Appendix D – Reference Materials

- *Technical Drainage Study for Area 15 Event Lot;* July 2020. (DS-5288).
- *Central Neighborhood Flood Control Master Plan Study for City of Las Vegas*; March 2005.
- *The Palms Business Centre North Grading Plans*; April 1987 (107V-1470).

Addendum to the Technical Drainage Study for

Area 15 Event Parking Lot

Date Prepared:
July 2020

Prepared for:
Area 15 Las Vegas, LLC
229 Park Avenue
New York, NY 10171
212.940.6262

Prepared by:
Kimley-Horn and Associates, Inc.
6671 Las Vegas Boulevard South, Suite 320
Las Vegas, NV 89119
702.862.3600

Kimley»Horn

CITY OF LAS VEGAS INTER-OFFICE MEMORANDUM				DATE: September 23, 2020
TO: **Land Development Services** Department of Building & Safety				FROM: Albert Sung, P.E. Flood Control Project Engineer Department of Public Works
SUBJECT:	Drainage Study for: **Area 15 Event Parking Lot**			**COPIES TO:** Kimley-Horn and Associates, Inc.
Cross Streets:	NWC of Rancho Drive & Sirius Avenue			Area 15 Las Vegas, LLC
File Number:	F:\Depot\DSMemos\DS5288C.doc			Bart Anderson, P.E., DevCo
Parcel Number:	162-08-702-002			CCRFCD
Zoning Action:	SDR-78709 & VAR-78074			NDOT
FEMA Flood Zone	YES	NO	X	
Proposed Storm Drain	YES	NO	X	

HISTORY	DATE RECEIVED	DATE REVIEWED	COMMENTS	REVIEW FEES	FEES PAID Payment Trn #
1st Submittal (Paid on 6/1/2020)	6/1/2020	6/18/2020	Not Approved	$400.00	3866352: $400
2nd Submittal (Paid on 7/20/2020)	7/6/2020	7/21/2020	Conditional Approval	$400.00	3921044: $400
CCRFCD	9/10/2020	9/23/2020	Concurrence Recv'd	N/C	N/C
			TOTAL FEES (LDDRS):	**$800.00**	**----**

REMARKS:

The Drainage Study for the subject project has been reviewed and:

X	is approved subject to conformance to all City standards and the following conditions:
	must be resubmitted or supplemented including the following:
	is conditionally approved subject to Clark County Regional Flood Control District concurrence.
	is conditionally approved subject to Clark County Public Works Department concurrence.

1. The project proposes to construct facilities and/or increase flows within *Nevada Department of Transportation* (NDOT) right-of-way (the existing channel between *Rancho Road* and I-15). The engineer must contact NDOT for encroachment permit or concurrence for the proposed project.

NOTE: Please be advised that all land surface area disturbances over 1 acre or any area adjacent to a water way must submit to the *Nevada Division of Environmental Protection* a "Notice of Intent" to discharge that certifies a stormwater pollution prevention plan has been developed and is maintained on site; for inclusion in the Stormwater General Permit No. NVR100000. A phased construction unit in a contiguous subdivision is considered under construction until all stripped or disturbed surface areas have been covered by paving, building construction or planting. For more information, including forms and applications see http://ndep.nv.gov/bwpc/storm01.htm or call (775) 687-9429.

NOTE: Any future changes to the proposed design (or design assumptions) as outlined in the approved drainage study and attached preliminary grading plan which affect drainage must be addressed in a Drainage Study Update and accepted by the *City of Las Vegas Flood Control Section*. Additionally, conditional acceptance of a drainage study is valid for a period of one (1) year. If the proposed construction has not been completed in that time period, the *City of Las Vegas* reserves the right to require additional conditions and/or submission and acceptance of a complete drainage study update prior to further construction of a project.

END OF REMARKS
ays

T/R/S: T21S/R61E/08
AREA R-08

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STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
1263 S. Stewart Street
Carson City, Nevada 89712

STEVE SISOLAK
Governor

Kristina L. Swallow, P.E., *Director*

In Reply Refer to:

June 9, 2021

C019
Rachael R. Dennis, P.E.
Kimley-Horn & Associates
6671 Las Vegas Blvd South #320
Las Vegas, NV 89119

TECHNICAL DRAINAGE STUDY
AREA 15 EVENT PARKING LOT
DRAINAGE STUDY
Clark County

Dear Ms. Dennis:

The Nevada Department of Transportation (NDOT) Hydraulics Section has received and reviewed the following document(s) for the above-referenced project.

Document:	**Dated:**
Area 15 TDS	05-2020
Area 15 TDS Addendum	07-2020
Area 15 TDS CLV Approval	07-2020
NDOT Drainage Form	07-2020

The drainage design information presented in the reviewed document(s):

X	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project.
	is acceptable in concept. Final Hydraulic Section approval will be based on review of final design documents submitted with the NDOT Right-Of-Way Occupancy Permit application that must be submitted for this project. The following comments should be addressed with the permit application:
	must be supplemented or modified to satisfy the following comment(s) before preliminary Hydraulic Section approval can be granted:

All submittals regarding this project must be forwarded through (or copied to) the local NDOT District permitting office. All pertinent drainage design documents (including those previously submitted for preliminary review) must be submitted to the

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local NDOT District permitting office with the Right-Of-Way Occupancy Permit Application. All plans and reports must be signed and stamped by a Nevada registered civil engineer.

No liability is assumed by the Department in performing this review. Verification and acceptance of all background information, design data and conclusions is the responsibility of the consulting engineer.

DUE TO THE CURRENT HEALTH SITUATION, WE WILL ONLY BE SENDING EMAIL VERSIONS OF TECHNICAL DRAINAGE STUDY APPROVALS/DENIALS. PLEASE CONSIDER THIS LETTER AS FORMAL ACCEPTANCE/DENIAL OF THE TECHNICAL DRAINAGE STUDY. WHEN THE CURRENT HEALTH SITUATION IS RESOLVED, WE WILL CONTINUE SENDING BOTH ELECTRONIC AND HARD COPIES OF CORRESPONDENCE REGARDING TECHNICAL DRAINAGE STUDIES.

Please email me at Renerio@dot.nv.gov should you have any questions.

Sincerely,

DocuSigned by:
Raymond Enerio
5B04D634E049436...

Raymond Enerio, P.E.
Senior Hydraulic Engineer

cc: Mario Gomez, P.E., District I Engineer
Charles Molisee, District I Permits
Mike Alameda, Headquarters Right-of-Way
Shatese Penter, District I Permits
Linda Olguin, District I Permits
Michael Yates, P.E., District I Assistant District Engineer
Rachael R. Dennis (EMAIL: Rachael.Dennis@kimley-horn.com)

PROJECT SITE

Flows begin to spill at driveway

55.5 cfs (SPLIT)

*1,081 CFS

78 CFS (PER HEC RAS WEIR)

OF1

OF2

OF3

ON1

RA

RD

F-F CHNL

F-F ROAD

**PS08

**CPS06

**CPS08

**CCPS08

CP12

*CRCPS06

FUT. CCRFCD FACILITY
FW15-0242
(2) 12'X9' RCB
Q_{MPL}=4130 CFS

FUT. CCRFCD FACILITY
FWPS 0000
12'X12' RCB
100-YR Q_{MPL}=3,544 CFS

FUT. CCRFCD FACILITY
FW15 0271
(2) 12'X10' RCB
100-YR Q_{MPL}=3,842 CFS

FUT. CCRFCD FACILITY
FW15 0301
CONC CHNL 12'W 4'D 2:1 SS
100-YR Q_{MPL}=353 CFS

EX. DRAINAGE EASEMENT

EX. (2) 36" RCP 50-YR FACILITY

EX. 36" RCP 50-YR FACILITY

EX. AREA 15

EX. COMMERCIAL DEVELOPMENT

EX. COMMERCIAL DEVELOPMENT

MEADE AVENUE (PAVED PUBLIC STREET)

RIGEL AVENUE (PAVED PUBLIC STREET)

RANCHO DRIVE (PAVED PUBLIC STREET)

INTERSTATE 15

VALLEY VIEW BOULEVARD (PAVED PUBLIC STREET)

SHERIDAN STREET (PAVED PUBLIC STREET)

SIRIUS AVENUE (PAVED PUBLIC STREET)

PROCYON STREET (PAVED PUBLIC STREET)

POLARIS STREET (PAVED PUBLIC STREET)

PRIVATE DRIVE (PAVED PRIVATE STREET)

DESERT INN ROAD (PAVED PUBLIC STREET)

GRAPHIC SCALE IN FEET
0 75 150 300

NORTH

LEGEND

- XXX — BASIN ID
- XXXX — PRORATED BASIN ID
- BASIN BOUNDARY
- PRORATED BASIN BOUNDARY
- FUTURE CCRFCD REGIONAL FACILITY
- EXITING DRAINAGE FACILITY
- FLOW ARROW
- CPX — CONCENTRATION POINT
- X* / XX — SECTION ID

* REFERENCED FROM AREA 15 STUDY (DS-4921)
** REFERENCED FROM CITY OF LAS VEGAS CENTRAL NEIGHBORHOOD STUDY

NOTE:
1,081-CFS REFERENCED FOR FLOWRATE AT INTERSECTION OF PRIVATE DRIVEWAY & SIRIUS AVENUE. REFER TO APPENDIX D FOR REFERENCE Q.

Existing / Proposed Condition Flow Summary

Basin ID / Comb Pt	Area / Tributary Area (ac)	Q_{100} (cfs)	Q_{10} (cfs)
**CPS06	N/A	1045	405
*CP05	N/A	31	18
*EX10	N/A	7	4
CP12 Q = 1081-CFS + **PS08(OF2)	N/A	1158	459
**CRCPS06	N/A	2538	873
**PS08	114.56	235	100
**CPS08	N/A	2582	917
**CCPS08	N/A	3762	1226

Prorated Flow Summary

BASIN ID	Q_{100} (cfs)	Q_{10} (cfs)	AREA (ac)	Q_{100} (cfs/ac)	Q_{10} (cfs/ac)
PS08	235	100	114.6	2.05	0.87
SUBBASIN ID	**Q_{100} (cfs)**	**Q_{10} (cfs)**	**AREA (ac)**	**Q_{100} (cfs/ac)**	**Q_{10} (cfs/ac)**
PS08(ON1)	9	4	4.4	2.05	0.87
PS08(OF1)	16	7	8.0	2.05	0.87
PS08(OF2)	77	33	37.5	2.05	0.87
PS08(OF3)	130	55	63.5	2.05	0.87
PS08(RD)	2	1	1.1	2.05	0.87
SUBTOTAL	**235**	**100**	**114.6**	-	-

ROADWAY HYDRAULIC SECTIONS SUMMARY TABLE

STREET SECTION	TRIBUTARY BASINS	CHANNEL SLOPE %	Q_{100} (cfs)	FLOW DEPTH (ft)	VELOCITY (ft/s)	D*V ft^2/s
F-F(ROAD)	**CRCPS06	0.70	2,538	3.58	10.46	37.45
RD	**CRCPS06 + ON1	0.60	2,547	7.25	9.26	67.14
RA	**PS08(OF1) + 78-cfs	0.30	100	0.93	3.22	2.99

SECTIONS F-F(ROAD) & RD: FLOW DEPTH TAKEN FROM CHANNEL FLOWLINE OFFSET CROWN AT RANCHO FOR SECTION F-F
78-CFS PER RAS ANALYSIS FLOWS NORTH IN RIGEL AVENUE

CHANNEL HYDRAULIC SECTIONS SUMMARY TABLE

ID	TRIBUTARY BASINS	CHANNEL SLOPE %	Q_{100} (cfs)	FLOW DEPTH (ft)	VELOCITY (ft/s)	D*V ft^2/s	TYPE
F-F(CHNL)	Channel Capacity	0.70	270	3.00	6.43	19.29	TRAP 7' BW, 4:1 SS

BY | DATE | REVISIONS | No.

Kimley»Horn

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6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

KHA PROJECT 092965001
DATE MAY 2020
SCALE AS SHOWN
DESIGNED BY JR
DRAWN BY JR
CHECKED BY RRD

EXISTING/PROPOSED CONDITION DRAINAGE MAP

AREA 15 EVENT PARKING LOT

PREPARED FOR
AREA 15 LAS VEGAS, LLC.
NEVADA
CITY OF LAS VEGAS

FIGURE
PRO-1

Plotted By:Rocho, Jonathan Sheet Set:Kha Layout:EX-1 May 28, 2020 11:51:22am K:\LAV_Civil\092965001 – Area 15 Ph2 (Fisher Brothers)\Reports\DRAINAGE\01_TDS\Figures\CAD\EX-1.dwg
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RAS Standard Table 1

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
SIRIUS	1916	100-yr	ExCond-EL	1,158	2120.70	2122.54	2122.54	2122.93	0.008613	5.04	229.67	297.48	1.01
SIRIUS	1916	100-yr	PropCond-EL	1,158	2120.70	2122.55	2122.55	2122.93	0.008145	4.96	233.59	297.67	0.99
SIRIUS	1750	100-yr	ExCond-EL	1,158	2116.50	2118.22	2118.93	2120.80	0.016139	14.29	94.55	97.00	2.18
SIRIUS	1750	100-yr	PropCond-EL	1,158	2116.50	2118.23	2118.93	2120.74	0.015487	14.09	95.80	97.00	2.14
SIRIUS	1533	100-yr	ExCond-EL	1,158	2112.00	2113.72	2114.66	2117.09	0.017332	15.04	79.52	83.09	2.29
SIRIUS	1533	100-yr	PropCond-EL	1,158	2112.00	2113.71	2114.66	2117.09	0.017377	15.05	79.46	83.06	2.29
SIRIUS	1245			Lat Struct									
SIRIUS	1215	100-yr	ExCond-EL	1,097	2109.25	2110.67	2111.04	2111.90	0.011877	10.31	129.16	184.50	1.90
SIRIUS	1215	100-yr	PropCond-EL	1,096	2109.25	2110.68	2111.04	2111.89	0.011742	10.27	129.87	184.50	1.88
SIRIUS	1170	100-yr	ExCond-EL										
SIRIUS	1170	100-yr	PropCond-EL	1,081	2108.93	2109.81	2110.26	2111.25	0.015895	9.87	117.28	187.90	1.97
SIRIUS	1036	100-yr	ExCond-EL	1,083	2108.20	2110.53	2110.53	2111.59	0.002776	8.42	132.48	62.20	1.00
SIRIUS	1036	100-yr	PropCond-EL	1,081	2108.20	2110.52	2110.52	2111.58	0.002806	8.44	131.93	62.20	1.00

Revised PropCond XS 1170 and XS 1036

PROJECT SITE

LATERAL WEIR STRUCTURE
STA 1245
60-FT LENGTH

RIGEL AVENUE
(PAVED PUBLIC STREET)

SIRIUS AVENUE
(PAVED PUBLIC STREET)

PRIVATE DRIVE
(PAVED PRIVATE STREET)

RANCHO DRIVE
(PAVED PUBLIC STREET)

1916 1750 1533 1215 1170 1036

GRAPHIC SCALE IN FEET
0 20 40 80

NORTH

LEGEND

- 1036 — HEC-RAS CROSS SECTION & ID
- 2-FT CONTOURS
- 1-FT CONTOURS
- PROPOSED CONTOURS
- EXISTING 100-YR INUNDATION LIMITS
- PROPOSED 100-YR INUNDATION LIMITS

Plotted By:Rocha, Jonathan Sheet Set:Kha Layout:EX-1 June 26, 2020 11:33:50am K:\LAV_Civil\092965001 - Area 15 Ph2 (Fisher Brothers)\Reports\DRAINAGE\Event Parking Lot\02_ADD\Figures\CAD\RAS-1.dwg
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No.	REVISIONS	DATE	BY

Kimley»Horn
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6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

KHA PROJECT	092965001
DATE	JUNE 2020
SCALE	AS SHOWN
DESIGNED BY	JR
DRAWN BY	JR
CHECKED BY	RRD

SIRIUS AVENUE HEC-RAS EXHIBIT

AREA 15 EVENT PARKING LOT

PREPARED FOR
AREA 15 LAS VEGAS, LLC.
CITY OF LAS VEGAS NEVADA

FIGURE
RAS-1

Worksheet for RA - Rigel 100-Yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.30 %
Discharge	100.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	1.60
0+00.00	0.60
0+05.00	0.50
0+05.00	0.50
0+05.50	0.48
0+05.50	0.00
0+07.00	0.13
0+07.00	0.17
0+30.00	0.63
0+30.00	0.63
0+53.00	0.17
0+53.00	0.13
0+54.50	0.00
0+54.50	0.48
0+55.00	0.50
0+55.00	0.50
0+55.00	0.50
0+60.00	0.60
0+60.00	1.60

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 1.60)	(0+60.00, 1.60)	0.016

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	0.93 ft
Elevation Range	0.00 to 1.60 ft

Worksheet for RA - Rigel 100-Yr

Results	
Flow Area	31.1 ft²
Wetted Perimeter	61.72 ft
Hydraulic Radius	0.50 ft
Top Width	60.00 ft
Normal Depth	0.93 ft
Critical Depth	0.85 ft
Critical Slope	0.51 %
Velocity	3.22 ft/s
Velocity Head	0.16 ft
Specific Energy	1.09 ft
Froude Number	0.789
Flow Type	Subcritical

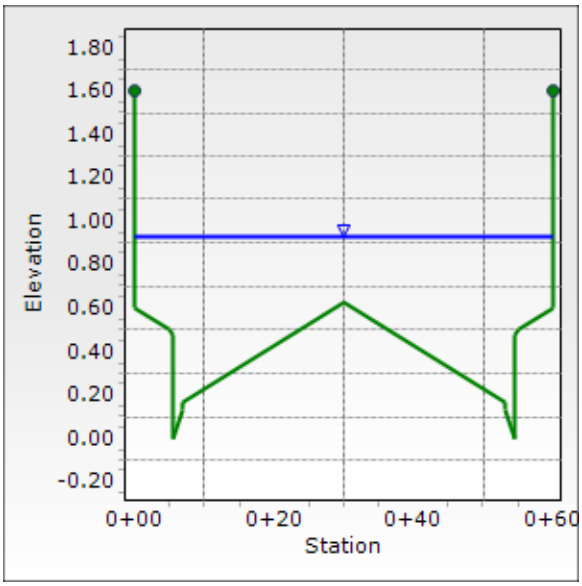
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.93 ft
Critical Depth	0.85 ft
Channel Slope	0.30 %
Critical Slope	0.51 %

Cross Section for RA - Rigel 100-Yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.30 %
Normal Depth	0.93 ft
Discharge	100.00 cfs



Worksheet for RD - Rancho 100-Yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.60 %
Discharge	2,582.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00.00	2,108.58
0+00.00	2,104.88
0+00.97	2,104.88
0+05.93	2,104.84
0+06.35	2,104.83
0+06.41	2,104.82
0+06.43	2,104.47
0+06.43	2,104.41
0+06.56	2,104.41
0+07.56	2,104.50
0+07.59	2,104.50
0+07.76	2,104.51
0+23.43	2,104.94
0+25.97	2,105.00
0+28.83	2,104.93
0+45.63	2,104.51
0+46.93	2,104.37
0+47.10	2,104.36
0+47.10	2,104.36
0+47.12	2,104.77
0+47.12	2,104.84
0+47.19	2,104.84
0+47.60	2,104.86
0+50.51	2,105.10
0+51.00	2,105.14
0+63.02	2,100.04
0+63.46	2,099.85
0+63.61	2,099.86
0+68.17	2,100.09
0+69.57	2,100.74
0+77.46	2,104.36
0+93.46	2,107.36
1+15.46	2,107.36

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00.00, 2,108.58)	(0+07.56, 2,104.50)	0.013

Worksheet for RD - Rancho 100-Yr

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+07.56, 2,104.50)	(0+45.63, 2,104.51)	0.016
(0+45.63, 2,104.51)	(0+51.00, 2,105.14)	0.013
(0+51.00, 2,105.14)	(0+68.17, 2,100.09)	0.025
(0+68.17, 2,100.09)	(1+15.46, 2,107.36)	0.038

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	7.28 ft
Elevation Range	2,099.85 to 2,108.58 ft
Flow Area	277.8 ft²
Wetted Perimeter	97.66 ft
Hydraulic Radius	2.84 ft
Top Width	92.24 ft
Normal Depth	7.28 ft
Critical Depth	7.16 ft
Critical Slope	0.68 %
Velocity	9.30 ft/s
Velocity Head	1.34 ft
Specific Energy	8.62 ft
Froude Number	0.944
Flow Type	Subcritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

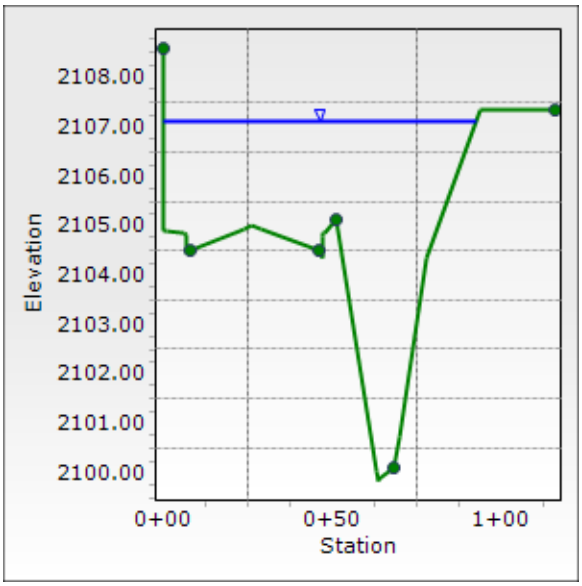
GVF Output Data

Upstream Depth	0.00 ft
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.28 ft
Critical Depth	7.16 ft
Channel Slope	0.60 %
Critical Slope	0.68 %

Cross Section for RD - Rancho 100-Yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.60 %
Normal Depth	7.28 ft
Discharge	2,582.00 cfs



Worksheet for F-F(ROAD) Rancho 100-yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.70 %
Discharge	2,538.00 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+50.00	2,112.00
0+50.00	2,107.75
0+97.00	2,107.00
1+05.00	2,107.00
1+12.00	2,107.00
1+20.00	2,108.00
1+36.00	2,112.00
1+58.00	2,112.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+50.00, 2,112.00)	(0+50.00, 2,107.75)	0.013
(0+50.00, 2,107.75)	(0+97.00, 2,107.00)	0.016
(0+97.00, 2,107.00)	(1+12.00, 2,107.00)	0.025
(1+12.00, 2,107.00)	(1+58.00, 2,112.00)	0.038

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Normal Depth	3.58 ft
Elevation Range	2,107.00 to 2,112.00 ft
Flow Area	242.7 ft²
Wetted Perimeter	83.56 ft
Hydraulic Radius	2.90 ft
Top Width	80.34 ft
Normal Depth	3.58 ft
Critical Depth	3.71 ft
Critical Slope	0.62 %
Velocity	10.46 ft/s

Worksheet for F-F(ROAD) Rancho 100-yr

Results	
Velocity Head	1.70 ft
Specific Energy	5.28 ft
Froude Number	1.061
Flow Type	Supercritical

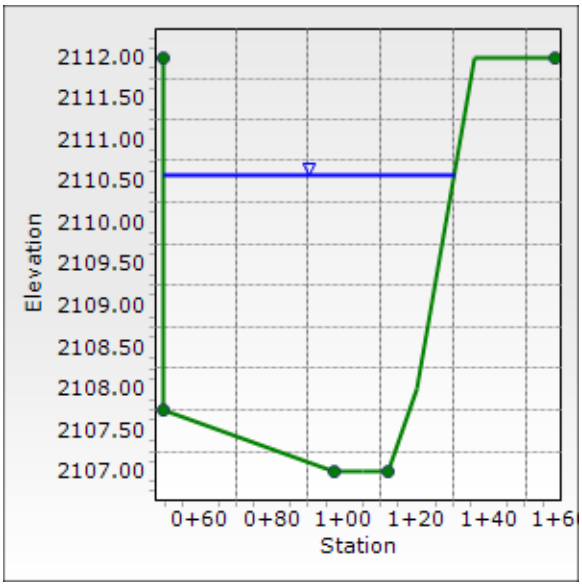
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.58 ft
Critical Depth	3.71 ft
Channel Slope	0.70 %
Critical Slope	0.62 %

Cross Section for F-F(ROAD) Rancho 100-yr

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Channel Slope	0.70 %
Normal Depth	3.58 ft
Discharge	2,538.00 cfs



Worksheet for F-F(CHNL) Rancho 100-yr

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Channel Slope	0.70 %
Normal Depth	3.00 ft

Section Definitions

Station (ft)	Elevation (ft)
0+50.00	2,112.00
0+50.00	2,107.75
0+97.00	2,107.00
1+05.00	2,104.00
1+12.00	2,104.00
1+20.00	2,108.00
1+36.00	2,112.00
1+58.00	2,112.00

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+50.00, 2,112.00)	(0+50.00, 2,107.75)	0.013
(0+50.00, 2,107.75)	(0+97.00, 2,107.00)	0.016
(0+97.00, 2,107.00)	(1+12.00, 2,104.00)	0.025
(1+12.00, 2,104.00)	(1+58.00, 2,112.00)	0.038

Options	
Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results	
Discharge	270.07 cfs
Elevation Range	2,104.00 to 2,112.00 ft
Flow Area	42.0 ft²
Wetted Perimeter	22.25 ft
Hydraulic Radius	1.89 ft
Top Width	21.00 ft
Normal Depth	3.00 ft
Critical Depth	2.67 ft
Critical Slope	1.12 %
Velocity	6.43 ft/s

Worksheet for F-F(CHNL) Rancho 100-yr

Results	
Velocity Head	0.64 ft
Specific Energy	3.64 ft
Froude Number	0.802
Flow Type	Subcritical

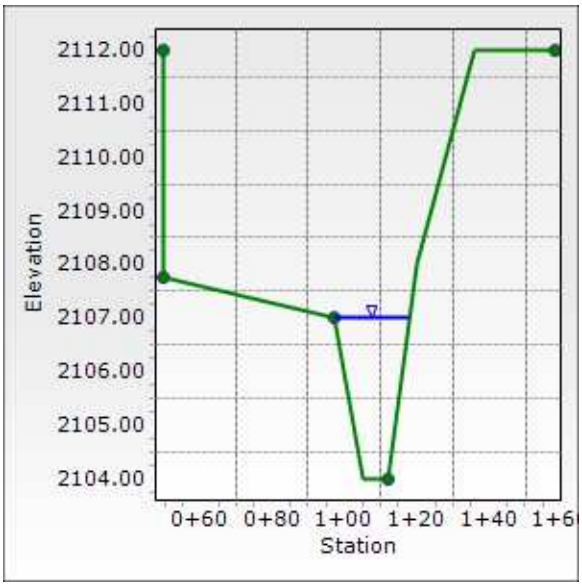
GVF Input Data	
Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.00 ft
Critical Depth	2.67 ft
Channel Slope	0.70 %
Critical Slope	1.12 %

Cross Section for F-F(CHNL) Rancho 100-yr

Project Description	
Friction Method	Manning Formula
Solve For	Discharge

Input Data	
Channel Slope	0.70 %
Normal Depth	3.00 ft
Discharge	270.07 cfs



HEC-RAS River: SIRIUS AVE Reach: SIRIUS Profile: 100-yr

Reach	River Sta	Profile	Plan	Q US	Q Leaving Total	Q DS	Q Weir	Q Gates	Wr Top Wdth	Weir Max Depth	Weir Avg Depth	Min El Weir Flow	E.G. US.	W.S. US.	E.G. DS	W.S. DS
				(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
SIRIUS	1245	100-yr	ExCond-EL	1158.00	100.38	1059.21	100.38		60.00	1.16	0.66	2109.80	2112.39	2110.96	2111.84	2110.64
SIRIUS	1245	100-yr	PropCond-EL	1158.00	77.88	1081.27	77.88		60.00	1.17	0.53	2109.80	2112.39	2110.97	2111.46	2110.10



HEC-RAS River: SIRIUS AVE Reach: SIRIUS Profile: 100-yr

Reach	River Sta	Profile	Plan	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
				(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
SIRIUS	1916	100-yr	ExCond-EL	2122.93	2122.54	0.40	1.92	0.22		1158.00		297.48
SIRIUS	1916	100-yr	PropCond-EL	2122.93	2122.55	0.38	1.97	0.21		1158.00		297.67
SIRIUS	1750	100-yr	ExCond-EL	2120.80	2118.22	2.58	3.63	0.08	360.00	741.54	56.47	97.00
SIRIUS	1750	100-yr	PropCond-EL	2120.74	2118.23	2.51	3.56	0.09	363.23	738.22	56.55	97.00
SIRIUS	1533	100-yr	ExCond-EL	2117.09	2113.72	3.37	4.55	0.64	54.29	1056.84	46.87	83.09
SIRIUS	1533	100-yr	PropCond-EL	2117.09	2113.71	3.38	4.54	0.65	54.26	1056.92	46.82	83.06
SIRIUS	1245			Lat Struct								
SIRIUS	1215	100-yr	ExCond-EL	2111.90	2110.67	1.22			526.59	523.03	46.96	184.50
SIRIUS	1215	100-yr	PropCond-EL	2111.89	2110.68	1.21	0.62	0.02	537.28	526.30	31.93	184.50
SIRIUS	1170	100-yr	PropCond-EL	2111.25	2109.81	1.44	0.89	0.11	53.57	1006.72	20.98	187.90
SIRIUS	1036	100-yr	ExCond-EL	2111.54	2110.50	1.04			63.72	944.39	51.10	62.20
SIRIUS	1036	100-yr	PropCond-EL	2111.58	2110.52	1.06			65.29	963.74	52.24	62.20

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X       X   X     X  X    X
X     X  X        X            X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X    X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

****

PROJECT DATA
Project Title: Sirius Avenue
Project File : SiriusAve.prj
Run Date and Time: 5/28/2020 9:36:07 AM

Project in English units

****

PLAN DATA

Plan Title: Proposed Conditions_EventLots
Plan File : k:\LAV_Civil\092965001 - Area 15 Ph2 (Fisher Brothers)\Reports\DRAINAGE\01_TDS\Calculations\HEC-RAS\SiriusAve.p06

Geometry Title: Proposed Conditions Geom_EventLots
Geometry File : k:\LAV_Civil\092965001 - Area 15 Ph2 (Fisher Brothers)\Reports\DRAINAGE\01_TDS\Calculations\HEC-RAS\SiriusAve.g10

Flow Title : Sirius_EventLots
Flow File : k:\LAV_Civil\092965001 - Area 15 Ph2 (Fisher Brothers)\Reports\DRAINAGE\01_TDS\Calculations\HEC-RAS\SiriusAve.f02

Plan Summary Information:
Number of: Cross Sections = 6 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 1

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Program Selects Appropriate method
Computational Flow Regime: Supercritical Flow

****

FLOW DATA

Flow Title: Sirius_EventLots
Flow File : k:\LAV_Civil\092965001 - Area 15 Ph2 (Fisher Brothers)\Reports\DRAINAGE\01_TDS\Calculations\HEC-RAS\SiriusAve.f02

Flow Data (cfs)
****

River	Reach	RS	100-yr
SIRIUS AVE	SIRIUS	1916	1158
SIRIUS AVE	SIRIUS	1215	1158
SIRIUS AVE	SIRIUS	1036	1158

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
SIRIUS AVE	SIRIUS	100-yr	Critical	Critical

GEOMETRY DATA

Geometry Title: Proposed Conditions Geom_EventLots
Geometry File : k:\LAV_Civil\092965001 - Area 15 Ph2 (Fisher Brothers)\Reports\DRAINAGE\01_TDS\Calculations\HEC-RAS\SiriusAve.g10

CROSS SECTION

RIVER: SIRIUS AVE
REACH: SIRIUS RS: 1916

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2124	45.66	2124	47.74	2123.09	50.09	2122	52.26	2121.54
58.04	2121.25	58.1	2120.75	59.6	2120.86	82.6	2121	105.6	2120.81
107.1	2120.7	107.1	2121.2	112.1	2121.2	115.24	2121.48	115.44	2121.47
116.39	2121.5	117.08	2121.52	124.01	2121.77	127.89	2121.9	128.11	2121.92
128.26	2121.93	216.93	2122	219.4	2121.94	219.67	2121.94	226.29	2121.76
229.79	2121.74	234.52	2121.87	234.72	2121.86	236.6	2121.87	236.67	2121.87
240.82	2122	339.66	2122.04	339.8	2122.02	339.82	2122.02	343.87	2122.35
344.04	2122.35	348.23	2122.68	350.49	2122.83	357.66	2122.9	363.61	2123.1
364.9	2123.14	365.91	2123.19						

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.016	58.04	.013	59.6	.016	105.6	.013	112.1	.025
339.82	.016								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
0	365.91	166.86	166.86	.1	.3

CROSS SECTION OUTPUT Profile #100-yr

E.G. Elev (ft)	2122.93	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.38	Wt. n-Val.		0.023	
W.S. Elev (ft)	2122.55	Reach Len. (ft)	166.86	166.86	166.86
Crit W.S. (ft)	2122.55	Flow Area (sq ft)		233.59	
E.G. Slope (ft/ft)	0.008145	Area (sq ft)		233.59	
Q Total (cfs)	1158.00	Flow (cfs)		1158.00	
Top Width (ft)	297.67	Top Width (ft)		297.67	
Vel Total (ft/s)	4.96	Avg. Vel. (ft/s)		4.96	
Max Chl Dpth (ft)	1.85	Hydr. Depth (ft)		0.78	
Conv. Total (cfs)	12831.4	Conv. (cfs)		12831.4	
Length Wtd. (ft)	166.86	Wetted Per. (ft)		298.85	
Min Ch El (ft)	2120.70	Shear (lb/sq ft)		0.40	
Alpha	1.00	Stream Power (lb/ft s)		1.97	
Frctn Loss (ft)	1.97	Cum Volume (acre-ft)	0.55	1.71	0.13
C & E Loss (ft)	0.21	Cum SA (acres)	0.87	1.64	0.25

Note: Manning's n values were composited to a single value in the main channel.

