# THE APPENDIX FOR THE HYDROLOGICAL ANALYSIS OF THE PARADISE POND WATERSHED

PREPARED FOR

## CITY OF RENO

PREPARED BY

SUMMIT ENGINEERING CORPORATION

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# THE APPENDIX FOR THE HYDROLOGIC ANALYSIS OF THE PARADISE POND WATERSHED

City of Reno, Washoe County, Nevada

Prepared for

The City of Reno
Engineering Department

Prepared by

SUMMIT ENGINEERING CORPORATION
248 Winter Street, Suite 1
Reno, Nevada 89503

Summary

This Appendix is used in conjunction with the report entitled "Hydrological Analysis of the Paradise Pond Watershed." This Appendix is divided into six different Appendices which show the six different hydologic conditions determined for the Paradise Pond Watershed. Each Appendix shows the peak discharge and time the peak occurs in tabular form for the 3-hour, 6-hour- and 24-hour duration storm under the 5-year, 25-year, 50-year, 100-year storm frequency. Also, each Appendix has a series of hydrograph data for the 24-hour duration storm under the 5-year, 25-year, 50-year, and 100-year storm frequency. The following Appendices refer to the given hydrologic conditons:

Appendix A - Condition No. 1
Appendix B - Condition No. 2
Appendix C - Condition No. 3
Appendix D - Condition No. 4
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APPENDIX A

**TABLE A-1**

CONDITION NO. 1 WITH 3-HOUR DURATION STORM

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| A Box | 2.75 cfs @ 110 min. | 11.20 cfs @ 80 min. | 19.68 cfs @ 60 min. | 33.80 cfs @ 60 min. |
| B | 3.30 cfs @ 130 min. | 13.47 cfs @ 105 min. | 22.97 cfs @ 90 min. | 38.01 cfs @ 75 min. |
| C | 0.23 cfs @ 155 min. | 1.48 cfs @ 75 min. | 2.76 cfs @ 55 min. | 5.15 cfs @ 50 min. |
| D | 7.82 cfs @ 105 min. | 26.45 cfs @ 80 min. | 43.31 cfs @ 80 min. | 68.04 cfs @ 75 min. |
| E | 14.37 cfs @ 130 min. | 47.14 cfs @ 105 min. | 75.56 cfs @ 100 min. | 116.72 cfs @ 95 min. |
| F | 3.80 cfs @ 95 min. | 14.40 cfs @ 50 min. | 24.88 cfs @ 45 min. | 44.08 cfs @ 35 min. |
| G | 18.44 cfs @ 215 min. | 60.21 cfs @ 200 min. | 95.82 cfs @ 195 min. | 147.56 cfs @ 190 min. |
| H | 0.38 cfs @ 125 min. | 2.03 cfs @ 75 min. | 3.76 cfs @ 50 min. | 6.72 cfs @ 50 min. |
| I | 18.26 cfs @ 260 min. | 59.53 cfs @ 245 min. | 23.88 cfs @ 235 min. | 145.96 cfs @ 230 min. |
| J | 4.32 cfs @ 75 min. | 14.74 cfs @ 50 min. | 24.47 cfs @ 40 min. | 40.34 cfs @ 40 min. |
| R.R. | 4.50 cfs @ 260 min. | 14.88 cfs @ 245 min. | 23.60 cfs @ 235 min. | 31.99 cfs @ 230 min. |
| K | 4.02 cfs @ 150 min. | 18.67 cfs @ 110 min. | 32.43 cfs @ 95 min. | 54.50 cfs @ 85 min. |
| L | 7.17 cfs @ 160 min. | 27.61 cfs @ 135 min. | 46.47 cfs @ 120 min. | 75.60 cfs @ 110 min. |
| M | 11.36 cfs @ 80 min. | 33.88 cfs @ 135 min. | 55.63 cfs @ 130 min. | 88.03 cfs @ 125 min. |
| N | 16.55 cfs @ 55 min. | 45.86 cfs @ 35 min. | 71.60 cfs @ 35 min. | 106.18 cfs @ 35 min. |

**TABLE A-1 - (con't)**

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| O | 2.00 cfs @ 50 min. | 6.40 cfs @ 30 min. | 10.77 cfs @ 30 min. | 16.86 cfs @ 30 min. |
| P | 4.65 cfs @ 115 min. | 14.85 cfs @ 395 min. | 23.56 cfs @ 390 min. | 32.08 cfs @ 70 min. |
| Q | 0.91 cfs @ 55 min. | 2.85 cfs @ 35 min. | 4.64 cfs @ 35 min. | 7.19 cfs @ 30 min. |
| R | 2.88 cfs @ 35 min. | 6.41 cfs @ 30 min. | 8.37 cfs @ 30 min. | 10.95 cfs @ 30 min. |
| S | 1.67 cfs @ 95 min. | 6.12 cfs @ 55 min. | 10.32 cfs @ 45 min. | 17.40 cfs @ 35 min. |
| T | 15.88 cfs @ 105 min. | 45.28 cfs @ 90 min. | 69.93 cfs @ 85 min. | 104.60 cfs @ 85 min. |
| U | 24.61 cfs @ 110 min. | 71.13 cfs @ 95 min. | 110.03 cfs @ 90 min. | 165.73 cfs @ 85 min. |
| V | 24.61 cfs @ 110 min. | 71.13 cfs @ 95 min. | 110.03 cfs @ 90 min. | 165.73 cfs @ 85 min. |

Paradise Pond Outlet; One 60-inch pipe under inlet condition:

| | | | | |
|---|---|---|---|---|
| | 1.24 cfs @ 110 min. w/5 ac.ft. | 5.52 cfs @ 95 min. w/23 ac.ft. | 10.44 cfs @ 90 min. w/33 ac.ft. | 18.25 cfs @ 85 min. w/47 ac.ft. |

**TABLE A-2**

CONDITION NO. 1 WITH 6-HOUR DURATION STORM

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| A | 4.44 cfs @ 215 min. | 19.78 cfs @ 165 min. | 32.51 cfs @ 165 min. | 64.51 cfs @ 160 min. |
| B | 5.58 cfs @ 235 min. | 20.28 cfs @ 180 min. | 33.25 cfs @ 180 min. | 64.91 cfs @ 175 min. |
| C | 0.53 cfs @ 360 min. | 2.70 cfs @ 155 min. | 5.56 cfs @ 150 min. | 12.52 cfs @ 150 min. |
| D | 14.25 cfs @ 160 min. | 40.17 cfs @ 160 min. | 60.64 cfs @ 160 min. | 109.27 cfs @ 160 min. |
| E | 22.64 cfs @ 215 min. | 62.85 cfs @ 200 min. | 93.42 cfs @ 200 min. | 164.25 cfs @ 195 min. |
| F | 7.48 cfs @ 155 min. | 32.16 cfs @ 150 min. | 50.44 cfs @ 150 min. | 90.93 cfs @ 150 min. |
| G | 30.85 cfs @ 320 min. | 81.25 cfs @ 300 min. | 118.63 cfs @ 295 min. | 203.76 cfs @ 290 min. |
| H | 0.72 cfs @ 245 min. | 4.25 cfs @ 150 min. | 7.88 cfs @ 150 min. | 16.24 cfs @ 150 min. |
| I | 40.22 cfs @ 360 min. | 99.19 cfs @ 345 min. | 141.93 cfs @ 340 min. | 237.75 cfs @ 335 min. |
| J | 9.55 cfs @ 155 min. | 29.24 cfs @ 155 min. | 42.94 cfs @ 150 min. | 75.31 cfs @ 150 min. |
| R.R. | 10.41 cfs @ 360 min. | 25.11 cfs @ 345 min. | 31.94 cfs @ 340 min. | 34.20 cfs @ 335 min. |
| K | 7.61 cfs @ 265 min. | 26.83 cfs @ 185 min. | 45.40 cfs @ 180 min. | 91.94 cfs @ 180 min. |
| L | 12.91 cfs @ 270 min. | 38.44 cfs @ 225 min. | 60.12 cfs @ 220 min. | 112.34 cfs @ 215 min. |
| M | 20.12 cfs @ 170 min. | 50.82 cfs @ 170 min. | 72.54 cfs @ 165 min. | 126.19 cfs @ 230 min. |
| N | 36.35 cfs @ 150 min. | 82.24 cfs @ 150 min. | 111.54 cfs @ 150 min. | 174.64 cfs @ 150 min. |

**TABLE A-2 - (con't)**

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| O | 5.15 cfs @ 150 min. | 12.08 cfs @ 150 min. | 16.96 cfs @ 145 min. | 27.45 cfs @ 145 min. |
| P | 10.39 cfs @ 570 min. | 25.08 cfs @ 560 min. | 31.94 cfs @ 560 min. | 50.56 cfs @ 175 min. |
| Q | 2.23 cfs @ 150 min. | 5.48 cfs @ 150 min. | 7.63 cfs @ 150 min. | 12.16 cfs @ 150 min. |
| R | 5.13 cfs @ 150 min. | 8.44 cfs @ 150 min. | 10.90 cfs @ 150 min. | 31.06 cfs @ 145 min. |
| S | 3.58 cfs @ 155 min. | 12.34 cfs @ 150 min. | 19.23 cfs @ 150 min. | 34.51 cfs @ 150 min. |
| T | 25.76 cfs @ 195 min. | 63.72 cfs @ 190 min. | 90.43 cfs @ 190 min. | 149.37 cfs @ 185 min. |
| U | 39.04 cfs @ 200 min. | 98.93 cfs @ 190 min. | 141.74 cfs @ 185 min. | 237.80 cfs @ 185 min. |
| V | 39.04 cfs @ 200 min. | 98.93 cfs @ 190 min. | 141.74 cfs @ 185 min. | 238.00 cfs @ 185 min. |
| Paradise Pond Outlet; one 60-inch pipe under inlet condition: | | | | |
| | 3.15 cfs @ 200 min. w/17.5 ac.ft. | 12.04 cfs @ 190 min. w/36 ac.ft. | 19.27 cfs @ 185 min. w/48.5 ac.ft. | 31.75 cfs @ 185 min. w/65 ac.ft. |

