FLOOD ANALYSIS & REPORT

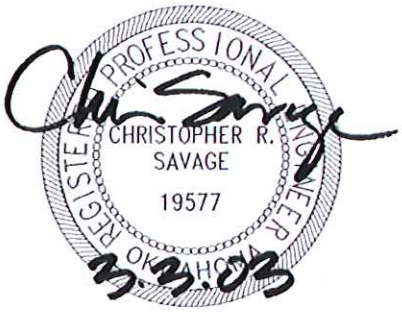
Project No. M3-P006

MAPS 3 Upper Downtown Public Park

Prepared For:

MAPS PROJECT OFFICE

March 3, 2015



Submitted By:

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PROJECT M3-P006

MAPS 3 UPPER DOWNTOWN PUBLIC PARK

FLOOD ANALYSIS & REPORT

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FLOOD ANALYSIS & REPORT
PROJECT M3-P006
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Introduction

Project M3-P006, MAPS 3 Downtown Public Park, will develop a world-class Park within the downtown Core to Shore area. The initial phase known as the Upper Park is nearly 40 acres in size and bounded by the Oklahoma City Boulevard, Hudson Avenue, Interstate 40 and Robinson Avenue. In keeping with the program's intent to maximize quality of life and economic potential in the Core to Shore area this flood study was undertaken to examine the impact on the Park of recent improvements within the vicinity and to aid in establishing development guidelines and in planning of capital improvements projects within the adjacent Core to Shore areas.

Summary

The Park is expected to flood for the 2 through the 100 year frequency storms due to the lack of adequate drainage infrastructure in the vicinity and to a backwater flow condition caused by the flat topography surrounding the Park. While Union Station is not expected to flood, precautionary measures must be taken for Park buildings and infrastructure.

General Conditions

The Upper Park (herein referred to as the "Park") lies north of the Oklahoma River and south of the downtown core business district. The Project Site Map (Figure 1) illustrates the proximity of the Park to several existing and proposed developments. The Park is beyond the FEMA flood limits of the Oklahoma River as shown on the FEMA FIRM Panel in Figure 2.

Figure 1 - Project Site Map

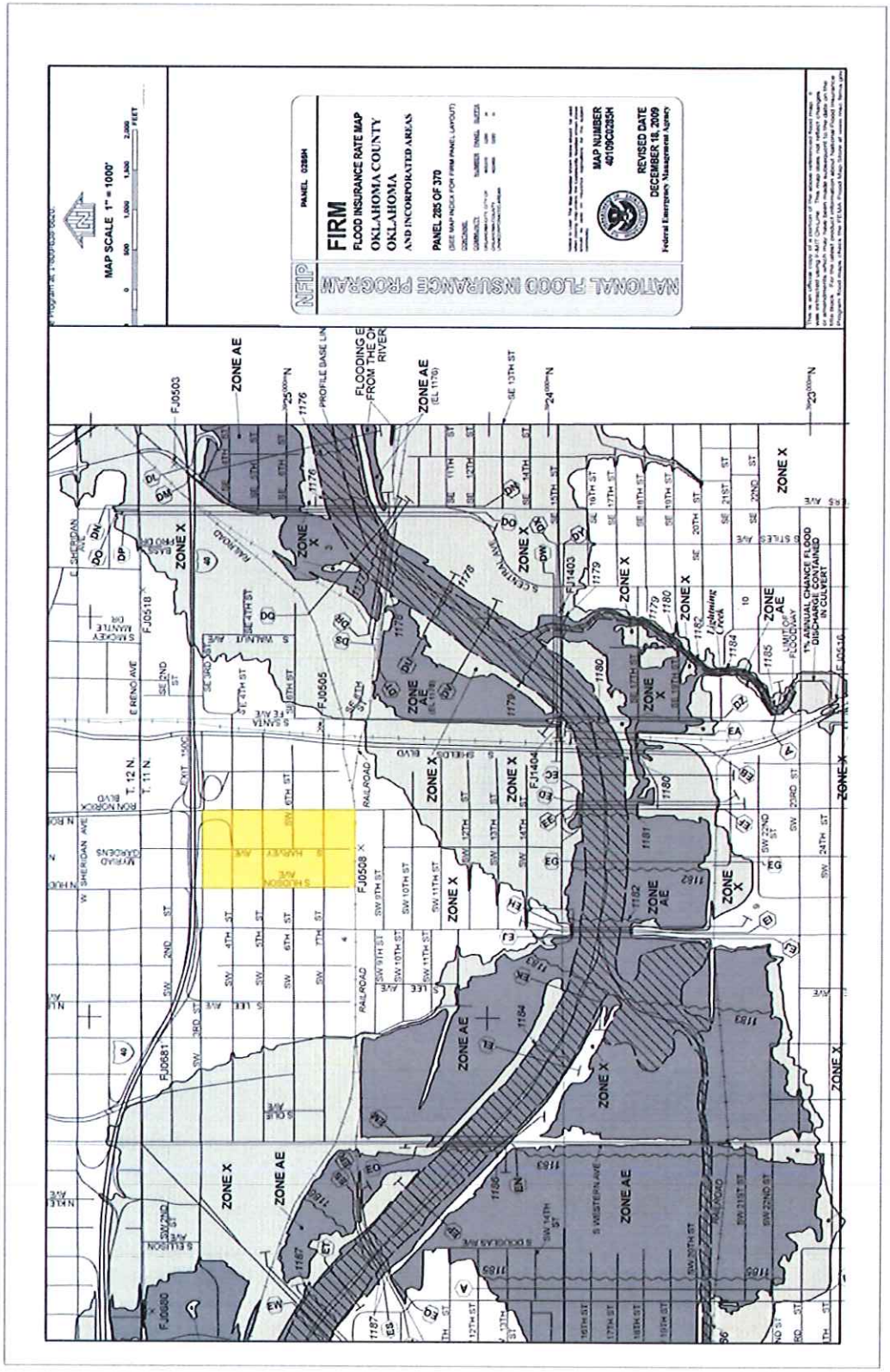


Figure 2 - FEMA FIRM Panel

Topographic gradient generally falls from northwest to southeast at less than one percent across the site. Topographic gradient of the larger drainage watershed is similar with sheet flow crossing the Park from the west and north as it moves to the east and southeast, ultimately exiting the drainage area via the S.W. 7th Street underpass of Shields Boulevard and the railroad and the I-40 drainage catchment beneath Shields Boulevard. Development within the surrounding drainage area is commercial at a moderate intensity with various areas of open space attributed to urban blight.

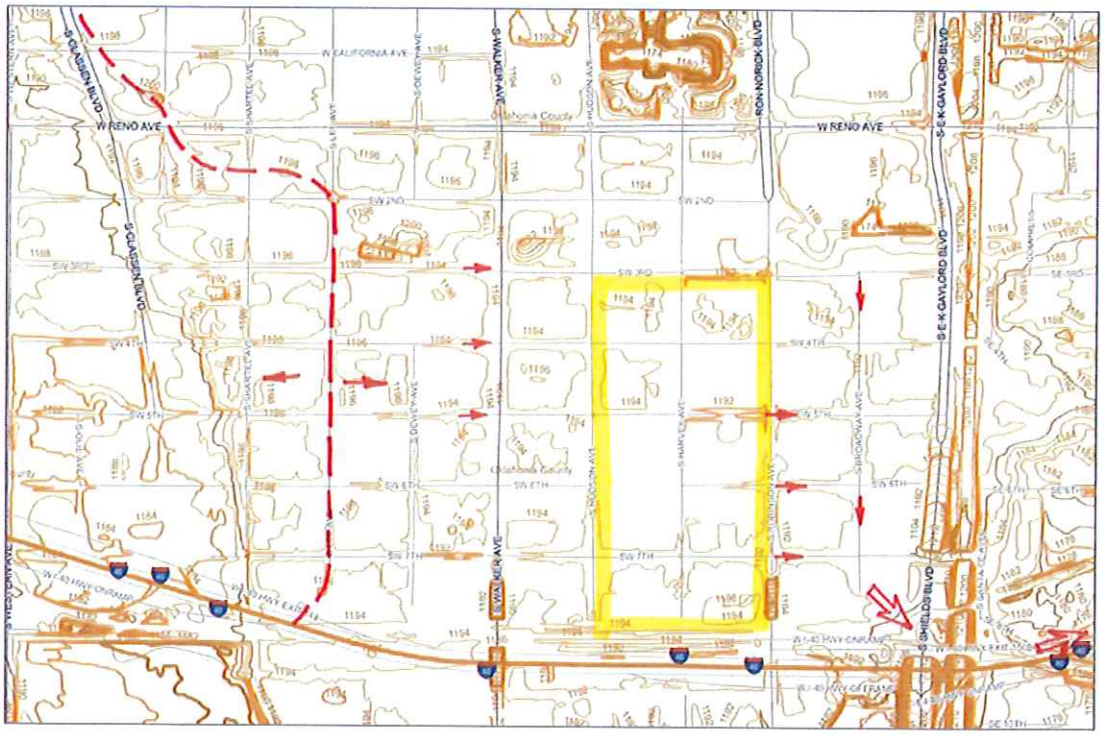


Figure 3 - Drainage Area Topography

Prior to the relocation of I-40 to its current alignment S.W. 7th Street served as the sump and surface discharge point for the drainage area with overtopping of the railroad tracks south of Union Station possible. Highway screen walls constructed south of Union Station and retaining walls constructed for the Robinson Avenue bridge approach have blocked these drainage routes, redirecting overland flow to S.W. 6th Street to cross Robinson Avenue before proceeding east.

Public storm sewer exists within the drainage area and is collected in two major trunk mains. The first main is a 3'-4" x 5'0" brick oval draining easterly in S.W. 7th Street. Capacity of this main based on as-built survey data is calculated to be 74 CFS. This main discharges to an open channel east of Shields Boulevard on the north side of I-40 and ultimately drains into a 12'x6' RCB which crosses I-40. The second main is a 60" RCP draining to the west in S.W. 5th Street to the Lee Avenue drainage system.

Capacity of this main based on as-built survey data is 122 CFS. An extensive storm sewer network built in the early to mid-1900s exists within the drainage area and is connected to these two mains.

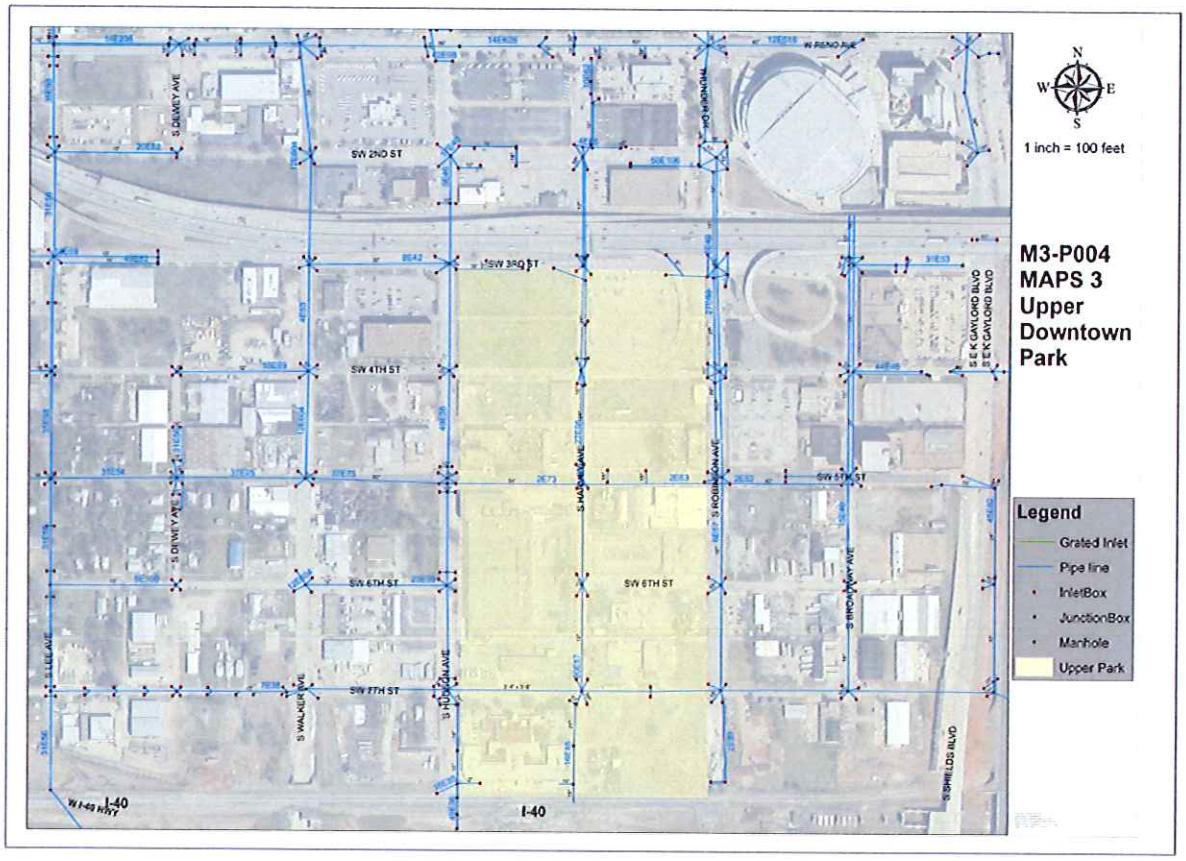


Figure 4 - Drainage Infrastructure Map

Drainage Considerations

The intent of this analysis is to determine the impact to the Park design given the change in overflow conditions adjacent to the Park and the known inadequacies of the drainage system. This includes the effect on buildings and infrastructure proposed by the Park design as well as the existing Union Station facility.

Multiple assumptions were made at the onset of the analysis. The guiding principle for each is to reflect a realistic and reasonable condition considering the long-term and unknown nature of development within the Core to Shore area. Given that myriad scenarios are possible assumptions were made to reflect those deemed most probable and avoid unwarranted requirements stemming from excessive caution or optimism. Assumptions include the following:

1. The Core to Shore area was considered to be fully developed. As such a runoff coefficient of 0.95 was used for runoff calculations.

2. In a developed scenario platted blocks would be fully built out and therefore were considered ineffective flow areas. Overland flow was restricted to only street rights-of-way.
3. The existing storm sewer system was considered to be fully functional with no backwater effect from the Oklahoma River. The difference in the local time of concentration and that of the river watershed is such that the local storm would discharge through the system before the flood impulse would be realized in the river. As such, the local storm sewer system would operate under a free flow outfall condition.
4. The conveyance of the storm sewer system in its existing configuration was utilized, i.e., no additional capacity was added to reflect possible infrastructure improvements that may or may not occur in the future. While those may happen their extent, capacities and timing are unknown at this time. The interim condition of significant buildout of Core to Shore before extensive and costly infrastructure upgrades are instituted is considered the most likely case.
5. Conveyance of the existing storm sewer network was determined using as-built survey information first, record drawings second and, lastly, an assumed minimum slope of 0.50% where other information was unavailable.
6. Conveyance of the existing storm sewer network was assumed to be controlled by pipe conveyance and not by the ability or inability of surface water to enter the pipe system.
7. Conveyance of only the largest pipes in the network was considered. Capacity of the system is restricted by the limits of the trunk mains and as such, upstream pipe effectively provides underground flow attenuation. This effect was considered transitory and ultimately negligible and was not included in the modeling.

Analysis methodology involved multiple protocols. Drainage areas were defined using the 2004 City of Oklahoma City contour maps. Drainage area runoff was generated by the Rational Method using intensities derived from the Oklahoma City standard IDF curves with rainfall values obtained from the HYDRO 35 and TP 40 precipitation publications. Pipe conveyance was computed as a full-flow analysis with Manning's Equation. Stage-storage analysis within the Park was performed with HEC-1 applying the 24 hour storm duration with SCS Type II hydrographs modified to produce the rational method peak discharges. Overland flow elevations and backwater profiles downstream of the Park were produced with the HEC-RAS software program.

Drainage Analysis

The drainage analysis routed the 2 through 100-year design storms through the study area. As shown on the Drainage Area Map in the Appendix 127.55 acres drain through the Park and 30.72 acres drain to Robinson Avenue downstream of the Park.

Net, realized surface flow is calculated by deducting the existing storm sewer system conveyance from the drainage area runoff. In the WEST drainage area (DA) the sum of storm sewer conveyance is 211

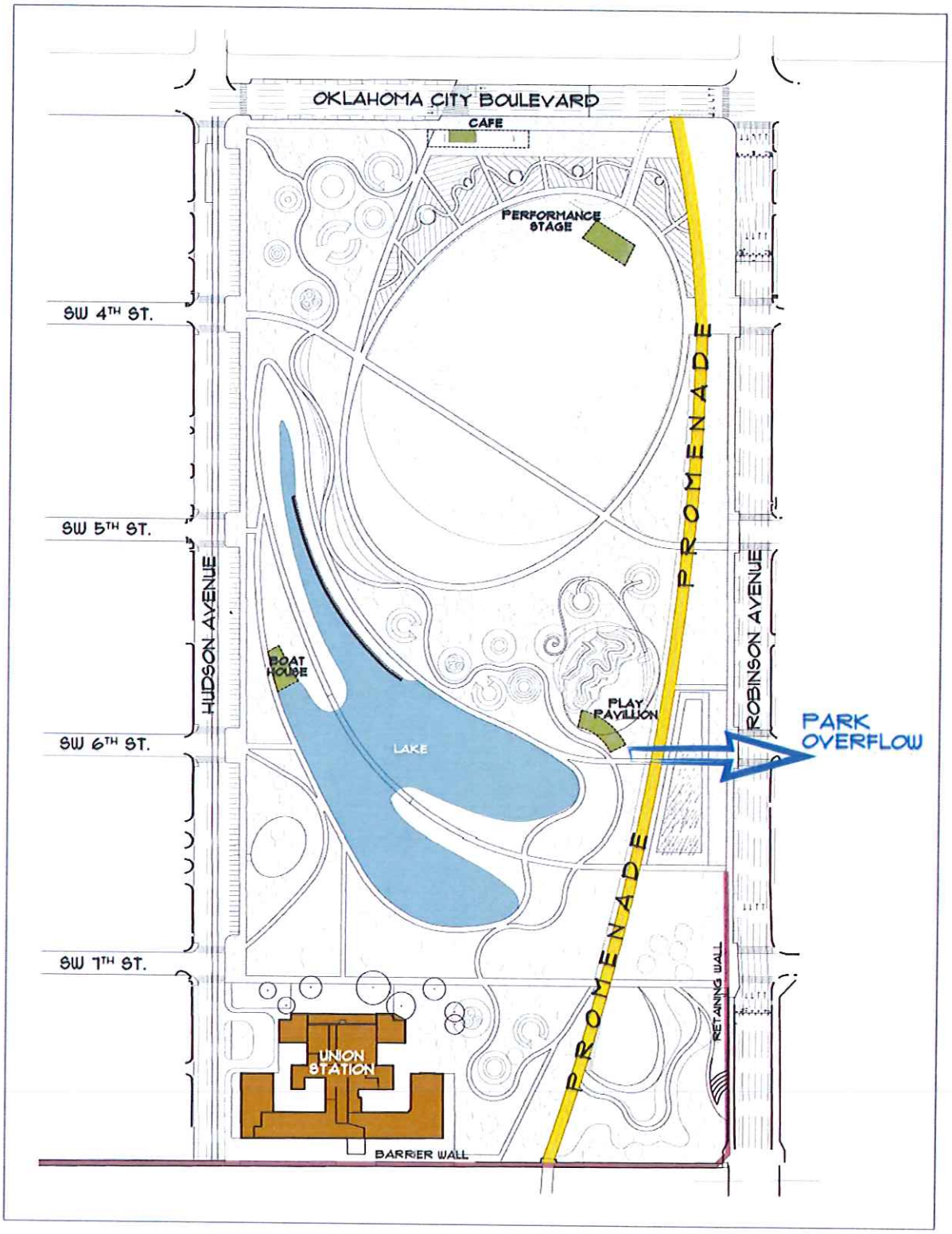


Figure 5 - Park Features Diagram

CFS, which is discharged to the Lee Avenue drainage system. Conveyance for the PARK and the ROBINSON DA's is controlled by the existing 3'-4" x 5'-0" brick oval, which has a capacity of 74 CFS. A 100-year, net realized surface flow of 516 CFS is routed to the Park. The Park is designed to collect all runoff west of the Promenade in the Lake and surrounding area. With the Promenade acting as the spillway, the Park attenuates surface runoff from the WEST, 7TH STS, 3RD STS and PARK DA's. Overtopping flows are added to the ROBINSON DA runoff for a 100-year, net realized surface flow of 379 CFS for the Robinson Avenue backwater analysis. Drainage system conveyance and net realized surface flow are tabulated on the Flow & Storm Sewer Summary in the Appendix.

With the Lake operating in a sump condition the Park attenuates surface flow for not only the Park itself but for the surrounding drainage areas as well. Overtopping of the Promenade is calculated to occur for the 10-year design storm. Storm frequencies less than the 10-year will be detained completely within the storage volume of the Park, flooding the Park yet not cresting the Promenade. The stage-storage table below presents the HEC-1 volumetric flood information for the 2 through the 100-year design storms without influence from the downstream backwater condition.

Table 1 - Park Stage-Storage Summary

Design Storm	Maximum Reservoir WSEL	Maximum Storage [AC-FT]	Maximum Overflow [CFS]
100	1191.61	33	118
50	1191.48	31	58
25	1191.33	30	16
10	1191.23	29	4
5	1190.92	26	0
2	1190.27	20	0

Downstream drainage conditions impact flooding within the Park. Floodwaters crest the Promenade and combine with surface runoff from the ROBINSON DA to cross Robinson Avenue and proceed easterly on 4th, 5th and 6th Streets. The HEC-RAS backwater analysis of this flow regime shows that little to no topographic gradient from the Promenade east results in a backwater condition crossing Robinson Avenue driven solely by hydraulic head and produces a flow depth that prevents overtopping discharge from and backflows into the Park. HEC-RAS summary data for the 100 year design storm are summarized in the following table.

Table 2 - Downstream 100-Year Backwater Section Summary

Location	River Station	Min. Ground Elevation	100 Year WSEL	E.G. Slope [%]	Flow Velocity [fps]
Promenade	12+24	1191.19	1192.81	0.00%	0.13
W Robinson Curb	11+07	1190.79	1192.81	0.00%	0.31
CL Robinson	10+77	1191.95	1192.68	0.47%	2.68
E. Robinson Curb	10+47	1191.31	1192.60	0.00%	0.53
50' East R/W	9+50	1191.20	1192.49	0.10%	2.47

The backwater flood elevation controls the flood water surface elevation at the Promenade, and, therefore, is projected throughout the Park. With the unknowns of the actual Park drainage system design and the current uncertainties surrounding the existing storm drainage system and its future improvement, projection of the controlling flood elevation provides a factor of safety for the proposed design. The figure below illustrates the flood elevations and limits within the Park for the various design storms.

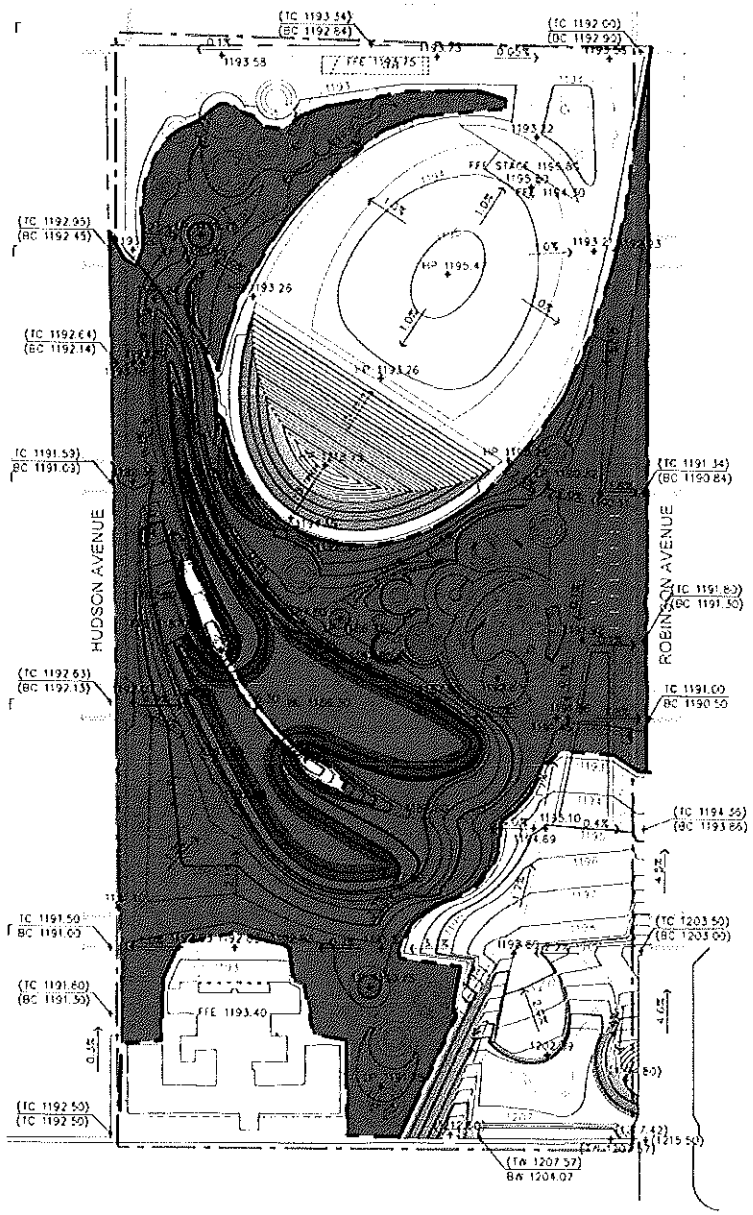


Figure 6 - Park Flood Map

Table 3 - Flood Stage Elevations

Design Storm	Flood Elevation
100	1192.81
50	1192.76
25	1192.71
10	1192.68
5	1192.66
2	1192.63

Conclusions

The Park is expected to flood for all frequency storms as development within the area increases, putting further strain on the existing drainage system. Flooding is caused not by internal Park elements or design but by conditions external to the Park, the predominant of which is the lack of adequate underground drainage infrastructure within the drainage area.

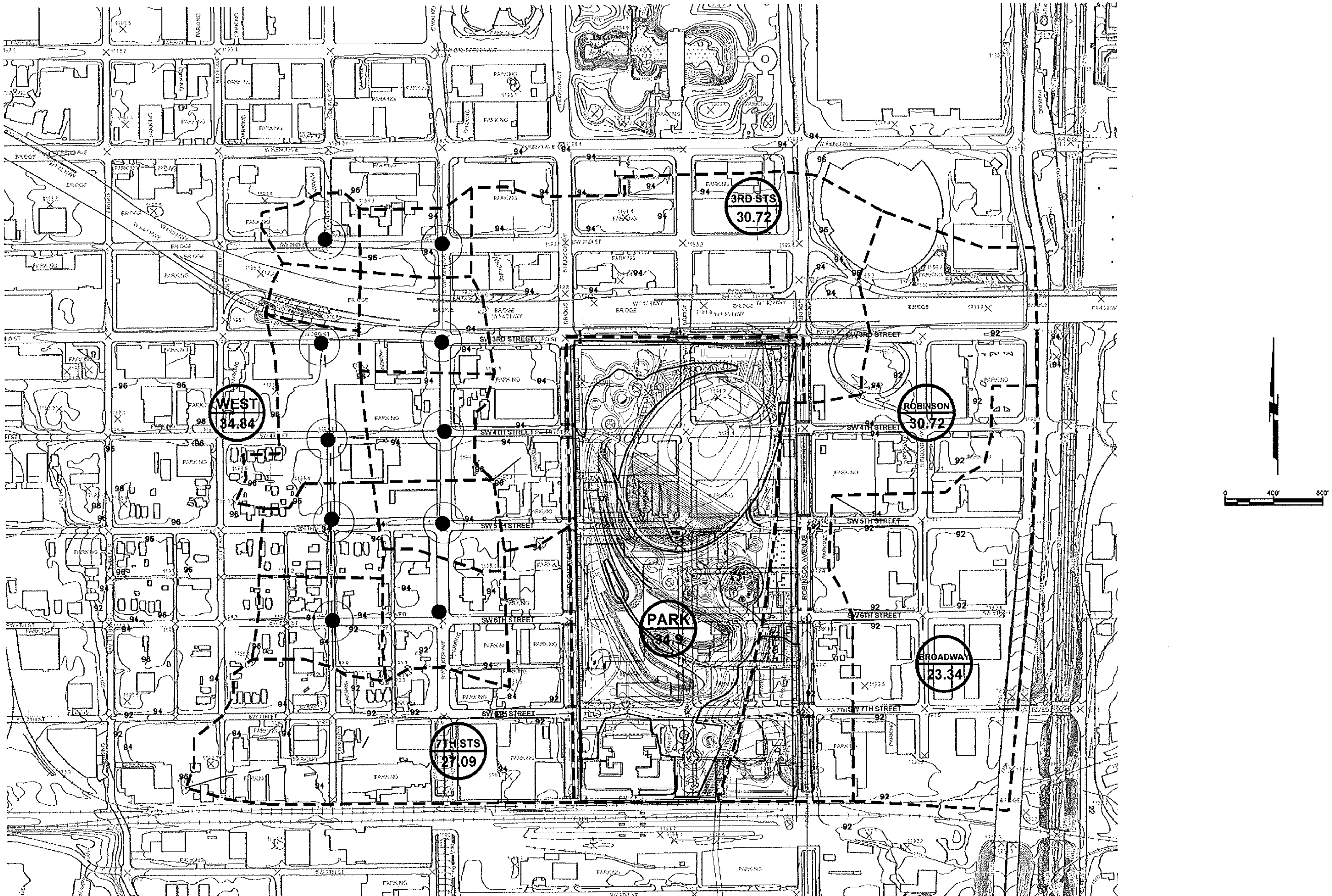
Flood elevations do not vary greatly for the six considered design storms. The 2 year storm flood elevation is calculated to be 1192.63 and the 100 year storm flood elevation 1192.81. Under the assumed operating conditions these storm events are not expected to flood Union Station, which has a finished floor elevation of 1193.40. Proposed Park design of the areas surrounding the Performance Stage and the Café prevent them from being inundated, whereas the Play Pavilion and Boat Dock facilities are within the flood limits. Flooding both upstream and downstream of the Park is expected to be widespread.

Recommendations

It is recommended that this flood study be accepted as the basis of design for the Park. This would establish minimum finished floor elevations for building structures and determine other development guidelines and considerations for Park elements and infrastructure.

Furthermore, it is recommended that The City of Oklahoma City take under consideration the findings of this report as may be applicable for development of the surrounding vicinity and the planning of public infrastructure improvements within this area of Core to Shore.

APPENDIX



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NO.	DESCRIPTION	DATE
	REVISIONS	

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Certificate of Authorization #1484 Exp. Date: 06-30-2015
• ENGINEERS • SURVEYORS • PLANNERS •

MAPS 3 UPPER DOWNTOWN PARK FLOOD ANALYSIS & REPORT

OKLAHOMA CITY, OKLAHOMA COUNTY, OKLAHOMA

DRAINAGE AREA MAP

Proj No.
Date 03-03-15
Scale 1"= 400'
Checked By
Approved By

SHEET NUMBER
EX1

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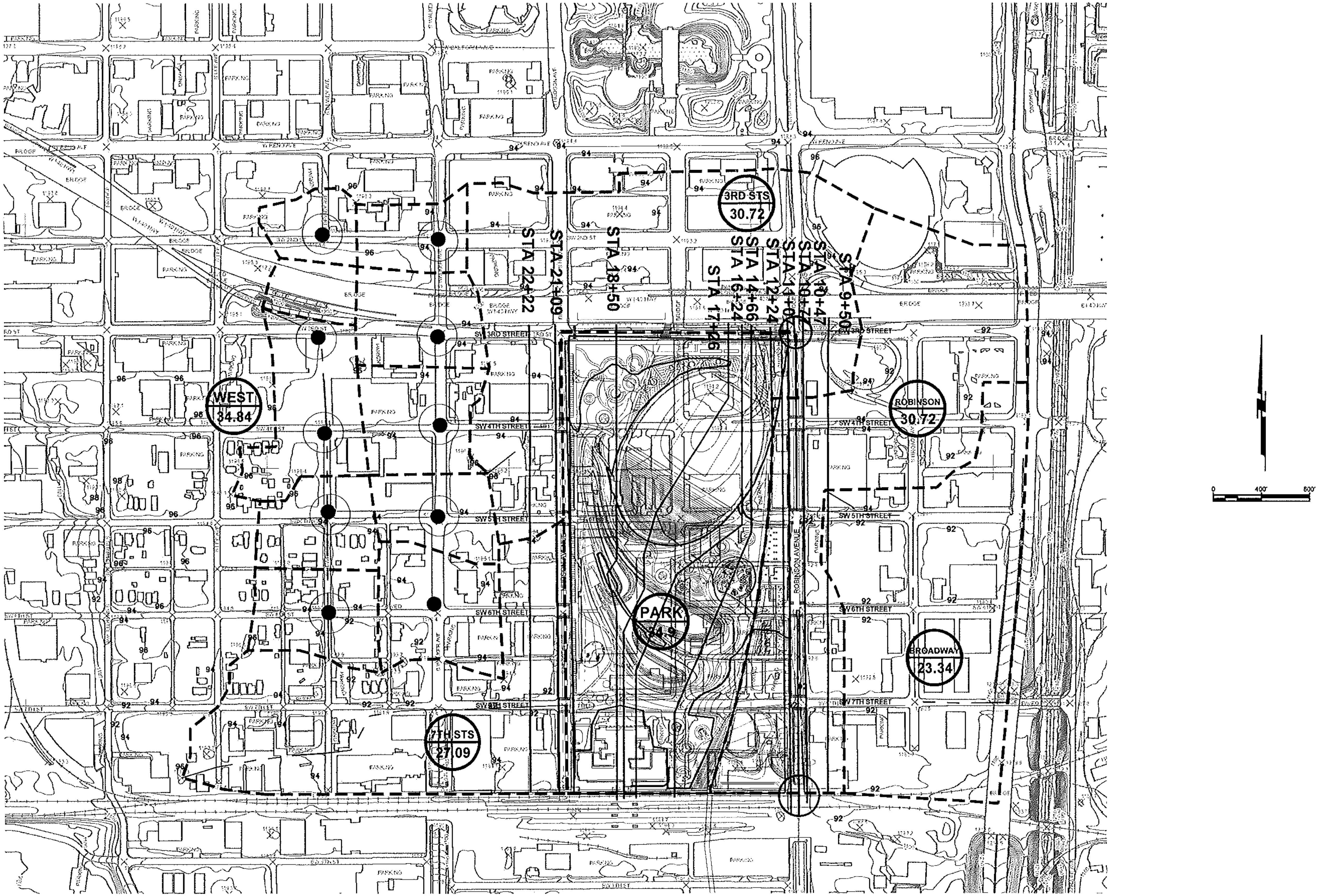

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MAPS 3 UPPER DOWNTOWN PARK FLOOD ANALYSIS & REPORT

OKLAHOMA CITY, OKLAHOMA COUNTY, OKLAHOMA

RIVER STATION MAP

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Proj. No
Date 03-03-15
Scale 1"= 400'
Checked By
Approved By

SHEET NUMBER
EX2

DRAINAGE CALCULATIONS for: UPPER DOWNTOWN PARK

2/4/2015
3/20/2014

Johnson & Associates, Inc.