CROSS SECTION

RIVER: SIRIUS AVE
REACH: SIRIUS RS: 1750

INPUT
Description:
Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2120.4	0	2118	53	2117	53	2116.5	54.5	2116.61
77.5	2117.2	90.5	2116.66	92	2116.55	92	2117.05	97	2117.58
97	2120	97.5	2120	97.5	2117.58	100.5	2117.6		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.016	53	.013	54.5	.016	90.5	.013	97.5	.02

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
53	92	216.84	216.84	216.84	.1	.3

Right Levee Station= 97 Elevation= 2120

CROSS SECTION OUTPUT Profile #100-yr

* E.G. Elev (ft)	* 2120.74	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 2.51	* Wt. n-Val.	* 0.016	* 0.016	* 0.013 *
* W.S. Elev (ft)	* 2118.23	* Reach Len. (ft)	* 216.84	* 216.84	* 216.84 *
* Crit W.S. (ft)	* 2118.93	* Flow Area (sq ft)	* 38.81	* 52.41	* 4.59 *
* E.G. Slope (ft/ft)	*0.015487	* Area (sq ft)	* 38.81	* 52.41	* 4.59 *
* Q Total (cfs)	* 1158.00	* Flow (cfs)	* 363.23	* 738.22	* 56.55 *
* Top Width (ft)	* 97.00	* Top Width (ft)	* 53.00	* 39.00	* 5.00 *
* Vel Total (ft/s)	* 12.09	* Avg. Vel. (ft/s)	* 9.36	* 14.09	* 12.33 *
* Max Chl Dpth (ft)	* 1.73	* Hydr. Depth (ft)	* 0.73	* 1.34	* 0.92 *
* Conv. Total (cfs)	* 9305.1	* Conv. (cfs)	* 2918.7	* 5932.0	* 454.4 *
* Length Wtd. (ft)	* 216.84	* Wetted Per. (ft)	* 53.24	* 40.03	* 5.68 *
* Min Ch El (ft)	* 2116.50	* Shear (lb/sq ft)	* 0.70	* 1.27	* 0.78 *
* Alpha	* 1.10	* Stream Power (lb/ft s)	* 6.60	* 17.83	* 9.63 *
* Frctn Loss (ft)	* 3.56	* Cum Volume (acre-ft)	* 0.47	* 1.16	* 0.12 *
* C & E Loss (ft)	* 0.09	* Cum SA (acres)	* 0.77	* 1.00	* 0.24 *

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross
sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: SIRIUS AVE
REACH: SIRIUS RS: 1533

INPUT
Description:
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2114.3	0	2112	17	2111.7	34	2112	59	2113.2
59	2116	59	2120.5	59.5	2120.5	59.5	2116	59.5	2113.2
65.5	2112.5	65.5	2112	67	2112.11	90	2112.67	113	2112.11
118	2112.58	118	2113.08	124	2113	150	2114		

Manning's n Values num= 7

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.016	59	.02	59.5	.016	65.5	.013	67	.016
113	.013	124	.02						

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
65.5 118 318.07 318.07 318.07 .1 .3
Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
124	150	2115.42	F

Left Levee Station= 59.5 Elevation= 2116

CROSS SECTION OUTPUT Profile #100-yr

E.G. Elev (ft)	2117.09	Element	Left OB	Channel	Right OB
Vel Head (ft)	3.38	Wt. n-Val.	0.016	0.016	0.013
W.S. Elev (ft)	2113.71	Reach Len. (ft)	318.07	318.07	318.07
Crit W.S. (ft)	2114.66	Flow Area (sq ft)	5.18	70.23	4.04
E.G. Slope (ft/ft)	0.017377	Area (sq ft)	5.18	70.23	10.67
Q Total (cfs)	1158.00	Flow (cfs)	54.26	1056.92	46.82
Top Width (ft)	83.06	Top Width (ft)	6.00	52.50	24.56
Vel Total (ft/s)	14.57	Avg. Vel. (ft/s)	10.47	15.05	11.58
Max Chl Dpth (ft)	2.01	Hydr. Depth (ft)	0.86	1.34	0.67
Conv. Total (cfs)	8784.7	Conv. (cfs)	411.7	8017.8	355.2
Length Wtd. (ft)	318.07	Wetted Per. (ft)	6.55	53.54	6.00
Min Ch El (ft)	2112.00	Shear (lb/sq ft)	0.86	1.42	0.73
Alpha	1.02	Stream Power (lb/ft s)	8.98	21.42	8.46
Frctn Loss (ft)	4.54	Cum Volume (acre-ft)	0.36	0.86	0.08
C & E Loss (ft)	0.65	Cum SA (acres)	0.62	0.77	0.16

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross
sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

LATERAL STRUCTURE

RIVER: SIRIUS AVE
REACH: SIRIUS RS: 1245

INPUT
Description:
Lateral structure position = Left overbank
Distance from Upstream XS =
Deck/Roadway Width = 10
Weir Coefficient = 3
Weir Flow Reference = Water Surface
Weir Embankment Coordinates num = 3

Sta	Elev	Sta	Elev	Sta	Elev
0	2109.8	30	2110.3	60	2109.9

Weir crest shape = Broad Crested

LATERAL STRUCTURE OUTPUT Profile #100-yr Lateral Structure

E.G. US. (ft)	2112.39	Weir Sta US (ft)	0.00
W.S. US. (ft)	2110.97	Weir Sta DS (ft)	60.00
E.G. DS (ft)	2111.46	Min El Weir Flow (ft)	2109.80
W.S. DS (ft)	2110.10	Wr Top Wdth (ft)	60.00
Q US (cfs)	1158.00	Weir Max Depth (ft)	1.17
Q Leaving Total (cfs)	77.88	Weir Avg Depth (ft)	0.53
Q DS (cfs)	1081.27	Weir Flow Area (sq ft)	32.06

* Perc Q Leaving	* 6.63	* Weir Coef (ft^1/2)	* 3.000 *
* Q Weir (cfs)	* 77.88	* Weir Submerg	* 0.00 *
* Q Gates (cfs)	*	* Q Gate Group (cfs)	* *
* Q Culv (cfs)	*	* Gate Open Ht (ft)	* *
* Q Lat RC (cfs)	*	* Gate #Open	* *
* Q Outlet TS (cfs)	* 0.00	* Gate Area (sq ft)	* *
* Q Breach (cfs)	*	* Gate Submerg	* *
* Breach Avg Velocity (ft/s)	*	* Gate Invert (ft)	* *
* Breach Flow Area (sq ft)	*	* Gate Weir Coef	* *
* Breach WD (ft)	*	*	* *
* Breach Top El (ft)	*	*	* *
* Breach Bottom El (ft)	*	*	* *
* Breach SSL (ft)	*	*	* *
* Breach SSR (ft)	*	*	* *

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical
depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than
1.4. This may indicate the need for additional cross sections.
Note: Manning's n values were composited to a single value in the main channel.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: SIRIUS AVE
REACH: SIRIUS RS: 1215

INPUT
Description:
Station Elevation Data num= 15

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2110.3	93	2110	119	2109.5	123	2109.25	127	2109.5
150	2110	173	2109.8	174.5	2109.69	174.5	2110.11	179.5	2110.19
184.5	2110.26	184.5	2112.68	185	2112.68	185	2110.26	203	2111

Manning's n Values num= 6

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.016	119	.013	127	.016	173	.013	179.5	.02
184.5	.015								

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
119	174.5	45	45	.1	.3

Right Levee Station= 184.5 Elevation= 2112.68

CROSS SECTION OUTPUT Profile #100-yr

* E.G. Elev (ft)	* 2111.89	* Element	* Left OB	* Channel	* Right OB *
* Vel Head (ft)	* 1.21	* Wt. n-Val.	* 0.016	* 0.015	* 0.015 *
* W.S. Elev (ft)	* 2110.68	* Reach Len. (ft)	* 45.00	* 45.00	* 45.00 *
* Crit W.S. (ft)	* 2111.04	* Flow Area (sq ft)	* 73.66	* 51.26	* 4.94 *
* E.G. Slope (ft/ft)	*0.011742	* Area (sq ft)	* 73.66	* 51.26	* 4.94 *
* Q Total (cfs)	* 1095.51	* Flow (cfs)	* 537.28	* 526.30	* 31.93 *
* Top Width (ft)	* 184.50	* Top Width (ft)	* 119.00	* 55.50	* 10.00 *
* Vel Total (ft/s)	* 8.44	* Avg. Vel. (ft/s)	* 7.29	* 10.27	* 6.46 *
* Max Chl Dpth (ft)	* 1.43	* Hydr. Depth (ft)	* 0.62	* 0.92	* 0.49 *
* Conv. Total (cfs)	* 10109.7	* Conv. (cfs)	* 4958.2	* 4856.9	* 294.7 *
* Length Wtd. (ft)	* 45.00	* Wetted Per. (ft)	* 119.39	* 55.95	* 10.42 *
* Min Ch El (ft)	* 2109.25	* Shear (lb/sq ft)	* 0.45	* 0.67	* 0.35 *
* Alpha	* 1.10	* Stream Power (lb/ft s)	* 3.30	* 6.90	* 2.25 *
* Frctn Loss (ft)	* 0.62	* Cum Volume (acre-ft)	* 0.08	* 0.41	* 0.02 *
* C & E Loss (ft)	* 0.02	* Cum SA (acres)	* 0.16	* 0.38	* 0.04 *

Warning: The cross-section end points had to be extended vertically for the computed water surface.

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross
sections.
Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
the need for additional cross sections.
Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: SIRIUS AVE
REACH: SIRIUS RS: 1170

INPUT
Description:
Station Elevation Data num= 16

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2110.35	66.05	2110	86.98	2109.6	93.85	2109.55	121.59	2109.45
121.59	2108.95	125.55	2109.06	186.33	2109.03	243.24	2109.03	252.35	2108.93
252.35	2109.43	263.75	2109.53	263.75	2111.95	264.89	2111.95	264.89	2109.53
284.54	2111								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.02	66.05	.016	121.59	.016

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
121.59	252.35	134	134	.1	.3

Right Levee Station= 263.75 Elevation= 2111.95

CROSS SECTION OUTPUT Profile #100-yr

E.G. Elev (ft)	2111.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	1.44	Wt. n-Val.	0.016	0.016	0.016
W.S. Elev (ft)	2109.81	Reach Len. (ft)	134.00	134.00	134.00
Crit W.S. (ft)	2110.26	Flow Area (sq ft)	11.49	101.99	3.79
E.G. Slope (ft/ft)	0.015895	Area (sq ft)	11.49	101.99	3.79
Q Total (cfs)	1081.27	Flow (cfs)	53.57	1006.72	20.98
Top Width (ft)	187.90	Top Width (ft)	45.74	130.76	11.40
Vel Total (ft/s)	9.22	Avg. Vel. (ft/s)	4.66	9.87	5.53
Max Chl Dpth (ft)	0.88	Hydr. Depth (ft)	0.25	0.78	0.33
Conv. Total (cfs)	8576.4	Conv. (cfs)	424.9	7985.1	166.4
Length Wtd. (ft)	134.00	Wetted Per. (ft)	45.74	131.76	11.68
Min Ch El (ft)	2108.93	Shear (lb/sq ft)	0.25	0.77	0.32
Alpha	1.09	Stream Power (lb/ft s)	1.16	7.58	1.78
Frctn Loss (ft)	0.89	Cum Volume (acre-ft)	0.03	0.33	0.02
C & E Loss (ft)	0.11	Cum SA (acres)	0.08	0.28	0.03

Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

CROSS SECTION

RIVER: SIRIUS AVE
REACH: SIRIUS RS: 1036

INPUT
Description:
Station Elevation Data num= 20

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	2111	70	2110	164	2109	211	2110	225	2110
226.7	2110.3	227.4	2110.3	227.4	2108.8	232.4	2108.72	232.4	2108.22
233.9	2108.33	256.9	2108.3	279.9	2108.3	283.9	2108.2	283.9	2108.7
288.9	2108.8	288.9	2111.22	289.4	2111.22	289.4	2108.8	295.4	2109

```
Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
*********************************************************************************
       0     .02   227.4    .013   233.9    .016   279.9    .013   283.9    .016

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         232.4   283.9                0       0       0             .1       .3
Left Levee      Station=   226.7      Elevation= 2111.22
Right Levee     Station=   288.9      Elevation= 2111.22

CROSS SECTION OUTPUT  Profile #100-yr
*************************************************************************************************
* E.G. Elev (ft)         * 2111.58  * Element               *  Left OB *  Channel * Right OB *
* Vel Head (ft)          *    1.06  * Wt. n-Val.            *   0.013  *   0.016  *   0.016  *
* W.S. Elev (ft)         * 2110.52  * Reach Len. (ft)       *          *          *          *
* Crit W.S. (ft)         * 2110.52  * Flow Area (sq ft)     *    8.95  *  114.15  *    8.84  *
* E.G. Slope (ft/ft)     *0.002806  * Area (sq ft)          *    8.95  *  114.15  *    8.84  *
* Q Total (cfs)          * 1081.27  * Flow (cfs)            *   65.29  *  963.74  *   52.24  *
* Top Width (ft)         *   62.20  * Top Width (ft)        *    5.70  *   51.50  *    5.00  *
* Vel Total (ft/s)       *    8.20  * Avg. Vel. (ft/s)      *    7.30  *    8.44  *    5.91  *
* Max Chl Dpth (ft)      *    2.32  * Hydr. Depth (ft)      *    1.57  *    2.22  *    1.77  *
* Conv. Total (cfs)      * 20413.1  * Conv. (cfs)           *  1232.6  * 18194.2  *   986.2  *
* Length Wtd. (ft)       *          * Wetted Per. (ft)      *    7.42  *   52.51  *    6.72  *
* Min Ch El (ft)         * 2108.20  * Shear (lb/sq ft)      *    0.21  *    0.38  *    0.23  *
* Alpha                  *    1.02  * Stream Power (lb/ft s) *    1.54  *    3.22  *    1.36  *
* Frctn Loss (ft)        *          * Cum Volume (acre-ft)  *          *          *          *
* C & E Loss (ft)        *          * Cum SA (acres)        *          *          *          *
*************************************************************************************************

Warning: The energy equation could not be balanced within the specified number of iterations.  The program
used critical
         depth for the water surface and continued on with the calculations.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or
greater than
         1.4.  This may indicate the need for additional cross sections.
Note:    Manning's n values were composited to a single value in the main channel.
Note:    Multiple critical depths were found at this location.  The critical depth with the lowest, valid,
energy was used.

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

SUMMARY OF MANNING'S N VALUES

River:SIRIUS AVE
*************************************************************************************************************
*     Reach      *   River Sta.   *   n1    *   n2    *   n3    *   n4    *   n5    *   n6    *   n7    *
*************************************************************************************************************
*SIRIUS          *    1916        *     .016*     .013*     .016*     .013*     .025*     .016*         *
*SIRIUS          *    1750        *     .016*     .013*     .016*     .013*      .02*         *         *
*SIRIUS          *    1533        *     .016*      .02*     .016*     .013*     .016*     .013*      .02*
*SIRIUS          *    1245        *Lat Struct*        *        *        *        *        *        *
*SIRIUS          *    1215        *     .016*     .013*     .016*     .013*      .02*     .015*         *
*SIRIUS          *    1170        *      .02*     .016*     .016*         *         *         *         *
*SIRIUS          *    1036        *      .02*     .013*     .016*     .013*     .016*         *         *
*************************************************************************************************************

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

SUMMARY OF REACH LENGTHS

River: SIRIUS AVE
*****************************************************************
*     Reach      *   River Sta.   *  Left   * Channel *  Right  *
*****************************************************************
*SIRIUS          *    1916        *   166.86*   166.86*   166.86*
*SIRIUS          *    1750        *   216.84*   216.84*   216.84*
*SIRIUS          *    1533        *   318.07*   318.07*   318.07*
*SIRIUS          *    1245        *Lat Struct*         *         *
*SIRIUS          *    1215        *       45*       45*       45*
*SIRIUS          *    1170        *      134*      134*      134*
```

```
*SIRIUS          *    1036        *        0*        0*        0*
************************************************************

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

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: SIRIUS AVE

*****************************************************
*     Reach      *   River Sta.   * Contr.  * Expan.  *
*****************************************************
*SIRIUS          *    1916    *       .1*       .3*
*SIRIUS          *    1750    *       .1*       .3*
*SIRIUS          *    1533    *       .1*       .3*
*SIRIUS          *    1245    *Lat Struct*         *
*SIRIUS          *    1215    *       .1*       .3*
*SIRIUS          *    1170    *       .1*       .3*
*SIRIUS          *    1036    *       .1*       .3*
*****************************************************

Profile Output Table - Standard Table 1
************************************************************************************************************************
************************************************************************
* Reach       * River Sta   * Profile     * Plan        *    Q Total * Min Ch El * W.S. Elev * Crit W.S. *
E.G. Elev * E.G. Slope * Vel Chnl * Flow Area * Top Width * Froude # Chl *
*             *             *             *             *      (cfs) *      (ft) *      (ft) *      (ft) *
   (ft) *    (ft/ft) *   (ft/s) *   (sq ft) *      (ft) *              *
************************************************************************************************************************
************************************************************************
* SIRIUS      * 1916        * 100-yr      * ExCond-EL   *    1158.00 *   2120.70 *   2122.54 *   2122.54 *
2122.93 *   0.008613 *     5.04 *    229.67 *    297.48 *         1.01 *
* SIRIUS      * 1916        * 100-yr      * PropCond-EL *    1158.00 *   2120.70 *   2122.55 *   2122.55 *
2122.93 *   0.008145 *     4.96 *    233.59 *    297.67 *         0.99 *
*             *             *             *             *            *           *           *           *
        *           *          *           *           *              *
* SIRIUS      * 1750        * 100-yr      * ExCond-EL   *    1158.00 *   2116.50 *   2118.22 *   2118.93 *
2120.80 *   0.016139 *    14.29 *     94.55 *     97.00 *         2.18 *
* SIRIUS      * 1750        * 100-yr      * PropCond-EL *    1158.00 *   2116.50 *   2118.23 *   2118.93 *
2120.74 *   0.015487 *    14.09 *     95.80 *     97.00 *         2.14 *
*             *             *             *             *            *           *           *           *
        *           *          *           *           *              *
* SIRIUS      * 1533        * 100-yr      * ExCond-EL   *    1158.00 *   2112.00 *   2113.72 *   2114.66 *
2117.09 *   0.017332 *    15.04 *     79.52 *     83.09 *         2.29 *
* SIRIUS      * 1533        * 100-yr      * PropCond-EL *    1158.00 *   2112.00 *   2113.71 *   2114.66 *
2117.09 *   0.017377 *    15.05 *     79.46 *     83.06 *         2.29 *
*             *             *             *             *            *           *           *           *
        *           *          *           *           *              *
* SIRIUS      * 1245        *             *             * Lat Struct *           *           *           *
        *           *          *           *           *              *
*             *             *             *             *            *           *           *           *
        *           *          *           *           *              *
* SIRIUS      * 1215        * 100-yr      * ExCond-EL   *    1096.58 *   2109.25 *   2110.67 *   2111.04 *
2111.90 *   0.011877 *    10.31 *    129.16 *    184.50 *         1.90 *
* SIRIUS      * 1215        * 100-yr      * PropCond-EL *    1095.51 *   2109.25 *   2110.68 *   2111.04 *
2111.89 *   0.011742 *    10.27 *    129.87 *    184.50 *         1.88 *
*             *             *             *             *            *           *           *           *
        *           *          *           *           *              *
* SIRIUS      * 1170        * 100-yr      * PropCond-EL *    1081.27 *   2108.93 *   2109.81 *   2110.26 *
2111.25 *   0.015895 *     9.87 *    117.28 *    187.90 *         1.97 *
*             *             *             *             *            *           *           *           *
        *           *          *           *           *              *
* SIRIUS      * 1036        * 100-yr      * ExCond-EL   *    1059.21 *   2108.20 *   2110.50 *   2110.50 *
2111.54 *   0.002772 *     8.34 *    130.76 *     62.20 *         0.99 *
* SIRIUS      * 1036        * 100-yr      * PropCond-EL *    1081.27 *   2108.20 *   2110.52 *   2110.52 *
2111.58 *   0.002806 *     8.44 *    131.93 *     62.20 *         1.00 *
************************************************************************************************************************
************************************************************************

Profile Output Table - Standard Table 2
************************************************************************************************************************
*****************************************************
```

```
* Reach       * River Sta   * Profile     * Plan        *  E.G. Elev * W.S. Elev * Vel Head * Frctn Loss * C
& E Loss * Q Left * Q Channel * Q Right * Top Width *
*             *             *             *             *       (ft) *      (ft) *     (ft) *       (ft) *
    (ft) *  (cfs) *     (cfs) *   (cfs) *      (ft) *
*************************************************************************************************************
*************************************************
* SIRIUS      * 1916        * 100-yr      * ExCond-EL   *    2122.93 *   2122.54 *     0.40 *       1.92 *
    0.22 *        *   1158.00 *         *    297.48 *
* SIRIUS      * 1916        * 100-yr      * PropCond-EL *    2122.93 *   2122.55 *     0.38 *       1.97 *
    0.21 *        *   1158.00 *         *    297.67 *
*             *             *             *             *            *           *          *            *
        *       *           *         *           *
* SIRIUS      * 1750        * 100-yr      * ExCond-EL   *    2120.80 *   2118.22 *     2.58 *       3.63 *
    0.08 * 360.00 *    741.54 *   56.47 *     97.00 *
* SIRIUS      * 1750        * 100-yr      * PropCond-EL *    2120.74 *   2118.23 *     2.51 *       3.56 *
    0.09 * 363.23 *    738.22 *   56.55 *     97.00 *
*             *             *             *             *            *           *          *            *
        *       *           *         *           *
* SIRIUS      * 1533        * 100-yr      * ExCond-EL   *    2117.09 *   2113.72 *     3.37 *       4.55 *
    0.64 *  54.29 *   1056.84 *   46.87 *     83.09 *
* SIRIUS      * 1533        * 100-yr      * PropCond-EL *    2117.09 *   2113.71 *     3.38 *       4.54 *
    0.65 *  54.26 *   1056.92 *   46.82 *     83.06 *
*             *             *             *             *            *           *          *            *
        *       *           *         *           *
* SIRIUS      * 1245        *             *             * Lat Struct *           *          *            *
        *       *           *         *           *
*             *             *             *             *            *           *          *            *
        *       *           *         *           *
* SIRIUS      * 1215        * 100-yr      * ExCond-EL   *    2111.90 *   2110.67 *     1.22 *            *
        * 526.59 *    523.03 *   46.96 *    184.50 *
* SIRIUS      * 1215        * 100-yr      * PropCond-EL *    2111.89 *   2110.68 *     1.21 *       0.62 *
    0.02 * 537.28 *    526.30 *   31.93 *    184.50 *
*             *             *             *             *            *           *          *            *
        *       *           *         *           *
* SIRIUS      * 1170        * 100-yr      * PropCond-EL *    2111.25 *   2109.81 *     1.44 *       0.89 *
    0.11 *  53.57 *   1006.72 *   20.98 *    187.90 *
*             *             *             *             *            *           *          *            *
        *       *           *         *           *
* SIRIUS      * 1036        * 100-yr      * ExCond-EL   *    2111.54 *   2110.50 *     1.04 *            *
        *  63.72 *    944.39 *   51.10 *     62.20 *
* SIRIUS      * 1036        * 100-yr      * PropCond-EL *    2111.58 *   2110.52 *     1.06 *            *
        *  65.29 *    963.74 *   52.24 *     62.20 *
*************************************************************************************************************
*************************************************

Profile Output Table - Lateral Structures
*************************************************************************************************************
*************************************************************************************************************
*******
* Reach       * River Sta   * Profile     * Plan        *    Q US * Q Leaving Total *    Q DS * Q Weir * Q
Gates * Wr Top Wdth * Weir Max Depth * Weir Avg Depth * Min El Weir Flow * E.G. US. * W.S. US. * E.G. DS *
W.S. DS *
*             *             *             *             *   (cfs) *           (cfs) *   (cfs) *  (cfs) *
(cfs) *        (ft) *           (ft) *           (ft) *             (ft) *     (ft) *     (ft) *    (ft) *
 (ft) *
*************************************************************************************************************
*************************************************************************************************************
*******
* SIRIUS      * 1245        * 100-yr      * ExCond-EL   * 1158.00 *          100.38 * 1059.21 * 100.38 *
    *       60.00 *           1.16 *           0.66 *          2109.80 *  2112.39 *  2110.96 * 2111.84 *
2110.64 *
* SIRIUS      * 1245        * 100-yr      * PropCond-EL * 1158.00 *           77.88 * 1081.27 *  77.88 *
    *       60.00 *           1.17 *           0.53 *          2109.80 *  2112.39 *  2110.97 * 2111.46 *
2110.10 *
*************************************************************************************************************
*************************************************************************************************************
*******

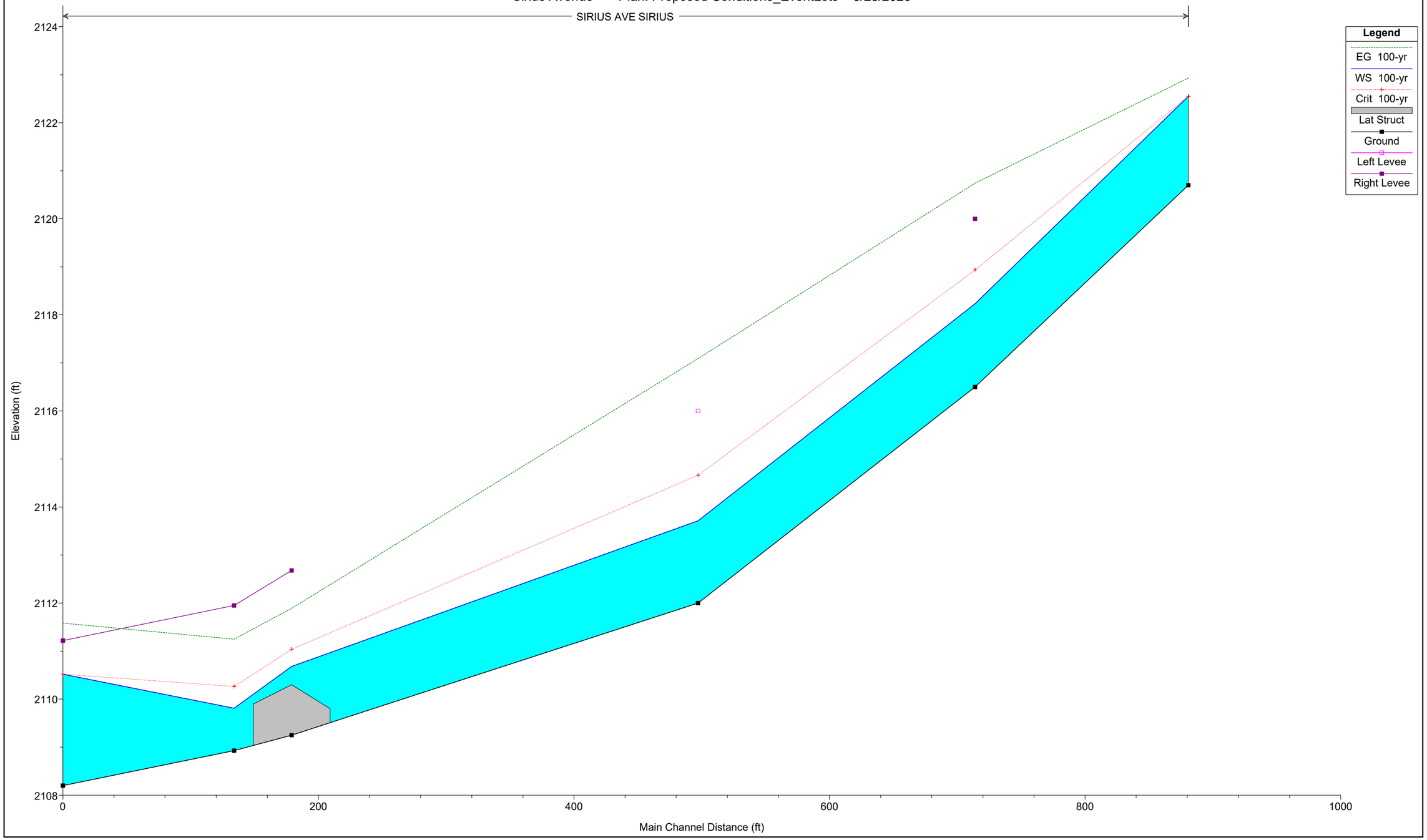
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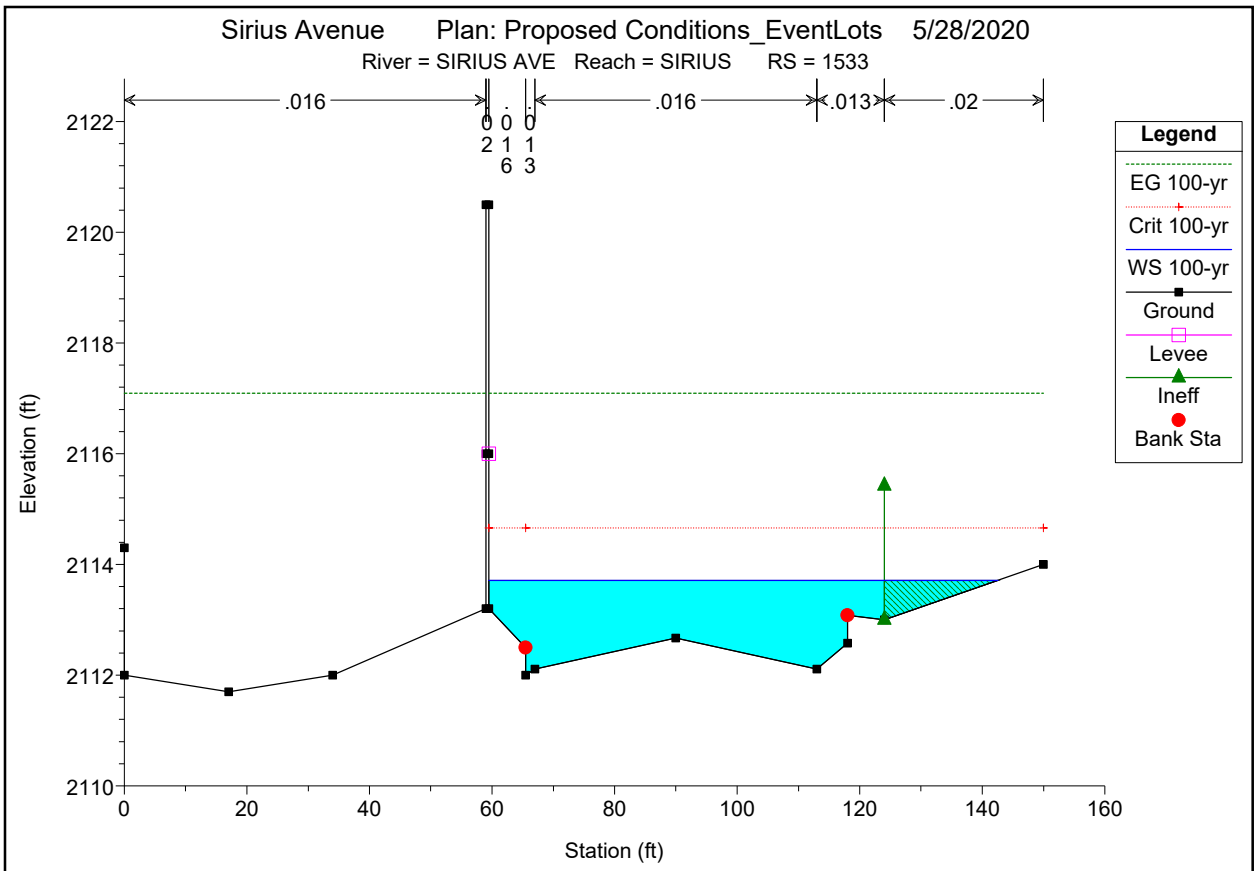
ERRORS WARNINGS AND NOTES
```

