Sunport Joint Venture

Albuquerque, New Mexico

Revised Drainage Report

for

Sunport Park - Phase I

Including Replat of Blocks 4-A and 4-B

December 26, 1996

Prepared by:

Andrews, Asbury & Robert, Inc.
Consulting Engineers
149 Jackson N.E.
Albuquerque, NM 87108

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REVISED
DRAINAGE REPORT
for
SUNPORT PARK - PHASE I

December 26, 1996

I. GENERAL

This report, with the enclosed maps, provides a revised Master Drainage Plan for Sunport Park - Phase I.

The original Drainage Report for Sunport Park - Phase I was prepared in June 1987 and subsequently updated by revision dated January 1988 and revision dated August 1990 and is on file at the City of Albuquerque Hydrology Division.

For reference, this original drainage report with revisions is included herein as Appendix "A" for reference.

Since the original report was prepared, the City of Albuquerque and the New Mexico State Highway and Transportation Department has constructed Sunport Boulevard through the Subdivision. Due to the constructed location of Sunport Boulevard, the southerly drainage basin boundary of the original Phase I area has been extended from 150 feet to 250 feet south to the north right-of-way line of Sunport Boulevard. The westerly boundary of the drainage basin at the new northbound on-ramp to the Interstate from Sunport has also been adjusted to reflect the constructed conditions.

Along with this Master Drainage Report and Drainage Plan for Sunport Park Phase I, this report also addresses the drainage for a proposed replat of the southerly portion of Phase I and is designated herein as Sunport Park, Block 4-A and 4-B.

The drainage basin boundaries, including the above revisions, are shown on (Figure 1) in the packet at the back of this report.

II. EXISTING IMPROVEMENTS

Presently, the following streets in the subdivision are improved with pavement, curb and gutter and utilities:

Flightway Avenue	-	from University Blvd. to Transport Street
Woodward Road	-	from University Blvd. to Transport Street
Transport Street	-	from Flightway Avenue to the south ROW line of Sunport Blvd.
University Blvd.	-	Along the east property line from Randolph Road to approximately 1,000 feet south of Sunport Blvd.
Sunport Blvd.	-	from Interstate-25 to East of University Blvd.

A. Drainage Improvements

1) Original Facilities

As outlined in the original drainage report, certain major drainage facilities were constructed with the original infrastructure project to convey the storm waters from the original Phase I area. These drainage facilities include the following:

The northwesterly portion of the site, Drainage Area B-2, along with the offsite Drainage Area B-1, is collected by an inlet at the far northwest corner of the site and carried by a storm drain to the Kirtland Channel.

The runoff from on-site drainage areas A-1 through A-11 are collected by a combination of streets and storm drains as shown on Figure 1 enclosed. The collected runoff is carried from the site by a major storm drain that was tunneled under Interstate-25 north of the new Sunport Blvd. alignment and extends westerly to the AMAFCA South Diversion Channel.

2) Sunport Boulevard Facilities

With the construction of Sunport Blvd., a major storm drain was constructed along its southerly right-of-way line. This storm drain system collects and conveys the runoff from the Sunport Blvd. roadway, a portion of the lands within Phase II and also runoff flows from a portion of the Phase I area directly north of Sunport Blvd. and east of Transport Street. The Phase I area served by this storm drain is designated on Figure 1 as drainage areas C-1 and C-2 and is connected to the major storm drain by a 36-inch pipe in Transport Street under Sunport Blvd.

The runoff from Area A-12 is collected and carried under Interstate-25 by a 36-inch culvert that was extended each side of I-25 with the Sunport Blvd. Interstate-25 interchange project.

III. MASTER DRAINAGE PLAN

The revised Master Drainage Plan showing Drainage Areas and Sub-basins enclosed herewith as Figure 1 in the back of this report.

Runoff for Drainage Basins A-1 through A-5, A-10 and A-11, and B-1 and B-2 remain as presented in the original revised report (See Appendix "A").

Drainage Basin A-6-A is presently developed; therefore, the runoff established by the developed site drainage plan of 8.3 cfs was maintained.

Due to reconfiguration of the drainage basins within the area bounded by Woodward Road, Transport Street, University Blvd. and Sunport Blvd. And along with construction of the storm drain with the Sunport Blvd. project, the runoff from Drainage Basins A-6-B, A-8-A, A-7 and A-9 was allowed to be increased from the original runoff rates.

Drainage Basins C-1 and C-2 are basically new areas created when Sunport Blvd. was constructed, and the drainage faciliteis constructed with this project have provided for drainage of these basins.

The developed runoff from Drainage Basins A-6-B, A-8-A, C-1 and C-2 which constitutes the area to be replatted is based on current hydrology methods established by the City DPM, Section 22.2, January 1993. Runoff from these basins is based on having 10 percent Land Treatment "B" - Landscaping, and 90 percent Land Treatment "D" - Impervious, which provides for a runoff of 4.46 cfs per acre.

To establish and verify capacity of the Sunport Boulevard Drainage Facilities to convey the runoff from Drainage Areas C-1 and C-2, a hydrologic and hydraulic analysis of the runoff from the area proposed to be replatted and Sunport Boulevard was performed to establish and verify sufficient capacity within the existing storm drain to convey the additional runoff from these areas to be replatted.

The AHYMO hydrologic model was used to determine the effect of peak discharge from the the southerly portion of the replatted area (Areas C-1 and C-2) would have on the existing storm drain system south of Sunport Boulevard. The AYHMO model, developed for the Sunport Boulevard Project by Molzen/Corbin Engineers, was used with some modifications for as-built conditions (See Appendix B). The 24-hour druration, 100-year return event was modeled as in the model mentioned previously. The addition of runoff from the replatted area increases the peak flow within the storm drain system approximately 35 cubic feet per second. The new peak flows within the system were checked against the maximum capacity of the storm drain pipes flowing at 94 percent full. This system was verified to have the capacity to convey the additional runoff.

The following Sunport Park Runoff Analysis, Master Drainage Plan, Revised December 12, 1996, establishes the runoff rates (Q_{100}) for the Developed Drainage Basins.

Capacity of the Existing Drainage Facilities relative to runoff is shown in the table on the Master Drainage Plan, Figure 1.

SUNPORT PARK
RUNOFF ANALYSIS
MASTER DRAINAGE PLAN
REVISED- 12-26-96

Analysis Point	Drainage Area Designation	Area (Acres)		Q_{100} (CFS)	Remarks
1	A-1 & A-2	12.2		41.5	From Orig. Report.
2	A-1, A-2 & A-3	13.9		47.3	From Orig. Report.
3	A-1 thru A-4	18.5		62.9	" " "
4	A-1 thru A-5	23.2		78.9	" " "
	A-6-A	2.3		8.3	From Site Specific Drainage Plan. (Developed Area)
	A-6-B (Revised)	6.76	Allow 4.46 cfs/Acre Runoff-	30.1	Revised Area & Portion of Replat.
	A-7	1.1	Allow 4.0 cfs/Acre Runoff	4.4	
5 (Revised)	A-6-A, A-6-B & A-7	-		42.8	

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, NE., Albuquerque, N.M. 87108
Telephone (505) 265-6631 • FAX (505) 266-8112

Project Sunport Park Sheet 1 of 3
By JA Chk'd Job No. 7524
Date 12-26-96

SUNPORT PARK- RUNOFF ANALYSIS
MASTER DRAINAGE PLAN, REVISED 12-26-96

Analysis Point	Drainage Area Designation	Area (Acres)		Q_{100} (CFS)	REMARKS
	A-8-A (Revised)	3.16	Allow 4.46 cfs/Acre Runoff-	14.1	Revised Area & Portion of Replat.
6	A-6-A, A-6-B, A-7 & A-8-A	—		56.9	From Original Report Flow = 58.5 ∴ ok
	A-9	3.6	Allow 3.85 cfs/Acre	13.9	Runoff determined by AP-7- design Flow
7	A-6-A, A-6-B A-7, A-8-A & A-9-	—		70.8	From Original Report Flow = 70.8 ∴ OK
8	A-1 thru A-9	—	AP-4 + AP-7 = 78.9 + 70.8	149.7	Flow is Same as design flow in Original Report.
9.	A-1 thru A-10	—	—	180.6	From Original Report.
10	A-11			14.3	" " "
11	A-1 thru A-11	-	—	190.5	" " "
12	"			179.6	" " "
14 & 15	B-1 & B-2			28.6	" " "

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, NE., Albuquerque, N.M. 87108
Telephone (505) 265-6631 • FAX (505) 255-8112

Project Sunport Park- Sheet 2 of 3
By JA Job No. 752A
Chk'd Date 12-26-96

SUNPORT PARK- RUNOFF ANALYSIS
MASTER DRAINAGE PLAN; REVISED 12-26-96

Analysis Point	Drainage Area Designation	Area (Acres)		Q_{100} (CFS)	REMARKS
13	B-1	3.7		12.6	From Original Report
14 & 15	B-1 & B-2	8.4		28.6	" " "
C1	C-1	7.6	Allow 4.46 cfs/Acre Runoff	33.9	Revised & Additional Area & Portion of Replat.
C2	C-1 & C-2	8.0	" " "	35.7	Design Capacity is 37.0 CFS - OK.

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, NE., Albuquerque, N.M. 87108
Telephone (505) 265-6631 • FAX (505) 266-8112

Project Sunport Park Sheet 3 of 3
Job No. 752A
By LA Chk'd
Date 12-26-96

IV. REPLAT - SUNPORT PARK, BLOCK 4-A & 4-B

To provide for development of the portion of property within Phase I bounded by Woodward Road, Sunport Blvd., Transport Street and University Blvd., a replat of this area is proposed.

This replat is designated as Sunport Park, Block 4-A and 4-B and a copy of this plat is included herein in the packet at the back of this report.

As shown on the plat, a new street (Sunport Place) is created and therefore, improvements to this street are to be provided, including pavement, curb and gutter and applicable utilities.

The drainage plan for developed conditions of this replat is shown on the enclosed Figure 2 Titled: Sunport Park, Block 4-A and 4-B, Drainage Plan.

This replat lies within Drainage Basins A-6-B, A-8-A, C-1 and C-2 of the Master Drainage Plan.

A. Existing Conditions

The drainage basins addressed in this portion of this report are those comprising Blocks 4-A and 4-B. These areas lie between Woodward Road and Sunport Boulevard, north to south, and University Boulevard and Transport Street, east to west. These areas are shown on Figure 2.

Existing topographic conditions are also shown on Figure 2. Generally, Blocks 4-A and 4-B have a slope of five to seven percent from east to west. All runoff is generated on-site as surrounding improved streets divert runoff from the area to existing storm drain systems. Currently, runoff from these blocks is carried away from the site through two existing separate storm drain systems north and south of the site. (See Master Drainage Plan.)

B. Developed Conditions

Guidelines for the hydrologic analysis for this replat are based on methods as defined in Section 22.2, Hydrology of the Development Process Manual (DPM), Volume 2, Design Criteria for the City of Albuquerque, New Mexico, January 1993.

Sunport Park is within Precipitation Zone 2 as defined in Section 22.2 of the DPM. The 6-hour, 100-year return event storm was used to calculate peak runoff under developed conditions. Land treatments were based on "Design Guidelines for Sunport Park," developed by the Site Plan as well as the recommended values in Table A-5 of DPM, Section 22.2.

Runoff from the individual lots in Blocks 4-A and 4-B are based on having 10 percent Land Treatment "B" - Landscaping, and 90 percent Land Treatment "D" - Impervious. Section 22.2 of the DPM lists peak discharges for various land treatments in Table A-9. Adjacent streets including Transport Street, Woodward Road and Sunport Place were also assumed to be 10 percent "B" and 90 percent "D".

Therefore, runoff per acre is determined as follows:

From Table A-9 in DPM Section 22.2:

Type "B" = 2.28 cfs/Acre

Type "D" = 4.70 cfs/Acre

Runoff = 10% x 2.28 + 90% x 4.70 = 4.46 cfs/Acre

1) Runoff Analysis

The runoff analysis for Blocks 4-A and 4-B for Developed Conditions is shown on the following tabulation titled: Sunport Park Block 4-A and 4-B, Runoff Analysis.

Sunport Park Block 4A and 4B Runoff Analysis

Analysis Point	DrainageArea Designation	Area (Acres)	q100 (cfs/acre)	Qp100 (cfs)	Cummulative Qp100 (cfs)
	1-B	0.8136	4.46	3.63	
	MRD-1	0.2183	4.46	0.97	
AP-A					4.60
	2-B	1.0700	4.46	4.77	
	MRD-2	0.1329	4.46	0.59	
AP-B					9.97
	3-B	2.1664	4.46	9.66	
	MRD-3	0.2422	4.46	1.08	
AP-C					20.71
	4-B	2.6837	4.46	11.97	
	MRD-4	0.2907	4.46	1.30	
AP-D					33.98
	TSB	0.4008	4.46	1.79	
AP-E					35.76
	1-A	1.5244	4.46	6.80	
	2-A	0.1416	4.46	0.63	
	3-A	0.2336	4.46	1.04	
	SPL	0.9704	4.46	4.33	
AP-F					12.80
	1-4A	1.0365	4.46	4.62	
	2-4A	1.0852	4.46	4.84	
					22.26
	A-6-A			8.30	
	A-7	1.10	4.00	4.40	
					34.96
	WRD-1	1.7697	4.46	7.89	
AP-F					42.86
	4-A	2.2210	4.46	9.91	
	WRD-2	0.5023	4.46	2.24	
	TSA	0.4339	4.46	1.94	
AP-G					56.94

C. Maintenance Road Drainage Ditch

As a portion of the Sunport Boulevard project, a cement-treated base-course lined ditch was constructed along the north side of the north maintenance road to receive and convey the runoff flows from the adjacent drainage basins to the north.

