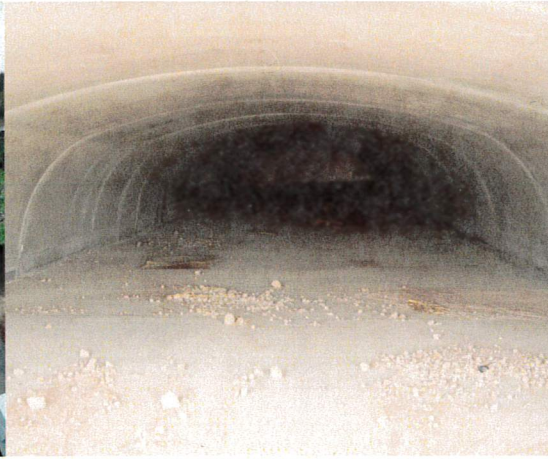


Elkhorn Springs and Buffalo Drive Storm Drain System

Supplement#1 to Addendum 1 (Hansen # 23158)



May 2009

Prepared For:



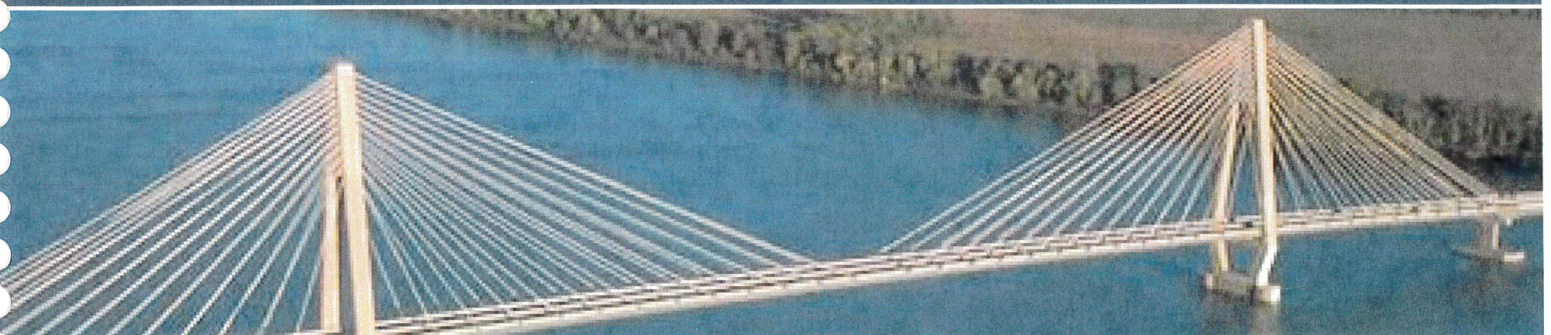
City of Las Vegas

Parsons Brinckerhoff

3930 Howard Hughes Parkway, Suite 300
Las Vegas, NV 89169

TEL: (702) 697-8100
FAX: (702) 697-8170

Prepared by:



HYDROLOGIC CRITERIA AND DRAINAGE MANUAL
DRAINAGE STUDY INFORMATION FORM

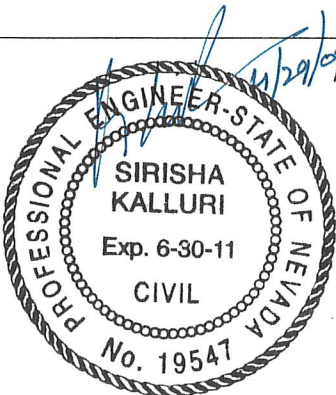
Name of Development: _____ Date: May 1st, 2009
Location of Development: a) Descriptive (Cross Streets) North/South: Donald Nelson Ave and Bridlehorn Ave
East/West: Cimarron and Buffalo Drive
b) Section: 15 and 16 Township: 19 South Range: 60 East
c) APN: 12515399002, 12516799008, 12516799001, 12516699004, 12515299002, 12516699008,
12516813003
Name of Owner: City of Las Vegas
Telephone No.: 702-229-6738 Fax No.: 702-229-2518 E-Mail Address: ldunford@lasvegasnevada.gov
Address: Department of Public Works, City Engineer Division, 400 Stewart Avenue, Las Vegas, Nevada 89101

Contact Person-Name: Sirisha Kalluri Telephone No.: 702-697-8110
* E-Mail Address: kalluri@pbworld.com Fax No.: 702-697-8170
Firm: Parsons Brinckerhoff
Address: 3930 Howard Hughes Parkway, Suite 300, Las Vegas, Nevada-89119

Type of Land Development/Land Disturbance Process:

☐	Rezoning	☐	Subdivision Map	☐	Clearing and Grading Only
☐	Parcel Map	☐	Planned Unit Development	☒	Other (Please specify below)
☐	Large Parcel Map	☐	Building Permit		Flood Control facility

1. Total Owned Land Area: At Site: _____ Public ROW _____ Being Developed/Disturbed: Farm Road and Buffalo Drive
2. Is a portion or all of the subject property located in a designated FEMA Flood Hazard Area? ☐ Yes** ☒ No
3. Is the property bordered or crossed by an existing or proposed Clark County Regional Flood Control District Master Planned Facility? ☒ Yes** ☐ No
4. Proposed type of development (Residential, Commercial, Etc.): Flood Control Development
5. Approximate upstream land area which drains to the subject site: 624 Acres
6. Has the site drainage been evaluated in the past? ☒ YES ☐ NO If yes, please identify documentation: Elkhorn Springs Neighborhood Park, MPU-2008, Northwest Neighborhood Study
7. If known, please briefly identify the proposed discharge point(s) of runoff from the site: Elkhorn Springs Detention Basin
8. Briefly describe your proposed schedule for the subject project: Tentative completion in 2010



Engineer's Seal

Submit this form as part of the required drainage study to the local entity which has jurisdiction over the subject property. This form may provide sufficient information to serve as the Conceptual Drainage Study.

*New Required Field

**Review and concurrence of the Clark County Regional Flood Control District is required.

	Revision	Date
Local Entity File No. _____		

REFERENCE:

STANDARD FORM 1

Comments
City of Las Vegas



3930 Howard Hughes Parkway
Suite 300
Las Vegas, NV 89169
702-697-8100
Fax: 702-697-8170

May 1st, 2009

Lorrie Linnert Dunford, P.E., C.E.M.
Engineering Associate II
City of Las Vegas
City Engineer - Engineering Design
400 Stewart Avenue
Las Vegas, NV 89101

**Re: Elkhorn Springs and Buffalo Drive Storm Drain System – 100% design
submittal**

Dear Ms. Dunford:

This letter is in response to the comments received from your office on January 27, 2009. The comments are reiterated for your convenience. We believe that the material included with this addendum addresses each of the comments to the previous submittal.

1. The Drainage Study submittal (Standard Form 1) must be stamped and signed by the Civil Engineer.

Response: Noted

2. Include the storage volume at the spillway elevation (top of embankment) on Sheet G-3. Review the basin topography to verify the elevation of the top of embankment. Sheet SD-4 and Figure 6 shows topographic information above the 2400 elevation. Review and revise the HEC-1 analysis detention basin parameters and provide a revised HEC-1 run that incorporates the higher top of embankment elevations. Revise Figure 6 and the tables and graphs on Sheet G-3 to reflect the new data.

Response: The storage volume of detention basin is revised. The HEC-1 analysis, figure 6, and tables and graphs on sheet G-4 are revised to reflect new data.

3. The WSPG analysis must be revised to include the system modifications based upon storm drain comments. The submitted analysis must include the manhole losses for MH # 7 at the north side of the Buffalo & Farm intersection.

Response: WSPG analysis revised based on Storm Drain system modifications. Losses at all manhole locations are now accounted for within the model.



4. Revise the storm drain alignment entering the detention basin shown on Sheet SD-4 further south on Buffalo Drive to reduce utility and mature tree landscaping issues near the intersection of Sunny Springs & Buffalo.

Response: The storm drain alignment at Sunny Springs and Buffalo Drive is revised to avoid conflicts with trees within the park.

5. Sheet D-3: Revise the outlet structure design to provide a grated access for the top of the structure that includes a hinged and lockable man access way. Replace the low flow NDOT Type 2 inlet with an NDOT Type 2B inlet. A copy of the NDOT Type 2B inlet is attached for reference. Provide the wall & grate connection details. It is recommended the invert of the side grate opening be 18-inches above the 60-inch RCP invert into the outlet structure.

Response: The low flow inlet at the bottom of the access structure has been revised to NDOT Type 2B inlet. The invert of side opening is revised to be at least 18-inches above the invert of 60-inch RCP.

6. Relocate the proposed flow depth gauge for the detention basin to the north slope open area. Modify the staff gauge detail to stamp the elevation bars and numbers into the concrete surface per the comments on Sheet D-2.

Response: The staff gauge has been relocated and the plans are revised accordingly.

7. The Engineer should acquire additional utility pothole information as soon as practical to determine additional constraints on the storm drain system design based upon the potential utility impacts identified during the project walk-through. The need for additional utility relocations and impacts to the storm drain must be identified. Include the added utility crossings to the storm drain plans.

Response: Additional utility potholes have been obtained. Based on the pothole data, utility conflicts are identified and relocations are called out on the improvement plans.

8. Sheet SD-1: Revise SDMH # 1 to adjust the 48-inch pipe invert about 6-inches below the existing invert into the manhole. Increase the pipe slope from the connection manhole and add an additional manhole near the center of the Farm Road & Palm Grove Lane intersection.

Response: The invert of SDMH #1 is revised to provide 6 inches in the manhole. Additional manhole has been added near the center of the Farm Road & Palm Grove Lane intersection.

9. Revise SDMH # 1 and SDMH # 8 to clearly indicate the connection of the existing storm drain laterals into the new manholes. Provide invert information



for the manhole connection. Include a concrete collar connection detail on the plans.

Response: Noted

10. Provide a minimum 10-foot curb transition from Rolled curb to L-Type curb upstream of the proposed inlets located on Donald Nelson Avenue.

Response: Noted

11. Label the inlet sizes on the plan sheets for both existing and proposed inlets. The inlets should be drawn to scale.

Response: The proposed inlets are drawn to the scale. Existing inlets do not fall with in the limits of topography and survey acquired for this project. Thus existing inlets are shown and called out on basin map exhibits.

12. Update the Construction Notes on Sheet SD-7 to include all of the inlet data information for the storm drain laterals.

Response: Noted

13. Continue to coordinate the storm drain and Park reconstruction improvements within the Elkhorn Springs Park with the Department of Field Operations, Parks Division. Contact Daphnee Legarza at 229-6988 for approval of proposed improvements within the park.

Response: Noted

14. The proposed improvement plans show drainage facilities of a size that must be reviewed for Maintenance and Access concerns. *Streets & Sanitation* review and approval must be secured prior to final approval.

Response: Noted

15. The Section 8 Screening Report for the project has been approval by the CCRFCD.

Response: Noted

16. The Elkhorn Springs Detention Basin is an existing below grade facility. The proposed CCRFCD facilities will improve the collection system and efficiency of the existing detention basin. No structural changes to this existing below grade detention basin are proposed. The City will need to submit a copy of the plans to the State of Nevada, Department of Conservation and Natural Resources, Division of Water Resources, Dam Safety to notify the State of the changes to the basin inflow when we receive the next submittal from the consultant.

Response: Noted



17. Provide a Locking Manhole detail. Include an enlarged concrete collar that connects to the manhole cone section.

Response: A locking manhole detail is provided.

18. Provide an updated cost estimate with the next submittal.

Response: Provided

19. Provide the inlet stationing location on the drop inlet layout plan, see Sheet D-1.

Response: Noted

20. Provide a detail for plugging the storm drain and include a note that allows a pre-cast cap.

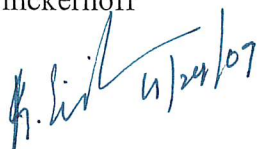
Response: Noted

21. Additional minor comments are shown on the attached storm drain plans.

Response: All the redline comments on plans are addressed.

Please feel free to contact our office 702-697-8100, in case you have any questions or need further information

Sincerely,
Parsons Brinckerhoff

BY:  4/24/07

Sirisha Kalluri, P.E.
Senior Engineer

cc: Robert Welch, P.E. – CLV
Lorrie Linnert Dunford, P.E. – CLV
Todd Myers, P.E. – CCRFCD
Shou “Eric” Ching Hsu, P.E. – PB

Memorandum

City of Las Vegas
Department of Public Works
Engineering Planning

To: Lorraine Dunford, P.E.
Project Engineer

From: Peter Jackson, CFM
Flood Control Section

Date: January 27, 2009

Re: Elkhorn Springs and Buffalo Storm Drain System
Drainage Report Addendum #1 and 90% Plans (Hansen # 23158)

We have reviewed the Elkhorn Springs and Buffalo Storm Drain System, Drainage Report Addendum #1 and the 90% plans for the proposed CCRFCD drainage facility within the Buffalo Drive and Farm Road alignment. Based upon our field review of January 12, 2009 and the submitted report and plans we offer the following comments:

1. The Drainage Study submittal (Standard Form 1) must be stamped and signed by the Civil Engineer.
2. Include the storage volume at the spillway elevation (top of embankment) on Sheet G-3. Review the basin topography to verify the elevation of the top of embankment. Sheet SD-4 and Figure 6 shows topographic information above the 2400 elevation. Review and revise the HEC-1 analysis detention basin parameters and provide a revised HEC-1 run that incorporates the higher top of embankment elevations. Revise Figure 6 and the tables and graphs on Sheet G-3 to reflect the new data.
3. The WSPG analysis must be revised to include the system modifications based upon storm drain comments. The submitted analysis must include the manhole losses for MH # 7 at the north side of the Buffalo & Farm intersection.
4. Revise the storm drain alignment entering the detention basin shown on Sheet SD-4 further south on Buffalo Drive to reduce utility and mature tree landscaping issues near the intersection of Sunny Springs & Buffalo.
5. Sheet D-3: Revise the outlet structure design to provide a grated access for the top of the structure that includes a hinged and lockable man access way. Replace the low flow NDOT Type 2 inlet with an NDOT Type 2B inlet. A copy of the NDOT Type 2B inlet is attached for reference. Provide the wall & grate connection details. It is recommended the invert of the side grate opening be 18-inches above the 60-inch RCP invert into the outlet structure.
6. Relocate the proposed flow depth gauge for the detention basin to the north slope open area. Modify the staff gauge detail to stamp the elevation bars and numbers into the concrete surface per the comments on Sheet D-2.
7. The Engineer should acquire additional utility pothole information as soon as practical to determine additional constraints on the storm drain system design based upon the potential utility impacts

identified during the project walk-through. The need for additional utility relocations and impacts to the storm drain must be identified. Include the added utility crossings to the storm drain plans.

8. Sheet SD-1: Revise SDMH # 1 to adjust the 48-inch pipe invert about 6-inches below the existing invert into the manhole. Increase the pipe slope from the connection manhole and add an additional manhole near the center of the Farm Road & Palm Grove Lane intersection.
9. Revise SDMH # 1 and SDMH # 8 to clearly indicate the connection of the existing storm drain laterals into the new manholes. Provide invert information for the manhole connection. Include a concrete collar connection detail on the plans.
10. Provide a minimum 10-foot curb transition from Rolled curb to L-Type curb upstream of the proposed inlets located on Donald Nelson Avenue.
11. Label the inlet sizes on the plan sheets for both existing and proposed inlets. The inlets should be drawn to scale.
12. Update the Construction Notes on Sheet SD-7 to include all of the inlet data information for the storm drain laterals.
13. Continue to coordinate the storm drain and Park reconstruction improvements within the Elkhorn Springs Park with the Department of Field Operations, Parks Division. Contact Daphnee Legarza at 229-6988 for approval of proposed improvements within the park.
14. The proposed improvement plans show drainage facilities of a size that must be reviewed for Maintenance and Access concerns. *Streets & Sanitation* review and approval must be secured prior to final approval.
15. The Section 8 Screening Report for the project has been approval by the CCRFCD.
16. The Elkhorn Springs Detention Basin is an existing below grade facility. The proposed CCRFCD facilities will improve the collection system and efficiency of the existing detention basin. No structural changes to this existing below grade detention basin are proposed. The City will need to submit a copy of the plans to the State of Nevada, Department of Conservation and Natural Resources, Division of Water Resources, Dam Safety to notify the State of the changes to the basin inflow when we receive the next submittal from the consultant.
17. Provide a Locking Manhole detail. Include an enlarged concrete collar that connects to the manhole cone section.
18. Provide an updated cost estimate with the next submittal.
19. Provide the inlet stationing location on the drop inlet layout plan, see Sheet D-1.
20. Provide a detail for plugging the storm drain and include a note that allows a pre-cast cap.
21. Additional minor comments are shown on the attached storm drain plans.

Attachments:

CC: Robert Welch, P.E. – CLV
Mark Sorensen, P.E. – CLV
Todd Myers, P.E. – CCRFCD
Shou "Eric" Ching Hsu, P.E. – PB
Sirisha Kalluri, P.E. – PB

F:\#Depot\Engineering_Planning\Flood\DSMEMOS\Public Study Reviews\90% Elkhorn Springs & Buffalo Storm Drain.doc

Comments
CCRFCD



3930 Howard Hughes Parkway
Suite 300
Las Vegas, NV 89169
702-697-8100
Fax: 702-697-8170

May 1st, 2009

Mr. Todd L. Myers, P.E.
Engineering Project Manager
Clark County Regional Flood Control District
600 South Grand Central Pkwy, Suite 300
Las Vegas, Nevada 89106

**Re: Elkhorn Springs and Buffalo Drive Storm Drain System – 90% design
submittal**

Dear Mr. Myers:

This letter is in response to the comments received from your office on February 2, 2009. The comments are reiterated for your convenience. We believe that the material included with this addendum addresses each of the comments to the previous submittal.

1. General: The Section 8 Environmental Screening was approved by District on December 8, 2008. The District's Policies and Procedures regarding environmental permitting as a pre-requisite for construction funding eligibility have been satisfied.

Response: Noted

2. Provide courtesy set of 100% Improvement plans to Rob Martinez with State Division of Water Resources – Dam Safety.

Response: Noted

3. Cost Estimate: Provide revised engineers cost estimate with next submittal.

Response: Noted

4. Hydrology: District accepts hydrologic analyses presented in Report.

Response: Noted

5. Sheet G-1: Revise City Engineer to Cheri Edelman and verify City Council members.



Response: Noted

6. Sheet R-1: Clean up “Key Map”. Typical all sheets.

Response: Noted

7. Sheet SD-1: Replace short reach of existing 36-inch storm drain (SD), add additional manhole (MH) and match SD soffits at MH Station 33+05.53. A Type III MH is not appropriate at this location due to change in pipe size and grade. Revise accordingly. The note “Remove 10-ft of SWR line and install stub if 48-inch SD conflicts” does not give contractor enough information to bid this item. Provide additional information and clear instructions to contractor. Draw proposed drop inlets (DI) to scale. Typical all.

Response: The short section of pipe has been replaced and the additional manhole has been added. The type III manhole has been revised accordingly. The note in question has been changed to provide more information, and the proposed drop inlets are now drawn to scale.

8. Sheet SD-2: It appears that SDMH#6 will require a modified or special design. The Standard NDOT Type 4 MH allows for up to 72-inch pipe penetration. The proposed 54-inch SD will require a 76.5-inch± opening based on angle of penetration. Revise accordingly.

Response: A modified NDOT detail has been added and can be found on detail sheet D-5.

9. Sheet SD-3: Provide RCP Plug detail as indicated on Construction Item No.6. Allow contractor to choose between typical brick and mortar or a precast cap.

Response: RCP Plug detail is provided sheet D-3.

10. Sheet SD-4: Revise SD alignment to avoid existing trees in park, as discussed in field walk. Revise WSPG hydraulic analysis as required. Move proposed Staff gauge to north side of detention basin where plant growth will not obstruct.

Response: SD alignment is revised to avoid conflict with landscaping in the park. The WSPG analysis has been revised to account for modification in the SD design. Staff gauge is relocated to the north side of the detention basin.



11. Sheet D-2: The Geotechnical Report recommends 4-inch AC over 12-inch Type II to match existing section. Why is engineer specifying 6-inch AC over 13-inch Type II? Revise to match existing.

Response: The thickness of AC has been revised to match existing.

12. Sheet D-3: Revise “Bottom of Outlet Structure” grate to an NDOT Type 2A or Type 2B instead of a Type 2. Install removable grate on the top of outlet structure to provide a larger access way for maintenance purposes. The trench detail calls out “Trenching and Shoring per Allied Trench Shoring Services...” I haven’t seen this note before. It seems that Note No.7 covers this and the call-out is unnecessary. Is Note 5 acceptable to engineer?

Response: The “Bottom of Outlet Structure” grate has been changed to a Type 2B. The removable grate is installed on the top of the outlet structure. The trench detail call out has been revised.

13. Sheet D-4: Grout invert of MH in shape of mainline SD up to spring line of pipe to reduce hydraulic losses through structure.

Response: Noted

Special Provisions

14. Section 206.01.01: Provide Section 270 “Dewatering”.

Response: Noted

15. Section 212: The Measurement, Payment, and Pay Item 212.01 for removal and replacement of trees is no longer needed due to revised SD alignment.

Response: Pay item for removal of trees has been removed.

16. Section 603.05.01: A Pay Item for pavement removal is included in Section 202. If City intends to bid pavement removal as separate item, delete last two sentences of each paragraph of Section 603.05.01 to avoid confusion.

Response: Section 603.05.01 has been revised accordingly.



17. See additional redlines. Return RFCD redlines with 90% submittal.

Response: All redline comments on plans are addressed

Please feel free to contact our office 702-697-8100, in case you have any questions or need further information

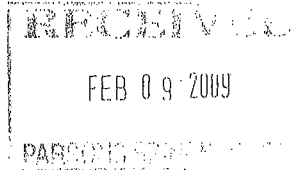
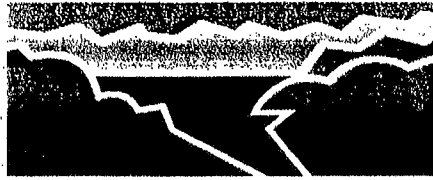
Sincerely,
Parsons Brinckerhoff

BY: _____

Sirisha Kalluri, P.E.
Senior Engineer

cc: Steve Parrish, P.E., CCRFCD
Robert Welch, P.E., City of Las Vegas
Eric Hsu, P.E., Parsons Brinckerhoff

REGIONAL FLOOD CONTROL DISTRICT



Gale Wm. Fraser, II, P.E.
General Manager/Chief
Engineer

BOARD OF DIRECTORS

Larry Brown
Chairman
Clark County

Robert L. Ellason
Vice-Chairman
City of North Las Vegas

David Bennett
City of Mesquite

Chris Glunchigliani
Clark County

Mayor Oscar Goodman
City of Las Vegas

Andy Hafen
City of Henderson

Steven D. Ross
City of Las Vegas

Mayor Roger Tobler
City of Boulder City

February 2, 2009

Lorrie Linnert Dunford, P.E., C.E.M.
Engineering Associate II
City of Las Vegas
City Engineer - Engineering Design
400 Stewart Avenue
Las Vegas, NV 89101

2-9-09
PROJ. 31678A LOG NO. 3850
FILE NO. X-REF
ROUTING E.H.

RE: ELKORN SPRINGS AND BUFFALO DRIVE STORM DRAIN SYSTEM - 90% DESIGN SUBMITTAL

Dear Ms. Dunford:

Clark County Regional Flood Control District (District) reviewed Addendum 1 to the Drainage Study (Report), 90% plans and specifications for *Elkhorn Springs and Buffalo Drive Storm Drain System* dated December 2008, prepared by Parsons Brinckerhoff (PB) for City of Las Vegas (City). Improvements include construction of a 60-inch storm drain (SD) within Buffalo Drive from Farm Rd to Elkhorn Springs Detention Basin (ESDB), and appurtenant facilities. This facility is labeled EKBU 0000 on District's 2008 Master Plan Update (MPU). The following comments are offered for your consideration as the project proceeds:

1. General: The Section 8 Environmental Screening was approved by District on December 8, 2008. The District's Policies and Procedures regarding environmental permitting as a pre-requisite for construction funding eligibility have been satisfied.
2. Provide courtesy set of 100% Improvement plans to Rob Martinez with State Division of Water Resources - Dam Safety.
3. Cost Estimate: Provide revised engineers cost estimate with next submittal.
4. Hydrology: District accepts hydrologic analyses presented in Report.
5. Sheet G-1: Revise City Engineer to Cheri Edelman and verify City Council members.
6. Sheet R-1: Clean up "Key Map". Typical all sheets.



Ms. Lorrie Linnert Dunford, P.E., C.E.M.

February 2, 2009

Page 2

- 7. Sheet SD-1: Replace short reach of existing 36-inch storm drain (SD), add additional manhole (MH) and match SD soffits at MH Station 33+05.53. A Type III MH is not appropriate at this location due to change in pipe size and grade. Revise accordingly. The note "Remove 10-ft of SWR line and install stub if 48-inch SD conflicts" does not give contractor enough information to bid this item. Provide additional information and clear instructions to contractor. Draw proposed drop inlets (DI) to scale. Typical all.
- 8. Sheet SD-2: It appears that SDMH#6 will require a modified or special design. The Standard NDOT Type 4 MH allows for up to 72-inch pipe penetration. The proposed 54-inch SD will require a 76.5-inch± opening based on angle of penetration. Revise accordingly. *modified note detail to detail sheets (0-5)*
9. Sheet SD-3: Provide RCP Plug detail as indicated on Construction Item No.6. Allow contractor to choose between typical brick and mortar or a precast cap.
10. Sheet SD-4: Revise SD alignment to avoid existing trees in park, as discussed in field walk. Revise WSPG hydraulic analysis as required. Move proposed Staff gauge to north side of detention basin where plant growth will not obstruct.
11. Sheet D-2: The Geotechnical Report recommends 4-inch AC over 12-inch Type II to match existing section. Why is engineer specifying 6-inch AC over 13-inch Type II? Revise to match existing.
- 12. Sheet D-3: Revise "Bottom of Outlet Structure" grate to an NDOT Type 2A or Type 2B instead of a Type 2. Install removable grate on the top of outlet structure to provide a larger access way for maintenance purposes. The trench detail calls out "Trenching and Shoring per Allied Trench Shoring Services..." I haven't seen this note before. It seems that Note No.7 covers this and the call-out is unnecessary. Is Note 5 acceptable to engineer?—
13. Sheet D-4: Grout invert of MH in shape of mainline SD up to spring line of pipe to reduce hydraulic losses through structure.

Special Provisions

14. Section 206.01.01: Provide Section 270 "Dewatering".



Ms. Lorrie Linnert Dunford, P.E., C.E.M.

February 2, 2009

Page 3

15. Section 212: The Measurement, Payment, and Pay Item 212.01 for removal and replacement of trees are no longer needed due to revised SD alignment.
- 16. Section 603.05.01: A Pay Item for pavement removal is included in Section 202. If City intends to bid pavement removal as separate item, delete last two sentences of each paragraph of Section 603.05.01 to avoid confusion.
17. See additional redlines. Return RFCD redlines with 90% submittal.

If you have any questions, please give me a call.

GALE WM. FRASER, II, P.E.
General Manager/Chief Engineer

BY: 
TODD L. MYERS, P.E.
Engineering Project Manager

TLM:fv

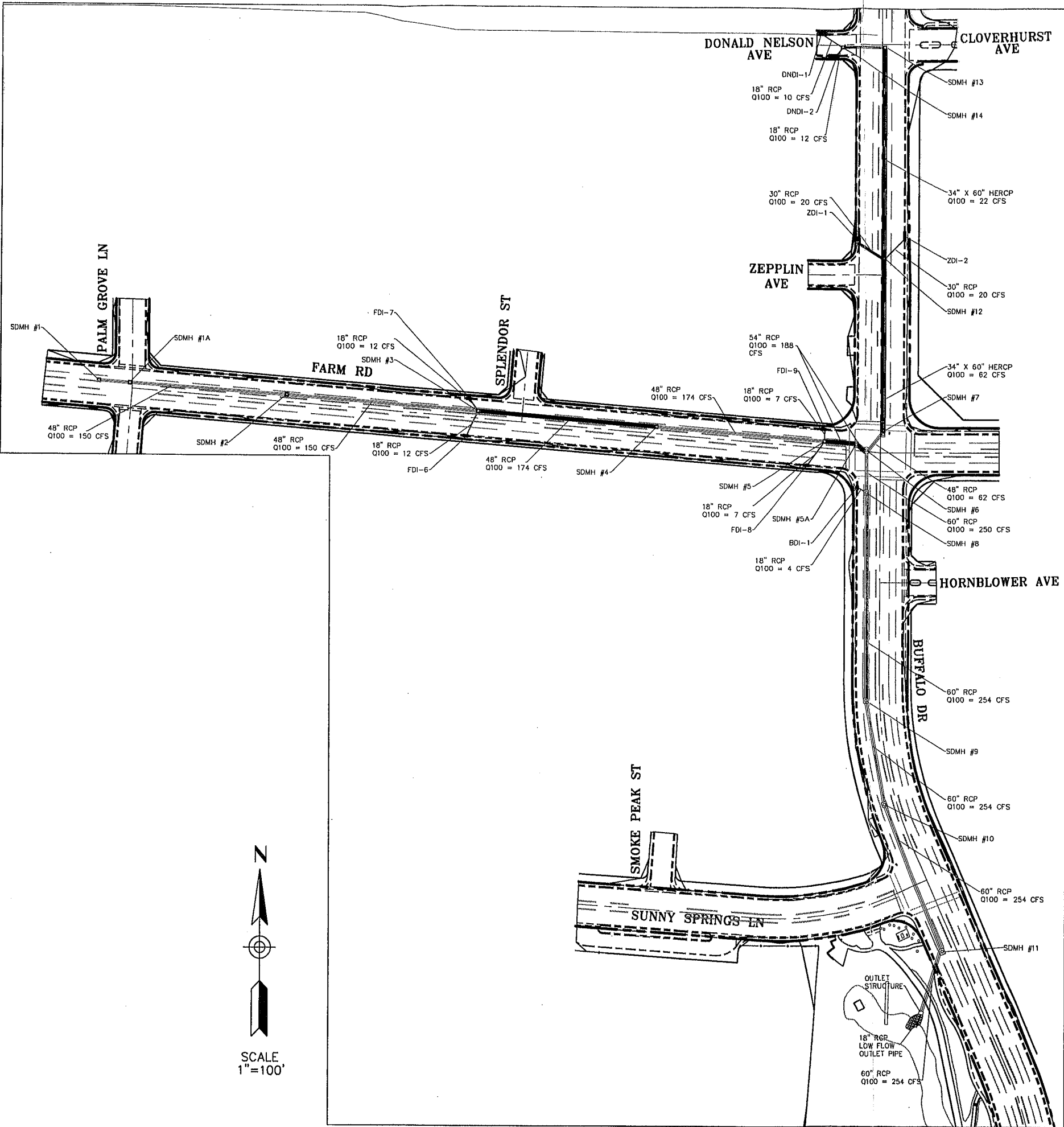
cc: Steve Parrish, P.E., CCRFCD
Robert Welch, P.E., City of Las Vegas
Eric Hsu, P.E., Parsons Brinckerhoff

P:\Letters and Memos\Capital Improvement Projects\LAS22\LAS22G07-020209-90%.doc

Detention Basin Storage Capacity Exhibit
Existing HEC-1 Calculations
Proposed HEC-1 Calculations
Storm Drain Layout Exhibit
WSPG Analysis
Quantities

Detention Basin Storage Capacity Exhibit

DROP INLET FLOWS				
INLET ID	Q10 INTERCEPTED	Q10 BYPASS	Q100 INTERCEPTED	Q100 BYPASS
FDI-1	31	52	49	167
FDI-2	23	29	44	123
FDI-3	13	10	24	45
FDI-4	7	3	19	26
FDI-5	3	0	14	12
FDI-6	5	1	12	10
FDI-7	5	1	12	10
FDI-8	1	0	7	3
FDI-9	1	0	7	3
SSDI-1	10	23	15	99
SSDI-2	8	15	12	87
SSDI-3	20	3	79	33
SSDI-4	11	0	43	3
SSDI-5	11	0	43	3
EDI-1	25	12	54	52
EDI-2	17	20	30	76
EDI-3	10	6	27	37
EDI-4	10	6	24	40
EDI-5	4	2	11	28
EDI-6	4	2	11	28
GTDI-1	8	2	20	10
GTDI-2	8	2	19	11
BDI-1	0	0	4	2
BDI-2	2	-	15	-
BDI-3	2	-	15	-
BDI-4	3	0	22	9
DNDI-1	4	1	10	6
DNDI-2	5	1	12	9
ZDI-1	5.5	-	20	-
ZDI-2	5.5	-	20	-



REVISIONS

NO.	DATE	DESCRIPTION	APP'D

DESIGNED BY:
DRAWN BY:
CHECKED BY:

DATE: 4/28/09

DEPARTMENT OF PUBLIC WORKS
ENGINEERING DESIGN SECTION

PARSONS BRINCKERHOFF
3800 HOWARD HUGHES PARKWAY
SUITE 300
LAS VEGAS, NEVADA 89169

TITLE: ELKHORN SPRINGS & BUFFALO DRIVE
STORM DRAIN SYSTEM

SHEET: ELKHORN BASIN FLOWS

100% PRE FINAL
SUBMITTAL

Sheet

FIG. 7
of 25
DRAWING NO.
327V283



ELKHORN SPRING DETENTION BASIN

Project #: 31678A
 Made by: SK
 Date: 02/03/09
 Checked by: EH
 Date: 02/12/09

VOLUME AND DISCHARGE TABLES

Based on the Survey received 5/28/08

Orifice 1: Outlet Pipe Diameter = 48 inches, 1 pipe

Orifice 2: Outlet Pipe Diameter = 27 inches, 2 pipes

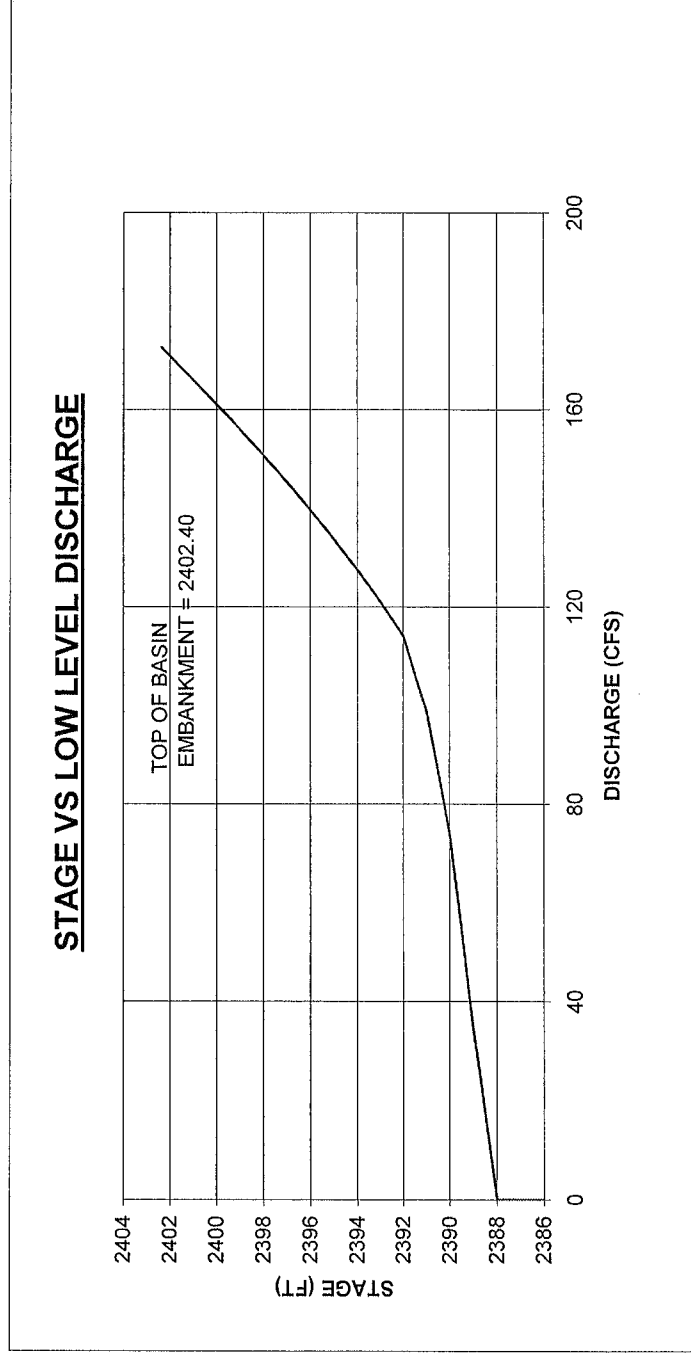
ORIFICE COE.= 0.65

ELEVATION	AREA	AVERAGE AREA	VOLUME	CUMULATIVE VOLUME	Orifice 1	Orifice 2	Low Level Outlet Discharge Rate
FT	Acre	Acre	Ac-ft	Ac-ft			CFS
2386	0.04	0.00	0.00	0.00	0.00	57.42	0.00
2387	0.10	0.07	0.07	0.07	0.00	70.10	0.00
2388	0.57	0.34	0.34	0.41	0.00	80.81	0.00
2389	1.44	1.01	1.01	1.41	34.06	90.26	34.06
2390	2.22	1.83	1.83	3.24	73.87	98.81	73.87
2391	2.70	2.46	2.46	5.71	98.76	106.67	98.76
2392	3.03	2.86	2.86	8.57	118.53	114.00	114.00
2393	3.43	3.23	3.23	11.80	135.45	120.88	120.88
2394	3.62	3.52	3.52	15.32	150.48	127.39	127.39
2395	3.80	3.71	3.71	19.03	164.13	133.58	133.58
2396	4.00	3.90	3.90	22.93	176.74	139.50	139.50
2397	4.19	4.09	4.09	27.03	188.50	145.18	145.18
2398	4.38	4.29	4.29	31.31	199.57	150.64	150.64
2399	4.60	4.49	4.49	35.80	210.06	155.92	155.92
2400	4.85	4.72	4.72	40.52	220.05	161.02	161.02
2401	5.10	4.97	4.97	45.49	229.61	165.96	165.96
2402	5.25	5.18	5.18	50.67	238.78	170.76	170.76
2402.4	5.37	5.31	2.12	52.79	242.35	172.64	172.64



ELKHORN SPRING DETENTION BASIN
STAGE VS LOW LEVEL DISCHARGE

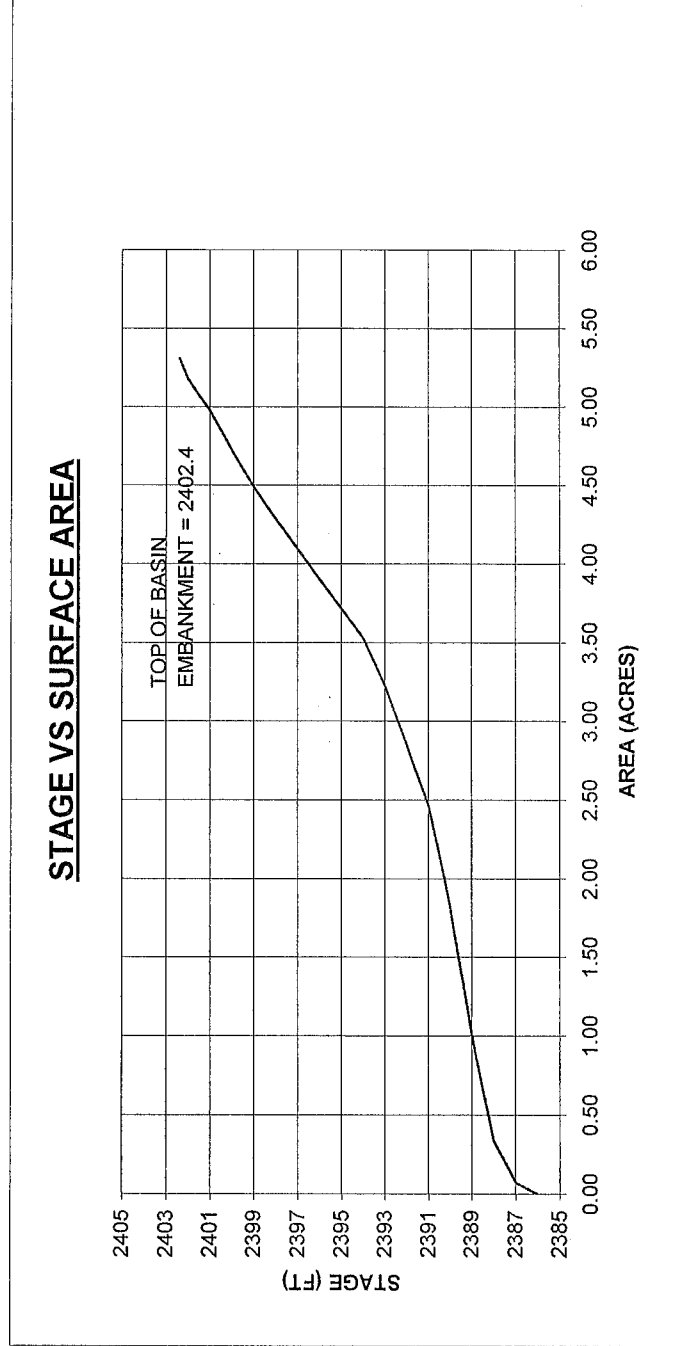
Project #: 31678A
Made by: SK
Date: 02/03/09
Checked by: EH
Date: 02/12/09





ELKHORN SPRING DETENTION BASIN
STAGE VS STORAGE AREA

Project #: 31678A
Made by: SK
Date: 02/03/09
Checked by: EH
Date: 02/12/09

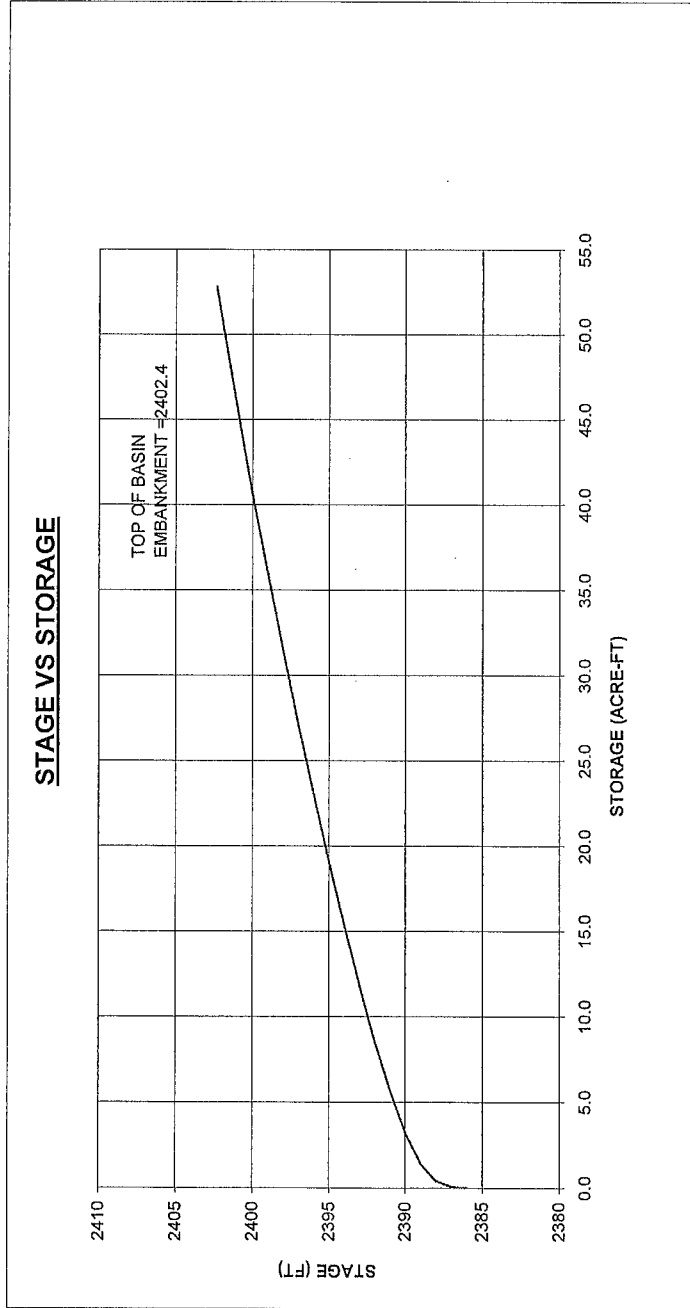




ELKHORN SPRING DETENTION BASIN

STAGE VS STORAGE

Project #: 31678A
Made by: SK
Date: 02/03/09
Checked by: EH
Date: 02/12/09



Existing HEC-1 Calculations
10 Year

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JAN 1997
*   VERSION 4.1
*
* RUN DATE 26APR09 TIME 13:08:36
*
*****

```

```

*****
*
* 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 X
XXXXXXX XXXX X XXXXX X
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 *****
2 ID *
3 ID *
4 ID * ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN
5 ID * CITY OF LAS VEGAS
6 ID * EXISTING CONDITIONS
7 ID *
8 ID *
9 ID *
10 ID *
11 ID * CLIENT-----CITY OF LAS VEGAS
12 ID * RETURN PERIOD-----10-YEAR
13 ID * DISTRIBUTUION-----6-HOUR SDN3
14 ID * PROJECT NO-----31678A
15 ID * FILENAME-----EI-10.DAT
16 ID * REV. DATE-----11/25/08
17 ID *
18 ID *
19 ID *
20 ID * AREA DARF
21 ID * (sq.mi.)
22 ID * 0.00-0.50 1.000
23 ID * 0.50-0.75 0.975
24 ID * 0.75-1.00 0.970
25 ID *
26 ID * MODELED BY: Parsons Brinckerhoff
27 ID *****
28 ID
29 ID
30 IT 5 0 0 300
31 IO 5 0 0
32 IN 5 0 0
33 JR PREC 1.00 0.975 0.970
*
34 KK OFF1
35 BA 0.2249
36 PB 1.59
37 PC 0.000 0.020 0.057 0.070 0.087 0.108 0.124 0.130 0.130 0.130
38 PC 0.130 0.130 0.130 0.133 0.140 0.142 0.148 0.158 0.172 0.181
39 PC 0.190 0.197 0.199 0.200 0.201 0.204 0.214 0.229 0.241 0.249

```


93 UD 0.246
 *
 94 KK CIM1
 95 KM RECALL FLOW SPLIT AT CIMMARON AND FARM ROAD ON CIMARRON ROAD
 96 DR CIM1
 *
 97 KK CP4
 98 KM COMBINE OFF3 AND CIM1
 99 HC 2
 *
 100 KK SPLIT2
 101 KM FLOW SPLIT ON CIMARRON ROAD AND SUNNY SPRINGS LANE
 102 DT CIM2
 103 DI 0 25 50
 104 DQ 0 7.8 17
 *
 105 KK OFF6
 106 KM SUBBASIN OFF6
 107 BA 0.0287
 108 LS 0 82.00
 109 UD 0.223
 *
 110 KK OFF7
 111 KM SUBBASIN OFF7
 112 BA 0.0667
 113 LS 0 82.00
 114 UD 0.219
 *
 115 KK CP5
 116 KM COMBINE OFF6,OFF7 AND REMAINING FLOW IN SUNNY SPRINGS LANE AFTER FLOW SPLIT
 117 HC 3
 *

1

HEC-1 INPUT

PAGE 4

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
 118 KK OFF2
 119 KM SUBBASIN OFF2
 120 BA 0.1786
 121 PB 1.60
 122 LS 0 87.00
 123 UD 0.343
 *
 124 KK CIM2
 125 KM RECALL FLOW SPLIT AT CIMMARON AND SUNNY SPRINGS LANE ON CIMARRON ROAD
 126 DR CIM2
 *
 127 KK CP6
 128 KM COMBINE OFF2 & CIM2
 129 HC 2
 *
 130 KK SPLIT3
 131 KM FLOW SPLIT ON CIMARRON ROAD AND ELKHORN ROAD
 132 DT CIM3
 133 DI 0 50 82
 134 DQ 0 14.1 23
 *
 135 KK OFF8
 136 KM SUBBASIN OFF8
 137 BA 0.0282
 138 PB 1.58
 139 LS 0 82.00
 140 UD 0.106
 *
 141 KK CP7
 142 KM COMBINE OFF8 AND REMAINING FLOW IN ELKHORN ROAD
 143 HC 2
 *

144	KK	OFF9		
145	BA	0.0285		
146	LS	0	82.00	
147	UD	0.172		
	*			
148	KK	CP8		
149	KM	COMBINE OFF8,OFF9 AND REMAINING FLOW IN ELKHORN ROAD		
150	HC	2		
	*			

HEC-1 INPUT

PAGE 5

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

151	KK	DIV3E1-6		
152	KM	DIVERT BYPASSED FLOW FROM EXISTIGN Dis IN ELKHORN ROAD (6 Dis TOTAL)		
153	DT	BUFF1		
154	DI	0	50	73
155	DQ	0	2.7	4
	*			

156	KK	CP9		
157	KM	COMBINE CP5 AND FLOW INTERCEPTED BY Dis IN ELKHORN ROAD		
158	HC	2		
	*			

159	KK	BUFF1		
160	KM	RECALL FLOW BYPASSED BY DROP INLETS IN ELKHORN ROAD		
161	DR	BUFF1		
	*			

162	KK	SPLIT4		
163	KM	FLOW SPLIT AT ELKHORN ROAD AND BUFFALO DRIVE		
164	DT	BUFF2		
165	DI	0	4	
166	DQ	0	3	
	*			

167	KK	OFF11		
168	KM	SUBBASIN OFF11		
169	BA	0.0655		
170	LS	0	82.00	
171	UD	0.209		
	*			

172	KK	CP10		
173	KM	COMBINE OFF11 AND REMAINING FLOW ON BUFFALO		
174	HC	2		
	*			

175	KK	OFF10		
176	KM	SUBBASIN OFF10		
177	BA	0.0334		
178	LS	0	82.00	
179	UD	0.214		
	*			

180	KK	OFF12		
181	KM	SUBBASIN OFF12		
182	BA	0.0156		
183	LS	0	92.00	
184	UD	0.108		
	*			

HEC-1 INPUT

PAGE 6

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

185	KK	ON-1		
186	KM	ON SITE SUBBASIN		
187	BA	0.0194		
188	LS	0	85.00	
189	UD	0.191		
	*			

190	KK	OFF13		
191	KM	SUBBASIN OFF13		
192	BA	0.0241		
193	LS	0	82.00	
194	UD	0.206		

```

*
195      KK      CP11
196      KM      COMBINE OFF12,OFF-10,CP-10,CP-9, ON-1 AND CP-3
197      HC      6
*

198      KKELKBASIN
199      KM      FACILITY = ELKHORN SPRINGS DETENTION BASIN
200      KM      FACILITY ID-MILE = EKDB 0070
201      KM      STORAGE VOLUME = 48 ACRE-FEET
202      KM      OUTLET = 2-27 inch RCPs transition to 60" RCP
203      RS      1      STOR      -1
204      SV      0.04      0.07      0.41      1.41      3.24      5.71      8.57      11.8      15.3      19.0
205      SV      22.9      27.0      31.3      35.8      40.5      45.4      50.6      52.7
206      SE      2386      2387      2388      2389      2390      2391      2392      2393      2394      2395
207      SE      2396      2397      2398      2399      2400      2401      2402      2402.40
* Outflow release rate - combine 48-inch debris riser orifice
* AND 2-27 inches low level outlet release rate
208      SQ      0      0      0      34.06      73.87      98.76      114.0      120.8      127.3      133.5
209      SQ      139.5      145.1      150.6      155.9      161.0      165.9      170.7      172.6
210      KO      1
*
211      ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```

INPUT
LINE      (V) ROUTING      (--->) DIVERSION OR PUMP FLOW

NO.      (.) CONNECTOR      (<---) RETURN OF DIVERTED OR PUMPED FLOW

34      OFF1
.
.
50      .----->      FDI12
47      DIV1FD
.
.
55      .----->      CIM1
53      SPLIT1
.
.
61      .----->      FDI345
58      DIV2FD
.
.
64      .      OFF4
.
.
69      CP1.....
.
.
75      .      .<-----      FDI12
72      .      FDI12
.
.
79      .      .<-----      FDI345
76      .      FDI345
.
.
80      .      CP2.....
.
.
84      .      .      OFF5
.
.
89      .      .      .      OFF3
.
.
96      .      .      .      .      .<-----      CIM1
94      .      .      .      .      CIM1
.
.
97      .      .      .      .      CP4.....
.
.
102      .      .      .      .      .----->      CIM2
100      .      .      .      .      SPLIT2
.
.
105      .      .      .      .      .      OFF6

```

```
*****
*
* ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN
* CITY OF LAS VEGAS
* EXISTING CONDITIONS
*
* .....
* CLIENT-----CITY OF LAS VEGAS
* RETURN PERIOD-----10-YEAR
* DISTRIBUTUION-----6-HOUR SDN3
* PROJECT NO-----31678A
* FILENAME-----EI-10.DAT
* REV. DATE-----11/25/08
*
* .....
* AREA      DARF
* (sq.mi.)
* 0.00-0.50 1.000
* 0.50-0.75 0.975
* 0.75-1.00 0.970
*
* MODELED BY: Parsons Brinckerhoff
*
*****
```

```
31 IO      OUTPUT CONTROL VARIABLES
           IPRNT      5  PRINT CONTROL
           IPLOT      0  PLOT CONTROL
           QSCAL      0.  HYDROGRAPH PLOT SCALE

IT         HYDROGRAPH TIME DATA
           NMIN      5  MINUTES IN COMPUTATION INTERVAL
           IDATE      1  0  STARTING DATE
           ITIME      0000  STARTING TIME
           NQ        300  NUMBER OF HYDROGRAPH ORDINATES
           NDDATE      2  0  ENDING DATE
           NDTIME      0055  ENDING TIME
           ICENT      19  CENTURY MARK

           COMPUTATION INTERVAL      .08 HOURS
           TOTAL TIME BASE      24.92 HOURS

ENGLISH UNITS
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH  INCHES
LENGTH, ELEVATION  FEET
FLOW              CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT

JP         MULTI-PLAN OPTION
           NPLAN      1  NUMBER OF PLANS

JR         MULTI-RATIO OPTION
           RATIOS OF PRECIPITATION
           1.00      .98      .97
```

*** **

```
*****
*
198 KK    * ELKBASIN *
*
*****
```

210 KO OUTPUT CONTROL VARIABLES

IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

203 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X .00 WORKING R AND D COEFFICIENT

204 SV STORAGE .0 .1 .4 1.4 3.2 5.7 8.6 11.8 15.3 19.0
22.9 27.0 31.3 35.8 40.5 45.4 50.6 52.7

206 SE ELEVATION 2386.00 2387.00 2388.00 2389.00 2390.00 2391.00 2392.00 2393.00 2394.00 2395.00
2396.00 2397.00 2398.00 2399.00 2400.00 2401.00 2402.00 2402.40

208 SQ DISCHARGE 0. 0. 0. 34. 74. 99. 114. 121. 127. 134.
140. 145. 151. 156. 161. 166. 171. 173.

HYDROGRAPH AT STATION ELKBASIN
PLAN 1, RATIO = 1.00

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	.4	2388.0	*	1	0820	101	0.	.4	2388.0	*	1	1640	201	0.	.4	2388.0			
1	0005	2	0.	.4	2388.0	*	1	0825	102	0.	.4	2388.0	*	1	1645	202	0.	.4	2388.0			
1	0010	3	0.	.4	2388.0	*	1	0830	103	0.	.4	2388.0	*	1	1650	203	0.	.4	2388.0			
1	0015	4	0.	.4	2388.0	*	1	0835	104	0.	.4	2388.0	*	1	1655	204	0.	.4	2388.0			
1	0020	5	0.	.4	2388.0	*	1	0840	105	0.	.4	2388.0	*	1	1700	205	0.	.4	2388.0			
1	0025	6	0.	.4	2388.0	*	1	0845	106	0.	.4	2388.0	*	1	1705	206	0.	.4	2388.0			
1	0030	7	0.	.4	2388.0	*	1	0850	107	0.	.4	2388.0	*	1	1710	207	0.	.4	2388.0			
1	0035	8	0.	.4	2388.0	*	1	0855	108	0.	.4	2388.0	*	1	1715	208	0.	.4	2388.0			
1	0040	9	0.	.4	2388.0	*	1	0900	109	0.	.4	2388.0	*	1	1720	209	0.	.4	2388.0			
1	0045	10	0.	.4	2388.0	*	1	0905	110	0.	.4	2388.0	*	1	1725	210	0.	.4	2388.0			
1	0050	11	0.	.4	2388.0	*	1	0910	111	0.	.4	2388.0	*	1	1730	211	0.	.4	2388.0			
1	0055	12	0.	.4	2388.0	*	1	0915	112	0.	.4	2388.0	*	1	1735	212	0.	.4	2388.0			
1	0100	13	0.	.4	2388.0	*	1	0920	113	0.	.4	2388.0	*	1	1740	213	0.	.4	2388.0			
1	0105	14	0.	.4	2388.0	*	1	0925	114	0.	.4	2388.0	*	1	1745	214	0.	.4	2388.0			
1	0110	15	0.	.4	2388.0	*	1	0930	115	0.	.4	2388.0	*	1	1750	215	0.	.4	2388.0			
1	0115	16	0.	.4	2388.0	*	1	0935	116	0.	.4	2388.0	*	1	1755	216	0.	.4	2388.0			
1	0120	17	0.	.4	2388.0	*	1	0940	117	0.	.4	2388.0	*	1	1800	217	0.	.4	2388.0			
1	0125	18	0.	.4	2388.0	*	1	0945	118	0.	.4	2388.0	*	1	1805	218	0.	.4	2388.0			
1	0130	19	0.	.4	2388.0	*	1	0950	119	0.	.4	2388.0	*	1	1810	219	0.	.4	2388.0			
1	0135	20	0.	.4	2388.0	*	1	0955	120	0.	.4	2388.0	*	1	1815	220	0.	.4	2388.0			
1	0140	21	0.	.4	2388.0	*	1	1000	121	0.	.4	2388.0	*	1	1820	221	0.	.4	2388.0			
1	0145	22	0.	.4	2388.0	*	1	1005	122	0.	.4	2388.0	*	1	1825	222	0.	.4	2388.0			
1	0150	23	0.	.4	2388.0	*	1	1010	123	0.	.4	2388.0	*	1	1830	223	0.	.4	2388.0			
1	0155	24	0.	.4	2388.0	*	1	1015	124	0.	.4	2388.0	*	1	1835	224	0.	.4	2388.0			
1	0200	25	0.	.4	2388.0	*	1	1020	125	0.	.4	2388.0	*	1	1840	225	0.	.4	2388.0			
1	0205	26	0.	.4	2388.0	*	1	1025	126	0.	.4	2388.0	*	1	1845	226	0.	.4	2388.0			
1	0210	27	0.	.4	2388.0	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0			
1	0215	28	0.	.4	2388.0	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0			
1	0220	29	0.	.4	2388.0	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0			
1	0225	30	1.	.4	2388.0	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0			
1	0230	31	1.	.4	2388.0	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0			
1	0235	32	1.	.4	2388.0	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0			
1	0240	33	1.	.4	2388.0	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0			
1	0245	34	1.	.4	2388.0	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0			
1	0250	35	1.	.5	2388.0	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0			
1	0255	36	2.	.5	2388.0	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0			
1	0300	37	2.	.5	2388.1	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0			
1	0305	38	2.	.5	2388.1	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0			
1	0310	39	3.	.5	2388.1	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0			
1	0315	40	4.	.5	2388.1	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0			
1	0320	41	9.	.7	2388.3	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0			
1	0325	42	17.	.9	2388.5	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0			
1	0330	43	33.	1.4	2389.0	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0			
1	0335	44	48.	2.0	2389.3	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0			
1	0340	45	65.	2.8	2389.8	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0			
1	0345	46	77.	3.6	2390.1	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0			
1	0350	47	83.	4.1	2390.4	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0			
1	0355	48	87.	4.6	2390.5	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0			
1	0400	49	89.	4.8	2390.6	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0			

1	0405	50	90.	4.9	2390.7	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	90.	4.8	2390.6	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	88.	4.7	2390.6	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	86.	4.4	2390.5	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	83.	4.2	2390.4	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	81.	3.9	2390.3	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	78.	3.7	2390.2	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	77.	3.5	2390.1	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	76.	3.4	2390.1	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	75.	3.3	2390.0	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	73.	3.2	2390.0	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	71.	3.1	2389.9	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	69.	3.0	2389.9	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	66.	2.9	2389.8	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	61.	2.7	2389.7	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	57.	2.5	2389.6	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	52.	2.2	2389.4	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	47.	2.0	2389.3	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	42.	1.8	2389.2	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	38.	1.6	2389.1	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	34.	1.4	2389.0	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	28.	1.2	2388.8	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	24.	1.1	2388.7	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	20.	1.0	2388.6	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	17.	.9	2388.5	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	15.	.8	2388.4	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	12.	.8	2388.4	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	10.	.7	2388.3	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	8.	.7	2388.2	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	7.	.6	2388.2	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	6.	.6	2388.2	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	5.	.5	2388.1	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	4.	.5	2388.1	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	3.	.5	2388.1	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	2.	.5	2388.1	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	2.	.5	2388.1	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	1.	.5	2388.0	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	1.	.4	2388.0	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	1.	.4	2388.0	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	1.	.4	2388.0	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	1.	.4	2388.0	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	0.	.4	2388.0	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	0.	.4	2388.0	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	0.	.4	2388.0	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	0.	.4	2388.0	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	0.	.4	2388.0	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	0.	.4	2388.0	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	0.	.4	2388.0	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	0.	.4	2388.0	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	0.	.4	2388.0	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	0.	.4	2388.0	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)				
+	90.	4.08	30.	7.	7.	7.
	(INCHES)		.421	.421	.421	.421
	(AC-FT)		15.	15.	15.	15.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
+	5.	4.08	2.	1.	1.	1.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
+	2390.66	4.08	2388.84	2388.21	2388.20	2388.20

CUMULATIVE AREA = .65 SQ MI

HYDROGRAPH AT STATION ELKBASIN
PLAN 1, RATIO = .98

							*								*								*
DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*
1		0000	1	0.	.4	2388.0	* 1	0820	101	0.	.4	2388.0	* 1	1640	201	0.	.4	2388.0					
1		0005	2	0.	.4	2388.0	* 1	0825	102	0.	.4	2388.0	* 1	1645	202	0.	.4	2388.0					
1		0010	3	0.	.4	2388.0	* 1	0830	103	0.	.4	2388.0	* 1	1650	203	0.	.4	2388.0					
1		0015	4	0.	.4	2388.0	* 1	0835	104	0.	.4	2388.0	* 1	1655	204	0.	.4	2388.0					
1		0020	5	0.	.4	2388.0	* 1	0840	105	0.	.4	2388.0	* 1	1700	205	0.	.4	2388.0					
1		0025	6	0.	.4	2388.0	* 1	0845	106	0.	.4	2388.0	* 1	1705	206	0.	.4	2388.0					
1		0030	7	0.	.4	2388.0	* 1	0850	107	0.	.4	2388.0	* 1	1710	207	0.	.4	2388.0					
1		0035	8	0.	.4	2388.0	* 1	0855	108	0.	.4	2388.0	* 1	1715	208	0.	.4	2388.0					
1		0040	9	0.	.4	2388.0	* 1	0900	109	0.	.4	2388.0	* 1	1720	209	0.	.4	2388.0					
1		0045	10	0.	.4	2388.0	* 1	0905	110	0.	.4	2388.0	* 1	1725	210	0.	.4	2388.0					
1		0050	11	0.	.4	2388.0	* 1	0910	111	0.	.4	2388.0	* 1	1730	211	0.	.4	2388.0					
1		0055	12	0.	.4	2388.0	* 1	0915	112	0.	.4	2388.0	* 1	1735	212	0.	.4	2388.0					
1		0100	13	0.	.4	2388.0	* 1	0920	113	0.	.4	2388.0	* 1	1740	213	0.	.4	2388.0					
1		0105	14	0.	.4	2388.0	* 1	0925	114	0.	.4	2388.0	* 1	1745	214	0.	.4	2388.0					
1		0110	15	0.	.4	2388.0	* 1	0930	115	0.	.4	2388.0	* 1	1750	215	0.	.4	2388.0					
1		0115	16	0.	.4	2388.0	* 1	0935	116	0.	.4	2388.0	* 1	1755	216	0.	.4	2388.0					
1		0120	17	0.	.4	2388.0	* 1	0940	117	0.	.4	2388.0	* 1	1800	217	0.	.4	2388.0					
1		0125	18	0.	.4	2388.0	* 1	0945	118	0.	.4	2388.0	* 1	1805	218	0.	.4	2388.0					
1		0130	19	0.	.4	2388.0	* 1	0950	119	0.	.4	2388.0	* 1	1810	219	0.	.4	2388.0					
1		0135	20	0.	.4	2388.0	* 1	0955	120	0.	.4	2388.0	* 1	1815	220	0.	.4	2388.0					
1		0140	21	0.	.4	2388.0	* 1	1000	121	0.	.4	2388.0	* 1	1820	221	0.	.4	2388.0					
1		0145	22	0.	.4	2388.0	* 1	1005	122	0.	.4	2388.0	* 1	1825	222	0.	.4	2388.0					
1		0150	23	0.	.4	2388.0	* 1	1010	123	0.	.4	2388.0	* 1	1830	223	0.	.4	2388.0					
1		0155	24	0.	.4	2388.0	* 1	1015	124	0.	.4	2388.0	* 1	1835	224	0.	.4	2388.0					
1		0200	25	0.	.4	2388.0	* 1	1020	125	0.	.4	2388.0	* 1	1840	225	0.	.4	2388.0					
1		0205	26	0.	.4	2388.0	* 1	1025	126	0.	.4	2388.0	* 1	1845	226	0.	.4	2388.0					
1		0210	27	0.	.4	2388.0	* 1	1030	127	0.	.4	2388.0	* 1	1850	227	0.	.4	2388.0					
1		0215	28	0.	.4	2388.0	* 1	1035	128	0.	.4	2388.0	* 1	1855	228	0.	.4	2388.0					
1		0220	29	0.	.4	2388.0	* 1	1040	129	0.	.4	2388.0	* 1	1900	229	0.	.4	2388.0					
1		0225	30	0.	.4	2388.0	* 1	1045	130	0.	.4	2388.0	* 1	1905	230	0.	.4	2388.0					
1		0230	31	1.	.4	2388.0	* 1	1050	131	0.	.4	2388.0	* 1	1910	231	0.	.4	2388.0					
1		0235	32	1.	.4	2388.0	* 1	1055	132	0.	.4	2388.0	* 1	1915	232	0.	.4	2388.0					
1		0240	33	1.	.4	2388.0	* 1	1100	133	0.	.4	2388.0	* 1	1920	233	0.	.4	2388.0					
1		0245	34	1.	.4	2388.0	* 1	1105	134	0.	.4	2388.0	* 1	1925	234	0.	.4	2388.0					
1		0250	35	1.	.4	2388.0	* 1	1110	135	0.	.4	2388.0	* 1	1930	235	0.	.4	2388.0					
1		0255	36	1.	.5	2388.0	* 1	1115	136	0.	.4	2388.0	* 1	1935	236	0.	.4	2388.0					
1		0300	37	2.	.5	2388.0	* 1	1120	137	0.	.4	2388.0	* 1	1940	237	0.	.4	2388.0					
1		0305	38	2.	.5	2388.1	* 1	1125	138	0.	.4	2388.0	* 1	1945	238	0.	.4	2388.0					
1		0310	39	2.	.5	2388.1	* 1	1130	139	0.	.4	2388.0	* 1	1950	239	0.	.4	2388.0					
1		0315	40	4.	.5	2388.1	* 1	1135	140	0.	.4	2388.0	* 1	1955	240	0.	.4	2388.0					
1		0320	41	8.	.6	2388.2	* 1	1140	141	0.	.4	2388.0	* 1	2000	241	0.	.4	2388.0					
1		0325	42	16.	.9	2388.5	* 1	1145	142	0.	.4	2388.0	* 1	2005	242	0.	.4	2388.0					
1		0330	43	30.	1.3	2388.9	* 1	1150	143	0.	.4	2388.0	* 1	2010	243	0.	.4	2388.0					
1		0335	44	45.	1.9	2389.3	* 1	1155	144	0.	.4	2388.0	* 1	2015	244	0.	.4	2388.0					
1		0340	45	61.	2.7	2389.7	* 1	1200	145	0.	.4	2388.0	* 1	2020	245	0.	.4	2388.0					
1		0345	46	75.	3.3	2390.0	* 1	1205	146	0.	.4	2388.0	* 1	2025	246	0.	.4	2388.0					
1		0350	47	80.	3.9	2390.3	* 1	1210	147	0.	.4	2388.0	* 1	2030	247	0.	.4	2388.0					
1		0355	48	84.	4.3	2390.4	* 1	1215	148	0.	.4	2388.0	* 1	2035	248	0.	.4	2388.0					
1		0400	49	86.	4.5	2390.5	* 1	1220	149	0.	.4	2388.0	* 1	2040	249	0.	.4	2388.0					
1		0405	50	87.	4.5	2390.5	* 1	1225	150	0.	.4	2388.0	* 1	2045	250	0.	.4	2388.0					
1		0410	51	87.	4.5	2390.5	* 1	1230	151	0.	.4	2388.0	* 1	2050	251	0.	.4	2388.0					
1		0415	52	85.	4.3	2390.4	* 1	1235	152	0.	.4	2388.0	* 1	2055	252	0.	.4	2388.0					
1		0420	53	83.	4.1	2390.4	* 1	1240	153	0.	.4	2388.0	* 1	2100	253	0.	.4	2388.0					
1		0425	54	80.	3.9	2390.3	* 1	1245	154	0.	.4	2388.0	* 1	2105	254	0.	.4	2388.0					
1		0430	55	78.	3.6	2390.2	* 1	1250	155	0.	.4	2388.0	* 1	2110	255	0.	.4	2388.0					
1		0435	56	76.	3.4	2390.1	* 1	1255	156	0.	.4	2388.0	* 1	2115	256	0.	.4	2388.0					
1		0440	57	74.	3.3	2390.0	* 1	1300	157	0.	.4	2388.0	* 1	2120	257	0.	.4	2388.0					
1		0445	58	72.	3.1	2389.9	* 1	1305	158	0.	.4	2388.0	* 1	2125	258	0.	.4	2388.0					
1		0450	59	70.	3.0	2389.9	* 1	1310	159	0.	.4	2388.0	* 1	2130	259	0.	.4	2388.0					
1		0455	60	68.	3.0	2389.9	* 1	1315	160	0.	.4	2388.0	* 1	2135	260	0.	.4	2388.0					
1		0500	61	66.	2.9	2389.8	* 1	1320	161	0.	.4	2388.0	* 1	2140	261	0.	.4	2388.0					
1		0505	62	64.	2.8	2389.8	* 1	1325	162	0.	.4	2388.0	* 1	2145	262	0.	.4	2388.0					
1		0510	63	61.	2.7	2389.7	* 1	1330	163	0.	.4	2388.0	* 1	2150	263	0.	.4	2388.0					
1		0515	64	58.	2.5	2389.6	* 1	1335	164	0.	.4	2388.0	* 1	2155	264	0.	.4	2388.0					
1		0520	65	53.	2.3	2389.5	* 1	1340	165	0.	.4	2388.0	* 1	2200	265	0.	.4	2388.0					
1		0525	66	49.	2.1	2389.4	* 1	1345	166	0.	.4	2388.0	* 1	2205	266	0.	.4	2388.0					
1		0530	67	44.	1.9	2389.3	* 1	1350	167	0.	.4	2388.0	* 1	2210	267	0.	.4	2388.0					
1		0535	68	40.	1.7	2389.1	* 1	1355	168	0.	.4	2388.0	* 1	2215	268	0.	.4	2388.0					
1		0540	69	36.	1.5	2389.0	* 1	1400	169	0.	.4	2388.0	* 1	2220	269	0.	.4	2388.0					
1		0545	70	31.	1.3	2388.9	* 1	1405	170	0.	.4	2388.0	* 1	2225	270	0.	.4	2388.0					
1		0550	71	26.	1.2	2388.8	* 1	1410	171	0.	.4	2388.0	* 1	2230	271	0.	.4	2388.0					

1	0630	79	6.	.6	2388.2	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	5.	.6	2388.2	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	4.	.5	2388.1	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	3.	.5	2388.1	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	3.	.5	2388.1	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	2.	.5	2388.1	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	2.	.5	2388.1	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	1.	.5	2388.0	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	1.	.4	2388.0	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	1.	.4	2388.0	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	1.	.4	2388.0	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	1.	.4	2388.0	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	0.	.4	2388.0	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	0.	.4	2388.0	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	0.	.4	2388.0	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	0.	.4	2388.0	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	0.	.4	2388.0	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	0.	.4	2388.0	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	0.	.4	2388.0	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	0.	.4	2388.0	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	0.	.4	2388.0	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	0.	.4	2388.0	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW				
+	(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR	
+	87.	4.08	(CFS)	28.	7.	7.	7.
			(INCHES)	.399	.399	.399	.399
			(AC-FT)	14.	14.	14.	14.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE				
+	(AC-FT)	(HR)	6-HR	24-HR	72-HR	24.92-HR	
+	5.	4.08		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE				
+	(FEET)	(HR)	6-HR	24-HR	72-HR	24.92-HR	
+	2390.53	4.08		2388.79	2388.20	2388.19	2388.19

CUMULATIVE AREA = .65 SQ MI

HYDROGRAPH AT STATION ELKBASIN PLAN 1, RATIO = .97

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*
1	0000	1	0.	.4	2388.0	*	1	0820	101	0.	.4	2388.0	*	1	1640	201	0.	.4	2388.0				
1	0005	2	0.	.4	2388.0	*	1	0825	102	0.	.4	2388.0	*	1	1645	202	0.	.4	2388.0				
1	0010	3	0.	.4	2388.0	*	1	0830	103	0.	.4	2388.0	*	1	1650	203	0.	.4	2388.0				
1	0015	4	0.	.4	2388.0	*	1	0835	104	0.	.4	2388.0	*	1	1655	204	0.	.4	2388.0				
1	0020	5	0.	.4	2388.0	*	1	0840	105	0.	.4	2388.0	*	1	1700	205	0.	.4	2388.0				
1	0025	6	0.	.4	2388.0	*	1	0845	106	0.	.4	2388.0	*	1	1705	206	0.	.4	2388.0				
1	0030	7	0.	.4	2388.0	*	1	0850	107	0.	.4	2388.0	*	1	1710	207	0.	.4	2388.0				
1	0035	8	0.	.4	2388.0	*	1	0855	108	0.	.4	2388.0	*	1	1715	208	0.	.4	2388.0				
1	0040	9	0.	.4	2388.0	*	1	0900	109	0.	.4	2388.0	*	1	1720	209	0.	.4	2388.0				
1	0045	10	0.	.4	2388.0	*	1	0905	110	0.	.4	2388.0	*	1	1725	210	0.	.4	2388.0				
1	0050	11	0.	.4	2388.0	*	1	0910	111	0.	.4	2388.0	*	1	1730	211	0.	.4	2388.0				
1	0055	12	0.	.4	2388.0	*	1	0915	112	0.	.4	2388.0	*	1	1735	212	0.	.4	2388.0				
1	0100	13	0.	.4	2388.0	*	1	0920	113	0.	.4	2388.0	*	1	1740	213	0.	.4	2388.0				
1	0105	14	0.	.4	2388.0	*	1	0925	114	0.	.4	2388.0	*	1	1745	214	0.	.4	2388.0				
1	0110	15	0.	.4	2388.0	*	1	0930	115	0.	.4	2388.0	*	1	1750	215	0.	.4	2388.0				
1	0115	16	0.	.4	2388.0	*	1	0935	116	0.	.4	2388.0	*	1	1755	216	0.	.4	2388.0				
1	0120	17	0.	.4	2388.0	*	1	0940	117	0.	.4	2388.0	*	1	1800	217	0.	.4	2388.0				
1	0125	18	0.	.4	2388.0	*	1	0945	118	0.	.4	2388.0	*	1	1805	218	0.	.4	2388.0				
1	0130	19	0.	.4	2388.0	*	1	0950	119	0.	.4	2388.0	*	1	1810	219	0.	.4	2388.0				
1	0135	20	0.	.4	2388.0	*	1	0955	120	0.	.4	2388.0	*	1	1815	220	0.	.4	2388.0				
1	0140	21	0.	.4	2388.0	*	1	1000	121	0.	.4	2388.0	*	1	1820	221	0.	.4	2388.0				
1	0145	22	0.	.4	2388.0	*	1	1005	122	0.	.4	2388.0	*	1	1825	222	0.	.4	2388.0				
1	0150	23	0.	.4	2388.0	*	1	1010	123	0.	.4	2388.0	*	1	1830	223	0.	.4	2388.0				
1	0155	24	0.	.4	2388.0	*	1	1015	124	0.	.4	2388.0	*	1	1835	224	0.	.4	2388.0				
1	0200	25	0.	.4	2388.0	*	1	1020	125	0.	.4	2388.0	*	1	1840	225	0.	.4	2388.0				
1	0205	26	0.	.4	2388.0	*	1	1025	126	0.	.4	2388.0	*	1	1845	226	0.	.4	2388.0				

1	0210	27	0.	.4	2388.0	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0
1	0215	28	0.	.4	2388.0	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0
1	0220	29	0.	.4	2388.0	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0
1	0225	30	0.	.4	2388.0	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0
1	0230	31	1.	.4	2388.0	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0
1	0235	32	1.	.4	2388.0	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0
1	0240	33	1.	.4	2388.0	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0
1	0245	34	1.	.4	2388.0	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0
1	0250	35	1.	.4	2388.0	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0
1	0255	36	1.	.4	2388.0	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0
1	0300	37	1.	.5	2388.0	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0
1	0305	38	2.	.5	2388.1	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0
1	0310	39	2.	.5	2388.1	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0
1	0315	40	4.	.5	2388.1	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0
1	0320	41	7.	.6	2388.2	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0
1	0325	42	15.	.9	2388.4	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0
1	0330	43	29.	1.3	2388.9	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0
1	0335	44	45.	1.9	2389.3	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0
1	0340	45	61.	2.6	2389.7	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0
1	0345	46	75.	3.3	2390.0	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0
1	0350	47	80.	3.8	2390.2	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0
1	0355	48	84.	4.2	2390.4	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0
1	0400	49	86.	4.4	2390.5	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0
1	0405	50	86.	4.5	2390.5	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	86.	4.4	2390.5	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	84.	4.3	2390.4	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	82.	4.1	2390.3	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	80.	3.8	2390.2	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	77.	3.6	2390.1	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	75.	3.3	2390.0	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	73.	3.2	2390.0	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	70.	3.1	2389.9	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	69.	3.0	2389.9	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	67.	2.9	2389.8	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	66.	2.9	2389.8	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	64.	2.8	2389.7	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	61.	2.6	2389.7	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	57.	2.5	2389.6	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	53.	2.3	2389.5	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	48.	2.1	2389.4	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	44.	1.9	2389.2	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	39.	1.7	2389.1	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	35.	1.5	2389.0	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	30.	1.3	2388.9	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	25.	1.2	2388.7	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	22.	1.0	2388.6	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	18.	.9	2388.5	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	16.	.9	2388.5	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	13.	.8	2388.4	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	11.	.7	2388.3	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	9.	.7	2388.3	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	8.	.6	2388.2	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	6.	.6	2388.2	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	5.	.6	2388.2	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	4.	.5	2388.1	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	3.	.5	2388.1	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	3.	.5	2388.1	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	2.	.5	2388.1	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	2.	.5	2388.1	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	1.	.5	2388.0	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	1.	.4	2388.0	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	1.	.4	2388.0	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	1.	.4	2388.0	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	1.	.4	2388.0	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	0.	.4	2388.0	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	0.	.4	2388.0	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	0.	.4	2388.0	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	0.	.4	2388.0	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	0.	.4	2388.0	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	0.	.4	2388.0	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	0.	.4	2388.0	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	0.	.4	2388.0	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	0.	.4	2388.0	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	0.	.4	2388.0	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)	(CFS)		

+	86.	4.08		28.	7.	7.	7.
			(INCHES)	.395	.395	.395	.395
			(AC-FT)	14.	14.	14.	14.

PEAK STORAGE	TIME			MAXIMUM AVERAGE STORAGE			
				6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)					
	4.	4.08		1.	1.	1.	1.

PEAK STAGE	TIME			MAXIMUM AVERAGE STAGE			
				6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)					
	2390.51	4.08		2388.78	2388.20	2388.19	2388.19

CUMULATIVE AREA = .65 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
 FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
 TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION		
					RATIO 1	RATIO 2	RATIO 3
					1.00	.98	.97
HYDROGRAPH AT							
+	OFF1	.22	1	FLOW	83.	79.	78.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	FDI12	.22	1	FLOW	54.	50.	49.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	DIV1FD	.22	1	FLOW	30.	30.	30.
				TIME	4.08	4.08	4.08
DIVERSION TO							
+	CIM1	.22	1	FLOW	6.	6.	6.
				TIME	4.08	4.08	4.08
HYDROGRAPH AT							
+	SPLIT1	.22	1	FLOW	24.	24.	24.
				TIME	4.08	4.08	4.08
DIVERSION TO							
+	FDI345	.22	1	FLOW	24.	24.	24.
				TIME	4.08	4.08	4.08
HYDROGRAPH AT							
+	DIV2FD	.22	1	FLOW	0.	0.	0.
				TIME	.00	.00	.00
HYDROGRAPH AT							
+	OFF4	.03	1	FLOW	11.	10.	10.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	CP1	.26	1	FLOW	11.	10.	10.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	FDI12	.00	1	FLOW	54.	50.	49.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	FDI345	.00	1	FLOW	24.	24.	24.
				TIME	4.08	4.08	4.08
2 COMBINED AT							
+	CP2	.00	1	FLOW	77.	73.	72.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF5	.07	1	FLOW	20.	18.	18.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF3	.17	1	FLOW	44.	42.	41.

				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	CIM1	.00	1	FLOW	6.	6.	6.
				TIME	4.08	4.08	4.08
2 COMBINED AT							
+	CP4	.17	1	FLOW	50.	48.	47.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	CIM2	.17	1	FLOW	17.	16.	16.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT2	.17	1	FLOW	33.	31.	31.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF6	.03	1	FLOW	8.	8.	7.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF7	.07	1	FLOW	19.	18.	18.
				TIME	3.67	3.67	3.67
3 COMBINED AT							
+	CP5	.26	1	FLOW	60.	56.	56.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF2	.18	1	FLOW	66.	63.	62.
				TIME	3.83	3.83	3.83
HYDROGRAPH AT							
+	CIM2	.00	1	FLOW	17.	16.	16.
				TIME	3.75	3.75	3.75
2 COMBINED AT							
+	CP6	.18	1	FLOW	82.	78.	77.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	CIM3	.18	1	FLOW	23.	22.	22.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT3	.18	1	FLOW	59.	56.	56.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF8	.03	1	FLOW	10.	10.	10.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	CP7	.21	1	FLOW	65.	62.	61.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF9	.03	1	FLOW	9.	8.	8.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	CP8	.24	1	FLOW	73.	69.	68.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	BUFF1	.24	1	FLOW	4.	4.	4.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	DIV3E1-6	.24	1	FLOW	69.	65.	65.
				TIME	3.75	3.75	3.75
2 COMBINED AT							
+	CP9	.50	1	FLOW	128.	121.	120.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	BUFF1	.00	1	FLOW	4.	4.	4.
				TIME	3.75	3.75	3.75

DIVERSION TO							
+	BUFF2	.00	1	FLOW	3.	3.	3.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT4	.00	1	FLOW	1.	1.	1.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF11	.07	1	FLOW	19.	18.	18.
				TIME	3.67	3.67	3.67
2 COMBINED AT							
+	CP10	.07	1	FLOW	20.	19.	18.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF10	.03	1	FLOW	10.	9.	9.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF12	.02	1	FLOW	12.	11.	11.
				TIME	3.50	3.50	3.50
HYDROGRAPH AT							
+	ON-1	.02	1	FLOW	8.	7.	7.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF13	.02	1	FLOW	7.	7.	7.
				TIME	3.67	3.67	3.67
6 COMBINED AT							
+	CP11	.65	1	FLOW	178.	169.	167.
				TIME	3.67	3.67	3.67
ROUTED TO							
+	ELKBASIN	.65	1	FLOW	90.	87.	86.
				TIME	4.08	4.08	4.08

** PEAK STAGES IN FEET **
 1 STAGE 2390.66 2390.53 2390.51
 TIME 4.08 4.08 4.08

*** NORMAL END OF HEC-1 ***

Existing HEC-1 Calculations
100 Year

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JAN 1997
* VERSION 4.1
*
* RUN DATE 26APR09 TIME 13:08:48
*
*****

```

```

*****
*
* 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 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 -AMSK- 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 *****
2 ID *
3 ID *
4 ID * ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN
5 ID * CITY OF LAS VEGAS
6 ID * EXISTING CONDITIONS
7 ID *
8 ID * .....
9 ID *
10 ID * CLIENT-----CITY OF LAS VEGAS
11 ID * RETURN PERIOD-----100-YEAR
12 ID * DISTRIBUTUION-----6-HOUR SDN3
13 ID * PROJECT NO-----31678A
14 ID * FILENAME-----EI-100.DAT
15 ID * REV. DATE-----11/25/08
16 ID *
17 ID * .....
18 ID *
19 ID * AREA DARF
20 ID * (sq.mi.)
21 ID * 0.00-0.50 1.000
22 ID * 0.50-0.75 0.975
23 ID * 0.75-1.00 0.970
24 ID *
25 ID * MODELED BY: Parsons Brinckerhoff
26 ID * .....
27 ID *****
28 ID
29 ID
30 IT 5 0 0 300
31 IO 5 0 0
32 IN 5 0 0
33 JR PREC 1.00 0.975 0.970
*
34 KK OFF1
35 BA 0.2249
36 PB 2.81
37 PC 0.000 0.020 0.057 0.070 0.087 0.108 0.124 0.130 0.130 0.130
38 PC 0.130 0.130 0.130 0.133 0.140 0.142 0.148 0.158 0.172 0.181
39 PC 0.190 0.197 0.199 0.200 0.201 0.204 0.214 0.229 0.241 0.249

```

40	PC	0.251	0.256	0.270	0.278	0.281	0.283	0.295	0.322	0.352	0.409
41	PC	0.499	0.590	0.710	0.744	0.781	0.812	0.819	0.835	0.851	0.856
42	PC	0.860	0.868	0.876	0.888	0.910	0.926	0.937	0.950	0.970	0.976
43	PC	0.982	0.985	0.987	0.989	0.990	0.993	0.993	0.994	0.995	0.998
44	PC	0.998	0.999	1.000							
45	LS	0	87.00								
46	UD	0.332									

*

HEC-1 INPUT

PAGE 2

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

47 KK DIV1FD
 48 KM DIVERT FLOWS INTO DROP INLETS FDI-1 & FDI-2 LOCATED NWC OF FARM ROAD
 49 KM AND CIMARRON ROAD
 50 DT FDI12
 51 DI 0 100 216
 52 DQ 0 42.6 93

*

53 KK SPLIT1
 54 KM FLOW SPLIT ON CIMARRON ROAD AND FARM ROAD
 55 DT CIM1
 56 DI 0 50 123
 57 DQ 0 21.6 54

*

58 KK DIV2FD
 59 KM DIVERT FLOWS INTO DROP INLETS FDI-3,FDI-4 & FDI-5 LOCATED ON FARM ROAD
 60 KM BETWEEN CIMARRON ROAD & PALM GROVE
 61 DT FDI345
 62 DI 0 71
 63 DQ 0 58

*

64 KK OFF4
 65 BA 0.0308
 66 PB 2.77
 67 LS 0 82.00
 68 UD 0.112

*

69 KK CP1
 70 KM COMBINE OFF4 AND BY PASS FLOW FROM INLETS ON FARM ROAD
 71 HC 2

*

72 KK FDI12
 73 KM RECALL FLOW COLLECTED BY EXISTING STORM DRAIN SYSTEM(PLUGGED)ON FARM ROAD
 74 KM WEST OF CIMARRON ROAD
 75 DR FDI12

*

76 KK FDI345
 77 KM RECALL FLOW COLLECTED BY EXISTING STORM DRAIN SYSTEM(PLUGGED)ON FARM ROAD
 78 KM BETWEEN CIMARRON ROAD AND PALM GROOVE LANE
 79 DR FDI345

*

80 KK CP2
 81 KM COMBINE FDI12 AND FDI345 TO CALCULATED FLOW COLLECTED BY THE EXISTING
 82 KM STORM DRAIN SYSTEM ON FARM ROAD (CURRENTLY PLUGGED)
 83 HC 2

*

HEC-1 INPUT

PAGE 3

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

84 KK OFF5
 85 KM SUBBASIN OFF5
 86 BA 0.0662
 87 LS 0 82.00
 88 UD 0.198

*

89 KK OFF3
 90 KM SUBBASIN OFF3
 91 BA 0.165
 92 LS 0 82.00

93 UD 0.246
 *
 94 KK CIM1
 95 KM RECALL FLOW SPLIT AT CIMMARON AND FARM ROAD ON CIMARRON ROAD
 96 DR CIM1
 *
 97 KK CP4
 98 KM COMBINE OFF3 AND CIM1
 99 HC 2
 *
 100 KK SPLIT2
 101 KM FLOW SPLIT ON CIMARRON ROAD AND SUNNY SPRINGS LANE
 102 DT CIM2
 103 DI 0 100 191
 104 DQ 0 40.3 77
 *
 105 KK OFF6
 106 KM SUBBASIN OFF6
 107 BA 0.0287
 108 LS 0 82.00
 109 UD 0.223
 *
 110 KK OFF7
 111 KM SUBBASIN OFF7
 112 BA 0.0667
 113 LS 0 82.00
 114 UD 0.219
 *
 115 KK CP5
 116 KM COMBINE OFF6,OFF7 AND REMAINING FLOW IN SUNNY SPRINGS LANE AFTER FLOW SPLIT
 117 HC 3
 *

HEC-1 INPUT

PAGE 4

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
 118 KK OFF2
 119 KM SUBBASIN OFF2
 120 BA 0.1786
 121 PB 2.83
 122 LS 0 87.00
 123 UD 0.343
 *
 124 KK CIM2
 125 KM RECALL FLOW SPLIT AT CIMMARON AND SUNNY SPRINGS LANE ON CIMARRON ROAD
 126 DR CIM2
 *
 127 KK CP6
 128 KM COMBINE OFF2 & CIM2
 129 HC 2
 *
 130 KK SPLIT3
 131 KM FLOW SPLIT ON CIMARRON ROAD AND ELKHORN ROAD
 132 DT CIM3
 133 DI 0 50 247
 134 DQ 0 15.3 75
 *
 135 KK OFF8
 136 KM SUBBASIN OFF8
 137 BA 0.0282
 138 PB 2.77
 139 LS 0 82.00
 140 UD 0.106
 *
 141 KK CP7
 142 KM COMBINE OFF8 AND REMAINING FLOW IN ELKHORN ROAD
 143 HC 2
 *

144 KK OFF9
 145 BA 0.0285
 146 LS 0 82.00
 147 UD 0.172
 *
 148 KK CP8
 149 KM COMBINE OFF8,OFF9 AND REMAINING FLOW IN ELKHORN ROAD
 150 HC 2
 *

1

HEC-1 INPUT

PAGE 5

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

151 KKDIV3E123
 152 KM DIVERT BYPASSED FLOWS FROM EXISTING DIS IN ELKHORN ROAD (6 DIS TOTAL)
 153 DT BUFF1
 154 DI 0 100 211
 155 DQ 0 27.8 56
 *
 156 KK CP9
 157 KM COMBINE CP5 AND FLOW INTERCEPTED BY DIS IN ELKHORN ROAD
 158 HC 2
 *
 159 KK BUFF1
 160 KM RECALL FLOW BYPASSED BY DROP INLETS IN ELKHORN ROAD
 161 DR BUFF1
 *

162 KK SPLIT4
 163 KM FLOW SPLIT AT ELKHORN ROAD AND BUFFALO DRIVE
 164 DT BUFF2
 165 DI 0 56
 166 DQ 0 25
 *

167 KK OFF11
 168 KM SUBBASIN OFF11
 169 BA 0.0655
 170 LS 0 82.00
 171 UD 0.209
 *

172 KK CP10
 173 KM COMBINE OFF11 AND REMAINING FLOW ON BUFFALO
 174 HC 2
 *

175 KK OFF10
 176 KM SUBBASIN OFF10
 177 BA 0.0334
 178 LS 0 82.00
 179 UD 0.214
 *

180 KK OFF12
 181 KM SUBBASIN OFF12
 182 BA 0.0156
 183 LS 0 92.00
 184 UD 0.108
 *

1

HEC-1 INPUT

PAGE 6

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

185 KK ON-1
 186 KM ON SITE SUBBASIN
 187 BA 0.0194
 188 LS 0 85.00
 189 UD 0.191
 *

190 KK OFF-13
 191 KM SUBBASIN OFF13
 192 BA 0.0241
 193 LS 0 82.00
 194 UD 0.206

```

*
195      KK      CP11
196      KM      COMBINE OFF12,OFF-10,CP-10,CP-9,ON-1, AND CP-3
197      HC      6
*

198      KKELKBASIN
199      KM      FACILITY = ELKHORN SPRINGS DETENTION BASIN
200      KM      FACILITY ID-MILE = EKDB 0070
201      KM      STORAGE VOLUME = 48 ACRE-FEET
202      KM      OUTLET = 2-27 inch RCPs transition to 60" RCP
203      RS      1      STOR      -1
204      SV      0.04    0.07    0.41    1.41    3.24    5.71    8.57    11.8    15.3    19.0
205      SV      22.9    27.0    31.3    35.8    40.5    45.4    50.6    52.7
206      SE      2386    2387    2388    2389    2390    2391    2392    2393    2394    2395
207      SE      2396    2397    2398    2399    2400    2401    2402 2402.40
* Outflow release rate - combine 48-inch debris riser orifice
* AND 2-27 inches low level outlet release rate
208      SQ      0      0      0      34.06   73.87   98.76   114.0   120.8   127.3   133.5
209      SQ      139.5   145.1   150.6   155.9   161.0   165.9   170.7   172.6
210      KO      1
*
211      ZZ

```

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

```

INPUT
LINE      (V) ROUTING      (--->) DIVERSION OR PUMP FLOW

NO.      (.) CONNECTOR      (<---) RETURN OF DIVERTED OR PUMPED FLOW

34      OFF1
.
50      .-----> FDI12
47      DIV1FD
.
55      .-----> CIM1
53      SPLIT1
.
61      .-----> FDI345
58      DIV2FD
.
64      OFF4
.
69      CP1.....
.
75      .<----- FDI12
72      FDI12
.
79      .<----- FDI345
76      FDI345
.
80      CP2.....
.
84      OFF5
.
89      OFF3
.
96      .<----- CIM1
94      CIM1
.
97      CP4.....
.
102      .-----> CIM2
100      SPLIT2
.
105      OFF6

```

```

110 . . . . . OFF7
115 . . . . . CP5.....
118 . . . . . OFF2
126 . . . . . .<----- CIM2
124 . . . . . CIM2
127 . . . . . CP6.....
132 . . . . . -----> CIM3
130 . . . . . SPLIT3
135 . . . . . OFF8
141 . . . . . CP7.....
144 . . . . . OFF9
148 . . . . . CP8.....
153 . . . . . -----> BUFF1
151 . . . . . DIV3E123
156 . . . . . CP9.....
161 . . . . . .<----- BUFF1
159 . . . . . BUFF1
164 . . . . . -----> BUFF2
162 . . . . . SPLIT4
167 . . . . . OFF11
172 . . . . . CP10.....
175 . . . . . OFF10
180 . . . . . OFF12
185 . . . . . ON-1
190 . . . . . OFF-13
195 . . . . . CP11.....
198 . . . . . V
      . . . . . V
      . . . . . ELKBASIN

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
*   JAN 1997
*   VERSION 4.1
*
* RUN DATE 26APR09 TIME 13:08:48
*

```

```

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

```

```
*****
*
*-----*
*      ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN      *
*      CITY OF LAS VEGAS                                  *
*      EXISTING CONDITIONS                                  *
*-----*
*
*      CLIENT-----CITY OF LAS VEGAS                      *
*      RETURN PERIOD-----100-YEAR                        *
*      DISTRIBUTUION-----6-HOUR SDN3                     *
*      PROJECT NO-----31678A                             *
*      FILENAME-----EI-100.DAT                           *
*      REV. DATE-----11/25/08                            *
*-----*
*
*      AREA      DARF
*      (sq.mi.)
*      0.00-0.50  1.000
*      0.50-0.75  0.975
*      0.75-1.00  0.970
*
*      MODELED BY: Parsons Brinckerhoff
*-----*
*****
```

31 IO

OUTPUT CONTROL VARIABLES

```
IPRNT      5  PRINT CONTROL
IPLOT      0  PLOT CONTROL
QSCAL      0.  HYDROGRAPH PLOT SCALE
```

IT

HYDROGRAPH TIME DATA

```
NMIN      5  MINUTES IN COMPUTATION INTERVAL
IDATE      1  0  STARTING DATE
ITIME     0000 STARTING TIME
NQ        300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE     2  0  ENDING DATE
NDTIME     0055 ENDING TIME
ICENT      19  CENTURY MARK
```

```
COMPUTATION INTERVAL  .08 HOURS
TOTAL TIME BASE      24.92 HOURS
```

ENGLISH UNITS

```
DRAINAGE AREA      SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION  FEET
FLOW               CUBIC FEET PER SECOND
STORAGE VOLUME     ACRE-FEET
SURFACE AREA       ACRES
TEMPERATURE        DEGREES FAHRENHEIT
```

JP

MULTI-PLAN OPTION

```
NPLAN      1  NUMBER OF PLANS
```

JR

MULTI-RATIO OPTION

```
RATIOS OF PRECIPITATION
1.00      .98      .97
```

*** **

198 KK

```
*****
*      *
*      ELKBASIN
*      *
*****
```

210 KO

OUTPUT CONTROL VARIABLES

IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

203 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X .00 WORKING R AND D COEFFICIENT

204 SV STORAGE .0 .1 .4 1.4 3.2 5.7 8.6 11.8 15.3 19.0
22.9 27.0 31.3 35.8 40.5 45.4 50.6 52.7

206 SE ELEVATION 2386.00 2387.00 2388.00 2389.00 2390.00 2391.00 2392.00 2393.00 2394.00 2395.00
2396.00 2397.00 2398.00 2399.00 2400.00 2401.00 2402.00 2402.40

208 SQ DISCHARGE 0. 0. 0. 34. 74. 99. 114. 121. 127. 134.
140. 145. 151. 156. 161. 166. 171. 173.

HYDROGRAPH AT STATION ELKBASIN
PLAN 1, RATIO = 1.00

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	.4	2388.0	*	1	0820	101	4.	.5	2388.1	*	1	1640	201	0.	.4	2388.0			
1	0005	2	0.	.4	2388.0	*	1	0825	102	3.	.5	2388.1	*	1	1645	202	0.	.4	2388.0			
1	0010	3	0.	.4	2388.0	*	1	0830	103	2.	.5	2388.1	*	1	1650	203	0.	.4	2388.0			
1	0015	4	0.	.4	2388.0	*	1	0835	104	2.	.5	2388.1	*	1	1655	204	0.	.4	2388.0			
1	0020	5	0.	.4	2388.0	*	1	0840	105	2.	.5	2388.0	*	1	1700	205	0.	.4	2388.0			
1	0025	6	0.	.4	2388.0	*	1	0845	106	1.	.4	2388.0	*	1	1705	206	0.	.4	2388.0			
1	0030	7	0.	.4	2388.0	*	1	0850	107	1.	.4	2388.0	*	1	1710	207	0.	.4	2388.0			
1	0035	8	0.	.4	2388.0	*	1	0855	108	1.	.4	2388.0	*	1	1715	208	0.	.4	2388.0			
1	0040	9	1.	.4	2388.0	*	1	0900	109	1.	.4	2388.0	*	1	1720	209	0.	.4	2388.0			
1	0045	10	1.	.4	2388.0	*	1	0905	110	0.	.4	2388.0	*	1	1725	210	0.	.4	2388.0			
1	0050	11	1.	.4	2388.0	*	1	0910	111	0.	.4	2388.0	*	1	1730	211	0.	.4	2388.0			
1	0055	12	1.	.4	2388.0	*	1	0915	112	0.	.4	2388.0	*	1	1735	212	0.	.4	2388.0			
1	0100	13	1.	.4	2388.0	*	1	0920	113	0.	.4	2388.0	*	1	1740	213	0.	.4	2388.0			
1	0105	14	1.	.4	2388.0	*	1	0925	114	0.	.4	2388.0	*	1	1745	214	0.	.4	2388.0			
1	0110	15	1.	.4	2388.0	*	1	0930	115	0.	.4	2388.0	*	1	1750	215	0.	.4	2388.0			
1	0115	16	1.	.4	2388.0	*	1	0935	116	0.	.4	2388.0	*	1	1755	216	0.	.4	2388.0			
1	0120	17	1.	.4	2388.0	*	1	0940	117	0.	.4	2388.0	*	1	1800	217	0.	.4	2388.0			
1	0125	18	1.	.4	2388.0	*	1	0945	118	0.	.4	2388.0	*	1	1805	218	0.	.4	2388.0			
1	0130	19	1.	.4	2388.0	*	1	0950	119	0.	.4	2388.0	*	1	1810	219	0.	.4	2388.0			
1	0135	20	2.	.5	2388.1	*	1	0955	120	0.	.4	2388.0	*	1	1815	220	0.	.4	2388.0			
1	0140	21	3.	.5	2388.1	*	1	1000	121	0.	.4	2388.0	*	1	1820	221	0.	.4	2388.0			
1	0145	22	4.	.5	2388.1	*	1	1005	122	0.	.4	2388.0	*	1	1825	222	0.	.4	2388.0			
1	0150	23	5.	.6	2388.1	*	1	1010	123	0.	.4	2388.0	*	1	1830	223	0.	.4	2388.0			
1	0155	24	6.	.6	2388.2	*	1	1015	124	0.	.4	2388.0	*	1	1835	224	0.	.4	2388.0			
1	0200	25	7.	.6	2388.2	*	1	1020	125	0.	.4	2388.0	*	1	1840	225	0.	.4	2388.0			
1	0205	26	7.	.6	2388.2	*	1	1025	126	0.	.4	2388.0	*	1	1845	226	0.	.4	2388.0			
1	0210	27	7.	.6	2388.2	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0			
1	0215	28	7.	.6	2388.2	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0			
1	0220	29	8.	.7	2388.2	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0			
1	0225	30	11.	.7	2388.3	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0			
1	0230	31	13.	.8	2388.4	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0			
1	0235	32	15.	.8	2388.4	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0			
1	0240	33	16.	.9	2388.5	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0			
1	0245	34	18.	.9	2388.5	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0			
1	0250	35	20.	1.0	2388.6	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0			
1	0255	36	21.	1.0	2388.6	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0			
1	0300	37	22.	1.0	2388.6	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0			
1	0305	38	23.	1.1	2388.7	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0			
1	0310	39	27.	1.2	2388.8	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0			
1	0315	40	35.	1.4	2389.0	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0			
1	0320	41	46.	2.0	2389.3	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0			
1	0325	42	67.	2.9	2389.8	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0			
1	0330	43	88.	4.6	2390.6	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0			
1	0335	44	106.	7.0	2391.4	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0			
1	0340	45	117.	9.8	2392.4	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0			
1	0345	46	122.	12.5	2393.2	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0			
1	0350	47	127.	14.9	2393.9	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0			
1	0355	48	130.	16.8	2394.4	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0			
1	0400	49	132.	18.1	2394.8	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0			