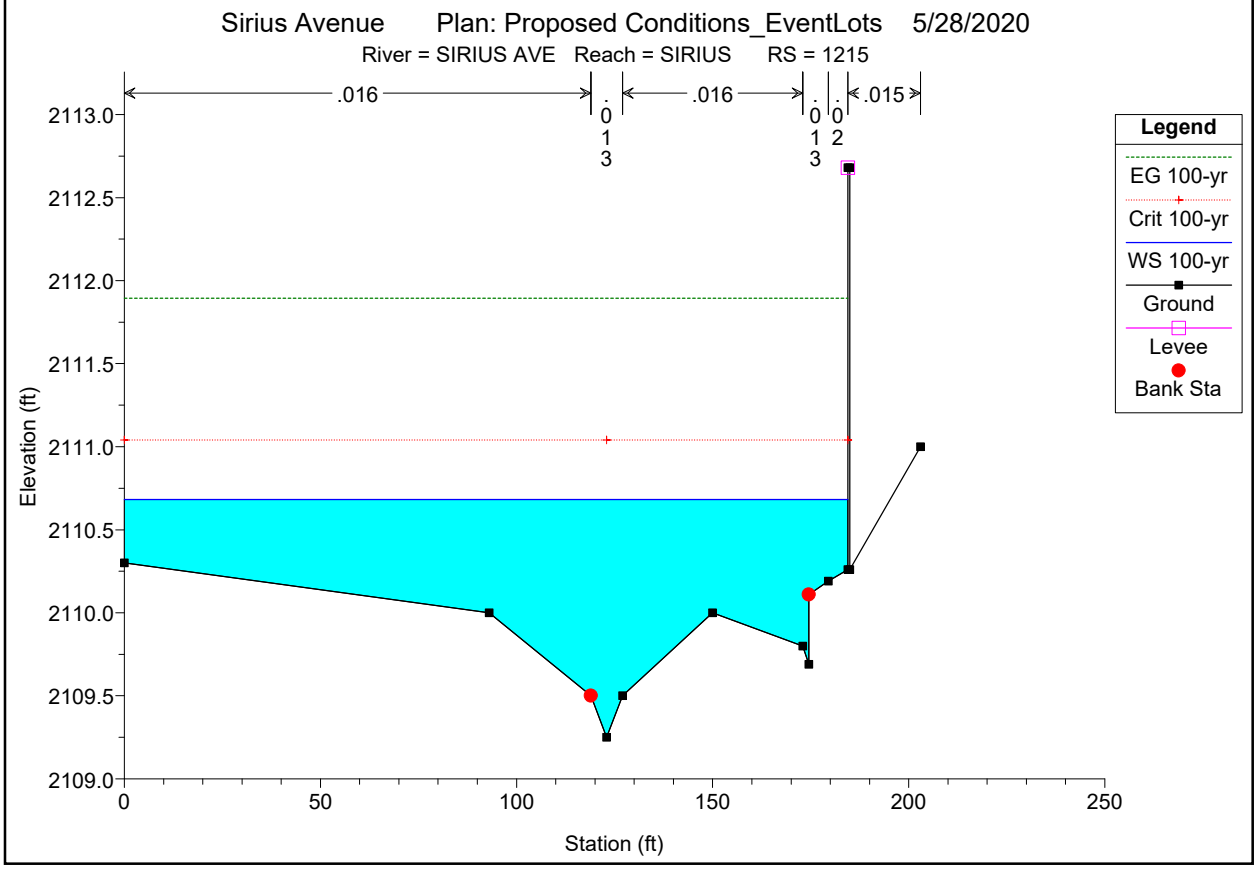
Errors Warnings and Notes for Plan : PropCond-EL

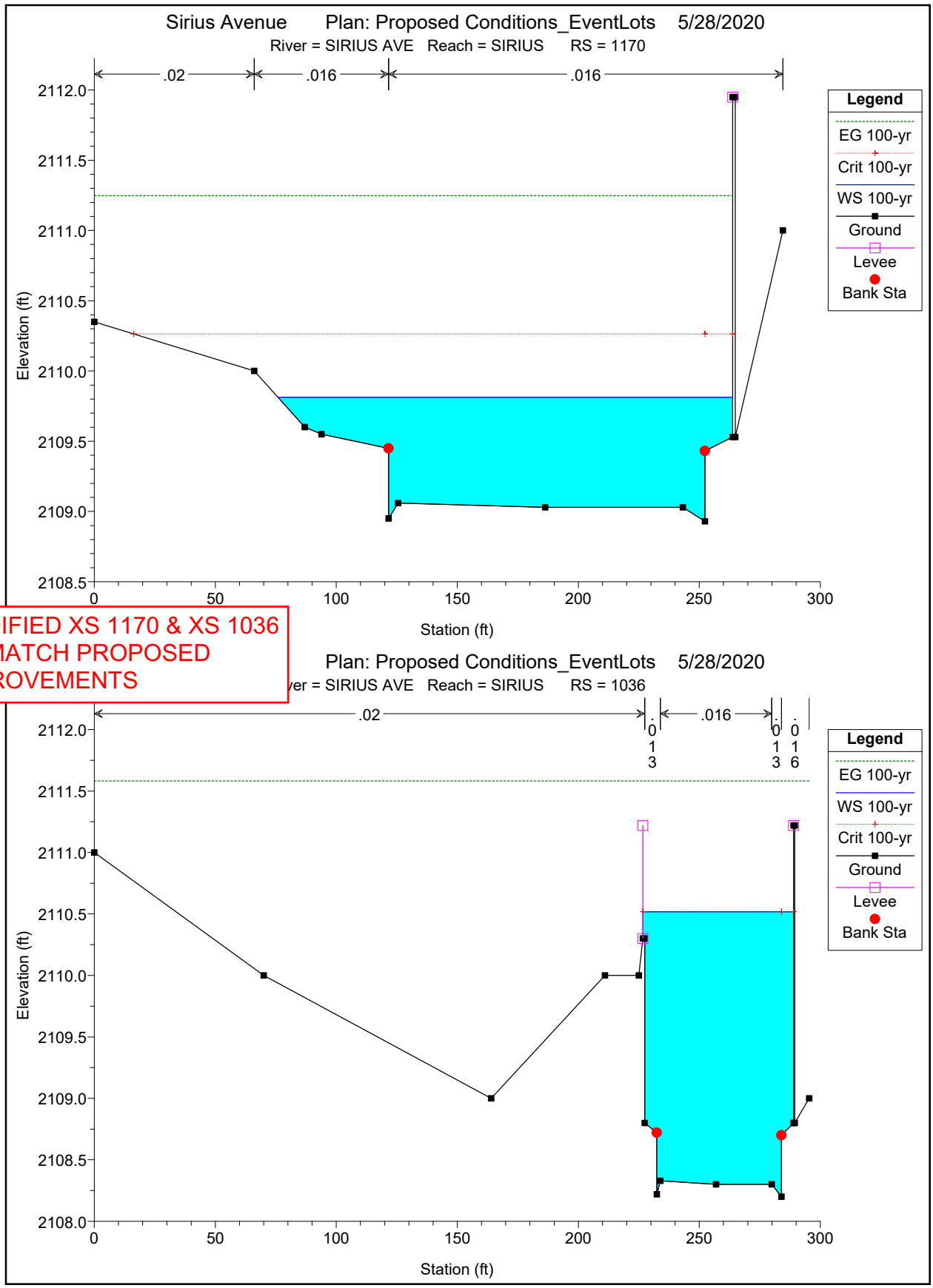
River: SIRIUS AVE Reach: SIRIUS RS: 1916 Profile: 100-yr
  Note: Manning's n values were composited to a single value in the main channel.
River: SIRIUS AVE Reach: SIRIUS RS: 1750 Profile: 100-yr
  Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
  Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
    the need for additional cross sections.
  Note: Manning's n values were composited to a single value in the main channel.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: SIRIUS AVE Reach: SIRIUS RS: 1533 Profile: 100-yr
  Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
  Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
    the need for additional cross sections.
  Note: Manning's n values were composited to a single value in the main channel.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: SIRIUS AVE Reach: SIRIUS RS: 1245 Profile: 100-yr
  Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
    for the water surface and continued on with the calculations.
  Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
    This may indicate the need for additional cross sections.
  Note: Manning's n values were composited to a single value in the main channel.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: SIRIUS AVE Reach: SIRIUS RS: 1215 Profile: 100-yr
  Warning:The cross-section end points had to be extended vertically for the computed water surface.
  Warning:The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.
  Warning:The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate
    the need for additional cross sections.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: SIRIUS AVE Reach: SIRIUS RS: 1170 Profile: 100-yr
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.
River: SIRIUS AVE Reach: SIRIUS RS: 1036 Profile: 100-yr
  Warning:The energy equation could not be balanced within the specified number of iterations. The program used critical depth
    for the water surface and continued on with the calculations.
  Warning:The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
    This may indicate the need for additional cross sections.
  Note: Manning's n values were composited to a single value in the main channel.
  Note: Multiple critical depths were found at this location. The critical depth with the lowest, valid, energy was used.

Sirius Avenue Plan: Proposed Conditions_EventLots 5/28/2020




Sirius Avenue Plan: Proposed Conditions_EventLots 5/28/2020
River = SIRIUS AVE Reach = SIRIUS RS = 1533
.016
.016
.013
.02
.021
.016
.013
Legend
EG 100-yr
Crit 100-yr
WS 100-yr
Ground
Levee
Ineff
Bank Sta
Elevation (ft)
Station (ft)


Sirius Avenue Plan: Proposed Conditions_EventLots 5/28/2020
River = SIRIUS AVE Reach = SIRIUS RS = 1215
.016
.016
.015
.013
.013
.012
Legend
EG 100-yr
Crit 100-yr
WS 100-yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


Sirius Avenue
Plan: Proposed Conditions_EventLots 5/28/2020
River = SIRIUS AVE Reach = SIRIUS RS = 1170
.02
.016
.016
Legend
EG 100-yr
Crit 100-yr
WS 100-yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
MODIFIED XS 1170 & XS 1036 TO MATCH PROPOSED IMPROVEMENTS
Plan: Proposed Conditions_EventLots 5/28/2020
ver = SIRIUS AVE Reach = SIRIUS RS = 1036
.02
.016
.013
.013
.016
Legend
EG 100-yr
WS 100-yr
Crit 100-yr
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

CIVIL IMPROVEMENT PLANS

FOR

AREA 15 EVENT PARKING LOT

APN: 162-08-702-001

CITY OF LAS VEGAS, NEVADA

PROJECT CONTACTS

OWNER	PROJECT ARCHITECT	PROJECT SURVEYOR
FISHER BROTHERS LAS VEGAS, LLC 299 PARK AVENUE NEW YORK, NEW YORK 10170	MOSER ARCHITECTURE STUDIO 5975 EDMOND STREET LAS VEGAS, NEVADA 89118	HERITAGE SURVEYING 1895 VILLAGE CENTER CIRCLE LAS VEGAS, NEVADA 89134
CONTACT: PHILIP BROHN (212)-940-6262	CONTACT: CHRISTIAN NELSON (702)-322-1177	CONTACT: CRAIG GIVANT, PLS (702)-212-4016
DEVELOPER	**CIVIL ENGINEER**	
AREA 15 LAS VEGAS, LLC 299 PARK AVENUE NEW YORK, NEW YORK 10170	KIMLEY-HORN AND ASSOCIATES, INC. 6671 LAS VEGAS BOULEVARD SOUTH, SUITE 320 LAS VEGAS, NEVADA 89119	
CONTACT: PHILIP BROHN (212)-940-6262	CONTACT: THOMAS ACKERET, P.E. (702)-862-3608	

PROJECT INFORMATION

NUMBER OF LOTS: 1

ACREAGE: ±4.39 ACRES

ZONING: INDUSTRIAL DISTRICT (M)

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SUBJECT SITE LIES WITHIN ZONE "X" OF FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX, REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD FLOODPLAIN".

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK No. "OLV118SSW6"

CITY OF LAS VEGAS PIN AND PLATE IN THE TOP OF CURB AT THE NORTHEAST CORNER OF DESERT INN ROAD AND POLARIS AVENUE NEAR THE PC OF DESERT INN ROAD.

ELEVATION = 50.346 METERS
133.676 FEET
CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON
NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88 V.2018)

BASIS OF BEARING

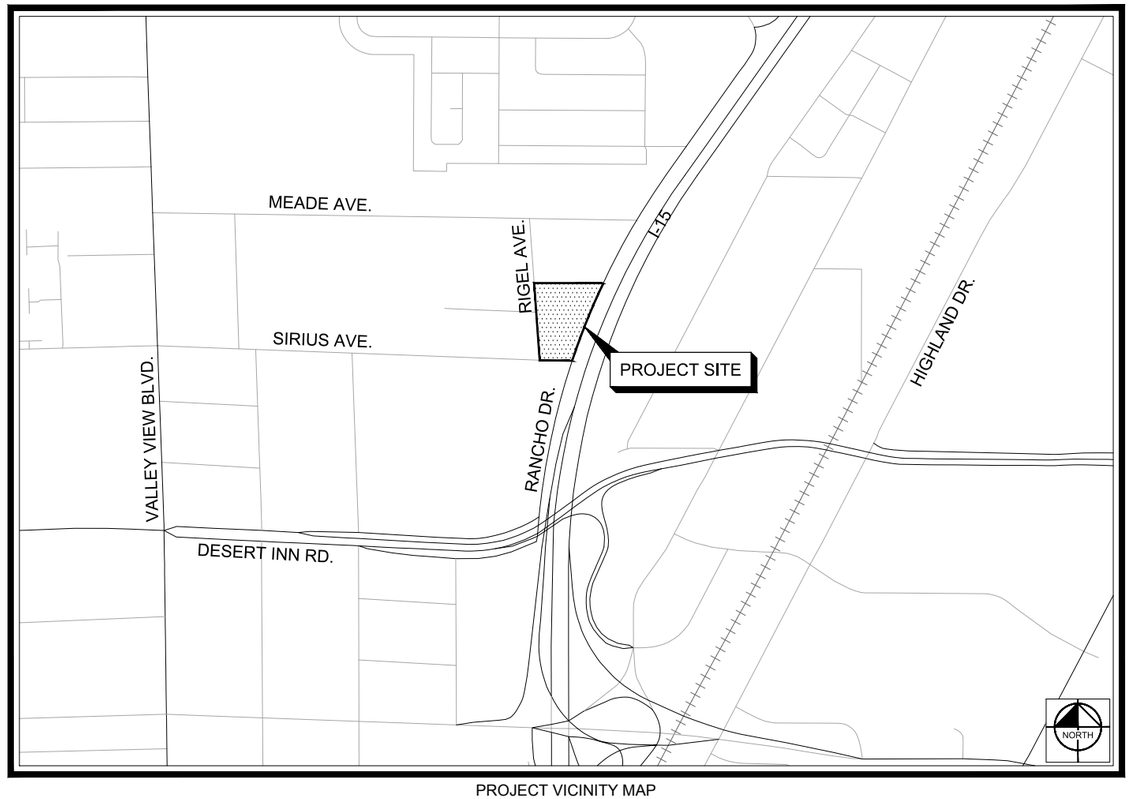
NORTH 87°51'19" WEST, BEING THE BEARING ALONG THE SOUTH LINE OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 8, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M, AND BEING THE CENTERLINE OF SIRIUS AVENUE AS MEASURED BETWEEN VALLEY VIEW BOULEVARD AND RIGEL AVENUE AS SHOWN IN FILE 196, PAGE 060 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

UTILITY NOTE

KIMLEY-HORN AND ASSOCIATES TAKES NO RESPONSIBILITY FOR EXISTING UTILITIES SHOWN HEREIN. THE EXISTING UTILITIES SHOWN ARE BASED ON INFORMATION PROVIDED BY-OTHER PARTIES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND VERIFY THE LOCATIONS AND INVERTS OF THE EXISTING WITHIN THE VICINITY OF CONSTRUCTION ACTIVITIES. IF A CONFLICT IS FOUND TO EXIST, THE CONTRACTOR SHALL COORDINATE THE PROJECT ENGINEER, PROJECT ARCHITECT, AND THE OWNER IMMEDIATELY.

SHEET INDEX

PAGE NO.	SHEET NO.	SHEET TITLE	REV NO. 1	2	3	4
	C00.01	COVER SHEET				
	C00.02	GENERAL NOTES				
	C03.01	GRADING PLAN				
	C03.02	GRADING SECTIONS				
	C03.03	DETAILED GRADING – SHEET 1				
	C03.04	DETAILED GRADING – SHEET 2				
	C03.05	GRADING DETAILS – SHEET 1				



PROJECT VICINITY MAP

NTS

APPROVALS

ALLEN PAVELKA, PE, PE#009029 — DATE

APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS LIMITED TO THOSE IMPROVEMENTS CONSTRUCTED IN THE DEDICATED RIGHT-OF-WAY, AND/OR DEDICATED EASEMENTS. THIS APPROVAL DOES NOT AUTHORIZE CONSTRUCTION OF ANY IMPROVEMENTS THAT DEVIATE FROM ADOPTED STANDARDS AND/OR SPECIFICATIONS EXCEPT THOSE SPECIFICALLY LISTED UNDER THE DEVIATION FORM STANDARDS. THE ENGINEER SHALL RESOLVE ANY DEVIATION OTHER THAN THOSE LISTED IN DEVIATIONS FROM STANDARDS IN FAVOR OF THE UNIFORM STANDARD DRAWINGS AND SPECIFICATIONS, CLARK COUNTY AREA, NEVADA.

CLV FIRE AND RESCUE — DATE

CITY OF LAS VEGAS DEPARTMENT OF PLANNING — DATE

THIS PLAN MEETS THE APPLICABLE STANDARDS OF THE DEPARTMENT OF PLANNING

CENTRAL TELEPHONE COMPANY, D/B/A CENTURYLINK — DATE

THE AFFIXED CENTURYLINK NEVADA APPROVAL DOES NOT ASSUME OR GUARANTEE LIABILITY FOR KNOWN OR UNKNOWN CONFLICTS WITH EXISTING OR PROPOSED IMPROVEMENTS. RESOLUTION OF ANY CONFLICT WILL BE ACCOMPLISHED PURSUANT TO LOCAL ORDINANCES, NEVADA REVISED STATUTES AND/OR PUBLIC UTILITY COMMISSION STANDARD REGULATIONS.

NV ENERGY - DISTRIBUTION — DATE

NV ENERGY ACKNOWLEDGES THAT WE HAVE RECEIVED YOUR PLANS AND WILL PROVIDE SERVICE TO ALL ELECTRICAL NEEDS ASSOCIATED WITH THIS PROJECT. NV ENERGY RESERVES THE RIGHT TO ADDRESS ANY EXISTING OR FUTURE CONFLICTS ONCE THE FINAL DESIGN IS COMPLETED. THE NEW SERVICE AND THE RESOLUTION OF ANY CONFLICTS WILL BE ACCOMPLISHED PURSUANT TO THE NEVADA PUBLIC UTILITY COMMISSION'S RULES AND REGULATIONS.

SOUTHWEST GAS CORPORATION — DATE

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT No. #### — FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL X,XXX GPM / ONSITE ---- GPM

COX COMMUNICATIONS LAS VEGAS, INC. — DATE

CCWRD PIPES #: -----
SIGNATURE ON THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF CLARK COUNTY WATER RECLAMATION DISTRICT RULES, REGULATIONS, OR DESIGN AND CONSTRUCTION STANDARDS.

AVOID HITTING UNDERGROUND TRAFFIC SIGNAL SYSTEMS AND STREET LIGHTING CONDUITS OR SYSTEMS
CALL BEFORE YOU DIG UNDERGROUND
Call before you UnderGround 1-702-432-5300
Call before you Dig
Avoid cutting underground utility lines. It's costly.
CALL 811 OR 1-800-227-2600
Avoid overhead power line contact. It's costly.
Call Before You Overhead 1-702-227-2929

Kimley»Horn
© 2020 KIMLEY-HORN AND ASSOCIATES, INC.
6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

PROFESSIONAL ENGINEER – STATE OF NEVADA
THOMAS ACKERET
Exp. 12/31/20
CIVIL
No. 18592
07/06/2020

No.	REVISIONS	DATE	BY

KHA PROJECT 092965001
DATE 07/02/2020
SCALE AS SHOWN
DESIGNED BY TEA
DRAWN BY KLS
CHECKED BY TEA

COVER SHEET

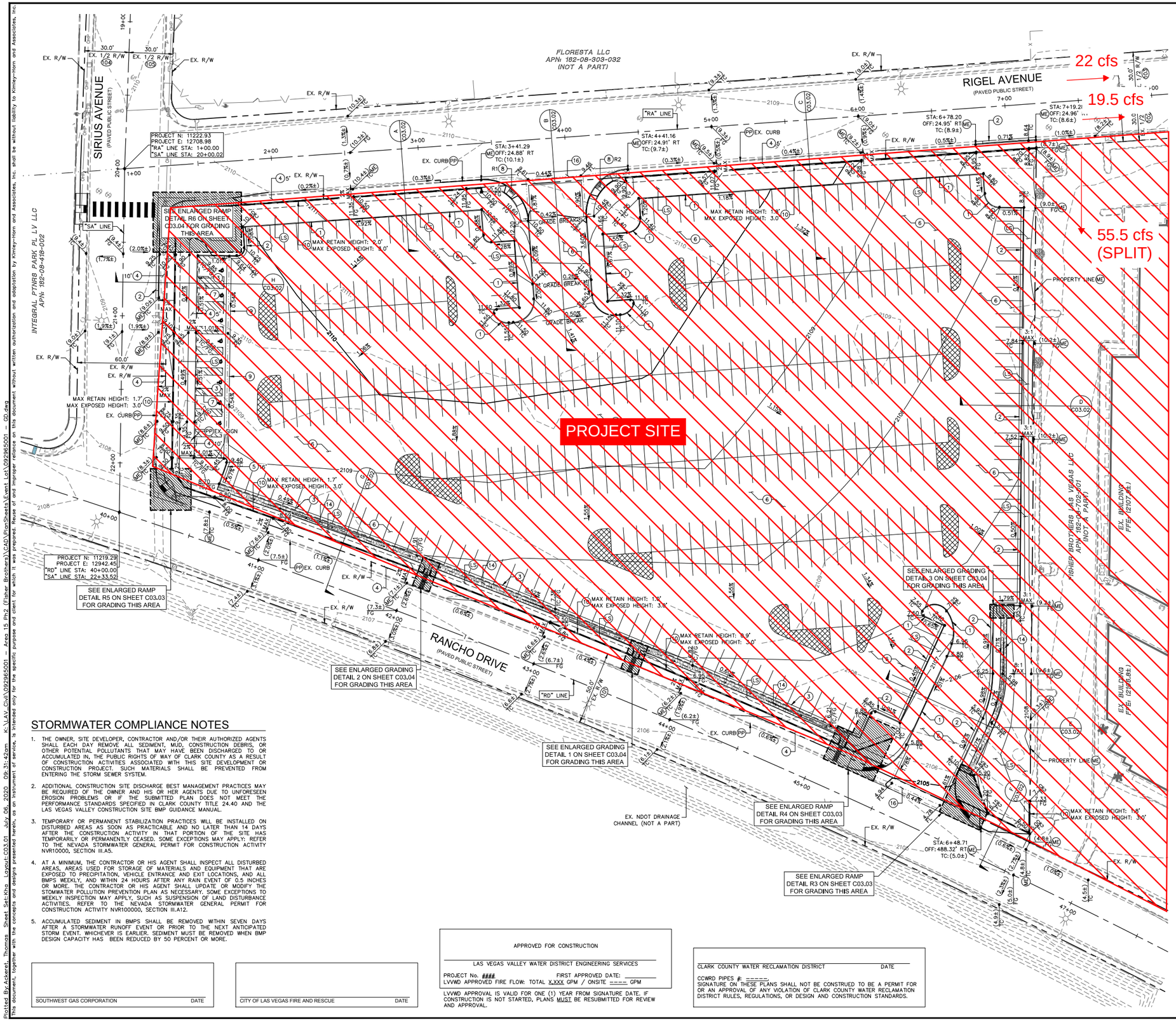
AREA 15 EVENT PARKING LOT

PREPARED FOR
AREA 15 LAS VEGAS, LLC.
CITY OF LAS VEGAS NEVADA

01 OF XX

C00.01

Plotted By: Ackeret, Thomas Sheet Set: Kha Layout: C00.01 July 06, 2020 08:31:17am K:\LAV_Civil\092965001 – Area 15 Ph2 (Fisher Brothers)\CAD\PlanSheets\Event Lot\092965001 – GN.dwg
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY THE EX. GRADES PRIOR TO CONSTRUCTION. IF A CONFLICT EXISTS BETWEEN THESE PLANS AND THE FIELD CONDITION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
2. THE CONTRACTOR SHALL VERIFY EX. IMPROVEMENTS SHOWN ON THE PLAN, AND NOTIFY ENGINEER IMMEDIATELY IF DISCREPANCIES EXIST.
3. THE CONTRACTOR SHALL PROTECT IN PLACE EX. IMPROVEMENTS, THAT ARE NOTED TO REMAIN, DURING DEMOLITION AND CONSTRUCTION.
4. THE CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO COMMENCEMENT OF CONSTRUCTION AND PROTECT IN PLACE UNLESS OTHERWISE NOTED ON THE PLANS.
5. ANY EXISTING STRUCTURE(S), IMPROVEMENT(S), OR APPURTENANCE(S) TO REMAIN, WHICH ARE DAMAGED DURING DEMOLITION OR CONSTRUCTION, SHALL BE IMMEDIATELY REPAIRED OR REPLACED BY THE CONTRACTOR AT THE THEIR EXPENSE.
6. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE IS MAINTAINED.
7. ADD 2100.00 FEET TO ALL TRUNCATED ELEVATIONS.
8. REFER TO SHEET C00.02 FOR LEGEND AND ABBREVIATIONS.

GEOTECHNICAL REPORT

ENGINEER: NINYO & MOORE
DATED: 06/01/2020
PROJECT NO.: 304616001

FLOOD ZONE NOTE

THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INDICATES THAT THE SUBJECT SITE LIES WITHIN ZONE "X" OF FLOOD INSURANCE RATE MAP (FIRM) No. 32003C2170F AS SHOWN ON THE FIRM INDEX, REVISED NOVEMBER 16, 2011. ZONE "X" IS DEFINED BY FEMA AS "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD FLOODPLAIN".

NDOT RIGHT-OF-WAY NOTES

NO WORK SHALL BE DONE WITHIN NDOT RIGHT-OF-WAY WITHOUT AN ENCROACHMENT PERMIT.

