City of Albuquerque
Public Works Department
505-924-3900 (main number)
505-924-3864 (fax number)
Development and Building Services (One Stop Shop)
Plaza Del Sol Building, 2nd Floor
600 2nd Street NW
Albuquerque, NM 87102

City of Albuquerque
Public Works Dept.
Dev. & Bldg. Srvcs.

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To: B McCarty PE **From:** J Mesmer

Fax: 924-3962 **Pages Sent:** (including this page) 2

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Comments:

DRAINAGE REPORT

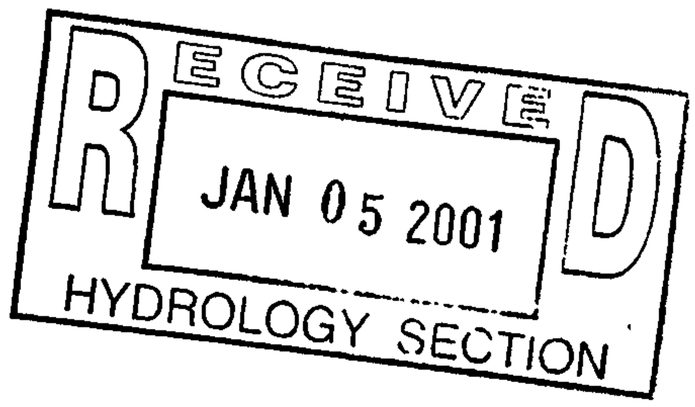
For

LOT 1, BLOCK 3, TOWN OF ATRISCO GRANT SUBDIVISION

ALBUQUERQUE, NEW MEXICO

January 2001

Prepared by
Billy O. McCarty, P.E.
Building Engineering and Municipal Designs
855 Polaris Blvd., SE
Rio Rancho, New Mexico 87124
(505) 896-0391



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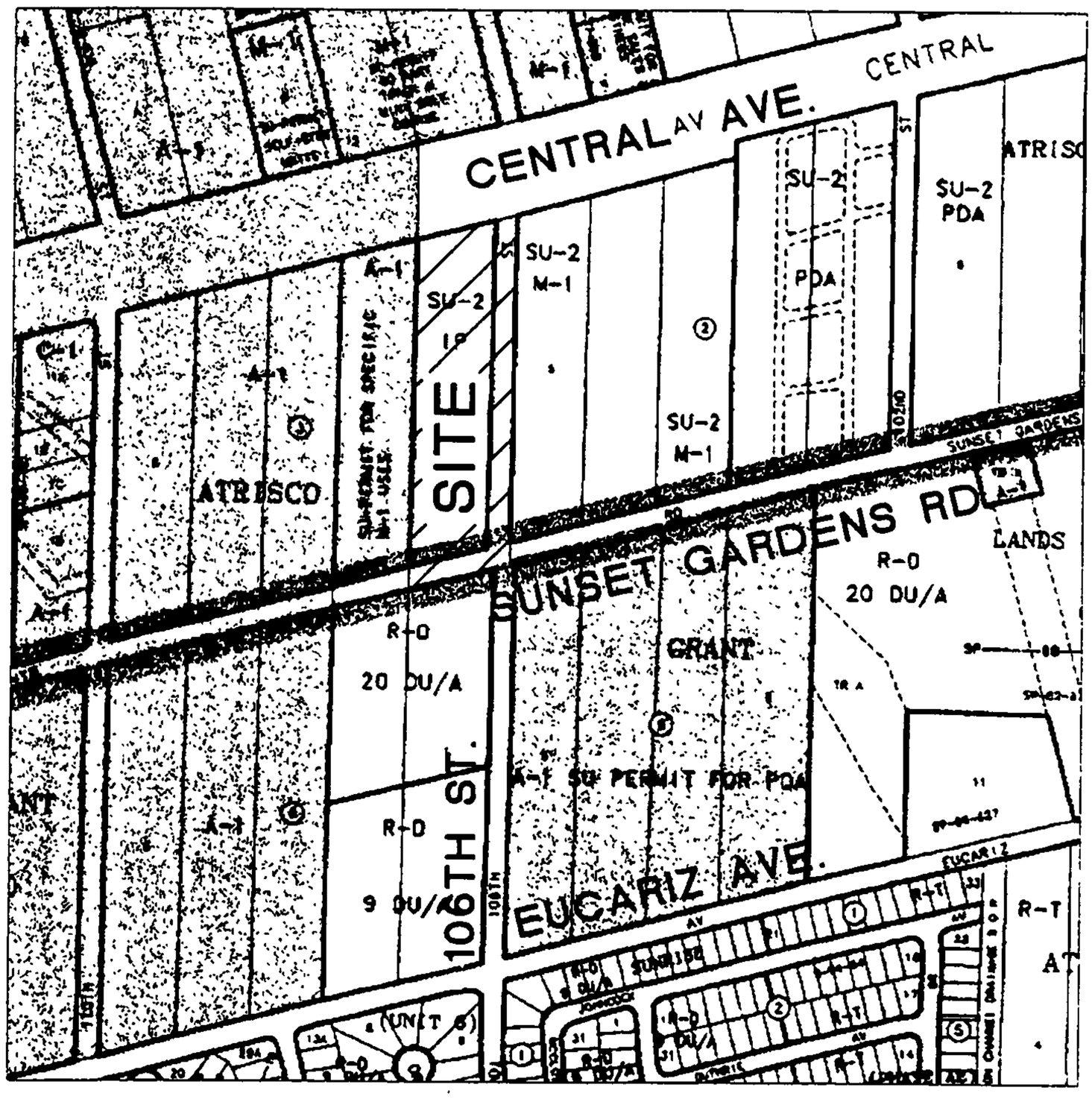
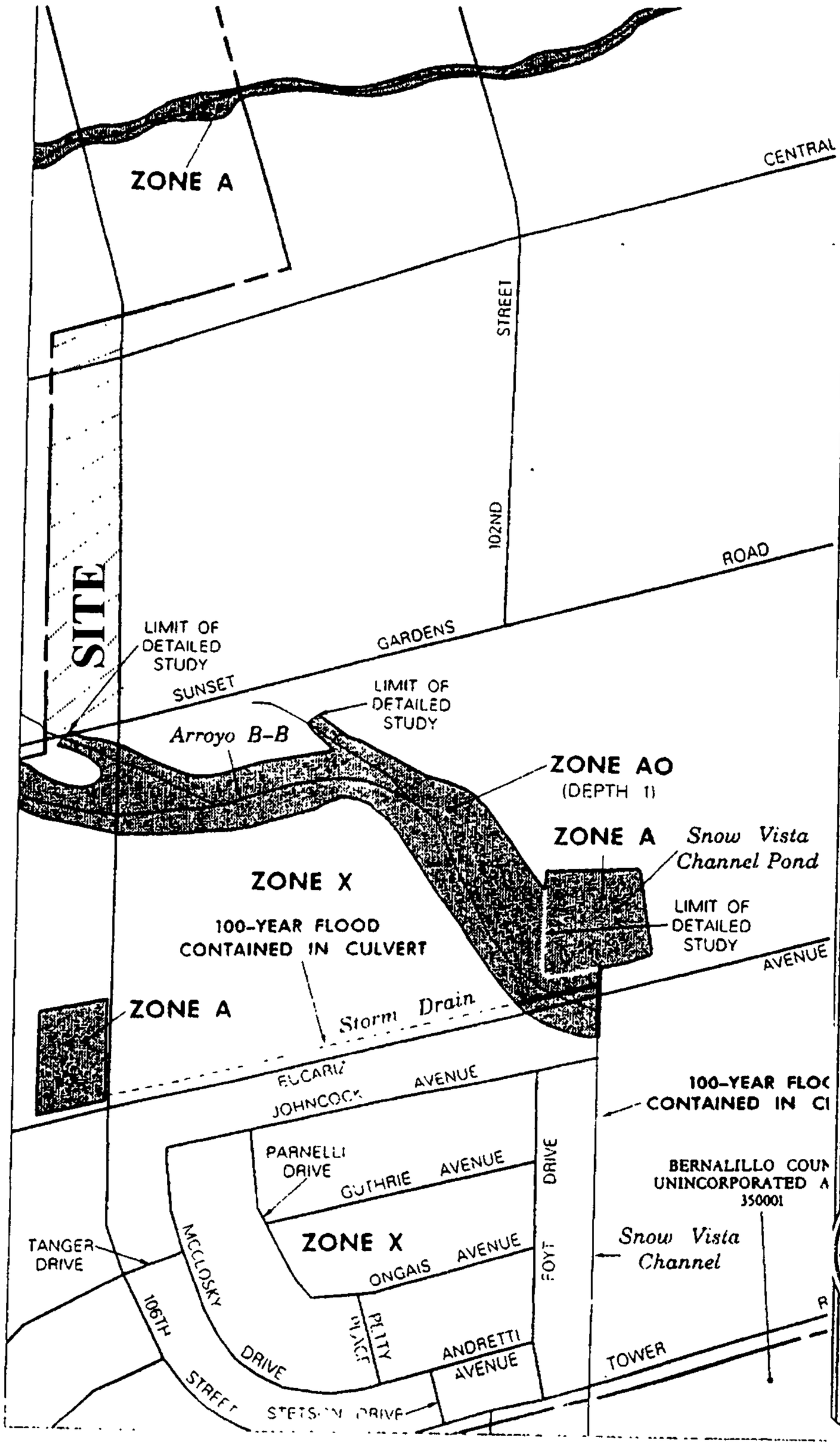


VICINITY MAP

ZONE ATLAS
L-8



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

BERNALILLO COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 328 OF 825

(SEE MAP INDEX FOR PANELS NOT PRINTED)