**TABLE A-3**

CONDITION NO. 1 WITH 24-HOUR DURATION STORM

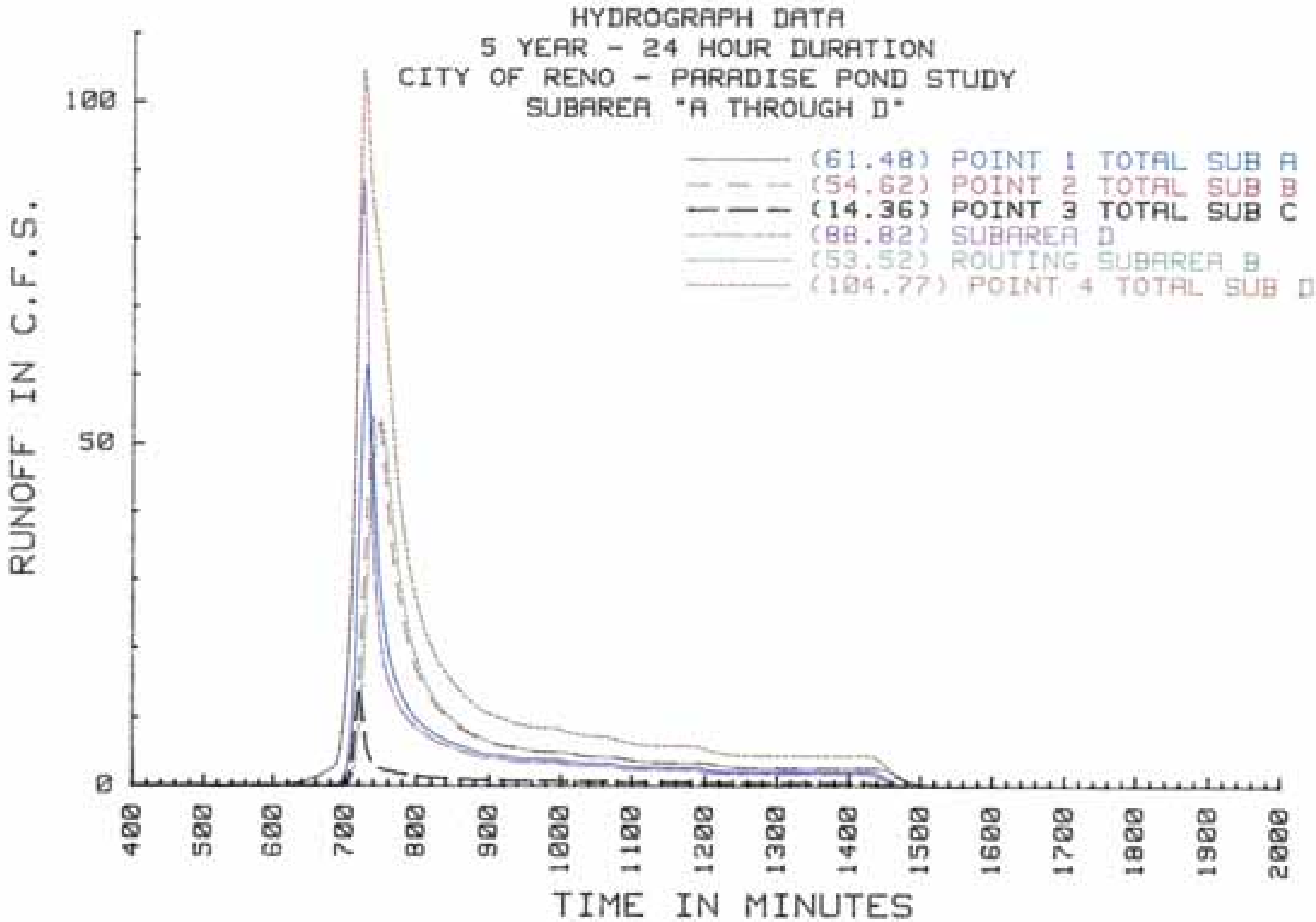
| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| A | 61.48 cfs @ 730 min. | 158.82 cf @ 730 min. | 237.00 cfs @ 730 min. | 278.60 cfs @ 730 min. |
| B | 54.62 cfs @ 745 min. | 143.92 cfs @ 740 min. | 217.10 cfs @ 740 min. | 256.20 cfs @ 740 min. |
| C | 14.36 cfs @ 720 min. | 41.29 cfs @ 720 min. | 63.42 cfs @ 720 min. | 75.30 cfs @ 720 min. |
| D | 104.77 cfs @ 725 min. | 241.01 cfs @ 725 min. | 348.08 cfs @ 725 min. | 404.57 cfs @ 725 min. |
| E | 121.82 cfs @ 760 min. | 291.19 cfs @ 755 min. | 425.59 cfs @ 755 min. | 496.81 cfs @ 755 min. |
| F | 110.52 cfs @ 720 min. | 258.26 cfs @ 720 min. | 373.59 cfs @ 720 min. | 434.25 cfs @ 720 min. |
| G | 139.30 cfs @ 850 min. | 326.44 cfs @ 850 min. | 474.56 cfs @ 850 min. | 552.88 cfs @ 850 min. |
| H | 19.74 cfs @ 720 min. | 52.44 cfs @ 720 min. | 78.85 cfs @ 720 min. | 92.93 cfs @ 720 min. |
| I | 151.41 cfs @ 735 min. | 351.63 cfs @ 735 min. | 512.01 cfs @ 735 min. | 598.45 cfs @ 730 min. |
| J | 80.99 cfs @ 725 min. | 176.79 cfs @ 720 min. | 253.47 cfs @ 720 min. | 293.67 cfs @ 720 min. |
| R.R. | 31.73 cfs @ 735 min. | 36.35 cfs @ 735 min. | 45.02 cfs @ 735 min. | 55.69 cfs @ 730 min. |
| K | 75.30 cfs @ 745 min. | 209.81 cfs @ 745 min. | 320.32 cfs @ 745 min. | 379.60 cfs @ 745 min. |
| L | 82.34 cfs @ 730 min. | 211.65 cfs @ 780 min. | 319.37 cfs @ 780 min. | 377.00 cfs @ 780 min. |
| M | 106.17 cfs @ 735 min. | 228.51 cfs @ 735 min. | 326.67 cfs @ 735 min. | 382.15 cfs @ 795 min. |
| N | 201.78 cfs @ 720 min. | 425.35 cfs @ 720 min. | 603.78 cfs @ 720 min. | 680.65 cfs @ 720 min. |

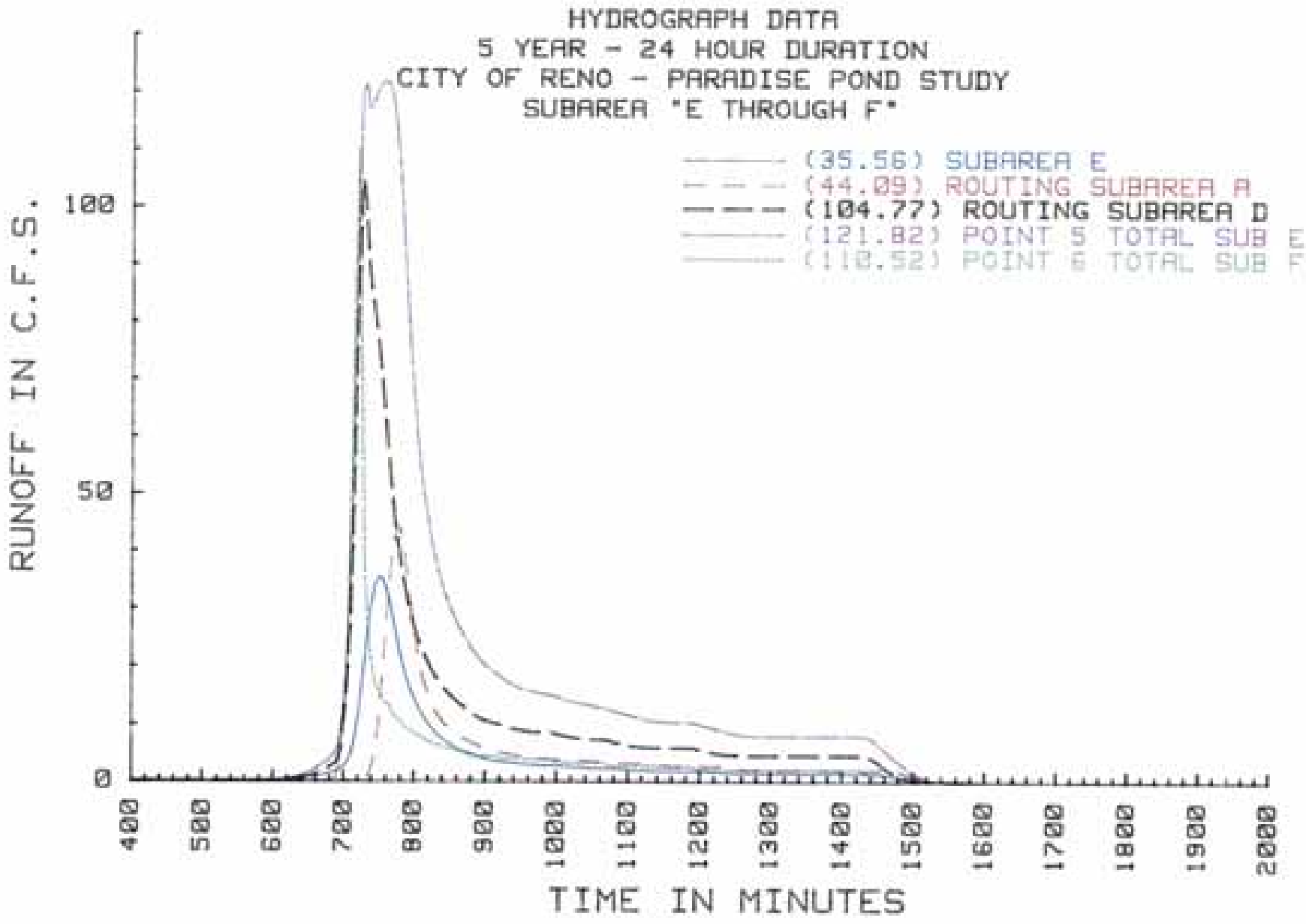
**TABLE A-3 - (con't)**

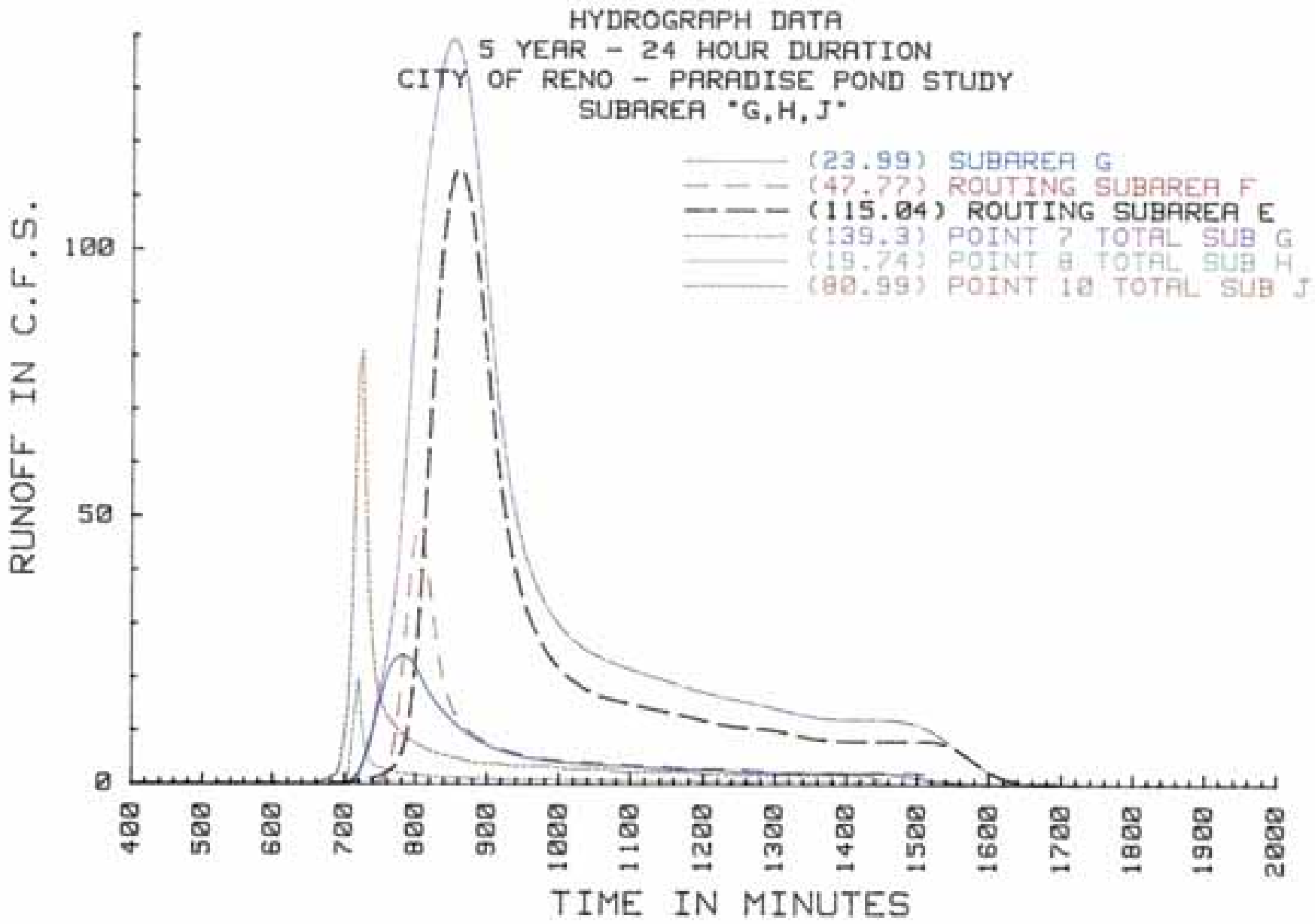
| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| O | 35.20 cfs @ 720 min. | 70.00 cfs @ 720 min. | 95.73 cfs @ 720 min. | 108.98 cfs @ 720 min. |
| P | 43.86 cfs @ 745 min. | 97.13 cfs @ 740 min. | 139.50 cfs @ 740 min. | 161.96 cfs @ 740 min. |
| Q | 14.88 cfs @ 720 min. | 30.18 cfs @ 720 min. | 41.59 cfs @ 720 min. | 47.48 cfs @ 720 min. |
| R | 37.09 cfs @ 720 min. | 68.34 cfs @ 720 min. | 90.86 cfs @ 720 min. | 102.36 cfs @ 720 min. |
| S | 37.35 cfs @ 720 min. | 87.07 cfs @ 720 min. | 125.88 cfs @ 720 min. | 146.28 cfs @ 720 min. |
| T | 120.10 cfs @ 755 min. | 256.49 cfs @ 755 min. | 365.04 cfs @ 755 min. | 422.16 cfs @ 755 min. |
| U | 191.71 cfs @ 745 min. | 426.02 cfs @ 740 min. | 614.36 cfs @ 740 min. | 713.96 cfs @ 740 min. |
| V | 191.71 cfs @ 745 min. | 433.38 cfs @ 740 min. | 636.10 cfs @ 740 min. | 744.88 cfs @ 740 min. |