CONSTRUCTION NOTES

1. INSTALL MODIFIED TYPE 'A' CONCRETE CURB PER DETAIL 1 ON SHEET C03.05.
2. INSTALL TYPE 'L' CONCRETE CURB AND GUTTER PER CCAUSD No. 216.
3. INSTALL 0" FACE CURB PER DETAIL 2 ON SHEET C03.05.
4. INSTALL CONCRETE SIDEWALK PER CCAUSD No. 234, WIDTH AS NOTED ON PLANS.
5. INSTALL TRANSITION FROM TYPE 'L' CURB TO 0" FACE CURB, LENGTH AS NOTED ON PLANS.
6. INSTALL ASPHALT PAVING AND BASE MATERIAL PER GEOTECHNICAL REPORT RECOMMENDATIONS.
7. INSTALL CONCRETE PAVING AND BASE MATERIAL PER GEOTECHNICAL REPORT RECOMMENDATIONS.
8. INSTALL ADA SIDEWALK RAMP, I.D. AS NOTED ON PLAN. REFER TO DETAILS ON SHEETS C03.03–C03.04 FOR RAMP I.D., GEOMETRY AND GRADES.
9. INSTALL 3' WIDE ADA VALLEY GUTTER PER DETAIL 4 ON SHEET C03.05.
10. INSTALL 2' RETAINING WALL WITH "OPTIONAL" TYPE FOOTING PER SNBO REGIONAL STANDARD No. B-100-2 WITH GROUTED SCREEN WALL.
14. INSTALL LID RIP-RAP SWALE PER DETAIL 3 ON SHEET C03.05.
16. INSTALL CONCRETE CROSS GUTTER PER CCAUSD No. 228.
(LS) REFER TO LANDSCAPE PLANS FOR DETAILS.
(ME) MATCH EXISTING
(PP) PROTECT IN PLACE

RIGHT-OF-WAY AND EASEMENTS

(101) EX. R/W PER DOC #0329: 0288327.
(102) EX. R/W PER DOC #0452: 0364174.
(103) EX. R/W PER DOC #0020: 0018943.
(104) EX. R/W PER DOC #0000.0403623.
(105) EX. R/W PER DOC #0000.0403457.

BENCHMARK

CITY OF LAS VEGAS VERTICAL CONTROL
BENCHMARK No. "OLV118SSW6"

CITY OF LAS VEGAS PIN AND PLATE IN THE TOP OF CURB AT THE NORTHEAST CORNER OF DESERT INN ROAD AND POLARIS AVENUE NEAR THE PC OF DESERT INN ROAD.

ELEVATION = 650.346 METERS
2133.676 FEET
CITY OF LAS VEGAS VERTICAL CONTROL DATUM BASED UPON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD '88 V.2018)

BASIS OF BEARING

NORTH 87°51'19" WEST, BEING THE BEARING ALONG THE SOUTH LINE OF THE NORTH HALF OF THE SOUTHWEST QUARTER OF SECTION 8, TOWNSHIP 21 SOUTH, RANGE 61 EAST, M.D.M, AND BEING THE CENTERLINE OF SIRIUS AVENUE AS MEASURED BETWEEN VALLEY VIEW BOULEVARD AND RIGEL AVENUE AS SHOWN IN FILE 196, PAGE 060 OF SURVEYS ON FILE AT THE CLARK COUNTY, NEVADA, RECORDER'S OFFICE.

GRAPHIC SCALE IN FEET
0 15 30 60
1" = 30'

STORMWATER COMPLIANCE NOTES

1. THE OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS SHALL EACH DAY REMOVE ALL SEDIMENT, MUD, CONSTRUCTION DEBRIS, OR OTHER POTENTIAL POLLUTANTS THAT MAY HAVE BEEN DISCHARGED TO OR ACCUMULATED IN, THE PUBLIC RIGHTS OF WAY OF CLARK COUNTY AS A RESULT OF CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS SITE DEVELOPMENT OR CONSTRUCTION PROJECT. SUCH MATERIALS SHALL BE PREVENTED FROM ENTERING THE STORM SEWER SYSTEM.
2. ADDITIONAL CONSTRUCTION SITE DISCHARGE BEST MANAGEMENT PRACTICES MAY BE REQUIRED OF THE OWNER AND HIS OR HER AGENTS DUE TO UNFORESEEN EROSION PROBLEMS OR IF THE SUBMITTED PLAN DOES NOT MEET THE PERFORMANCE STANDARDS SPECIFIED IN CLARK COUNTY TITLE 24.40 AND THE LAS VEGAS VALLEY CONSTRUCTION SITE BMP GUIDANCE MANUAL.
3. TEMPORARY OR PERMANENT STABILIZATION PRACTICES WILL BE INSTALLED ON DISTURBED AREAS AS SOON AS PRACTICABLE AND NO LATER THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. SOME EXCEPTIONS MAY APPLY: REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR10000, SECTION III.AS.
4. AT A MINIMUM, THE CONTRACTOR OR HIS AGENT SHALL INSPECT ALL DISTURBED AREAS, AREAS USED FOR STORAGE OF MATERIALS AND EQUIPMENT THAT ARE EXPOSED TO PRECIPITATION, VEHICLE ENTRANCE AND EXIT LOCATIONS, AND ALL BMPS WEEKLY, AND WITHIN 24 HOURS AFTER ANY RAIN EVENT OF 0.5 INCHES OR MORE. THE CONTRACTOR OR HIS AGENT SHALL UPDATE OR MODIFY THE STOMWATER POLLUTION PREVENTION PLAN AS NECESSARY. SOME EXCEPTIONS TO WEEKLY INSPECTION MAY APPLY, SUCH AS SUSPENSION OF LAND DISTURBANCE ACTIVITIES. REFER TO THE NEVADA STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY NVR100000, SECTION III.A12.
5. ACCUMULATED SEDIMENT IN BMPS SHALL BE REMOVED WITHIN SEVEN DAYS AFTER A STORMWATER RUNOFF EVENT OR PRIOR TO THE NEXT ANTICIPATED STORM EVENT, WHICHEVER IS EARLIER. SEDIMENT MUST BE REMOVED WHEN BMP DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE.

SOUTHWEST GAS CORPORATION DATE

CITY OF LAS VEGAS FIRE AND RESCUE DATE

APPROVED FOR CONSTRUCTION

LAS VEGAS VALLEY WATER DISTRICT ENGINEERING SERVICES

PROJECT No. #### FIRST APPROVED DATE: _____
LVVWD APPROVED FIRE FLOW: TOTAL X,XXX GPM / ONSITE ____ GPM

LVVWD APPROVAL IS VALID FOR ONE (1) YEAR FROM SIGNATURE DATE. IF CONSTRUCTION IS NOT STARTED, PLANS MUST BE RESUBMITTED FOR REVIEW AND APPROVAL.

CLARK COUNTY WATER RECLAMATION DISTRICT DATE

CCWRD PIPES #: _____.
SIGNATURE ON THESE PLANS SHALL NOT BE CONSTRUED TO BE A PERMIT FOR OR AN APPROVAL OF ANY VIOLATION OF CLARK COUNTY WATER RECLAMATION DISTRICT RULES, REGULATIONS, OR DESIGN AND CONSTRUCTION STANDARDS.

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Avoid overhead power line contact. It's costly.
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Call before you UnderGround 1-702-432-5300
CALL 811 OR 1-800-227-2600
Call Before You Overhead 1-702-227-2929

No.	REVISIONS	DATE	BY

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6671 LAS VEGAS BOULEVARD S., SUITE 320, LAS VEGAS, NV 89119
PHONE: 702-862-3600
WWW.KIMLEY-HORN.COM

PROFESSIONAL ENGINEER
THOMAS ACKERET
Exp. 12/31/20
CIVIL
No. 18592
STATE OF NEVADA
07/06/2020

KHA PROJECT	092965001
DATE	07/02/2020
SCALE	AS SHOWN
DESIGNED BY	TEA
DRAWN BY	KLS
CHECKED BY	TEA

GRADING PLAN

AREA 15 EVENT PARKING LOT

PREPARED FOR
AREA 15 LAS VEGAS, LLC.
CITY OF LAS VEGAS NEVADA

OF XX

C03.01

Plotted By:Ackeret, Thomas Sheet Set:Kha Layout:C03.01 July 06, 2020 09:31:42am K:\LAV_Civil\092965001 – Area 15 Ph2 (Fisher Brothers)\CAD\PlanSheets\Event Lot\092965001 – GD.dwg
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CITY OF LAS VEGAS
CENTRAL NEIGHBORHOOD
FLOOD CONTROL MASTER PLAN
VOLUME II

Prepared for:

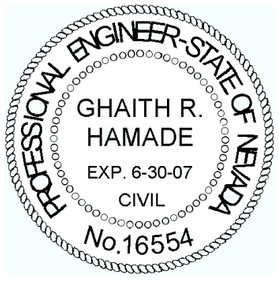
City of Las Vegas
400 Stewart Avenue
Las Vegas, NV 89101

Prepared by:

PBS&J
2270 Corporate Circle, Suite 100
Henderson, Nevada 89074

March 2005





ACKNOWLEDGEMENTS

CITY OF LAS VEGAS

Mayor
Oscar B. Goodman

Council
Lois Tarkanian
Steve Wolfson
Gary Reese
Larry Brown
Lawrence Weekly
Michael Mack

City Manager
Douglas Selby

Director, Department of Public Works
Richard D. Goecke

City Engineer
Charles Kajkowski, P.E.

Assistant City Engineer
Randy Fultz, P.E.

Project Manager Flood Control
Greg McDermott, P.E.

Engineering Associate
Rosa Cortez, E.I.

PBS&J

Principal-In-Charge
Todd J. Kenner, P.E.

Project Manager
Matt Baird, P.E., CFM

Assistant Project Manager
Stephen Altman, P.E., CFM

Project Engineer
Ghaith Hamade, Ph.D., P.E., CFM

GIS
Kalvan Hone, CFM Janice Bayang

City of Las Vegas

CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN

LEGEND

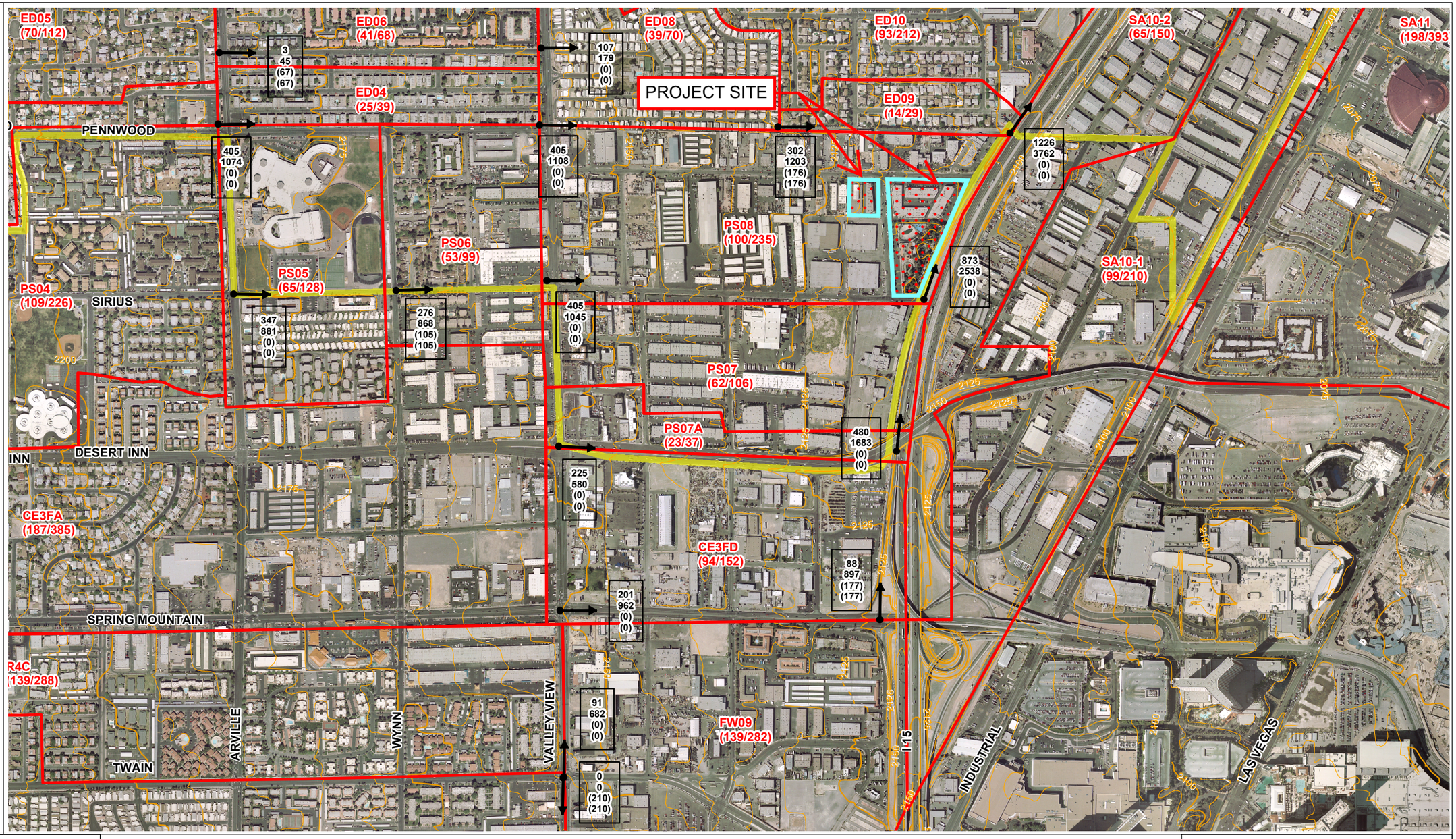
- Sub-basin Boundary
- LV12 — Basin ID
- (10yr./100yr.) — Contributing flow from the basin (cfs)
- Flow Arrow
- 250 / 500 / (300) / (800) — 10-Year Street Flow / 100-Year Street Flow / 10-Year Facility Flow / 100-Year Facility Flow

(Flows in CFS)

- Study Area Limit

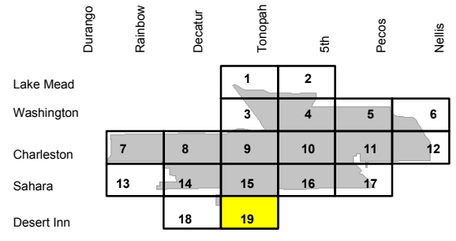
PHOTO DATE: SPRING 2004

FIGURE E-19



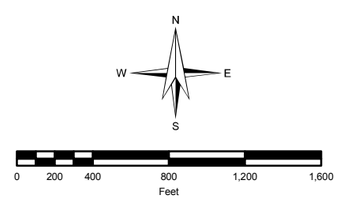
EXISTING DRAINAGE CONDITIONS

PBS&J
2270 Corporate Circle, Suite 100
Henderson, NV 89074
(702) 263-7275
Fax: (702) 263-7200

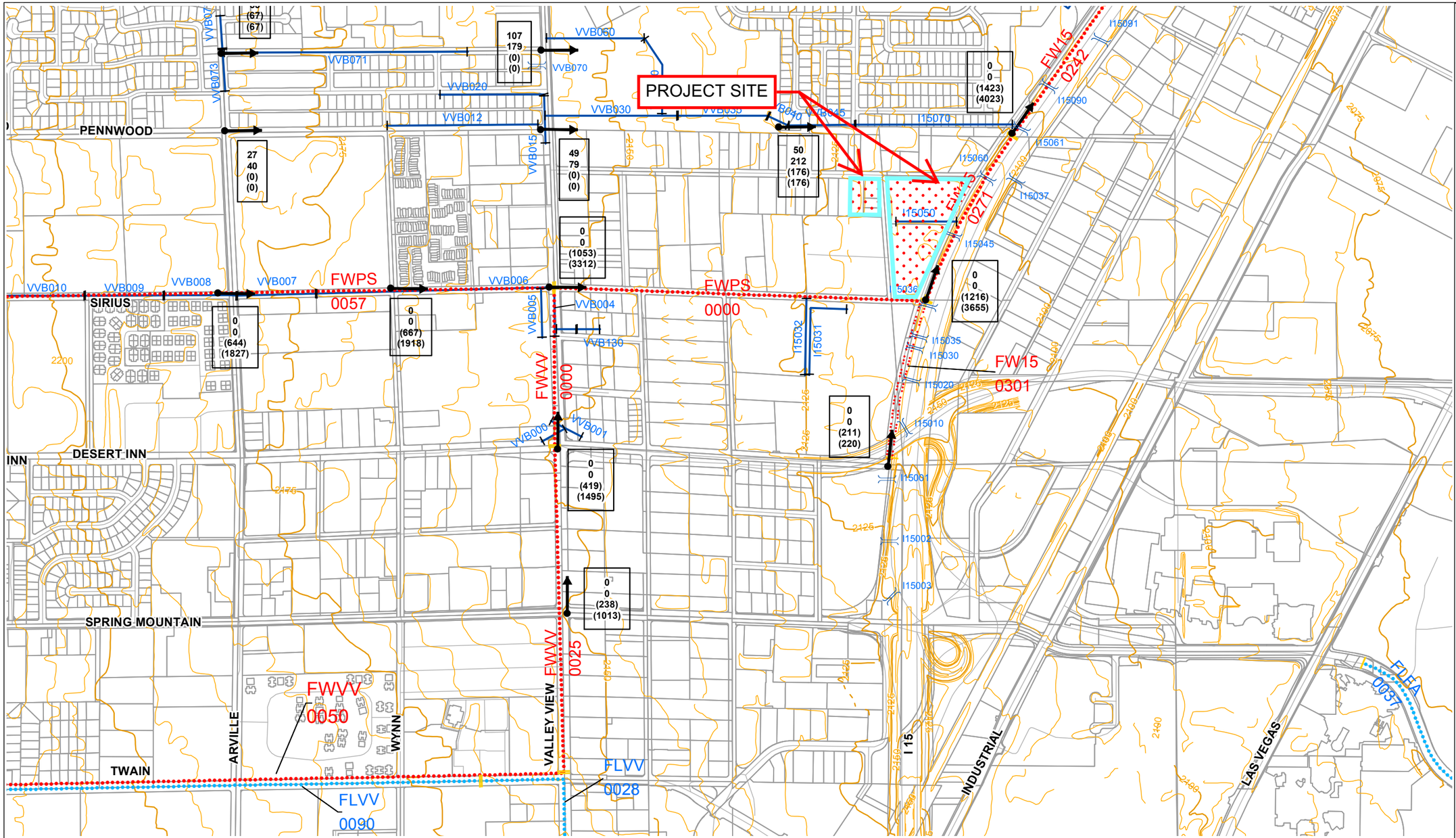


NOTE:
Existing conditions are based on future Curve Number values with only existing local and CCRFCD facilities in place.

100-Year flows at locations where a 100-Year subbasin concentration point does not exist in the hydrology model were based on an area-weighted ratio of the 100-Year flows from concentration points upstream and downstream of the location. See Volume I for a more detailed explaination.



SCALE: 1 inch = 800 feet



CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN

City of Las Vegas

LEGEND

- Existing Regional Facility
- Category A Proposed Regional Facility (2002 MPU)
- Category B Proposed Regional Facility (2002 MPU)
- Category A Proposed Regional Facility (2004 CNFCMP)
- Existing Local Facility
- Proposed Local Facility
- Regional Culvert
- Regional Bridge
- Regional Pipeline
- Regional Channel
- Regional Levee
- Regional Detention Basin
- Local Storm Drain
- Local Culvert
- Proposed Local Storm Drain
- Regional ID-Mile Separator
- Local Facility Separator

FIGURE F-19

N W E S

0 200 400 800 1,200 1,600
Feet

SCALE: 1 inch = 800 feet

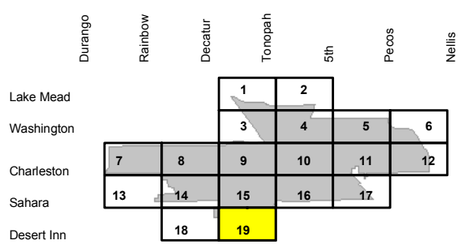
Flow Arrow

250	10-Year Street Flow
500	100-Year Street Flow
(300)	10-Year Facility Flow
(800)	100-Year Facility Flow

(Flows in CFS)

NOTE:
Ultimate drainage conditions are based on future Curve Number values with all flood control facilities in place.

100-Year flows at locations where a 100-Year subbasin concentration point does not exist in the hydrology model were based on an area-weighted ratio of the 100-Year flows from concentration points upstream and downstream of the location. See Volume I for a more detailed explaination.



FUTURE DRAINAGE CONDITIONS

PBS&J
2270 Corporate Circle, Suite 100
Henderson, NV 89074
(702) 263-7275
Fax: (702) 263-7200

City of Las Vegas

2004 CITY OF LAS VEGAS
CENTRAL NEIGHBORHOOD
FLOOD CONTROL MASTER PLAN

LEGEND

REGIONAL STREAM NAME DESIGNATOR	AABB
REGIONAL MILE	0000
LOCAL STREAM NAME DESIGNATOR	AAB
LOCAL ID NUMBER	000
EXISTING FACILITY	E
PROPOSED OR MODIFIED FACILITY	P
CONTINGENCY LEVEL:	
CATEGORY B	P0
MASTER PLAN	P1
PRELIMINARY DESIGN	P2
DESIGN	P3
BOTTOM WIDTH	W
DEPTH	D
SIDE SLOPE, H:V	SS
LEFT SIDE SLOPE H:V	LSS
RIGHT SIDE SLOPE H:V	RSS
CORRUGATED METAL ARCH PIPE CULVERT	CMAP
CORRUGATED METAL PIPE CULVERT	CMP
DUCTILE IRON PIPE	DIP
HIGH DENSITY POLYETHYLENE PIPE	HDPE
HELICAL ELLIPTICAL REINFORCED CONCRETE PIPE	HERCP
PUBLIC DRAINAGE EASEMENT	PDE
POLYVINYL CHLORIDE PIPE	PVC
REINFORCED CONCRETE BOX	RCB
REINFORCED CONCRETE BOX CULVERT	RCBC
REINFORCED CONCRETE ELLIPTICAL PIPE	RCEP
REINFORCED CONCRETE PIPE	RCP
REINFORCED CONCRETE PIPE ARCH	RCPA
REINFORCED CONCRETE PIPE CULVERT	RCPC
STORM SEWER PIPE	SSP
VITRIFIED CLAY PIPE	VCP

NOTES:
FLOW = 100 YEAR HEC-1 FLOW (REGIONAL FACILITIES)
FLOW = FACILITY CAPACITY (LOCAL FACILITIES)

FLOOD CONTROL FACILITIES INVENTORY

SHEET I - 12

PBS&J

ID	MILE	Status	Plan No.	Facility Description	Facility Length L (ft)	Channel Slope S (%)	Flow (cfs)
F-18							
REGIONAL FACILITIES							
FLAMINGO WASH - DARBY STORM DRAIN							
FLDY	0000	E	2002 Master Plan Update	84" RCP	100	0.25	549
FLDY	0002	E	2002 Master Plan Update	10'X3' RCB	50	0.25	549
FLDY	0004	E	2002 Master Plan Update	60" RCP	680	2.80	549
FLAMINGO WASH - LATERAL DRAIN (FLAMINGO/RAINBOW)							
FLLA	0227	E	2002 Master Plan Update	93" RCP	1360	0.40	664
FLLA	0254	E	2002 Master Plan Update	90" RCP	2730	0.40	431
FLLA	0305	E	2002 Master Plan Update	1556 cfs Spillway			1556
FLLA	0306	E	2002 Master Plan Update	30" RCP WITH 18" Orifice Outlet	160	0.43	29
FLLA	0308	E	2002 Master Plan Update	62 ac-ft Desert Inn Detention Basin			734
FLLA	0322	E	2002 Master Plan Update	81" RCP	1370	0.50	
FLLA	0345	E	2002 Master Plan Update	81" RCP	1340	0.50	
FLLA	0369	E	2002 Master Plan Update	72" RCP	670	0.50	
FLAMINGO - VALLEY VIEW							
FLVV	0090	E	2002 Master Plan Update	48" RCP	4180	1.06	229
DECATUR DRAIN							
FWDE	0000	P1	2004 CNFCMP	12' X 8' RCB	1320	0.38	1039
FWDE	0025	P1	2004 CNFCMP	10' X 8' RCB	1325	0.25	632
PALMYRA / SIRIUS DRAIN							
FWPS	0057	P1	2004 CNFCMP	2:84" RCP	5280	1.28	1112
FWPS	0157	P1	2004 CNFCMP	2:66" RCP	5100	1.15	530
VALLEY VIEW DRAIN							
FWVV	0050	P1	2002 Master Plan Update	7' X 6' RCB	9000	1.50	716
LOCAL FACILITIES							
VVB	010	E	107-V604C	18" RCP	650		17
F-19							
REGIONAL FACILITIES							
FLAMINGO - FASHION							
FLFA	0037	E	2002 Master Plan Update	8' X 5' RCB	3060	0.45	527
FLAMINGO - VALLEY VIEW							
FLVV	0028	E	2002 Master Plan Update	48" RCP	3310	0.50	229
FLVV	0090	E	2002 Master Plan Update	48" RCP	4180	1.06	229
FREEWAY CHANNEL FROM DESERT INN TO EXPRESSWAY							
FW15	0242	P1	2002 Master Plan Update	2: 12' X 9' RCB	1500	0.93	4023
FW15	0271	P1	2004 CNFCMP	2: 12' X 10' RCB	1700	0.59	3655
FW15	0301	P1	2002 Master Plan Update	Conc Chnl 12'W 4'D 2:1 SS	1300	0.42	435
PALMYRA / SIRIUS DRAIN							
FWPS	0000	P1	2002 Master Plan Update	12' X 11' RCB	3000	1.50	2399
FWPS	0057	P1	2002 Master Plan Update	2:84" RCP	5280	1.28	1112
VALLEY VIEW DRAIN							
FWVV	0000	P1	2002 Master Plan Update	12' X 11' RCB	1320	0.30	1495
FWVV	0025	P1	2002 Master Plan Update	10' X 10' RCB	1320	0.30	1013
FWVV	0050	P1	2002 Master Plan Update	7' X 6' RCB	9000	1.50	716
LOCAL FACILITIES							
I15	001	E	HWY BK # I-2	36" RCP	150		60
I15	002	E	HWY BK # I-2	24" RCP	150		30
I15	003	E	HWY BK # I-2	24" CMP	150		30
I15	010	E	HWY BK # I-2	2: 36" RCP	152		120
I15	020	E	HWY BK # I-2	36" RCP	234		60
I15	030	E	HWY BK # I-2	2: 36" RCP	234		120
I15	031	E	327-V195	Unlined Chnl 20'W 1'D 1:1 SS	380		167
I15	032	E	327-V195	Unlined Chnl 20'W 2'D 1:1 SS	440		629
I15	035	E	HWY BK # I-2	24" CMP	150		30
I15	036	E	HWY BK # I-2	36" RCP	300		60
I15	037	E	HWY BK # I-2	24" CMP	150		30
I15	045	E	HWY BK # I-2	24" CMP	150		30
I15	050	E	327-V221	48" RCP	1275		47
I15	060	E	HWY BK # I-2	36" RCP	228		60
I15	061	E	HWY BK # I-2	2: 27" X 42" CMAP	220		220
I15	070	E	327-V221	2: 48" CMP	2910		144
I15	090	E	HWY BK # I-2	36" RCP	320		80
I15	091	E	HWY BK # I-2	24" RCP	150		30
VVB	000	E	107-V926	18" RCP	156		11
VVB	001	E	107-V926	19" X 30" RCP	118		23
VVB	002	E	107-V1306	24" RCP	220	0.00003	13

ID	MILE	Status	Plan No.	Facility Description	Facility Length L (ft)	Channel Slope S (%)	Flow (cfs)
F-19							
LOCAL FACILITIES (continued)							
VVB	003	E	107-V1306	24" RCP	199	0.0001	16
VVB	004	E	107-V604C	48" RCP	425		227
VVB	005	E	107-V926	42" RCP	330		45
VVB	006	E	107-V604C	36" RCP	1950		105
VVB	007	E	107-V604C	30" RCP	650		65
VVB	008	E	107-V604C	24" RCP	600		36
VVB	009	E	107-V604C	21" RCP	650		25
VVB	010	E	107-V604C	18" RCP	650		17
VVB	012	E	327-V228	18" RCP	1297		8
VVB	015	E	327-V228	18" RCP	325		11
VVB	020	E	327-V228	18" RCP	897		11
VVB	030	E	327-V224	24" RCP	1019		23
VVB	035	E	327-V224	30" RCP	790		37
VVB	040	E	327-V224	36" RCP	150		80
VVB	045	E	327Y-2153AT	54" RCP	325		176
VVB	050	E	327-V224	24" RCP	752		18
VVB	060	E	327-V224	18" RCP	786		11
VVB	070	E	107-V926	19" X 30" RCP	68		30
VVB	071	E	107V-604C	36" RCP	2660		67
VVB	072	E	107-V604C	24" RCP	514		18
VVB	073	E	107-V604C	30" RCP	659		29
VVB	130	E	107-V1306	24" RCP	200		16

HIGHLIGHTED DENOTES ADJACENT TO PROJECT SITE

Facility I15 050 Does not exist.