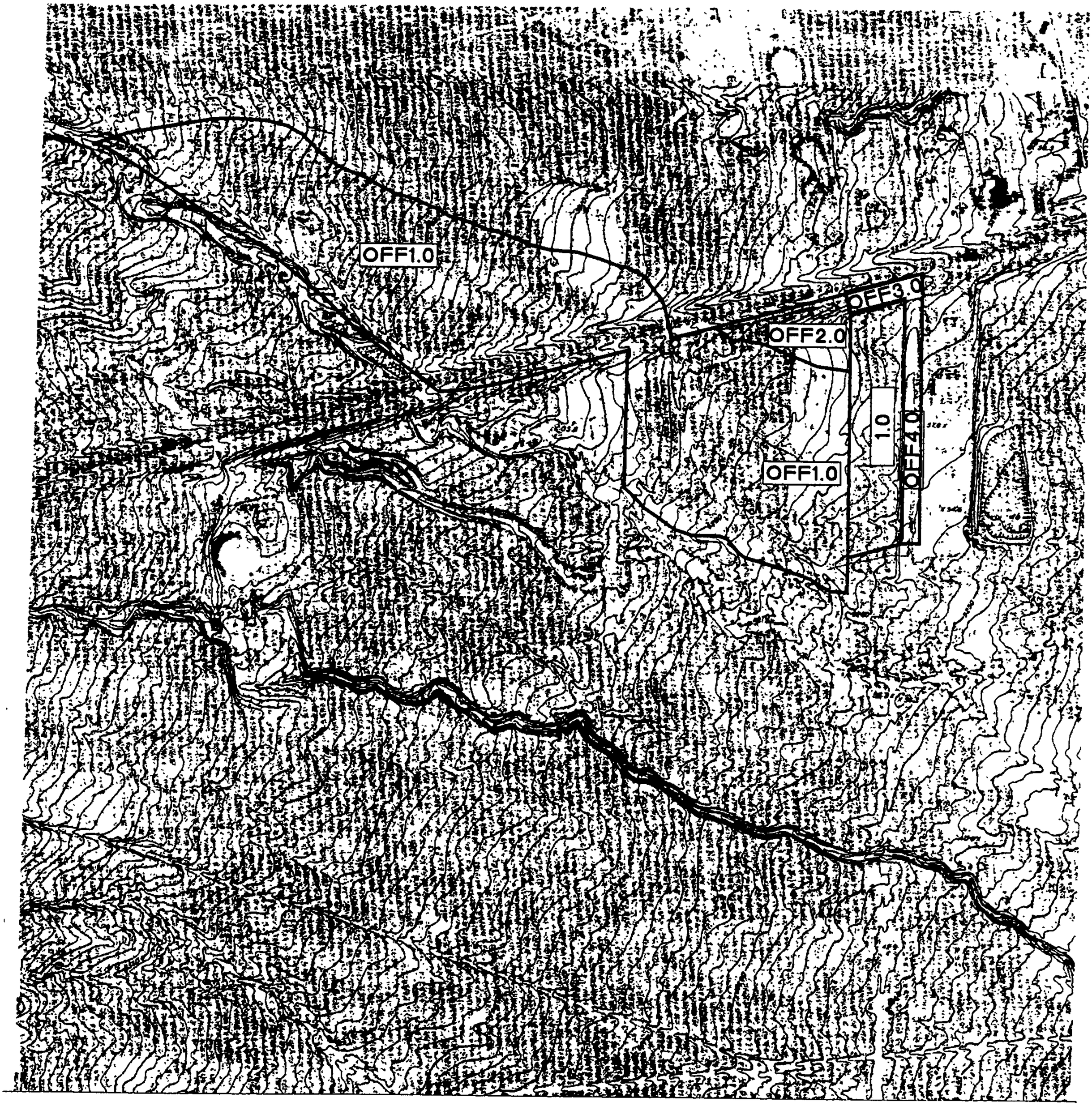
CONTAINS COMMUNITY	NUMBER	PANEL	SUFFIX
ALBUQUERQUE, CITY OF BERNALILLO COUNTY UNINCORPORATED AREAS	350002 350001	0328 0328	D D

MAP NUMBER
35001C0328 D

EFFECTIVE DATE:
SEPTEMBER 20, 1996

Federal Emergency Management Agency

EXHIBIT 2
FIRM



NORTH
1" = 500'

EXHIBIT 3
BASIN MAP

LOCATION & DESCRIPTION

The proposed site is approximately 4.19 acres located on Lot 1, Block 3, town of Atrisco Grant. The site is bounded by Central Avenue to the north, 106th Street on the east, Sunset Gardens Road on the south, and the municipal limits to the west as shown on the Vicinity Map (**Exhibit 1**). The site is located within the West Route 66 Sector Development Plan area and is zoned SU-2/IP.

The site is currently undeveloped; however, it has been used for several years under a Conditional use Permit for a "Construction Contractor's Equipment Storage Facility". The only development adjacent to this site is Lot 5, Block 2, Town of Atrisco Grant. This lot is located immediately east of this site, across 106th Street. The Owner of Lot 5, (Contech Construction Inc.) holds the Conditional Use Permit for Lot 3. Neither 106th Street nor Sunset Gardens Road are developed at this time. Central Avenue is developed adjacent to this site as a four-lane divided highway.

The site is approximately six feet (6') below Central Avenue and averages about four feet (4') above the current grade of 106th Street. There is also approximately a four percent (4%) slope from west to east allowing this site to drain to 106th Street.

RELATED REPORTS

The **Amole-Hubble Drainage Management Plan**, prepared for AMAFCA, June 11, 1999 by Leedshill-Herkenhoff, Inc. sets the drainage criteria for this development. The site lies within the Snow Vista Basin from this report and therefore, is limited to a developed discharge of 1.29 cfs per acre.

FLOODPLAIN STATUS

This project, as shown on FEMA's Flood Insurance Rate Map 35001C0328 D, dated September 20, 1996, is not within any designated 100-year floodplain. **Exhibit 2** is a copy of this flood insurance map with the project area delineated.

METHODOLOGY

The hydrology for this project was analyzed using the 1994 release of the AHYMO computer-modeling program as developed by AMAFCA. All procedures are in accordance with those shown in the June 1997 release of the City of Albuquerque Development Process Manual, Section 22.2.

PRECIPITATION

The 100-year, 6-hr. duration storm was used as the design storm for this analysis. For this design storm the AHYMO Computer Program requires the 1, 6 and 24- hour precipitation values. These values were obtained from the City of Albuquerque (COA) Development Process Manual (DPM) Section 22, Table A-2 for Zone 1. These precipitation values are consistent with the ones used in

the previously referenced drainage report and were originally derived from the NOAA Atlas 2, Precipitation-Frequency Atlas of the Western United States, Volume IV-New Mexico, dated 1973

EXISTING DRAINAGE CONDITIONS

Five (5) drainage basins were analyzed for existing conditions. Basin OFF1.0 (see Exhibit 3) is the major contributor to this site. It drains a significant, partially developed area north of Central Avenue to a 30" CMP crossing Central Avenue just east of 110th Street. The median runoff is collected in an inlet over this culvert and combined with the upstream runoff. This flow is combined with runoff bounded by Central Avenue (to the north) and 110th Street (to the west) and continues to flow in an arroyo to the southeast corner of this development. Evidence from a site investigation shows that this flow is erosive as it exits the culvert but then the flow spreads out into many small channels as it approaches the site and drops the sediment. The runoff consolidates again downstream of this site and forms the floodplain identified on the above referenced FIRM Panel. Basin OFF2.0 is a narrow wedge of land between Central Avenue and a ridge line which separates it from Basin OFF1.0. This basin contains a portion of Lot 2, Block 3, which has been graded in the past and is compacted from prior use. Therefore, a significant portion of this basin has been analyzed as "Type C Land Treatment" to reflect the higher than normal runoff which will be generated from this basin. The land treatment percentages also take into account the impervious area and embankment created by Central Avenue. Basin OFF2.0 drains along the north edge of the site into 106th Street. Basin OFF3.0 is a narrow strip of land within the Central Avenue right-of-way which accounts for the runoff generated between the crown in eastbound lanes and the property line. This basin also discharges to 106th Street. The final offsite basin is Basin OFF4.0. This basin consists of the west half of the 106th Street and north half of the Sunset Gardens Road right-of-ways adjacent to this site. This basin has been heavily used by truck traffic accessing both Lot 1, Block 3 and Lot 5, Block 2. Therefore, it is also analyzed as "Land Treatment C" for existing conditions. Finally, the site is analyzed as Basin 1.0 and is entirely "Land Treatment C" due to its current use for storage. Basins OFF1.0 and OFF2.0 are not altered by this development. Basins OFF3.0 and OFF4.0 are modeled differently under developed conditions to reflect the additional impervious area created by paving the streets. All of the offsite basins are allowed to continue with free discharge after development, while Basin 1.0 is split into six (6) sub-basins with private ponds in order to meet the 1.29 cfs per acre allowable discharge for this development.

DEVELOPED DRAINAGE CONDITIONS

The site (Basin 1.0) has been divided into six (6) sub-basins as shown on the Grading, Drainage, and Erosion Control Plan in a pocket at the end of this report. Lot 1A has been split into two basins–Basin 1A.10, and Basin 1A.20–each with its respective pond discharging to 106th Street. This split is due to the development which will occur on this lot along with the subdivision. The building orientation splits this lot forcing two discharge points to 106th Street. This is the only one of the four lots which will be fully developed at this time. Lot 1B is also split into two basins–Basin 1B.10 and 1B.20. This lot shows a building pad and swales to demonstrate how this lot can be developed in the future. However, at this time, only the entrance to 106th Street, will be constructed. The ponds are sized for the maximum industrial use build out with eighty

percent (80%) of the lot impervious. However, at this time, the lot is intended to be used for contractor's equipment storage just like the current Lot 1, Block 3 is being used with a Conditional Use Permit. The driveway, swales, ponds, and outlet structures will be constructed at this time. Lots 1C and 1D will not be developed at this time. However, the Grading, Drainage, and Erosion Control Plan shows how these lots can be graded to meet the requirements in the future. The street improvements will also be constructed from Central Avenue to the south end of Lot 1B at this time. However, Basins OFF 3.0 and OFF4.0 have been analyzed for the fully developed street. Basin OFF4.0 also includes the portion of Lots 1A and 1B which cannot drain to the detention ponds. In addition, Basin OFF 4.0 includes sufficient area for a thirty-six-foot (36') driveway to be constructed twenty feet (20') from the property line without having to drain the driveway to a pond. As seen in the AHYMO Summary Output (**Appendix A**), the runoff released from the six (6) detention ponds will combine with the free discharge from Basin OFF4.0 to meet the 100-year peak discharge of 1.29 cfs per acre for this development. Basins OFF2.0 and OFF3.0 will continue to have free discharge to 106th Street. Since these basins are not a part of this development, they will continue to have higher than 1.29cfs per acre runoff rates. Street Capacity Calculations are included in Appendix B to demonstrate that even with the higher than allowable discharge rates in 106th Street, the half width to be constructed has sufficient capacity to convey this flow. Future development within these basins will decrease the flow in 106th Street. Since the site is already "Type C" Land Treatment, all areas that are not impervious are assumed to be "Type C." If landscaping is installed with better hydrologic characteristics; the runoff will also be decreased.

