FLOW PORTION             .0            .000000             .0000
TOTAL BASIN                    400.0           .029000            1.0000

TIME OF CONCENTRATION (HRS)=   .0652     TIME TO PEAK (HRS)=   .0435     LAG TIME (HRS)=   .0489


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

COMPUTE NM HYD        ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


TIME TO PEAK (hrs)=   .1333

K =   .173333HR    TP =   .133333HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
UNIT PEAK =   2063.9    CFS   UNIT VOLUME =    .9994      B =   261.30      P60 = .81000
AREA =     1.053100 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=11   CODE=1

                                HYDROGRAPH FROM AREA EX.K


RUNOFF VOLUME =       .00000 INCHES     =        .0000 ACRE-FEET
PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.0531 SQ. MI.


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

*S********************** BASIN EX.L **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.076  K=1
                      LENGTH=1600 FT   SLOPE=0.076  K=2
                      LENGTH=800 FT    SLOPE=0.076  K=3


Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                            LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION             400.0           .076000            1.0000
SHALLOW FLOW PORTION          1600.0           .076000            2.0000
CHANNEL FLOW PORTION           800.0           .076000            3.0000
TOTAL BASIN                   2800.0           .076000            1.9091

TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108


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

COMPUTE NM HYD        ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
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                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .173333HR    TP =   .133333HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1218.8    CFS   UNIT VOLUME =    .9994       B =   261.30       P60 = .81000
     AREA =       .621900 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=12   CODE=1

                                   HYDROGRAPH FROM AREA EX.L

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .6219 SQ. MI.


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

*S********************** BASIN EX.M ***********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                                KN=0.03    CENTROID DISTANCE=2500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .015000            1.0000
     SHALLOW FLOW PORTION         1600.0            .015000            2.0000
     CHANNEL FLOW PORTION         3400.0            .015000            3.0000
     TOTAL BASIN                  5400.0            .015000            2.3143

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=       5400.0
     TOTAL BASIN SLOPE (FT/FT)=    .015000     CENTROUD LENGTH (FT)=          2500.0

     TIME OF CONCENTRATION (HRS)=   .4414     TIME TO PEAK (HRS)=   .2942     LAG TIME (HRS)=   .3310

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2942

     K =   .382516HR    TP =   .294243HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1051.8    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = .81000
     AREA =     1.184400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=13   CODE=1

                                   HYDROGRAPH FROM AREA EX.M

    RUNOFF VOLUME =      .00000 INCHES     =        .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.1844 SQ. MI.


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

*S********************** BASIN EX.N ***********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                                KN=0.03    CENTROID DISTANCE=4200 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .059000            1.0000
     SHALLOW FLOW PORTION         1600.0            .059000            2.0000
     CHANNEL FLOW PORTION         4000.0            .059000            3.0000
     TOTAL BASIN                  6000.0            .059000            2.3684

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=       6000.0
     TOTAL BASIN SLOPE (FT/FT)=    .059000     CENTROUD LENGTH (FT)=          4200.0

     TIME OF CONCENTRATION (HRS)=   .2989     TIME TO PEAK (HRS)=   .1993     LAG TIME (HRS)=   .2242

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1993

     K =   .259077HR    TP =   .199290HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   792.87    CFS   UNIT VOLUME =    .9997       B =   261.30       P60 = .81000
     AREA =       .604700 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=14   CODE=1

                                   HYDROGRAPH FROM AREA EX.N
```

```
    RUNOFF VOLUME =       .00000 INCHES     =         .0000 ACRE-FEET
    PEAK DISCHARGE RATE =         .00 CFS  AT   -.033 HOURS   BASIN AREA =   .6047 SQ. MI.


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

*S*********************** BASIN EX.O **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                              KN=0.03    CENTROID DISTANCE=4300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .054000            1.0000
     SHALLOW FLOW PORTION       1600.0           .054000            2.0000
     CHANNEL FLOW PORTION       5500.0           .054000            3.0000
     TOTAL BASIN                7500.0           .054000            2.4725

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4300.0

     TIME OF CONCENTRATION (HRS)=   .3649     TIME TO PEAK (HRS)=   .2433     LAG TIME (HRS)=   .2737

COMPUTE NM HYD         ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2433

     K =   .316285HR    TP =   .243296HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1018.6    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = .81000
     AREA =      .948400 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=15   CODE=1

                                     HYDROGRAPH FROM AREA EX.O

    RUNOFF VOLUME =       .00000 INCHES     =         .0000 ACRE-FEET
    PEAK DISCHARGE RATE =         .00 CFS  AT   -.033 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S*********************** BASIN EX.P **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.04  K=1
                       LENGTH=1600 FT   SLOPE=0.04  K=2
                       LENGTH=6900 FT   SLOPE=0.04  K=3
                              KN=0.03    CENTROID DISTANCE=3700 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .040000            1.0000
     SHALLOW FLOW PORTION       1600.0           .040000            2.0000
     CHANNEL FLOW PORTION       6900.0           .040000            3.0000
     TOTAL BASIN                8900.0           .040000            2.5429

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      8900.0
     TOTAL BASIN SLOPE (FT/FT)=    .040000     CENTROUD LENGTH (FT)=         3700.0

     TIME OF CONCENTRATION (HRS)=   .4236     TIME TO PEAK (HRS)=   .2824     LAG TIME (HRS)=   .3177

COMPUTE NM HYD         ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2824

     K =   .367097HR    TP =   .282382HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   861.79    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = .81000
     AREA =      .931300 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=16   CODE=1

                                     HYDROGRAPH FROM AREA EX.P

    RUNOFF VOLUME =       .00000 INCHES     =         .0000 ACRE-FEET
    PEAK DISCHARGE RATE =         .00 CFS  AT   -.033 HOURS   BASIN AREA =   .9313 SQ. MI.


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

*S*********************** BASIN EX. OFF A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.009  K=1
                       LENGTH=1600 FT   SLOPE=0.009  K=2
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```
                    LENGTH=9300 FT   SLOPE=0.009  K=3
                              KN=0.03    CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .009000            1.0000
     SHALLOW FLOW PORTION         1600.0           .009000            2.0000
     CHANNEL FLOW PORTION         9300.0           .009000            3.0000
     TOTAL BASIN                 11300.0           .009000            2.6279

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11300.0
     TOTAL BASIN SLOPE (FT/FT)=    .009000     CENTROUD LENGTH (FT)=         4800.0

     TIME OF CONCENTRATION (HRS)=   .6894     TIME TO PEAK (HRS)=   .4596     LAG TIME (HRS)=   .5171

COMPUTE NM HYD        ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4596

     K =   .597492HR    TP =   .459609HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   930.98    CFS   UNIT VOLUME =    1.000       B =   261.30       P60 = .81000
     AREA =     1.637500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=17   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.A

    RUNOFF VOLUME =       .00000 INCHES     =         .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =  1.6375 SQ. MI.


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

*S********************** BASIN EX. OFF B ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=18700 FT   SLOPE=0.009  K=3
                              KN=0.03    CENTROID DISTANCE=8000 FT

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

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0160     TOTAL BASIN LENGTH (FT)=     18700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021834     CENTROUD LENGTH (FT)=         9350.0

     TIME OF CONCENTRATION (HRS)=   .4645     TIME TO PEAK (HRS)=   .3097     LAG TIME (HRS)=   .3484

COMPUTE NM HYD        ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3097

     K =   .402559HR    TP =   .309661HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   388.83    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = .81000
     AREA =     .460780 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=18   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.B

    RUNOFF VOLUME =       .00000 INCHES     =         .0000 ACRE-FEET
    PEAK DISCHARGE RATE =        .00 CFS  AT   -.033 HOURS   BASIN AREA =   .4608 SQ. MI.


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

*S********************** BASIN EX. OFF C ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.011  K=1
                      LENGTH=1600 FT   SLOPE=0.011  K=2
                      LENGTH=1600 FT   SLOPE=0.011  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .011000            1.0000
     SHALLOW FLOW PORTION         1600.0           .011000            2.0000
     CHANNEL FLOW PORTION         1600.0           .011000            3.0000
     TOTAL BASIN                  3600.0           .011000            2.0769

     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD        ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                              PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1
```

```
TIME TO PEAK (hrs)=    .3060

K =   .239635HR    TP =   .306050HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
UNIT PEAK =   291.04    CFS   UNIT VOLUME =    1.000       B =   392.61       P60 = .81000
AREA =      .226875 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


K =   .394119HR    TP =   .306050HR    K/TP RATIO =  1.287763     SHAPE CONSTANT, N =  2.779197
UNIT PEAK =   1106.0    CFS   UNIT VOLUME =    .9999       B =   263.30       P60 = .81000
AREA =     1.285625 SQ MI    IA =    .58824 INCHES    INF =   1.49706 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                    ID=19   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.C


   RUNOFF VOLUME =       .13372 INCHES      =       10.7865 ACRE-FEET
   PEAK DISCHARGE RATE =      137.76 CFS  AT   1.700 HOURS   BASIN AREA =  1.5125 SQ. MI.


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

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

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FINISH

   NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:40:13
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  5EX_6.HYM
*S*                 OUTUPUT FILE NAME:  5EX_6.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  5 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=1     RAIN QUARTER=0.0
                    RAIN ONE=1.06 IN     RAIN SIX=1.25 IN
                    RAIN DAY=1.51 IN     DT=0.033333

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


*******************************************************************************
*S*****************************************************************************
*S              COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S*****************************************************************************
*******************************************************************************
*S*  BULK FACTOR FOR 5 YR STORM IS 1 FOR MESA BASINS AND 4 FOR ESCARPMENT BASINS
SEDIMENT BULK       CODE=1      BULK FACTOR=1.04

*S********************** BASIN EX.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT     SLOPE=0.05  K=1
                    LENGTH=1600 FT    SLOPE=0.05  K=2
                    LENGTH=400 FT    SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                    PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=1   CODE=1
*S*****************************************************************************
SEDIMENT BULK       CODE=1      BULK FACTOR=1.01

*S********************** BASIN EX.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT     SLOPE=0.005  K=1
                    LENGTH=1600 FT    SLOPE=0.005  K=2
                    LENGTH=5500 FT    SLOPE=0.005  K=3
                    KN=0.03     CENTROID DISTANCE=2100 FT

COMPUTE NM HYD      ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT     SLOPE=0.01  K=1
                    LENGTH=1600 FT    SLOPE=0.01  K=2
                    LENGTH=2200 FT    SLOPE=0.01  K=3
                    KN=0.03     CENTROID DISTANCE=500 FT

COMPUTE NM HYD      ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT     SLOPE=0.008  K=1
                    LENGTH=1600 FT    SLOPE=0.008  K=2
                    LENGTH=4700 FT    SLOPE=0.008  K=3
                    KN=0.03     CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=4   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT     SLOPE=0.006  K=1
                    LENGTH=1600 FT    SLOPE=0.006  K=2
                    LENGTH=9500 FT    SLOPE=0.006  K=3
                    KN=0.03     CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=5   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT     SLOPE=0.01  K=1
                    LENGTH=1600 FT    SLOPE=0.01  K=2
                    LENGTH=9200 FT    SLOPE=0.01  K=3
                    KN=0.03     CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=6   CODE=1
```

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

*S********************** BASIN EX.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                       KN=0.03    CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                       KN=0.03    CENTROID DISTANCE=6600 FT

COMPUTE NM HYD         ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                       KN=0.03    CENTROID DISTANCE=3000 FT

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=10   CODE=1
*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                       KN=0.03    CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=12   CODE=1
*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                       KN=0.03    CENTROID DISTANCE=2500 FT

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=13   CODE=1
*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                       KN=0.03    CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
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```
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=14   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.O **********************

COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=400 FT    SLOPE=0.054  K=1
                        LENGTH=1600 FT   SLOPE=0.054  K=2
                        LENGTH=5500 FT   SLOPE=0.054  K=3
                        KN=0.03    CENTROID DISTANCE=4300 FT

COMPUTE NM HYD          ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                        PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=15   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.P **********************

COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=400 FT    SLOPE=0.04  K=1
                        LENGTH=1600 FT   SLOPE=0.04  K=2
                        LENGTH=6900 FT   SLOPE=0.04  K=3
                        KN=0.03    CENTROID DISTANCE=3700 FT

COMPUTE NM HYD          ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                        PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=16   CODE=1
*S*****************************************************************************
SEDIMENT BULK           CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX. OFF A **********************

COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=400 FT    SLOPE=0.009  K=1
                        LENGTH=1600 FT   SLOPE=0.009  K=2
                        LENGTH=9300 FT   SLOPE=0.009  K=3
                        KN=0.03    CENTROID DISTANCE=4800 FT

COMPUTE NM HYD          ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                        PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=17   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF B **********************

COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=18700 FT   SLOPE=0.009  K=3
                        KN=0.03    CENTROID DISTANCE=8000 FT

COMPUTE NM HYD          ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                        PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=18   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP           LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=400 FT    SLOPE=0.011  K=1
                        LENGTH=1600 FT   SLOPE=0.011  K=2
                        LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD          ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                        PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=19   CODE=1
*S*****************************************************************************

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

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FINISH
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AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 11/26/2012
     START TIME (HR:MIN:SEC) = 09:40:44      USER NO.= AHYMO-S-9702c18ohanHu-AH
     INPUT FILE = 5EX_6.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  5EX_6.HYM
*S*                OUTUPUT FILE NAME:  5EX_6.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  5 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=1     RAIN QUARTER=0.0
                   RAIN ONE=1.06 IN     RAIN SIX=1.25 IN
                   RAIN DAY=1.51 IN     DT=0.033333

            COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
            DT =     .033333 HOURS        END TIME =     5.999940 HOURS
               .0000   .0010   .0019   .0029   .0039   .0050   .0060
               .0071   .0082   .0094   .0105   .0117   .0130   .0142
               .0155   .0169   .0182   .0197   .0211   .0227   .0242
               .0259   .0276   .0293   .0312   .0331   .0351   .0372
               .0394   .0418   .0443   .0472   .0503   .0537   .0609
               .0770   .1018   .1374   .1859   .2498   .3312   .4325
               .5562   .6706   .7185   .7589   .7949   .8276   .8577
               .8857   .9118   .9363   .9594   .9811  1.0017  1.0211
              1.0395  1.0570  1.0736  1.0893  1.1043  1.1077  1.1110
              1.1141  1.1171  1.1199  1.1226  1.1253  1.1278  1.1302
              1.1325  1.1348  1.1370  1.1391  1.1412  1.1432  1.1452
              1.1471  1.1489  1.1508  1.1525  1.1543  1.1560  1.1576
              1.1593  1.1609  1.1624  1.1640  1.1655  1.1670  1.1684
              1.1698  1.1713  1.1726  1.1740  1.1753  1.1767  1.1780
              1.1792  1.1805  1.1817  1.1830  1.1842  1.1854  1.1866
              1.1877  1.1889  1.1900  1.1911  1.1922  1.1933  1.1944
              1.1955  1.1965  1.1976  1.1986  1.1996  1.2006  1.2016
              1.2026  1.2036  1.2046  1.2056  1.2065  1.2074  1.2084
              1.2093  1.2102  1.2111  1.2120  1.2129  1.2138  1.2147
              1.2156  1.2164  1.2173  1.2181  1.2190  1.2198  1.2206
              1.2214  1.2223  1.2231  1.2239  1.2247  1.2255  1.2262
              1.2270  1.2278  1.2286  1.2293  1.2301  1.2308  1.2316
              1.2323  1.2330  1.2338  1.2345  1.2352  1.2359  1.2367
              1.2374  1.2381  1.2388  1.2395  1.2401  1.2408  1.2415
              1.2422  1.2429  1.2435  1.2442  1.2448  1.2455  1.2462
              1.2468  1.2475  1.2481  1.2487  1.2494  1.2500

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*S*****************************************************************************
*S                    COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION

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

*******************************************************************************
*S*  BULK FACTOR FOR 5 YR STORM IS 1 FOR MESA BASINS AND 4 FOR ESCARPMENT BASINS
SEDIMENT BULK      CODE=1     BULK FACTOR=1.04

*S********************* BASIN EX.A **********************

COMPUTE LT TP      LCODE=1  NK=3  ISLOPE=-1
                   LENGTH=400 FT    SLOPE=0.05  K=1
                   LENGTH=1600 FT   SLOPE=0.05  K=2
                   LENGTH=400 FT    SLOPE=0.05  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .050000            1.0000
     SHALLOW FLOW PORTION         1600.0            .050000            2.0000
     CHANNEL FLOW PORTION          400.0            .050000            3.0000
     TOTAL BASIN                  2400.0            .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD     ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                          PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .149229HR    TP =   .133333HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =    1201.8    CFS   UNIT VOLUME =    1.000      B =   294.67      P60 = 1.0600
     AREA =      .543800 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                  ID=1   CODE=1

                                   HYDROGRAPH FROM AREA EX.A


    RUNOFF VOLUME =      .20176 INCHES     =       5.8516 ACRE-FEET
    PEAK DISCHARGE RATE =     230.08 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.
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*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX.B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=5500 FT   SLOPE=0.005  K=3
                                KN=0.03    CENTROID DISTANCE=2100 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .005000            1.0000
     SHALLOW FLOW PORTION         1600.0            .005000            2.0000
     CHANNEL FLOW PORTION         5500.0            .005000            3.0000
     TOTAL BASIN                  7500.0            .005000            2.4725


     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=       7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000      CENTROUD LENGTH (FT)=          2100.0


     TIME OF CONCENTRATION (HRS)=   .6569     TIME TO PEAK (HRS)=   .4380     LAG TIME (HRS)=   .4927

COMPUTE NM HYD         ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .4380

     K =   .569341HR    TP =   .437955HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1736.8    CFS    UNIT VOLUME =    1.000        B =   261.30       P60 = 1.0600
     AREA =     2.910900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                   ID=2   CODE=1

                                        HYDROGRAPH FROM AREA EX.B


    RUNOFF VOLUME =       .01068 INCHES     =       1.6583 ACRE-FEET
    PEAK DISCHARGE RATE =      18.55 CFS  AT   1.833 HOURS   BASIN AREA =  2.9109 SQ. MI.


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

*S********************** BASIN EX.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=2200 FT   SLOPE=0.01  K=3
                                KN=0.03    CENTROID DISTANCE=500 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000            1.0000
     SHALLOW FLOW PORTION         1600.0            .010000            2.0000
     CHANNEL FLOW PORTION         2200.0            .010000            3.0000
     TOTAL BASIN                  4200.0            .010000            2.1724


     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=       4200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000      CENTROUD LENGTH (FT)=           500.0


     TIME OF CONCENTRATION (HRS)=   .5102     TIME TO PEAK (HRS)=   .3401     LAG TIME (HRS)=   .3826

COMPUTE NM HYD         ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3401

     K =   .442162HR    TP =   .340124HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1056.4    CFS    UNIT VOLUME =    1.000        B =   261.30       P60 = 1.0600
     AREA =     1.375000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                   ID=3   CODE=1

                                        HYDROGRAPH FROM AREA EX.C


    RUNOFF VOLUME =       .01068 INCHES     =        .7833 ACRE-FEET
    PEAK DISCHARGE RATE =      11.28 CFS  AT   1.733 HOURS   BASIN AREA =  1.3750 SQ. MI.


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
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                    LENGTH=4700 FT   SLOPE=0.008  K=3
                              KN=0.03    CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .008000            1.0000
     SHALLOW FLOW PORTION         1600.0           .008000            2.0000
     CHANNEL FLOW PORTION         4700.0           .008000            3.0000
     TOTAL BASIN                  6700.0           .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=    .008000      CENTROUD LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .6025     TIME TO PEAK (HRS)=   .4016     LAG TIME (HRS)=   .4518

COMPUTE NM HYD        ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4016

     K =   .522130HR    TP =   .401639HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   345.66    CFS   UNIT VOLUME =    .9999      B =   261.30      P60 = 1.0600
     AREA =      .531300 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=4   CODE=1

                                   HYDROGRAPH FROM AREA EX.D

    RUNOFF VOLUME =      .01068 INCHES     =        .3027 ACRE-FEET
    PEAK DISCHARGE RATE =       3.69 CFS  AT   1.800 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN EX.E **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.006  K=1
                      LENGTH=1600 FT   SLOPE=0.006  K=2
                      LENGTH=9500 FT   SLOPE=0.006  K=3
                              KN=0.03    CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .006000            1.0000
     SHALLOW FLOW PORTION         1600.0           .006000            2.0000
     CHANNEL FLOW PORTION         9500.0           .006000            3.0000
     TOTAL BASIN                 11500.0           .006000            2.6336

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=    .006000      CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .7725     TIME TO PEAK (HRS)=   .5150     LAG TIME (HRS)=   .5794

COMPUTE NM HYD        ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5150

     K =   .669537HR    TP =   .515028HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1229.5    CFS   UNIT VOLUME =    1.000      B =   261.30      P60 = 1.0600
     AREA =     2.423400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=5   CODE=1

                                   HYDROGRAPH FROM AREA EX.E

    RUNOFF VOLUME =      .01068 INCHES     =       1.3806 ACRE-FEET
    PEAK DISCHARGE RATE =      13.12 CFS  AT   1.900 HOURS   BASIN AREA =  2.4234 SQ. MI.


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

*S********************** BASIN EX.F **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.01  K=1
                      LENGTH=1600 FT   SLOPE=0.01  K=2
                      LENGTH=9200 FT   SLOPE=0.01  K=3
                              KN=0.03    CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .010000            1.0000
     SHALLOW FLOW PORTION         1600.0           .010000            2.0000
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CHANNEL FLOW PORTION          9200.0          .010000          3.0000
TOTAL BASIN                  11200.0          .010000          2.6250

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11200.0
TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=         5400.0

TIME OF CONCENTRATION (HRS)=   .6997     TIME TO PEAK (HRS)=   .4665     LAG TIME (HRS)=   .5248

COMPUTE NM HYD        ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                             PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .4665

K =   .606399HR    TP =   .466461HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
UNIT PEAK =   954.95    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
AREA =     1.704700 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=6   CODE=1

                                   OUTFLOW HYDROGRAPH REACH       .00

RUNOFF VOLUME =      .01068 INCHES     =        .9712 ACRE-FEET
PEAK DISCHARGE RATE =      10.20 CFS  AT   1.867 HOURS   BASIN AREA =  1.7047 SQ. MI.


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

*S********************** BASIN EX.G ***********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=13300 FT   SLOPE=0.02  K=3
                             KN=0.03    CENTROID DISTANCE=6300 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     13300.0
TOTAL BASIN SLOPE (FT/FT)=     .020000     CENTROUD LENGTH (FT)=         6300.0

TIME OF CONCENTRATION (HRS)=   .6932     TIME TO PEAK (HRS)=   .4621     LAG TIME (HRS)=   .5199

COMPUTE NM HYD        ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                             PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .4621

K =   .600753HR    TP =   .462118HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
UNIT PEAK =   1279.3    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
AREA =     2.262500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=7   CODE=1

                                   HYDROGRAPH FROM AREA EX.G

RUNOFF VOLUME =      .01068 INCHES     =       1.2889 ACRE-FEET
PEAK DISCHARGE RATE =      13.66 CFS  AT   1.867 HOURS   BASIN AREA =  2.2625 SQ. MI.


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

*S********************** BASIN EX.H ***********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=20500 FT   SLOPE=0.017  K=3
                             KN=0.03    CENTROID DISTANCE=6600 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     20500.0
TOTAL BASIN SLOPE (FT/FT)=     .017000     CENTROUD LENGTH (FT)=         6600.0

TIME OF CONCENTRATION (HRS)=   .8340     TIME TO PEAK (HRS)=   .5560     LAG TIME (HRS)=   .6255

COMPUTE NM HYD        ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                             PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .5560

K =   .722798HR    TP =   .555998HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
UNIT PEAK =   2160.4    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
AREA =     4.596900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=8   CODE=1

                                   HYDROGRAPH FROM AREA EX.H
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    RUNOFF VOLUME =       .01068 INCHES      =        2.6188 ACRE-FEET
    PEAK DISCHARGE RATE =       23.07 CFS  AT   1.967 HOURS   BASIN AREA =  4.5969 SQ. MI.


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

*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                              KN=0.03    CENTROID DISTANCE=3000 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION            400.0            .021000             1.0000
     SHALLOW FLOW PORTION         1600.0            .021000             2.0000
     CHANNEL FLOW PORTION         5700.0            .021000             3.0000
     TOTAL BASIN                  7700.0            .021000             2.4839

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=       7700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000     CENTROUD LENGTH (FT)=          3000.0

     TIME OF CONCENTRATION (HRS)=   .4445     TIME TO PEAK (HRS)=   .2963     LAG TIME (HRS)=   .3334

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2963

     K =   .385243HR    TP =   .296341HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1496.3    CFS   UNIT VOLUME =    .9999        B =   261.30       P60 = 1.0600
     AREA =      1.696900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=9   CODE=1

                                   HYDROGRAPH FROM AREA EX.I

    RUNOFF VOLUME =       .01068 INCHES      =         .9667 ACRE-FEET
    PEAK DISCHARGE RATE =       15.98 CFS  AT   1.700 HOURS   BASIN AREA =  1.6969 SQ. MI.


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

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION            400.0            .017000             1.0000
     SHALLOW FLOW PORTION          700.0            .017000             2.0000
     CHANNEL FLOW PORTION            .0             .000000              .0000
     TOTAL BASIN                  1100.0            .017000             1.4667

     TIME OF CONCENTRATION (HRS)=   .1598     TIME TO PEAK (HRS)=   .1065     LAG TIME (HRS)=   .1198


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

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .180000HR    TP =   .133333HR    K/TP RATIO =  1.350000     SHAPE CONSTANT, N =  2.667659
     UNIT PEAK =   47.532    CFS   UNIT VOLUME =    .9988        B =   253.50       P60 = 1.0600
     AREA =      .025000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=10   CODE=1

                                   HYDROGRAPH FROM AREA EX.J

    RUNOFF VOLUME =       .01068 INCHES      =         .0142 ACRE-FEET
    PEAK DISCHARGE RATE =        .51 CFS  AT   1.533 HOURS   BASIN AREA =   .0250 SQ. MI.


*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.K **********************
```

```
COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                                KN=0.03    CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0           .029000             1.0000
     SHALLOW FLOW PORTION           .0            .000000              .0000
     CHANNEL FLOW PORTION           .0            .000000              .0000
     TOTAL BASIN                  400.0           .029000             1.0000

     TIME OF CONCENTRATION (HRS)=   .0652     TIME TO PEAK (HRS)=   .0435     LAG TIME (HRS)=   .0489

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

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .167141HR    TP =   .133333HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
     UNIT PEAK =   2125.0    CFS   UNIT VOLUME =    .9994      B =   269.05      P60 = 1.0600
     AREA =     1.053100 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                  ID=11   CODE=1

                                   HYDROGRAPH FROM AREA EX.K

    RUNOFF VOLUME =      .05713 INCHES     =       3.2086 ACRE-FEET
    PEAK DISCHARGE RATE =     121.47 CFS  AT   1.533 HOURS   BASIN AREA =  1.0531 SQ. MI.

*S*****************************************************************************
*S********************** BASIN EX.L **********************
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0           .076000             1.0000
     SHALLOW FLOW PORTION        1600.0           .076000             2.0000
     CHANNEL FLOW PORTION         800.0           .076000             3.0000
     TOTAL BASIN                 2800.0           .076000             1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108

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

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .167141HR    TP =   .133333HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
     UNIT PEAK =   1254.9    CFS   UNIT VOLUME =    .9994      B =   269.05      P60 = 1.0600
     AREA =     .621900 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                  ID=12   CODE=1

                                   HYDROGRAPH FROM AREA EX.L

    RUNOFF VOLUME =      .05713 INCHES     =       1.8948 ACRE-FEET
    PEAK DISCHARGE RATE =      71.73 CFS  AT   1.533 HOURS   BASIN AREA =   .6219 SQ. MI.

*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX.M **********************
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                                KN=0.03    CENTROID DISTANCE=2500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE
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     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION             400.0            .015000              1.0000
     SHALLOW FLOW PORTION          1600.0            .015000              2.0000
     CHANNEL FLOW PORTION          3400.0            .015000              3.0000
     TOTAL BASIN                   5400.0            .015000              2.3143

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=       5400.0
     TOTAL BASIN SLOPE (FT/FT)=     .015000     CENTROUD LENGTH (FT)=          2500.0

     TIME OF CONCENTRATION (HRS)=   .4414     TIME TO PEAK (HRS)=   .2942     LAG TIME (HRS)=   .3310

COMPUTE NM HYD        ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2942

     K =   .382516HR    TP =   .294243HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1051.8    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = 1.0600
     AREA =     1.184400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=13   CODE=1

                                   HYDROGRAPH FROM AREA EX.M

    RUNOFF VOLUME =       .01068 INCHES     =        .6748 ACRE-FEET
    PEAK DISCHARGE RATE =      11.23 CFS  AT   1.700 HOURS   BASIN AREA =  1.1844 SQ. MI.


*S*****************************************************************************
SEDIMENT BULK         CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.N **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.059  K=1
                      LENGTH=1600 FT   SLOPE=0.059  K=2
                      LENGTH=4000 FT   SLOPE=0.059  K=3
                            KN=0.03    CENTROID DISTANCE=4200 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION             400.0            .059000              1.0000
     SHALLOW FLOW PORTION          1600.0            .059000              2.0000
     CHANNEL FLOW PORTION          4000.0            .059000              3.0000
     TOTAL BASIN                   6000.0            .059000              2.3684

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=       6000.0
     TOTAL BASIN SLOPE (FT/FT)=     .059000     CENTROUD LENGTH (FT)=          4200.0

     TIME OF CONCENTRATION (HRS)=   .2989     TIME TO PEAK (HRS)=   .1993     LAG TIME (HRS)=   .2242

COMPUTE NM HYD        ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1993

     K =   .249822HR    TP =   .199290HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
     UNIT PEAK =    816.36    CFS   UNIT VOLUME =    .9999       B =   269.05       P60 = 1.0600
     AREA =      .604700 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                  ID=14   CODE=1

                                   HYDROGRAPH FROM AREA EX.N

    RUNOFF VOLUME =       .05713 INCHES     =       1.8424 ACRE-FEET
    PEAK DISCHARGE RATE =      46.64 CFS  AT   1.600 HOURS   BASIN AREA =   .6047 SQ. MI.


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

*S********************** BASIN EX.O **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.054  K=1
                      LENGTH=1600 FT   SLOPE=0.054  K=2
                      LENGTH=5500 FT   SLOPE=0.054  K=3
                            KN=0.03    CENTROID DISTANCE=4300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION             400.0            .054000              1.0000
     SHALLOW FLOW PORTION          1600.0            .054000              2.0000
     CHANNEL FLOW PORTION          5500.0            .054000              3.0000
     TOTAL BASIN                   7500.0            .054000              2.4725
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LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4300.0

TIME OF CONCENTRATION (HRS)=   .3649     TIME TO PEAK (HRS)=   .2433     LAG TIME (HRS)=   .2737

COMPUTE NM HYD        ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .2433

K =   .304987HR    TP =   .243296HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
UNIT PEAK =    1048.8    CFS   UNIT VOLUME =    .9999        B =   269.05       P60 = 1.0600
AREA =      .948400 SQ MI    IA =     .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                 ID=15   CODE=1

                                HYDROGRAPH FROM AREA EX.O

RUNOFF VOLUME =      .05713 INCHES     =       2.8896 ACRE-FEET
PEAK DISCHARGE RATE =      59.83 CFS  AT   1.633 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S********************** BASIN EX.P **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.04  K=1
                      LENGTH=1600 FT   SLOPE=0.04  K=2
                      LENGTH=6900 FT   SLOPE=0.04  K=3
                            KN=0.03    CENTROID DISTANCE=3700 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                            LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0            .040000            1.0000
SHALLOW FLOW PORTION         1600.0            .040000            2.0000
CHANNEL FLOW PORTION         6900.0            .040000            3.0000
TOTAL BASIN                  8900.0            .040000            2.5429

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      8900.0
TOTAL BASIN SLOPE (FT/FT)=    .040000     CENTROUD LENGTH (FT)=         3700.0

TIME OF CONCENTRATION (HRS)=   .4236     TIME TO PEAK (HRS)=   .2824     LAG TIME (HRS)=   .3177

COMPUTE NM HYD        ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .2824

K =   .353983HR    TP =   .282382HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
UNIT PEAK =    887.32    CFS   UNIT VOLUME =    .9999        B =   269.05       P60 = 1.0600
AREA =      .931300 SQ MI    IA =     .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                 ID=16   CODE=1

                                HYDROGRAPH FROM AREA EX.P

RUNOFF VOLUME =      .05713 INCHES     =       2.8375 ACRE-FEET
PEAK DISCHARGE RATE =      50.55 CFS  AT   1.667 HOURS   BASIN AREA =   .9313 SQ. MI.


*S*******************************************************************************
SEDIMENT BULK         CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX. OFF A **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.009  K=1
                      LENGTH=1600 FT   SLOPE=0.009  K=2
                      LENGTH=9300 FT   SLOPE=0.009  K=3
                            KN=0.03    CENTROID DISTANCE=4800 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                            LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0            .009000            1.0000
SHALLOW FLOW PORTION         1600.0            .009000            2.0000
CHANNEL FLOW PORTION         9300.0            .009000            3.0000
TOTAL BASIN                 11300.0            .009000            2.6279

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11300.0
TOTAL BASIN SLOPE (FT/FT)=    .009000     CENTROUD LENGTH (FT)=         4800.0

TIME OF CONCENTRATION (HRS)=   .6894     TIME TO PEAK (HRS)=   .4596     LAG TIME (HRS)=   .5171

COMPUTE NM HYD        ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1
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```
     TIME TO PEAK (hrs)=   .4596

     K =   .597492HR    TP =   .459609HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   930.98    CFS   UNIT VOLUME =    1.000       B =   261.30       P60 = 1.0600
     AREA =     1.637500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                    ID=17   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.A

    RUNOFF VOLUME =       .01068 INCHES      =        .9329 ACRE-FEET
    PEAK DISCHARGE RATE =       9.94 CFS  AT   1.867 HOURS   BASIN AREA =  1.6375 SQ. MI.


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

*S********************** BASIN EX. OFF B ***********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=18700 FT   SLOPE=0.009  K=3
                                KN=0.03    CENTROID DISTANCE=8000 FT


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


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE


     LAG EQUATION FACTORS:     Kn=   .0160     TOTAL BASIN LENGTH (FT)=     18700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021834     CENTROID LENGTH (FT)=         9350.0


     TIME OF CONCENTRATION (HRS)=   .4645 .   TIME TO PEAK (HRS)=   .3097     LAG TIME (HRS)=   .3484

COMPUTE NM HYD         ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3097

     K =   .402559HR    TP =   .309661HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   388.83    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = 1.0600
     AREA =      .460780 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                    ID=18   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.B

    RUNOFF VOLUME =       .01068 INCHES      =        .2625 ACRE-FEET
    PEAK DISCHARGE RATE =       4.15 CFS  AT   1.700 HOURS   BASIN AREA =   .4608 SQ. MI.


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

*S********************** BASIN EX. OFF C ***********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .011000            1.0000
     SHALLOW FLOW PORTION          1600.0            .011000            2.0000
     CHANNEL FLOW PORTION          1600.0            .011000            3.0000
     TOTAL BASIN                   3600.0            .011000            2.0769


     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD         ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                                PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3060

     K =   .214438HR    TP =   .306050HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   318.30    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =      .226875 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .383174HR    TP =   .306050HR    K/TP RATIO =  1.252001     SHAPE CONSTANT, N =  2.849550
     UNIT PEAK =   1131.3    CFS   UNIT VOLUME =    .9999       B =   269.32       P60 = 1.0600
     AREA =     1.285625 SQ MI    IA =    .58824 INCHES    INF =   1.49706 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                    ID=19   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.C
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RUNOFF VOLUME =       .19418 INCHES      =      15.6640 ACRE-FEET
PEAK DISCHARGE RATE =      254.35 CFS  AT   1.700 HOURS   BASIN AREA =  1.5125 SQ. MI.

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

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

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FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:40:45
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  5EX_24.HYM
*S*                 OUTUPUT FILE NAME:  5EX_24.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  5 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=2     RAIN QUARTER=0.0
                    RAIN ONE=1.06 IN    RAIN SIX=1.25 IN
                    RAIN DAY=1.51 IN    DT=0.033333

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


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*S******************************************************************************
*S              COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S******************************************************************************
*******************************************************************************
*S* BULK FACTOR FOR 5 YR STORM IS 1 FOR MESA BASINS AND 4 FOR ESCARPMENT BASINS
SEDIMENT BULK       CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                    PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


PRINT HYD              ID=1   CODE=1
*S******************************************************************************
SEDIMENT BULK       CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=5500 FT   SLOPE=0.005  K=3
                    KN=0.03    CENTROID DISTANCE=2100 FT

COMPUTE NM HYD      ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD              ID=2   CODE=1
*S******************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=2200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=500 FT

COMPUTE NM HYD      ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.03    CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD              ID=4   CODE=1
*S******************************************************************************

*S********************** BASIN EX.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD              ID=5   CODE=1
*S******************************************************************************

*S********************** BASIN EX.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD              ID=6   CODE=1
```

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

*S********************** BASIN EX.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                       KN=0.03    CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                       KN=0.03    CENTROID DISTANCE=6600 FT

COMPUTE NM HYD         ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                       KN=0.03    CENTROID DISTANCE=3000 FT

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=10   CODE=1
*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                       KN=0.03    CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=12   CODE=1
*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                       KN=0.03    CENTROID DISTANCE=2500 FT

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=13   CODE=1
*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                       KN=0.03    CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
```

```
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=14   CODE=1
*S*********************************************************************************

*S********************** BASIN EX.O ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.054  K=1
                     LENGTH=1600 FT   SLOPE=0.054  K=2
                     LENGTH=5500 FT   SLOPE=0.054  K=3
                     KN=0.03    CENTROID DISTANCE=4300 FT

COMPUTE NM HYD       ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                     PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=15   CODE=1
*S*********************************************************************************

*S********************** BASIN EX.P ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.04  K=1
                     LENGTH=1600 FT   SLOPE=0.04  K=2
                     LENGTH=6900 FT   SLOPE=0.04  K=3
                     KN=0.03    CENTROID DISTANCE=3700 FT

COMPUTE NM HYD       ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                     PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=16   CODE=1
*S*********************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX. OFF A ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.009  K=1
                     LENGTH=1600 FT   SLOPE=0.009  K=2
                     LENGTH=9300 FT   SLOPE=0.009  K=3
                     KN=0.03    CENTROID DISTANCE=4800 FT

COMPUTE NM HYD       ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                     PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=17   CODE=1
*S*********************************************************************************

*S********************** BASIN EX. OFF B ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=18700 FT   SLOPE=0.009  K=3
                     KN=0.03    CENTROID DISTANCE=8000 FT

COMPUTE NM HYD       ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                     PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=18   CODE=1
*S*********************************************************************************

*S********************** BASIN EX. OFF C ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.011  K=1
                     LENGTH=1600 FT   SLOPE=0.011  K=2
                     LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD       ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                     PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=19   CODE=1
*S*********************************************************************************

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

*********************************************************************************
FINISH
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```
AHYMO PROGRAM (AHYMO_97) -                                  - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 11/26/2012
     START TIME (HR:MIN:SEC) = 09:41:06      USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 5EX_24.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  5EX_24.HYM
*S*                OUTUPUT FILE NAME:  5EX_24.OUT
*S*                PROJECT NUMBER:  20120256
*S*                      COMMENTS:  5 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=2      RAIN QUARTER=0.0
                   RAIN ONE=1.06 IN     RAIN SIX=1.25 IN
                   RAIN DAY=1.51 IN     DT=0.033333


          COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033333 HOURS        END TIME =     19.966470 HOURS
             .0000   .0010   .0019   .0029   .0039   .0050   .0060
             .0071   .0082   .0094   .0105   .0117   .0130   .0142
             .0155   .0169   .0182   .0197   .0211   .0227   .0242
             .0259   .0276   .0293   .0312   .0331   .0351   .0372
             .0394   .0418   .0443   .0472   .0503   .0537   .0609
             .0770   .1018   .1374   .1859   .2498   .3312   .4325
             .5562   .6706   .7185   .7589   .7949   .8276   .8577
             .8857   .9118   .9363   .9594   .9811  1.0017  1.0211
            1.0395  1.0570  1.0736  1.0893  1.1043  1.1077  1.1110
            1.1141  1.1171  1.1199  1.1226  1.1253  1.1278  1.1302
            1.1325  1.1348  1.1370  1.1391  1.1412  1.1432  1.1452
            1.1471  1.1489  1.1508  1.1525  1.1543  1.1560  1.1576
            1.1593  1.1609  1.1624  1.1640  1.1655  1.1670  1.1684
            1.1698  1.1713  1.1726  1.1740  1.1753  1.1767  1.1780
            1.1792  1.1805  1.1817  1.1830  1.1842  1.1854  1.1866
            1.1877  1.1889  1.1900  1.1911  1.1922  1.1933  1.1944
            1.1955  1.1965  1.1976  1.1986  1.1996  1.2006  1.2016
            1.2026  1.2036  1.2046  1.2056  1.2065  1.2074  1.2084
            1.2093  1.2102  1.2111  1.2120  1.2129  1.2138  1.2147
            1.2156  1.2164  1.2173  1.2181  1.2190  1.2198  1.2206
            1.2214  1.2223  1.2231  1.2239  1.2247  1.2255  1.2262
            1.2270  1.2278  1.2286  1.2293  1.2301  1.2308  1.2316
            1.2323  1.2330  1.2338  1.2345  1.2352  1.2359  1.2367
            1.2374  1.2381  1.2388  1.2395  1.2401  1.2408  1.2415
            1.2422  1.2429  1.2435  1.2442  1.2448  1.2455  1.2462
            1.2468  1.2475  1.2481  1.2487  1.2494  1.2500  1.2507
            1.2515  1.2522  1.2529  1.2537  1.2544  1.2551  1.2559
            1.2566  1.2573  1.2580  1.2588  1.2595  1.2602  1.2609
            1.2616  1.2623  1.2630  1.2637  1.2645  1.2652  1.2659
            1.2666  1.2673  1.2680  1.2687  1.2694  1.2701  1.2707
            1.2714  1.2721  1.2728  1.2735  1.2742  1.2749  1.2756
            1.2762  1.2769  1.2776  1.2783  1.2789  1.2796  1.2803
            1.2810  1.2816  1.2823  1.2830  1.2836  1.2843  1.2850
            1.2856  1.2863  1.2869  1.2876  1.2882  1.2889  1.2895
            1.2902  1.2909  1.2915  1.2921  1.2928  1.2934  1.2941
            1.2947  1.2954  1.2960  1.2966  1.2973  1.2979  1.2985
            1.2992  1.2998  1.3004  1.3011  1.3017  1.3023  1.3029
            1.3036  1.3042  1.3048  1.3054  1.3061  1.3067  1.3073
            1.3079  1.3085  1.3091  1.3097  1.3104  1.3110  1.3116
            1.3122  1.3128  1.3134  1.3140  1.3146  1.3152  1.3158
            1.3164  1.3170  1.3176  1.3182  1.3188  1.3194  1.3200
            1.3206  1.3212  1.3217  1.3223  1.3229  1.3235  1.3241
            1.3247  1.3253  1.3258  1.3264  1.3270  1.3276  1.3282
            1.3287  1.3293  1.3299  1.3305  1.3310  1.3316  1.3322
            1.3327  1.3333  1.3339  1.3344  1.3350  1.3356  1.3361
            1.3367  1.3373  1.3378  1.3384  1.3389  1.3395  1.3401
            1.3406  1.3412  1.3417  1.3423  1.3428  1.3434  1.3439
            1.3445  1.3450  1.3456  1.3461  1.3467  1.3472  1.3478
            1.3483  1.3488  1.3494  1.3499  1.3505  1.3510  1.3515
            1.3521  1.3526  1.3531  1.3537  1.3542  1.3547  1.3553
            1.3558  1.3563  1.3569  1.3574  1.3579  1.3584  1.3590
            1.3595  1.3600  1.3605  1.3611  1.3616  1.3621  1.3626
            1.3631  1.3637  1.3642  1.3647  1.3652  1.3657  1.3662
            1.3667  1.3673  1.3678  1.3683  1.3688  1.3693  1.3698
            1.3703  1.3708  1.3713  1.3718  1.3723  1.3728  1.3733
            1.3738  1.3743  1.3748  1.3753  1.3758  1.3763  1.3768
            1.3773  1.3778  1.3783  1.3788  1.3793  1.3798  1.3803
            1.3808  1.3813  1.3818  1.3823  1.3827  1.3832  1.3837
            1.3842  1.3847  1.3852  1.3857  1.3861  1.3866  1.3871
            1.3876  1.3881  1.3885  1.3890  1.3895  1.3900  1.3905
            1.3909  1.3914  1.3919  1.3924  1.3928  1.3933  1.3938
            1.3942  1.3947  1.3952  1.3957  1.3961  1.3966  1.3971
            1.3975  1.3980  1.3985  1.3989  1.3994  1.3999  1.4003
            1.4008  1.4012  1.4017  1.4022  1.4026  1.4031  1.4035
            1.4040  1.4045  1.4049  1.4054  1.4058  1.4063  1.4067
            1.4072  1.4076  1.4081  1.4085  1.4090  1.4094  1.4099
            1.4103  1.4108  1.4112  1.4117  1.4121  1.4126  1.4130
            1.4135  1.4139  1.4144  1.4148  1.4152  1.4157  1.4161
            1.4166  1.4170  1.4175  1.4179  1.4183  1.4188  1.4192
            1.4196  1.4201  1.4205  1.4210  1.4214  1.4218  1.4223
            1.4227  1.4231  1.4236  1.4240  1.4244  1.4248  1.4253
            1.4257  1.4261  1.4266  1.4270  1.4274  1.4278  1.4283
            1.4287  1.4291  1.4295  1.4300  1.4304  1.4308  1.4312
            1.4317  1.4321  1.4325  1.4329  1.4333  1.4338  1.4342
            1.4346  1.4350  1.4354  1.4358  1.4363  1.4367  1.4371
            1.4375  1.4379  1.4383  1.4387  1.4392  1.4396  1.4400
            1.4404  1.4408  1.4412  1.4416  1.4420  1.4424  1.4428
            1.4433  1.4437  1.4441  1.4445  1.4449  1.4453  1.4457
            1.4461  1.4465  1.4469  1.4473  1.4477  1.4481  1.4485
            1.4489  1.4493  1.4497  1.4501  1.4505  1.4509  1.4513
            1.4517  1.4521  1.4525  1.4529  1.4533  1.4537  1.4541
            1.4545  1.4549  1.4553  1.4556  1.4560  1.4564  1.4568
            1.4572  1.4576  1.4580  1.4584  1.4588  1.4592  1.4595
            1.4599  1.4603  1.4607  1.4611  1.4615  1.4619  1.4623
            1.4626  1.4630  1.4634  1.4638  1.4642  1.4646  1.4649
            1.4653  1.4657  1.4661  1.4665  1.4668

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*S***************************************************************************
*S                        COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION

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

*****************************************************************************
*S* BULK FACTOR FOR 5 YR STORM IS 1 FOR MESA BASINS AND 4 FOR ESCARPMENT BASINS
SEDIMENT BULK        CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.A **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.05  K=1
                     LENGTH=1600 FT   SLOPE=0.05  K=2
                     LENGTH=400 FT    SLOPE=0.05  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .050000            1.0000
     SHALLOW FLOW PORTION        1600.0            .050000            2.0000
     CHANNEL FLOW PORTION         400.0            .050000            3.0000
     TOTAL BASIN                 2400.0            .050000            1.8000


     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD       ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                                PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .149229HR    TP =   .133333HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   1201.8    CFS   UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =       .543800 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                ID=1   CODE=1

                                        HYDROGRAPH FROM AREA EX.A


    RUNOFF VOLUME =       .20176 INCHES     =       5.8516 ACRE-FEET
    PEAK DISCHARGE RATE =      230.08 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.