1	0405	50	134.	19.0	2395.0	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	134.	19.6	2395.1	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	135.	19.8	2395.2	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	135.	19.8	2395.2	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	134.	19.6	2395.2	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	134.	19.5	2395.1	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	134.	19.3	2395.1	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	134.	19.3	2395.1	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	134.	19.3	2395.1	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	134.	19.4	2395.1	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	134.	19.4	2395.1	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	134.	19.4	2395.1	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	134.	19.4	2395.1	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	134.	19.1	2395.0	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	133.	18.8	2394.9	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	132.	18.3	2394.8	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	131.	17.7	2394.7	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	130.	17.1	2394.5	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	129.	16.4	2394.3	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	128.	15.7	2394.1	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	127.	15.0	2393.9	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	125.	14.2	2393.7	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	124.	13.5	2393.5	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	123.	12.7	2393.3	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	121.	12.0	2393.0	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	120.	11.2	2392.8	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	118.	10.4	2392.6	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	116.	9.7	2392.3	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	115.	8.9	2392.1	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	112.	8.1	2391.9	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	108.	7.4	2391.6	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	104.	6.7	2391.3	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	100.	6.0	2391.1	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	95.	5.3	2390.8	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	88.	4.7	2390.6	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	83.	4.1	2390.3	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	77.	3.6	2390.1	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	70.	3.0	2389.9	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	60.	2.6	2389.7	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	52.	2.2	2389.4	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	44.	1.9	2389.3	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	38.	1.6	2389.1	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	32.	1.4	2388.9	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	26.	1.2	2388.7	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	20.	1.0	2388.6	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	16.	.9	2388.5	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	13.	.8	2388.4	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	10.	.7	2388.3	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	8.	.6	2388.2	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	6.	.6	2388.2	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	5.	.6	2388.1	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	135.	84.	21.	21.	21.
		(INCHES)	1.201	1.215	1.215
		(AC-FT)	42.	42.	42.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	20.	9.	3.	2.	2.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	2395.21	2391.66	2388.92	2388.89	2388.89

CUMULATIVE AREA = .65 SQ MI

HYDROGRAPH AT STATION ELKBASIN
PLAN 1, RATIO = .98

						*							*							*		
DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE		
1		0000	1	0.	.4	2388.0	*	1		0820	101	3.	.5	2388.1	*	1		1640	201	0.	.4	2388.0
1		0005	2	0.	.4	2388.0	*	1		0825	102	2.	.5	2388.1	*	1		1645	202	0.	.4	2388.0
1		0010	3	0.	.4	2388.0	*	1		0830	103	2.	.5	2388.1	*	1		1650	203	0.	.4	2388.0
1		0015	4	0.	.4	2388.0	*	1		0835	104	1.	.5	2388.0	*	1		1655	204	0.	.4	2388.0
1		0020	5	0.	.4	2388.0	*	1		0840	105	1.	.4	2388.0	*	1		1700	205	0.	.4	2388.0
1		0025	6	0.	.4	2388.0	*	1		0845	106	1.	.4	2388.0	*	1		1705	206	0.	.4	2388.0
1		0030	7	0.	.4	2388.0	*	1		0850	107	1.	.4	2388.0	*	1		1710	207	0.	.4	2388.0
1		0035	8	0.	.4	2388.0	*	1		0855	108	1.	.4	2388.0	*	1		1715	208	0.	.4	2388.0
1		0040	9	1.	.4	2388.0	*	1		0900	109	0.	.4	2388.0	*	1		1720	209	0.	.4	2388.0
1		0045	10	1.	.4	2388.0	*	1		0905	110	0.	.4	2388.0	*	1		1725	210	0.	.4	2388.0
1		0050	11	1.	.4	2388.0	*	1		0910	111	0.	.4	2388.0	*	1		1730	211	0.	.4	2388.0
1		0055	12	1.	.4	2388.0	*	1		0915	112	0.	.4	2388.0	*	1		1735	212	0.	.4	2388.0
1		0100	13	1.	.4	2388.0	*	1		0920	113	0.	.4	2388.0	*	1		1740	213	0.	.4	2388.0
1		0105	14	0.	.4	2388.0	*	1		0925	114	0.	.4	2388.0	*	1		1745	214	0.	.4	2388.0
1		0110	15	0.	.4	2388.0	*	1		0930	115	0.	.4	2388.0	*	1		1750	215	0.	.4	2388.0
1		0115	16	1.	.4	2388.0	*	1		0935	116	0.	.4	2388.0	*	1		1755	216	0.	.4	2388.0
1		0120	17	1.	.4	2388.0	*	1		0940	117	0.	.4	2388.0	*	1		1800	217	0.	.4	2388.0
1		0125	18	1.	.4	2388.0	*	1		0945	118	0.	.4	2388.0	*	1		1805	218	0.	.4	2388.0
1		0130	19	1.	.4	2388.0	*	1		0950	119	0.	.4	2388.0	*	1		1810	219	0.	.4	2388.0
1		0135	20	2.	.5	2388.0	*	1		0955	120	0.	.4	2388.0	*	1		1815	220	0.	.4	2388.0
1		0140	21	2.	.5	2388.1	*	1		1000	121	0.	.4	2388.0	*	1		1820	221	0.	.4	2388.0
1		0145	22	3.	.5	2388.1	*	1		1005	122	0.	.4	2388.0	*	1		1825	222	0.	.4	2388.0
1		0150	23	4.	.5	2388.1	*	1		1010	123	0.	.4	2388.0	*	1		1830	223	0.	.4	2388.0
1		0155	24	5.	.6	2388.2	*	1		1015	124	0.	.4	2388.0	*	1		1835	224	0.	.4	2388.0
1		0200	25	6.	.6	2388.2	*	1		1020	125	0.	.4	2388.0	*	1		1840	225	0.	.4	2388.0
1		0205	26	6.	.6	2388.2	*	1		1025	126	0.	.4	2388.0	*	1		1845	226	0.	.4	2388.0
1		0210	27	6.	.6	2388.2	*	1		1030	127	0.	.4	2388.0	*	1		1850	227	0.	.4	2388.0
1		0215	28	6.	.6	2388.2	*	1		1035	128	0.	.4	2388.0	*	1		1855	228	0.	.4	2388.0
1		0220	29	8.	.6	2388.2	*	1		1040	129	0.	.4	2388.0	*	1		1900	229	0.	.4	2388.0
1		0225	30	10.	.7	2388.3	*	1		1045	130	0.	.4	2388.0	*	1		1905	230	0.	.4	2388.0
1		0230	31	12.	.8	2388.3	*	1		1050	131	0.	.4	2388.0	*	1		1910	231	0.	.4	2388.0
1		0235	32	14.	.8	2388.4	*	1		1055	132	0.	.4	2388.0	*	1		1915	232	0.	.4	2388.0
1		0240	33	15.	.9	2388.4	*	1		1100	133	0.	.4	2388.0	*	1		1920	233	0.	.4	2388.0
1		0245	34	17.	.9	2388.5	*	1		1105	134	0.	.4	2388.0	*	1		1925	234	0.	.4	2388.0
1		0250	35	18.	.9	2388.5	*	1		1110	135	0.	.4	2388.0	*	1		1930	235	0.	.4	2388.0
1		0255	36	19.	1.0	2388.6	*	1		1115	136	0.	.4	2388.0	*	1		1935	236	0.	.4	2388.0
1		0300	37	20.	1.0	2388.6	*	1		1120	137	0.	.4	2388.0	*	1		1940	237	0.	.4	2388.0
1		0305	38	21.	1.0	2388.6	*	1		1125	138	0.	.4	2388.0	*	1		1945	238	0.	.4	2388.0
1		0310	39	25.	1.1	2388.7	*	1		1130	139	0.	.4	2388.0	*	1		1950	239	0.	.4	2388.0
1		0315	40	33.	1.4	2389.0	*	1		1135	140	0.	.4	2388.0	*	1		1955	240	0.	.4	2388.0
1		0320	41	44.	1.9	2389.2	*	1		1140	141	0.	.4	2388.0	*	1		2000	241	0.	.4	2388.0
1		0325	42	64.	2.8	2389.8	*	1		1145	142	0.	.4	2388.0	*	1		2005	242	0.	.4	2388.0
1		0330	43	85.	4.4	2390.5	*	1		1150	143	0.	.4	2388.0	*	1		2010	243	0.	.4	2388.0
1		0335	44	104.	6.6	2391.3	*	1		1155	144	0.	.4	2388.0	*	1		2015	244	0.	.4	2388.0
1		0340	45	116.	9.3	2392.2	*	1		1200	145	0.	.4	2388.0	*	1		2020	245	0.	.4	2388.0
1		0345	46	121.	11.9	2393.0	*	1		1205	146	0.	.4	2388.0	*	1		2025	246	0.	.4	2388.0
1		0350	47	125.	14.2	2393.7	*	1		1210	147	0.	.4	2388.0	*	1		2030	247	0.	.4	2388.0
1		0355	48	128.	16.0	2394.2	*	1		1215	148	0.	.4	2388.0	*	1		2035	248	0.	.4	2388.0
1		0400	49	131.	17.2	2394.5	*	1		1220	149	0.	.4	2388.0	*	1		2040	249	0.	.4	2388.0
1		0405	50	132.	18.1	2394.7	*	1		1225	150	0.	.4	2388.0	*	1		2045	250	0.	.4	2388.0
1		0410	51	133.	18.6	2394.9	*	1		1230	151	0.	.4	2388.0	*	1		2050	251	0.	.4	2388.0
1		0415	52	133.	18.8	2394.9	*	1		1235	152	0.	.4	2388.0	*	1		2055	252	0.	.4	2388.0
1		0420	53	133.	18.7	2394.9	*	1		1240	153	0.	.4	2388.0	*	1		2100	253	0.	.4	2388.0
1		0425	54	133.	18.6	2394.9	*	1		1245	154	0.	.4	2388.0	*	1		2105	254	0.	.4	2388.0
1		0430	55	132.	18.4	2394.8	*	1		1250	155	0.	.4	2388.0	*	1		2110	255	0.	.4	2388.0
1		0435	56	132.	18.2	2394.8	*	1		1255	156	0.	.4	2388.0	*	1		2115	256	0.	.4	2388.0
1		0440	57	132.	18.2	2394.8	*	1		1300	157	0.	.4	2388.0	*	1		2120	257	0.	.4	2388.0
1		0445	58	132.	18.2	2394.8	*	1		1305	158	0.	.4	2388.0	*	1		2125	258	0.	.4	2388.0
1		0450	59	132.	18.2	2394.8	*	1		1310	159	0.	.4	2388.0	*	1		2130	259	0.	.4	2388.0
1		0455	60	132.	18.2	2394.8	*	1		1315	160	0.	.4	2388.0	*	1		2135	260	0.	.4	2388.0
1		0500	61	132.	18.2	2394.8	*	1		1320	161	0.	.4	2388.0	*	1		2140	261	0.	.4	2388.0
1		0505	62	132.	18.1	2394.8	*	1		1325	162	0.	.4	2388.0	*	1		2145	262	0.	.4	2388.0
1		0510	63	132.	17.9	2394.7	*	1		1330	163	0.	.4	2388.0	*	1		2150	263	0.	.4	2388.0
1		0515	64	131.	17.6	2394.6	*	1		1335	164	0.	.4	2388.0	*	1		2155	264	0.	.4	2388.0
1		0520	65	130.	17.1	2394.5	*	1		1340	165	0.	.4	2388.0	*	1		2200	265	0.	.4	2388.0
1		0525	66	129.	16.5	2394.3	*	1		1345	166	0.	.4	2388.0	*	1		2205	266	0.	.4	2388.0
1		0530	67	128.	15.9	2394.2	*	1		1350	167	0.	.4	2388.0	*	1		2210	267	0.	.4	2388.0
1		0535	68	127.	15.2	2394.0	*	1		1355	168	0.	.4	2388.0	*	1		2215	268	0.	.4	2388.0
1		0540	69	126.	14.5	2393.8	*	1		1400	169	0.	.4	2388.0	*	1		2220	269	0.	.4	2388.0
1		0545	70	124.	13.7	2393.6	*	1		1405	170	0.	.4	2388.0	*	1		2225	270	0.	.4	2388.0
1		0550	71	123.	13.0	2393.3	*	1		1410	171	0.	.4	2388.0	*	1		2230	271	0.	.4	2388.0
1		0555	72	122.	12.3	2393.1	*	1		1415	172	0.	.4	2388.0	*	1		2235	272	0.	.4	2388.0
1		0600	73	120.	11.5	2392.9	*	1		1420	173	0.	.4	2388.0	*	1		2240	273	0.	.4	2388.0
1		0605	74	119.																		

1	0630	79	106.	7.1	2391.5	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	102.	6.4	2391.2	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	99.	5.7	2391.0	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	92.	5.1	2390.7	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	86.	4.4	2390.5	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	80.	3.9	2390.3	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	75.	3.3	2390.0	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	66.	2.9	2389.8	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	56.	2.4	2389.6	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	49.	2.1	2389.4	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	42.	1.8	2389.2	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	36.	1.5	2389.0	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	29.	1.3	2388.9	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	23.	1.1	2388.7	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	18.	.9	2388.5	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	14.	.8	2388.4	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	11.	.7	2388.3	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	9.	.7	2388.3	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	7.	.6	2388.2	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	6.	.6	2388.2	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	4.	.5	2388.1	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	4.	.5	2388.1	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
+	(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	133.	4.25	81.	20.	20.	20.
		(INCHES)	1.153	1.164	1.164	1.164
		(AC-FT)	40.	41.	41.	41.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
+	(AC-FT)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	19.	4.25	8.	2.	2.	2.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
+	(FEET)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	2394.94	4.25	2391.44	2388.86	2388.83	2388.83

CUMULATIVE AREA = .65 SQ MI

HYDROGRAPH AT STATION ELKBASIN PLAN 1, RATIO = .97

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	.4	2388.0	*	1	0820	101	3.	.5	2388.1	*	1	1640	201	0.	.4	2388.0			
1	0005	2	0.	.4	2388.0	*	1	0825	102	2.	.5	2388.1	*	1	1645	202	0.	.4	2388.0			
1	0010	3	0.	.4	2388.0	*	1	0830	103	2.	.5	2388.0	*	1	1650	203	0.	.4	2388.0			
1	0015	4	0.	.4	2388.0	*	1	0835	104	1.	.4	2388.0	*	1	1655	204	0.	.4	2388.0			
1	0020	5	0.	.4	2388.0	*	1	0840	105	1.	.4	2388.0	*	1	1700	205	0.	.4	2388.0			
1	0025	6	0.	.4	2388.0	*	1	0845	106	1.	.4	2388.0	*	1	1705	206	0.	.4	2388.0			
1	0030	7	0.	.4	2388.0	*	1	0850	107	1.	.4	2388.0	*	1	1710	207	0.	.4	2388.0			
1	0035	8	0.	.4	2388.0	*	1	0855	108	0.	.4	2388.0	*	1	1715	208	0.	.4	2388.0			
1	0040	9	0.	.4	2388.0	*	1	0900	109	0.	.4	2388.0	*	1	1720	209	0.	.4	2388.0			
1	0045	10	1.	.4	2388.0	*	1	0905	110	0.	.4	2388.0	*	1	1725	210	0.	.4	2388.0			
1	0050	11	1.	.4	2388.0	*	1	0910	111	0.	.4	2388.0	*	1	1730	211	0.	.4	2388.0			
1	0055	12	1.	.4	2388.0	*	1	0915	112	0.	.4	2388.0	*	1	1735	212	0.	.4	2388.0			
1	0100	13	1.	.4	2388.0	*	1	0920	113	0.	.4	2388.0	*	1	1740	213	0.	.4	2388.0			
1	0105	14	0.	.4	2388.0	*	1	0925	114	0.	.4	2388.0	*	1	1745	214	0.	.4	2388.0			
1	0110	15	0.	.4	2388.0	*	1	0930	115	0.	.4	2388.0	*	1	1750	215	0.	.4	2388.0			
1	0115	16	1.	.4	2388.0	*	1	0935	116	0.	.4	2388.0	*	1	1755	216	0.	.4	2388.0			
1	0120	17	1.	.4	2388.0	*	1	0940	117	0.	.4	2388.0	*	1	1800	217	0.	.4	2388.0			
1	0125	18	1.	.4	2388.0	*	1	0945	118	0.	.4	2388.0	*	1	1805	218	0.	.4	2388.0			
1	0130	19	1.	.4	2388.0	*	1	0950	119	0.	.4	2388.0	*	1	1810	219	0.	.4	2388.0			
1	0135	20	2.	.5	2388.0	*	1	0955	120	0.	.4	2388.0	*	1	1815	220	0.	.4	2388.0			
1	0140	21	2.	.5	2388.1	*	1	1000	121	0.	.4	2388.0	*	1	1820	221	0.	.4	2388.0			
1	0145	22	3.	.5	2388.1	*	1	1005	122	0.	.4	2388.0	*	1	1825	222	0.	.4	2388.0			
1	0150	23	4.	.5	2388.1	*	1	1010	123	0.	.4	2388.0	*	1	1830	223	0.	.4	2388.0			
1	0155	24	5.	.6	2388.1	*	1	1015	124	0.	.4	2388.0	*	1	1835	224	0.	.4	2388.0			
1	0200	25	6.	.6	2388.2	*	1	1020	125	0.	.4	2388.0	*	1	1840	225	0.	.4	2388.0			
1	0205	26	6.	.6	2388.2	*	1	1025	126	0.	.4	2388.0	*	1	1845	226	0.	.4	2388.0			

1	0210	27	6.	.6	2388.2	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0
1	0215	28	6.	.6	2388.2	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0
1	0220	29	7.	.6	2388.2	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0
1	0225	30	9.	.7	2388.3	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0
1	0230	31	11.	.7	2388.3	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0
1	0235	32	13.	.8	2388.4	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0
1	0240	33	15.	.8	2388.4	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0
1	0245	34	16.	.9	2388.5	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0
1	0250	35	18.	.9	2388.5	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0
1	0255	36	19.	1.0	2388.6	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0
1	0300	37	20.	1.0	2388.6	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0
1	0305	38	21.	1.0	2388.6	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0
1	0310	39	24.	1.1	2388.7	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0
1	0315	40	32.	1.4	2388.9	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0
1	0320	41	44.	1.8	2389.2	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0
1	0325	42	64.	2.8	2389.7	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0
1	0330	43	85.	4.3	2390.4	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0
1	0335	44	103.	6.6	2391.3	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0
1	0340	45	115.	9.2	2392.2	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0
1	0345	46	121.	11.8	2393.0	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0
1	0350	47	125.	14.0	2393.6	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0
1	0355	48	128.	15.8	2394.1	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0
1	0400	49	130.	17.0	2394.5	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0
1	0405	50	132.	17.9	2394.7	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	132.	18.4	2394.8	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	133.	18.6	2394.9	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	133.	18.5	2394.9	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	132.	18.3	2394.8	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	132.	18.1	2394.8	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	132.	18.0	2394.7	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	132.	17.9	2394.7	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	132.	17.9	2394.7	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	132.	18.0	2394.7	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	132.	18.0	2394.7	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	132.	18.0	2394.7	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	132.	17.9	2394.7	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	131.	17.7	2394.6	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	131.	17.3	2394.5	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	130.	16.8	2394.4	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	129.	16.3	2394.3	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	128.	15.6	2394.1	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	127.	14.9	2393.9	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	125.	14.2	2393.7	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	124.	13.5	2393.5	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	123.	12.8	2393.3	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	121.	12.0	2393.1	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	120.	11.3	2392.9	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	118.	10.6	2392.6	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	117.	9.8	2392.4	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	115.	9.1	2392.2	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	113.	8.4	2391.9	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	109.	7.6	2391.7	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	105.	6.9	2391.4	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	101.	6.2	2391.2	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	97.	5.5	2390.9	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	90.	4.9	2390.7	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	84.	4.3	2390.4	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	79.	3.7	2390.2	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	73.	3.2	2390.0	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	63.	2.7	2389.7	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	54.	2.3	2389.5	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	47.	2.0	2389.3	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	40.	1.7	2389.2	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	34.	1.4	2389.0	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	27.	1.2	2388.8	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	22.	1.0	2388.6	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	17.	.9	2388.5	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	14.	.8	2388.4	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	11.	.7	2388.3	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	8.	.7	2388.2	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	7.	.6	2388.2	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	5.	.6	2388.2	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	4.	.5	2388.1	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	3.	.5	2388.1	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW				
+	(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR
			(CFS)			

+	133.	4.25	(INCHES)	80.	20.	20.	20.
			(AC-FT)	1.144	1.154	1.154	1.154
				40.	40.	40.	40.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE
		6-HR	24-HR 72-HR 24.92-HR
+	(AC-FT)	(HR)	
	19.	4.25	8. 2. 2. 2.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE
		6-HR	24-HR 72-HR 24.92-HR
+	(FEET)	(HR)	
	2394.88	4.25	2391.39 2388.85 2388.82 2388.82

CUMULATIVE AREA = .65 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
 FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
 TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION		
					RATIO 1	RATIO 2	RATIO 3
					1.00	.98	.97
HYDROGRAPH AT							
+	OFF1	.22	1	FLOW	216.	208.	207.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	FDI12	.22	1	FLOW	93.	90.	89.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	DIV1FD	.22	1	FLOW	123.	119.	118.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	CIM1	.22	1	FLOW	54.	52.	52.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT1	.22	1	FLOW	69.	67.	66.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	FDI345	.22	1	FLOW	56.	54.	54.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	DIV2FD	.22	1	FLOW	13.	12.	12.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF4	.03	1	FLOW	34.	32.	32.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	CP1	.26	1	FLOW	43.	41.	41.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	FDI12	.00	1	FLOW	93.	90.	89.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	FDI345	.00	1	FLOW	56.	54.	54.
				TIME	3.75	3.75	3.75
2 COMBINED AT							
+	CP2	.00	1	FLOW	150.	144.	143.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF5	.07	1	FLOW	60.	58.	57.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OPF3	.17	1	FLOW	141.	134.	133.

				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	CIM1	.00	1	FLOW	54.	52.	52.
				TIME	3.75	3.75	3.75
2 COMBINED AT							
+	CP4	.17	1	FLOW	191.	183.	181.
				TIME	3.67	3.67	3.67
DIVERSION TO							
+	CIM2	.17	1	FLOW	77.	74.	73.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	SPLIT2	.17	1	FLOW	114.	109.	108.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF6	.03	1	FLOW	25.	24.	24.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF7	.07	1	FLOW	59.	57.	56.
				TIME	3.67	3.67	3.67
3 COMBINED AT							
+	CP5	.26	1	FLOW	199.	190.	189.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF2	.18	1	FLOW	170.	164.	163.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	CIM2	.00	1	FLOW	77.	74.	73.
				TIME	3.67	3.67	3.67
2 COMBINED AT							
+	CP6	.18	1	FLOW	247.	237.	235.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	CIM3	.18	1	FLOW	75.	72.	71.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT3	.18	1	FLOW	172.	165.	164.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF8	.03	1	FLOW	31.	29.	29.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	CP7	.21	1	FLOW	189.	182.	180.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF9	.03	1	FLOW	28.	27.	27.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	CP8	.24	1	FLOW	211.	202.	201.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	BUFF1	.24	1	FLOW	56.	54.	53.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	DIV3E123	.24	1	FLOW	155.	149.	147.
				TIME	3.75	3.75	3.75
2 COMBINED AT							
+	CP9	.50	1	FLOW	353.	338.	336.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	BUFF1	.00	1	FLOW	56.	54.	53.
				TIME	3.75	3.75	3.75

DIVERSION TO							
+	BUFF2	.00	1	FLOW	25.	24.	24.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT4	.00	1	FLOW	31.	30.	30.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF11	.07	1	FLOW	59.	57.	56.
				TIME	3.67	3.67	3.67
2 COMBINED AT							
+	CP10	.07	1	FLOW	90.	86.	86.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF10	.03	1	FLOW	30.	29.	28.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF12	.02	1	FLOW	26.	25.	25.
				TIME	3.50	3.50	3.50
HYDROGRAPH AT							
+	ON-1	.02	1	FLOW	21.	20.	20.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	OFF-13	.02	1	FLOW	22.	21.	21.
				TIME	3.67	3.67	3.67
6 COMBINED AT							
+	CP11	.65	1	FLOW	533.	511.	506.
				TIME	3.67	3.67	3.67
ROUTED TO							
+	ELKBASIN	.65	1	FLOW	135.	133.	133.
				TIME	4.25	4.25	4.25

** PEAK STAGES IN FEET **

1	STAGE	2395.21	2394.94	2394.88
	TIME	4.25	4.25	4.25

*** NORMAL END OF HEC-1 ***

Proposed HEC-1 Calculations
10 Year

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JAN 1997
* VERSION 4.1
*
* RUN DATE 03FEB09 TIME 11:23:39
*
*****

```

```

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

```

```

X X XXXXXX XXXX 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 XXXXXX XXXX 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 *****
2 ID *
3 ID *
4 ID * ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN
5 ID * CITY OF LAS VEGAS
6 ID * PROPOSED CONDITIONS
7 ID *
8 ID *
9 ID *
10 ID *
11 ID * CLIENT-----CITY OF LAS VEGAS
12 ID * RETURN PERIOD-----10-YEAR
13 ID * DISTRIBUTUION-----6-HOUR SDN3
14 ID * PROJECT NO-----31678A
15 ID * FILENAME-----PI-10.DAT
16 ID * REV. DATE-----2/3/09
17 ID *
18 ID *
19 ID *
20 ID * AREA DARF
21 ID * (sq.mi.)
22 ID * 0.00-0.50 1.000
23 ID * 0.50-0.75 0.975
24 ID * 0.75-1.00 0.970
25 ID *
26 ID * MODELED BY: Parsons Brinckerhoff
27 ID *****
28 ID
29 ID
30 IT 5 0 0 300
31 IO 5 0 0
32 IN 5 0 0
33 JR PREC 1.00 0.975 0.970
*
34 KK OFF1
35 BA 0.2249
36 PB 1.59
37 PC 0.000 0.020 0.057 0.070 0.087 0.108 0.124 0.130 0.130 0.130
38 PC 0.130 0.130 0.130 0.133 0.140 0.142 0.148 0.158 0.172 0.181
39 PC 0.190 0.197 0.199 0.200 0.201 0.204 0.214 0.229 0.241 0.249

```


93 UD 0.225
 *
 94 KK CP3
 95 KM COMBINE cp-1,CP-2,OFF-5 AND OFF5A
 96 HC 4
 *
 97 KK OFF3
 98 KM SUBBASIN OFF3
 99 BA 0.165
 100 LS 0 82.00
 101 UD 0.246
 *
 102 KK CIM1
 103 KM RECALL FLOW SPLIT AT CIMMARON AND FARM ROAD ON CIMARRON ROAD
 104 DR CIM1
 *
 105 KK CP4
 106 KM COMBINE OFF3 AND CIM1
 107 HC 2
 *
 108 KK SPLIT2
 109 KM FLOW SPLIT ON CIMARRON ROAD AND SUNNY SPRINGS LANE
 110 DT CIM2
 111 DI 0 25 50
 112 DQ 0 7.8 17
 *
 113 KK OFF6
 114 KM SUBBASIN OFF6
 115 BA 0.0287
 116 LS 0 82.00
 117 UD 0.223
 *

1

HEC-1 INPUT

PAGE 4

LINE ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
 118 KK OFF7
 119 KM SUBBASIN OFF7
 120 BA 0.0667
 121 LS 0 82.00
 122 UD 0.219
 *
 123 KK CP5
 124 KM COMBINE OFF6,OFF7 AND REMAINING FLOW IN SUNNY SPRINGS LANE AFTER FLOW SPLIT
 125 HC 3
 *
 126 KK OFF2
 127 KM SUBBASIN OFF2
 128 BA 0.1786
 129 PB 1.60
 130 LS 0 87.00
 131 UD 0.343
 *
 132 KK CIM2
 133 KM RECALL FLOW SPLIT AT CIMMARON AND SUNNY SPRINGS LANE ON CIMARRON ROAD
 134 DR CIM2
 *
 135 KK CP6
 136 KM COMBINE OFF2 & CIM2
 137 HC 2
 *
 138 KK SPLIT3
 139 KM FLOW SPLIT ON CIMARRON ROAD AND ELKHORN ROAD
 140 DT CIM3
 141 DI 0 50 82
 142 DQ 0 14.1 23
 *
 143 KK OFF8

144 KM SUBBASIN OFF8
 145 BA 0.0282
 146 PB 1.58
 147 LS 0 82.00
 148 UD 0.106
 *
 149 KK CP7
 150 KM COMBINE OFF8 AND REMAINING FLOW IN ELKHORN ROAD
 151 HC 2
 *

HEC-1 INPUT

PAGE 5

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

152 KK OFF9
 153 BA 0.0285
 154 LS 0 82.00
 155 UD 0.172
 *
 156 KK CP8
 157 KM COMBINE OFF8,OFF9 AND REMAINING FLOW IN ELKHORN ROAD
 158 HC 2
 *

159 KKDIV3E1-6
 160 KM DIVERT BYPASSED FLOW FROM EXISTIGN Dis IN ELKHORN ROAD (6 Dis TOTAL)
 161 DT BUFF1
 162 DI 0 50 73
 163 DQ 0 2.7 4
 *

164 KK CP9
 165 KM COMBINE CP5 AND FLOW INTERCEPTED BY Dis IN ELKHORN ROAD
 166 HC 2
 *

167 KK BUFF1
 168 KM RECALL FLOW BYPASSED BY DROP INLETS IN ELKHORN ROAD
 169 DR BUFF1
 *

170 KK SPLIT4
 171 KM FLOW SPLIT AT ELKHORN ROAD AND BUFFALO DRIVE
 172 DT BUFF2
 173 DI 0 4
 174 DQ 0 3
 *

175 KK OFF11
 176 KM SUBBASIN OFF11
 177 BA 0.0655
 178 LS 0 82.00
 179 UD 0.209
 *

180 KK CP10
 181 KM COMBINE OFF11 AND REMAINING FLOW ON BUFFALO
 182 HC 2
 *

183 KK OFF10
 184 KM SUBBASIN OFF10
 185 BA 0.0334
 186 LS 0 82.00
 187 UD 0.214
 *

HEC-1 INPUT

PAGE 6

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

188 KK OFF12
 189 KM SUBBASIN OFF12
 190 BA 0.0156
 191 LS 0 92.00
 192 UD 0.108
 *