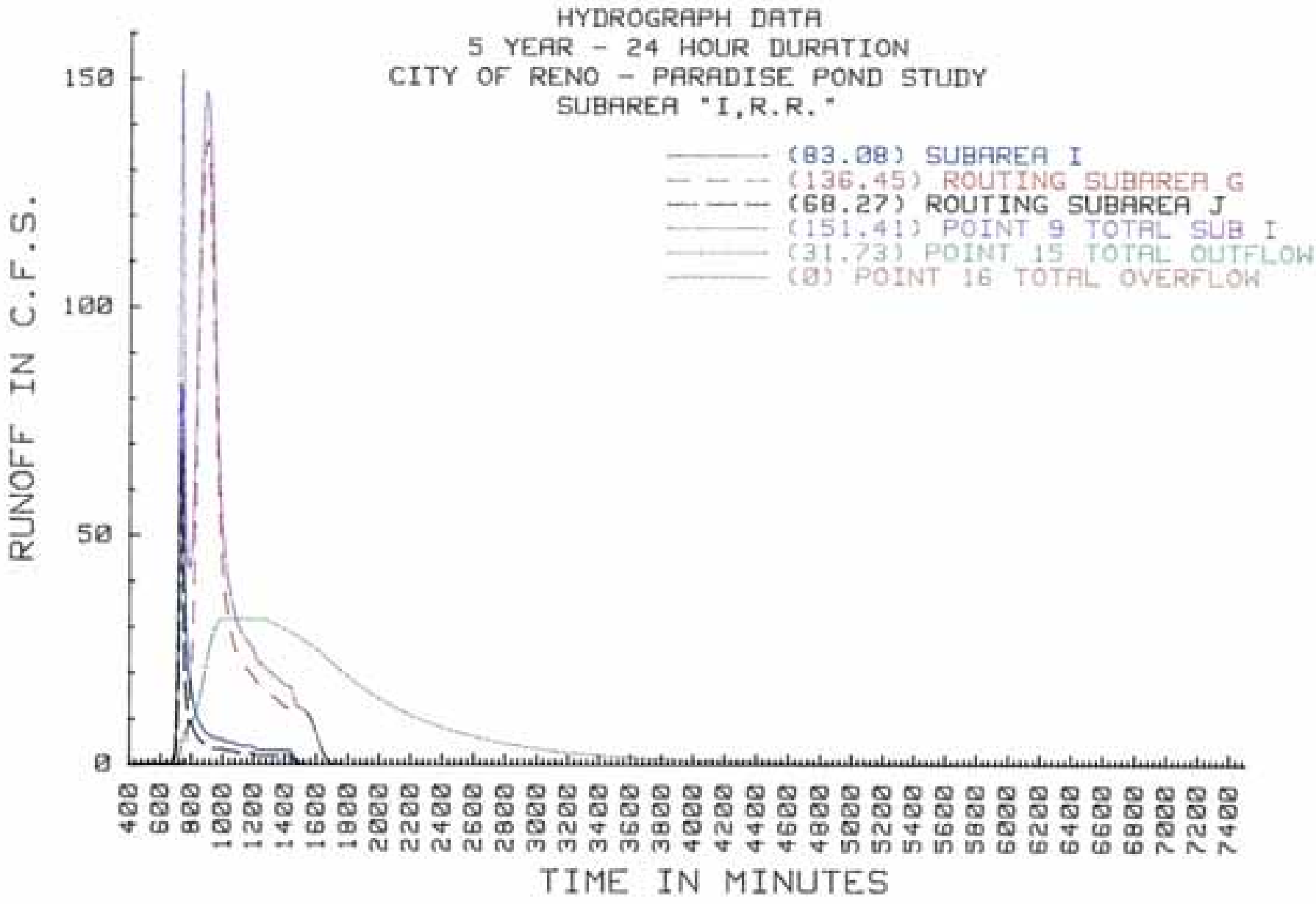
Paradise Pond Outlet; one 60-inch pipe under inlet condition:

| | | | |
|---|---|---|---|
| 25.19 cfs @ 745 min. w/55.9 ac.ft. | 51.55 cfs @ 740 min. w/88.7 ac.ft. | 71.78 cfs @ 740 min. w/115.4 ac.ft. | 82.57 cfs @ 740 min. w/129.4 ac.ft. |