A plan sheet from the construction plans (which was added by change order) is included in the packet at the back of this report showing the construction details. This sheet is titled: Sunport Boulevard - Phase I, Transport Street Storm Drainage Details.

Following are computations showing capacity of this drainage ditch and associated inlet.

North Maintenance Road Drainage Ditch

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Hydraulic Capacity

Comment: Ditch Section 1

Solve For Discharge

Given Input Data:

Bottom Width.....	8.00 ft
Left Side Slope..	3.00:1 (H:V)
Right Side Slope.	3.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.0195 ft/ft
Depth.....	1.50 ft

Computed Results:

Discharge.....	239.76 cfs
Velocity.....	12.79 fps
Flow Area.....	18.75 sf
Flow Top Width...	17.00 ft
Wetted Perimeter.	17.49 ft
Critical Depth...	2.28 ft
Critical Slope...	0.0038 ft/ft
Froude Number....	2.15 (flow is Supercritical)

SEE SHEET 2 OF 2, SUNPORT BOULEVARD - PHASE I,
TRANSPORT STREET STORM DRAINAGE DETAILS

North Maintenance Road Drainage Ditch

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Hydraulic Capacity

Comment: Ditch Section Transport St to STA 5+60

Solve For Discharge

Given Input Data:

Bottom Width.....	0.00 ft
Left Side Slope..	3.00:1 (H:V)
Right Side Slope.	3.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.0195 ft/ft
Depth.....	1.50 ft

Computed Results:

Discharge.....	65.67 cfs
Velocity.....	9.73 fps
Flow Area.....	6.75 sf
Flow Top Width...	9.00 ft
Wetted Perimeter.	9.49 ft
Critical Depth...	1.97 ft
Critical Slope...	0.0045 ft/ft
Froude Number....	1.98 (flow is Supercritical)

SEE SHEET 2 OF 2, SUNPORT BOULEVARD - PHASE I, TRANSPORT STREET STORM DRAINAGE DETAILS

North Maintenance Road Drainage Ditch

Trapezoidal Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: Hydraulic Capacity

Comment: Ditch Section STA 5+75 and East

Solve For Discharge

Given Input Data:

Bottom Width.....	0.00 ft
Left Side Slope..	3.00:1 (H:V)
Right Side Slope.	3.00:1 (H:V)
Manning's n.....	0.017
Channel Slope....	0.0727 ft/ft
Depth.....	1.00 ft

Computed Results:

Discharge.....	43.01 cfs
Velocity.....	14.34 fps
Flow Area.....	3.00 sf
Flow Top Width...	6.00 ft
Wetted Perimeter.	6.32 ft
Critical Depth...	1.66 ft
Critical Slope...	0.0048 ft/ft
Froude Number....	3.57 (flow is Supercritical)

SEE SHEET 2 OF 2, SUNPORT BOULEVARD - PHASE I, TRANSPORT STREET STORM DRAINAGE DETAILS

Open Channel Flow Module, Version 3.42 (c) 1991
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

NORTH MAINTENANCE ROAD DRAINAGE DITCH

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, NE., Albuquerque, N.M. 87108
Telephone (505) 265-6631 • FAX (505) 266-8112

Project SUNPORT PARK Sheet ____ of ____
AREA INLET CAPACITY Job No. 752A
By PG Chk'd ____ Date DEC. 31, 1996

AREA INLET AT ANALYSIS POINT D
PERIMETER LENGTH OF 6' ϕ MANHOLE

$$P = \pi d = \pi (6') = 18.85 \text{ FT}$$

ASSUME 30% CLOGGED W/ DEBRIS

$$P_c = (1-0.30)(18.85) = 13.20 \text{ FT}$$

WEIR EQUATION

$$Q = C L H^{1.5}$$

C = 3.0 KING & BRATER

Q = 35.8 CFS

L = P_c = 13.20

SOLVE FOR H, REQUIRED HEAD

$$H = \left(Q/CL\right)^{2/3}$$

$$H = \left(35.8/3.0(13.20)\right)^{2/3}$$

$$H = 0.93 \text{ FT}$$

0.93 FT REQUIRED < 1.0 FT AVAILABLE

✓ OK

SEE SHEET 2 OF 2, SUNPORT BOULEVARD – PHASE I,
TRANSPORT STREET STORM DRAINAGE DETAILS

APPENDIX "A"

Sunport Park
Original Drainage Report

Latest Revision August 1990

DRAINAGE REPORT

for

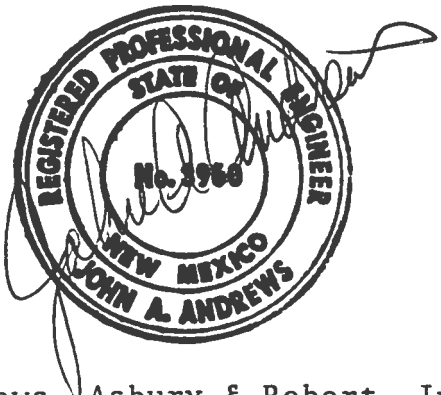
SUNPORT PARK

PHASE I

June, 1987

REVISED JANUARY, 1988

REVISED AUGUST, 1990



Andrews, Asbury & Robert, Inc.

Consulting Engineers

Albuquerque, New Mexico

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I

INTRODUCTION

This report, with the enclosed maps, provides a Drainage Plan for Sunport Park - Phase I. Phase I constitutes approximately the northerly half of the total Sunport Park Area.

The southerly portion of the Sunport Park Area will be addressed under a separate future report as Phase II.

This Sunport Park project is located in the southeast quadrant of the Albuquerque Metropolitan Area, and lies approximately one-half mile west of the Airport. It is bounded on the east by South University Boulevard, on the south by the University of New Mexico South Golf Course, on the north by the Kirtland Addition and on the west by Interstate 25.

See enclosed Location Map (Map No. 1), Zone Atlas Map M-15.

II

EXISTING CONDITIONS

A. GENERAL

The underlying contours shown on the Drainage Plan included herein as Map No. 2, depicts the existing topographic conditions of the site.

The terrain of the site is relatively steep, having slopes of approximately five percent to six percent (5% to 6%) from east to the west.

B. OFFSITE DRAINAGE

The major offsite areas generating storm water runoff towards the site under existing conditions are located along the east boundary of the area. These areas are shown on the Existing Conditions Map (Map No. 3) enclosed.

In addition to the major offsite areas, a small area located along a portion of the north boundary of the property generates some offsite storm water to the site. This small area is shown on Map No. 2 enclosed, as Area B-1.

As stated previously, this report addresses only Phase I of Sunport Park, this phase being the northerly portion of the overall area. The southerly portion of the area will be addressed under a future Phase II report, therefore, any offsite flows affecting this southern portion of the area will be considered at the time the Phase II report is prepared.

C. ONSITE DRAINAGE

The storm water runoff generated onsite from the major portion of the area, combined with the offsite runoff from the east, flows westerly and crosses under Interstate 25 (I-25) through various existing culverts, from 300 feet to 1,000 feet west of I-25, the runoff enters the Albuquerque Metropolitan Arroyo Flood Control Authority (AMAFCA) South Diversion Channel.

Onsite runoff from the northerly portion of the site flows northwesterly, and enters the AMAFCA South Diversion Channel on the east side of I-25.

III

DEVELOPED CONDITIONS

A. OFFSITE

South University Boulevard located along the easterly boundary of this site is proposed to be graded and paved prior to the overall development of the Phase I portion of Sunport Park with the westerly (south bound) lanes to be constructed initially. Construction work on this South University Boulevard Project has begun. When constructed, South University Boulevard will intercept all offsite runoff from the east that affects the Phase I portion of Sunport Park and diverts a portion of the runoff north and a portion to the south.

The runoff from the small offsite area adjacent to the north boundary will be disposed of along with onsite runoff at the northwesterly corner of the site.

B. ONSITE

This subdivision is to be developed as an Industrial Park, however, it is not known at this time what the actual type, size or location of the buildings will be or the actual type ground cover proposed in the ultimate development. It is

therefore assumed that in the final developed conditions, the subdivision will have a runoff factor "C" of 0.70 and it is proposed to allow for total runoff from the site without detention of storm waters.

The runoff generated from the site will be conveyed in the streets and underground storm drains.

The drainage plan included herein as Map No. 2 shows the proposed drainage areas and systems for developed conditions.

This plan of drainage is to establish the major drainage facilities to be constructed at the time the infrastructure for the project is constructed. Also, this plan is to provide a guide for use in the preparation of future plans on an individual basis, when actual development of the various parcels of land occurs.

A northwesterly portion of the site, Drainage Area B-2, along with offsite Drainage Area B-1, will be collected by an inlet at the far northwest corner of the site and carried by a storm drain to the Kirtland Channel.

The runoff from the remaining onsite drainage area, (Areas A-1 through A-11) will be collected by a combination of streets

and storm drains, as shown on Map No. 2 enclosed. Collected runoff will be carried from the site by a major storm drain to be tunneled under Interstate I-25 in Woodward Road and extended westerly to the AMAFCA South Diversion Channel. A 65' easement has been obtained for the storm drain between the Interstate 25 right-of-way and the existing Woodward Road right-of-way east of the South Diversion Channel.

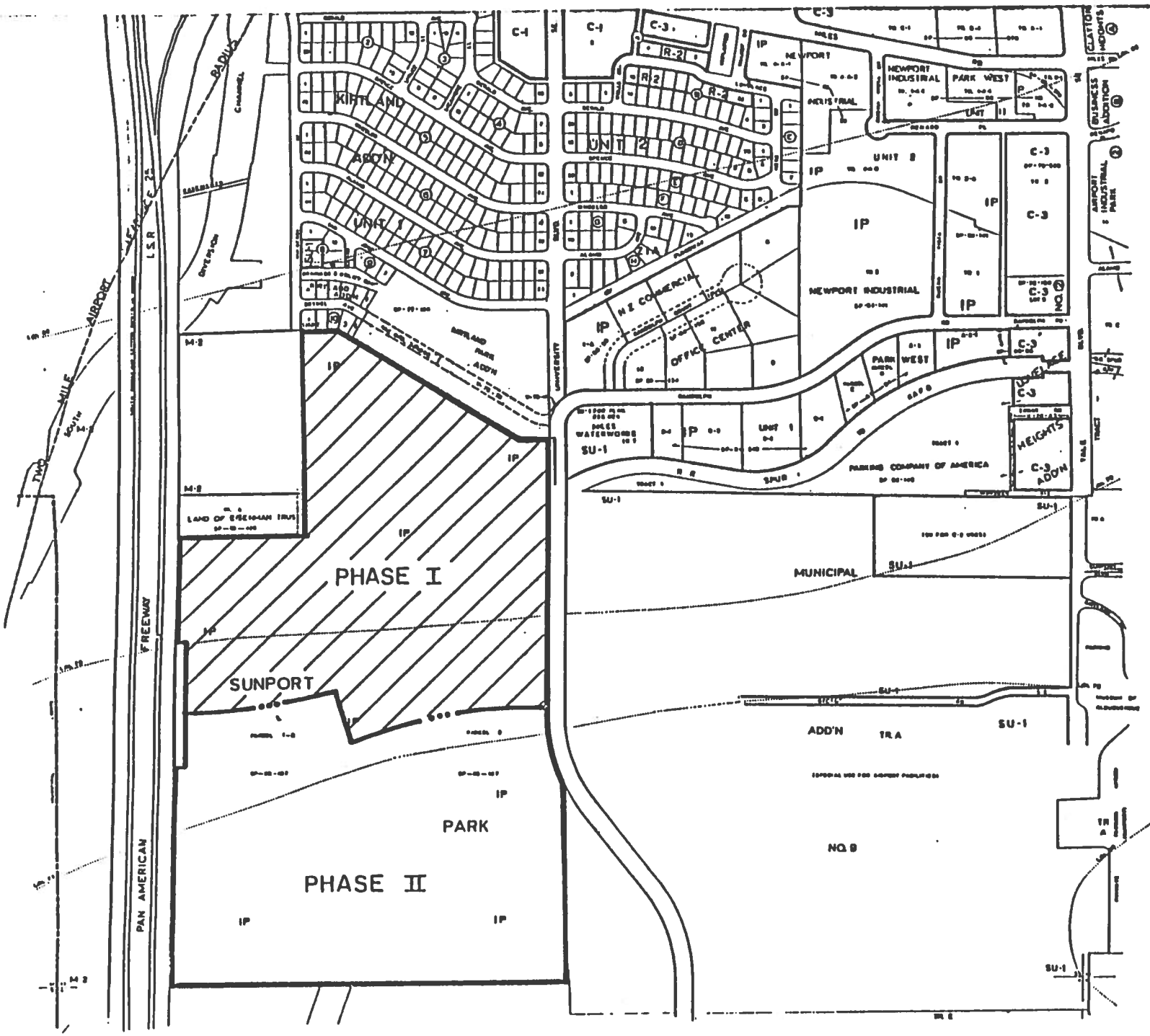
IV

EROSION CONTROL

The contractor for the project will be responsible for soil migration during the construction phase. This can be accomplished by sedimentation basins and windrows.