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

TIME OF CONCENTRATION

PBS&J
File: FORM4.XLS

Central Neighborhood Flood Control Master Plan
CENTRAL WATERSHED
Ultimate Conditions 100-Year Model

BY: SCA
DATE: 5/27/20

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check	Tlag	REMARKS
DESIG: (1)	DEV./EX. (D or E)	CN	K (2)	AREA Ac (3)	AREA Mi^2	INITIAL LENGTH Feet (4)	SLOPE % (5)	Ti Min (6)	TRAVEL LENGTH Feet (7)	SLOPE % (8)	V1 VELOCITY FPS (9a)	V2 VELOCITY FPS (9b)	Tt Min (10)	Min (13)	Min (14)	Tlag= 0.6Tc/60 Hours	RAINFALL Q100/Q10 Inches
1-GOLF	D	86.0	0.7452	231.68	0.36	100	1.0	6.4	7200	2.4	3.1	4.8	26.1	32.4	50.6	**0.324**	
2a-OAK-C	D	86.9	0.7571	201.60	0.32	100	1.0	6.2	5400	1.5	2.5	3.7	25.3	31.5	40.6	**0.315**	
3a-OAK-C	D	85.4	0.7373	222.08	0.35	100	1.0	6.5	6950	1.7	2.7	4.0	29.9	36.4	49.2	**0.364**	
3-ELP-C	D	88.2	0.7742	180.48	0.28	100	1.0	5.9	6900	1.7	2.6	4.0	30.2	36.1	48.9	**0.361**	
3-HOLM-C	D	89.3	0.7888	181.76	0.28	100	1.0	5.6	7500	2.1	3.0	4.5	28.9	34.5	52.2	**0.345**	
5OAK-C	D	90.3	0.8020	146.56	0.23	100	1.0	5.4	4000	2.6	3.3	5.0	14.3	19.7	32.8	**0.197**	
A1-C	D	91.4	0.8165	199.04	0.31	100	1.0	5.1	6600	0.9	1.9	2.9	39.8	44.9	47.2	**0.449**	
A-C	D	93.8	0.8482	212.48	0.33	100	1.0	4.5	4200	1.7	2.6	4.0	18.8	23.3	33.9	**0.233**	
AL00A-C	D	91.1	0.8125	267.52	0.42	100	1.0	5.2	5400	1.5	2.5	3.7	25.3	30.5	40.6	**0.305**	
AL01A	D	90.7	0.8072	154.24	0.24	100	1.0	5.3	4100	1.3	2.3	3.5	20.5	25.8	33.3	**0.258**	
AL01B-C	D	90.5	0.8046	254.72	0.40	100	1.0	5.3	5500	1.9	2.8	4.2	22.7	28.0	41.1	**0.280**	
AL04-C	D	90.5	0.8046	107.52	0.17	100	1.0	5.3	3200	0.6	1.6	2.4	24.3	29.6	28.3	**0.283**	
AL05-C	D	90.5	0.8046	67.84	0.11	100	1.0	5.3	3400	1.3	2.3	3.5	17.5	22.8	29.4	**0.228**	
AL08-C	D	91.4	0.8165	192.00	0.30	100	1.0	5.1	7400	1.1	2.1	3.2	39.8	44.9	51.7	**0.449**	
AL09-C	D	91.2	0.8138	218.24	0.34	100	1.0	5.2	9600	1.1	2.1	3.2	51.2	56.3	63.9	**0.563**	
AL10-C	D	91.6	0.8191	99.84	0.16	100	1.0	5.1	5100	1.7	2.6	4.0	22.6	27.6	38.9	**0.276**	
AL13-C	D	90.0	0.7980	165.12	0.26	100	1.0	5.4	6800	1.1	2.1	3.2	36.6	42.0	48.3	**0.420**	
AL14-C	D	94.2	0.8534	235.52	0.37	100	1.0	4.4	7500	1.7	2.6	4.0	32.7	37.2	52.2	**0.372**	
AL16-C	D	92.2	0.8270	112.00	0.18	100	1.0	4.9	5200	1.2	2.2	3.3	27.7	32.6	39.4	**0.326**	
AL90-C	D	85.3	0.7360	199.68	0.31	100	1.0	6.6	4600	0.5	1.5	2.3	35.9	42.4	36.1	**0.361**	
AL92	D	86.0	0.7452	155.52	0.24	100	1.0	6.4	5650	0.4	1.3	2.0	48.4	54.8	41.9	**0.419**	
AL93-C	D	90.9	0.8099	340.48	0.53	100	1.0	5.2	4700	0.6	1.6	2.4	33.8	39.0	36.7	**0.367**	
AL95-C	D	84.6	0.7267	122.24	0.19	100	1.0	6.7	4500	1.1	2.1	3.2	24.6	31.3	35.6	**0.313**	
AL96-C	D	94.6	0.8587	115.84	0.18	100	1.0	4.3	4400	0.6	1.5	2.3	33.7	38.0	35.0	**0.350**	
B1-C	D	93.6	0.8455	175.36	0.27	100	1.0	4.6	7000	0.9	1.9	2.8	42.7	47.3	49.4	**0.473**	
B3-1	D	92.1	0.8257	195.84	0.31	100	1.0	4.9	7200	1.0	2.1	3.1	39.8	44.7	50.6	**0.447**	
B3-2	D	92.0	0.8244	78.08	0.12	100	1.0	5.0	4650	0.6	1.6	2.5	33.3	38.2	36.4	**0.364**	
B-C	D	94.1	0.8521	199.68	0.31	100	1.0	4.5	6650	0.7	1.7	2.6	44.8	49.2	47.5	**0.475**	
BN03-C	D	89.2	0.7874	265.60	0.42	100	1.0	5.6	7550	2.3	3.0	4.6	28.3	34.0	52.5	**0.340**	
BN06-C	D	89.6	0.7927	217.60	0.34	100	1.0	5.5	4400	3.1	3.5	5.4	14.5	20.0	35.0	**0.200**	

100-YR

LVW03	D	85.5	0.7386	187.52	0.29	100	1.0	6.5	5700	0.4	1.2	1.8	54.8	61.3	42.2	**0.422**
LVW04	D	86.0	0.7452	188.80	0.30	100	1.0	6.4	7100	0.3	1.1	1.6	75.5	81.9	50.0	**0.500**
M	D	89.7	0.7940	170.88	0.27	100	1.0	5.5	6550	1.0	2.0	3.0	37.2	42.7	46.9	**0.427**
MEDB	D	84.5	0.7254	192.64	0.30	100	1.0	6.7	3000	1.8	2.7	4.1	13.1	19.8	27.2	**0.198**
N-C	D	88.5	0.7782	168.96	0.26	100	1.0	5.8	5450	0.6	1.5	2.3	41.9	47.7	40.8	**0.408**
NEL01-C	D	81.7	0.6884	181.76	0.28	100	1.0	7.4	5500	0.3	1.1	1.7	56.4	63.8	41.1	**0.411**
NEL04-C	D	87.9	0.7703	378.24	0.59	100	1.0	5.9	11100	0.3	1.1	1.7	110.2	116.1	72.2	**0.722**
NEL06-C	D	88.5	0.7782	206.72	0.32	100	1.0	5.8	6800	0.4	1.2	1.9	63.4	69.2	48.3	**0.483**
OA02	D	87.3	0.7624	265.60	0.42	100	1.0	6.1	8100	0.4	1.3	2.0	69.2	75.3	55.6	**0.556**
OA03-C	D	89.7	0.7940	354.56	0.55	100	1.0	5.5	8700	0.3	1.2	1.8	84.5	90.0	58.9	**0.589**
OG011A-C	D	85.5	0.7386	282.24	0.44	100	1.0	6.5	7050	1.2	2.2	3.4	36.2	42.8	49.7	**0.428**
OG02-C	D	90.2	0.8006	203.52	0.32	100	1.0	5.4	6150	1.4	2.4	3.6	29.7	35.1	44.7	**0.351**
OG03-C	D	87.0	0.7584	208.00	0.33	100	1.0	6.1	6150	1.1	2.2	3.3	32.7	38.9	44.7	**0.389**
OG04-C	D	90.3	0.8020	184.32	0.29	100	1.0	5.4	5200	1.3	2.3	3.4	26.6	32.0	39.4	**0.320**
OG05-C	D	90.5	0.8046	170.24	0.27	100	1.0	5.3	5500	0.9	1.9	2.8	33.9	39.2	41.1	**0.392**
OK03-C	D	91.7	0.8204	230.40	0.36	100	1.0	5.0	7100	1.4	2.4	3.6	33.8	38.8	50.0	**0.388**
OK04-C	D	86.1	0.7465	122.24	0.19	100	1.0	6.4	6200	1.4	2.4	3.6	30.0	36.4	45.0	**0.364**
OK06-C	D	91.4	0.8165	110.08	0.17	100	1.0	5.1	4100	1.3	2.3	3.5	20.5	25.6	33.3	**0.256**
OK07	D	88.0	0.7716	192.00	0.30	100	1.0	5.9	7700	1.3	2.3	3.5	38.0	43.9	53.3	**0.439**
OK09-C	D	90.6	0.8059	198.40	0.31	100	1.0	5.3	5100	0.8	1.8	2.7	32.9	38.2	38.9	**0.382**
OK10	D	90.2	0.8006	155.52	0.24	100	1.0	5.4	5350	1.2	2.2	3.4	27.7	33.1	40.3	**0.331**
OK11	D	90.1	0.7993	222.08	0.35	100	1.0	5.4	7600	0.7	1.7	2.6	50.3	55.7	52.8	**0.528**
P-C	D	87.2	0.7610	197.76	0.31	100	1.0	6.1	5250	0.5	1.4	2.1	43.5	49.6	39.7	**0.397**
PD01-C	D	83.8	0.7162	241.28	0.38	100	1.0	6.9	5950	0.8	1.8	2.7	38.9	45.8	43.6	**0.436**
PD04B-C	D	87.8	0.7690	299.52	0.47	100	1.0	6.0	7800	0.8	1.8	2.7	50.0	56.0	53.9	**0.539**
PD05A-C	D	93.1	0.8389	87.04	0.14	100	1.0	4.7	5400	0.6	1.6	2.5	38.3	43.0	40.6	**0.406**
PS01-C	D	85.6	0.7399	264.96	0.41	100	1.0	6.5	7150	1.8	2.7	4.1	29.9	36.4	50.3	**0.364**
PS03	D	90.4	0.8033	123.52	0.19	100	1.0	5.3	3200	1.2	2.2	3.3	17.3	22.6	28.3	**0.226**
PS06-C	D	92.3	0.8284	247.68	0.39	100	1.0	4.9	5200	1.3	2.3	3.4	26.6	31.5	39.4	**0.315**
PS08	D	92.1	0.8257	114.56	0.18	100	1.0	4.9	4000	1.5	2.5	3.7	18.9	23.9	32.8	**0.239**
Q-C	D	85.8	0.7426	165.12	0.26	100	1.0	6.4	5450	0.5	1.4	2.1	45.9	52.3	40.8	**0.408**
R2-C	D	93.3	0.8416	350.72	0.55	100	1.0	4.7	6400	1.8	2.7	4.1	27.1	31.7	46.1	**0.317**
R4C	D	93.4	0.8429	174.08	0.27	100	1.0	4.6	8300	1.6	2.5	3.8	37.2	41.9	56.7	**0.419**
R-C	D	91.2	0.8138	352.64	0.55	100	1.0	5.2	6700	0.9	1.9	2.9	40.0	45.2	47.8	**0.452**
S	D	90.0	0.7980	364.16	0.57	100	1.0	5.4	7900	1.7	2.6	4.0	34.0	39.4	54.4	**0.394**
S1-C	D	88.0	0.7716	300.80	0.47	100	1.0	5.9	9950	1.6	2.6	3.9	43.8	49.8	65.8	**0.498**
SA01-C	D	93.5	0.8442	200.96	0.31	100	1.0	4.6	7100	1.8	2.7	4.1	29.6	34.2	50.0	**0.342**
SA05	D	92.1	0.8257	118.40	0.19	100	1.0	4.9	5200	1.2	2.2	3.4	27.1	32.1	39.4	**0.321**
SA06-C	D	93.8	0.8482	225.92	0.35	100	1.0	4.5	7700	1.0	2.1	3.1	42.5	47.1	53.3	**0.471**
SA08	D	93.8	0.8482	156.80	0.25	100	1.0	4.5	5000	1.7	2.6	4.0	22.0	26.5	38.3	**0.265**
SA10-1	D	91.5	0.8178	177.28	0.28	100	1.0	5.1	9100	0.7	1.7	2.6	60.3	65.4	61.1	**0.611**
SA10-2	D	90.1	0.7993	130.56	0.20	100	1.0	5.4	9500	0.7	1.6	2.5	65.8	71.2	63.3	**0.633**
SA11	D	94.9	0.8627	253.44	0.40	100	1.0	4.3	7300	0.7	1.7	2.5	49.7	54.0	51.1	**0.511**

HYDROLOGIC CRITERIA AND DRAINAGE DESIGN MANUAL

TIME OF CONCENTRATION

PBS&J
File: FORM4.XLS

Central Neighborhood Flood Control Master Plan
CENTRAL WATERSHED
Ultimate Conditions 10-Year Model

BY: SCA
DATE: 5/27/20

SUB-BASIN DATA						INITIAL / OVERLAND TIME (Ti)			TRAVEL TIME (Tt)					Tc	Tc Check	Tlag	REMARKS
DESIG: (1)	DEV./EX. (D or E)	CN	K (2)	AREA Ac (3)	AREA Mi^2	INITIAL LENGTH Feet (4)	SLOPE % (5)	Ti Min (6)	TRAVEL LENGTH Feet (7)	SLOPE % (8)	V1 VELOCITY FPS (9a)	V2 VELOCITY FPS (9b)	Tt Min (10)	Min (13)	Min (14)	Tlag= 0.6Tc/60 Hours	RAINFALL Q100/Q10 Inches
1-GOLF	D	86.0	0.7452	231.68	0.36	100	1.0	6.4	7200	2.4	3.1	4.8	26.1	32.4	50.6	**0.324**	
2a-OAK-C	D	86.9	0.7571	201.60	0.32	100	1.0	6.2	5400	1.5	2.5	3.7	25.3	31.5	40.6	**0.315**	
3a-OAK-C	D	85.4	0.7373	222.08	0.35	100	1.0	6.5	6950	1.7	2.7	4.0	29.9	36.4	49.2	**0.364**	
3-ELP-C	D	88.2	0.7742	180.48	0.28	100	1.0	5.9	6900	1.7	2.6	4.0	30.2	36.1	48.9	**0.361**	
3-HOLM-C	D	89.3	0.7888	181.76	0.28	100	1.0	5.6	7500	2.1	3.0	4.5	28.9	34.5	52.2	**0.345**	
5-OAK-C	D	90.3	0.8020	146.56	0.23	100	1.0	5.4	4000	2.6	3.3	5.0	14.3	19.7	32.8	**0.197**	
A1-C	D	91.4	0.8165	199.04	0.31	100	1.0	5.1	6600	0.9	1.9	2.9	39.8	44.9	47.2	**0.449**	
A-C	D	93.8	0.8482	212.48	0.33	100	1.0	4.5	4200	1.7	2.6	4.0	18.8	23.3	33.9	**0.233**	
AL00A	D	90.8	0.8086	83.20	0.13	100	1.0	5.2	4000	1.6	2.6	3.9	18.2	23.4	32.8	**0.234**	
AL00B	D	90.6	0.8059	60.80	0.10	100	1.0	5.3	3100	1.5	2.4	3.7	15.2	20.5	27.8	**0.205**	
AL01A	D	90.6	0.8059	41.60	0.07	100	1.0	5.3	4900	1.4	2.4	3.7	23.5	28.8	37.8	**0.288**	
AL01B	D	90.1	0.7993	95.36	0.15	100	1.0	5.4	4800	1.1	2.1	3.2	26.7	32.1	37.2	**0.321**	
AL01C	D	90.7	0.8072	51.20	0.08	100	1.0	5.3	3600	1.2	2.2	3.3	19.2	24.5	30.6	**0.245**	
AL02	D	90.7	0.8072	112.64	0.18	100	1.0	5.3	3900	1.3	2.3	3.5	20.0	25.3	32.2	**0.253**	
AL03A	D	90.1	0.7993	48.00	0.08	100	1.0	5.4	3000	1.2	2.2	3.4	16.2	21.6	27.2	**0.216**	
AL03B	D	90.5	0.8046	44.16	0.07	100	1.0	5.3	3500	1.1	2.1	3.1	19.9	25.2	30.0	**0.252**	
AL03C	D	90.5	0.8046	68.48	0.11	100	1.0	5.3	3400	1.3	2.3	3.5	17.5	22.8	29.4	**0.228**	
AL04	D	90.5	0.8046	107.52	0.17	100	1.0	5.3	3200	0.6	1.6	2.4	24.3	29.6	28.3	**0.283**	
AL05	D	91.1	0.8125	62.08	0.10	100	1.0	5.2	3500	0.6	1.5	2.3	27.1	32.2	30.0	**0.300**	
AL06	D	90.9	0.8099	40.96	0.06	100	1.0	5.2	2300	0.5	1.5	2.2	19.3	24.5	23.3	**0.233**	
AL07	D	90.8	0.8086	67.84	0.11	100	1.0	5.2	4000	1.2	2.2	3.3	21.4	26.6	32.8	**0.266**	
AL08	D	92.3	0.8284	62.08	0.10	100	1.0	4.9	3800	1.5	2.5	3.7	18.2	23.1	31.7	**0.231**	
AL09	D	90.6	0.8059	61.44	0.10	100	1.0	5.3	2800	2.6	3.2	4.9	10.4	15.7	26.1	**0.157**	
AL10	D	91.6	0.8191	99.84	0.16	100	1.0	5.1	5400	1.7	2.6	4.0	23.6	28.7	40.6	**0.287**	
AL11	D	94.6	0.8587	35.20	0.06	100	1.0	4.3	2300	1.0	2.0	3.1	13.9	18.3	23.3	**0.183**	
AL12	D	90.3	0.8020	80.00	0.13	100	1.0	5.4	3700	0.8	1.8	2.7	24.3	29.7	31.1	**0.297**	
AL13-1	D	86.2	0.7478	24.96	0.04	100	1.0	6.3	2000	0.4	1.3	1.9	19.4	25.8	21.7	**0.217**	
AL13-2	D	90.6	0.8059	19.20	0.03	100	1.0	5.3	1900	0.8	1.8	2.7	13.2	18.5	21.1	**0.185**	
AL13-3	D	90.4	0.8033	41.60	0.07	100	1.0	5.3	2600	1.2	2.2	3.3	14.5	19.9	25.0	**0.199**	
AL14	D	93.2	0.8402	90.88	0.14	100	1.0	4.7	3800	2.0	2.8	4.3	15.7	20.4	31.7	**0.204**	

10-YR

OG05-C	D	90.5	0.8046	170.24	0.27	100	1.0	5.3	5500	0.9	1.9	2.8	33.9	39.2	41.1	**0.392**
OK01	D	92.0	0.8244	17.92	0.03	100	1.0	5.0	1900	1.3	2.3	3.5	10.2	15.2	21.1	**0.152**
OK02	D	92.7	0.8336	77.44	0.12	100	1.0	4.8	3900	1.5	2.4	3.7	18.7	23.5	32.2	**0.235**
OK03	D	91.0	0.8112	135.04	0.21	100	1.0	5.2	5000	1.0	2.0	3.1	28.6	33.8	38.3	**0.338**
OK04	D	82.9	0.7043	71.04	0.11	100	1.0	7.1	3300	0.8	1.8	2.7	21.8	29.0	28.9	**0.289**
OK05	D	90.5	0.8046	51.20	0.08	100	1.0	5.3	3900	1.5	2.5	3.8	18.3	23.6	32.2	**0.236**
OK06	D	91.4	0.8165	110.08	0.17	100	1.0	5.1	3800	1.3	2.3	3.4	19.7	24.8	31.7	**0.248**
OK07	D	86.7	0.7544	158.72	0.25	100	1.0	6.2	6500	1.3	2.3	3.4	32.8	39.0	46.7	**0.390**
OK08	D	94.2	0.8534	33.28	0.05	100	1.0	4.4	2500	0.9	1.9	2.9	16.0	20.4	24.4	**0.204**
OK09	D	90.6	0.8059	198.40	0.31	100	1.0	5.3	5000	0.6	1.6	2.4	37.0	42.3	38.3	**0.383**
OK10	D	90.2	0.8006	155.52	0.24	100	1.0	5.4	5350	1.2	2.2	3.4	27.7	33.1	40.3	**0.331**
OK11	D	90.6	0.8059	106.88	0.17	100	1.0	5.3	4900	0.6	1.6	2.4	35.3	40.6	37.8	**0.378**
OK12	D	89.7	0.7940	115.20	0.18	100	1.0	5.5	5300	0.7	1.7	2.6	36.2	41.7	40.0	**0.400**
P	D	86.7	0.7544	158.72	0.25	100	1.0	6.2	5150	0.4	1.3	2.0	45.1	51.3	39.2	**0.392**
PD01-C	D	83.8	0.7162	241.28	0.38	100	1.0	6.9	5950	0.8	1.8	2.7	38.9	45.8	43.6	**0.436**
PD04B-C	D	87.8	0.7690	299.52	0.47	100	1.0	6.0	7800	0.8	1.8	2.7	50.0	56.0	53.9	**0.539**
PD05A-C	D	93.1	0.8389	87.04	0.14	100	1.0	4.7	5400	0.6	1.6	2.5	38.3	43.0	40.6	**0.406**
PS01-C	D	85.6	0.7399	264.96	0.41	100	1.0	6.5	7150	1.8	2.7	4.1	29.9	36.4	50.3	**0.364**
PS03	D	90.4	0.8033	123.52	0.19	100	1.0	5.3	3200	1.2	2.2	3.3	17.3	22.6	28.3	**0.226**
PS04	D	92.3	0.8284	123.52	0.19	100	1.0	4.9	3800	0.8	1.9	2.8	24.1	29.0	31.7	**0.290**
PS05	D	92.0	0.8244	69.76	0.11	100	1.0	5.0	2640	0.6	1.6	2.4	20.3	25.2	25.2	**0.252**
PS06	D	92.8	0.8350	53.76	0.08	100	1.0	4.8	2640	0.6	1.6	2.5	19.7	24.4	25.2	**0.244**
PS07	D	92.3	0.8284	64.64	0.10	100	1.0	4.9	3700	1.2	2.2	3.4	19.5	24.4	31.1	**0.244**
PS07A	D	92.7	0.8336	22.40	0.04	100	1.0	4.8	3200	1.2	2.2	3.4	17.1	21.9	28.3	**0.219**
PS08	D	92.1	0.8257	113.92	0.18	100	1.0	4.9	4000	1.5	2.5	3.7	18.9	23.9	32.8	**0.239**
Q	D	85.4	0.7373	97.92	0.15	100	1.0	6.5	4700	0.4	1.3	2.0	41.4	47.9	36.7	**0.367**
R_SW	D	89.0	0.7848	67.20	0.11	100	1.0	5.7	4100	0.5	1.4	2.1	34.0	39.7	33.3	**0.333**
R2-C	D	93.3	0.8416	350.72	0.55	100	1.0	4.7	6400	1.8	2.7	4.1	27.1	31.7	46.1	**0.317**
R4C	D	93.4	0.8429	174.08	0.27	100	1.0	4.6	8300	1.6	2.5	3.8	37.2	41.9	56.7	**0.419**
R-C	D	91.2	0.8138	352.64	0.55	100	1.0	5.2	6700	0.9	1.9	2.9	40.0	45.2	47.8	**0.452**
S	D	90.0	0.7980	364.16	0.57	100	1.0	5.4	7900	1.7	2.6	4.0	34.0	39.4	54.4	**0.394**
S_SW	D	89.5	0.7914	44.16	0.07	100	1.0	5.6	2750	0.2	0.9	1.4	35.1	40.6	25.8	**0.258**
S1-C	D	88.0	0.7716	300.80	0.47	100	1.0	5.9	9950	1.6	2.6	3.9	43.8	49.8	65.8	**0.498**
SA01	D	93.9	0.8495	40.96	0.06	100	1.0	4.5	2000	0.9	1.9	2.8	13.3	17.8	21.7	**0.178**
SA02	D	93.1	0.8389	89.60	0.14	100	1.0	4.7	4100	1.5	2.4	3.7	19.6	24.3	33.3	**0.243**
SA04	D	93.7	0.8468	69.76	0.11	100	1.0	4.6	3800	1.3	2.3	3.5	19.3	23.8	31.7	**0.238**
SA05	D	92.1	0.8257	118.40	0.19	100	1.0	4.9	5200	1.2	2.2	3.4	27.1	32.1	39.4	**0.321**
SA06	D	94.4	0.8561	163.84	0.26	100	1.0	4.4	4900	1.1	2.2	3.3	26.3	30.7	37.8	**0.307**
SA07	D	92.3	0.8284	61.44	0.10	100	1.0	4.9	3300	0.8	1.8	2.7	22.3	27.2	28.9	**0.272**
SA08	D	93.8	0.8482	156.80	0.25	100	1.0	4.5	6300	1.5	2.5	3.7	29.4	33.9	45.6	**0.339**
SA10-1	D	91.5	0.8178	177.28	0.28	100	1.0	5.1	9100	0.7	1.7	2.6	60.3	65.4	61.1	**0.611**
SA10-2	D	90.1	0.7993	130.56	0.20	100	1.0	5.4	9500	0.7	1.6	2.5	65.8	71.2	63.3	**0.633**
SA11	D	94.9	0.8627	253.44	0.40	100	1.0	4.3	7300	0.7	1.7	2.5	49.7	54.0	51.1	**0.511**

```
1****************************************                                  ****************************************
 *                                      *                                  *                                      *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                  *    U.S. ARMY CORPS OF ENGINEERS      *
 *              JUN   1998              *                                  *    HYDROLOGIC ENGINEERING CENTER     *
 *            VERSION 4.1               *                                  *          609 SECOND STREET           *
 *                                      *                                  *       DAVIS, CALIFORNIA 95616        *
 *  RUN DATE   11JUN04  TIME  10:00:16  *                                  *           (916) 756-1104             *
 *                                      *                                  *                                      *
 ****************************************                                  ****************************************

                                        X     X  XXXXXXX   XXXXX          X
                                        X     X  X       X     X         XX
                                        X     X  X       X               X
                                        XXXXXXX  XXXX    X       XXXXX   X
                                        X     X  X       X               X
                                        X     X  X       X     X         X
                                        X     X  XXXXXXX   XXXXX         XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                        *DIAGRAM
 *** FREE ***
             1          ID  CLV CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN 2003
             2          ID  CENTRAL BASIN (SOUTHWEST, SOUTHEAST, NORTHEAST AREAS)
             3          ID  EXISTING CONDITIONS = EXISTING FACILITIES, FUTURE LAND USE
             4          ID  INPUT FILE = ESW3.DAT
             5          ID  INPUT FILE DATE = OCTOBER, 2003
             6          ID  DESIGN STORM = 100-YEAR 6-HR STORM
             7          ID  STORM DISTRIBUTION = SDN #3
             8          ID  MODELED BY PBS&J (STEPHEN C. ALTMAN P.E.)
             9          ID        STORM CENTERING
            10          ID        COMPOSITE CURVE NUMBER RUN
            11          ID
            12          ID  REFERENCED HYDROLOGIC MODELS:
            13          ID  CITY OF LAS VEGAS CITY WIDE HYDROLOGY ANALYSIS (PBS&J 1997)
            14          ID  PREDESIGN REPORT FOR I-15 FREEWAY CHANNEL (PARSONS BRINCKERHOFF 1999)
            15          ID  FINAL CENTRAL BASIN ASSESMENT (CARTER-BURGESS 1998)
            16          ID  HYDRAULIC DESIGN REPORT FOR I-15 WIDENING (LOUIS BERGER 1999)
            17          ID  CCRFCD 2002 LAS VEGAS VALLEY MASTER PLAN UPDATE (PBS&J, GCW, LBG)
            18          ID
            19          ID  NOTE: LOCATIONS AND DESCRIPTIONS OF PROPOSED MPU FACILITIES ARE STATED IN
            20          ID        THE MODEL.  HOWEVER, ROUTINGS IN THESE LOCATIONS REFLECT THE EXISTING
            21          ID        CONDITION.
            22          ID
            23          ID  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
            24          ID
            25          ID        CONCENTRATION   AREA    DARF
            26          ID        POINT           SQ. MI.
            27          ID                        0-0.5   0.99
            28          ID                        0.5-1   0.975
            29          ID                        1-2     0.95
            30          ID                        2-3     0.925
            31          ID                        3-4     0.915
            32          ID                        4-5     0.908
            33          ID                        5-6     0.903
            34          ID                        6-7     0.895
            35          ID                        7-8     0.885
            36          ID
            37          ID  JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
            38          ID
            39          ID  100-YEAR,  6-HOUR STORM,  SDN3
            40          ID
            41          IT       5       0       0     300
            42          IO       5       0       0
            43          IN       5       0       0
            44          JR    PREC    0.99   0.975    0.95   0.925   0.915   0.908   0.903   0.895   0.885
                        *
                        *
                        * AREA PREVIOUSLY IN FLAMINGO WATERSHED
                        *
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```
 220          KK RPS01-C
 221          KM  ROUTE PS01-C TO CPS03
 222          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 223          KM  FACILITY # = FWPS 0157
 224          KM  LINING = RCP
 225          RD    2600  0.0115   0.016       0    TRAP       0      50
              *
1                                        HEC-1 INPUT                                          PAGE  7

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 226          KK    PS03
 227          BA   0.193
 228          PB    2.77
 229          LS       0    90.4
 230          UD   0.226
              *

 231          KK   CPS03
 232          KM  COMBINE RPS01-C AND PS03
 233          KM  DECATUR AND PALMYRA
 234          HC       2
              *

 235          KK  DCPS03
 236          KM  RETRIEVE DPS03
 237          DR  DCPS03
              *

 238          KK  RDPS03
 239          KM  ROUTE DPSO03 TO CPS03
 240          KM  DECATUR
 241          RD    1200  0.0033   0.016       0    TRAP       0      50
              *

 242          KK  CCPS03
 243          KM  COMBINE CPS03 AND RDPS03
 244          KM  DECATUR AND PALMYRA
 245          HC       2
              *

 246          KK  RCPS03
 247          KM  ROUTE CCPS03 TO CPS06
 248          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 249          KM  FACILITY # = FWPS 0057
 250          KM  LINING = RCP
 251          RD    5280  0.0128   0.016       0    TRAP       0      50
              *

 252          KK  PS06-C
 253          BA   0.387
 254          PB    2.77
 255          LS       0    92.3
 256          UD   0.315
              *

 257          KK   CPS06
 258          KM  COMBINE RCPS03 AND PS06-C
 259          KM  VALLEY VIEW AND PALMYRA
 260          HC       2
              *
1                                        HEC-1 INPUT                                          PAGE  8

 LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 261          KK RCCPS06
 262          KM  ROUTE CCPS06 TO CRCPS06
 263          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 264          KM  FACILITY # = FWPS 0000
 265          KM  LINING = RCB
 266          RD    3000   0.015   0.016       0    TRAP       0      50
              *

 267          KK CRCPS06
 268          KM  COMBINE RCCCE3FD AND RCCPS06
 269          KM  COMBINATION AT FREEWAY CHANNEL AND PALMYRA
 270          HC       2
              *

 271          KKRCRCPS06
 272          KM  ROUTE CRCPS06 TO CPS08
 273          KM  FACILITY = FREEWAY CHANNEL DESERT INN TO I-15
 274          KM  FACILITY # = FW15 0271
 275          KM  LINING = RCB
 276          RD    1700  0.0059   0.016       0    TRAP       0      50
              *
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 277          KK    PS08
 278          BA   0.179
 279          PB    2.77
 280          LS       0    92.1
 281          UD   0.239
              *

 282          KK   CPS08
 283          KM  COMBINE RCRCPS06 AND PS08
 284          KM  FREEWAY CHANNEL AND SUBBASIN PS08
 285          HC       2
              *

 286          KK    ED01
 287          BA   0.254
 288          PB    2.77
 289          LS       0    85.9
 290          UD   0.379
              *

 291          KK   RED01
 292          KM  ROUTE ED01 TO CED02
 293          KM  EDNA AVENUE
 294          RD    5100  0.0139   0.016       0    TRAP       0      50
              *

 295          KK    ED02
 296          BA   0.311
 297          PB    2.77
 298          LS       0    88.8
 299          UD   0.407
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 300          KK    ED11
 301          BA   0.242
 302          PB    2.77
 303          LS       0    85.6
 304          UD   0.369
              *

 305          KK    ED12
 306          BA   0.206
 307          PB    2.77
 308          LS       0    90.7
 309          UD   0.336
              *

 310          KK   CED12
 311          KM  COMBINE ED11 AND ED12
 312          KM  JONES AND ELDORA
 313          HC       2
              *

 314          KK  RCED12
 315          KM  ROUTE CED12 TO CED13
 316          KM  ELDORA STREET
 317          RD    5100  0.0135   0.016       0    TRAP       0      50
              *

 318          KK    ED13
 319          BA   0.226
 320          PB    2.77
 321          LS       0    92.1
 322          UD   0.381
              *

 323          KK   CED13
 324          KM  COMBINE RCED12 AND ED13
 325          KM  DECATUR AND ELDORA
 326          HC       2
              *

 327          KK  RCED13
 328          KM  ROUTE CED13 TO CED02
 329          KM  DECATUR
 330          RD    1300  0.0031   0.016       0    TRAP       0      50
              *

 331          KK   CED02
 332          KM  COMBINE RED01, ED02, AND RCED13
 333          KM  DECATUR AND EDNA
 334          HC       3
              *
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 335          KK  RCED02
 336          KM  ROUTE CED02 TO CED05-C
 337          KM  EDNA AVENUE
 338          RD    7100  0.0127   0.016       0    TRAP       0      50
              *

 339          KK  ED05-C
 340          BA   0.441
 341          PB    2.77
 342          LS       0    90.9
 343          UD   0.496
              *

 344          KK CED05-C
 345          KM  COMBINE RCED02 AND ED05-C
 346          KM  EAST OF VALLEY VIEW AND EDNA INTERSECTION
 347          HC       2
              *

 348          KKRCED05-C
 349          KM  ROUTE CED05-C TO CCPS08
 350          KM  EDNA AVENUE
 351          RD    1900  0.0158   0.016       0    TRAP       0      50
              *

 352          KK  CCPS08
 353          KM  COMBINE CPS08 AND RCED05-C
 354          KM  EDNA AND FREEWAY CHANNEL
 355          HC       2
              *

 356          KK RCCPS08
 357          KM  ROUTE CCPS08 TO CED10-C
 358          KM  FACILITY = FREEWAY CHANNEL FROM DESERT INN TO I-15
 359          KM  FACILITY # = FW15 0242
 360          KM  LINING = RCB
 361          RD    1500  0.0093   0.016       0    TRAP       0      50
              *

 362          KK  ED10-C
 363          BA   0.217
 364          PB    2.77
 365          LS       0    90.2
 366          UD   0.295
              *

 367          KK CED10-C
 368          KM  COMBINE RCCPS08 AND ED10-C
 369          KM  COMBINATION OF FREEWAY CHANNEL AND ED10-C
 370          HC       2
              *
1                                    HEC-1 INPUT                                        PAGE 11

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

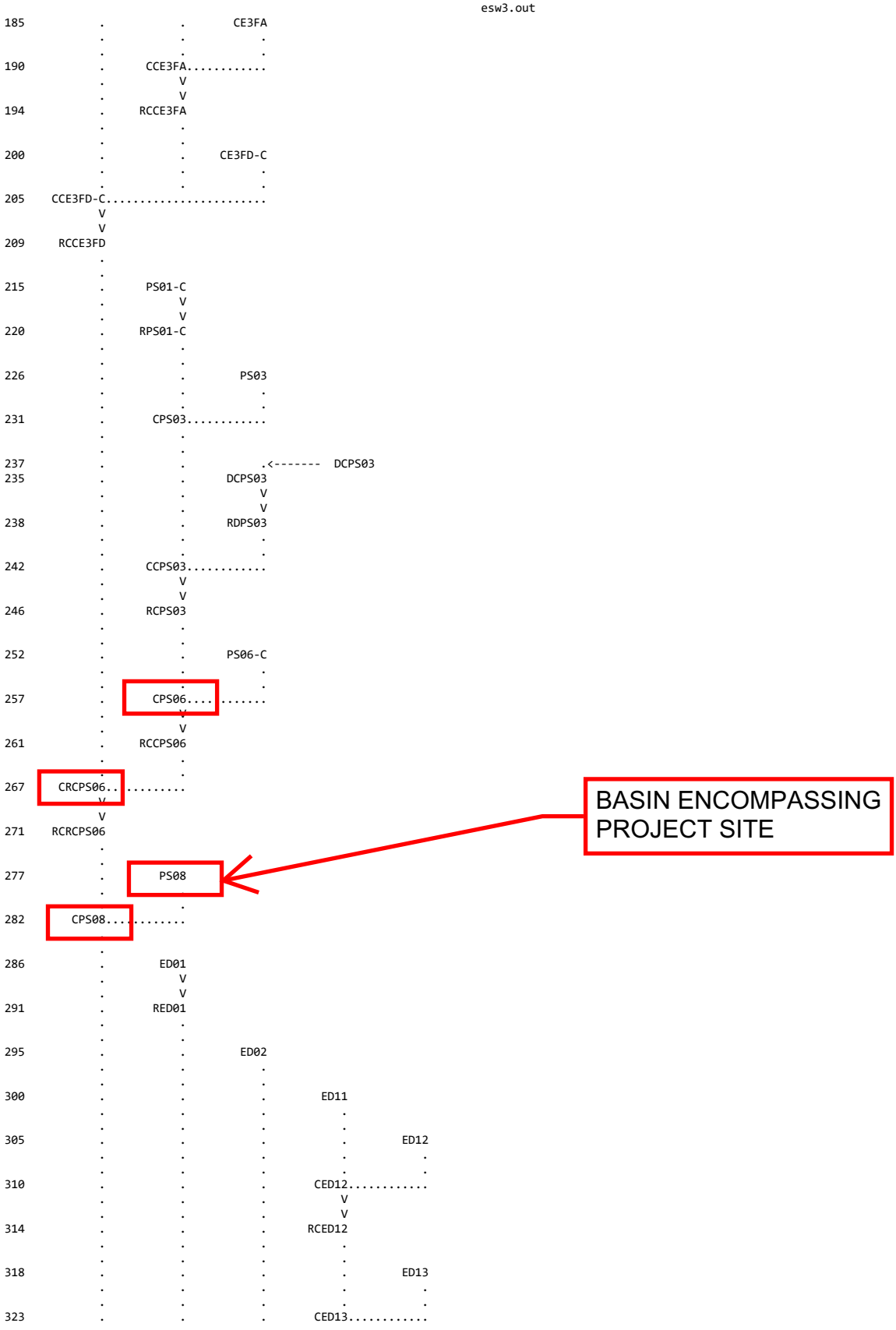
 371          KKRCED10-C
 372          KM  ROUTE CED10-C TO CSA08
 373          KM  FACILITY = FREEWAY CHANNEL FROM DESERT INN TO I-15
 374          KM  FACILITY # = FW15 0214
 375          KM  LINING = RCB
 376          RD    1500  0.0073   0.016       0    TRAP       0      50
              *

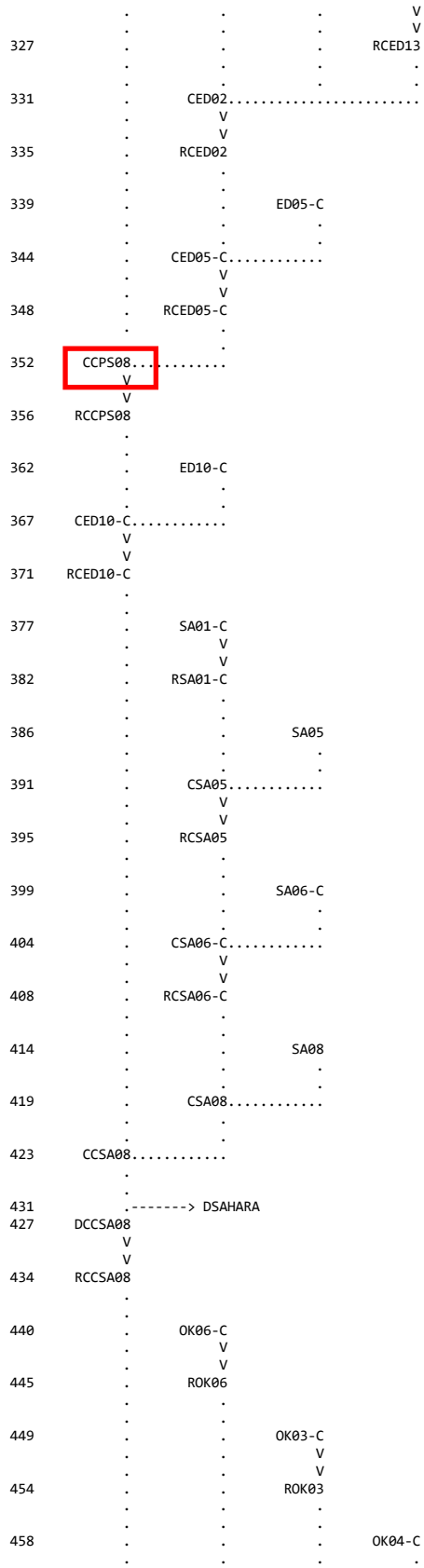
 377          KK  SA01-C
 378          BA   0.314
 379          PB    2.77
 380          LS       0    93.5
 381          UD   0.342
              *

 382          KK RSA01-C
 383          KM  ROUTE SA01-C TO CSA05
 384          KM  SAHARA
 385          RD    5200  0.0144   0.016       0    TRAP       0      50
              *

 386          KK    SA05
 387          BA   0.185
 388          PB    2.77
 389          LS       0    92.1
 390          UD   0.321
              *

 391          KK   CSA05
 392          KM  COMBINE RSA01-C AND SA05
```