```

94      CP3.....
      .
      .
97      OFF3
      .
      .
104     .<----- CIM1
102     .      CIM1
      .
105     CP4.....
      .
110     .-----> CIM2
108     SPLIT2
      .
113     .      OFF6
      .
118     .      OFF7
      .
123     CP5.....
      .
126     .      OFF2
      .
134     .<----- CIM2
132     .      CIM2
      .
135     CP6.....
      .
140     .-----> CIM3
138     SPLIT3
      .
143     .      OFF8
      .
149     CP7.....
      .
152     .      OFF9
      .
156     CP8.....
      .
161     .-----> BUFF1
159     .      DIV3E1-6
      .
164     CP9.....
      .
169     .<----- BUFF1
167     .      BUFF1
      .
172     .-----> BUFF2
170     .      SPLIT4
      .
175     .      OFF11
      .
180     CP10.....
      .
183     .      OFF10
      .
188     .      OFF12
      .
193     .

```

198 OFF13
 203 CP11.....
 V
 V
 206 ELKBASIN

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

 * FLOOD HYDROGRAPH PACKAGE (HEC-1) *
 * JAN 1997 *
 * VERSION 4.1 *
 * RUN DATE 03FEB09 TIME 11:23:39 *

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

 * ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN *
 * CITY OF LAS VEGAS *
 * PROPOSED CONDITIONS *
 * CLIENT-----CITY OF LAS VEGAS *
 * RETURN PERIOD-----10-YEAR *
 * DISTRIBUTUION-----6-HOUR SDN3 *
 * PROJECT NO-----31678A *
 * FILENAME-----PI-10.DAT *
 * REV. DATE-----2/3/09 *
 * AREA DARF *
 * (sq.mi.) *
 * 0.00-0.50 1.000 *
 * 0.50-0.75 0.975 *
 * 0.75-1.00 0.970 *
 * MODELED BY: Parsons Brinckerhoff *

31 IO OUTPUT CONTROL VARIABLES
 IPRNT 5 PRINT CONTROL
 IPLOT 0 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 IT HYDROGRAPH TIME DATA
 NMIN 5 MINUTES IN COMPUTATION INTERVAL
 IDATE 1 0 STARTING DATE
 ITIME 0000 STARTING TIME
 NQ 300 NUMBER OF HYDROGRAPH ORDINATES
 NDDATE 2 0 ENDING DATE
 NDTIME 0055 ENDING TIME
 ICENT 19 CENTURY MARK
 COMPUTATION INTERVAL .08 HOURS
 TOTAL TIME BASE 24.92 HOURS
 ENGLISH UNITS
 DRAINAGE AREA SQUARE MILES
 PRECIPITATION DEPTH INCHES
 LENGTH, ELEVATION FEET
 FLOW CUBIC FEET PER SECOND
 STORAGE VOLUME ACRE-FEET
 SURFACE AREA ACRES
 TEMPERATURE DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION

NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION
RATIOS OF PRECIPITATION
1.00 .98 .97

*** **

*
206 KK * ELKBASIN *
*

218 KO OUTPUT CONTROL VARIABLES
IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

211 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X .00 WORKING R AND D COEFFICIENT

212 SV	STORAGE	.0	.1	.4	1.4	3.2	5.7	8.6	11.8	15.3	19.0
		22.9	27.0	31.3	35.8	40.5	45.4	50.6	52.7		
214 SE	ELEVATION	2386.00	2387.00	2388.00	2389.00	2390.00	2391.00	2392.00	2393.00	2394.00	2395.00
		2396.00	2397.00	2398.00	2399.00	2400.00	2401.00	2402.00	2402.40		
216 SQ	DISCHARGE	0.	0.	0.	34.	74.	99.	114.	121.	127.	134.
		140.	145.	151.	156.	161.	166.	171.	173.		

HYDROGRAPH AT STATION ELKBASIN PLAN 1, RATIO = 1.00

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	.4	2388.0	*	1	0820	101	0.	.4	2388.0	*	1	1640	201	0.	.4	2388.0	
1	0005	2	0.	.4	2388.0	*	1	0825	102	0.	.4	2388.0	*	1	1645	202	0.	.4	2388.0	
1	0010	3	0.	.4	2388.0	*	1	0830	103	0.	.4	2388.0	*	1	1650	203	0.	.4	2388.0	
1	0015	4	0.	.4	2388.0	*	1	0835	104	0.	.4	2388.0	*	1	1655	204	0.	.4	2388.0	
1	0020	5	0.	.4	2388.0	*	1	0840	105	0.	.4	2388.0	*	1	1700	205	0.	.4	2388.0	
1	0025	6	0.	.4	2388.0	*	1	0845	106	0.	.4	2388.0	*	1	1705	206	0.	.4	2388.0	
1	0030	7	0.	.4	2388.0	*	1	0850	107	0.	.4	2388.0	*	1	1710	207	0.	.4	2388.0	
1	0035	8	0.	.4	2388.0	*	1	0855	108	0.	.4	2388.0	*	1	1715	208	0.	.4	2388.0	
1	0040	9	0.	.4	2388.0	*	1	0900	109	0.	.4	2388.0	*	1	1720	209	0.	.4	2388.0	
1	0045	10	0.	.4	2388.0	*	1	0905	110	0.	.4	2388.0	*	1	1725	210	0.	.4	2388.0	
1	0050	11	0.	.4	2388.0	*	1	0910	111	0.	.4	2388.0	*	1	1730	211	0.	.4	2388.0	
1	0055	12	0.	.4	2388.0	*	1	0915	112	0.	.4	2388.0	*	1	1735	212	0.	.4	2388.0	
1	0100	13	0.	.4	2388.0	*	1	0920	113	0.	.4	2388.0	*	1	1740	213	0.	.4	2388.0	
1	0105	14	0.	.4	2388.0	*	1	0925	114	0.	.4	2388.0	*	1	1745	214	0.	.4	2388.0	
1	0110	15	0.	.4	2388.0	*	1	0930	115	0.	.4	2388.0	*	1	1750	215	0.	.4	2388.0	
1	0115	16	0.	.4	2388.0	*	1	0935	116	0.	.4	2388.0	*	1	1755	216	0.	.4	2388.0	
1	0120	17	0.	.4	2388.0	*	1	0940	117	0.	.4	2388.0	*	1	1800	217	0.	.4	2388.0	
1	0125	18	0.	.4	2388.0	*	1	0945	118	0.	.4	2388.0	*	1	1805	218	0.	.4	2388.0	
1	0130	19	0.	.4	2388.0	*	1	0950	119	0.	.4	2388.0	*	1	1810	219	0.	.4	2388.0	
1	0135	20	0.	.4	2388.0	*	1	0955	120	0.	.4	2388.0	*	1	1815	220	0.	.4	2388.0	
1	0140	21	0.	.4	2388.0	*	1	1000	121	0.	.4	2388.0	*	1	1820	221	0.	.4	2388.0	
1	0145	22	0.	.4	2388.0	*	1	1005	122	0.	.4	2388.0	*	1	1825	222	0.	.4	2388.0	
1	0150	23	0.	.4	2388.0	*	1	1010	123	0.	.4	2388.0	*	1	1830	223	0.	.4	2388.0	
1	0155	24	0.	.4	2388.0	*	1	1015	124	0.	.4	2388.0	*	1	1835	224	0.	.4	2388.0	
1	0200	25	0.	.4	2388.0	*	1	1020	125	0.	.4	2388.0	*	1	1840	225	0.	.4	2388.0	
1	0205	26	0.	.4	2388.0	*	1	1025	126	0.	.4	2388.0	*	1	1845	226	0.	.4	2388.0	
1	0210	27	0.	.4	2388.0	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0	
1	0215	28	0.	.4	2388.0	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0	
1	0220	29	0.	.4	2388.0	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0	
1	0225	30	1.	.4	2388.0	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0	
1	0230	31	1.	.4	2388.0	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0	

1	0235	32	1.	.5	2388.0	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0
1	0240	33	2.	.5	2388.1	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0
1	0245	34	2.	.5	2388.1	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0
1	0250	35	3.	.5	2388.1	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0
1	0255	36	3.	.5	2388.1	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0
1	0300	37	3.	.5	2388.1	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0
1	0305	38	4.	.5	2388.1	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0
1	0310	39	5.	.6	2388.1	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0
1	0315	40	7.	.6	2388.2	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0
1	0320	41	14.	.8	2388.4	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0
1	0325	42	26.	1.2	2388.8	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0
1	0330	43	44.	1.9	2389.3	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0
1	0335	44	67.	2.9	2389.8	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0
1	0340	45	83.	4.2	2390.4	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0
1	0345	46	96.	5.5	2390.9	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0
1	0350	47	103.	6.6	2391.3	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0
1	0355	48	108.	7.5	2391.6	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0
1	0400	49	111.	8.1	2391.8	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0
1	0405	50	113.	8.5	2392.0	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	114.	8.6	2392.0	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	114.	8.6	2392.0	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	113.	8.4	2391.9	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	112.	8.1	2391.9	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	110.	7.9	2391.8	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	109.	7.6	2391.7	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	108.	7.5	2391.6	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	107.	7.3	2391.6	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	107.	7.2	2391.5	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	106.	7.1	2391.5	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	106.	7.0	2391.5	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	105.	6.9	2391.4	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	104.	6.6	2391.3	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	102.	6.3	2391.2	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	100.	5.9	2391.1	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	97.	5.5	2390.9	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	92.	5.0	2390.7	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	87.	4.6	2390.5	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	83.	4.1	2390.4	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	78.	3.7	2390.2	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	74.	3.2	2390.0	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	65.	2.8	2389.8	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	57.	2.5	2389.6	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	51.	2.2	2389.4	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	45.	1.9	2389.3	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	39.	1.6	2389.1	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	34.	1.4	2389.0	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	28.	1.2	2388.8	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	22.	1.1	2388.7	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	18.	.9	2388.5	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	14.	.8	2388.4	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	11.	.7	2388.3	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	9.	.7	2388.3	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	7.	.6	2388.2	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	6.	.6	2388.2	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	5.	.5	2388.1	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	4.	.5	2388.1	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	3.	.5	2388.1	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	2.	.5	2388.1	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	2.	.5	2388.1	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	1.	.5	2388.0	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	1.	.4	2388.0	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	1.	.4	2388.0	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	1.	.4	2388.0	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	1.	.4	2388.0	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	0.	.4	2388.0	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	0.	.4	2388.0	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	0.	.4	2388.0	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	0.	.4	2388.0	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	0.	.4	2388.0	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
+	(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR
+	114.	4.17	47.	12.	11.	11.
		(INCHES)	.444	.445	.445	.445
		(AC-FT)	23.	23.	23.	23.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
--------------	------	--	-------------------------	--	--	--

			6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
	9.	4.17	3.	1.	1.	1.
PEAK	STAGE	TIME				
			6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
	2392.01	4.17	2389.47	2388.37	2388.35	2388.35

CUMULATIVE AREA = .98 SQ MI

HYDROGRAPH AT STATION ELKBASIN
PLAN 1, RATIO = .98

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*
1		0000	1	0.	.4	2388.0	*	1		0820	101	0.	.4	2388.0	*	1		1640	201	0.	.4	2388.0	*
1		0005	2	0.	.4	2388.0	*	1		0825	102	0.	.4	2388.0	*	1		1645	202	0.	.4	2388.0	*
1		0010	3	0.	.4	2388.0	*	1		0830	103	0.	.4	2388.0	*	1		1650	203	0.	.4	2388.0	*
1		0015	4	0.	.4	2388.0	*	1		0835	104	0.	.4	2388.0	*	1		1655	204	0.	.4	2388.0	*
1		0020	5	0.	.4	2388.0	*	1		0840	105	0.	.4	2388.0	*	1		1700	205	0.	.4	2388.0	*
1		0025	6	0.	.4	2388.0	*	1		0845	106	0.	.4	2388.0	*	1		1705	206	0.	.4	2388.0	*
1		0030	7	0.	.4	2388.0	*	1		0850	107	0.	.4	2388.0	*	1		1710	207	0.	.4	2388.0	*
1		0035	8	0.	.4	2388.0	*	1		0855	108	0.	.4	2388.0	*	1		1715	208	0.	.4	2388.0	*
1		0040	9	0.	.4	2388.0	*	1		0900	109	0.	.4	2388.0	*	1		1720	209	0.	.4	2388.0	*
1		0045	10	0.	.4	2388.0	*	1		0905	110	0.	.4	2388.0	*	1		1725	210	0.	.4	2388.0	*
1		0050	11	0.	.4	2388.0	*	1		0910	111	0.	.4	2388.0	*	1		1730	211	0.	.4	2388.0	*
1		0055	12	0.	.4	2388.0	*	1		0915	112	0.	.4	2388.0	*	1		1735	212	0.	.4	2388.0	*
1		0100	13	0.	.4	2388.0	*	1		0920	113	0.	.4	2388.0	*	1		1740	213	0.	.4	2388.0	*
1		0105	14	0.	.4	2388.0	*	1		0925	114	0.	.4	2388.0	*	1		1745	214	0.	.4	2388.0	*
1		0110	15	0.	.4	2388.0	*	1		0930	115	0.	.4	2388.0	*	1		1750	215	0.	.4	2388.0	*
1		0115	16	0.	.4	2388.0	*	1		0935	116	0.	.4	2388.0	*	1		1755	216	0.	.4	2388.0	*
1		0120	17	0.	.4	2388.0	*	1		0940	117	0.	.4	2388.0	*	1		1800	217	0.	.4	2388.0	*
1		0125	18	0.	.4	2388.0	*	1		0945	118	0.	.4	2388.0	*	1		1805	218	0.	.4	2388.0	*
1		0130	19	0.	.4	2388.0	*	1		0950	119	0.	.4	2388.0	*	1		1810	219	0.	.4	2388.0	*
1		0135	20	0.	.4	2388.0	*	1		0955	120	0.	.4	2388.0	*	1		1815	220	0.	.4	2388.0	*
1		0140	21	0.	.4	2388.0	*	1		1000	121	0.	.4	2388.0	*	1		1820	221	0.	.4	2388.0	*
1		0145	22	0.	.4	2388.0	*	1		1005	122	0.	.4	2388.0	*	1		1825	222	0.	.4	2388.0	*
1		0150	23	0.	.4	2388.0	*	1		1010	123	0.	.4	2388.0	*	1		1830	223	0.	.4	2388.0	*
1		0155	24	0.	.4	2388.0	*	1		1015	124	0.	.4	2388.0	*	1		1835	224	0.	.4	2388.0	*
1		0200	25	0.	.4	2388.0	*	1		1020	125	0.	.4	2388.0	*	1		1840	225	0.	.4	2388.0	*
1		0205	26	0.	.4	2388.0	*	1		1025	126	0.	.4	2388.0	*	1		1845	226	0.	.4	2388.0	*
1		0210	27	0.	.4	2388.0	*	1		1030	127	0.	.4	2388.0	*	1		1850	227	0.	.4	2388.0	*
1		0215	28	0.	.4	2388.0	*	1		1035	128	0.	.4	2388.0	*	1		1855	228	0.	.4	2388.0	*
1		0220	29	0.	.4	2388.0	*	1		1040	129	0.	.4	2388.0	*	1		1900	229	0.	.4	2388.0	*
1		0225	30	1.	.4	2388.0	*	1		1045	130	0.	.4	2388.0	*	1		1905	230	0.	.4	2388.0	*
1		0230	31	1.	.4	2388.0	*	1		1050	131	0.	.4	2388.0	*	1		1910	231	0.	.4	2388.0	*
1		0235	32	1.	.4	2388.0	*	1		1055	132	0.	.4	2388.0	*	1		1915	232	0.	.4	2388.0	*
1		0240	33	1.	.5	2388.0	*	1		1100	133	0.	.4	2388.0	*	1		1920	233	0.	.4	2388.0	*
1		0245	34	2.	.5	2388.1	*	1		1105	134	0.	.4	2388.0	*	1		1925	234	0.	.4	2388.0	*
1		0250	35	2.	.5	2388.1	*	1		1110	135	0.	.4	2388.0	*	1		1930	235	0.	.4	2388.0	*
1		0255	36	3.	.5	2388.1	*	1		1115	136	0.	.4	2388.0	*	1		1935	236	0.	.4	2388.0	*
1		0300	37	3.	.5	2388.1	*	1		1120	137	0.	.4	2388.0	*	1		1940	237	0.	.4	2388.0	*
1		0305	38	3.	.5	2388.1	*	1		1125	138	0.	.4	2388.0	*	1		1945	238	0.	.4	2388.0	*
1		0310	39	4.	.5	2388.1	*	1		1130	139	0.	.4	2388.0	*	1		1950	239	0.	.4	2388.0	*
1		0315	40	7.	.6	2388.2	*	1		1135	140	0.	.4	2388.0	*	1		1955	240	0.	.4	2388.0	*
1		0320	41	12.	.8	2388.4	*	1		1140	141	0.	.4	2388.0	*	1		2000	241	0.	.4	2388.0	*
1		0325	42	24.	1.1	2388.7	*	1		1145	142	0.	.4	2388.0	*	1		2005	242	0.	.4	2388.0	*
1		0330	43	42.	1.8	2389.2	*	1		1150	143	0.	.4	2388.0	*	1		2010	243	0.	.4	2388.0	*
1		0335	44	63.	2.7	2389.7	*	1		1155	144	0.	.4	2388.0	*	1		2015	244	0.	.4	2388.0	*
1		0340	45	81.	3.9	2390.3	*	1		1200	145	0.	.4	2388.0	*	1		2020	245	0.	.4	2388.0	*
1		0345	46	93.	5.1	2390.8	*	1		1205	146	0.	.4	2388.0	*	1		2025	246	0.	.4	2388.0	*
1		0350	47	101.	6.2	2391.2	*	1		1210	147	0.	.4	2388.0	*	1		2030	247	0.	.4	2388.0	*
1		0355	48	106.	7.0	2391.5	*	1		1215	148	0.	.4	2388.0	*	1		2035	248	0.	.4	2388.0	*
1		0400	49	109.	7.6	2391.7	*	1		1220	149	0.	.4	2388.0	*	1		2040	249	0.	.4	2388.0	*
1		0405	50	110.	7.9	2391.8	*	1		1225	150	0.	.4	2388.0	*	1		2045	250	0.	.4	2388.0	*
1		0410	51	111.	8.0	2391.8	*	1		1230	151	0.	.4	2388.0	*	1		2050	251	0.	.4	2388.0	*
1		0415	52	111.	8.0	2391.8	*	1		1235	152	0.	.4	2388.0	*	1		2055	252	0.	.4	2388.0	*
1		0420	53	110.	7.8	2391.7	*	1		1240	153	0.	.4	2388.0	*	1		2100	253	0.	.4	2388.0	*
1		0425	54	109.	7.5	2391.6	*	1		1245	154	0.	.4	2388.0	*	1		2105	254	0.	.4	2388.0	*
1		0430	55	107.	7.3	2391.5	*	1		1250	155	0.	.4	2388.0	*	1		2110	255	0.	.4	2388.0	*
1		0435	56	106.	7.0	2391.5	*	1		1255	156	0.	.4	2388.0	*	1		2115	256	0.	.4	2388.0	*
1		0440	57	105.	6.9	2391.4	*	1		1300	157	0.	.4	2388.0	*	1		2120	257	0.	.4	2388.0	*
1		0445	58	104.	6.7	2391.4	*	1		1305	158	0.	.4	2388.0	*	1		2125	258	0.	.4	2388.0	*
1		0450	59	104.	6.6	2391.3	*	1		1310	159	0.	.4	2388.0	*	1		2130	259	0.	.4	2388.0	*
1		0455	60	103.	6.5	2391.3	*	1		1315	160	0.	.4	2388.0	*	1		2135	260	0.	.4	2388.0	*

1	0500	61	102.	6.4	2391.2	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	102.	6.3	2391.2	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	100.	6.0	2391.1	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	99.	5.7	2391.0	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	95.	5.3	2390.9	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	91.	4.9	2390.7	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	87.	4.5	2390.5	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	82.	4.1	2390.3	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	78.	3.6	2390.2	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	73.	3.2	2390.0	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	65.	2.8	2389.8	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	57.	2.5	2389.6	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	51.	2.2	2389.4	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	45.	1.9	2389.3	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	40.	1.7	2389.1	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	35.	1.4	2389.0	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	29.	1.3	2388.8	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	23.	1.1	2388.7	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	19.	1.0	2388.6	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	15.	.9	2388.4	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	12.	.8	2388.4	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	10.	.7	2388.3	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	8.	.6	2388.2	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	6.	.6	2388.2	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	5.	.6	2388.1	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	4.	.5	2388.1	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	3.	.5	2388.1	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	2.	.5	2388.1	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	2.	.5	2388.1	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	2.	.5	2388.0	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	1.	.4	2388.0	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	1.	.4	2388.0	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	1.	.4	2388.0	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	1.	.4	2388.0	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	0.	.4	2388.0	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	0.	.4	2388.0	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	0.	.4	2388.0	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	0.	.4	2388.0	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	0.	.4	2388.0	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	0.	.4	2388.0	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	24.92-HR
111.	4.17	44.	11.	11.	11.
(INCHES)		.421	.422	.422	.422
(AC-FT)		22.	22.	22.	22.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	24.92-HR
8.	4.17	3.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	24.92-HR
2391.81	4.17	2389.37	2388.34	2388.33	2388.33

CUMULATIVE AREA = .98 SQ MI

HYDROGRAPH AT STATION ELKBASIN PLAN 1, RATIO = .97

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	.4	2388.0	*	1	0820	101	0.	.4	2388.0	*	1	1640	201	0.	.4	2388.0	
1	0005	2	0.	.4	2388.0	*	1	0825	102	0.	.4	2388.0	*	1	1645	202	0.	.4	2388.0	
1	0010	3	0.	.4	2388.0	*	1	0830	103	0.	.4	2388.0	*	1	1650	203	0.	.4	2388.0	
1	0015	4	0.	.4	2388.0	*	1	0835	104	0.	.4	2388.0	*	1	1655	204	0.	.4	2388.0	
1	0020	5	0.	.4	2388.0	*	1	0840	105	0.	.4	2388.0	*	1	1700	205	0.	.4	2388.0	
1	0025	6	0.	.4	2388.0	*	1	0845	106	0.	.4	2388.0	*	1	1705	206	0.	.4	2388.0	
1	0030	7	0.	.4	2388.0	*	1	0850	107	0.	.4	2388.0	*	1	1710	207	0.	.4	2388.0	
1	0035	8	0.	.4	2388.0	*	1	0855	108	0.	.4	2388.0	*	1	1715	208	0.	.4	2388.0	

1	0040	9	0.	.4	2388.0	*	1	0900	109	0.	.4	2388.0	*	1	1720	209	0.	.4	2388.0
1	0045	10	0.	.4	2388.0	*	1	0905	110	0.	.4	2388.0	*	1	1725	210	0.	.4	2388.0
1	0050	11	0.	.4	2388.0	*	1	0910	111	0.	.4	2388.0	*	1	1730	211	0.	.4	2388.0
1	0055	12	0.	.4	2388.0	*	1	0915	112	0.	.4	2388.0	*	1	1735	212	0.	.4	2388.0
1	0100	13	0.	.4	2388.0	*	1	0920	113	0.	.4	2388.0	*	1	1740	213	0.	.4	2388.0
1	0105	14	0.	.4	2388.0	*	1	0925	114	0.	.4	2388.0	*	1	1745	214	0.	.4	2388.0
1	0110	15	0.	.4	2388.0	*	1	0930	115	0.	.4	2388.0	*	1	1750	215	0.	.4	2388.0
1	0115	16	0.	.4	2388.0	*	1	0935	116	0.	.4	2388.0	*	1	1755	216	0.	.4	2388.0
1	0120	17	0.	.4	2388.0	*	1	0940	117	0.	.4	2388.0	*	1	1800	217	0.	.4	2388.0
1	0125	18	0.	.4	2388.0	*	1	0945	118	0.	.4	2388.0	*	1	1805	218	0.	.4	2388.0
1	0130	19	0.	.4	2388.0	*	1	0950	119	0.	.4	2388.0	*	1	1810	219	0.	.4	2388.0
1	0135	20	0.	.4	2388.0	*	1	0955	120	0.	.4	2388.0	*	1	1815	220	0.	.4	2388.0
1	0140	21	0.	.4	2388.0	*	1	1000	121	0.	.4	2388.0	*	1	1820	221	0.	.4	2388.0
1	0145	22	0.	.4	2388.0	*	1	1005	122	0.	.4	2388.0	*	1	1825	222	0.	.4	2388.0
1	0150	23	0.	.4	2388.0	*	1	1010	123	0.	.4	2388.0	*	1	1830	223	0.	.4	2388.0
1	0155	24	0.	.4	2388.0	*	1	1015	124	0.	.4	2388.0	*	1	1835	224	0.	.4	2388.0
1	0200	25	0.	.4	2388.0	*	1	1020	125	0.	.4	2388.0	*	1	1840	225	0.	.4	2388.0
1	0205	26	0.	.4	2388.0	*	1	1025	126	0.	.4	2388.0	*	1	1845	226	0.	.4	2388.0
1	0210	27	0.	.4	2388.0	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0
1	0215	28	0.	.4	2388.0	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0
1	0220	29	0.	.4	2388.0	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0
1	0225	30	1.	.4	2388.0	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0
1	0230	31	1.	.4	2388.0	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0
1	0235	32	1.	.4	2388.0	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0
1	0240	33	1.	.5	2388.0	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0
1	0245	34	2.	.5	2388.1	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0
1	0250	35	2.	.5	2388.1	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0
1	0255	36	2.	.5	2388.1	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0
1	0300	37	3.	.5	2388.1	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0
1	0305	38	3.	.5	2388.1	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0
1	0310	39	4.	.5	2388.1	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0
1	0315	40	6.	.6	2388.2	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0
1	0320	41	12.	.8	2388.3	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0
1	0325	42	23.	1.1	2388.7	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0
1	0330	43	41.	1.7	2389.2	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0
1	0335	44	62.	2.7	2389.7	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0
1	0340	45	80.	3.9	2390.3	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0
1	0345	46	92.	5.0	2390.7	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0
1	0350	47	101.	6.1	2391.1	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0
1	0355	48	105.	6.9	2391.4	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0
1	0400	49	108.	7.5	2391.6	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0
1	0405	50	110.	7.8	2391.7	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	110.	7.9	2391.8	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	110.	7.9	2391.8	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	109.	7.7	2391.7	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	108.	7.4	2391.6	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	106.	7.2	2391.5	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	105.	6.9	2391.4	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	104.	6.7	2391.4	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	104.	6.6	2391.3	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	103.	6.5	2391.3	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	102.	6.4	2391.2	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	102.	6.3	2391.2	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	101.	6.1	2391.1	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	100.	5.9	2391.1	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	98.	5.6	2391.0	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	94.	5.2	2390.8	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	90.	4.8	2390.6	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	86.	4.4	2390.5	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	81.	4.0	2390.3	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	77.	3.5	2390.1	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	71.	3.1	2389.9	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	63.	2.7	2389.7	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	56.	2.4	2389.5	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	50.	2.1	2389.4	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	44.	1.9	2389.2	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	39.	1.6	2389.1	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	34.	1.4	2389.0	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	28.	1.2	2388.8	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	23.	1.1	2388.7	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	18.	.9	2388.5	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	15.	.8	2388.4	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	12.	.8	2388.3	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	9.	.7	2388.3	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	8.	.6	2388.2	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	6.	.6	2388.2	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	5.	.5	2388.1	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	4.	.5	2388.1	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	3.	.5	2388.1	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	2.	.5	2388.1	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	2.	.5	2388.1	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0

1	0725	90	1.	.5	2388.0	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	1.	.4	2388.0	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	1.	.4	2388.0	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	1.	.4	2388.0	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	1.	.4	2388.0	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	0.	.4	2388.0	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	0.	.4	2388.0	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	0.	.4	2388.0	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	0.	.4	2388.0	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	0.	.4	2388.0	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	0.	.4	2388.0	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)				
		(CFS)				
+	110.	4.17	44.	11.	11.	11.
		(INCHES)	.417	.417	.417	.417
		(AC-FT)	22.	22.	22.	22.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
	8.	4.17	3.	1.	1.	1.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
	2391.77	4.17	2389.35	2388.34	2388.33	2388.33

CUMULATIVE AREA = .98 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
 FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
 TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION		
					RATIO 1	RATIO 2	RATIO 3
					1.00	.98	.97
HYDROGRAPH AT							
+	OFF1	.22	1	FLOW	83.	79.	78.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	FDI12	.22	1	FLOW	54.	51.	51.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	DIV1FD	.22	1	FLOW	29.	28.	27.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	CIM1	.22	1	FLOW	6.	6.	6.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT1	.22	1	FLOW	23.	22.	22.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	FDI345	.22	1	FLOW	23.	22.	22.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	DIV2FD	.22	1	FLOW	0.	0.	0.
				TIME	.00	.00	.00
HYDROGRAPH AT							
+	OFF4	.03	1	FLOW	11.	10.	10.
				TIME	3.58	3.58	3.58
2 COMBINED AT							
+	CP1	.26	1	FLOW	11.	10.	10.
				TIME	3.58	3.58	3.58

HYDROGRAPH AT	FDI12	.00	1	FLOW	54.	51.	51.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	FDI345	.00	1	FLOW	23.	22.	22.
+				TIME	3.75	3.75	3.75
2 COMBINED AT	CP2	.00	1	FLOW	77.	73.	72.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	OFF5	.03	1	FLOW	10.	9.	9.
+				TIME	3.58	3.58	3.58
HYDROGRAPH AT	OFF5A	.03	1	FLOW	10.	9.	9.
+				TIME	3.67	3.67	3.67
4 COMBINED AT	CP3	.32	1	FLOW	101.	96.	95.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	OFF3	.17	1	FLOW	44.	42.	41.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	CIM1	.00	1	FLOW	6.	6.	6.
+				TIME	3.75	3.75	3.75
2 COMBINED AT	CP4	.17	1	FLOW	50.	47.	47.
+				TIME	3.75	3.75	3.75
DIVERSION TO	CIM2	.17	1	FLOW	17.	16.	16.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	SPLIT2	.17	1	FLOW	33.	31.	31.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	OFF6	.03	1	FLOW	8.	8.	7.
+				TIME	3.67	3.67	3.67
HYDROGRAPH AT	OFF7	.07	1	FLOW	19.	18.	18.
+				TIME	3.67	3.67	3.67
3 COMBINED AT	CP5	.26	1	FLOW	59.	56.	55.
+				TIME	3.67	3.67	3.67
HYDROGRAPH AT	OFF2	.18	1	FLOW	66.	63.	62.
+				TIME	3.83	3.83	3.83
HYDROGRAPH AT	CIM2	.00	1	FLOW	17.	16.	16.
+				TIME	3.75	3.75	3.75
2 COMBINED AT	CP6	.18	1	FLOW	82.	78.	77.
+				TIME	3.75	3.75	3.75
DIVERSION TO	CIM3	.18	1	FLOW	23.	22.	22.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	SPLIT3	.18	1	FLOW	59.	56.	55.
+				TIME	3.75	3.75	3.75
HYDROGRAPH AT	OFF8	.03	1	FLOW	10.	10.	10.
+				TIME	3.58	3.58	3.58
2 COMBINED AT							

+	CP7	.21	1	FLOW TIME	65. 3.75	62. 3.75	61. 3.75
HYDROGRAPH AT							
+	OFF9	.03	1	FLOW TIME	9. 3.58	8. 3.58	8. 3.58
2 COMBINED AT							
+	CP8	.24	1	FLOW TIME	73. 3.75	69. 3.75	68. 3.75
DIVERSION TO							
+	BUFF1	.24	1	FLOW TIME	4. 3.75	4. 3.75	4. 3.75
HYDROGRAPH AT							
+	DIV3E1-6	.24	1	FLOW TIME	69. 3.75	65. 3.75	65. 3.75
2 COMBINED AT							
+	CP9	.50	1	FLOW TIME	128. 3.75	121. 3.75	120. 3.75
HYDROGRAPH AT							
+	BUFF1	.00	1	FLOW TIME	4. 3.75	4. 3.75	4. 3.75
DIVERSION TO							
+	BUFF2	.00	1	FLOW TIME	3. 3.75	3. 3.75	3. 3.75
HYDROGRAPH AT							
+	SPLIT4	.00	1	FLOW TIME	1. 3.75	1. 3.75	1. 3.75
HYDROGRAPH AT							
+	OFF11	.07	1	FLOW TIME	19. 3.67	18. 3.67	18. 3.67
2 COMBINED AT							
+	CP10	.07	1	FLOW TIME	20. 3.67	19. 3.67	18. 3.67
HYDROGRAPH AT							
+	OFF10	.03	1	FLOW TIME	10. 3.67	9. 3.67	9. 3.67
HYDROGRAPH AT							
+	OFF12	.02	1	FLOW TIME	12. 3.50	11. 3.50	11. 3.50
HYDROGRAPH AT							
+	ON-1	.02	1	FLOW TIME	8. 3.67	7. 3.67	7. 3.67
HYDROGRAPH AT							
+	OFF13	.02	1	FLOW TIME	7. 3.67	7. 3.67	7. 3.67
7 COMBINED AT							
+	CP11	.98	1	FLOW TIME	277. 3.75	262. 3.75	259. 3.75
ROUTED TO							
+	ELKBASIN	.98	1	FLOW TIME	114. 4.17	111. 4.17	110. 4.17

** PEAK STAGES IN FEET **

1	STAGE	2392.01	2391.81	2391.77
	TIME	4.17	4.17	4.17

*** NORMAL END OF HEC-1 ***

Proposed HEC-1 Calculations
100 Year

```

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* JAN 1997
* VERSION 4.1
*
* RUN DATE 03FEB09 TIME 11:23:52
*
*****

```

```

*****
*
* 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
XXXXXX XXXX X XXXXX 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 *****
2 ID *
3 ID *
4 ID * ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN
5 ID * CITY OF LAS VEGAS
6 ID * PROPOSED CONDITIONS
7 ID *
8 ID *
9 ID *
10 ID * CLIENT-----CITY OF LAS VEGAS
11 ID * RETURN PERIOD-----100-YEAR
12 ID * DISTRIBUTUION-----6-HOUR SDN3
13 ID * PROJECT NO-----31678A
14 ID * FILENAME-----PI-100.DAT
15 ID * REV. DATE-----2/3/09
16 ID *
17 ID *
18 ID *
19 ID * AREA DARE
20 ID * (sq.mi.)
21 ID * 0.00-0.50 1.000
22 ID * 0.50-0.75 0.975
23 ID * 0.75-1.00 0.970
24 ID *
25 ID * MODELED BY: Parsons Brinckerhoff
26 ID *
27 ID *****
28 ID
29 ID
30 IT 5 0 0 300
31 IO 5 0 0
32 IN 5 0 0
33 JR PREC 1.00 0.975 0.970
*
34 KK OFF1
35 BA 0.2249
36 PB 2.81
37 PC 0.000 0.020 0.057 0.070 0.087 0.108 0.124 0.130 0.130 0.130
38 PC 0.130 0.130 0.130 0.133 0.140 0.142 0.148 0.158 0.172 0.181
39 PC 0.190 0.197 0.199 0.200 0.201 0.204 0.214 0.229 0.241 0.249

```

40	PC	0.251	0.256	0.270	0.278	0.281	0.283	0.295	0.322	0.352	0.409
41	PC	0.499	0.590	0.710	0.744	0.781	0.812	0.819	0.835	0.851	0.856
42	PC	0.860	0.868	0.876	0.888	0.910	0.926	0.937	0.950	0.970	0.976
43	PC	0.982	0.985	0.987	0.989	0.990	0.993	0.993	0.994	0.995	0.998
44	PC	0.998	0.999	1.000							
45	LS	0	87.00								
46	UD	0.332									
	*										

1

HEC-1 INPUT

PAGE 2

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

```

47      KK  DIV1FD
48      KM  DIVERT FLOWS INTO DROP INLETS FDI-1 & FDI-2 LOCATED NWC OF FARM ROAD
49      KM  AND CIMARRON ROAD
50      DT  FDI12
51      DI      0      100      216
52      DQ      0      42.6      93
      *

53      KK  SPLIT1
54      KM  FLOW SPLIT ON CIMARRON ROAD AND FARM ROAD
55      DT  CIM1
56      DI      0      50      123
57      DQ      0      21.6      54
      *

58      KK  DIV2FD
59      KM  DIVERT FLOWS INTO DROP INLETS FDI-3,FDI-4 & FDI-5 LOCATED ON FARM ROAD
60      KM  BETWEEN CIMARRON ROAD & PALM GROVE
61      DT  FDI345
62      DI      0      69
63      DQ      0      57
      *

64      KK  OFF4
65      BA  0.0308
66      PB  2.77
67      LS      0      82.00
68      UD  0.112
      *

69      KK  CP1
70      KM  COMBINE OFF4 AND BY PASS FLOW FROM INLETS ON FARM ROAD
71      HC      2
      *

72      KK  FDI12
73      KM  RECALL FLOW COLLECTED BY EXISTING STORM DRAIN SYSTEM(PLUGGED)ON FARM ROAD
74      KM  WEST OF CIMARRON ROAD
75      DR  FDI12
      *

76      KK  FDI345
77      KM  RECALL FLOW COLLECTED BY EXISTING STORM DRAIN SYSTEM(PLUGGED)ON FARM ROAD
78      KM  BETWEEN CIMARRON ROAD AND PALM GROOVE LANE
79      DR  FDI345
      *

80      KK  CP2
81      KM  COMBINE FDI12 AND FDI345 TO CALCULATED FLOW COLLECTED BY THE EXISTING
82      KM  STORM DRAIN SYSTEM ON FARM ROAD (CURRENTLY PLUGGED)
83      HC      2
      *

```

1

HEC-1 INPUT

PAGE 3

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