*S***************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.01

*S********************** BASIN EX.B **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.005  K=1
                     LENGTH=1600 FT   SLOPE=0.005  K=2
                     LENGTH=5500 FT   SLOPE=0.005  K=3
                              KN=0.03    CENTROID DISTANCE=2100 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .005000            1.0000
     SHALLOW FLOW PORTION        1600.0            .005000            2.0000
     CHANNEL FLOW PORTION        5500.0            .005000            3.0000
     TOTAL BASIN                 7500.0            .005000            2.4725


     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000     CENTROUD LENGTH (FT)=         2100.0


     TIME OF CONCENTRATION (HRS)=   .6569     TIME TO PEAK (HRS)=   .4380     LAG TIME (HRS)=   .4927

COMPUTE NM HYD       ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .4380

     K =   .569341HR    TP =   .437955HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1736.8    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
     AREA =      2.910900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                ID=2   CODE=1

                                        HYDROGRAPH FROM AREA EX.B


    RUNOFF VOLUME =       .01068 INCHES     =       1.6583 ACRE-FEET
    PEAK DISCHARGE RATE =       18.55 CFS  AT   1.833 HOURS   BASIN AREA =  2.9109 SQ. MI.
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*S*****************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=2200 FT   SLOPE=0.01  K=3
                                 KN=0.03    CENTROID DISTANCE=500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000            1.0000
     SHALLOW FLOW PORTION         1600.0            .010000            2.0000
     CHANNEL FLOW PORTION         2200.0            .010000            3.0000
     TOTAL BASIN                  4200.0            .010000            2.1724

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      4200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000      CENTROUD LENGTH (FT)=          500.0

     TIME OF CONCENTRATION (HRS)=   .5102     TIME TO PEAK (HRS)=   .3401     LAG TIME (HRS)=   .3826

COMPUTE NM HYD         ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                                 PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3401

     K =   .442162HR    TP =   .340124HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1056.4    CFS   UNIT VOLUME =    1.000        B =   261.30       P60 = 1.0600
     AREA =     1.375000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=3   CODE=1

                                   HYDROGRAPH FROM AREA EX.C

    RUNOFF VOLUME =      .01068 INCHES     =        .7833 ACRE-FEET
    PEAK DISCHARGE RATE =      11.28 CFS  AT   1.733 HOURS   BASIN AREA =  1.3750 SQ. MI.


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                                 KN=0.03    CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .008000            1.0000
     SHALLOW FLOW PORTION         1600.0            .008000            2.0000
     CHANNEL FLOW PORTION         4700.0            .008000            3.0000
     TOTAL BASIN                  6700.0            .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=    .008000      CENTROUD LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .6025     TIME TO PEAK (HRS)=   .4016     LAG TIME (HRS)=   .4518

COMPUTE NM HYD         ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                                 PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4016

     K =   .522130HR    TP =   .401639HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   345.66    CFS   UNIT VOLUME =    .9999        B =   261.30       P60 = 1.0600
     AREA =      .531300 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=4   CODE=1

                                   HYDROGRAPH FROM AREA EX.D

    RUNOFF VOLUME =      .01068 INCHES     =        .3027 ACRE-FEET
    PEAK DISCHARGE RATE =       3.69 CFS  AT   1.800 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN EX.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
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                    KN=0.03     CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .006000            1.0000
     SHALLOW FLOW PORTION         1600.0           .006000            2.0000
     CHANNEL FLOW PORTION         9500.0           .006000            3.0000
     TOTAL BASIN                 11500.0           .006000            2.6336

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=     .006000     CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .7725     TIME TO PEAK (HRS)=   .5150     LAG TIME (HRS)=   .5794

COMPUTE NM HYD        ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5150

     K =   .669537HR    TP =   .515028HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1229.5    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
     AREA =     2.423400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=5   CODE=1

                                   HYDROGRAPH FROM AREA EX.E

    RUNOFF VOLUME =      .01068 INCHES     =       1.3806 ACRE-FEET
    PEAK DISCHARGE RATE =      13.12 CFS  AT   1.900 HOURS   BASIN AREA =  2.4234 SQ. MI.


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

*S********************** BASIN EX.F ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.01  K=1
                      LENGTH=1600 FT   SLOPE=0.01  K=2
                      LENGTH=9200 FT   SLOPE=0.01  K=3
                            KN=0.03     CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .010000            1.0000
     SHALLOW FLOW PORTION         1600.0           .010000            2.0000
     CHANNEL FLOW PORTION         9200.0           .010000            3.0000
     TOTAL BASIN                 11200.0           .010000            2.6250

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11200.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .6997     TIME TO PEAK (HRS)=   .4665     LAG TIME (HRS)=   .5248

COMPUTE NM HYD        ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4665

     K =   .606399HR    TP =   .466461HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   954.95    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
     AREA =     1.704700 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=6   CODE=1

                                   OUTFLOW HYDROGRAPH REACH       .00

    RUNOFF VOLUME =      .01068 INCHES     =        .9712 ACRE-FEET
    PEAK DISCHARGE RATE =      10.20 CFS  AT   1.867 HOURS   BASIN AREA =  1.7047 SQ. MI.


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

*S********************** BASIN EX.G ***********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=13300 FT   SLOPE=0.02  K=3
                            KN=0.03     CENTROID DISTANCE=6300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     13300.0
     TOTAL BASIN SLOPE (FT/FT)=     .020000     CENTROUD LENGTH (FT)=         6300.0

     TIME OF CONCENTRATION (HRS)=   .6932     TIME TO PEAK (HRS)=   .4621     LAG TIME (HRS)=   .5199
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COMPUTE NM HYD        ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4621

     K =   .600753HR    TP =   .462118HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1279.3    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
     AREA =     2.262500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=7   CODE=1

                                        HYDROGRAPH FROM AREA EX.G

    RUNOFF VOLUME =       .01068 INCHES      =        1.2889 ACRE-FEET
    PEAK DISCHARGE RATE =       13.66 CFS  AT   1.867 HOURS   BASIN AREA =  2.2625 SQ. MI.


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

*S********************** BASIN EX.H **********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=20500 FT   SLOPE=0.017  K=3
                                KN=0.03    CENTROID DISTANCE=6600 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     20500.0
     TOTAL BASIN SLOPE (FT/FT)=    .017000     CENTROUD LENGTH (FT)=         6600.0

     TIME OF CONCENTRATION (HRS)=   .8340     TIME TO PEAK (HRS)=   .5560     LAG TIME (HRS)=   .6255

COMPUTE NM HYD        ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5560

     K =   .722798HR    TP =   .555998HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   2160.4    CFS   UNIT VOLUME =    1.000       B =   261.30      P60 = 1.0600
     AREA =     4.596900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=8   CODE=1

                                        HYDROGRAPH FROM AREA EX.H

    RUNOFF VOLUME =       .01068 INCHES      =        2.6188 ACRE-FEET
    PEAK DISCHARGE RATE =       23.07 CFS  AT   1.967 HOURS   BASIN AREA =  4.5969 SQ. MI.


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

*S********************** BASIN EX.I **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.021  K=1
                      LENGTH=1600 FT   SLOPE=0.021  K=2
                      LENGTH=5700 FT   SLOPE=0.021  K=3
                                KN=0.03    CENTROID DISTANCE=3000 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .021000            1.0000
     SHALLOW FLOW PORTION         1600.0           .021000            2.0000
     CHANNEL FLOW PORTION         5700.0           .021000            3.0000
     TOTAL BASIN                  7700.0           .021000            2.4839

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000     CENTROUD LENGTH (FT)=         3000.0

     TIME OF CONCENTRATION (HRS)=   .4445     TIME TO PEAK (HRS)=   .2963     LAG TIME (HRS)=   .3334

COMPUTE NM HYD        ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2963

     K =   .385243HR    TP =   .296341HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1496.3    CFS   UNIT VOLUME =    .9999       B =   261.30      P60 = 1.0600
     AREA =     1.696900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=9   CODE=1

                                        HYDROGRAPH FROM AREA EX.I

    RUNOFF VOLUME =       .01068 INCHES      =         .9667 ACRE-FEET
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    PEAK DISCHARGE RATE =       15.98 CFS  AT   1.700 HOURS   BASIN AREA =  1.6969 SQ. MI.


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

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .017000            1.0000
     SHALLOW FLOW PORTION          700.0           .017000            2.0000
     CHANNEL FLOW PORTION            .0            .000000             .0000
     TOTAL BASIN                  1100.0           .017000            1.4667

     TIME OF CONCENTRATION (HRS)=   .1598     TIME TO PEAK (HRS)=   .1065     LAG TIME (HRS)=   .1198


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

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                               PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .180000HR    TP =   .133333HR    K/TP RATIO =  1.350000     SHAPE CONSTANT, N =  2.667659
     UNIT PEAK =   47.532    CFS   UNIT VOLUME =    .9988       B =   253.50       P60 = 1.0600
     AREA =       .025000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=10   CODE=1

                                   HYDROGRAPH FROM AREA EX.J

    RUNOFF VOLUME =       .01068 INCHES     =        .0142 ACRE-FEET
    PEAK DISCHARGE RATE =        .51 CFS  AT   1.533 HOURS   BASIN AREA =   .0250 SQ. MI.


*S*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.04

*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                                KN=0.03    CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .029000            1.0000
     SHALLOW FLOW PORTION            .0            .000000             .0000
     CHANNEL FLOW PORTION            .0            .000000             .0000
     TOTAL BASIN                   400.0           .029000            1.0000

     TIME OF CONCENTRATION (HRS)=   .0652     TIME TO PEAK (HRS)=   .0435     LAG TIME (HRS)=   .0489


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

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                               PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .167141HR    TP =   .133333HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
     UNIT PEAK =   2125.0    CFS   UNIT VOLUME =    .9994       B =   269.05       P60 = 1.0600
     AREA =     1.053100 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                  ID=11   CODE=1

                                   HYDROGRAPH FROM AREA EX.K

    RUNOFF VOLUME =       .05713 INCHES     =       3.2086 ACRE-FEET
    PEAK DISCHARGE RATE =     121.47 CFS  AT   1.533 HOURS   BASIN AREA =  1.0531 SQ. MI.


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

*S********************** BASIN EX.L **********************
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COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .076000            1.0000
     SHALLOW FLOW PORTION          1600.0            .076000            2.0000
     CHANNEL FLOW PORTION           800.0            .076000            3.0000
     TOTAL BASIN                   2800.0            .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108


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

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                                 PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .167141HR    TP =   .133333HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
     UNIT PEAK =   1254.9    CFS   UNIT VOLUME =    .9994       B =   269.05       P60 = 1.0600
     AREA =       .621900 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                   ID=12   CODE=1

                                        HYDROGRAPH FROM AREA EX.L


    RUNOFF VOLUME =       .05713 INCHES     =       1.8948 ACRE-FEET
    PEAK DISCHARGE RATE =       71.73 CFS  AT   1.533 HOURS   BASIN AREA =   .6219 SQ. MI.


*s*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.01

*s********************** BASIN EX.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                                 KN=0.03    CENTROID DISTANCE=2500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .015000            1.0000
     SHALLOW FLOW PORTION          1600.0            .015000            2.0000
     CHANNEL FLOW PORTION          3400.0            .015000            3.0000
     TOTAL BASIN                   5400.0            .015000            2.3143

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=       5400.0
     TOTAL BASIN SLOPE (FT/FT)=    .015000     CENTROUD LENGTH (FT)=          2500.0

     TIME OF CONCENTRATION (HRS)=   .4414     TIME TO PEAK (HRS)=   .2942     LAG TIME (HRS)=   .3310

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                                 PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .2942

     K =   .382516HR    TP =   .294243HR    K/TP RATIO =  1.300000     SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =   1051.8    CFS   UNIT VOLUME =    .9999       B =   261.30       P60 = 1.0600
     AREA =     1.184400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                   ID=13   CODE=1

                                        HYDROGRAPH FROM AREA EX.M


    RUNOFF VOLUME =       .01068 INCHES     =        .6748 ACRE-FEET
    PEAK DISCHARGE RATE =       11.23 CFS  AT   1.700 HOURS   BASIN AREA =  1.1844 SQ. MI.


*s*****************************************************************************
SEDIMENT BULK          CODE=1     BULK FACTOR=1.04

*s********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                                 KN=0.03    CENTROID DISTANCE=4200 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE
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SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION                 400.0           .059000            1.0000
SHALLOW FLOW PORTION              1600.0           .059000            2.0000
CHANNEL FLOW PORTION              4000.0           .059000            3.0000
TOTAL BASIN                       6000.0           .059000            2.3684

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6000.0
TOTAL BASIN SLOPE (FT/FT)=    .059000      CENTROUD LENGTH (FT)=         4200.0

TIME OF CONCENTRATION (HRS)=   .2989     TIME TO PEAK (HRS)=   .1993     LAG TIME (HRS)=   .2242

COMPUTE NM HYD        ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .1993

K =   .249822HR    TP =   .199290HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
UNIT PEAK =   816.36    CFS   UNIT VOLUME =    .9999      B =   269.05      P60 = 1.0600
AREA =      .604700 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                  ID=14   CODE=1

                                HYDROGRAPH FROM AREA EX.N

RUNOFF VOLUME =       .05713 INCHES      =       1.8424 ACRE-FEET
PEAK DISCHARGE RATE =       46.64 CFS  AT   1.600 HOURS   BASIN AREA =   .6047 SQ. MI.


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

*S********************** BASIN EX.O **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.054  K=1
                     LENGTH=1600 FT   SLOPE=0.054  K=2
                     LENGTH=5500 FT   SLOPE=0.054  K=3
                           KN=0.03    CENTROID DISTANCE=4300 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION                 400.0           .054000            1.0000
SHALLOW FLOW PORTION              1600.0           .054000            2.0000
CHANNEL FLOW PORTION              5500.0           .054000            3.0000
TOTAL BASIN                       7500.0           .054000            2.4725

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
TOTAL BASIN SLOPE (FT/FT)=    .054000      CENTROUD LENGTH (FT)=         4300.0

TIME OF CONCENTRATION (HRS)=   .3649     TIME TO PEAK (HRS)=   .2433     LAG TIME (HRS)=   .2737

COMPUTE NM HYD        ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .2433

K =   .304987HR    TP =   .243296HR    K/TP RATIO =  1.253561     SHAPE CONSTANT, N =  2.846376
UNIT PEAK =   1048.8    CFS   UNIT VOLUME =    .9999      B =   269.05      P60 = 1.0600
AREA =      .948400 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

PRINT HYD                  ID=15   CODE=1

                                HYDROGRAPH FROM AREA EX.O

RUNOFF VOLUME =       .05713 INCHES      =       2.8896 ACRE-FEET
PEAK DISCHARGE RATE =       59.83 CFS  AT   1.633 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S********************** BASIN EX.P **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.04  K=1
                     LENGTH=1600 FT   SLOPE=0.04  K=2
                     LENGTH=6900 FT   SLOPE=0.04  K=3
                           KN=0.03    CENTROID DISTANCE=3700 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION                 400.0           .040000            1.0000
SHALLOW FLOW PORTION              1600.0           .040000            2.0000
CHANNEL FLOW PORTION              6900.0           .040000            3.0000
TOTAL BASIN                       8900.0           .040000            2.5429

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      8900.0
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     TOTAL BASIN SLOPE (FT/FT)=     .040000      CENTROUD LENGTH (FT)=          3700.0

     TIME OF CONCENTRATION (HRS)=    .4236      TIME TO PEAK (HRS)=    .2824      LAG TIME (HRS)=    .3177

 COMPUTE NM HYD        ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                                 PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=    .2824

     K =    .353983HR     TP =    .282382HR     K/TP RATIO =  1.253561      SHAPE CONSTANT, N =  2.846376
     UNIT PEAK =    887.32    CFS    UNIT VOLUME =     .9999        B =    269.05        P60 = 1.0600
     AREA =       .931300 SQ MI     IA =      .57500 INCHES     INF =    1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.04000 AT PEAK FLOW.

 PRINT HYD                   ID=16   CODE=1

                                          HYDROGRAPH FROM AREA EX.P

    RUNOFF VOLUME =       .05713 INCHES      =        2.8375 ACRE-FEET
    PEAK DISCHARGE RATE =       50.55 CFS  AT   1.667 HOURS    BASIN AREA =    .9313 SQ. MI.


*S*****************************************************************************
 SEDIMENT BULK         CODE=1      BULK FACTOR=1.01

*S********************** BASIN EX. OFF A **********************

 COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.009  K=1
                       LENGTH=1600 FT   SLOPE=0.009  K=2
                       LENGTH=9300 FT   SLOPE=0.009  K=3
                                 KN=0.03     CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION             400.0            .009000             1.0000
     SHALLOW FLOW PORTION          1600.0            .009000             2.0000
     CHANNEL FLOW PORTION          9300.0            .009000             3.0000
     TOTAL BASIN                  11300.0            .009000             2.6279

     LAG EQUATION FACTORS:      Kn=   .0300      TOTAL BASIN LENGTH (FT)=      11300.0
     TOTAL BASIN SLOPE (FT/FT)=     .009000      CENTROUD LENGTH (FT)=          4800.0

     TIME OF CONCENTRATION (HRS)=    .6894      TIME TO PEAK (HRS)=    .4596      LAG TIME (HRS)=    .5171

 COMPUTE NM HYD        ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                                 PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=    .4596

     K =    .597492HR     TP =    .459609HR     K/TP RATIO =  1.300000      SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =    930.98    CFS    UNIT VOLUME =     1.000        B =    261.30        P60 = 1.0600
     AREA =      1.637500 SQ MI     IA =      .65000 INCHES     INF =    1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

 PRINT HYD                   ID=17   CODE=1

                                          HYDROGRAPH FROM AREA EX.OFF.A

    RUNOFF VOLUME =       .01068 INCHES      =         .9329 ACRE-FEET
    PEAK DISCHARGE RATE =        9.94 CFS  AT   1.867 HOURS    BASIN AREA =  1.6375 SQ. MI.


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

*S********************** BASIN EX. OFF B **********************

 COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=18700 FT    SLOPE=0.009  K=3
                                 KN=0.03     CENTROID DISTANCE=8000 FT

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

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0160      TOTAL BASIN LENGTH (FT)=      18700.0
     TOTAL BASIN SLOPE (FT/FT)=     .021834      CENTROUD LENGTH (FT)=          9350.0

     TIME OF CONCENTRATION (HRS)=    .4645      TIME TO PEAK (HRS)=    .3097      LAG TIME (HRS)=    .3484

 COMPUTE NM HYD        ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                                 PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=    .3097

     K =    .402559HR     TP =    .309661HR     K/TP RATIO =  1.300000      SHAPE CONSTANT, N =  2.756220
     UNIT PEAK =    388.83    CFS    UNIT VOLUME =     .9999        B =    261.30        P60 = 1.0600
     AREA =       .460780 SQ MI     IA =      .65000 INCHES     INF =    1.67000 INCHES PER HOUR
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     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                    ID=18   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.B

    RUNOFF VOLUME =       .01068 INCHES     =        .2625 ACRE-FEET
    PEAK DISCHARGE RATE =        4.15 CFS  AT   1.700 HOURS   BASIN AREA =   .4608 SQ. MI.


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

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .011000            1.0000
     SHALLOW FLOW PORTION         1600.0            .011000            2.0000
     CHANNEL FLOW PORTION         1600.0            .011000            3.0000
     TOTAL BASIN                  3600.0            .011000            2.0769

     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD         ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                             PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3060

     K =   .214438HR    TP =   .306050HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   318.30    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =       .226875 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .383174HR    TP =   .306050HR    K/TP RATIO =  1.252001     SHAPE CONSTANT, N =  2.849550
     UNIT PEAK =   1131.3    CFS   UNIT VOLUME =    .9999       B =   269.32      P60 = 1.0600
     AREA =     1.285625 SQ MI    IA =    .58824 INCHES    INF =   1.49706 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                    ID=19   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.C

    RUNOFF VOLUME =       .22609 INCHES     =      18.2375 ACRE-FEET
    PEAK DISCHARGE RATE =      254.35 CFS  AT   1.700 HOURS   BASIN AREA =  1.5125 SQ. MI.


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

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

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FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:41:08
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  100EX_6.HYM
*S*                 OUTUPUT FILE NAME:  100EX_6.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  100 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=1     RAIN QUARTER=0.0
                    RAIN ONE=1.87 IN     RAIN SIX=2.20 IN
                    RAIN DAY=2.66 IN     DT=0.033333

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


*******************************************************************************
*S*****************************************************************************
*S            COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S*****************************************************************************
*******************************************************************************
*S*   SEDIMENT BULK FACTOR FOR 100 YR STORM IS 2.5 FOR MESA BASINS AND 10 FOR ESCARPMENT BASIN
SEDIMENT BULK       CODE=1     BULK FACTOR=1.10

*S********************** BASIN EX.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                    PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=1   CODE=1
*S*****************************************************************************
SEDIMENT BULK       CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=5500 FT   SLOPE=0.005  K=3
                    KN=0.03    CENTROID DISTANCE=2100 FT

COMPUTE NM HYD      ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=2200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=500 FT

COMPUTE NM HYD      ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.03    CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S*****************************************************************************
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*S********************** BASIN EX.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                       KN=0.03    CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                       KN=0.03    CENTROID DISTANCE=6600 FT

COMPUTE NM HYD         ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                       KN=0.03    CENTROID DISTANCE=3000 FT

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=10   CODE=1
*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.10
*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                       KN=0.03    CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=12   CODE=1
*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                       KN=0.03    CENTROID DISTANCE=2500 FT

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=13   CODE=1
*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.10
*S********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                       KN=0.03    CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=14   CODE=1
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*S*********************************************************************************

*S********************** BASIN EX.O **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.03    CENTROID DISTANCE=4300 FT

COMPUTE NM HYD         ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=15   CODE=1
*S*********************************************************************************

*S********************** BASIN EX.P **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.04  K=1
                       LENGTH=1600 FT   SLOPE=0.04  K=2
                       LENGTH=6900 FT   SLOPE=0.04  K=3
                       KN=0.03    CENTROID DISTANCE=3700 FT

COMPUTE NM HYD         ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=16   CODE=1
*S*********************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX. OFF A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.009  K=1
                       LENGTH=1600 FT   SLOPE=0.009  K=2
                       LENGTH=9300 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=17   CODE=1
*S*********************************************************************************

*S********************** BASIN EX. OFF B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=18700 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=8000 FT

COMPUTE NM HYD         ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=18   CODE=1
*S*********************************************************************************

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD         ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                       PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=19   CODE=1
*S*********************************************************************************

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

*********************************************************************************
FINISH
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AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 11/26/2012
     START TIME (HR:MIN:SEC) = 09:41:42      USER NO.= AHYMO-S-9702c1BohanHU-AH
     INPUT FILE = 100EX_6.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  100EX_6.HYM
*S*                OUTUPUT FILE NAME:  100EX_6.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  100 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=1     RAIN QUARTER=0.0
                   RAIN ONE=1.87 IN    RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN    DT=0.033333

            COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
            DT =     .033333 HOURS        END TIME =     5.999940 HOURS
               .0000   .0016   .0033   .0050   .0067   .0085   .0103
               .0122   .0141   .0160   .0180   .0201   .0222   .0243
               .0266   .0289   .0312   .0337   .0362   .0388   .0415
               .0443   .0472   .0502   .0534   .0567   .0601   .0637
               .0675   .0715   .0758   .0810   .0865   .0924   .1051
               .1335   .1773   .2400   .3257   .4384   .5820   .7607
               .9789  1.1808  1.2652  1.3365  1.4000  1.4577  1.5108
              1.5602  1.6063  1.6495  1.6902  1.7285  1.7648  1.7991
              1.8316  1.8624  1.8917  1.9194  1.9458  1.9519  1.9576
              1.9631  1.9683  1.9732  1.9780  1.9826  1.9870  1.9912
              1.9953  1.9993  2.0031  2.0068  2.0105  2.0140  2.0174
              2.0207  2.0240  2.0272  2.0303  2.0333  2.0363  2.0392
              2.0420  2.0448  2.0476  2.0502  2.0529  2.0554  2.0580
              2.0605  2.0629  2.0653  2.0677  2.0701  2.0724  2.0746
              2.0769  2.0791  2.0812  2.0834  2.0855  2.0876  2.0896
              2.0916  2.0936  2.0956  2.0976  2.0995  2.1014  2.1033
              2.1052  2.1070  2.1088  2.1106  2.1124  2.1142  2.1159
              2.1176  2.1193  2.1210  2.1227  2.1244  2.1260  2.1276
              2.1292  2.1308  2.1324  2.1340  2.1355  2.1371  2.1386
              2.1401  2.1416  2.1431  2.1446  2.1461  2.1475  2.1489
              2.1504  2.1518  2.1532  2.1546  2.1560  2.1573  2.1587
              2.1601  2.1614  2.1627  2.1641  2.1654  2.1667  2.1680
              2.1693  2.1705  2.1718  2.1731  2.1743  2.1756  2.1768
              2.1780  2.1793  2.1805  2.1817  2.1829  2.1841  2.1852
              2.1864  2.1876  2.1887  2.1899  2.1911  2.1922  2.1933
              2.1945  2.1956  2.1967  2.1978  2.1989  2.2000

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*S******************************************************************************
*S                        COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S******************************************************************************
*******************************************************************************
*S*   SEDIMENT BULK FACTOR FOR 100 YR STORM IS 2.5 FOR MESA BASINS AND 10 FOR ES
SEDIMENT BULK       CODE=1     BULK FACTOR=1.10

*S********************** BASIN EX.A ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT    SLOPE=0.05  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .050000            1.0000
     SHALLOW FLOW PORTION         1600.0            .050000            2.0000
     CHANNEL FLOW PORTION          400.0            .050000            3.0000
     TOTAL BASIN                  2400.0            .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                              PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .111815HR    TP =   .133333HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1515.2    CFS   UNIT VOLUME =    1.000       B =   371.51       P60 = 1.8700
     AREA =       .543800 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                ID=1   CODE=1

                                   HYDROGRAPH FROM AREA EX.A

    RUNOFF VOLUME =      .89725 INCHES     =      26.0225 ACRE-FEET
    PEAK DISCHARGE RATE =     966.27 CFS  AT   1.500 HOURS   BASIN AREA =   .5438 SQ. MI.
```

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*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX.B **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.005  K=1
                     LENGTH=1600 FT   SLOPE=0.005  K=2
                     LENGTH=5500 FT   SLOPE=0.005  K=3
                          KN=0.03    CENTROID DISTANCE=2100 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .005000            1.0000
     SHALLOW FLOW PORTION         1600.0           .005000            2.0000
     CHANNEL FLOW PORTION         5500.0           .005000            3.0000
     TOTAL BASIN                  7500.0           .005000            2.4725

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000     CENTROUD LENGTH (FT)=         2100.0

     TIME OF CONCENTRATION (HRS)=   .6569     TIME TO PEAK (HRS)=   .4380     LAG TIME (HRS)=   .4927

COMPUTE NM HYD       ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4380

     K =   .439506HR    TP =   .437955HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   2137.7    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
     AREA =     2.910900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                 ID=2   CODE=1

                                   HYDROGRAPH FROM AREA EX.B

    RUNOFF VOLUME =      .45020 INCHES     =      69.8922 ACRE-FEET
    PEAK DISCHARGE RATE =     952.72 CFS  AT   1.833 HOURS   BASIN AREA =  2.9109 SQ. MI.


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

*S********************** BASIN EX.C **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.01  K=1
                     LENGTH=1600 FT   SLOPE=0.01  K=2
                     LENGTH=2200 FT   SLOPE=0.01  K=3
                          KN=0.03    CENTROID DISTANCE=500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .010000            1.0000
     SHALLOW FLOW PORTION         1600.0           .010000            2.0000
     CHANNEL FLOW PORTION         2200.0           .010000            3.0000
     TOTAL BASIN                  4200.0           .010000            2.1724

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      4200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000     CENTROUD LENGTH (FT)=          500.0

     TIME OF CONCENTRATION (HRS)=   .5102     TIME TO PEAK (HRS)=   .3401     LAG TIME (HRS)=   .3826

COMPUTE NM HYD       ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3401

     K =   .341329HR    TP =   .340124HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1300.2    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
     AREA =     1.375000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                 ID=3   CODE=1

                                   HYDROGRAPH FROM AREA EX.C

    RUNOFF VOLUME =      .45020 INCHES     =      33.0145 ACRE-FEET
    PEAK DISCHARGE RATE =     575.85 CFS  AT   1.733 HOURS   BASIN AREA =  1.3750 SQ. MI.


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.008  K=1
                     LENGTH=1600 FT   SLOPE=0.008  K=2
                     LENGTH=4700 FT   SLOPE=0.008  K=3
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                    KN=0.03     CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .008000            1.0000
     SHALLOW FLOW PORTION       1600.0           .008000            2.0000
     CHANNEL FLOW PORTION       4700.0           .008000            3.0000
     TOTAL BASIN                6700.0           .008000            2.4217

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=     .008000     CENTROUD LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .6025     TIME TO PEAK (HRS)=   .4016     LAG TIME (HRS)=   .4518

COMPUTE NM HYD        ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4016

     K =   .403061HR    TP =   .401639HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   425.45    CFS   UNIT VOLUME =    1.000       B =   321.62      P60 = 1.8700
     AREA =       .531300 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                 ID=4   CODE=1

                                   HYDROGRAPH FROM AREA EX.D

    RUNOFF VOLUME =       .45020 INCHES     =      12.7568 ACRE-FEET
    PEAK DISCHARGE RATE =     189.17 CFS  AT   1.800 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN EX.E ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.006  K=1
                      LENGTH=1600 FT   SLOPE=0.006  K=2
                      LENGTH=9500 FT   SLOPE=0.006  K=3
                          KN=0.03     CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .006000            1.0000
     SHALLOW FLOW PORTION       1600.0           .006000            2.0000
     CHANNEL FLOW PORTION       9500.0           .006000            3.0000
     TOTAL BASIN               11500.0           .006000            2.6336

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=     .006000     CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .7725     TIME TO PEAK (HRS)=   .5150     LAG TIME (HRS)=   .5794

COMPUTE NM HYD        ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                          PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5150

     K =   .516852HR    TP =   .515028HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1513.3    CFS   UNIT VOLUME =    1.000       B =   321.62      P60 = 1.8700
     AREA =     2.423400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                 ID=5   CODE=1

                                   HYDROGRAPH FROM AREA EX.E

    RUNOFF VOLUME =       .45020 INCHES     =      58.1871 ACRE-FEET
    PEAK DISCHARGE RATE =     676.65 CFS  AT   1.900 HOURS   BASIN AREA =  2.4234 SQ. MI.


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

*S********************** BASIN EX.F ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.01  K=1
                      LENGTH=1600 FT   SLOPE=0.01  K=2
                      LENGTH=9200 FT   SLOPE=0.01  K=3
                          KN=0.03     CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .010000            1.0000
     SHALLOW FLOW PORTION       1600.0           .010000            2.0000
     CHANNEL FLOW PORTION       9200.0           .010000            3.0000
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TOTAL BASIN                    11200.0            .010000            2.6250

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11200.0
TOTAL BASIN SLOPE (FT/FT)=    .010000      CENTROID LENGTH (FT)=         5400.0

TIME OF CONCENTRATION (HRS)=   .6997     TIME TO PEAK (HRS)=   .4665     LAG TIME (HRS)=   .5248

COMPUTE NM HYD        ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                             PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .4665

K =   .468113HR    TP =   .466461HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
UNIT PEAK =    1175.4    CFS   UNIT VOLUME =    1.000        B =   321.62        P60 = 1.8700
AREA =     1.704700 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=6   CODE=1

                                   OUTFLOW HYDROGRAPH REACH       .00

RUNOFF VOLUME =       .45020 INCHES      =      40.9307 ACRE-FEET
PEAK DISCHARGE RATE =      524.14 CFS  AT   1.867 HOURS   BASIN AREA =  1.7047 SQ. MI.


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

*S********************** BASIN EX.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                              KN=0.03    CENTROID DISTANCE=6300 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     13300.0
TOTAL BASIN SLOPE (FT/FT)=    .020000      CENTROID LENGTH (FT)=         6300.0

TIME OF CONCENTRATION (HRS)=   .6932     TIME TO PEAK (HRS)=   .4621     LAG TIME (HRS)=   .5199

COMPUTE NM HYD        ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                             PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .4621

K =   .463754HR    TP =   .462118HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
UNIT PEAK =    1574.6    CFS   UNIT VOLUME =    1.000        B =   321.62        P60 = 1.8700
AREA =     2.262500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=7   CODE=1

                                   HYDROGRAPH FROM AREA EX.G

RUNOFF VOLUME =       .45020 INCHES      =      54.3238 ACRE-FEET
PEAK DISCHARGE RATE =      701.96 CFS  AT   1.833 HOURS   BASIN AREA =  2.2625 SQ. MI.


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

*S********************** BASIN EX.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                              KN=0.03    CENTROID DISTANCE=6600 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=     20500.0
TOTAL BASIN SLOPE (FT/FT)=    .017000      CENTROID LENGTH (FT)=         6600.0

TIME OF CONCENTRATION (HRS)=   .8340     TIME TO PEAK (HRS)=   .5560     LAG TIME (HRS)=   .6255

COMPUTE NM HYD        ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                             PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .5560

K =   .557967HR    TP =   .555998HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
UNIT PEAK =    2659.1    CFS   UNIT VOLUME =    1.000        B =   321.62        P60 = 1.8700
AREA =     4.596900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=8   CODE=1

                                   HYDROGRAPH FROM AREA EX.H

RUNOFF VOLUME =       .45020 INCHES      =     110.3739 ACRE-FEET
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    PEAK DISCHARGE RATE =    1189.79 CFS  AT   1.933 HOURS   BASIN AREA =  4.5969 SQ. MI.


*S*************************************************************************
*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                              KN=0.03    CENTROID DISTANCE=3000 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .021000            1.0000
     SHALLOW FLOW PORTION       1600.0           .021000            2.0000
     CHANNEL FLOW PORTION       5700.0           .021000            3.0000
     TOTAL BASIN                7700.0           .021000            2.4839

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000     CENTROID LENGTH (FT)=         3000.0

     TIME OF CONCENTRATION (HRS)=   .4445     TIME TO PEAK (HRS)=   .2963     LAG TIME (HRS)=   .3334

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2963

     K =   .297390HR    TP =   .296341HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1841.7    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
     AREA =     1.696900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=9   CODE=1

                                   HYDROGRAPH FROM AREA EX.I

    RUNOFF VOLUME =      .45020 INCHES     =      40.7435 ACRE-FEET
    PEAK DISCHARGE RATE =     808.88 CFS  AT   1.700 HOURS   BASIN AREA =  1.6969 SQ. MI.


*S*************************************************************************
*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .017000            1.0000
     SHALLOW FLOW PORTION        700.0           .017000            2.0000
     CHANNEL FLOW PORTION          .0            .000000             .0000
     TOTAL BASIN                1100.0           .017000            1.4667

     TIME OF CONCENTRATION (HRS)=   .1598     TIME TO PEAK (HRS)=   .1065     LAG TIME (HRS)=   .1198


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

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .163724HR    TP =   .133333HR    K/TP RATIO =  1.227936     SHAPE CONSTANT, N =  2.899764
     UNIT PEAK =   51.290    CFS   UNIT VOLUME =    .9994       B =   273.54       P60 = 1.8700
     AREA =      .025000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=10   CODE=1

                                   HYDROGRAPH FROM AREA EX.J

    RUNOFF VOLUME =      .45020 INCHES     =       .6003 ACRE-FEET
    PEAK DISCHARGE RATE =      21.27 CFS  AT   1.533 HOURS   BASIN AREA =   .0250 SQ. MI.


*S*************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.10
*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
```

```
                    LENGTH=1600 FT   SLOPE=0.029  K=2
                    LENGTH=6600 FT   SLOPE=0.029  K=3
                              KN=0.03    CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .029000            1.0000
     SHALLOW FLOW PORTION            .0            .000000             .0000
     CHANNEL FLOW PORTION            .0            .000000             .0000
     TOTAL BASIN                   400.0           .029000            1.0000

     TIME OF CONCENTRATION (HRS)=   .0652     TIME TO PEAK (HRS)=   .0435     LAG TIME (HRS)=   .0489


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

COMPUTE NM HYD       ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .126475HR    TP =   .133333HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726434
     UNIT PEAK =   2657.8    CFS   UNIT VOLUME =    1.000      B =   336.50      P60 = 1.8700
     AREA =     1.053100 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                 ID=11   CODE=1

                                   HYDROGRAPH FROM AREA EX.K


    RUNOFF VOLUME =      .59932 INCHES      =      33.6605 ACRE-FEET
    PEAK DISCHARGE RATE =    1351.32 CFS  AT   1.533 HOURS   BASIN AREA =  1.0531 SQ. MI.


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

*S********************** BASIN EX.L ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.076  K=1
                     LENGTH=1600 FT   SLOPE=0.076  K=2
                     LENGTH=800 FT    SLOPE=0.076  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .076000            1.0000
     SHALLOW FLOW PORTION         1600.0           .076000            2.0000
     CHANNEL FLOW PORTION          800.0           .076000            3.0000
     TOTAL BASIN                  2800.0           .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108


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

COMPUTE NM HYD       ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .126475HR    TP =   .133333HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726434
     UNIT PEAK =   1569.5    CFS   UNIT VOLUME =    1.000      B =   336.50      P60 = 1.8700
     AREA =     .621900 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                 ID=12   CODE=1

                                   HYDROGRAPH FROM AREA EX.L


    RUNOFF VOLUME =      .59931 INCHES      =      19.8780 ACRE-FEET
    PEAK DISCHARGE RATE =     798.02 CFS  AT   1.533 HOURS   BASIN AREA =   .6219 SQ. MI.


*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX.M ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.015  K=1
                     LENGTH=1600 FT   SLOPE=0.015  K=2
                     LENGTH=3400 FT   SLOPE=0.015  K=3
                              KN=0.03    CENTROID DISTANCE=2500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
```

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SHEET FLOW PORTION          400.0          .015000          1.0000
SHALLOW FLOW PORTION       1600.0          .015000          2.0000
CHANNEL FLOW PORTION       3400.0          .015000          3.0000
TOTAL BASIN                5400.0          .015000          2.3143

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      5400.0
TOTAL BASIN SLOPE (FT/FT)=    .015000     CENTROUD LENGTH (FT)=         2500.0

TIME OF CONCENTRATION (HRS)=   .4414     TIME TO PEAK (HRS)=   .2942     LAG TIME (HRS)=   .3310

COMPUTE NM HYD        ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .2942

K =   .295285HR    TP =   .294243HR    K/TP RATIO =  1.003541    SHAPE CONSTANT, N =  3.517728
UNIT PEAK =   1294.6    CFS   UNIT VOLUME =    1.000       B =   321.62      P60 = 1.8700
AREA =     1.184400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                 ID=13   CODE=1

                                HYDROGRAPH FROM AREA EX.M

RUNOFF VOLUME =      .45020 INCHES      =      28.4381 ACRE-FEET
PEAK DISCHARGE RATE =     568.68 CFS  AT   1.667 HOURS   BASIN AREA =  1.1844 SQ. MI.


*s*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.10
*s********************** BASIN EX.N ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.059  K=1
                     LENGTH=1600 FT   SLOPE=0.059  K=2
                     LENGTH=4000 FT   SLOPE=0.059  K=3
                           KN=0.03    CENTROID DISTANCE=4200 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                           LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0           .059000            1.0000
SHALLOW FLOW PORTION         1600.0           .059000            2.0000
CHANNEL FLOW PORTION         4000.0           .059000            3.0000
TOTAL BASIN                  6000.0           .059000            2.3684

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6000.0
TOTAL BASIN SLOPE (FT/FT)=    .059000     CENTROUD LENGTH (FT)=         4200.0

TIME OF CONCENTRATION (HRS)=   .2989     TIME TO PEAK (HRS)=   .1993     LAG TIME (HRS)=   .2242

COMPUTE NM HYD        ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .1993

K =   .189040HR    TP =   .199290HR    K/TP RATIO =   .948564    SHAPE CONSTANT, N =  3.726434
UNIT PEAK =   1021.0    CFS   UNIT VOLUME =    1.000       B =   336.50      P60 = 1.8700
AREA =      .604700 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                 ID=14   CODE=1

                                HYDROGRAPH FROM AREA EX.N

RUNOFF VOLUME =      .59932 INCHES      =      19.3282 ACRE-FEET
PEAK DISCHARGE RATE =     561.22 CFS  AT   1.600 HOURS   BASIN AREA =   .6047 SQ. MI.


*s*****************************************************************************

*s********************** BASIN EX.O ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.054  K=1
                     LENGTH=1600 FT   SLOPE=0.054  K=2
                     LENGTH=5500 FT   SLOPE=0.054  K=3
                           KN=0.03    CENTROID DISTANCE=4300 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                           LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0           .054000            1.0000
SHALLOW FLOW PORTION         1600.0           .054000            2.0000
CHANNEL FLOW PORTION         5500.0           .054000            3.0000
TOTAL BASIN                  7500.0           .054000            2.4725

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4300.0
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     TIME OF CONCENTRATION (HRS)=   .3649     TIME TO PEAK (HRS)=   .2433     LAG TIME (HRS)=   .2737

 COMPUTE NM HYD       ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .2433

     K =   .230782HR    TP =   .243296HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726434
     UNIT PEAK =   1311.7    CFS   UNIT VOLUME =    1.000       B =   336.50       P60 = 1.8700
     AREA =      .948400 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

 PRINT HYD                  ID=15   CODE=1

                                        HYDROGRAPH FROM AREA EX.O


    RUNOFF VOLUME =      .59931 INCHES     =      30.3140 ACRE-FEET
    PEAK DISCHARGE RATE =     741.95 CFS  AT   1.633 HOURS   BASIN AREA =   .9484 SQ. MI.