Drainage Area Designation: *WEST*
Flow surface type: *SHEET FLOW ONLY*

D.A.: 34.84 acres
Weighted C: 0.9500

DEVELOPMENT TYPE	acres
Concrete/Asphalt	34.84
Commercial	0
Residential	0
Rocky/Bare Soil	0
Cultivated	0
Avg. Pasture	0
TOTAL SITE ACREAGE	34.84

TIME OF CONCENTRATION

**** OVERLAND ****

Upstream Elevation 1207.60
Dnstream Elevation 1194.50

	Length	Slope	k	Tc	
Overland	1000	1.31%	0.3720	11.40	
	Length	Velocity (fps)			
Pipe Flow	0	4.72		0.00	
	Length	Velocity (fps)			
Channel Flow	0	2		0.00	
			Total	**11.40**	**min**

RUNOFF

	Intensity (in/hr)		Q=CiA (cfs)
i2=	4.52	Q2=	149.7
i5=	5.38	Q5=	178.0
i10=	5.95	Q10=	196.8
i25=	6.89	Q25=	228.0
i50=	7.62	Q50=	252.4
i100=	8.32	Q100=	275.5

DRAINAGE CALCULATIONS for: UPPER DOWNTOWN PARK

2/4/2015
3/20/2014

Johnson & Associates, Inc.

Drainage Area Designation: *7TH STS*
Flow surface type: *SHEET FLOW ONLY*

D.A.: 27.09 acres
Weighted C: 0.9500

DEVELOPMENT TYPE	acres
Concrete/Asphalt	27.09
Commercial	0
Residential	0
Rocky/Bare Soil	0
Cultivated	0
Avg. Pasture	0
TOTAL SITE ACREAGE	27.09

TIME OF CONCENTRATION

**** OVERLAND ****

Upstream Elevation	1196.30
Dnstream Elevation	1193.90

	Length	Slope	k	Tc	
Overland	1000	0.24%	0.3720	16.01	
	Length	Velocity (fps)			
Pipe Flow	684.26	4		2.85	
	Length	Velocity (fps)			
Channel Flow	0	2		0.00	
			Total	**18.87**	**min**

RUNOFF

	Intensity (in/hr)		Q=CiA (cfs)
i2=	3.65	Q2=	93.8
i5=	4.37	Q5=	112.6
i10=	4.89	Q10=	125.7
i25=	5.70	Q25=	146.7
i50=	6.32	Q50=	162.7
i100=	6.93	Q100=	178.3

DRAINAGE CALCULATIONS for: UPPER DOWNTOWN PARK

2/4/2015
3/20/2014

Johnson & Associates, Inc.

Drainage Area Designation: *3RD STS*
Flow surface type: *SHEET FLOW ONLY*

D.A.: 30.72 acres
Weighted C: 0.9500

DEVELOPMENT TYPE	acres
Concrete/Asphalt	30.72
Commercial	0
Residential	0
Rocky/Bare Soil	0
Cultivated	0
Avg. Pasture	0
TOTAL SITE ACREAGE	30.72

TIME OF CONCENTRATION

**** OVERLAND ****

Upstream Elevation	1196.20
Dnstream Elevation	1192.60

	Length	Slope	k	Tc	
Overland	1000	0.36%	0.3720	14.77	
	Length	Velocity (fps)			
Pipe Flow	1036.7	4.5		3.84	
	Length	Velocity (fps)			
Channel Flow	0	2		0.00	
			Total	**18.61**	**min**

RUNOFF

	Intensity (in/hr)		Q=CiA (cfs)
i2=	3.67	Q2=	107.1
i5=	4.40	Q5=	128.5
i10=	4.92	Q10=	143.5
i25=	5.73	Q25=	167.3
i50=	6.36	Q50=	185.5
i100=	6.97	Q100=	203.3

DRAINAGE CALCULATIONS for:

Johnson & Associates, Inc.

UPPER DOWNTOWN PARK
PRELIMINARY

2/5/2015
3/20/2014

Drainage Area Designation: *PARK*
Flow surface type: *SHEET FLOW ONLY*

D.A.: 34.9 acres
Weighted C: 0.5430

DEVELOPMENT TYPE	acres
Concrete/Asphalt	2
Commercial	1.5
Residential	0
Rocky/Bare Soil	0
Cultivated	31.4
Avg. Pasture	0
TOTAL SITE ACREAGE	34.9

TIME OF CONCENTRATION

**** OVERLAND ****

Upstream Elevation	1218.75
Dnstream Elevation	1191.45

	Length	Slope	k	Tc	
Overland	617	4.42%	0.7377	14.83	
	Length	Velocity (fps)			
Pipe Flow	0	4.72		0.00	
	Length	Velocity (fps)			
Channel Flow	0	2		0.00	
			Total	**14.83**	**min**

RUNOFF

	Intensity (in/hr)		Q=CiA (cfs)
i2=	4.07	Q2=	77.2
i5=	4.86	Q5=	92.1
i10=	5.40	Q10=	102.4
i25=	6.28	Q25=	119.0
i50=	6.96	Q50=	131.8
i100=	7.61	Q100=	144.2

DRAINAGE CALCULATIONS for:

Johnson & Associates, Inc.

UPPER DOWNTOWN PARK
PRELIMINARY

2/5/2015
3/20/2014

Drainage Area Designation: *ROBINSON STS*
Flow surface type: *SHEET FLOW ONLY*

D.A.: 30.72 acres
Weighted C: 0.9500

DEVELOPMENT TYPE	acres
Concrete/Asphalt	30.72
Commercial	0
Residential	0
Rocky/Bare Soil	0
Cultivated	0
Avg. Pasture	0
TOTAL SITE ACREAGE	30.72

TIME OF CONCENTRATION

**** OVERLAND ****

Upstream Elevation	1192.70
Dnstream Elevation	1174.00

	Length	Slope	k	Tc	
Overland	756	2.47%	0.3720	9.06	
	Length	Velocity (fps)			
Pipe Flow	0	4.72		0.00	
	Length	Velocity (fps)			
Channel Flow	0	2		0.00	
			Total	**9.06**	**min**

RUNOFF

	Intensity (in/hr)		Q=CiA (cfs)
i2=	4.90	Q2=	143.0
i5=	5.81	Q5=	169.5
i10=	6.40	Q10=	186.7
i25=	7.39	Q25=	215.6
i50=	8.18	Q50=	238.6
i100=	8.92	Q100=	260.2

FLOW & STORM SEWER SUMMARY

Storm sewer systems west of Hudson to Lee Ave

- Existing 15" pipe @ 0.5%, Q capacity = 4.566 CFS
- Existing 42" pipe @ 0.5%, Q capacity = 71.14 CFS
- Existing 2- 15" pipe @ 0.5%, Q capacity = 9.132 CFS
- Existing 60"pipe @ 0.22%, Q capacity = 122 CFS
- Existing 15" pipe @ 0.5%, Q capacity = 4.566 CFS

Total Q to be underground = 211.404 CFS

Overland Flow Summary

At Sta 22+22 (west of Hudson)
Q from West (sheet flow) = 275.5 CFS – 211.404 CFS (STS to Lee Ave) = 64.096 CFS overflow from west.

Q100 at Sta 22+22 = 64.096 CFS + 178.3 CFS (from 7th STS) = 242.396 CFS

At Sta 21+09 (west curb of Hudson)
Q100 = 242.396 – 74 (exist brick oval pipe at S=0.40%) = 168.396 CFS

At Sta 18+65, 17+26, 16+24, 14+66, 12+24 (Park)
Q100 = 168.396 + 203.3 (from 3rd STS) + 144.2 (Park) = 515.896 CFS

At Sta 11+07 (west curb Robinson), 10+77 (CL Robinson), 10+47 (east curb Robinson), 9+50 (east of Robinson) **Without Pond Attenuation**

Q100 = 445.896+ 260.2 (Robinson STS) = 776.096 CFS

At Sta. 11+07 to Sta. 9+50 **With Pond Attenuation**

EVENT YEAR	PROMENADE (STA 12+24) OVERFLOW Q FROM HEC-1	ROBINSON STS (FROM SPREADSHEET)	STA 11+07, 10+77, 10+47, 9+50 (USED IN HEC-RAS)
Q2	0	143.0	143.0
Q5	0	169.5	169.5
Q10	4	186.7	190.7
Q25	16	215.6	231.6
Q50	58	238.6	296.6
Q100	118	260.2	378.6

THIS CHART SHOWS

THE DISCHARGE IN CUBIC FEET PER SECOND, THE VELOCITY IN FEET PER SECOND, THE GRADE OF THE SEWER, FOR $H \times V$ THE SIZE OF EGG-SHAPED SEWER SHOWN.

OKLAHOMA CITY, OKLA.
JAN. 25, 1916

DISCHARGE — CUBIC FEET PER SECOND

900
800
700
600
500
400
300
200
100

VELOCITIES — FEET PER SECOND

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

7'-0" x 10'-6" EGG-SHAPED AREA = 56.506 SQ. FT.

6'-0" x 9'-0" EGG-SHAPED AREA = 41.3469 SQ. FT.

5'-4" x 8'-0" EGG-SHAPED AREA = 32.5716 SQ. FT.

4'-8" x 7'-0" EGG-SHAPED AREA = 25.044 SQ. FT.

4'-2" x 6'-3" EGG-SHAPED AREA = 19.965 SQ. FT.

3'-9" x 5'-7 1/2" EGG-SHAPED AREA = 16.151 SQ. FT.

3'-4" x 5'-0" EGG-SHAPED AREA = 12.778 SQ. FT.

3'-0" x 4'-6" EGG-SHAPED AREA = 10.35 SQ. FT.

2'-6" x 3'-9" EGG-SHAPED AREA = 7.187 SQ. FT.

2'-0" x 3'-0" EGG-SHAPED AREA = 4.6941 SQ. FT.

74

1 2 3 4 5 6 7 8 9 1.0 2 4 6 GRADE 8 2.0 2 4 6 8 3.0

S=0.40%

POND ATTENUATION VOLUME

ELEVATION CONTOUR AREA TABLE

Elevation (feet)	Area (SF)	Area (AC)
1186.3	140,778.67	3.23
1187.0	158,578.82	3.64
1188.0	209,017.66	4.79
1189.0	249,310.54	5.72
1190.0	308,008.60	7.07
1191.0	407,361.13	9.35
1192.0	642,945.60	14.76
1193.0	1,009,720.80	23.18
1194.0	1,160,002.80	26.63
1195.0	1,243,202.40	28.54

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*            VERSION 4.1                *
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*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*         609 SECOND STREET             *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 756-1104              *
*                                       *
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X     X  X        X              X
XXXXXXX  XXXX     X        XXXXX X
X     X  X        X              X
X     X  X        X     X        X
X     X  XXXXXXX   XXXXX         XXX
```

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

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

1 HEC-1 INPUT PAGE 1

```
          LINE          ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
                        *DIAGRAM
            1           ID        MAPS DOWNTOWN PARK                              FILE: MAPSPARK.DAT
            2           ID
            3           ID
            4           ID
            5           ID
            6           ID
            7           ID
            8           ID
            9           IT       5 15DEC14    0100     289
                        *         100 YR   50 YR   25 YR   10 YR    5 YR    2 YR
           10           JR    FLOW    .677    .586    .493    .391    .340    .268
           11           IO       5       2

           12           KK    DA 1        FLOW TO PARK WEST OF PROMENADE
           13           PH                    .87    1.86    3.82    4.95    5.38    6.30    7.44    8.68
           14           BA   .1993
           15           LS              88
           16           UD   .1887

           17           KK  RT POND       ROUTE POND WITH PROMENADE AS WEIR SECTION
           18           RS       1    ELEV  1186.3
           19           SA    3.23    3.64    4.79    5.72    7.07    9.35   14.76   23.18   26.63   28.54
           20           SE  1186.3    1187    1188    1189    1190    1191    1192    1193    1194    1195
           21           SS  1191.1       1       3     1.5
           22           ST    1193      10       3     1.5
           23           SW       5      77     175     272     324     402     770     892    1181
           24           SE  1191.1 1191.27  1191.4 1191.66 1191.76 1191.93 1192.00 1192.80 1193.00
           25           ZZ
```

1 SCHEMATIC DIAGRAM OF STREAM NETWORK

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

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

    12        DA 1
                V
                V
    17      RT PON

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
```


```
1*****************************************
*                                       *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
*              JUN  1998                *
*            VERSION 4.1                *
*                                       *
*  RUN DATE   05FEB15  TIME  13:01:06   *
*                                       *
*****************************************
```

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

```
 11 IO          OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          2  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE

    IT          HYDROGRAPH TIME DATA
                      NMIN          5  MINUTES IN COMPUTATION INTERVAL
                     IDATE    15DEC14  STARTING DATE
                     ITIME       0100  STARTING TIME
                        NQ        289  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE    16DEC14  ENDING DATE
                    NDTIME       0100  ENDING TIME
                     ICENT         19  CENTURY MARK

                COMPUTATION INTERVAL     .08 HOURS
                     TOTAL TIME BASE   24.00 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 RUNOFF
                    .68      .59      .49      .39      .34      .27
1                                                    STATION     DA 1

                 (O) OUTFLOW
        0.     100.     200.     300.     400.     500.     600.      0.      0.      0.      0.      0.      0.
                                                                                         (L) PRECIP,  (X) EXCESS
        .0      .0       .0       .0       .0       .0       .0       .0      .0     1.2       .8       .4      .0
DAHRMN PER
150100  10---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
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150110  30         .         .         .         .         .         .         .         .         .         .         .         .
150115  40         .         .         .         .         .         .         .         .         .         .         .         .
150120  50         .         .         .         .         .         .         .         .         .         .         .         .
150125  60         .         .         .         .         .         .         .         .         .         .         .         .
150130  70         .         .         .         .         .         .         .         .         .         .         .         .
150135  80         .         .         .         .         .         .         .         .         .         .         .         .
150140  90         .         .         .         .         .         .         .         .         .         .         .         .
150145 100         .         .         .         .         .         .         .         .         .         .         .         .
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150245 220         .         .         .         .         .         .         .         .         .         .         .         .
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150300 250         .         .         .         .         .         .         .         .         .         .         .         .
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150320 290         .         .         .         .         .         .         .         .         .         .         .         .
150325 300         .         .         .         .         .         .         .         .         .         .         .         .
150330 310 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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150420 410 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
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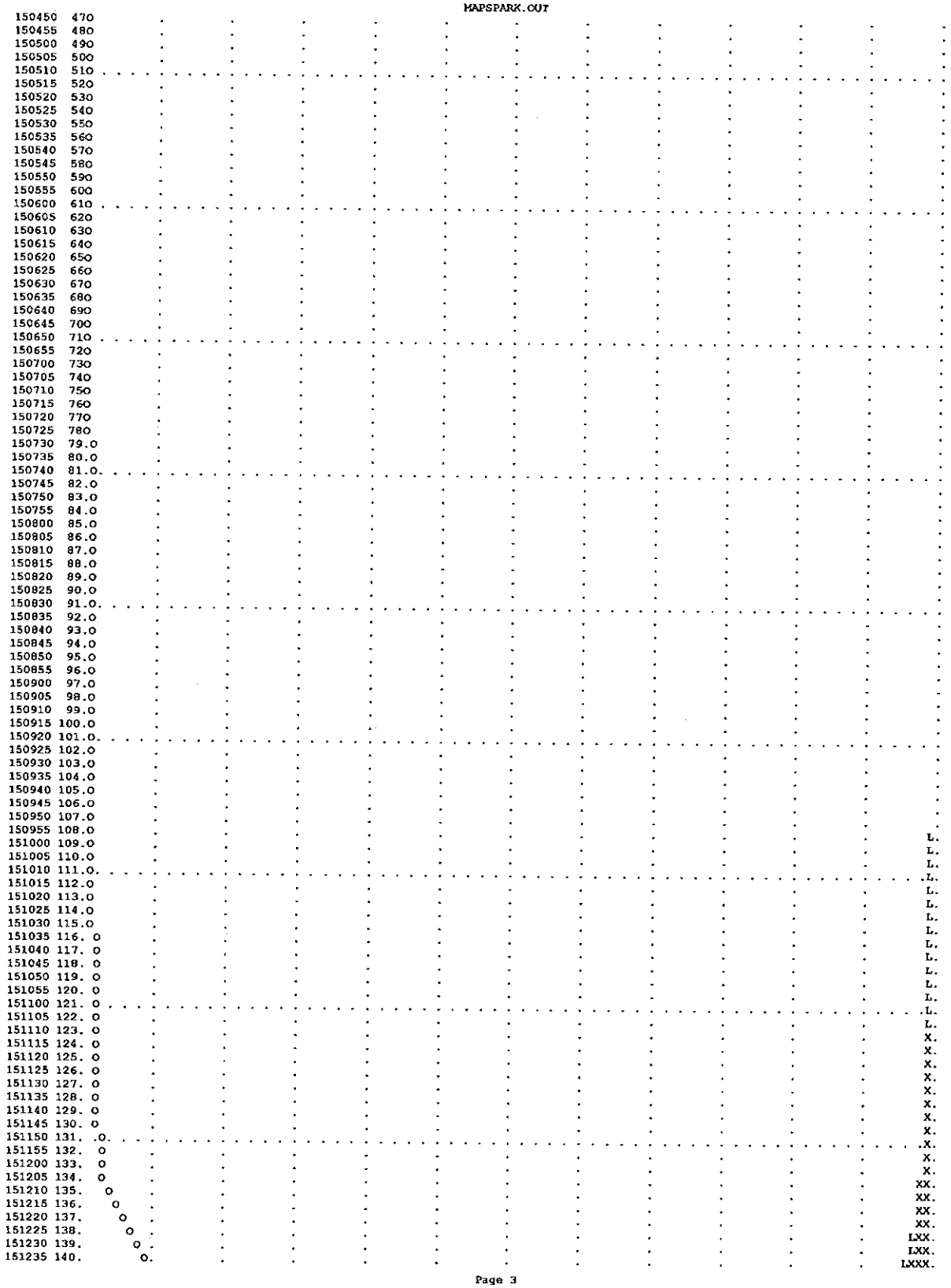
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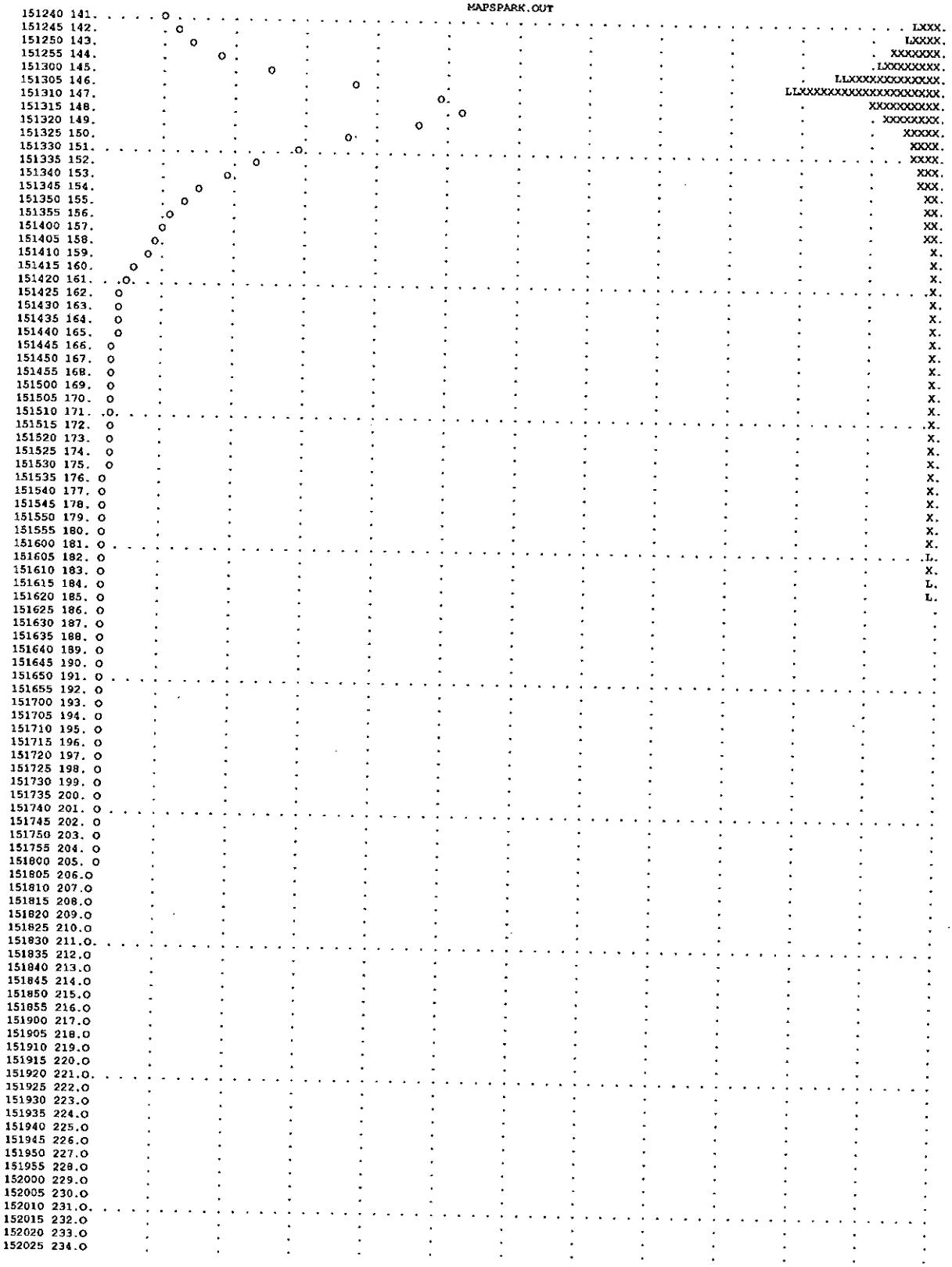
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STATION DA 1

```
                (O) OUTFLOW
        0.      50.     100.    150.    200.    250.    300.    350.    400.    450.    0.      0.      0.
                                                                                    (L) PRECIP, (X) EXCESS
        .0      .0      .0      .0      .0      .0      .0      .0      .0      1.2     .8      .4      .0
DAHRMN PER
150100   10
150105   20
150110   30
150115   40
150120   50
150125   60
150130   70
150135   80
150140   90
150145  100
150150  110
150155  120
150200  130
150205  140
150210  150
150215  160
150220  170
150225  180
150230  190
150235  200
150240  210
150245  220
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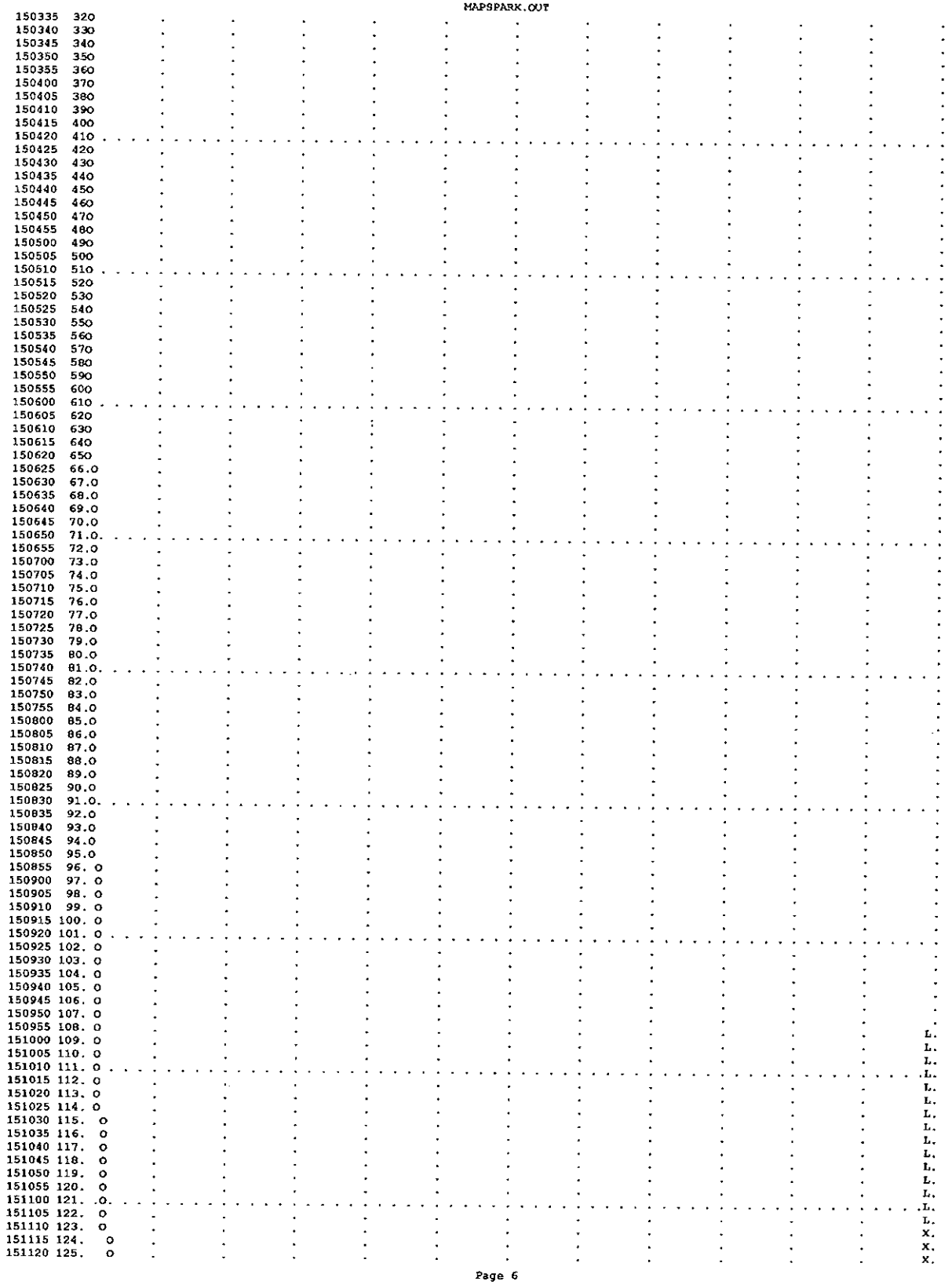
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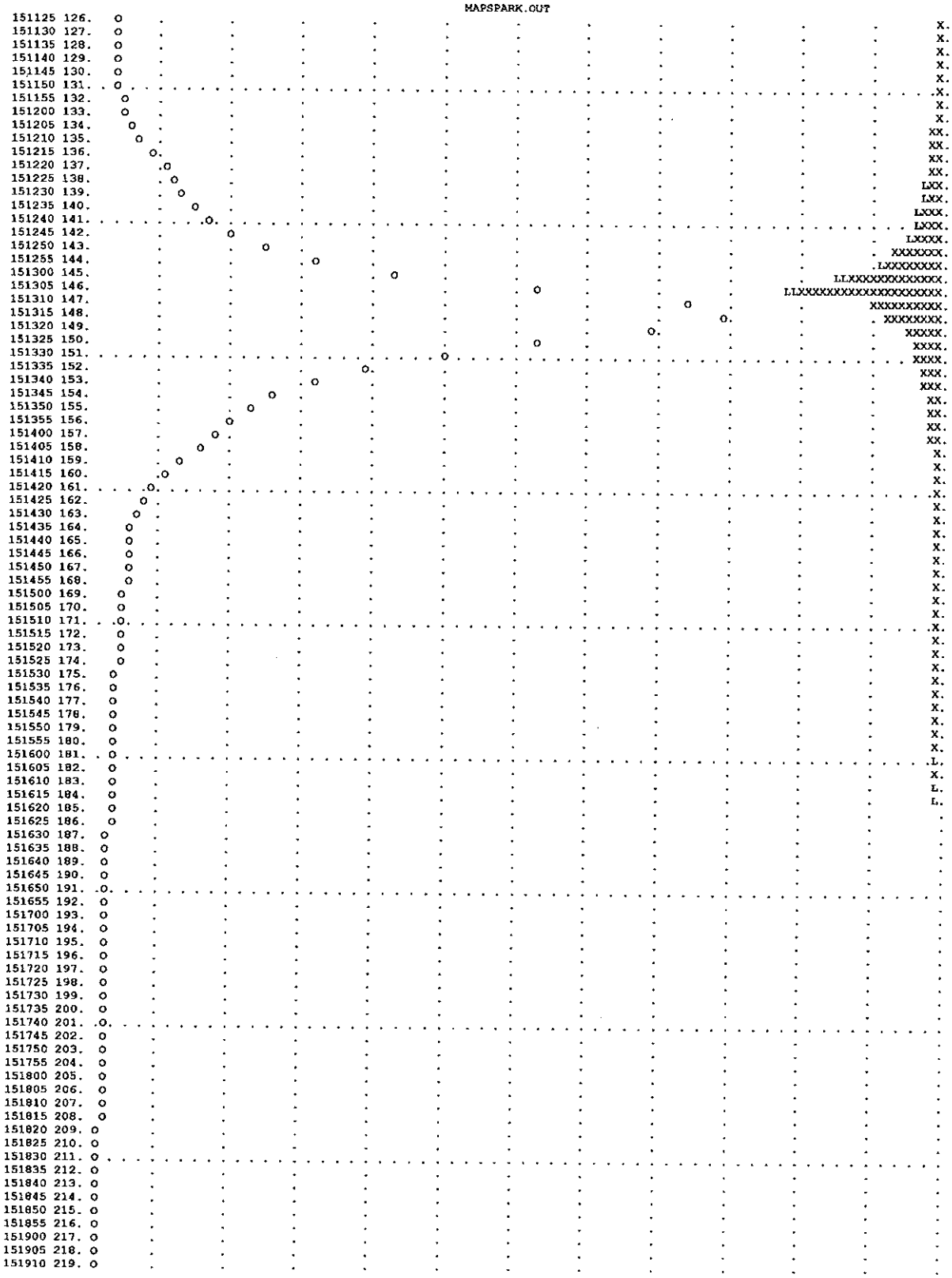
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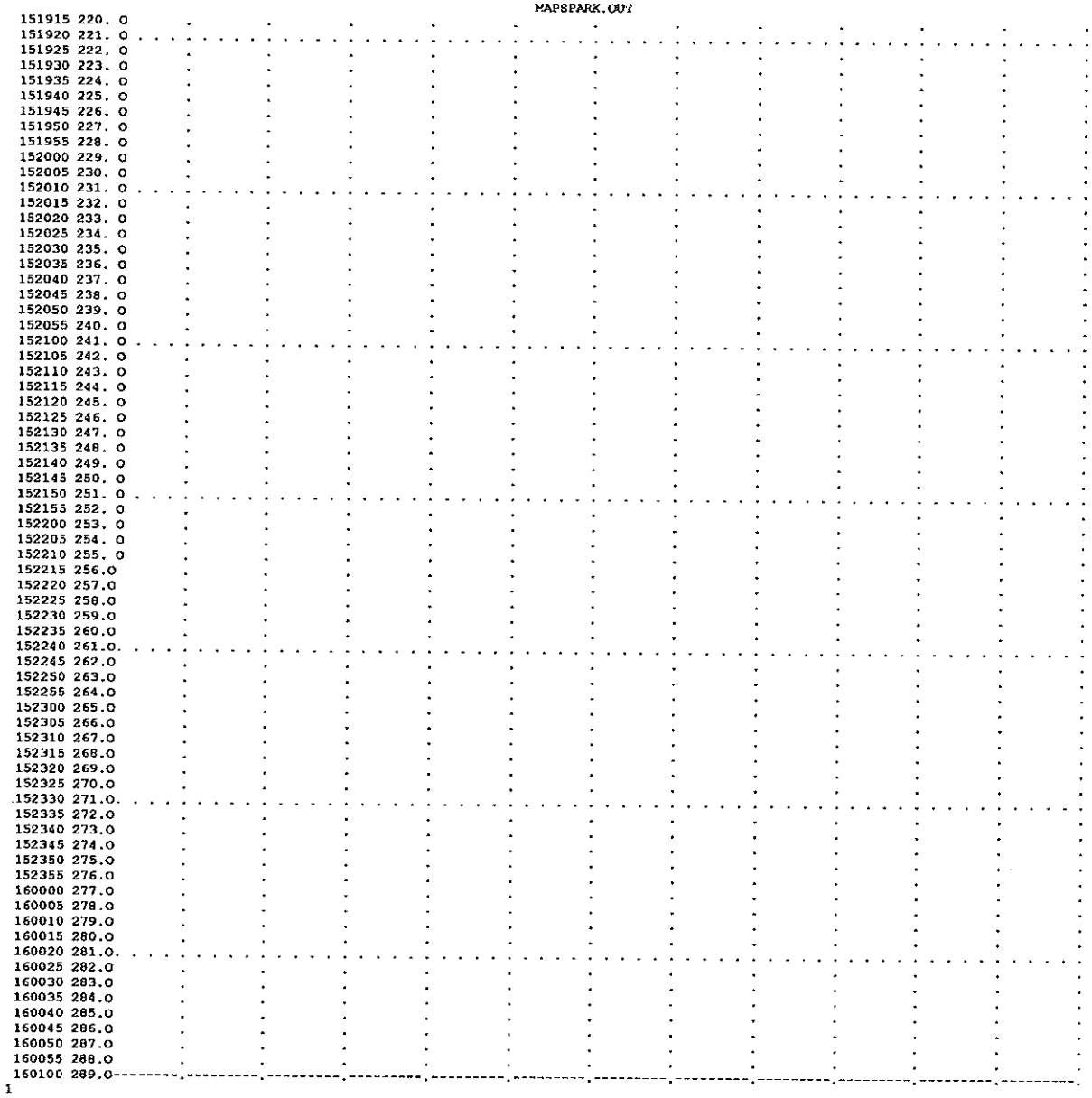
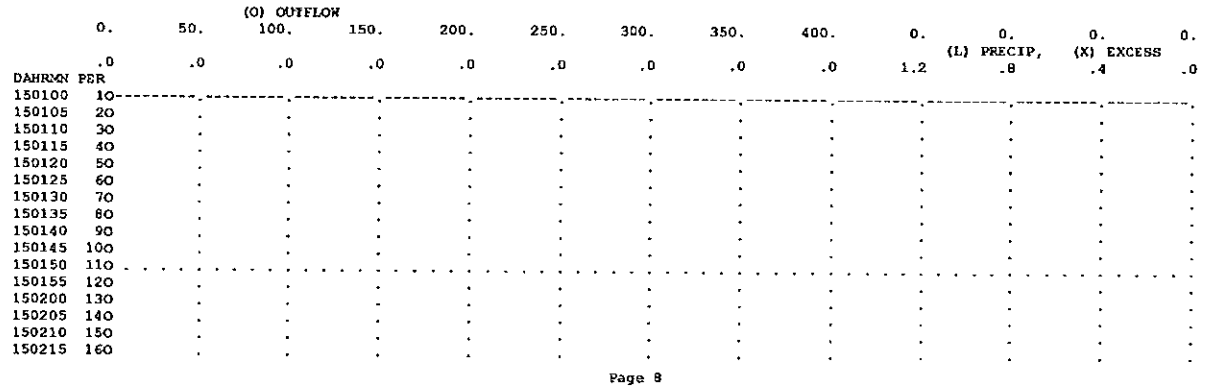


STATION DA 1


(O) OUTFLOW
0. 50. 100. 150. 200. 250. 300. 350. 400.
.0 .0 .0 .0 .0 .0 .0 .0 .0
0. 0. 0. 0.
1.2 (L) PRECIP, .8 (X) EXCESS .4 .0
DAHRMN PER