```

84      KK  OFF5
85      KM  SUBBASIN OFF5
86      BA  0.0314
87      LS      0      82.00
88      UD  0.167
      *

89      KK  OFF5A
90      KM  SUBBASIN OFF5A
91      BA  0.0347
92      LS      0      82.00

```

93	UD	0.225		
	*			
94	KK	CP3		
95	KM	COMBINE CP-1,CP-2,OFF5 AND OFF5A		
96	HC	4		
	*			
97	KK	OFF3		
98	KM	SUBBASIN OFF3		
99	BA	0.165		
100	LS	0	82.00	
101	UD	0.246		
	*			
102	KK	CIM1		
103	KM	RECALL FLOW SPLIT AT CIMMARON AND FARM ROAD ON CIMARRON ROAD		
104	DR	CIM1		
	*			
105	KK	CP4		
106	KM	COMBINE OFF3 AND CIM1		
107	HC	2		
	*			
108	KK	SPLIT2		
109	KM	FLOW SPLIT ON CIMARRON ROAD AND SUNNY SPRINGS LANE		
110	DT	CIM2		
111	DI	0	100	191
112	DQ	0	40.3	77
	*			
113	KK	OFF6		
114	KM	SUBBASIN OFF6		
115	BA	0.0287		
116	LS	0	82.00	
117	UD	0.223		
	*			

1

HEC-1 INPUT

PAGE 4

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
118	KK OFF7
119	KM SUBBASIN OFF7
120	BA 0.0667
121	LS 0 82.00
122	UD 0.219
	*
123	KK CP5
124	KM COMBINE OFF6,OFF7 AND REMAINING FLOW IN SUNNY SPRINGS LANE AFTER FLOW SPLIT
125	HC 3
	*
126	KK OFF2
127	KM SUBBASIN OFF2
128	BA 0.1786
129	PB 2.83
130	LS 0 87.00
131	UD 0.343
	*
132	KK CIM2
133	KM RECALL FLOW SPLIT AT CIMMARON AND SUNNY SPRINGS LANE ON CIMARRON ROAD
134	DR CIM2
	*
135	KK CP6
136	KM COMBINE OFF2 & CIM2
137	HC 2
	*
138	KK SPLIT3
139	KM FLOW SPLIT ON CIMARRON ROAD AND ELKHORN ROAD
140	DT CIM3
141	DI 0 50 247
142	DQ 0 15.3 75
	*
143	KK OFF8

144 KM SUBBASIN OFF8
145 BA 0.0282
146 PB 2.77
147 LS 0 82.00
148 UD 0.106
*

149 KK CP7
150 KM COMBINE OFF8 AND REMAINING FLOW IN ELKHORN ROAD
151 HC 2
*

HEC-1 INPUT

PAGE 5

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

152 KK OFF9
153 BA 0.0285
154 LS 0 82.00
155 UD 0.172
*

156 KK CP8
157 KM COMBINE OFF8,OFF9 AND REMAINING FLOW IN ELKHORN ROAD
158 HC 2
*

159 KKDIV3E123
160 KM DIVERT BYPASSED FLOWS FROM EXISTING DIS IN ELKHORN ROAD (6 DIS TOTAL)
161 DT BUFF1
162 DI 0 100 211
163 DQ 0 27.8 56
*

164 KK CP9
165 KM COMBINE CP5 AND FLOW INTERCEPTED BY DIS IN ELKHORN ROAD
166 HC 2
*

167 KK BUFF1
168 KM RECALL FLOW BYPASSED BY DROP INLETS IN ELKHORN ROAD
169 DR BUFF1
*

170 KK SPLIT4
171 KM FLOW SPLIT AT ELKHORN ROAD AND BUFFALO DRIVE
172 DT BUFF2
173 DI 0 56
174 DQ 0 25
*

175 KK OFF11
176 KM SUBBASIN OFF11
177 BA 0.0655
178 LS 0 82.00
179 UD 0.209
*

180 KK CP10
181 KM COMBINE OFF11 AND REMAINING FLOW ON BUFFALO
182 HC 2
*

183 KK OFF10
184 KM SUBBASIN OFF10
185 BA 0.0334
186 LS 0 82.00
187 UD 0.214
*

HEC-1 INPUT

PAGE 6

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

188 KK OFF12
189 KM SUBBASIN OFF12
190 BA 0.0156
191 LS 0 92.00
192 UD 0.108
*

193	KK	ON-1									
194	KM	ON SITE SUBBASIN									
195	BA	0.0194									
196	LS	0	85.00								
197	UD	0.191									
	*										
198	KK	OFF-13									
199	KM	SUBBASIN OFF13									
200	BA	0.0241									
201	LS	0	82.00								
202	UD	0.206									
	*										
203	KK	CP11									
204	KM	COMBINE OFF12,OFF-10,CP-10,CP-9,ON-1, AND CP-3									
205	HC	7									
	*										
206		KKELKBASIN									
207	KM	FACILITY = ELKHORN SPRINGS DETENTION BASIN									
208	KM	FACILITY ID-MILE = EKDB 0070									
209	KM	STORAGE VOLUME = 48 ACRE-FEET									
210	KM	OUTLET = 2-27 inch RCPs transition to 60" RCP									
211	RS	1	STOR	-1							
212	SV	0.04	0.07	0.41	1.41	3.24	5.71	8.57	11.8	15.3	19.0
213	SV	22.9	27.0	31.3	35.8	40.5	45.4	50.6	52.7		
214	SE	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395
215	SE	2396	2397	2398	2399	2400	2401	2402	2402.40		
		* Outflow release rate - combine 48-inch debris riser orifice									
		* AND 2-27 inches low level outlet release rate									
216	SQ	0	0	0	34.06	73.87	98.76	114.0	120.8	127.3	133.5
217	SQ	139.5	145.1	150.6	155.9	161.0	165.9	170.7	172.6		
218	KO	1									
	*										
219	ZZ										

1

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
34	OFF1	
	.	
50	----->	FDI12
47	DIV1FD	
	.	
55	----->	CIM1
53	SPLIT1	
	.	
61	----->	FDI345
58	DIV2FD	
	.	
64	OFF4	
	.	
69	CP1.....	
	.	
75	<-----	FDI12
72	FDI12	
	.	
79	<-----	FDI345
76	FDI345	
	.	
80	CP2.....	
	.	
84	OFF5	
	.	
89	OFF5A	
	.	