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

 *S********************** BASIN EX.P **********************

 COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.04  K=1
                      LENGTH=1600 FT   SLOPE=0.04  K=2
                      LENGTH=6900 FT   SLOPE=0.04  K=3
                                KN=0.03    CENTROID DISTANCE=3700 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .040000            1.0000
     SHALLOW FLOW PORTION         1600.0            .040000            2.0000
     CHANNEL FLOW PORTION         6900.0            .040000            3.0000
     TOTAL BASIN                  8900.0            .040000            2.5429


     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      8900.0
     TOTAL BASIN SLOPE (FT/FT)=    .040000     CENTROUD LENGTH (FT)=         3700.0


     TIME OF CONCENTRATION (HRS)=   .4236     TIME TO PEAK (HRS)=   .2824     LAG TIME (HRS)=   .3177

 COMPUTE NM HYD       ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .2824

     K =   .267858HR    TP =   .282382HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726430
     UNIT PEAK =   1109.8    CFS   UNIT VOLUME =    1.000       B =   336.50       P60 = 1.8700
     AREA =      .931300 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

 PRINT HYD                  ID=16   CODE=1

                                        HYDROGRAPH FROM AREA EX.P


    RUNOFF VOLUME =      .59931 INCHES     =      29.7674 ACRE-FEET
    PEAK DISCHARGE RATE =     636.49 CFS  AT   1.667 HOURS   BASIN AREA =   .9313 SQ. MI.


 *S*****************************************************************************
 SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
 *S********************** BASIN EX. OFF A **********************

 COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.009  K=1
                      LENGTH=1600 FT   SLOPE=0.009  K=2
                      LENGTH=9300 FT   SLOPE=0.009  K=3
                                KN=0.03    CENTROID DISTANCE=4800 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .009000            1.0000
     SHALLOW FLOW PORTION         1600.0            .009000            2.0000
     CHANNEL FLOW PORTION         9300.0            .009000            3.0000
     TOTAL BASIN                 11300.0            .009000            2.6279


     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     11300.0
     TOTAL BASIN SLOPE (FT/FT)=    .009000     CENTROUD LENGTH (FT)=         4800.0


     TIME OF CONCENTRATION (HRS)=   .6894     TIME TO PEAK (HRS)=   .4596     LAG TIME (HRS)=   .5171

 COMPUTE NM HYD       ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .4596

     K =   .461237HR    TP =   .459609HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1145.9    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
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AREA =      1.637500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=17   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.A

RUNOFF VOLUME =       .45020 INCHES     =      39.3172 ACRE-FEET
PEAK DISCHARGE RATE =     510.98 CFS  AT   1.833 HOURS   BASIN AREA =  1.6375 SQ. MI.


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

*S********************** BASIN EX. OFF B **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=18700 FT   SLOPE=0.009  K=3
                              KN=0.03    CENTROID DISTANCE=8000 FT

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

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:     Kn=   .0160     TOTAL BASIN LENGTH (FT)=     18700.0
TOTAL BASIN SLOPE (FT/FT)=    .021834     CENTROUD LENGTH (FT)=         9350.0

TIME OF CONCENTRATION (HRS)=   .4645     TIME TO PEAK (HRS)=   .3097     LAG TIME (HRS)=   .3484

COMPUTE NM HYD       ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .3097

K =   .310757HR    TP =   .309661HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
UNIT PEAK =   478.58    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
AREA =      .460780 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=18   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.B

RUNOFF VOLUME =       .45020 INCHES     =      11.0636 ACRE-FEET
PEAK DISCHARGE RATE =     211.31 CFS  AT   1.700 HOURS   BASIN AREA =   .4608 SQ. MI.


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

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.011  K=1
                     LENGTH=1600 FT   SLOPE=0.011  K=2
                     LENGTH=1600 FT   SLOPE=0.011  K=3

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                          LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0           .011000            1.0000
SHALLOW FLOW PORTION         1600.0           .011000            2.0000
CHANNEL FLOW PORTION         1600.0           .011000            3.0000
TOTAL BASIN                  3600.0           .011000            2.0769

TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD       ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                              PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .3060

K =   .176535HR    TP =   .306050HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
UNIT PEAK =   372.56    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
AREA =      .226875 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

K =   .293277HR    TP =   .306050HR    K/TP RATIO =   .958266     SHAPE CONSTANT, N =  3.687406
UNIT PEAK =   1402.0    CFS   UNIT VOLUME =    1.000       B =   333.76       P60 = 1.8700
AREA =     1.285625 SQ MI    IA =    .58824 INCHES    INF =   1.49706 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=19   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.C

RUNOFF VOLUME =       .75968 INCHES     =      61.2803 ACRE-FEET
PEAK DISCHARGE RATE =    1143.93 CFS  AT   1.700 HOURS   BASIN AREA =  1.5125 SQ. MI.
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*S*****************************************************************************

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

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FINISH
    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:41:43
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*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  100EX_24.HYM
*S*                 OUTUPUT FILE NAME:  100EX_24.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  100 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=2     RAIN QUARTER=0.0
                    RAIN ONE=1.87 IN    RAIN SIX=2.20 IN
                    RAIN DAY=2.66 IN    DT=0.033333

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*S******************************************************************************
*S            COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S******************************************************************************
*******************************************************************************
*S*   SEDIMENT BULK FACTOR FOR 100 YR STORM IS 2.5 FOR MESA BASINS AND 10 FOR ESCARPMENT BASIN
SEDIMENT BULK       CODE=1     BULK FACTOR=1.10

*S********************** BASIN EX.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                    PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=1   CODE=1
*S******************************************************************************
SEDIMENT BULK       CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=5500 FT   SLOPE=0.005  K=3
                    KN=0.03    CENTROID DISTANCE=2100 FT

COMPUTE NM HYD      ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S******************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=2200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=500 FT

COMPUTE NM HYD      ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.03    CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S******************************************************************************

*S********************** BASIN EX.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S******************************************************************************

*S********************** BASIN EX.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.03    CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S******************************************************************************
```

```
*S********************** BASIN EX.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.02  K=3
                       KN=0.03    CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=20500 FT   SLOPE=0.017  K=3
                       KN=0.03    CENTROID DISTANCE=6600 FT

COMPUTE NM HYD         ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.021  K=1
                       LENGTH=1600 FT   SLOPE=0.021  K=2
                       LENGTH=5700 FT   SLOPE=0.021  K=3
                       KN=0.03    CENTROID DISTANCE=3000 FT

COMPUTE NM HYD         ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=10   CODE=1
*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.10
*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                       KN=0.03    CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN EX.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

COMPUTE NM HYD         ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=12   CODE=1
*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.015  K=1
                       LENGTH=1600 FT   SLOPE=0.015  K=2
                       LENGTH=3400 FT   SLOPE=0.015  K=3
                       KN=0.03    CENTROID DISTANCE=2500 FT

COMPUTE NM HYD         ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=13   CODE=1
*S*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.10
*S********************** BASIN EX.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.059  K=1
                       LENGTH=1600 FT   SLOPE=0.059  K=2
                       LENGTH=4000 FT   SLOPE=0.059  K=3
                       KN=0.03    CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD               ID=14   CODE=1
```

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

*S********************** BASIN EX.O **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.03    CENTROID DISTANCE=4300 FT

COMPUTE NM HYD         ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=15   CODE=1
*S*********************************************************************************

*S********************** BASIN EX.P **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.04  K=1
                       LENGTH=1600 FT   SLOPE=0.04  K=2
                       LENGTH=6900 FT   SLOPE=0.04  K=3
                       KN=0.03    CENTROID DISTANCE=3700 FT

COMPUTE NM HYD         ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=16   CODE=1
*S*********************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
*S********************** BASIN EX. OFF A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.009  K=1
                       LENGTH=1600 FT   SLOPE=0.009  K=2
                       LENGTH=9300 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=17   CODE=1
*S*********************************************************************************

*S********************** BASIN EX. OFF B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=18700 FT   SLOPE=0.009  K=3
                       KN=0.03    CENTROID DISTANCE=8000 FT

COMPUTE NM HYD         ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                       PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=18   CODE=1
*S*********************************************************************************

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD         ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                       PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=19   CODE=1
*S*********************************************************************************

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

*********************************************************************************
FINISH
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```
AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 11/26/2012
     START TIME (HR:MIN:SEC) = 09:41:59      USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 100EX_24.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  100EX_24.HYM
*S*                OUTUPUT FILE NAME:  100EX_24.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  100 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=2     RAIN QUARTER=0.0
                   RAIN ONE=1.87 IN    RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN    DT=0.033333

              COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
              DT =    .033333 HOURS        END TIME =    19.966470 HOURS
                 .0000   .0016   .0033   .0050   .0067   .0085   .0103
                 .0122   .0141   .0160   .0180   .0201   .0222   .0243
                 .0266   .0289   .0312   .0337   .0362   .0388   .0415
                 .0443   .0472   .0502   .0534   .0567   .0601   .0637
                 .0675   .0715   .0758   .0810   .0865   .0924   .1051
                 .1335   .1773   .2400   .3257   .4384   .5820   .7607
                 .9789  1.1808  1.2652  1.3365  1.4000  1.4577  1.5108
                1.5602  1.6063  1.6495  1.6902  1.7285  1.7648  1.7991
                1.8316  1.8624  1.8917  1.9194  1.9458  1.9519  1.9576
                1.9631  1.9683  1.9732  1.9780  1.9826  1.9870  1.9912
                1.9953  1.9993  2.0031  2.0068  2.0105  2.0140  2.0174
                2.0207  2.0240  2.0272  2.0303  2.0333  2.0363  2.0392
                2.0420  2.0448  2.0476  2.0502  2.0529  2.0554  2.0580
                2.0605  2.0629  2.0653  2.0677  2.0701  2.0724  2.0746
                2.0769  2.0791  2.0812  2.0834  2.0855  2.0876  2.0896
                2.0916  2.0936  2.0956  2.0976  2.0995  2.1014  2.1033
                2.1052  2.1070  2.1088  2.1106  2.1124  2.1142  2.1159
                2.1176  2.1193  2.1210  2.1227  2.1244  2.1260  2.1276
                2.1292  2.1308  2.1324  2.1340  2.1355  2.1371  2.1386
                2.1401  2.1416  2.1431  2.1446  2.1461  2.1475  2.1489
                2.1504  2.1518  2.1532  2.1546  2.1560  2.1573  2.1587
                2.1601  2.1614  2.1627  2.1641  2.1654  2.1667  2.1680
                2.1693  2.1705  2.1718  2.1731  2.1743  2.1756  2.1768
                2.1780  2.1793  2.1805  2.1817  2.1829  2.1841  2.1852
                2.1864  2.1876  2.1887  2.1899  2.1911  2.1922  2.1933
                2.1945  2.1956  2.1967  2.1978  2.1989  2.2000  2.2013
                2.2026  2.2039  2.2052  2.2065  2.2078  2.2091  2.2104
                2.2117  2.2129  2.2142  2.2155  2.2168  2.2180  2.2193
                2.2205  2.2218  2.2231  2.2243  2.2256  2.2268  2.2281
                2.2293  2.2305  2.2318  2.2330  2.2342  2.2355  2.2367
                2.2379  2.2391  2.2404  2.2416  2.2428  2.2440  2.2452
                2.2464  2.2476  2.2488  2.2500  2.2512  2.2524  2.2536
                2.2548  2.2559  2.2571  2.2583  2.2595  2.2607  2.2618
                2.2630  2.2642  2.2653  2.2665  2.2676  2.2688  2.2700
                2.2711  2.2723  2.2734  2.2745  2.2757  2.2768  2.2780
                2.2791  2.2802  2.2814  2.2825  2.2836  2.2847  2.2859
                2.2870  2.2881  2.2892  2.2903  2.2914  2.2925  2.2937
                2.2948  2.2959  2.2970  2.2981  2.2992  2.3002  2.3013
                2.3024  2.3035  2.3046  2.3057  2.3068  2.3078  2.3089
                2.3100  2.3111  2.3121  2.3132  2.3143  2.3153  2.3164
                2.3175  2.3185  2.3196  2.3206  2.3217  2.3227  2.3238
                2.3248  2.3259  2.3269  2.3279  2.3290  2.3300  2.3311
                2.3321  2.3331  2.3342  2.3352  2.3362  2.3372  2.3383
                2.3393  2.3403  2.3413  2.3423  2.3433  2.3443  2.3454
                2.3464  2.3474  2.3484  2.3494  2.3504  2.3514  2.3524
                2.3534  2.3544  2.3554  2.3563  2.3573  2.3583  2.3593
                2.3603  2.3613  2.3622  2.3632  2.3642  2.3652  2.3661
                2.3671  2.3681  2.3691  2.3700  2.3710  2.3720  2.3729
                2.3739  2.3748  2.3758  2.3767  2.3777  2.3787  2.3796
                2.3806  2.3815  2.3824  2.3834  2.3843  2.3853  2.3862
                2.3872  2.3881  2.3890  2.3900  2.3909  2.3918  2.3927
                2.3937  2.3946  2.3955  2.3964  2.3974  2.3983  2.3992
                2.4001  2.4010  2.4020  2.4029  2.4038  2.4047  2.4056
                2.4065  2.4074  2.4083  2.4092  2.4101  2.4110  2.4119
                2.4128  2.4137  2.4146  2.4155  2.4164  2.4173  2.4182
                2.4191  2.4199  2.4208  2.4217  2.4226  2.4235  2.4244
                2.4252  2.4261  2.4270  2.4279  2.4287  2.4296  2.4305
                2.4313  2.4322  2.4331  2.4339  2.4348  2.4357  2.4365
                2.4374  2.4383  2.4391  2.4400  2.4408  2.4417  2.4425
                2.4434  2.4442  2.4451  2.4459  2.4468  2.4476  2.4485
                2.4493  2.4501  2.4510  2.4518  2.4527  2.4535  2.4543
                2.4552  2.4560  2.4568  2.4577  2.4585  2.4593  2.4602
                2.4610  2.4618  2.4626  2.4635  2.4643  2.4651  2.4659
                2.4667  2.4675  2.4684  2.4692  2.4700  2.4708  2.4716
                2.4724  2.4732  2.4740  2.4749  2.4757  2.4765  2.4773
                2.4781  2.4789  2.4797  2.4805  2.4813  2.4821  2.4829
                2.4837  2.4845  2.4852  2.4860  2.4868  2.4876  2.4884
                2.4892  2.4900  2.4908  2.4915  2.4923  2.4931  2.4939
                2.4947  2.4955  2.4962  2.4970  2.4978  2.4986  2.4993
                2.5001  2.5009  2.5017  2.5024  2.5032  2.5040  2.5047
                2.5055  2.5063  2.5070  2.5078  2.5085  2.5093  2.5101
                2.5108  2.5116  2.5123  2.5131  2.5139  2.5146  2.5154
                2.5161  2.5169  2.5176  2.5184  2.5191  2.5199  2.5206
                2.5214  2.5221  2.5228  2.5236  2.5243  2.5251  2.5258
                2.5266  2.5273  2.5280  2.5288  2.5295  2.5302  2.5310
                2.5317  2.5324  2.5332  2.5339  2.5346  2.5354  2.5361
                2.5368  2.5375  2.5383  2.5390  2.5397  2.5404  2.5412
                2.5419  2.5426  2.5433  2.5440  2.5448  2.5455  2.5462
                2.5469  2.5476  2.5483  2.5490  2.5498  2.5505  2.5512
                2.5519  2.5526  2.5533  2.5540  2.5547  2.5554  2.5561
                2.5568  2.5575  2.5582  2.5589  2.5596  2.5603  2.5610
                2.5617  2.5624  2.5631  2.5638  2.5645  2.5652  2.5659
                2.5666  2.5673  2.5680  2.5687  2.5693  2.5700  2.5707
                2.5714  2.5721  2.5728  2.5735  2.5741  2.5748  2.5755
                2.5762  2.5769  2.5775  2.5782  2.5789  2.5796  2.5803
                2.5809  2.5816  2.5823  2.5830  2.5836

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*****************************************************************************
*S*****************************************************************************
*S                        COMPUTE BASINS IN SANTOLINA - EXISTING CONDITION
*S*****************************************************************************
*****************************************************************************
*S*   SEDIMENT BULK FACTOR FOR 100 YR STORM IS 2.5 FOR MESA BASINS AND 10 FOR ES
SEDIMENT BULK        CODE=1      BULK FACTOR=1.10

*S********************** BASIN EX.A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.05  K=1
                       LENGTH=1600 FT   SLOPE=0.05  K=2
                       LENGTH=400 FT   SLOPE=0.05  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION           400.0            .050000              1.0000
     SHALLOW FLOW PORTION        1600.0            .050000              2.0000
     CHANNEL FLOW PORTION         400.0            .050000              3.0000
     TOTAL BASIN                 2400.0            .050000              1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD         ID=1 HYD=EX.A  AREA=0.5438  PER A=0.0 PER B=50.0
                                PER C=50.0 PER D=0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .111815HR    TP =   .133333HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1515.2    CFS   UNIT VOLUME =    1.000      B =   371.51      P60 = 1.8700
     AREA =      .543800 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                  ID=1   CODE=1

                                   HYDROGRAPH FROM AREA EX.A


    RUNOFF VOLUME =      .89725 INCHES      =      26.0225 ACRE-FEET
    PEAK DISCHARGE RATE =     966.27 CFS  AT   1.500 HOURS   BASIN AREA =   .5438 SQ. MI.


*S*****************************************************************************
SEDIMENT BULK        CODE=1      BULK FACTOR=1.025
*S********************** BASIN EX.B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=5500 FT   SLOPE=0.005  K=3
                                KN=0.03     CENTROID DISTANCE=2100 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION           400.0            .005000              1.0000
     SHALLOW FLOW PORTION        1600.0            .005000              2.0000
     CHANNEL FLOW PORTION        5500.0            .005000              3.0000
     TOTAL BASIN                 7500.0            .005000              2.4725

     LAG EQUATION FACTORS:      Kn=   .0300      TOTAL BASIN LENGTH (FT)=       7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000      CENTROUD LENGTH (FT)=          2100.0

     TIME OF CONCENTRATION (HRS)=   .6569     TIME TO PEAK (HRS)=   .4380     LAG TIME (HRS)=   .4927

COMPUTE NM HYD         ID=2 HYD=EX.B  AREA=2.9109  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .4380

     K =   .439506HR    TP =   .437955HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   2137.7    CFS   UNIT VOLUME =    1.000      B =   321.62      P60 = 1.8700
     AREA =    2.910900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=2   CODE=1

                                   HYDROGRAPH FROM AREA EX.B


    RUNOFF VOLUME =      .45020 INCHES      =      69.8922 ACRE-FEET
    PEAK DISCHARGE RATE =     952.72 CFS  AT   1.833 HOURS   BASIN AREA =  2.9109 SQ. MI.
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*S*****************************************************************************

*S********************** BASIN EX.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=2200 FT   SLOPE=0.01  K=3
                              KN=0.03    CENTROID DISTANCE=500 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .010000            1.0000
     SHALLOW FLOW PORTION       1600.0           .010000            2.0000
     CHANNEL FLOW PORTION       2200.0           .010000            3.0000
     TOTAL BASIN                4200.0           .010000            2.1724


     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      4200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000      CENTROUD LENGTH (FT)=          500.0


     TIME OF CONCENTRATION (HRS)=   .5102     TIME TO PEAK (HRS)=   .3401     LAG TIME (HRS)=   .3826

COMPUTE NM HYD         ID=3 HYD=EX.C  AREA=1.3750  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3401

     K =   .341329HR    TP =   .340124HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1300.2    CFS   UNIT VOLUME =    1.000        B =   321.62       P60 = 1.8700
     AREA =     1.375000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=3   CODE=1

                                     HYDROGRAPH FROM AREA EX.C


    RUNOFF VOLUME =      .45020 INCHES      =      33.0145 ACRE-FEET
    PEAK DISCHARGE RATE =     575.85 CFS  AT   1.733 HOURS   BASIN AREA =  1.3750 SQ. MI.


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

*S********************** BASIN EX.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                              KN=0.03    CENTROID DISTANCE=3500 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .008000            1.0000
     SHALLOW FLOW PORTION       1600.0           .008000            2.0000
     CHANNEL FLOW PORTION       4700.0           .008000            3.0000
     TOTAL BASIN                6700.0           .008000            2.4217


     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=    .008000      CENTROUD LENGTH (FT)=         3500.0


     TIME OF CONCENTRATION (HRS)=   .6025     TIME TO PEAK (HRS)=   .4016     LAG TIME (HRS)=   .4518

COMPUTE NM HYD         ID=4 HYD=EX.D  AREA=0.5313  PER A=100.0 PER B=0.0
                              PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .4016

     K =   .403061HR    TP =   .401639HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   425.45    CFS   UNIT VOLUME =    1.000        B =   321.62       P60 = 1.8700
     AREA =     .531300 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=4   CODE=1

                                     HYDROGRAPH FROM AREA EX.D


    RUNOFF VOLUME =      .45020 INCHES      =      12.7568 ACRE-FEET
    PEAK DISCHARGE RATE =     189.17 CFS  AT   1.800 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN EX.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
                              KN=0.03    CENTROID DISTANCE=5400 FT
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```
     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .006000            1.0000
     SHALLOW FLOW PORTION          1600.0            .006000            2.0000
     CHANNEL FLOW PORTION          9500.0            .006000            3.0000
     TOTAL BASIN                  11500.0            .006000            2.6336

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      11500.0
     TOTAL BASIN SLOPE (FT/FT)=     .006000     CENTROUD LENGTH (FT)=          5400.0

     TIME OF CONCENTRATION (HRS)=   .7725     TIME TO PEAK (HRS)=   .5150     LAG TIME (HRS)=   .5794

COMPUTE NM HYD        ID=5 HYD=EX.E  AREA=2.4234  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5150

     K =   .516852HR    TP =   .515028HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1513.3    CFS   UNIT VOLUME =    1.000       B =   321.62      P60 = 1.8700
     AREA =     2.423400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=5   CODE=1

                                     HYDROGRAPH FROM AREA EX.E

    RUNOFF VOLUME =      .45020 INCHES     =      58.1871 ACRE-FEET
    PEAK DISCHARGE RATE =     676.65 CFS  AT   1.900 HOURS   BASIN AREA =  2.4234 SQ. MI.


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

*S********************** BASIN EX.F ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.01  K=1
                      LENGTH=1600 FT   SLOPE=0.01  K=2
                      LENGTH=9200 FT   SLOPE=0.01  K=3
                                KN=0.03    CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .010000            1.0000
     SHALLOW FLOW PORTION          1600.0            .010000            2.0000
     CHANNEL FLOW PORTION          9200.0            .010000            3.0000
     TOTAL BASIN                  11200.0            .010000            2.6250

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      11200.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=          5400.0

     TIME OF CONCENTRATION (HRS)=   .6997     TIME TO PEAK (HRS)=   .4665     LAG TIME (HRS)=   .5248

COMPUTE NM HYD        ID=6 HYM=EX.F  AREA=1.7047  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4665

     K =   .468113HR    TP =   .466461HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1175.4    CFS   UNIT VOLUME =    1.000       B =   321.62      P60 = 1.8700
     AREA =     1.704700 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=6   CODE=1

                                     OUTFLOW HYDROGRAPH REACH       .00

    RUNOFF VOLUME =      .45020 INCHES     =      40.9307 ACRE-FEET
    PEAK DISCHARGE RATE =     524.14 CFS  AT   1.867 HOURS   BASIN AREA =  1.7047 SQ. MI.


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

*S********************** BASIN EX.G ***********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=13300 FT   SLOPE=0.02  K=3
                                KN=0.03    CENTROID DISTANCE=6300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      13300.0
     TOTAL BASIN SLOPE (FT/FT)=     .020000     CENTROUD LENGTH (FT)=          6300.0

     TIME OF CONCENTRATION (HRS)=   .6932     TIME TO PEAK (HRS)=   .4621     LAG TIME (HRS)=   .5199

COMPUTE NM HYD        ID=7 HYD=EX.G  AREA=2.2625  PER A=100.0 PER B=0.0
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                    PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4621

     K =   .463754HR    TP =   .462118HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =    1574.6    CFS   UNIT VOLUME =     1.000      B =   321.62      P60 = 1.8700
     AREA =     2.262500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=7   CODE=1

                                   HYDROGRAPH FROM AREA EX.G

    RUNOFF VOLUME =      .45020 INCHES     =      54.3238 ACRE-FEET
    PEAK DISCHARGE RATE =     701.96 CFS  AT   1.833 HOURS   BASIN AREA =  2.2625 SQ. MI.


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

*S********************** BASIN EX.H **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=20500 FT    SLOPE=0.017  K=3
                            KN=0.03    CENTROID DISTANCE=6600 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=     20500.0
     TOTAL BASIN SLOPE (FT/FT)=    .017000     CENTROUD LENGTH (FT)=         6600.0

     TIME OF CONCENTRATION (HRS)=   .8340     TIME TO PEAK (HRS)=   .5560     LAG TIME (HRS)=   .6255

COMPUTE NM HYD       ID=8 HYD=EX.H  AREA=4.5969  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .5560

     K =   .557967HR    TP =   .555998HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =    2659.1    CFS   UNIT VOLUME =     1.000      B =   321.62      P60 = 1.8700
     AREA =     4.596900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=8   CODE=1

                                   HYDROGRAPH FROM AREA EX.H

    RUNOFF VOLUME =      .45020 INCHES     =     110.3739 ACRE-FEET
    PEAK DISCHARGE RATE =    1189.79 CFS  AT   1.933 HOURS   BASIN AREA =  4.5969 SQ. MI.


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

*S********************** BASIN EX.I **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.021  K=1
                     LENGTH=1600 FT   SLOPE=0.021  K=2
                     LENGTH=5700 FT   SLOPE=0.021  K=3
                            KN=0.03    CENTROID DISTANCE=3000 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .021000            1.0000
     SHALLOW FLOW PORTION         1600.0            .021000            2.0000
     CHANNEL FLOW PORTION         5700.0            .021000            3.0000
     TOTAL BASIN                  7700.0            .021000            2.4839

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7700.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000     CENTROUD LENGTH (FT)=         3000.0

     TIME OF CONCENTRATION (HRS)=   .4445     TIME TO PEAK (HRS)=   .2963     LAG TIME (HRS)=   .3334

COMPUTE NM HYD       ID=9 HYD=EX.I  AREA=1.6969  PER A=100.0 PER B=0.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2963

     K =   .297390HR    TP =   .296341HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =    1841.7    CFS   UNIT VOLUME =     1.000      B =   321.62      P60 = 1.8700
     AREA =     1.696900 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=9   CODE=1

                                   HYDROGRAPH FROM AREA EX.I

    RUNOFF VOLUME =      .45020 INCHES     =      40.7435 ACRE-FEET
    PEAK DISCHARGE RATE =     808.88 CFS  AT   1.700 HOURS   BASIN AREA =  1.6969 SQ. MI.
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*S*****************************************************************************

*S********************** BASIN EX.J **********************

COMPUTE LT TP          LCODE=1  NK=2  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.017  K=1
                       LENGTH=700 FT    SLOPE=0.017  K=2

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .017000            1.0000
     SHALLOW FLOW PORTION         700.0            .017000            2.0000
     CHANNEL FLOW PORTION           .0             .000000             .0000
     TOTAL BASIN                 1100.0            .017000            1.4667

     TIME OF CONCENTRATION (HRS)=   .1598     TIME TO PEAK (HRS)=   .1065     LAG TIME (HRS)=   .1198

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

COMPUTE NM HYD         ID=10 HYD=EX.J  AREA=0.0250  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .163724HR    TP =   .133333HR    K/TP RATIO =  1.227936     SHAPE CONSTANT, N =  2.899764
     UNIT PEAK =   51.290    CFS   UNIT VOLUME =    .9994       B =   273.54      P60 = 1.8700
     AREA =      .025000 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=10   CODE=1

                                     HYDROGRAPH FROM AREA EX.J

    RUNOFF VOLUME =       .45020 INCHES      =        .6003 ACRE-FEET
    PEAK DISCHARGE RATE =      21.27 CFS  AT   1.533 HOURS   BASIN AREA =   .0250 SQ. MI.


*S*****************************************************************************
SEDIMENT BULK       CODE=1     BULK FACTOR=1.10
*S********************** BASIN EX.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.029  K=1
                       LENGTH=1600 FT   SLOPE=0.029  K=2
                       LENGTH=6600 FT   SLOPE=0.029  K=3
                                KN=0.03    CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .029000            1.0000
     SHALLOW FLOW PORTION           .0             .000000             .0000
     CHANNEL FLOW PORTION           .0             .000000             .0000
     TOTAL BASIN                  400.0            .029000            1.0000

     TIME OF CONCENTRATION (HRS)=   .0652     TIME TO PEAK (HRS)=   .0435     LAG TIME (HRS)=   .0489

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

COMPUTE NM HYD         ID=11 HYD=EX.K  AREA=1.0531  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .126475HR    TP =   .133333HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726434
     UNIT PEAK =   2657.8    CFS   UNIT VOLUME =    1.000       B =   336.50      P60 = 1.8700
     AREA =     1.053100 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                  ID=11   CODE=1

                                     HYDROGRAPH FROM AREA EX.K

    RUNOFF VOLUME =       .59932 INCHES      =      33.6605 ACRE-FEET
    PEAK DISCHARGE RATE =    1351.32 CFS  AT   1.533 HOURS   BASIN AREA =  1.0531 SQ. MI.


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

*S********************** BASIN EX.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
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                    LENGTH=1600 FT   SLOPE=0.076  K=2
                    LENGTH=800 FT    SLOPE=0.076  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .076000            1.0000
     SHALLOW FLOW PORTION          1600.0            .076000            2.0000
     CHANNEL FLOW PORTION           800.0            .076000            3.0000
     TOTAL BASIN                   2800.0            .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108


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

COMPUTE NM HYD       ID=12 HYD=EX.L  AREA=0.6219  PER A=50.0 PER B=50.0
                           PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .126475HR    TP =   .133333HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726434
     UNIT PEAK =   1569.5    CFS   UNIT VOLUME =    1.000       B =   336.50       P60 = 1.8700
     AREA =       .621900 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                 ID=12   CODE=1

                                   HYDROGRAPH FROM AREA EX.L

    RUNOFF VOLUME =      .59931 INCHES     =      19.8780 ACRE-FEET
    PEAK DISCHARGE RATE =     798.02 CFS  AT   1.533 HOURS   BASIN AREA =   .6219 SQ. MI.


*s*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.025
*s********************** BASIN EX.M ************************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.015  K=1
                     LENGTH=1600 FT   SLOPE=0.015  K=2
                     LENGTH=3400 FT   SLOPE=0.015  K=3
                           KN=0.03    CENTROID DISTANCE=2500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .015000            1.0000
     SHALLOW FLOW PORTION          1600.0            .015000            2.0000
     CHANNEL FLOW PORTION          3400.0            .015000            3.0000
     TOTAL BASIN                   5400.0            .015000            2.3143

     LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      5400.0
     TOTAL BASIN SLOPE (FT/FT)=    .015000     CENTROUD LENGTH (FT)=         2500.0

     TIME OF CONCENTRATION (HRS)=   .4414     TIME TO PEAK (HRS)=   .2942     LAG TIME (HRS)=   .3310

COMPUTE NM HYD       ID=13 HYD=EX.M  AREA=1.1844  PER A=100.0 PER B=0.0
                           PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2942

     K =   .295285HR    TP =   .294243HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1294.6    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
     AREA =     1.184400 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                 ID=13   CODE=1

                                   HYDROGRAPH FROM AREA EX.M

    RUNOFF VOLUME =      .45020 INCHES     =      28.4381 ACRE-FEET
    PEAK DISCHARGE RATE =     568.68 CFS  AT   1.667 HOURS   BASIN AREA =  1.1844 SQ. MI.


*s*****************************************************************************
SEDIMENT BULK        CODE=1     BULK FACTOR=1.10
*s********************** BASIN EX.N ************************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.059  K=1
                     LENGTH=1600 FT   SLOPE=0.059  K=2
                     LENGTH=4000 FT   SLOPE=0.059  K=3
                           KN=0.03    CENTROID DISTANCE=4200 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .059000            1.0000
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SHALLOW FLOW PORTION          1600.0          .059000          2.0000
CHANNEL FLOW PORTION          4000.0          .059000          3.0000
TOTAL BASIN                   6000.0          .059000          2.3684

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      6000.0
TOTAL BASIN SLOPE (FT/FT)=    .059000     CENTROUD LENGTH (FT)=         4200.0

TIME OF CONCENTRATION (HRS)=   .2989     TIME TO PEAK (HRS)=   .1993     LAG TIME (HRS)=   .2242

COMPUTE NM HYD        ID=14 HYD=EX.N  AREA=0.6047  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .1993

K =   .189040HR    TP =   .199290HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726434
UNIT PEAK =   1021.0    CFS   UNIT VOLUME =    1.000       B =   336.50      P60 = 1.8700
AREA =      .604700 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                  ID=14   CODE=1

                                HYDROGRAPH FROM AREA EX.N

RUNOFF VOLUME =       .59932 INCHES      =      19.3282 ACRE-FEET
PEAK DISCHARGE RATE =     561.22 CFS  AT   1.600 HOURS   BASIN AREA =   .6047 SQ. MI.


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

*S********************** BASIN EX.O **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.054  K=1
                     LENGTH=1600 FT   SLOPE=0.054  K=2
                     LENGTH=5500 FT   SLOPE=0.054  K=3
                           KN=0.03    CENTROID DISTANCE=4300 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                          LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0           .054000           1.0000
SHALLOW FLOW PORTION         1600.0           .054000           2.0000
CHANNEL FLOW PORTION         5500.0           .054000           3.0000
TOTAL BASIN                  7500.0           .054000           2.4725

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      7500.0
TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4300.0

TIME OF CONCENTRATION (HRS)=   .3649     TIME TO PEAK (HRS)=   .2433     LAG TIME (HRS)=   .2737

COMPUTE NM HYD        ID=15 HYD=EX.O  AREA=0.9484  PER A=50.0 PER B=50.0
                            PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .2433

K =   .230782HR    TP =   .243296HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726434
UNIT PEAK =   1311.7    CFS   UNIT VOLUME =    1.000       B =   336.50      P60 = 1.8700
AREA =      .948400 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                  ID=15   CODE=1

                                HYDROGRAPH FROM AREA EX.O

RUNOFF VOLUME =       .59931 INCHES      =      30.3140 ACRE-FEET
PEAK DISCHARGE RATE =     741.95 CFS  AT   1.633 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S********************** BASIN EX.P **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.04  K=1
                     LENGTH=1600 FT   SLOPE=0.04  K=2
                     LENGTH=6900 FT   SLOPE=0.04  K=3
                           KN=0.03    CENTROID DISTANCE=3700 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                          LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION            400.0           .040000           1.0000
SHALLOW FLOW PORTION         1600.0           .040000           2.0000
CHANNEL FLOW PORTION         6900.0           .040000           3.0000
TOTAL BASIN                  8900.0           .040000           2.5429

LAG EQUATION FACTORS:     Kn=   .0300     TOTAL BASIN LENGTH (FT)=      8900.0
TOTAL BASIN SLOPE (FT/FT)=    .040000     CENTROUD LENGTH (FT)=         3700.0

TIME OF CONCENTRATION (HRS)=   .4236     TIME TO PEAK (HRS)=   .2824     LAG TIME (HRS)=   .3177
```

```
COMPUTE NM HYD        ID=16 HYD=EX.P  AREA=0.9313  PER A=50.0 PER B=50.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2824

     K =   .267858HR    TP =   .282382HR    K/TP RATIO =   .948564     SHAPE CONSTANT, N =  3.726430
     UNIT PEAK =   1109.8    CFS   UNIT VOLUME =    1.000       B =   336.50       P60 = 1.8700
     AREA =       .931300 SQ MI    IA =    .57500 INCHES    INF =   1.46000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.10000 AT PEAK FLOW.

PRINT HYD                  ID=16   CODE=1

                                        HYDROGRAPH FROM AREA EX.P

    RUNOFF VOLUME =       .59931 INCHES      =       29.7674 ACRE-FEET
    PEAK DISCHARGE RATE =      636.49 CFS  AT   1.667 HOURS   BASIN AREA =   .9313 SQ. MI.


*S*****************************************************************************
SEDIMENT BULK        CODE=1      BULK FACTOR=1.025
*S********************** BASIN EX. OFF A ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.009  K=1
                      LENGTH=1600 FT   SLOPE=0.009  K=2
                      LENGTH=9300 FT   SLOPE=0.009  K=3
                                KN=0.03    CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .009000            1.0000
     SHALLOW FLOW PORTION         1600.0            .009000            2.0000
     CHANNEL FLOW PORTION         9300.0            .009000            3.0000
     TOTAL BASIN                 11300.0            .009000            2.6279

     LAG EQUATION FACTORS:      Kn=   .0300     TOTAL BASIN LENGTH (FT)=      11300.0
     TOTAL BASIN SLOPE (FT/FT)=     .009000     CENTROUD LENGTH (FT)=          4800.0

     TIME OF CONCENTRATION (HRS)=   .6894     TIME TO PEAK (HRS)=   .4596     LAG TIME (HRS)=   .5171

COMPUTE NM HYD        ID=17 HYD=EX.OFF.A  AREA=1.6375  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .4596

     K =   .461237HR    TP =   .459609HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =   1145.9    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
     AREA =     1.637500 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=17   CODE=1

                                        HYDROGRAPH FROM AREA EX.OFF.A

    RUNOFF VOLUME =       .45020 INCHES      =       39.3172 ACRE-FEET
    PEAK DISCHARGE RATE =      510.98 CFS  AT   1.833 HOURS   BASIN AREA =  1.6375 SQ. MI.


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

*S********************** BASIN EX. OFF B ***********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=18700 FT   SLOPE=0.009  K=3
                                KN=0.03    CENTROID DISTANCE=8000 FT

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

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0160     TOTAL BASIN LENGTH (FT)=      18700.0
     TOTAL BASIN SLOPE (FT/FT)=     .021834     CENTROUD LENGTH (FT)=          9350.0

     TIME OF CONCENTRATION (HRS)=   .4645     TIME TO PEAK (HRS)=   .3097     LAG TIME (HRS)=   .3484

COMPUTE NM HYD        ID=18 HYD=EX.OFF.B  AREA=0.4.6078  PER A=100.0 PER B=0.0
                                PER C=0.0 PER D=0.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3097

     K =   .310757HR    TP =   .309661HR    K/TP RATIO =  1.003541     SHAPE CONSTANT, N =  3.517728
     UNIT PEAK =    478.58    CFS   UNIT VOLUME =    1.000       B =   321.62       P60 = 1.8700
     AREA =       .460780 SQ MI    IA =    .65000 INCHES    INF =   1.67000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=18   CODE=1
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                                    HYDROGRAPH FROM AREA EX.OFF.B

    RUNOFF VOLUME =      .45020 INCHES     =      11.0636 ACRE-FEET
    PEAK DISCHARGE RATE =     211.31 CFS  AT   1.700 HOURS   BASIN AREA =   .4608 SQ. MI.


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

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION             400.0            .011000            1.0000
    SHALLOW FLOW PORTION          1600.0            .011000            2.0000
    CHANNEL FLOW PORTION          1600.0            .011000            3.0000
    TOTAL BASIN                   3600.0            .011000            2.0769

    TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD         ID=19 HYD=EX.OFF.C  AREA=1.5125  PER A=60.0 PER B=15.0
                                 PER C=10.0 PER D=15.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .3060

    K =   .176535HR    TP =   .306050HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
    UNIT PEAK =   372.56    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
    AREA =      .226875 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    K =   .293277HR    TP =   .306050HR    K/TP RATIO =   .958266     SHAPE CONSTANT, N =  3.687406
    UNIT PEAK =   1402.0    CFS   UNIT VOLUME =    1.000       B =   333.76      P60 = 1.8700
    AREA =     1.285625 SQ MI    IA =    .58824 INCHES    INF =   1.49706 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

   BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=19   CODE=1

                                    HYDROGRAPH FROM AREA EX.OFF.C

    RUNOFF VOLUME =      .81717 INCHES     =      65.9177 ACRE-FEET
    PEAK DISCHARGE RATE =    1143.93 CFS  AT   1.700 HOURS   BASIN AREA =  1.5125 SQ. MI.


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

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

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FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 09:42:02
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  2DEV_6.HYM
*S*                 OUTUPUT FILE NAME:  2DEV_6.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  2 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=1     RAIN QUARTER=0.0
                    RAIN ONE=0.81 IN    RAIN SIX=0.95 IN
                    RAIN DAY=1.15 IN    DT=0.033333

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


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*S******************************************************************************
*S              COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S******************************************************************************
*******************************************************************************
*S*    SEDIMET BULF FACTOR FOR 2 YR = 0
SEDIMENT BULK       CODE=1          BULK FACTOR=1

*S********************** BASIN DEV.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                    PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=6200 FT   SLOPE=0.005  K=3
                    KN=0.021   CENTROID DISTANCE=2800 FT

COMPUTE NM HYD      ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                    PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S******************************************************************************

*S********************** BASIN DEV.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=3100 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=1400 FT

COMPUTE NM HYD      ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                    PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.021   CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                    PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S******************************************************************************

*S********************** BASIN DEV.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                    PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S******************************************************************************

*S********************** BASIN DEV.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=5450 FT

COMPUTE NM HYD      ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                    PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S******************************************************************************
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*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                       KN=0.021   CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                       PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                       KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                       PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                       KN=0.021   CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                       PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT   SLOPE=0.076   K=3

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                       PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=10   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                       KN=0.021   CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                       PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                       KN=0.021   CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                       PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=12   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.021   CENTROID DISTANCE=4350 FT

COMPUTE NM HYD         ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                       PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=13   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.041  K=1
                       LENGTH=1600 FT   SLOPE=0.041  K=2
                       LENGTH=6800 FT   SLOPE=0.041  K=3
                       KN=0.021   CENTROID DISTANCE=3750 FT

COMPUTE NM HYD         ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                       PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=14   CODE=1
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*S*************************************************************************

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD         ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                       PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=15   CODE=1
*S*************************************************************************

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

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FINISH
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```
AHYMO PROGRAM (AHYMO_97) -                                  - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 12/28/2012
     START TIME (HR:MIN:SEC) = 08:18:50        USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 2DEV_6.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  2DEV_6.HYM
*S*                OUTUPUT FILE NAME:  2DEV_6.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  2 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=1     RAIN QUARTER=0.0
                   RAIN ONE=0.81 IN    RAIN SIX=0.95 IN
                   RAIN DAY=1.15 IN    DT=0.033333

              COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
              DT =    .033333 HOURS       END TIME =     5.999940 HOURS
                 .0000   .0007   .0014   .0021   .0028   .0035   .0043
                 .0051   .0058   .0067   .0075   .0083   .0092   .0101
                 .0110   .0120   .0130   .0140   .0151   .0161   .0173
                 .0184   .0196   .0209   .0222   .0236   .0250   .0265
                 .0281   .0298   .0315   .0338   .0362   .0387   .0443
                 .0566   .0755   .1027   .1398   .1886   .2508   .3282
                 .4228   .5102   .5468   .5777   .6051   .6301   .6531
                 .6745   .6945   .7132   .7308   .7474   .7631   .7780
                 .7921   .8054   .8181   .8301   .8415   .8442   .8466
                 .8490   .8512   .8533   .8554   .8573   .8592   .8610
                 .8628   .8645   .8661   .8677   .8693   .8708   .8722
                 .8737   .8751   .8764   .8777   .8790   .8803   .8816
                 .8828   .8840   .8851   .8863   .8874   .8885   .8896
                 .8906   .8917   .8927   .8937   .8947   .8957   .8967
                 .8976   .8986   .8995   .9004   .9013   .9022   .9031
                 .9039   .9048   .9056   .9065   .9073   .9081   .9089
                 .9097   .9105   .9112   .9120   .9128   .9135   .9143
                 .9150   .9157   .9164   .9172   .9179   .9186   .9193
                 .9199   .9206   .9213   .9220   .9226   .9233   .9239
                 .9246   .9252   .9258   .9265   .9271   .9277   .9283
                 .9289   .9295   .9301   .9307   .9313   .9319   .9325
                 .9330   .9336   .9342   .9347   .9353   .9359   .9364
                 .9370   .9375   .9380   .9386   .9391   .9396   .9402
                 .9407   .9412   .9417   .9422   .9427   .9432   .9437
                 .9442   .9447   .9452   .9457   .9462   .9467   .9472
                 .9476   .9481   .9486   .9491   .9495   .9500

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*S******************************************************************************
*S                        COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION

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

*******************************************************************************
*S*    SEDIMET BULF FACTOR FOR 2 YR = 0
SEDIMENT BULK       CODE=1          BULK FACTOR=1

*S********************** BASIN DEV.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT    SLOPE=0.05  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION             400.0             .050000             1.0000
     SHALLOW FLOW PORTION          1600.0             .050000             2.0000
     CHANNEL FLOW PORTION           400.0             .050000             3.0000
     TOTAL BASIN                   2400.0             .050000             1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                              PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .104399HR    TP =   .133333HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   112.09    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =       .038066 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .159614HR    TP =   .133333HR    K/TP RATIO =  1.197105     SHAPE CONSTANT, N =  2.967777
     UNIT PEAK =   1058.9    CFS   UNIT VOLUME =    .9998       B =   279.18      P60 = .81000
     AREA =       .505734 SQ MI    IA =    .35161 INCHES    INF =    .83452 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                ID=1   CODE=1

                                   HYDROGRAPH FROM AREA DEV.A
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    RUNOFF VOLUME =      .16428 INCHES     =      4.7645 ACRE-FEET
    PEAK DISCHARGE RATE =     161.78 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.005  K=1
                     LENGTH=1600 FT   SLOPE=0.005  K=2
                     LENGTH=6200 FT   SLOPE=0.005  K=3
                              KN=0.021   CENTROID DISTANCE=2800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .005000            1.0000
     SHALLOW FLOW PORTION         1600.0           .005000            2.0000
     CHANNEL FLOW PORTION         6200.0           .005000            3.0000
     TOTAL BASIN                  8200.0           .005000            2.5102

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8200.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000     CENTROUD LENGTH (FT)=         2800.0

     TIME OF CONCENTRATION (HRS)=   .5659     TIME TO PEAK (HRS)=   .3773    LAG TIME (HRS)=   .4244

COMPUTE NM HYD       ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                              PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3773

     K =   .295400HR    TP =   .377270HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   1857.0    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =     1.784422 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .470831HR    TP =   .377270HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   782.74    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =     1.093678 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=2   CODE=1

                                   HYDROGRAPH FROM AREA DEV.B

    RUNOFF VOLUME =      .47281 INCHES     =     72.5752 ACRE-FEET
    PEAK DISCHARGE RATE =     987.71 CFS  AT   1.800 HOURS   BASIN AREA =  2.8781 SQ. MI.


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

*S********************** BASIN DEV.C **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.01  K=1
                     LENGTH=1600 FT   SLOPE=0.01  K=2
                     LENGTH=3100 FT   SLOPE=0.01  K=3
                              KN=0.021   CENTROID DISTANCE=1400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .010000            1.0000
     SHALLOW FLOW PORTION         1600.0           .010000            2.0000
     CHANNEL FLOW PORTION         3100.0           .010000            3.0000
     TOTAL BASIN                  5100.0           .010000            2.2836

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      5100.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000     CENTROUD LENGTH (FT)=         1400.0

     TIME OF CONCENTRATION (HRS)=   .4780     TIME TO PEAK (HRS)=   .3187    LAG TIME (HRS)=   .3585

COMPUTE NM HYD       ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                              PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3187

     K =   .249534HR    TP =   .318693HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   924.89    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .750768 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .397726HR    TP =   .318693HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   689.09    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =      .813332 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=3   CODE=1

                                   HYDROGRAPH FROM AREA DEV.C

    RUNOFF VOLUME =      .37809 INCHES     =     31.5396 ACRE-FEET
    PEAK DISCHARGE RATE =     481.25 CFS  AT   1.733 HOURS   BASIN AREA =  1.5641 SQ. MI.
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*S*****************************************************************************

*S********************** BASIN DEV.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                              KN=0.021   CENTROID DISTANCE=3500 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .008000            1.0000
     SHALLOW FLOW PORTION         1600.0            .008000            2.0000
     CHANNEL FLOW PORTION         4700.0            .008000            3.0000
     TOTAL BASIN                  6700.0            .008000            2.4217


     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=    .008000      CENTROUD LENGTH (FT)=         3500.0


     TIME OF CONCENTRATION (HRS)=   .5237     TIME TO PEAK (HRS)=   .3491     LAG TIME (HRS)=   .3928

COMPUTE NM HYD         ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                              PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3491

     K =   .273355HR    TP =   .349116HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   406.29    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .361284 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .435694HR    TP =   .349116HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   131.49    CFS   UNIT VOLUME =    .9999       B =   270.01      P60 = .81000
     AREA =      .170016 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=4   CODE=1

                                     HYDROGRAPH FROM AREA DEV.D

    RUNOFF VOLUME =      .51340 INCHES     =      14.5477 ACRE-FEET
    PEAK DISCHARGE RATE =     208.59 CFS  AT   1.767 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN DEV.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
                              KN=0.021   CENTROID DISTANCE=5400 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .006000            1.0000
     SHALLOW FLOW PORTION         1600.0            .006000            2.0000
     CHANNEL FLOW PORTION         9500.0            .006000            3.0000
     TOTAL BASIN                 11500.0            .006000            2.6336


     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=    .006000      CENTROUD LENGTH (FT)=         5400.0


     TIME OF CONCENTRATION (HRS)=   .5510     TIME TO PEAK (HRS)=   .3673     LAG TIME (HRS)=   .4132

COMPUTE NM HYD         ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                              PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3673

     K =   .287616HR    TP =   .367328HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   1404.1    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =     1.313712 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .458423HR    TP =   .367328HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   822.61    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =     1.119088 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=5   CODE=1

                                     HYDROGRAPH FROM AREA DEV.E

    RUNOFF VOLUME =      .41868 INCHES     =      54.3237 ACRE-FEET
    PEAK DISCHARGE RATE =     751.97 CFS  AT   1.800 HOURS   BASIN AREA =  2.4328 SQ. MI.
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*S*****************************************************************************

*S********************** BASIN DEV.F **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=9200 FT   SLOPE=0.01  K=3
                                 KN=0.021   CENTROID DISTANCE=5450 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION              400.0           .010000            1.0000
     SHALLOW FLOW PORTION           1600.0           .010000            2.0000
     CHANNEL FLOW PORTION           9200.0           .010000            3.0000
     TOTAL BASIN                   11200.0           .010000            2.6250


     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000      CENTROUD LENGTH (FT)=         5450.0


     TIME OF CONCENTRATION (HRS)=   .5039     TIME TO PEAK (HRS)=   .3359     LAG TIME (HRS)=   .3779

COMPUTE NM HYD         ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                                 PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3359

     K =   .263025HR    TP =   .335923HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587621
     UNIT PEAK =   679.13    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .581076 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .419229HR    TP =   .335923HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   830.33    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =     1.033024 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=6   CODE=1

                                     OUTFLOW HYDROGRAPH REACH       .00

    RUNOFF VOLUME =      .29690 INCHES     =      25.5589 ACRE-FEET
    PEAK DISCHARGE RATE =     376.05 CFS  AT   1.733 HOURS   BASIN AREA =  1.6141 SQ. MI.


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

*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                                 KN=0.021   CENTROID DISTANCE=6300 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE


     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     13300.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000      CENTROUD LENGTH (FT)=         6300.0


     TIME OF CONCENTRATION (HRS)=   .4813     TIME TO PEAK (HRS)=   .3209     LAG TIME (HRS)=   .3610

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                                 PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3209

     K =   .251254HR    TP =   .320889HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   2179.9    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =     1.781702 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .400467HR    TP =   .320889HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   1085.6    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =     1.290198 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=7   CODE=1

                                     HYDROGRAPH FROM AREA DEV.G

    RUNOFF VOLUME =      .44575 INCHES     =      73.0284 ACRE-FEET
    PEAK DISCHARGE RATE =    1108.35 CFS  AT   1.733 HOURS   BASIN AREA =  3.0719 SQ. MI.


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

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                                 KN=0.021   CENTROID DISTANCE=5400 FT
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Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      13400.0
TOTAL BASIN SLOPE (FT/FT)=     .020000     CENTROUD LENGTH (FT)=          5400.0

TIME OF CONCENTRATION (HRS)=   .4623     TIME TO PEAK (HRS)=   .3082     LAG TIME (HRS)=   .3467

COMPUTE NM HYD        ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                            PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .3082

K =   .241318HR    TP =   .308199HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
UNIT PEAK =   1240.1    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
AREA =       .973500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .384631HR    TP =   .308199HR    K/TP RATIO = 1.247993     SHAPE CONSTANT, N = 2.857743
UNIT PEAK =   1085.5    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
AREA =     1.239000 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=8   CODE=1

                                HYDROGRAPH FROM AREA DEV.H

   RUNOFF VOLUME =      .35103 INCHES     =      41.4211 ACRE-FEET
   PEAK DISCHARGE RATE =     645.81 CFS  AT   1.700 HOURS   BASIN AREA =  2.2125 SQ. MI.


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

*S********************** BASIN DEV.I **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.03  K=1
                      LENGTH=1600 FT   SLOPE=0.03  K=2
                      LENGTH=6500 FT   SLOPE=0.03  K=3
                            KN=0.021   CENTROID DISTANCE=3400 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                            LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION             400.0           .030000            1.0000
SHALLOW FLOW PORTION          1600.0           .030000            2.0000
CHANNEL FLOW PORTION          6500.0           .030000            3.0000
TOTAL BASIN                   8500.0           .030000            2.5248

LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=       8500.0
TOTAL BASIN SLOPE (FT/FT)=     .030000     CENTROUD LENGTH (FT)=          3400.0

TIME OF CONCENTRATION (HRS)=   .3367     TIME TO PEAK (HRS)=   .2245     LAG TIME (HRS)=   .2526

COMPUTE NM HYD        ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                            PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .2245

K =   .175775HR    TP =   .224491HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
UNIT PEAK =   414.19    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
AREA =       .236831 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .271217HR    TP =   .224491HR    K/TP RATIO = 1.208144     SHAPE CONSTANT, N = 2.942929
UNIT PEAK =   978.80    CFS   UNIT VOLUME =    .9999       B =   277.14      P60 = .81000
AREA =       .792869 SQ MI    IA =    .36753 INCHES    INF =    .87909 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=9   CODE=1

                                HYDROGRAPH FROM AREA DEV.I

   RUNOFF VOLUME =      .24884 INCHES     =      13.6653 ACRE-FEET
   PEAK DISCHARGE RATE =     276.36 CFS  AT   1.600 HOURS   BASIN AREA =  1.0297 SQ. MI.


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

*S********************** BASIN DEV.J **********************

COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.076  K=1
                      LENGTH=1600 FT   SLOPE=0.076  K=2
                      LENGTH=800 FT    SLOPE=0.076  K=3

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                            LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION             400.0           .076000            1.0000
SHALLOW FLOW PORTION          1600.0           .076000            2.0000
CHANNEL FLOW PORTION           800.0           .076000            3.0000
TOTAL BASIN                   2800.0           .076000            1.9091
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     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108


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

COMPUTE NM HYD       ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                           PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .104399HR    TP =   .133333HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   970.55    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .329607 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .164776HR    TP =   .133333HR    K/TP RATIO =  1.235821     SHAPE CONSTANT, N =  2.883041
     UNIT PEAK =   596.59    CFS   UNIT VOLUME =    .9996       B =   272.14      P60 = .81000
     AREA =      .292293 SQ MI    IA =    .40745 INCHES    INF =    .99085 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=10   CODE=1

                                   HYDROGRAPH FROM AREA DEV.J

    RUNOFF VOLUME =      .41878 INCHES     =      13.8900 ACRE-FEET
    PEAK DISCHARGE RATE =     367.86 CFS  AT   1.500 HOURS   BASIN AREA =   .6219 SQ. MI.


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

*S********************** BASIN DEV.K **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=16700 FT    SLOPE=0.017  K=3
                           KN=0.021   CENTROID DISTANCE=4800 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE


     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     16700.0
     TOTAL BASIN SLOPE (FT/FT)=    .017000     CENTROUD LENGTH (FT)=         4800.0


     TIME OF CONCENTRATION (HRS)=   .4912     TIME TO PEAK (HRS)=   .3275     LAG TIME (HRS)=   .3684

COMPUTE NM HYD       ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                           PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3275

     K =   .256394HR    TP =   .327453HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   2542.1    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =     2.120256 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .408659HR    TP =   .327453HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   1894.0    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =     2.296944 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=11   CODE=1

                                   HYDROGRAPH FROM AREA DEV.K

    RUNOFF VOLUME =      .37809 INCHES     =      89.0716 ACRE-FEET
    PEAK DISCHARGE RATE =    1334.39 CFS  AT   1.733 HOURS   BASIN AREA =  4.4172 SQ. MI.


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

*S********************** BASIN DEV.L **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.06  K=1
                     LENGTH=1600 FT   SLOPE=0.06  K=2
                     LENGTH=4000 FT   SLOPE=0.06  K=3
                           KN=0.021   CENTROID DISTANCE=4200 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0          .060000            1.0000
     SHALLOW FLOW PORTION         1600.0          .060000            2.0000
     CHANNEL FLOW PORTION         4000.0          .060000            3.0000
     TOTAL BASIN                  6000.0          .060000            2.3684


     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      6000.0
     TOTAL BASIN SLOPE (FT/FT)=    .060000     CENTROUD LENGTH (FT)=         4200.0


     TIME OF CONCENTRATION (HRS)=   .2512     TIME TO PEAK (HRS)=   .1675     LAG TIME (HRS)=   .1884

COMPUTE NM HYD       ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                           PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1
```

```
TIME TO PEAK (hrs)=   .1675

K =   .131125HR    TP =   .167467HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
UNIT PEAK =   217.04    CFS   UNIT VOLUME =    1.000        B =   392.61       P60 = .81000
AREA =       .092580 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .201108HR    TP =   .167467HR    K/TP RATIO =  1.200881     SHAPE CONSTANT, N =  2.959216
UNIT PEAK =   872.39    CFS   UNIT VOLUME =    .9999        B =   278.48       P60 = .81000
AREA =       .524620 SQ MI    IA =    .35706 INCHES    INF =    .84976 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=12   CODE=1

                                   HYDROGRAPH FROM AREA DEV.L

   RUNOFF VOLUME =       .20807 INCHES     =       6.8491 ACRE-FEET
   PEAK DISCHARGE RATE =     180.04 CFS  AT   1.567 HOURS   BASIN AREA =   .6172 SQ. MI.


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

*S********************** BASIN DEV.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                                KN=0.021   CENTROID DISTANCE=4350 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION            400.0            .054000            1.0000
    SHALLOW FLOW PORTION         1600.0            .054000            2.0000
    CHANNEL FLOW PORTION         5500.0            .054000            3.0000
    TOTAL BASIN                  7500.0            .054000            2.4725

    LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      7500.0
    TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4350.0

    TIME OF CONCENTRATION (HRS)=   .2888     TIME TO PEAK (HRS)=   .1925     LAG TIME (HRS)=   .2166

COMPUTE NM HYD         ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                                PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .1925

    K =   .150742HR    TP =   .192520HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587621
    UNIT PEAK =   464.18    CFS   UNIT VOLUME =    1.000        B =   392.61       P60 = .81000
    AREA =       .227616 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    K =   .233413HR    TP =   .192520HR    K/TP RATIO =  1.212410     SHAPE CONSTANT, N =  2.933480
    UNIT PEAK =   1034.6    CFS   UNIT VOLUME =    .9999        B =   276.35       P60 = .81000
    AREA =       .720784 SQ MI    IA =    .37368 INCHES    INF =    .89632 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=13   CODE=1

                                   HYDROGRAPH FROM AREA DEV.M

   RUNOFF VOLUME =       .25032 INCHES     =      12.6615 ACRE-FEET
   PEAK DISCHARGE RATE =     285.21 CFS  AT   1.567 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S********************** BASIN DEV.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.041  K=1
                       LENGTH=1600 FT   SLOPE=0.041  K=2
                       LENGTH=6800 FT   SLOPE=0.041  K=3
                                KN=0.021   CENTROID DISTANCE=3750 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION            400.0            .041000            1.0000
    SHALLOW FLOW PORTION         1600.0            .041000            2.0000
    CHANNEL FLOW PORTION         6800.0            .041000            3.0000
    TOTAL BASIN                  8800.0            .041000            2.5385

    LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8800.0
    TOTAL BASIN SLOPE (FT/FT)=    .041000     CENTROUD LENGTH (FT)=         3750.0

    TIME OF CONCENTRATION (HRS)=   .3198     TIME TO PEAK (HRS)=   .2132     LAG TIME (HRS)=   .2399

COMPUTE NM HYD         ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                                PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .2132
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```
K =   .166943HR    TP =   .213211HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587621
UNIT PEAK =   411.57    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
AREA =      .223512 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .259083HR    TP =   .213211HR    K/TP RATIO =  1.215147     SHAPE CONSTANT, N =  2.927456
UNIT PEAK =   915.74    CFS   UNIT VOLUME =    1.000       B =   275.85      P60 = .81000
AREA =      .707788 SQ MI    IA =    .37763 INCHES    INF =    .90737 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                ID=14   CODE=1

                                HYDROGRAPH FROM AREA DEV.N

RUNOFF VOLUME =      .24729 INCHES      =      12.2829 ACRE-FEET
PEAK DISCHARGE RATE =     257.09 CFS  AT   1.600 HOURS   BASIN AREA =   .9313 SQ. MI.


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

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION                 400.0            .011000            1.0000
SHALLOW FLOW PORTION              1600.0            .011000            2.0000
CHANNEL FLOW PORTION              1600.0            .011000            3.0000
TOTAL BASIN                       3600.0            .011000            2.0769

TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD         ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                             PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .3060

K =   .239635HR    TP =   .306050HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
UNIT PEAK =   350.56    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
AREA =      .273270 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .388769HR    TP =   .306050HR    K/TP RATIO =  1.270282     SHAPE CONSTANT, N =  2.812972
UNIT PEAK =   554.61    CFS   UNIT VOLUME =    .9999       B =   266.20      P60 = .81000
AREA =      .637630 SQ MI    IA =    .52143 INCHES    INF =   1.31000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                ID=15   CODE=1

                                HYDROGRAPH FROM AREA EX.OFF.C

RUNOFF VOLUME =      .21897 INCHES      =      10.6378 ACRE-FEET
PEAK DISCHARGE RATE =     165.93 CFS  AT   1.700 HOURS   BASIN AREA =   .9109 SQ. MI.


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

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

*****************************************************************************
FINISH

NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:18:51
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  2DEV_24.HYM
*S*                 OUTUPUT FILE NAME:  2DEV_24.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  2 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=2      RAIN QUARTER=0.0
                    RAIN ONE=0.81 IN     RAIN SIX=0.95 IN
                    RAIN DAY=1.15 IN     DT=0.033333

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


*******************************************************************************
*S*****************************************************************************
*S            COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S*****************************************************************************
*******************************************************************************
*S*    SEDIMET BULF FACTOR FOR 2 YR = 0
SEDIMENT BULK       CODE=1          BULK FACTOR=1

*S********************** BASIN DEV.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                    PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=6200 FT   SLOPE=0.005  K=3
                    KN=0.021   CENTROID DISTANCE=2800 FT

COMPUTE NM HYD      ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                    PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=3100 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=1400 FT

COMPUTE NM HYD      ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                    PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.021   CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                    PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                    PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=5450 FT

COMPUTE NM HYD      ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                    PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S*****************************************************************************
```

```
*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                       KN=0.021   CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                       PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                       KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                       PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                       KN=0.021   CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                       PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT   SLOPE=0.076   K=3

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                       PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=10   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                       KN=0.021   CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=28.0
                       PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                       KN=0.021   CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                       PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=12   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.021   CENTROID DISTANCE=4350 FT

COMPUTE NM HYD         ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                       PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=13   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.041  K=1
                       LENGTH=1600 FT   SLOPE=0.041  K=2
                       LENGTH=6800 FT   SLOPE=0.041  K=3
                       KN=0.021   CENTROID DISTANCE=3750 FT

COMPUTE NM HYD         ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                       PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=14   CODE=1
```