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "A THROUGH D"
(61.48) POINT 1 TOTAL SUB A
(54.62) POINT 2 TOTAL SUB B
(14.36) POINT 3 TOTAL SUB C
(88.82) SUBAREA D
(53.52) ROUTING SUBAREA B
(104.77) POINT 4 TOTAL SUB D
RUNOFF IN C.F.S.
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "E THROUGH F"
(35.56) SUBAREA E
(44.09) ROUTING SUBAREA A
(104.77) ROUTING SUBAREA D
(121.82) POINT 5 TOTAL SUB E
(110.52) POINT 6 TOTAL SUB F
RUNOFF IN C.F.S.
0
50
100
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "G,H,J"
(23.99) SUBAREA G
(47.77) ROUTING SUBAREA F
(115.04) ROUTING SUBAREA E
(139.3) POINT 7 TOTAL SUB G
(19.74) POINT 8 TOTAL SUB H
(80.99) POINT 10 TOTAL SUB J
RUNOFF IN C.F.S.
0
50
100
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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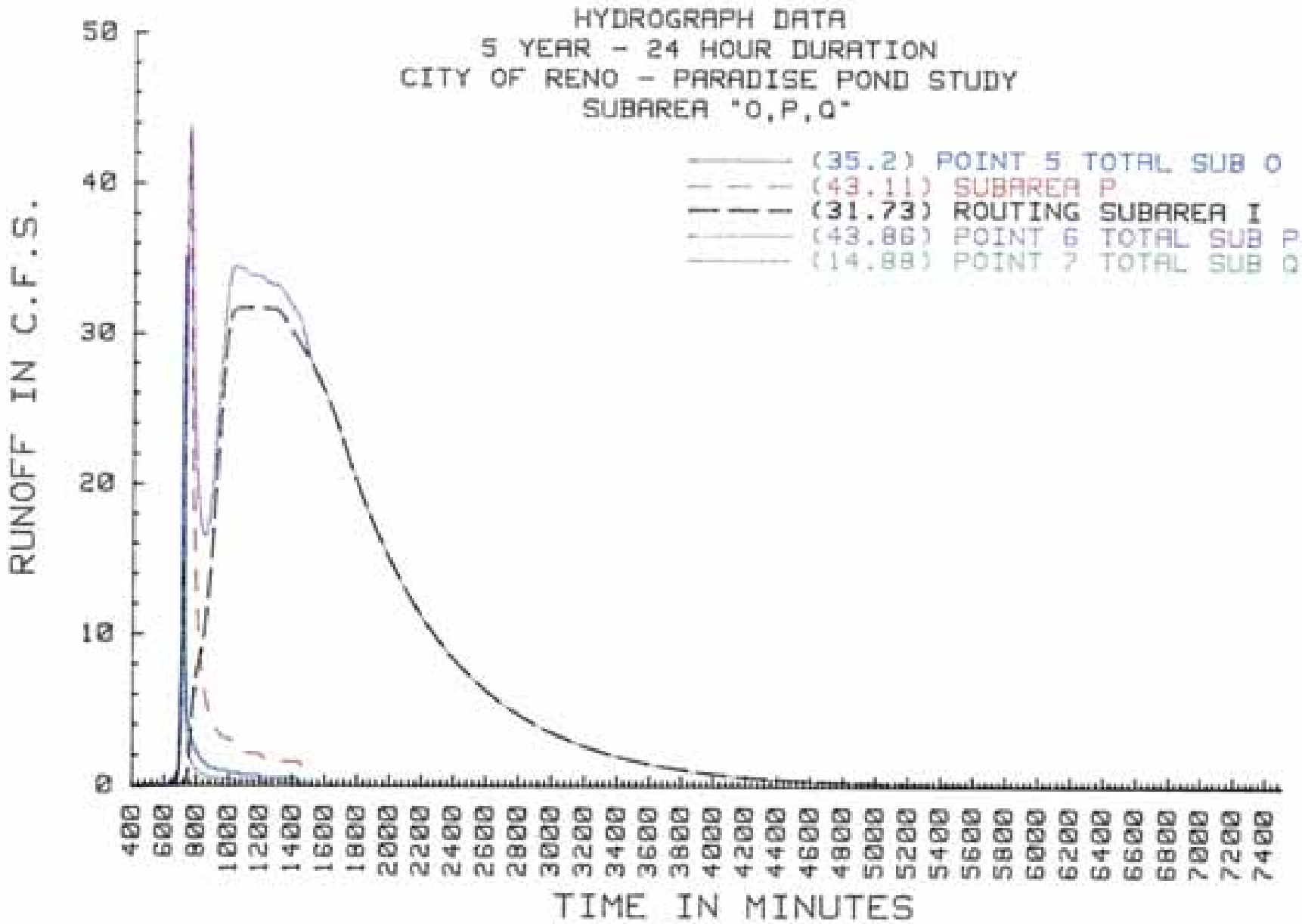
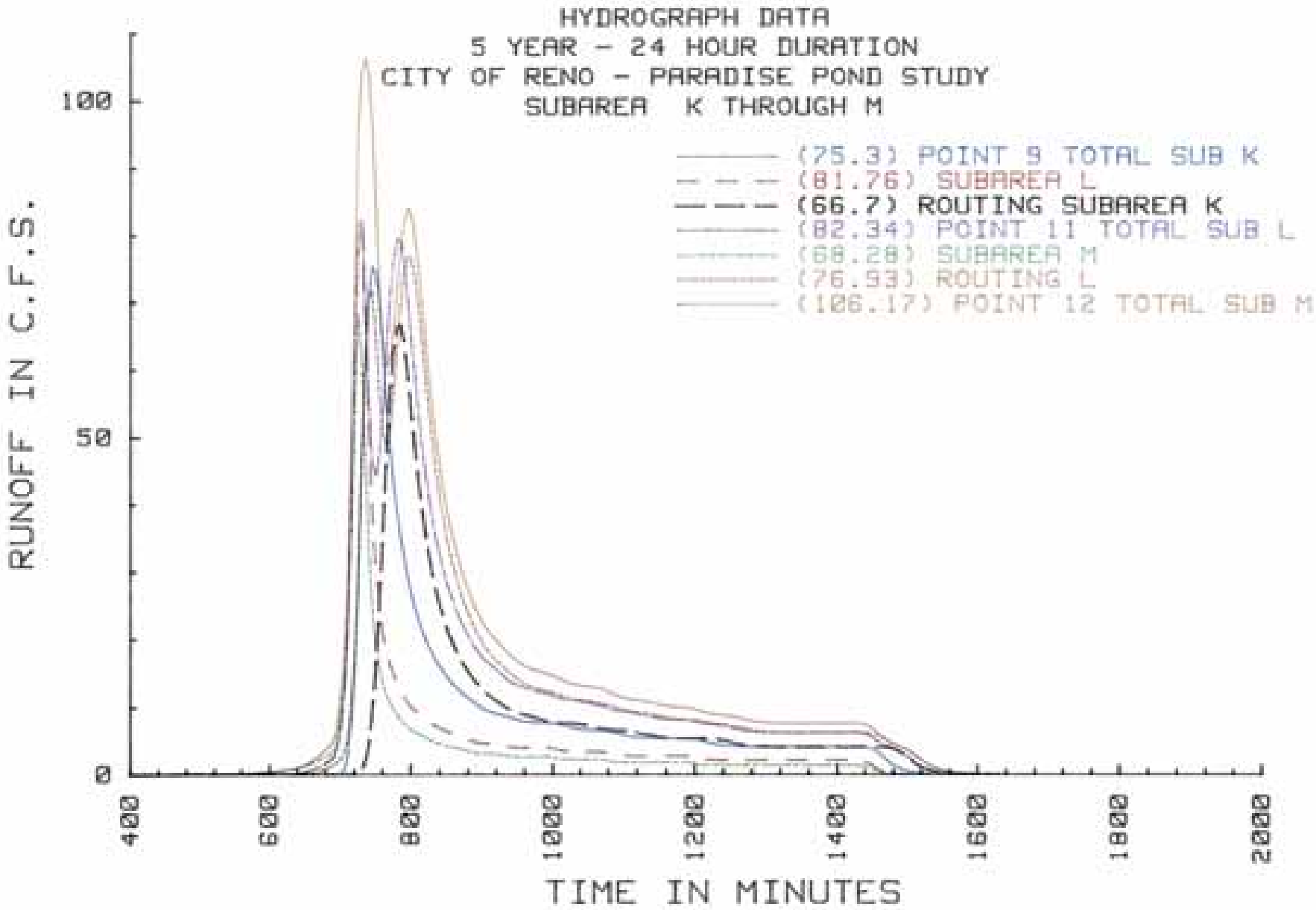
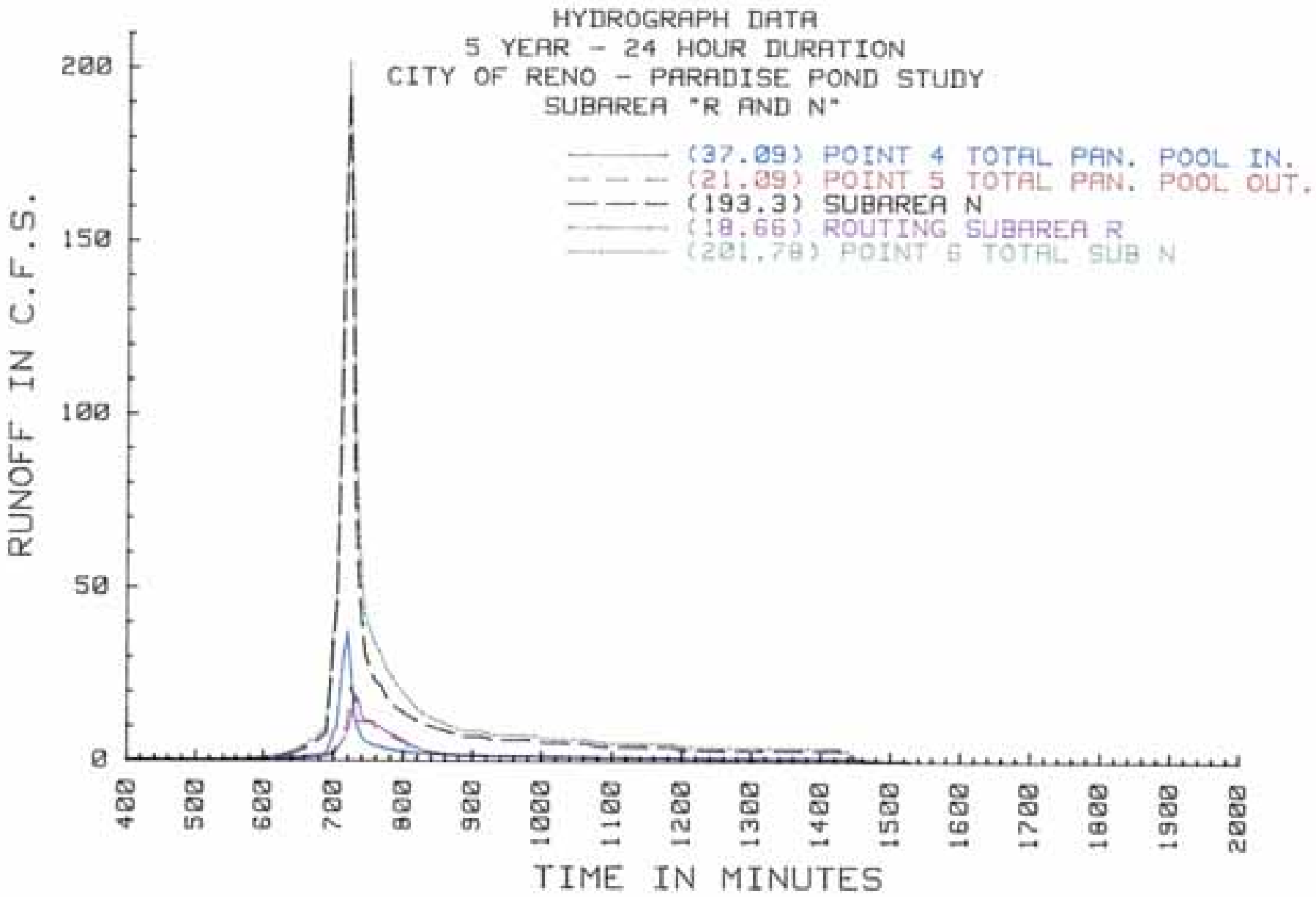
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,R.R."
(83.08) SUBAREA I
(136.45) ROUTING SUBAREA G
(68.27) ROUTING SUBAREA J
(151.41) POINT 9 TOTAL SUB I
(31.73) POINT 15 TOTAL OUTFLOW
(0) POINT 16 TOTAL OVERFLOW
RUNOFF IN C.F.S.
150
100
50
0
400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200 7400
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(35.2) POINT 5 TOTAL SUB O
(43.11) SUBAREA P
(31.73) ROUTING SUBAREA I
(43.86) POINT 6 TOTAL SUB P