CONCLUSION

The site will be protected from offsite flows by constructing a flood wall along the north side of Lot 1A and the west side of all four (4) lots. Since the flow from Basin OFF1.0 spreads out near the southwest corner of the site, the flood wall will concentrate the flow as it enters Sunset Gardens Road at the corner of the site. This will not alter the overall flow pattern since the flow concentrates just south of the site and forms a previously defined floodplain. Similarly, the flood wall will direct the runoff from Basins OFF2.0 and OFF3.0 around this site to 106th Street. Likewise, this does not alter the existing flow pattern since all of this flow is concentrated within the Central Avenue right-of-way and conveyed to its original destination point (106th Street). The site will continue to drain to 106th Street as it has historically but the 100-year peak runoff from the site and the adjoining half of 106th Street and Sunset Gardens Road will be limited to 1.29 cfs per acre. As a result, the 100-year peak runoff in the arroyo southeast of the development will be decreased from 99.95 cfs to 92.84 cfs. The half street capacity calculations for 106th Street demonstrate that the half constructed with this development will be able to convey the 12.84 cfs discharge to it by this development and undeveloped Basins OFF2.0 and OFF3.0. Future development within Basin OFF2.0 will decrease this flow in 106th Street.

This grading plan and report provides for the entire infrastructure required to subdivide Lot 1, Block 3 into four (4) lots in accordance with the West Route 66 Sector Development Plan. In addition, it also provides for the grading and drainage within Lot 1A needed to obtain the building permit. Lots 1B, 1C, and 1D will require additional drainage information to be submitted with the respective site plans as they are developed and reviewed for building permits.

APPENDIX A

AHYMO 100-YEAR INPUT

```
*S******* 100 YEAR, 6 HOUR STORM (Section 22.2 Hydrology)
START                 0.00
RAINFALL              TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.87
                      RAIN SIX=2.20  RAIN DAY=2.66 DT=0.03333
*S*************************************************************
*S****************** EXISTING CONDITIONS ***********************
*S*************************************************************
*S BASIN OFF1.0 (OFFSITE CONDITIONS ENTERING SITE FROM SUNSET GARDENS ROAD
COMPUTE NM HYD        ID=1 HYD=OFF1.0 DA=0.05410 SQ MI
                      %A= 49.00 %B= 5.00 %C= 14.00 %D= 32.00
                      TP=0.1533 RAINFALL=-1
PRINT HYD             ID=1 CODE=1
*S BASIN OFF2.0 (OFFSITE CONDITIONS ENTERING SITE FROM WEST PROPERTY LINE)
COMPUTE NM HYD        ID=2 HYD=OFF2.0 DA=0.00282 SQ MI
                      %A= 13.90 B= 18.40 %C= 61.20 %D= 6.50
                      TP=0.1333 RAINFALL=-1
PRINT HYD             ID=2 CODE=1
*S BASIN OFF3.0 (CENTRAL AVE. R/W NORTH OF SITE)
COMPUTE NM HYD        ID=3 HYD=OFF3.0 DA=0.00097 SQ MI
                      %A= 0.00 %B= 42.50 %C= 42.50 %D= 15.00
                      TP=0.1333 RAINFALL=-1
PRINT HYD             ID=3 CODE=1
*S BASIN OFF4.0 (106TH STREET AND SUNSET GARDENS ROAD)
COMPUTE NM HYD        ID=4 HYD=OFF4.0 DA=0.00171 SQ MI
                      %A= 0.00 %B= 0.00 %C= 100.00 %D= 0.00
                      TP=0.1333 RAINFALL=-1
PRINT HYD             ID=4 CODE=1
*S BASIN 1.0 (EXISTING SITE)
COMPUTE NM HYD        ID=5 HYD=1.0 DA=0.00610 SQ MI
                      %A= 0.00 %B= 0.00 %C= 100.00 %D= 0.00
                      TP=0.1333  RAINFALL=-1
PRINT HYD             ID=5 CODE=1
ADD HYD               ID=6  HYD=100.10 ID I=2  ID II=3
PRINT HYD             ID=6  CODE=1
ADD HYD               ID=7  HYD=100.20 ID I=6  ID II=4
PRINT HYD             ID=7  CODE=1
ADD HYD               ID=8  HYD=100.30 ID I=5  ID II=7
PRINT HYD             ID=8  CODE=1
*S TOTAL EXISTING RUNOFF EXITING THIS SITE
ADD HYD               ID=9  HYD=100.40 ID I=1  ID II=8
PRINT HYD             ID=9  CODE=1
*S*************************************************************
*S****************** DEVELOPED CONDITIONS **********************
*S*************************************************************
*S
*S OFFSITE BASINS 1 AND 2 ARE NOT CHANGED BY THIS DEVELOPMENT
*S
*S BASIN OFF3.0 (CENTRAL AVE. R/W NORTH OF SITE)
COMPUTE NM HYD        ID=3 HYD=OFF3.0 DA=0.00097 SQ MI
                      %A= 0.00 %B= 36.50 %C= 36.50 %D= 27.00
                      TP=0.1333 RAINFALL=-1
PRINT HYD             ID=3 CODE=1
*S BASIN OFF4.0 (106TH STREET AND SUNSET GARDENS ROAD)
COMPUTE NM HYD        ID=4 HYD=OFF4.0 DA=0.00171 SQ MI
                      %A= 0.00 %B= 0.00 %C= 16.00 %D= 84.00
                      TP=0.1333 RAINFALL=-1
PRINT HYD             ID=4 CODE=1
*S BASIN 1A.10 (NORTH PORTION OF LOT 1A WITH PROPOSED DEVELOPMENT)
COMPUTE NM HYD        ID=51 HYD=1A.10 DA=0.00078 SQ MI
```

AHYMO 100-YEAR INPUT

```
                    %A= 0.00 %B= 0.00 %C= 27.00 %D= 73.00
                    TP=0.1333  RAINFALL=-1
PRINT HYD           ID=51 CODE=1
ROUTE RESERVOIR     ID=21  HYD=POND.1A1  INFLOW ID=51  CODE=10
                    OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
                         0.00            0.0000              0.00
                         0.16            0.0127              0.47
                         0.29            0.0500              0.94
PRINT HYD           ID=21  CODE=1
*S BASIN 1A.20 (SOUTH PORTION OF LOT 1A WITH PROPOSED DEVELOPMENT)
COMPUTE NM HYD      ID=51 HYD=1A.20 DA=0.00077 SQ MI
                    %A= 0.00 %B= 0.00 %C= 68.00 %D= 32.00
                    TP=0.1333  RAINFALL=-1
PRINT HYD           ID=51 CODE=1
ROUTE RESERVOIR     ID=22  HYD=POND.1A2  INFLOW ID=51  CODE=10
                    OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
                         0.00            0.0000              0.00
                         0.30            0.0089              0.47
                         0.84            0.0204              0.94
PRINT HYD           ID=22  CODE=1
ADD HYD             ID=21  HYD=1A.0 ID I=21  ID II=22
PRINT HYD           ID=21  CODE=1
*S BASIN 1B.10 (NORTH PORTION OF LOT 1B WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD      ID=52 HYD=1B.10 DA=0.00095 SQ MI
                    %A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
                    TP=0.1333  RAINFALL=-1
PRINT HYD           ID=52 CODE=1
ROUTE RESERVOIR     ID=22  HYD=POND.1B1  INFLOW ID=52  CODE=10
                    OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
                         0.00            0.0000              0.00
                         0.32            0.0281              0.47
                         0.58            0.0612              0.94
PRINT HYD           ID=22  CODE=1
*S BASIN 1B.20 (SOUTH PORTION OF LOT 1B WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD      ID=52 HYD=1B.20 DA=0.00058 SQ MI
                    %A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
                    TP=0.1333  RAINFALL=-1
PRINT HYD           ID=52 CODE=1
ROUTE RESERVOIR     ID=23  HYD=POND.1B2  INFLOW ID=52  CODE=10
                    OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
                         0.00            0.0000              0.00
                         0.32            0.0122              0.47
                         0.58            0.0274              0.94
PRINT HYD           ID=23  CODE=1
ADD HYD             ID=22  HYD=1B.0 ID I=22  ID II=23
PRINT HYD           ID=22  CODE=1
*S BASIN 1C.0 (LOT 1C WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD      ID=53 HYD=1B.0 DA=0.00151 SQ MI
                    %A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
                    TP=0.1333  RAINFALL=-1
PRINT HYD           ID=53 CODE=1
ROUTE RESERVOIR     ID=23  HYD=POND.1C  INFLOW ID=53  CODE=10
                    OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
                         0.00            0.0000              0.00
                         0.32            0.0495              0.47
                         0.58            0.1045              0.94
PRINT HYD           ID=23  CODE=1
*S BASIN 1D.0 (LOT 1D WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD      ID=54 HYD=1D.0 DA=0.00151 SQ MI
```

AHYMO 100-YEAR INPUT

```
                    %A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
                    TP=0.1333  RAINFALL=-1
PRINT HYD           ID=54 CODE=1
ROUTE RESERVOIR     ID=24  HYD=POND.1D  INFLOW ID=54  CODE=10
                    OUTFLOW (CFS)     STORAGE (AC_FT)      ELEVATION
                         0.00             0.0000              0.00
                         0.32             0.0491              0.47
                         0.58             0.1033              0.94
PRINT HYD           ID=24  CODE=1
ADD HYD             ID=15  HYD=200.10 ID I=21  ID II=22
PRINT HYD           ID=15  CODE=1
ADD HYD             ID=16  HYD=200.20 ID I=15  ID II=23
PRINT HYD           ID=16  CODE=1
ADD HYD             ID=17  HYD=200.30 ID I=16  ID II=24
PRINT HYD           ID=17  CODE=1
*S TOTAL RUNOFF DUE TO THIS DEVELOPMENT
ADD HYD             ID=18  HYD=200.40 ID I=4  ID II=17
PRINT HYD           ID=18  CODE=1
ADD HYD             ID=19  HYD=200.50 ID I=3  ID II=18
PRINT HYD           ID=19  CODE=1
*S MAXIMUM FLOW IN WEST HALF OF 106TH STREET WITH OFFSITE UNDEVELOPED BASINS
ADD HYD             ID=20  HYD=200.60 ID I=2  ID II=19
PRINT HYD           ID=20  CODE=1
*S TOTAL RUNOFF EXITING THIS SITE AT 106TH STREET AND SUNSET GARDENS AVENUE
ADD HYD             ID=21  HYD=200.70 ID I=1  ID II=20
PRINT HYD           ID=21  CODE=1
FINISH
```

AHYMO 100-YEAR SUMMARY OUTPUT

AHYMO SUMMARY TABLE (AHYMO194) - AMAFCA Hydrologic Model - January, 1994 RUN DATE (MON/DAY/YR) =12/29/2000
INPUT FILE = AHYMO.TXT