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150225 180
150230 190
150235 200
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150250 230
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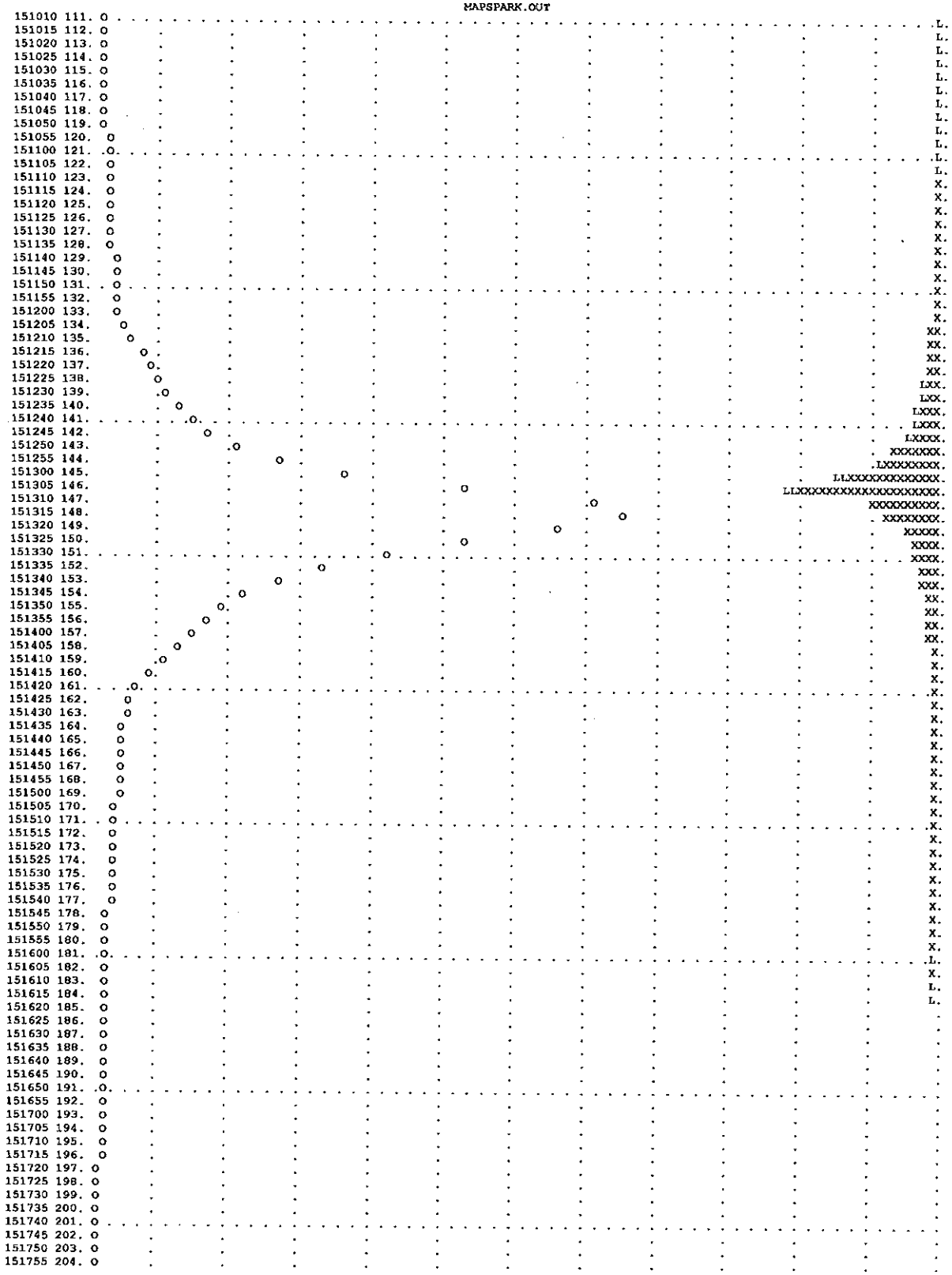
L.
L.
L.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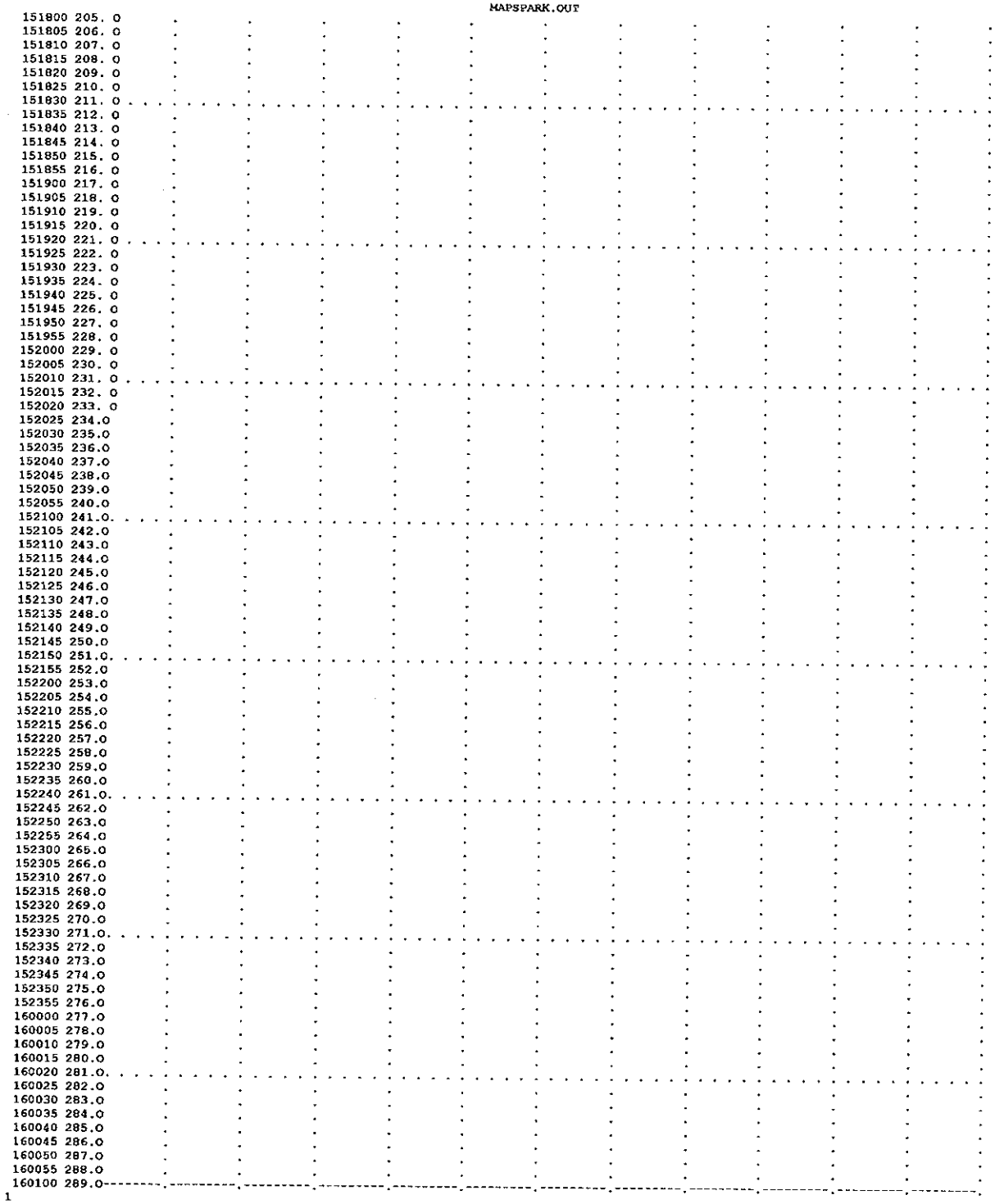
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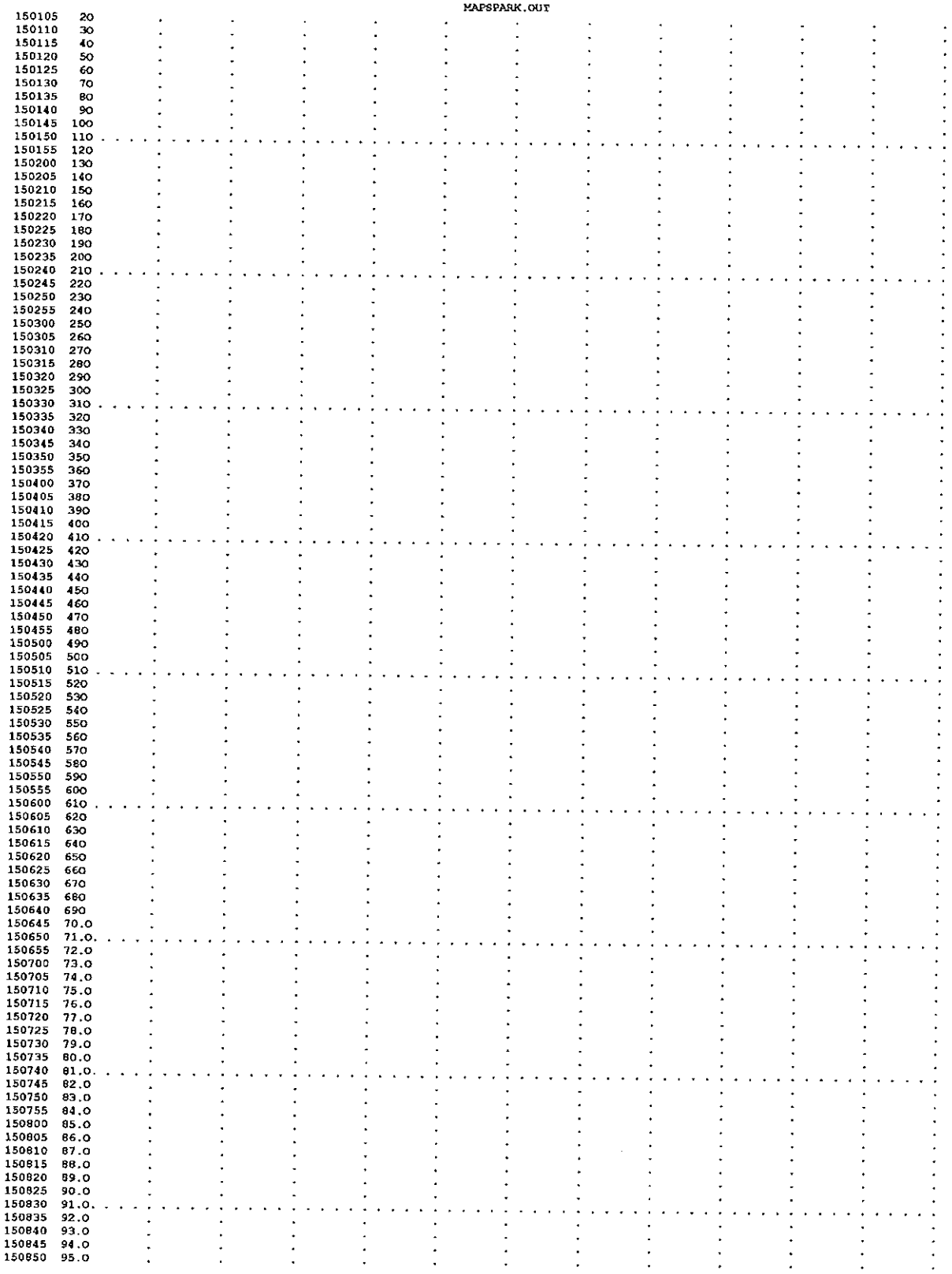
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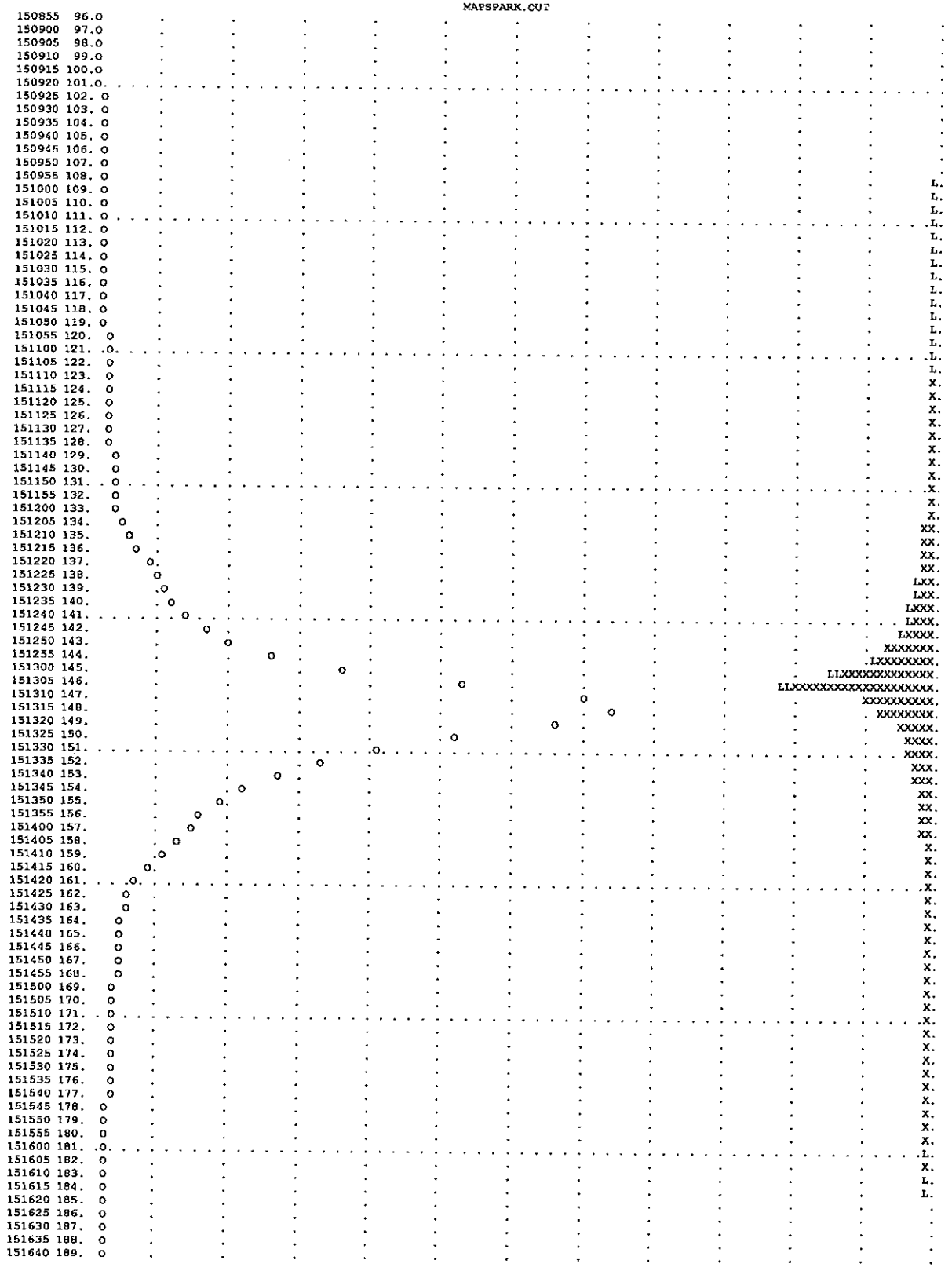
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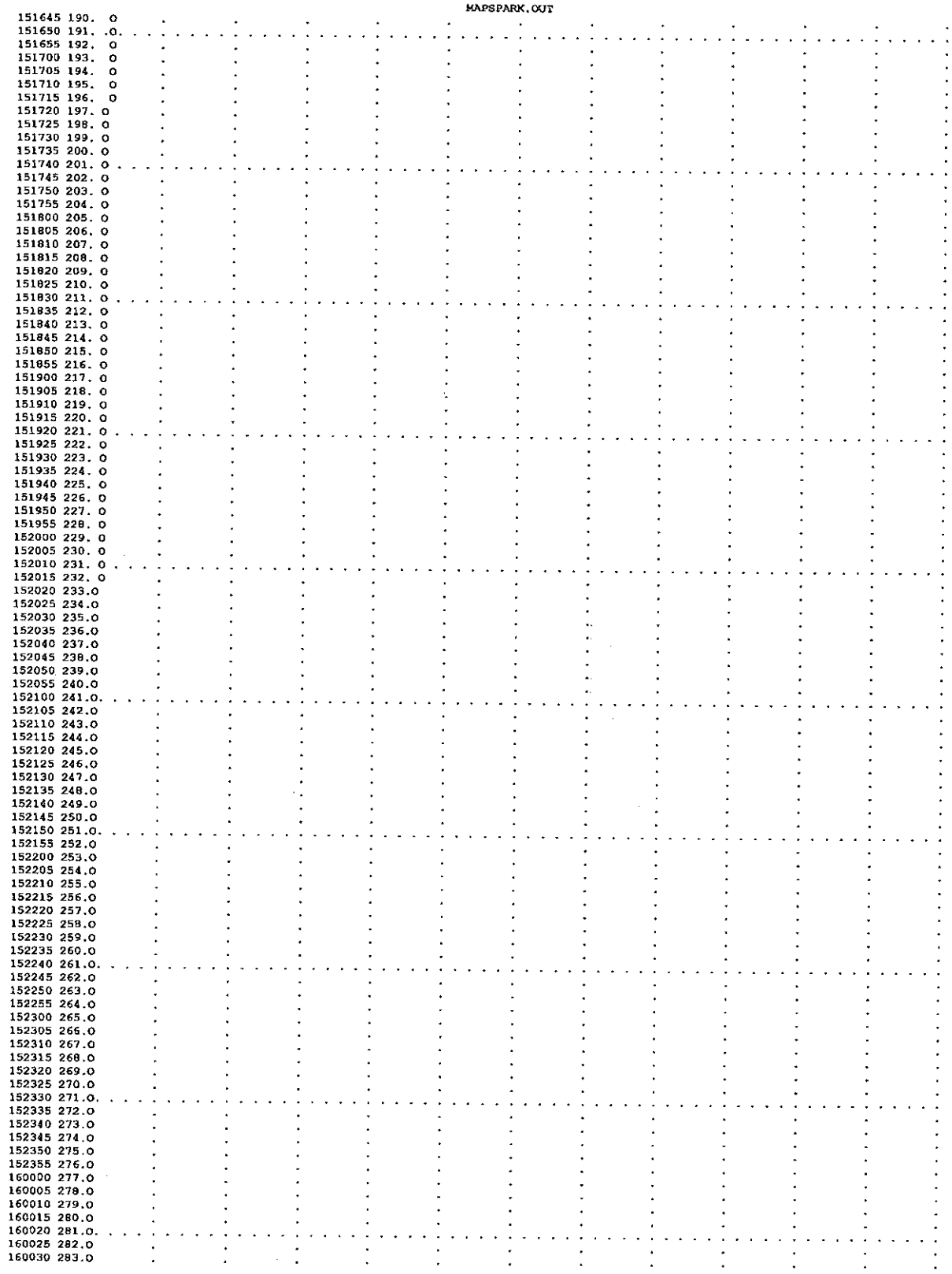
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1                                                             STATION     DA 1

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                                                                                                         (L) PRECIP,  (X) EXCESS
          .0        .0        .0        .0        .0        .0        .0        .0        .0       1.2        .8        .4        .0
 DAHRMN PER
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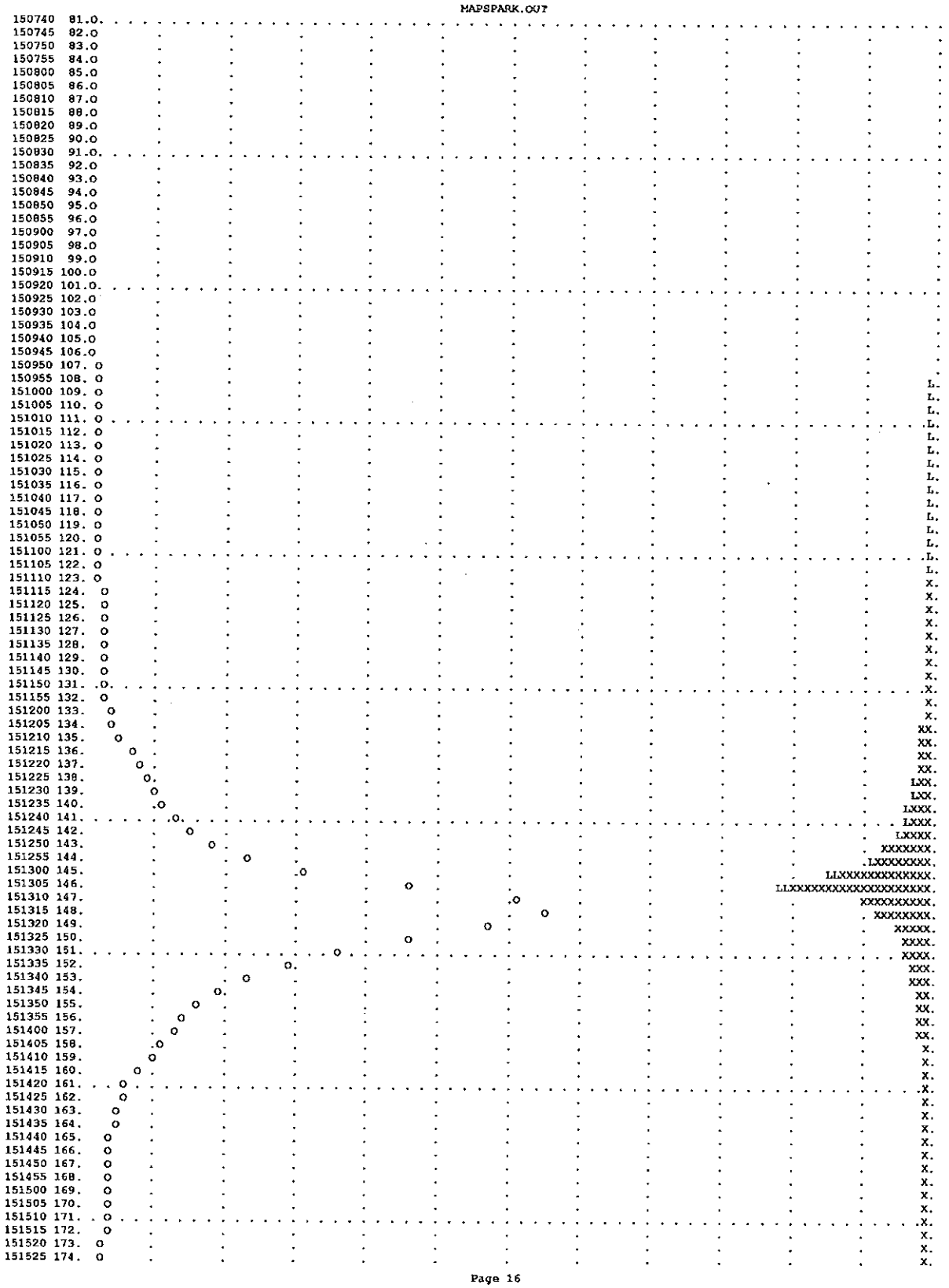
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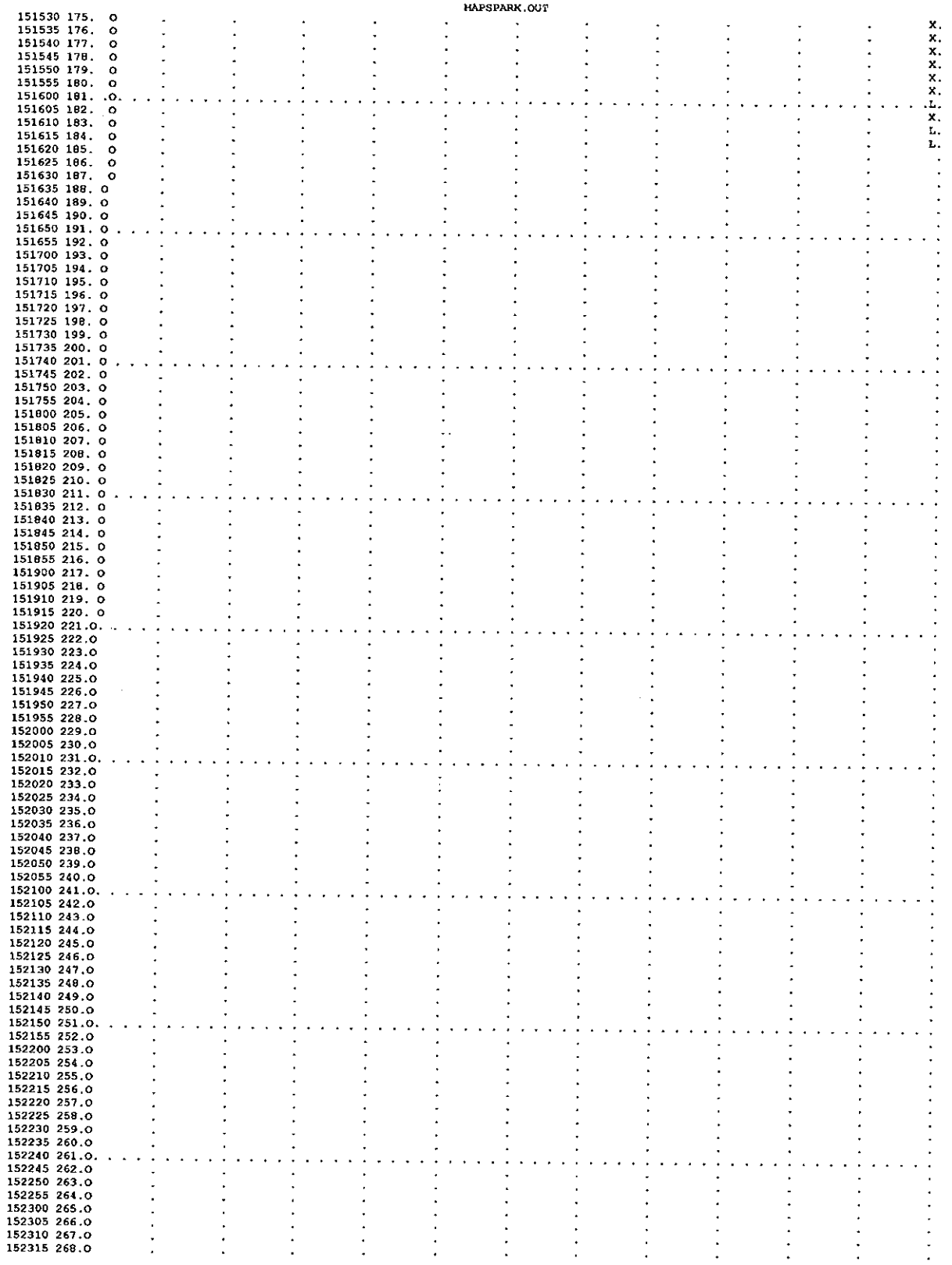
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151705 194. O
151710 195. O
151715 196. O
151720 197. O
151725 198. O
151730 199. O
151735 200. O
151740 201. O
151745 202. O
151750 203. O
151755 204. O
151800 205. O
151805 206. O
151810 207. O
151815 208. O
151820 209. O
151825 210. O
151830 211. O
151835 212. O
151840 213. O
151845 214. O
151850 215. O
151855 216. O
151900 217. O
151905 218. O
151910 219. O
151915 220. O
151920 221.O
151925 222.O
151930 223.O
151935 224.O
151940 225.O
151945 226.O
151950 227.O
151955 228.O
152000 229.O
152005 230.O
152010 231.O
152015 232.O
152020 233.O
152025 234.O
152030 235.O
152035 236.O
152040 237.O
152045 238.O
152050 239.O
152055 240.O
152100 241.O
152105 242.O
152110 243.O
152115 244.O
152120 245.O
152125 246.O
152130 247.O
152135 248.O
152140 249.O
152145 250.O
152150 251.O
152155 252.O
152200 253.O
152205 254.O
152210 255.O
152215 256.O
152220 257.O
152225 258.O
152230 259.O
152235 260.O
152240 261.O
152245 262.O
152250 263.O
152255 264.O
152300 265.O
152305 266.O
152310 267.O
152315 268.O
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152320 269.0        .         .         .         .         .         .         .         .         .         .         .         .
152325 270.0        .         .         .         .         .         .         .         .         .         .         .         .
152330 271.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
152335 272.0        .         .         .         .         .         .         .         .         .         .         .         .
152340 273.0        .         .         .         .         .         .         .         .         .         .         .         .
152345 274.0        .         .         .         .         .         .         .         .         .         .         .         .
152350 275.0        .         .         .         .         .         .         .         .         .         .         .         .
152355 276.0        .         .         .         .         .         .         .         .         .         .         .         .
160000 277.0        .         .         .         .         .         .         .         .         .         .         .         .
160005 278.0        .         .         .         .         .         .         .         .         .         .         .         .
160010 279.0        .         .         .         .         .         .         .         .         .         .         .         .
160015 280.0        .         .         .         .         .         .         .         .         .         .         .         .
160020 281.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
160025 282.0        .         .         .         .         .         .         .         .         .         .         .         .
160030 283.0        .         .         .         .         .         .         .         .         .         .         .         .
160035 284.0        .         .         .         .         .         .         .         .         .         .         .         .
160040 285.0        .         .         .         .         .         .         .         .         .         .         .         .
160045 286.0        .         .         .         .         .         .         .         .         .         .         .         .
160050 287.0        .         .         .         .         .         .         .         .         .         .         .         .
160055 288.0        .         .         .         .         .         .         .         .         .         .         .         .
160100 289.0--------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
1
1                                                    STATION     DA 1