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

*S********************** BASIN EX. OFF C ***********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.011  K=1
                     LENGTH=1600 FT   SLOPE=0.011  K=2
                     LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD       ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                     PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=15   CODE=1
*S*************************************************************************

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

*************************************************************************
FINISH
```

```
AHYMO PROGRAM (AHYMO_97) -                                  - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 12/28/2012
     START TIME (HR:MIN:SEC) = 08:19:16        USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 2DEV_24.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  2DEV_24.HYM
*S*                OUTUPUT FILE NAME:  2DEV_24.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  2 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=2    RAIN QUARTER=0.0
                   RAIN ONE=0.81 IN    RAIN SIX=0.95 IN
                   RAIN DAY=1.15 IN    DT=0.033333


          COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =    .033333 HOURS       END TIME =    19.966470 HOURS
             .0000   .0007   .0014   .0021   .0028   .0035   .0043
             .0051   .0058   .0067   .0075   .0083   .0092   .0101
             .0110   .0120   .0130   .0140   .0151   .0161   .0173
             .0184   .0196   .0209   .0222   .0236   .0250   .0265
             .0281   .0298   .0315   .0338   .0362   .0387   .0443
             .0566   .0755   .1027   .1398   .1886   .2508   .3282
             .4228   .5102   .5468   .5777   .6051   .6301   .6531
             .6745   .6945   .7132   .7308   .7474   .7631   .7780
             .7921   .8054   .8181   .8301   .8415   .8442   .8466
             .8490   .8512   .8533   .8554   .8573   .8592   .8610
             .8628   .8645   .8661   .8677   .8693   .8708   .8722
             .8737   .8751   .8764   .8777   .8790   .8803   .8816
             .8828   .8840   .8851   .8863   .8874   .8885   .8896
             .8906   .8917   .8927   .8937   .8947   .8957   .8967
             .8976   .8986   .8995   .9004   .9013   .9022   .9031
             .9039   .9048   .9056   .9065   .9073   .9081   .9089
             .9097   .9105   .9112   .9120   .9128   .9135   .9143
             .9150   .9157   .9164   .9172   .9179   .9186   .9193
             .9199   .9206   .9213   .9220   .9226   .9233   .9239
             .9246   .9252   .9258   .9265   .9271   .9277   .9283
             .9289   .9295   .9301   .9307   .9313   .9319   .9325
             .9330   .9336   .9342   .9347   .9353   .9359   .9364
             .9370   .9375   .9380   .9386   .9391   .9396   .9402
             .9407   .9412   .9417   .9422   .9427   .9432   .9437
             .9442   .9447   .9452   .9457   .9462   .9467   .9472
             .9476   .9481   .9486   .9491   .9495   .9500   .9506
             .9511   .9517   .9523   .9528   .9534   .9539   .9545
             .9551   .9556   .9562   .9567   .9573   .9578   .9584
             .9589   .9595   .9600   .9606   .9611   .9617   .9622
             .9627   .9633   .9638   .9643   .9649   .9654   .9659
             .9665   .9670   .9675   .9681   .9686   .9691   .9696
             .9702   .9707   .9712   .9717   .9723   .9728   .9733
             .9738   .9743   .9748   .9753   .9759   .9764   .9769
             .9774   .9779   .9784   .9789   .9794   .9799   .9804
             .9809   .9814   .9819   .9824   .9829   .9834   .9839
             .9844   .9849   .9854   .9859   .9863   .9868   .9873
             .9878   .9883   .9888   .9893   .9897   .9902   .9907
             .9912   .9917   .9921   .9926   .9931   .9936   .9940
             .9945   .9950   .9955   .9959   .9964   .9969   .9973
             .9978   .9983   .9987   .9992   .9997  1.0001  1.0006
            1.0011  1.0015  1.0020  1.0024  1.0029  1.0033  1.0038
            1.0043  1.0047  1.0052  1.0056  1.0061  1.0065  1.0070
            1.0074  1.0079  1.0083  1.0088  1.0092  1.0096  1.0101
            1.0105  1.0110  1.0114  1.0119  1.0123  1.0127  1.0132
            1.0136  1.0141  1.0145  1.0149  1.0154  1.0158  1.0162
            1.0167  1.0171  1.0175  1.0180  1.0184  1.0188  1.0192
            1.0197  1.0201  1.0205  1.0209  1.0214  1.0218  1.0222
            1.0226  1.0231  1.0235  1.0239  1.0243  1.0247  1.0252
            1.0256  1.0260  1.0264  1.0268  1.0272  1.0277  1.0281
            1.0285  1.0289  1.0293  1.0297  1.0301  1.0305  1.0309
            1.0314  1.0318  1.0322  1.0326  1.0330  1.0334  1.0338
            1.0342  1.0346  1.0350  1.0354  1.0358  1.0362  1.0366
            1.0370  1.0374  1.0378  1.0382  1.0386  1.0390  1.0394
            1.0398  1.0402  1.0406  1.0409  1.0413  1.0417  1.0421
            1.0425  1.0429  1.0433  1.0437  1.0441  1.0445  1.0448
            1.0452  1.0456  1.0460  1.0464  1.0468  1.0471  1.0475
            1.0479  1.0483  1.0487  1.0491  1.0494  1.0498  1.0502
            1.0506  1.0509  1.0513  1.0517  1.0521  1.0524  1.0528
            1.0532  1.0536  1.0539  1.0543  1.0547  1.0551  1.0554
            1.0558  1.0562  1.0565  1.0569  1.0573  1.0576  1.0580
            1.0584  1.0587  1.0591  1.0595  1.0598  1.0602  1.0606
            1.0609  1.0613  1.0616  1.0620  1.0624  1.0627  1.0631
            1.0635  1.0638  1.0642  1.0645  1.0649  1.0652  1.0656
            1.0660  1.0663  1.0667  1.0670  1.0674  1.0677  1.0681
            1.0684  1.0688  1.0691  1.0695  1.0698  1.0702  1.0705
            1.0709  1.0712  1.0716  1.0719  1.0723  1.0726  1.0730
            1.0733  1.0737  1.0740  1.0743  1.0747  1.0750  1.0754
            1.0757  1.0761  1.0764  1.0767  1.0771  1.0774  1.0778
            1.0781  1.0784  1.0788  1.0791  1.0795  1.0798  1.0801
            1.0805  1.0808  1.0811  1.0815  1.0818  1.0821  1.0825
            1.0828  1.0831  1.0835  1.0838  1.0841  1.0845  1.0848
            1.0851  1.0855  1.0858  1.0861  1.0864  1.0868  1.0871
            1.0874  1.0878  1.0881  1.0884  1.0887  1.0891  1.0894
            1.0897  1.0900  1.0904  1.0907  1.0910  1.0913  1.0916
            1.0920  1.0923  1.0926  1.0929  1.0932  1.0936  1.0939
            1.0942  1.0945  1.0948  1.0952  1.0955  1.0958  1.0961
            1.0964  1.0967  1.0971  1.0974  1.0977  1.0980  1.0983
            1.0986  1.0989  1.0993  1.0996  1.0999  1.1002  1.1005
            1.1008  1.1011  1.1014  1.1017  1.1021  1.1024  1.1027
            1.1030  1.1033  1.1036  1.1039  1.1042  1.1045  1.1048
            1.1051  1.1054  1.1057  1.1060  1.1063  1.1067  1.1070
            1.1073  1.1076  1.1079  1.1082  1.1085  1.1088  1.1091
            1.1094  1.1097  1.1100  1.1103  1.1106  1.1109  1.1112
            1.1115  1.1118  1.1121  1.1124  1.1127  1.1130  1.1133
            1.1135  1.1138  1.1141  1.1144  1.1147  1.1150  1.1153
            1.1156  1.1159  1.1162  1.1165  1.1168

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*S*****************************************************************************
*S                          COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S*****************************************************************************
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*S*    SEDIMET BULF FACTOR FOR 2 YR = 0
SEDIMENT BULK        CODE=1          BULK FACTOR=1

*S********************** BASIN DEV.A **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.05  K=1
                     LENGTH=1600 FT   SLOPE=0.05  K=2
                     LENGTH=400 FT   SLOPE=0.05  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .050000            1.0000
     SHALLOW FLOW PORTION         1600.0            .050000            2.0000
     CHANNEL FLOW PORTION          400.0            .050000            3.0000
     TOTAL BASIN                  2400.0            .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD       ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                                PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .104399HR    TP =   .133333HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   112.09    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .038066 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .159614HR    TP =   .133333HR    K/TP RATIO =  1.197105     SHAPE CONSTANT, N =  2.967777
     UNIT PEAK =   1058.9    CFS   UNIT VOLUME =    .9998       B =   279.18      P60 = .81000
     AREA =      .505734 SQ MI    IA =    .35161 INCHES    INF =    .83452 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=1   CODE=1

                                   HYDROGRAPH FROM AREA DEV.A

    RUNOFF VOLUME =      .17579 INCHES     =       5.0983 ACRE-FEET
    PEAK DISCHARGE RATE =     161.78 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.005  K=1
                     LENGTH=1600 FT   SLOPE=0.005  K=2
                     LENGTH=6200 FT   SLOPE=0.005  K=3
                              KN=0.021   CENTROID DISTANCE=2800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .005000            1.0000
     SHALLOW FLOW PORTION         1600.0            .005000            2.0000
     CHANNEL FLOW PORTION         6200.0            .005000            3.0000
     TOTAL BASIN                  8200.0            .005000            2.5102

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8200.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000     CENTROUD LENGTH (FT)=         2800.0

     TIME OF CONCENTRATION (HRS)=   .5659     TIME TO PEAK (HRS)=   .3773     LAG TIME (HRS)=   .4244

COMPUTE NM HYD       ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                                PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3773

     K =   .295400HR    TP =   .377270HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   1857.0    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =     1.784422 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .470831HR    TP =   .377270HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   782.74    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =     1.093678 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=2   CODE=1
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                    HYDROGRAPH FROM AREA DEV.B

    RUNOFF VOLUME =      .57222 INCHES     =      87.8339 ACRE-FEET
    PEAK DISCHARGE RATE =     987.71 CFS  AT   1.800 HOURS   BASIN AREA =  2.8781 SQ. MI.


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

*S********************** BASIN DEV.C ***********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=3100 FT   SLOPE=0.01  K=3
                                KN=0.021   CENTROID DISTANCE=1400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .010000            1.0000
     SHALLOW FLOW PORTION         1600.0           .010000            2.0000
     CHANNEL FLOW PORTION         3100.0           .010000            3.0000
     TOTAL BASIN                  5100.0           .010000            2.2836

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      5100.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=         1400.0

     TIME OF CONCENTRATION (HRS)=   .4780     TIME TO PEAK (HRS)=   .3187     LAG TIME (HRS)=   .3585

COMPUTE NM HYD         ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                                PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3187

     K =   .249534HR    TP =   .318693HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   924.89    CFS   UNIT VOLUME =    1.000       B =   392.61,     P60 = .81000
     AREA =      .750768 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .397726HR    TP =   .318693HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   689.09    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =      .813332 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=3   CODE=1

                                HYDROGRAPH FROM AREA DEV.C

    RUNOFF VOLUME =      .45553 INCHES     =      37.9994 ACRE-FEET
    PEAK DISCHARGE RATE =     481.25 CFS  AT   1.733 HOURS   BASIN AREA =  1.5641 SQ. MI.


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

*S********************** BASIN DEV.D ***********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                                KN=0.021   CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .008000            1.0000
     SHALLOW FLOW PORTION         1600.0           .008000            2.0000
     CHANNEL FLOW PORTION         4700.0           .008000            3.0000
     TOTAL BASIN                  6700.0           .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=     .008000     CENTROUD LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .5237     TIME TO PEAK (HRS)=   .3491     LAG TIME (HRS)=   .3928

COMPUTE NM HYD         ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                                PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3491

     K =   .273355HR    TP =   .349116HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   406.29    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .361284 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .435694HR    TP =   .349116HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   131.49    CFS   UNIT VOLUME =    .9999       B =   270.01      P60 = .81000
     AREA =      .170016 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=4   CODE=1

                                HYDROGRAPH FROM AREA DEV.D
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    RUNOFF VOLUME =       .62276 INCHES     =       17.6464 ACRE-FEET
    PEAK DISCHARGE RATE =     208.59 CFS  AT   1.767 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN DEV.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
                                KN=0.021   CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .006000            1.0000
     SHALLOW FLOW PORTION          1600.0            .006000            2.0000
     CHANNEL FLOW PORTION          9500.0            .006000            3.0000
     TOTAL BASIN                  11500.0            .006000            2.6336

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=     .006000     CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .5510     TIME TO PEAK (HRS)=   .3673     LAG TIME (HRS)=   .4132

COMPUTE NM HYD         ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                                PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3673

     K =   .287616HR    TP =   .367328HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   1404.1    CFS   UNIT VOLUME =    1.000       B =   392.61       P60 = .81000
     AREA =     1.313712 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .458423HR    TP =   .367328HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   822.61    CFS   UNIT VOLUME =    1.000       B =   270.01       P60 = .81000
     AREA =     1.119088 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=5   CODE=1

                                     HYDROGRAPH FROM AREA DEV.E

    RUNOFF VOLUME =       .50536 INCHES     =       65.5691 ACRE-FEET
    PEAK DISCHARGE RATE =     751.97 CFS  AT   1.800 HOURS   BASIN AREA =  2.4328 SQ. MI.


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

*S********************** BASIN DEV.F **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=9200 FT   SLOPE=0.01  K=3
                                KN=0.021   CENTROID DISTANCE=5450 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .010000            1.0000
     SHALLOW FLOW PORTION          1600.0            .010000            2.0000
     CHANNEL FLOW PORTION          9200.0            .010000            3.0000
     TOTAL BASIN                  11200.0            .010000            2.6250

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11200.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=         5450.0

     TIME OF CONCENTRATION (HRS)=   .5039     TIME TO PEAK (HRS)=   .3359     LAG TIME (HRS)=   .3779

COMPUTE NM HYD         ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                                PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3359

     K =   .263025HR    TP =   .335923HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587621
     UNIT PEAK =   679.13    CFS   UNIT VOLUME =    1.000       B =   392.61       P60 = .81000
     AREA =     .581076 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .419229HR    TP =   .335923HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   830.33    CFS   UNIT VOLUME =    1.000       B =   270.01       P60 = .81000
     AREA =     1.033024 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=6   CODE=1

                                     OUTFLOW HYDROGRAPH REACH       .00

    RUNOFF VOLUME =       .35488 INCHES     =       30.5495 ACRE-FEET
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    PEAK DISCHARGE RATE =      376.05 CFS  AT   1.733 HOURS   BASIN AREA =  1.6141 SQ. MI.


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

*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                                KN=0.021   CENTROID DISTANCE=6300 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE


     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     13300.0
     TOTAL BASIN SLOPE (FT/FT)=     .021000     CENTROUD LENGTH (FT)=         6300.0


     TIME OF CONCENTRATION (HRS)=   .4813     TIME TO PEAK (HRS)=   .3209     LAG TIME (HRS)=   .3610

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                                PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3209

     K =   .251254HR    TP =   .320889HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   2179.9    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      1.781702 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .400467HR    TP =   .320889HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   1085.6    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =      1.290198 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=7   CODE=1

                                     HYDROGRAPH FROM AREA DEV.G


    RUNOFF VOLUME =      .53930 INCHES     =      88.3549 ACRE-FEET
    PEAK DISCHARGE RATE =    1108.35 CFS  AT   1.733 HOURS   BASIN AREA =  3.0719 SQ. MI.


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

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                                KN=0.021   CENTROID DISTANCE=5400 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE


     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     13400.0
     TOTAL BASIN SLOPE (FT/FT)=     .020000     CENTROUD LENGTH (FT)=         5400.0


     TIME OF CONCENTRATION (HRS)=   .4623     TIME TO PEAK (HRS)=   .3082     LAG TIME (HRS)=   .3467

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                                PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3082

     K =   .241318HR    TP =   .308199HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   1240.1    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .973500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .384631HR    TP =   .308199HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   1085.5    CFS   UNIT VOLUME =    1.000       B =   270.01      P60 = .81000
     AREA =      1.239000 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=8   CODE=1

                                     HYDROGRAPH FROM AREA DEV.H


    RUNOFF VOLUME =      .42209 INCHES     =      49.8065 ACRE-FEET
    PEAK DISCHARGE RATE =     645.81 CFS  AT   1.700 HOURS   BASIN AREA =  2.2125 SQ. MI.


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

*S********************** BASIN DEV.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                                KN=0.021   CENTROID DISTANCE=3400 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
```

```
     SHEET FLOW PORTION          400.0          .030000          1.0000
     SHALLOW FLOW PORTION       1600.0          .030000          2.0000
     CHANNEL FLOW PORTION       6500.0          .030000          3.0000
     TOTAL BASIN                8500.0          .030000          2.5248

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8500.0
     TOTAL BASIN SLOPE (FT/FT)=    .030000     CENTROUD LENGTH (FT)=         3400.0

     TIME OF CONCENTRATION (HRS)=   .3367     TIME TO PEAK (HRS)=   .2245     LAG TIME (HRS)=   .2526

COMPUTE NM HYD       ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                          PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2245

     K =   .175775HR    TP =   .224491HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   414.19    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .236831 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .271217HR    TP =   .224491HR    K/TP RATIO =  1.208144     SHAPE CONSTANT, N =  2.942929
     UNIT PEAK =   978.80    CFS   UNIT VOLUME =    .9999       B =   277.14      P60 = .81000
     AREA =      .792869 SQ MI    IA =    .36753 INCHES    INF =    .87909 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=9   CODE=1

                                   HYDROGRAPH FROM AREA DEV.I

    RUNOFF VOLUME =      .28631 INCHES     =      15.7231 ACRE-FEET
    PEAK DISCHARGE RATE =     276.36 CFS  AT   1.600 HOURS   BASIN AREA =  1.0297 SQ. MI.


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

*S********************** BASIN DEV.J **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.076  K=1
                     LENGTH=1600 FT   SLOPE=0.076  K=2
                     LENGTH=800 FT   SLOPE=0.076   K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .076000            1.0000
     SHALLOW FLOW PORTION       1600.0           .076000            2.0000
     CHANNEL FLOW PORTION        800.0           .076000            3.0000
     TOTAL BASIN                2800.0           .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108

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

COMPUTE NM HYD       ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                          PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .104399HR    TP =   .133333HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   970.55    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .329607 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .164776HR    TP =   .133333HR    K/TP RATIO =  1.235821     SHAPE CONSTANT, N =  2.883041
     UNIT PEAK =   596.59    CFS   UNIT VOLUME =    .9996       B =   272.14      P60 = .81000
     AREA =      .292293 SQ MI    IA =    .40745 INCHES    INF =    .99085 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                 ID=10   CODE=1

                                   HYDROGRAPH FROM AREA DEV.J

    RUNOFF VOLUME =      .50594 INCHES     =      16.7808 ACRE-FEET
    PEAK DISCHARGE RATE =     367.86 CFS  AT   1.500 HOURS   BASIN AREA =   .6219 SQ. MI.


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

*S********************** BASIN DEV.K **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=16700 FT    SLOPE=0.017  K=3
                          KN=0.021   CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     16700.0
     TOTAL BASIN SLOPE (FT/FT)=    .017000     CENTROUD LENGTH (FT)=         4800.0

     TIME OF CONCENTRATION (HRS)=   .4912     TIME TO PEAK (HRS)=   .3275     LAG TIME (HRS)=   .3684
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```
COMPUTE NM HYD        ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=28.0
                                PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3275

     K =   .256394HR    TP =   .327453HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   2330.3    CFS   UNIT VOLUME =    1.000       B =   392.61       P60 = .81000
     AREA =     1.943568 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .408659HR    TP =   .327453HR    K/TP RATIO =  1.247993     SHAPE CONSTANT, N =  2.857743
     UNIT PEAK =   2039.7    CFS   UNIT VOLUME =    1.000       B =   270.01       P60 = .81000
     AREA =     2.473632 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=11   CODE=1

                                   HYDROGRAPH FROM AREA DEV.K

    RUNOFF VOLUME =      .42195 INCHES      =      99.4036 ACRE-FEET
    PEAK DISCHARGE RATE =    1239.37 CFS  AT   1.733 HOURS   BASIN AREA =  4.4172 SQ. MI.


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

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                                KN=0.021   CENTROID DISTANCE=4200 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .060000            1.0000
     SHALLOW FLOW PORTION       1600.0           .060000            2.0000
     CHANNEL FLOW PORTION       4000.0           .060000            3.0000
     TOTAL BASIN                6000.0           .060000            2.3684

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      6000.0
     TOTAL BASIN SLOPE (FT/FT)=    .060000     CENTROUD LENGTH (FT)=         4200.0

     TIME OF CONCENTRATION (HRS)=   .2512     TIME TO PEAK (HRS)=   .1675     LAG TIME (HRS)=   .1884

COMPUTE NM HYD        ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                                PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1675

     K =   .131125HR    TP =   .167467HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   217.04    CFS   UNIT VOLUME =    1.000       B =   392.61       P60 = .81000
     AREA =      .092580 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .201108HR    TP =   .167467HR    K/TP RATIO =  1.200881     SHAPE CONSTANT, N =  2.959216
     UNIT PEAK =   872.39    CFS   UNIT VOLUME =    .9999       B =   278.48       P60 = .81000
     AREA =      .524620 SQ MI    IA =    .35706 INCHES    INF =    .84976 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=12   CODE=1

                                   HYDROGRAPH FROM AREA DEV.L

    RUNOFF VOLUME =      .23265 INCHES      =       7.6582 ACRE-FEET
    PEAK DISCHARGE RATE =     180.04 CFS  AT   1.567 HOURS   BASIN AREA =   .6172 SQ. MI.


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

*S********************** BASIN DEV.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                                KN=0.021   CENTROID DISTANCE=4350 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .054000            1.0000
     SHALLOW FLOW PORTION       1600.0           .054000            2.0000
     CHANNEL FLOW PORTION       5500.0           .054000            3.0000
     TOTAL BASIN                7500.0           .054000            2.4725

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4350.0

     TIME OF CONCENTRATION (HRS)=   .2888     TIME TO PEAK (HRS)=   .1925     LAG TIME (HRS)=   .2166

COMPUTE NM HYD        ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
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                    PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1925

     K =   .150742HR    TP =   .192520HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587621
     UNIT PEAK =   464.18    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .227616 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .233413HR    TP =   .192520HR    K/TP RATIO =  1.212410     SHAPE CONSTANT, N =  2.933480
     UNIT PEAK =   1034.6    CFS   UNIT VOLUME =    .9999       B =   276.35      P60 = .81000
     AREA =      .720784 SQ MI    IA =    .37368 INCHES    INF =    .89632 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                ID=13   CODE=1

                                   HYDROGRAPH FROM AREA DEV.M

    RUNOFF VOLUME =      .28955 INCHES     =      14.6457 ACRE-FEET
    PEAK DISCHARGE RATE =     285.21 CFS  AT   1.567 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S********************** BASIN DEV.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.041  K=1
                       LENGTH=1600 FT   SLOPE=0.041  K=2
                       LENGTH=6800 FT   SLOPE=0.041  K=3
                                KN=0.021   CENTROID DISTANCE=3750 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .041000            1.0000
     SHALLOW FLOW PORTION         1600.0            .041000            2.0000
     CHANNEL FLOW PORTION         6800.0            .041000            3.0000
     TOTAL BASIN                  8800.0            .041000            2.5385

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8800.0
     TOTAL BASIN SLOPE (FT/FT)=    .041000     CENTROUD LENGTH (FT)=         3750.0

     TIME OF CONCENTRATION (HRS)=   .3198     TIME TO PEAK (HRS)=   .2132     LAG TIME (HRS)=   .2399

COMPUTE NM HYD         ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                                PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2132

     K =   .166943HR    TP =   .213211HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587621
     UNIT PEAK =   411.57    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
     AREA =      .223512 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .259083HR    TP =   .213211HR    K/TP RATIO =  1.215147     SHAPE CONSTANT, N =  2.927456
     UNIT PEAK =   915.74    CFS   UNIT VOLUME =    1.000       B =   275.85      P60 = .81000
     AREA =      .707788 SQ MI    IA =    .37763 INCHES    INF =    .90737 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                ID=14   CODE=1

                                   HYDROGRAPH FROM AREA DEV.N

    RUNOFF VOLUME =      .28644 INCHES     =      14.2272 ACRE-FEET
    PEAK DISCHARGE RATE =     257.09 CFS  AT   1.600 HOURS   BASIN AREA =   .9313 SQ. MI.


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

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .011000            1.0000
     SHALLOW FLOW PORTION         1600.0            .011000            2.0000
     CHANNEL FLOW PORTION         1600.0            .011000            3.0000
     TOTAL BASIN                  3600.0            .011000            2.0769

     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD         ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                                PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3060

     K =   .239635HR    TP =   .306050HR    K/TP RATIO =   .782993     SHAPE CONSTANT, N =  4.587626
     UNIT PEAK =   350.56    CFS   UNIT VOLUME =    1.000       B =   392.61      P60 = .81000
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```
AREA =      .273270 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .388769HR    TP =   .306050HR    K/TP RATIO =  1.270282     SHAPE CONSTANT, N =  2.812972
UNIT PEAK =   554.61    CFS   UNIT VOLUME =    .9999       B =   266.20       P60 = .81000
AREA =      .637630 SQ MI    IA =    .52143 INCHES    INF =   1.31000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

PRINT HYD                  ID=15   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.C

RUNOFF VOLUME =      .26743 INCHES     =      12.9923 ACRE-FEET
PEAK DISCHARGE RATE =     165.93 CFS  AT   1.700 HOURS   BASIN AREA =   .9109 SQ. MI.