COMMAND	HYDROGRAPH IDENTIFICATION	FROM ID NO.	TO ID NO.	AREA (SQ MI)	PEAK DISCHARGE (CFS)	RUNOFF VOLUME (AC-FT)	RUNOFF (INCHES)	TIME TO PEAK (HOURS)	CFS PER ACRE	PAGE = 1 NOTATION
*S******* 100 YEAR, 6 HOUR STORM (Section 22.2 Hydrology)										
START										TIME= .00
RAINFALL TYPE= 1										RAIN6= 2.200
*S**********										
*S********** EXISTING CONDITIONS **********										
*S**********										
*S BASIN OFF1.0 (OFFSITE CONDITIONS ENTERING SITE FROM SUNSET GARDENS ROAD)										
COMPUTE NM HYD	OFF1.0	-	1	.05410	79.65	2.877	.99721	1.533	2.300	PER IMP= 32.00
*S BASIN OFF2.0 (OFFSITE CONDITIONS ENTERING SITE FROM WEST PROPERTY LINE)										
COMPUTE NM HYD	OFF2.0	-	2	.00282	4.63	.134	.89215	1.500	2.563	PER IMP= 6.50
*S BASIN OFF3.0 (CENTRAL AVE. R/W NORTH OF SITE)										
COMPUTE NM HYD	OFF3.0	-	3	.00097	1.71	.051	.98815	1.500	2.754	PER IMP= 15.00
*S BASIN OFF4.0 (106TH STREET AND SUNSET GARDENS ROAD)										
COMPUTE NM HYD	OFF4.0	-	4	.00171	3.15	.091	.99441	1.500	2.882	PER IMP= .00
*S BASIN 1.0 (EXISTING SITE)										
COMPUTE NM HYD	1.00	-	5	.00610	11.23	.324	.99441	1.500	2.877	PER IMP= .00
ADD HYD	100.10	2& 3	6	.00379	6.34	.185	.91662	1.500	2.612	
ADD HYD	100.20	6& 4	7	.00550	9.49	.276	.94079	1.500	2.696	
ADD HYD	100.30	5& 7	8	.01160	20.72	.599	.96897	1.500	2.791	
***S TOTAL EXISTING RUNOFF EXITING THIS SITE**										
ADD HYD	100.40	1& 8	9	.06570	**99.95**	3.477	.99222	1.533	2.377	
*S**********										
*S********** DEVELOPED CONDITIONS **********										
*S**********										
*S										
*S OFFSITE BASINS 1 AND 2 ARE NOT CHANGED BY THIS DEVELOPMENT										
*S										
*S BASIN OFF3.0 (CENTRAL AVE. R/W NORTH OF SITE)										
COMPUTE NM HYD	OFF3.0	-	3	.00097	1.85	.058	1.12612	1.500	2.985	PER IMP= 27.00
*S BASIN OFF4.0 (106TH STREET AND SUNSET GARDENS ROAD)										
COMPUTE NM HYD	OFF4.0	-	4	.00171	4.54	.165	1.81011	1.500	4.146	PER IMP= 84.00
*S BASIN 1A.10 (NORTH PORTION OF LOT 1A WITH PROPOSED DEVELOPMENT)										
COMPUTE NM HYD	1A.10	-	51	.00078	2.00	.071	1.70329	1.500	3.999	PER IMP= 73.00
ROUTE RESERVOIR	POND.1A1	51	21	.00078	.28	.071	1.70294	2.133	.571	AC-FT= .049
*S BASIN 1A.20 (SOUTH PORTION OF LOT 1A WITH PROPOSED DEVELOPMENT)										
COMPUTE NM HYD	1A.20	-	51	.00077	1.67	.054	1.30515	1.500	3.386	PER IMP= 32.00
ROUTE RESERVOIR	POND.1A2	51	22	.00077	.84	.054	1.30481	1.667	1.701	AC-FT= .020

AHYMO 100-YEAR SUMMARY OUTPUT

ADD HYD	1A.0	21&22	21	.00155	1.08	.124	1.50385	1.700	1.093		
*S BASIN 1B.10 (NORTH PORTION OF LOT 1B WITH FUTURE DEVELOPMENT)											
COMPUTE NM HYD	1B.10	-	52	.00095	2.49	.090	1.77127	1.500	4.097	PER IMP=	80.00
ROUTE RESERVOIR	POND.1B1	52	22	.00095	.52	.090	1.77098	2.033	.862	AC-FT=	.054
*S BASIN 1B.20 (SOUTH PORTION OF LOT 1B WITH FUTURE DEVELOPMENT)											
COMPUTE NM HYD	1B.20	-	52	.00058	1.53	.055	1.77127	1.500	4.115	PER IMP=	80.00
ROUTE RESERVOIR	POND.1B2	52	23	.00058	.53	.055	1.77082	1.800	1.424	AC-FT=	.024
ADD HYD	1B.0	22&23	22	.00153	1.04	.144	1.76936	1.900	1.059		
*S BASIN 1C.0 (LOT 1C WITH FUTURE DEVELOPMENT)											
COMPUTE NM HYD	1B.0	-	53	.00151	3.95	.143	1.77127	1.500	4.088	PER IMP=	80.00
ROUTE RESERVOIR	POND.1C	53	23	.00151	.56	.143	1.77096	2.133	.579	AC-FT=	.100
*S BASIN 1D.0 (LOT 1D WITH FUTURE DEVELOPMENT)											
COMPUTE NM HYD	1D.0	-	54	.00151	3.95	.143	1.77127	1.500	4.088	PER IMP=	80.00
ROUTE RESERVOIR	POND.1D	54	24	.00151	.56	.143	1.77097	2.133	.583	AC-FT=	.100
ADD HYD	200.10	21&22	15	.00308	2.08	.269	1.63574	1.733	1.054		
ADD HYD	200.20	15&23	16	.00459	2.56	.411	1.67963	1.766	.872		
ADD HYD	200.30	16&24	17	.00610	3.07	.554	1.70180	1.800	.785		
***S TOTAL RUNOFF DUE TO THIS DEVELOPMENT**											
ADD HYD	200.40	4&17	18	.00781	**6.48**	.719	1.72548	1.533	**1.296**		
ADD HYD	200.50	3&18	19	.00878	8.28	.777	1.65924	1.533	1.474		
***S MAXIMUM FLOW IN WEST HALF OF 106TH STREET WITH OFFSITE UNDEVELOPED BASINS**											
ADD HYD	200.60	2&19	20	.01160	**12.84**	.911	1.47274	1.533	1.730		
***S TOTAL RUNOFF EXITING THIS SITE AT 106TH STREET AND SUNSET GARDENS AVENUE**											
ADD HYD	200.70	1&20	21	.06570	**92.49**	3.788	1.08117	1.533	2.200		
FINISH											

AHYMO 100-YEAR DETAILED OUTPUT

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 12/29/2000
         START TIME (HR:MIN:SEC) = 11:19:53
         INPUT FILE = AHYMO.TXT

*S******* 100 YEAR, 6 HOUR STORM (Section 22.2 Hydrology)
START                 0.00
RAINFALL              TYPE=1 RAIN QUARTER=0.0 RAIN ONE=1.87
                      RAIN SIX=2.20  RAIN DAY=2.66 DT=0.03333

                  COMPUTED 6-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                  DT =     .033330 HOURS       END TIME =     5.999400 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   .0809   .0865   .0924   .1050
                     .1334   .1771   .2398   .3254   .4379   .5814   .7600
                     .9780  1.1804  1.2649  1.3363  1.3997  1.4575  1.5106
                    1.5600  1.6061  1.6493  1.6900  1.7284  1.7646  1.7989
                    1.8314  1.8623  1.8915  1.9193  1.9456  1.9518  1.9576
                    1.9630  1.9682  1.9732  1.9780  1.9825  1.9869  1.9912
                    1.9953  1.9993  2.0031  2.0068  2.0104  2.0140  2.0174
                    2.0207  2.0240  2.0272  2.0303  2.0333  2.0363  2.0392
                    2.0420  2.0448  2.0475  2.0502  2.0528  2.0554  2.0580
                    2.0605  2.0629  2.0653  2.0677  2.0700  2.0723  2.0746
                    2.0768  2.0790  2.0812  2.0833  2.0855  2.0875  2.0896
                    2.0916  2.0936  2.0956  2.0976  2.0995  2.1014  2.1033
                    2.1051  2.1070  2.1088  2.1106  2.1124  2.1141  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  2.1460  2.1475  2.1489
                    2.1504  2.1518  2.1532  2.1546  2.1560  2.1573  2.1587
                    2.1600  2.1614  2.1627  2.1640  2.1654  2.1667  2.1680
                    2.1692  2.1705  2.1718  2.1731  2.1743  2.1756  2.1768
                    2.1780  2.1792  2.1804  2.1817  2.1829  2.1840  2.1852
                    2.1864  2.1876  2.1887  2.1899  2.1910  2.1922  2.1933
                    2.1944  2.1956  2.1967  2.1978  2.1989  2.2000

*S*************************************************************************
*S***************** EXISTING CONDITIONS ***********************************
*S*************************************************************************
*S BASIN OFF1.0 (OFFSITE CONDITIONS ENTERING SITE FROM SUNSET GARDENS ROAD)
COMPUTE NM HYD        ID=1 HYD=OFF1.0 DA=0.05410 SQ MI
```

AHYMO 100-YEAR DETAILED OUTPUT

```
                    %A= 49.00 %B= 5.00 %C= 14.00 %D= 32.00
                    TP=0.1533 RAINFALL=-1

    K =   .083549HR    TP =   .153300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   59.432    CFS   UNIT VOLUME =    .9999       B =   526.28      P60 = 1.8700
    AREA =      .017312 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .171789HR    TP =   .153300HR    K/TP RATIO =  1.120604     SHAPE CONSTANT, N =  3.156913
    UNIT PEAK =   70.642    CFS   UNIT VOLUME =    .9997       B =   294.37      P60 = 1.8700
    AREA =      .036788 SQ MI    IA =    .57721 INCHES    INF =   1.46618 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=1 CODE=1

                                HYDROGRAPH FROM AREA OFF1.0


    RUNOFF VOLUME =      .99721 INCHES      =       2.8773 ACRE-FEET
    PEAK DISCHARGE RATE =      79.65 CFS  AT   1.533 HOURS   BASIN AREA =    .0541 SQ. MI.