                               (O) OUTFLOW
          0.       40.       80.      120.      160.      200.      240.        0.        0.        0.        0.        0.        0.
                                                                                                  (L) PRECIP,     (X) EXCESS
          .0        .0        .0        .0        .0        .0        .0        .0        .0       1.2        .8        .4        .0
DAHRMN PER
150100  10----------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
150105  20          .         .         .         .         .         .         .         .         .         .         .         .
150110  30          .         .         .         .         .         .         .         .         .         .         .         .
150115  40          .         .         .         .         .         .         .         .         .         .         .         .
150120  50          .         .         .         .         .         .         .         .         .         .         .         .
150125  60          .         .         .         .         .         .         .         .         .         .         .         .
150130  70          .         .         .         .         .         .         .         .         .         .         .         .
150135  80          .         .         .         .         .         .         .         .         .         .         .         .
150140  90          .         .         .         .         .         .         .         .         .         .         .         .
150145 100          .         .         .         .         .         .         .         .         .         .         .         .
150150 110 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150155 120          .         .         .         .         .         .         .         .         .         .         .         .
150200 130          .         .         .         .         .         .         .         .         .         .         .         .
150205 140          .         .         .         .         .         .         .         .         .         .         .         .
150210 150          .         .         .         .         .         .         .         .         .         .         .         .
150215 160          .         .         .         .         .         .         .         .         .         .         .         .
150220 170          .         .         .         .         .         .         .         .         .         .         .         .
150225 180          .         .         .         .         .         .         .         .         .         .         .         .
150230 190          .         .         .         .         .         .         .         .         .         .         .         .
150235 200          .         .         .         .         .         .         .         .         .         .         .         .
150240 210 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150245 220          .         .         .         .         .         .         .         .         .         .         .         .
150250 230          .         .         .         .         .         .         .         .         .         .         .         .
150255 240          .         .         .         .         .         .         .         .         .         .         .         .
150300 250          .         .         .         .         .         .         .         .         .         .         .         .
150305 260          .         .         .         .         .         .         .         .         .         .         .         .
150310 270          .         .         .         .         .         .         .         .         .         .         .         .
150315 280          .         .         .         .         .         .         .         .         .         .         .         .
150320 290          .         .         .         .         .         .         .         .         .         .         .         .
150325 300          .         .         .         .         .         .         .         .         .         .         .         .
150330 310 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150335 320          .         .         .         .         .         .         .         .         .         .         .         .
150340 330          .         .         .         .         .         .         .         .         .         .         .         .
150345 340          .         .         .         .         .         .         .         .         .         .         .         .
150350 350          .         .         .         .         .         .         .         .         .         .         .         .
150355 360          .         .         .         .         .         .         .         .         .         .         .         .
150400 370          .         .         .         .         .         .         .         .         .         .         .         .
150405 380          .         .         .         .         .         .         .         .         .         .         .         .
150410 390          .         .         .         .         .         .         .         .         .         .         .         .
150415 400          .         .         .         .         .         .         .         .         .         .         .         .
150420 410 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150425 420          .         .         .         .         .         .         .         .         .         .         .         .
150430 430          .         .         .         .         .         .         .         .         .         .         .         .
150435 440          .         .         .         .         .         .         .         .         .         .         .         .
150440 450          .         .         .         .         .         .         .         .         .         .         .         .
150445 460          .         .         .         .         .         .         .         .         .         .         .         .
150450 470          .         .         .         .         .         .         .         .         .         .         .         .
150455 480          .         .         .         .         .         .         .         .         .         .         .         .
150500 490          .         .         .         .         .         .         .         .         .         .         .         .
150505 500          .         .         .         .         .         .         .         .         .         .         .         .
150510 510 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150515 520          .         .         .         .         .         .         .         .         .         .         .         .
150520 530          .         .         .         .         .         .         .         .         .         .         .         .
150525 540          .         .         .         .         .         .         .         .         .         .         .         .
150530 550          .         .         .         .         .         .         .         .         .         .         .         .
150535 560          .         .         .         .         .         .         .         .         .         .         .         .
150540 570          .         .         .         .         .         .         .         .         .         .         .         .
150545 580          .         .         .         .         .         .         .         .         .         .         .         .
150550 590          .         .         .         .         .         .         .         .         .         .         .         .
150555 600          .         .         .         .         .         .         .         .         .         .         .         .
150600 610 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150605 620          .         .         .         .         .         .         .         .         .         .         .         .
150610 630          .         .         .         .         .         .         .         .         .         .         .         .
150615 640          .         .         .         .         .         .         .         .         .         .         .         .
150620 650          .         .         .         .         .         .         .         .         .         .         .         .
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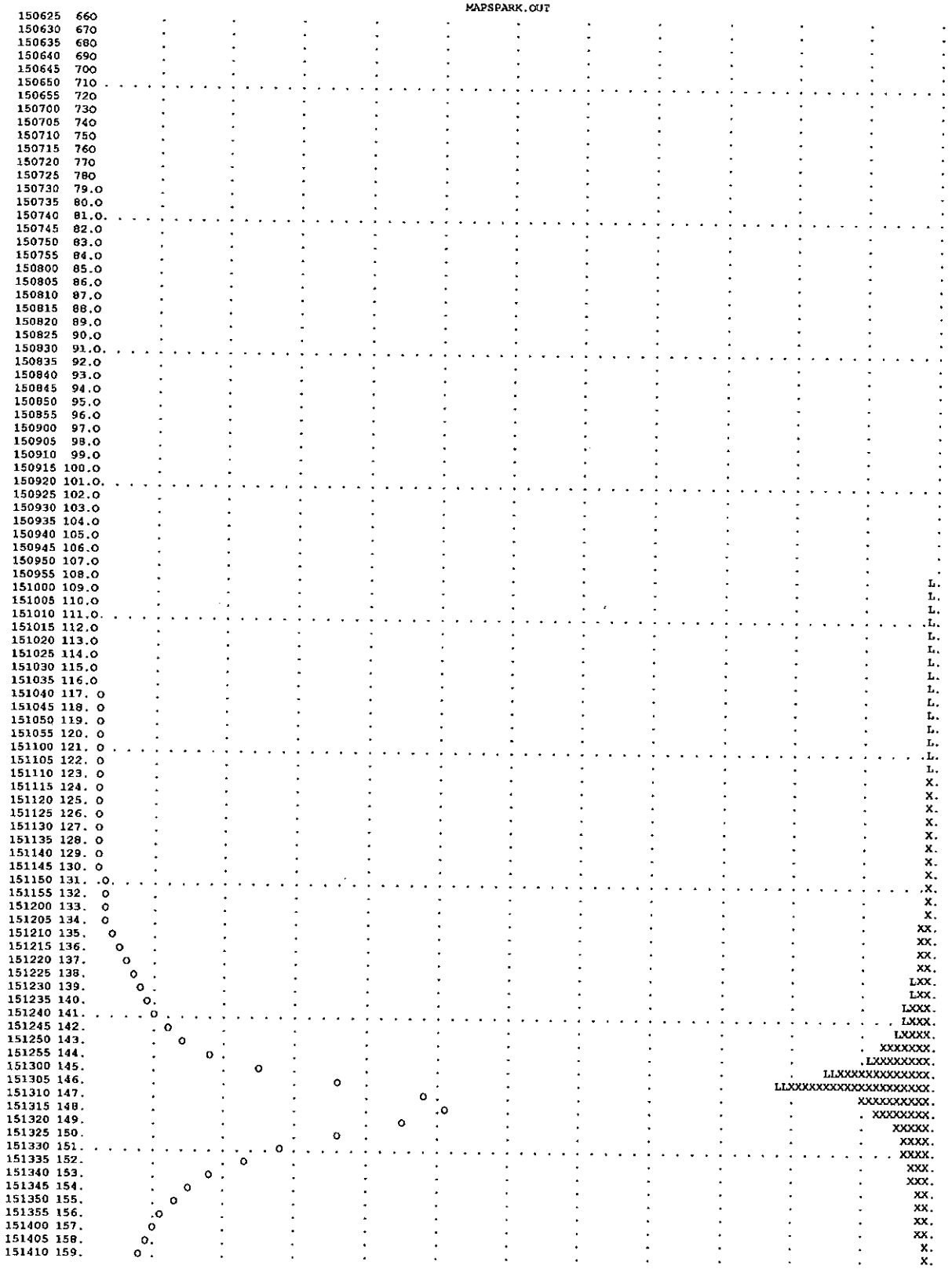
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150630 670
150635 680
150640 690
150645 700
150650 710
150655 720
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150710 750
150715 760
150720 770
150725 780
150730 79.O
150735 80.O
150740 81.O.
150745 82.O
150750 83.O
150755 84.O
150800 85.O
150805 86.O
150810 87.O
150815 88.O
150820 89.O
150825 90.O
150830 91.O.
150835 92.O
150840 93.O
150845 94.O
150850 95.O
150855 96.O
150900 97.O
150905 98.O
150910 99.O
150915 100.O
150920 101.O.
150925 102.O
150930 103.O
150935 104.O
150940 105.O
150945 106.O
150950 107.O
150955 108.O
151000 109.O
151005 110.O
151010 111.O.
151015 112.O
151020 113.O
151025 114.O
151030 115.O
151035 116.O
151040 117. O
151045 118. O
151050 119. O
151055 120. O
151100 121. O
151105 122. O
151110 123. O
151115 124. O
151120 125. O
151125 126. O
151130 127. O
151135 128. O
151140 129. O
151145 130. O
151150 131. .O.
151155 132. O
151200 133. O
151205 134. O
151210 135. O
151215 136. O
151220 137. O
151225 138. O
151230 139. O
151235 140. O.
151240 141. O
151245 142. O
151250 143. O
151255 144. O
151300 145. O
151305 146. O
151310 147. O
151315 148. O
151320 149. O
151325 150. O
151330 151. O
151335 152. O
151340 153. O
151345 154. O
151350 155. O
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151410 159. O
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151415 160.     O   .      .      .      .      .      .      .      .      .      .      .      X.
151420 161. . .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .X.
151425 162.    O    .      .      .      .      .      .      .      .      .      .      .      X.
151430 163.    O    .      .      .      .      .      .      .      .      .      .      .      X.
151435 164.    O    .      .      .      .      .      .      .      .      .      .      .      X.
151440 165.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151445 166.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151450 167.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151455 168.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151500 169.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151505 170.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151510 171. .O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .X.
151515 172.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151520 173.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151525 174.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151530 175.  O      .      .      .      .      .      .      .      .      .      .      .      X.
151535 176. O       .      .      .      .      .      .      .      .      .      .      .      X.
151540 177. O       .      .      .      .      .      .      .      .      .      .      .      X.
151545 178. O       .      .      .      .      .      .      .      .      .      .      .      X.
151550 179. O       .      .      .      .      .      .      .      .      .      .      .      X.
151555 180. O       .      .      .      .      .      .      .      .      .      .      .      X.
151600 181. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .L.
151605 182. O       .      .      .      .      .      .      .      .      .      .      .      X.
151610 183. O       .      .      .      .      .      .      .      .      .      .      .      L.
151615 184. O       .      .      .      .      .      .      .      .      .      .      .      L.
151620 185. O       .      .      .      .      .      .      .      .      .      .      .      .
151625 186. O       .      .      .      .      .      .      .      .      .      .      .      .
151630 187. O       .      .      .      .      .      .      .      .      .      .      .      .
151635 188. O       .      .      .      .      .      .      .      .      .      .      .      .
151640 189. O       .      .      .      .      .      .      .      .      .      .      .      .
151645 190. O       .      .      .      .      .      .      .      .      .      .      .      .
151650 191. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
151655 192. O       .      .      .      .      .      .      .      .      .      .      .      .
151700 193. O       .      .      .      .      .      .      .      .      .      .      .      .
151705 194. O       .      .      .      .      .      .      .      .      .      .      .      .
151710 195. O       .      .      .      .      .      .      .      .      .      .      .      .
151715 196. O       .      .      .      .      .      .      .      .      .      .      .      .
151720 197. O       .      .      .      .      .      .      .      .      .      .      .      .
151725 198. O       .      .      .      .      .      .      .      .      .      .      .      .
151730 199. O       .      .      .      .      .      .      .      .      .      .      .      .
151735 200. O       .      .      .      .      .      .      .      .      .      .      .      .
151740 201. O . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
151745 202. O       .      .      .      .      .      .      .      .      .      .      .      .
151750 203. O       .      .      .      .      .      .      .      .      .      .      .      .
151755 204. O       .      .      .      .      .      .      .      .      .      .      .      .
151800 205. O       .      .      .      .      .      .      .      .      .      .      .      .
151805 206.O        .      .      .      .      .      .      .      .      .      .      .      .
151810 207.O        .      .      .      .      .      .      .      .      .      .      .      .
151815 208.O        .      .      .      .      .      .      .      .      .      .      .      .
151820 209.O        .      .      .      .      .      .      .      .      .      .      .      .
151825 210.O        .      .      .      .      .      .      .      .      .      .      .      .
151830 211.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
151835 212.O        .      .      .      .      .      .      .      .      .      .      .      .
151840 213.O        .      .      .      .      .      .      .      .      .      .      .      .
151845 214.O        .      .      .      .      .      .      .      .      .      .      .      .
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151855 216.O        .      .      .      .      .      .      .      .      .      .      .      .
151900 217.O        .      .      .      .      .      .      .      .      .      .      .      .
151905 218.O        .      .      .      .      .      .      .      .      .      .      .      .
151910 219.O        .      .      .      .      .      .      .      .      .      .      .      .
151915 220.O        .      .      .      .      .      .      .      .      .      .      .      .
151920 221.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
151925 222.O        .      .      .      .      .      .      .      .      .      .      .      .
151930 223.O        .      .      .      .      .      .      .      .      .      .      .      .
151935 224.O        .      .      .      .      .      .      .      .      .      .      .      .
151940 225.O        .      .      .      .      .      .      .      .      .      .      .      .
151945 226.O        .      .      .      .      .      .      .      .      .      .      .      .
151950 227.O        .      .      .      .      .      .      .      .      .      .      .      .
151955 228.O        .      .      .      .      .      .      .      .      .      .      .      .
152000 229.O        .      .      .      .      .      .      .      .      .      .      .      .
152005 230.O        .      .      .      .      .      .      .      .      .      .      .      .
152010 231.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
152015 232.O        .      .      .      .      .      .      .      .      .      .      .      .
152020 233.O        .      .      .      .      .      .      .      .      .      .      .      .
152025 234.O        .      .      .      .      .      .      .      .      .      .      .      .
152030 235.O        .      .      .      .      .      .      .      .      .      .      .      .
152035 236.O        .      .      .      .      .      .      .      .      .      .      .      .
152040 237.O        .      .      .      .      .      .      .      .      .      .      .      .
152045 238.O        .      .      .      .      .      .      .      .      .      .      .      .
152050 239.O        .      .      .      .      .      .      .      .      .      .      .      .
152055 240.O        .      .      .      .      .      .      .      .      .      .      .      .
152100 241.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
152105 242.O        .      .      .      .      .      .      .      .      .      .      .      .
152110 243.O        .      .      .      .      .      .      .      .      .      .      .      .
152115 244.O        .      .      .      .      .      .      .      .      .      .      .      .
152120 245.O        .      .      .      .      .      .      .      .      .      .      .      .
152125 246.O        .      .      .      .      .      .      .      .      .      .      .      .
152130 247.O        .      .      .      .      .      .      .      .      .      .      .      .
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152145 250.O        .      .      .      .      .      .      .      .      .      .      .      .
152150 251.O. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
152155 252.O        .      .      .      .      .      .      .      .      .      .      .      .
152200 253.O        .      .      .      .      .      .      .      .      .      .      .      .
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152230 259.0          .        .        .        .        .        .        .        .        .        .        .        .
152235 260.0          .        .        .        .        .        .        .        .        .        .        .        .
152240 261.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
152245 262.0          .        .        .        .        .        .        .        .        .        .        .        .
152250 263.0          .        .        .        .        .        .        .        .        .        .        .        .
152255 264.0          .        .        .        .        .        .        .        .        .        .        .        .
152300 265.0          .        .        .        .        .        .        .        .        .        .        .        .
152305 266.0          .        .        .        .        .        .        .        .        .        .        .        .
152310 267.0          .        .        .        .        .        .        .        .        .        .        .        .
152315 268.0          .        .        .        .        .        .        .        .        .        .        .        .
152320 269.0          .        .        .        .        .        .        .        .        .        .        .        .
152325 270.0          .        .        .        .        .        .        .        .        .        .        .        .
152330 271.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
152335 272.0          .        .        .        .        .        .        .        .        .        .        .        .
152340 273.0          .        .        .        .        .        .        .        .        .        .        .        .
152345 274.0          .        .        .        .        .        .        .        .        .        .        .        .
152350 275.0          .        .        .        .        .        .        .        .        .        .        .        .
152355 276.0          .        .        .        .        .        .        .        .        .        .        .        .
160000 277.0          .        .        .        .        .        .        .        .        .        .        .        .
160005 278.0          .        .        .        .        .        .        .        .        .        .        .        .
160010 279.0          .        .        .        .        .        .        .        .        .        .        .        .
160015 280.0          .        .        .        .        .        .        .        .        .        .        .        .
160020 281.0. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
160025 282.0          .        .        .        .        .        .        .        .        .        .        .        .
160030 283.0          .        .        .        .        .        .        .        .        .        .        .        .
160035 284.0          .        .        .        .        .        .        .        .        .        .        .        .
160040 285.0          .        .        .        .        .        .        .        .        .        .        .        .
160045 286.0          .        .        .        .        .        .        .        .        .        .        .        .
160050 287.0          .        .        .        .        .        .        .        .        .        .        .        .
160055 288.0          .        .        .        .        .        .        .        .        .        .        .        .
160100 289.0---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.---------.
1
1
                                                      STATION    RT PON

                              (I) INFLOW,   (O) OUTFLOW
          0.        100.       200.       300.      400.       500.      600.       0.       0.        0.        0.        0.        0.
                                                                                     (S) STORAGE
          0.         0.         0.         0.         0.        0.        0.       10.       20.       30.       40.        0.        0.
DAHRMN PER
150100   1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
150105   2I         .         .         .         .         .        S         .         .         .         .         .         .
150110   3I         .         .         .         .         .        S         .         .         .         .         .         .
150115   4I         .         .         .         .         .        S         .         .         .         .         .         .
150120   5I         .         .         .         .         .        S         .         .         .         .         .         .
150125   6I         .         .         .         .         .        S         .         .         .         .         .         .
150130   7I         .         .         .         .         .        S         .         .         .         .         .         .
150135   8I         .         .         .         .         .        S         .         .         .         .         .         .
150140   9I         .         .         .         .         .        S         .         .         .         .         .         .
150145  10I         .         .         .         .         .        S         .         .         .         .         .         .
150150  11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150155  12I         .         .         .         .         .        S         .         .         .         .         .         .
150200  13I         .         .         .         .         .        S         .         .         .         .         .         .
150205  14I         .         .         .         .         .        S         .         .         .         .         .         .
150210  15I         .         .         .         .         .        S         .         .         .         .         .         .
150215  16I         .         .         .         .         .        S         .         .         .         .         .         .
150220  17I         .         .         .         .         .        S         .         .         .         .         .         .
150225  18I         .         .         .         .         .        S         .         .         .         .         .         .
150230  19I         .         .         .         .         .        S         .         .         .         .         .         .
150235  20I         .         .         .         .         .        S         .         .         .         .         .         .
150240  21I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150245  22I         .         .         .         .         .        S         .         .         .         .         .         .
150250  23I         .         .         .         .         .        S         .         .         .         .         .         .
150255  24I         .         .         .         .         .        S         .         .         .         .         .         .
150300  25I         .         .         .         .         .        S         .         .         .         .         .         .
150305  26I         .         .         .         .         .        S         .         .         .         .         .         .
150310  27I         .         .         .         .         .        S         .         .         .         .         .         .
150315  28I         .         .         .         .         .        S         .         .         .         .         .         .
150320  29I         .         .         .         .         .        S         .         .         .         .         .         .
150325  30I         .         .         .         .         .        S         .         .         .         .         .         .
150330  31I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150335  32I         .         .         .         .         .        S         .         .         .         .         .         .
150340  33I         .         .         .         .         .        S         .         .         .         .         .         .
150345  34I         .         .         .         .         .        S         .         .         .         .         .         .
150350  35I         .         .         .         .         .        S         .         .         .         .         .         .
150355  36I         .         .         .         .         .        S         .         .         .         .         .         .
150400  37I         .         .         .         .         .        S         .         .         .         .         .         .
150405  38I         .         .         .         .         .        S         .         .         .         .         .         .
150410  39I         .         .         .         .         .        S         .         .         .         .         .         .
150415  40I         .         .         .         .         .        S         .         .         .         .         .         .
150420  41I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150425  42I         .         .         .         .         .        S         .         .         .         .         .         .
150430  43I         .         .         .         .         .        S         .         .         .         .         .         .
150435  44I         .         .         .         .         .        S         .         .         .         .         .         .
150440  45I         .         .         .         .         .        S         .         .         .         .         .         .
150445  46I         .         .         .         .         .        S         .         .         .         .         .         .
150450  47I         .         .         .         .         .        S         .         .         .         .         .         .
150455  48I         .         .         .         .         .        S         .         .         .         .         .         .
150500  49I         .         .         .         .         .        S         .         .         .         .         .         .
150505  50I         .         .         .         .         .        S         .         .         .         .         .         .
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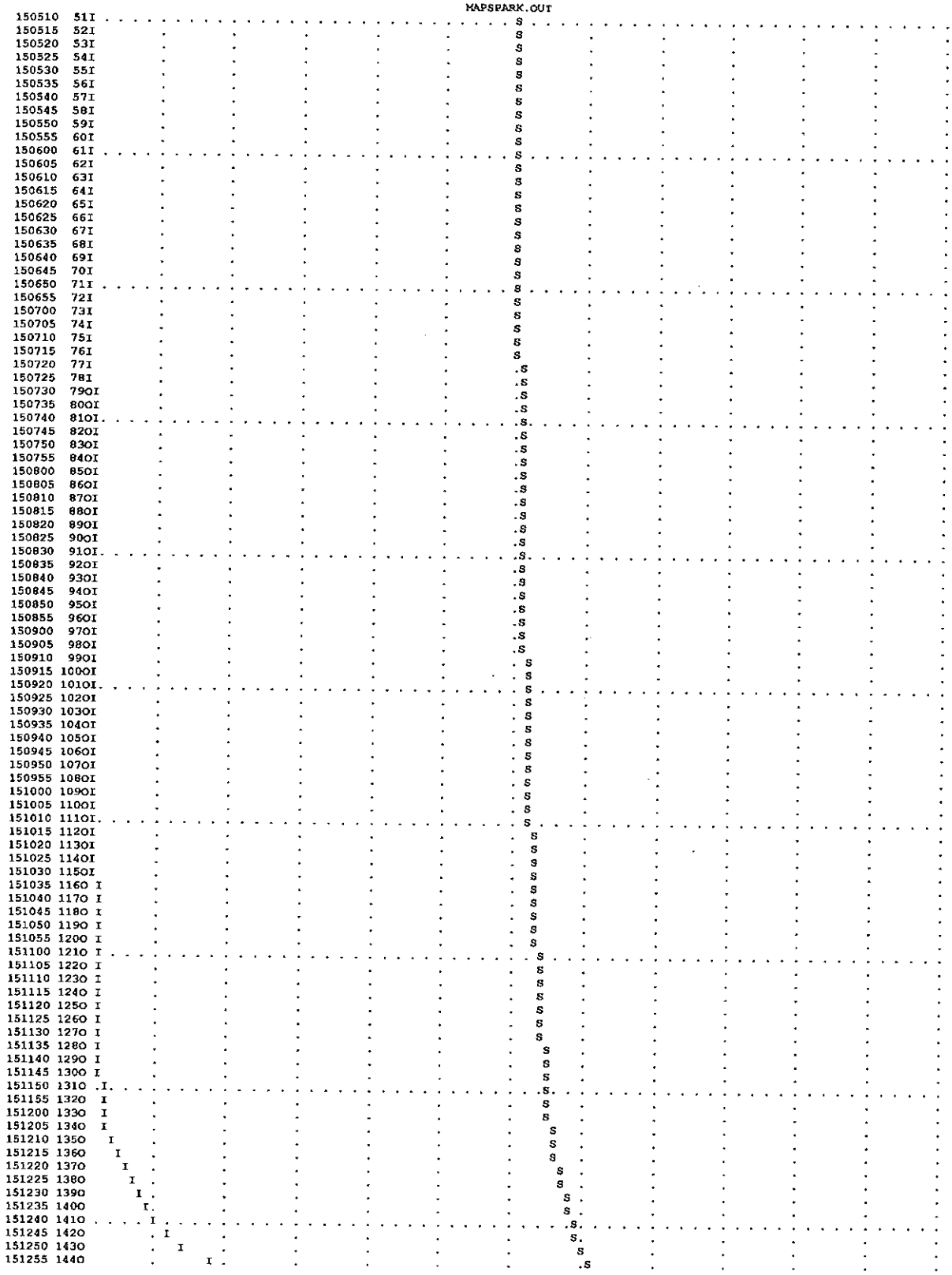

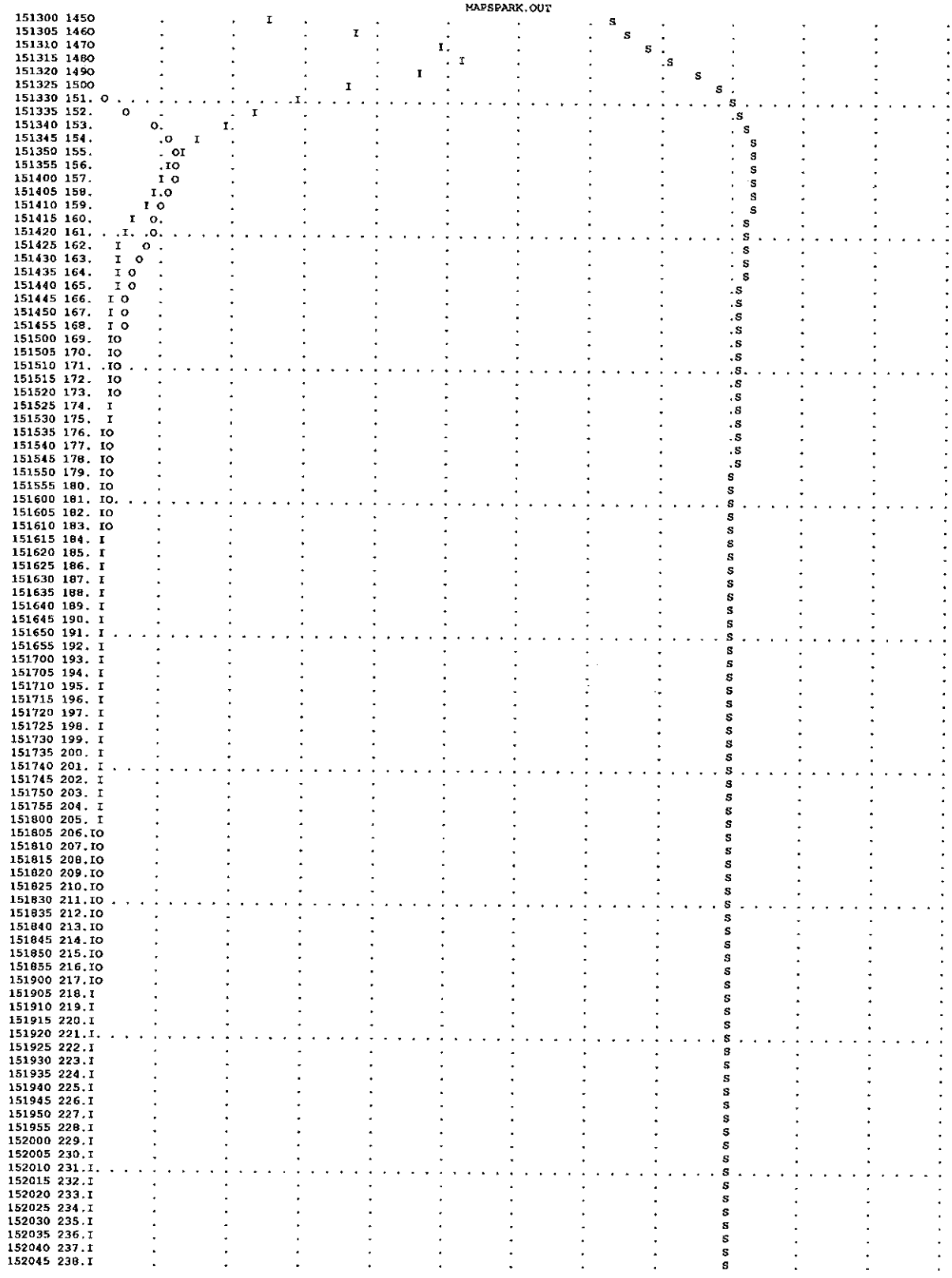

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 152050 239.I         .         .         .         .         .         .         .         .        S          .         .         .
 152055 240.I         .         .         .         .         .         .         .         .        S          .         .         .
 152100 241.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S . . . . . . . . . . . . . . .
 152105 242.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152110 243.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152115 244.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152120 245.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152125 246.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152130 247.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152135 248.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152140 249.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152145 250.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152150 251.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
 152155 252.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152200 253.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152205 254.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152210 255.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152215 256.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152220 257.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152225 258.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152230 259.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152235 260.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152240 261.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
 152245 262.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152250 263.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152255 264.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152300 265.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152305 266.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152310 267.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152315 268.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152320 269.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152325 270.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152330 271.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
 152335 272.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152340 273.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152345 274.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152350 275.I         .         .         .         .         .         .         .         .       S.          .         .         .
 152355 276.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160000 277.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160005 278.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160010 279.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160015 280.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160020 281.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
 160025 282.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160030 283.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160035 284.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160040 285.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160045 286.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160050 287.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160055 288.I         .         .         .         .         .         .         .         .       S.          .         .         .
 160100 289.I---------.---------.---------.---------.---------.---------.---------.---------.-------S.---------.---------.---------.
1
1                                                    STATION    RT PON

                        (I) INFLOW,   (O) OUTFLOW
           0.        50.      100.      150.      200.      250.      300.      350.      400.      450.        0.        0.        0.
                                                                                   (S) STORAGE
           0.         0.        0.        0.        0.        0.        0.       10.       20.       30.       40.        0.        0.
DAHRMN PER
150100    1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
150105    2I         .         .         .         .         .         S         .         .         .         .         .         .
150110    3I         .         .         .         .         .         S         .         .         .         .         .         .
150115    4I         .         .         .         .         .         S         .         .         .         .         .         .
150120    5I         .         .         .         .         .         S         .         .         .         .         .         .
150125    6I         .         .         .         .         .         S         .         .         .         .         .         .
150130    7I         .         .         .         .         .         S         .         .         .         .         .         .
150135    8I         .         .         .         .         .         S         .         .         .         .         .         .
150140    9I         .         .         .         .         .         S         .         .         .         .         .         .
150145   10I         .         .         .         .         .         S         .         .         .         .         .         .
150150   11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150155   12I         .         .         .         .         .         S         .         .         .         .         .         .
150200   13I         .         .         .         .         .         S         .         .         .         .         .         .
150205   14I         .         .         .         .         .         S         .         .         .         .         .         .
150210   15I         .         .         .         .         .         S         .         .         .         .         .         .
150215   16I         .         .         .         .         .         S         .         .         .         .         .         .
150220   17I         .         .         .         .         .         S         .         .         .         .         .         .
150225   18I         .         .         .         .         .         S         .         .         .         .         .         .
150230   19I         .         .         .         .         .         S         .         .         .         .         .         .
150235   20I         .         .         .         .         .         S         .         .         .         .         .         .
150240   21I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150245   22I         .         .         .         .         .         S         .         .         .         .         .         .
150250   23I         .         .         .         .         .         S         .         .         .         .         .         .
150255   24I         .         .         .         .         .         S         .         .         .         .         .         .
150300   25I         .         .         .         .         .         S         .         .         .         .         .         .
150305   26I         .         .         .         .         .         S         .         .         .         .         .         .
150310   27I         .         .         .         .         .         S         .         .         .         .         .         .
150315   28I         .         .         .         .         .         S         .         .         .         .         .         .
150320   29I         .         .         .         .         .         S         .         .         .         .         .         .
150325   30I         .         .         .         .         .         S         .         .         .         .         .         .
150330   31I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150335   32I         .         .         .         .         .         S         .         .         .         .         .         .
150340   33I         .         .         .         .         .         S         .         .         .         .         .         .
150345   34I         .         .         .         .         .         S         .         .         .         .         .         .
150350   35I         .         .         .         .         .         S         .         .         .         .         .         .
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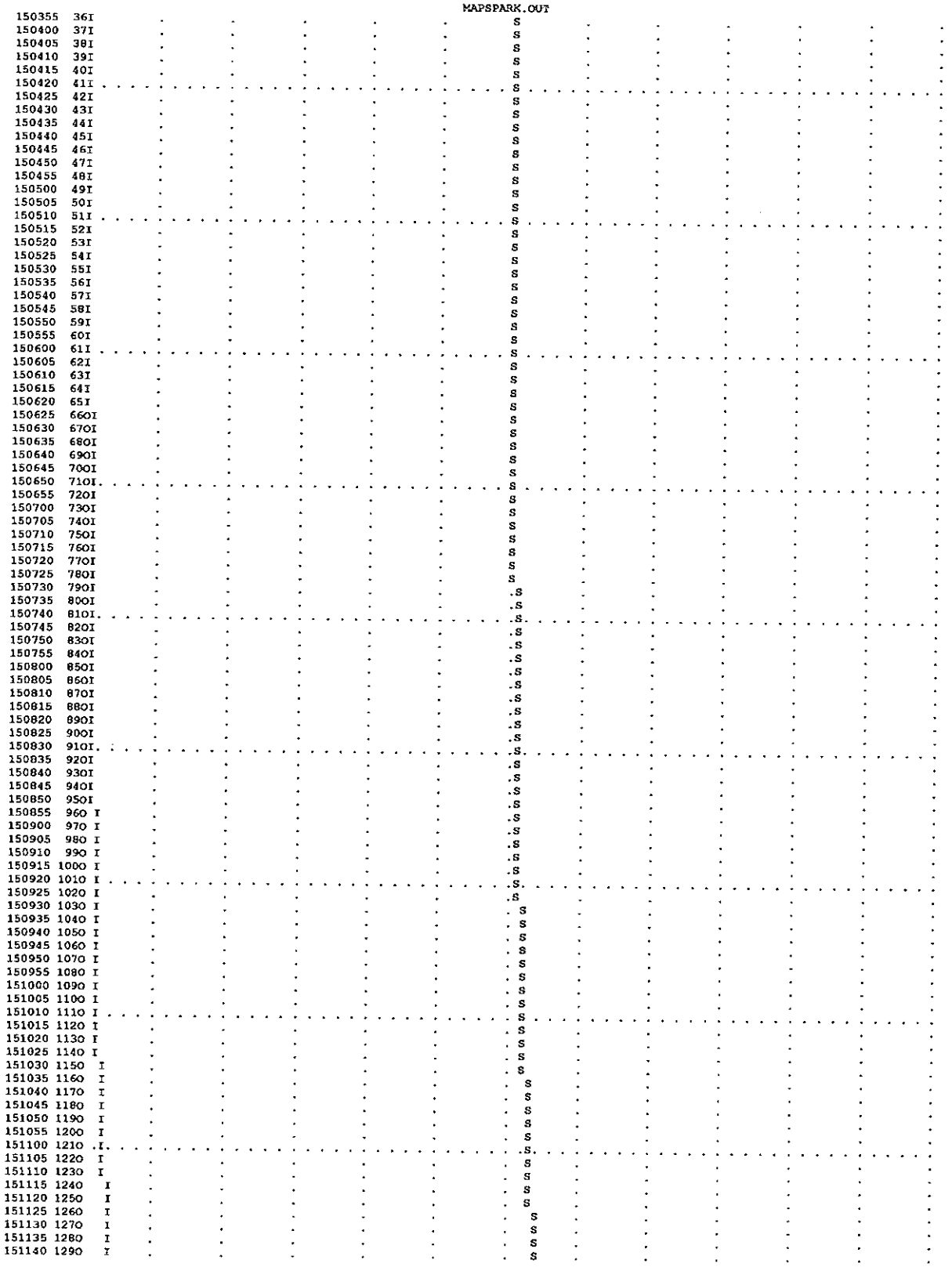
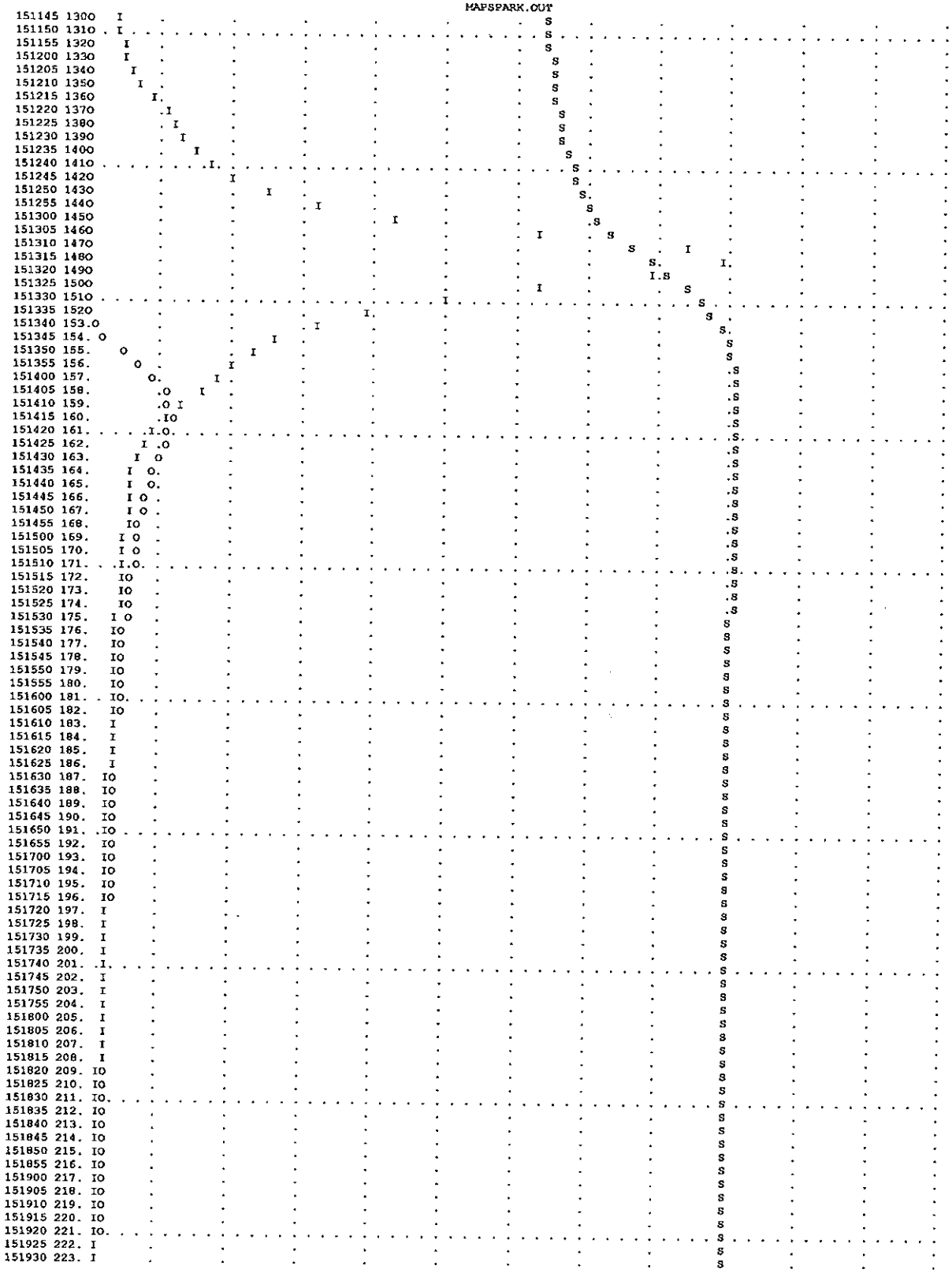

150355 36I
150400 37I
150405 38I
150410 39I
150415 40I
150420 41I
150425 42I
150430 43I
150435 44I
150440 45I
150445 46I
150450 47I
150455 48I
150500 49I
150505 50I
150510 51I
150515 52I
150520 53I
150525 54I
150530 55I
150535 56I
150540 57I
150545 58I
150550 59I
150555 60I
150600 61I
150605 62I
150610 63I
150615 64I
150620 65I
150625 66OI
150630 67OI
150635 68OI
150640 69OI
150645 70OI
150650 71OI
150655 72OI
150700 73OI
150705 74OI
150710 75OI
150715 76OI
150720 77OI
150725 78OI
150730 79OI
150735 80OI
150740 81OI
150745 82OI
150750 83OI
150755 84OI
150800 85OI
150805 86OI
150810 87OI
150815 88OI
150820 89OI
150825 90OI
150830 91OI
150835 92OI
150840 93OI
150845 94OI
150850 95OI
150855 960 I
150900 970 I
150905 980 I
150910 990 I
150915 1000 I
150920 1010 I
150925 1020 I
150930 1030 I
150935 1040 I
150940 1050 I
150945 1060 I
150950 1070 I
150955 1080 I
151000 1090 I
151005 1100 I
151010 1110 I
151015 1120 I
151020 1130 I
151025 1140 I
151030 1150 I
151035 1160 I
151040 1170 I
151045 1180 I
151050 1190 I
151055 1200 I
151100 1210 I
151105 1220 I
151110 1230 I
151115 1240 I
151120 1250 I
151125 1260 I
151130 1270 I
151135 1280 I
151140 1290 I