After development of the individual tracts, erosion will be controlled by landscaping of all areas not covered by buildings or pavement.

A separate Erosion Control Plan is being submitted to address conditions after construction, but prior to development of the individual tracts.



SUNPORT PARK
PHASE I

DRAINAGE ANALYSIS

LOCATION MAP

M-15-Z

MAP NO. 1

V

DRAINAGE ANALYSES

Following are the Drainage Analyses (computations) made for the drainage areas affecting subject lands in the proposed developed conditions.

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, N.E., Albuquerque, N.M. 87108
Telephone (505) 265-6631

Project Sunport Park Phase I Sheet 1 of 6
Job No. 415
By JA Chk'd — Date 10-30-86

DRAINAGE ANALYSIS

CRITERIA

City of Albuquerque
Development Process Manual
Volume 2 - Section 22

DESIGN PARAMETERS

Peak Runoff Rate -
Rational Formula - $Q = CIA$

Assume Developed Conditions and allowing total Runoff.

"C" = 0.70

$I_{100} = (2.3)(6.84)(t_c)^{-0.51}$

$I_{10} = 0.657 \times I_{100}$

Travel time determined from Plates 22.2 B-1 & 22.2 B-2

ANDREWS, ASBURY & ROBERT, INC.
CONSULTING ENGINEERS
149 Jackson, N.E., Albuquerque, N.M. 87108
Telephone (505) 265-6631

Project Sunport Park Phase I Sheet 2 of 5
Drainage Analysis Job No. 415
By JEM Chk'd Date 8.3.90

Analysis Point	Drainage Area Designation	Area (Acres)	Length of Travel (Ft)	Slope (%)	Velocity (ft/Sec)	Travel Time Tc (min)	C	I10 (in/Hr)	I100 (in/Hr)	Q10 (CFS)	Q100 (CFS)
1	A-1 & A-2	12.2	1100' (overland)	8.3	3.42	3.4L (use 10)	0.7	3.19	4.86	27.23	41.9
	A-3	1.7	450' (overland)	4.4	3.29	2.30 use 10	0.7	3.19	4.86	3.8	5.8
2	A-1, A-2 & A-3	13.9	700' overland 200' street	8.3 6.0	3.42 6.7	3.41 } 3.91 0.50 } use 10	0.7	3.19	4.86	31.0	47.3
	A-4	4.6	500' O.L. 400' ST	4.4 0.75	8.25 2.3	2.30 } 5.20 use 2.90 } 10	0.7	3.19	4.86	10.3	15.6
			310' S.T. 510' ST	4.2 0.75	5.45 2.3	0.95 } 4.65 3.70 }					
3	A-1 thru A-4	18.5				3.91+4.65= 8.56 - use 10	0.7	3.19	4.86	41.3	62.9
	A-5	4.7	490' O.L.	10.9	5.12	1.53 - use 10	0.7	3.19	4.86	10.5	16.0
			495' Pipe	0.75	10.0	0.83					
4	A-1 thru A-5	23.2				8.56+0.83= 9.39 - use 10	0.7	3.19	4.86	51.81	78.9
5	A-6	10.3	750' O.L.	4.93	3.45	3.63 - use 10	0.7	3.19	4.86	23.0	35.0
6	A-6, A-7 & A-8	17.2	250' O.L. 750' ST.	4.93 6.40	3.45 7.1	3.63 } 5.39 use 1.76 } 10	0.7	3.19	4.86	38.4	58.5
7	A-6 thru A-9	20.8	750' O.L. 750' ST 220' ST 210' Pipe	4.93 6.40 1.6 4.64	3.45 7.1 1.5 18	3.63 } 7.09 use 1.76 } 10 1.3 } 0.35 }	0.7	3.19	4.86	46.4	70.8
8	A-1 thru A-9	44.0				9.39 - use 10	0.7	3.19	4.86	98.3	149.7
			390' Pipe 240' Pipe		13.7 12	0.33 } 0.66 0.33 }					
	A-10	9.2	710' O.L.	4.80	2.60	4.55 use 10	0.7	3.19	4.86	20.5	31.3

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Project Sunport Park Phase I Sheet 3 of 8
Drainage Analysis Job No. 415
By JM Ck'd Date 08.15.90

ANALYSIS POINT	DRAINAGE AREA DESIGNATION	AREA (Ac)	LENGTH OF TRAVEL (FT)	SLOPE (%)	VELOCITY (FPS)	TRAVEL TIME (T_c) (MINS.)	C	I_{10} (IN/HR)	I_{100} (IN/HR)	Q_{10} (CFS)	Q_{100} (CFS)
9	A-1 thru A-10	53.2				9.39 + .66 = 10.05	0.7	3.19	4.85	118.8	180.6
			406' Pipe		14.4	0.47					
10	A-11	4.2	560' OL	5.07	3.49	2.67 - use 10	0.7	3.19	4.86	9.4	14.3
11	A-1 thru A-11	57.4				10.05 + 0.47 = 10.52	0.7	3.11	4.74	125.0	190.5
			736' Pipe		18	0.68 } 1.25					
			500' Pipe		14.5	0.57 }					
12	A-1 thru A-11	57.4				10.52 + 1.25 = 11.77	0.7	2.94	4.47	118.1	179.6
13	B-1	3.7	800 OL	7.0	3.14	4.25 - use 10	0.7	3.19	4.86	8.3	12.6
	B-2	4.7	540' OL	4.07	2.39	3.77 - use 10	0.7	3.19	4.86	10.5	16.0
14	B-1 & B-2	8.4				4.25 + 3.77 = 8.02 - use 10	0.7	3.19	4.86	18.8	28.6
			357' Pipe	0.70	5.83	1.02					
15	B-1 & B-2	8.4				8.02 + 1.02 = 9.04 - use 10	0.7	3.19	4.86	18.8	28.6

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Project Sunport Park Phase I Sheet 4 of 8
Job No. 415
By JA Chk'd Date 11-10-86

OFF SITE AREAS

DRAINAGE AREA 500

(See enclosed Existing Conditions map for Location)

Existing Conditions

$A = 18.6$ Acres, $C = 0.40$

$L = 2300'$

$S = \frac{5272 - 5150}{2300} = 0.053$ ft/ft.

$V = 1.15$ fps

$T_C = 33.3$ minutes

$I_{100} = 2.63$

$Q_{100} = (0.40)(2.63)(18.6) = 19.6$ CFS

3.1

Developed Conditions

$A = 18.6$ Ac., $C = 0.68$, $I_{100} = 4.37$, $I_{10} = 2.87$

$T_c = 12.4$ min

$Q_{100} = (0.68)(4.37)(18.6) = \underline{55.3}$ cfs.

Q_{10}: $(0.68)(2.87)(18.6) = 36.30$ cfs

South University Blvd. Street Capacity

½ Street Width

$A = 10.50$ ft^2, $S = 0.029$ ft/ft.

$V = \frac{1.486}{0.015}\left(\frac{10.5}{26}\right)^{2/3}(0.029)^{1/2} = (99.1)(0.546)(0.170)$

$= 9.22$ fps

$Q_{\text{Capacity at top of curb.}} = AV = (10.5)(9.22) = \underline{96.81}$ CFS - ok

REVISED 5/23/86

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Project Sunport Park Phase I Sheet 5 of 8
Job No. 415
By RSF Chk'd - Date 11/7/85

DRAINAGE AREA 201

(See enclosed Existing Conditions Map for location)

Existing Conditions

$A = 71$ ac. , $C = 0.40$

$L = 3350$

$S = \frac{5308 - 5200}{3350} = 0.0322$ FT/FT

$T_c = 15.2$ mins

$I_{100} = 3.93$ in/hr

$Q_{100} = .4 \times 3.93 \times 71 = 111.6$ CFS

Developed Conditions

$A = 71$, $C = 0.68$, $I_{100} = 3.93$

$Q_{100} = .68 \times 3.93 \times 71 = 189.7$ CFS

for H/D = 1.7 (RCP)
Groove end w/ HW

54" RCP

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Project Sunport Park Phase I Sheet 6 of 8
Job No. 415
By JEM Chk'd Date 08.06.90

Check water Depth in Flightway @ AP 2 :
Q = 47.3 cfs, width = 40', in vertical curve transitioning from 2.5% to 0.75% & horizontal Curve (R = 300')
Compute @ 8.5% w/o allowance for horizontal curve
V = 7.9 fps, d_c = 0.42'
A = 47.3 ÷ 7.9 = 5.99 ft²
y_n = 5.99 ÷ 40 = 0.15'
$F_r = V/\sqrt{g\, y_n} = 7.9/\sqrt{32.2 \times .15} = 3.6$

Compute F_r @ bottom end of curve (AP #3) S = 0.75%, Q = 62.9 cfs
V = 3.9 fps d = 0.67'
A = 62.9 ÷ 3.9 = 16.12
y_n = 16.12 ÷ 40 = 0.40'
$F_r = 3.9/\sqrt{32.2 \times .40} = 1.08$

Since no sudden transition take place it is unlikely that a jump will take place & at bottom of curve depth would not be significantly above normal depth in any case (F_r = 1.08). Due, however, to velocity reduction sedimentation will take place.

Compute Superelevation @ upstream end of curve
$S = V^2 b/gr = 7.9^2 \times 40/32.2 \times 300 = 0.26'$
∴ depth outside curb = 0.26 + 0.42 = 0.68'

Compute @ downstream end of curve
$S = 3.9^2 \times 40/32.2 \times 400 = 0.05'$ ∴ depth outside curb = .05 + .67 = 0.72'

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Project Sunport Park Phase I Sheet 7 of 8
Job No. 415
By JAR Chk'd Date 08.09.90

Check Water Depth in Woodward @ AP #6
$Q = 58.5$ cfs, width = 40', $S = 3.11\%$
From DPM Plate 22.3, D-2
Depth = 0.52', $V = 6$ fps
$F_r = V / \sqrt{g\, y_h}$

$A = 58.5 \div 6 = 9.75$ ft^2
$y_h = 9.75 \div 40 = 0.243$

$F_r = 6 / \sqrt{32.2 \cdot 0.243} = 2.14$

When turns onto Transport $S = 1.60\%$
Depth = 0.575', $V = 4.8$ fps
$A = 58.5 \div 4.8 = 12.18$ ft^2
$y_h = 12.18 \div 40 = 0.305$'
$F_r = 4.8 / \sqrt{32.2 \cdot .305} = 1.53$

∴ No sustained Hydraulic Jump takes Place (i.e lack of tailwater)
A short unsustained jump may take place at turn - compute conjugate depth by Trial & Error, use FL gutter as baseline 0.00

	$y_1 = 0.52$'	$V = 6$ fps	$h_v = 0.56$'	% EG = 1.08 w/10% eng loss = 0.97	
try	$y_2 = 0.67$'	$V = 3.75$	$h_v = 0.22$	% EG = 0.89	
	$y_2 = 0.80$'	$V = 2.75$	$h_v = 0.12$	% EG = 0.92	
	$y_2 = 0.85$'	$V = 2.4$	$h_v = 0.09$	% EG = 0.94	within 0.03'

Extra losses caused by 90° street bend make it unlikely to leave S.O.W, however sediment will drop @ this point whether jump takes place or not because of basic velocity reduction from 6 fps to 4.8 fps. A partial unsustained jump will drop more. Momentum may create some problem of no drive entrance should be allowed straight across from Woodward

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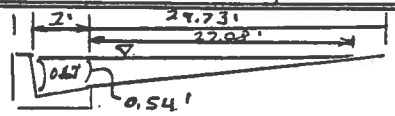
Project Sunport Park Phase I — Sheet 8 of 8
University Blvd Capacity — Job No. 415
By JEM — Chk'd — Date 08.06.90



Sta 15+50 – Slope = 3.10%

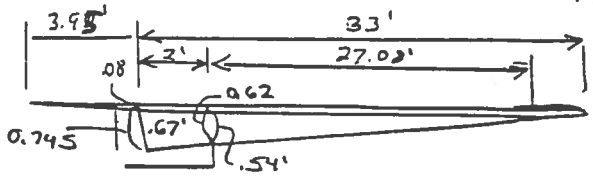
Area & water = $\left[\left(\frac{.67+.54}{2}\right)\times 2\right] + \frac{.54\times 27.08}{2} = 18.52$ ft²

WP = 29.08 + .67 = 29.75'

R = 8.52 ÷ 29.75 = 0.286'

$V = \frac{1.486}{.017} \times .286^{2/3} \times .0310^{1/2} = 6.69$ fps

Cap = 6.69 × 8.52 = 56.97 cfs Q_{100} = 55.3 cfs (Still leaves .05' FB)



Sta 16+27.26 S = 2.10%

A = 8.52 ft² R = 0.286' (w/o Topping Curb)

$V = \frac{1.486}{.017} \times .286^{2/3} \times .0210^{1/2} = 5.50$ fps

Cap = 5.50 × 8.52 = 46.85 cfs (w/o Topping Curb)

w/o Topping & $A = \left(\frac{3.95\times .08}{2}\right) + \left(\frac{.62+.745}{2}\right)2 + (.62\times 31\div 2) = 11.13$ ft²

WP = 33 + .67 + 3.95 = 37.62 ft

R = 11.13 ÷ 37.62 = 0.296

$V = \frac{1.486}{.017} \times .296^{2/3} \times .0210^{1/2} = 5.62$ fps

Cap = 62.59 cfs Q < 55 cfs

@ Sta 16+65.26, S = 1.61%, section same as 16+27.26

W/O Topping Curb $V = \frac{1.486}{.017} \times .286^{2/3} \times .0161^{1/2} = 4.82$ fps

Cap = 41.02 cfs

w/o Topping & crown $V = \frac{1.486}{.017} \times .296^{2/3} \times .0161^{1/2} = 4.93$ fps

Cap = 54.83 cfs (Q < 55 cfs)

∴ If East lanes properly constructed flow will not divert down Flint Loop

Revised 1/8/88

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Project Sonport Park — Sheet 1 of 3
Inlet Capacities — Job No. 415
By EM — Chk'd — Date 5.29.87

Inlet Flows are based upon the runoff factors presented in this report.