(14.88) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(75.3) POINT 9 TOTAL SUB K
(81.76) SUBAREA L
(66.7) ROUTING SUBAREA K
(82.34) POINT 11 TOTAL SUB L
(68.28) SUBAREA M
(76.93) ROUTING L
(106.17) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
400
600
800
1000
1200
1400
1600
1800
2000
TIME IN MINUTES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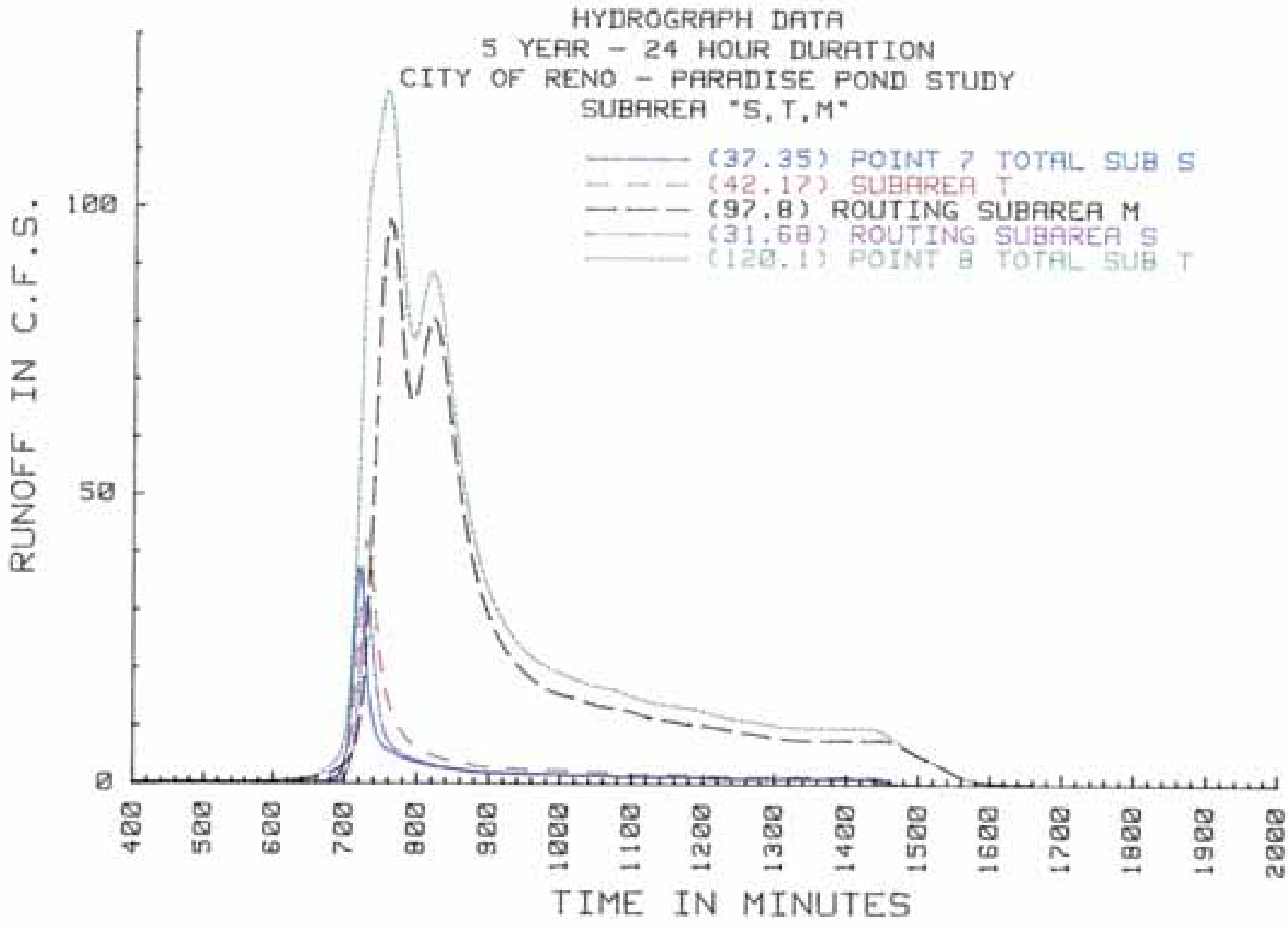
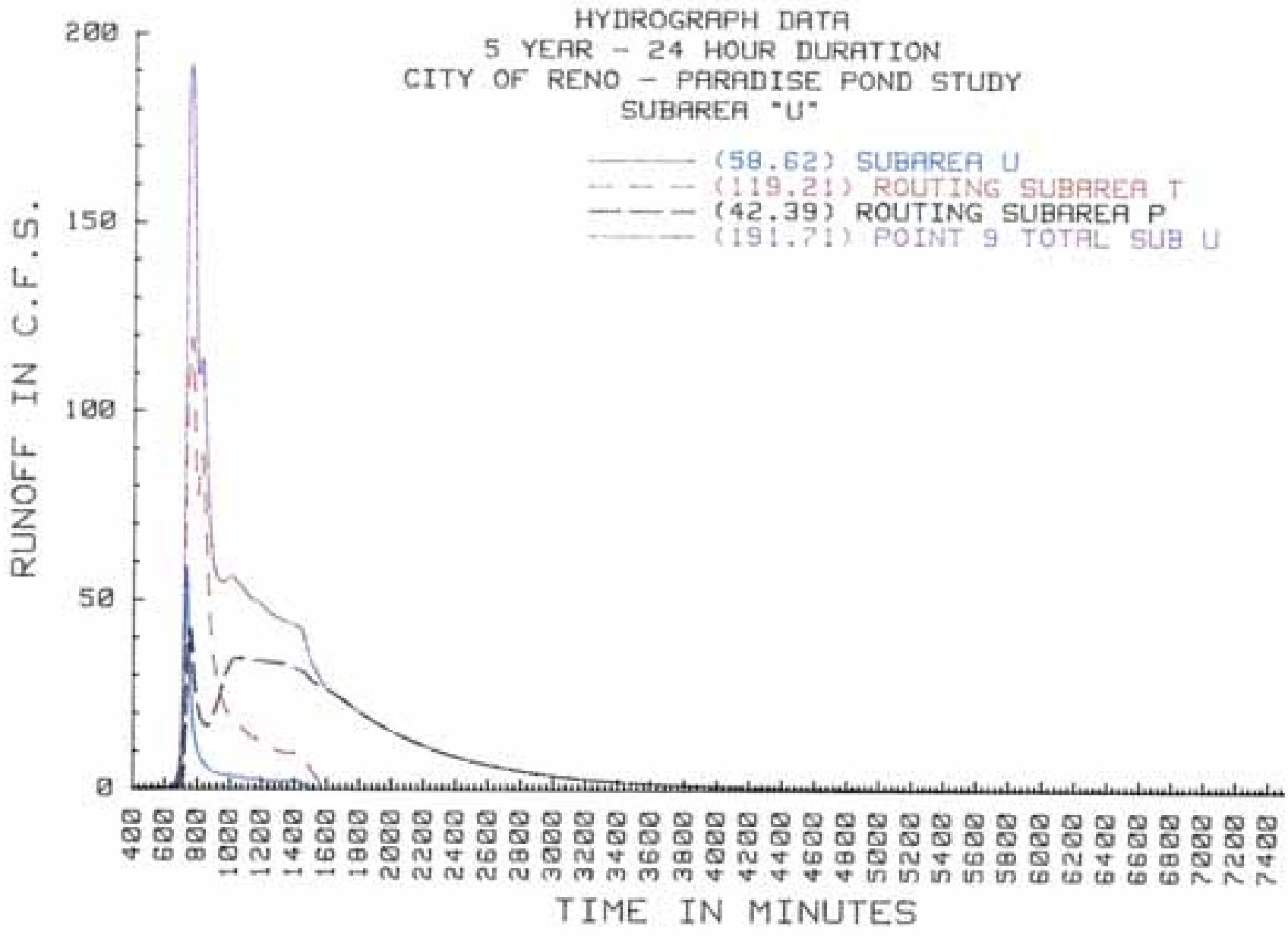
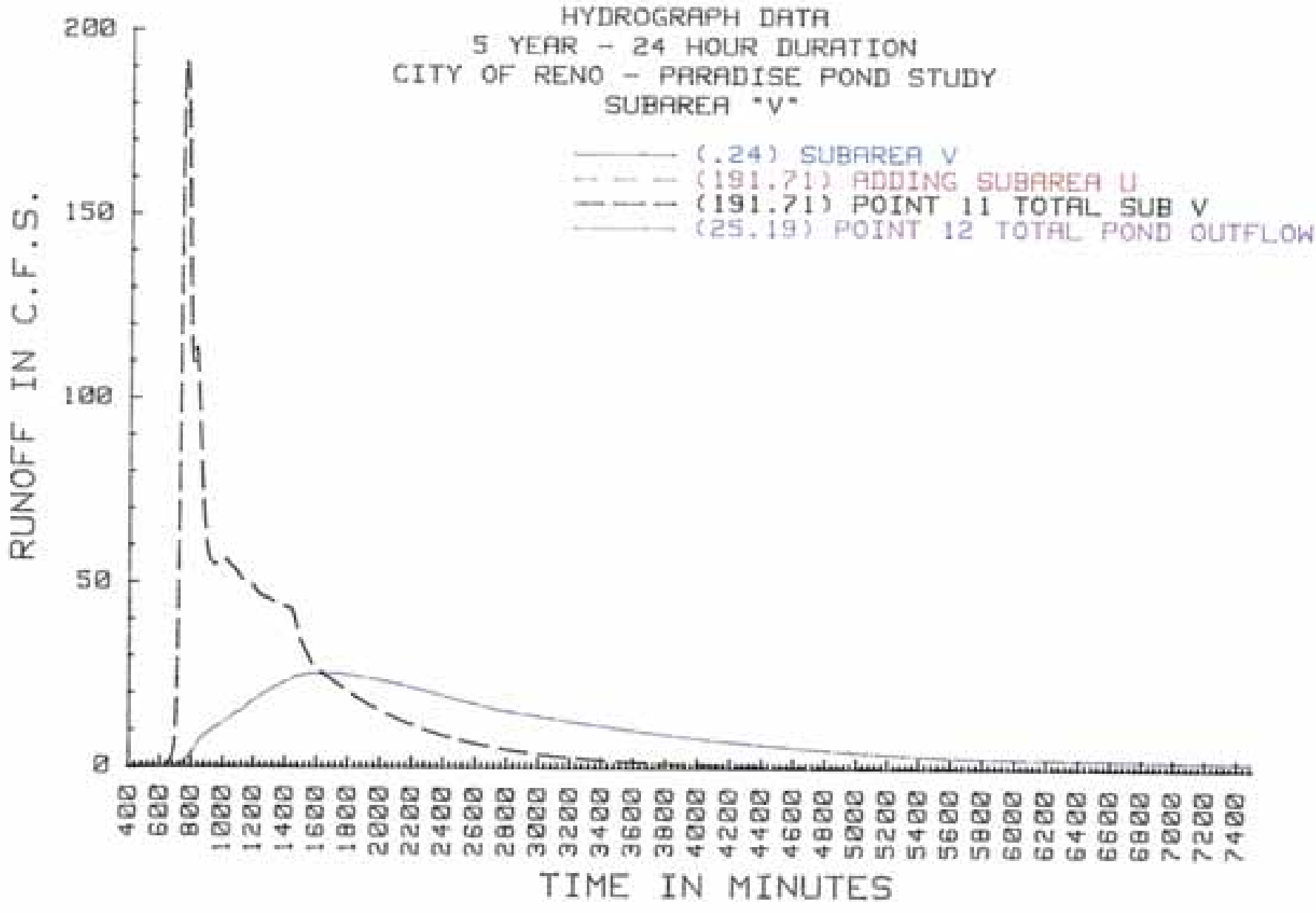
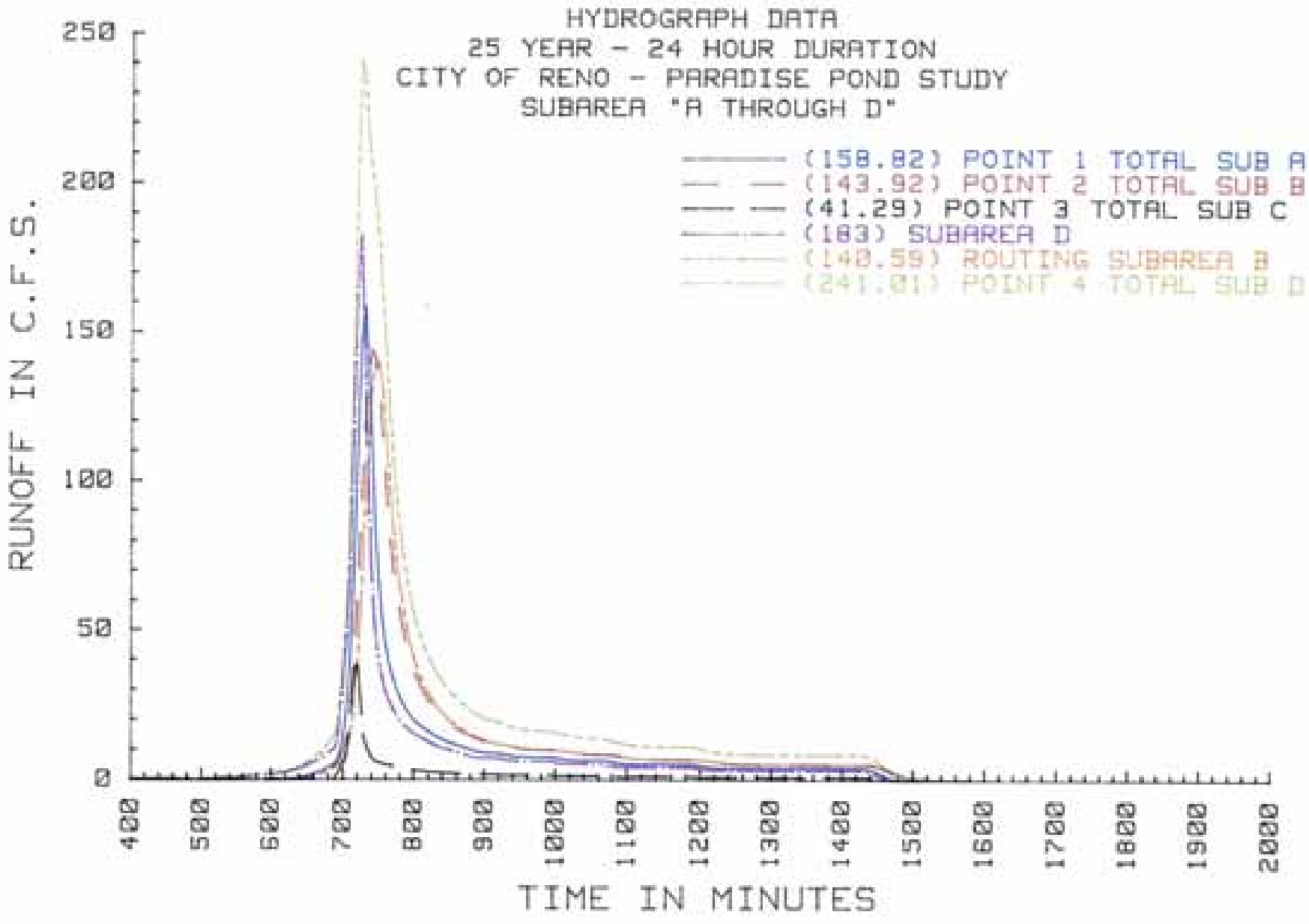
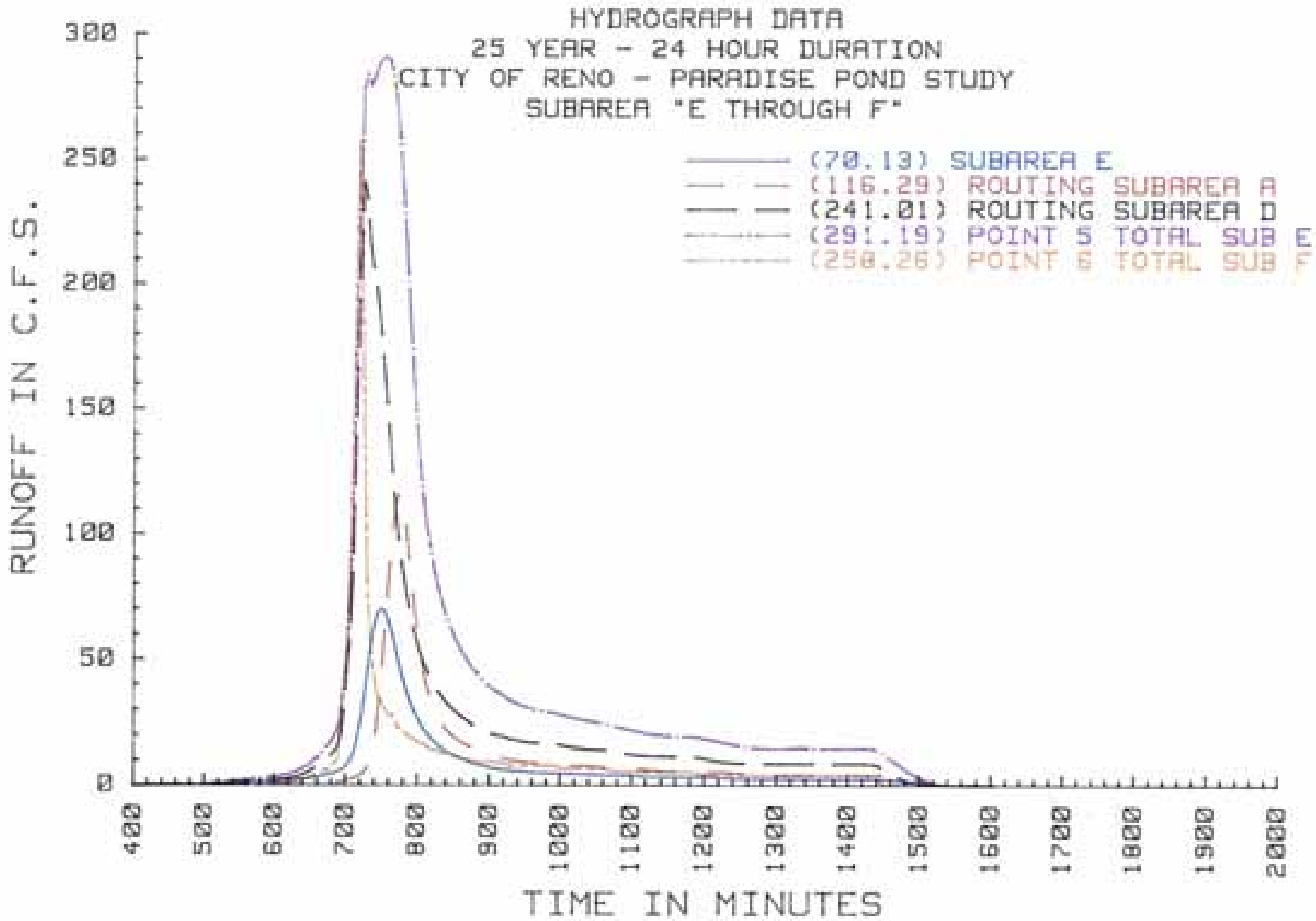
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "R AND N"
(37.09) POINT 4 TOTAL PAN. POOL IN.
(21.09) POINT 5 TOTAL PAN. POOL OUT.
(193.3) SUBAREA N
(18.66) ROUTING SUBAREA R
(201.78) POINT 6 TOTAL SUB N
RUNOFF IN C.F.S.
0
50
100
150
200
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(37.35) POINT 7 TOTAL SUB S
(42.17) SUBAREA T
(97.8) ROUTING SUBAREA M
(31.68) ROUTING SUBAREA S
(120.1) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
0
50
100
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(58.62) SUBAREA U
(119.21) ROUTING SUBAREA T
(42.39) ROUTING SUBAREA P
(191.71) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(.24) SUBAREA V
(191.71) ADDING SUBAREA U
(191.71) POINT 11 TOTAL SUB V
(25.19) POINT 12 TOTAL POND OUTFLOW
RUNOFF IN C.F.S.
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "A THROUGH D"