*S BASIN OFF2.0 (OFFSITE CONDITIONS ENTERING SITE FROM WEST PROPERTY LINE)
COMPUTE NM HYD      ID=2 HYD=OFF2.0 DA=0.00282 SQ MI
                    %A= 13.90 B= 18.40 %C= 61.20 %D= 6.50
                    TP=0.1333 RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   .72368    CFS   UNIT VOLUME =    .9840       B =   526.28      P60 = 1.8700
    AREA =      .000183 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .119406HR    TP =   .133300HR    K/TP RATIO =   .895772     SHAPE CONSTANT, N =  3.957623
    UNIT PEAK =   6.9692    CFS   UNIT VOLUME =    .9985       B =   352.33      P60 = 1.8700
    AREA =      .002637 SQ MI    IA =    .42412 INCHES    INF =   1.03753 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=2 CODE=1

                                HYDROGRAPH FROM AREA OFF2.0
```

```
    RUNOFF VOLUME =       .89215 INCHES     =         .1342 ACRE-FEET
    PEAK DISCHARGE RATE =       4.63 CFS  AT    1.500 HOURS   BASIN AREA =    .0028 SQ. MI.


*S BASIN OFF3.0 (CENTRAL AVE. R/W NORTH OF SITE)
COMPUTE NM HYD       ID=3 HYD=OFF3.0 DA=0.00097 SQ MI
                     %A= 0.00 %B= 42.50 %C= 42.50 %D= 15.00
                     TP=0.1333 RAINFALL=-1

    K =    .072649HR    TP =    .133300HR    K/TP RATIO =    .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =    .57444    CFS   UNIT VOLUME =     .9786       B =    526.28      P60 = 1.8700
    AREA =       .000146 SQ MI    IA =     .10000 INCHES    INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


    K =    .118429HR    TP =    .133300HR    K/TP RATIO =    .888442     SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =    2.1937    CFS   UNIT VOLUME =     .9943       B =    354.67      P60 = 1.8700
    AREA =       .000825 SQ MI    IA =     .42500 INCHES    INF =    1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=3 CODE=1
```

HYDROGRAPH FROM AREA OFF3.0

```
    RUNOFF VOLUME =       .98815 INCHES     =         .0511 ACRE-FEET
    PEAK DISCHARGE RATE =       1.71 CFS  AT    1.500 HOURS   BASIN AREA =    .0010 SQ. MI.


*S BASIN OFF4.0 (106TH STREET AND SUNSET GARDENS ROAD)
COMPUTE NM HYD       ID=4 HYD=OFF4.0 DA=0.00171 SQ MI
                     %A= 0.00 %B= 0.00 %C= 100.00 %D= 0.00
                     TP=0.1333 RAINFALL=-1

    K =    .105867HR    TP =    .133300HR    K/TP RATIO =    .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =    4.9792    CFS   UNIT VOLUME =     .9980       B =    388.14      P60 = 1.8700
    AREA =       .001710 SQ MI    IA =     .35000 INCHES    INF =     .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=4 CODE=1
```

HYDROGRAPH FROM AREA OFF4.0

```
    RUNOFF VOLUME =      .99441 INCHES      =        .0907 ACRE-FEET
    PEAK DISCHARGE RATE =       3.15 CFS  AT   1.500 HOURS   BASIN AREA =   .0017 SQ. MI.


*S BASIN 1.0 (EXISTING SITE)
COMPUTE NM HYD      ID=5 HYD=1.0 DA=0.00610 SQ MI
                    %A= 0.00 %B= 0.00 %C= 100.00 %D= 0.00
                    TP=0.1333  RAINFALL=-1

    K =   .105867HR    TP =   .133300HR    K/TP RATIO =   .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =   17.762    CFS   UNIT VOLUME =    .9997       B =   388.14      P60 = 1.8700
    AREA =      .006100 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD           ID=5 CODE=1

                                  OUTFLOW HYDROGRAPH REACH     1.00


    RUNOFF VOLUME =      .99441 INCHES      =        .3235 ACRE-FEET
    PEAK DISCHARGE RATE =      11.23 CFS  AT   1.500 HOURS   BASIN AREA =   .0061 SQ. MI.


ADD HYD             ID=6  HYD=100.10 ID I=2  ID II=3
PRINT HYD           ID=6  CODE=1

                                  PARTIAL HYDROGRAPH   100.10


    RUNOFF VOLUME =      .91662 INCHES      =        .1853 ACRE-FEET
    PEAK DISCHARGE RATE =       6.34 CFS  AT   1.500 HOURS   BASIN AREA =   .0038 SQ. MI.


ADD HYD             ID=7  HYD=100.20 ID I=6  ID II=4
PRINT HYD           ID=7  CODE=1

                                  PARTIAL HYDROGRAPH   100.20


    RUNOFF VOLUME =      .94079 INCHES      =        .2760 ACRE-FEET
```

```
    PEAK DISCHARGE RATE =        9.49 CFS  AT    1.500 HOURS    BASIN AREA =    .0055 SQ. MI.


ADD HYD             ID=8  HYD=100.30 ID I=5  ID II=7
PRINT HYD           ID=8  CODE=1

                                PARTIAL HYDROGRAPH   100.30

    RUNOFF VOLUME =       .96897 INCHES     =         .5995 ACRE-FEET
    PEAK DISCHARGE RATE =    20.72 CFS  AT    1.500 HOURS    BASIN AREA =    .0116 SQ. MI.


*S TOTAL EXISTING RUNOFF EXITING THIS SITE
ADD HYD             ID=9  HYD=100.40 ID I=1  ID II=8
PRINT HYD           ID=9  CODE=1

                                PARTIAL HYDROGRAPH   100.40

    RUNOFF VOLUME =       .99222 INCHES     =        3.4767 ACRE-FEET
    PEAK DISCHARGE RATE =    99.95 CFS  AT    1.533 HOURS    BASIN AREA =    .0657 SQ. MI.


*S*************************************************************************
*S***************** DEVELOPED CONDITIONS ************************************
*S*************************************************************************
*S
*S OFFSITE BASINS 1 AND 2 ARE NOT CHANGED BY THIS DEVELOPMENT
*S
*S BASIN OFF3.0 (CENTRAL AVE. R/W NORTH OF SITE)
COMPUTE NM HYD      ID=3 HYD=OFF3.0 DA=0.00097 SQ MI
                    %A= 0.00 %B= 36.50 %C= 36.50 %D= 27.00
                    TP=0.1333 RAINFALL=-1

    K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   1.0340     CFS   UNIT VOLUME =     .9881       B =    526.28       P60 = 1.8700
    AREA =       .000262 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330
```

AHYMO 100-YEAR DETAILED OUTPUT

```
    K =    .118429HR     TP =    .133300HR     K/TP RATIO =    .888442      SHAPE CONSTANT, N =  3.992480
    UNIT PEAK =    1.8840     CFS    UNIT VOLUME =     .9937        B =    354.67       P60 = 1.8700
    AREA =       .000708 SQ MI     IA =     .42500 INCHES     INF =    1.04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD           ID=3 CODE=1

                                    HYDROGRAPH FROM AREA OFF3.0


    RUNOFF VOLUME =      1.12612 INCHES      =         .0583 ACRE-FEET
    PEAK DISCHARGE RATE =        1.85 CFS  AT    1.500 HOURS    BASIN AREA =    .0010 SQ. MI.



*S BASIN OFF4.0 (106TH STREET AND SUNSET GARDENS ROAD)
COMPUTE NM HYD      ID=4 HYD=OFF4.0 DA=0.00171 SQ MI
                    %A= 0.00 %B= 0.00 %C= 16.00 %D= 84.00
                    TP=0.1333 RAINFALL=-1

    K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =    5.6710     CFS    UNIT VOLUME =     .9973        B =    526.28       P60 = 1.8700
    AREA =       .001436 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


    K =    .105867HR     TP =    .133300HR     K/TP RATIO =    .794199      SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =    .79667     CFS    UNIT VOLUME =     .9841        B =    388.14       P60 = 1.8700
    AREA =       .000274 SQ MI     IA =     .35000 INCHES     INF =     .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD           ID=4 CODE=1

                                    HYDROGRAPH FROM AREA OFF4.0


    RUNOFF VOLUME =      1.81011 INCHES      =         .1651 ACRE-FEET
    PEAK DISCHARGE RATE =        4.54 CFS  AT    1.500 HOURS    BASIN AREA =    .0017 SQ. MI.



*S BASIN 1A.10 (NORTH PORTION OF LOT 1A WITH PROPOSED DEVELOPMENT)
COMPUTE NM HYD      ID=51 HYD=1A.10 DA=0.00078 SQ MI
                    %A= 0.00 %B= 0.00 %C= 27.00 %D= 73.00
```

AHYMO 100-YEAR DETAILED OUTPUT

TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 2.2480 CFS UNIT VOLUME = .9941 B = 526.28 P60 = 1.8700
AREA = .000569 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .105867HR TP = .133300HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = .61322 CFS UNIT VOLUME = .9803 B = 388.14 P60 = 1.8700
AREA = .000211 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=51 CODE=1

HYDROGRAPH FROM AREA 1A.10

RUNOFF VOLUME = 1.70329 INCHES = .0709 ACRE-FEET
PEAK DISCHARGE RATE = 2.00 CFS AT 1.500 HOURS BASIN AREA = .0008 SQ. MI.

ROUTE RESERVOIR ID=21 HYD=POND.1A1 INFLOW ID=51 CODE=10

OUTFLOW (CFS)	STORAGE (AC_FT)	ELEVATION
0.00	0.0000	0.00
0.16	0.0127	0.47
0.29	0.0500	0.94

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.33	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.33	.52	.09	.002	.03
1.67	1.02	.77	.037	.24
2.00	.45	.91	.048	.28
2.33	.09	.89	.046	.28
2.67	.03	.82	.040	.26
3.00	.02	.74	.034	.24

```
     3.33          .01          .67          .028          .21
     3.67          .01          .60          .023          .20
     4.00          .01          .54          .018          .18
     4.33          .01          .48          .014          .16
     4.67          .01          .37          .010          .13
     5.00          .01          .27          .007          .09
     5.33          .01          .20          .005          .07
     5.67          .01          .15          .004          .05
     6.00          .01          .11          .003          .04
     6.33          .00          .09          .002          .03
     6.67          .00          .06          .002          .02
     7.00          .00          .04          .001          .01
     7.33          .00          .03          .001          .01
     7.67          .00          .02          .001          .01
     8.00          .00          .02          .000          .01
     8.33          .00          .01          .000          .00
 PEAK DISCHARGE =          .285 CFS - PEAK OCCURS AT HOUR    2.13
 MAXIMUM WATER SURFACE ELEVATION =          .921
 MAXIMUM STORAGE =          .0485 AC-FT      INCREMENTAL TIME=      .033330HRS

PRINT HYD           ID=21  CODE=1

                                   HYDROGRAPH FROM AREA POND.1A1

     RUNOFF VOLUME =      1.70294 INCHES      =          .0708 ACRE-FEET
     PEAK DISCHARGE RATE =          .28 CFS  AT    2.133 HOURS    BASIN AREA =    .0008 SQ. MI.