CE3FA
CCE3FA
RCCE3FA
CE3FD-C
CCE3FD-C
RCCE3FD
PS01-C
RPS01-C
PS03
CPS03
DCPS03
RDPS03
CCPS03
RCPS03
PS06-C
CPS06
RCCPS06
CRCPS06
RCRCPS06
PS08
CPS08
ED01
RED01
ED02
ED11
ED12
CED12
RCED12
ED13
CED13
BASIN ENCOMPASSING PROJECT SITE


327 RCED13
331 CED02
335 RCED02
339 ED05-C
344 CED05-C
348 RCED05-C
352 CCPS08
356 RCCPS08
362 ED10-C
367 CED10-C
371 RCED10-C
377 SA01-C
382 RSA01-C
386 SA05
391 CSA05
395 RCSA05
399 SA06-C
404 CSA06-C
408 RCSA06-C
414 SA08
419 CSA08
423 CCSA08
431 DSAHARA
427 DCCSA08
434 RCCSA08
440 OK06-C
445 ROK06
449 OK03-C
454 ROK03
458 OK04-C

HYDROGRAPH AT													
+	PS06-C	.39	1	FLOW	454.	445.	431.	417.	411.	407.	404.	399.	394.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPS06	.99	1	FLOW	1107.	1083.	1045.	1004.	988.	977.	969.	957.	942.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCCPS06	.99	1	FLOW	1092.	1079.	1027.	1002.	978.	963.	953.	941.	931.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT													
+	CRCPS06	4.20	1	FLOW	2919.	2847.	2732.	2614.	2571.	2538.	2508.	2468.	2433.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCRCPS06	4.20	1	FLOW	2892.	2818.	2706.	2589.	2554.	2521.	2489.	2450.	2415.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	PS08	.18	1	FLOW	235.	231.	223.	216.	213.	211.	209.	207.	204.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPS08	4.38	1	FLOW	2959.	2884.	2770.	2651.	2615.	2582.	2550.	2509.	2474.
				TIME	4.17	4.08	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	ED01	.25	1	FLOW	210.	205.	197.	188.	185.	183.	181.	179.	176.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RED01	.25	1	FLOW	211.	206.	198.	190.	186.	184.	182.	180.	177.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	ED02	.31	1	FLOW	281.	275.	265.	255.	251.	248.	246.	243.	239.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	ED11	.24	1	FLOW	199.	194.	187.	179.	176.	174.	172.	170.	167.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	ED12	.21	1	FLOW	222.	217.	210.	202.	199.	197.	196.	193.	190.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CED12	.45	1	FLOW	417.	408.	393.	378.	372.	367.	364.	360.	354.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCED12	.45	1	FLOW	421.	412.	396.	381.	375.	370.	367.	362.	356.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	ED13	.23	1	FLOW	239.	234.	227.	219.	216.	214.	212.	210.	207.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CED13	.67	1	FLOW	645.	632.	609.	587.	578.	571.	567.	560.	551.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCED13	.67	1	FLOW	633.	620.	594.	576.	563.	557.	553.	550.	544.
				TIME	3.92	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
3 COMBINED AT													
+	CED02	1.24	1	FLOW	1108.	1076.	1039.	994.	976.	967.	962.	952.	933.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	4.00
ROUTED TO													
+	RCED02	1.24	1	FLOW	1110.	1080.	1043.	996.	980.	970.	964.	954.	938.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.17	4.17
HYDROGRAPH AT													
+	ED05-C	.44	1	FLOW	388.	380.	367.	354.	349.	346.	343.	339.	334.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CED05-C	1.68	1	FLOW	1464.	1428.	1379.	1320.	1300.	1287.	1278.	1262.	1237.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCED05-C	1.68	1	FLOW	1439.	1406.	1363.	1308.	1281.	1267.	1262.	1253.	1223.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17

2 COMBINED AT													
+	CCPS08	6.06	1	FLOW	4398.	4290.	4133.	3959.	3896.	3849.	3811.	3762.	3697.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
ROUTED TO													
+	RCCPS08	6.06	1	FLOW	4394.	4289.	4128.	3949.	3886.	3836.	3795.	3750.	3679.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	ED10-C	.22	1	FLOW	241.	236.	228.	220.	217.	214.	213.	210.	207.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CED10-C	6.28	1	FLOW	4492.	4385.	4220.	4039.	3975.	3923.	3883.	3836.	3764.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
ROUTED TO													
+	RCED10-C	6.28	1	FLOW	4457.	4362.	4189.	4005.	3941.	3886.	3843.	3798.	3724.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	SA01-C	.31	1	FLOW	370.	363.	352.	341.	336.	333.	331.	327.	323.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RSA01-C	.31	1	FLOW	371.	365.	354.	342.	338.	335.	332.	329.	324.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	SA05	.19	1	FLOW	214.	210.	203.	196.	193.	192.	190.	188.	185.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CSA05	.50	1	FLOW	553.	542.	525.	507.	500.	495.	491.	486.	479.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCSA05	.50	1	FLOW	554.	544.	525.	508.	502.	497.	494.	488.	482.
				TIME	4.00	4.00	4.00	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	SA06-C	.35	1	FLOW	354.	347.	337.	326.	322.	319.	317.	313.	309.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CSA06-C	.85	1	FLOW	893.	876.	848.	820.	808.	800.	795.	785.	774.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO													
+	RCSA06-C	.85	1	FLOW	891.	875.	848.	820.	810.	802.	796.	788.	777.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	SA08	.25	1	FLOW	327.	322.	312.	302.	298.	295.	293.	290.	286.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CSA08	1.10	1	FLOW	1014.	993.	959.	924.	911.	901.	894.	883.	871.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.17	4.17
2 COMBINED AT													
+	CCSA08	7.38	1	FLOW	5455.	5342.	5139.	4924.	4848.	4785.	4736.	4681.	4595.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
DIVERSION TO													
+	DSAHARA	7.38	1	FLOW	2763.	2650.	2447.	2232.	2156.	2093.	2044.	1989.	1903.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	DCCSA08	7.38	1	FLOW	2692.	2692.	2692.	2692.	2692.	2692.	2692.	2692.	2692.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.92
ROUTED TO													
+	RCCSA08	7.38	1	FLOW	2692.	2692.	2692.	2692.	2692.	2692.	2692.	2692.	2692.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	OK06-C	.17	1	FLOW	215.	211.	204.	197.	194.	192.	190.	188.	185.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	ROK06	.17	1	FLOW	209.	205.	198.	191.	189.	193.	192.	189.	187.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	OK03-C	.36	1	FLOW	372.	365.	353.	341.	336.	333.	331.	327.	322.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													

EXISTING 10-YR


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1****************************************                 ****************************************
*                                      *                 *                                      *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                 *    U.S. ARMY CORPS OF ENGINEERS      *
*              JUN   1998              *                 *    HYDROLOGIC ENGINEERING CENTER     *
*            VERSION 4.1               *                 *         609 SECOND STREET            *
*                                      *                 *       DAVIS, CALIFORNIA 95616        *
*  RUN DATE   11JUN04  TIME  10:07:02  *                 *          (916) 756-1104              *
*                                      *                 *                                      *
****************************************                 ****************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X               X
                                        XXXXXXX  XXXX     X        XXXXX  X
                                        X     X  X        X               X
                                        X     X  X        X     X         X
                                        X     X  XXXXXXX   XXXXX          XXX


          THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

          THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
          THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
          NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
          DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
          KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                              HEC-1 INPUT                                                PAGE  1

          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                        *DIAGRAM
 *** FREE ***
               1        ID  CLV CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN 2003
               2        ID  CENTRAL BASIN (SOUTHWEST, SOUTHEAST, NORTHEAST AREAS)
               3        ID  EXISTING CONDITIONS = EXISTING FACILITIES, FUTURE LAND USE
               4        ID  INPUT FILE = ESW310.DAT
               5        ID  INPUT FILE DATE = OCTOBER, 2003
               6        ID  DESIGN STORM = 10-YEAR 6-HR STORM
               7        ID  STORM DISTRIBUTION = SDN #3
               8        ID  MODELED BY PBS&J (STEPHEN C. ALTMAN P.E.)
               9        ID        STORM CENTERING
              10        ID        COMPOSITE CURVE NUMBER RUN
              11        ID        2002 MPU SUBBASINS USED FOR OFFSITE AREAS EXCEPT WHERE SPECIFIED
              12        ID  REFERENCED HYDROLOGIC MODELS:
              13        ID  CITY OF LAS VEGAS CITY WIDE HYDROLOGY ANALYSIS (PBS&J 1997)
              14        ID  PREDESIGN REPORT FOR I-15 FREEWAY CHANNEL (PARSONS BRINCKERHOFF 1999)
              15        ID  FINAL CENTRAL BASIN ASSESMENT (CARTER-BURGESS 1998)
              16        ID  HYDRAULIC DESIGN REPORT FOR I-15 WIDENING (LOUIS BERGER 1999)
              17        ID  CCRFCD 2002 LAS VEGAS VALLEY MASTER PLAN UPDATE (PBS&J, GCW, LBG)
              18        ID
              19        ID  NOTE: LOCATIONS AND DESCRIPTIONS OF PROPOSED MPU FACILITIES ARE STATED IN
              20        ID        THE MODEL.  HOWEVER, ROUTINGS IN THESE LOCATIONS REFLECT THE EXISTING
              21        ID        CONDITION.
              22        ID
              23        ID
              24        ID  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
              25        ID
              26        ID        CONCENTRATION   AREA    DARF
              27        ID        POINT           SQ. MI.
              28        ID                        0-0.5      0.564
              29        ID                        0.5-1      0.556
              30        ID                        1-2        0.542
              31        ID                        2-3        0.527
              32        ID                        3-4        0.522
              33        ID                        4-5        0.518
              34        ID                        5-6        0.515
              35        ID                        6-7         0.51
              36        ID                        7-8        0.504
              37        ID
              38        ID  JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
              39        ID
              40        ID  10-YEAR,  6-HOUR STORM,  SDN3
              41        ID
              42        IT      5       0       0     300
              43        IO      5       0       0
              44        IN      5       0       0
              45        JR    PREC   0.564   0.556   0.542   0.527   0.522   0.518   0.515    0.51   0.504

              46        KK    FW01
              47        BA   0.324
              48        PB    2.77
              49        PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
              50        PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
              51        PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
              52        PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
1                                              HEC-1 INPUT                                                PAGE  2
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 237          KK   CPS03
 238          KM  COMBINE RPS01-C AND PS03
 239          KM  DECATUR AND PALMYRA
 240          HC       2
              *

 241          KK  DCPS03
 242          KM  RETRIEVE DPS03
 243          DR  DCPS03
              *

 244          KK  RDPS03
 245          KM  ROUTE DPSO03 TO CPS03
 246          KM  DECATUR
 247          RD    1200  0.0033   0.016       0    TRAP       0      50
              *

 248          KK  CCPS03
 249          KM  COMBINE CPS03 AND RDPS03
 250          KM  DECATUR AND PALMYRA
 251          HC       2
              *

 252          KK  RCPS03
 253          KM  ROUTE CCPS03 TO CPS04
 254          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 255          KM  FACILITY # = FWPS 0057
 256          KM  LINING = RCP
 257          RD    2500   0.012   0.016       0    TRAP       0      50
              *

 258          KK    PS04
 259          BA   0.193
 260          PB    2.77
 261          LS       0    92.3
 262          UD   0.290
              *

 263          KK   CPS04
 264          KM  COMBINE PS04 AND RCPS03
 265          KM  ARVILLE AND SIRIUS
 266          HC       2
              *

 267          KK  RCPS04
 268          KM  ROUTE CPS04 TO CPS05
 269          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 270          KM  FACILITY # = FWPS 0057
 271          KM  LINING = RCP
 272          RD    1300   0.013   0.016       0    TRAP       0      50
              *
1                                        HEC-1 INPUT                                          PAGE  8

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 273          KK    PS05
 274          BA   0.109
 275          PB    2.77
 276          LS       0    92.0
 277          UD   0.252
              *

 278          KK   CPS05
 279          KM  COMBINE PS05 AND RCPS04
 280          KM  WYNN AND SIRIUS
 281          HC       2
              *

 282          KK  RCPS05
 283          KM  ROUTE CPS05 TO CPS06
 284          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 285          KM  FACILITY # = FWPS 0057
 286          KM  LINING = RCP
 287          RD    1300    0.01   0.016       0    TRAP       0      50
              *

 288          KK    PS06
 289          BA   0.084
 290          PB    2.77
 291          LS       0    92.8
 292          UD   0.244
              *

 293          KK   CPS06
 294          KM  COMBINE RCPS05 AND PS06
 295          KM  VALLEY VIEW AND PALMYRA
 296          HC       2
              *

 297          KK  RCPS06
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 298          KM  ROUTE CPS06 TO CPS07
 299          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 300          KM  FACILITY # = FWPS 0000
 301          KM  LINING = RCB
 302          RD    3000   0.015   0.016       0    TRAP       0      50
              *

 303          KK    PS07
 304          BA   0.101
 305          PB    2.77
 306          LS       0    92.3
 307          UD   0.244
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 308          KK   CPS07
 309          KM  COMBINE PS07 AND RCPS06
 310          KM  FREEWAY CHANNEL AND DESERT INN
 311          HC       2
              *

 312          KK  CCPS07
 313          KM  COMBINE CPS07 AND RCCE3FD
 314          KM  FREEWAY CHANNEL AND DESERT INN
 315          HC       2
              *

 316          KK RCCPS07
 317          KM  ROUTE CCPS07 TO CPS08
 318          KM  FACILITY = FREEWAY CHANNEL DESERT INN TO I-15
 319          KM  FACILITY # = FW15 0271
 320          KM  LINING = RCB
 321          RD    1700  0.0059   0.016       0    TRAP       0      50
              *

 322          KK    PS08
 323          BA   0.178
 324          PB    2.77
 325          LS       0    92.1
 326          UD   0.278
              *

 327          KK   CPS08
 328          KM  COMBINE RCCPS07 AND PS08
 329          KM  FREEWAY CHANNEL AND SUBBASIN PS08
 330          HC       2
              *

 331          KK    ED01
 332          BA   0.254
 333          PB    2.77
 334          LS       0    85.9
 335          UD   0.379
              *

 336          KK   RED01
 337          KM  ROUTE ED01 TO CED02
 338          KM  EDNA AVENUE
 339          RD    7150  0.0139   0.016       0    TRAP       0      50
              *

 340          KK    ED02
 341          BA   0.311
 342          PB    2.77
 343          LS       0    88.8
 344          UD   0.407
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 345          KK    ED11
 346          BA   0.242
 347          PB    2.77
 348          LS       0    85.6
 349          UD   0.369
              *

 350          KK    ED12
 351          BA   0.206
 352          PB    2.77
 353          LS       0    90.7
 354          UD   0.336
              *

 355          KK   CED12
 356          KM  COMBINE ED11 AND ED12
 357          KM  JONES AND ELDORA
 358          HC       2
              *
```

```
418          RD    2650   0.009   0.016       0    TRAP       0      50
             *

419          KK    ED06
420          BA   0.077
421          PB    2.77
422          LS       0    91.1
423          UD   0.274
             *

424          KK   CED06
425          KM  COMBINE RED05 AND ED06
426          KM  VALLEY VIEW AND TARA
427          HC       2
             *

428          KK  RCED06
429          KM  ROUTE CED06 TO CED08
430          KM  MOBILE HOME PARK ROAD
431          RD    2500   0.011   0.016       0    TRAP       0      50
             *

432          KK    ED07
433          BA   0.066
434          PB    2.77
435          LS       0    90.5
436          UD   0.248
             *

437          KK   RED07
438          KM  ROUTE ED07 TO CED08
439          KM  MOBILE HOME PARK ROAD
440          RD    3100   0.008   0.016       0    TRAP       0      50
             *

441          KK    ED08
442          BA   0.080
443          PB    2.77
444          LS       0    90.4
445          UD   0.296
             *

446          KK   CED08
447          KM  COMBINE RCED06, RCED04, RED07 AND ED08
448          KM  SOUTHEAST CORNER OF MOBILE PARK
449          HC       4
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

450          KK  RCED08
451          KM  ROUTE CED08 TO CED09
452          KM  EXISTING DITCH
453          RD    1900  0.0158   0.016       0    TRAP       0      50
             *

454          KK    ED09
455          BA   0.026
456          PB    2.77
457          LS       0    88.5
458          UD   0.178
             *

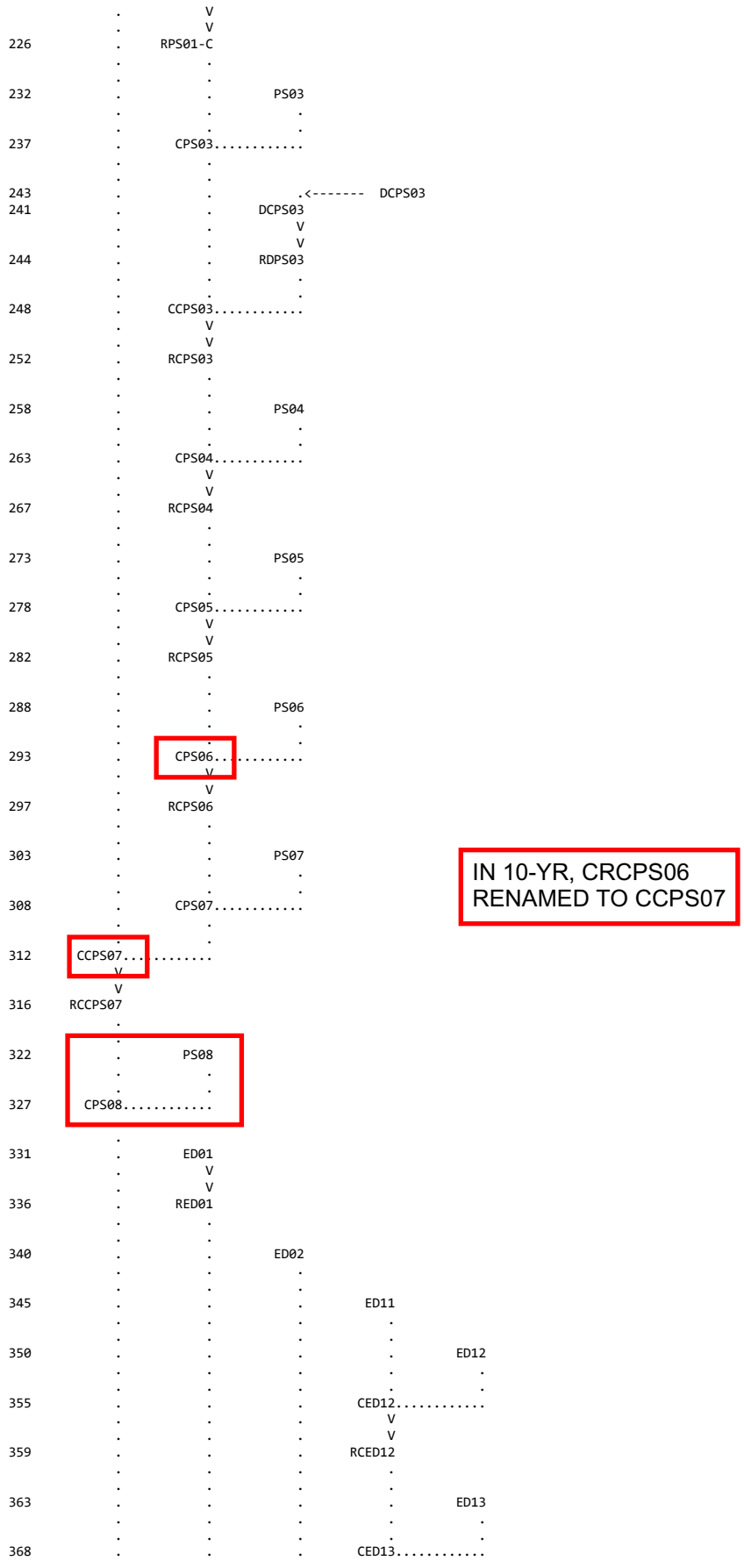
459          KK  CCPS08
460          KM  COMBINE ED09, CPS08 AND RCED08
461          KM  EDNA AND FREEWAY CHANNEL
462          HC       3
             *

463          KK RCCPS08
464          KM  ROUTE CCPS08 TO CED10
465          KM  FACILITY = FREEWAY CHANNEL FROM DESERT INN TO I-15
466          KM  FACILITY # = FW15 0242
467          KM  LINING = RCB
468          RD    1500  0.0093   0.016       0    TRAP       0      50
             *