(158.82) POINT 1 TOTAL SUB A
(143.92) POINT 2 TOTAL SUB B
(41.29) POINT 3 TOTAL SUB C
(183) SUBAREA D
(140.59) ROUTING SUBAREA B
(241.01) POINT 4 TOTAL SUB D
RUNOFF IN C.F.S.
250
200
150
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "E THROUGH F"
(70.13) SUBAREA E
(116.29) ROUTING SUBAREA A
(241.01) ROUTING SUBAREA D
(291.19) POINT 5 TOTAL SUB E
(258.26) POINT 6 TOTAL SUB F
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
400
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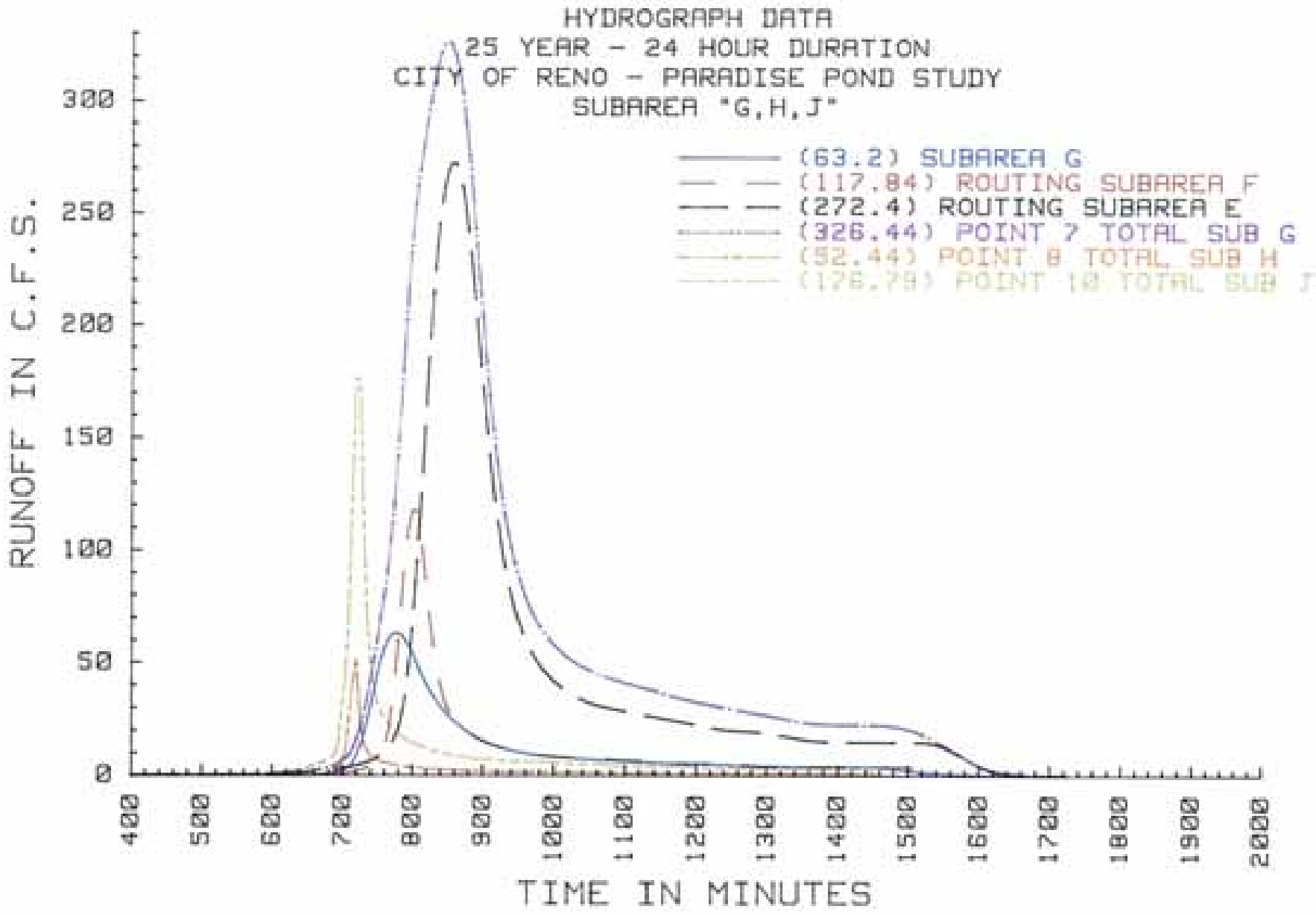
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "G,H,J"
(63.2) SUBAREA G
(117.84) ROUTING SUBAREA F
(272.4) ROUTING SUBAREA E
(326.44) POINT 7 TOTAL SUB G
(52.44) POINT 8 TOTAL SUB H
(176.79) POINT 10 TOTAL SUB J
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
400
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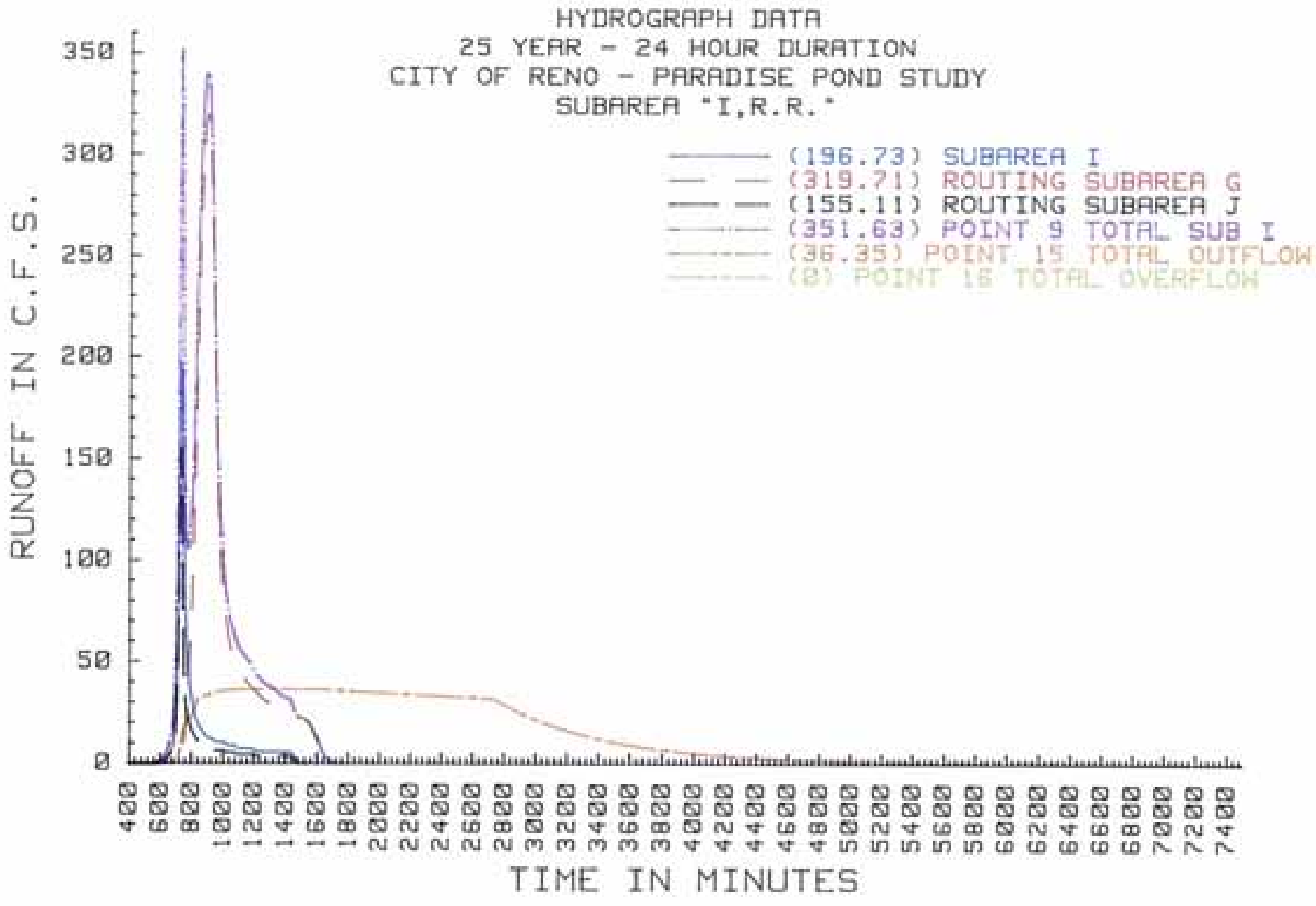
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,R.R."
(196.73) SUBAREA I
(319.71) ROUTING SUBAREA G
(155.11) ROUTING SUBAREA J
(351.63) POINT 9 TOTAL SUB I
(36.35) POINT 15 TOTAL OUTFLOW
(0) POINT 16 TOTAL OVERFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
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4400
4600
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6200
6400
6600
6800
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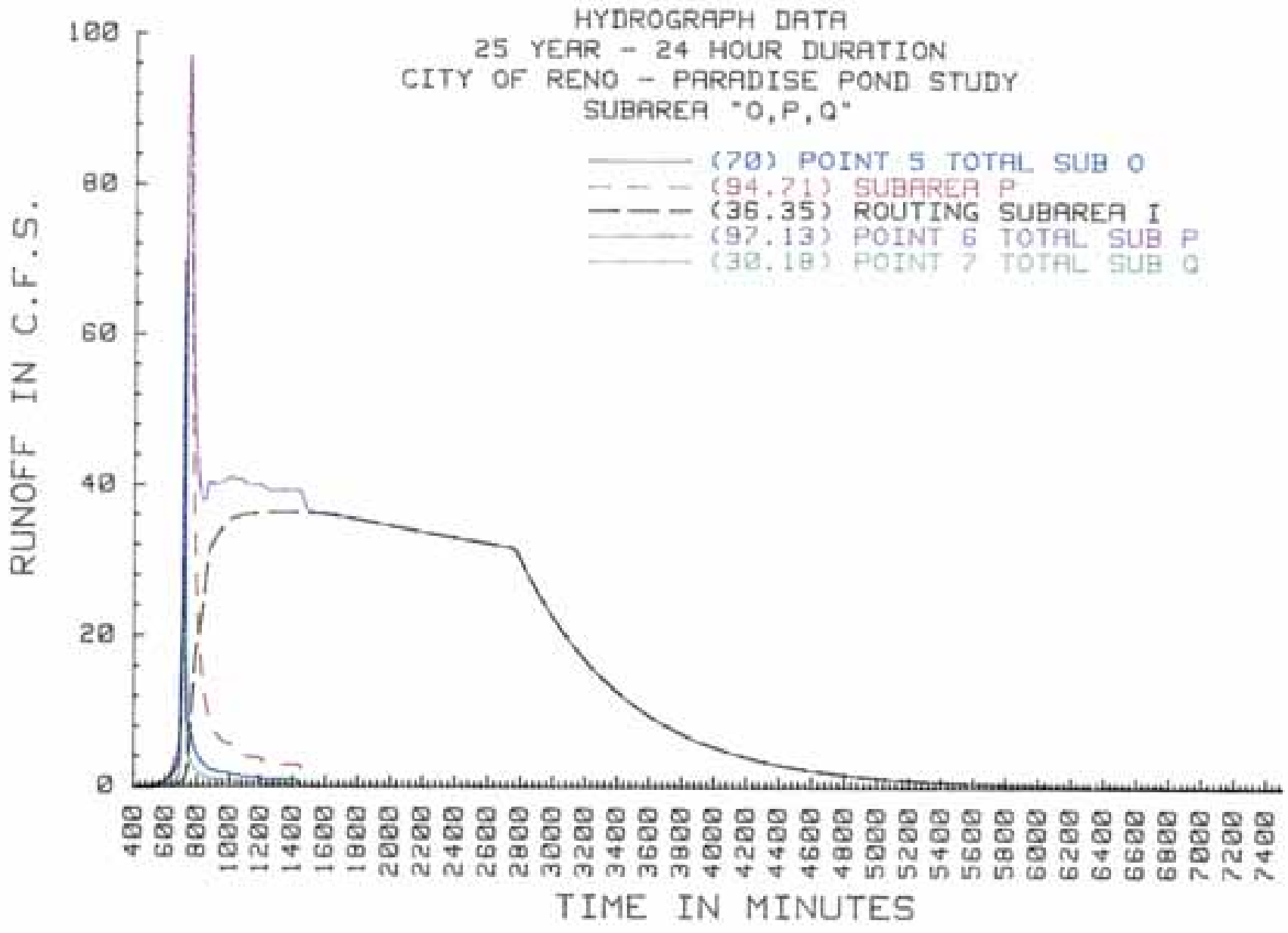