*S BASIN 1A.20 (SOUTH PORTION OF LOT 1A WITH PROPOSED DEVELOPMENT)
COMPUTE NM HYD       ID=51 HYD=1A.20 DA=0.00077 SQ MI
                     %A= 0.00 %B= 0.00 %C= 68.00 %D= 32.00
                     TP=0.1333  RAINFALL=-1

     K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
     UNIT PEAK =    .97280     CFS   UNIT VOLUME =     .9881        B =    526.28       P60 = 1.8700
     AREA =       .000246 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
     RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


     K =    .105867HR     TP =    .133300HR     K/TP RATIO =    .794199      SHAPE CONSTANT, N =  4.514851
     UNIT PEAK =    1.5246     CFS   UNIT VOLUME =     .9917        B =    388.14       P60 = 1.8700
     AREA =       .000524 SQ MI     IA =     .35000 INCHES     INF =     .83000 INCHES PER HOUR
```

AHYMO 100-YEAR DETAILED OUTPUT

```
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD           ID=51 CODE=1

                                    HYDROGRAPH FROM AREA 1A.20


    RUNOFF VOLUME =      1.30515 INCHES     =         .0536 ACRE-FEET
    PEAK DISCHARGE RATE =       1.67 CFS  AT    1.500 HOURS   BASIN AREA =    .0008 SQ. MI.


ROUTE RESERVOIR     ID=22  HYD=POND.1A2  INFLOW ID=51  CODE=10
                    OUTFLOW (CFS)      STORAGE (AC_FT)      ELEVATION
                         0.00             0.0000              0.00
                         0.30             0.0089              0.47
                         0.84             0.0204              0.94

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

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

      .00          .00        .00        .000        .00
      .33          .00        .00        .000        .00
      .67          .00        .00        .000        .00
     1.00          .00        .00        .000        .00
     1.33          .29        .06        .001        .04
     1.67          .87        .94        .020        .84
     2.00          .29        .70        .014        .56
     2.33          .06        .41        .008        .26
     2.67          .02        .19        .004        .12
     3.00          .01        .09        .002        .06
     3.33          .01        .04        .001        .03
     3.67          .00        .02        .000        .01
     4.00          .00        .01        .000        .01
     4.33          .00        .01        .000        .01
     4.67          .00        .01        .000        .00
 PEAK DISCHARGE =          .838 CFS - PEAK OCCURS AT HOUR     1.67
 MAXIMUM WATER SURFACE ELEVATION =          .938
 MAXIMUM STORAGE =          .0204 AC-FT      INCREMENTAL TIME=      .033330HRS

PRINT HYD           ID=22  CODE=1
```

AHYMO 100-YEAR DETAILED OUTPUT

HYDROGRAPH FROM AREA POND.1A2

RUNOFF VOLUME = 1.30481 INCHES = .0536 ACRE-FEET
PEAK DISCHARGE RATE = .84 CFS AT 1.667 HOURS BASIN AREA = .0008 SQ. MI.

ADD HYD ID=21 HYD=1A.0 ID I=21 ID II=22
PRINT HYD ID=21 CODE=1

HYDROGRAPH FROM AREA 1A.0

RUNOFF VOLUME = 1.50385 INCHES = .1243 ACRE-FEET
PEAK DISCHARGE RATE = 1.08 CFS AT 1.700 HOURS BASIN AREA = .0016 SQ. MI.

*S BASIN 1B.10 (NORTH PORTION OF LOT 1B WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD ID=52 HYD=1B.10 DA=0.00095 SQ MI
%A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
TP=0.1333 RAINFALL=-1

K = .072649HR TP = .133300HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.0005 CFS UNIT VOLUME = .9955 B = 526.28 P60 = 1.8700
AREA = .000760 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

K = .105867HR TP = .133300HR K/TP RATIO = .794199 SHAPE CONSTANT, N = 4.514851
UNIT PEAK = .55324 CFS UNIT VOLUME = .9780 B = 388.14 P60 = 1.8700
AREA = .000190 SQ MI IA = .35000 INCHES INF = .83000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .033330

PRINT HYD ID=52 CODE=1

HYDROGRAPH FROM AREA 1B.10

RUNOFF VOLUME = 1.77127 INCHES = .0897 ACRE-FEET
PEAK DISCHARGE RATE = 2.49 CFS AT 1.500 HOURS BASIN AREA = .0010 SQ. MI.

AHYMO 100-YEAR DETAILED OUTPUT

ROUTE RESERVOIR ID=22 HYD=POND.1B1 INFLOW ID=52 CODE=10

OUTFLOW (CFS)	STORAGE (AC_FT)	ELEVATION
0.00	0.0000	0.00
0.32	0.0281	0.47
0.58	0.0612	0.94

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

TIME (HRS)	INFLOW (CFS)	ELEV (FEET)	VOLUME (AC-FT)	OUTFLOW (CFS)
.00	.00	.00	.000	.00
.33	.00	.00	.000	.00
.67	.00	.00	.000	.00
1.00	.00	.00	.000	.00
1.33	.68	.05	.003	.04
1.67	1.26	.70	.045	.45
2.00	.58	.84	.054	.52
2.33	.12	.76	.048	.48
2.67	.04	.61	.038	.40
3.00	.02	.48	.029	.33
3.33	.02	.36	.022	.25
3.67	.01	.27	.016	.18
4.00	.01	.20	.012	.14
4.33	.01	.15	.009	.10
4.67	.01	.12	.007	.08
5.00	.01	.09	.005	.06
5.33	.01	.07	.004	.05
5.67	.01	.06	.003	.04
6.00	.02	.05	.003	.03
6.33	.00	.04	.002	.03
6.67	.00	.03	.002	.02
7.00	.00	.02	.001	.01
7.33	.00	.01	.001	.01
7.67	.00	.01	.001	.01
8.00	.00	.01	.000	.01
8.33	.00	.01	.000	.00

PEAK DISCHARGE = .524 CFS - PEAK OCCURS AT HOUR 2.03
MAXIMUM WATER SURFACE ELEVATION = .839
MAXIMUM STORAGE = .0541 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=22 CODE=1

HYDROGRAPH FROM AREA POND.1B1

```
    RUNOFF VOLUME =      1.77098 INCHES      =          .0897 ACRE-FEET
    PEAK DISCHARGE RATE =         .52 CFS  AT    2.033 HOURS   BASIN AREA =    .0010 SQ. MI.


*S BASIN 1B.20 (SOUTH PORTION OF LOT 1B WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD       ID=52 HYD=1B.20 DA=0.00058 SQ MI
                     %A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
                     TP=0.1333  RAINFALL=-1

    K =    .072649HR     TP =    .133300HR     K/TP RATIO =    .545000      SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =    1.8319     CFS    UNIT VOLUME =     .9933        B =    526.28       P60 = 1.8700
    AREA =       .000464 SQ MI     IA =     .10000 INCHES     INF =     .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330


    K =    .105867HR     TP =    .133300HR     K/TP RATIO =    .794199      SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =    .33777     CFS    UNIT VOLUME =     .9626        B =    388.14       P60 = 1.8700
    AREA =       .000116 SQ MI     IA =     .35000 INCHES     INF =     .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =    .033330

PRINT HYD            ID=52 CODE=1
```

HYDROGRAPH FROM AREA 1B.20

```
    RUNOFF VOLUME =      1.77127 INCHES      =          .0548 ACRE-FEET
    PEAK DISCHARGE RATE =        1.53 CFS  AT    1.500 HOURS   BASIN AREA =    .0006 SQ. MI.


ROUTE RESERVOIR      ID=23  HYD=POND.1B2  INFLOW ID=52  CODE=10
                     OUTFLOW (CFS)      STORAGE (AC_FT)      ELEVATION
                          0.00              0.0000              0.00
                          0.32              0.0122              0.47
                          0.58              0.0274              0.94

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

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

     .00          .00         .00         .000         .00
```

```
   .33        .00        .00        .000        .00
   .67        .00        .00        .000        .00
  1.00        .00        .00        .000        .00
  1.33        .42        .07        .002        .05
  1.67        .78        .81        .023        .51
  2.00        .35        .80        .023        .50
  2.33        .07        .58        .016        .38
  2.67        .02        .32        .008        .22
  3.00        .01        .17        .004        .12
  3.33        .01        .09        .002        .06
  3.67        .01        .05        .001        .03
  4.00        .01        .03        .001        .02
  4.33        .01        .02        .001        .01
  4.67        .01        .02        .000        .01
  5.00        .01        .01        .000        .01
  5.33        .01        .01        .000        .01
  5.67        .01        .01        .000        .01
  6.00        .01        .01        .000        .01
  6.33        .00        .01        .000        .01
  6.67        .00        .00        .000        .00
PEAK DISCHARGE =          .528 CFS - PEAK OCCURS AT HOUR    1.80
MAXIMUM WATER SURFACE ELEVATION =          .847
MAXIMUM STORAGE =          .0244 AC-FT      INCREMENTAL TIME=      .033330HRS

PRINT HYD             ID=23  CODE=1

                    HYDROGRAPH FROM AREA POND.1B2

    RUNOFF VOLUME =      1.77082 INCHES      =          .0548 ACRE-FEET
    PEAK DISCHARGE RATE =          .53 CFS  AT    1.800 HOURS   BASIN AREA =    .0006 SQ. MI.