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

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

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FINISH

NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:19:18
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER, 2012
*S*                 INPUT FILE NAME:  5DEV_6.HYM
*S*                 OUTUPUT FILE NAME:  5DEV_6.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  5 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=1     RAIN QUARTER=0.0
                    RAIN ONE=1.06 IN     RAIN SIX=1.25 IN
                    RAIN DAY=1.51 IN     DT=0.033333

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*S*****************************************************************************
*S            COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S*****************************************************************************
*******************************************************************************
*S*   SEDIMENT BULK FACTOR FOR 5 YR = 1
SEDIMENT BULK       CODE=1        BULK FACTOR=1.01

*S********************** BASIN DEV.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                    PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=6200 FT   SLOPE=0.005  K=3
                    KN=0.021   CENTROID DISTANCE=2800 FT

COMPUTE NM HYD      ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                    PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=3100 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=1400 FT

COMPUTE NM HYD      ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                    PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.021   CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                    PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                    PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=5450 FT

COMPUTE NM HYD      ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                    PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S*****************************************************************************
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*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                       KN=0.021   CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                       PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                       KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                       PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                       KN=0.021   CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                       PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT   SLOPE=0.076   K=3

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                       PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=10   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                       KN=0.021   CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                       PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                       KN=0.021   CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                       PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=12   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.021   CENTROID DISTANCE=4350 FT

COMPUTE NM HYD         ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                       PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=13   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.041  K=1
                       LENGTH=1600 FT   SLOPE=0.041  K=2
                       LENGTH=6800 FT   SLOPE=0.041  K=3
                       KN=0.021   CENTROID DISTANCE=3750 FT

COMPUTE NM HYD         ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                       PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=14   CODE=1
```

```
*S*********************************************************************************
*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD         ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                       PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=15   CODE=1
*S*********************************************************************************


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

*********************************************************************************
FINISH
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```
AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 12/28/2012
     START TIME (HR:MIN:SEC) = 08:19:52      USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 5DEV_6.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER, 2012
*S*                INPUT FILE NAME:  5DEV_6.HYM
*S*                OUTUPUT FILE NAME:  5DEV_6.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  5 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=1     RAIN QUARTER=0.0
                   RAIN ONE=1.06 IN    RAIN SIX=1.25 IN
                   RAIN DAY=1.51 IN    DT=0.033333

          COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033333 HOURS       END TIME =     5.999940 HOURS
             .0000   .0010   .0019   .0029   .0039   .0050   .0060
             .0071   .0082   .0094   .0105   .0117   .0130   .0142
             .0155   .0169   .0182   .0197   .0211   .0227   .0242
             .0259   .0276   .0293   .0312   .0331   .0351   .0372
             .0394   .0418   .0443   .0472   .0503   .0537   .0609
             .0770   .1018   .1374   .1859   .2498   .3312   .4325
             .5562   .6706   .7185   .7589   .7949   .8276   .8577
             .8857   .9118   .9363   .9594   .9811  1.0017  1.0211
            1.0395  1.0570  1.0736  1.0893  1.1043  1.1077  1.1110
            1.1141  1.1171  1.1199  1.1226  1.1253  1.1278  1.1302
            1.1325  1.1348  1.1370  1.1391  1.1412  1.1432  1.1452
            1.1471  1.1489  1.1508  1.1525  1.1543  1.1560  1.1576
            1.1593  1.1609  1.1624  1.1640  1.1655  1.1670  1.1684
            1.1698  1.1713  1.1726  1.1740  1.1753  1.1767  1.1780
            1.1792  1.1805  1.1817  1.1830  1.1842  1.1854  1.1866
            1.1877  1.1889  1.1900  1.1911  1.1922  1.1933  1.1944
            1.1955  1.1965  1.1976  1.1986  1.1996  1.2006  1.2016
            1.2026  1.2036  1.2046  1.2056  1.2065  1.2074  1.2084
            1.2093  1.2102  1.2111  1.2120  1.2129  1.2138  1.2147
            1.2156  1.2164  1.2173  1.2181  1.2190  1.2198  1.2206
            1.2214  1.2223  1.2231  1.2239  1.2247  1.2255  1.2262
            1.2270  1.2278  1.2286  1.2293  1.2301  1.2308  1.2316
            1.2323  1.2330  1.2338  1.2345  1.2352  1.2359  1.2367
            1.2374  1.2381  1.2388  1.2395  1.2401  1.2408  1.2415
            1.2422  1.2429  1.2435  1.2442  1.2448  1.2455  1.2462
            1.2468  1.2475  1.2481  1.2487  1.2494  1.2500

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


**********************************************************************************
*S********************************************************************************
*S                         COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S********************************************************************************
**********************************************************************************
*S*   SEDIMENT BULK FACTOR FOR 5 YR = 1
SEDIMENT BULK       CODE=1        BULK FACTOR=1.01

*S********************** BASIN DEV.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .050000            1.0000
     SHALLOW FLOW PORTION          1600.0            .050000            2.0000
     CHANNEL FLOW PORTION           400.0            .050000            3.0000
     TOTAL BASIN                   2400.0            .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                              PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .093422HR    TP =   .133333HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   122.59    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =      .038066 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .137762HR    TP =   .133333HR    K/TP RATIO =  1.033216     SHAPE CONSTANT, N =  3.416536
     UNIT PEAK =   1191.7    CFS   UNIT VOLUME =    1.000       B =   314.19       P60 = 1.0600
     AREA =      .505734 SQ MI    IA =    .35161 INCHES    INF =    .83452 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                ID=1   CODE=1

                                   HYDROGRAPH FROM AREA DEV.A
                                          Page 1
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```
RUNOFF VOLUME =      .34379 INCHES     =       9.9708 ACRE-FEET
PEAK DISCHARGE RATE =     354.64 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=6200 FT   SLOPE=0.005  K=3
                                KN=0.021   CENTROID DISTANCE=2800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .005000            1.0000
     SHALLOW FLOW PORTION         1600.0            .005000            2.0000
     CHANNEL FLOW PORTION         6200.0            .005000            3.0000
     TOTAL BASIN                  8200.0            .005000            2.5102

     LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=       8200.0
     TOTAL BASIN SLOPE (FT/FT)=     .005000      CENTROUD LENGTH (FT)=          2800.0

     TIME OF CONCENTRATION (HRS)=   .5659     TIME TO PEAK (HRS)=   .3773     LAG TIME (HRS)=   .4244

COMPUTE NM HYD         ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                                PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3773

     K =   .264339HR    TP =   .377270HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   2030.9    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =     1.784422 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .422250HR    TP =   .377270HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   854.21    CFS   UNIT VOLUME =    1.000       B =   294.67       P60 = 1.0600
     AREA =     1.093678 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=2   CODE=1

                                   HYDROGRAPH FROM AREA DEV.B

    RUNOFF VOLUME =      .71230 INCHES     =     109.3368 ACRE-FEET
    PEAK DISCHARGE RATE =    1547.63 CFS  AT   1.800 HOURS   BASIN AREA =  2.8781 SQ. MI.


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

*S********************** BASIN DEV.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=3100 FT   SLOPE=0.01  K=3
                                KN=0.021   CENTROID DISTANCE=1400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000            1.0000
     SHALLOW FLOW PORTION         1600.0            .010000            2.0000
     CHANNEL FLOW PORTION         3100.0            .010000            3.0000
     TOTAL BASIN                  5100.0            .010000            2.2836

     LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=       5100.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000      CENTROUD LENGTH (FT)=          1400.0

     TIME OF CONCENTRATION (HRS)=   .4780     TIME TO PEAK (HRS)=   .3187     LAG TIME (HRS)=   .3585

COMPUTE NM HYD         ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                                PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3187

     K =   .223296HR    TP =   .318693HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   1011.5    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =      .750768 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .356688HR    TP =   .318693HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   752.01    CFS   UNIT VOLUME =    1.000       B =   294.67       P60 = 1.0600
     AREA =      .813332 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=3   CODE=1
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```
                                   HYDROGRAPH FROM AREA DEV.C

    RUNOFF VOLUME =       .59570 INCHES      =      49.6926 ACRE-FEET
    PEAK DISCHARGE RATE =     793.73 CFS  AT   1.700 HOURS   BASIN AREA =  1.5641 SQ. MI.


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                              KN=0.021   CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .008000            1.0000
     SHALLOW FLOW PORTION         1600.0           .008000            2.0000
     CHANNEL FLOW PORTION         4700.0           .008000            3.0000
     TOTAL BASIN                  6700.0           .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=    .008000      CENTROUD LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .5237     TIME TO PEAK (HRS)=   .3491     LAG TIME (HRS)=   .3928

COMPUTE NM HYD         ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                              PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3491

     K =   .244613HR    TP =   .349116HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   444.34    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .361284 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .390739HR    TP =   .349116HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   143.50    CFS   UNIT VOLUME =    .9999       B =   294.67      P60 = 1.0600
     AREA =      .170016 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=4   CODE=1

                                   HYDROGRAPH FROM AREA DEV.D

    RUNOFF VOLUME =       .76227 INCHES      =      21.5996 ACRE-FEET
    PEAK DISCHARGE RATE =     321.92 CFS  AT   1.767 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN DEV.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
                              KN=0.021   CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .006000            1.0000
     SHALLOW FLOW PORTION         1600.0           .006000            2.0000
     CHANNEL FLOW PORTION         9500.0           .006000            3.0000
     TOTAL BASIN                 11500.0           .006000            2.6336

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=    .006000      CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .5510     TIME TO PEAK (HRS)=   .3673     LAG TIME (HRS)=   .4132

COMPUTE NM HYD         ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                              PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3673

     K =   .257373HR    TP =   .367328HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214888
     UNIT PEAK =   1535.6    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =     1.313712 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .411122HR    TP =   .367328HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   897.72    CFS   UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =     1.119088 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.
```

```
PRINT HYD                    ID=5   CODE=1

                                        HYDROGRAPH FROM AREA DEV.E

    RUNOFF VOLUME =       .64568 INCHES      =       83.7755 ACRE-FEET
    PEAK DISCHARGE RATE =    1211.42 CFS  AT   1.767 HOURS   BASIN AREA =  2.4328 SQ. MI.


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

*S********************** BASIN DEV.F **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=9200 FT   SLOPE=0.01  K=3
                              KN=0.021   CENTROID DISTANCE=5450 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)       SLOPE (FT/FT)        COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000             1.0000
     SHALLOW FLOW PORTION         1600.0            .010000             2.0000
     CHANNEL FLOW PORTION         9200.0            .010000             3.0000
     TOTAL BASIN                 11200.0            .010000             2.6250

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11200.0
     TOTAL BASIN SLOPE (FT/FT)=    .010000     CENTROUD LENGTH (FT)=         5450.0

     TIME OF CONCENTRATION (HRS)=   .5039     TIME TO PEAK (HRS)=   .3359     LAG TIME (HRS)=   .3779

COMPUTE NM HYD         ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                              PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3359

     K =   .235369HR    TP =   .335923HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   742.73    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .581076 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

     K =   .375973HR    TP =   .335923HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   906.15    CFS   UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =     1.033024 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                    ID=6   CODE=1

                                        OUTFLOW HYDROGRAPH REACH       .00

    RUNOFF VOLUME =       .49576 INCHES      =       42.6777 ACRE-FEET
    PEAK DISCHARGE RATE =     662.03 CFS  AT   1.733 HOURS   BASIN AREA =  1.6141 SQ. MI.


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

*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                              KN=0.021   CENTROID DISTANCE=6300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     13300.0
     TOTAL BASIN SLOPE (FT/FT)=    .021000     CENTROUD LENGTH (FT)=         6300.0

     TIME OF CONCENTRATION (HRS)=   .4813     TIME TO PEAK (HRS)=   .3209     LAG TIME (HRS)=   .3610

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                              PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3209

     K =   .224835HR    TP =   .320889HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   2384.1    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =     1.781702 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

     K =   .359146HR    TP =   .320889HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   1184.8    CFS   UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =     1.290198 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                    ID=7   CODE=1

                                        HYDROGRAPH FROM AREA DEV.G

    RUNOFF VOLUME =       .67899 INCHES      =      111.2413 ACRE-FEET
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    PEAK DISCHARGE RATE =     1759.38 CFS  AT   1.733 HOURS   BASIN AREA =  3.0719 SQ. MI.

*S*****************************************************************************
*S********************** BASIN DEV.H ***********************
COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                                KN=0.021   CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     13400.0
     TOTAL BASIN SLOPE (FT/FT)=    .020000     CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .4623     TIME TO PEAK (HRS)=   .3082     LAG TIME (HRS)=   .3467

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                                PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3082

     K =   .215944HR    TP =   .308199HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   1356.3    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =      .973500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .344944HR    TP =   .308199HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   1184.6    CFS   UNIT VOLUME =    1.000       B =   294.67       P60 = 1.0600
     AREA =    1.239000 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=8   CODE=1

                                   HYDROGRAPH FROM AREA DEV.H

    RUNOFF VOLUME =      .56239 INCHES     =      66.3618 ACRE-FEET
    PEAK DISCHARGE RATE =    1089.94 CFS  AT   1.700 HOURS   BASIN AREA =  2.2125 SQ. MI.

*S*****************************************************************************
*S********************** BASIN DEV.I ***********************
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                                KN=0.021   CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .030000            1.0000
     SHALLOW FLOW PORTION         1600.0           .030000            2.0000
     CHANNEL FLOW PORTION         6500.0           .030000            3.0000
     TOTAL BASIN                  8500.0           .030000            2.5248

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8500.0
     TOTAL BASIN SLOPE (FT/FT)=    .030000     CENTROUD LENGTH (FT)=         3400.0

     TIME OF CONCENTRATION (HRS)=   .3367     TIME TO PEAK (HRS)=   .2245     LAG TIME (HRS)=   .2526

COMPUTE NM HYD         ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                                PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2245

     K =   .157293HR    TP =   .224491HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =    452.98    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =      .236831 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .236136HR    TP =   .224491HR    K/TP RATIO =  1.051874     SHAPE CONSTANT, N =  3.356561
     UNIT PEAK =   1093.8    CFS   UNIT VOLUME =    1.000       B =   309.71       P60 = 1.0600
     AREA =      .792869 SQ MI    IA =    .36753 INCHES    INF =    .87909 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=9   CODE=1

                                   HYDROGRAPH FROM AREA DEV.I

    RUNOFF VOLUME =      .44369 INCHES     =      24.3659 ACRE-FEET
    PEAK DISCHARGE RATE =     533.37 CFS  AT   1.600 HOURS   BASIN AREA =  1.0297 SQ. MI.

*S*****************************************************************************
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*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT   SLOPE=0.076   K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .076000            1.0000
     SHALLOW FLOW PORTION          1600.0            .076000            2.0000
     CHANNEL FLOW PORTION           800.0            .076000            3.0000
     TOTAL BASIN                   2800.0            .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108

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

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                                PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .093422HR    TP =   .133333HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   1061.4    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .329607 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .146487HR    TP =   .133333HR    K/TP RATIO =  1.098652     SHAPE CONSTANT, N =  3.217296
     UNIT PEAK =   655.65    CFS   UNIT VOLUME =    1.000       B =   299.08      P60 = 1.0600
     AREA =      .292293 SQ MI    IA =    .40745 INCHES    INF =    .99085 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=10   CODE=1

                                   HYDROGRAPH FROM AREA DEV.J

    RUNOFF VOLUME =      .64691 INCHES     =      21.4565 ACRE-FEET
    PEAK DISCHARGE RATE =     597.40 CFS  AT   1.500 HOURS   BASIN AREA =   .6219 SQ. MI.


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

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                                KN=0.021   CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     16700.0
     TOTAL BASIN SLOPE (FT/FT)=    .017000     CENTROUD LENGTH (FT)=         4800.0

     TIME OF CONCENTRATION (HRS)=   .4912     TIME TO PEAK (HRS)=   .3275     LAG TIME (HRS)=   .3684

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                                PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3275

     K =   .229434HR    TP =   .327453HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   2780.2    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =     2.120256 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .366493HR    TP =   .327453HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   2067.0    CFS   UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =     2.296944 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=11   CODE=1

                                   HYDROGRAPH FROM AREA DEV.K

    RUNOFF VOLUME =      .59571 INCHES     =     140.3377 ACRE-FEET
    PEAK DISCHARGE RATE =    2201.87 CFS  AT   1.733 HOURS   BASIN AREA =  4.4172 SQ. MI.


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

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                                KN=0.021   CENTROID DISTANCE=4200 FT
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     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .060000            1.0000
     SHALLOW FLOW PORTION          1600.0            .060000            2.0000
     CHANNEL FLOW PORTION          4000.0            .060000            3.0000
     TOTAL BASIN                   6000.0            .060000            2.3684

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=       6000.0
     TOTAL BASIN SLOPE (FT/FT)=     .060000     CENTROID LENGTH (FT)=          4200.0

     TIME OF CONCENTRATION (HRS)=   .2512     TIME TO PEAK (HRS)=   .1675     LAG TIME (HRS)=   .1884

 COMPUTE NM HYD        ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                                PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1675

     K =   .117338HR    TP =   .167467HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   237.37    CFS   UNIT VOLUME =    1.000      B =   429.38      P60 = 1.0600
     AREA =       .092580 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .174098HR    TP =   .167467HR    K/TP RATIO =  1.039599     SHAPE CONSTANT, N =  3.395721
     UNIT PEAK =   979.40    CFS   UNIT VOLUME =    1.000      B =   312.64      P60 = 1.0600
     AREA =       .524620 SQ MI    IA =    .35706 INCHES    INF =    .84976 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

 PRINT HYD                  ID=12   CODE=1

                                        HYDROGRAPH FROM AREA DEV.L

    RUNOFF VOLUME =       .39579 INCHES     =      13.0282 ACRE-FEET
    PEAK DISCHARGE RATE =     368.75 CFS  AT   1.567 HOURS   BASIN AREA =   .6172 SQ. MI.


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

 *S********************** BASIN DEV.M **********************

 COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=400 FT    SLOPE=0.054  K=1
                        LENGTH=1600 FT   SLOPE=0.054  K=2
                        LENGTH=5500 FT   SLOPE=0.054  K=3
                                KN=0.021   CENTROID DISTANCE=4350 FT

     TC AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .054000            1.0000
     SHALLOW FLOW PORTION          1600.0            .054000            2.0000
     CHANNEL FLOW PORTION          5500.0            .054000            3.0000
     TOTAL BASIN                   7500.0            .054000            2.4725

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=       7500.0
     TOTAL BASIN SLOPE (FT/FT)=     .054000     CENTROID LENGTH (FT)=          4350.0

     TIME OF CONCENTRATION (HRS)=   .2888     TIME TO PEAK (HRS)=   .1925     LAG TIME (HRS)=   .2166

 COMPUTE NM HYD        ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                                PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1925

     K =   .134892HR    TP =   .192520HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   507.65    CFS   UNIT VOLUME =    1.000      B =   429.38      P60 = 1.0600
     AREA =       .227616 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .203895HR    TP =   .192520HR    K/TP RATIO =  1.059083     SHAPE CONSTANT, N =  3.334092
     UNIT PEAK =   1153.2    CFS   UNIT VOLUME =    1.000      B =   308.02      P60 = 1.0600
     AREA =       .720784 SQ MI    IA =    .37368 INCHES    INF =    .89632 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

 PRINT HYD                  ID=13   CODE=1

                                        HYDROGRAPH FROM AREA DEV.M

    RUNOFF VOLUME =       .44459 INCHES     =      22.4877 ACRE-FEET
    PEAK DISCHARGE RATE =     548.25 CFS  AT   1.567 HOURS   BASIN AREA =   .9484 SQ. MI.


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

 *S********************** BASIN DEV.N **********************

 COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=400 FT    SLOPE=0.041  K=1
                        LENGTH=1600 FT   SLOPE=0.041  K=2
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                    LENGTH=6800 FT   SLOPE=0.041  K=3
                              KN=0.021   CENTROID DISTANCE=3750 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .041000            1.0000
     SHALLOW FLOW PORTION          1600.0            .041000            2.0000
     CHANNEL FLOW PORTION          6800.0            .041000            3.0000
     TOTAL BASIN                   8800.0            .041000            2.5385

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=       8800.0
     TOTAL BASIN SLOPE (FT/FT)=    .041000     CENTROUD LENGTH (FT)=          3750.0

     TIME OF CONCENTRATION (HRS)=   .3198     TIME TO PEAK (HRS)=   .2132     LAG TIME (HRS)=   .2399

COMPUTE NM HYD        ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                              PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2132

     K =   .149389HR    TP =   .213211HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   450.12    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =       .223512 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .226795HR    TP =   .213211HR    K/TP RATIO =  1.063709     SHAPE CONSTANT, N =  3.319874
     UNIT PEAK =   1018.9    CFS   UNIT VOLUME =    1.000       B =   306.94      P60 = 1.0600
     AREA =       .707788 SQ MI    IA =    .37763 INCHES    INF =    .90737 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                 ID=14   CODE=1

                                   HYDROGRAPH FROM AREA DEV.N

    RUNOFF VOLUME =       .44043 INCHES      =      21.8758 ACRE-FEET
    PEAK DISCHARGE RATE =     495.41 CFS  AT   1.600 HOURS   BASIN AREA =   .9313 SQ. MI.


*S*************************************************************************
*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.011  K=1
                     LENGTH=1600 FT   SLOPE=0.011  K=2
                     LENGTH=1600 FT   SLOPE=0.011  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .011000            1.0000
     SHALLOW FLOW PORTION          1600.0            .011000            2.0000
     CHANNEL FLOW PORTION          1600.0            .011000            3.0000
     TOTAL BASIN                   3600.0            .011000            2.0769

     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD        ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                              PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3060

     K =   .214438HR    TP =   .306050HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   383.39    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =       .273270 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .366249HR    TP =   .306050HR    K/TP RATIO =  1.196699     SHAPE CONSTANT, N =  2.968703
     UNIT PEAK =   581.82    CFS   UNIT VOLUME =    1.000       B =   279.26      P60 = 1.0600
     AREA =       .637630 SQ MI    IA =    .52143 INCHES    INF =   1.31000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                 ID=15   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.C

    RUNOFF VOLUME =       .37754 INCHES      =      18.3414 ACRE-FEET
    PEAK DISCHARGE RATE =     299.59 CFS  AT   1.700 HOURS   BASIN AREA =   .9109 SQ. MI.


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


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


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FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:19:52
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*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER, 2012
*S*                 INPUT FILE NAME:  5DEV_24.HYM
*S*                 OUTUPUT FILE NAME:  5DEV_24.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  5 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=2     RAIN QUARTER=0.0
                    RAIN ONE=1.06 IN    RAIN SIX=1.25 IN
                    RAIN DAY=1.51 IN    DT=0.033333

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*S*****************************************************************************
*S            COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S*****************************************************************************
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*S*   SEDIMENT BULK FACTOR FOR 5 YR = 1
SEDIMENT BULK       CODE=1        BULK FACTOR=1.01

*S********************** BASIN DEV.A ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                    PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.B ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=6200 FT   SLOPE=0.005  K=3
                    KN=0.021   CENTROID DISTANCE=2800 FT

COMPUTE NM HYD      ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                    PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.C ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=3100 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=1400 FT

COMPUTE NM HYD      ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                    PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.D ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.021   CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                    PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=4   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.E ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                    PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=5   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.F ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=5450 FT

COMPUTE NM HYD      ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                    PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=6   CODE=1
*S*****************************************************************************
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*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                       KN=0.021   CENTROID DISTANCE=6300 FT

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                       PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=7   CODE=1
*S*****************************************************************************************

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                       KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                       PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=8   CODE=1
*S*****************************************************************************************

*S********************** BASIN DEV.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                       KN=0.021   CENTROID DISTANCE=3400 FT

COMPUTE NM HYD         ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                       PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=9   CODE=1
*S*****************************************************************************************

*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT   SLOPE=0.076   K=3

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                       PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=10   CODE=1
*S*****************************************************************************************

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                       KN=0.021   CENTROID DISTANCE=4800 FT

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                       PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=11   CODE=1
*S*****************************************************************************************

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                       KN=0.021   CENTROID DISTANCE=4200 FT

COMPUTE NM HYD         ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                       PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=12   CODE=1
*S*****************************************************************************************

*S********************** BASIN DEV.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                       KN=0.021   CENTROID DISTANCE=4350 FT

COMPUTE NM HYD         ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                       PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=13   CODE=1
*S*****************************************************************************************

*S********************** BASIN DEV.N **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.041  K=1
                       LENGTH=1600 FT   SLOPE=0.041  K=2
                       LENGTH=6800 FT   SLOPE=0.041  K=3
                       KN=0.021   CENTROID DISTANCE=3750 FT

COMPUTE NM HYD         ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                       PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=14   CODE=1
```

```
*S*****************************************************************************
*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD         ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                       PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=15   CODE=1
*S*****************************************************************************


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

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FINISH
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```
AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 12/28/2012
     START TIME (HR:MIN:SEC) = 08:20:31      USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 5DEV_24.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER, 2012
*S*                INPUT FILE NAME:  5DEV_24.HYM
*S*                OUTUPUT FILE NAME:  5DEV_24.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  5 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=2     RAIN QUARTER=0.0
                   RAIN ONE=1.06 IN    RAIN SIX=1.25 IN
                   RAIN DAY=1.51 IN    DT=0.033333


          COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033333 HOURS        END TIME =     19.966470 HOURS
             .0000   .0010   .0019   .0029   .0039   .0050   .0060
             .0071   .0082   .0094   .0105   .0117   .0130   .0142
             .0155   .0169   .0182   .0197   .0211   .0227   .0242
             .0259   .0276   .0293   .0312   .0331   .0351   .0372
             .0394   .0418   .0443   .0472   .0503   .0537   .0609
             .0770   .1018   .1374   .1859   .2498   .3312   .4325
             .5562   .6706   .7185   .7589   .7949   .8276   .8577
             .8857   .9118   .9363   .9594   .9811  1.0017  1.0211
            1.0395  1.0570  1.0736  1.0893  1.1043  1.1077  1.1110
            1.1141  1.1171  1.1199  1.1226  1.1253  1.1278  1.1302
            1.1325  1.1348  1.1370  1.1391  1.1412  1.1432  1.1452
            1.1471  1.1489  1.1508  1.1525  1.1543  1.1560  1.1576
            1.1593  1.1609  1.1624  1.1640  1.1655  1.1670  1.1684
            1.1698  1.1713  1.1726  1.1740  1.1753  1.1767  1.1780
            1.1792  1.1805  1.1817  1.1830  1.1842  1.1854  1.1866
            1.1877  1.1889  1.1900  1.1911  1.1922  1.1933  1.1944
            1.1955  1.1965  1.1976  1.1986  1.1996  1.2006  1.2016
            1.2026  1.2036  1.2046  1.2056  1.2065  1.2074  1.2084
            1.2093  1.2102  1.2111  1.2120  1.2129  1.2138  1.2147
            1.2156  1.2164  1.2173  1.2181  1.2190  1.2198  1.2206
            1.2214  1.2223  1.2231  1.2239  1.2247  1.2255  1.2262
            1.2270  1.2278  1.2286  1.2293  1.2301  1.2308  1.2316
            1.2323  1.2330  1.2338  1.2345  1.2352  1.2359  1.2367
            1.2374  1.2381  1.2388  1.2395  1.2401  1.2408  1.2415
            1.2422  1.2429  1.2435  1.2442  1.2448  1.2455  1.2462
            1.2468  1.2475  1.2481  1.2487  1.2494  1.2500  1.2507
            1.2515  1.2522  1.2529  1.2537  1.2544  1.2551  1.2559
            1.2566  1.2573  1.2580  1.2588  1.2595  1.2602  1.2609
            1.2616  1.2623  1.2630  1.2637  1.2645  1.2652  1.2659
            1.2666  1.2673  1.2680  1.2687  1.2694  1.2701  1.2707
            1.2714  1.2721  1.2728  1.2735  1.2742  1.2749  1.2756
            1.2762  1.2769  1.2776  1.2783  1.2789  1.2796  1.2803
            1.2810  1.2816  1.2823  1.2830  1.2836  1.2843  1.2850
            1.2856  1.2863  1.2869  1.2876  1.2882  1.2889  1.2895
            1.2902  1.2909  1.2915  1.2921  1.2928  1.2934  1.2941
            1.2947  1.2954  1.2960  1.2966  1.2973  1.2979  1.2985
            1.2992  1.2998  1.3004  1.3011  1.3017  1.3023  1.3029
            1.3036  1.3042  1.3048  1.3054  1.3061  1.3067  1.3073
            1.3079  1.3085  1.3091  1.3097  1.3104  1.3110  1.3116
            1.3122  1.3128  1.3134  1.3140  1.3146  1.3152  1.3158
            1.3164  1.3170  1.3176  1.3182  1.3188  1.3194  1.3200
            1.3206  1.3212  1.3217  1.3223  1.3229  1.3235  1.3241
            1.3247  1.3253  1.3258  1.3264  1.3270  1.3276  1.3282
            1.3287  1.3293  1.3299  1.3305  1.3310  1.3316  1.3322
            1.3327  1.3333  1.3339  1.3344  1.3350  1.3356  1.3361
            1.3367  1.3373  1.3378  1.3384  1.3389  1.3395  1.3401
            1.3406  1.3412  1.3417  1.3423  1.3428  1.3434  1.3439
            1.3445  1.3450  1.3456  1.3461  1.3467  1.3472  1.3478
            1.3483  1.3488  1.3494  1.3499  1.3505  1.3510  1.3515
            1.3521  1.3526  1.3531  1.3537  1.3542  1.3547  1.3553
            1.3558  1.3563  1.3569  1.3574  1.3579  1.3584  1.3590
            1.3595  1.3600  1.3605  1.3611  1.3616  1.3621  1.3626
            1.3631  1.3637  1.3642  1.3647  1.3652  1.3657  1.3662
            1.3667  1.3673  1.3678  1.3683  1.3688  1.3693  1.3698
            1.3703  1.3708  1.3713  1.3718  1.3723  1.3728  1.3733
            1.3738  1.3743  1.3748  1.3753  1.3758  1.3763  1.3768
            1.3773  1.3778  1.3783  1.3788  1.3793  1.3798  1.3803
            1.3808  1.3813  1.3818  1.3823  1.3827  1.3832  1.3837
            1.3842  1.3847  1.3852  1.3857  1.3861  1.3866  1.3871
            1.3876  1.3881  1.3885  1.3890  1.3895  1.3900  1.3905
            1.3909  1.3914  1.3919  1.3924  1.3928  1.3933  1.3938
            1.3942  1.3947  1.3952  1.3957  1.3961  1.3966  1.3971
            1.3975  1.3980  1.3985  1.3989  1.3994  1.3999  1.4003
            1.4008  1.4012  1.4017  1.4022  1.4026  1.4031  1.4035
            1.4040  1.4045  1.4049  1.4054  1.4058  1.4063  1.4067
            1.4072  1.4076  1.4081  1.4085  1.4090  1.4094  1.4099
            1.4103  1.4108  1.4112  1.4117  1.4121  1.4126  1.4130
            1.4135  1.4139  1.4144  1.4148  1.4152  1.4157  1.4161
            1.4166  1.4170  1.4175  1.4179  1.4183  1.4188  1.4192
            1.4196  1.4201  1.4205  1.4210  1.4214  1.4218  1.4223
            1.4227  1.4231  1.4236  1.4240  1.4244  1.4248  1.4253
            1.4257  1.4261  1.4266  1.4270  1.4274  1.4278  1.4283
            1.4287  1.4291  1.4295  1.4300  1.4304  1.4308  1.4312
            1.4317  1.4321  1.4325  1.4329  1.4333  1.4338  1.4342
            1.4346  1.4350  1.4354  1.4358  1.4363  1.4367  1.4371
            1.4375  1.4379  1.4383  1.4387  1.4392  1.4396  1.4400
            1.4404  1.4408  1.4412  1.4416  1.4420  1.4424  1.4428
            1.4433  1.4437  1.4441  1.4445  1.4449  1.4453  1.4457
            1.4461  1.4465  1.4469  1.4473  1.4477  1.4481  1.4485
            1.4489  1.4493  1.4497  1.4501  1.4505  1.4509  1.4513
            1.4517  1.4521  1.4525  1.4529  1.4533  1.4537  1.4541
            1.4545  1.4549  1.4553  1.4556  1.4560  1.4564  1.4568
            1.4572  1.4576  1.4580  1.4584  1.4588  1.4592  1.4595
            1.4599  1.4603  1.4607  1.4611  1.4615  1.4619  1.4623
            1.4626  1.4630  1.4634  1.4638  1.4642  1.4646  1.4649
            1.4653  1.4657  1.4661  1.4665  1.4668

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*S***************************************************************************
*S                        COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION

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

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*S*   SEDIMENT BULK FACTOR FOR 5 YR = 1
SEDIMENT BULK        CODE=1        BULK FACTOR=1.01

*S********************** BASIN DEV.A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.05  K=1
                       LENGTH=1600 FT   SLOPE=0.05  K=2
                       LENGTH=400 FT   SLOPE=0.05  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .050000            1.0000
     SHALLOW FLOW PORTION        1600.0            .050000            2.0000
     CHANNEL FLOW PORTION         400.0            .050000            3.0000
     TOTAL BASIN                 2400.0            .050000            1.8000


     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD         ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                                PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .093422HR    TP =   .133333HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =    122.59    CFS    UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .038066 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .137762HR    TP =   .133333HR    K/TP RATIO =  1.033216     SHAPE CONSTANT, N =  3.416536
     UNIT PEAK =   1191.7    CFS    UNIT VOLUME =    1.000       B =   314.19      P60 = 1.0600
     AREA =      .505734 SQ MI    IA =    .35161 INCHES    INF =    .83452 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=1   CODE=1

                                        HYDROGRAPH FROM AREA DEV.A


    RUNOFF VOLUME =      .35893 INCHES      =      10.4099 ACRE-FEET
    PEAK DISCHARGE RATE =     354.64 CFS  AT   1.533 HOURS   BASIN AREA =   .5438 SQ. MI.


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=6200 FT   SLOPE=0.005  K=3
                                KN=0.021   CENTROID DISTANCE=2800 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .005000            1.0000
     SHALLOW FLOW PORTION        1600.0            .005000            2.0000
     CHANNEL FLOW PORTION        6200.0            .005000            3.0000
     TOTAL BASIN                 8200.0            .005000            2.5102


     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8200.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000     CENTROUD LENGTH (FT)=         2800.0


     TIME OF CONCENTRATION (HRS)=   .5659     TIME TO PEAK (HRS)=   .3773     LAG TIME (HRS)=   .4244

COMPUTE NM HYD         ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                                PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3773

     K =   .264339HR    TP =   .377270HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   2030.9    CFS    UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =     1.784422 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .422250HR    TP =   .377270HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =    854.21    CFS    UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =     1.093678 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333
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    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=2   CODE=1

                                   HYDROGRAPH FROM AREA DEV.B

    RUNOFF VOLUME =       .84324 INCHES      =      129.4349 ACRE-FEET
    PEAK DISCHARGE RATE =     1547.63 CFS  AT   1.800 HOURS   BASIN AREA =  2.8781 SQ. MI.


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

*S********************** BASIN DEV.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=3100 FT   SLOPE=0.01  K=3
                              KN=0.021   CENTROID DISTANCE=1400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000            1.0000
     SHALLOW FLOW PORTION         1600.0            .010000            2.0000
     CHANNEL FLOW PORTION         3100.0            .010000            3.0000
     TOTAL BASIN                  5100.0            .010000            2.2836

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=       5100.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=          1400.0

     TIME OF CONCENTRATION (HRS)=   .4780     TIME TO PEAK (HRS)=   .3187     LAG TIME (HRS)=   .3585

COMPUTE NM HYD         ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                              PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3187

     K =   .223296HR    TP =   .318693HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   1011.5    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =       .750768 SQ MI     IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .356688HR    TP =   .318693HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   752.01    CFS   UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =       .813332 SQ MI     IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=3   CODE=1

                                   HYDROGRAPH FROM AREA DEV.C

    RUNOFF VOLUME =       .69766 INCHES      =       58.1979 ACRE-FEET
    PEAK DISCHARGE RATE =     793.73 CFS  AT   1.700 HOURS   BASIN AREA =  1.5641 SQ. MI.


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                              KN=0.021   CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .008000            1.0000
     SHALLOW FLOW PORTION         1600.0            .008000            2.0000
     CHANNEL FLOW PORTION         4700.0            .008000            3.0000
     TOTAL BASIN                  6700.0            .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=       6700.0
     TOTAL BASIN SLOPE (FT/FT)=     .008000     CENTROUD LENGTH (FT)=          3500.0

     TIME OF CONCENTRATION (HRS)=   .5237     TIME TO PEAK (HRS)=   .3491     LAG TIME (HRS)=   .3928

COMPUTE NM HYD         ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                              PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3491

     K =   .244613HR    TP =   .349116HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   444.34    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =       .361284 SQ MI     IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .390739HR    TP =   .349116HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   143.50    CFS   UNIT VOLUME =    .9999       B =   294.67      P60 = 1.0600
     AREA =       .170016 SQ MI     IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
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RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                ID=4   CODE=1

                                HYDROGRAPH FROM AREA DEV.D

RUNOFF VOLUME =      .90628 INCHES     =      25.6803 ACRE-FEET
PEAK DISCHARGE RATE =     321.92 CFS  AT   1.767 HOURS   BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN DEV.E **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT   SLOPE=0.006  K=1
                     LENGTH=1600 FT  SLOPE=0.006  K=2
                     LENGTH=9500 FT  SLOPE=0.006  K=3
                          KN=0.021   CENTROID DISTANCE=5400 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION            400.0           .006000            1.0000
    SHALLOW FLOW PORTION         1600.0           .006000            2.0000
    CHANNEL FLOW PORTION         9500.0           .006000            3.0000
    TOTAL BASIN                 11500.0           .006000            2.6336

    LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11500.0
    TOTAL BASIN SLOPE (FT/FT)=    .006000     CENTROUD LENGTH (FT)=         5400.0

    TIME OF CONCENTRATION (HRS)=   .5510     TIME TO PEAK (HRS)=   .3673     LAG TIME (HRS)=   .4132

COMPUTE NM HYD       ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                          PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .3673

    K =   .257373HR    TP =   .367328HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214888
    UNIT PEAK =   1535.6    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
    AREA =     1.313712 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    K =   .411122HR    TP =   .367328HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
    UNIT PEAK =   897.72    CFS   UNIT VOLUME =    1.000       B =   294.67       P60 = 1.0600
    AREA =     1.119088 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

   BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                ID=5   CODE=1

                                HYDROGRAPH FROM AREA DEV.E

RUNOFF VOLUME =      .75983 INCHES     =      98.5866 ACRE-FEET
PEAK DISCHARGE RATE =    1211.42 CFS  AT   1.767 HOURS   BASIN AREA =  2.4328 SQ. MI.


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

*S********************** BASIN DEV.F **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT   SLOPE=0.01  K=1
                     LENGTH=1600 FT  SLOPE=0.01  K=2
                     LENGTH=9200 FT  SLOPE=0.01  K=3
                          KN=0.021   CENTROID DISTANCE=5450 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION            400.0           .010000            1.0000
    SHALLOW FLOW PORTION         1600.0           .010000            2.0000
    CHANNEL FLOW PORTION         9200.0           .010000            3.0000
    TOTAL BASIN                 11200.0           .010000            2.6250

    LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11200.0
    TOTAL BASIN SLOPE (FT/FT)=    .010000     CENTROUD LENGTH (FT)=         5450.0

    TIME OF CONCENTRATION (HRS)=   .5039     TIME TO PEAK (HRS)=   .3359     LAG TIME (HRS)=   .3779

COMPUTE NM HYD       ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                          PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .3359

    K =   .235369HR    TP =   .335923HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
    UNIT PEAK =   742.73    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
    AREA =     .581076 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    K =   .375973HR    TP =   .335923HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
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UNIT PEAK =   906.15    CFS   UNIT VOLUME =    1.000        B =   294.67      P60 = 1.0600
AREA =     1.033024 SQ MI    IA =    .42500 INCHES    INF =  1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=6   CODE=1

                                   OUTFLOW HYDROGRAPH REACH       .00

RUNOFF VOLUME =       .57210 INCHES      =      49.2494 ACRE-FEET
PEAK DISCHARGE RATE =      662.03 CFS  AT   1.733 HOURS   BASIN AREA =  1.6141 SQ. MI.


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

*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT   SLOPE=0.021  K=3
                                KN=0.021   CENTROID DISTANCE=6300 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=      13300.0
    TOTAL BASIN SLOPE (FT/FT)=     .021000      CENTROUD LENGTH (FT)=          6300.0

    TIME OF CONCENTRATION (HRS)=   .4813     TIME TO PEAK (HRS)=   .3209     LAG TIME (HRS)=   .3610

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                                PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .3209

    K =   .224835HR    TP =   .320889HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
    UNIT PEAK =   2384.1    CFS   UNIT VOLUME =    1.000        B =   429.38      P60 = 1.0600
    AREA =     1.781702 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

    K =   .359146HR    TP =   .320889HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
    UNIT PEAK =   1184.8    CFS   UNIT VOLUME =    1.000        B =   294.67      P60 = 1.0600
    AREA =     1.290198 SQ MI    IA =    .42500 INCHES    INF =  1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

   BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=7   CODE=1

                                   HYDROGRAPH FROM AREA DEV.G

   RUNOFF VOLUME =       .80216 INCHES      =     131.4213 ACRE-FEET
   PEAK DISCHARGE RATE =    1759.38 CFS  AT   1.733 HOURS   BASIN AREA =  3.0719 SQ. MI.


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

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                                KN=0.021   CENTROID DISTANCE=5400 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=      13400.0
    TOTAL BASIN SLOPE (FT/FT)=     .020000      CENTROUD LENGTH (FT)=          5400.0

    TIME OF CONCENTRATION (HRS)=   .4623     TIME TO PEAK (HRS)=   .3082     LAG TIME (HRS)=   .3467

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                                PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .3082

    K =   .215944HR    TP =   .308199HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
    UNIT PEAK =   1356.3    CFS   UNIT VOLUME =    1.000        B =   429.38      P60 = 1.0600
    AREA =      .973500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

    K =   .344944HR    TP =   .308199HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
    UNIT PEAK =   1184.6    CFS   UNIT VOLUME =    1.000        B =   294.67      P60 = 1.0600
    AREA =     1.239000 SQ MI    IA =    .42500 INCHES    INF =  1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

   BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=8   CODE=1

                                   HYDROGRAPH FROM AREA DEV.H

   RUNOFF VOLUME =       .65595 INCHES      =      77.4018 ACRE-FEET
   PEAK DISCHARGE RATE =    1089.94 CFS  AT   1.700 HOURS   BASIN AREA =  2.2125 SQ. MI.
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*S*****************************************************************************

*S********************** BASIN DEV.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                                KN=0.021   CENTROID DISTANCE=3400 FT


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .030000            1.0000
     SHALLOW FLOW PORTION        1600.0            .030000            2.0000
     CHANNEL FLOW PORTION        6500.0            .030000            3.0000
     TOTAL BASIN                 8500.0            .030000            2.5248


     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=       8500.0
     TOTAL BASIN SLOPE (FT/FT)=    .030000      CENTROID LENGTH (FT)=          3400.0


     TIME OF CONCENTRATION (HRS)=   .3367     TIME TO PEAK (HRS)=   .2245     LAG TIME (HRS)=   .2526

COMPUTE NM HYD         ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                                PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .2245

     K =   .157293HR    TP =   .224491HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   452.98    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .236831 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .236136HR    TP =   .224491HR    K/TP RATIO =  1.051874     SHAPE CONSTANT, N =  3.356561
     UNIT PEAK =   1093.8    CFS   UNIT VOLUME =    1.000       B =   309.71      P60 = 1.0600
     AREA =      .792869 SQ MI    IA =    .36753 INCHES    INF =    .87909 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=9   CODE=1

                                   HYDROGRAPH FROM AREA DEV.I

    RUNOFF VOLUME =      .49299 INCHES     =      27.0737 ACRE-FEET
    PEAK DISCHARGE RATE =     533.37 CFS  AT   1.600 HOURS   BASIN AREA =  1.0297 SQ. MI.


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

*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3


     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .076000            1.0000
     SHALLOW FLOW PORTION        1600.0            .076000            2.0000
     CHANNEL FLOW PORTION         800.0            .076000            3.0000
     TOTAL BASIN                 2800.0            .076000            1.9091


     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108


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

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                                PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .093422HR    TP =   .133333HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   1061.4    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .329607 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .146487HR    TP =   .133333HR    K/TP RATIO =  1.098652     SHAPE CONSTANT, N =  3.217296
     UNIT PEAK =   655.65    CFS   UNIT VOLUME =    1.000       B =   299.08      P60 = 1.0600
     AREA =      .292293 SQ MI    IA =    .40745 INCHES    INF =    .99085 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=10   CODE=1

                                   HYDROGRAPH FROM AREA DEV.J

    RUNOFF VOLUME =      .76153 INCHES     =      25.2581 ACRE-FEET
    PEAK DISCHARGE RATE =     597.40 CFS  AT   1.500 HOURS   BASIN AREA =   .6219 SQ. MI.
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*S*****************************************************************************

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                              KN=0.021   CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      16700.0
     TOTAL BASIN SLOPE (FT/FT)=     .017000     CENTROUD LENGTH (FT)=          4800.0

     TIME OF CONCENTRATION (HRS)=   .4912     TIME TO PEAK (HRS)=   .3275     LAG TIME (HRS)=   .3684

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                              PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3275

     K =   .229434HR    TP =   .327453HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   2780.2    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =     2.120256 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .366493HR    TP =   .327453HR    K/TP RATIO =  1.119224     SHAPE CONSTANT, N =  3.160618
     UNIT PEAK =   2067.0    CFS   UNIT VOLUME =    1.000       B =   294.67      P60 = 1.0600
     AREA =     2.296944 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                 ID=11   CODE=1

                                   HYDROGRAPH FROM AREA DEV.K

    RUNOFF VOLUME =      .69758 INCHES     =     164.3368 ACRE-FEET
    PEAK DISCHARGE RATE =    2201.87 CFS  AT   1.733 HOURS   BASIN AREA =  4.4172 SQ. MI.