Street Flow depths are computed based upon The City of Albuquerque Development process Manual - Plate 22.3D-2

Catch Basin Grate Capacities are based upon the DPM. Plate 22.3 D-5 (Type A) & 22.3D-6 (Type Double C).
Catch Basin Throat capacities are based upon Texas Highway Dept. Tables for Curb opening inlets, 3" depression.

TABLE 16-1. CAPACITIES OF STORM-FLOW INLETS PER FOOT OF LENGTH

Depth of flow in gutter, ft.	Depth of depression, in.	Average capacity per foot of length, cu. ft. per sec.	Depth of flow in gutter, ft.	Depth of depression, in.	Average capacity per foot of length, cu. ft. per sec.
0.05	0		0.3	0	0.115
	1	0.063		1	0.205
	2	0.148		2	0.320
	3	0.250		3	0.450
	4	0.357		4	0.590
	5	0.510		5	0.758
0.1	0	0.022	0.4	0	0.175
	1	0.086		1	0.277
	2	0.180		2	0.400
	3	0.290		3	0.540
	4	0.420		4	0.682
	5	0.555		5	0.860
0.2	0	0.062	0.5	0	0.247
	1	0.141		1	0.362
	2	0.245		2	0.490
	3	0.358		3	0.640
	4	0.500		4	0.796
	5	0.650		5	0.950

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Project Sunport Park Phase I Sheet 2 of 3
Inlet Calculations Job No. 415
By JEM Chk'd Date 08/23/90

At NW Corner of Property (AP-14), Q = 28.6 cfs
Use Sedimentation Basin Inlet, 6'ds, weir length = 18.85' c El 59.50
$28.6 = 3.0 \times 18.85 \times H^{3/2}$
H = 0.63' o'o HGL = 60.13

On Transport street
Inlets @ Approx Sta 15+00 (AP-3) Q = 62.9 cfs (31.5 cfs ea side)
street slope = 0.75%, w = 40', D = 0.68'

Type A catches 9 cfs (grate)
throat $0.64 \times 6.5 =$ 4.2 cfs
13.2 cfs ∴ remaining - 18.3 cfs, cl: 0.57'

Type Double C catches 8.5 cfs grate
4.2 cfs throat
12.7 cfs ∴ remaining = 5.6 cfs
Use 1 more Double "C" for Complete Capture

Transport Street Approx Sta 7+65 (AP-6) Q = 58.5 cfs, street = 1.60%
1/2 ea side = 29.25 cfs, depth = 0.58'

Type "A" Caps 9 cfs (Grate)
4.2 cfs (Throat)
13.2 cfs
remaining: 16.05 cfs, depth = 0.49'

Double "C" Caps 7.5 cfs (Grate)
4.2 cfs (throat)
11.7 cfs
Remaining = 1.5 cfs - catch w/ another double C on east, let pass on west.

Transport Sta 9+70 ± (AP 7) pick up area Acs Q = 12.2 cfs (E. side)
s = 1.00%, depth = 0.45'
Type A caps 7 cfs (Grate)
4.1 cfs (Throat)
11.1 cfs Total - Pick up remainder w/ double C
Transport Sta 11+25 (Low Point) West side. 1.5 cfs (1 double C)
E side Area A-5 16 cfs - 1 double C

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Project Sunburst Park Phase II — Sheet 3 of 3
Inlet Calculations — Job No. 415
By JEM — Chk'd — Date 08.24.90

At AP-9 Pick up area A-10 w/ 6'ϕ Sed Basin Inlet, Q = 31.3 cfs

Weir length = $6 \times \pi = 18.85'$

$31.3 = 3.0 \times 18.85 \times H^{3/2}$

$H = 0.67'$

At AP-10 Pick up area A-11 w/ 6' Sed Basin Inlet, Q = 14.3 cfs

$14.3 = 3.0 \times 18.85 \times H^{3/2}$

$H = 0.40'$

Summary of Hydraulic Calculations

STAT	STRUC	D	Q	A	V	K	S_F	L	Δ	Junction D	Junction θ	LOSSES h_f	LOSSES h_v	LOSSES h_j	LOSSES h_{BEND}	LOSSES h_T	LOSSES h_{MISC}	LOSSES E	EG	h_v	HG
																					95.00
9+31.27	Outlet	48"	190.5	12.57	15.16												3.25	3.25			
																			98.57	3.57	95.00
10+11.27		48"	190.5	12.57	15.16		.0175	80				1.41						1.41			
																			99.98	3.57	96.41
10+43.27		48"	190.5	12.57	15.16		.0175	32	45			0.79	1.01					1.80			
																			101.78	3.57	98.21
10+73.28		48"	190.5	12.57	15.16		.0175	30.01				0.53						0.53			
																			102.31	3.57	98.74
11+21.28		48"	190.5	12.57	15.16		.0175	48	66-45			0.84	1.52					2.36			
																			04.67	3.57	01.10
12+00		48"	190.5	12.57	15.16		.0175	28.72				1.38						1.38			
																			06.05	3.57	02.48
14+25	MH	48"	190.5	12.57	15.16		.0175	225				3.94						3.94			
																			09.99	3.57	06.42

INV 48" = 99.67 @ Crown = 03.67 ; Grade = 3.74%

Check Distance to HGL Break from Crown

$D = \frac{6.42 - 3.67}{.0374 - .0175} = 138.19'$ (Sta 19+63.19)

By MH of Sta 17+11 Flow will approach normal

$Cap = 277.87$ cfs ∴ $Q/Q_F = 190.5 \div 277.87 = 0.68$ ∴ $D/D_F = 0.60$

∴ $D = 2'40'$ $A/A_F = .635$ ∴ $A = 7.98 ft^2$; $V = 23.87$ HGL = 12.77

By MH Sta 21+60.79 Flow will again approach Normal (INV = 19.63)

$Cap = 205.73$ cfs ∴ $Q/Q_F = 190.5 \div 205.73 = 0.926$ @ $D/D = .0795$ ∴

$D = 3'18'$ ∴ HGL = 3.18 + 19.60 = 22.78 ∴ $A/A_F = 0.86$ ∴ $A = 10.81$ ∴

$V =$ 17.63 ∴ $h_V = 4.82$ ∴ EGL = 27.60

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Project Sunport Park Sheet 1 of 3
Phase I Job No. 415
By JEM Ck'd Date 7.6.90

Summary of Hydraulic Calculations

STAT	STRUC	D	Q	A	V	K	S_f	L	Δ	Junction D	Junction θ	LOSSES h_f	LOSSES h_o	LOSSES h_i	LOSSES h_{ex}	LOSSES h_T	LOSSES h_{mk}	E	EG	h_v	HG
22+28.78 BK		48"	180.6	12.57	14.37		.0158	68'	91.57			1.07	1.83					2.90	27.60	4.82	22.78
																			30.50	3.21	27.29
22+73.35 AH																					
25+84.92	MH	48"	180.6	12.57	14.37		.0158	337.61				5.33						5.33	30.50	3.21	27.29
25+84.92	Junc	48"	149.7	12.57	11.91					30	45			0.67				0.67	35.83	3.21	32.62
26+52.92 BK		48"	149.7	12.57	11.91		.011	68	90.08-32			0.74	1.25					1.99	36.50	2.20	34.30
																			38.49	2.20	36.29
			Compute Distance to HG Break from Crown																		
			HG = 36.29, Invert 48" = 26.75 ∴ Crown = 34.75 ; Surcharge = 5.54'																		
			S_{HG} = 6.14%				S_{HG} = 1.20%			∴		ΔS = 5.04% = .0504 ft/ft									
			Dist = $\frac{5.54}{.0504}$ = 109.92' (sta 27+80.20)																		
	By	MH sta	29+59.31	Flow will approach normal																	
		Capacity	= 12.566 × $\frac{1.486}{.013}$ × $1^{2/3}$ × .0614$^{1/2}$ = 355.92 cfs																		
		Q/Q_F	= 149.7 ÷ 355.92 = 0.42							∴	D/D_F = 0.45 ∴	D = 1.80 ∴	HGL = 46.30								
	By	MH sta	31+81.62	Flow will again approach Normal																	
		Capacity	= 12.566 × $\frac{1.486}{.013}$ × $1^{2/3}$ × .0275$^{1/2}$ = 238.21 cfs																		
		Q/Q_F =	149.7 ÷ 238.21 = 0.628							∴	D/D_F = 0.57 ∴	D = 2.28' ∴	HGL = 52.88								
		A/A_F = .595	A = 7.48 ft^2		V = 20.02 fps					∴	h_v = 6.22' ∴	EGL = 59.10									
																			59.10	6.22	52.88

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Project Seaport Park Phase I
Job No. 415
Sheet 2 of 3
By JEM Chkd
Date 7.6.90

Summary of Hydraulic Calculations

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Project Sunport Park Sheet 3 of 3
Phase I
By JFM Chkd Job No. 415
Date 7.6.90

STAT	STRUC	D	Q	A	V	K	S_F	L	Δ	Junction D	Junction θ	h_f	h_v	h_j	h_{em}	h_T	h_{misc}	E	EG	h_v	HG
					By	MH Sta 32+26.62 Flow will again approach Normal															
		Calc = 12.57 × $\frac{1.486}{.013}$ × 1			2/3 ×	.0313	1/2 =	254.13 cfs													
		Q/Q_F = 0.59			∴ P/P_P =	0.55	∴	D =	2.20	∴		HGL = 54.38									
		A/A_F = 0.57		∴ A =	7.16	∴	V =	20.90	∴	h_v = 6.78		∴ EGL =		61.16							
32+26.62	Tee =	(Going South From Tee)																	61.16	6.78	54.38
9+69.75		30"	20.8	4.91	14.42		.030						1.13					1.13	62.29	3.23	59.06
			Complete Dist to MH6 Breakup = none																		
		Surcharge = 59.06 − 53.5 − 2.5 =				3.06'				ΔS = .0564 − .030 − .0264											
				L =	3.06 ÷ .0264 =	115.90' (Sta 8+53.85)															
32+26.62	Tee =	(Going North From Tee)																	61.16	6.78	54.38
9+69.75		42"	28.7	9.62	8.20		.0061						.36					0.36	61.52	1.04	60.48
11+15.00		42"	28.7	9.62	8.20		.0061	145.25				0.87						0.87	62.39	1.04	61.35
14+30.00		42"	28.9	9.62	8.20		.0061	315				1.92						1.92	64.31	1.04	63.27

APPENDIX "B"