ADD HYD               ID=22  HYD=1B.0 ID I=22  ID II=23
PRINT HYD             ID=22  CODE=1

                    HYDROGRAPH FROM AREA 1B.0

    RUNOFF VOLUME =      1.76936 INCHES      =          .1444 ACRE-FEET
    PEAK DISCHARGE RATE =         1.04 CFS  AT    1.900 HOURS   BASIN AREA =    .0015 SQ. MI.
```

AHYMO 100-YEAR DETAILED OUTPUT

```
*S BASIN 1C.0 (LOT 1C WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD       ID=53 HYD=1B.0 DA=0.00151 SQ MI
                     %A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
                     TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   4.7692    CFS   UNIT VOLUME =    .9969       B =   526.28      P60 = 1.8700
    AREA =      .001208 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .105867HR    TP =   .133300HR    K/TP RATIO =   .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =   .87936    CFS   UNIT VOLUME =    .9857       B =   388.14      P60 = 1.8700
    AREA =      .000302 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=53 CODE=1

                                HYDROGRAPH FROM AREA 1B.0


    RUNOFF VOLUME =     1.77127 INCHES      =         .1426 ACRE-FEET
    PEAK DISCHARGE RATE =       3.95 CFS  AT   1.500 HOURS   BASIN AREA =    .0015 SQ. MI.
```

```
ROUTE RESERVOIR      ID=23  HYD=POND.1C  INFLOW ID=53  CODE=10
                     OUTFLOW (CFS)      STORAGE (AC_FT)      ELEVATION
                          0.00              0.0000              0.00
                          0.32              0.0495              0.47
                          0.58              0.1045              0.94

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

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

     .00         .00        .00        .000        .00
     .33         .00        .00        .000        .00
     .67         .00        .00        .000        .00
    1.00         .00        .00        .000        .00
    1.33        1.09        .05        .005        .03
    1.67        2.01        .69        .075        .44
    2.00         .91        .88        .098        .55
```

2.33	.19	.87	.096	.54
2.67	.07	.77	.085	.49
3.00	.04	.68	.074	.43
3.33	.03	.59	.063	.39
3.67	.02	.51	.054	.34
4.00	.02	.43	.046	.30
4.33	.02	.37	.039	.25
4.67	.02	.31	.033	.21
5.00	.02	.27	.028	.18
5.33	.02	.23	.024	.16
5.67	.02	.20	.021	.13
6.00	.02	.17	.018	.12
6.33	.00	.14	.015	.10
6.67	.00	.12	.013	.08
7.00	.00	.10	.011	.07
7.33	.00	.09	.009	.06
7.67	.00	.07	.008	.05
8.00	.00	.06	.006	.04
8.33	.00	.05	.005	.03
8.67	.00	.04	.004	.03
9.00	.00	.03	.004	.02
9.33	.00	.03	.003	.02
9.67	.00	.02	.003	.02
10.00	.00	.02	.002	.01
10.33	.00	.02	.002	.01
10.67	.00	.01	.002	.01
11.00	.00	.01	.001	.01
11.33	.00	.01	.001	.01
11.67	.00	.01	.001	.01
12.00	.00	.01	.001	.00

PEAK DISCHARGE = .559 CFS - PEAK OCCURS AT HOUR 2.13
MAXIMUM WATER SURFACE ELEVATION = .902
MAXIMUM STORAGE = .1001 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=23 CODE=1

HYDROGRAPH FROM AREA POND.1C

RUNOFF VOLUME = 1.77096 INCHES = .1426 ACRE-FEET
PEAK DISCHARGE RATE = .56 CFS AT 2.133 HOURS BASIN AREA = .0015 SQ. MI.

AHYMO 100-YEAR DETAILED OUTPUT

```
*S BASIN 1D.0 (LOT 1D WITH FUTURE DEVELOPMENT)
COMPUTE NM HYD       ID=54 HYD=1D.0 DA=0.00151 SQ MI
                     %A= 0.00 %B= 0.00 %C= 20.00 %D= 80.00
                     TP=0.1333  RAINFALL=-1

    K =   .072649HR    TP =   .133300HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
    UNIT PEAK =   4.7692    CFS   UNIT VOLUME =    .9969       B =   526.28      P60 = 1.8700
    AREA =      .001208 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330


    K =   .105867HR    TP =   .133300HR    K/TP RATIO =   .794199     SHAPE CONSTANT, N =  4.514851
    UNIT PEAK =   .87936    CFS   UNIT VOLUME =    .9857       B =   388.14      P60 = 1.8700
    AREA =      .000302 SQ MI    IA =    .35000 INCHES    INF =    .83000 INCHES PER HOUR
    RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .033330

PRINT HYD            ID=54 CODE=1

                                HYDROGRAPH FROM AREA 1D.0


    RUNOFF VOLUME =     1.77127 INCHES      =         .1426 ACRE-FEET
    PEAK DISCHARGE RATE =       3.95 CFS  AT   1.500 HOURS   BASIN AREA =    .0015 SQ. MI.
```

```
ROUTE RESERVOIR      ID=24  HYD=POND.1D  INFLOW ID=54  CODE=10
                     OUTFLOW (CFS)      STORAGE (AC_FT)       ELEVATION
                          0.00              0.0000               0.00
                          0.32              0.0491               0.47
                          0.58              0.1033               0.94

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

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

     .00         .00        .00        .000        .00
     .33         .00        .00        .000        .00
     .67         .00        .00        .000        .00
    1.00         .00        .00        .000        .00
    1.33        1.09        .05        .005        .03
    1.67        2.01        .70        .075        .45
    2.00         .91        .89        .098        .55
```

2.33	.19	.87	.096	.54
2.67	.07	.78	.085	.49
3.00	.04	.68	.073	.44
3.33	.03	.59	.063	.39
3.67	.02	.51	.054	.34
4.00	.02	.43	.045	.30
4.33	.02	.37	.038	.25
4.67	.02	.31	.033	.21
5.00	.02	.26	.028	.18
5.33	.02	.23	.024	.15
5.67	.02	.19	.020	.13
6.00	.02	.17	.018	.11
6.33	.00	.14	.015	.10
6.67	.00	.12	.013	.08
7.00	.00	.10	.010	.07
7.33	.00	.08	.009	.06
7.67	.00	.07	.007	.05
8.00	.00	.06	.006	.04
8.33	.00	.05	.005	.03
8.67	.00	.04	.004	.03
9.00	.00	.03	.004	.02
9.33	.00	.03	.003	.02
9.67	.00	.02	.002	.02
10.00	.00	.02	.002	.01
10.33	.00	.02	.002	.01
10.67	.00	.01	.001	.01
11.00	.00	.01	.001	.01
11.33	.00	.01	.001	.01
11.67	.00	.01	.001	.01
12.00	.00	.01	.001	.00

PEAK DISCHARGE = .564 CFS - PEAK OCCURS AT HOUR 2.13
MAXIMUM WATER SURFACE ELEVATION = .910
MAXIMUM STORAGE = .0999 AC-FT INCREMENTAL TIME= .033330HRS

PRINT HYD ID=24 CODE=1

HYDROGRAPH FROM AREA POND.1D

RUNOFF VOLUME = 1.77097 INCHES = .1426 ACRE-FEET
PEAK DISCHARGE RATE = .56 CFS AT 2.133 HOURS BASIN AREA = .0015 SQ. MI.

```
ADD HYD             ID=15  HYD=200.10 ID I=21  ID II=22
PRINT HYD           ID=15  CODE=1

                              PARTIAL HYDROGRAPH   200.10

    RUNOFF VOLUME =     1.63574 INCHES     =         .2687 ACRE-FEET
    PEAK DISCHARGE RATE =       2.08 CFS  AT    1.733 HOURS   BASIN AREA =    .0031 SQ. MI.


ADD HYD             ID=16  HYD=200.20 ID I=15  ID II=23
PRINT HYD           ID=16  CODE=1

                              PARTIAL HYDROGRAPH   200.20

    RUNOFF VOLUME =     1.67963 INCHES     =         .4112 ACRE-FEET
    PEAK DISCHARGE RATE =       2.56 CFS  AT    1.766 HOURS   BASIN AREA =    .0046 SQ. MI.


ADD HYD             ID=17  HYD=200.30 ID I=16  ID II=24
PRINT HYD           ID=17  CODE=1

                              PARTIAL HYDROGRAPH   200.30

    RUNOFF VOLUME =     1.70180 INCHES     =         .5536 ACRE-FEET
    PEAK DISCHARGE RATE =       3.07 CFS  AT    1.800 HOURS   BASIN AREA =    .0061 SQ. MI.


*S TOTAL RUNOFF DUE TO THIS DEVELOPMENT
ADD HYD             ID=18  HYD=200.40 ID I=4   ID II=17
PRINT HYD           ID=18  CODE=1

                              PARTIAL HYDROGRAPH   200.40

    RUNOFF VOLUME =     1.72548 INCHES     =         .7187 ACRE-FEET
    PEAK DISCHARGE RATE =       6.48 CFS  AT    1.533 HOURS   BASIN AREA =    .0078 SQ. MI.
```

```
ADD HYD             ID=19  HYD=200.50 ID I=3   ID II=18
PRINT HYD           ID=19  CODE=1

                                PARTIAL HYDROGRAPH    200.50


    RUNOFF VOLUME =      1.65924 INCHES      =         .7770 ACRE-FEET
    PEAK DISCHARGE RATE =       8.28 CFS  AT    1.533 HOURS    BASIN AREA =    .0088 SQ. MI.


*S MAXIMUM FLOW IN WEST HALF OF 106TH STREET WITH OFFSITE UNDEVELOPED BASINS
ADD HYD             ID=20  HYD=200.60 ID I=2   ID II=19
PRINT HYD           ID=20  CODE=1

                                PARTIAL HYDROGRAPH    200.60


    RUNOFF VOLUME =      1.47274 INCHES      =         .9111 ACRE-FEET
    PEAK DISCHARGE RATE =      12.84 CFS  AT    1.533 HOURS    BASIN AREA =    .0116 SQ. MI.
```

```
*S TOTAL RUNOFF EXITING THIS SITE AT 106TH STREET AND SUNSET GARDENS AVENUE
ADD HYD             ID=21  HYD=200.70 ID I=1   ID II=20
PRINT HYD           ID=21  CODE=1

                                PARTIAL HYDROGRAPH    200.70


    RUNOFF VOLUME =      1.08117 INCHES      =        3.7884 ACRE-FEET
    PEAK DISCHARGE RATE =      92.49 CFS  AT    1.533 HOURS    BASIN AREA =    .0657 SQ. MI.