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151935 224. I        .         .         .         .         .         .         .         .        S         .         .         .
151940 225. I        .         .         .         .         .         .         .         .        S         .         .         .
151945 226. I        .         .         .         .         .         .         .         .        S         .         .         .
151950 227. I        .         .         .         .         .         .         .         .        S         .         .         .
151955 228. I        .         .         .         .         .         .         .         .        S         .         .         .
152000 229. I        .         .         .         .         .         .         .         .        S         .         .         .
152005 230. I        .         .         .         .         .         .         .         .        S.        .         .         .
152010 231. I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
152015 232. I        .         .         .         .         .         .         .         .        S.        .         .         .
152020 233. I        .         .         .         .         .         .         .         .        S.        .         .         .
152025 234. I        .         .         .         .         .         .         .         .        S.        .         .         .
152030 235. I        .         .         .         .         .         .         .         .        S.        .         .         .
152035 236. I        .         .         .         .         .         .         .         .        S.        .         .         .
152040 237. I        .         .         .         .         .         .         .         .        S.        .         .         .
152045 238. I        .         .         .         .         .         .         .         .        S.        .         .         .
152050 239. I        .         .         .         .         .         .         .         .        S.        .         .         .
152055 240. I        .         .         .         .         .         .         .         .        S.        .         .         .
152100 241. I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
152105 242. I        .         .         .         .         .         .         .         .        S.        .         .         .
152110 243. I        .         .         .         .         .         .         .         .        S.        .         .         .
152115 244. I        .         .         .         .         .         .         .         .        S.        .         .         .
152120 245. I        .         .         .         .         .         .         .         .        S.        .         .         .
152125 246. I        .         .         .         .         .         .         .         .        S.        .         .         .
152130 247. I        .         .         .         .         .         .         .         .        S.        .         .         .
152135 248. I        .         .         .         .         .         .         .         .        S.        .         .         .
152140 249. I        .         .         .         .         .         .         .         .        S.        .         .         .
152145 250. I        .         .         .         .         .         .         .         .        S.        .         .         .
152150 251. I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
152155 252. I        .         .         .         .         .         .         .         .        S.        .         .         .
152200 253. I        .         .         .         .         .         .         .         .        S.        .         .         .
152205 254. I        .         .         .         .         .         .         .         .        S.        .         .         .
152210 255. I        .         .         .         .         .         .         .         .        S.        .         .         .
152215 256.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152220 257.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152225 258.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152230 259.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152235 260.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152240 261.IO . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
152245 262.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152250 263.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152255 264.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152300 265.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152305 266.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152310 267.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152315 268.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152320 269.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152325 270.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152330 271.IO . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
152335 272.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152340 273.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152345 274.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152350 275.IO        .         .         .         .         .         .         .         .        S.        .         .         .
152355 276.IO        .         .         .         .         .         .         .         .        S.        .         .         .
160000 277.I         .         .         .         .         .         .         .         .        S.        .         .         .
160005 278.I         .         .         .         .         .         .         .         .        S.        .         .         .
160010 279.I         .         .         .         .         .         .         .         .        S.        .         .         .
160015 280.I         .         .         .         .         .         .         .         .        S.        .         .         .
160020 281.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . . .
160025 282.I         .         .         .         .         .         .         .         .        S.        .         .         .
160030 283.I         .         .         .         .         .         .         .         .        S.        .         .         .
160035 284.I         .         .         .         .         .         .         .         .        S.        .         .         .
160040 285.I         .         .         .         .         .         .         .         .        S.        .         .         .
160045 286.I         .         .         .         .         .         .         .         .        S.        .         .         .
160050 287.I         .         .         .         .         .         .         .         .        S.        .         .         .
160055 288.I         .         .         .         .         .         .         .         .        S.        .         .         .
160100 289.I---------.---------.---------.---------.---------.---------.---------.---------.--------S.---------.---------.---------.
1
1                                                       STATION    RT PON

                            (I) INFLOW,    (O) OUTFLOW
          0.       50.      100.      150.      200.      250.      300.      350.      400.        0.        0.        0.        0.
                                                                                    (S) STORAGE
          0.        0.        0.        0.        0.        0.        0.       10.       20.       30.        0.        0.        0.
DAHRMN PER
150100   1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
150105   2I         .         .         .         .         .         S         .         .         .         .         .         .
150110   3I         .         .         .         .         .         S         .         .         .         .         .         .
150115   4I         .         .         .         .         .         S         .         .         .         .         .         .
150120   5I         .         .         .         .         .         S         .         .         .         .         .         .
150125   6I         .         .         .         .         .         S         .         .         .         .         .         .
150130   7I         .         .         .         .         .         S         .         .         .         .         .         .
150135   8I         .         .         .         .         .         S         .         .         .         .         .         .
150140   9I         .         .         .         .         .         S         .         .         .         .         .         .
150145  10I         .         .         .         .         .         S         .         .         .         .         .         .
150150  11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150155  12I         .         .         .         .         .         S         .         .         .         .         .         .
150200  13I         .         .         .         .         .         S         .         .         .         .         .         .
150205  14I         .         .         .         .         .         S         .         .         .         .         .         .
150210  15I         .         .         .         .         .         S         .         .         .         .         .         .
150215  16I         .         .         .         .         .         S         .         .         .         .         .         .
150220  17I         .         .         .         .         .         S         .         .         .         .         .         .
150225  18I         .         .         .         .         .         S         .         .         .         .         .         .
150230  19I         .         .         .         .         .         S         .         .         .         .         .         .
150235  20I         .         .         .         .         .         S         .         .         .         .         .         .
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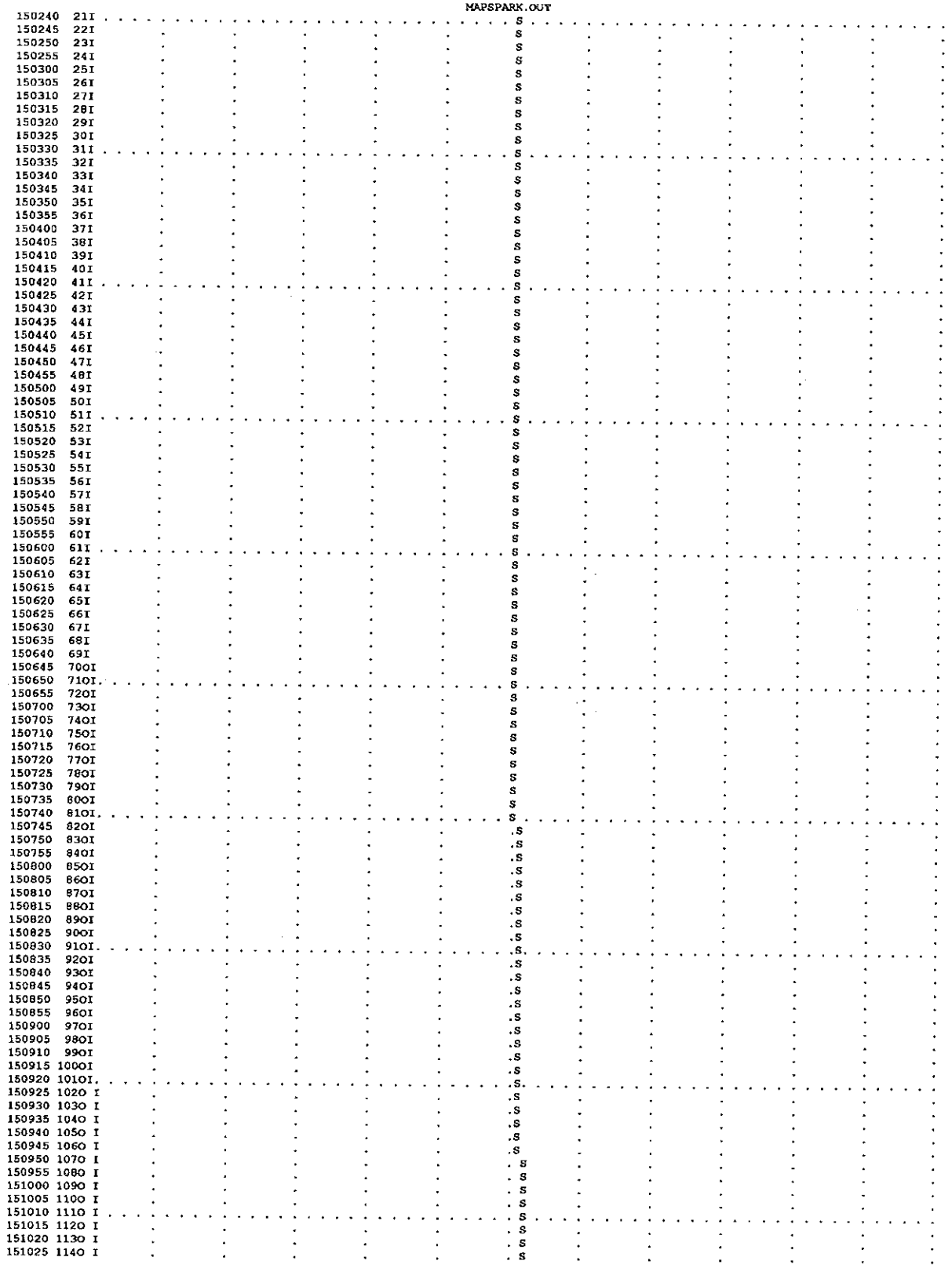
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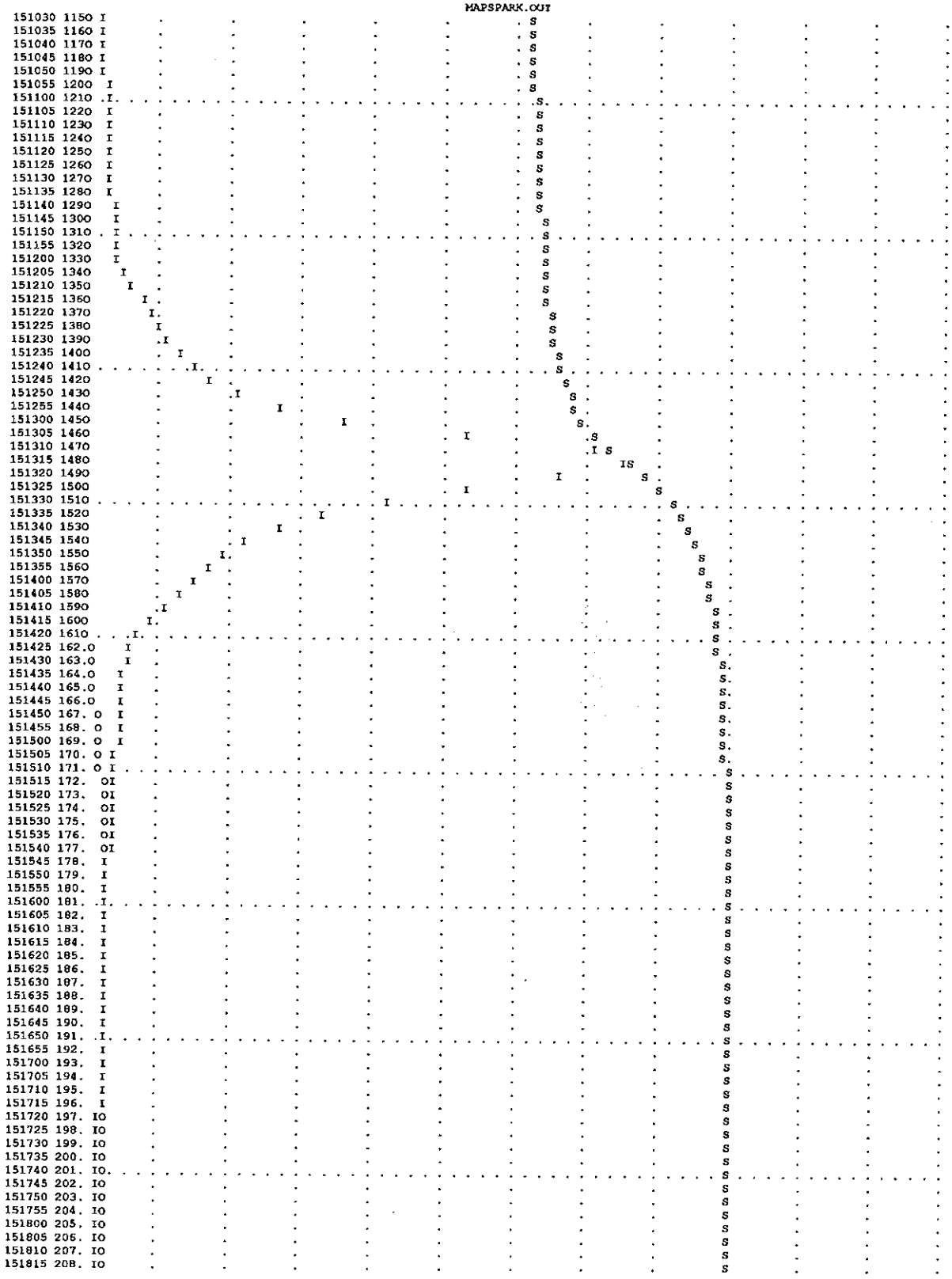
150245 22I
150250 23I
150255 24I
150300 25I
150305 26I
150310 27I
150315 28I
150320 29I
150325 30I
150330 31I
150335 32I
150340 33I
150345 34I
150350 35I
150355 36I
150400 37I
150405 38I
150410 39I
150415 40I
150420 41I
150425 42I
150430 43I
150435 44I
150440 45I
150445 46I
150450 47I
150455 48I
150500 49I
150505 50I
150510 51I
150515 52I
150520 53I
150525 54I
150530 55I
150535 56I
150540 57I
150545 58I
150550 59I
150555 60I
150600 61I
150605 62I
150610 63I
150615 64I
150620 65I
150625 66I
150630 67I
150635 68I
150640 69I
150645 70OI
150650 71OI
150655 72OI
150700 73OI
150705 74OI
150710 75OI
150715 76OI
150720 77OI
150725 78OI
150730 79OI
150735 80OI
150740 81OI
150745 82OI
150750 83OI
150755 84OI
150800 85OI
150805 86OI
150810 87OI
150815 88OI
150820 89OI
150825 90OI
150830 91OI
150835 92OI
150840 93OI
150845 94OI
150850 95OI
150855 96OI
150900 97OI
150905 98OI
150910 99OI
150915 100OI
150920 101OI
150925 102O I
150930 103O I
150935 104O I
150940 105O I
150945 106O I
150950 107O I
150955 108O I
151000 109O I
151005 110O I
151010 111O I
151015 112O I
151020 113O I
151025 114O I



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151820 209. I       .         .         .         .         .         .         .         .         S         .         .         .
151825 210. I       .         .         .         .         .         .         .         .         S         .         .         .
151830 211. I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . .
151835 212. I       .         .         .         .         .         .         .         .         S         .         .         .
151840 213. I       .         .         .         .         .         .         .         .         S         .         .         .
151845 214. I       .         .         .         .         .         .         .         .         S         .         .         .
151850 215. I       .         .         .         .         .         .         .         .         S         .         .         .
151855 216. I       .         .         .         .         .         .         .         .         S         .         .         .
151900 217. I       .         .         .         .         .         .         .         .         S         .         .         .
151905 218. I       .         .         .         .         .         .         .         .         S         .         .         .
151910 219. I       .         .         .         .         .         .         .         .        S.         .         .         .
151915 220. I       .         .         .         .         .         .         .         .        S.         .         .         .
151920 221. I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . .
151925 222. I       .         .         .         .         .         .         .         .        S.         .         .         .
151930 223. I       .         .         .         .         .         .         .         .        S.         .         .         .
151935 224. I       .         .         .         .         .         .         .         .        S.         .         .         .
151940 225. I       .         .         .         .         .         .         .         .        S.         .         .         .
151945 226. I       .         .         .         .         .         .         .         .        S.         .         .         .
151950 227. I       .         .         .         .         .         .         .         .        S.         .         .         .
151955 228. I       .         .         .         .         .         .         .         .        S.         .         .         .
152000 229. I       .         .         .         .         .         .         .         .        S.         .         .         .
152005 230. I       .         .         .         .         .         .         .         .        S.         .         .         .
152010 231. I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . .
152015 232. I       .         .         .         .         .         .         .         .        S.         .         .         .
152020 233. I       .         .         .         .         .         .         .         .        S.         .         .         .
152025 234.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152030 235.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152035 236.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152040 237.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152045 238.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152050 239.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152055 240.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152100 241.IO . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . .
152105 242.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152110 243.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152115 244.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152120 245.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152125 246.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152130 247.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152135 248.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152140 249.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152145 250.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152150 251.IO . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . .
152155 252.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152200 253.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152205 254.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152210 255.IO       .         .         .         .         .         .         .         .        S.         .         .         .
152215 256.I        .         .         .         .         .         .         .         .        S.         .         .         .
152220 257.I        .         .         .         .         .         .         .         .        S.         .         .         .
152225 258.I        .         .         .         .         .         .         .         .        S.         .         .         .
152230 259.I        .         .         .         .         .         .         .         .        S.         .         .         .
152235 260.I        .         .         .         .         .         .         .         .        S.         .         .         .
152240 261.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . .
152245 262.I        .         .         .         .         .         .         .         .        S.         .         .         .
152250 263.I        .         .         .         .         .         .         .         .        S.         .         .         .
152255 264.I        .         .         .         .         .         .         .         .        S.         .         .         .
152300 265.I        .         .         .         .         .         .         .         .        S.         .         .         .
152305 266.I        .         .         .         .         .         .         .         .        S.         .         .         .
152310 267.I        .         .         .         .         .         .         .         .        S.         .         .         .
152315 268.I        .         .         .         .         .         .         .         .        S.         .         .         .
152320 269.I        .         .         .         .         .         .         .         .        S.         .         .         .
152325 270.I        .         .         .         .         .         .         .         .        S.         .         .         .
152330 271.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . .
152335 272.I        .         .         .         .         .         .         .         .        S.         .         .         .
152340 273.I        .         .         .         .         .         .         .         .        S.         .         .         .
152345 274.I        .         .         .         .         .         .         .         .        S.         .         .         .
152350 275.I        .         .         .         .         .         .         .         .        S.         .         .         .
152355 276.I        .         .         .         .         .         .         .         .        S.         .         .         .
160000 277.I        .         .         .         .         .         .         .         .        S.         .         .         .
160005 278.I        .         .         .         .         .         .         .         .        S.         .         .         .
160010 279.I        .         .         .         .         .         .         .         .        S.         .         .         .
160015 280.I        .         .         .         .         .         .         .         .        S.         .         .         .
160020 281.I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S. . . . . . . . . . . . . . .
160025 282.I        .         .         .         .         .         .         .         .        S.         .         .         .
160030 283.I        .         .         .         .         .         .         .         .        S.         .         .         .
160035 284.I        .         .         .         .         .         .         .         .        S.         .         .         .
160040 285.I        .         .         .         .         .         .         .         .        S.         .         .         .
160045 286.I        .         .         .         .         .         .         .         .        S.         .         .         .
160050 287.I        .         .         .         .         .         .         .         .        S.         .         .         .
160055 288.I        .         .         .         .         .         .         .         .        S.         .         .         .
160100 289.I--------.---------.---------.---------.---------.---------.---------.---------.--------S.---------.---------.---------.
1
1                                                           STATION    RT PON

                              (I) INFLOW,   (O) OUTFLOW
          0.        40.        80.       120.       160.       200.       240.       280.       320.        0.        0.        0.        0.
                                                                                          (S) STORAGE
          0.         0.         0.         0.         0.         0.         0.        10.        20.       30.        0.        0.        0.
DAHRMN PER
150100   1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
150105   2I         .         .         .         .         .         S         .         .         .         .         .         .
150110   3I         .         .         .         .         .         S         .         .         .         .         .         .
150115   4I         .         .         .         .         .         S         .         .         .         .         .         .
150120   5I         .         .         .         .         .         S         .         .         .         .         .         .
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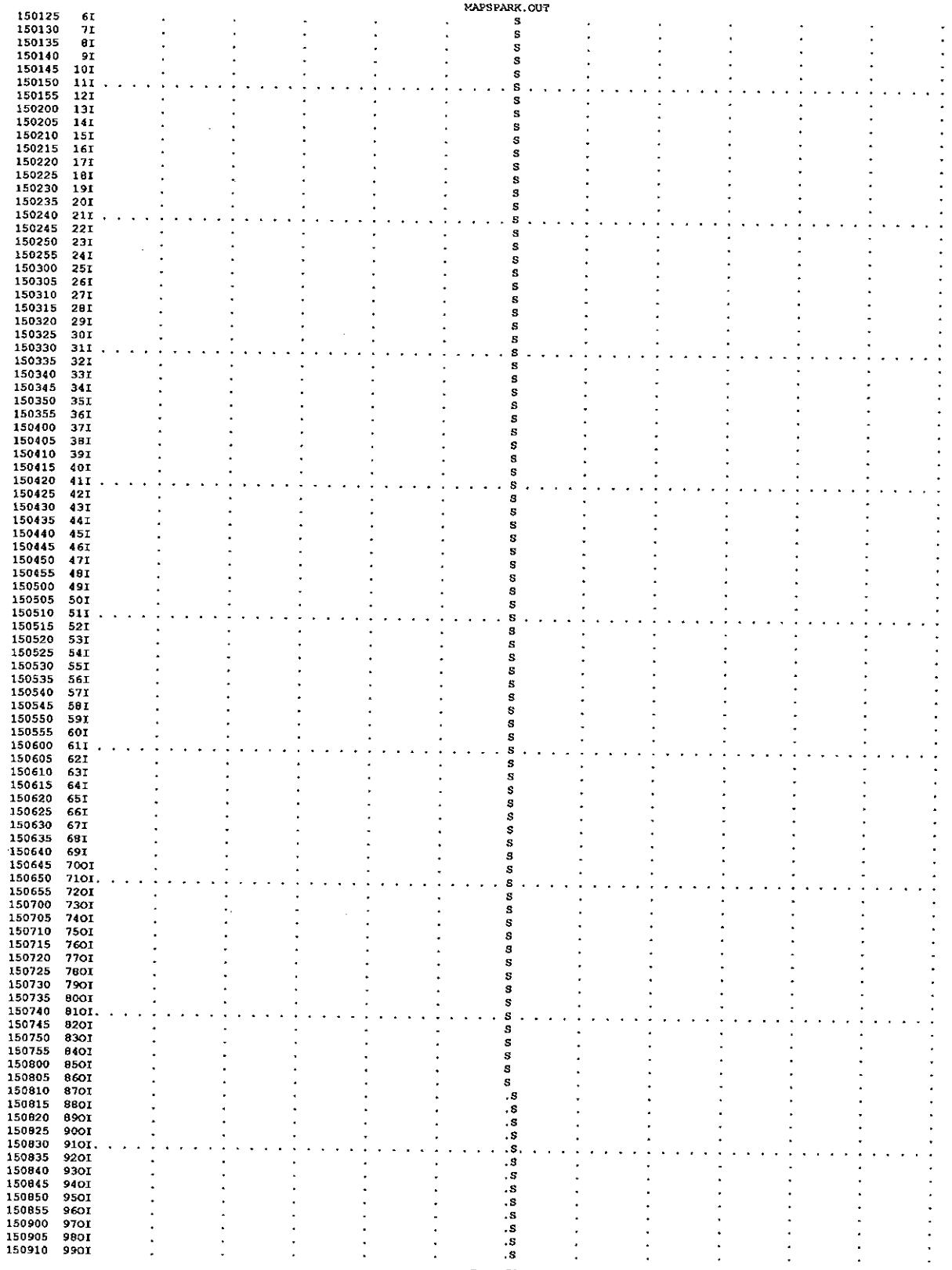
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150135 8I
150140 9I
150145 10I
150150 11I
150155 12I
150200 13I
150205 14I
150210 15I
150215 16I
150220 17I
150225 18I
150230 19I
150235 20I
150240 21I
150245 22I
150250 23I
150255 24I
150300 25I
150305 26I
150310 27I
150315 28I
150320 29I
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150355 36I
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150415 40I
150420 41I
150425 42I
150430 43I
150435 44I
150440 45I
150445 46I
150450 47I
150455 48I
150500 49I
150505 50I
150510 51I
150515 52I
150520 53I
150525 54I
150530 55I
150535 56I
150540 57I
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150550 59I
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150615 64I
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150640 69I
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150700 73OI
150705 74OI
150710 75OI
150715 76OI
150720 77OI
150725 78OI
150730 79OI
150735 80OI
150740 81OI
150745 82OI
150750 83OI
150755 84OI
150800 85OI
150805 86OI
150810 87OI
150815 88OI
150820 89OI
150825 90OI
150830 91OI
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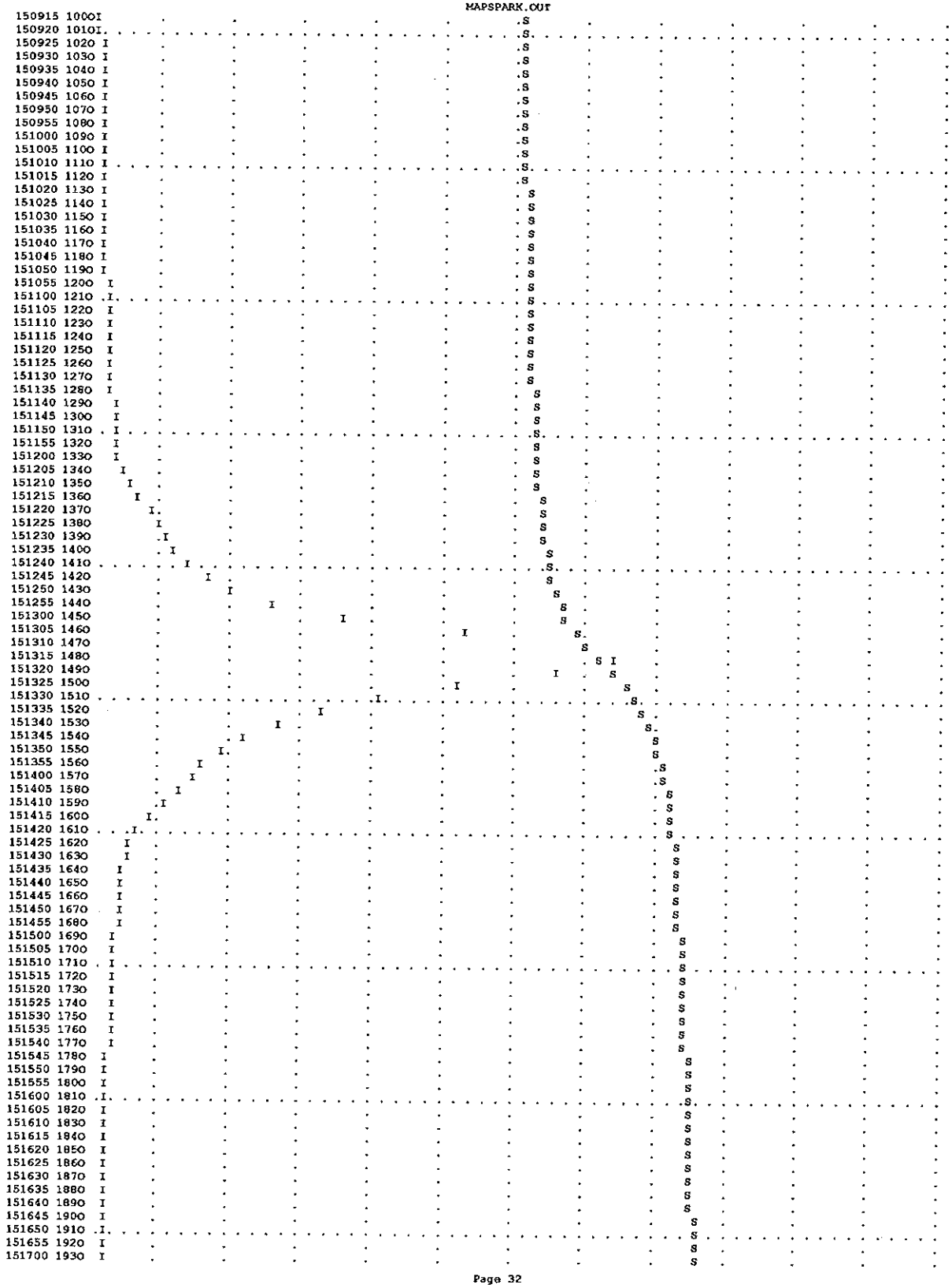
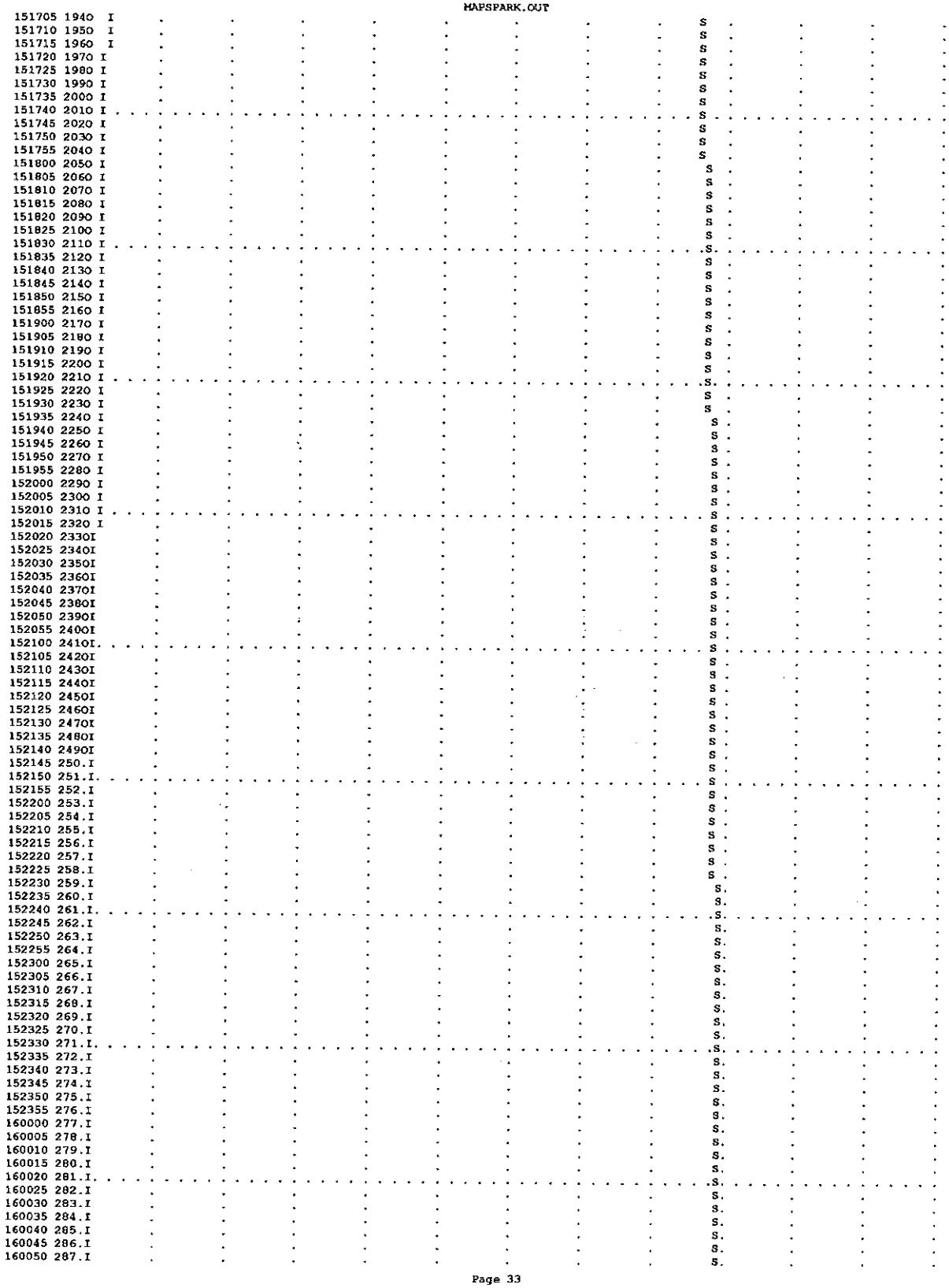
150855 96OI
150900 97OI
150905 98OI
150910 99OI