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

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                              KN=0.021   CENTROID DISTANCE=4200 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .060000            1.0000
     SHALLOW FLOW PORTION          1600.0            .060000            2.0000
     CHANNEL FLOW PORTION          4000.0            .060000            3.0000
     TOTAL BASIN                   6000.0            .060000            2.3684

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=       6000.0
     TOTAL BASIN SLOPE (FT/FT)=     .060000     CENTROUD LENGTH (FT)=          4200.0

     TIME OF CONCENTRATION (HRS)=   .2512     TIME TO PEAK (HRS)=   .1675     LAG TIME (HRS)=   .1884

COMPUTE NM HYD         ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                              PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1675

     K =   .117338HR    TP =   .167467HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =    237.37    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .092580 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .174098HR    TP =   .167467HR    K/TP RATIO =  1.039599     SHAPE CONSTANT, N =  3.395721
     UNIT PEAK =    979.40    CFS   UNIT VOLUME =    1.000       B =   312.64      P60 = 1.0600
     AREA =      .524620 SQ MI    IA =    .35706 INCHES    INF =    .84976 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                 ID=12   CODE=1

                                   HYDROGRAPH FROM AREA DEV.L

    RUNOFF VOLUME =      .42812 INCHES     =      14.0925 ACRE-FEET
    PEAK DISCHARGE RATE =     368.75 CFS  AT   1.567 HOURS   BASIN AREA =   .6172 SQ. MI.


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*S********************** BASIN DEV.M **********************
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COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.054  K=1
                     LENGTH=1600 FT   SLOPE=0.054  K=2
                     LENGTH=5500 FT   SLOPE=0.054  K=3
                              KN=0.021   CENTROID DISTANCE=4350 FT

     TC AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .054000            1.0000
     SHALLOW FLOW PORTION       1600.0           .054000            2.0000
     CHANNEL FLOW PORTION       5500.0           .054000            3.0000
     TOTAL BASIN                7500.0           .054000            2.4725

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .054000     CENTROUD LENGTH (FT)=         4350.0

     TIME OF CONCENTRATION (HRS)=   .2888     TIME TO PEAK (HRS)=   .1925     LAG TIME (HRS)=   .2166

COMPUTE NM HYD       ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                              PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1925

     K =   .134892HR    TP =   .192520HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   507.65    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =      .227616 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .203895HR    TP =   .192520HR    K/TP RATIO =  1.059083     SHAPE CONSTANT, N =  3.334092
     UNIT PEAK =   1153.2    CFS   UNIT VOLUME =    1.000       B =   308.02       P60 = 1.0600
     AREA =      .720784 SQ MI    IA =    .37368 INCHES    INF =    .89632 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                ID=13   CODE=1

                                   HYDROGRAPH FROM AREA DEV.M

    RUNOFF VOLUME =      .49620 INCHES      =      25.0982 ACRE-FEET
    PEAK DISCHARGE RATE =     548.25 CFS  AT   1.567 HOURS   BASIN AREA =   .9484 SQ. MI.


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

*S********************** BASIN DEV.N **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.041  K=1
                     LENGTH=1600 FT   SLOPE=0.041  K=2
                     LENGTH=6800 FT   SLOPE=0.041  K=3
                              KN=0.021   CENTROID DISTANCE=3750 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .041000            1.0000
     SHALLOW FLOW PORTION       1600.0           .041000            2.0000
     CHANNEL FLOW PORTION       6800.0           .041000            3.0000
     TOTAL BASIN                8800.0           .041000            2.5385

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8800.0
     TOTAL BASIN SLOPE (FT/FT)=    .041000     CENTROUD LENGTH (FT)=         3750.0

     TIME OF CONCENTRATION (HRS)=   .3198     TIME TO PEAK (HRS)=   .2132     LAG TIME (HRS)=   .2399

COMPUTE NM HYD       ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                              PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2132

     K =   .149389HR    TP =   .213211HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   450.12    CFS   UNIT VOLUME =    1.000       B =   429.38       P60 = 1.0600
     AREA =      .223512 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .226795HR    TP =   .213211HR    K/TP RATIO =  1.063709     SHAPE CONSTANT, N =  3.319874
     UNIT PEAK =   1018.9    CFS   UNIT VOLUME =    1.000       B =   306.94       P60 = 1.0600
     AREA =      .707788 SQ MI    IA =    .37763 INCHES    INF =    .90737 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                ID=14   CODE=1

                                   HYDROGRAPH FROM AREA DEV.N

    RUNOFF VOLUME =      .49194 INCHES      =      24.4341 ACRE-FEET
    PEAK DISCHARGE RATE =     495.41 CFS  AT   1.600 HOURS   BASIN AREA =   .9313 SQ. MI.


*S*****************************************************************************
*S********************** BASIN EX. OFF C **********************
```

```
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.011  K=1
                       LENGTH=1600 FT   SLOPE=0.011  K=2
                       LENGTH=1600 FT   SLOPE=0.011  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .011000            1.0000
     SHALLOW FLOW PORTION         1600.0            .011000            2.0000
     CHANNEL FLOW PORTION         1600.0            .011000            3.0000
     TOTAL BASIN                  3600.0            .011000            2.0769

     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD         ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                                 PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3060

     K =   .214438HR    TP =   .306050HR    K/TP RATIO =   .700663     SHAPE CONSTANT, N =  5.214875
     UNIT PEAK =   383.39    CFS   UNIT VOLUME =    1.000       B =   429.38      P60 = 1.0600
     AREA =      .273270 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .366249HR    TP =   .306050HR    K/TP RATIO =  1.196699     SHAPE CONSTANT, N =  2.968703
     UNIT PEAK =   581.82    CFS   UNIT VOLUME =    1.000       B =   279.26      P60 = 1.0600
     AREA =      .637630 SQ MI    IA =    .52143 INCHES    INF =   1.31000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.01000 AT PEAK FLOW.

PRINT HYD                  ID=15   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.C

    RUNOFF VOLUME =      .44135 INCHES     =      21.4411 ACRE-FEET
    PEAK DISCHARGE RATE =     299.59 CFS  AT   1.700 HOURS   BASIN AREA =   .9109 SQ. MI.


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

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

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FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:20:33
```

```
*S*                    PROJECT NAME:  SANTOLINA
*S*                    DATE:  NOVEMBER 8, 2012
*S*                    INPUT FILE NAME:  100DEV_6.HYM
*S*                    OUTUPUT FILE NAME:  100DEV_6.OUT
*S*                    PROJECT NUMBER:  20120256
*S*                    COMMENTS:  100 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START                  TIME=0.0 HR PUNCH CODE=0
RAINFALL               TYPE=1     RAIN QUARTER=0.0
                       RAIN ONE=1.87 IN    RAIN SIX=2.20 IN
                       RAIN DAY=2.66 IN    DT=0.033333
*******************************************************************************


*******************************************************************************
*S*****************************************************************************
*S            COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S*****************************************************************************
*******************************************************************************
*S*  SEDIMENT BULK FACTOR FOR 100 YR = 2.5
SEDIMENT BULK          CODE=1        BULK FACTOR=1.025

*S********************** BASIN DEV.A **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.05  K=1
                       LENGTH=1600 FT   SLOPE=0.05  K=2
                       LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD         ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                       PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1

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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=6200 FT   SLOPE=0.005  K=3
                       KN=0.021   CENTROID DISTANCE=2800 FT

COMPUTE NM HYD         ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                       PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=3100 FT   SLOPE=0.01  K=3
                       KN=0.021   CENTROID DISTANCE=1400 FT

COMPUTE NM HYD         ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                       PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                       KN=0.021   CENTROID DISTANCE=3500 FT

COMPUTE NM HYD         ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                       PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=4   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
                       KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD         ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                       PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=5   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.F **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=9200 FT   SLOPE=0.01  K=3
                       KN=0.021   CENTROID DISTANCE=5450 FT

COMPUTE NM HYD         ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                       PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1

PRINT HYD                ID=6   CODE=1
*S*****************************************************************************
```

```
*S********************** BASIN DEV.G **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=13300 FT   SLOPE=0.021  K=3
                     KN=0.021   CENTROID DISTANCE=6300 FT

COMPUTE NM HYD       ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                     PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.H **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=13400 FT   SLOPE=0.02  K=3
                     KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD       ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                     PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=8   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.I **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.03  K=1
                     LENGTH=1600 FT   SLOPE=0.03  K=2
                     LENGTH=6500 FT   SLOPE=0.03  K=3
                     KN=0.021   CENTROID DISTANCE=3400 FT

COMPUTE NM HYD       ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                     PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.J **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.076  K=1
                     LENGTH=1600 FT   SLOPE=0.076  K=2
                     LENGTH=800 FT   SLOPE=0.076   K=3

COMPUTE NM HYD       ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                     PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=10   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.K **********************

COMPUTE LT TP        LCODE=1  NK=0  ISLOPE=-1
                     LENGTH=16700 FT    SLOPE=0.017  K=3
                     KN=0.021   CENTROID DISTANCE=4800 FT

COMPUTE NM HYD       ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                     PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.L **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.06  K=1
                     LENGTH=1600 FT   SLOPE=0.06  K=2
                     LENGTH=4000 FT   SLOPE=0.06  K=3
                     KN=0.021   CENTROID DISTANCE=4200 FT

COMPUTE NM HYD       ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                     PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=12   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.M **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.054  K=1
                     LENGTH=1600 FT   SLOPE=0.054  K=2
                     LENGTH=5500 FT   SLOPE=0.054  K=3
                     KN=0.021   CENTROID DISTANCE=4350 FT

COMPUTE NM HYD       ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                     PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=13   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.N **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.041  K=1
                     LENGTH=1600 FT   SLOPE=0.041  K=2
                     LENGTH=6800 FT   SLOPE=0.041  K=3
                     KN=0.021   CENTROID DISTANCE=3750 FT