FINISH

    NORMAL PROGRAM FINISH          END TIME (HR:MIN:SEC) = 11:19:54
```

APPENDIX B

HALF WIDTH 106TH STREET HYDRAULIC CAPACITY CALCULATION

MANNING'S EQUATION FOR UNIFORM FLOW
IN TRAPEZOIDAL CHANNELS

INPUT

DEPTH (FT):	0.47
MANNING'S "n" VALUE:	0.017
BED SLOPE (FT/FT):	0.0050
BOTTOM WIDTH (FT):	0.00
SIDE SLOPE #1 (HORZ:VERT):	0.00
SIDE SLOPE #2 (HORZ:VERT):	50.00
CROWN--NEG. FOR INVERTED (FT):	0.00

OUTPUT

FLOW RATE (CFS):	12.84
CROSS SECT. AREA (SF):	5.52
TOP WIDTH (FT):	23.49
WETTED PERIMETER (FT):	23.96
HYDRAULIC RADIUS (FT):	0.23
VELOCITY (FPS):	2.33
FROUDE NUMBER:	0.85
ENERGY GRADE:	0.55

LOT 1A.1 POND VOLUME AND OUTLET STRUCTURE CALCULATIONS

ELEV	AREA (sq. ft.)	INC VOL (cu. ft.)	TOTAL VOL (cu. ft.)	TOTAL VOL (acre-ft.)	Q PIPE (cfs)
0.00	0	0.00	0.00	0.0000	0.00
0.47	2,351	552	552	0.0127	0.16
0.94	4,566	1,625	2,178	0.0500	0.29

PIPE DIA.(")	4.00	K	2.47	K	2.4728
ORIFICE "C"	0.60	S	0.01	S	0.0042
A (SQ. FT.)	0.0872	Q TRIAL	0.29	Q TRIAL	0.16
NUMBER OF PIPES = 1		LOSS	0.18	LOSS	0.05

LOT 1A.2 POND VOLUME AND OUTLET STRUCTURE CALCULATIONS

ELEV	AREA (sq. ft.)	INC VOL (cu. ft.)	TOTAL VOL (cu. ft.)	TOTAL VOL (acre-ft.)	Q WEIR (cfs)
0.00	715	0.00	0.00	0.0000	0.00
0.47	936	388	388	0.0089	0.30
0.94	1,186	499	887	0.0204	0.84

WEIR LENGTH (")	4.00
C	2.75

LOT 1B.1 POND VOLUME AND OUTLET STRUCTURE CALCULATIONS

ELEV	AREA (sq. ft.)	INC VOL (cu. ft.)	TOTAL VOL (cu. ft.)	TOTAL VOL (acre-ft.)	Q PIPE (cfs)
0.00	2,374	0.00	0.00	0.0000	0.00
0.47	2,834	1,224	1,224	0.0281	0.32
0.94	3,308	1,443	2,667	0.0612	0.58

PIPE DIA.(")	4.00	K	2.47	K	2.47
ORIFICE "C"	0.60	S	0.01	S	0.00
A (SQ. FT.)	0.0872	Q TRIAL	0.29	Q TRIAL	0.16
NUMBER OF PIPES = 2		LOSS	0.18	LOSS	0.05

LOT 1B.2 POND VOLUME AND OUTLET STRUCTURE CALCULATIONS

ELEV	AREA (sq. ft.)	INC VOL (cu. ft.)	TOTAL VOL (cu. ft.)	TOTAL VOL (acre-ft.)	Q PIPE (cfs)
0.00	996	0.00	0.00	0.0000	0.00
0.47	1,264	531	531	0.0122	0.32
0.94	1,564	665	1,196	0.0274	0.58

PIPE DIA.(")	4.00	K	2.47	K	2.47
ORIFICE "C"	0.60	S	0.01	S	0.00
A (SQ. FT.)	0.0872	Q TRIAL	0.29	Q TRIAL	0.16
NUMBER OF PIPES = 2		LOSS	0.18	LOSS	0.05

LOT 1C POND VOLUME AND OUTLET STRUCTURE CALCULATIONS

ELEV	AREA (sq. ft.)	INC VOL (cu. ft.)	TOTAL VOL (cu. ft.)	TOTAL VOL (acre-ft.)	Q PIPE (cfs)
0.00	4,328	0.00	0.00	0.0000	0.00
0.47	4,840	2,154	2,154	0.0495	0.32
0.94	5,369	2,399	4,554	0.1045	0.58

PIPE DIA.(")	4.00	K	2.47	K	2.47
ORIFICE "C"	0.60	S	0.01	S	0.00
A (SQ. FT.)	0.0872	Q TRIAL	0.29	Q TRIAL	0.16
NUMBER OF PIPES = 2		LOSS	0.18	LOSS	0.05

LOT 1D POND VOLUME AND OUTLET STRUCTURE CALCULATIONS

ELEV	AREA (sq. ft.)	INC VOL (cu. ft.)	TOTAL VOL (cu. ft.)	TOTAL VOL (acre-ft.)	Q PIPE (cfs)
0.00	4,317	0.00	0.00	0.0000	0.00
0.47	4,781	2,138	2,138	0.0491	0.32
0.94	5,260	2,360	4,498	0.1033	0.58

PIPE DIA.(")	4.00	K	2.47	K	2.47
ORIFICE "C"	0.60	S	0.00	S	0.01
A (SQ. FT.)	0.0872	Q TRIAL	0.16	Q TRIAL	0.29
NUMBER OF PIPES = 2		LOSS	0.05	LOSS	0.18

City of Albuquerque

P.O. BOX 1293 ALBUQUERQUE, NEW MEXICO 87103

March 16, 2001

Billy O. McCarty, P.E.
BEAM Designs
855 Polaris Blvd SE
Albuquerque, NM 87124

RE: SUBDIVISION OF LOT 1, TOWN OF ATRISCO GRANT (L8-D13). DRAINAGE REPORT, GRADING AND DRAINAGE PLAN FOR PRELIMINARY PLAT APPROVAL, SITE DEVELOPMENT PLAN FOR SUBDIVISION AND FOR BUILDING PERMIT APPROVALS,AND FOR BUILDING PERMIT APPROVAL. ENGINEER'S STAMP DATED JANUARY 5, 2001.

Dear Mr. McCarty:

Based on the information provided on your January 5, 2001 submittal, the above referenced project is approved for Preliminary Plat, and for Site Development Plan for both Subdivision and Building Permit Approvals.

Please include the requisite SO#19 notes and Inspector's Signature Block when resubmitting for the Building Permit itself. A detail of the floodwall should be included. Also, show sidewalk culvert calculations. It is unclear as to how the east side of 106th Street and Central Avenue will match.

Please attach a copy of the approved G&D Plan to the construction sets at that time and prior to sign-off by Hydrology.

Prior to Certificate of Occupancy approval, an Engineer's Certification per the DPM will be required.

If I can be of further assistance, please feel free to contact me at 924-3984.

Sincerely,

John P. Murray, P.E.
Hydrology

c: Terri Martin
File

DRAINAGE INFORMATION SHEET

PROJECT TITLE: Subdivision of Lot 1, Block3, Town of Atrisco Grant ZONE ATLAS/DRNG. FILE #: L-8 / D013

DRB#: _____ EPC #: _____ WORK ORDER #: _____

LEGAL DESCRIPTION: Lot 1, Block 3, Town of Atrisco Grant

CITY ADDRESS: 10300 Central, NW

ENGINEERING FIRM: BEAM Designs CONTACT: Billy O. McCarty, P.E.

ADDRESS: 855 Polaris Blvd., SE PHONE: 896-0391

CITY, STATE: Rio Rancho, NM ZIP CODE: 87124

OWNER: American Southwest Homes, Ltd. Co. CONTACT: Mr. L. L. Bell

ADDRESS: 919 Salamanca, NW PHONE: 341-4324

CITY, STATE: Albuquerque, NM ZIP CODE: 87107

ARCHITECT: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: Daggett Engineering and Surveying CONTACT: Kevin C. Daggett, P.E., P.S.

ADDRESS: 2125 Corte De Chamisa, NW PHONE: 352-5279

CITY, STATE: Albuquerque, NM ZIP CODE: 87120

CONTRACTOR: _____ CONTACT: _____

ADDRESS: _____ PHONE: _____

CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

X DRAINAGE REPORT

X DRAINAGE PLAN

__ CONCEPTUAL GRADING & DRAINAGE PLAN

X GRADING PLAN

X EROSION CONTROL PLAN

__ ENGINEER'S CERTIFICATION

__ CLOMR/LOMR

__ OTHER

WAS A PRE-DESIGN CONFERENCE ATTENDED:

__ YES

X NO

__ COPY PROVIDED

RECEIVED
JAN 05 2001
HYDROLOGY SECTION

CHECK TYPE OF APPROVAL SOUGHT:

__ SIA / FINANCIAL GUARANTEE RELEASE

X PRELIMINARY PLAT APPROVAL

X S. DEV. PLAN FOR SUB'D. APPROVAL

X S. DEV. PLAN FOR BLDG. PERMIT APPROVAL

__ SECTOR PLAN APPROVAL

__ FINAL PLAT APPROVAL

__ FOUNDATION PERMIT APPROVAL

X BUILDING PERMIT APPROVAL

__ CERTIFICATE OF OCCUPANCY APPROVAL

__ GRADING PERMIT APPROVAL

__ PAVING PERMIT APPROVAL

__ WORK ORDER APPROVAL

X OTHER (SPECIFY) T.C.L

DATE SUBMITTED: January 5, 2001 BY: Billy O. McCarty

BUILDING
ENGINEERING
AND
MUNICIPAL
DESIGNS

BEAM
DESIGNS

855 POLARIS BLVD., SE
RIO RANCHO, NM 87124
PHONE (505) 896-0391
FAX (505) 994-3952
beamdesigns@uswest.net

TRANSMITTAL LETTER

TO: City of Albuquerque Hydrology Dept.

FROM: Billy O. McCarty, P.E.

DATE: January 5, 2001

RE: Grading and Drainage Plan and Traffic Circulation Layout for Building Permit

L8/D013

ITEMS INCLUDED:

1 Drainage Information Sheet
1 Drainage Report
1 Traffic Circulation Plan (24 x 36)

COMMENTS: Please review the attached Grading and Drainage Plan and Traffic Circulation Layout and approve them for building permit and for a minor subdivision.

RECEIVED
JAN 05 2001
HYDROLOGY SECTION

C.\Daggett\transmittal let.doc

February 14, 2001

Loren Meinz, P.E.,
Head Hydrology Division
City of Albuquerque
600 2nd Street NW
Albuquerque, NM 87102

- ***Case No:*** L8-D013
- ***Submittal dated:*** January 05, 2001 by BEAM
- ***Project Title:*** Subdivision Lot 1, Blk 3, Atrisco
- ***Location:*** 10300 Central SW @ 106th
- ***Approval Type:*** Building Permit, Prelim. Plat, SDPBPA

- ***Note:*** *This submittal concerns the construction of a new commercial subdivision on a four-acre site. Discharge limited to 1.29 cfs/ac. As per the Amole-Hubble Master Plan.*

Dear Mr. Meinz:

Based on the submittal stamped January 5, 2001, the proposed grading and drainage plan concept does appear to be sufficient and can be approved for building permit at this time. There are, however, a few clarifications that may help to understand the project:

- No floodwall calculations or details were found in the report.
- No sidewalk culvert calculations could be found in the report.
- It is not clear how the curb returns on 106th Street will combine with Central Ave.

If you have any questions regarding this letter or need any clarification concerning the above project, please feel free to call me at 296-0461.

Sincerely,

Mark H. Burak, P.E.
Hydrology Consultant