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151715 1960 I
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151740 2010 I
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151750 2030 I
151755 2040 I
151800 2050 I
151805 2060 I
151810 2070 I
151815 2080 I
151820 2090 I
151825 2100 I
151830 2110 I
151835 2120 I
151840 2130 I
151845 2140 I
151850 2150 I
151855 2160 I
151900 2170 I
151905 2180 I
151910 2190 I
151915 2200 I
151920 2210 I
151925 2220 I
151930 2230 I
151935 2240 I
151940 2250 I
151945 2260 I
151950 2270 I
151955 2280 I
152000 2290 I
152005 2300 I
152010 2310 I
152015 2320 I
152020 2330I
152025 2340I
152030 2350I
152035 2360I
152040 2370I
152045 2380I
152050 2390I
152055 2400I
152100 2410I.
152105 2420I
152110 2430I
152115 2440I
152120 2450I
152125 2460I
152130 2470I
152135 2480I
152140 2490I
152145 250.I
152150 251.I.
152155 252.I
152200 253.I
152205 254.I
152210 255.I
152215 256.I
152220 257.I
152225 258.I
152230 259.I
152235 260.I
152240 261.I.
152245 262.I
152250 263.I
152255 264.I
152300 265.I
152305 266.I
152310 267.I
152315 268.I
152320 269.I
152325 270.I
152330 271.I.
152335 272.I
152340 273.I
152345 274.I
152350 275.I
152355 276.I
160000 277.I
160005 278.I
160010 279.I
160015 280.I
160020 281.I.
160025 282.I
160030 283.I
160035 284.I
160040 285.I
160045 286.I
160050 287.I

```
 160055 288.I         .         .         .         .         .         .         .         .         .        S.         .         .         .
 160100 289.I---------.---------.---------.---------.---------.---------.---------.---------.---------.---------S.---------.---------.---------.
1
1
                                                                  STATION   RT PON

                               (I) INFLOW,   (O) OUTFLOW
          0.        40.        80.       120.       160.       200.       240.       280.        0.         0.         0.         0.         0.
                                                                                          (S) STORAGE
          0.        0.         0.         0.         0.         0.         0.        10.        20.        30.         0.         0.         0.
 DAHRMN PER
 150100   1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
 150105   2I         .         .         .         .         .         S         .         .         .         .         .         .
 150110   3I         .         .         .         .         .         S         .         .         .         .         .         .
 150115   4I         .         .         .         .         .         S         .         .         .         .         .         .
 150120   5I         .         .         .         .         .         S         .         .         .         .         .         .
 150125   6I         .         .         .         .         .         S         .         .         .         .         .         .
 150130   7I         .         .         .         .         .         S         .         .         .         .         .         .
 150135   8I         .         .         .         .         .         S         .         .         .         .         .         .
 150140   9I         .         .         .         .         .         S         .         .         .         .         .         .
 150145  10I         .         .         .         .         .         S         .         .         .         .         .         .
 150150  11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150155  12I         .         .         .         .         .         S         .         .         .         .         .         .
 150200  13I         .         .         .         .         .         S         .         .         .         .         .         .
 150205  14I         .         .         .         .         .         S         .         .         .         .         .         .
 150210  15I         .         .         .         .         .         S         .         .         .         .         .         .
 150215  16I         .         .         .         .         .         S         .         .         .         .         .         .
 150220  17I         .         .         .         .         .         S         .         .         .         .         .         .
 150225  18I         .         .         .         .         .         S         .         .         .         .         .         .
 150230  19I         .         .         .         .         .         S         .         .         .         .         .         .
 150235  20I         .         .         .         .         .         S         .         .         .         .         .         .
 150240  21I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150245  22I         .         .         .         .         .         S         .         .         .         .         .         .
 150250  23I         .         .         .         .         .         S         .         .         .         .         .         .
 150255  24I         .         .         .         .         .         S         .         .         .         .         .         .
 150300  25I         .         .         .         .         .         S         .         .         .         .         .         .
 150305  26I         .         .         .         .         .         S         .         .         .         .         .         .
 150310  27I         .         .         .         .         .         S         .         .         .         .         .         .
 150315  28I         .         .         .         .         .         S         .         .         .         .         .         .
 150320  29I         .         .         .         .         .         S         .         .         .         .         .         .
 150325  30I         .         .         .         .         .         S         .         .         .         .         .         .
 150330  31I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150335  32I         .         .         .         .         .         S         .         .         .         .         .         .
 150340  33I         .         .         .         .         .         S         .         .         .         .         .         .
 150345  34I         .         .         .         .         .         S         .         .         .         .         .         .
 150350  35I         .         .         .         .         .         S         .         .         .         .         .         .
 150355  36I         .         .         .         .         .         S         .         .         .         .         .         .
 150400  37I         .         .         .         .         .         S         .         .         .         .         .         .
 150405  38I         .         .         .         .         .         S         .         .         .         .         .         .
 150410  39I         .         .         .         .         .         S         .         .         .         .         .         .
 150415  40I         .         .         .         .         .         S         .         .         .         .         .         .
 150420  41I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150425  42I         .         .         .         .         .         S         .         .         .         .         .         .
 150430  43I         .         .         .         .         .         S         .         .         .         .         .         .
 150435  44I         .         .         .         .         .         S         .         .         .         .         .         .
 150440  45I         .         .         .         .         .         S         .         .         .         .         .         .
 150445  46I         .         .         .         .         .         S         .         .         .         .         .         .
 150450  47I         .         .         .         .         .         S         .         .         .         .         .         .
 150455  48I         .         .         .         .         .         S         .         .         .         .         .         .
 150500  49I         .         .         .         .         .         S         .         .         .         .         .         .
 150505  50I         .         .         .         .         .         S         .         .         .         .         .         .
 150510  51I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150515  52I         .         .         .         .         .         S         .         .         .         .         .         .
 150520  53I         .         .         .         .         .         S         .         .         .         .         .         .
 150525  54I         .         .         .         .         .         S         .         .         .         .         .         .
 150530  55I         .         .         .         .         .         S         .         .         .         .         .         .
 150535  56I         .         .         .         .         .         S         .         .         .         .         .         .
 150540  57I         .         .         .         .         .         S         .         .         .         .         .         .
 150545  58I         .         .         .         .         .         S         .         .         .         .         .         .
 150550  59I         .         .         .         .         .         S         .         .         .         .         .         .
 150555  60I         .         .         .         .         .         S         .         .         .         .         .         .
 150600  61I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150605  62I         .         .         .         .         .         S         .         .         .         .         .         .
 150610  63I         .         .         .         .         .         S         .         .         .         .         .         .
 150615  64I         .         .         .         .         .         S         .         .         .         .         .         .
 150620  65I         .         .         .         .         .         S         .         .         .         .         .         .
 150625  66I         .         .         .         .         .         S         .         .         .         .         .         .
 150630  67I         .         .         .         .         .         S         .         .         .         .         .         .
 150635  68I         .         .         .         .         .         S         .         .         .         .         .         .
 150640  69I         .         .         .         .         .         S         .         .         .         .         .         .
 150645  70I         .         .         .         .         .         S         .         .         .         .         .         .
 150650  71I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150655  72I         .         .         .         .         .         S         .         .         .         .         .         .
 150700  73I         .         .         .         .         .         S         .         .         .         .         .         .
 150705  74OI        .         .         .         .         .         S         .         .         .         .         .         .
 150710  75OI        .         .         .         .         .         S         .         .         .         .         .         .
 150715  76OI        .         .         .         .         .         S         .         .         .         .         .         .
 150720  77OI        .         .         .         .         .         S         .         .         .         .         .         .
 150725  78OI        .         .         .         .         .         S         .         .         .         .         .         .
 150730  79OI        .         .         .         .         .         S         .         .         .         .         .         .
 150735  80OI        .         .         .         .         .         S         .         .         .         .         .         .
 150740  81OI. . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
 150745  82OI        .         .         .         .         .         S         .         .         .         .         .         .
 150750  83OI        .         .         .         .         .         S         .         .         .         .         .         .
 150755  84OI        .         .         .         .         .         S         .         .         .         .         .         .
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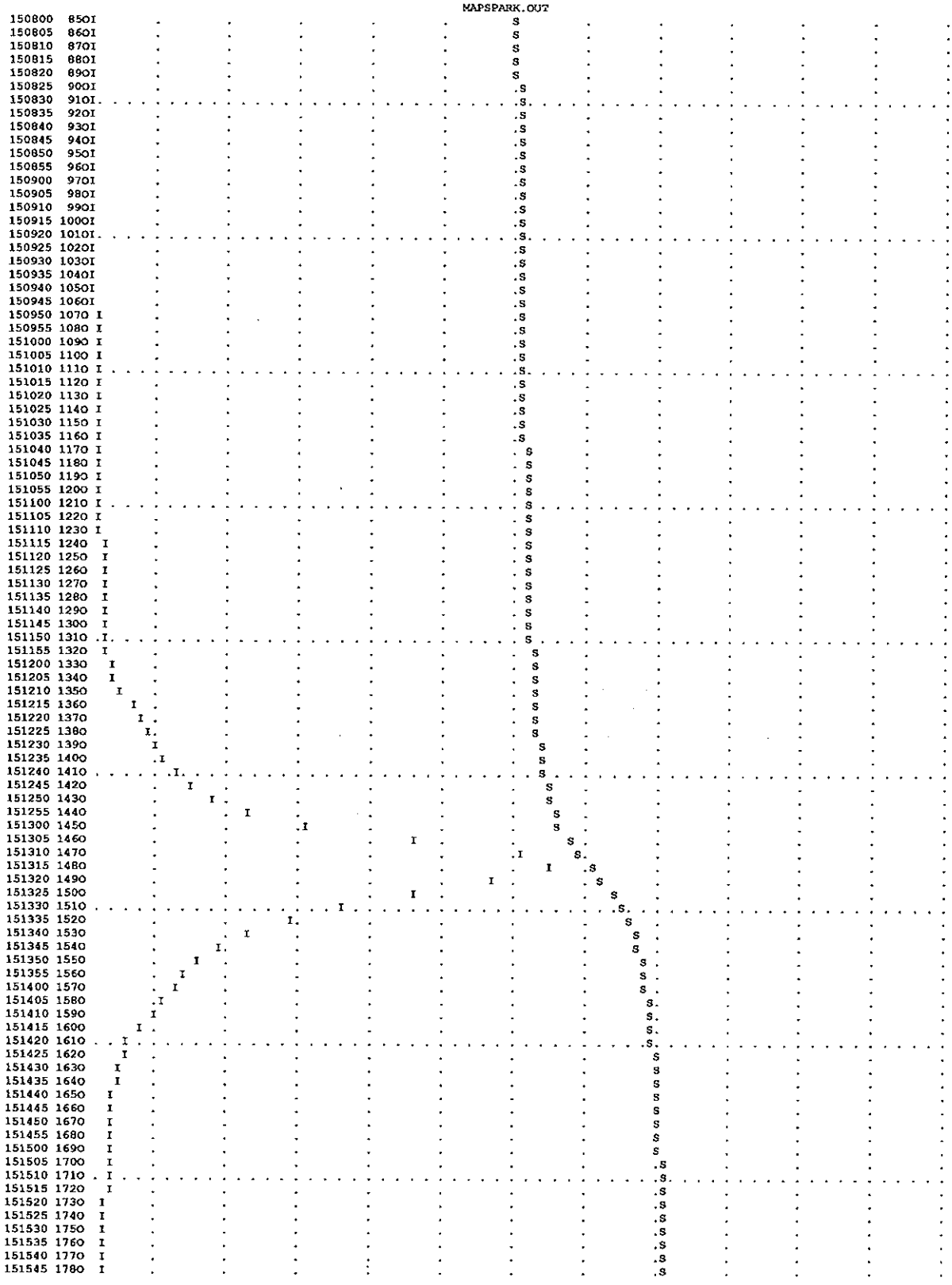

```
151550 1790  I                                                                S
151555 1800  I                                                                S
151600 1810 .I                                                                S
151605 1820  I                                                                S
151610 1830  I                                                                S
151615 1840  I                                                                S
151620 1850  I                                                                S
151625 1860  I                                                                S
151630 1870  I                                                                S
151635 1880 I                                                                 S
151640 1890 I                                                                 S
151645 1900 I                                                                 S
151650 1910 I                                                                 S
151655 1920 I                                                                 S
151700 1930 I                                                                 S
151705 1940 I                                                                 S
151710 1950 I                                                                  S
151715 1960 I                                                                  S
151720 1970 I                                                                  S
151725 1980 I                                                                  S
151730 1990 I                                                                  S
151735 2000 I                                                                  S
151740 2010 I                                                                  S
151745 2020 I                                                                  S
151750 2030 I                                                                  S
151755 2040 I                                                                  S
151800 2050 I                                                                  S
151805 2060 I                                                                  S
151810 2070 I                                                                  S
151815 2080 I                                                                  S
151820 2090 I                                                                  S
151825 2100 I                                                                  S
151830 2110 I                                                                  S
151835 2120 I                                                                  S
151840 2130 I                                                                  S
151845 2140 I                                                                   S
151850 2150 I                                                                   S
151855 2160 I                                                                   S
151900 2170 I                                                                   S
151905 2180 I                                                                   S
151910 2190 I                                                                   S
151915 2200 I                                                                   S
151920 2210I                                                                    S
151925 2220I                                                                    S
151930 2230I                                                                    S
151935 2240I                                                                    S
151940 2250I                                                                    S
151945 2260I                                                                    S
151950 2270I                                                                    S
151955 2280I                                                                    S
152000 2290I                                                                    S
152005 2300I                                                                    S
152010 2310I                                                                    S
152015 2320I                                                                    S
152020 2330I                                                                    S
152025 2340I                                                                    S
152030 2350I                                                                    S
152035 2360I                                                                    S
152040 2370I                                                                    S
152045 2380I                                                                    S
152050 2390I                                                                    S
152055 2400I                                                                    S
152100 2410I                                                                    S
152105 2420I                                                                     S
152110 2430I                                                                     S
152115 2440I                                                                     S
152120 2450I                                                                     S
152125 2460I                                                                     S
152130 2470I                                                                     S
152135 2480I                                                                     S
152140 2490I                                                                     S
152145 2500I                                                                     S
152150 2510I                                                                     S
152155 2520I                                                                     S
152200 2530I                                                                     S
152205 2540I                                                                     S
152210 2550I                                                                     S
152215 2560I                                                                     S
152220 2570I                                                                     S
152225 2580I                                                                     S
152230 2590I                                                                     S
152235 2600I                                                                     S
152240 2610I                                                                     S
152245 2620I                                                                      S
152250 2630I                                                                      S
152255 2640I                                                                      S
152300 2650I                                                                      S
152305 2660I                                                                      S
152310 2670I                                                                      S
152315 2680I                                                                      S
152320 2690I                                                                      S
152325 2700I                                                                      S
152330 2710I                                                                      S
152335 2720I                                                                      S
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152340 2730I         .         .         .         .         .         .         .         .    S    .         .         .         .
152345 2740I         .         .         .         .         .         .         .         .    S    .         .         .         .
152350 2750I         .         .         .         .         .         .         .         .    S    .         .         .         .
152355 2760I         .         .         .         .         .         .         .         .    S    .         .         .         .
160000 2770I         .         .         .         .         .         .         .         .    S    .         .         .         .
160005 2780I         .         .         .         .         .         .         .         .    S    .         .         .         .
160010 2790I         .         .         .         .         .         .         .         .    S    .         .         .         .
160015 2800I         .         .         .         .         .         .         .         .     S   .         .         .         .
160020 2810I. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .S . . . . . . . . . . . . . . . . .
160025 2820I         .         .         .         .         .         .         .         .     S   .         .         .         .
160030 2830I         .         .         .         .         .         .         .         .     S   .         .         .         .
160035 2840I         .         .         .         .         .         .         .         .     S   .         .         .         .
160040 2850I         .         .         .         .         .         .         .         .     S   .         .         .         .
160045 2860I         .         .         .         .         .         .         .         .     S   .         .         .         .
160050 2870I         .         .         .         .         .         .         .         .     S   .         .         .         .
160055 2880I         .         .         .         .         .         .         .         .     S   .         .         .         .
160100 2890I---------.---------.---------.---------.---------.---------.---------.---------.-----S---.---------.---------.---------.
1
1                                                    STATION    RT PON

                                (I) INFLOW,    (O) OUTFLOW
          0.        40.       80.       120.      160.      200.      240.        0.        0.        0.        0.        0.        0.
                                                                                    (S) STORAGE
          0.        0.        0.        0.        0.        0.        0.        10.       20.       30.       0.        0.        0.
DAHRMN PER
150100    1I---------.---------.---------.---------.---------.---------S---------.---------.---------.---------.---------.---------.
150105    2I         .         .         .         .         .         S         .         .         .         .         .         .
150110    3I         .         .         .         .         .         S         .         .         .         .         .         .
150115    4I         .         .         .         .         .         S         .         .         .         .         .         .
150120    5I         .         .         .         .         .         S         .         .         .         .         .         .
150125    6I         .         .         .         .         .         S         .         .         .         .         .         .
150130    7I         .         .         .         .         .         S         .         .         .         .         .         .
150135    8I         .         .         .         .         .         S         .         .         .         .         .         .
150140    9I         .         .         .         .         .         S         .         .         .         .         .         .
150145   10I         .         .         .         .         .         S         .         .         .         .         .         .
150150   11I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150155   12I         .         .         .         .         .         S         .         .         .         .         .         .
150200   13I         .         .         .         .         .         S         .         .         .         .         .         .
150205   14I         .         .         .         .         .         S         .         .         .         .         .         .
150210   15I         .         .         .         .         .         S         .         .         .         .         .         .
150215   16I         .         .         .         .         .         S         .         .         .         .         .         .
150220   17I         .         .         .         .         .         S         .         .         .         .         .         .
150225   18I         .         .         .         .         .         S         .         .         .         .         .         .
150230   19I         .         .         .         .         .         S         .         .         .         .         .         .
150235   20I         .         .         .         .         .         S         .         .         .         .         .         .
150240   21I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150245   22I         .         .         .         .         .         S         .         .         .         .         .         .
150250   23I         .         .         .         .         .         S         .         .         .         .         .         .
150255   24I         .         .         .         .         .         S         .         .         .         .         .         .
150300   25I         .         .         .         .         .         S         .         .         .         .         .         .
150305   26I         .         .         .         .         .         S         .         .         .         .         .         .
150310   27I         .         .         .         .         .         S         .         .         .         .         .         .
150315   28I         .         .         .         .         .         S         .         .         .         .         .         .
150320   29I         .         .         .         .         .         S         .         .         .         .         .         .
150325   30I         .         .         .         .         .         S         .         .         .         .         .         .
150330   31I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150335   32I         .         .         .         .         .         S         .         .         .         .         .         .
150340   33I         .         .         .         .         .         S         .         .         .         .         .         .
150345   34I         .         .         .         .         .         S         .         .         .         .         .         .
150350   35I         .         .         .         .         .         S         .         .         .         .         .         .
150355   36I         .         .         .         .         .         S         .         .         .         .         .         .
150400   37I         .         .         .         .         .         S         .         .         .         .         .         .
150405   38I         .         .         .         .         .         S         .         .         .         .         .         .
150410   39I         .         .         .         .         .         S         .         .         .         .         .         .
150415   40I         .         .         .         .         .         S         .         .         .         .         .         .
150420   41I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150425   42I         .         .         .         .         .         S         .         .         .         .         .         .
150430   43I         .         .         .         .         .         S         .         .         .         .         .         .
150435   44I         .         .         .         .         .         S         .         .         .         .         .         .
150440   45I         .         .         .         .         .         S         .         .         .         .         .         .
150445   46I         .         .         .         .         .         S         .         .         .         .         .         .
150450   47I         .         .         .         .         .         S         .         .         .         .         .         .
150455   48I         .         .         .         .         .         S         .         .         .         .         .         .
150500   49I         .         .         .         .         .         S         .         .         .         .         .         .
150505   50I         .         .         .         .         .         S         .         .         .         .         .         .
150510   51I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150515   52I         .         .         .         .         .         S         .         .         .         .         .         .
150520   53I         .         .         .         .         .         S         .         .         .         .         .         .
150525   54I         .         .         .         .         .         S         .         .         .         .         .         .
150530   55I         .         .         .         .         .         S         .         .         .         .         .         .
150535   56I         .         .         .         .         .         S         .         .         .         .         .         .
150540   57I         .         .         .         .         .         S         .         .         .         .         .         .
150545   58I         .         .         .         .         .         S         .         .         .         .         .         .
150550   59I         .         .         .         .         .         S         .         .         .         .         .         .
150555   60I         .         .         .         .         .         S         .         .         .         .         .         .
150600   61I . . . . . . . . . . . . . . . . . . . . . . . . . . . . . S . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .
150605   62I         .         .         .         .         .         S         .         .         .         .         .         .
150610   63I         .         .         .         .         .         S         .         .         .         .         .         .
150615   64I         .         .         .         .         .         S         .         .         .         .         .         .
150620   65I         .         .         .         .         .         S         .         .         .         .         .         .
150625   66I         .         .         .         .         .         S         .         .         .         .         .         .
150630   67I         .         .         .         .         .         S         .         .         .         .         .         .
150635   68I         .         .         .         .         .         S         .         .         .         .         .         .
150640   69I         .         .         .         .         .         S         .         .         .         .         .         .
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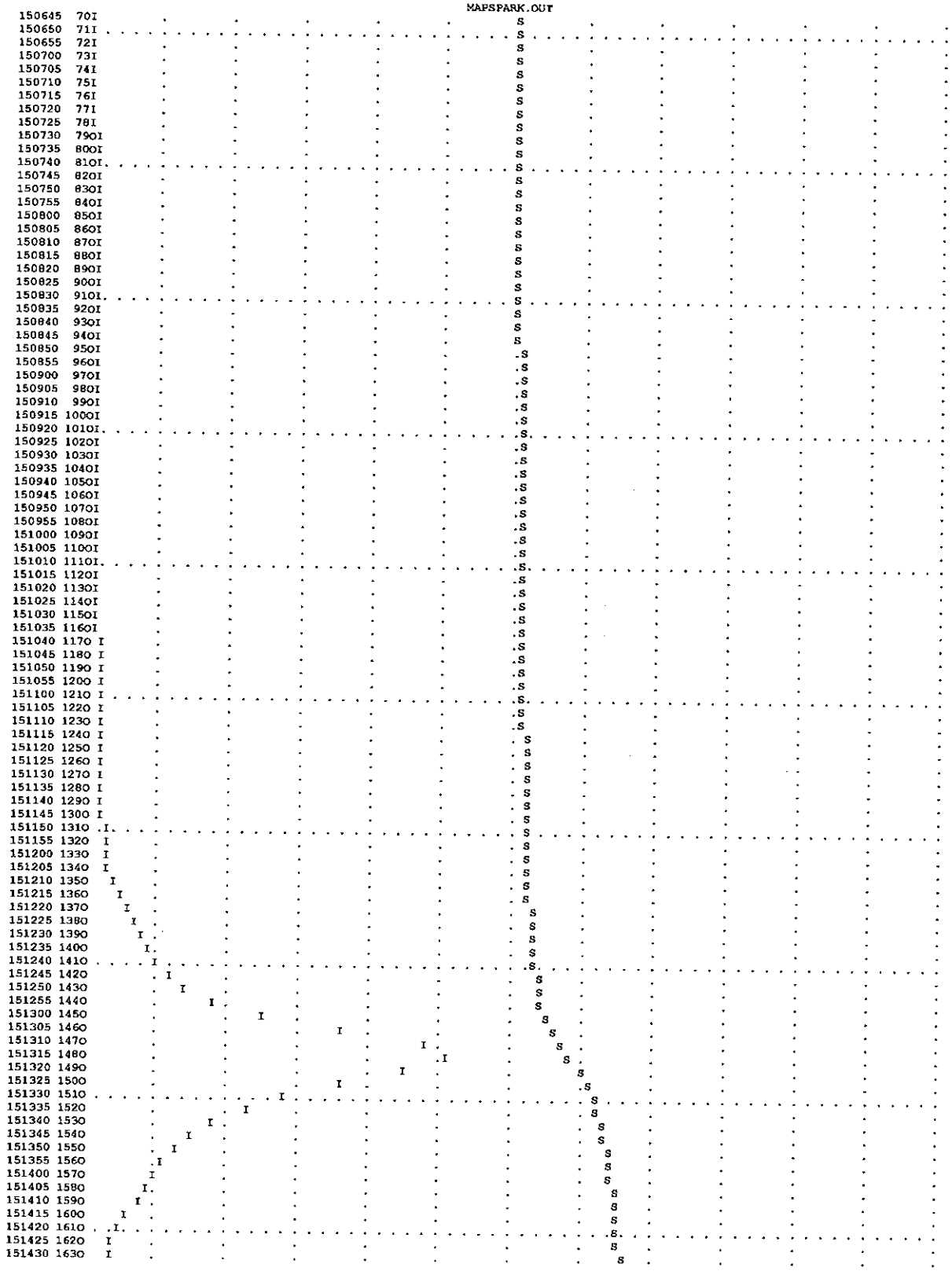
150645 70I
150650 71I
150655 72I
150700 73I
150705 74I
150710 75I
150715 76I
150720 77I
150725 78I
150730 79OI
150735 80OI
150740 81OI
150745 82OI
150750 83OI
150755 84OI
150800 85OI
150805 86OI
150810 87OI
150815 88OI
150820 89OI
150825 90OI
150830 91OI
150835 92OI
150840 93OI
150845 94OI
150850 95OI
150855 96OI
150900 97OI
150905 98OI
150910 99OI
150915 100OI
150920 101OI
150925 102OI
150930 103OI
150935 104OI
150940 105OI
150945 106OI
150950 107OI
150955 108OI
151000 109OI
151005 110OI
151010 111OI
151015 112OI
151020 113OI
151025 114OI
151030 115OI
151035 116OI
151040 117O I
151045 118O I
151050 119O I
151055 120O I
151100 121O I
151105 122O I
151110 123O I
151115 124O I
151120 125O I
151125 126O I
151130 127O I
151135 128O I
151140 129O I
151145 130O I
151150 131O .I
151155 132O I
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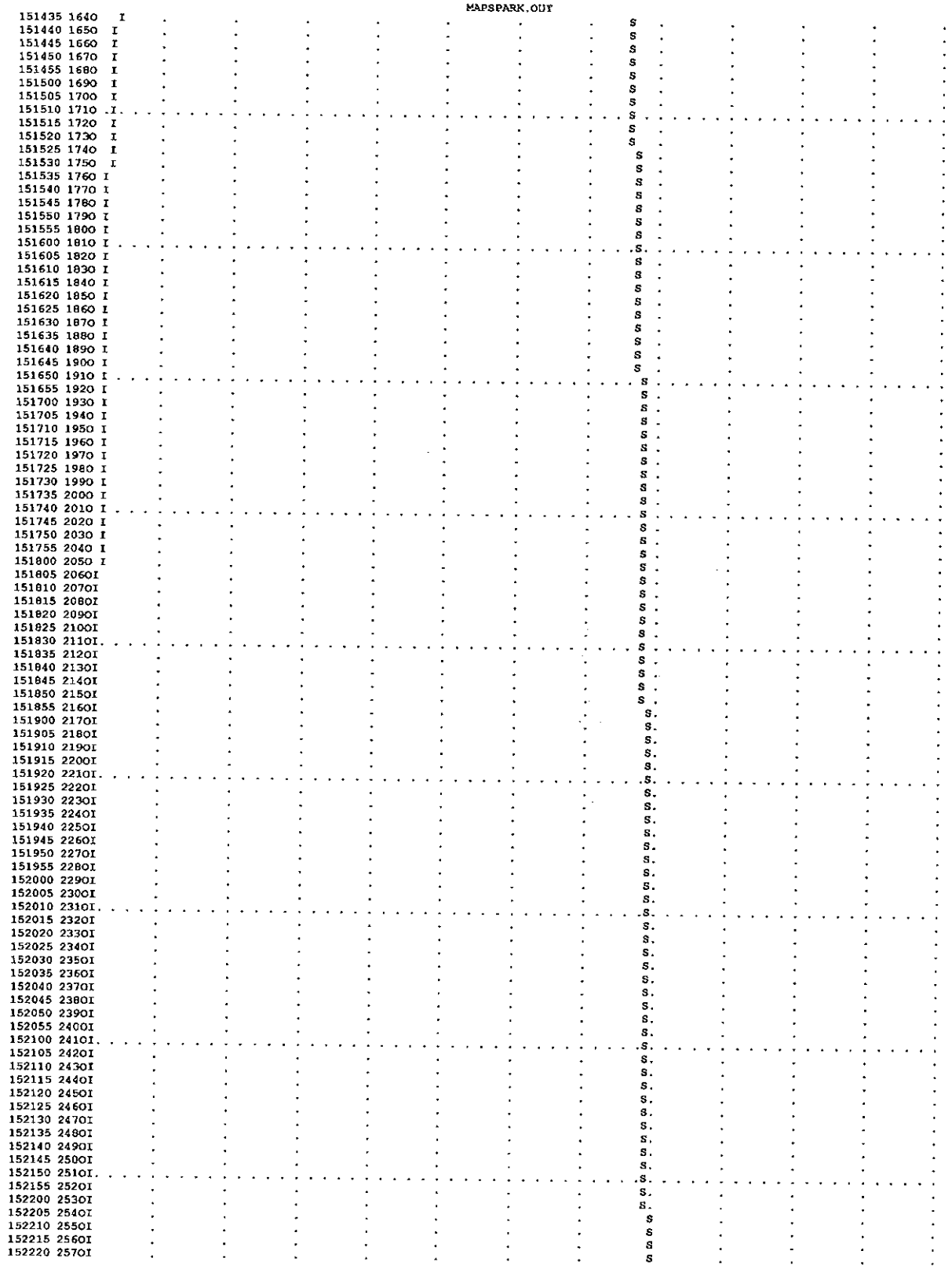
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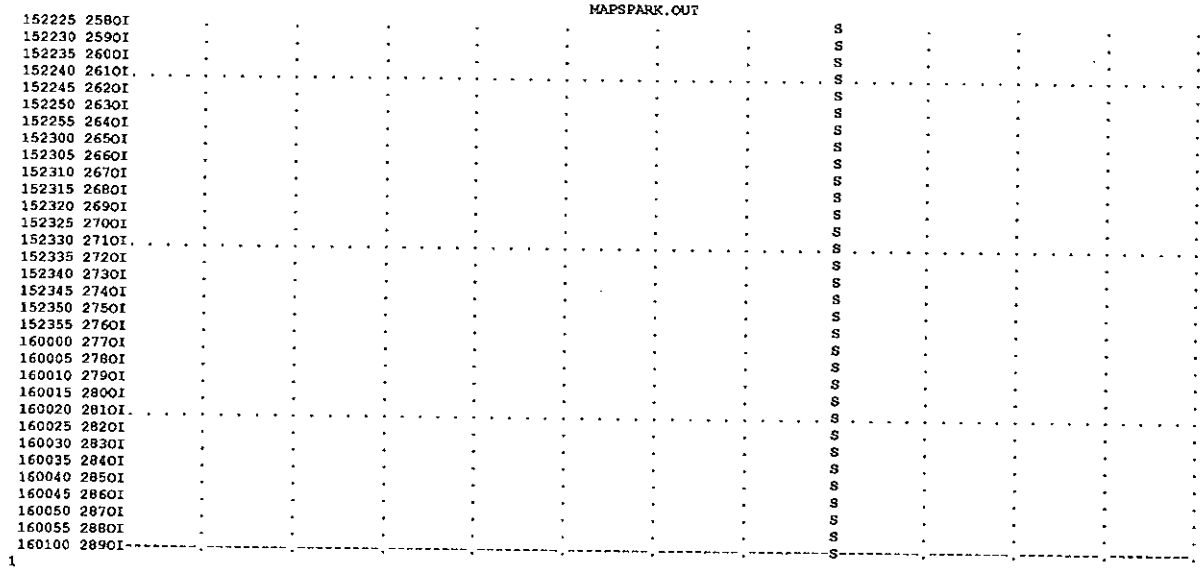

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PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO FLOWS RATIO 1 .68	RATIO 2 .59	RATIO 3 .49	RATIO 4 .39	RATIO 5 .34	RATIO 6 .27
HYDROGRAPH AT										
+	DA 1	.20	1	FLOW	516.	446.	376.	298.	259.	204.
				TIME	12.25	12.25	12.25	12.25	12.25	12.25
ROUTED TO										
+	RT PON	.20	1	FLOW	118.	58.	16.	4.	0.	0.
				TIME	12.92	13.25	15.08	24.00	.00	.00
				** PEAK STAGES IN FEET **						
			1	STAGE	1191.61	1191.48	1191.33	1191.23	1190.92	1190.27
				TIME	12.92	13.25	15.08	24.00	24.00	24.00

1 SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION RT PON
(PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED DURING BREACH FORMATION)

PLAN 1 .....

	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
ELEVATION	1186.30	1191.10	1193.00
STORAGE	0.	27.	57.
OUTFLOW	0.	0.	3712.

RATIO OF PMF	MAXIMUM RESERVOIR W.S.ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
.68	1191.61	.00	33.	118.	.00	12.92	.00
.59	1191.48	.00	31.	58.	.00	13.25	.00
.49	1191.33	.00	30.	16.	.00	15.08	.00
.39	1191.23	.00	29.	4.	.00	24.00	.00
.34	1190.92	.00	26.	0.	.00	.00	.00
.27	1190.27	.00	20.	0.	.00	.00	.00

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

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X     X
X     X  X        X           X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X      X    X       X
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PROJECT DATA
Project Title: DOWNTOWN PARK
Project File : 2818003.prj
Run Date and Time: 2/4/2015 2:23:11 PM

Project in English units

PLAN DATA

Plan Title: PR W/ OBS PROMENADE REV 2
Plan File : p:\2818 - MAPS 3 Downtown Park\003 - Park Design\CAL\HEC-RAS\2818003.p11

Geometry Title: PR W/ OBS PROMENADE REV
Geometry File : p:\2818 - MAPS 3 Downtown Park\003 - Park Design\CAL\HEC-RAS\2818003.g07

Flow Title : FLOW REV 2
Flow File : p:\2818 - MAPS 3 Downtown Park\003 - Park Design\CAL\HEC-RAS\2818003.f06

Plan Summary Information:
Number of: Cross Sections = 5 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

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

Computation Options
Critical depth computed at all cross sections
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: FLOW REV 2
Flow File : p:\2818 - MAPS 3 Downtown Park\003 - Park Design\CAL\HEC-RAS\2818003.f06

Flow Data (cfs)

River	Reach	RS	Q2	Q5	Q10	Q25	Q50	Q100
OVERLAND FLOW	OVERLAND FLOW	1224	.01	.01	4	16	58	118
OVERLAND FLOW	OVERLAND FLOW	1107	143	169.5	190.7	231.6	296.6	378.6
OVERLAND FLOW	OVERLAND FLOW	950	143	169.5	190.7	231.6	296.6	378.6

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
OVERLAND FLOW	OVERLAND FLOW	Q2		Normal S = 0.001

GEOMETRY DATA

Geometry Title: PR W/ OBS PROMENADE REV
Geometry File : p:\2818 - MAPS 3 Downtown Park\003 - Park Design\CAL\HEC-RAS\2818003.g07

CROSS SECTION

RIVER: OVERLAND FLOW
REACH: OVERLAND FLOW RS: 1224

INPUT
Description: STA 12+24 PROMENADE
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1084.81	1193	1362.76	1192.79	1436.68	1192	1538.83	1191.95	1643.55	1191.93
1800.78	1191.93	1813.42	1191.85	1824.35	1191.84	1906.7	1191.66	1989.84	1191.4
2114.26	1191.19	2121.94	1191.27	2157.85	1191.27	2184.15	1191.76	2197.64	1191.71
2207.74	1192	2241.92	1192.53	2260.96	1192.65	2266.07	1193	2296.89	1193.53
2318.11	1193.68	2324.7	1194	2355.48	1194.52	2360.33	1194.54	2370.19	1194.66
2383.53	1195								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1084.81	.013	1362.76	.013	2260.96	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1362.76	2260.96	117	117	117	.1	.3

CROSS SECTION OUTPUT Profile #Q2

E.G. Elev (ft)	1192.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.63	Reach Len. (ft)	117.00	117.00	117.00
Crit W.S. (ft)	1191.21	Flow Area (sq ft)		733.86	
E.G. Slope (ft/ft)	0.000000	Area (sq ft)		733.86	
Q Total (cfs)	0.01	Flow (cfs)		0.01	
Top Width (ft)	878.91	Top Width (ft)		878.91	
Vel Total (ft/s)	0.00	Avg. Vel. (ft/s)		0.00	
Max Chl Dpth (ft)	1.44	Hydr. Depth (ft)		0.83	
Conv. Total (cfs)	74376.7	Conv. (cfs)		74376.7	
Length Wtd. (ft)	117.00	Wetted Per. (ft)		878.93	
Min Ch El (ft)	1191.19	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	2383.53	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	3.23	
C & E Loss (ft)	0.00	Cum SA (acres)		5.10	

CROSS SECTION OUTPUT Profile #Q5

E.G. Elev (ft)	1192.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	0.000
W.S. Elev (ft)	1192.66	Reach Len. (ft)	117.00	117.00	117.00
Crit W.S. (ft)	1191.21	Flow Area (sq ft)		761.01	0.00
E.G. Slope (ft/ft)	0.000000	Area (sq ft)		761.01	0.00
Q Total (cfs)	0.01	Flow (cfs)		0.01	0.00
Top Width (ft)	885.77	Top Width (ft)		885.68	0.09
Vel Total (ft/s)	0.00	Avg. Vel. (ft/s)		0.00	0.00
Max Chl Dpth (ft)	1.47	Hydr. Depth (ft)		0.86	0.00
Conv. Total (cfs)	78616.3	Conv. (cfs)		78616.3	0.0
Length Wtd. (ft)	117.00	Wetted Per. (ft)		885.70	0.09
Min Ch El (ft)	1191.19	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	2383.53	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	3.44	0.00
C & E Loss (ft)	0.00	Cum SA (acres)		5.33	0.00

CROSS SECTION OUTPUT Profile #Q10

E.G. Elev (ft)	1192.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	0.013
W.S. Elev (ft)	1192.68	Reach Len. (ft)	117.00	117.00	117.00
Crit W.S. (ft)	1191.29	Flow Area (sq ft)		777.57	0.00
E.G. Slope (ft/ft)	0.000000	Area (sq ft)		777.57	0.00
Q Total (cfs)	4.00	Flow (cfs)		4.00	0.00
Top Width (ft)	887.79	Top Width (ft)		887.43	0.36
Vel Total (ft/s)	0.01	Avg. Vel. (ft/s)		0.01	0.00
Max Chl Dpth (ft)	1.48	Hydr. Depth (ft)		0.88	0.01
Conv. Total (cfs)	81380.9	Conv. (cfs)		81380.8	0.0
Length Wtd. (ft)	117.00	Wetted Per. (ft)		887.45	0.36
Min Ch El (ft)	1191.19	Shear (lb/sq ft)		0.00	0.00
Alpha	1.00	Stream Power (lb/ft s)	2383.53	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	3.57	0.00
C & E Loss (ft)	0.00	Cum SA (acres)		5.45	0.00