COMPUTE NM HYD       ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                     PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=14   CODE=1
```

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

*S******************** BASIN EX. OFF C **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.011  K=1
                     LENGTH=1600 FT   SLOPE=0.011  K=2
                     LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD       ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                     PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1


PRINT HYD                ID=15   CODE=1
*S*****************************************************************************
*S*****************************************************************************

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FINISH
```

```
AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 12/28/2012
     START TIME (HR:MIN:SEC) = 08:21:28      USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 100DEV_6.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  100DEV_6.HYM
*S*                OUTUPUT FILE NAME:  100DEV_6.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  100 YEAR-6 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=1     RAIN QUARTER=0.0
                   RAIN ONE=1.87 IN     RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN     DT=0.033333

          COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033333 HOURS        END TIME =      5.999940 HOURS
             .0000   .0016   .0033   .0050   .0067   .0085   .0103
             .0122   .0141   .0160   .0180   .0201   .0222   .0243
             .0266   .0289   .0312   .0337   .0362   .0388   .0415
             .0443   .0472   .0502   .0534   .0567   .0601   .0637
             .0675   .0715   .0758   .0810   .0865   .0924   .1051
             .1335   .1773   .2400   .3257   .4384   .5820   .7607
            .9789  1.1808  1.2652  1.3365  1.4000  1.4577  1.5108
           1.5602  1.6063  1.6495  1.6902  1.7285  1.7648  1.7991
           1.8316  1.8624  1.8917  1.9194  1.9458  1.9519  1.9576
           1.9631  1.9683  1.9732  1.9780  1.9826  1.9870  1.9912
           1.9953  1.9993  2.0031  2.0068  2.0105  2.0140  2.0174
           2.0207  2.0240  2.0272  2.0303  2.0333  2.0363  2.0392
           2.0420  2.0448  2.0476  2.0502  2.0529  2.0554  2.0580
           2.0605  2.0629  2.0653  2.0677  2.0701  2.0724  2.0746
           2.0769  2.0791  2.0812  2.0834  2.0855  2.0876  2.0896
           2.0916  2.0936  2.0956  2.0976  2.0995  2.1014  2.1033
           2.1052  2.1070  2.1088  2.1106  2.1124  2.1142  2.1159
           2.1176  2.1193  2.1210  2.1227  2.1244  2.1260  2.1276
           2.1292  2.1308  2.1324  2.1340  2.1355  2.1371  2.1386
           2.1401  2.1416  2.1431  2.1446  2.1461  2.1475  2.1489
           2.1504  2.1518  2.1532  2.1546  2.1560  2.1573  2.1587
           2.1601  2.1614  2.1627  2.1641  2.1654  2.1667  2.1680
           2.1693  2.1705  2.1718  2.1731  2.1743  2.1756  2.1768
           2.1780  2.1793  2.1805  2.1817  2.1829  2.1841  2.1852
           2.1864  2.1876  2.1887  2.1899  2.1911  2.1922  2.1933
           2.1945  2.1956  2.1967  2.1978  2.1989  2.2000

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


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

*S***************************************************************************
*S                    COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION

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

*****************************************************************************
*S*  SEDIMENT BULK FACTOR FOR 100 YR = 2.5
SEDIMENT BULK       CODE=1        BULK FACTOR=1.025

*S********************** BASIN DEV.A ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .050000            1.0000
     SHALLOW FLOW PORTION         1600.0            .050000            2.0000
     CHANNEL FLOW PORTION          400.0            .050000            3.0000
     TOTAL BASIN                  2400.0            .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                              PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .076909HR    TP =   .133333HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   143.48    CFS    UNIT VOLUME =    .9998        B =   502.58        P60 = 1.8700
     AREA =      .038066 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .104642HR    TP =   .133333HR    K/TP RATIO =   .784817     SHAPE CONSTANT, N =  4.575603
     UNIT PEAK =   1486.4    CFS    UNIT VOLUME =    1.000        B =   391.87        P60 = 1.8700
     AREA =      .505734 SQ MI    IA =    .35161 INCHES    INF =    .83452 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=1   CODE=1
```

```
RUNOFF VOLUME =      1.08488 INCHES      =      31.4641 ACRE-FEET
PEAK DISCHARGE RATE =    1064.67 CFS  AT   1.500 HOURS   BASIN AREA =   .5438 SQ. MI.


*S*************************************************************************
*S********************** BASIN DEV.B **********************
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.005  K=1
                       LENGTH=1600 FT   SLOPE=0.005  K=2
                       LENGTH=6200 FT   SLOPE=0.005  K=3
                              KN=0.021   CENTROID DISTANCE=2800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .005000            1.0000
     SHALLOW FLOW PORTION       1600.0           .005000            2.0000
     CHANNEL FLOW PORTION       6200.0           .005000            3.0000
     TOTAL BASIN                8200.0           .005000            2.5102

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8200.0
     TOTAL BASIN SLOPE (FT/FT)=     .005000     CENTROID LENGTH (FT)=         2800.0

     TIME OF CONCENTRATION (HRS)=   .5659     TIME TO PEAK (HRS)=   .3773     LAG TIME (HRS)=   .4244

COMPUTE NM HYD         ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                              PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3773

     K =   .217616HR    TP =   .377270HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   2377.1    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =     1.784422 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .316383HR    TP =   .377270HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1077.0    CFS   UNIT VOLUME =    1.000       B =   371.51       P60 = 1.8700
     AREA =     1.093678 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=2   CODE=1

                                   HYDROGRAPH FROM AREA DEV.B

    RUNOFF VOLUME =      1.56676 INCHES      =     240.4941 ACRE-FEET
    PEAK DISCHARGE RATE =    3695.00 CFS  AT   1.767 HOURS   BASIN AREA =  2.8781 SQ. MI.


*S*************************************************************************
*S********************** BASIN DEV.C **********************
COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=3100 FT   SLOPE=0.01  K=3
                              KN=0.021   CENTROID DISTANCE=1400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .010000            1.0000
     SHALLOW FLOW PORTION       1600.0           .010000            2.0000
     CHANNEL FLOW PORTION       3100.0           .010000            3.0000
     TOTAL BASIN                5100.0           .010000            2.2836

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      5100.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROID LENGTH (FT)=         1400.0

     TIME OF CONCENTRATION (HRS)=   .4780     TIME TO PEAK (HRS)=   .3187     LAG TIME (HRS)=   .3585

COMPUTE NM HYD         ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                              PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3187

     K =   .183827HR    TP =   .318693HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   1184.0    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =      .750768 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .267259HR    TP =   .318693HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   948.13    CFS   UNIT VOLUME =    1.000       B =   371.51       P60 = 1.8700
     AREA =      .813332 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=3   CODE=1
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                                   HYDROGRAPH FROM AREA DEV.C

     RUNOFF VOLUME =      1.40177 INCHES      =      116.9328 ACRE-FEET
     PEAK DISCHARGE RATE =     2041.04 CFS  AT   1.700 HOURS    BASIN AREA =  1.5641 SQ. MI.


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                                 KN=0.021   CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)       SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .008000            1.0000
     SHALLOW FLOW PORTION          1600.0            .008000            2.0000
     CHANNEL FLOW PORTION          4700.0            .008000            3.0000
     TOTAL BASIN                   6700.0            .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      6700.0
     TOTAL BASIN SLOPE (FT/FT)=     .008000     CENTROUD LENGTH (FT)=         3500.0

     TIME OF CONCENTRATION (HRS)=   .5237     TIME TO PEAK (HRS)=   .3491     LAG TIME (HRS)=   .3928

COMPUTE NM HYD         ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                                 PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3491

     K =   .201376HR    TP =   .349116HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   520.09    CFS   UNIT VOLUME =    .9999       B =   502.58      P60 = 1.8700
     AREA =      .361284 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .292772HR    TP =   .349116HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   180.92    CFS   UNIT VOLUME =    .9999       B =   371.51      P60 = 1.8700
     AREA =      .170016 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=4   CODE=1

                                   HYDROGRAPH FROM AREA DEV.D

    RUNOFF VOLUME =      1.63747 INCHES      =       46.3991 ACRE-FEET
    PEAK DISCHARGE RATE =      746.44 CFS  AT   1.733 HOURS    BASIN AREA =   .5313 SQ. MI.


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

*S********************** BASIN DEV.E **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.006  K=1
                       LENGTH=1600 FT   SLOPE=0.006  K=2
                       LENGTH=9500 FT   SLOPE=0.006  K=3
                                 KN=0.021   CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)       SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .006000            1.0000
     SHALLOW FLOW PORTION          1600.0            .006000            2.0000
     CHANNEL FLOW PORTION          9500.0            .006000            3.0000
     TOTAL BASIN                  11500.0            .006000            2.6336

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=     .006000     CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .5510     TIME TO PEAK (HRS)=   .3673     LAG TIME (HRS)=   .4132

COMPUTE NM HYD         ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                                 PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3673

     K =   .211881HR    TP =   .367328HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   1797.4    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
     AREA =     1.313712 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .308045HR    TP =   .367328HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1131.8    CFS   UNIT VOLUME =    1.000       B =   371.51      P60 = 1.8700
     AREA =     1.119088 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.
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PRINT HYD                    ID=5   CODE=1

                                        HYDROGRAPH FROM AREA DEV.E

    RUNOFF VOLUME =      1.47248 INCHES      =      191.0517 ACRE-FEET
    PEAK DISCHARGE RATE =     3008.05 CFS  AT   1.767 HOURS   BASIN AREA =  2.4328 SQ. MI.


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

*S********************** BASIN DEV.F **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=9200 FT   SLOPE=0.01  K=3
                                KN=0.021   CENTROID DISTANCE=5450 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)       SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000            1.0000
     SHALLOW FLOW PORTION         1600.0            .010000            2.0000
     CHANNEL FLOW PORTION         9200.0            .010000            3.0000
     TOTAL BASIN                 11200.0            .010000            2.6250

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11200.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000     CENTROUD LENGTH (FT)=         5450.0

     TIME OF CONCENTRATION (HRS)=   .5039     TIME TO PEAK (HRS)=   .3359     LAG TIME (HRS)=   .3779

COMPUTE NM HYD         ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                                PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3359

     K =   .193766HR    TP =   .335923HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   869.35     CFS   UNIT VOLUME =    .9999        B =   502.58       P60 = 1.8700
     AREA =      .581076 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .281708HR    TP =   .335923HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1142.5     CFS   UNIT VOLUME =    1.000        B =   371.51       P60 = 1.8700
     AREA =     1.033024 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                    ID=6   CODE=1

                                        OUTFLOW HYDROGRAPH REACH       .00

    RUNOFF VOLUME =      1.26034 INCHES      =      108.4964 ACRE-FEET
    PEAK DISCHARGE RATE =     1857.44 CFS  AT   1.733 HOURS   BASIN AREA =  1.6141 SQ. MI.


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

*S********************** BASIN DEV.G **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13300 FT    SLOPE=0.021  K=3
                                KN=0.021   CENTROID DISTANCE=6300 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     13300.0
     TOTAL BASIN SLOPE (FT/FT)=     .021000     CENTROUD LENGTH (FT)=         6300.0

     TIME OF CONCENTRATION (HRS)=   .4813     TIME TO PEAK (HRS)=   .3209     LAG TIME (HRS)=   .3610

COMPUTE NM HYD         ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                                PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3209

     K =   .185094HR    TP =   .320889HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   2790.5     CFS   UNIT VOLUME =    1.000        B =   502.58       P60 = 1.8700
     AREA =     1.781702 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .269101HR    TP =   .320889HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1493.7     CFS   UNIT VOLUME =    1.000        B =   371.51       P60 = 1.8700
     AREA =     1.290198 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                    ID=7   CODE=1

                                        HYDROGRAPH FROM AREA DEV.G

    RUNOFF VOLUME =      1.51962 INCHES      =      248.9648 ACRE-FEET
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PEAK DISCHARGE RATE =     4272.06 CFS  AT   1.700 HOURS   BASIN AREA =  3.0719 SQ. MI.


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

*S********************** BASIN DEV.H **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=13400 FT   SLOPE=0.02  K=3
                                KN=0.021   CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      13400.0
     TOTAL BASIN SLOPE (FT/FT)=     .020000     CENTROUD LENGTH (FT)=          5400.0

     TIME OF CONCENTRATION (HRS)=   .4623     TIME TO PEAK (HRS)=   .3082     LAG TIME (HRS)=   .3467

COMPUTE NM HYD         ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                                PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3082

     K =   .177775HR    TP =   .308199HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   1587.5    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =       .973500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .258459HR    TP =   .308199HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250049
     UNIT PEAK =   1493.5    CFS   UNIT VOLUME =    1.000       B =   371.51       P60 = 1.8700
     AREA =     1.239000 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=8   CODE=1

                                   HYDROGRAPH FROM AREA DEV.H

    RUNOFF VOLUME =     1.35463 INCHES     =     159.8449 ACRE-FEET
    PEAK DISCHARGE RATE =     2869.54 CFS  AT   1.700 HOURS   BASIN AREA =  2.2125 SQ. MI.


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

*S********************** BASIN DEV.I **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.03  K=1
                       LENGTH=1600 FT   SLOPE=0.03  K=2
                       LENGTH=6500 FT   SLOPE=0.03  K=3
                                KN=0.021   CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0           .030000            1.0000
     SHALLOW FLOW PORTION         1600.0           .030000            2.0000
     CHANNEL FLOW PORTION         6500.0           .030000            3.0000
     TOTAL BASIN                  8500.0           .030000            2.5248

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=       8500.0
     TOTAL BASIN SLOPE (FT/FT)=     .030000     CENTROUD LENGTH (FT)=          3400.0

     TIME OF CONCENTRATION (HRS)=   .3367     TIME TO PEAK (HRS)=   .2245     LAG TIME (HRS)=   .2526

COMPUTE NM HYD         ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                                PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2245

     K =   .129490HR    TP =   .224491HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   530.20    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =       .236831 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .178804HR    TP =   .224491HR    K/TP RATIO =   .796486     SHAPE CONSTANT, N =  4.500334
     UNIT PEAK =   1367.7    CFS   UNIT VOLUME =    1.000       B =   387.25       P60 = 1.8700
     AREA =       .792869 SQ MI    IA =    .36753 INCHES    INF =    .87909 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=9   CODE=1

                                   HYDROGRAPH FROM AREA DEV.I

    RUNOFF VOLUME =     1.21235 INCHES     =      66.5786 ACRE-FEET
    PEAK DISCHARGE RATE =     1539.04 CFS  AT   1.600 HOURS   BASIN AREA =  1.0297 SQ. MI.


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*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .076000            1.0000
     SHALLOW FLOW PORTION          1600.0            .076000            2.0000
     CHANNEL FLOW PORTION           800.0            .076000            3.0000
     TOTAL BASIN                   2800.0            .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108

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

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                                PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .076909HR    TP =   .133333HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   1242.4    CFS   UNIT VOLUME =    .9998       B =   502.58       P60 = 1.8700
     AREA =      .329607 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .110099HR    TP =   .133333HR    K/TP RATIO =   .825744     SHAPE CONSTANT, N =  4.322999
     UNIT PEAK =   824.62    CFS   UNIT VOLUME =    1.000       B =   376.16       P60 = 1.8700
     AREA =      .292293 SQ MI    IA =    .40745 INCHES    INF =    .99085 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=10   CODE=1

                                   HYDROGRAPH FROM AREA DEV.J

    RUNOFF VOLUME =     1.47922 INCHES     =      49.0624 ACRE-FEET
    PEAK DISCHARGE RATE =    1424.76 CFS  AT   1.500 HOURS   BASIN AREA =   .6219 SQ. MI.


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

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                                KN=0.021   CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     16700.0
     TOTAL BASIN SLOPE (FT/FT)=     .017000     CENTROUD LENGTH (FT)=         4800.0

     TIME OF CONCENTRATION (HRS)=   .4912     TIME TO PEAK (HRS)=   .3275     LAG TIME (HRS)=   .3684

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                                PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3275

     K =   .188881HR    TP =   .327453HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   3254.2    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =      2.120256 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .274606HR    TP =   .327453HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   2606.0    CFS   UNIT VOLUME =    1.000       B =   371.51       P60 = 1.8700
     AREA =      2.296944 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=11   CODE=1

                                   HYDROGRAPH FROM AREA DEV.K

    RUNOFF VOLUME =     1.40177 INCHES     =     330.2318 ACRE-FEET
    PEAK DISCHARGE RATE =    5646.01 CFS  AT   1.700 HOURS   BASIN AREA =  4.4172 SQ. MI.


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

*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                                KN=0.021   CENTROID DISTANCE=4200 FT
```

```
     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .060000            1.0000
     SHALLOW FLOW PORTION          1600.0            .060000            2.0000
     CHANNEL FLOW PORTION          4000.0            .060000            3.0000
     TOTAL BASIN                   6000.0            .060000            2.3684

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      6000.0
     TOTAL BASIN SLOPE (FT/FT)=    .060000      CENTROUD LENGTH (FT)=         4200.0

     TIME OF CONCENTRATION (HRS)=   .2512     TIME TO PEAK (HRS)=   .1675     LAG TIME (HRS)=   .1884

 COMPUTE NM HYD        ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                                PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1675

     K =   .096598HR    TP =   .167467HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   277.84    CFS   UNIT VOLUME =    .9999       B =   502.58       P60 = 1.8700
     AREA =      .092580 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .132099HR    TP =   .167467HR    K/TP RATIO =   .788809     SHAPE CONSTANT, N =  4.549534
     UNIT PEAK =   1222.6    CFS   UNIT VOLUME =    1.000       B =   390.28       P60 = 1.8700
     AREA =      .524620 SQ MI    IA =    .35706 INCHES    INF =    .84976 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

 PRINT HYD                  ID=12   CODE=1

                                   HYDROGRAPH FROM AREA DEV.L

    RUNOFF VOLUME =     1.15255 INCHES     =      37.9385 ACRE-FEET
    PEAK DISCHARGE RATE =    1081.26 CFS  AT   1.533 HOURS   BASIN AREA =   .6172 SQ. MI.


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

 *S********************** BASIN DEV.M **********************

 COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                                 KN=0.021   CENTROID DISTANCE=4350 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION             400.0            .054000            1.0000
     SHALLOW FLOW PORTION          1600.0            .054000            2.0000
     CHANNEL FLOW PORTION          5500.0            .054000            3.0000
     TOTAL BASIN                   7500.0            .054000            2.4725

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      7500.0
     TOTAL BASIN SLOPE (FT/FT)=    .054000      CENTROUD LENGTH (FT)=         4350.0

     TIME OF CONCENTRATION (HRS)=   .2888     TIME TO PEAK (HRS)=   .1925     LAG TIME (HRS)=   .2166

 COMPUTE NM HYD        ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                                PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1925

     K =   .111049HR    TP =   .192520HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   594.19    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =      .227616 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .154208HR    TP =   .192520HR    K/TP RATIO =   .800995     SHAPE CONSTANT, N =  4.471984
     UNIT PEAK =   1443.3    CFS   UNIT VOLUME =    1.000       B =   385.49       P60 = 1.8700
     AREA =      .720784 SQ MI    IA =    .37368 INCHES    INF =    .89632 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

 PRINT HYD                  ID=13   CODE=1

                                   HYDROGRAPH FROM AREA DEV.M

    RUNOFF VOLUME =     1.21092 INCHES     =      61.2493 ACRE-FEET
    PEAK DISCHARGE RATE =    1564.28 CFS  AT   1.567 HOURS   BASIN AREA =   .9484 SQ. MI.


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

 *S********************** BASIN DEV.N **********************

 COMPUTE LT TP         LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.041  K=1
                       LENGTH=1600 FT   SLOPE=0.041  K=2
```

```
                    LENGTH=6800 FT   SLOPE=0.041  K=3
                          KN=0.021   CENTROID DISTANCE=3750 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .041000            1.0000
     SHALLOW FLOW PORTION         1600.0            .041000            2.0000
     CHANNEL FLOW PORTION         6800.0            .041000            3.0000
     TOTAL BASIN                  8800.0            .041000            2.5385

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8800.0
     TOTAL BASIN SLOPE (FT/FT)=     .041000     CENTROID LENGTH (FT)=         3750.0

     TIME OF CONCENTRATION (HRS)=   .3198     TIME TO PEAK (HRS)=   .2132     LAG TIME (HRS)=   .2399

 COMPUTE NM HYD        ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                             PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2132

     K =   .122984HR    TP =   .213211HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   526.86    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
     AREA =      .223512 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .171398HR    TP =   .213211HR    K/TP RATIO =   .803889     SHAPE CONSTANT, N =  4.454000
     UNIT PEAK =   1276.0    CFS   UNIT VOLUME =    1.000       B =   384.37      P60 = 1.8700
     AREA =      .707788 SQ MI    IA =    .37763 INCHES    INF =    .90737 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

 PRINT HYD                ID=14   CODE=1

                                   HYDROGRAPH FROM AREA DEV.N

    RUNOFF VOLUME =     1.20334 INCHES     =      59.7685 ACRE-FEET
    PEAK DISCHARGE RATE =    1427.77 CFS  AT   1.600 HOURS   BASIN AREA =   .9313 SQ. MI.


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

 *S********************** BASIN EX. OFF C **********************

 COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                      LENGTH=400 FT    SLOPE=0.011  K=1
                      LENGTH=1600 FT   SLOPE=0.011  K=2
                      LENGTH=1600 FT   SLOPE=0.011  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .011000            1.0000
     SHALLOW FLOW PORTION         1600.0            .011000            2.0000
     CHANNEL FLOW PORTION         1600.0            .011000            3.0000
     TOTAL BASIN                  3600.0            .011000            2.0769

     TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

 COMPUTE NM HYD        ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                             PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3060

     K =   .176535HR    TP =   .306050HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   448.75    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
     AREA =      .273270 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .278290HR    TP =   .306050HR    K/TP RATIO =   .909295     SHAPE CONSTANT, N =  3.895170
     UNIT PEAK =   725.28    CFS   UNIT VOLUME =    1.000       B =   348.12      P60 = 1.8700
     AREA =      .637630 SQ MI    IA =    .52143 INCHES    INF =   1.31000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

 PRINT HYD                ID=15   CODE=1

                                   HYDROGRAPH FROM AREA EX.OFF.C

    RUNOFF VOLUME =     1.05625 INCHES     =      51.3139 ACRE-FEET
    PEAK DISCHARGE RATE =     938.89 CFS  AT   1.700 HOURS   BASIN AREA =   .9109 SQ. MI.


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

 *****************************************************************************
 FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 08:21:29
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```
*S*                 PROJECT NAME:  SANTOLINA
*S*                 DATE:  NOVEMBER 8, 2012
*S*                 INPUT FILE NAME:  100DE_24.HYM
*S*                 OUTUPUT FILE NAME:  100DE_24.OUT
*S*                 PROJECT NUMBER:  20120256
*S*                 COMMENTS:  100 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////
START               TIME=0.0 HR PUNCH CODE=0
RAINFALL            TYPE=2     RAIN QUARTER=0.0
                    RAIN ONE=1.87 IN     RAIN SIX=2.20 IN
                    RAIN DAY=2.66 IN     DT=0.033333

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*S*****************************************************************************
*S              COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S*****************************************************************************
*******************************************************************************
*S*  SEDIMENT BULK FACTOR FOR 100 YR = 2.5
SEDIMENT BULK       CODE=1        BULK FACTOR=1.025

*S********************** BASIN DEV.A **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.05  K=1
                    LENGTH=1600 FT   SLOPE=0.05  K=2
                    LENGTH=400 FT   SLOPE=0.05  K=3

COMPUTE NM HYD      ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                    PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.B **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.005  K=1
                    LENGTH=1600 FT   SLOPE=0.005  K=2
                    LENGTH=6200 FT   SLOPE=0.005  K=3
                    KN=0.021   CENTROID DISTANCE=2800 FT

COMPUTE NM HYD      ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                    PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=2   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.C **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=3100 FT   SLOPE=0.01  K=3
                    KN=0.021   CENTROID DISTANCE=1400 FT

COMPUTE NM HYD      ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                    PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.008  K=1
                    LENGTH=1600 FT   SLOPE=0.008  K=2
                    LENGTH=4700 FT   SLOPE=0.008  K=3
                    KN=0.021   CENTROID DISTANCE=3500 FT

COMPUTE NM HYD      ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                    PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1

DIVIDE HYD          ID=4       Q=189   ID I=16         HYD NO=D1
                                       ID II=17        HYD NO=D2

PRINT HYD               ID=16   CODE=1

PRINT HYD               ID=17   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.E **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.006  K=1
                    LENGTH=1600 FT   SLOPE=0.006  K=2
                    LENGTH=9500 FT   SLOPE=0.006  K=3
                    KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                    PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1

DIVIDE HYD          ID=5       Q=677   ID I=18         HYD NO=E1
                                       ID II=19        HYD NO=E2

PRINT HYD               ID=18   CODE=1

PRINT HYD               ID=19   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.F **********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.01  K=1
                    LENGTH=1600 FT   SLOPE=0.01  K=2
                    LENGTH=9200 FT   SLOPE=0.01  K=3
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```
                    KN=0.021   CENTROID DISTANCE=5450 FT

COMPUTE NM HYD      ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                    PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1

DIVIDE HYD          ID=6       Q=524   ID I=20         HYD NO=F1
                                       ID II=21        HYD NO=F2

PRINT HYD              ID=20   CODE=1

PRINT HYD              ID=21   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.G ***********************

COMPUTE LT TP       LCODE=1  NK=0  ISLOPE=-1
                    LENGTH=13300 FT   SLOPE=0.021  K=3
                    KN=0.021   CENTROID DISTANCE=6300 FT

COMPUTE NM HYD      ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                    PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=7   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.H ***********************

COMPUTE LT TP       LCODE=1  NK=0  ISLOPE=-1
                    LENGTH=13400 FT   SLOPE=0.02  K=3
                    KN=0.021   CENTROID DISTANCE=5400 FT

COMPUTE NM HYD      ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                    PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

DIVIDE HYD          ID=8       Q=809   ID I=22         HYD NO=H1
                                       ID II=23        HYD NO=H2

PRINT HYD              ID=22   CODE=1

PRINT HYD              ID=23   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.I ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.03  K=1
                    LENGTH=1600 FT   SLOPE=0.03  K=2
                    LENGTH=6500 FT   SLOPE=0.03  K=3
                    KN=0.021   CENTROID DISTANCE=3400 FT

COMPUTE NM HYD      ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                    PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=9   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.J ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.076  K=1
                    LENGTH=1600 FT   SLOPE=0.076  K=2
                    LENGTH=800 FT   SLOPE=0.076   K=3

COMPUTE NM HYD      ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                    PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

DIVIDE HYD          ID=10      Q=798   ID I=24         HYD NO=J1
                                       ID II=25        HYD NO=J2

PRINT HYD              ID=24   CODE=1

PRINT HYD              ID=25   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.K ***********************

COMPUTE LT TP       LCODE=1  NK=0  ISLOPE=-1
                    LENGTH=16700 FT    SLOPE=0.017  K=3
                    KN=0.021   CENTROID DISTANCE=4800 FT

COMPUTE NM HYD      ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                    PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

PRINT HYD              ID=11   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.L ***********************

COMPUTE LT TP       LCODE=1  NK=3  ISLOPE=-1
                    LENGTH=400 FT    SLOPE=0.06  K=1
                    LENGTH=1600 FT   SLOPE=0.06  K=2
                    LENGTH=4000 FT   SLOPE=0.06  K=3
                    KN=0.021   CENTROID DISTANCE=4200 FT

COMPUTE NM HYD      ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                    PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

DIVIDE HYD          ID=12      Q=561   ID I=26         HYD NO=L1
                                       ID II=27        HYD NO=L2

PRINT HYD              ID=26   CODE=1

PRINT HYD              ID=27   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.M ***********************
```

```
COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.054  K=1
                     LENGTH=1600 FT   SLOPE=0.054  K=2
                     LENGTH=5500 FT   SLOPE=0.054  K=3
                     KN=0.021   CENTROID DISTANCE=4350 FT

COMPUTE NM HYD       ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                     PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1


DIVIDE HYD           ID=13      Q=742   ID I=28         HYD NO=M1
                                        ID II=29        HYD NO=M2

PRINT HYD               ID=28   CODE=1

PRINT HYD               ID=29   CODE=1
*S*****************************************************************************

*S********************** BASIN DEV.N **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.041  K=1
                     LENGTH=1600 FT   SLOPE=0.041  K=2
                     LENGTH=6800 FT   SLOPE=0.041  K=3
                     KN=0.021   CENTROID DISTANCE=3750 FT

COMPUTE NM HYD       ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                     PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1


DIVIDE HYD           ID=14      Q=636   ID I=30         HYD NO=N1
                                        ID II=31        HYD NO=N2

PRINT HYD               ID=30   CODE=1

PRINT HYD               ID=31   CODE=1
*S*****************************************************************************

*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.011  K=1
                     LENGTH=1600 FT   SLOPE=0.011  K=2
                     LENGTH=1600 FT   SLOPE=0.011  K=3

COMPUTE NM HYD       ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                     PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1


PRINT HYD               ID=15   CODE=1
*S*****************************************************************************
*S*****************************************************************************

*****************************************************************************
FINISH
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```
AHYMO PROGRAM (AHYMO_97) -                          - Version:  1997.02c
     RUN DATE (MON/DAY/YR) = 12/28/2012
     START TIME (HR:MIN:SEC) = 08:21:00       USER NO.= AHYMO-S-9702c1BohanHu-AH
     INPUT FILE = 100DE_24.HYM

*S*                PROJECT NAME:  SANTOLINA
*S*                DATE:  NOVEMBER 8, 2012
*S*                INPUT FILE NAME:  100DE_24.HYM
*S*                OUTUPUT FILE NAME:  100DE_24.OUT
*S*                PROJECT NUMBER:  20120256
*S*                          COMMENTS:  100 YEAR-24 HOUR STORM
*S ////////////////////////////////////////////////////////////////////////////////
START              TIME=0.0 HR PUNCH CODE=0
RAINFALL           TYPE=2     RAIN QUARTER=0.0
                   RAIN ONE=1.87 IN    RAIN SIX=2.20 IN
                   RAIN DAY=2.66 IN    DT=0.033333


          COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
          DT =     .033333 HOURS       END TIME =     19.966470 HOURS
             .0000   .0016   .0033   .0050   .0067   .0085   .0103
             .0122   .0141   .0160   .0180   .0201   .0222   .0243
             .0266   .0289   .0312   .0337   .0362   .0388   .0415
             .0443   .0472   .0502   .0534   .0567   .0601   .0637
             .0675   .0715   .0758   .0810   .0865   .0924   .1051
             .1335   .1773   .2400   .3257   .4384   .5820   .7607
             .9789  1.1808  1.2652  1.3365  1.4000  1.4577  1.5108
            1.5602  1.6063  1.6495  1.6902  1.7285  1.7648  1.7991
            1.8316  1.8624  1.8917  1.9194  1.9458  1.9519  1.9576
            1.9631  1.9683  1.9732  1.9780  1.9826  1.9870  1.9912
            1.9953  1.9993  2.0031  2.0068  2.0105  2.0140  2.0174
            2.0207  2.0240  2.0272  2.0303  2.0333  2.0363  2.0392
            2.0420  2.0448  2.0476  2.0502  2.0529  2.0554  2.0580
            2.0605  2.0629  2.0653  2.0677  2.0701  2.0724  2.0746
            2.0769  2.0791  2.0812  2.0834  2.0855  2.0876  2.0896
            2.0916  2.0936  2.0956  2.0976  2.0995  2.1014  2.1033
            2.1052  2.1070  2.1088  2.1106  2.1124  2.1142  2.1159
            2.1176  2.1193  2.1210  2.1227  2.1244  2.1260  2.1276
            2.1292  2.1308  2.1324  2.1340  2.1355  2.1371  2.1386
            2.1401  2.1416  2.1431  2.1446  2.1461  2.1475  2.1489
            2.1504  2.1518  2.1532  2.1546  2.1560  2.1573  2.1587
            2.1601  2.1614  2.1627  2.1641  2.1654  2.1667  2.1680
            2.1693  2.1705  2.1718  2.1731  2.1743  2.1756  2.1768
            2.1780  2.1793  2.1805  2.1817  2.1829  2.1841  2.1852
            2.1864  2.1876  2.1887  2.1899  2.1911  2.1922  2.1933
            2.1945  2.1956  2.1967  2.1978  2.1989  2.2000  2.2013
            2.2026  2.2039  2.2052  2.2065  2.2078  2.2091  2.2104
            2.2117  2.2129  2.2142  2.2155  2.2168  2.2180  2.2193
            2.2205  2.2218  2.2231  2.2243  2.2256  2.2268  2.2281
            2.2293  2.2305  2.2318  2.2330  2.2342  2.2355  2.2367
            2.2379  2.2391  2.2404  2.2416  2.2428  2.2440  2.2452
            2.2464  2.2476  2.2488  2.2500  2.2512  2.2524  2.2536
            2.2548  2.2559  2.2571  2.2583  2.2595  2.2607  2.2618
            2.2630  2.2642  2.2653  2.2665  2.2676  2.2688  2.2700
            2.2711  2.2723  2.2734  2.2745  2.2757  2.2768  2.2780
            2.2791  2.2802  2.2814  2.2825  2.2836  2.2847  2.2859
            2.2870  2.2881  2.2892  2.2903  2.2914  2.2925  2.2937
            2.2948  2.2959  2.2970  2.2981  2.2992  2.3002  2.3013
            2.3024  2.3035  2.3046  2.3057  2.3068  2.3078  2.3089
            2.3100  2.3111  2.3121  2.3132  2.3143  2.3153  2.3164
            2.3175  2.3185  2.3196  2.3206  2.3217  2.3227  2.3238
            2.3248  2.3259  2.3269  2.3279  2.3290  2.3300  2.3311
            2.3321  2.3331  2.3342  2.3352  2.3362  2.3372  2.3383
            2.3393  2.3403  2.3413  2.3423  2.3433  2.3443  2.3454
            2.3464  2.3474  2.3484  2.3494  2.3504  2.3514  2.3524
            2.3534  2.3544  2.3554  2.3563  2.3573  2.3583  2.3593
            2.3603  2.3613  2.3622  2.3632  2.3642  2.3652  2.3661
            2.3671  2.3681  2.3691  2.3700  2.3710  2.3720  2.3729
            2.3739  2.3748  2.3758  2.3767  2.3777  2.3787  2.3796
            2.3806  2.3815  2.3824  2.3834  2.3843  2.3853  2.3862
            2.3872  2.3881  2.3890  2.3900  2.3909  2.3918  2.3927
            2.3937  2.3946  2.3955  2.3964  2.3974  2.3983  2.3992
            2.4001  2.4010  2.4020  2.4029  2.4038  2.4047  2.4056
            2.4065  2.4074  2.4083  2.4092  2.4101  2.4110  2.4119
            2.4128  2.4137  2.4146  2.4155  2.4164  2.4173  2.4182
            2.4191  2.4199  2.4208  2.4217  2.4226  2.4235  2.4244
            2.4252  2.4261  2.4270  2.4279  2.4287  2.4296  2.4305
            2.4313  2.4322  2.4331  2.4339  2.4348  2.4357  2.4365
            2.4374  2.4383  2.4391  2.4400  2.4408  2.4417  2.4425
            2.4434  2.4442  2.4451  2.4459  2.4468  2.4476  2.4485
            2.4493  2.4501  2.4510  2.4518  2.4527  2.4535  2.4543
            2.4552  2.4560  2.4568  2.4577  2.4585  2.4593  2.4602
            2.4610  2.4618  2.4626  2.4635  2.4643  2.4651  2.4659
            2.4667  2.4675  2.4684  2.4692  2.4700  2.4708  2.4716
            2.4724  2.4732  2.4740  2.4749  2.4757  2.4765  2.4773
            2.4781  2.4789  2.4797  2.4805  2.4813  2.4821  2.4829
            2.4837  2.4845  2.4852  2.4860  2.4868  2.4876  2.4884
            2.4892  2.4900  2.4908  2.4915  2.4923  2.4931  2.4939
            2.4947  2.4955  2.4962  2.4970  2.4978  2.4986  2.4993
            2.5001  2.5009  2.5017  2.5024  2.5032  2.5040  2.5047
            2.5055  2.5063  2.5070  2.5078  2.5085  2.5093  2.5101
            2.5108  2.5116  2.5123  2.5131  2.5139  2.5146  2.5154
            2.5161  2.5169  2.5176  2.5184  2.5191  2.5199  2.5206
            2.5214  2.5221  2.5228  2.5236  2.5243  2.5251  2.5258
            2.5266  2.5273  2.5280  2.5288  2.5295  2.5302  2.5310
            2.5317  2.5324  2.5332  2.5339  2.5346  2.5354  2.5361
            2.5368  2.5375  2.5383  2.5390  2.5397  2.5404  2.5412
            2.5419  2.5426  2.5433  2.5440  2.5448  2.5455  2.5462
            2.5469  2.5476  2.5483  2.5490  2.5498  2.5505  2.5512
            2.5519  2.5526  2.5533  2.5540  2.5547  2.5554  2.5561
            2.5568  2.5575  2.5582  2.5589  2.5596  2.5603  2.5610
            2.5617  2.5624  2.5631  2.5638  2.5645  2.5652  2.5659
            2.5666  2.5673  2.5680  2.5687  2.5693  2.5700  2.5707
            2.5714  2.5721  2.5728  2.5735  2.5741  2.5748  2.5755
            2.5762  2.5769  2.5775  2.5782  2.5789  2.5796  2.5803
            2.5809  2.5816  2.5823  2.5830  2.5836

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*S*********************************************************************************
*S                          COMPUTE BASINS IN SANTOLINA - DEVELOPED CONDITION
*S*********************************************************************************

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*S*  SEDIMENT BULK FACTOR FOR 100 YR = 2.5
SEDIMENT BULK        CODE=1        BULK FACTOR=1.025

*S********************** BASIN DEV.A **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.05  K=1
                     LENGTH=1600 FT   SLOPE=0.05  K=2
                     LENGTH=400 FT   SLOPE=0.05  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .050000            1.0000
     SHALLOW FLOW PORTION        1600.0            .050000            2.0000
     CHANNEL FLOW PORTION         400.0            .050000            3.0000
     TOTAL BASIN                 2400.0            .050000            1.8000

     TIME OF CONCENTRATION (HRS)=   .1656     TIME TO PEAK (HRS)=   .1104     LAG TIME (HRS)=   .1242


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

COMPUTE NM HYD       ID=1 HYD=DEV.A  AREA=0.5438  PER A=0.0 PER B=1.0
                                PER C=92.0 PER D=7.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .1333

     K =   .076909HR    TP =   .133333HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   143.48    CFS   UNIT VOLUME =    .9998      B =   502.58      P60 = 1.8700
     AREA =      .038066 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .104642HR    TP =   .133333HR    K/TP RATIO =   .784817     SHAPE CONSTANT, N =  4.575603
     UNIT PEAK =   1486.4    CFS   UNIT VOLUME =    1.000      B =   391.87      P60 = 1.8700
     AREA =      .505734 SQ MI    IA =    .35161 INCHES    INF =    .83452 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD            ID=1   CODE=1

                                   HYDROGRAPH FROM AREA DEV.A

    RUNOFF VOLUME =     1.11211 INCHES     =      32.2540 ACRE-FEET
    PEAK DISCHARGE RATE =    1064.67 CFS  AT   1.500 HOURS   BASIN AREA =   .5438 SQ. MI.


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*S********************** BASIN DEV.B **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.005  K=1
                     LENGTH=1600 FT   SLOPE=0.005  K=2
                     LENGTH=6200 FT   SLOPE=0.005  K=3
                               KN=0.021   CENTROID DISTANCE=2800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION           400.0            .005000            1.0000
     SHALLOW FLOW PORTION        1600.0            .005000            2.0000
     CHANNEL FLOW PORTION        6200.0            .005000            3.0000
     TOTAL BASIN                 8200.0            .005000            2.5102

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8200.0
     TOTAL BASIN SLOPE (FT/FT)=    .005000     CENTROUD LENGTH (FT)=         2800.0

     TIME OF CONCENTRATION (HRS)=   .5659     TIME TO PEAK (HRS)=   .3773     LAG TIME (HRS)=   .4244

COMPUTE NM HYD       ID=2 HYD=DEV.B  AREA=2.8781  PER A=0.0 PER B=19.0
                                PER C=19.0 PER D=62.0  TP=0.0  RAINFALL=-1


     TIME TO PEAK (hrs)=   .3773

     K =   .217616HR    TP =   .377270HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   2377.1    CFS   UNIT VOLUME =    1.000      B =   502.58      P60 = 1.8700
     AREA =     1.784422 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333


     K =   .316383HR    TP =   .377270HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1077.0    CFS   UNIT VOLUME =    1.000      B =   371.51      P60 = 1.8700
     AREA =     1.093678 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333
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    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=2   CODE=1

                                        HYDROGRAPH FROM AREA DEV.B

    RUNOFF VOLUME =      1.80288 INCHES      =      276.7372 ACRE-FEET
    PEAK DISCHARGE RATE =     3695.00 CFS  AT   1.767 HOURS   BASIN AREA =  2.8781 SQ. MI.


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

*S********************** BASIN DEV.C **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.01  K=1
                       LENGTH=1600 FT   SLOPE=0.01  K=2
                       LENGTH=3100 FT   SLOPE=0.01  K=3
                                KN=0.021   CENTROID DISTANCE=1400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .010000            1.0000
     SHALLOW FLOW PORTION         1600.0            .010000            2.0000
     CHANNEL FLOW PORTION         3100.0            .010000            3.0000
     TOTAL BASIN                  5100.0            .010000            2.2836

     LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=       5100.0
     TOTAL BASIN SLOPE (FT/FT)=     .010000      CENTROUD LENGTH (FT)=          1400.0

     TIME OF CONCENTRATION (HRS)=   .4780      TIME TO PEAK (HRS)=   .3187      LAG TIME (HRS)=   .3585

COMPUTE NM HYD         ID=3 HYD=DEV.C  AREA=1.5641  PER A=0.0 PER B=26.0
                                PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3187

     K =   .183827HR    TP =   .318693HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   1184.0    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =       .750768 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .267259HR    TP =   .318693HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   948.13    CFS   UNIT VOLUME =    1.000       B =   371.51       P60 = 1.8700
     AREA =       .813332 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                  ID=3   CODE=1

                                        HYDROGRAPH FROM AREA DEV.C

    RUNOFF VOLUME =      1.58552 INCHES      =      132.2615 ACRE-FEET
    PEAK DISCHARGE RATE =     2041.04 CFS  AT   1.700 HOURS   BASIN AREA =  1.5641 SQ. MI.


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

*S********************** BASIN DEV.D **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.008  K=1
                       LENGTH=1600 FT   SLOPE=0.008  K=2
                       LENGTH=4700 FT   SLOPE=0.008  K=3
                                KN=0.021   CENTROID DISTANCE=3500 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .008000            1.0000
     SHALLOW FLOW PORTION         1600.0            .008000            2.0000
     CHANNEL FLOW PORTION         4700.0            .008000            3.0000
     TOTAL BASIN                  6700.0            .008000            2.4217

     LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=       6700.0
     TOTAL BASIN SLOPE (FT/FT)=     .008000      CENTROUD LENGTH (FT)=          3500.0

     TIME OF CONCENTRATION (HRS)=   .5237      TIME TO PEAK (HRS)=   .3491      LAG TIME (HRS)=   .3928

COMPUTE NM HYD         ID=4 HYD=DEV.D  AREA=0.5313  PER A=0.0 PER B=16.0
                                PER C=16.0 PER D=68.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3491

     K =   .201376HR    TP =   .349116HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   520.09    CFS   UNIT VOLUME =    .9999       B =   502.58       P60 = 1.8700
     AREA =       .361284 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .292772HR    TP =   .349116HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   180.92    CFS   UNIT VOLUME =    .9999       B =   371.51       P60 = 1.8700
     AREA =       .170016 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333
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    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

DIVIDE HYD          ID=4  Q=189   ID I=16        HYD NO=D1
                                                 ID II=17        HYD NO=D2

PRINT HYD                ID=16   CODE=1

                                    HYDROGRAPH FROM AREA D1

    RUNOFF VOLUME =     1.89709 INCHES     =      31.9624 ACRE-FEET
    PEAK DISCHARGE RATE =     189.00 CFS  AT   1.467 HOURS   BASIN AREA =   .3159 SQ. MI.


PRINT HYD                ID=17   CODE=1

                                    HYDROGRAPH FROM AREA D2

    RUNOFF VOLUME =     1.89709 INCHES     =      21.7933 ACRE-FEET
    PEAK DISCHARGE RATE =     557.44 CFS  AT   1.733 HOURS   BASIN AREA =   .2154 SQ. MI.


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

*S********************** BASIN DEV.E **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.006  K=1
                     LENGTH=1600 FT   SLOPE=0.006  K=2
                     LENGTH=9500 FT   SLOPE=0.006  K=3
                              KN=0.021   CENTROID DISTANCE=5400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                              LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION          400.0           .006000            1.0000
     SHALLOW FLOW PORTION       1600.0           .006000            2.0000
     CHANNEL FLOW PORTION       9500.0           .006000            3.0000
     TOTAL BASIN               11500.0           .006000            2.6336

     LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11500.0
     TOTAL BASIN SLOPE (FT/FT)=    .006000     CENTROUD LENGTH (FT)=         5400.0

     TIME OF CONCENTRATION (HRS)=   .5510     TIME TO PEAK (HRS)=   .3673     LAG TIME (HRS)=   .4132

COMPUTE NM HYD       ID=5 HYD=DEV.E  AREA=2.4328  PER A=0.0 PER B=23.0
                              PER C=23.0 PER D=54.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3673

     K =   .211881HR    TP =   .367328HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   1797.4    CFS   UNIT VOLUME =    1.000       B =   502.58       P60 = 1.8700
     AREA =     1.313712 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

     K =   .308045HR    TP =   .367328HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   1131.8    CFS   UNIT VOLUME =    1.000       B =   371.51       P60 = 1.8700
     AREA =     1.119088 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

DIVIDE HYD          ID=5  Q=677   ID I=18        HYD NO=E1
                                                 ID II=19        HYD NO=E2

PRINT HYD                ID=18   CODE=1

                                    HYDROGRAPH FROM AREA E1

    RUNOFF VOLUME =     1.67831 INCHES     =     121.0036 ACRE-FEET
    PEAK DISCHARGE RATE =     677.00 CFS  AT   1.467 HOURS   BASIN AREA =  1.3519 SQ. MI.


PRINT HYD                ID=19   CODE=1

                                    HYDROGRAPH FROM AREA E2

    RUNOFF VOLUME =     1.67831 INCHES     =      96.7549 ACRE-FEET
    PEAK DISCHARGE RATE =    2331.05 CFS  AT   1.767 HOURS   BASIN AREA =  1.0809 SQ. MI.


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

*S********************** BASIN DEV.F **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.01  K=1
                     LENGTH=1600 FT   SLOPE=0.01  K=2
                     LENGTH=9200 FT   SLOPE=0.01  K=3
                              KN=0.021   CENTROID DISTANCE=5450 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
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                                  LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION                  400.0            .010000            1.0000
SHALLOW FLOW PORTION               1600.0            .010000            2.0000
CHANNEL FLOW PORTION               9200.0            .010000            3.0000
TOTAL BASIN                       11200.0            .010000            2.6250

LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     11200.0
TOTAL BASIN SLOPE (FT/FT)=    .010000      CENTROUD LENGTH (FT)=         5450.0

TIME OF CONCENTRATION (HRS)=   .5039     TIME TO PEAK (HRS)=   .3359     LAG TIME (HRS)=   .3779

COMPUTE NM HYD        ID=6 HYM=DEV.F  AREA=1.6141  PER A=0.0 PER B=32.0
                           PER C=32.0 PER D=36.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .3359

K =   .193766HR    TP =   .335923HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
UNIT PEAK =   869.35    CFS   UNIT VOLUME =    .9999       B =   502.58      P60 = 1.8700