AHYMO - RUN

Sunport Park Boulevard
Storm Drain Facilities

```
    AHYMO PROGRAM (AHYMO194) - AMAFCA Hydrologic Model - January, 1994
         RUN DATE (MON/DAY/YR) = 12/19/1996
         START TIME (HR:MIN:SEC) = 21:34:07     USER NO.= ANASRONM.I01
         INPUT FILE = C:\PROJECTS\752\AHYMO\MLZCRBMD.DAT

*S SUNPORT PARK - PHASE I, BLOCK 4-A AND 4-B
*S BLOCK 4-B HYDROGRAPH ADDITION TO MOLZEN-CORBIN DRAINAGE MODEL
*
START              TIME=0.0   PUNCH CODE=0
RAINFALL           TYPE=2  QUARTER=0
                   ONE=1.87 SIX=2.01
                   DAY=2.75  DT=0.05 HR

                COMPUTED 24-HOUR RAINFALL DISTRIBUTION BASED ON NOAA ATLAS 2 - PEAK AT 1.40 HR.
                DT =    .050000 HOURS       END TIME =    24.000000 HOURS
                   .0000   .0005   .0009   .0014   .0019   .0024   .0030
                   .0035   .0041   .0047   .0054   .0061   .0068   .0075
                   .0083   .0091   .0100   .0110   .0120   .0132   .0144
                   .0223   .0310   .0562   .1159   .2184   .3770   .6054
                   .9176  1.1639  1.2752  1.3681  1.4495  1.5222  1.5881
                  1.6482  1.7034  1.7542  1.8010  1.8443  1.8844  1.8897
                  1.8946  1.8990  1.9031  1.9070  1.9105  1.9139  1.9170
                  1.9200  1.9229  1.9256  1.9281  1.9306  1.9330  1.9353
                  1.9374  1.9396  1.9416  1.9436  1.9455  1.9473  1.9491
                  1.9508  1.9525  1.9542  1.9558  1.9574  1.9589  1.9604
                  1.9618  1.9632  1.9646  1.9660  1.9673  1.9686  1.9699
                  1.9711  1.9723  1.9736  1.9747  1.9759  1.9770  1.9781
                  1.9792  1.9803  1.9814  1.9824  1.9835  1.9845  1.9855
                  1.9864  1.9874  1.9884  1.9893  1.9902  1.9911  1.9920
                  1.9929  1.9938  1.9947  1.9955  1.9964  1.9972  1.9980
                  1.9988  1.9997  2.0004  2.0012  2.0020  2.0028  2.0035
                  2.0043  2.0050  2.0058  2.0065  2.0072  2.0079  2.0086
                  2.0093  2.0100  2.0130  2.0160  2.0190  2.0220  2.0250
                  2.0280  2.0310  2.0339  2.0369  2.0398  2.0427  2.0457
                  2.0486  2.0515  2.0544  2.0573  2.0601  2.0630  2.0659
                  2.0687  2.0715  2.0744  2.0772  2.0800  2.0828  2.0856
                  2.0884  2.0912  2.0940  2.0968  2.0995  2.1023  2.1050
                  2.1078  2.1105  2.1132  2.1159  2.1186  2.1213  2.1240
                  2.1267  2.1294  2.1320  2.1347  2.1374  2.1400  2.1427
                  2.1453  2.1479  2.1505  2.1531  2.1557  2.1583  2.1609
                  2.1635  2.1661  2.1687  2.1712  2.1738  2.1763  2.1789
                  2.1814  2.1840  2.1865  2.1890  2.1915  2.1940  2.1965
                  2.1990  2.2015  2.2040  2.2065  2.2089  2.2114  2.2139
                  2.2163  2.2187  2.2212  2.2236  2.2260  2.2285  2.2309
                  2.2333  2.2357  2.2381  2.2405  2.2429  2.2453  2.2476
                  2.2500  2.2524  2.2547  2.2571  2.2594  2.2618  2.2641
                  2.2664  2.2688  2.2711  2.2734  2.2757  2.2780  2.2803
                  2.2826  2.2849  2.2872  2.2895  2.2917  2.2940  2.2963
                  2.2985  2.3008  2.3030  2.3053  2.3075  2.3097  2.3120
                  2.3142  2.3164  2.3186  2.3208  2.3231  2.3253  2.3274
                  2.3296  2.3318  2.3340  2.3362  2.3384  2.3405  2.3427
                  2.3449  2.3470  2.3492  2.3513  2.3534  2.3556  2.3577
                  2.3598  2.3620  2.3641  2.3662  2.3683  2.3704  2.3725
                  2.3746  2.3767  2.3788  2.3809  2.3830  2.3851  2.3871
                  2.3892  2.3913  2.3933  2.3954  2.3974  2.3995  2.4015
                  2.4036  2.4056  2.4076  2.4097  2.4117  2.4137  2.4157
                  2.4178  2.4198  2.4218  2.4238  2.4258  2.4278  2.4298
                  2.4317  2.4337  2.4357  2.4377  2.4397  2.4416  2.4436
                  2.4456  2.4475  2.4495  2.4514  2.4534  2.4553  2.4573
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                2.4592  2.4611  2.4631  2.4650  2.4669  2.4688  2.4707
                2.4727  2.4746  2.4765  2.4784  2.4803  2.4822  2.4841
                2.4860  2.4878  2.4897  2.4916  2.4935  2.4954  2.4972
                2.4991  2.5010  2.5028  2.5047  2.5065  2.5084  2.5102
                2.5121  2.5139  2.5157  2.5176  2.5194  2.5212  2.5231
                2.5249  2.5267  2.5285  2.5303  2.5322  2.5340  2.5358
                2.5376  2.5394  2.5412  2.5430  2.5447  2.5465  2.5483
                2.5501  2.5519  2.5537  2.5554  2.5572  2.5590  2.5607
                2.5625  2.5642  2.5660  2.5678  2.5695  2.5713  2.5730
                2.5747  2.5765  2.5782  2.5799  2.5817  2.5834  2.5851
                2.5869  2.5886  2.5903  2.5920  2.5937  2.5954  2.5971
                2.5988  2.6005  2.6022  2.6039  2.6056  2.6073  2.6090
                2.6107  2.6124  2.6141  2.6157  2.6174  2.6191  2.6208
                2.6224  2.6241  2.6258  2.6274  2.6291  2.6307  2.6324
                2.6340  2.6357  2.6373  2.6390  2.6406  2.6423  2.6439
                2.6455  2.6472  2.6488  2.6504  2.6520  2.6537  2.6553
                2.6569  2.6585  2.6601  2.6617  2.6634  2.6650  2.6666
                2.6682  2.6698  2.6714  2.6730  2.6746  2.6761  2.6777
                2.6793  2.6809  2.6825  2.6841  2.6856  2.6872  2.6888
                2.6904  2.6919  2.6935  2.6951  2.6966  2.6982  2.6997
                2.7013  2.7028  2.7044  2.7060  2.7075  2.7090  2.7106
                2.7121  2.7137  2.7152  2.7167  2.7183  2.7198  2.7213
                2.7229  2.7244  2.7259  2.7274  2.7289  2.7305  2.7320
                2.7335  2.7350  2.7365  2.7380  2.7395  2.7410  2.7425
                2.7440  2.7455  2.7470  2.7485  2.7500

*
*S**INPUT HYDROGRAPH FROM MOLEN-CORBIN DRAINAGE MODEL**
*
STORE HYD           IO=1 HYD NO=MOLZCORB DT=0.5 OA=.2016
                    FLOW RATES = 0 2 2 277.2 136.5 83.5 38.9 17.1 8 4.5 3.4 3.2
                    3.3 3.3 3.3 3.3 3.2 3.2 3.1 3.1 3.1 3 3 3 3 2.9 2.9 2.9 2.9
                    2.9 2.8 2.8 2.8 2.8 2.8 2.8 2.8 2.7 2.7 2.7 2.7 2.7 2.7 2.7
                    2.7 2.6 2.6 2.6 2.6 2 2 2 2 2 2 2 2 2 2 0
*
*S**CALCULATE HYOROGRAPH FROM BLOCK 4-B
*
COMPUTE NM HYD      ID=10 HYD NO=4-B
                    OA=0.01258 SQ MI
                    PER A=0  PER B=10
                    PER C=0  PER D=90
                    TP=0.133 HR  MASSRAIN=-1
                    *

   K =   .072485HR    TP =   .133000HR    K/TP RATIO =   .545000     SHAPE CONSTANT, N =  7.106420
   UNIT PEAK =   44.801    CFS   UNIT VOLUME =    .9989       B =   526.28      P60 = 1.8700
   AREA =      .011322 SQ MI    IA =    .10000 INCHES    INF =    .04000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000


   K =   .130697HR    TP =   .133000HR    K/TP RATIO =   .982685     SHAPE CONSTANT, N =  3.593454
   UNIT PEAK =   3.0938    CFS   UNIT VOLUME =    .9972       B =   327.09      P60 = 1.8700
   AREA =      .001258 SQ MI    IA =    .50000 INCHES    INF =   1.25000 INCHES PER HOUR
   RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT =   .050000

PRINT HYD           IO=10  CODE=1

                                HYDROGRAPH FROM AREA 4-B
```

RUNOFF VOLUME = 2.33360 INCHES = 1.5657 ACRE-FEET
PEAK DISCHARGE RATE = 32.48 CFS AT 1.500 HOURS BASIN AREA = .0126 SQ. MI.

*
*
*S**ROUTE RUNOFF TO EXISTING STORM DRAIN**
*
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.0040
DIA=36 IN N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.16	.14	.22	1.33
.31	.39	.96	1.83
.47	.71	2.23	2.18
.63	1.07	4.02	2.44
.78	1.46	6.27	2.63
.94	1.89	8.95	2.78
1.09	2.33	11.99	2.89
1.25	2.79	15.33	2.96
1.41	3.26	18.89	2.99
1.56	3.72	22.61	3.00
1.72	4.19	26.40	3.00
1.88	4.65	30.16	3.00
2.03	5.10	33.81	3.00
2.19	5.53	37.22	3.00
2.35	5.93	40.27	3.00
2.50	6.30	42.81	3.00
2.66	6.62	44.63	3.00
2.81	6.89	45.38	3.00
3.00	7.07	45.38	3.00

*
COMPUTE TRAVEL TIME ID=2 REACH=1 VS NO=1 L=180 SLP=0.004

TRAVEL TIME TABLE
REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.156	.140	.22	.0317
.313	.391	.96	.0203
.469	.706	2.23	.0158
.625	1.068	4.02	.0133
.782	1.465	6.27	.0117
.938	1.889	8.95	.0106
1.094	2.332	11.99	.0097
1.251	2.790	15.33	.0091
1.407	3.255	18.89	.0086
1.563	3.724	22.61	.0082
1.720	4.191	26.40	.0079
1.876	4.650	30.16	.0077
2.032	5.097	33.81	.0075
2.189	5.525	37.22	.0074
2.345	5.928	40.27	.0074

2.501	6.297	42.81	.0074
2.658	6.622	44.63	.0074
2.814	6.887	45.38	.0076
3.000	7.069	45.38	.0078

```
*
ROUTE              ID=2 HYD=4_B.RTE INFLOW ID=10 DT=0.05
*
ADD HYD            ID=20 HYD=MC&4_B ID I=1 II=2
*
PRINT HYD          ID=20  CODE=0
```

HYDROGRAPH FROM AREA MC&4_B

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.800	3.3	11.600	3.3	17.400	3.1	23.200	2.8
.050	.2	5.850	3.4	11.650	3.3	17.450	3.1	23.250	2.8
.100	.4	5.900	3.4	11.700	3.3	17.500	3.1	23.300	2.8
.150	.6	5.950	3.4	11.750	3.3	17.550	3.1	23.350	2.8
.200	.8	6.000	3.4	11.800	3.3	17.600	3.1	23.400	2.8
.250	1.0	6.050	3.4	11.850	3.3	17.650	3.1	23.450	2.8
.300	1.2	6.100	3.4	11.900	3.3	17.700	3.1	23.500	2.8
.350	1.4	6.150	3.5	11.950	3.3	17.750	3.1	23.550	2.8
.400	1.6	6.200	3.6	12.000	3.3	17.800	3.1	23.600	2.8
.450	1.8	6.250	3.7	12.050	3.3	17.850	3.1	23.650	2.8
.500	2.0	6.300	3.7	12.100	3.3	17.900	3.1	23.700	2.8
.550	2.0	6.350	3.7	12.150	3.3	17.950	3.1	23.750	2.8
.600	2.0	6.400	3.7	12.200	3.3	18.000	3.1	23.800	2.8
.650	2.0	6.450	3.7	12.250	3.3	18.050	3.1	23.850	2.8
.700	2.0	6.500	3.7	12.300	3.3	18.100	3.0	23.900	2.8
.750	2.0	6.550	3.7	12.350	3.2	18.150	3.0	23.950	2.8
.800	2.0	6.600	3.7	12.400	3.2	18.200	3.0	24.000	2.8
.850	2.0	6.650	3.7	12.450	3.2	18.250	3.0	24.050	2.8
.900	2.0	6.700	3.7	12.500	3.2	18.300	3.0	24.100	2.7
.950	2.0	6.750	3.7	12.550	3.2	18.350	3.0	24.150	2.6
1.000	2.0	6.800	3.7	12.600	3.2	18.400	3.0	24.200	2.4
1.050	29.5	6.850	3.7	12.650	3.2	18.450	3.0	24.250	2.4
1.100	57.0	6.900	3.7	12.700	3.2	18.500	3.0	24.300	2.3
1.150	84.6	6.950	3.7	12.750	3.2	18.550	3.0	24.350	2.2
1.200	112.1	7.000	3.7	12.800	3.2	18.600	3.0	24.400	2.1
1.250	140.2	7.050	3.7	12.850	3.2	18.650	3.0	24.450	2.1
1.300	170.8	7.100	3.7	12.900	3.2	18.700	3.0	24.500	2.0
1.350	205.4	7.150	3.7	12.950	3.2	18.750	3.0	24.550	2.0
1.400	240.7	7.200	3.7	13.000	3.2	18.800	3.0	24.600	2.0
1.450	277.2	7.250	3.7	13.050	3.2	18.850	3.0	24.650	2.0
1.500	309.6	7.300	3.7	13.100	3.2	18.900	3.0	24.700	2.0
1.550	292.4	7.350	3.7	13.150	3.2	18.950	3.0	24.750	2.0
1.600	271.8	7.400	3.7	13.200	3.2	19.000	3.0	24.800	2.0
1.650	252.9	7.450	3.7	13.250	3.2	19.050	3.0	24.850	2.0
1.700	235.8	7.500	3.7	13.300	3.2	19.100	3.0	24.900	2.0
1.750	219.8	7.550	3.7	13.350	3.2	19.150	2.9	24.950	2.0
1.800	204.4	7.600	3.7	13.400	3.2	19.200	2.9	25.000	2.0
1.850	189.2	7.650	3.7	13.450	3.2	19.250	2.9	25.050	2.0
1.900	174.2	7.700	3.7	13.500	3.2	19.300	2.9	25.100	2.0
1.950	159.3	7.750	3.7	13.550	3.2	19.350	2.9	25.150	2.0
2.000	144.5	7.800	3.6	13.600	3.2	19.400	2.9	25.200	2.0
2.050	138.4	7.850	3.6	13.650	3.2	19.450	2.9	25.250	2.0
2.100	131.6	7.900	3.6	13.700	3.2	19.500	2.9	25.300	2.0
2.150	124.4	7.950	3.6	13.750	3.2	19.550	2.9	25.350	2.0
2.200	117.9	8.000	3.6	13.800	3.2	19.600	2.9	25.400	2.0