CROSS SECTION OUTPUT Profile #Q25

E.G. Elev (ft)	1192.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	0.013
W.S. Elev (ft)	1192.71	Reach Len. (ft)	117.00	117.00	117.00
Crit W.S. (ft)	1191.34	Flow Area (sq ft)		807.96	0.03
E.G. Slope (ft/ft)	0.000000	Area (sq ft)		807.96	0.03
Q Total (cfs)	16.00	Flow (cfs)		16.00	0.00
Top Width (ft)	891.49	Top Width (ft)		890.63	0.86
Vel Total (ft/s)	0.02	Avg. Vel. (ft/s)		0.02	0.00
Max Chl Dpth (ft)	1.52	Hydr. Depth (ft)		0.91	0.03
Conv. Total (cfs)	86542.5	Conv. (cfs)		86542.3	0.3
Length Wtd. (ft)	117.00	Wetted Per. (ft)		890.65	0.86
Min Ch El (ft)	1191.19	Shear (lb/sq ft)		0.00	0.00

Alpha	1.00	Stream Power (lb/ft s)	2383.53	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	3.81	0.00
C & E Loss (ft)	0.00	Cum SA (acres)		5.56	0.00

CROSS SECTION OUTPUT Profile #Q50

E.G. Elev (ft)	1192.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	0.013
W.S. Elev (ft)	1192.76	Reach Len. (ft)	117.00	117.00	117.00
Crit W.S. (ft)	1191.44	Flow Area (sq ft)		850.35	0.08
E.G. Slope (ft/ft)	0.000000	Area (sq ft)		850.35	0.08
Q Total (cfs)	58.00	Flow (cfs)		58.00	0.00
Top Width (ft)	896.63	Top Width (ft)		895.07	1.56
Vel Total (ft/s)	0.07	Avg. Vel. (ft/s)		0.07	0.01
Max Chl Dpth (ft)	1.57	Hydr. Depth (ft)		0.95	0.05
Conv. Total (cfs)	93931.9	Conv. (cfs)		93930.6	1.3
Length Wtd. (ft)	117.00	Wetted Per. (ft)		895.09	1.56
Min Ch El (ft)	1191.19	Shear (lb/sq ft)		0.00	0.00
Alpha	1.00	Stream Power (lb/ft s)	2383.53	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	4.16	0.00
C & E Loss (ft)	0.00	Cum SA (acres)		5.71	0.00

CROSS SECTION OUTPUT Profile #Q100

E.G. Elev (ft)	1192.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.	0.013	0.013	0.013
W.S. Elev (ft)	1192.81	Reach Len. (ft)	117.00	117.00	117.00
Crit W.S. (ft)	1191.53	Flow Area (sq ft)	0.20	896.02	0.18
E.G. Slope (ft/ft)	0.000001	Area (sq ft)	0.20	896.02	0.18
Q Total (cfs)	118.00	Flow (cfs)	0.00	117.99	0.00
Top Width (ft)	923.61	Top Width (ft)	23.11	898.20	2.30
Vel Total (ft/s)	0.13	Avg. Vel. (ft/s)	0.01	0.13	0.02
Max Chl Dpth (ft)	1.62	Hydr. Depth (ft)	0.01	1.00	0.08
Conv. Total (cfs)	102254.5	Conv. (cfs)	1.0	102249.7	3.8
Length Wtd. (ft)	117.00	Wetted Per. (ft)	23.11	898.22	2.30
Min Ch El (ft)	1191.19	Shear (lb/sq ft)	0.00	0.00	0.00
Alpha	1.00	Stream Power (lb/ft s)	2383.53	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	4.56	0.00
C & E Loss (ft)	0.00	Cum SA (acres)	0.03	5.91	0.00

CROSS SECTION

RIVER: OVERLAND FLOW
REACH: OVERLAND FLOW RS: 1107

INPUT
Description: STA 11+07 WEST CURB LINE OF ROBINSON
Station Elevation Data num= 75

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
999.99	1195	1000	1191.96	1007.861191.781		10341191.756		1102.181191.694	
1103.551192.115		1145.71192.174		1187.421192.346		1218.58	1192.32	1219.24	1192.11
1256.651191.908		1257.751191.939		1331.891192.002		1341.231192.051		1367.991191.446	
1368.531191.907		1382.761191.883		1383.581191.446		1451.331191.643		1468.721191.755	
1469.621192.382		1532.821192.424		1533.541192.021		1562.881192.018		1563.57	1192.09
1598.041192.129		1600.28	1192.23	1601.21192.092		1628.39	1192.12	1629.41192.366	
1742.171191.807		1749.571191.456		1755.611192.002		1755.761192.125		1766.971192.104	
1767.611191.707		1838.71191.165		1843.741191.272		1844.51191.895		1908.161192.163	
1938.71191.943		1939.531191.683		1961.361191.789		1962.091191.962		1980.681192.059	
1981.31191.897		2010.851191.865		2011.54	1192.08	2016.891191.992		2018.231191.619	
2061.981191.368		2062.681191.727		2090.11191.796		2135.051191.751		21581191.601	
2160.011190.789		2225.291190.972		2250.971191.649		2251.81192.241		2352.741193.393	
2358.141193.406		2359.031192.911		2397.941193.857		2398.641194.392		2450.21	1195.96
2501.731197.929		2554.411200.596		2631.14	1205.262702.638120B.784			2753.311210.938	
2852.061214.003		2895.191215.005		2947.61215.778		2999.961216.015		3025.86	1215.97

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
999.99	.013	999.99	.013	2398.64	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
999.99	2398.64	30	30	.1	.3

CROSS SECTION OUTPUT Profile #Q2

E.G. Elev (ft)	1192.63	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.63	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1191.40	Flow Area (sq ft)		982.82	
E.G. Slope (ft/ft)	0.000002	Area (sq ft)		982.82	
Q Total (cfs)	143.00	Flow (cfs)		143.00	
Top Width (ft)	1285.45	Top Width (ft)		1285.45	
Vel Total (ft/s)	0.15	Avg. Vel. (ft/s)		0.15	
Max Chl Dpth (ft)	1.84	Hydr. Depth (ft)		0.76	
Conv. Total (cfs)	93812.6	Conv. (cfs)		93812.6	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		1287.88	
Min Ch El (ft)	1190.79	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3025.86	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	0.93	
C & E Loss (ft)	0.01	Cum SA (acres)		2.19	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q5

E.G. Elev (ft)	1192.66	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.66	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1191.47	Flow Area (sq ft)		1022.41	
E.G. Slope (ft/ft)	0.000003	Area (sq ft)		1022.41	
Q Total (cfs)	169.50	Flow (cfs)		169.50	
Top Width (ft)	1288.15	Top Width (ft)		1288.15	
Vel Total (ft/s)	0.17	Avg. Vel. (ft/s)		0.17	
Max Chl Dpth (ft)	1.87	Hydr. Depth (ft)		0.79	
Conv. Total (cfs)	100052.9	Conv. (cfs)		100052.9	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		1290.61	
Min Ch El (ft)	1190.79	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3025.86	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.04	
C & E Loss (ft)	0.01	Cum SA (acres)		2.41	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q10

E.G. Elev (ft)	1192.68	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.67	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1191.52	Flow Area (sq ft)		1046.32	
E.G. Slope (ft/ft)	0.000003	Area (sq ft)		1046.32	
Q Total (cfs)	190.70	Flow (cfs)		190.70	
Top Width (ft)	1289.77	Top Width (ft)		1289.77	
Vel Total (ft/s)	0.18	Avg. Vel. (ft/s)		0.18	
Max Chl Dpth (ft)	1.89	Hydr. Depth (ft)		0.81	
Conv. Total (cfs)	103895.7	Conv. (cfs)		103895.7	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		1292.25	
Min Ch El (ft)	1190.79	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3025.86	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.12	
C & E Loss (ft)	0.01	Cum SA (acres)		2.53	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q25

E.G. Elev (ft)	1192.71	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.71	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1191.58	Flow Area (sq ft)		1089.99	
E.G. Slope (ft/ft)	0.000004	Area (sq ft)		1089.99	
Q Total (cfs)	231.60	Flow (cfs)		231.60	
Top Width (ft)	1292.74	Top Width (ft)		1292.74	
Vel Total (ft/s)	0.21	Avg. Vel. (ft/s)		0.21	
Max Chl Dpth (ft)	1.92	Hydr. Depth (ft)		0.84	
Conv. Total (cfs)	111050.3	Conv. (cfs)		111050.3	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		1295.24	
Min Ch El (ft)	1190.79	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3025.86	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.26	
C & E Loss (ft)	0.01	Cum SA (acres)		2.63	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q50

E.G. Elev (ft)	1192.76	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.76	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1191.65	Flow Area (sq ft)		1151.15	
E.G. Slope (ft/ft)	0.000006	Area (sq ft)		1151.15	
Q Total (cfs)	296.60	Flow (cfs)		296.60	
Top Width (ft)	1296.88	Top Width (ft)		1296.88	
Vel Total (ft/s)	0.26	Avg. Vel. (ft/s)		0.26	
Max Chl Dpth (ft)	1.97	Hydr. Depth (ft)		0.89	
Conv. Total (cfs)	121368.1	Conv. (cfs)		121368.1	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		1299.44	
Min Ch El (ft)	1190.79	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3025.86	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.47	
C & E Loss (ft)	0.01	Cum SA (acres)		2.77	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q100

E.G. Elev (ft)	1192.81	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.81	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1191.73	Flow Area (sq ft)		1216.49	
E.G. Slope (ft/ft)	0.000008	Area (sq ft)		1216.49	
Q Total (cfs)	378.60	Flow (cfs)		378.60	
Top Width (ft)	1301.28	Top Width (ft)		1301.28	
Vel Total (ft/s)	0.31	Avg. Vel. (ft/s)		0.31	
Max Chl Dpth (ft)	2.02	Hydr. Depth (ft)		0.93	
Conv. Total (cfs)	132761.1	Conv. (cfs)		132761.1	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		1303.89	
Min Ch El (ft)	1190.79	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3025.86	0.00	0.00
Frotn Loss (ft)	0.00	Cum Voluxe (acre-ft)	0.00	1.72	
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	2.96	

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: OVERLAND FLOW
REACH: OVERLAND FLOW RS: 1077

INPUT
Description: STA 10+77 CL OF ROBINSON
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
999.99	1195	10001192.022		1020.411191.954		1066.331192.016		1101.271192.332	
1124.691192.331		1151.091192.639		1182.461192.698		1228.111192.666		1278.131192.798	
1325.231192.752		1381.381192.728		1466.31192.681		1577.871192.932		1624.971192.869	
1676.421192.899		1723.451192.672		1761.811192.544		1849.7 1192.51		1949.731192.737	
2004.11192.728		2049.211192.563		2102.991192.575		2159.861192.486		2202.911192.443	
2253.06 1192.55		2304.25 1192.67		2354.85 1193.22		2428.6 1194.97		2501.711197.767	
2554.19 1200.35		2611.921203.856		2653.091205.209		2702.87 1208.6		2753.09 1210.79	
2802.68 1212.67		2896.1 1215		2902.521214.994		2949.051215.639		3000.771215.884	
3026.481215.857									

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
999.99	.013	999.99	.013	2428.6	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
999.99	2428.6	30	30	.1	.3

CROSS SECTION OUTPUT Profile #Q2

E.G. Elev (ft)	1192.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.13	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.49	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1192.49	Flow Area (sq ft)		50.27	
E.G. Slope (ft/ft)	0.003978	Area (sq ft)		50.27	
Q Total (cfs)	143.00	Flow (cfs)		143.00	
Top Width (ft)	202.31	Top Width (ft)		202.31	
Vel Total (ft/s)	2.84	Avg. Vel. (ft/s)		2.84	
Max Chl Dpth (ft)	0.53	Hydr. Depth (ft)		0.25	
Conv. Total (cfs)	2267.4	Conv. (cfs)		2267.4	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		202.78	
Min Ch El (ft)	1191.95	Shear (lb/sq ft)		0.06	
Alpha	1.00	Stream Power (lb/ft s)	3026.48	0.00	0.00
Frotn Loss (ft)	0.01	Cum Voluxe (acre-ft)	0.00	0.57	
C & E Loss (ft)	0.04	Cum SA (acres)		1.68	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid suboritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #Q5

E.G. Elev (ft)	1192.65	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.56	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1192.56	Flow Area (sq ft)		70.09	
E.G. Slope (ft/ft)	0.004514	Area (sq ft)		70.09	
Q Total (cfs)	169.50	Flow (cfs)		169.50	
Top Width (ft)	396.06	Top Width (ft)		396.06	
Vel Total (ft/s)	2.42	Avg. Vel. (ft/s)		2.42	
Max Chl Dpth (ft)	0.60	Hydr. Depth (ft)		0.18	
Conv. Total (cfs)	2522.8	Conv. (cfs)		2522.8	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		396.59	
Min Ch El (ft)	1191.95	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)	3026.48	0.00	0.00
Frotn Loss (ft)	0.01	Cum Voluxe (acre-ft)	0.00	0.66	
C & E Loss (ft)	0.03	Cum SA (acres)		1.83	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #Q10

E.G. Elev (ft)	1192.67	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.59	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1192.59	Flow Area (sq ft)		83.35	
E.G. Slope (ft/ft)	0.004428	Area (sq ft)		83.35	
Q Total (cfs)	190.70	Flow (cfs)		190.70	
Top Width (ft)	504.59	Top Width (ft)		504.59	
Vel Total (ft/s)	2.29	Avg. Vel. (ft/s)		2.29	
Max Chl Dpth (ft)	0.63	Hydr. Depth (ft)		0.17	
Conv. Total (cfs)	2865.9	Conv. (cfs)		2865.9	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		505.15	
Min Ch El (ft)	1191.95	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)	3026.48	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.73	
C & E Loss (ft)	0.02	Cum SA (acres)		1.91	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #Q25

E.G. Elev (ft)	1192.70	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.09	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.61	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1192.61	Flow Area (sq ft)		97.58	
E.G. Slope (ft/ft)	0.004288	Area (sq ft)		97.58	
Q Total (cfs)	231.60	Flow (cfs)		231.60	
Top Width (ft)	545.94	Top Width (ft)		545.94	
Vel Total (ft/s)	2.37	Avg. Vel. (ft/s)		2.37	
Max Chl Dpth (ft)	0.66	Hydr. Depth (ft)		0.18	
Conv. Total (cfs)	3536.6	Conv. (cfs)		3536.6	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		546.53	
Min Ch El (ft)	1191.95	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)	3026.48	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.85	
C & E Loss (ft)	0.03	Cum SA (acres)		2.00	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #Q50

E.G. Elev (ft)	1192.75	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.65	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1192.65	Flow Area (sq ft)		117.59	
E.G. Slope (ft/ft)	0.004311	Area (sq ft)		117.59	
Q Total (cfs)	296.60	Flow (cfs)		296.60	
Top Width (ft)	602.80	Top Width (ft)		602.80	
Vel Total (ft/s)	2.52	Avg. Vel. (ft/s)		2.52	
Max Chl Dpth (ft)	0.69	Hydr. Depth (ft)		0.20	
Conv. Total (cfs)	4517.5	Conv. (cfs)		4517.5	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		603.42	
Min Ch El (ft)	1191.95	Shear (lb/sq ft)		0.05	
Alpha	1.00	Stream Power (lb/ft s)	3026.48	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.03	
C & E Loss (ft)	0.03	Cum SA (acres)		2.11	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid subcritical answer. The program defaulted to critical depth.

CROSS SECTION OUTPUT Profile #Q100

E.G. Elev (ft)	1192.80	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.11	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.68	Reach Len. (ft)	30.00	30.00	30.00
Crit W.S. (ft)	1192.68	Flow Area (sq ft)		141.50	
E.G. Slope (ft/ft)	0.004708	Area (sq ft)		141.50	
Q Total (cfs)	378.60	Flow (cfs)		378.60	
Top Width (ft)	709.44	Top Width (ft)		709.44	
Vel Total (ft/s)	2.68	Avg. Vel. (ft/s)		2.68	
Max Chl Dpth (ft)	0.73	Hydr. Depth (ft)		0.20	
Conv. Total (cfs)	5517.6	Conv. (cfs)		5517.6	
Length Wtd. (ft)	30.00	Wetted Per. (ft)		710.09	
Min Ch El (ft)	1191.95	Shear (lb/sq ft)		0.06	
Alpha	1.00	Stream Power (lb/ft s)	3026.48	0.00	0.00
Frctn Loss (ft)	0.00	Cum Volume (acre-ft)	0.00	1.25	
C & E Loss (ft)	0.03	Cum SA (acres)	0.00	2.27	

Warning: The energy equation could not be balanced within the specified number of iterations. The program used critical depth for the water surface and continued on with the calculations.
Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.
Warning: During the standard step iterations, when the assumed water surface was set equal to critical depth, the calculated water surface came back below critical depth. This indicates that there is not a valid suboritical answer. The program defaulted to critical depth.

CROSS SECTION

RIVER: OVERLAND FLOW
REACH: OVERLAND FLOW RS: 1047

INPUT
Description: STA 10+47 EAST CURB ROBINSON
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
999.99	1195	1000	1191.87	1123.341191.376		1129.631191.839		1157.621191.927	
1160.22	1192.01	1164.321191.829		1205.851191.522		1206.61191.962		1254.091192.094	
1254.75	1191.96	1286.531191.386		1287.09	1192.31	1385.111192.099		1423.18	1191.8
1425.98	1191.81	1426.71192.326		1434.411192.366		1435.081191.733		1488.671191.736	
1491.241192.334		1660.691192.894		1786.631192.098		1787.671191.786		1792.31191.743	
1793.111192.017		1800.81191.917		1804.15	1191.63	1889.86	1191.31	1890.771191.885	
2084.661192.162		2190.621192.139		2192.191192.247		2198.771192.187		2245.861192.127	
2246.61192.293		2255.151192.278		2259.141192.155		2340.51192.787		2391.181193.352	
2464.961195.144		2558.59	1198.39	2646.87	1203.3	2647.71	1203.92	2690.21206.444	
2838.721212.862		2931.881215.084		2937.891215.193		2956.541214.639		2985.711215.709	
3013.131215.917									

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
999.99	.013	999.99	.013	2464.96	.013

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
999.99	2464.96	97	97	.1	.3

CROSS SECTION OUTPUT Profile #Q2

E.G. Elev (ft)	1192.25	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.24	Reach Len. (ft)	97.00	97.00	97.00
Crit W.S. (ft)	1191.77	Flow Area (sq ft)		321.61	
E.G. Slope (ft/ft)	0.000064	Area (sq ft)		321.61	
Q Total (cfs)	143.00	Flow (cfs)		143.00	
Top Width (ft)	946.89	Top Width (ft)		946.89	
Vel Total (ft/s)	0.44	Avg. Vel. (ft/s)		0.44	
Max Chl Dpth (ft)	0.93	Hydr. Depth (ft)		0.34	
Conv. Total (cfs)	17873.6	Conv. (cfs)		17873.6	
Length Wtd. (ft)	97.00	Wetted Per. (ft)		948.59	
Min Ch El (ft)	1191.31	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3013.13	0.00	0.00
Frctn Loss (ft)	0.02	Cum Volume (acre-ft)	0.00	0.44	
C & E Loss (ft)	0.01	Cum SA (acres)		1.28	

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4. This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q5

E.G. Elev (ft)	1192.30	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.29	Reach Len. (ft)	97.00	97.00	97.00
Crit W.S. (ft)	1191.80	Flow Area (sq ft)		372.51	
E.G. Slope (ft/ft)	0.000059	Area (sq ft)		372.51	
Q Total (cfs)	169.50	Flow (cfs)		169.50	
Top Width (ft)	997.32	Top Width (ft)		997.32	
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)		0.46	
Max Chl Dpth (ft)	0.98	Hydr. Depth (ft)		0.37	
Conv. Total (cfs)	22055.9	Conv. (cfs)		22055.9	
Length Wtd. (ft)	97.00	Wetted Per. (ft)		999.16	
Min Ch El (ft)	1191.31	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3013.13	0.00	0.00

Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.51
C & E Loss (ft)	0.01	Cum SA (acres)		1.35

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q10

E.G. Elev (ft)	1192.34	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.33	Reach Len. (ft)	97.00	97.00	97.00
Crit W.S. (ft)	1191.82	Flow Area (sq ft)		410.19	
E.G. Slope (ft/ft)	0.000056	Area (sq ft)		410.19	
Q Total (cfs)	190.70	Flow (cfs)		190.70	
Top Width (ft)	1016.73	Top Width (ft)		1016.73	
Vel Total (ft/s)	0.46	Avg. Vel. (ft/s)		0.46	
Max Chl Dpth (ft)	1.02	Hydr. Depth (ft)		0.40	
Conv. Total (cfs)	25566.8	Conv. (cfs)		25566.8	
Length Wtd. (ft)	97.00	Wetted Per. (ft)		1018.64	
Min Ch El (ft)	1191.31	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3013.13	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.56	
C & E Loss (ft)	0.01	Cum SA (acres)		1.38	

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q25

E.G. Elev (ft)	1192.40	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.40	Reach Len. (ft)	97.00	97.00	97.00
Crit W.S. (ft)	1191.85	Flow Area (sq ft)		478.64	
E.G. Slope (ft/ft)	0.000052	Area (sq ft)		478.64	
Q Total (cfs)	231.60	Flow (cfs)		231.60	
Top Width (ft)	1061.47	Top Width (ft)		1061.47	
Vel Total (ft/s)	0.48	Avg. Vel. (ft/s)		0.48	
Max Chl Dpth (ft)	1.09	Hydr. Depth (ft)		0.45	
Conv. Total (cfs)	32130.3	Conv. (cfs)		32130.3	
Length Wtd. (ft)	97.00	Wetted Per. (ft)		1063.47	
Min Ch El (ft)	1191.31	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3013.13	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.65	
C & E Loss (ft)	0.01	Cum SA (acres)		1.44	

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q50

E.G. Elev (ft)	1192.50	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.49	Reach Len. (ft)	97.00	97.00	97.00
Crit W.S. (ft)	1191.90	Flow Area (sq ft)		583.06	
E.G. Slope (ft/ft)	0.000047	Area (sq ft)		583.06	
Q Total (cfs)	296.60	Flow (cfs)		296.60	
Top Width (ft)	1117.96	Top Width (ft)		1117.96	
Vel Total (ft/s)	0.51	Avg. Vel. (ft/s)		0.51	
Max Chl Dpth (ft)	1.18	Hydr. Depth (ft)		0.52	
Conv. Total (cfs)	43127.0	Conv. (cfs)		43127.0	
Length Wtd. (ft)	97.00	Wetted Per. (ft)		1120.05	
Min Ch El (ft)	1191.31	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3013.13	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.79	
C & E Loss (ft)	0.01	Cum SA (acres)		1.52	

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION OUTPUT Profile #Q100

E.G. Elev (ft)	1192.61	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.00	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.60	Reach Len. (ft)	97.00	97.00	97.00
Crit W.S. (ft)	1191.96	Flow Area (sq ft)		708.29	
E.G. Slope (ft/ft)	0.000043	Area (sq ft)		708.29	
Q Total (cfs)	378.60	Flow (cfs)		378.60	
Top Width (ft)	1182.15	Top Width (ft)		1182.15	
Vel Total (ft/s)	0.53	Avg. Vel. (ft/s)		0.53	
Max Chl Dpth (ft)	1.29	Hydr. Depth (ft)		0.60	
Conv. Total (cfs)	57466.4	Conv. (cfs)		57466.4	
Length Wtd. (ft)	97.00	Wetted Per. (ft)		1184.35	
Min Ch El (ft)	1191.31	Shear (lb/sq ft)		0.00	
Alpha	1.00	Stream Power (lb/ft s)	3013.13	0.00	0.00
Frctn Loss (ft)	0.01	Cum Volume (acre-ft)	0.00	0.96	
C & E Loss (ft)	0.01	Cum SA (acres)	0.00	1.61	

Warning: Divided flow computed for this cross-section.
Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.
This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: OVERLAND FLOW
REACH: OVERLAND FLOW RS: 950

INPUT
Description: STA 9+50
Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
999.9	1195	10001192.156		1019.72	1191.82	1020.51	1191.274	1046.21	1191.662
1047.06	1192.17	1054.54	1192.124	1060.72	1192.152	1061.62	1191.599	1087.57	1191.197
1088.38	1191.734	1093.15	1191.869	1109.31	1192.654	1393.91	1192.653	1408.71	1192.465
1418.94	1192.203	1419.41	1191.865	1432.86	1192.234	1445.53	1191.788	1448.14	1191.997
1451.21	1192.398	1456.16	1192.53	1463.92	1192.229	1473.77	1192.035	1774.55	1192.312
1778.67	1192.629	1783.61	1192.595	1788.81	1192.443	1789.44	1191.937	1810.86	1192.247
1818.41	1192.093	1828.08	1191.68	1834.87	1191.758	1843.04	1191.345	1843.66	1192.334
1848.79	1192.514	1853.55	1192.523	1856.59	1192.587	2157.31	1193.096	2169.38	1192.446
2180.41	1192.271	2181.06	1191.524	2197	1191.86	2211.11	1191.88	2223.74	1192.608
2235.74	1192.354	2540.88	1193.149	2547.61	1195.65	2552.62	1197.104	2554.27	1197.382
2560.25	1197.285	2561.12	1196.687	2578.68	1197.059	2596.67	1196.933	2597.57	1197.512
2606.18	1197.526	2606.62	1200.94	2612.79	1192.811	2951.53	1192.811	2951.55	1195

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
999.9	.013	1000	.013	2554.27	.013

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1000 2554.27 0 0 0 .1 .3
Blocked Obstructions num= 5

Sta L	Sta R	Elev	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1109.3	1393.9	1195	1456.16	1778.67	1195	1856.59	2157.3	1195
2223.74	2554.27	1195	2606.62	2951.55	1195			

CROSS SECTION OUTPUT Profile #Q2

E.G. Elev (ft)	1192.22	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.05	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.17	Reach Len. (ft)			
Crit W.S. (ft)	1191.98	Flow Area (sq ft)		76.87	
E.G. Slope (ft/ft)	0.001001	Area (sq ft)	0.00	76.87	
Q Total (cfs)	143.00	Flow (cfs)		143.00	
Top Width (ft)	206.68	Top Width (ft)		206.68	
Vel Total (ft/s)	1.86	Avg. Vel. (ft/s)		1.86	
Max Chl Dpth (ft)	0.97	Hydr. Depth (ft)		0.37	
Conv. Total (cfs)	4519.8	Conv. (cfs)		4519.8	
Length Wtd. (ft)		Wetted Per. (ft)		208.32	
Min Ch El (ft)	1191.20	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)	2951.55	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Q5

E.G. Elev (ft)	1192.28	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.		0.013	
W.S. Elev (ft)	1192.22	Reach Len. (ft)			
Crit W.S. (ft)	1192.03	Flow Area (sq ft)		87.03	
E.G. Slope (ft/ft)	0.001001	Area (sq ft)	0.00	87.03	
Q Total (cfs)	169.50	Flow (cfs)		169.50	
Top Width (ft)	218.38	Top Width (ft)		218.38	
Vel Total (ft/s)	1.95	Avg. Vel. (ft/s)		1.95	
Max Chl Dpth (ft)	1.02	Hydr. Depth (ft)		0.40	
Conv. Total (cfs)	5358.7	Conv. (cfs)		5358.7	
Length Wtd. (ft)		Wetted Per. (ft)		220.11	
Min Ch El (ft)	1191.20	Shear (lb/sq ft)		0.02	
Alpha	1.00	Stream Power (lb/ft s)	2951.55	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Q10

E.G. Elev (ft)	1192.32	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.06	Wt. n-Val.	0.000	0.013	
W.S. Elev (ft)	1192.25	Reach Len. (ft)			
Crit W.S. (ft)	1192.06	Flow Area (sq ft)	0.00	94.66	
E.G. Slope (ft/ft)	0.001001	Area (sq ft)	0.00	94.66	
Q Total (cfs)	190.70	Flow (cfs)	0.00	190.70	
Top Width (ft)	225.84	Top Width (ft)		225.83	
Vel Total (ft/s)	2.01	Avg. Vel. (ft/s)	0.05	2.01	
Max Chl Dpth (ft)	1.06	Hydr. Depth (ft)	0.05	0.42	
Conv. Total (cfs)	6028.9	Conv. (cfs)	0.0	6028.9	

Length Wtd. (ft)		Wetted Per. (ft)	0.10	227.61	
Min Ch El (ft)	1191.20	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)	2951.55	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Q25

E.G. Elev (ft)	1192.38	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.07	Wt. n-Val.	0.000	0.013	
W.S. Elev (ft)	1192.31	Reach Len. (ft)			
Crit W.S. (ft)	1192.12	Flow Area (sq ft)	0.00	107.75	
E.G. Slope (ft/ft)	0.001000	Area (sq ft)	0.00	107.75	
Q Total (cfs)	231.60	Flow (cfs)	0.00	231.60	
Top Width (ft)	233.22	Top Width (ft)		233.21	
Vel Total (ft/s)	2.15	Avg. Vel. (ft/s)	0.07	2.15	
Max Chl Dpth (ft)	1.11	Hydr. Depth (ft)	0.08	0.46	
Conv. Total (cfs)	7322.5	Conv. (cfs)	0.0	7322.5	
Length Wtd. (ft)		Wetted Per. (ft)	0.15	235.06	
Min Ch El (ft)	1191.20	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)	2951.55	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Q50

E.G. Elev (ft)	1192.48	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.08	Wt. n-Val.	0.000	0.013	
W.S. Elev (ft)	1192.39	Reach Len. (ft)			
Crit W.S. (ft)	1192.20	Flow Area (sq ft)	0.00	127.92	
E.G. Slope (ft/ft)	0.001002	Area (sq ft)	0.00	127.92	
Q Total (cfs)	296.60	Flow (cfs)	0.00	296.60	
Top Width (ft)	247.43	Top Width (ft)		247.42	
Vel Total (ft/s)	2.32	Avg. Vel. (ft/s)	0.09	2.32	
Max Chl Dpth (ft)	1.20	Hydr. Depth (ft)	0.12	0.52	
Conv. Total (cfs)	9370.4	Conv. (cfs)	0.0	9370.4	
Length Wtd. (ft)		Wetted Per. (ft)	0.24	249.33	
Min Ch El (ft)	1191.20	Shear (lb/sq ft)		0.03	
Alpha	1.00	Stream Power (lb/ft s)	2951.55	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

CROSS SECTION OUTPUT Profile #Q100

E.G. Elev (ft)	1192.59	Element	Left OB	Channel	Right OB
Vel Head (ft)	0.10	Wt. n-Val.	0.000	0.013	
W.S. Elev (ft)	1192.49	Reach Len. (ft)			
Crit W.S. (ft)	1192.28	Flow Area (sq ft)	0.00	153.00	
E.G. Slope (ft/ft)	0.001000	Area (sq ft)	0.00	153.00	
Q Total (cfs)	378.60	Flow (cfs)	0.00	378.60	
Top Width (ft)	268.11	Top Width (ft)	0.01	268.09	
Vel Total (ft/s)	2.47	Avg. Vel. (ft/s)	0.12	2.47	
Max Chl Dpth (ft)	1.29	Hydr. Depth (ft)	0.17	0.57	
Conv. Total (cfs)	11974.3	Conv. (cfs)	0.0	11974.3	
Length Wtd. (ft)		Wetted Per. (ft)	0.34	270.02	
Min Ch El (ft)	1191.20	Shear (lb/sq ft)		0.04	
Alpha	1.00	Stream Power (lb/ft s)	2951.55	0.00	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)			
C & E Loss (ft)		Cum SA (acres)			

Warning: Divided flow computed for this cross-section.