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(70) POINT 5 TOTAL SUB O
(94.71) SUBAREA P
(36.35) ROUTING SUBAREA I
(97.13) POINT 6 TOTAL SUB P
(30.18) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
100
80
60
40
20
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
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6000
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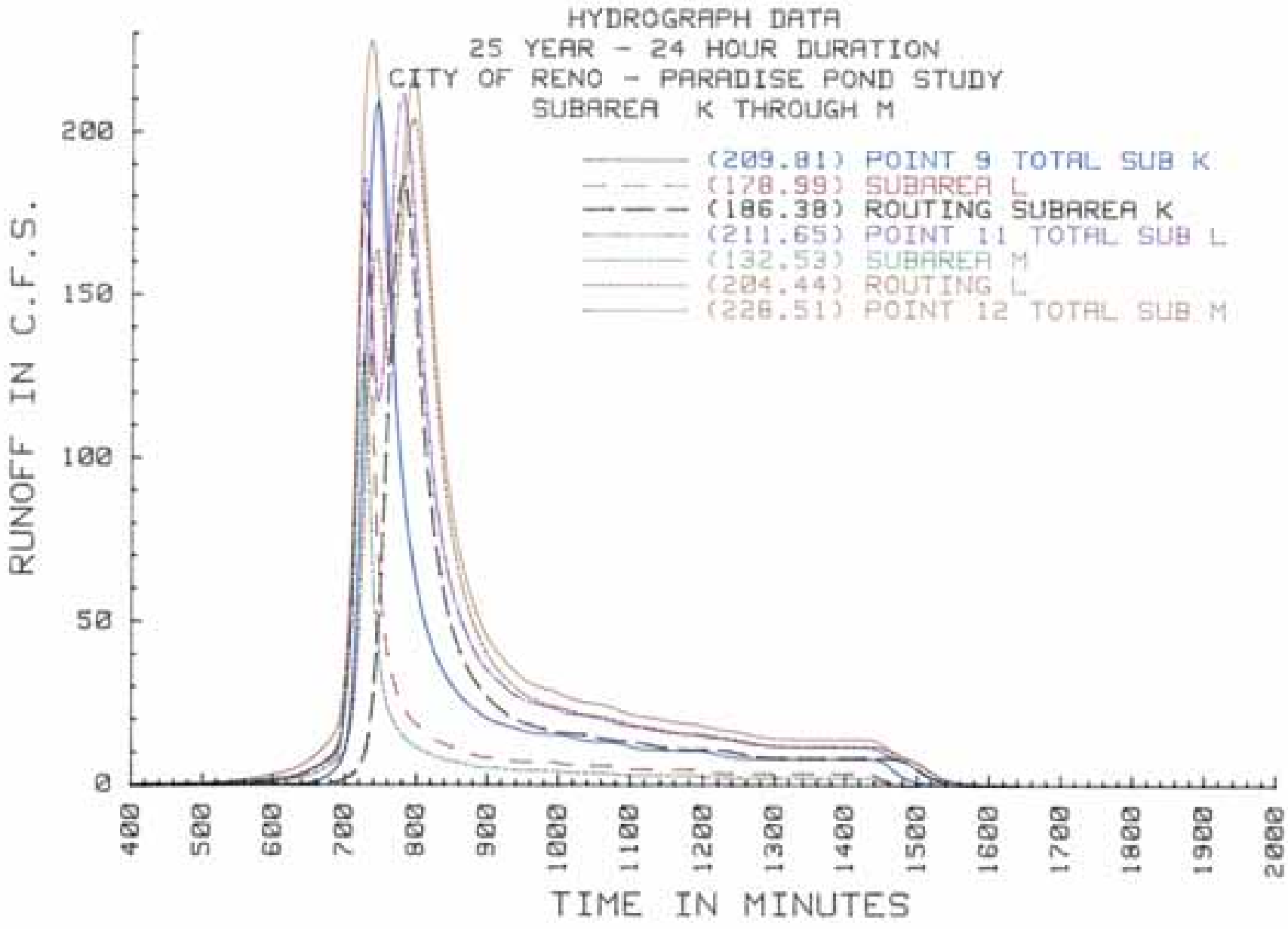
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(209.81) POINT 9 TOTAL SUB K
(178.99) SUBAREA L
(186.38) ROUTING SUBAREA K
(211.65) POINT 11 TOTAL SUB L
(132.53) SUBAREA M
(204.44) ROUTING L
(228.51) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
150
200
400
500
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1000
1100
1200
1300
1400
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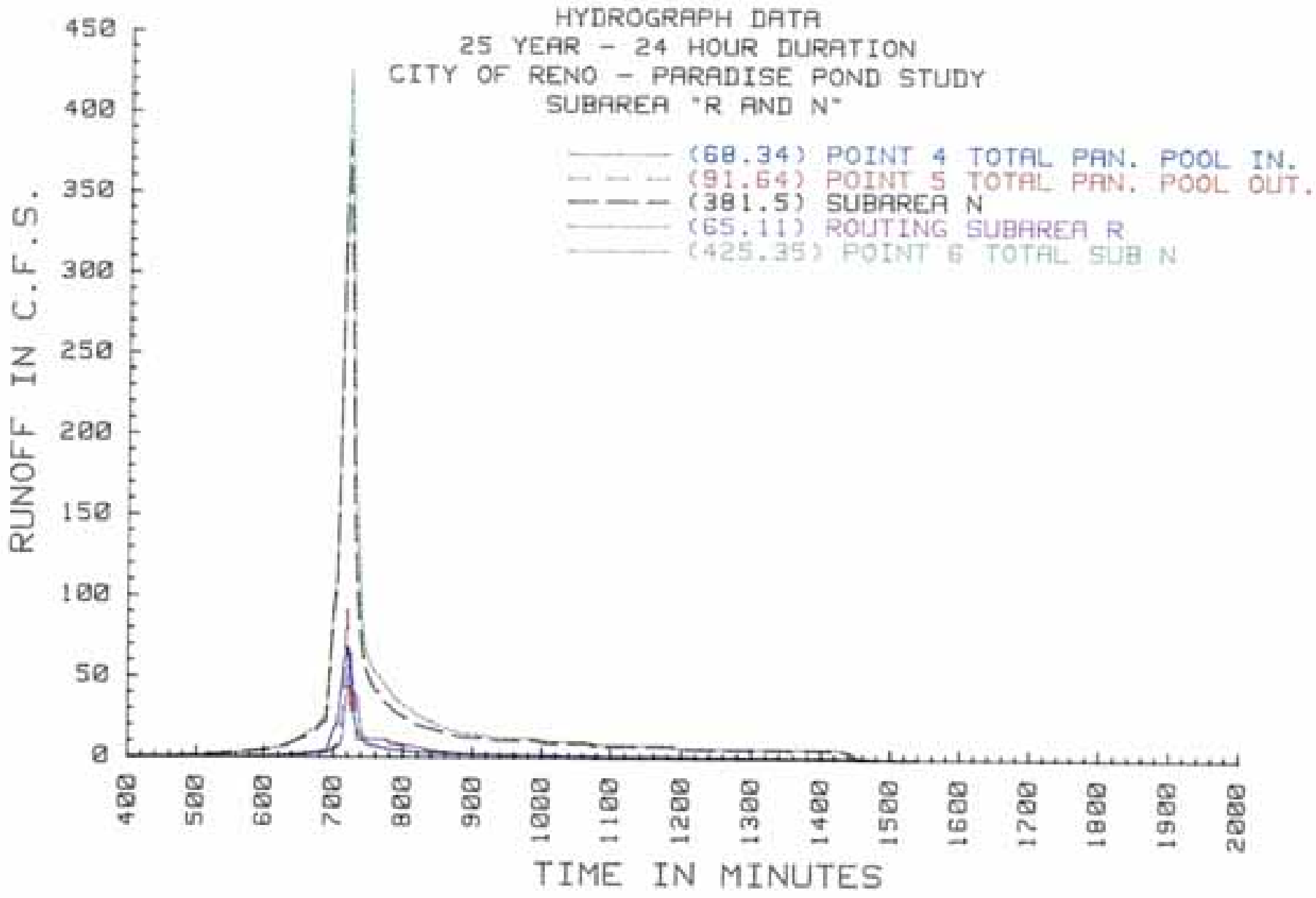
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "R AND N"
(68.34) POINT 4 TOTAL PAN. POOL IN.
(91.64) POINT 5 TOTAL PAN. POOL OUT.
(381.5) SUBAREA N
(65.11) ROUTING SUBAREA R
(425.35) POINT 6 TOTAL SUB N
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
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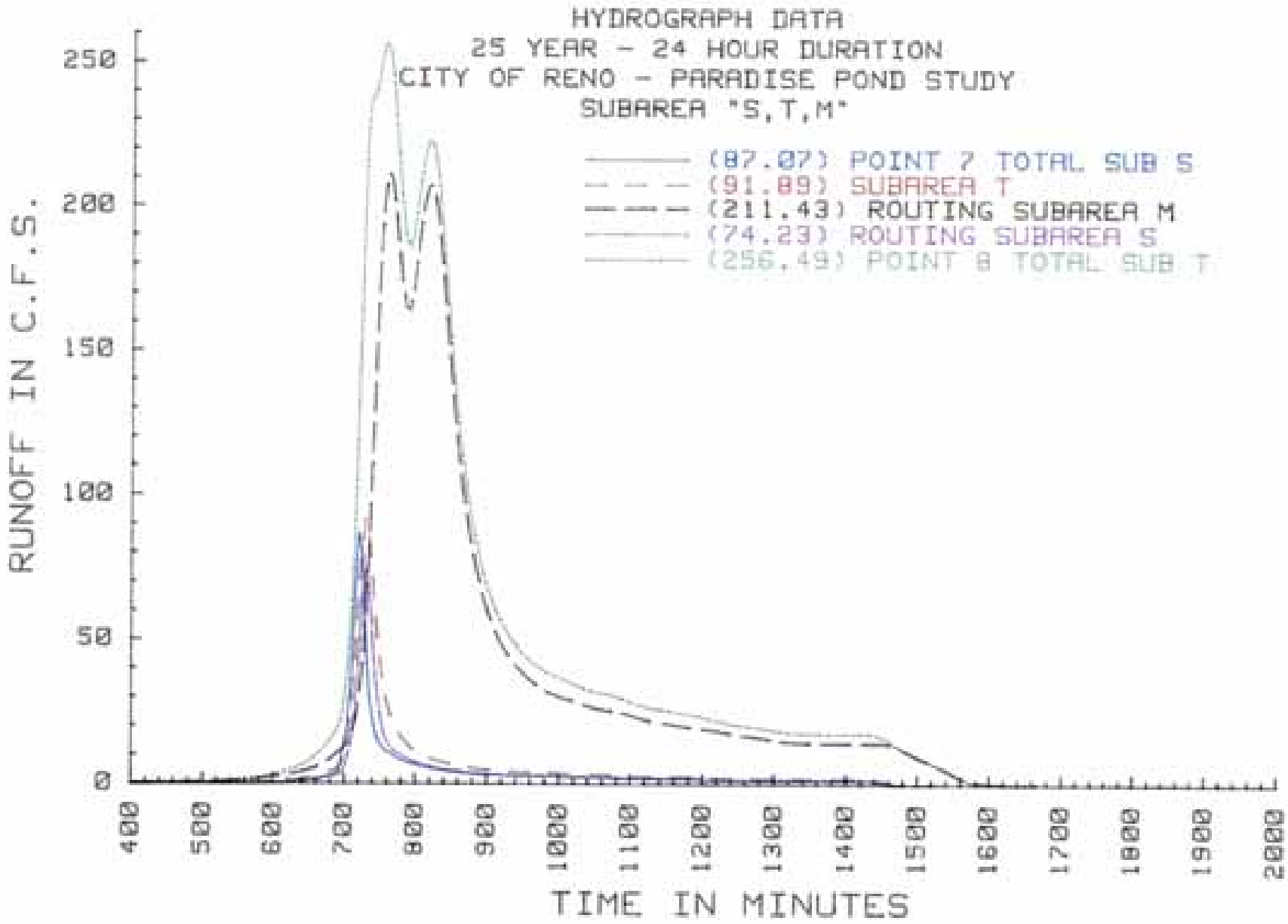
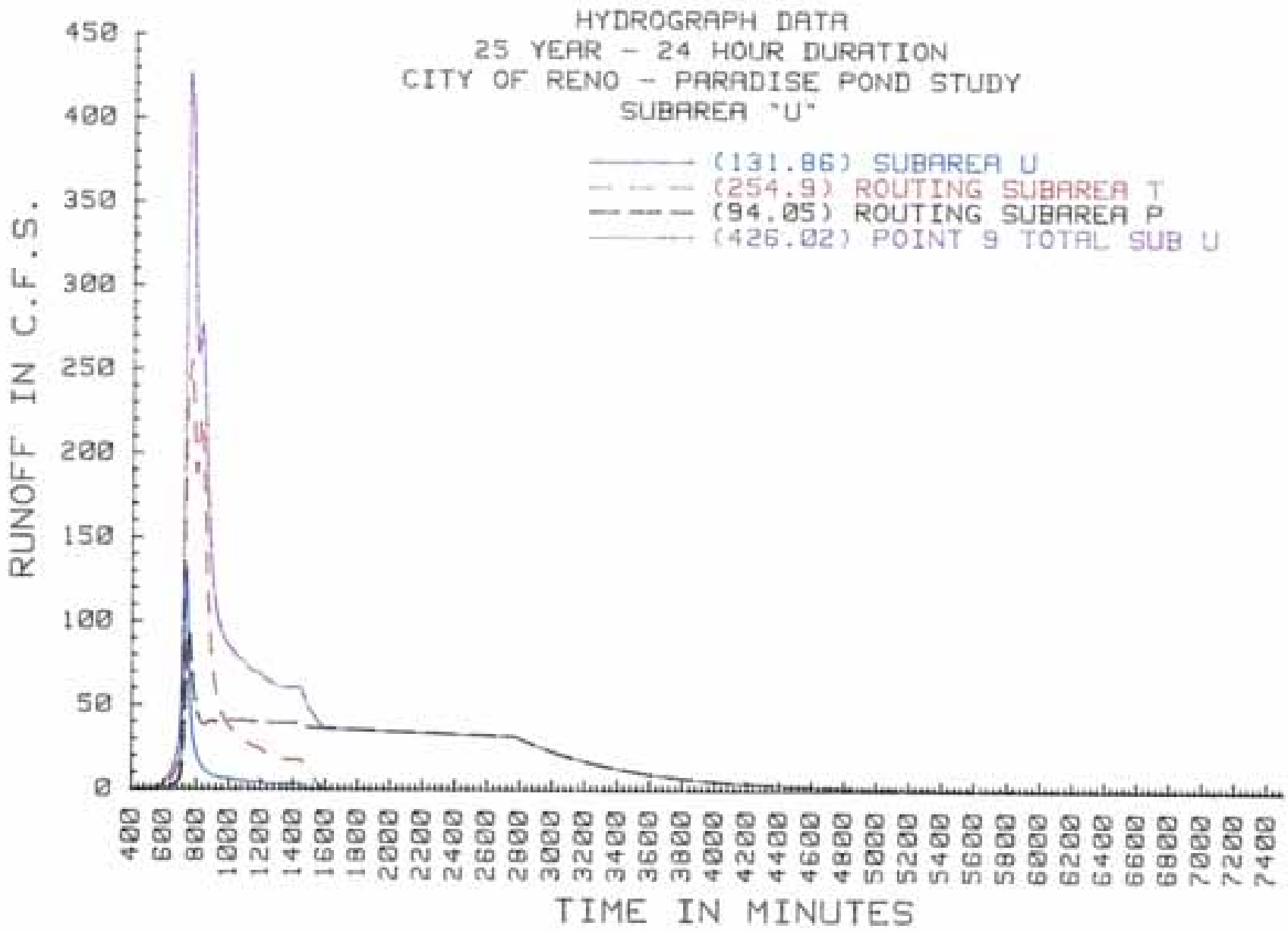
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(87.07) POINT 7 TOTAL SUB S
(91.89) SUBAREA T
(211.43) ROUTING SUBAREA M