2.250	111.9	8.050	3.6	13.850	3.2	19.650	2.9	25.450	2.0
2.300	106.2	8.100	3.6	13.900	3.2	19.700	2.9	25.500	2.0
2.350	100.6	8.150	3.6	13.950	3.2	19.750	2.9	25.550	2.0
2.400	95.1	8.200	3.6	14.000	3.2	19.800	2.9	25.600	2.0
2.450	89.6	8.250	3.6	14.050	3.2	19.850	2.9	25.650	2.0
2.500	84.2	8.300	3.6	14.100	3.2	19.900	2.9	25.700	2.0
2.550	79.6	8.350	3.6	14.150	3.2	19.950	2.9	25.750	2.0
2.600	75.1	8.400	3.6	14.200	3.2	20.000	2.9	25.800	2.0
2.650	70.5	8.450	3.6	14.250	3.2	20.050	2.9	25.850	2.0
2.700	66.0	8.500	3.6	14.300	3.2	20.100	2.9	25.900	2.0
2.750	61.5	8.550	3.6	14.350	3.2	20.150	2.9	25.950	2.0
2.800	57.0	8.600	3.6	14.400	3.2	20.200	2.9	26.000	2.0
2.850	52.5	8.650	3.6	14.450	3.2	20.250	2.9	26.050	2.0
2.900	48.0	8.700	3.5	14.500	3.2	20.300	2.9	26.100	2.0
2.950	43.5	8.750	3.5	14.550	3.2	20.350	2.9	26.150	2.0
3.000	39.0	8.800	3.5	14.600	3.2	20.400	2.9	26.200	2.0
3.050	36.8	8.850	3.5	14.650	3.2	20.450	2.9	26.250	2.0
3.100	34.6	8.900	3.5	14.700	3.2	20.500	2.9	26.300	2.0
3.150	32.4	8.950	3.5	14.750	3.1	20.550	2.9	26.350	2.0
3.200	30.2	9.000	3.5	14.800	3.1	20.600	2.9	26.400	2.0
3.250	28.0	9.050	3.5	14.850	3.1	20.650	2.9	26.450	2.0
3.300	25.8	9.100	3.5	14.900	3.1	20.700	2.9	26.500	2.0
3.350	23.7	9.150	3.5	14.950	3.1	20.750	2.9	26.550	2.0
3.400	21.5	9.200	3.5	15.000	3.1	20.800	2.9	26.600	2.0
3.450	19.3	9.250	3.5	15.050	3.1	20.850	2.9	26.650	2.0
3.500	17.1	9.300	3.5	15.100	3.1	20.900	2.9	26.700	2.0
3.550	16.2	9.350	3.5	15.150	3.1	20.950	2.9	26.750	2.0
3.600	15.3	9.400	3.5	15.200	3.1	21.000	2.9	26.800	2.0
3.650	14.4	9.450	3.5	15.250	3.1	21.050	2.9	26.850	2.0
3.700	13.5	9.500	3.5	15.300	3.1	21.100	2.9	26.900	2.0
3.750	12.6	9.550	3.5	15.350	3.1	21.150	2.9	26.950	2.0
3.800	11.6	9.600	3.5	15.400	3.1	21.200	2.9	27.000	2.0
3.850	10.7	9.650	3.5	15.450	3.1	21.250	2.9	27.050	2.0
3.900	9.8	9.700	3.5	15.500	3.1	21.300	2.9	27.100	2.0
3.950	8.9	9.750	3.5	15.550	3.1	21.350	2.9	27.150	2.0
4.000	8.0	9.800	3.5	15.600	3.1	21.400	2.9	27.200	2.0
4.050	7.7	9.850	3.5	15.650	3.1	21.450	2.9	27.250	2.0
4.100	7.3	9.900	3.5	15.700	3.1	21.500	2.9	27.300	2.0
4.150	7.0	9.950	3.5	15.750	3.1	21.550	2.9	27.350	2.0
4.200	6.6	10.000	3.5	15.800	3.1	21.600	2.9	27.400	2.0
4.250	6.3	10.050	3.4	15.850	3.1	21.650	2.9	27.450	2.0
4.300	5.9	10.100	3.4	15.900	3.1	21.700	2.9	27.500	2.0
4.350	5.6	10.150	3.4	15.950	3.1	21.750	2.9	27.550	2.0
4.400	5.2	10.200	3.4	16.000	3.1	21.800	2.9	27.600	2.0
4.450	4.9	10.250	3.4	16.050	3.1	21.850	2.9	27.650	2.0
4.500	4.5	10.300	3.4	16.100	3.1	21.900	2.9	27.700	2.0
4.550	4.4	10.350	3.4	16.150	3.1	21.950	2.9	27.750	2.0
4.600	4.3	10.400	3.4	16.200	3.1	22.000	2.9	27.800	2.0
4.650	4.2	10.450	3.4	16.250	3.1	22.050	2.9	27.850	2.0
4.700	4.1	10.500	3.3	16.300	3.1	22.100	2.9	27.900	2.0
4.750	4.0	10.550	3.3	16.350	3.1	22.150	2.9	27.950	2.0
4.800	3.9	10.600	3.3	16.400	3.1	22.200	2.9	28.000	2.0
4.850	3.7	10.650	3.3	16.450	3.1	22.250	2.9	28.050	2.0
4.900	3.6	10.700	3.3	16.500	3.1	22.300	2.9	28.100	2.0
4.950	3.5	10.750	3.3	16.550	3.1	22.350	2.9	28.150	2.0
5.000	3.4	10.800	3.3	16.600	3.1	22.400	2.8	28.200	2.0
5.050	3.4	10.850	3.3	16.650	3.1	22.450	2.8	28.250	2.0
5.100	3.4	10.900	3.3	16.700	3.1	22.500	2.8	28.300	2.0
5.150	3.4	10.950	3.3	16.750	3.1	22.550	2.8	28.350	2.0
5.200	3.4	11.000	3.3	16.800	3.1	22.600	2.8	28.400	2.0

5.250	3.3	11.050	3.3	16.850	3.1	22.650	2.8	28.450	2.0
5.300	3.3	11.100	3.3	16.900	3.1	22.700	2.8	28.500	2.0
5.350	3.3	11.150	3.3	16.950	3.1	22.750	2.8	28.550	2.0
5.400	3.3	11.200	3.3	17.000	3.1	22.800	2.8	28.600	2.0
5.450	3.3	11.250	3.3	17.050	3.1	22.850	2.8	28.650	2.0
5.500	3.3	11.300	3.3	17.100	3.1	22.900	2.8	28.700	2.0
5.550	3.3	11.350	3.3	17.150	3.1	22.950	2.8	28.750	2.0
5.600	3.3	11.400	3.3	17.200	3.1	23.000	2.8	28.800	2.0
5.650	3.3	11.450	3.3	17.250	3.1	23.050	2.8	28.850	2.0
5.700	3.3	11.500	3.3	17.300	3.1	23.100	2.8	28.900	2.0
5.750	3.3	11.550	3.3	17.350	3.1	23.150	2.8	28.950	2.0

RUNOFF VOLUME = 2.67727 INCHES = 30.5820 ACRE-FEET
PEAK DISCHARGE RATE = 309.60 CFS AT 1.500 HOURS BASIN AREA = .2142 SQ. MI.

```
*
*
*
*S**CONTINUE WITH MOLZEN-CORBIN DRAINAGE MODEL**
*
*S**CALCULATE BASIN A11
** BASIN A11 **
*
COMPUTE NM HYD       ID=3 HYD NO=111 DA=0.001 SQ MI
                     PER A=0 PER B=0 PER C=0 PER D=100
                     TP=0.133 RAIN=-1
```

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.9570 CFS UNIT VOLUME = .9966 B = 526.28 P60 = 1.8700
AREA = .001000 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

```
*
PRINT HYD            ID=3 CODE=6
```

PARTIAL HYDROGRAPH 111.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.100	.0	10.200	.0	15.300	.0	20.400	.0
.300	.0	5.400	.0	10.500	.0	15.600	.0	20.700	.0
.600	.0	5.700	.0	10.800	.0	15.900	.0	21.000	.0
.900	.0	6.000	.0	11.100	.0	16.200	.0	21.300	.0
1.200	.0	6.300	.0	11.400	.0	16.500	.0	21.600	.0
1.500	2.7	6.600	.0	11.700	.0	16.800	.0	21.900	.0
1.800	1.0	6.900	.0	12.000	.0	17.100	.0	22.200	.0
2.100	.5	7.200	.0	12.300	.0	17.400	.0	22.500	.0
2.400	.1	7.500	.0	12.600	.0	17.700	.0	22.800	.0
2.700	.0	7.800	.0	12.900	.0	18.000	.0	23.100	.0
3.000	.0	8.100	.0	13.200	.0	18.300	.0	23.400	.0
3.300	.0	8.400	.0	13.500	.0	18.600	.0	23.700	.0
3.600	.0	8.700	.0	13.800	.0	18.900	.0	24.000	.0
3.900	.0	9.000	.0	14.100	.0	19.200	.0	24.300	.0
4.200	.0	9.300	.0	14.400	.0	19.500	.0		
4.500	.0	9.600	.0	14.700	.0	19.800	.0		
4.800	.0	9.900	.0	15.000	.0	20.100	.0		

RUNOFF VOLUME = 2.52381 INCHES = .1346 ACRE-FEET

PEAK DISCHARGE RATE = 2.74 CFS AT 1.500 HOURS BASIN AREA = .0010 SQ. MI.

*

*S**ADD BASIN A11 TO TOTAL**

*

ADD HYD ID=4 HYD NO=111.1 I=3 II=20

*

PRINT HYD ID=4 CODE=6

PARTIAL HYDROGRAPH 111.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	3.4	12.000	3.4	18.000	3.1	24.000	2.8
.300	1.2	6.300	3.7	12.300	3.3	18.300	3.0	24.300	2.3
.600	2.0	6.600	3.8	12.600	3.2	18.600	3.0	24.600	2.0
.900	2.0	6.900	3.8	12.900	3.2	18.900	3.0	24.900	2.0
1.200	112.1	7.200	3.8	13.200	3.2	19.200	3.0	25.200	2.0
1.500	312.3	7.500	3.7	13.500	3.2	19.500	3.0	25.500	2.0
1.800	205.4	7.800	3.7	13.800	3.2	19.800	3.0	25.800	2.0
2.100	132.1	8.100	3.6	14.100	3.2	20.100	3.0	26.100	2.0
2.400	95.2	8.400	3.6	14.400	3.2	20.400	3.0	26.400	2.0
2.700	66.0	8.700	3.6	14.700	3.2	20.700	3.0	26.700	2.0
3.000	39.0	9.000	3.5	15.000	3.1	21.000	3.0	27.000	2.0
3.300	25.8	9.300	3.5	15.300	3.1	21.300	3.0	27.300	2.0
3.600	15.3	9.600	3.5	15.600	3.1	21.600	3.0	27.600	2.0
3.900	9.8	9.900	3.5	15.900	3.1	21.900	3.0	27.900	2.0
4.200	6.6	10.200	3.4	16.200	3.1	22.200	2.9	28.200	2.0
4.500	4.5	10.500	3.4	16.500	3.1	22.500	2.8	28.500	2.0
4.800	3.9	10.800	3.4	16.800	3.1	22.800	2.8	28.800	2.0
5.100	3.4	11.100	3.4	17.100	3.1	23.100	2.8		
5.400	3.3	11.400	3.4	17.400	3.1	23.400	2.8		
5.700	3.3	11.700	3.4	17.700	3.1	23.700	2.8		

RUNOFF VOLUME = 2.67655 INCHES = 30.7166 ACRE-FEET
PEAK DISCHARGE RATE = 312.34 CFS AT 1.500 HOURS BASIN AREA = .2152 SQ. MI.