AREA =      .581076 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .281708HR    TP =   .335923HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
UNIT PEAK =   1142.5    CFS   UNIT VOLUME =    1.000       B =   371.51      P60 = 1.8700
AREA =     1.033024 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

DIVIDE HYD            ID=6  Q=524   ID I=20          HYD NO=F1
                                                     ID II=21        HYD NO=F2

PRINT HYD                   ID=20   CODE=1

                                     HYDROGRAPH FROM AREA F1

RUNOFF VOLUME =      1.39795 INCHES      =      72.8952 ACRE-FEET
PEAK DISCHARGE RATE =      524.00 CFS  AT   1.500 HOURS   BASIN AREA =   .9777 SQ. MI.


PRINT HYD                   ID=21   CODE=1

                                     HYDROGRAPH FROM AREA F2

RUNOFF VOLUME =      1.39795 INCHES      =      47.4471 ACRE-FEET
PEAK DISCHARGE RATE =     1333.44 CFS  AT   1.733 HOURS   BASIN AREA =   .6364 SQ. MI.


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

*S********************** BASIN DEV.G **********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=13300 FT   SLOPE=0.021  K=3
                              KN=0.021   CENTROID DISTANCE=6300 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     13300.0
TOTAL BASIN SLOPE (FT/FT)=    .021000      CENTROUD LENGTH (FT)=         6300.0

TIME OF CONCENTRATION (HRS)=   .4813     TIME TO PEAK (HRS)=   .3209     LAG TIME (HRS)=   .3610

COMPUTE NM HYD        ID=7 HYD=DEV.G  AREA=3.0719  PER A=0.0 PER B=21.0
                           PER C=21.0 PER D=58.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .3209

K =   .185094HR    TP =   .320889HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
UNIT PEAK =   2790.5    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
AREA =     1.781702 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .269101HR    TP =   .320889HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
UNIT PEAK =   1493.7    CFS   UNIT VOLUME =    1.000       B =   371.51      P60 = 1.8700
AREA =     1.290198 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                   ID=7   CODE=1

                                     HYDROGRAPH FROM AREA DEV.G

RUNOFF VOLUME =      1.74162 INCHES      =     285.3354 ACRE-FEET
PEAK DISCHARGE RATE =     4272.06 CFS  AT   1.700 HOURS   BASIN AREA =  3.0719 SQ. MI.


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

*S********************** BASIN DEV.H **********************

COMPUTE LT TP         LCODE=1  NK=0  ISLOPE=-1
                      LENGTH=13400 FT   SLOPE=0.02  K=3
                              KN=0.021   CENTROID DISTANCE=5400 FT
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     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=      13400.0
     TOTAL BASIN SLOPE (FT/FT)=     .020000      CENTROUD LENGTH (FT)=          5400.0

     TIME OF CONCENTRATION (HRS)=   .4623      TIME TO PEAK (HRS)=   .3082      LAG TIME (HRS)=   .3467

 COMPUTE NM HYD        ID=8 HYD=DEV.H  AREA=2.2125  PER A=0.0 PER B=28.0
                              PER C=28.0 PER D=44.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3082

     K =   .177775HR    TP =   .308199HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =    1587.5    CFS   UNIT VOLUME =    1.000      B =   502.58      P60 = 1.8700
     AREA =      .973500 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .258459HR    TP =   .308199HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250049
     UNIT PEAK =    1493.5    CFS   UNIT VOLUME =    1.000      B =   371.51      P60 = 1.8700
     AREA =     1.239000 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

 DIVIDE HYD            ID=8  Q=809   ID I=22          HYD NO=H1
                                                      ID II=23        HYD NO=H2

 PRINT HYD                   ID=22   CODE=1

                                        HYDROGRAPH FROM AREA H1

    RUNOFF VOLUME =      1.52323 INCHES      =      110.4320 ACRE-FEET
    PEAK DISCHARGE RATE =      809.00 CFS  AT   1.467 HOURS   BASIN AREA =  1.3594 SQ. MI.


 PRINT HYD                   ID=23   CODE=1

                                        HYDROGRAPH FROM AREA H2

    RUNOFF VOLUME =      1.52323 INCHES      =       69.3076 ACRE-FEET
    PEAK DISCHARGE RATE =     2060.54 CFS  AT   1.700 HOURS   BASIN AREA =   .8531 SQ. MI.


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

*S********************** BASIN DEV.I **********************

 COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                        LENGTH=400 FT    SLOPE=0.03  K=1
                        LENGTH=1600 FT   SLOPE=0.03  K=2
                        LENGTH=6500 FT   SLOPE=0.03  K=3
                                KN=0.021   CENTROID DISTANCE=3400 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
     SHEET FLOW PORTION            400.0            .030000            1.0000
     SHALLOW FLOW PORTION         1600.0            .030000            2.0000
     CHANNEL FLOW PORTION         6500.0            .030000            3.0000
     TOTAL BASIN                  8500.0            .030000            2.5248

     LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=       8500.0
     TOTAL BASIN SLOPE (FT/FT)=     .030000      CENTROUD LENGTH (FT)=          3400.0

     TIME OF CONCENTRATION (HRS)=   .3367      TIME TO PEAK (HRS)=   .2245      LAG TIME (HRS)=   .2526

 COMPUTE NM HYD        ID=9 HYD=DEV.I  AREA=1.0297  PER A=0.0 PER B=9.0
                              PER C=68.0 PER D=23.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .2245

     K =   .129490HR    TP =   .224491HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =    530.20    CFS   UNIT VOLUME =    1.000      B =   502.58      P60 = 1.8700
     AREA =      .236831 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .178804HR    TP =   .224491HR    K/TP RATIO =   .796486     SHAPE CONSTANT, N =  4.500334
     UNIT PEAK =    1367.7    CFS   UNIT VOLUME =    1.000      B =   387.25      P60 = 1.8700
     AREA =      .792869 SQ MI    IA =    .36753 INCHES    INF =    .87909 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

 PRINT HYD                   ID=9   CODE=1

                                        HYDROGRAPH FROM AREA DEV.I

    RUNOFF VOLUME =      1.30113 INCHES      =       71.4542 ACRE-FEET
    PEAK DISCHARGE RATE =     1539.04 CFS  AT   1.600 HOURS   BASIN AREA =  1.0297 SQ. MI.


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*S********************** BASIN DEV.J **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.076  K=1
                       LENGTH=1600 FT   SLOPE=0.076  K=2
                       LENGTH=800 FT    SLOPE=0.076  K=3

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     SCS UPLAND METHOD FACTORS
                                 LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
     SHEET FLOW PORTION            400.0            .076000            1.0000
     SHALLOW FLOW PORTION         1600.0            .076000            2.0000
     CHANNEL FLOW PORTION          800.0            .076000            3.0000
     TOTAL BASIN                  2800.0            .076000            1.9091

     TIME OF CONCENTRATION (HRS)=   .1478     TIME TO PEAK (HRS)=   .0985     LAG TIME (HRS)=   .1108

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

COMPUTE NM HYD         ID=10 HYD=DEV.J  AREA=0.6219  PER A=0.0 PER B=18.0
                                PER C=29.0 PER D=53.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .1333

     K =   .076909HR    TP =   .133333HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   1242.4    CFS   UNIT VOLUME =    .9998       B =   502.58      P60 = 1.8700
     AREA =      .329607 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .110099HR    TP =   .133333HR    K/TP RATIO =   .825744     SHAPE CONSTANT, N =  4.322999
     UNIT PEAK =   824.62    CFS   UNIT VOLUME =    1.000       B =   376.16      P60 = 1.8700
     AREA =      .292293 SQ MI    IA =    .40745 INCHES    INF =    .99085 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

DIVIDE HYD             ID=10 Q=798   ID I=24          HYD NO=J1
                                                      ID II=25        HYD NO=J2

PRINT HYD                   ID=24   CODE=1

                                     HYDROGRAPH FROM AREA J1

    RUNOFF VOLUME =     1.68542 INCHES     =      48.6768 ACRE-FEET
    PEAK DISCHARGE RATE =     798.00 CFS  AT   1.433 HOURS   BASIN AREA =   .5415 SQ. MI.


PRINT HYD                   ID=25   CODE=1

                                     HYDROGRAPH FROM AREA J2

    RUNOFF VOLUME =     1.68542 INCHES     =       7.2249 ACRE-FEET
    PEAK DISCHARGE RATE =     626.76 CFS  AT   1.500 HOURS   BASIN AREA =   .0804 SQ. MI.


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

*S********************** BASIN DEV.K **********************

COMPUTE LT TP          LCODE=1  NK=0  ISLOPE=-1
                       LENGTH=16700 FT    SLOPE=0.017  K=3
                                KN=0.021   CENTROID DISTANCE=4800 FT

     Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

     LAG EQUATION FACTORS:      Kn=   .0210     TOTAL BASIN LENGTH (FT)=     16700.0
     TOTAL BASIN SLOPE (FT/FT)=     .017000     CENTROUD LENGTH (FT)=         4800.0

     TIME OF CONCENTRATION (HRS)=   .4912     TIME TO PEAK (HRS)=   .3275     LAG TIME (HRS)=   .3684

COMPUTE NM HYD         ID=11 HYD=DEV.K  AREA=4.4172  PER A=0.0 PER B=26.0
                                PER C=26.0 PER D=48.0  TP=0.0  RAINFALL=-1

     TIME TO PEAK (hrs)=   .3275

     K =   .188881HR    TP =   .327453HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
     UNIT PEAK =   3254.2    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
     AREA =      2.120256 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

     K =   .274606HR    TP =   .327453HR    K/TP RATIO =   .838611     SHAPE CONSTANT, N =  4.250046
     UNIT PEAK =   2606.0    CFS   UNIT VOLUME =    1.000       B =   371.51      P60 = 1.8700
     AREA =      2.296944 SQ MI    IA =    .42500 INCHES    INF =   1.04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                   ID=11   CODE=1

                                     HYDROGRAPH FROM AREA DEV.K
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RUNOFF VOLUME =      1.58538 INCHES      =      373.4878 ACRE-FEET
PEAK DISCHARGE RATE =     5646.01 CFS  AT   1.700 HOURS   BASIN AREA =  4.4172 SQ. MI.


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*S********************** BASIN DEV.L **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.06  K=1
                       LENGTH=1600 FT   SLOPE=0.06  K=2
                       LENGTH=4000 FT   SLOPE=0.06  K=3
                              KN=0.021   CENTROID DISTANCE=4200 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION            400.0            .060000            1.0000
    SHALLOW FLOW PORTION         1600.0            .060000            2.0000
    CHANNEL FLOW PORTION         4000.0            .060000            3.0000
    TOTAL BASIN                  6000.0            .060000            2.3684

    LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=      6000.0
    TOTAL BASIN SLOPE (FT/FT)=     .060000      CENTROUD LENGTH (FT)=         4200.0

    TIME OF CONCENTRATION (HRS)=   .2512      TIME TO PEAK (HRS)=   .1675      LAG TIME (HRS)=   .1884

COMPUTE NM HYD         ID=12 HYD=DEV.L  AREA=0.6172  PER A=0.0 PER B=4.0
                              PER C=81.0 PER D=15.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .1675

    K =   .096598HR    TP =   .167467HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
    UNIT PEAK =   277.84    CFS   UNIT VOLUME =    .9999       B =   502.58      P60 = 1.8700
    AREA =      .092580 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

    K =   .132099HR    TP =   .167467HR    K/TP RATIO =   .788809     SHAPE CONSTANT, N =  4.549534
    UNIT PEAK =   1222.6    CFS   UNIT VOLUME =    1.000       B =   390.28      P60 = 1.8700
    AREA =      .524620 SQ MI    IA =    .35706 INCHES    INF =    .84976 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

   BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

DIVIDE HYD             ID=12 Q=561   ID I=26          HYD NO=L1
                                                      ID II=27        HYD NO=L2

PRINT HYD                   ID=26   CODE=1

                                        HYDROGRAPH FROM AREA L1

    RUNOFF VOLUME =      1.21074 INCHES      =       32.2084 ACRE-FEET
    PEAK DISCHARGE RATE =      561.00 CFS  AT   1.433 HOURS   BASIN AREA =   .4988 SQ. MI.


PRINT HYD                   ID=27   CODE=1

                                        HYDROGRAPH FROM AREA L2

    RUNOFF VOLUME =      1.21074 INCHES      =        7.6455 ACRE-FEET
    PEAK DISCHARGE RATE =      520.26 CFS  AT   1.533 HOURS   BASIN AREA =   .1184 SQ. MI.


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*S********************** BASIN DEV.M **********************

COMPUTE LT TP          LCODE=1  NK=3  ISLOPE=-1
                       LENGTH=400 FT    SLOPE=0.054  K=1
                       LENGTH=1600 FT   SLOPE=0.054  K=2
                       LENGTH=5500 FT   SLOPE=0.054  K=3
                              KN=0.021   CENTROID DISTANCE=4350 FT

    Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

    SCS UPLAND METHOD FACTORS
                                LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
    SHEET FLOW PORTION            400.0            .054000            1.0000
    SHALLOW FLOW PORTION         1600.0            .054000            2.0000
    CHANNEL FLOW PORTION         5500.0            .054000            3.0000
    TOTAL BASIN                  7500.0            .054000            2.4725

    LAG EQUATION FACTORS:      Kn=   .0210      TOTAL BASIN LENGTH (FT)=      7500.0
    TOTAL BASIN SLOPE (FT/FT)=     .054000      CENTROUD LENGTH (FT)=         4350.0

    TIME OF CONCENTRATION (HRS)=   .2888      TIME TO PEAK (HRS)=   .1925      LAG TIME (HRS)=   .2166

COMPUTE NM HYD         ID=13 HYD=DEV.M  AREA=0.9484  PER A=0.0 PER B=12.0
                              PER C=64.0 PER D=24.0  TP=0.0  RAINFALL=-1

    TIME TO PEAK (hrs)=   .1925

    K =   .111049HR    TP =   .192520HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
    UNIT PEAK =   594.19    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
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AREA =       .227616 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .154208HR    TP =   .192520HR    K/TP RATIO =   .800995     SHAPE CONSTANT, N =  4.471984
UNIT PEAK =   1443.3    CFS   UNIT VOLUME =    1.000       B =   385.49      P60 = 1.8700
AREA =       .720784 SQ MI    IA =    .37368 INCHES    INF =    .89632 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

DIVIDE HYD          ID=13 Q=742   ID I=28          HYD NO=M1
                                                   ID II=29        HYD NO=M2

PRINT HYD                ID=28   CODE=1

                                   HYDROGRAPH FROM AREA M1

RUNOFF VOLUME =     1.30382 INCHES     =      51.5684 ACRE-FEET
PEAK DISCHARGE RATE =      742.00 CFS  AT   1.467 HOURS   BASIN AREA =   .7416 SQ. MI.


PRINT HYD                ID=29   CODE=1

                                   HYDROGRAPH FROM AREA M2

RUNOFF VOLUME =     1.30382 INCHES     =      14.3799 ACRE-FEET
PEAK DISCHARGE RATE =      822.28 CFS  AT   1.567 HOURS   BASIN AREA =   .2068 SQ. MI.


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*S********************** BASIN DEV.N **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
                     LENGTH=400 FT    SLOPE=0.041  K=1
                     LENGTH=1600 FT   SLOPE=0.041  K=2
                     LENGTH=6800 FT   SLOPE=0.041  K=3
                          KN=0.021   CENTROID DISTANCE=3750 FT

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                          LENGTH (FT)      SLOPE (FT/FT)       COMPOSITE K
SHEET FLOW PORTION           400.0           .041000            1.0000
SHALLOW FLOW PORTION        1600.0           .041000            2.0000
CHANNEL FLOW PORTION        6800.0           .041000            3.0000
TOTAL BASIN                 8800.0           .041000            2.5385

LAG EQUATION FACTORS:     Kn=   .0210     TOTAL BASIN LENGTH (FT)=      8800.0
TOTAL BASIN SLOPE (FT/FT)=    .041000     CENTROID LENGTH (FT)=         3750.0

TIME OF CONCENTRATION (HRS)=   .3198     TIME TO PEAK (HRS)=   .2132     LAG TIME (HRS)=   .2399

COMPUTE NM HYD       ID=14 HYD=DEV.N  AREA=0.9313  PER A=0.0 PER B=14.0
                           PER C=62.0 PER D=24.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .2132

K =   .122984HR    TP =   .213211HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
UNIT PEAK =   526.86    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
AREA =       .223512 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .171398HR    TP =   .213211HR    K/TP RATIO =   .803889     SHAPE CONSTANT, N =  4.454000
UNIT PEAK =   1276.0    CFS   UNIT VOLUME =    1.000       B =   384.37      P60 = 1.8700
AREA =       .707788 SQ MI    IA =    .37763 INCHES    INF =    .90737 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

DIVIDE HYD          ID=14 Q=636   ID I=30          HYD NO=N1
                                                   ID II=31        HYD NO=N2

PRINT HYD                ID=30   CODE=1

                                   HYDROGRAPH FROM AREA N1

RUNOFF VOLUME =     1.29607 INCHES     =      48.6031 ACRE-FEET
PEAK DISCHARGE RATE =      636.00 CFS  AT   1.467 HOURS   BASIN AREA =   .7031 SQ. MI.


PRINT HYD                ID=31   CODE=1

                                   HYDROGRAPH FROM AREA N2

RUNOFF VOLUME =     1.29607 INCHES     =      15.7712 ACRE-FEET
PEAK DISCHARGE RATE =      791.77 CFS  AT   1.600 HOURS   BASIN AREA =   .2282 SQ. MI.


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*S********************** BASIN EX. OFF C **********************

COMPUTE LT TP        LCODE=1  NK=3  ISLOPE=-1
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LENGTH=400 FT    SLOPE=0.011  K=1
LENGTH=1600 FT   SLOPE=0.011  K=2
LENGTH=1600 FT   SLOPE=0.011  K=3

Tc AND Tp COMPUTED BY UPLAND/LAG TIME PROCEDURE

SCS UPLAND METHOD FACTORS
                          LENGTH (FT)      SLOPE (FT/FT)      COMPOSITE K
SHEET FLOW PORTION           400.0           .011000           1.0000
SHALLOW FLOW PORTION        1600.0           .011000           2.0000
CHANNEL FLOW PORTION        1600.0           .011000           3.0000
TOTAL BASIN                 3600.0           .011000           2.0769

TIME OF CONCENTRATION (HRS)=   .4591     TIME TO PEAK (HRS)=   .3060     LAG TIME (HRS)=   .3443

COMPUTE NM HYD       ID=15 HYD=EX.OFF.C  AREA=0.9109  PER A=30.0 PER B=20.0
                           PER C=20.0 PER D=30.0  TP=0.0  RAINFALL=-1

TIME TO PEAK (hrs)=   .3060

K =   .176535HR    TP =   .306050HR    K/TP RATIO =   .576817     SHAPE CONSTANT, N =  6.612116
UNIT PEAK =   448.75    CFS   UNIT VOLUME =    1.000       B =   502.58      P60 = 1.8700
AREA =      .273270 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

K =   .278290HR    TP =   .306050HR    K/TP RATIO =   .909295     SHAPE CONSTANT, N =  3.895170
UNIT PEAK =   725.28    CFS   UNIT VOLUME =    1.000       B =   348.12      P60 = 1.8700
AREA =      .637630 SQ MI    IA =    .52143 INCHES    INF =   1.31000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033333

BULKING FACTOR APPLIED TO HYDROGRAPH.  FACTOR =  1.02500 AT PEAK FLOW.

PRINT HYD                ID=15   CODE=1

                                HYDROGRAPH FROM AREA EX.OFF.C

RUNOFF VOLUME =     1.17123 INCHES     =      56.8996 ACRE-FEET
PEAK DISCHARGE RATE =     938.89 CFS  AT   1.700 HOURS   BASIN AREA =   .9109 SQ. MI.

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FINISH

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APPENDIX B – EXCERPTS OF RELATED AREA DMP'S

- WESTGATE DAM
- AMOLE HUBBEL DMP
- DON FELIPE DAM
- BORREGA DAM

AMOLE-HUBBELL DRAINAGE MANAGEMENT PLAN

VOLUME I

FINAL FACILITIES PLAN REPORT

Prepared for

AMAFCA

ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY

July 22, 1999

LEEDSHILL-HERKENHOFF, INC.
an ASCG Company
500 Copper Ave. N.W.
Albuquerque, New Mexico
(505) 247-0294

LH Project No. 95043

D727

RESOLUTION 1999-7
FURTHER MODIFICATIONS OF THE DRAINAGE MANAGEMENT PLAN
WESTERN ALBUQUERQUE METROPOLITAN AREA
AS IT PERTAINS TO THE AMOLE ARROYO BELOW WESTGATE DAM AND OTHER DRAINAGE BASINS DRAINING TO THE AMOLE-HUBBELL DETENTION SYSTEM

WHEREAS, the Drainage Management Plan Western Albuauerque Metropolitan Area Resolution 1975-8 adopted by AMAFCA, Sepetmber 25, 1975, called for the construction of the Westgate, Amole and Hubbell detention facilities and the Borrega, Sacate Blanco and Power Line diversion channels.

WHEREAS, in 1976 AMAFCA completed the construction of the Westgate Dam.

WHEREAS, in 1978 AMAFCA completed the construction of the Sacate Blanco Diversion, the Amole-Hubbell Channel, the Amole Detention Dam and Hubbell Lake Detention Dam.

WHEREAS, Resolution 1980-15 revised AMAFCA's Drainage Policy and provided additional criteria for development in the Amole watershed.

WHEREAS, in 1981 AMAFCA completed the construction of the Snow Vista Channel.

WHEREAS, in 1982 AMAFCA completed the construction of the Powerline Channel.

WHEREAS, in 1986 AMAFCA completed the Borrega Diversion Channel.

WHEREAS, since 1983 the City of Albuquerque, through the expenditure of CIP funds or as part of the SAD process, has completed the SAD 214, the North/South Coors and 98th and Central Ponds and the Amole del Norte Channel, Tierra Bayita Channel, Unser diversion and Unser Storm Drain.

WHEREAS, in April of 1994 the AMAFCA Board adopted Resolution 1994-4 modifying the Drainage Management Plan for Western Albuquerque by proposing the construction of two additional detention facilities on the Amole Arroyo north of I-40 that would divert all flows to a proposed I-40 diversion channel that would out fall to the Rio Grande.

WHEREAS, on July 28, 1994, the Board of Directors authorized the preparation of a Drainage Management Plan for the Amole Arroyo-Hubbell Lake system below the Westgate Dam.

WHEREAS, said Drainage Management Plan has been prepared, with input and assistance from community agencies, private landowners and the general public.

TABLE II-1
HYDROLOGIC SUMMARY
MAJOR AMOLE ARROYO DMP FACILITIES

Existing Facility	Existing Design Capacity/ Bank Full Capacity	Existing Conditions (100-Yr Event)	Developed Conditions-Existing Facilities (100-Yr Event) (3)	Developed Conditions w/ DMP Facilities (100-yr Event)	DMP Design Capacity (Future)	Comments
Westgate Dam (Detention)	425 AF/425 AF	345 AF	421 AF (1) 1511 AF (2)	421 AF	425 AF	
Powerline Channel @ Amole	475 cfs/2000 cfs	502 cfs	941 cfs (3)	20 cfs	475 cfs	
Amole Arroyo @ Delgado CBC	720 cfs/720 cfs	652 cfs	1525 cfs	575 cfs	720 cfs	
Snow Vista Channel @ Amole	1200 cfs/2600 cfs	1814 cfs (3)	2083 cfs (3)	2083 cfs	2100 cfs	
Entrance Rundown to Amole Dam	4235 cfs/7480 cfs	3022 cfs (4)	6089 cfs	5293 cfs	5300 cfs	
South Powerline Detention	NA	NA	NA	65.1 AF	65.1 AF	New Facility
South Powerline Channel @ Rio Bravo	NA	NA	NA	446 cfs	450 cfs	New Facility
Sacate Blanco Diversion @ Amole	853 cfs/1660 cfs	901 cfs	2380 cfs	1183 cfs(5)	1190 cfs	
Rio Bravo Roadway Channel @ Hubbell	1105 cfs/2190 cfs	400 cfs	1004 cfs	658 cfs	1105 cfs	
South Rio Bravo Channel @ Hubbell Lake	NA	357 cfs	734 cfs	644 cfs(5)	700 cfs	
Borrega Detention Basin	NA	NA	NA	51 AF	51 AF	New Facility
Borrega Diversion @ inlet	225 cfs/225cfs	612 cfs (5)	1627 cfs (5)	225 cfs	225 cfs	
Amole Dam (Detention)	492 AF/492 AF	492 AF	492 AF	1352 AF	1352 AF	w/ Guac Basin
Hubbell Channel @ Amole Dam	10159 cfs/10159 cfs	122 cfs	2524 cfs	150 cfs	10159 cfs	
Hubbell Dam	493 AF/ 493 AF	519 AF	1301AF(1) 2600 AF (2)	493 AF	493 AF	

(1) Incorporates Amole Dams and Diversion of runoff north of I-40 (15 SM±).
(2) w/o Amole Dams and Diversion north of I-40.
(3) Contained within available freeboard.
(4) Minor Channel upgrades to convey flows.
(5) Significant Improvements required to convey flows.

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AMAFCA Board of Directors regarding the Amole and Hubbell drainage basins below the Westgate Dam.

PASSED, ADOPTED AND SIGNED THIS 22nd DAY OF July, 1999

Ronald D. Brown, Chairman

ATTEST:

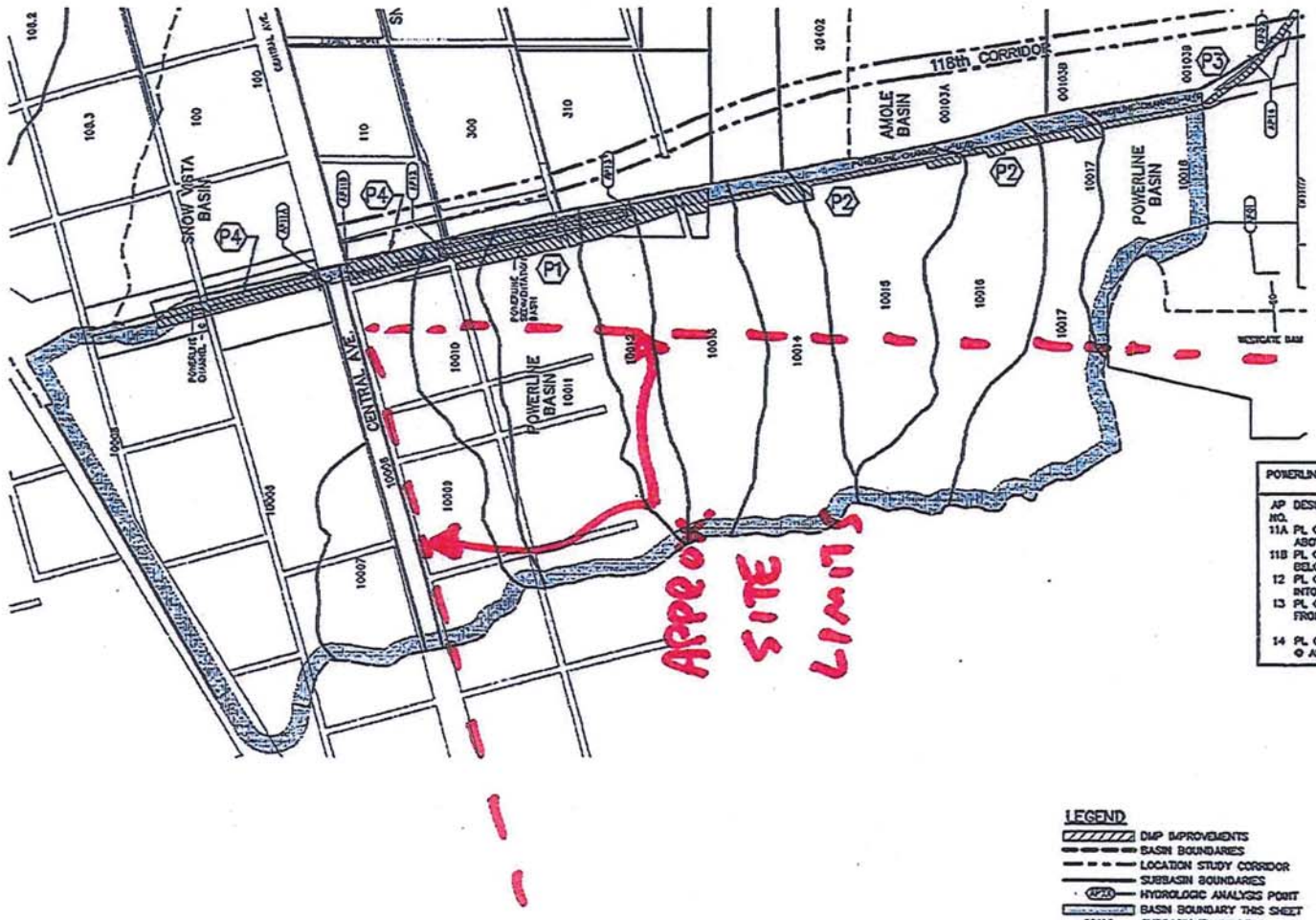
Clifford E. Anderson, Secretary/Treasurer

TABLE III-2
HYDROLOGIC SUMMARY
POWERLINE BASIN

AP NO.	MAP NO.	DESCRIPTION	VARIABLE	EXISTING FACILITIES			PROPOSED DMP FACILITIES	
				EXISTING	DEVEX	EXISTING CAPACITY	DMP	FUTURE CAPACITY
11A	4	POWERLINE CHANNEL ABOVE CENTRAL AVE. CROSSING	Q (cfs)		577	403	577	600
			Tvol (AF)		25.2	2000 cfs	25.2	
			Runoff (in)		1.67	(bank full)	1.67	
			cfs/ac		3.2		3.2	
11B	4	POWERLINE CHANNEL BELOW CENTRAL AVE. CROSSING	Q (cfs)	895	716	403	716	740
			Tvol (AF)	38.8	31.4	2000 cfs	31.4	
			Runoff (in)	0.94	1.67	(bank full)	1.67	
			cfs/ac	1.8	3.2		3.2	
12	4	POWERLINE CHANNEL AT ENTRANCE INTO SEDIMENTATION BASIN	Q (cfs)	1052	890	603	890	910
			Tvol (AF)	44.4	39.5	2000 cfs	39.5	
			Runoff (in)	0.9	1.71	(bank full)	1.71	
			cfs/ac	1.78	3.3		3.3	
13	4	POWERLINE CHANNEL AT EXIT FROM SEDIMENTATION BASIN	Q (cfs)	454	431	330	19	20
			Tvol (AF)	52.6	58.7	1370 cfs	58.2	
			Dvol (AF)	29.3	28.2	(bank full)	44.9	
			Runoff (in)	0.84	1.65		1.12	
			cfs/ac	0.62	1.01		0.05	
14	6	POWERLINE CHANNEL AT ENTRANCE TO AMOLE ARROYO	Q (cfs)	502	941	475	20	475
			Tvol (AF)	67.6	99.8	2000 cfs	98.1	
			Runoff (in)	0.74	1.55	(bank full)	0.67	
			cfs/ac	0.46	1.23		0.03	

Notes/Legend

AP - Analysis Point - See Figures this report, maps in Volume II and detail hydrology in Volume III.
Q - Peak discharge rate
Tvol - Total runoff volume
Dvol - Maximum detained volume
Runoff - inches of runoff
cfs/ac - peak discharge rate per acre of contributing area.
Existing - Existing land use and existing drainage facilities.
DEVEX - Fully developed land use and existing drainage facilities.
Capacity - Design capacity.
DMP - Proposed improvements in place, fully developed land use.



POWERLINE BASIN MANAGEMENT PLAN

PROJECT PL1

P1 INCREASE POWERLINE SEDIMENTATION DETENTION BASIN FROM 28 AF TO 46 AF

P2 IN-LINE DETENTION BASINS~ 4 TO 8 AF EACH, 58 AF TOTAL SEE FIGURE III-4

P3 FLOW INTO AMOLE ARROYO~ 20 cfs

PROJECT PL2

P4 CHANNEL FREEBOARD UPGRADE.

POWERLINE BASIN (PL)	EXISTING FACILITIES (DEVEX)		WITH DMP	
AP NO.	DESCRIPTION	VARIABLE 100 YR 24 HR.	VARIABLE	100 YR 24 HR.
11A	PL CHANNEL ABOVE CENTRAL	Q cfs	577	Q cfs 577
		TVol AF	25.2	TVol AF 25.2
11B	PL CHANNEL BELOW CENTRAL	Q cfs	716	Q cfs 716
		TVol AF	31.4	TVol AF 31.4
12	PL CHANNEL INTO SED. BASIN	Q cfs	590	Q cfs 590
		TVol AF	39.5	TVol AF 39.5
13	PL CHANNEL FROM SED. BASIN	Q cfs	431	Q cfs 19
		TVol AF	53.7	TVol AF 53.2
		DVol AF	28.2	DVol AF 44.9
14	PL CHANNEL @ AMOLE ARROYO	Q cfs	941	Q cfs 20
		TVol AF	99.8	TVol AF 98.1

LEGEND

- DMP IMPROVEMENTS
- BASIN BOUNDARIES
- LOCATION STUDY CORRIDOR
- SUBBASIN BOUNDARIES
- HYDROLOGIC ANALYSIS POINT
- BASIN BOUNDARY THIS SHEET
- 60110 SUBBASIN ID NUMBER
- PROJECT ID NUMBER

0 500' 1000' 2000'

1" = 1000'±

AMOLE-HUBBELL D.M.P.

POWERLINE BASIN MANAGEMENT PLAN

FIGURE NO. III-3

LEEDSHILL-HERKENHOFF, INC.

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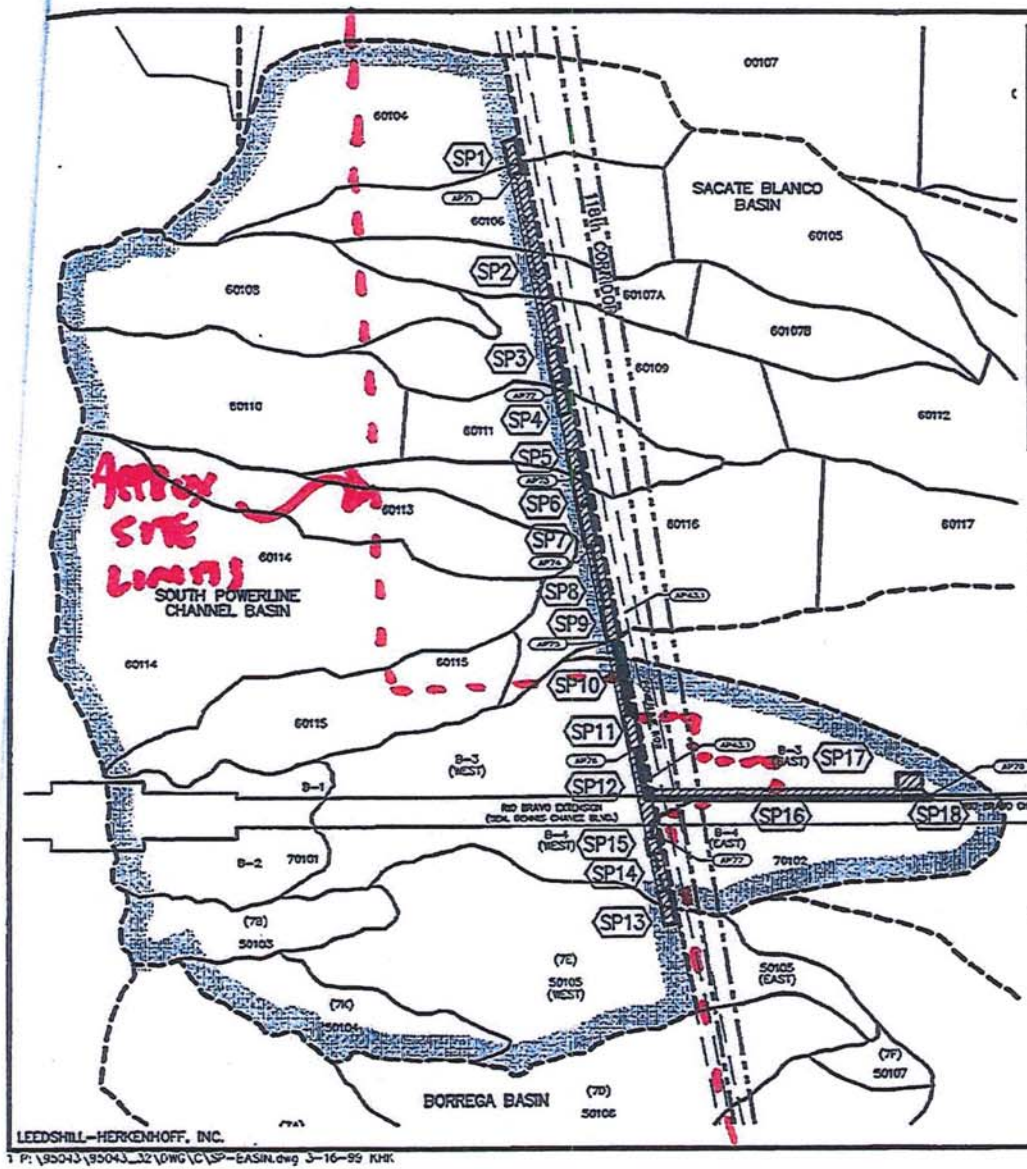
TABLE III-4
HYDROLOGIC SUMMARY
SOUTH POWERLINE CHANNEL BASIN

AP NO.	MAP NO.	DESCRIPTION	VARIABLE	EXISTING FACILITIES			PROPOSED DMP FACILITIES	
				EXISTING	DEVEX	EXISTING CAPACITY	DMP	FUTURE CAPACITY
71	2	POND 1 OUTFALL	Q (cfs)	N/A	N/A	N/A	21.20	21.2
			Tvol (AF)				8.90	8.9
			Dvol (AF)				5.90	5.9
			Runoff (in)				1.42	
			cfs/ac				0.28	
72	3	POND 2 OUTFALL	Q (cfs)	N/A	N/A	N/A	118.80	118.8
			Tvol (AF)				25.70	25.7
			Dvol (AF)				8.60	8.6
			Runoff (in)				1.46	
			cfs/ac				0.56	
73	3	POND 3 OUTFALL	Q (cfs)	N/A	N/A	N/A	167.00	167.1
			Tvol (AF)				37.10	37.1
			Dvol (AF)				6.00	6.0
			Runoff (in)				1.47	
			cfs/ac				0.55	
74	3	POND 4 OUTFALL	Q (cfs)	N/A	N/A	N/A	174.70	174.7
			Tvol (AF)				45.20	45.2
			Dvol (AF)				6.30	6.3
			Runoff (in)				1.49	
			cfs/ac				0.48	
75	3	POND 5 OUTFALL	Q (cfs)	N/A	N/A	N/A	356.40	356.4
			Tvol (AF)				69.30	69.3
			Dvol (AF)				9.70	9.7
			Runoff (in)				1.47	
			cfs/ac				0.63	
76	3	POND 6 OUTFALL	Q (cfs)	N/A	N/A	N/A	351.00	351.0
			Tvol (AF)				78.40	78.4
			Dvol (AF)				9.60	9.6
			Runoff (in)				1.45	
			cfs/ac				0.54	
77	5	PONDS 7&8 OUTFALL	Q (cfs)	N/A	N/A	N/A	56.40	56.4
			Tvol (AF)				27.40	27.4
			Dvol (AF)				19.10	19.0
			Runoff (in)				1.43	
			cfs/ac				0.25	
78	5	SOUTH POWERLINE CHANNEL OUTFALL INTO RIO BRAVO CHANNEL	Q (cfs)	N/A	N/A	N/A	446.20	446.2
			Tvol (AF)				114.90	114.9
			Runoff (in)				1.44	
			cfs/ac				0.47	

Notes/Legend

AP - Analysis Point - See Figures this report, maps in Volume II and detail hydrology in Volume III.
Q - Peak discharge rate
Tvol - Total runoff volume
Dvol - Maximum detained volume
Runoff - inches of runoff

cfs/ac - peak discharge rate per acre of contributing area.
Existing - Existing land use and existing drainage facilities.
DEVEX - Fully developed land use and existing drainage facilities.
Capacity - Design capacity.
DMP - Proposed improvements in place, fully developed land use.



SOUTH POWERLINE BASIN (SP)		EXISTING FACILITIES (DEVCO)		WITH DMP	
AP NO.	DESCRIPTION	VARIABLE	100 YR 24 HR.	VARIABLE	100 YR 24 HR.
71	POND 1 OUTFALL	Q cfs	N/A	Q cfs	21.2
		TVol AF	N/A	TVol AF	8.9
		DVol AF	N/A	DVol AF	5.5
72	POND 2 OUTFALL	Q cfs	N/A	Q cfs	118.8
		TVol AF	N/A	TVol AF	25.7
		DVol AF	N/A	DVol AF	8.6
73	POND 3 OUTFALL	Q cfs	N/A	Q cfs	167
		TVol AF	N/A	TVol AF	37.1
		DVol AF	N/A	DVol AF	0
74	POND 4 OUTFALL	Q cfs	N/A	Q cfs	174.7
		TVol AF	N/A	TVol AF	43.2
		DVol AF	N/A	DVol AF	6.3
75	POND 5 OUTFALL	Q cfs	N/A	Q cfs	356.4
		TVol AF	N/A	TVol AF	69.3
		DVol AF	N/A	DVol AF	3.7
76	POND 6 OUTFALL	Q cfs	N/A	Q cfs	351
		TVol AF	N/A	TVol AF	78.4
		DVol AF	N/A	DVol AF	3.6
77	PONDS 7 & 8 OUTFALL	Q cfs	N/A	Q cfs	56.4
		TVol AF	N/A	TVol AF	27.4
		DVol AF	N/A	DVol AF	19.10
78	SOUTH POWERLINE CHANNEL OUTFALL INTO RIO BRAVO CHANNEL	Q cfs	N/A	Q cfs	446.2
		TVol AF	N/A	TVol AF	114.9
		DVol AF	N/A	DVol AF	1.44

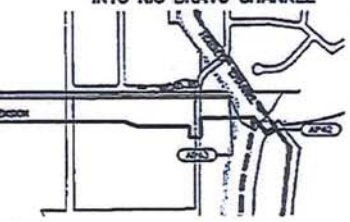
LEGEND

- DMP IMPROVEMENTS
- BASIN BOUNDARIES
- LOCATION STUDY CORRIDOR
- SUBBASIN BOUNDARIES
- HYDROLOGIC ANALYSIS POINT
- BASIN BOUNDARY THIS SHEET
- 60110 SUBBASIN ID NUMBER
- SP1 PROJECT ID NUMBER

SOUTH POWERLINE BASIN MANAGEMENT PLAN

PROJECT SP1

SP1	POND 1–6 AF
SP2	24" STORM DRAIN.
SP3	POND 2–8.6 AF
SP4	EARTHEN 5' CHANNEL W/ GRADE CONTROL STRUCTURE.
SP5	POND 3–6 AF
SP6	EARTHEN 5' CHANNEL W/ GRADE CONTROL STRUCTURE.
SP7	POND 4–6.3 AF
SP8	EARTHEN 5' CHANNEL W/ GRADE CONTROL STRUCTURE.
SP9	POND 5–9.7 AF
SP10	EARTHEN 5' CHANNEL W/ GRADE CONTROL STRUCTURE.
SP11	POND 6–9.6 AF
SP12	66" STORM DRAIN
SP13	POND 7–10 AF
SP14	36" STORM DRAIN
SP15	POND 8–9.1 AF
SP16	60" STORM DRAIN
SP17	POND 9–5 AF
SP18	SOUTH POWERLINE DISCHARGE INTO RIO BRAVO CHANNEL



0 500' 1000' 2000'

1" = 1000'±

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AMOLE–HUBBELL D.M.P.

SOUTH POWERLINE BASIN MANAGEMENT PLAN

LEEDSHILL–HERKENHOFF, INC.

FIGURE NO. III–7

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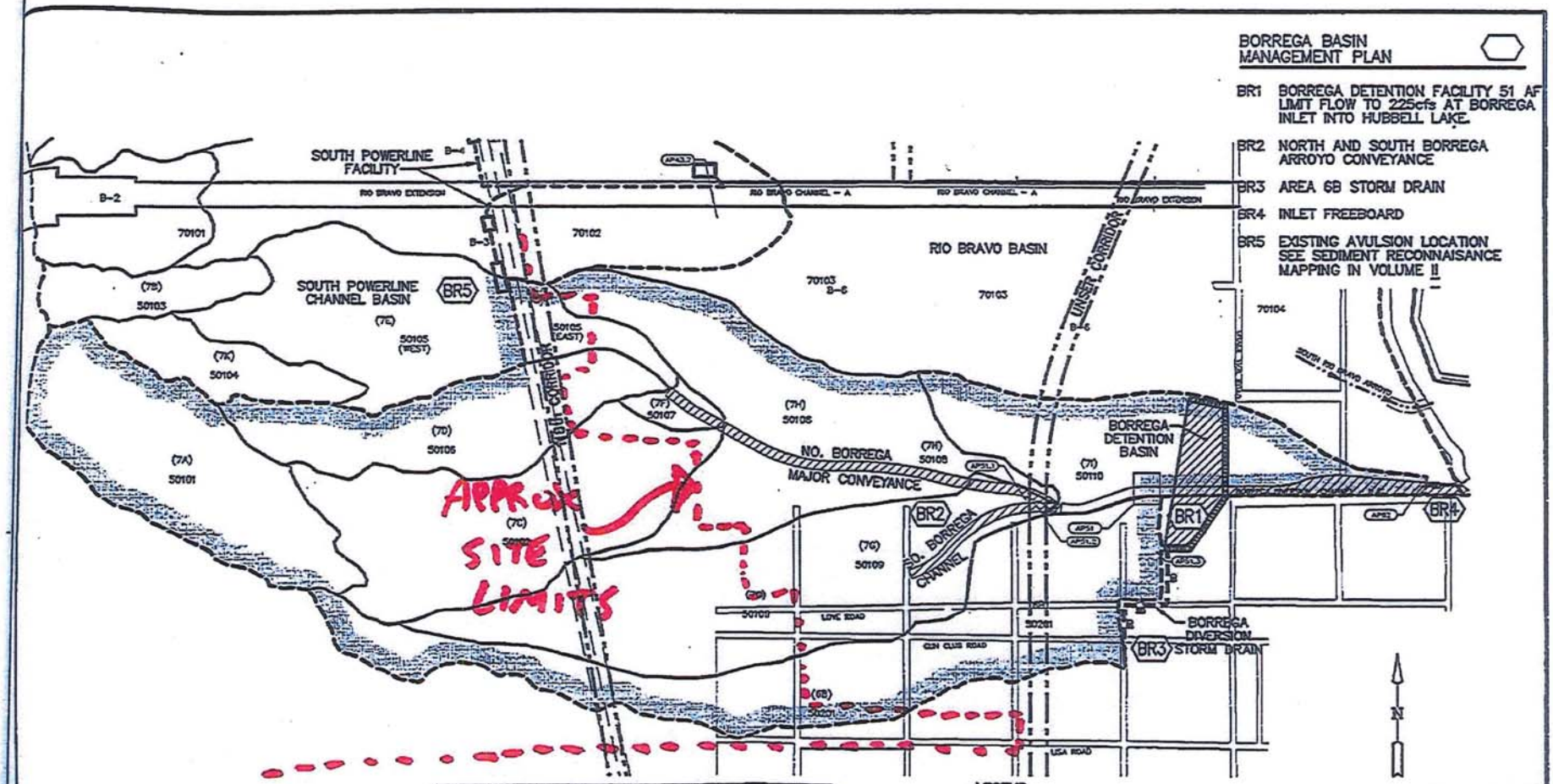
TABLE III-7
HYDROLOGIC SUMMARY
BORREGA ARROYO BASIN

AP NO.	MAP NO.	DESCRIPTION	VARIABLE	EXISTING FACILITIES			PROPOSED DMP FACILITIES	
				EXISTING	DEVEX	EXISTING CAPACITY	DMP	FUTURE CAPACITY
51	9	BORREGA DETENTION FACILITY	Qout (cfs)	619	1558	640	171	640
			Tvol (AF)	33.1	94.5		89.6	
			Dvol(AF)	0	0		51	51.2
			Runoff (in)	0.55	1.56		1.59	
			cfs/ac	0.85	2.14		0.86	
51.1	9	N. BORREGA ARROYO	Q (cfs)	513	1275	NA	1005	1005
			Tvol (AF)	27.9	78.2		60.6	
			Runoff (in)	0.55	1.55		1.57	
			cfs/ac	0.85	2.11		2.17	
51.2	9	S. BORREGA ARROYO	Q (cfs)	112	320	NA	320	320
			Tvol (AF)	5.25	16.3		16.3	
			Runoff (in)	0.51	1.60		1.60	
			cfs/ac	0.92	2.61		2.61	
51.3	9	AREA 6B STORM DRAIN	Q (cfs)	NA	NA	NA	230	230
			Tvol (AF)				12.50	
			Runoff (in)				1.60	
			cfs/ac				2.44	
52	9	BORREGA INLET TO HUBBELL LAKE	Q (cfs)	612	1627	225	225	225
			Tvol (AF)	41.1	116	(bank full)	94	(with
			Runoff (in)	0.55	1.56		1.59	freeboard)
			cfs/ac	0.69	1.83		0.86	

Notes/Legend

AP - Analysis Point - See Figures this report, maps in Volume II and detail hydrology in Volume III.
Q - Peak discharge rate
Tvol - Total runoff volume
Dvol - Maximum detained volume
Runoff - inches of runoff
cfs/ac - peak discharge rate per acre of contributing area.
Existing - Existing land use and existing drainage facilities.
DEVEX - Fully developed land use and existing drainage facilities.
Capacity - Design capacity.
DMP - Proposed improvements in place, fully developed land use.
Qout - Outflow peak discharge rate.



BORREGA ARROYO BASIN (BR)	EXISTING FACILITIES (DEVEX)		WITH DMP	
AP NO. DESCRIPTION	VARIABLE	100 YR 24 HR.	VARIABLE	100 YR 24 HR.
51 BORREGA DETENTION FACILITY	Q cfs	1558	Q cfs	171
	TVol AF	94.5	TVol AF	83.6
	DVol AF	–	DVol AF	51
51.1 NORTH BORREGA ARROYO	Q cfs	1275	Q cfs	1005
	TVol AF	78.2	TVol AF	60.6
51.2 SOUTH BORREGA ARROYO	Q cfs	320	Q cfs	320
	TVol AF	16.3	TVol AF	16.3
51.3 AREA 6B STORM DRAIN	Q cfs	NA	Q cfs	230
	TVol AF	–	TVol AF	12.5
52 BORREGA DIVERSION & INLET	Q cfs	1627	Q cfs	225
	TVol AF	115	TVol AF	64

OVERALL WATERSHED

AMAFCA

GRAPHIC SCALE

WILSON & COMPANY

EXISTING BASIN MAP

FIGURE X-X

* DMP STREETS FROM UPDATE BY WILSON & CO. DRAFT

SOUTH POWERLINE BASIN

AMAFCA

GRAPHIC SCALE

WILSON & COMPANY

EXISTING BASIN MAP

* DMP SHEETS FROM UPDATE BY WILSON & CO. DRAFT

POWERLINE BASIN

AMAFCA

GRAPHIC SCALE

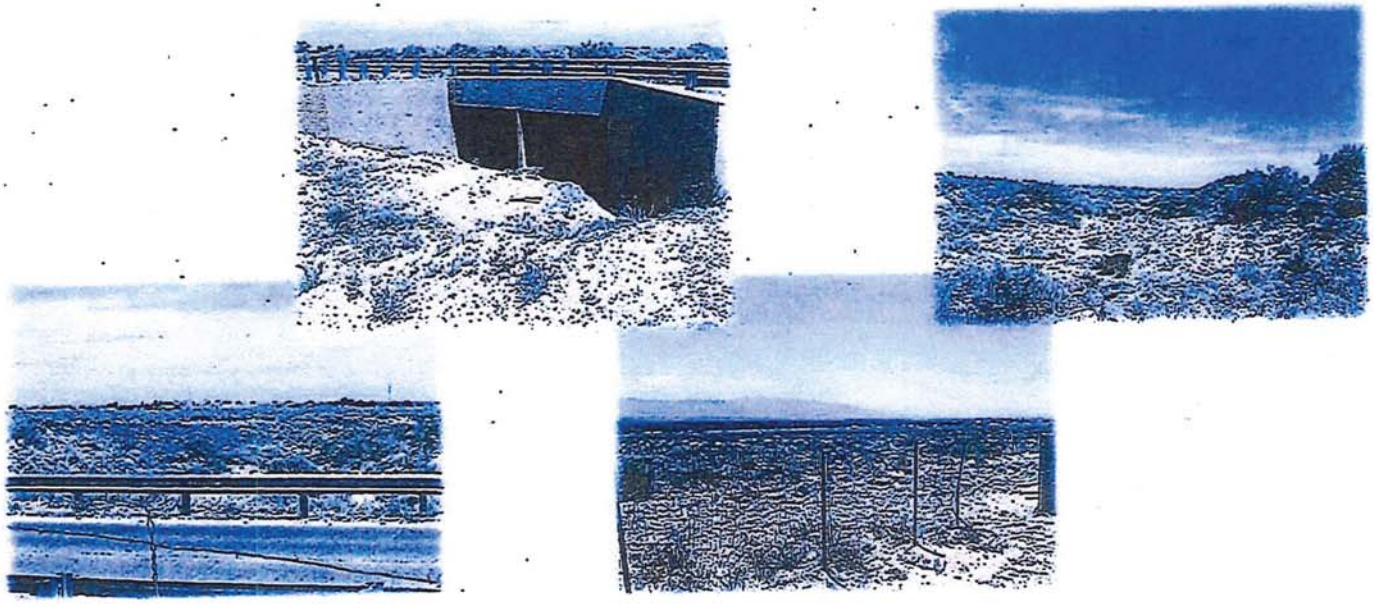
WILSON & COMPANY

EXISTING BASIN MAP

to DMP SHEETS FROM UPDATE BY WILSON & CO. DRAFT

DRAINAGE MANAGEMENT PLAN FOR DON FELIPE DAM

JULY 2011



Prepared by:

Bohannan Huston

RESOLUTION 2011-11
ADOPTION OF THE DON FELIPE DAM WATERSHED
DRAINAGE MANAGEMENT PLAN

WHEREAS, there is no comprehensive drainage management plan ("DMP") for the southwest mesa area ("Area") of Bernalillo County, New Mexico; and

WHEREAS, the Albuquerque Metropolitan Arroyo Flood Control Authority ("AMAFCA") owns and operates three flood detention dams that receive stormwater runoff from the Area, one of which is the Don Felipe Dam; and

WHEREAS, the watershed upstream of the dam has not been restudied since the dam was constructed in 1987; and

WHEREAS, in 2001, Bernalillo County adopted the Southwest Area Plan, which outlines development densities and includes the Don Felipe Dam watershed; and

WHEREAS, AMAFCA and Bernalillo County recognize that the Area has potential for development in the future and wish to establish a plan for controlled drainage management; and

WHEREAS, in August 2006, the AMAFCA Board of Directors approved an engineering services contract with Bohannan Huston, Inc. to re-evaluate the watershed hydrologic analysis and dam capacity and to recommend drainage management options; and

WHEREAS, AMAFCA and Bernalillo County have pending MS-4 Stormwater Discharge Permits with the Environmental Protection Agency and wish to address stormwater quality treatment in the DMP.

NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF DIRECTORS OF THE ALBUQUERQUE METROPOLITAN ARROYO FLOOD CONTROL AUTHORITY, BERNALILLO COUNTY, NEW MEXICO:

The drainage management options and 100-year flow rates recommended by the Don Felipe Dam Watershed Drainage Management Plan, prepared by Bohannan Huston, Inc. and dated July 2011, are hereby adopted, subject to the following:

1. Modifications to the adopted Drainage Management Plan may be as circumstances dictate and shall be approved by the AMAFCA Board of Directors.

2. The Drainage Management Plan identifies proposed drainage and flood control facilities that will provide protection to the community from stormwater runoff. The adoption of this plan does not imply a commitment on the part of the AMAFCA Board of Directors or any other public agency to build any or all of said facilities. Financing and scheduling of improvements are subject to the availability of public funds and the initiatives of the private sector.

Passed, adopted and signed this 25th day of July, 2011.

Danny Hernandez, Chairman
Board of Directors

Attest:

Bruce M. Thomson, Secretary/Treasurer
Board of Directors

EXECUTIVE SUMMARY

The Don Felipe Dam (Dam) was completed in 1987 and designed as a retention dam for the 100-year storm event. The primary outlet conduit (a 36" RCP) is gated and was designed to empty the Dam within 96 hours after being opened after a storm event. Bovay Engineers, Inc., performed the original design, and the design report indicates a 100-year design inflow and volume of 201 cubic feet per second (cfs) and 125 acre-feet (ac-ft), respectively, for undeveloped conditions. Bovay used the SCS Unit Hydrograph Method for their hydrologic analysis. The overall Dam site occupies approximately 86 acres in area. Though the Dam was originally designed for retention, the United States Army Corps of Engineers' (USACE) and AMAFCA's Black Mesa Diversion Outfall project is allowing a change to detention. With this project, the Dam outflow will be conveyed, along with the outflows from the Raymac and McCoy Dams, to the Rio Grande.

The Don Felipe Drainage Management Plan (DMP), authorized by the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), provides the framework for safe and orderly planning and implementation of drainage improvements within the Don Felipe Watershed. This DMP and supporting documents provide a comprehensive drainage management plan for the DMP study area, which covers approximately 3.49 square miles of the South Valley. The Don Felipe Watershed generally consists of the area west of the Don Felipe Detention Facility, east of Escarpment Road, and between the northern and southern bounding ridges, as shown on the attached Basin Map.

This report includes a literature review of past investigations into the drainage in the South Valley of Albuquerque and Bernalillo County, hydrologic analyses for existing and future conditions of the Don Felipe Watershed, and analysis of 3 options to control flooding and provide an overall drainage management plan for the project area.

Literature Review

The Literature Review section summarizes past investigations into the drainage conditions in the South Valley of Albuquerque and Bernalillo County in support of development of a drainage master plan for a portion of the area. The South Valley generally consists of the area bounded by the Rio Grande to the east, the Gun Club Lateral to the west, Interstate 25 to the south, and the drainage divide near Bridge Boulevard to the north. Included are descriptions of current and proposed flood and drainage conditions, anticipated land treatments, and current and proposed drainage structures. In addition, hydraulic analyses of existing and proposed systems are summarized where available. The Don Felipe DMP encompasses only the Dam Watershed, which includes the Don Felipe Watershed itself and the North Branch Pajarito Arroyo, a total of 3.49 square miles.

Hydrology and Hydraulics

A hydrologic and hydraulic analysis was performed to determine the existing and future conditions runoff rates and volumes to the Dam, and to determine the adequacy of the Dam under existing and future conditions. The 2-, 10-, and 100-year events were analyzed. BHI performed the hydrologic analysis consistent with requirements in the Albuquerque Design Process Manual, Section 23 and implemented the AHYMO97 model. The flow rates determined by the BHI analysis are generally higher than those presented in the original design report by Bovay Engineering due to changes to the community adopted hydrologic methodologies and software. A summary of flow rates and volume of runoff are shown in Table 1.

Table 1 – Summary of Flow Rates and Volume of Runoff

100-year (1% chance) Storm				
	Existing Conditions		Future Conditions	
Basin/AP	Peak Discharge	Runoff Volume	Peak Discharge	Runoff Volume
	cfs	ac-ft	cfs	ac-ft
1	268.0	20.56	456.4	36.46
1a	65.2	2.23	113.3	4.45
2	62.3	2.05	84.9	3.27
2a	87.4	2.82	135.3	4.95
3	157.3	9.36	220.3	14.36
4	42.8	1.76	123.6	6.47
5	216.2	21.33	415.5	42.77
6	86.7	3.69	237.7	13.12
7	214.9	16.08	388.5	31.08
8	78.3	4.52	239.9	16.28
9	97.6	7.28	320.2	26.67
10	108.4	4.70	249.6	12.93
11	100.3	5.32	199.1	11.17
12a	136.0	4.96	216.2	8.95
12b	135.7	4.54	199.6	7.62
12c	66.7	1.85	75.5	2.28
12d	51.4	1.44	66.7	2.11

A Sediment Transport Analysis and Prudent Line Study has been completed by Mussetter Engineering, Inc. (MEI), now part of Tetratech. This study includes detailed hydraulic, sediment transport and lateral erosion analyses of the North Branch Pajarito Arroyo. A complete description of this analysis is included in the Don Felipe Watershed Drainage Management Plan Sediment Transport Analysis and

Prudent Line Study (MEI, 2007). As a result of this study, prudent lines have been established for the North Branch of the Pajarito Arroyo. Figures outlining these prudent lines are included in the Don Felipe DMP.

Option Analysis

Options and recommendations were made for drainage management for the 100-year event in the upstream Watershed under future development conditions. The options were developed with the assumption of an open gate condition in accordance with the USACE and AMAFCA Black Mesa Diversion Project. These options have been discussed with AMAFCA staff, and are as follows:

1. Option 1 consists of a series of 19 small ponds located throughout the Watershed, connected via a storm drain system discharging to the Dam. The ponds are designed to reduce the peak inflow into the Dam under developed conditions so that the Dam can detain the 100-year developed flow with its current geometry and 1 foot of freeboard. All the ponds were designed to be less than 50 ac-ft in volume and less than 25 feet in depth, and therefore are not subject to regulation by the Office of the State Engineer. This option does not require modifying the current Dam pool, but does require the Dam pool to be maintained to ensure that it exhibits the rating curve indicated on the as-builts. The total estimated project cost of Option 1 is about $9.4 Million.

2. Option 2 consists of a series of small ponds throughout part of the Watershed, combined with an area of free discharge. Within the 1 dwelling units per acre (du/ac) zoned portion of the Watershed, 5 upland ponds of approximately 20 ac-ft or less are distributed similarly to Option 1. Within the higher 6 du/ac area of the Watershed, discharge runs freely into a storm drain system and is routed to the Dam. Option 2 will allow for the development in higher densities to proceed without the restrictions of locating ponds within this area. The upland ponds are designed to reduce the peak inflow into the Dam under developed conditions so that the Dam can detain the 100-year developed flow with its current geometry and 1 foot of freeboard. The total estimated project cost of Option 2 is about $5.8 million.

3. Option 3 for the drainage management system consists of free discharge throughout the entire Watershed, with storm drain systems routing the runoff to the Dam. This option requires the size of the Dam pool to be increased within the current AMAFCA right of way to accept the higher runoff generated under developed conditions with 1 foot of freeboard. This option eliminates the need for any small ponds within the Watershed. The total estimated project cost of Option 3 is about $15.5 Million.

Development and Water Quality

This section of the DMP addresses developers' responsibilities to construct the master-planned facilities and the requirements for water quality treatment and low impact design.

Conclusion and Recommendations

This report establishes the existing and proposed hydrology for the 2-, 10-, and 100-year events, and provides 3 constructed options for drainage management in the Don Felipe Watershed. Analysis of the constructed options has determined preliminary locations, sizes, and alignments for hydraulic structures including major storm sewers, channels and detention ponds.

Based on the cost of construction and the ability to allow for development with fewer restrictions Bohannan Huston recommends Option 2. This option will address the long term needs of the Don Felipe Watershed and meet the discharge requirements for the Black Mesa Diversion Outfall project.

I. INTRODUCTION

The Don Felipe Dam Drainage Management Plan (DMP), authorized by the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA), provides the framework for safe and orderly planning and implementation of drainage improvements within the Don Felipe Watershed. This DMP, and supporting documents, provide a comprehensive drainage management plan for the DMP study area, which covers approximately 3.49 square miles of the South Valley. The Don Felipe Watershed generally consists of the area west of the Don Felipe Dam (Dam), east of Escarpment Road, and between the northern and southern bounding ridges.

The Dam was completed in 1987 and designed as a retention dam for the 100-year storm event. Though the Dam was originally designed for retention, the United States Army Corps of Engineers' (USACE) and AMAFCA's Black Mesa Diversion Outfall project is allowing a change to detention. With this project, the Dam outflow will be conveyed, along with the outflows from the Raymac and McCoy Dams, to the Rio Grande. Table 2 provides a summary of data from the Dam's as-built filing sheet.

Table 2 – Summary of Dam Filing Sheet

Description	Properties
Maximum Height Above Foundation	32 feet
Length	2,600 feet
Maximum Width at Base	187 feet
Slope Upstream of Face	3h:1v
Slope Downstream of Face	24h:1v
Elevation at Crest of Dam[1]	4982.65 feet
Elevation at Spillway of Dam[1]	4970.65 feet
Elevation of Bottom Tower Outlet[1]	4950.65 feet
Elevation of Flow Line of Outlet Conduit[1]	4950.65 feet
Width of Spillway	150 feet
Discharge Capacity of Spillway at elev. 4979.02 ft	1,260 cfs
Outlet Conduit Type and Size	36" RCP
Outlet Conduit Capacity	40 cfs
Evacuation Time	96 hrs.
Drainage Area	3.78 sq. mi.

[1] *Elevation based on 83/88 datums*

This report includes a literature review of past investigations into the drainage in the South Valley of Albuquerque and Bernalillo County, hydrologic analyses for existing and future conditions of the Don Felipe Watershed, and analysis of 3 options to control flooding and provide an overall drainage management plan for the project area to assure that the capacity of the Don Felipe Dam is maintained. It also includes requirements for water quality treatment.

II. LITERATURE REVIEW

This section summarizes past investigations into the drainage conditions in the South Valley of Albuquerque and Bernalillo County in support of development of a drainage master plan for a portion of the area. The South Valley generally consists of the area bounded by the Rio Grande to the east, the Gun Club Lateral to the west, Interstate 25 to the south, and the drainage divide near Bridge Boulevard to the north. Included are descriptions of current and proposed flood and drainage conditions, anticipated land treatments, and current and proposed drainage structures. In addition, hydraulic analyses of existing and proposed systems are summarized where available. The Don Felipe DMP will encompass only the Dam Watershed, which includes the Don Felipe Watershed itself and the North Branch Pajarito Arroyo, a total of 3.49 square miles.

A. "DON FELIPE DETENTION FACILITY – ENGINEERING REPORT SUPPLEMENT", BOVAY ENGINEERS, INC., JUNE 1982

This report is an engineering report that presents the design parameters and preliminary calculations for the proposed Don Felipe Dam, located near the intersection of Coors Road and Don Felipe Road. In addition to the proposed detention facility, Bovay Engineers, Inc. suggests diverting runoff into the project site from two adjoining areas, one area to the northwest of the project location, and one area from the southwest area. The preliminary design in this report includes the design of a detention facility with the two diversions as well as design of the detention facility without the diversions.

In addition to the preliminary design of the proposed Don Felipe Dam Project this report contains the following:

- Documentation of previously developed hydrology for the Watershed above the proposed Dam site.
- Description of the projects alternatives, of which there are three.
- Preliminary plans that are 60% complete.
- Preliminary estimate of construction cost which includes right-of-way costs.

For the design of the project, the primary guide that was used was the "Design of Small Dams", published by the United States Department of Interior, Bureau of Reclamation. Other forms of guidance

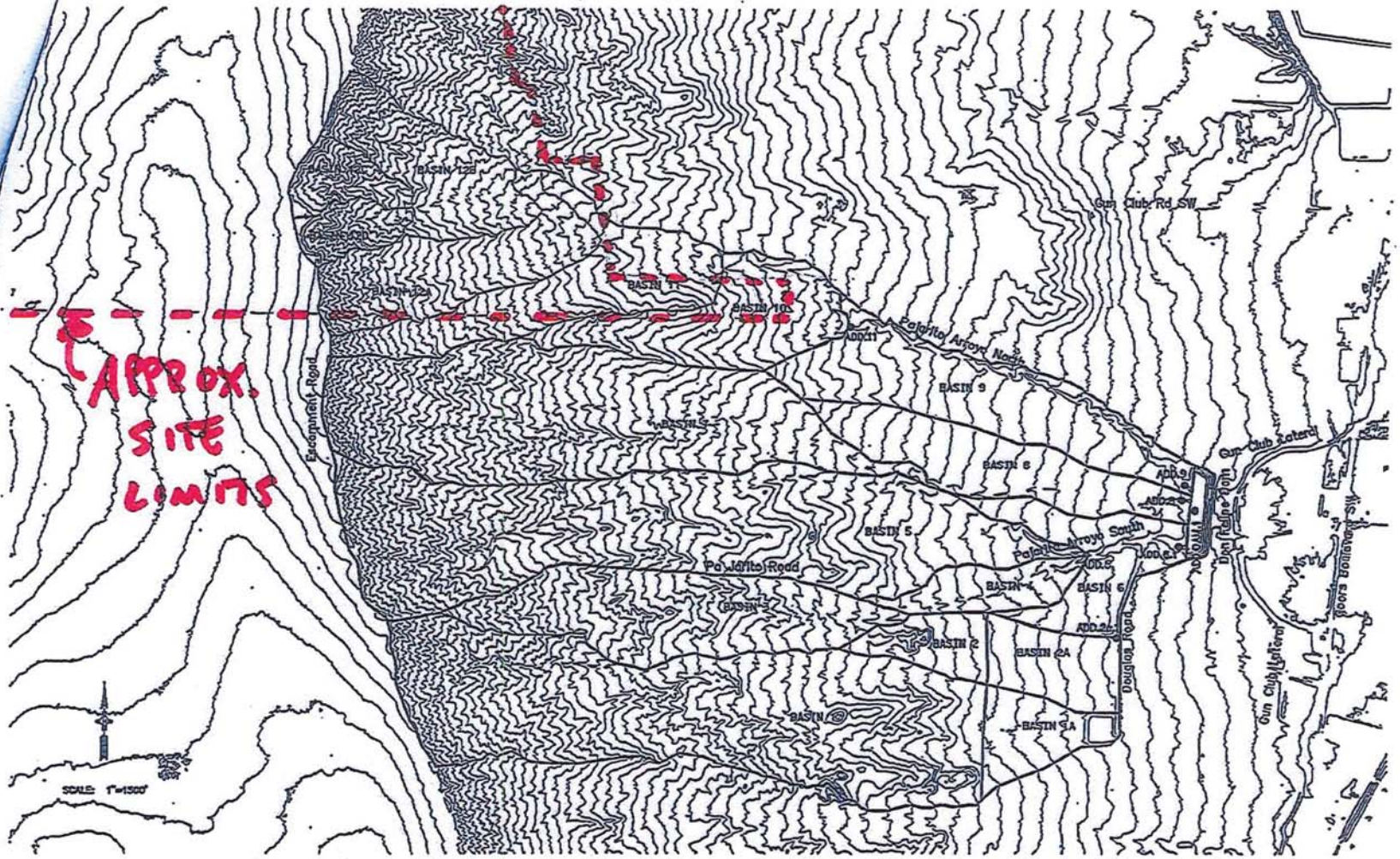


FIGURE 2
BASIN MAP FOR THE DON FELIPE DAM

Bohannan ▲ Huston

D-93-17
Vol. 1

Albuquerque Metropolitan Arroyo Flood Control Authority

DRAFT

AMOLE ARROYO - WESTGATE DAM DRAINAGE MANAGEMENT PLAN

July 1992

D641

ALBUQUERQUE • SANTA FE
SCANLON & ASSOCIATES INC
CONSULTING ENGINEERS

JOB NO. 91-01

For the analysis representing existing conditions, seven key locations are the focus of the resulting hydrology:

4.8.1 Westgate Dam

The following table lists the characteristic data for which Westgate Dam was designed:

TABLE 5
WESTGATE DAM DESIGN PARAMETERS

100-year peak inflow - westerly Amole Arroyo	1475 cfs
100-year peak inflow - easterly Amole Arroyo	943 cfs
100-year combined peak inflow to dam	2418 cfs
100-year accumulated inflow volume	347 ac-ft
100-year sediment inflow	69 ac-ft
Emergency spillway crest elevation	5398.9
Emergency spillway width/depth	400 ft/12.1 ft
Top of dam elevation	5411.0
Length of dam	2095 ft
Base width of dam	280 ft
Crest width of dam	15 ft
Slope of upstream face	3:1
Slope of downstream face	2.5:1
Diameter of outlet pipe	24" CCP
100-year max. water surface elev.	5398.4
Evacuation period	78 hrs
100-year peak outflow	80 cfs

The above parameters were extracted from the filing sheet contained in the construction plans for Westgate Dam. It should be noted that the computed storage-depth curve from the new mapping differs from the storage-depth curve on the filing sheet. The filing sheet data is used when discussing the dam design parameters. Computed curves are used in all new modelling.

Table 6 below provides a comparison of the dam design parameters and those computed under AHYMO991 for this study. Areal reduction is applied in calculating the values shown in the AHYMO991 column ($P_{24\,hr.}$ = 2.59").

APPENDIX C – REQUEST FOR CONCURRENCE LETTER FROM THE OFFICE OF THE STATE ENGINEER

Bohannan Huston

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December 20, 2012

Mr. Jess Ward
New Mexico Office of the State Engineer
5550 San Antonio Dr. NW
Albuquerque, New Mexico 87109

Re: Continued Retention of Storm Events: Santolina Master Planned Community

Dear Mr. Ward:

The Santolina Master Planned Community (Santolina) is a proposed long term development located south of Interstate 40, and west of the Rio Grande River, in Bernalillo County, NM. The development encompasses approximately 14,000 acres and roughly spans from I-40 on the north to the Pajarito Land Grant on the south, from 118th St on the east and the Rio Puerco escarpment on the west.

The Santolina master plan area is a unique, mostly mesa top environment in which there are (1) drainage basins with large natural land depressions, or playas, and (2) drainage basins naturally draining to the Rio Grande River. The Santolina stormwater master plan continues and preserves both of these existing drainage patterns. Accordingly, as with previous master plans in the Albuquerque region, the purpose of this letter is to obtain concurrence from the Office of the State Engineer regarding the retention of stormwater in the following manner:

I. Full post-development stormwater retention of storm events in the basins that are controlled (in the existing condition) by natural depressions (or playas).

II. Post-development retention up to the 5-year, 24-hour storm events in the basins that (in the existing undeveloped condition) discharge to the river.

As portrayed on the enclosed Master Plan exhibits, Santolina is proposing the following Post-Development Stormwater Management Plans, for each of the two major drainage basin types:

Basins with Natural Depressions (Playas)

As noted on the tables of the enclosed Master Plan, the existing "available volume" of the depressions within Santolina far exceed the "volume generated" in the undeveloped condition's 100-year, 10-day storm event volume (this storm event is the County's design storm event, and is used herein to compare stormwater flows). This determination reveals that, for even major storm events, drainage flows from these basins do not historically discharge to or reach the Rio Grande River in the existing undeveloped condition.

Accordingly, the Santolina Stormwater Master Plan proposes full post-development stormwater retention of storm events. Land development within these basins shall be required to retain the developed 100-year, 10-day storm volume. It is noted that the proposed retention ponding provides for some minor shallow groundwater recharge and water harvesting. Full post-development retention of flows in natural depression (playa)-controlled basins was previously approved by your office for the *Community Master Plan for the Mesa del Sol Development*, dated September 15, 2005. Enclosed is the letter from your office approving this method at that time. The proposed Santolina stormwater master plan is in accordance with this precedent.

Basins which Historically Discharge to River in Large Events

In an effort to provide some stormwater capture for water harvesting, minimization of downstream drainage infrastructure and shallow recharge, Santolina proposes to capture and retain only those drainage flows that do not historically reach the river from a storm event. These "retained" flows represent the initial extrapolation of rainfall by the existing natural soil surfaces, reducing or eliminating runoff flows from the land to the drainage arroyos. All runoff exceeding this initial extrapolation is discharged to the river in time.

The enclosed "Table D" provides runoff volumes for several storm events. The 5-year, 24 hour storm event is selected to represent "initial extrapolation" for the following reasons:

- Our hydrologic analysis summarized in Table D demonstrates minimal or no excess runoff in this 5-yr storm event, and most closely represents the single storm event of the initial extrapolation occurrence.
- The *Quail Ranch, Phase One Conceptual Infrastructure Analysis Report*, prepared by Bohannan Huston on January 26, 2005 and reviewed with the OSE, has similar site characteristics (location, vegetation, soil type and terrain) and had recommended this 5-yr storm event based on a hydrologic analysis that showed no runoff is produced, under existing natural conditions by storm events less than or equal to the 5-year event.
- The 5-year storm event is a widely used and available data set for use in these hydrologic calculations.

Given the above analysis, Santolina's Stormwater Management Plan proposes to construct post-development drainage infrastructure, such as detention dams, with minor retention capabilities up to the 5-yr, 24-hr storm event volume.

Summary

In summary, the two proposed stormwater management approaches (by type of basin) do not adversely affect downstream drainage expectations. Storm water runoff to the Rio Grande River from the Santolina development in the post-development condition will be equal to or more than that of the historic drainage condition. We believe that this result complies with the OSE's regulations for stormwater management in the Rio Grande Basin.

Your written concurrence with the proposed storm water management approaches would be greatly appreciated. Please find enclosed supplemental information, supporting the approval of this request.

If you have any questions or need additional information, please contact me. Thank you for your time.

Sincerely,

Brian C. Patterson, P.E.
Project Engineer
Community Development & Planning

BCP/tms
Enclosures

cc: James Topmiller, BHI