```

94      CP3.....
97      .      OFF3
104     .      .      .<----- CIM1
102     .      .      CIM1
105     .      .      CP4.....
110     .      .      .-----> CIM2
108     .      SPLIT2
113     .      .      OFF6
118     .      .      .      OFF7
123     .      .      CP5.....
126     .      .      OFF2
134     .      .      .<----- CIM2
132     .      .      .      CIM2
135     .      .      .      CP6.....
140     .      .      .-----> CIM3
138     .      .      SPLIT3
143     .      .      .      OFF8
149     .      .      .      CP7.....
152     .      .      .      OFF9
156     .      .      .      CP8.....
161     .      .      .-----> BUFF1
159     .      .      DIV3E123
164     .      .      CP9.....
169     .      .      .<----- BUFF1
167     .      .      .      BUFF1
172     .      .      .-----> BUFF2
170     .      .      .      SPLIT4
175     .      .      .      OFF11
180     .      .      .      CP10.....
183     .      .      .      OFF10
188     .      .      .      .      OFF12
193     .      .      .      .      .      ON-1

```

198 OFF-13
203 CP11.....
V
V
206 ELKBASIN

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

1*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
* JAN 1997 *
* VERSION 4.1 *
* RUN DATE 03FEB09 TIME 11:23:52 *
*

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

*
* ELKHORN SPRINGS AND BUFFALO DRIVE STORM DRAIN
* CITY OF LAS VEGAS
* PROPOSED CONDITIONS
*
*
* CLIENT-----CITY OF LAS VEGAS
* RETURN PERIOD-----100-YEAR
* DISTRIBUTUION-----6-HOUR SDN3
* PROJECT NO-----31678A
* FILENAME-----PI-100.DAT
* REV. DATE-----2/3/09
*
*
* AREA DARF
* (sq.mi.)
* 0.00-0.50 1.000
* 0.50-0.75 0.975
* 0.75-1.00 0.970
*
* MODELED BY: Parsons Brinckerhoff
*

31 IO OUTPUT CONTROL VARIABLES
IPRNT 5 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

IT HYDROGRAPH TIME DATA
NMIN 5 MINUTES IN COMPUTATION INTERVAL
IDATE 1 0 STARTING DATE
ITIME 0000 STARTING TIME
NQ 300 NUMBER OF HYDROGRAPH ORDINATES
NDDATE 2 0 ENDING DATE
NDTIME 0055 ENDING TIME
ICENT 19 CENTURY MARK

COMPUTATION INTERVAL .08 HOURS
TOTAL TIME BASE 24.92 HOURS

ENGLISH UNITS
DRAINAGE AREA SQUARE MILES
PRECIPITATION DEPTH INCHES
LENGTH, ELEVATION FEET
FLOW CUBIC FEET PER SECOND
STORAGE VOLUME ACRE-Feet
SURFACE AREA ACRES
TEMPERATURE DEGREES FAHRENHEIT

JP MULTI-PLAN OPTION

NPLAN 1 NUMBER OF PLANS

JR MULTI-RATIO OPTION
RATIOS OF PRECIPITATION
1.00 .98 .97

*** **

* *
206 KK * ELKBASIN *
* *

218 KO OUTPUT CONTROL VARIABLES
IPRNT 1 PRINT CONTROL
IPLOT 0 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

211 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC -1.00 INITIAL CONDITION
X .00 WORKING R AND D COEFFICIENT

212 SV	STORAGE	.0	.1	.4	1.4	3.2	5.7	8.6	11.8	15.3	19.0
		22.9	27.0	31.3	35.8	40.5	45.4	50.6	52.7		
214 SE	ELEVATION	2386.00	2387.00	2388.00	2389.00	2390.00	2391.00	2392.00	2393.00	2394.00	2395.00
		2396.00	2397.00	2398.00	2399.00	2400.00	2401.00	2402.00	2402.40		
216 SQ	DISCHARGE	0.	0.	0.	34.	74.	99.	114.	121.	127.	134.
		140.	145.	151.	156.	161.	166.	171.	173.		

HYDROGRAPH AT STATION ELKBASIN
PLAN 1, RATIO = 1.00

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	.4	2388.0	*	1	0820	101	85.	4.3	2390.4	*	1	1640	201	0.	.4	2388.0	
1	0005	2	0.	.4	2388.0	*	1	0825	102	79.	3.8	2390.2	*	1	1645	202	0.	.4	2388.0	
1	0010	3	0.	.4	2388.0	*	1	0830	103	74.	3.2	2390.0	*	1	1650	203	0.	.4	2388.0	
1	0015	4	0.	.4	2388.0	*	1	0835	104	64.	2.8	2389.7	*	1	1655	204	0.	.4	2388.0	
1	0020	5	0.	.4	2388.0	*	1	0840	105	55.	2.4	2389.5	*	1	1700	205	0.	.4	2388.0	
1	0025	6	0.	.4	2388.0	*	1	0845	106	47.	2.0	2389.3	*	1	1705	206	0.	.4	2388.0	
1	0030	7	0.	.4	2388.0	*	1	0850	107	40.	1.7	2389.2	*	1	1710	207	0.	.4	2388.0	
1	0035	8	0.	.4	2388.0	*	1	0855	108	35.	1.4	2389.0	*	1	1715	208	0.	.4	2388.0	
1	0040	9	1.	.4	2388.0	*	1	0900	109	28.	1.2	2388.8	*	1	1720	209	0.	.4	2388.0	
1	0045	10	1.	.4	2388.0	*	1	0905	110	22.	1.1	2388.6	*	1	1725	210	0.	.4	2388.0	
1	0050	11	1.	.4	2388.0	*	1	0910	111	17.	.9	2388.5	*	1	1730	211	0.	.4	2388.0	
1	0055	12	1.	.4	2388.0	*	1	0915	112	14.	.8	2388.4	*	1	1735	212	0.	.4	2388.0	
1	0100	13	1.	.4	2388.0	*	1	0920	113	11.	.7	2388.3	*	1	1740	213	0.	.4	2388.0	
1	0105	14	1.	.4	2388.0	*	1	0925	114	9.	.7	2388.3	*	1	1745	214	0.	.4	2388.0	
1	0110	15	1.	.4	2388.0	*	1	0930	115	7.	.6	2388.2	*	1	1750	215	0.	.4	2388.0	
1	0115	16	1.	.4	2388.0	*	1	0935	116	5.	.6	2388.2	*	1	1755	216	0.	.4	2388.0	
1	0120	17	1.	.4	2388.0	*	1	0940	117	4.	.5	2388.1	*	1	1800	217	0.	.4	2388.0	
1	0125	18	1.	.5	2388.0	*	1	0945	118	3.	.5	2388.1	*	1	1805	218	0.	.4	2388.0	
1	0130	19	2.	.5	2388.1	*	1	0950	119	3.	.5	2388.1	*	1	1810	219	0.	.4	2388.0	
1	0135	20	3.	.5	2388.1	*	1	0955	120	2.	.5	2388.1	*	1	1815	220	0.	.4	2388.0	
1	0140	21	4.	.5	2388.1	*	1	1000	121	2.	.5	2388.0	*	1	1820	221	0.	.4	2388.0	
1	0145	22	6.	.6	2388.2	*	1	1005	122	1.	.4	2388.0	*	1	1825	222	0.	.4	2388.0	
1	0150	23	8.	.6	2388.2	*	1	1010	123	1.	.4	2388.0	*	1	1830	223	0.	.4	2388.0	
1	0155	24	10.	.7	2388.3	*	1	1015	124	1.	.4	2388.0	*	1	1835	224	0.	.4	2388.0	
1	0200	25	11.	.7	2388.3	*	1	1020	125	1.	.4	2388.0	*	1	1840	225	0.	.4	2388.0	
1	0205	26	11.	.7	2388.3	*	1	1025	126	1.	.4	2388.0	*	1	1845	226	0.	.4	2388.0	
1	0210	27	11.	.7	2388.3	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0	
1	0215	28	12.	.8	2388.4	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0	
1	0220	29	14.	.8	2388.4	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0	
1	0225	30	17.	.9	2388.5	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0	
1	0230	31	20.	1.0	2388.6	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0	

1	0235	32	23.	1.1	2388.7	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0
1	0240	33	25.	1.2	2388.7	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0
1	0245	34	28.	1.2	2388.8	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0
1	0250	35	30.	1.3	2388.9	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0
1	0255	36	32.	1.4	2388.9	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0
1	0300	37	33.	1.4	2389.0	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0
1	0305	38	35.	1.4	2389.0	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0
1	0310	39	38.	1.6	2389.1	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0
1	0315	40	46.	2.0	2389.3	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0
1	0320	41	63.	2.8	2389.7	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0
1	0325	42	84.	4.2	2390.4	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0
1	0330	43	104.	6.7	2391.4	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0
1	0335	44	118.	10.3	2392.5	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0
1	0340	45	126.	14.6	2393.8	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0
1	0345	46	133.	18.9	2395.0	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0
1	0350	47	139.	22.7	2396.0	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0
1	0355	48	144.	25.9	2396.7	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0
1	0400	49	147.	28.3	2397.3	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0
1	0405	50	149.	30.0	2397.7	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	150.	31.2	2398.0	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	151.	31.9	2398.1	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	152.	32.3	2398.2	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	152.	32.5	2398.3	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	152.	32.5	2398.3	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	152.	32.7	2398.3	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	153.	32.9	2398.4	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	153.	33.3	2398.4	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	153.	33.6	2398.5	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	154.	34.0	2398.6	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	154.	34.3	2398.7	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	154.	34.5	2398.7	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	154.	34.5	2398.7	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	154.	34.3	2398.7	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	154.	33.9	2398.6	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	153.	33.3	2398.5	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	152.	32.7	2398.3	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	151.	32.0	2398.2	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	150.	31.2	2398.0	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	149.	30.4	2397.8	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	148.	29.5	2397.6	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	147.	28.7	2397.4	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	146.	27.8	2397.2	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	145.	27.0	2397.0	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	144.	26.1	2396.8	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	143.	25.2	2396.6	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	141.	24.3	2396.3	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	140.	23.3	2396.1	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	139.	22.4	2395.9	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	137.	21.5	2395.6	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	136.	20.5	2395.4	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	134.	19.6	2395.2	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	133.	18.7	2394.9	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	131.	17.8	2394.7	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	130.	16.9	2394.4	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	128.	16.0	2394.2	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	127.	15.1	2394.0	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	125.	14.3	2393.7	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	124.	13.4	2393.5	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	122.	12.6	2393.2	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	121.	11.7	2393.0	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	119.	10.9	2392.7	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	117.	10.1	2392.5	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	115.	9.3	2392.2	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	114.	8.5	2392.0	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	109.	7.7	2391.7	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	106.	7.0	2391.4	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	102.	6.3	2391.2	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	97.	5.6	2390.9	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	91.	4.9	2390.7	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	24.92-HR
+ (CFS)	(HR)				
+ 154.	5.08	121.	32.	30.	30.
		(INCHES)			
		1.152	1.206	1.206	1.206
		(AC-FT)			
		60.	63.	63.	63.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
--------------	------	-------------------------	--	--	--

			6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
	34.	5.08	19.	5.	5.	5.
	PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE		
			6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
	2398.71	5.08	2394.57	2389.69	2389.62	2389.62

CUMULATIVE AREA = .98 SQ MI

HYDROGRAPH AT STATION ELKBASIN
PLAN 1, RATIO = .98

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	*	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1		0000	1	0.	.4	2388.0	*	1		0820	101	74.	3.3	2390.0	*	1		1640	201	0.	.4	2388.0
1		0005	2	0.	.4	2388.0	*	1		0825	102	65.	2.8	2389.8	*	1		1645	202	0.	.4	2388.0
1		0010	3	0.	.4	2388.0	*	1		0830	103	56.	2.4	2389.5	*	1		1650	203	0.	.4	2388.0
1		0015	4	0.	.4	2388.0	*	1		0835	104	48.	2.0	2389.3	*	1		1655	204	0.	.4	2388.0
1		0020	5	0.	.4	2388.0	*	1		0840	105	41.	1.7	2389.2	*	1		1700	205	0.	.4	2388.0
1		0025	6	0.	.4	2388.0	*	1		0845	106	36.	1.5	2389.0	*	1		1705	206	0.	.4	2388.0
1		0030	7	0.	.4	2388.0	*	1		0850	107	29.	1.3	2388.8	*	1		1710	207	0.	.4	2388.0
1		0035	8	0.	.4	2388.0	*	1		0855	108	23.	1.1	2388.7	*	1		1715	208	0.	.4	2388.0
1		0040	9	1.	.4	2388.0	*	1		0900	109	18.	.9	2388.5	*	1		1720	209	0.	.4	2388.0
1		0045	10	1.	.4	2388.0	*	1		0905	110	14.	.8	2388.4	*	1		1725	210	0.	.4	2388.0
1		0050	11	1.	.4	2388.0	*	1		0910	111	11.	.7	2388.3	*	1		1730	211	0.	.4	2388.0
1		0055	12	1.	.4	2388.0	*	1		0915	112	9.	.7	2388.3	*	1		1735	212	0.	.4	2388.0
1		0100	13	1.	.4	2388.0	*	1		0920	113	7.	.6	2388.2	*	1		1740	213	0.	.4	2388.0
1		0105	14	1.	.4	2388.0	*	1		0925	114	6.	.6	2388.2	*	1		1745	214	0.	.4	2388.0
1		0110	15	1.	.4	2388.0	*	1		0930	115	4.	.5	2388.1	*	1		1750	215	0.	.4	2388.0
1		0115	16	1.	.4	2388.0	*	1		0935	116	3.	.5	2388.1	*	1		1755	216	0.	.4	2388.0
1		0120	17	1.	.4	2388.0	*	1		0940	117	3.	.5	2388.1	*	1		1800	217	0.	.4	2388.0
1		0125	18	1.	.4	2388.0	*	1		0945	118	2.	.5	2388.1	*	1		1805	218	0.	.4	2388.0
1		0130	19	2.	.5	2388.0	*	1		0950	119	2.	.5	2388.1	*	1		1810	219	0.	.4	2388.0
1		0135	20	2.	.5	2388.1	*	1		0955	120	1.	.4	2388.0	*	1		1815	220	0.	.4	2388.0
1		0140	21	4.	.5	2388.1	*	1		1000	121	1.	.4	2388.0	*	1		1820	221	0.	.4	2388.0
1		0145	22	5.	.6	2388.2	*	1		1005	122	1.	.4	2388.0	*	1		1825	222	0.	.4	2388.0
1		0150	23	7.	.6	2388.2	*	1		1010	123	1.	.4	2388.0	*	1		1830	223	0.	.4	2388.0
1		0155	24	9.	.7	2388.3	*	1		1015	124	1.	.4	2388.0	*	1		1835	224	0.	.4	2388.0
1		0200	25	10.	.7	2388.3	*	1		1020	125	0.	.4	2388.0	*	1		1840	225	0.	.4	2388.0
1		0205	26	10.	.7	2388.3	*	1		1025	126	0.	.4	2388.0	*	1		1845	226	0.	.4	2388.0
1		0210	27	10.	.7	2388.3	*	1		1030	127	0.	.4	2388.0	*	1		1850	227	0.	.4	2388.0
1		0215	28	11.	.7	2388.3	*	1		1035	128	0.	.4	2388.0	*	1		1855	228	0.	.4	2388.0
1		0220	29	12.	.8	2388.4	*	1		1040	129	0.	.4	2388.0	*	1		1900	229	0.	.4	2388.0
1		0225	30	15.	.9	2388.4	*	1		1045	130	0.	.4	2388.0	*	1		1905	230	0.	.4	2388.0
1		0230	31	18.	.9	2388.5	*	1		1050	131	0.	.4	2388.0	*	1		1910	231	0.	.4	2388.0
1		0235	32	21.	1.0	2388.6	*	1		1055	132	0.	.4	2388.0	*	1		1915	232	0.	.4	2388.0
1		0240	33	23.	1.1	2388.7	*	1		1100	133	0.	.4	2388.0	*	1		1920	233	0.	.4	2388.0
1		0245	34	26.	1.2	2388.8	*	1		1105	134	0.	.4	2388.0	*	1		1925	234	0.	.4	2388.0
1		0250	35	28.	1.2	2388.8	*	1		1110	135	0.	.4	2388.0	*	1		1930	235	0.	.4	2388.0
1		0255	36	30.	1.3	2388.9	*	1		1115	136	0.	.4	2388.0	*	1		1935	236	0.	.4	2388.0
1		0300	37	31.	1.3	2388.9	*	1		1120	137	0.	.4	2388.0	*	1		1940	237	0.	.4	2388.0
1		0305	38	33.	1.4	2389.0	*	1		1125	138	0.	.4	2388.0	*	1		1945	238	0.	.4	2388.0
1		0310	39	37.	1.5	2389.1	*	1		1130	139	0.	.4	2388.0	*	1		1950	239	0.	.4	2388.0
1		0315	40	44.	1.9	2389.3	*	1		1135	140	0.	.4	2388.0	*	1		1955	240	0.	.4	2388.0
1		0320	41	60.	2.6	2389.7	*	1		1140	141	0.	.4	2388.0	*	1		2000	241	0.	.4	2388.0
1		0325	42	82.	4.0	2390.3	*	1		1145	142	0.	.4	2388.0	*	1		2005	242	0.	.4	2388.0
1		0330	43	102.	6.4	2391.2	*	1		1150	143	0.	.4	2388.0	*	1		2010	243	0.	.4	2388.0
1		0335	44	117.	9.8	2392.4	*	1		1155	144	0.	.4	2388.0	*	1		2015	244	0.	.4	2388.0
1		0340	45	125.	13.8	2393.6	*	1		1200	145	0.	.4	2388.0	*	1		2020	245	0.	.4	2388.0
1		0345	46	132.	17.9	2394.7	*	1		1205	146	0.	.4	2388.0	*	1		2025	246	0.	.4	2388.0
1		0350	47	138.	21.6	2395.7	*	1		1210	147	0.	.4	2388.0	*	1		2030	247	0.	.4	2388.0
1		0355	48	142.	24.6	2396.4	*	1		1215	148	0.	.4	2388.0	*	1		2035	248	0.	.4	2388.0
1		0400	49	145.	26.9	2397.0	*	1		1220	149	0.	.4	2388.0	*	1		2040	249	0.	.4	2388.0
1		0405	50	147.	28.6	2397.4	*	1		1225	150	0.	.4	2388.0	*	1		2045	250	0.	.4	2388.0
1		0410	51	149.	29.7	2397.6	*	1		1230	151	0.	.4	2388.0	*	1		2050	251	0.	.4	2388.0
1		0415	52	149.	30.4	2397.8	*	1		1235	152	0.	.4	2388.0	*	1		2055	252	0.	.4	2388.0
1		0420	53	150.	30.7	2397.9	*	1		1240	153	0.	.4	2388.0	*	1		2100	253	0.	.4	2388.0
1		0425	54	150.	30.8	2397.9	*	1		1245	154	0.	.4	2388.0	*	1		2105	254	0.	.4	2388.0
1		0430	55	150.	30.9	2397.9	*	1		1250	155	0.	.4	2388.0	*	1		2110	255	0.	.4	2388.0
1		0435	56	150.	31.0	2397.9	*	1		1255	156	0.	.4	2388.0	*	1		2115	256	0.	.4	2388.0
1		0440	57	150.	31.2	2398.0	*	1		1300	157	0.	.4	2388.0	*	1		2120	257	0.	.4	2388.0
1		0445	58	151.	31.5	2398.0	*	1		1305	158	0.	.4	2388.0	*	1		2125	258	0.	.4	2388.0
1		0450	59	151.	31.8	2398.1	*	1		1310	159	0.	.4	2388.0	*	1		2130	259	0.	.4	2388.0
1		0455	60	152.	32.1	2398.2	*	1		1315	160	0.	.4	2388.0	*	1		2135	260	0.	.4	2388.0

1	0500	61	152.	32.4	2398.3	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	152.	32.6	2398.3	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	152.	32.6	2398.3	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	152.	32.4	2398.2	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	151.	32.0	2398.1	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	151.	31.4	2398.0	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	150.	30.8	2397.9	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	149.	30.1	2397.7	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	148.	29.3	2397.5	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	147.	28.5	2397.3	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	146.	27.6	2397.2	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	145.	26.8	2397.0	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	144.	26.0	2396.7	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	143.	25.1	2396.5	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	141.	24.2	2396.3	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	140.	23.4	2396.1	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	139.	22.5	2395.9	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	137.	21.5	2395.7	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	136.	20.6	2395.4	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	135.	19.7	2395.2	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	133.	18.8	2394.9	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	132.	17.9	2394.7	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	130.	17.0	2394.5	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	129.	16.1	2394.2	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	127.	15.2	2394.0	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	126.	14.4	2393.7	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	124.	13.5	2393.5	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	122.	12.7	2393.2	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	121.	11.8	2393.0	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0
1	0725	90	119.	11.0	2392.8	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	117.	10.2	2392.5	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	116.	9.4	2392.3	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	114.	8.6	2392.0	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	110.	7.8	2391.7	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	106.	7.1	2391.5	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	102.	6.4	2391.2	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	98.	5.7	2391.0	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	92.	5.0	2390.7	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	86.	4.4	2390.5	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	80.	3.8	2390.2	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(CFS)	(HR)				
		(CFS)				
+	152.	5.08	117.	30.	29.	29.
		(INCHES)	1.113	1.156	1.156	1.156
		(AC-FT)	58.	60.	60.	60.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(AC-FT)	(HR)				
	33.	5.08	17.	5.	5.	5.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	24.92-HR
+	(FEET)	(HR)				
	2398.29	5.08	2394.20	2389.58	2389.52	2389.52

CUMULATIVE AREA = .98 SQ MI

HYDROGRAPH AT STATION ELKBASIN PLAN 1, RATIO = .97

DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE	DA	MON	HRMN	ORD	OUTFLOW	STORAGE	STAGE
1	0000	1	0.	.4	2388.0	*	1	0820	101	71.	3.1	2389.9	*	1	1640	201	0.	.4	2388.0	*
1	0005	2	0.	.4	2388.0	*	1	0825	102	61.	2.7	2389.7	*	1	1645	202	0.	.4	2388.0	*
1	0010	3	0.	.4	2388.0	*	1	0830	103	53.	2.3	2389.5	*	1	1650	203	0.	.4	2388.0	*
1	0015	4	0.	.4	2388.0	*	1	0835	104	45.	1.9	2389.3	*	1	1655	204	0.	.4	2388.0	*
1	0020	5	0.	.4	2388.0	*	1	0840	105	39.	1.6	2389.1	*	1	1700	205	0.	.4	2388.0	*
1	0025	6	0.	.4	2388.0	*	1	0845	106	33.	1.4	2389.0	*	1	1705	206	0.	.4	2388.0	*
1	0030	7	0.	.4	2388.0	*	1	0850	107	26.	1.2	2388.8	*	1	1710	207	0.	.4	2388.0	*
1	0035	8	0.	.4	2388.0	*	1	0855	108	21.	1.0	2388.6	*	1	1715	208	0.	.4	2388.0	*

1	0040	9	1.	.4	2388.0	*	1	0900	109	16.	.9	2388.5	*	1	1720	209	0.	.4	2388.0
1	0045	10	1.	.4	2388.0	*	1	0905	110	13.	.8	2388.4	*	1	1725	210	0.	.4	2388.0
1	0050	11	1.	.4	2388.0	*	1	0910	111	10.	.7	2388.3	*	1	1730	211	0.	.4	2388.0
1	0055	12	1.	.4	2388.0	*	1	0915	112	8.	.6	2388.2	*	1	1735	212	0.	.4	2388.0
1	0100	13	1.	.4	2388.0	*	1	0920	113	6.	.6	2388.2	*	1	1740	213	0.	.4	2388.0
1	0105	14	1.	.4	2388.0	*	1	0925	114	5.	.6	2388.1	*	1	1745	214	0.	.4	2388.0
1	0110	15	1.	.4	2388.0	*	1	0930	115	4.	.5	2388.1	*	1	1750	215	0.	.4	2388.0
1	0115	16	1.	.4	2388.0	*	1	0935	116	3.	.5	2388.1	*	1	1755	216	0.	.4	2388.0
1	0120	17	1.	.4	2388.0	*	1	0940	117	3.	.5	2388.1	*	1	1800	217	0.	.4	2388.0
1	0125	18	1.	.4	2388.0	*	1	0945	118	2.	.5	2388.1	*	1	1805	218	0.	.4	2388.0
1	0130	19	2.	.5	2388.0	*	1	0950	119	2.	.5	2388.0	*	1	1810	219	0.	.4	2388.0
1	0135	20	2.	.5	2388.1	*	1	0955	120	1.	.4	2388.0	*	1	1815	220	0.	.4	2388.0
1	0140	21	4.	.5	2388.1	*	1	1000	121	1.	.4	2388.0	*	1	1820	221	0.	.4	2388.0
1	0145	22	5.	.6	2388.1	*	1	1005	122	1.	.4	2388.0	*	1	1825	222	0.	.4	2388.0
1	0150	23	7.	.6	2388.2	*	1	1010	123	1.	.4	2388.0	*	1	1830	223	0.	.4	2388.0
1	0155	24	8.	.7	2388.2	*	1	1015	124	0.	.4	2388.0	*	1	1835	224	0.	.4	2388.0
1	0200	25	9.	.7	2388.3	*	1	1020	125	0.	.4	2388.0	*	1	1840	225	0.	.4	2388.0
1	0205	26	10.	.7	2388.3	*	1	1025	126	0.	.4	2388.0	*	1	1845	226	0.	.4	2388.0
1	0210	27	10.	.7	2388.3	*	1	1030	127	0.	.4	2388.0	*	1	1850	227	0.	.4	2388.0
1	0215	28	11.	.7	2388.3	*	1	1035	128	0.	.4	2388.0	*	1	1855	228	0.	.4	2388.0
1	0220	29	12.	.8	2388.4	*	1	1040	129	0.	.4	2388.0	*	1	1900	229	0.	.4	2388.0
1	0225	30	15.	.8	2388.4	*	1	1045	130	0.	.4	2388.0	*	1	1905	230	0.	.4	2388.0
1	0230	31	18.	.9	2388.5	*	1	1050	131	0.	.4	2388.0	*	1	1910	231	0.	.4	2388.0
1	0235	32	21.	1.0	2388.6	*	1	1055	132	0.	.4	2388.0	*	1	1915	232	0.	.4	2388.0
1	0240	33	23.	1.1	2388.7	*	1	1100	133	0.	.4	2388.0	*	1	1920	233	0.	.4	2388.0
1	0245	34	25.	1.2	2388.7	*	1	1105	134	0.	.4	2388.0	*	1	1925	234	0.	.4	2388.0
1	0250	35	28.	1.2	2388.8	*	1	1110	135	0.	.4	2388.0	*	1	1930	235	0.	.4	2388.0
1	0255	36	29.	1.3	2388.9	*	1	1115	136	0.	.4	2388.0	*	1	1935	236	0.	.4	2388.0
1	0300	37	31.	1.3	2388.9	*	1	1120	137	0.	.4	2388.0	*	1	1940	237	0.	.4	2388.0
1	0305	38	32.	1.4	2389.0	*	1	1125	138	0.	.4	2388.0	*	1	1945	238	0.	.4	2388.0
1	0310	39	36.	1.5	2389.1	*	1	1130	139	0.	.4	2388.0	*	1	1950	239	0.	.4	2388.0
1	0315	40	44.	1.9	2389.2	*	1	1135	140	0.	.4	2388.0	*	1	1955	240	0.	.4	2388.0
1	0320	41	59.	2.6	2389.6	*	1	1140	141	0.	.4	2388.0	*	1	2000	241	0.	.4	2388.0
1	0325	42	81.	4.0	2390.3	*	1	1145	142	0.	.4	2388.0	*	1	2005	242	0.	.4	2388.0
1	0330	43	102.	6.3	2391.2	*	1	1150	143	0.	.4	2388.0	*	1	2010	243	0.	.4	2388.0
1	0335	44	116.	9.7	2392.3	*	1	1155	144	0.	.4	2388.0	*	1	2015	244	0.	.4	2388.0
1	0340	45	124.	13.7	2393.5	*	1	1200	145	0.	.4	2388.0	*	1	2020	245	0.	.4	2388.0
1	0345	46	131.	17.8	2394.7	*	1	1205	146	0.	.4	2388.0	*	1	2025	246	0.	.4	2388.0
1	0350	47	137.	21.4	2395.6	*	1	1210	147	0.	.4	2388.0	*	1	2030	247	0.	.4	2388.0
1	0355	48	142.	24.4	2396.4	*	1	1215	148	0.	.4	2388.0	*	1	2035	248	0.	.4	2388.0
1	0400	49	145.	26.6	2396.9	*	1	1220	149	0.	.4	2388.0	*	1	2040	249	0.	.4	2388.0
1	0405	50	147.	28.3	2397.3	*	1	1225	150	0.	.4	2388.0	*	1	2045	250	0.	.4	2388.0
1	0410	51	148.	29.4	2397.6	*	1	1230	151	0.	.4	2388.0	*	1	2050	251	0.	.4	2388.0
1	0415	52	149.	30.1	2397.7	*	1	1235	152	0.	.4	2388.0	*	1	2055	252	0.	.4	2388.0
1	0420	53	149.	30.4	2397.8	*	1	1240	153	0.	.4	2388.0	*	1	2100	253	0.	.4	2388.0
1	0425	54	150.	30.5	2397.8	*	1	1245	154	0.	.4	2388.0	*	1	2105	254	0.	.4	2388.0
1	0430	55	150.	30.5	2397.8	*	1	1250	155	0.	.4	2388.0	*	1	2110	255	0.	.4	2388.0
1	0435	56	150.	30.7	2397.8	*	1	1255	156	0.	.4	2388.0	*	1	2115	256	0.	.4	2388.0
1	0440	57	150.	30.9	2397.9	*	1	1300	157	0.	.4	2388.0	*	1	2120	257	0.	.4	2388.0
1	0445	58	150.	31.2	2398.0	*	1	1305	158	0.	.4	2388.0	*	1	2125	258	0.	.4	2388.0
1	0450	59	151.	31.5	2398.0	*	1	1310	159	0.	.4	2388.0	*	1	2130	259	0.	.4	2388.0
1	0455	60	151.	31.8	2398.1	*	1	1315	160	0.	.4	2388.0	*	1	2135	260	0.	.4	2388.0
1	0500	61	152.	32.1	2398.2	*	1	1320	161	0.	.4	2388.0	*	1	2140	261	0.	.4	2388.0
1	0505	62	152.	32.2	2398.2	*	1	1325	162	0.	.4	2388.0	*	1	2145	262	0.	.4	2388.0
1	0510	63	152.	32.2	2398.2	*	1	1330	163	0.	.4	2388.0	*	1	2150	263	0.	.4	2388.0
1	0515	64	151.	32.0	2398.2	*	1	1335	164	0.	.4	2388.0	*	1	2155	264	0.	.4	2388.0
1	0520	65	151.	31.6	2398.1	*	1	1340	165	0.	.4	2388.0	*	1	2200	265	0.	.4	2388.0
1	0525	66	150.	31.0	2397.9	*	1	1345	166	0.	.4	2388.0	*	1	2205	266	0.	.4	2388.0
1	0530	67	149.	30.4	2397.8	*	1	1350	167	0.	.4	2388.0	*	1	2210	267	0.	.4	2388.0
1	0535	68	149.	29.7	2397.6	*	1	1355	168	0.	.4	2388.0	*	1	2215	268	0.	.4	2388.0
1	0540	69	148.	28.9	2397.4	*	1	1400	169	0.	.4	2388.0	*	1	2220	269	0.	.4	2388.0
1	0545	70	147.	28.1	2397.3	*	1	1405	170	0.	.4	2388.0	*	1	2225	270	0.	.4	2388.0
1	0550	71	145.	27.3	2397.1	*	1	1410	171	0.	.4	2388.0	*	1	2230	271	0.	.4	2388.0
1	0555	72	144.	26.4	2396.9	*	1	1415	172	0.	.4	2388.0	*	1	2235	272	0.	.4	2388.0
1	0600	73	143.	25.6	2396.7	*	1	1420	173	0.	.4	2388.0	*	1	2240	273	0.	.4	2388.0
1	0605	74	142.	24.7	2396.4	*	1	1425	174	0.	.4	2388.0	*	1	2245	274	0.	.4	2388.0
1	0610	75	141.	23.9	2396.2	*	1	1430	175	0.	.4	2388.0	*	1	2250	275	0.	.4	2388.0
1	0615	76	140.	23.0	2396.0	*	1	1435	176	0.	.4	2388.0	*	1	2255	276	0.	.4	2388.0
1	0620	77	138.	22.1	2395.8	*	1	1440	177	0.	.4	2388.0	*	1	2300	277	0.	.4	2388.0
1	0625	78	137.	21.2	2395.6	*	1	1445	178	0.	.4	2388.0	*	1	2305	278	0.	.4	2388.0
1	0630	79	135.	20.3	2395.3	*	1	1450	179	0.	.4	2388.0	*	1	2310	279	0.	.4	2388.0
1	0635	80	134.	19.4	2395.1	*	1	1455	180	0.	.4	2388.0	*	1	2315	280	0.	.4	2388.0
1	0640	81	133.	18.5	2394.9	*	1	1500	181	0.	.4	2388.0	*	1	2320	281	0.	.4	2388.0
1	0645	82	131.	17.6	2394.6	*	1	1505	182	0.	.4	2388.0	*	1	2325	282	0.	.4	2388.0
1	0650	83	130.	16.7	2394.4	*	1	1510	183	0.	.4	2388.0	*	1	2330	283	0.	.4	2388.0
1	0655	84	128.	15.8	2394.1	*	1	1515	184	0.	.4	2388.0	*	1	2335	284	0.	.4	2388.0
1	0700	85	127.	14.9	2393.9	*	1	1520	185	0.	.4	2388.0	*	1	2340	285	0.	.4	2388.0
1	0705	86	125.	14.0	2393.6	*	1	1525	186	0.	.4	2388.0	*	1	2345	286	0.	.4	2388.0
1	0710	87	123.	13.2	2393.4	*	1	1530	187	0.	.4	2388.0	*	1	2350	287	0.	.4	2388.0
1	0715	88	122.	12.3	2393.2	*	1	1535	188	0.	.4	2388.0	*	1	2355	288	0.	.4	2388.0
1	0720	89	120.	11.5	2392.9	*	1	1540	189	0.	.4	2388.0	*	2	0000	289	0.	.4	2388.0

1	0725	90	118.	10.7	2392.7	*	1	1545	190	0.	.4	2388.0	*	2	0005	290	0.	.4	2388.0
1	0730	91	117.	9.9	2392.4	*	1	1550	191	0.	.4	2388.0	*	2	0010	291	0.	.4	2388.0
1	0735	92	115.	9.1	2392.2	*	1	1555	192	0.	.4	2388.0	*	2	0015	292	0.	.4	2388.0
1	0740	93	113.	8.3	2391.9	*	1	1600	193	0.	.4	2388.0	*	2	0020	293	0.	.4	2388.0
1	0745	94	109.	7.5	2391.6	*	1	1605	194	0.	.4	2388.0	*	2	0025	294	0.	.4	2388.0
1	0750	95	105.	6.8	2391.4	*	1	1610	195	0.	.4	2388.0	*	2	0030	295	0.	.4	2388.0
1	0755	96	101.	6.1	2391.1	*	1	1615	196	0.	.4	2388.0	*	2	0035	296	0.	.4	2388.0
1	0800	97	96.	5.4	2390.9	*	1	1620	197	0.	.4	2388.0	*	2	0040	297	0.	.4	2388.0
1	0805	98	89.	4.8	2390.6	*	1	1625	198	0.	.4	2388.0	*	2	0045	298	0.	.4	2388.0
1	0810	99	83.	4.2	2390.4	*	1	1630	199	0.	.4	2388.0	*	2	0050	299	0.	.4	2388.0
1	0815	100	78.	3.6	2390.2	*	1	1635	200	0.	.4	2388.0	*	2	0055	300	0.	.4	2388.0

PEAK FLOW		TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	152.	5.08				
		(CFS)	116.	30.	29.	29.
		(INCHES)	1.105	1.147	1.147	1.147
		(AC-FT)	57.	60.	60.	60.

PEAK STORAGE		TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	32.	5.08	17.	5.	4.	4.

PEAK STAGE		TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	24.92-HR
+	2398.21	5.08	2394.12	2389.56	2389.51	2389.51

CUMULATIVE AREA = .98 SQ MI

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
 FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
 TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION		
					RATIO 1 1.00	RATIO 2 .98	RATIO 3 .97
HYDROGRAPH AT							
+	OFF1	.22	1	FLOW TIME	216. 3.75	208. 3.75	207. 3.75
DIVERSION TO							
+	FDI12	.22	1	FLOW TIME	93. 3.75	90. 3.75	89. 3.75
HYDROGRAPH AT							
+	DIV1FD	.22	1	FLOW TIME	123. 3.75	119. 3.75	118. 3.75
DIVERSION TO							
+	CIM1	.22	1	FLOW TIME	54. 3.75	52. 3.75	52. 3.75
HYDROGRAPH AT							
+	SPLIT1	.22	1	FLOW TIME	69. 3.75	67. 3.75	66. 3.75
DIVERSION TO							
+	FDI345	.22	1	FLOW TIME	57. 3.75	55. 3.75	55. 3.75
HYDROGRAPH AT							
+	DIV2FD	.22	1	FLOW TIME	12. 3.75	12. 3.75	11. 3.75
HYDROGRAPH AT							
+	OFF4	.03	1	FLOW TIME	34. 3.58	32. 3.58	32. 3.58
2 COMBINED AT							
+	CP1	.26	1	FLOW TIME	43. 3.58	41. 3.58	41. 3.58

HYDROGRAPH AT							
+	FDI12	.00	1	FLOW	93.	90.	89.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	FDI345	.00	1	FLOW	57.	55.	55.
				TIME	3.75	3.75	3.75
2 COMBINED AT							
+	CP2	.00	1	FLOW	150.	145.	144.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF5	.03	1	FLOW	31.	30.	30.
				TIME	3.58	3.58	3.58
HYDROGRAPH AT							
+	OFF5A	.03	1	FLOW	31.	29.	29.
				TIME	3.67	3.67	3.67
4 COMBINED AT							
+	CP3	.32	1	FLOW	235.	226.	224.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF3	.17	1	FLOW	141.	134.	133.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	CIM1	.00	1	FLOW	54.	52.	52.
				TIME	3.75	3.75	3.75
2 COMBINED AT							
+	CP4	.17	1	FLOW	191.	183.	181.
				TIME	3.67	3.67	3.67
DIVERSION TO							
+	CIM2	.17	1	FLOW	77.	74.	73.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	SPLIT2	.17	1	FLOW	114.	109.	108.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF6	.03	1	FLOW	25.	24.	24.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF7	.07	1	FLOW	59.	57.	56.
				TIME	3.67	3.67	3.67
3 COMBINED AT							
+	CP5	.26	1	FLOW	199.	190.	189.
				TIME	3.67	3.67	3.67
HYDROGRAPH AT							
+	OFF2	.18	1	FLOW	170.	164.	163.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	CIM2	.00	1	FLOW	77.	74.	73.
				TIME	3.67	3.67	3.67
2 COMBINED AT							
+	CP6	.18	1	FLOW	247.	237.	235.
				TIME	3.75	3.75	3.75
DIVERSION TO							
+	CIM3	.18	1	FLOW	75.	72.	71.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	SPLIT3	.18	1	FLOW	172.	165.	164.
				TIME	3.75	3.75	3.75
HYDROGRAPH AT							
+	OFF8	.03	1	FLOW	31.	29.	29.
				TIME	3.58	3.58	3.58
2 COMBINED AT							

+	CP7	.21	1	FLOW TIME	189. 3.75	182. 3.75	180. 3.75
HYDROGRAPH AT							
+	OFF9	.03	1	FLOW TIME	28. 3.58	27. 3.58	27. 3.58
2 COMBINED AT							
+	CP8	.24	1	FLOW TIME	211. 3.75	202. 3.75	201. 3.75
DIVERSION TO							
+	BUFF1	.24	1	FLOW TIME	56. 3.75	54. 3.75	53. 3.75
HYDROGRAPH AT							
+	DIV3E123	.24	1	FLOW TIME	155. 3.75	149. 3.75	147. 3.75
2 COMBINED AT							
+	CP9	.50	1	FLOW TIME	353. 3.67	338. 3.67	336. 3.67
HYDROGRAPH AT							
+	BUFF1	.00	1	FLOW TIME	56. 3.75	54. 3.75	53. 3.75
DIVERSION TO							
+	BUFF2	.00	1	FLOW TIME	25. 3.75	24. 3.75	24. 3.75
HYDROGRAPH AT							
+	SPLIT4	.00	1	FLOW TIME	31. 3.75	30. 3.75	30. 3.75
HYDROGRAPH AT							
+	OFF11	.07	1	FLOW TIME	59. 3.67	57. 3.67	56. 3.67
2 COMBINED AT							
+	CP10	.07	1	FLOW TIME	90. 3.67	86. 3.67	86. 3.67
HYDROGRAPH AT							
+	OFF10	.03	1	FLOW TIME	30. 3.67	29. 3.67	28. 3.67
HYDROGRAPH AT							
+	OFF12	.02	1	FLOW TIME	26. 3.50	25. 3.50	25. 3.50
HYDROGRAPH AT							
+	ON-1	.02	1	FLOW TIME	21. 3.58	20. 3.58	20. 3.58
HYDROGRAPH AT							
+	OFF-13	.02	1	FLOW TIME	22. 3.67	21. 3.67	21. 3.67
7 COMBINED AT							
+	CP11	.98	1	FLOW TIME	768. 3.67	737. 3.67	730. 3.67
ROUTED TO							
+	ELKBASIN	.98	1	FLOW TIME	154. 5.08	152. 5.08	152. 5.08

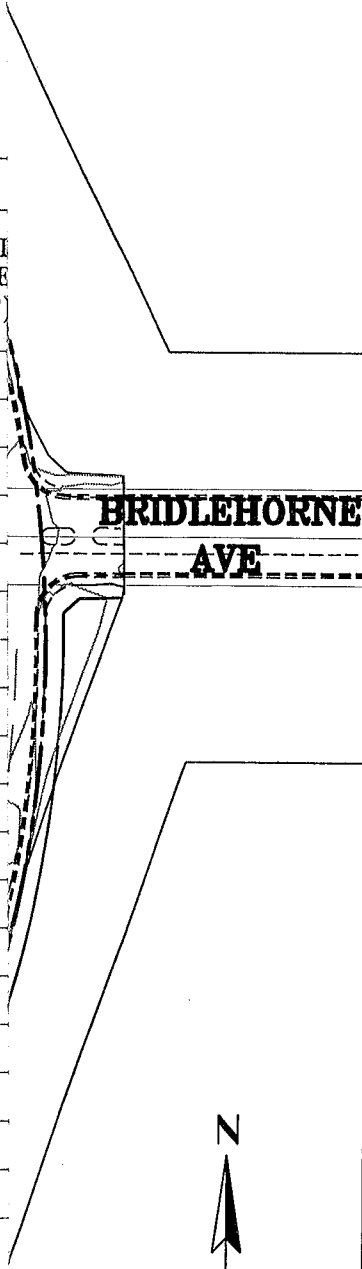
*** PEAK STAGES IN FEET ***

1	STAGE	2398.71	2398.29	2398.21
	TIME	5.08	5.08	5.08

*** NORMAL END OF HEC-1 ***

Storm Drain Layout Exhibit

STORAGE CAPACITY				
ELEVATION (FT)	AREA (ACRE)	AVERAGE AREA (ACRE)	VOLUME (AC-FT)	CUMULATIVE VOLUME (AC-FT)
2386	0.04	0.00	0.00	0.00
2387	0.10	0.07	0.07	0.07
2388	0.57	0.34	0.34	0.41
2389	1.44	1.01	1.01	1.41
2390	2.22	1.83	1.83	3.24
2391	2.70	2.46	2.46	5.71
2392	3.03	2.86	2.86	8.57
2393	3.43	3.23	3.23	11.80
2394	3.62	3.52	3.52	15.32
2395	3.80	3.71	3.71	19.03
2396	4.00	3.90	3.90	22.93
2397	4.19	4.09	4.09	27.03
2398	4.38	4.29	4.29	31.31
2399	4.60	4.49	4.49	35.80
2400	4.85	4.72	4.72	40.52
2401	5.10	4.97	4.97	45.49
2402	5.25	5.18	5.18	50.67
2402.4	5.37	5.31	5.31	52.79



SCALE
1"=60'

REVISIONS <table border="1"> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>																											NO. DATE DESCRIPTION APPD 4/28/09 DESIGNED BY: DRAWN BY: CHECKED BY:	
DEPARTMENT OF PUBLIC WORKS ENGINEERING DESIGN SECTION		PARSONS BRINCKERHOFF 3930 HOWARD HUGHES PARKWAY SUITE 300 LAS VEGAS, NEVADA 89169																										
TITLE: ELKHORN SPRINGS & BUFFALO DRIVE STORM DRAIN SYSTEM		SHEET: ELKHORN SPRINGS AND BUFFALO DR DETENTION BASIN STORAGE CAPACITY																										
100% PRE FINAL SUBMITTAL		FIG 6 of 25 DRAWING NO. 327V283																										

WSPG Analysis



ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM WSPG OUTPUT SUMMARY

Project# 31678A
Made By: JS
Date: 02/05/09
Checked By: SK
Date: 02/06/09

Trunklines

Stationing-Equation		WSPG	Storm Drain Size (in)	Flow (cfs)	Invert Elevation (ft)	HGL (ft)	Finished Grade (ft)	Difference FG-HGL (ft)
On Plans								
JB to MH11						2398.21		
"Buffalo" 27+44.99, 101.05 LT		163.00	60	254	2393.00	2398.21	2398.00	-0.21
"Buffalo" 28+34.53, 24.98 LT		278.00	60	254	2393.44	2399.30	2408.53	9.23
MH11 to MH6						2399.30		
"Buffalo" 28+34.53, 24.98 LT		278.00	60	254	2393.44	2400.29	2408.53	8.24
"Buffalo" 31+11.93, 23.26 LT		558.00	60	254	2394.24	2402.95	2412.37	9.42
"Buffalo" 32+97.53, 26.11 LT		717.00	60	254	2396.48	2404.71	2414.35	9.64
"Buffalo" 36+71.38, 26.31 LT		1092.00	60	254	2401.46	2408.35	2414.74	6.39
"Buffalo" 36+73.38, 26.31 LT		1094.00	60	250	2401.49	2408.53	2414.76	6.23
"Buffalo" 37+43.72, 26.31 LT		1164.00	60	250	2402.72	2409.17	2415.79	6.62
"Buffalo" 37+45.72, 26.48 LT		1166.00	60	188	2402.75	2409.19	2415.81	6.62
MH6 to MH5A						2409.19		
"Buffalo" 37+45.72, 26.48 LT		1166.00	60	188	2402.75	2411.79	2415.81	4.02
"Farm" 46+87.15, 12.22 LT		1191.00	48	188	2403.56	2412.21	2416.21	4.00
MH5A to MH1						2412.21		
"Farm" 46+87.15, 12.22 LT		1191.00	54	188	2403.56	2413.11	2416.21	3.10
"Farm" 46+32.00, 12.35 LT		1246.00	54	188	2406.04	2413.61	2417.36	3.75
"Farm" 46+30.00, 12.35 LT		1248.00	54	174	2406.12	2414.22	2417.38	3.16
"Farm" 43+25.01, 12.68 LT		1553.00	48	174	2413.03	2418.84	2424.17	5.33
"Farm" 40+02.00, 13.02 LT		1876.00	48	174	2420.36	2424.1	2431.11	7.01
"Farm" 40+00.00, 13.02 LT		1878.00	48	150	2420.40	2425.65	2431.13	5.48
"Farm" 36+50.00, 12.82 LT		2228.00	48	150	2428.31	2430.74	2438.78	8.04
"Farm" 33+62.02, 10.03 LT		2516.00	48	150	2434.85	2437.17	2445.17	8.00
"Farm" 33+05.53, 9.47 LT		2572.50	48	150	2438.29	2441.89	2446.53	4.64
MH6 to MH7						2409.19		
"Buffalo" 37+45.72, 26.48 LT		1166.00	60	62	2405.42	2411.79	2415.81	4.02
"Buffalo" 37+84.21, 5.00 RT		1217.00	48	62	2406.49	2411.80	2414.97	3.17
MH7 to MH13						2411.80		
"Buffalo" 37+84.21, 5.00 RT		1217.00	48	62	2406.49	2411.82	2414.97	3.15
"Buffalo" 40+97.57, 4.94 RT		1530.00	38	62	2408.35	2412.40	2414.81	2.41
"Buffalo" 40+99.57, 4.94 RT		1532.00	38	22	2408.36	2412.73	2414.80	2.07
"Buffalo" 44+79.77, 4.88 RT		1912.00	38	22	2410.12	2412.78	2416.23	3.45
MH13 to MH14						2412.78		
"Buffalo" 44+79.77, 4.88 RT		1912.00	36	22	2410.12	2412.90	2416.23	3.33
"Donald Nelson" 10+75.30, 5.00 LT		1992.00	36	22	2410.65	2412.78	2415.84	3.06



ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM WSPG OUTPUT SUMMARY

Project# 31678A
Made By: JS
Date: 02/05/09
Checked By: SK
Date: 02/06/09

Laterals

Stationing-Equation		WSPG	Storm Drain Size (in)	Flow (cfs)	Invert Elevation (ft)	HGL (ft)	Finished Grade (ft)	Difference FG-HGL (ft)
On Plans								
MH5 to D18						2414.22		
"Farm" 46+30.00, 12.35 LT		1248.00	48	7	2408.62	2414.22	2417.38	3.16
"Farm" 46+02.92, 34.26 RT		1302.00	18	7	2409.28	2414.46	2417.74	3.28
MH6 to D19						2414.22		
"Farm" 46+30.00, 12.35 LT		1248.00	48	7	2408.62	2414.22	2417.38	3.16
"Farm" 46+28.66, 33.00 LT		1269.00	18	7	2413.43	2414.45	2416.93	2.48
MH3 to D16						2425.65		
"Farm" 40+00.00, 13.02 LT		1878.00	48	12	2420.60	2425.65	2431.13	5.48
"Farm" 39+82.51, 34.16 RT		1928.00	18	12	2421.26	2426.30	2431.04	4.74
MH3 to D17						2425.65		
"Farm" 40+00.00, 13.02 LT		1878.00	48	12	2422.90	2425.65	2431.13	5.48
"Farm" 39+82.45, 34.41 LT		1906.00	18	12	2427.46	2428.77	2430.96	2.19
MH12 to ZD1						2412.73		
"Buffalo" 40+99.57, 4.94 RT		1532.00	36	20	2408.51	2412.73	2414.80	2.07
"Buffalo" 41+26.64, 44.86 LT		1587.00	24	20	2409.65	2412.85	2413.75	0.90
MH12 to ZD2						2412.73		
"Buffalo" 40+99.57, 4.94 RT		1532.00	36	20	2408.51	2412.73	2414.80	2.07
"Buffalo" 41+36.34, 45.00 RT		1585.00	18	20	2410.33	2413.11	2413.95	0.84
MH14 to D11						2412.78		
"Donald Nelson" 10+75.30, 5.00 LT		1992.00	36	10	2412.15	2412.78	2415.84	3.06
"Donald Nelson" 11+14.00, 20.41 RT		2038.00	18	10	2412.30	2414.16	2415.8	1.64
MH14 to D12						2412.78		
"Donald Nelson" 10+75.30, 5.00 LT		1992.00	36	12	2412.15	2412.78	2415.84	3.06
"Donald Nelson" 10+85.06, 20.54 LT		2010.00	18	12	2412.42	2413.73	2415.92	2.19

WSPG Analysis
For
JB-MH11

DATE: 2/ 4/2009
TIME: 9:44

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
F0515P
PAGE 1

CARD	SECT	CEN	NO OF	AVE	PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CD	1	4				5.00															
CD	2	4				4.00															
CD	3	4				1.50															
CD	4	4				3.00															

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P
PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - JU

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100*\JB-MH11.DA

F 0 5 1 5 P
PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A	SYSTEM	OUTLET	*	U/S DATA	STATION	INVERT	SECT	*	W S ELEV	RADIUS	ANGLE	ANG PT	MAN H
						163.00	2393.00	1			2398.21	0.00	0.00	0.00	0
ELEMENT NO	2	IS A	REACH	*	U/S DATA	STATION	INVERT	SECT	N			0.00	0.00	0.00	0
						278.00	2393.44	1	0.013						
ELEMENT NO	3	IS A	SYSTEM	HEADWORKS	*	U/S DATA	STATION	INVERT	SECT	*	W S ELEV				
						278.00	2393.44	1			0.00				

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWDS, W.S.ELEV = INV + DC.

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - JU
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\JB-MH11.DA

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EV.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO AVBER PIER
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
163.00	2393.00	5.210	2398.210	254.0	12.94	2.598	2400.808	0.00	4.448	5.00	0.00	0.00	0 0.00
115.00	0.00383					.009511	1.09		5.000			0.00	
278.00	2393.44	5.864	2399.304	254.0	12.94	2.598	2401.902	0.00	4.448	5.00	0.00	0.00	0 0.00

WSPG Analysis
For
MH11-MH6

DATE: 2/ 4/2009
TIME: 9:51

F0515P

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

[illegible]

0000	1	4	5.00
0000	2	4	4.00
0000	3	4	1.50
0000	4	4	3.00

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\MH11-MH6.D

515 P.

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	INVERT	SECT	W S ELEV
		U/S DATA		STATION		2400.29
				278.00	2393.44	
					1	

ELEMENT NO	2 IS A REACH	U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
			558.00	2394.24	1	0.013	0.00	0.00	0.00	0

ELEMENT NO	3 IS A REACH	U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN E
			717.00	2396.48	1	0.013	0.00	0.00	14.00	1

ELEMENT NO	4 IS A REACH	U/S DATA	STATION	INVERT	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
1			1092.00	2401.46	1	0.013	0.00	0.00	8.00	0

ELEMENT NO	5 IS A JUNCTION	U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4
			1094.00	2401.49	1	3	0	0.013	4.0	0.0	2408.07	0.00	58.00	0.00
ELEMENT NO	6 IS A REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			1164.00	2402.72	1			0.013			0.00	0.00	0.00	0
ELEMENT NO	7 IS A REACH	U/S DATA	STATION	INVERT	SECT			N			RADIUS	ANGLE	ANG PT	MAN H
			1166.00	2402.75	1			0.013			0.00	0.00	0.00	0
ELEMENT NO	8 IS A SYSTEM HEADWORKS	U/S DATA	STATION	INVERT	SECT						W S ELEV			
			1166.00	2402.75	1						0.00			

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
 ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
 PARSONS BRINCKERHOFF - PROJECT NO. 31678A
 FILE NAME: W:\31678A-ELKHORN\ENGR\DRAWING\WSPG\PROPOSED SD\100%\WH11-MH6.D

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.ELEV.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO AVBER PIER
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR	
278.00	2393.44	6.850	2400.290	254.0	12.94	2.598	2402.888	0.00	4.448	5.00	0.00	0.00	0 0.00
280.00	0.00286					.009511	2.66		5.000			0.00	
558.00	2394.24	8.713	2402.953	254.0	12.94	2.598	2405.551	0.00	4.448	5.00	0.00	0.00	0 0.00
159.00	0.01409					.009511	1.51		3.450			0.00	
717.00	2396.48	8.235	2404.715	254.0	12.94	2.598	2407.313	0.00	4.448	5.00	0.00	0.00	0 0.00
375.00	0.01328					.009511	3.57		3.529			0.00	
1092.00	2401.46	6.891	2408.351	254.0	12.94	2.598	2410.949	0.00	4.448	5.00	0.00	0.00	0 0.00
JUNCT STR	0.01500					.009362	0.02					0.00	
1094.00	2401.49	7.042	2408.532	250.0	12.73	2.517	2411.049	0.00	4.423	5.00	0.00	0.00	0 0.00
70.00	0.01757					.009214	0.64		3.154			0.00	
1164.00	2402.72	6.457	2409.177	250.0	12.73	2.517	2411.694	0.00	4.423	5.00	0.00	0.00	0 0.00
2.00	0.01500					.009214	0.02		3.333			0.00	
1166.00	2402.75	6.445	2409.195	250.0	12.73	2.517	2411.712	0.00	4.423	5.00	0.00	0.00	0 0.00

WSPG Analysis
For
MH6-MH5A

DATE: 2/ 4/2009
TIME: 9:53

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
PAGE 1

CARD	SECT	CHN	NO OF	AVE	PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH					DROP										

CD	2	4									4.00										
CD	3	4									1.50										
CD	4	4									3.00										

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P
PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\MH6-MH5A.D

F 0 5 1 5 P
PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A	SYSTEM	OUTLET	*	INVERT	SECT	*	W S ELEV		
		U/S	DATA	STATION							
				1166.00	2402.75	2			2411.79		
ELEMENT NO	2	IS A	REACH	*	INVERT	SECT	*	RADIUS	ANGLE	ANG PT	MAN H
		U/S	DATA	STATION				0.00	0.00	0.00	0
				1191.00	2403.56	2					

ELEMENT NO	3	IS A	SYSTEM	HEADWORKS	*	INVERT	SECT	*	W S ELEV
		U/S	DATA	STATION					
				1191.00	2403.56	2			0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWDS, W.S.ELEV = INV + DC

LICENSEE: PARSONS BRINCKERHOFF

F0515P

WATER SURFACE PROFILE LISTING

PAGE 1

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPC\PROPOSED SD\100%\MH6-MH5A.D

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER
L/ELEM	SO								NORM DEPTH			ZR	
1166.00	2402.75	9.040	2411.790	188.0	14.96	3.476	2415.266	0.00	3.807	4.00	0.00	0.00	0
25.00	0.03240					.017130	0.43		2.530			0.00	
1191.00	2403.56	8.658	2412.218	188.0	14.96	3.476	2415.694	0.00	3.807	4.00	0.00	0.00	0

WSPG Analysis
For
MH5A-MH1

DATE: 2/ 4/2009
TIME: 9:55

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
F0515P
PAGE 1

CARD SECT	CHN	NO OF	AVE PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH			DROP										

CD	1	4			4.50														
CD	2	4			4.00														
CD	3	4			1.50														
CD	4	4			3.00														

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\MH5A-MH1.D

F 0 5 1 5 P

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*															
U/S DATA	STATION	INVERT	SECT																	
	1191.00	2403.56	1																	

W S ELEV
2413.11

ELEMENT NO	2	IS A REACH	*	*	*															
U/S DATA	STATION	INVERT	SECT																	
	1246.00	2406.04	1																	

RADIUS ANGLE ANG PT MAN H
0.00 0.00 0.00 0

ELEMENT NO	3	IS A JUNCTION	*	*	*	*														
U/S DATA	STATION	INVERT	SECT	LAT-1	LAT-2	N	Q3	Q4	INVERT-3	INVERT-4	PHI 3	PHI 4								
	1248.00	2406.12	1	3	3	0.013	7.0	7.0	2408.62	2408.60	60.00	86.00								

WARNING - ADJACENT SECTIONS ARE NOT IDENTICAL - SEE SECTION NUMBERS AND CHANNEL DEFINITIONS

ELEMENT NO	4	IS A REACH	*	*	*															
U/S DATA	STATION	INVERT	SECT																	
	1553.00	2413.03	2																	

RADIUS ANGLE ANG PT MAN H
0.00 0.00 0.00 1

ELEMENT NO	5 IS A REACH	U/S DATA	STATION	INVERT	SECT	*	N	0.013	RADIUS	ANGLE	ANG PT	MAN H
ELEMENT NO	6 IS A JUNCTION	U/S DATA	1876.00	2420.36	2	*	N	0.013	0.00	0.00	0.00	0
ELEMENT NO	7 IS A REACH	U/S DATA	1878.00	2420.40	2	*	N	0.013	0.00	0.00	0.00	0
ELEMENT NO	8 IS A REACH	U/S DATA	2228.00	2428.31	2	*	N	0.013	0.00	0.00	0.00	1
ELEMENT NO	9 IS A REACH	U/S DATA	2516.00	2434.85	2	*	N	0.013	0.00	0.00	0.00	1
ELEMENT NO	10 IS A SYSTEM HEADWORKS	U/S DATA	2572.50	2438.29	2	*	N	0.013	0.00	0.00	0.00	0

W S ELEV
0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
 ** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAWING\WSPG\PROPOSED SD\100%\WESA-MH1.D

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD. EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER
L/ELEM	SO						SF AVE	HF	NORM DEPTH			ZR	
1191.00	2403.56	9.550	2413.110	188.0	11.82	2.170	2415.280	0.00	3.950	4.50	0.00	0.00	0 0.00
55.00	0.04509					.009140	0.50		2.117			0.00	
1246.00	2406.04	7.573	2413.613	188.0	11.82	2.170	2415.783	0.00	3.950	4.50	0.00	0.00	0 0.00
JUNCT STR	0.04000					.008484	0.02					0.00	
1248.00	2406.12	8.101	2414.221	174.0	13.85	2.977	2417.198	0.00	3.747	4.00	0.00	0.00	0 0.00
305.00	0.02266					.014673	4.48		2.718			0.00	
1553.00	2413.03	5.815	2418.845	174.0	13.85	2.977	2421.822	0.00	3.747	4.00	0.00	0.00	0 0.00
125.00	0.02269					.014673	1.83		2.716			0.00	
1678.00	2415.87	4.817	2420.684	174.0	13.85	2.977	2423.661	0.00	3.747	4.00	0.00	0.00	0 0.00
HYDRAULIC JUMP													
1678.00	2415.87	2.848	2418.715	174.0	18.18	5.133	2423.848	0.00	3.747	4.00	0.00	0.00	0 0.00
17.49	0.02269					.019869	0.35		2.716			0.00	
1695.49	2416.26	2.866	2419.130	174.0	18.05	5.061	2424.191	0.00	3.747	4.00	0.00	0.00	0 0.00
81.35	0.02269					.018673	1.52		2.716			0.00	
1776.84	2418.11	2.959	2421.109	174.0	17.21	4.600	2425.709	0.00	3.747	4.00	0.00	0.00	0 0.00
45.94	0.02269					.016767	0.77		2.716			0.00	
1822.78	2419.15	3.145	2422.297	174.0	16.41	4.183	2426.480	0.00	3.747	4.00	0.00	0.00	0 0.00
28.69	0.02269					.015156	0.43		2.716			0.00	
1851.47	2419.80	3.309	2423.112	174.0	15.65	3.802	2426.914	0.00	3.747	4.00	0.00	0.00	0 0.00
17.49	0.02269					.013853	0.24		2.716			0.00	
1868.96	2420.20	3.500	2423.700	174.0	14.92	3.457	2427.157	0.00	3.747	4.00	0.00	0.00	0 0.00
7.04	0.02269					.012981	0.09		2.716			0.00	

WATER SURFACE PROFILE LISTING
 ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
 PARSONS BRINCKERHOFF - PROJECT No. 31678A
 FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\90%\MH5A-MH1.D

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.ELEV	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO AVBR PIER
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR	
2551.43	2437.01	2.677	2439.684	150.0	16.78	4.370	2444.054	0.00	3.596	4.00	0.00	0.00	0 0.00
6.33	0.06089					.016584	0.10		1.816			0.00	
2557.76	2437.39	2.794	2440.187	150.0	16.00	3.973	2444.160	0.00	3.596	4.00	0.00	0.00	0 0.00
5.08	0.06089					.014795	0.08		1.816			0.00	
2562.84	2437.70	2.921	2440.623	150.0	15.25	3.612	2444.235	0.00	3.596	4.00	0.00	0.00	0 0.00
4.00	0.06089					.013250	0.05		1.816			0.00	
2565.84	2437.95	3.059	2441.004	150.0	14.54	3.284	2444.288	0.00	3.596	4.00	0.00	0.00	0 0.00
2.97	0.06089					.011927	0.04		1.816			0.00	
2569.81	2438.13	3.212	2441.338	150.0	13.87	2.985	2444.323	0.00	3.596	4.00	0.00	0.00	0 0.00
1.95	0.06089					.010823	0.02		1.816			0.00	
2571.76	2438.24	3.386	2441.631	150.0	13.22	2.714	2444.345	0.00	3.596	4.00	0.00	0.00	0 0.00
0.74	0.06089					.009968	0.01		1.816			0.00	
2572.50	2438.29	3.596	2441.886	150.0	12.60	2.466	2444.352	0.00	3.596	4.00	0.00	0.00	0 0.00

WSPG Analysis
For
MH6-MH7

DATE: 2/ 4/2009
TIME: 9:59

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING. PAGE 1

[illegible]

Year	Number of cases	Rate per 100,000 population
2000	4	4.00
2001	3	1.50
2002	4	3.00

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

PAGE NO 3

25052

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - ME

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO. 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\MH6-MH7.DA

PAGE NO 2

F0515P

WATER SURFACE PROFILE - ELEMENT CARD LISTING

[illegible]