*

*S**CALCULATE BASIN A12**

*

COMPUTE NM HYD ID=3 HYD NO=112 DA=0.0059 SQ MI
PER A=0 PER B=95 PER C=0 PER D=5
TP=0.133 RAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 1.1673 CFS UNIT VOLUME = .9892 B = 526.28 P60 = 1.8700
AREA = .000295 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .130697HR TP = .133000HR K/TP RATIO = .982685 SHAPE CONSTANT, N = 3.593454
UNIT PEAK = 13.784 CFS UNIT VOLUME = 1.000 B = 327.09 P60 = 1.8700
AREA = .005605 SQ MI IA = .50000 INCHES INF = 1.25000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

*

```
PRINT HYD          ID=3 CODE=6
```

PARTIAL HYDROGRAPH 112.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.100	.0	10.200	.0	15.300	.0	20.400	.0
.300	.0	5.400	.0	10.500	.0	15.600	.0	20.700	.0
.600	.0	5.700	.0	10.800	.0	15.900	.0	21.000	.0
.900	.0	6.000	.0	11.100	.0	16.200	.0	21.300	.0
1.200	.0	6.300	.0	11.400	.0	16.500	.0	21.600	.0
1.500	7.6	6.600	.0	11.700	.0	16.800	.0	21.900	.0
1.800	1.8	6.900	.0	12.000	.0	17.100	.0	22.200	.0
2.100	.6	7.200	.0	12.300	.0	17.400	.0	22.500	.0
2.400	.2	7.500	.0	12.600	.0	17.700	.0	22.800	.0
2.700	.1	7.800	.0	12.900	.0	18.000	.0	23.100	.0
3.000	.0	8.100	.0	13.200	.0	18.300	.0	23.400	.0
3.300	.0	8.400	.0	13.500	.0	18.600	.0	23.700	.0
3.600	.0	8.700	.0	13.800	.0	18.900	.0	24.000	.0
3.900	.0	9.000	.0	14.100	.0	19.200	.0		
4.200	.0	9.300	.0	14.400	.0	19.500	.0		
4.500	.0	9.600	.0	14.700	.0	19.800	.0		
4.800	.0	9.900	.0	15.000	.0	20.100	.0		

RUNOFF VOLUME = .71686 INCHES = .2256 ACRE-FEET
PEAK DISCHARGE RATE = 7.58 CFS AT 1.500 HOURS BASIN AREA = .0059 SQ. MI.

```
*
*S**ADD BASIN A12 TO TOTAL**
*
ADD HYD            ID=5 HYD NO=112.1 I=3 II=4
*
PRINT HYD          ID=5 CODE=6
```

PARTIAL HYDROGRAPH 112.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	3.4	12.000	3.4	18.000	3.1	24.000	2.8
.300	1.2	6.300	3.7	12.300	3.3	18.300	3.0	24.300	2.3
.600	2.0	6.600	3.8	12.600	3.3	18.600	3.0	24.600	2.0
.900	2.0	6.900	3.8	12.900	3.2	18.900	3.0	24.900	2.0
1.200	112.1	7.200	3.8	13.200	3.2	19.200	3.0	25.200	2.0
1.500	319.9	7.500	3.8	13.500	3.2	19.500	3.0	25.500	2.0
1.800	207.2	7.800	3.7	13.800	3.2	19.800	3.0	25.800	2.0
2.100	132.7	8.100	3.6	14.100	3.2	20.100	3.0	26.100	2.0
2.400	95.4	8.400	3.6	14.400	3.2	20.400	3.0	26.400	2.0
2.700	66.1	8.700	3.6	14.700	3.2	20.700	3.0	26.700	2.0
3.000	39.0	9.000	3.5	15.000	3.1	21.000	3.0	27.000	2.0
3.300	25.9	9.300	3.5	15.300	3.1	21.300	3.0	27.300	2.0
3.600	15.3	9.600	3.5	15.600	3.1	21.600	3.0	27.600	2.0
3.900	9.8	9.900	3.5	15.900	3.1	21.900	3.0	27.900	2.0
4.200	6.6	10.200	3.5	16.200	3.1	22.200	2.9	28.200	2.0
4.500	4.5	10.500	3.4	16.500	3.1	22.500	2.9	28.500	2.0
4.800	3.9	10.800	3.4	16.800	3.1	22.800	2.9	28.800	2.0
5.100	3.4	11.100	3.4	17.100	3.1	23.100	2.8		
5.400	3.3	11.400	3.4	17.400	3.1	23.400	2.8		
5.700	3.3	11.700	3.4	17.700	3.1	23.700	2.8		

RUNOFF VOLUME = 2.62425 INCHES = 30.9422 ACRE-FEET
PEAK DISCHARGE RATE = 319.92 CFS AT 1.500 HOURS BASIN AREA = .2211 SQ. MI.

```
*
*S**CALCULATE BASIN A13**
** BASIN A13 **
*
COMPUTE NM HYD      ID=3 HYD NO=113 DA=0.00092 SQ MI
                    PER A=0 PER B=0 PER C=0 PER D=100
                    TP=0.133 RAIN=-1
```

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 3.6404 CFS UNIT VOLUME = .9960 B = 526.28 P60 = 1.8700
AREA = .000920 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

```
*
PRINT HYD           ID=3 CODE=6
```

PARTIAL HYDROGRAPH 113.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.100	.0	10.200	.0	15.300	.0	20.400	.0
.300	.0	5.400	.0	10.500	.0	15.600	.0	20.700	.0
.600	.0	5.700	.0	10.800	.0	15.900	.0	21.000	.0
.900	.0	6.000	.0	11.100	.0	16.200	.0	21.300	.0
1.200	.0	6.300	.0	11.400	.0	16.500	.0	21.600	.0
1.500	2.5	6.600	.0	11.700	.0	16.800	.0	21.900	.0
1.800	.9	6.900	.0	12.000	.0	17.100	.0	22.200	.0
2.100	.4	7.200	.0	12.300	.0	17.400	.0	22.500	.0
2.400	.1	7.500	.0	12.600	.0	17.700	.0	22.800	.0
2.700	.0	7.800	.0	12.900	.0	18.000	.0	23.100	.0
3.000	.0	8.100	.0	13.200	.0	18.300	.0	23.400	.0
3.300	.0	8.400	.0	13.500	.0	18.600	.0	23.700	.0
3.600	.0	8.700	.0	13.800	.0	18.900	.0	24.000	.0
3.900	.0	9.000	.0	14.100	.0	19.200	.0	24.300	.0
4.200	.0	9.300	.0	14.400	.0	19.500	.0		
4.500	.0	9.600	.0	14.700	.0	19.800	.0		
4.800	.0	9.900	.0	15.000	.0	20.100	.0		

RUNOFF VOLUME = 2.52381 INCHES = .1238 ACRE-FEET
PEAK DISCHARGE RATE = 2.52 CFS AT 1.500 HOURS BASIN AREA = .0009 SQ. MI.

```
*
*
*S**ADD A13 TO TOTAL**
*
ADD HYD             ID=6 HYD NO=113.1 I=3 II=5
*
PRINT HYD           ID=6 CODE=6
```

PARTIAL HYDROGRAPH 113.10

TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW	TIME	FLOW

HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS	HRS	CFS
.000	.0	6.000	3.4	12.000	3.4	18.000	3.1	24.000	2.9
.300	1.2	6.300	3.8	12.300	3.3	18.300	3.0	24.300	2.3
.600	2.0	6.600	3.8	12.600	3.3	18.600	3.0	24.600	2.0
.900	2.0	6.900	3.8	12.900	3.3	18.900	3.0	24.900	2.0
1.200	112.1	7.200	3.8	13.200	3.3	19.200	3.0	25.200	2.0
1.500	322.4	7.500	3.8	13.500	3.3	19.500	3.0	25.500	2.0
1.800	208.1	7.800	3.7	13.800	3.3	19.800	3.0	25.800	2.0
2.100	133.1	8.100	3.7	14.100	3.3	20.100	3.0	26.100	2.0
2.400	95.5	8.400	3.7	14.400	3.3	20.400	3.0	26.400	2.0
2.700	66.1	8.700	3.6	14.700	3.2	20.700	3.0	26.700	2.0
3.000	39.0	9.000	3.5	15.000	3.1	21.000	3.0	27.000	2.0
3.300	25.9	9.300	3.5	15.300	3.1	21.300	3.0	27.300	2.0
3.600	15.3	9.600	3.5	15.600	3.1	21.600	3.0	27.600	2.0
3.900	9.8	9.900	3.5	15.900	3.1	21.900	3.0	27.900	2.0
4.200	6.6	10.200	3.5	16.200	3.1	22.200	2.9	28.200	2.0
4.500	4.5	10.500	3.4	16.500	3.1	22.500	2.9	28.500	2.0
4.800	3.9	10.800	3.4	16.800	3.1	22.800	2.9	28.800	2.0
5.100	3.4	11.100	3.4	17.100	3.1	23.100	2.9		
5.400	3.3	11.400	3.4	17.400	3.1	23.400	2.9		
5.700	3.3	11.700	3.4	17.700	3.1	23.700	2.9		

RUNOFF VOLUME = 2.62384 INCHES = 31.0660 ACRE-FEET
PEAK DISCHARGE RATE = 322.44 CFS AT 1.500 HOURS BASIN AREA = .2220 SQ. MI.

*
*
'S**CALCULATE BASIN A14**
** BASIN A14 **
*
COMPUTE NM HYD ID=3 HYD NO=114 DA=0.0062 SQ MI
PER A=0 PER B=5 PER C=10 PER D=85
TP=0.133 RAIN=-1

K = .072485HR TP = .133000HR K/TP RATIO = .545000 SHAPE CONSTANT, N = 7.106420
UNIT PEAK = 20.853 CFS UNIT VOLUME = .9986 B = 526.28 P60 = 1.8700
AREA = .005270 SQ MI IA = .10000 INCHES INF = .04000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

K = .113985HR TP = .133000HR K/TP RATIO = .857028 SHAPE CONSTANT, N = 4.150447
UNIT PEAK = 2.5528 CFS UNIT VOLUME = .9969 B = 365.08 P60 = 1.8700
AREA = .000930 SQ MI IA = .40000 INCHES INF = .97000 INCHES PER HOUR
RUNOFF COMPUTED BY INITIAL ABSTRACTION/INFILTRATION NUMBER METHOD - DT = .050000

*
PRINT HYD ID=3 CODE=6

PARTIAL HYDROGRAPH 114.00

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	5.100	.0	10.200	.2	15.300	.1	20.400	.1
.300	.0	5.400	.0	10.500	.2	15.600	.1	20.700	.1
.600	.0	5.700	.0	10.800	.2	15.900	.1	21.000	.1
.900	.0	6.000	.0	11.100	.2	16.200	.1	21.300	.1
1.200	.0	6.300	.2	11.400	.2	16.500	.1	21.600	.1
1.500	15.9	6.600	.2	11.700	.2	16.800	.1	21.900	.1

1.800	5.6	6.900	.2	12.000	.2	17.100	.1	22.200	.1
2.100	2.5	7.200	.2	12.300	.1	17.400	.1	22.500	.1
2.400	.5	7.500	.2	12.600	.1	17.700	.1	22.800	.1
2.700	.1	7.800	.2	12.900	.1	18.000	.1	23.100	.1
3.000	.0	8.100	.2	13.200	.1	18.300	.1	23.400	.1
3.300	.0	8.400	.2	13.500	.1	18.600	.1	23.700	.1
3.600	.0	8.700	.2	13.800	.1	18.900	.1	24.000	.1
3.900	.0	9.000	.2	14.100	.1	19.200	.1	24.300	.0
4.200	.0	9.300	.2	14.400	.1	19.500	.1	24.600	.0
4.500	.0	9.600	.2	14.700	.1	19.800	.1		
4.800	.0	9.900	.2	15.000	.1	20.100	.1		

RUNOFF VOLUME = 2.26907 INCHES = .7503 ACRE-FEET
PEAK DISCHARGE RATE = 15.88 CFS AT 1.500 HOURS BASIN AREA = .0062 SQ. MI.

```
*
*
*S**ADD BASIN A14 TO TOTAL**
*
ADD HYD             ID=7 HYD NO=114.1 I=3 II=6
*
PRINT HYD           ID=7 CODE=6
```

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	3.5	12.000	3.5	18.000	3.2	24.000	3.0
.300	1.2	6.300	3.9	12.300	3.5	18.300	3.2	24.300	2.3
.600	2.0	6.600	4.0	12.600	3.4	18.600	3.1	24.600	2.0
.900	2.0	6.900	4.0	12.900	3.4	18.900	3.1	24.900	2.0
1.200	112.2	7.200	4.0	13.200	3.4	19.200	3.1	25.200	2.0
1.500	338.3	7.500	4.0	13.500	3.4	19.500	3.1	25.500	2.0
1.800	213.7	7.800	3.9	13.800	3.4	19.800	3.1	25.800	2.0
2.100	135.6	8.100	3.9	14.100	3.4	20.100	3.1	26.100	2.0
2.400	96.0	8.400	3.8	14.400	3.4	20.400	3.1	26.400	2.0
2.700	66.3	8.700	3.8	14.700	3.3	20.700	3.1	26.700	2.0
3.000	39.1	9.000	3.7	15.000	3.3	21.000	3.1	27.000	2.0
3.300	25.9	9.300	3.7	15.300	3.3	21.300	3.1	27.300	2.0
3.600	15.3	9.600	3.7	15.600	3.3	21.600	3.1	27.600	2.0
3.900	9.8	9.900	3.7	15.900	3.3	21.900	3.1	27.900	2.0
4.200	6.6	10.200	3.6	16.200	3.3	22.200	3.0	28.200	2.0
4.500	4.5	10.500	3.6	16.500	3.3	22.500	3.0	28.500	2.0
4.800	3.9	10.800	3.6	16.800	3.2	22.800	3.0	28.800	2.0
5.100	3.4	11.100	3.6	17.100	3.2	23.100	3.0		
5.400	3.3	11.400	3.6	17.400	3.2	23.400	3.0		
5.700	3.4	11.700	3.5	17.700	3.2	23.700	3.0		

RUNOFF VOLUME = 2.61420 INCHES = 31.8163 ACRE-FEET
PEAK DISCHARGE RATE = 338.32 CFS AT 1.500 HOURS BASIN AREA = .2282 SQ. MI.