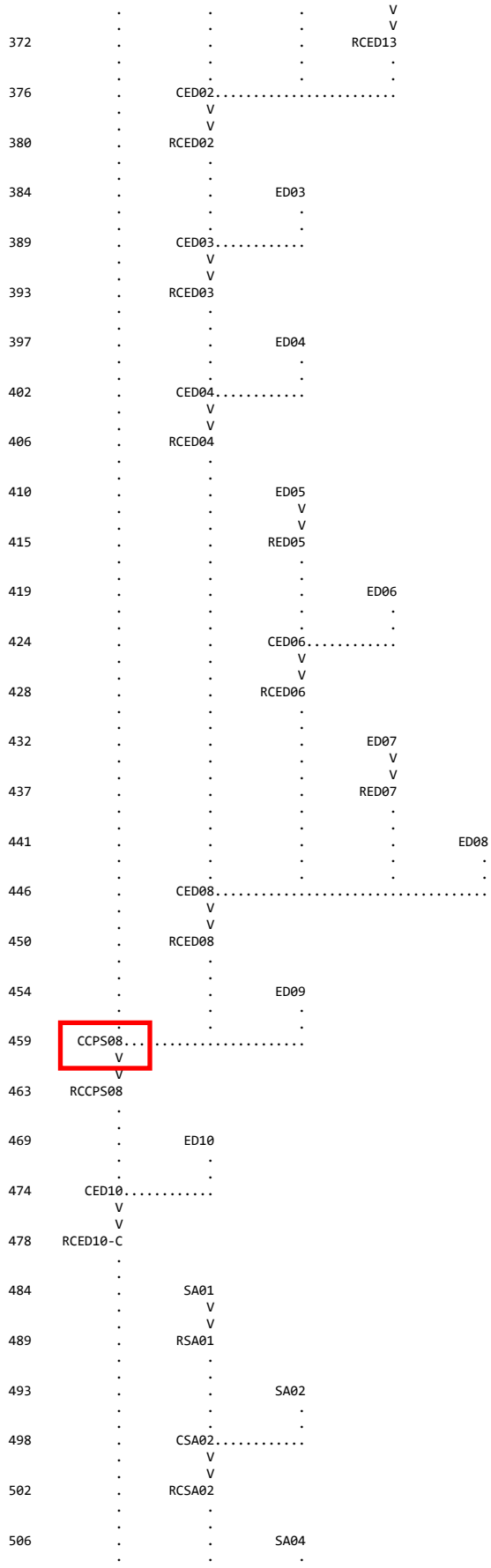
469          KK    ED10
470          BA   0.191
471          PB    2.77
472          LS       0    90.4
473          UD   0.306
             *

474          KK   CED10
475          KM  COMBINE RCCPS08 AND ED10
476          KM  COMBINATION OF FREEWAY CHANNEL AND ED10
477          HC       2
             *

478          KKRCED10-C
479          KM  ROUTE CED10-C TO CSA08
```



IN 10-YR, CRCPS06 RENAMED TO CCPS07


372 RCED13
376 CED02
380 RCED02
384 ED03
389 CED03
393 RCED03
397 ED04
402 CED04
406 RCED04
410 ED05
415 RED05
419 ED06
424 CED06
428 RCED06
432 ED07
437 RED07
441 ED08
446 CED08
450 RCED08
454 ED09
459 CCPS08
463 RCCPS08
469 ED10
474 CED10
478 RCED10-C
484 SA01
489 RSA01
493 SA02
498 CSA02
502 RCSA02
506 SA04

+	CCE3FD-C	3.11	1	FLOW	560.	538.	507.	480.	475.	471.	464.	456.
				TIME	4.17	4.17	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO												
+	RCCE3FD	3.11	1	FLOW	558.	537.	506.	486.	479.	473.	469.	463.	454.
				TIME	4.17	4.17	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT												
+	PS01-C	.41	1	FLOW	126.	122.	116.	109.	107.	105.	104.	102.	99.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO												
+	RPS01-C	.41	1	FLOW	127.	123.	116.	107.	104.	103.	101.	99.	98.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT												
+	PS03	.19	1	FLOW	107.	104.	100.	95.	94.	93.	92.	90.	88.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT												
+	CPS03	.61	1	FLOW	199.	193.	183.	171.	167.	165.	163.	160.	157.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT												
+	DCPS03	.00	1	FLOW	123.	120.	114.	107.	105.	104.	103.	101.	98.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO												
+	RDPS03	.00	1	FLOW	123.	120.	115.	109.	107.	106.	106.	103.	99.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT												
+	CCPS03	.61	1	FLOW	304.	295.	279.	260.	255.	252.	250.	245.	238.
				TIME	3.92	3.92	3.92	3.92	4.00	4.00	4.00	4.00	4.00
ROUTED TO												
+	RCPS03	.61	1	FLOW	303.	294.	279.	260.	254.	251.	249.	244.	237.
				TIME	4.00	4.00	4.00	4.00	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT												
+	PS04	.19	1	FLOW	109.	107.	103.	98.	97.	96.	95.	94.	92.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT												
+	CPS04	.80	1	FLOW	375.	364.	347.	325.	318.	314.	310.	304.	299.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO												
+	RCPS04	.80	1	FLOW	373.	363.	345.	323.	316.	312.	309.	302.	297.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT												
+	PS05	.11	1	FLOW	65.	63.	61.	58.	57.	57.	56.	55.	54.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT												
+	CPS05	.91	1	FLOW	412.	400.	381.	360.	352.	347.	343.	337.	330.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO												
+	RCPS05	.91	1	FLOW	409.	398.	379.	357.	349.	344.	341.	335.	327.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT												
+	PS06	.08	1	FLOW	53.	52.	50.	48.	48.	47.	47.	46.	45.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT												
+	CPS06	.99	1	FLOW	439.	425.	405.	384.	377.	371.	367.	360.	353.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO												
+	RCPS06	.99	1	FLOW	440.	426.	406.	384.	378.	372.	367.	361.	353.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT												
+	PS07	.10	1	FLOW	62.	61.	58.	56.	55.	55.	54.	53.	52.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT												
+	CPS07	1.09	1	FLOW	471.	457.	435.	413.	406.	399.	395.	388.	380.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT												
+	CCPS07	4.20	1	FLOW	1013.	985.	941.	898.	885.	873.	864.	851.	834.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO												
+	RCCPS07	4.20	1	FLOW	1009.	983.	935.	891.	875.	865.	858.	844.	824.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT												
+	PS08	.18	1	FLOW	100.	98.	94.	90.	89.	88.	87.	86.	84.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.75	3.75

IN 10-YR, CRCPS06 RENAMED TO CCPS07

2 COMBINED AT													
+	CPS08	4.38	1	FLOW	1058.	1031.	989.	939.	928.	917.	907.	887.	871.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	ED01	.25	1	FLOW	78.	75.	72.	67.	66.	65.	64.	63.	61.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RED01	.25	1	FLOW	79.	76.	72.	68.	67.	65.	63.	62.	60.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	ED02	.31	1	FLOW	115.	113.	108.	102.	100.	99.	98.	96.	94.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	ED11	.24	1	FLOW	73.	71.	67.	64.	62.	61.	60.	59.	58.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	ED12	.21	1	FLOW	97.	95.	91.	87.	86.	85.	84.	82.	81.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CED12	.45	1	FLOW	169.	165.	157.	149.	147.	145.	143.	140.	137.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCED12	.45	1	FLOW	171.	167.	159.	151.	148.	146.	144.	141.	138.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	ED13	.23	1	FLOW	111.	108.	104.	100.	99.	97.	96.	95.	93.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CED13	.67	1	FLOW	252.	246.	234.	223.	219.	216.	214.	210.	206.
				TIME	4.00	4.00	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCED13	.67	1	FLOW	254.	248.	236.	224.	219.	216.	214.	210.	206.
				TIME	4.08	4.08	4.08	4.08	4.08	4.17	4.17	4.17	4.17
3 COMBINED AT													
+	CED02	1.24	1	FLOW	423.	411.	392.	371.	364.	358.	352.	345.	336.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCED02	1.24	1	FLOW	414.	404.	398.	377.	370.	364.	356.	349.	340.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	ED03	.05	1	FLOW	27.	26.	25.	24.	24.	24.	23.	23.	23.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CED03	1.29	1	FLOW	422.	412.	405.	384.	377.	371.	363.	356.	347.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
ROUTED TO													
+	RCED03	1.29	1	FLOW	423.	412.	404.	379.	372.	368.	362.	356.	349.
				TIME	4.25	4.25	4.25	4.25	4.33	4.33	4.33	4.33	4.33
HYDROGRAPH AT													
+	ED04	.04	1	FLOW	25.	25.	24.	23.	22.	22.	22.	22.	21.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CED04	1.33	1	FLOW	430.	419.	411.	386.	377.	373.	367.	361.	354.
				TIME	4.25	4.25	4.25	4.25	4.33	4.33	4.33	4.33	4.33
ROUTED TO													
+	RCED04	1.33	1	FLOW	422.	415.	408.	386.	372.	366.	363.	356.	343.
				TIME	4.33	4.33	4.33	4.33	4.33	4.33	4.33	4.33	4.42
HYDROGRAPH AT													
+	ED05	.13	1	FLOW	70.	68.	66.	63.	62.	61.	60.	59.	58.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RED05	.13	1	FLOW	70.	69.	66.	63.	62.	61.	59.	58.	59.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	ED06	.08	1	FLOW	41.	40.	38.	37.	36.	36.	35.	35.	34.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CED06	.20	1	FLOW	107.	105.	100.	96.	95.	93.	90.	89.	89.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													

+	RCED06	.20	1	FLOW	109.	106.	102.	97.	96.	95.	92.	90.	90.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	ED07	.07	1	FLOW	35.	35.	33.	32.	31.	31.	30.	30.	29.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RED07	.07	1	FLOW	36.	35.	33.	32.	32.	31.	31.	30.	30.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	ED08	.08	1	FLOW	39.	38.	37.	35.	35.	34.	34.	33.	33.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
4 COMBINED AT													
+	CED08	1.68	1	FLOW	496.	487.	478.	453.	438.	432.	429.	420.	404.
				TIME	4.33	4.33	4.33	4.33	4.33	4.33	4.33	4.33	4.33
ROUTED TO													
+	RCED08	1.68	1	FLOW	493.	481.	464.	443.	431.	424.	420.	413.	400.
				TIME	4.33	4.33	4.42	4.42	4.42	4.42	4.42	4.42	4.42
HYDROGRAPH AT													
+	ED09	.03	1	FLOW	14.	13.	13.	12.	12.	12.	12.	11.	11.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT													
+	CCPS08	6.09	1	FLOW	1483.	1436.	1367.	1299.	1273.	1258.	1247.	1226.	1197.
				TIME	4.17	4.17	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCCPS08	6.09	1	FLOW	1483.	1436.	1363.	1293.	1269.	1252.	1240.	1218.	1189.
				TIME	4.25	4.17	4.17	4.17	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	ED10	.19	1	FLOW	93.	91.	87.	83.	82.	80.	80.	78.	77.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CED10	6.28	1	FLOW	1522.	1477.	1408.	1339.	1315.	1297.	1285.	1262.	1233.
				TIME	4.17	4.17	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCED10-C	6.28	1	FLOW	1518.	1478.	1406.	1335.	1307.	1291.	1281.	1255.	1228.
				TIME	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17
HYDROGRAPH AT													
+	SA01	.06	1	FLOW	49.	48.	47.	45.	44.	44.	43.	43.	42.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
ROUTED TO													
+	RSA01	.06	1	FLOW	47.	47.	46.	44.	43.	43.	43.	42.	41.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	SA02	.14	1	FLOW	91.	89.	86.	82.	81.	80.	80.	78.	77.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CSA02	.20	1	FLOW	136.	133.	129.	123.	122.	120.	119.	118.	116.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCSA02	.20	1	FLOW	136.	133.	129.	123.	121.	120.	119.	117.	115.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	SA04	.11	1	FLOW	74.	73.	70.	67.	66.	66.	65.	64.	63.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CSA04	.31	1	FLOW	204.	200.	193.	185.	183.	181.	179.	177.	174.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													
+	RCSA04	.31	1	FLOW	203.	199.	192.	185.	183.	181.	179.	177.	174.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	SA05	.19	1	FLOW	99.	97.	93.	89.	88.	87.	86.	85.	83.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CSA05	.50	1	FLOW	293.	287.	276.	264.	260.	257.	254.	251.	246.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCSA05	.50	1	FLOW	295.	290.	279.	268.	264.	261.	259.	255.	251.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	SA06	.26	1	FLOW	162.	159.	154.	148.	146.	145.	144.	142.	139.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75

FUTURE 100-YR


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1*************************************                 *************************************
 *                                   *                 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *           *    U.S. ARMY CORPS OF ENGINEERS     *
 *              JUN   1998             *             *    HYDROLOGIC ENGINEERING CENTER    *
 *            VERSION 4.1              *             *         609 SECOND STREET           *
 *                                     *             *       DAVIS, CALIFORNIA 95616       *
 *  RUN DATE   01JUN04  TIME  10:54:23  *             *          (916) 756-1104             *
 *                                   *                 *                                   *
 *************************************                 *************************************

                                        X     X  XXXXXXX   XXXXX           X
                                        X     X  X        X     X         XX
                                        X     X  X        X               X
                                        XXXXXXX  XXXX     X        XXXXX   X
                                        X     X  X        X                X
                                        X     X  X        X     X          X
                                        X     X  XXXXXXX   XXXXX          XXX
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THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                        *DIAGRAM
 *** FREE ***
             1          ID  CLV CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN 2003
             2          ID  CENTRAL BASIN (SOUTHWEST, SOUTHEAST, NORTHEAST AREAS)
             3          ID  RECOMMENDED DRAINAGE SYSTEM WITH ULTIMATE DEVELOPMENT
             4          ID  INPUT FILE = FSW3.DAT
             5          ID  INPUT FILE DATE = OCTOBER, 2003
             6          ID  DESIGN STORM = 100-YEAR 6-HR STORM
             7          ID  STORM DISTRIBUTION = SDN #3
             8          ID  MODELED BY PBS&J (STEPHEN C. ALTMAN P.E.)
             9          ID        ENTIRE WATERSHED
            10          ID        2002 MASTER PLAN UPDATE MODEL W/ ADJUSTMENTS FOR
            11          ID        2003 CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN
            12          ID        COMPOSITE CURVE NUMBER RUN
            13          ID
            14          ID  REFERENCED HYDROLOGIC MODELS:
            15          ID  CITY OF LAS VEGAS CITY WIDE HYDROLOGY ANALYSIS (PBS&J 1997)
            16          ID  PREDESIGN REPORT FOR I-15 FREEWAY CHANNEL (PARSONS BRINCKERHOFF 1999)
            17          ID  FINAL CENTRAL BASIN ASSESMENT (CARTER-BURGESS 1998)
            18          ID  HYDRAULIC DESIGN REPORT FOR I-15 WIDENING (LOUIS BERGER 1999)
            19          ID
            20          ID  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
            21          ID
            22          ID        CONCENTRATION   AREA    DARF
            23          ID        POINT           SQ. MI.
            24          ID                        0-0.5   0.99
            25          ID                        0.5-1   0.975
            26          ID                        1-2     0.95
            27          ID                        2-3     0.925
            28          ID                        3-4     0.915
            29          ID                        4-5     0.908
            30          ID                        5-6     0.903
            31          ID                        6-7     0.895
            32          ID                        7-8     0.885
            33          ID
            34          ID  JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
            35          ID
            36          ID  100-YEAR,  6-HOUR STORM,  SDN3
            37          ID
            38          IT       5       0       0     300
            39          IO       5       0       0
            40          IN       5       0       0
            41          JR    PREC    0.99   0.975    0.95   0.925   0.915   0.908   0.903   0.895   0.885
                        *
                        *
                        * AREA PREVIOUSLY IN FLAMINGO WATERSHED
                        *
            42          KK    FW01
            43          BA   0.324
            44          PB    2.77
            45          PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
            46          PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
            47          PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
            48          PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
```

1 HEC-1 INPUT PAGE 2

```
 231          KK    ED13
 232          BA   0.226
 233          PB    2.77
 234          LS       0    92.1
 235          UD   0.381
              *

 236          KK   CED13
 237          KM  COMBINE RCED12 AND ED13
 238          KM  DECATUR AND ELDORA
 239          HC       2
              *

 240          KK  RCED13
 241          KM  ROUTE CED13 TO CED02
 242          KM  FACILITY = DECATUR DRAIN
 243          KM  FACILITY # = FWDE 0025
 244          KM  LINING = RCB
 245          RD    1320  0.0031   0.015       0    TRAP      10       0
              *

 246          KK   CED02
 247          KM  COMBINE RED01, ED02, AND RCED13
 248          KM  DECATUR AND EDNA
 249          HC       3
              * *

 250          KK  RCED02
 251          KM  ROUTE CED02 TO CCPS03
 252          KM  FACILITY = DECATUR DRAIN
 253          KM  FACILITY # = FWDE 0000
 254          KM  LINING = RCB
 255          RD    1320  0.0038   0.015       0    TRAP      12       0
              *

 256          KK  DCPS03
 257          KM  RETRIEVE DPS03
 258          DR  DCPS03
              *

 259          KK  RDPS03
 260          KM  ROUTE DPSO03 TO CPS03
 261          KM  DECATUR
 262          RD    1200  0.0033   0.016       0    TRAP       0      50
              *

 263          KK  CCPS03
 264          KM  COMBINE CPS03, RCED02, AND RDPS03
 265          KM  DECATUR AND PALMYRA
 266          HC       3
              *
```



```
LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

 267          KK  RCPS03
 268          KM  ROUTE CCPS03 TO CPS06
 269          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 270          KM  FACILITY # = FWPS 0057
 271          KM  LINING = RCB
 272          RD    5280  0.0128   0.015       0    TRAP      12       0
              *

 273          KK  PS06-C
 274          BA   0.387
 275          PB    2.77
 276          LS       0    92.3
 277          UD   0.315
              *

 278          KK   CPS06
 279          KM  COMBINE RCPS03 AND PS06-C
 280          KM  VALLEY VIEW AND PALMYRA
 281          HC       2
              *

 282          KK  CCPS06
 283          KM  COMBINE CPS06 AND RCCE3FA
 284          KM  VALLEY VIEW AND PALMYRA
 285          HC       2
              *

 286          KK RCCPS06
 287          KM  ROUTE CCPS06 TO CRCPS06
 288          KM  FACILITY = PALMYRA/SIRIUS DRAIN
 289          KM  FACILITY # = FWPS 0000
 290          KM  LINING = RCB
 291          RD    3000   0.015   0.015       0    TRAP      20       0
              *

 292          KK    FW09
 293          BA   0.255
```

```
294          PB    2.77
295          LS       0    94.0
296          UD   0.399
             *

297          KK    DSPM
298          KM  DIVERT FLOW TO SPRING MTN./I-15 INTERCHANGE DETENTION BASIN
299          KM  FROM "HYDRAULIC DESIGN REPORT FOR I-15 WIDENING" BY LOUIS BERGER 1999
300          DT     DSM
301          DI       0      50     100     200     300     400    1000    2000
302          DQ       0       0      20      60     160     260     260     260
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

303          KK   RCFW9
304          KM  ROUTE DSPM TO CCCEFD
305          KM  FROM "HYDRAULIC DESIGN REPORT FOR I-15 WIDENING" BY LOUIS BERGER 1999
306          KM  LINING = RCP
307          RD    1390  0.0046   0.015       0    CIRC       5
             *

308          KK CE3FD-C
309          BA   0.281
310          PB    2.77
311          LS       0    93.7
312          UD   0.431
             *

313          KKCCE3FD-C
314          KM  COMBINE RCFW9 AND CE3FD-C
315          KM  FREEWAY CHANNEL AND DESERT INN
316          HC       2
             *

317          KK RCCE3FD
318          KM  ROUTE CCE3FD-C TO CRCPS06
319          KM  FACILITY = FREEWAY CHANNEL DESERT INN TO I-15
320          KM  FACILITY # = FW15 0301
321          KM  LINING = CONCRETE
322          RD    1300  0.0042   0.015       0    TRAP      12       2
             *

323          KK CRCPS06
324          KM  COMBINE RCCCE3FD AND RCCPS06
325          KM  COMBINATION AT FREEWAY CHANNEL AND PALMYRA
326          HC       2
             *

327          KKRCRCPS06
328          KM  ROUTE CRCPS06 TO CPS08
329          KM  FACILITY = FREEWAY CHANNEL DESERT INN TO I-15
330          KM  FACILITY # = FW15 0271
331          KM  LINING = RCB
332          RD    1700  0.0059   0.015       0    TRAP      24       0
             *

333          KK    PS08
334          BA   0.179
335          PB    2.77
336          LS       0    92.1
337          UD   0.239
             *
```



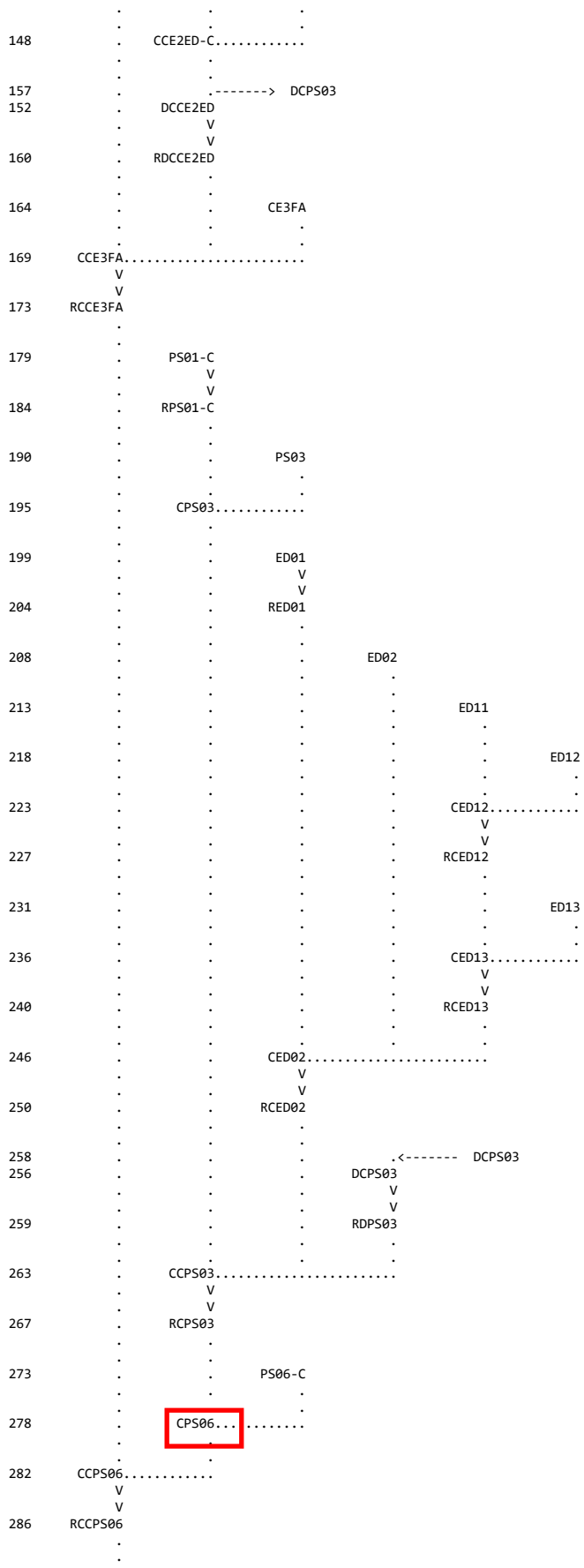
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

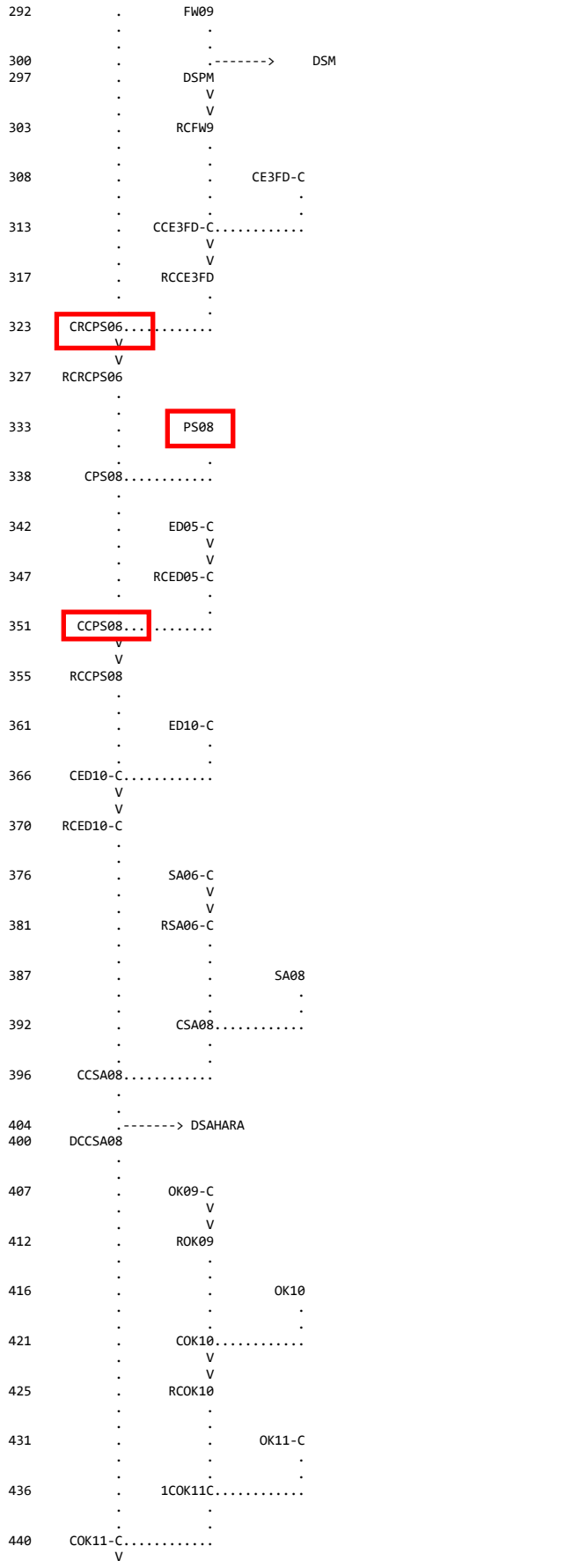
338          KK   CPS08
339          KM  COMBINE RCRCPS06 AND PS08
340          KM  FREEWAY CHANNEL AND SUBBASIN PS08
341          HC       2
             *

342          KK  ED05-C
343          BA   0.441
344          PB    2.77
345          LS       0    90.9
346          UD   0.496
             *

347          KKRCED05-C
348          KM  ROUTE CED05-C TO CCPS08
349          KM  EDNA AVENUE
350          RD    1900  0.0158   0.016       0    TRAP       0      50
             *

351          KK  CCPS08
352          KM  COMBINE CPS08 AND RCED05-C
353          KM  EDNA AND FREEWAY CHANNEL
354          HC       2
             *
```


CCE2ED-C
DCPS03
DCCE2ED
RDCCE2ED
CE3FA
CCE3FA
RCCE3FA
PS01-C
RPS01-C
PS03
CPS03
ED01
RED01
ED02
ED11
ED12
CED12
RCED12
ED13
CED13
RCED13
CED02
RCED02
DCPS03
RDPS03
CCPS03
RCPS03
PS06-C
CPS06
CCPS06
RCCPS06


292 FW09
300 .-------> DSM
297 DSPM
303 RCFW9
308 CE3FD-C
313 CCE3FD-C
317 RCCE3FD
323 CRCPS06
327 RCRCPS06
333 PS08
338 CPS08
342 ED05-C
347 RCED05-C
351 CCPS08
355 RCCPS08
361 ED10-C
366 CED10-C
370 RCED10-C
376 SA06-C
381 RSA06-C
387 SA08
392 CSA08
396 CCSA08
404 .-------> DSAHARA
400 DCCSA08
407 OK09-C
412 ROK09
416 OK10
421 COK10
425 RCOK10
431 OK11-C
436 1COK11C
440 COK11-C

3 COMBINED AT													
+	CCPS03	1.85	1	FLOW	1836.	1795.	1731.	1665.	1637.	1619.	1605.	1585.	1560.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCPS03	1.85	1	FLOW	1823.	1782.	1721.	1650.	1625.	1604.	1596.	1569.	1549.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	PS06-C	.39	1	FLOW	454.	445.	431.	417.	411.	407.	404.	399.	394.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPS06	2.23	1	FLOW	2191.	2144.	2071.	1989.	1959.	1936.	1925.	1895.	1870.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CCPS06	4.91	1	FLOW	3815.	3719.	3574.	3418.	3356.	3312.	3291.	3233.	3180.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCCPS06	4.91	1	FLOW	3779.	3685.	3537.	3386.	3330.	3279.	3261.	3208.	3156.
				TIME	3.92	3.92	3.92	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	FW09	.25	1	FLOW	282.	277.	268.	260.	257.	254.	253.	250.	247.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
DIVERSION TO													
+	DSM	.25	1	FLOW	142.	137.	128.	120.	117.	114.	113.	110.	107.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	DSPM	.25	1	FLOW	140.	140.	140.	140.	140.	140.	140.	140.	140.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCFW9	.25	1	FLOW	140.	140.	140.	140.	140.	140.	140.	140.	140.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
HYDROGRAPH AT													
+	CE3FD-C	.28	1	FLOW	295.	290.	281.	272.	268.	266.	264.	261.	258.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CCE3FD-C	.54	1	FLOW	435.	430.	421.	412.	408.	406.	404.	401.	398.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCCE3FD	.54	1	FLOW	431.	426.	417.	408.	405.	403.	401.	398.	395.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
2 COMBINED AT													
+	CRCPS06	5.44	1	FLOW	4210.	4111.	3955.	3791.	3726.	3682.	3655.	3597.	3541.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCRCPS06	5.44	1	FLOW	4184.	4084.	3935.	3779.	3718.	3667.	3646.	3589.	3536.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	PS08	.18	1	FLOW	235.	231.	223.	216.	213.	211.	209.	207.	204.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPS08	5.62	1	FLOW	4316.	4214.	4054.	3886.	3819.	3774.	3746.	3689.	3632.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	4.00
HYDROGRAPH AT													
+	ED05-C	.44	1	FLOW	388.	380.	367.	354.	349.	346.	343.	339.	334.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCED05-C	.44	1	FLOW	384.	378.	363.	353.	347.	342.	340.	336.	332.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
2 COMBINED AT													
+	CCPS08	6.06	1	FLOW	4696.	4584.	4413.	4232.	4164.	4110.	4083.	4023.	3964.
				TIME	3.92	3.92	3.92	4.00	4.00	3.92	4.00	4.00	4.00
ROUTED TO													
+	RCCPS08	6.06	1	FLOW	4678.	4569.	4402.	4230.	4163.	4108.	4082.	4022.	3962.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	ED10-C	.22	1	FLOW	241.	236.	228.	220.	217.	214.	213.	210.	207.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CED10-C	6.28	1	FLOW	4855.	4739.	4563.	4374.	4299.	4249.	4218.	4156.	4092.
				TIME	3.92	3.92	3.92	3.92	4.00	3.92	3.92	3.92	4.00
ROUTED TO													

FUTURE 10-YR