SUMMARY OF MANNING'S N VALUES

River:OVERLAND FLOW

Reach	River Sta.	n1	n2	n3
OVERLAND FLOW	1224	.013	.013	.013
OVERLAND FLOW	1107	.013	.013	.013
OVERLAND FLOW	1077	.013	.013	.013
OVERLAND FLOW	1047	.013	.013	.013
OVERLAND FLOW	950	.013	.013	.013

SUMMARY OF REACH LENGTHS

River: OVERLAND FLOW

Reach	River Sta.	Left	Channel	Right

OVERLAND FLOW	1224	117	117	117
OVERLAND FLOW	1107	30	30	30
OVERLAND FLOW	1077	30	30	30
OVERLAND FLOW	1047	97	97	97
OVERLAND FLOW	950	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: OVERLAND FLOW

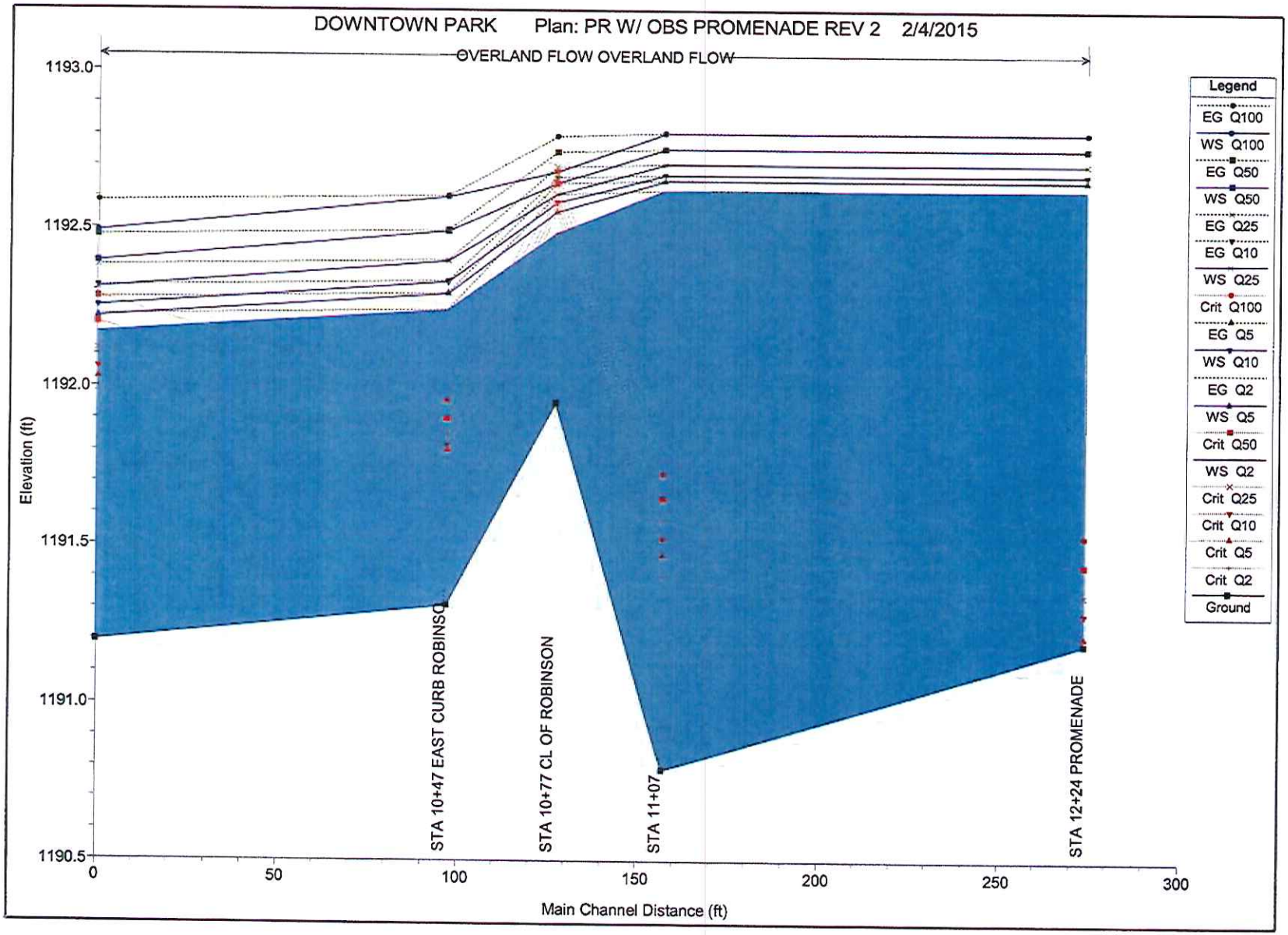
Reach	River Sta.	Contr.	Expan.
OVERLAND FLOW	1224	.1	.3
OVERLAND FLOW	1107	.1	.3
OVERLAND FLOW	1077	.1	.3
OVERLAND FLOW	1047	.1	.3
OVERLAND FLOW	950	.1	.3

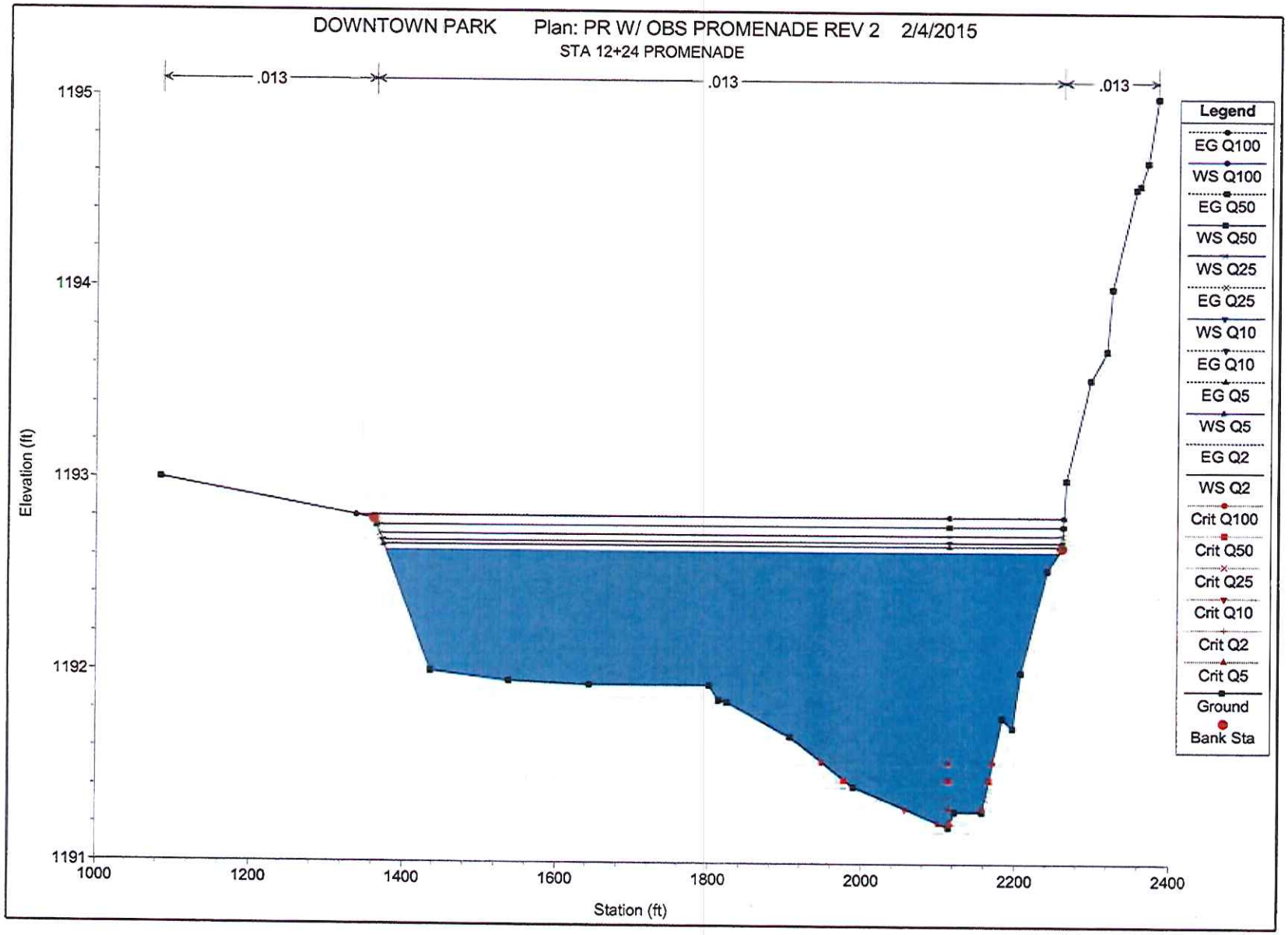
HEC-RAS Plan: PR OB PROM REV 2 River: OVERLAND FLOW Reach: OVERLAND FLOW

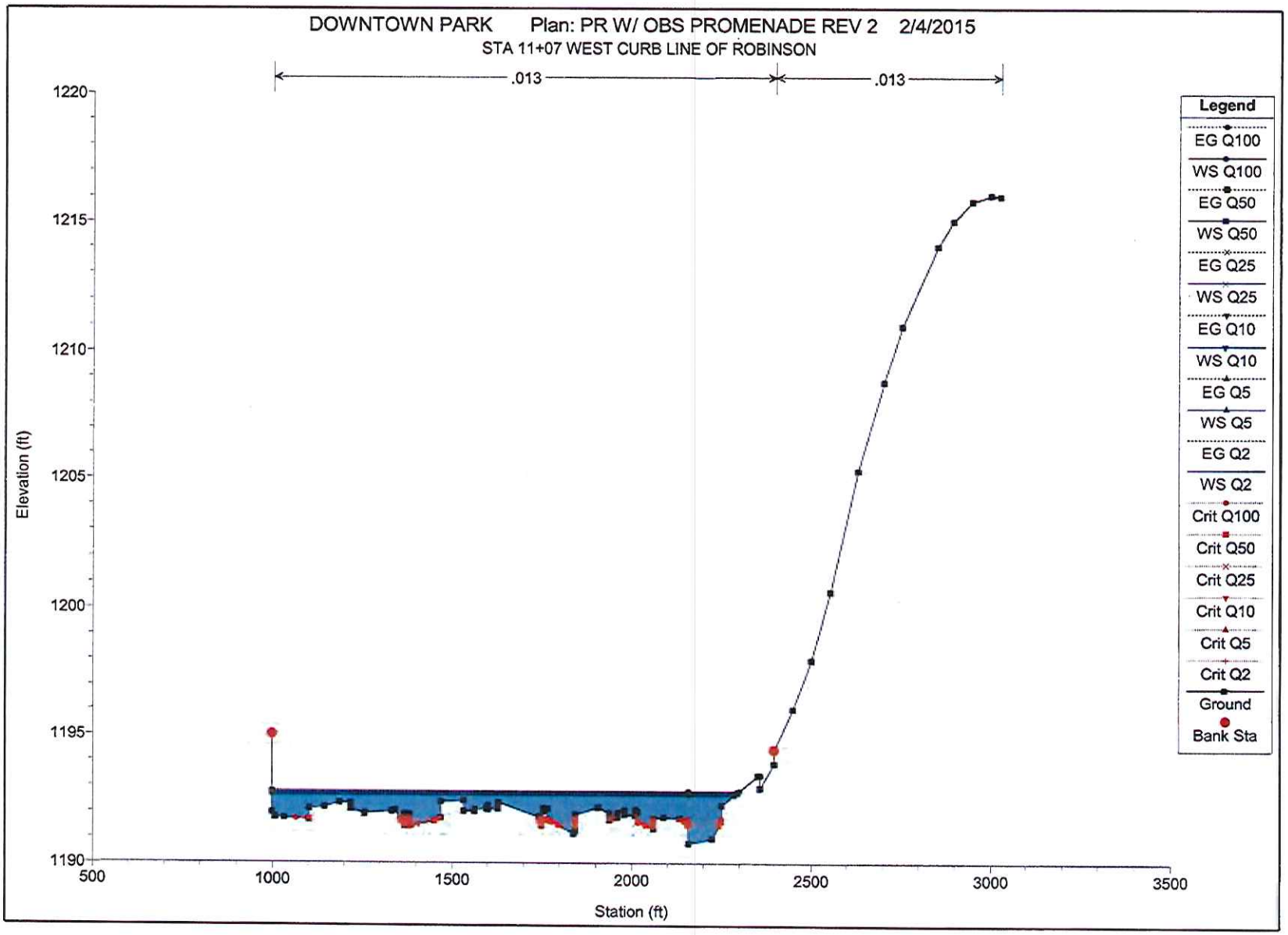
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
OVERLAND FLOW	950	Q2	143.00	1191.20	1192.17	1191.98	1192.22	0.001001	1.86	76.87	206.68	0.54
OVERLAND FLOW	950	Q5	169.50	1191.20	1192.22	1192.03	1192.28	0.001001	1.95	87.03	218.38	0.54
OVERLAND FLOW	950	Q10	190.70	1191.20	1192.25	1192.06	1192.32	0.001001	2.01	94.66	225.84	0.55
OVERLAND FLOW	950	Q25	231.60	1191.20	1192.31	1192.12	1192.38	0.001000	2.15	107.75	233.22	0.56
OVERLAND FLOW	950	Q50	296.60	1191.20	1192.39	1192.20	1192.48	0.001002	2.32	127.92	247.43	0.57
OVERLAND FLOW	950	Q100	378.60	1191.20	1192.49	1192.28	1192.59	0.001000	2.47	153.00	268.11	0.58
OVERLAND FLOW	1047	Q2	143.00	1191.31	1192.24	1191.77	1192.25	0.000064	0.44	321.61	946.89	0.13
OVERLAND FLOW	1047	Q5	169.50	1191.31	1192.29	1191.80	1192.30	0.000059	0.46	372.51	997.32	0.13
OVERLAND FLOW	1047	Q10	190.70	1191.31	1192.33	1191.82	1192.34	0.000056	0.46	410.19	1016.73	0.13
OVERLAND FLOW	1047	Q25	231.60	1191.31	1192.40	1191.85	1192.40	0.000052	0.48	478.64	1061.47	0.13
OVERLAND FLOW	1047	Q50	296.60	1191.31	1192.49	1191.90	1192.50	0.000047	0.51	583.06	1117.96	0.12
OVERLAND FLOW	1047	Q100	378.60	1191.31	1192.60	1191.96	1192.61	0.000043	0.53	708.29	1182.15	0.12
OVERLAND FLOW	1077	Q2	143.00	1191.95	1192.49	1192.49	1192.61	0.003978	2.84	50.27	202.31	1.01
OVERLAND FLOW	1077	Q5	169.50	1191.95	1192.56	1192.56	1192.65	0.004514	2.42	70.09	396.06	1.01
OVERLAND FLOW	1077	Q10	190.70	1191.95	1192.59	1192.59	1192.67	0.004428	2.29	83.35	504.59	0.99
OVERLAND FLOW	1077	Q25	231.60	1191.95	1192.61	1192.61	1192.70	0.004288	2.37	97.58	545.94	0.99
OVERLAND FLOW	1077	Q50	296.60	1191.95	1192.65	1192.65	1192.75	0.004311	2.52	117.59	602.80	1.01
OVERLAND FLOW	1077	Q100	378.60	1191.95	1192.68	1192.68	1192.80	0.004708	2.68	141.50	709.44	1.06
OVERLAND FLOW	1107	Q2	143.00	1190.79	1192.63	1191.40	1192.63	0.000002	0.15	982.82	1285.45	0.03
OVERLAND FLOW	1107	Q5	169.50	1190.79	1192.66	1191.47	1192.66	0.000003	0.17	1022.41	1288.15	0.03
OVERLAND FLOW	1107	Q10	190.70	1190.79	1192.67	1191.52	1192.68	0.000003	0.18	1046.32	1289.77	0.04
OVERLAND FLOW	1107	Q25	231.60	1190.79	1192.71	1191.58	1192.71	0.000004	0.21	1089.99	1292.74	0.04
OVERLAND FLOW	1107	Q50	296.60	1190.79	1192.76	1191.65	1192.76	0.000006	0.26	1151.15	1296.88	0.05
OVERLAND FLOW	1107	Q100	378.60	1190.79	1192.81	1191.73	1192.81	0.000008	0.31	1216.49	1301.28	0.06
OVERLAND FLOW	1224	Q2	0.01	1191.19	1192.63	1191.21	1192.63	0.000000	0.00	733.86	878.91	0.00
OVERLAND FLOW	1224	Q5	0.01	1191.19	1192.66	1191.21	1192.66	0.000000	0.00	761.01	885.77	0.00
OVERLAND FLOW	1224	Q10	4.00	1191.19	1192.68	1191.29	1192.68	0.000000	0.01	777.57	887.79	0.00
OVERLAND FLOW	1224	Q25	16.00	1191.19	1192.71	1191.34	1192.71	0.000000	0.02	807.98	891.49	0.00
OVERLAND FLOW	1224	Q50	58.00	1191.19	1192.76	1191.44	1192.76	0.000000	0.07	850.44	896.63	0.01
OVERLAND FLOW	1224	Q100	118.00	1191.19	1192.81	1191.53	1192.81	0.000001	0.13	896.41	923.61	0.02

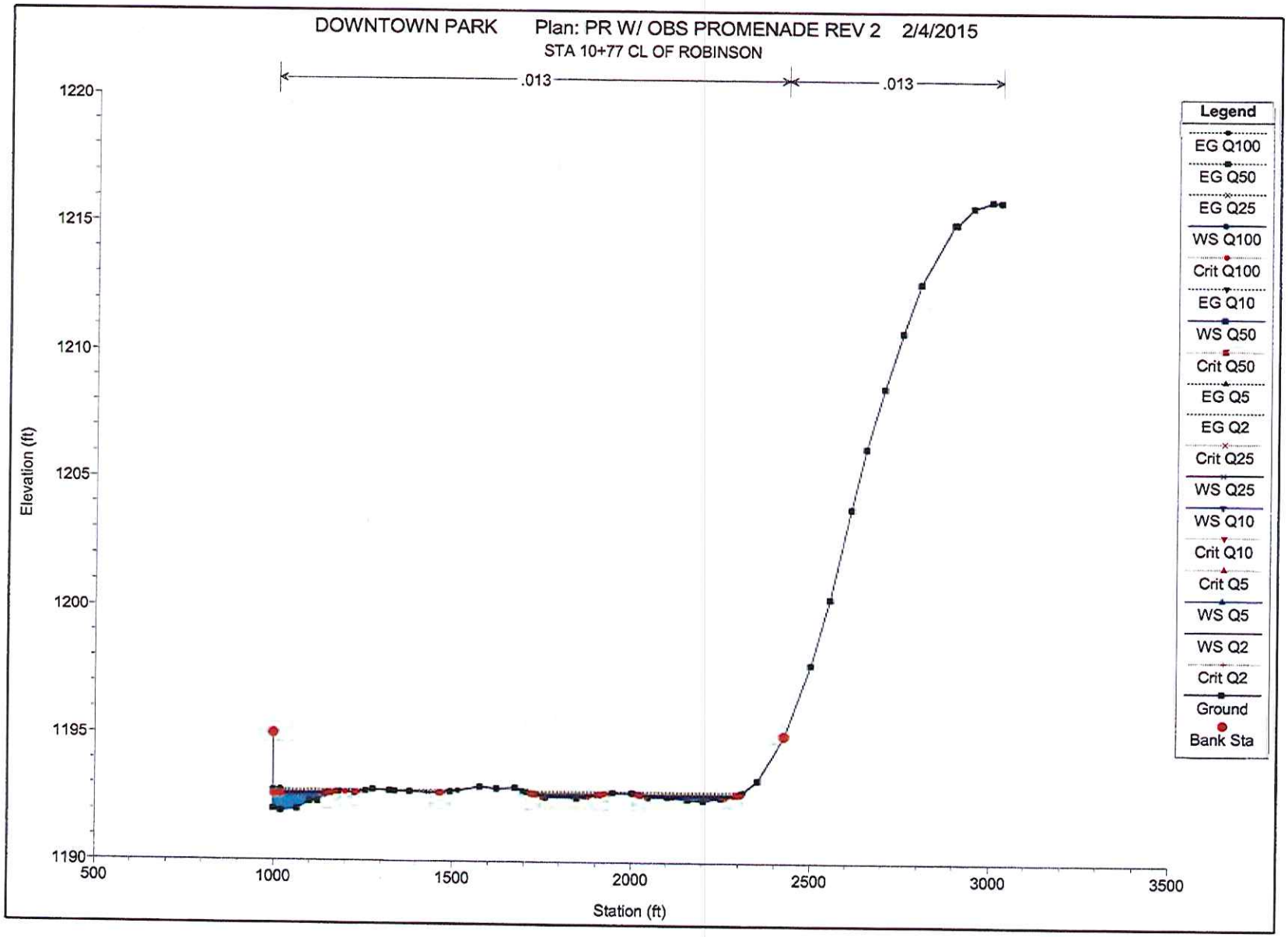
HEC-RAS Plan: PR OB PROM REV 2 River: OVERLAND FLOW Reach: OVERLAND FLOW

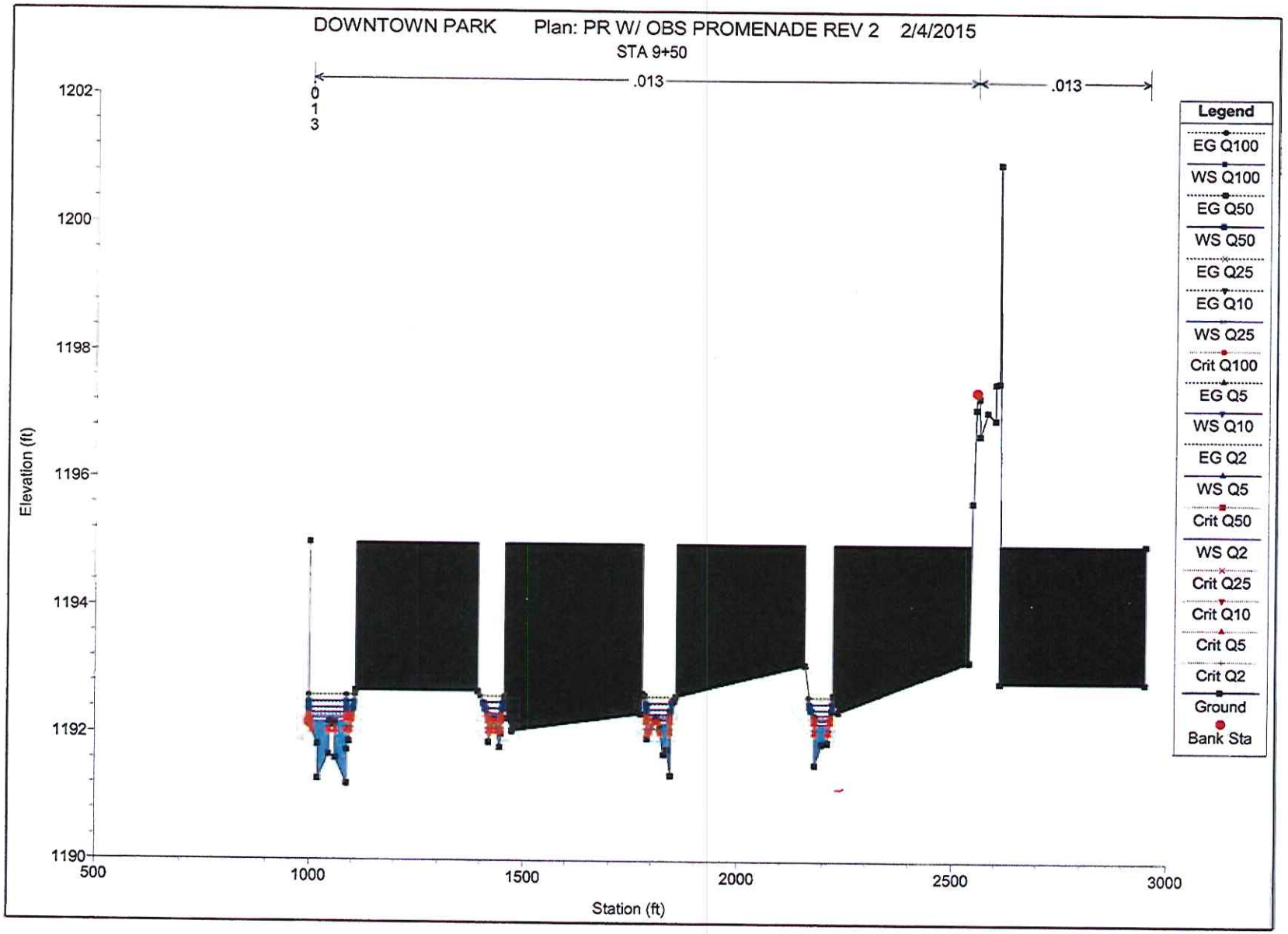
Reach	River Sta	Profile	E.G. Elev	W.S. Elev	Vel Head	Frctn Loss	C & E Loss	Q Left	Q Channel	Q Right	Top Width
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(cfs)	(ft)
OVERLAND FLOW	950	Q2	1192.22	1192.17	0.05				143.00		206.68
OVERLAND FLOW	950	Q5	1192.28	1192.22	0.06				169.50		218.38
OVERLAND FLOW	950	Q10	1192.32	1192.25	0.06			0.00	190.70		225.84
OVERLAND FLOW	950	Q25	1192.38	1192.31	0.07			0.00	231.60		233.22
OVERLAND FLOW	950	Q50	1192.48	1192.39	0.08			0.00	296.60		247.43
OVERLAND FLOW	950	Q100	1192.59	1192.49	0.10			0.00	378.60		268.11
OVERLAND FLOW	1047	Q2	1192.25	1192.24	0.00	0.02	0.01		143.00		946.89
OVERLAND FLOW	1047	Q5	1192.30	1192.29	0.00	0.01	0.01		169.50		997.32
OVERLAND FLOW	1047	Q10	1192.34	1192.33	0.00	0.01	0.01		190.70		1016.73
OVERLAND FLOW	1047	Q25	1192.40	1192.40	0.00	0.01	0.01		231.60		1061.47
OVERLAND FLOW	1047	Q50	1192.50	1192.49	0.00	0.01	0.01		296.60		1117.96
OVERLAND FLOW	1047	Q100	1192.61	1192.60	0.00	0.01	0.01		378.60		1182.15
OVERLAND FLOW	1077	Q2	1192.61	1192.49	0.13	0.01	0.04		143.00		202.31
OVERLAND FLOW	1077	Q5	1192.65	1192.56	0.09	0.01	0.03		169.50		396.06
OVERLAND FLOW	1077	Q10	1192.67	1192.59	0.08	0.01	0.02		190.70		504.59
OVERLAND FLOW	1077	Q25	1192.70	1192.61	0.09	0.01	0.03		231.60		545.94
OVERLAND FLOW	1077	Q50	1192.75	1192.65	0.10	0.00	0.03		296.60		602.80
OVERLAND FLOW	1077	Q100	1192.80	1192.68	0.11	0.00	0.03		378.60		709.44
OVERLAND FLOW	1107	Q2	1192.63	1192.63	0.00	0.00	0.01		143.00		1285.45
OVERLAND FLOW	1107	Q5	1192.66	1192.66	0.00	0.00	0.01		169.50		1288.15
OVERLAND FLOW	1107	Q10	1192.68	1192.67	0.00	0.00	0.01		190.70		1289.77
OVERLAND FLOW	1107	Q25	1192.71	1192.71	0.00	0.00	0.01		231.60		1292.74
OVERLAND FLOW	1107	Q50	1192.76	1192.76	0.00	0.00	0.01		296.60		1296.88
OVERLAND FLOW	1107	Q100	1192.81	1192.81	0.00	0.00	0.01		378.60		1301.28
OVERLAND FLOW	1224	Q2	1192.63	1192.63	0.00	0.00	0.00		0.01		878.91
OVERLAND FLOW	1224	Q5	1192.66	1192.66	0.00	0.00	0.00		0.01	0.00	885.77
OVERLAND FLOW	1224	Q10	1192.68	1192.68	0.00	0.00	0.00		4.00	0.00	887.79
OVERLAND FLOW	1224	Q25	1192.71	1192.71	0.00	0.00	0.00		16.00	0.00	891.49
OVERLAND FLOW	1224	Q50	1192.76	1192.76	0.00	0.00	0.00		58.00	0.00	896.63
OVERLAND FLOW	1224	Q100	1192.81	1192.81	0.00	0.00	0.00	0.00	117.99	0.00	923.61


DOWNTOWN PARK Plan: PR W/ OBS PROMENADE REV 2 2/4/2015
OVERLAND FLOW OVERLAND FLOW
1193.0
1192.5
1192.0
1191.5
1191.0
1190.5
Elevation (ft)
STA 10+47 EAST CURB ROBINSO
STA 10+77 CL OF ROBINSON
STA 11+07
STA 12+24 PROMENADE
0
50
100
150
200
250
300
Main Channel Distance (ft)
Legend
EG Q100
WS Q100
EG Q50
WS Q50
EG Q25
EG Q10
WS Q25
Crit Q100
EG Q5
WS Q10
EG Q2
WS Q5
Crit Q50
WS Q2
Crit Q25
Crit Q10
Crit Q5
Crit Q2
Ground


DOWNTOWN PARK
Plan: PR W/ OBS PROMENADE REV 2 2/4/2015
STA 12+24 PROMENADE
.013
.013
.013
Elevation (ft)
1195
1194
1193
1192
1191
1000
1200
1400
1600
1800
2000
2200
2400
Station (ft)
Legend
EG Q100
WS Q100
EG Q50
WS Q50
WS Q25
EG Q25
WS Q10
EG Q10
EG Q5
WS Q5
EG Q2
WS Q2
Crit Q100
Crit Q50
Crit Q25
Crit Q10
Crit Q2
Crit Q5
Ground
Bank Sta


DOWNTOWN PARK Plan: PR W/ OBS PROMENADE REV 2 2/4/2015
STA 11+07 WEST CURB LINE OF ROBINSON
.013
.013
Elevation (ft)
1220
1215
1210
1205
1200
1195
1190
500
1000
1500
2000
2500
3000
3500
Station (ft)
Legend
EG Q100
WS Q100
EG Q50
WS Q50
EG Q25
WS Q25
EG Q10
WS Q10
EG Q5
WS Q5
EG Q2
WS Q2
Crit Q100
Crit Q50
Crit Q25
Crit Q10
Crit Q5
Crit Q2
Ground
Bank Sta


DOWNTOWN PARK Plan: PR W/ OBS PROMENADE REV 2 2/4/2015
STA 10+77 CL OF ROBINSON
.013
.013
Elevation (ft)
1220
1215
1210
1205
1200
1195
1190
500
1000
1500
2000
2500
3000
3500
Station (ft)
Legend
EG Q100
EG Q50
EG Q25
WS Q100
Crit Q100
EG Q10
WS Q50
Crit Q50
EG Q5
EG Q2
Crit Q25
WS Q25
WS Q10
Crit Q10
Crit Q5
WS Q5
WS Q2
Crit Q2
Ground
Bank Sta


DOWNTOWN PARK
Plan: PR W/ OBS PROMENADE REV 2 2/4/2015
STA 9+50
.013
.013
0
1
3
Legend
EG Q100
WS Q100
EG Q50
WS Q50
EG Q25
EG Q10
WS Q25
Crit Q100
EG Q5
WS Q10
EG Q2
WS Q5
Crit Q50
WS Q2
Crit Q25
Crit Q10
Crit Q5
Crit Q2
Ground
Bank Sta
Elevation (ft)
1202
1200
1198
1196
1194
1192
1190
500
1000
1500
2000
2500
3000
Station (ft)

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
OVERLAND FLOW	950	Q2	143.00	1191.20	1192.17	1191.98	1192.22	0.001001	1.86	76.87	206.68	0.54
OVERLAND FLOW	950	Q5	169.50	1191.20	1192.22	1192.03	1192.28	0.001001	1.95	87.03	218.38	0.54
OVERLAND FLOW	950	Q10	190.70	1191.20	1192.25	1192.06	1192.32	0.001001	2.01	94.66	225.84	0.55
OVERLAND FLOW	950	Q25	231.60	1191.20	1192.31	1192.12	1192.38	0.001000	2.15	107.75	233.22	0.56
OVERLAND FLOW	950	Q50	296.60	1191.20	1192.39	1192.20	1192.48	0.001002	2.32	127.92	247.43	0.57
OVERLAND FLOW	950	Q100	378.60	1191.20	1192.49	1192.28	1192.59	0.001000	2.47	153.00	268.11	0.58
OVERLAND FLOW	1047	Q2	143.00	1191.31	1192.24	1191.77	1192.25	0.000064	0.44	321.61	946.89	0.13
OVERLAND FLOW	1047	Q5	169.50	1191.31	1192.29	1191.80	1192.30	0.000059	0.46	372.51	997.32	0.13
OVERLAND FLOW	1047	Q10	190.70	1191.31	1192.33	1191.82	1192.34	0.000056	0.46	410.19	1016.73	0.13
OVERLAND FLOW	1047	Q25	231.60	1191.31	1192.40	1191.85	1192.40	0.000052	0.48	478.64	1061.47	0.13
OVERLAND FLOW	1047	Q50	296.60	1191.31	1192.49	1191.90	1192.50	0.000047	0.51	583.06	1117.96	0.12
OVERLAND FLOW	1047	Q100	378.60	1191.31	1192.60	1191.96	1192.61	0.000043	0.53	708.29	1182.15	0.12
OVERLAND FLOW	1077	Q2	143.00	1191.95	1192.49	1192.49	1192.61	0.003978	2.84	50.27	202.31	1.01
OVERLAND FLOW	1077	Q5	169.50	1191.95	1192.56	1192.56	1192.65	0.004514	2.42	70.09	396.06	1.01
OVERLAND FLOW	1077	Q10	190.70	1191.95	1192.59	1192.59	1192.67	0.004428	2.29	83.35	504.59	0.99
OVERLAND FLOW	1077	Q25	231.60	1191.95	1192.61	1192.61	1192.70	0.004288	2.37	97.58	545.94	0.99
OVERLAND FLOW	1077	Q50	296.60	1191.95	1192.65	1192.65	1192.75	0.004311	2.52	117.59	602.80	1.01
OVERLAND FLOW	1077	Q100	378.60	1191.95	1192.68	1192.68	1192.80	0.004708	2.68	141.50	709.44	1.06
OVERLAND FLOW	1107	Q2	143.00	1190.79	1192.63	1191.40	1192.63	0.000002	0.15	982.82	1285.45	0.03
OVERLAND FLOW	1107	Q5	169.50	1190.79	1192.66	1191.47	1192.66	0.000003	0.17	1022.41	1288.15	0.03
OVERLAND FLOW	1107	Q10	190.70	1190.79	1192.67	1191.52	1192.68	0.000003	0.18	1046.32	1289.77	0.04
OVERLAND FLOW	1107	Q25	231.60	1190.79	1192.71	1191.58	1192.71	0.000004	0.21	1089.99	1292.74	0.04
OVERLAND FLOW	1107	Q50	296.60	1190.79	1192.76	1191.65	1192.76	0.000006	0.26	1151.15	1296.88	0.05
OVERLAND FLOW	1107	Q100	378.60	1190.79	1192.81	1191.73	1192.81	0.000008	0.31	1216.49	1301.28	0.06
OVERLAND FLOW	1224	Q2	0.01	1191.19	1192.63	1191.21	1192.63	0.000000	0.00	733.86	878.91	0.00
OVERLAND FLOW	1224	Q5	0.01	1191.19	1192.66	1191.21	1192.66	0.000000	0.00	761.01	885.77	0.00
OVERLAND FLOW	1224	Q10	4.00	1191.19	1192.68	1191.29	1192.68	0.000000	0.01	777.57	887.79	0.00
OVERLAND FLOW	1224	Q25	16.00	1191.19	1192.71	1191.34	1192.71	0.000000	0.02	807.98	891.49	0.00
OVERLAND FLOW	1224	Q50	58.00	1191.19	1192.76	1191.44	1192.76	0.000000	0.07	850.44	896.63	0.01
OVERLAND FLOW	1224	Q100	118.00	1191.19	1192.81	1191.53	1192.81	0.000001	0.13	896.41	923.61	0.02

Profile Output Table - Standard Table 2

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
OVERLAND FLOW	950	Q2	1192.22	1192.17	0.05				143.00		206.68
OVERLAND FLOW	950	Q5	1192.28	1192.22	0.06				169.50		218.38
OVERLAND FLOW	950	Q10	1192.32	1192.25	0.06			0.00	190.70		225.84
OVERLAND FLOW	950	Q25	1192.38	1192.31	0.07			0.00	231.60		233.22
OVERLAND FLOW	950	Q50	1192.48	1192.39	0.08			0.00	296.60		247.43
OVERLAND FLOW	950	Q100	1192.59	1192.49	0.10			0.00	378.60		268.11
OVERLAND FLOW	1047	Q2	1192.25	1192.24	0.00	0.02	0.01		143.00		946.89
OVERLAND FLOW	1047	Q5	1192.30	1192.29	0.00	0.01	0.01		169.50		997.32
OVERLAND FLOW	1047	Q10	1192.34	1192.33	0.00	0.01	0.01		190.70		1016.73
OVERLAND FLOW	1047	Q25	1192.40	1192.40	0.00	0.01	0.01		231.60		1061.47
OVERLAND FLOW	1047	Q50	1192.50	1192.49	0.00	0.01	0.01		296.60		1117.96
OVERLAND FLOW	1047	Q100	1192.61	1192.60	0.00	0.01	0.01		378.60		1182.15
OVERLAND FLOW	1077	Q2	1192.61	1192.49	0.13	0.01	0.04		143.00		202.31
OVERLAND FLOW	1077	Q5	1192.65	1192.56	0.09	0.01	0.03		169.50		396.06
OVERLAND FLOW	1077	Q10	1192.67	1192.59	0.08	0.01	0.02		190.70		504.59
OVERLAND FLOW	1077	Q25	1192.70	1192.61	0.09	0.01	0.03		231.60		545.94
OVERLAND FLOW	1077	Q50	1192.75	1192.65	0.10	0.00	0.03		296.60		602.80
OVERLAND FLOW	1077	Q100	1192.80	1192.68	0.11	0.00	0.03		378.60		709.44
OVERLAND FLOW	1107	Q2	1192.63	1192.63	0.00	0.00	0.01		143.00		1285.45
OVERLAND FLOW	1107	Q5	1192.66	1192.66	0.00	0.00	0.01		169.50		1288.15
OVERLAND FLOW	1107	Q10	1192.68	1192.67	0.00	0.00	0.01		190.70		1289.77

OVERLAND FLOW	1107	Q25	1192.71	1192.71	0.00	0.00	0.01		231.60		1292.74
OVERLAND FLOW	1107	Q50	1192.76	1192.76	0.00	0.00	0.01		296.60		1296.88
OVERLAND FLOW	1107	Q100	1192.81	1192.81	0.00	0.00	0.01		378.60		1301.28
OVERLAND FLOW	1224	Q2	1192.63	1192.63	0.00	0.00	0.00		0.01		878.91
OVERLAND FLOW	1224	Q5	1192.66	1192.66	0.00	0.00	0.00		0.01	0.00	885.77
OVERLAND FLOW	1224	Q10	1192.68	1192.68	0.00	0.00	0.00		4.00	0.00	887.79
OVERLAND FLOW	1224	Q25	1192.71	1192.71	0.00	0.00	0.00		16.00	0.00	891.49
OVERLAND FLOW	1224	Q50	1192.76	1192.76	0.00	0.00	0.00		58.00	0.00	896.63
OVERLAND FLOW	1224	Q100	1192.81	1192.81	0.00	0.00	0.00	0.00	117.99	0.00	923.61