```

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
*** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKD5, W.S.ELEV = INV + DC
0.00

```

LICENSEE: PARSONS BRINCKERHOFF

F0515P

WATER SURFACE PROFILE LISTING

PAGE 1

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGE\DRAINAGE\WSPG\PROPOSED SD\100%\MH6-MH7.DA

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.ELEV	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO AVBER PIER
L/ELEM	SO												
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1166.00	2405.42	6.370	2411.790	22.0	1.75	0.048	2411.838	0.00	1.383	4.00	0.00	0.00	0 0.00
51.00	0.02098					.000235	0.01					0.00	
1217.00	2406.49	5.312	2411.802	22.0	1.75	0.048	2411.850	0.00	1.383	4.00	0.00	0.00	0 0.00

WSPG Analysis
For
MH7-MH13

DATE: 2/ 4/2009
TIME: 10: 0

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

[illegible]

Year	Number of cases	Rate per 100,000
2000	2	4.00
2001	3	1.50
2002	4	3.00

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

2515 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - ME

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO. 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\MH7-MH13.D

F 0 5 1 5 P

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*
		U/S DATA	STATION	INVERT	SECT
			1217.00	2406.49	2

W S ELEV
2411.82

ELEMENT NO	2 IS A REACH	STATION	INVERT	SECT	N	N
	U/S DATA	1530.00	2408.35	2		0.013

	RADIUS	ANGLE	ANG PT	MAN H
	0.00	0.00	0.00	0

ELEMENT NO	3 IS A JUNCTION U/S DATA	*	* INVERT	SECT LAT-1	LAT-2	N Q3
			1532.00	2408.36	2 3	0.013

ELEMENT NO	4 IS A REACH	*	INVEST	SECT	N	RADIUS	ANGLE	ANG PT	MAN H
	U/S DATA		STATION						
			1912.00	2410.12	2	0.013	0.00	0.00	1

RADIUS	ANGLE	ANG PT	MAN H
0.00	0.00	0.00	1

ELEMENT NO	5	IS A SYSTEM HEADWORKS	U/S DATA	STATION	INVERT	SECT	*
				1912.00	2410.12	2	

W S ELEV 0.00

NO EDIT ERRORS ENCOUNTERED-COMPIATION IS NOW BEGINNING
1912.00 2110.12 2

*** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100\MH7-MH13.D

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVRPR
L/ELEM	SO								NORM DEPTH					
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1217.00	2406.49	5.330	2411.820	62.0	4.93	0.378	2412.198	0.00	2.374	4.00	0.00	0.00	0	0.00
313.00	0.00594					.001863	0.58		2.140			0.00		
1530.00	2408.35	4.053	2412.403	62.0	4.93	0.378	2412.781	0.00	2.374	4.00	0.00	0.00	0	0.00
JUNCT STR	0.00500					.001049	0.00					0.00		
1532.00	2408.36	4.377	2412.737	22.0	1.75	0.048	2412.785	0.00	1.383	4.00	0.00	0.00	0	0.00
85.75	0.00463					.000233	0.02		1.290			0.00		
1617.75	2408.76	4.000	2412.757	22.0	1.75	0.048	2412.805	0.00	1.383	4.00	0.00	0.00	0	0.00
82.73	0.00463					.000218	0.02		1.290			0.00		
1700.48	2409.14	3.629	2412.769	22.0	1.84	0.052	2412.821	0.00	1.383	4.00	0.00	0.00	0	0.00
47.69	0.00463					.000213	0.01		1.290			0.00		
1748.17	2409.36	3.413	2412.774	22.0	1.93	0.058	2412.832	0.00	1.383	4.00	0.00	0.00	0	0.00
38.90	0.00463					.000230	0.01		1.290			0.00		
1787.07	2409.54	3.236	2412.777	22.0	2.02	0.063	2412.840	0.00	1.383	4.00	0.00	0.00	0	0.00
34.17	0.00463					.000253	0.01		1.290			0.00		
1821.24	2409.70	3.080	2412.780	22.0	2.12	0.070	2412.850	0.00	1.383	4.00	0.00	0.00	0	0.00
30.58	0.00463					.000281	0.01		1.290			0.00		
1851.82	2409.84	2.940	2412.781	22.0	2.22	0.077	2412.858	0.00	1.383	4.00	0.00	0.00	0	0.00
27.86	0.00463					.000313	0.01		1.290			0.00		
1879.68	2409.97	2.812	2412.782	22.0	2.33	0.084	2412.866	0.00	1.383	4.00	0.00	0.00	0	0.00
25.83	0.00463					.000351	0.01		1.290			0.00		
1905.51	2410.09	2.693	2412.783	22.0	2.44	0.093	2412.876	0.00	1.383	4.00	0.00	0.00	0	0.00
6.49	0.00463					.000377	0.00		1.290			0.00		

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 2

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100\MH7-MH13.D

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER
L/ELEM	SO												
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1912.00	2410.12	2.563	2412.783	22.0	2.48	0.095	2412.878	0.00	1.383	4.00	0.00	0.00	0 0.00

ZR

NORM DEPTH

WSPG Analysis
For
MH13-MH14

DATE: 2/ 4/2009
TIME: 10: 3

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

CARD	SECT	CHN	NO OF	AVE	PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH					DROP										

CD	2	4				4.00															
CD	3	4				1.50															
CD	4	4				3.00															

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\MH13-M14.D

F 0 5 1 5 P

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*
U/S DATA	STATION	INVERT	SECT		
	1912.00	2410.12	4		

W S ELEV
2412.78

ELEMENT NO	2	IS A REACH	*	*	*
U/S DATA	STATION	INVERT	SECT	N	
	1992.00	2410.65	4	0.013	

RADIUS
0.00

ANGLE
0.00

ANG PT
0.00

MAN H
0

ELEMENT NO	3	IS A SYSTEM HEADWORKS	*	*	*
U/S DATA	STATION	INVERT	SECT		
	1992.00	2410.65	4		

W S ELEV
0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - ME
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\ME13-M14.D

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.ELEV	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO	AVBPR PIER
L/ELEM	SO						HF		NORM DEPTH			ZR		
1912.00	2410.12	2.660	2412.780	22.0	3.32	0.171	2412.951	0.00	1.509	3.00	0.00	0.00	0	0.00
23.65	0.00662					.001010	0.02		1.330			0.00		
1935.65	2410.28	2.510	2412.787	22.0	3.48	0.188	2412.975	0.00	1.509	3.00	0.00	0.00	0	0.00
19.40	0.00662					.001102	0.02		1.330			0.00		
1955.05	2410.41	2.384	2412.789	22.0	3.65	0.207	2412.996	0.00	1.509	3.00	0.00	0.00	0	0.00
16.88	0.00662					.001217	0.02		1.330			0.00		
1971.93	2410.52	2.272	2412.789	22.0	3.83	0.228	2413.017	0.00	1.509	3.00	0.00	0.00	0	0.00
15.03	0.00662					.001353	0.02		1.330			0.00		
1986.96	2410.62	2.170	2412.787	22.0	4.02	0.251	2413.038	0.00	1.509	3.00	0.00	0.00	0	0.00
5.04	0.00662					.001456	0.01		1.330			0.00		
1992.00	2410.65	2.136	2412.786	22.0	4.09	0.259	2413.045	0.00	1.509	3.00	0.00	0.00	0	0.00

WSPG Analysis
For
MH5-DI8

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

CARD	SECT	CHN	NO OF PIERS	AVE WIDTH	HEIGHT	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH	DROP											

[illegible]

ERROR MESSAGE NUMBER	7	IN SEQUENCE	CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =			
ERROR MESSAGE NUMBER	7	IN SEQUENCE	CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =			

Feb 05 15 25

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED\SD\100%\LATERALS\M

2
 3
 4
 5
 6
 7

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1 IS A SYSTEM OUTLET	U/S DATA	STATION	INVERT	SECT
			1248.00	2408.62	3

W S ELEV
2414.22

ELEMENT NO	2 IS A REACH	U/S DATA	STATION	INVERT	SECT
			1302.00	2409.28	3

RADIUS	ANGLE	ANG PT	MAN H
0.00	0.00	0.00	0

ELEMENT NO	3 IS A SYSTEM HEADWORKS	U/S DATA	STATION	INVERT	SECT	*
				1302.00	2409.28	3

W S ELEV
0.00

```

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
*** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS W.S.ELEV = INV + DC

```

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SP\100%\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL HEAD	VEL GRD.EL.	ENERGY ELEV	SUPER CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL NO	AVBR PIER
L/ELEM	SO											
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1248.00	2408.62	5.600	2414.220	7.0	3.96	0.244	2414.464	0.00	1.024	1.50	0.00	0 0.00
54.00	0.01222				.004441	0.24		0.840			0.00	
1302.00	2409.28	5.180	2414.460	7.0	3.96	0.244	2414.704	0.00	1.024	1.50	0.00	0 0.00

WSPG Analysis
For
MH5-DI9

DATE: 2/ 4/2009
TIME: 10: 7

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
PAGE 1

CARD	SECT	CHN	NO OF	AVE PIER	HEIGHT 1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH			DROP										

CD	1	4			5.00														
CD	2	4			4.00														
CD	3	4			1.50														
CD	4	4			3.00														

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P
PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\LATERALS\M

F 0 5 1 5 P
PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*	*													
		U/S DATA	STATION	INVERT	SECT														
			1248.00	2408.62	3														
ELEMENT NO	2	IS A REACH	*	*	*	*													
		U/S DATA	STATION	INVERT	SECT	N													
			1269.00	2413.43	3	0.013													
ELEMENT NO	3	IS A SYSTEM HEADWORKS	*	*	*	*													
		U/S DATA	STATION	INVERT	SECT														
			1269.00	2413.43	3														

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAWING\WSPG\PROPOSED SD\100%\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.ELEV.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL NO	AVBPR PIER
L/ELEM	SO						SF AVE	HF	NORM DEPTH			ZR	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1248.00	2408.62	5.600	2414.220	7.0	3.96	0.244	2414.464	0.00	1.024	1.50	0.00	0.00	0 0.00
17.90	0.22905					.004441	0.08		0.380			0.00	
1265.90	2412.72	1.582	2414.301	7.0	3.96	0.244	2414.545	0.00	1.024	1.50	0.00	0.00	0 0.00
HYDRAULIC JUMP												0.00	
1265.90	2412.72	0.643	2413.362	7.0	9.67	1.452	2414.814	0.00	1.024	1.50	0.00	0.00	0 0.00
0.20	0.22905					.030356	0.01		0.380			0.00	
1266.10	2412.76	0.643	2413.408	7.0	9.66	1.448	2414.856	0.00	1.024	1.50	0.00	0.00	0 0.00
0.53	0.22905					.028450	0.02		0.380			0.00	
1266.63	2412.89	0.667	2413.555	7.0	9.21	1.317	2414.872	0.00	1.024	1.50	0.00	0.00	0 0.00
0.47	0.22905					.025010	0.01		0.380			0.00	
1267.10	2412.99	0.692	2413.686	7.0	8.78	1.198	2414.884	0.00	1.024	1.50	0.00	0.00	0 0.00
0.40	0.22905					.021996	0.01		0.380			0.00	
1267.50	2413.09	0.718	2413.804	7.0	8.37	1.089	2414.893	0.00	1.024	1.50	0.00	0.00	0 0.00
0.34	0.22905					.019353	0.01		0.380			0.00	
1267.84	2413.16	0.745	2413.909	7.0	7.98	0.989	2414.898	0.00	1.024	1.50	0.00	0.00	0 0.00
0.29	0.22905					.017043	0.00		0.380			0.00	
1268.13	2413.23	0.774	2414.004	7.0	7.61	0.899	2414.903	0.00	1.024	1.50	0.00	0.00	0 0.00
0.24	0.22905					.015024	0.00		0.380			0.00	
1268.37	2413.29	0.804	2414.090	7.0	7.25	0.817	2414.907	0.00	1.024	1.50	0.00	0.00	0 0.00
0.20	0.22905					.013248	0.00		0.380			0.00	
1268.57	2413.33	0.835	2414.167	7.0	6.92	0.743	2414.910	0.00	1.024	1.50	0.00	0.00	0 0.00
0.16	0.22905					.011692	0.00		0.380			0.00	

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 2

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAWING\WSPG\PROPOSED SD\100%\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.ELEV	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR	
1268.73	2413.37	0.868	2414.236	7.0	6.60	0.676	2414.912	0.00	1.024	1.50	0.00	0.00	0 0.00
0.12	0.22905					.010334	0.00		0.380			0.00	
1268.85	2413.40	0.903	2414.299	7.0	6.29	0.614	2414.913	0.00	1.024	1.50	0.00	0.00	0 0.00
0.08	0.22905					.009151	0.00		0.380			0.00	
1268.93	2413.41	0.941	2414.355	7.0	6.00	0.559	2414.914	0.00	1.024	1.50	0.00	0.00	0 0.00
0.06	0.22905					.008115	0.00		0.380			0.00	
1268.99	2413.43	0.980	2414.407	7.0	5.72	0.508	2414.915	0.00	1.024	1.50	0.00	0.00	0 0.00
0.01	0.22905					.007201	0.00		0.380			0.00	
1269.00	2413.43	1.024	2414.454	7.0	5.45	0.461	2414.915	0.00	1.024	1.50	0.00	0.00	0 0.00

WSPG Analysis
For
MH3-DI6

DATE: 2/ 3/2009
TIME: 16:32

F051SP
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
PAGE 1

CARD	SECT	CHN	NO OF	AVE	PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH					DROP										

CD	1	4						5.00													
CD	2	4						4.00													
CD	3	4						1.50													
CD	4	4						3.00													

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\LATERALS\M

F 0 5 1 5 P

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*			*																
		U/S DATA	STATION		INVERT	SECT																
			1878.00		2420.60	3																

W S ELEV
2425.65

ELEMENT NO	2	IS A REACH	*			*																
		U/S DATA	STATION		INVERT	SECT																
			1928.00		2421.26	3																

RADIUS
0.00

ANGLE
0.00

ANG PT
0.00

MAN H
0

ELEMENT NO	3	IS A SYSTEM HEADWORKS	*			*																
		U/S DATA	STATION		INVERT	SECT																
			1928.00		2421.26	3																

W S ELEV
0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKOS, W.S.ELEV = INV + DC

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO AVEPR PIER
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1878.00	2420.60	5.050	2425.650	12.0	6.79	0.716	2426.366	0.00	1.314	1.50	0.00	0.00	0 0.00
50.00	0.01320					.013050	0.65		1.220			0.00	
1928.00	2421.26	5.043	2426.303	12.0	6.79	0.716	2427.019	0.00	1.314	1.50	0.00	0.00	0 0.00

WSPG Analysis
For
MH3-DI7

DATE: 2/ 3/2009
TIME: 16:32

WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING
F0515P
PAGE 1

CARD	SECT	CHN	NO OF	AVE	PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH	DROP														

CD	1	4					5.00														
CD	2	4					4.00														
CD	3	4					1.50														
CD	4	4					3.00														

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P
PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
HEADING LINE NO 2 IS -
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100*\LATERALS\W
F 0 5 1 5 P
PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A	SYSTEM	OUTLET	*	STATION	INVERT	SECT	*	W S ELEV
						1878.00	2422.90	3		2425.65

ELEMENT NO	2	IS A	REACH	*	STATION	INVERT	SECT	*	N	RADIUS	ANGLE	ANG	PT	MAN	H
					1906.00	2427.46	3		0.013	0.00	0.00	0.00	0		

ELEMENT NO	3	IS A	SYSTEM	HEADWORKS	*	STATION	INVERT	SECT	*	W S ELEV
						1906.00	2427.46	3		0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO.2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100%\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO	AVBRP PIER
L/ELEM	SO						HF							

NORM DEPTH														

ZR														

1878.00	2422.90	0.633	2423.533	12.0	16.95	4.461	2427.994	0.00	1.314	1.50	0.00	0.00	0	0.00
3.25	0.16286					.091087	0.30					0.00		
1881.25	2423.43	0.646	2424.076	12.0	16.44	4.196	2428.272	0.00	1.314	1.50	0.00	0.00	0	0.00
4.43	0.16286					.082078	0.36					0.00		
1885.68	2424.15	0.670	2424.821	12.0	15.69	3.821	2428.642	0.00	1.314	1.50	0.00	0.00	0	0.00
3.55	0.16286					.072148	0.26					0.00		
1889.23	2424.73	0.695	2425.425	12.0	14.96	3.476	2428.901	0.00	1.314	1.50	0.00	0.00	0	0.00
2.91	0.16286					.063481	0.18					0.00		
1892.14	2425.20	0.722	2425.925	12.0	14.25	3.154	2429.079	0.00	1.314	1.50	0.00	0.00	0	0.00
2.43	0.16286					.055883	0.14					0.00		
1894.57	2425.60	0.749	2426.347	12.0	13.59	2.868	2429.215	0.00	1.314	1.50	0.00	0.00	0	0.00
2.04	0.16286					.049208	0.10					0.00		
1896.61	2425.93	0.778	2426.709	12.0	12.96	2.608	2429.317	0.00	1.314	1.50	0.00	0.00	0	0.00
1.73	0.16286					.043372	0.08					0.00		
1898.34	2426.21	0.808	2427.021	12.0	12.36	2.372	2429.393	0.00	1.314	1.50	0.00	0.00	0	0.00
1.48	0.16286					.038262	0.06					0.00		
1899.82	2426.45	0.840	2427.293	12.0	11.79	2.158	2429.451	0.00	1.314	1.50	0.00	0.00	0	0.00
1.26	0.16286					.033785	0.04					0.00		
1901.08	2426.66	0.873	2427.532	12.0	11.24	1.960	2429.492	0.00	1.314	1.50	0.00	0.00	0	0.00
1.08	0.16286					.029858	0.03					0.00		
1902.16	2426.83	0.908	2427.742	12.0	10.71	1.783	2429.525	0.00	1.314	1.50	0.00	0.00	0	0.00
0.91	0.16286					.026436	0.02					0.00		

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 2

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAWING\WSPG\PROPOSED SD\100%\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL HEAD	ENERGY GRD. EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER
L/ELEM	SO				SF AVE	HF		NORM DEPTH			ZR	
1903.07	2426.98	0.946	2427.928	12.0	10.21	1.620	2429.548	0.00	1.314	1.50	0.00	0 0.00
0.76	0.16286				.023453	0.02		0.550			0.00	
1903.83	2427.11	0.986	2428.093	12.0	9.74	1.473	2429.566	0.00	1.314	1.50	0.00	0 0.00
0.64	0.16286				.020846	0.01		0.550			0.00	
1904.47	2427.21	1.029	2428.241	12.0	9.29	1.340	2429.581	0.00	1.314	1.50	0.00	0 0.00
0.53	0.16286				.018577	0.01		0.550			0.00	
1905.00	2427.30	1.075	2428.372	12.0	8.86	1.218	2429.590	0.00	1.314	1.50	0.00	0 0.00
0.42	0.16286				.016601	0.01		0.550			0.00	
1905.42	2427.37	1.124	2428.490	12.0	8.44	1.106	2429.596	0.00	1.314	1.50	0.00	0 0.00
0.31	0.16286				.014902	0.00		0.550			0.00	
1905.73	2427.42	1.179	2428.595	12.0	8.05	1.006	2429.601	0.00	1.314	1.50	0.00	0 0.00
0.20	0.16286				.013476	0.00		0.550			0.00	
1905.93	2427.45	1.241	2428.689	12.0	7.67	0.914	2429.603	0.00	1.314	1.50	0.00	0 0.00
0.07	0.16286				.012317	0.00		0.550			0.00	
1906.00	2427.46	1.314	2428.774	12.0	7.31	0.830	2429.604	0.00	1.314	1.50	0.00	0 0.00

WSPG Analysis
For
MH12-ZD1

DATE: 2/ 4/2009
TIME: 10: 9

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

[illegible]

1	4	5.00
2	4	2.50
3	4	1.50
4	4	3.00

ERROR MESSAGE NUMBER	7	IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS	CODE =	CARDS - CODE =
ERROR MESSAGE NUMBER	7	IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS	CARDS - CODE =	CARDS - CODE =

250515P

PAGE NO . 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100% LATERALS\M

05/05/2015

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*	SECT
		U/S DATA	STATION	INVERT		
			1532.00	2408.51	2	

W S ELEV
2412.73

ELEMENT NO	2 IS A REACH	*	*
	U/S DATA	STATION	INVERT
SECT			
2		1586.00	2409.65

RADIUS	ANGLE	ANG PT	MAN H
0.00	0.00	0.00	0

ELEMENT NO	3	IS A SYSTEM HEADWORKS			*
		U/S DATA	STATION	INVERT	SECT
			1587.00	2409.65	2

W S ELEV
0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING

*** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVPR
L/ELEM	SO						HF		NORM DEPTH			ZR		
1532.00	2408.51	4.220	2412.730	20.0	4.07	0.258	2412.988	0.00	1.518	2.50	0.00	0.00	0	0.00
54.00	0.02111					.002378	0.13		0.996			0.00		
1586.00	2409.65	3.208	2412.858	20.0	4.07	0.258	2413.116	0.00	1.518	2.50	0.00	0.00	0	0.00
1.00	0.02111					.009427	-0.51		0.996			0.00		
1587.00	2409.65	3.208	2412.858	20.0	4.07	0.258	2413.116	0.00	1.518	2.50	0.00	0.00	0	0.00

WSPG Analysis
For
MH12-ZD2

DATE: 2/ 4/2009
TIME: 10:10

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

CARD	SECT	CHN	NO OF	AVE	PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH					DROP										

CD	1	4				5.00															
CD	2	4				2.50															
CD	3	4				1.50															
CD	4	4				3.00															

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSFG\PROPOSED SD\100%\LATERALS\M

F 0 5 1 5 P

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A	SYSTEM OUTLET	*	INVERT	SECT	
U/S DATA	STATION						

W S ELEV
2412.73

ELEMENT NO	2	IS A	REACH	*	INVERT	SECT	
U/S DATA	STATION						

RADIUS ANGLE ANG PT MAN H
0.00 0.00 0.00 0

ELEMENT NO	3	IS A	SYSTEM HEADWORKS	*	INVERT	SECT	
U/S DATA	STATION						

W S ELEV
0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

LICENSEE: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT No. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSFG\PROPOSED SD\100%\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EV.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL NO	AVEPR PIER
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR	
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1532.00	2408.51	4.220	2412.730	20.0	4.07	0.258	2412.988	0.00	1.518	2.50	0.00	0.00	0 0.00
53.00	0.03434					.002378	0.13		0.873			0.00	
1585.00	2410.33	2.526	2412.856	20.0	4.07	0.258	2413.114	0.00	1.518	2.50	0.00	0.00	0 0.00

WSPG Analysis
For
MH14-DI1

DATE: 2/ 4/2009
TIME: 10:12

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

[illegible]

00	1	4	5.00
00	2	4	4.00
00	3	4	1.50
00	4	4	3.00

CD	PT	ERROR MESSAGE	NUMBER	7	IN SEQUENCE	CHECKING THRU	CHANNEL	DEFINITION DATA
		INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =						
		ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA						
		INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =						

2515 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\90%\LATERALS\M

450515A

PAGE NO. 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*	SECT
		U/S DATA	STATION	INVERT		
		1992.00	2412.15			3

W S ELEV
2412.78

ELEMENT NO	2 IS A REACH	*	*	*
	U/S DATA	STATION	INVERT	SECT
		2038.00	2412.30	3

RADIUS	ANGLE	ANG PT	MAN H
0.00	0.00	0.00	0

ELEMENT NO	3	IS A SYSTEM HEADWORKS	U/S DATA	STATION	INVERT	SECT
				2038.00	2412.30	3

W S ELEV
0-00

```

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
*** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWKDS, W.S.ELEV = INV + DC

```

LICENSER: PARSONS BRINCKERHOFF

F0515P

PAGE 1

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT NO. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL	VEL HEAD	ENERGY GRD.EL.	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL	NO PIER	AVBPR
L/ELEM	SO					SF AVE	HF		NORM DEPTH			ZR		
1992.00	2412.15	1.314	2413.464	12.0	7.31	0.830	2414.294	0.00	1.314	1.50	0.00	0.00	0	0.00
2.01	0.00326					.011539	0.02		1.500			0.00		
1994.01	2412.16	1.406	2413.563	12.0	6.97	0.755	2414.318	0.00	1.314	1.50	0.00	0.00	0	0.00
6.30	0.00326					.012019	0.08		1.500			0.00		
2000.31	2412.18	1.500	2413.677	12.0	6.79	0.716	2414.393	0.00	1.314	1.50	0.00	0.00	0	0.00
37.69	0.00326					.012908	0.49		1.500			0.00		
2038.00	2412.30	1.869	2414.169	12.0	6.79	0.716	2414.885	0.00	1.314	1.50	0.00	0.00	0	0.00

WSPG Analysis
For
MH14-DI2

DATE: 2/ 4/2009
TIME: 10:15

F0515P
WATER SURFACE PROFILE - CHANNEL DEFINITION LISTING

PAGE 1

CARD	SECT	CHN	NO OF	AVE PIER	HEIGHT	1	BASE	ZL	ZR	INV	Y(1)	Y(2)	Y(3)	Y(4)	Y(5)	Y(6)	Y(7)	Y(8)	Y(9)	Y(10)
CODE	NO	TYPE	PIERS	WIDTH	DIAMETER	WIDTH	DROP													

CD	1	4			5.00															
CD	2	4			4.00															
CD	3	4			1.50															
CD	4	4			3.00															

ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =
ERROR MESSAGE NUMBER 7 IN SEQUENCE CHECKING THRU CHANNEL DEFINITION DATA
INVALID CARD CODE ENCOUNTERED WHILE PROCESSING CD AND PTS CARDS - CODE =

F 0 5 1 5 P

PAGE NO 3

WATER SURFACE PROFILE - TITLE CARD LISTING

HEADING LINE NO 1 IS -

ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - ME

HEADING LINE NO 2 IS -

PARSONS BRINCKERHOFF - PROJECT NO. 31678A

HEADING LINE NO 3 IS -

FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100\LATERALS\M

F 0 5 1 5 P

PAGE NO 2

WATER SURFACE PROFILE - ELEMENT CARD LISTING

ELEMENT NO	1	IS A SYSTEM OUTLET	*	*	*
U/S DATA	STATION	INVERT	SECT		
	1992.00	2412.15	3		

W S ELEV
2412.78

ELEMENT NO	2	IS A REACH	*	*	*
U/S DATA	STATION	INVERT	SECT	N	
	2010.00	2412.42	3	0.013	

RADIUS
0.00

ANGLE
0.00

ANG PT
0.00

MAN H
0

ELEMENT NO	3	IS A SYSTEM HEADWORKS	*	*	*
U/S DATA	STATION	INVERT	SECT		
	2010.00	2412.42	3		

W S ELEV
0.00

NO EDIT ERRORS ENCOUNTERED-COMPUTATION IS NOW BEGINNING
** WARNING NO. 2 ** - WATER SURFACE ELEVATION GIVEN IS LESS THAN OR EQUALS INVERT ELEVATION IN HDWDS, W.S.ELEV = INV + DC

WATER SURFACE PROFILE LISTING
ELKHORN SPRINGS AND BUFFALO STORM DRAIN SYSTEM - PROPOSED STORM DRAIN - MH
PARSONS BRINCKERHOFF - PROJECT No. 31678A
FILE NAME: W:\31678A-ELKHORN\ENGR\DRAINAGE\WSPG\PROPOSED SD\100\LATERALS\M

STATION	INVERT ELEV	DEPTH OF FLOW	W.S. ELEV	Q	VEL HEAD	VEL GRD.ELEV	ENERGY ELEV	SUPER ELEV	CRITICAL DEPTH	HGT/ DIA	BASE/ ID NO.	ZL NO	AVBPR PIER
L/ELEM	SO												
*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****	*****
1992.00	2412.15	1.192	2413.342	12.0	7.97	0.986	2414.328	0.00	1.314	1.50	0.00	0.00	0 0.00
13.81	0.01500					.013336	0.18					0.00	
2005.81	2412.36	1.241	2413.598	12.0	7.67	0.914	2414.512	0.00	1.314	1.50	0.00	0.00	0 0.00
4.19	0.01500					.012317	0.05					0.00	
2010.00	2412.42	1.314	2413.734	12.0	7.31	0.830	2414.564	0.00	1.314	1.50	0.00	0.00	0 0.00

Quantities



**ELKHORN SPRINGS AND BUFFALO DRIVE
STORM DRAIN SYSTEM
QUANTITIES AND COST ESTIMATE**

Project# 31678A
Made By: SK
Date: 12/22/2008
Checked By: KS
Date: 4/30/2009

Bid No.	Description	Quantity	Unit	Unit Price	Total Price
109.01	Owner Caused Delay Allowance	12	DAY	\$300	\$3,600
109.02	Owner Caused Delay Amount In Addition To Allowance	12	DAY	\$300	\$3,600
200.01	Mobilization and Demobilization	1	LS	\$113,000	\$113,000
201.01	Clearing and Grubbing	1	LS	\$10,000	\$10,000
202.01	Removal of Asphalt Pavement	10,225	SY	\$6.50	\$66,463
202.02	Removal of Concrete Sidewalk	846	SF	\$2.50	\$2,115
202.03	Removal of Concrete Cross Gutter	285	SF	\$5	\$1,425
202.04	Removal of Concrete Curb and Gutter	177	LF	\$11	\$1,947
202.05	Removal of 18" RCP Storm Drain Pipe	887	LF	\$100	\$88,738
202.06	Removal of 36" HDPE Storm Drain Pipe	361	LF	\$100	\$36,119
202.07	Removal of 42" HDPE Storm Drain Pipe	13	LF	\$100	\$1,250
202.08	Removal of Storm Drain Manhole	7	EA	\$1,700	\$11,900
202.09	Removal of Drop Inlet	3	EA	\$1,700	\$5,100
213.01	Remove and Replace Irrigation System	1	LS	\$1,000	\$1,000
302.01	Type II Aggregate Base	1,136	CY	\$45	\$51,120
402.01	6-inch Plantmix Bituminous Surface	10,225	SY	\$25	\$255,625
502.01	Concrete Staff Gauge	1	EA	\$500	\$500
603.01	18-Inch Reinforced Concrete Pipe (Class III)	243	LF	\$140	\$34,020
603.02	30-Inch Reinforced Concrete Pipe (Class III)	108	LF	\$195	\$21,060
603.03	36-Inch Reinforced Concrete Pipe (Class III)	80	LF	\$310	\$24,800
603.04	48-Inch Reinforced Concrete Pipe (Class III)	1,375	LF	\$325	\$446,875
603.05	54-Inch Reinforced Concrete Pipe (Class III)	82	LF	\$265	\$21,828
603.06	60-Inch Reinforced Concrete Pipe (Class III)	1,046	LF	\$300	\$313,800
603.07	38X60-Inch Oval Reinforced Concrete Pipe (Class III)	695	LF	\$730	\$507,350
609.01	Type III Storm Drain Manhole (60-Inch)	11	EA	\$8,340	\$91,740
609.02	Type II Storm Drain Manhole (48-Inch)	1	EA	\$7,506	\$7,506
609.03	Type I Storm Drain Manhole (48-Inch)	1	EA	\$3,630	\$3,630
609.04	Modified NDOT Type 4 Manhole	1	EA	\$13,000	\$13,000
609.05	60-Inch Precast Manhole Tee	2	EA	\$9,415	\$18,830
609.06	Drop Inlet Type DM (L=7.5-FT)	4	EA	\$6,730	\$26,920
609.07	Drop Inlet Type DM (L=15-FT)	4	EA	\$13,465	\$53,860
609.08	NDOT Type 2B Drop Inlet	1	EA	\$5,800	\$5,800
609.09	Outlet structure for 60-Inch RCP	1	EA	\$30,000	\$30,000
609.10	Locking Manhole Cover	1	EA	\$1,000	\$1,000
609.11	Headwall	1	EA	\$6,000	\$6,000
610.01	Grouted Rip-Rap D50=6 Inches	20	CY	\$175	\$3,500
613.01	Type L Curb and Gutter	177	LF	\$30	\$5,310



**ELKHORN SPRINGS AND BUFFALO DRIVE
STORM DRAIN SYSTEM
QUANTITIES AND COST ESTIMATE**

Project# 31678A
Made By: SK
Date: 12/22/2008
Checked By: KS
Date: 4/30/2009

Bid No.	Description	Quantity	Unit	Unit Price	Total Price
613.02	Concrete Sidewalk	846	SF	\$10	\$8,460
613.03	Concrete Cross Gutter	285	SF	\$12	\$3,420
622.01	Construction Surveying	1	LS	\$40,000	\$40,000
624.01	Traffic Control and Maintenance	1	LS	\$225,603	\$225,603
625.01	Portable Changeable Message Sign	32	DAY	\$80	\$2,560
625.02	Arrow Display	128	DAY	\$30	\$3,840
628.01	Pavement Marking Film "ONLY"	6	EA	\$205	\$1,230
628.02	Pavement Marking Film For Arrows	3	EA	\$250	\$750
628.03	Pavement Marking Film (24-Inch Solid White)	495	LF	\$13	\$6,435
629.01	Vertical Adjust Water Valve Cover	8	EA	\$400	\$3,200
630.01	Concrete Encasement For Sewer Line	1	LS	\$1,500	\$1,500
633.01	Reflective Pavement Markers	520	EA	\$1.50	\$780
633.02	Non-Reflective Pavement Markers	1,340	EA	\$3	\$4,020
637.01	Dust Control	1	LS	\$33,840	\$33,840
637.02	NPDES Discharge Permit	1	LS	\$2,500	\$2,500
Subtotal					\$2,628,468
10% Contingency					\$262,847
Total Construction cost					\$2,891,315

Plan and Profile