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*S**ROUTE TOTAL THRU 170' OF 54" DIA RCP**
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COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.035
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DIA=4.5 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT
.00	.00	.00	.00
.23	.32	1.93	2.00
.47	.88	8.38	2.75
.70	1.59	19.48	3.27
.94	2.40	35.03	3.66
1.17	3.30	54.69	3.95
1.41	4.25	78.03	4.17
1.64	5.25	104.54	4.33
1.88	6.28	133.66	4.44
2.11	7.32	164.77	4.49
2.35	8.38	197.20	4.50
2.58	9.43	230.22	4.50
2.81	10.46	263.05	4.50
3.05	11.47	294.83	4.50
3.28	12.43	324.59	4.50
3.52	13.34	351.22	4.50
3.75	14.17	373.38	4.50
3.99	14.90	389.23	4.50
4.22	15.50	395.75	4.50
4.50	15.90	395.75	4.50

*

COMPUTE TRAVEL TIME ID=8 REACH=1 VS NO=1 L=170 SLP=0.035

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.235	.316	1.93	.0077
.469	.880	8.38	.0050
.704	1.588	19.48	.0039
.938	2.402	35.03	.0032
1.173	3.296	54.69	.0028
1.407	4.249	78.03	.0026
1.641	5.248	104.54	.0024
1.876	6.277	133.66	.0022
2.111	7.325	164.77	.0021
2.345	8.380	197.20	.0020
2.579	9.430	230.22	.0019
2.814	10.463	263.05	.0019
3.049	11.468	294.83	.0018
3.283	12.432	324.59	.0018
3.518	13.338	351.22	.0018
3.752	14.169	373.38	.0018
3.987	14.900	389.23	.0018
4.221	15.495	395.75	.0018
4.500	15.904	395.75	.0019

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ROUTE ID=8 HYD NO=114.1 INFLOW ID=7 DT=0.05

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PRINT HYD ID=8 CODE=3

PARTIAL HYDROGRAPH 114.10

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	3.5	12.000	3.5	18.000	3.2	24.000	3.0
.150	.6	6.150	3.7	12.150	3.5	18.150	3.2	24.150	2.6
.300	1.2	6.300	3.9	12.300	3.5	18.300	3.2	24.300	2.3
.450	1.8	6.450	4.0	12.450	3.4	18.450	3.1	24.450	2.1
.600	2.0	6.600	4.0	12.600	3.4	18.600	3.1	24.600	2.0
.750	2.0	6.750	4.0	12.750	3.4	18.750	3.1	24.750	2.0
.900	2.0	6.900	4.0	12.900	3.4	18.900	3.1	24.900	2.0
1.050	24.6	7.050	4.0	13.050	3.4	19.050	3.1	25.050	2.0
1.200	113.6	7.200	4.0	13.200	3.4	19.200	3.1	25.200	2.0
1.350	210.9	7.350	4.0	13.350	3.4	19.350	3.1	25.350	2.0
1.500	338.4	7.500	4.0	13.500	3.4	19.500	3.1	25.500	2.0
1.650	269.8	7.650	3.9	13.650	3.4	19.650	3.1	25.650	2.0
1.800	214.0	7.800	3.9	13.800	3.4	19.800	3.1	25.800	2.0
1.950	166.4	7.950	3.9	13.950	3.4	19.950	3.1	25.950	2.0
2.100	136.1	8.100	3.9	14.100	3.4	20.100	3.1	26.100	2.0
2.250	113.5	8.250	3.8	14.250	3.4	20.250	3.1	26.250	2.0
2.400	96.2	8.400	3.8	14.400	3.4	20.400	3.1	26.400	2.0
2.550	80.2	8.550	3.8	14.550	3.4	20.550	3.1	26.550	2.0
2.700	66.5	8.700	3.8	14.700	3.3	20.700	3.1	26.700	2.0
2.850	52.8	8.850	3.8	14.850	3.3	20.850	3.1	26.850	2.0
3.000	39.3	9.000	3.7	15.000	3.3	21.000	3.1	27.000	2.0
3.150	32.5	9.150	3.7	15.150	3.3	21.150	3.1	27.150	2.0
3.300	26.0	9.300	3.7	15.300	3.3	21.300	3.1	27.300	2.0
3.450	19.4	9.450	3.7	15.450	3.3	21.450	3.1	27.450	2.0
3.600	15.4	9.600	3.7	15.600	3.3	21.600	3.1	27.600	2.0
3.750	12.6	9.750	3.7	15.750	3.3	21.750	3.1	27.750	2.0
3.900	9.9	9.900	3.7	15.900	3.3	21.900	3.1	27.900	2.0
4.050	7.6	10.050	3.7	16.050	3.3	22.050	3.1	28.050	2.0
4.200	6.6	10.200	3.7	16.200	3.3	22.200	3.0	28.200	2.0
4.350	5.6	10.350	3.6	16.350	3.3	22.350	3.0	28.350	2.0
4.500	4.5	10.500	3.6	16.500	3.3	22.500	3.0	28.500	2.0
4.650	4.2	10.650	3.6	16.650	3.3	22.650	3.0	28.650	2.0
4.800	3.9	10.800	3.6	16.800	3.2	22.800	3.0	28.800	2.0
4.950	3.6	10.950	3.6	16.950	3.2	22.950	3.0	28.950	2.0
5.100	3.4	11.100	3.6	17.100	3.2	23.100	3.0	29.100	.1
5.250	3.4	11.250	3.6	17.250	3.2	23.250	3.0	29.250	.0
5.400	3.3	11.400	3.6	17.400	3.2	23.400	3.0	29.400	.0
5.550	3.3	11.550	3.6	17.550	3.2	23.550	3.0	29.550	.0
5.700	3.4	11.700	3.5	17.700	3.2	23.700	3.0	29.700	.0
5.850	3.4	11.850	3.5	17.850	3.2	23.850	3.0	29.850	.0

RUNOFF VOLUME = 2.61422 INCHES = 31.8167 ACRE-FEET
PEAK DISCHARGE RATE = 338.40 CFS AT 1.500 HOURS BASIN AREA = .2282 SQ. MI.

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*S**ROUTE TOTAL THRU 213' OF 66" DIA RCP**
*
COMPUTE RATING CURVE CID=1 VS NO=1 CODE=-1 SLP=0.01
DIA=5.5 FT N=0.013

RATING CURVE PIPE SECTION 1.0

WATER SURFACE ELEV	FLOW AREA SQ FT	FLOW RATE CFS	MAX WIDTH FT

.00	.00	.00	.00
.29	.47	1.76	2.44
.57	1.31	7.65	3.36
.86	2.37	17.78	3.99
1.15	3.59	31.97	4.47
1.43	4.92	49.92	4.83
1.72	6.35	71.23	5.10
2.01	7.84	95.43	5.30
2.29	9.38	122.00	5.42
2.58	10.94	150.40	5.49
2.87	12.52	180.00	5.50
3.15	14.09	210.14	5.50
3.44	15.63	240.11	5.50
3.73	17.13	269.11	5.50
4.01	18.57	296.28	5.50
4.30	19.92	320.59	5.50
4.59	21.17	340.81	5.50
4.87	22.26	355.29	5.50
5.16	23.15	361.23	5.50
5.50	23.76	361.23	5.50

*

COMPUTE TRAVEL TIME ID=9 REACH=1 VS NO=1 L=213 SLP=0.01

TRAVEL TIME TABLE

REACH= 1.0

WATER DEPTH FEET	AVERAGE AREA SQ.FT.	FLOW RATE CFS	TRAVEL TIME HRS
.287	.472	1.76	.0159
.573	1.314	7.65	.0102
.860	2.373	17.78	.0079
1.146	3.589	31.97	.0066
1.433	4.923	49.92	.0058
1.720	6.348	71.23	.0053
2.006	7.839	95.43	.0049
2.293	9.377	122.00	.0045
2.579	10.942	150.40	.0043
2.866	12.518	180.00	.0041
3.153	14.086	210.14	.0040
3.439	15.630	240.11	.0039
3.726	17.132	269.11	.0038
4.013	18.571	296.28	.0037
4.299	19.925	320.59	.0037
4.586	21.166	340.81	.0037
4.872	22.258	355.29	.0037
5.159	23.147	361.23	.0038
5.500	23.758	361.23	.0039

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ROUTE ID=9 HYD NO=114.2 INFLOW ID=8 DT=0.05

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PRINT HYD ID=9 CODE=3

PARTIAL HYDROGRAPH 114.20

TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS	TIME HRS	FLOW CFS
.000	.0	6.000	3.4	12.000	3.5	18.000	3.2	24.000	3.0
.150	.5	6.150	3.7	12.150	3.5	18.150	3.2	24.150	2.7
.300	1.1	6.300	3.9	12.300	3.5	18.300	3.2	24.300	2.3

.450	1.7	6.450	4.0	12.450	3.4	18.450	3.1	24.450	2.1
.600	2.0	6.600	4.0	12.600	3.4	18.600	3.1	24.600	2.0
.750	2.0	6.750	4.0	12.750	3.4	18.750	3.1	24.750	2.0
.900	2.0	6.900	4.0	12.900	3.4	18.900	3.1	24.900	2.0
1.050	17.7	7.050	4.0	13.050	3.4	19.050	3.1	25.050	2.0
1.200	110.3	7.200	4.0	13.200	3.4	19.200	3.1	25.200	2.0
1.350	210.1	7.350	4.0	13.350	3.4	19.350	3.1	25.350	2.0
1.500	335.1	7.500	4.0	13.500	3.4	19.500	3.1	25.500	2.0
1.650	272.7	7.650	3.9	13.650	3.4	19.650	3.1	25.650	2.0
1.800	214.5	7.800	3.9	13.800	3.4	19.800	3.1	25.800	2.0
1.950	167.5	7.950	3.9	13.950	3.4	19.950	3.1	25.950	2.0
2.100	137.0	8.100	3.9	14.100	3.4	20.100	3.1	26.100	2.0
2.250	113.9	8.250	3.8	14.250	3.4	20.250	3.1	26.250	2.0
2.400	96.6	8.400	3.8	14.400	3.4	20.400	3.1	26.400	2.0
2.550	80.6	8.550	3.8	14.550	3.4	20.550	3.1	26.550	2.0
2.700	66.8	8.700	3.8	14.700	3.3	20.700	3.1	26.700	2.0
2.850	53.2	8.850	3.8	14.850	3.3	20.850	3.1	26.850	2.0
3.000	39.7	9.000	3.7	15.000	3.3	21.000	3.1	27.000	2.0
3.150	32.7	9.150	3.7	15.150	3.3	21.150	3.1	27.150	2.0
3.300	26.2	9.300	3.7	15.300	3.3	21.300	3.1	27.300	2.0
3.450	19.7	9.450	3.7	15.450	3.3	21.450	3.1	27.450	2.0
3.600	15.5	9.600	3.7	15.600	3.3	21.600	3.1	27.600	2.0
3.750	12.7	9.750	3.7	15.750	3.3	21.750	3.1	27.750	2.0
3.900	10.0	9.900	3.7	15.900	3.3	21.900	3.1	27.900	2.0
4.050	7.6	10.050	3.7	16.050	3.3	22.050	3.1	28.050	2.0
4.200	6.6	10.200	3.7	16.200	3.3	22.200	3.0	28.200	2.0
4.350	5.6	10.350	3.6	16.350	3.3	22.350	3.0	28.350	2.0
4.500	4.6	10.500	3.6	16.500	3.3	22.500	3.0	28.500	2.0
4.650	4.2	10.650	3.6	16.650	3.3	22.650	3.0	28.650	2.0
4.800	3.9	10.800	3.6	16.800	3.2	22.800	3.0	28.800	2.0
4.950	3.6	10.950	3.6	16.950	3.2	22.950	3.0	28.950	2.0
5.100	3.4	11.100	3.6	17.100	3.2	23.100	3.0	29.100	.0
5.250	3.4	11.250	3.6	17.250	3.2	23.250	3.0	29.250	.0
5.400	3.3	11.400	3.6	17.400	3.2	23.400	3.0	29.400	.0
5.550	3.3	11.550	3.6	17.550	3.2	23.550	3.0	29.550	.0
5.700	3.4	11.700	3.5	17.700	3.2	23.700	3.0	29.700	.0
5.850	3.4	11.850	3.5	17.850	3.2	23.850	3.0	29.850	.0

RUNOFF VOLUME = 2.61422 INCHES = 31.8167 ACRE-FEET
PEAK DISCHARGE RATE = 335.11 CFS AT 1.500 HOURS BASIN AREA = .2282 SQ. MI.

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FINISH

NORMAL PROGRAM FINISH END TIME (HR:MIN:SEC) = 21:34:10