```
1*************************************
 *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              JUN   1998           *
 *            VERSION 4.1            *
 *                                   *
 *  RUN DATE   08JUN04  TIME  08:54:36   *
 *                                   *
 *************************************
```

```
*************************************
*                                   *
*    U.S. ARMY CORPS OF ENGINEERS     *
*    HYDROLOGIC ENGINEERING CENTER    *
*          609 SECOND STREET          *
*       DAVIS, CALIFORNIA 95616       *
*           (916) 756-1104            *
*                                   *
*************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X               X
XXXXXXX  XXXX     X        XXXXX  X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM


```
          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

                        *DIAGRAM
 *** FREE ***
               1        ID  CLV CENTRAL NEIGHBORHOOD FLOOD CONTROL MASTER PLAN 2003
               2        ID  CENTRAL BASIN (SOUTHWEST, SOUTHEAST, NORTHEAST AREAS)
               3        ID  FUTURE CONDITION - FUTURE LAND USE, PROPOSED MASTER PLAN FACILITIES
               4        ID                     EXISTING AND FUTURE LOCAL FACILITIES
               5        ID  INPUT FILE = FSW310.DAT
               6        ID  INPUT FILE DATE = OCTOBER, 2003
               7        ID  DESIGN STORM = 10-YEAR 6-HR STORM
               8        ID  STORM DISTRIBUTION = SDN #3
               9        ID  MODELED BY PBS&J (STEPHEN C. ALTMAN P.E. AND GHAITH HAMADE, PhD.)
              10        ID       STORM CENTERING - FULL WATERSHED
              11        ID       COMPOSITE CURVE NUMBER RUN
              12        ID       2002 MPU SUBBASINS USED FOR OFFSITE AREAS EXCEPT WHERE SPECIFIED
              13        ID  REFERENCED HYDROLOGIC MODELS:
              14        ID  CITY OF LAS VEGAS CITY WIDE HYDROLOGY ANALYSIS (PBS&J 1997)
              15        ID  PREDESIGN REPORT FOR I-15 FREEWAY CHANNEL (PARSONS BRINCKERHOFF 1999)
              16        ID  FINAL CENTRAL BASIN ASSESMENT (CARTER-BURGESS 1998)
              17        ID  HYDRAULIC DESIGN REPORT FOR I-15 WIDENING (LOUIS BERGER 1999)
              18        ID  CCRFCD 2002 LAS VEGAS VALLEY MASTER PLAN UPDATE (PBS&J, GCW, LBG)
              19        ID
              20        ID  JR CARDS CONTAIN DARFS BASED ON THE FOLLOWING VALUES:
              21        ID
              22        ID       CONCENTRATION   AREA    DARF
              23        ID       POINT           SQ. MI.
              24        ID                       0-0.5      0.564
              25        ID                       0.5-1      0.556
              26        ID                       1-2        0.542
              27        ID                       2-3        0.527
              28        ID                       3-4        0.522
              29        ID                       4-5        0.518
              30        ID                       5-6        0.515
              31        ID                       6-7         0.51
              32        ID                       7-8        0.504
              33        ID
              34        ID  JR CARD RATIOS REPRESENT DEPTH-AREA REDUCTION FACTORS (DARF'S)
              35        ID
              36        ID  10-YEAR,  6-HOUR STORM,  SDN3
              37        ID
              38        IT      5       0       0     300
              39        IO      5       0       0
              40        IN      5       0       0
              41        JR    PREC   0.564   0.556   0.542   0.527   0.522   0.518   0.515    0.51   0.504
                        *

              42        KK    FW01
              43        BA   0.324
              44        PB    2.77
              45        PC   0.000   0.020   0.057   0.070   0.087   0.108   0.124   0.130   0.130   0.130
              46        PC   0.130   0.130   0.130   0.133   0.140   0.142   0.148   0.158   0.172   0.181
              47        PC   0.190   0.197   0.199   0.200   0.201   0.204   0.214   0.229   0.241   0.249
              48        PC   0.251   0.256   0.270   0.278   0.281   0.283   0.295   0.322   0.352   0.409
              49        PC   0.499   0.590   0.710   0.744   0.781   0.812   0.819   0.835   0.851   0.856
              50        PC   0.860   0.868   0.876   0.888   0.910   0.926   0.937   0.950   0.970   0.976
              51        PC   0.982   0.985   0.987   0.989   0.990   0.993   0.993   0.994   0.995   0.998
```

```
                *
            297         KK  RCPS05
            298         KM  ROUTE CPS05 TO CPS06
            299         KM  FACILITY = PALMYRA/SIRIUS DRAIN
            300         KM  FACILITY # = FWPS 0057
            301         KM  LINING = RCP
            302         RD    1300    0.01   0.013       0    CIRC      10
                *
1                                       HEC-1 INPUT                                                 PAGE  9

           LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            303         KK    PS06
            304         BA   0.084
            305         PB    2.77
            306         LS       0    92.8
            307         UD   0.244
                *
            308         KK   CPS06
            309         KM  COMBINE RCPS05 AND PS06
            310         KM  VALLEY VIEW AND PALMYRA
            311         HC       2
                *

            312         KK  CCPS06
            313         KM  COMBINE CPS06 AND RCCE3FA
            314         KM  VALLEY VIEW AND PALMYRA
            315         HC       2
                *
            316         KK  RCPS06
            317         KM  ROUTE CPS06 TO CPS07
            318         KM  FACILITY = PALMYRA/SIRIUS DRAIN
            319         KM  FACILITY # = FWPS 0000
            320         KM  LINING = RCB
            321         RD    3000   0.015   0.015       0    TRAP      12       0
                *

            322         KK    PS07
            323         BA   0.101
            324         PB    2.77
            325         LS       0    92.3
            326         UD   0.244
                *
            327         KK   CPS07
            328         KM  COMBINE PS07 AND RCPS06
            329         KM  FREEWAY CHANNEL AND DESERT INN
            330         HC       2
                *

            331         KK    FW09                                                  2000
            332         BA   0.255     260
            333         PB    2.77
            334         LS       0    94.0
            335         UD   0.399
                *

            336         KK    DSPM
            337         KM  DIVERT FLOW TO SPRING MTN./I-15 INTERCHANGE DETENTION BASIN
            338         KM  FROM "HYDRAULIC DESIGN REPORT FOR I-15 WIDENING" BY LOUIS BERGER 1999
            339         DT     DSM
            340         DI       0      50     100     200     300     400    1000
            341         DQ       0       0      20      60     160     260     260
                *
1                                       HEC-1 INPUT                                                 PAGE 10

           LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            342         KK   RCFW9
            343         KM  ROUTE DSPM TO CCCEFD
            344         KM  FROM "HYDRAULIC DESIGN REPORT FOR I-15 WIDENING" BY LOUIS BERGER 1999
            345         KM  LINING = RCP
            346         RD    1390  0.0046   0.015       0    CIRC       5
                *

            347         KK   PS07A
            348         BA   0.035
            349         PB    2.77
            350         LS       0    92.7
            351         UD   0.219
                *

            352         KK   CE3FD
            353         BA   0.145
            354         PB    2.77
            355         LS       0    94.8
            356         UD   0.305
                *
```

```
          357          KKCCE3FD-C
          358          KM  COMBINE RCFW9, PS07A, AND CE3FD-C
          359          KM  FREEWAY CHANNEL AND DESERT INN
          360          HC       3
                       *

          361          KK RCCE3FD
          362          KM  ROUTE CCE3FD-C TO CRCPS06
          363          KM  FACILITY = FREEWAY CHANNEL DESERT INN TO I-15
          364          KM  FACILITY # = FW15 0301
          365          KM  LINING = CONCRETE
          366          RD    1300  0.0042   0.015       0    TRAP      12       2
                       *

          367          KK  CCPS07
          368          KM  COMBINE CPS07 AND RCCE3FD
          369          KM  FREEWAY CHANNEL AND DESERT INN
          370          HC       2
                       *

          371          KK RCCPS07
          372          KM  ROUTE CCPS07 TO CPS08
          373          KM  FACILITY = FREEWAY CHANNEL DESERT INN TO I-15
          374          KM  FACILITY # = FW15 0271
          375          KM  LINING = RCB
          376          RD    1700  0.0059   0.015       0    TRAP      24       0
                       *
1                                          HEC-1 INPUT                                          PAGE 11

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          377          KK    PS08
          378          BA   0.178
          379          PB    2.77
          380          LS       0    92.1
          381          UD   0.278
                       *

          382          KK   CPS08
          383          KM  COMBINE RCCPS07 AND PS08
          384          KM  FREEWAY CHANNEL AND SUBBASIN PS08
          385          HC       2
                       *

          386          KK    ED03
          387          BA   0.046
          388          PB    2.77
          389          LS       0    91.3
          390          UD   0.229
                       *

          391          KK  RCED03
          392          KM  ROUTE ED03 TO CED04
          393          KM  EDNA AVENUE
          394          RD    2600  0.0084   0.016       0    TRAP       0      50
                       *

          395          KK    ED04
          396          BA   0.044
          397          PB    2.77
          398          LS       0    92.0
          399          UD   0.267
                       *

          400          KK   CED04
          401          KM  COMBINE RCED03 AND ED04
          402          KM  VALLEY VIEW AND PENNWOOD
          403          HC       2
                       *

          404          KK  RCED04
          405          KM  ROUTE CED04 TO CCPS08
          406          KM  EDNA AVENUE
          407          RD    2000   0.015   0.016       0    TRAP       0      50
                       *

          408          KK    ED05
          409          BA   0.127
          410          PB    2.77
          411          LS       0    90.8
          412          UD   0.246
                       *
1                                          HEC-1 INPUT                                          PAGE 12

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

          413          KK   RED05
          414          KM  ROUTE ED05 TO CED06
          415          KM  TARA
          416          RD    2650   0.009   0.016       0    TRAP       0      50
                       *
```

```
417          KK    ED06
418          BA   0.077
419          PB    2.77
420          LS       0    91.1
421          UD   0.274
             *

422          KK   CED06
423          KM  COMBINE RED05 AND ED06
424          KM  VALLEY VIEW AND TARA
425          HC       2
             *

426          KK  RCED06
427          KM  ROUTE CED06 TO CED08
428          KM  MOBILE HOME PARK ROAD
429          RD    2500   0.011   0.016       0    TRAP       0      50
             *

430          KK    ED07
431          BA   0.066
432          PB    2.77
433          LS       0    90.5
434          UD   0.248
             *

435          KK   RED07
436          KM  ROUTE ED07 TO CED08
437          KM  MOBILE HOME PARK ROAD
438          RD    3100   0.008   0.016       0    TRAP       0      50
             *

439          KK    ED08
440          BA   0.080
441          PB    2.77
442          LS       0    90.4
443          UD   0.296
             *

444          KK   CED08
445          KM  COMBINE RCED06, RCED04, RED07 AND ED08
446          KM  SOUTHEAST CORNER OF MOBILE PARK
447          HC       4
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

448          KK  RCED08
449          KM  ROUTE CED08 TO CED09
450          KM  EXISTING DITCH
451          RD    1900   0.017   0.016       0    TRAP       0      50
             *

452          KK    ED09
453          BA   0.026
454          PB    2.77
455          LS       0    88.5
456          UD   0.178
             *

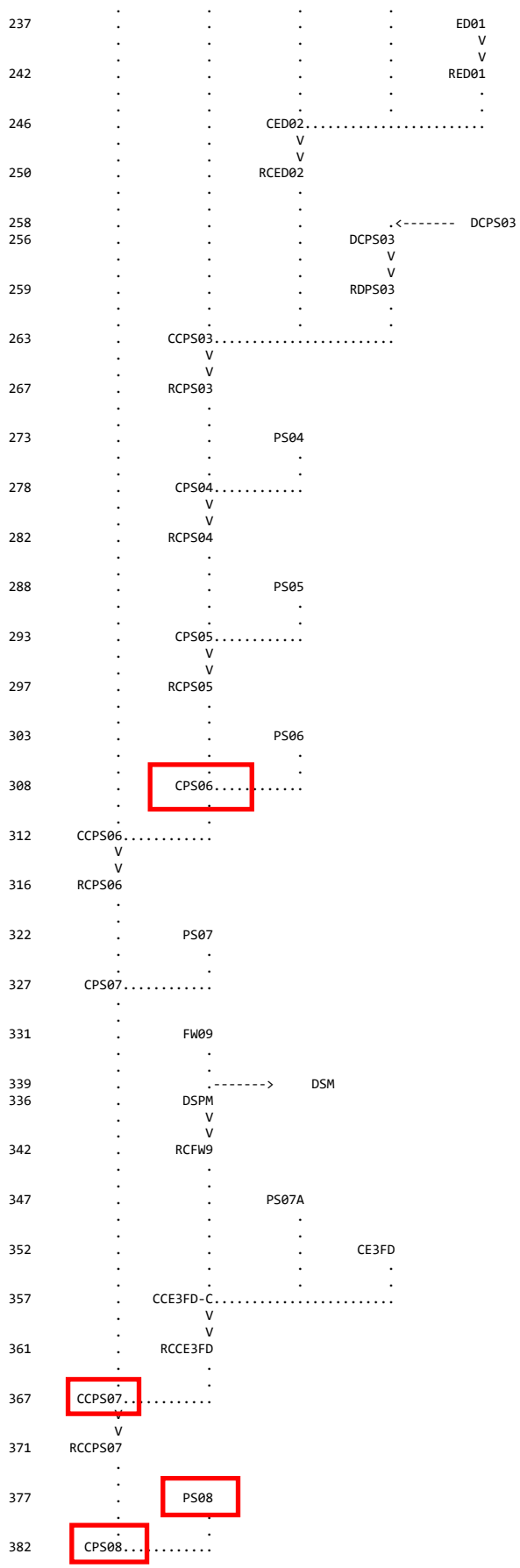
457          KK  CCPS08
458          KM  COMBINE ED09, CPS08 AND RCED08
459          KM  EDNA AND FREEWAY CHANNEL
460          HC       3
             *

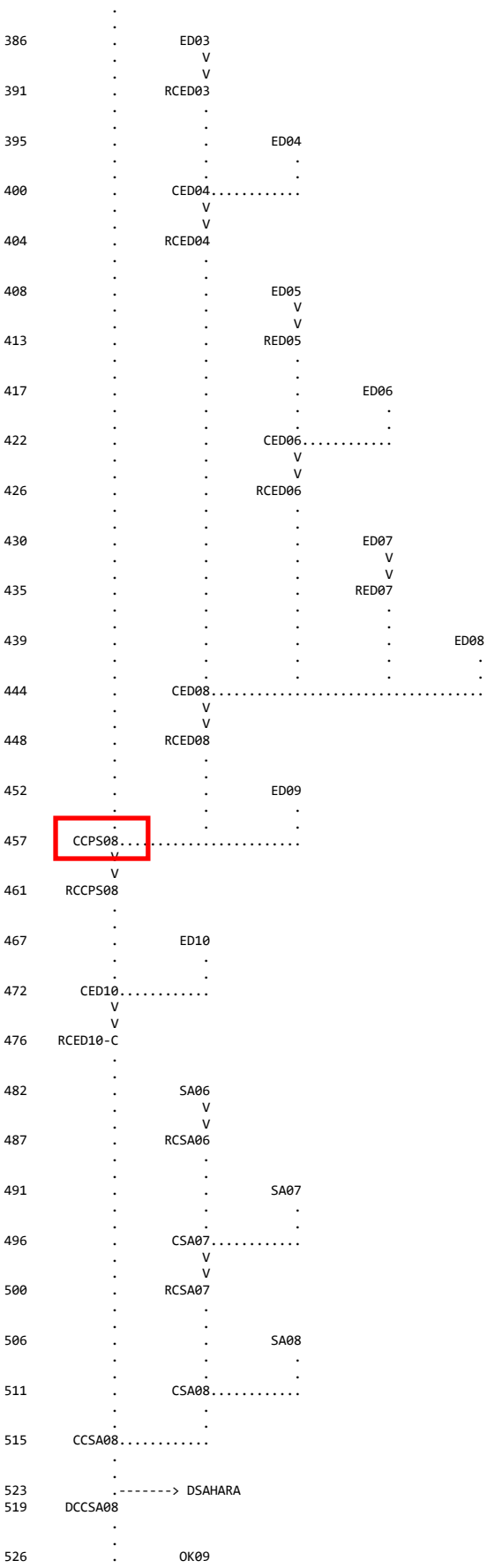
461          KK RCCPS08
462          KM  ROUTE CCPS08 TO CED10
463          KM  FACILITY = FREEWAY CHANNEL FROM DESERT INN TO I-15
464          KM  FACILITY # = FW15 0242
465          KM  LINING = RCB
466          RD    1500  0.0093   0.015       0    TRAP      24       0
             *

467          KK    ED10
468          BA   0.191
469          PB    2.77
470          LS       0    90.4
471          UD   0.306
             *

472          KK   CED10
473          KM  COMBINE RCCPS08 AND ED10
474          KM  COMBINATION OF FREEWAY CHANNEL AND ED10
475          HC       2
             *

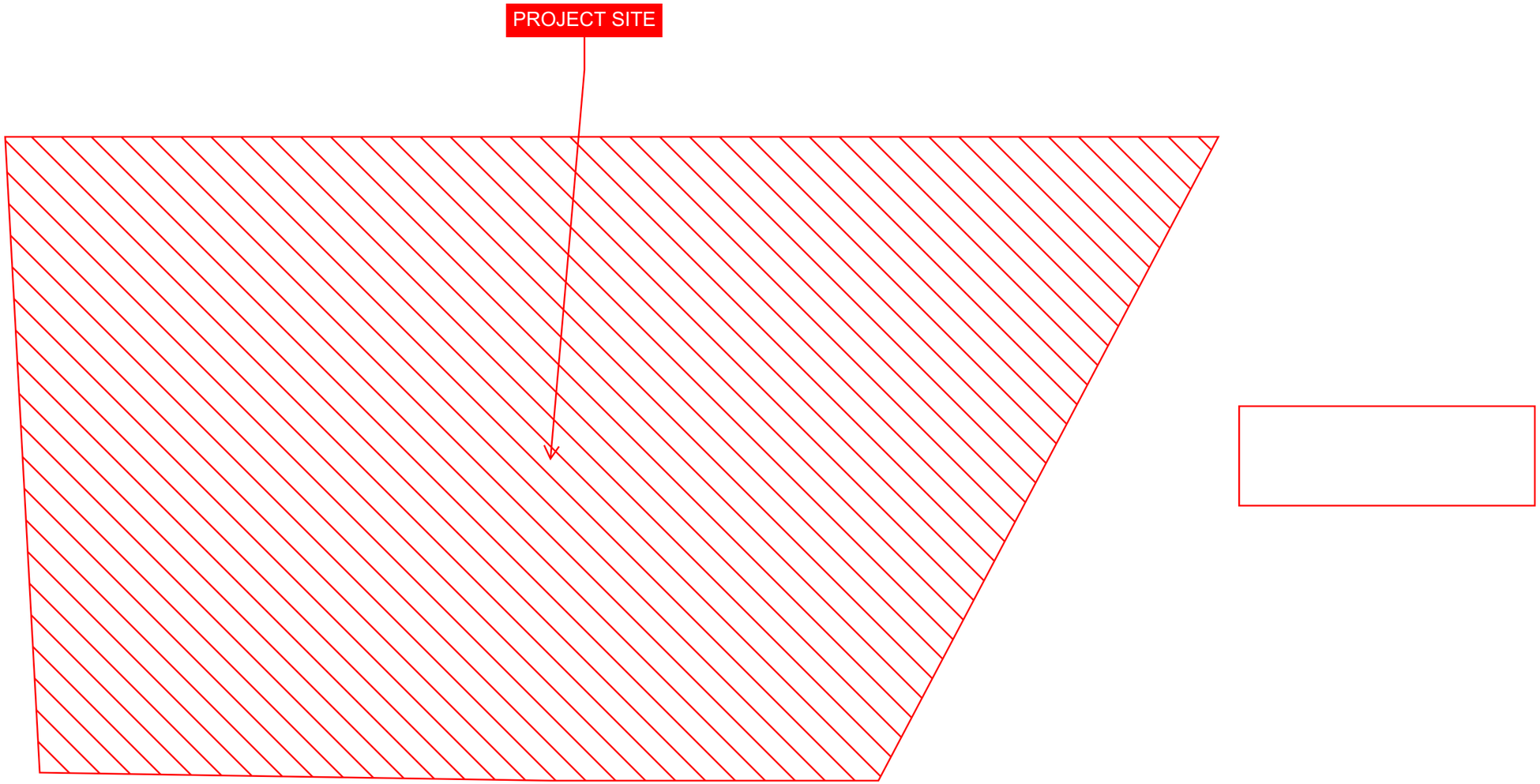
476          KKRCED10-C
477          KM  ROUTE CED10-C TO CSA08
478          KM  FACILITY = FREEWAY CHANNEL FROM DESERT INN TO I-15
479          KM  FACILITY # = FW15 0214
480          KM  LINING = RCB
```

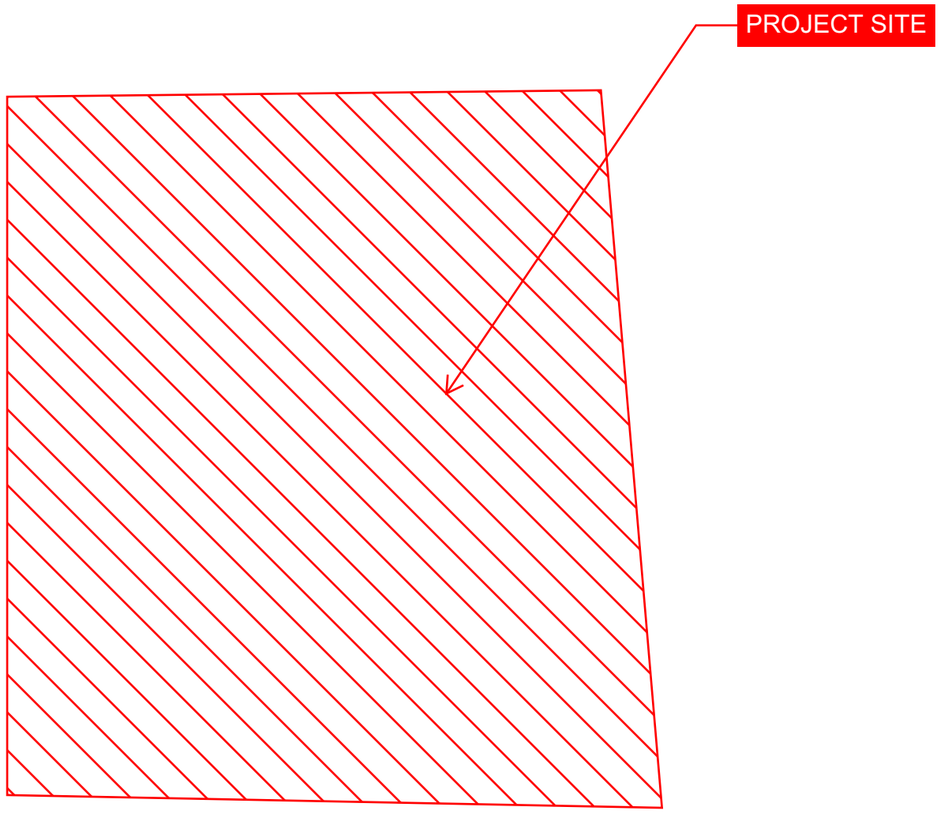

237 ED01
242 RED01
246 CED02
250 RCED02
258 DCPS03
256 DCPS03
259 RDPS03
263 CCPS03
267 RCPS03
273 PS04
278 CPS04
282 RCPS04
288 PS05
293 CPS05
297 RCPS05
303 PS06
308 CPS06
312 CCPS06
316 RCPS06
322 PS07
327 CPS07
331 FW09
339 DSM
336 DSPM
342 RCFW9
347 PS07A
352 CE3FD
357 CCE3FD-C
361 RCCE3FD
367 CCPS07
371 RCCPS07
377 PS08
382 CPS08


386 ED03
391 RCED03
395 ED04
400 CED04
404 RCED04
408 ED05
413 RED05
417 ED06
422 CED06
426 RCED06
430 ED07
435 RED07
439 ED08
444 CED08
448 RCED08
452 ED09
457 CCPS08
461 RCCPS08
467 ED10
472 CED10
476 RCED10-C
482 SA06
487 RCSA06
491 SA07
496 CSA07
500 RCSA07
506 SA08
511 CSA08
515 CCSA08
523 -------> DSAHARA
519 DCCSA08
526 OK09

HYDROGRAPH AT													
+	DCPS03	.00	1	FLOW	123.	120.	114.	107.	105.	104.	103.	101.	98.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RDPS03	.00	1	FLOW	123.	120.	115.	109.	107.	106.	106.	103.	99.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
3 COMBINED AT													
+	CCPS03	1.85	1	FLOW	686.	665.	631.	595.	583.	574.	565.	555.	542.
				TIME	4.00	4.00	4.00	4.00	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCPS03	1.85	1	FLOW	678.	660.	627.	593.	582.	573.	564.	554.	540.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	PS04	.19	1	FLOW	109.	107.	103.	98.	97.	96.	95.	94.	92.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
2 COMBINED AT													
+	CPS04	2.04	1	FLOW	737.	715.	679.	644.	632.	622.	613.	602.	587.
				TIME	4.00	4.00	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCPS04	2.04	1	FLOW	734.	714.	679.	643.	631.	621.	612.	600.	585.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	PS05	.11	1	FLOW	65.	63.	61.	58.	57.	57.	56.	55.	54.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPS05	2.15	1	FLOW	765.	742.	704.	667.	655.	645.	636.	624.	608.
				TIME	4.00	4.00	4.08	4.08	4.08	4.08	4.08	4.08	4.08
ROUTED TO													
+	RCPS05	2.15	1	FLOW	761.	740.	704.	666.	654.	644.	635.	622.	606.
				TIME	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	PS06	.08	1	FLOW	53.	52.	50.	48.	48.	47.	47.	46.	45.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPS06	2.23	1	FLOW	785.	762.	724.	685.	673.	662.	653.	640.	624.
				TIME	4.00	4.00	4.08	4.08	4.08	4.08	4.08	4.08	4.08
2 COMBINED AT													
+	CCPS06	4.90	1	FLOW	1283.	1242.	1172.	1097.	1073.	1053.	1040.	1015.	985.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO													
+	RCPS06	4.90	1	FLOW	1273.	1231.	1162.	1090.	1066.	1048.	1033.	1009.	981.
				TIME	4.00	4.00	4.08	4.08	4.08	4.08	4.08	4.08	4.08
HYDROGRAPH AT													
+	PS07	.10	1	FLOW	62.	61.	58.	56.	55.	55.	54.	53.	52.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CPS07	5.01	1	FLOW	1304.	1262.	1191.	1114.	1090.	1070.	1057.	1032.	1002.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.08
HYDROGRAPH AT													
+	FW09	.25	1	FLOW	139.	136.	131.	126.	125.	123.	122.	121.	119.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
DIVERSION TO													
+	DSM	.25	1	FLOW	36.	34.	33.	31.	30.	29.	29.	28.	28.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	DSPM	.25	1	FLOW	103.	102.	99.	96.	95.	94.	93.	92.	91.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCFW9	.25	1	FLOW	102.	100.	98.	95.	94.	93.	92.	91.	90.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	PS07A	.04	1	FLOW	23.	22.	22.	21.	20.	20.	20.	20.	19.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
HYDROGRAPH AT													
+	CE3FD	.14	1	FLOW	94.	93.	90.	86.	85.	84.	84.	83.	81.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
3 COMBINED AT													
+	CCE3FD-C	.44	1	FLOW	211.	207.	201.	194.	191.	190.	188.	186.	183.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
ROUTED TO													

+	RCCE3FD	.44	1	FLOW	208.	204.	198.	191.	189.	188.	187.	184.	181.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
2 COMBINED AT													
+	CCPS07	5.44	1	FLOW	1480.	1435.	1359.	1277.	1251.	1230.	1216.	1189.	1157.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO													
+	RCCPS07	5.44	1	FLOW	1473.	1429.	1353.	1271.	1245.	1224.	1210.	1183.	1152.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	PS08	.18	1	FLOW	100.	98.	94.	90.	89.	88.	87.	86.	84.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.75	3.75
2 COMBINED AT													
+	CPS08	5.62	1	FLOW	1533.	1488.	1410.	1325.	1299.	1277.	1263.	1235.	1203.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	ED03	.05	1	FLOW	27.	26.	25.	24.	24.	24.	23.	23.	23.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RCED03	.05	1	FLOW	27.	27.	26.	24.	24.	24.	23.	23.	23.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	ED04	.04	1	FLOW	25.	25.	24.	23.	22.	22.	22.	22.	21.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CED04	.09	1	FLOW	49.	48.	46.	44.	44.	43.	43.	42.	41.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCED04	.09	1	FLOW	50.	48.	47.	45.	44.	43.	43.	42.	41.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	ED05	.13	1	FLOW	70.	68.	66.	63.	62.	61.	60.	59.	58.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RED05	.13	1	FLOW	70.	69.	66.	63.	62.	61.	59.	58.	59.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
HYDROGRAPH AT													
+	ED06	.08	1	FLOW	41.	40.	38.	37.	36.	36.	35.	35.	34.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
2 COMBINED AT													
+	CED06	.20	1	FLOW	107.	105.	100.	96.	95.	93.	90.	89.	89.
				TIME	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83	3.83
ROUTED TO													
+	RCED06	.20	1	FLOW	109.	106.	102.	97.	96.	95.	92.	90.	90.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	ED07	.07	1	FLOW	35.	35.	33.	32.	31.	31.	30.	30.	29.
				TIME	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67	3.67
ROUTED TO													
+	RED07	.07	1	FLOW	36.	35.	33.	32.	32.	31.	31.	30.	30.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
HYDROGRAPH AT													
+	ED08	.08	1	FLOW	39.	38.	37.	35.	35.	34.	34.	33.	33.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75
4 COMBINED AT													
+	CED08	.44	1	FLOW	226.	221.	212.	202.	199.	197.	193.	190.	188.
				TIME	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92	3.92
ROUTED TO													
+	RCED08	.44	1	FLOW	221.	213.	208.	195.	195.	194.	188.	183.	182.
				TIME	4.00	3.92	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	ED09	.03	1	FLOW	14.	13.	13.	12.	12.	12.	12.	11.	11.
				TIME	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58	3.58
3 COMBINED AT													
+	CCPS08	6.08	1	FLOW	1758.	1705.	1622.	1525.	1498.	1476.	1455.	1423.	1389.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
ROUTED TO													
+	RCCPS08	6.08	1	FLOW	1754.	1702.	1618.	1522.	1494.	1472.	1451.	1420.	1386.
				TIME	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
HYDROGRAPH AT													
+	ED10	.19	1	FLOW	93.	91.	87.	83.	82.	80.	80.	78.	77.
				TIME	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75	3.75


PROJECT SITE


PROJECT SITE