(74.23) ROUTING SUBAREA S
(256.49) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
0
50
100
150
200
250
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(131.86) SUBAREA U
(254.9) ROUTING SUBAREA T
(94.05) ROUTING SUBAREA P
(426.02) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
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5200
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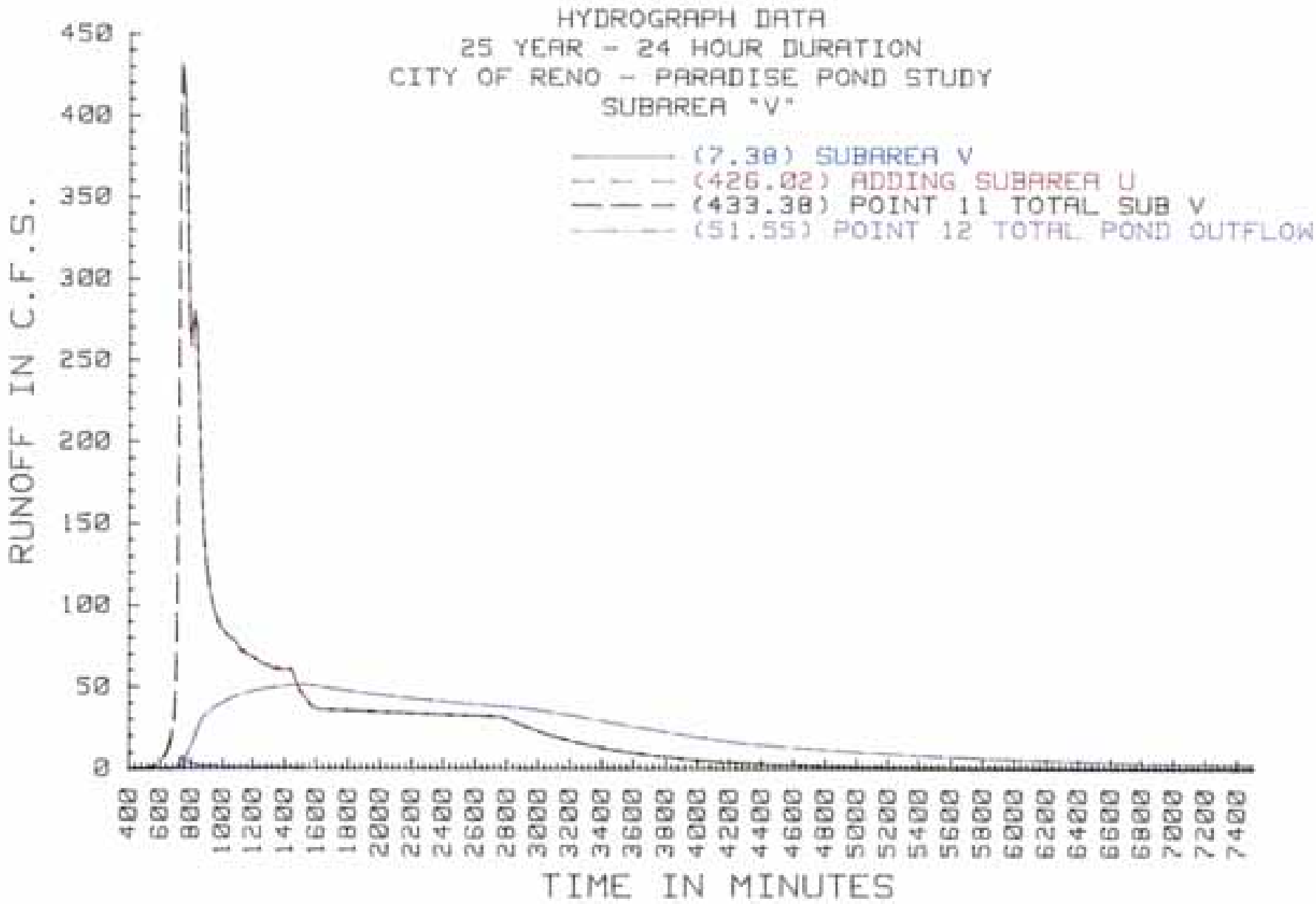
HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(7.38) SUBAREA V
(426.02) ADDING SUBAREA U
(433.38) POINT 11 TOTAL SUB V
(51.55) POINT 12 TOTAL POND OUTFLOW
RUNOFF IN C.F.S.
450
400
350
300
250
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
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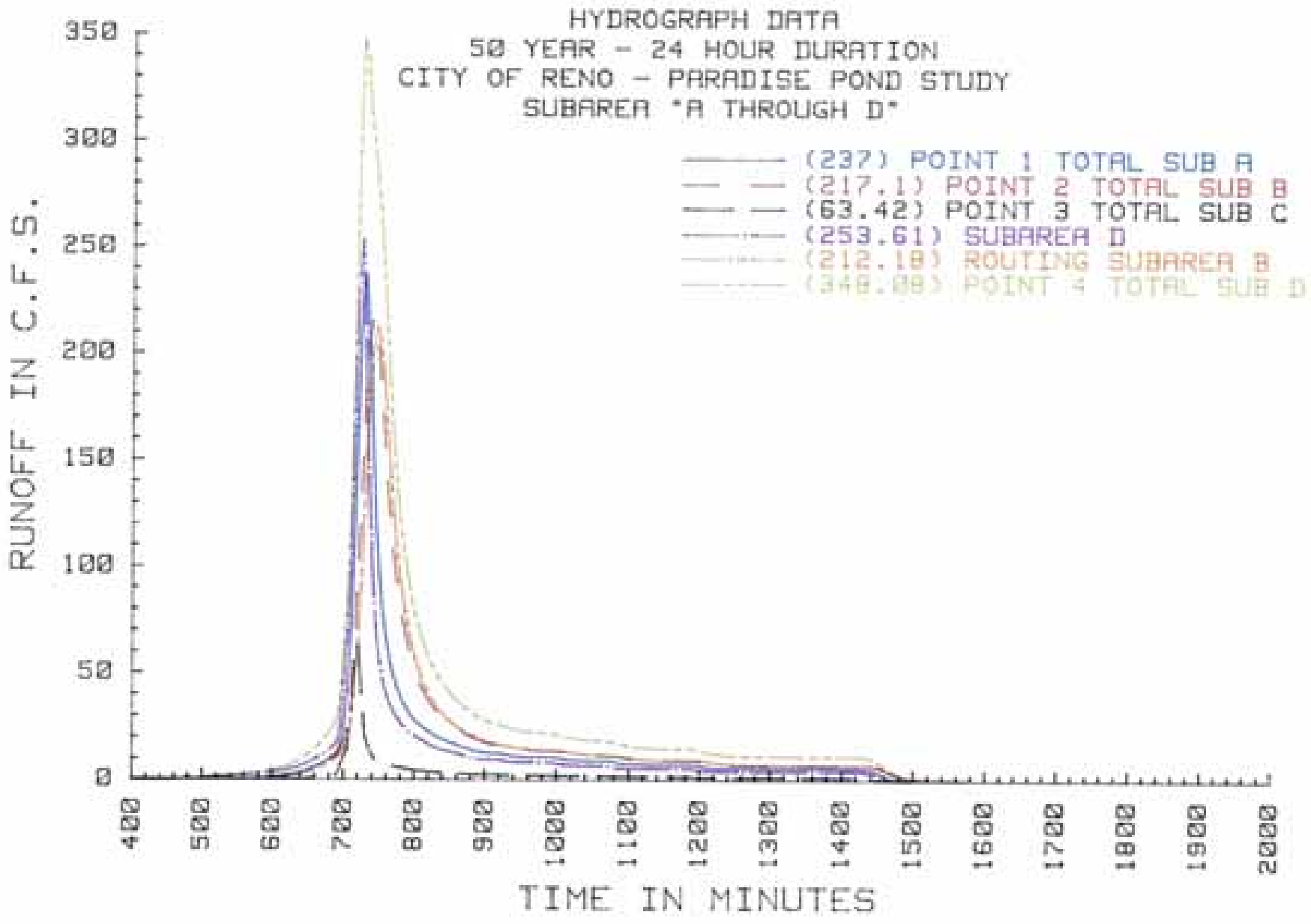
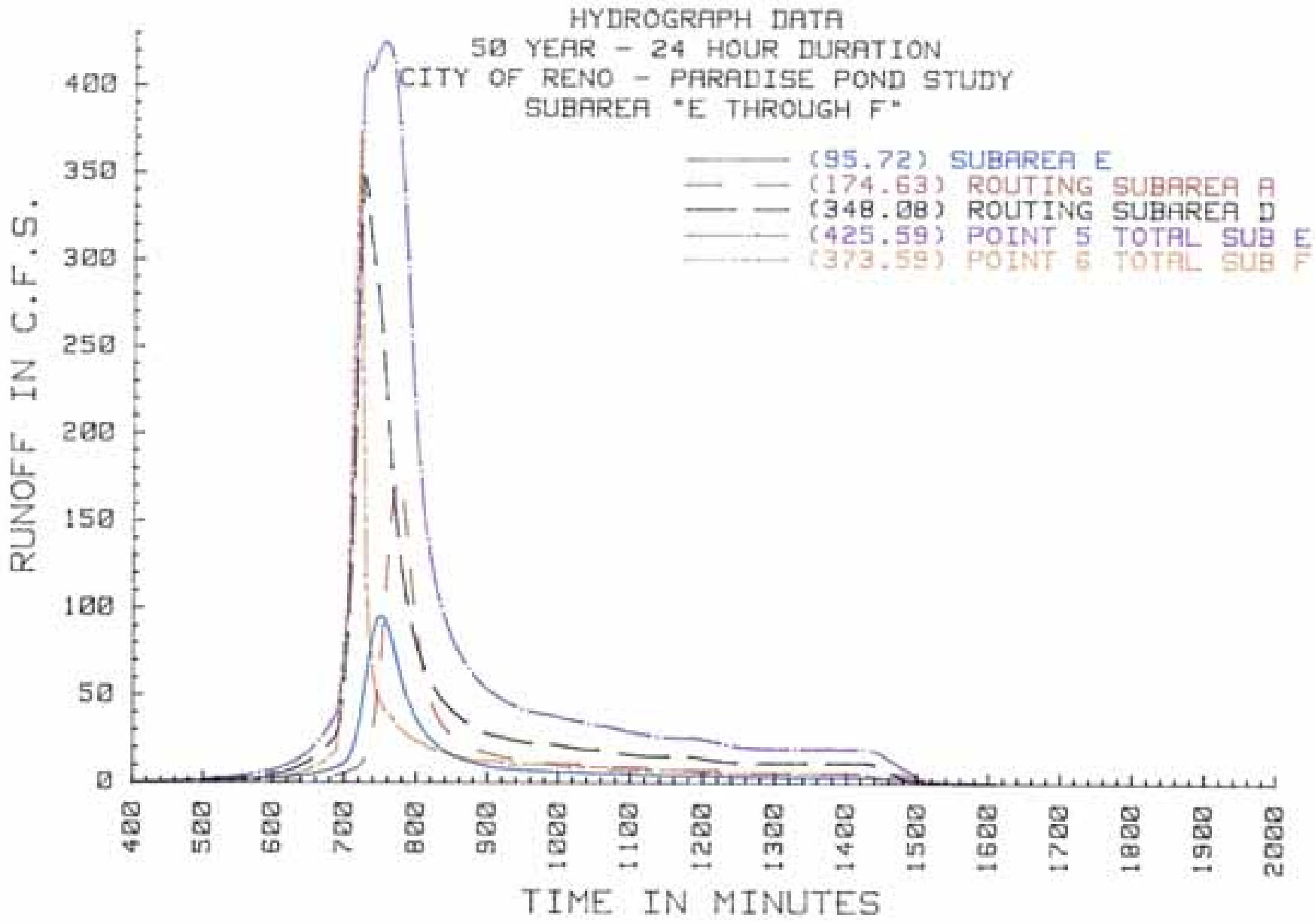
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "A THROUGH D"
(237) POINT 1 TOTAL SUB A
(217.1) POINT 2 TOTAL SUB B
(63.42) POINT 3 TOTAL SUB C
(253.61) SUBAREA D
(212.18) ROUTING SUBAREA B
(348.08) POINT 4 TOTAL SUB D
RUNOFF IN C.F.S.
350
300
250
200
150
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "E THROUGH F"
(95.72) SUBAREA E
(174.63) ROUTING SUBAREA A
(348.08) ROUTING SUBAREA D
(425.59) POINT 5 TOTAL SUB E
(373.59) POINT 6 TOTAL SUB F
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
400
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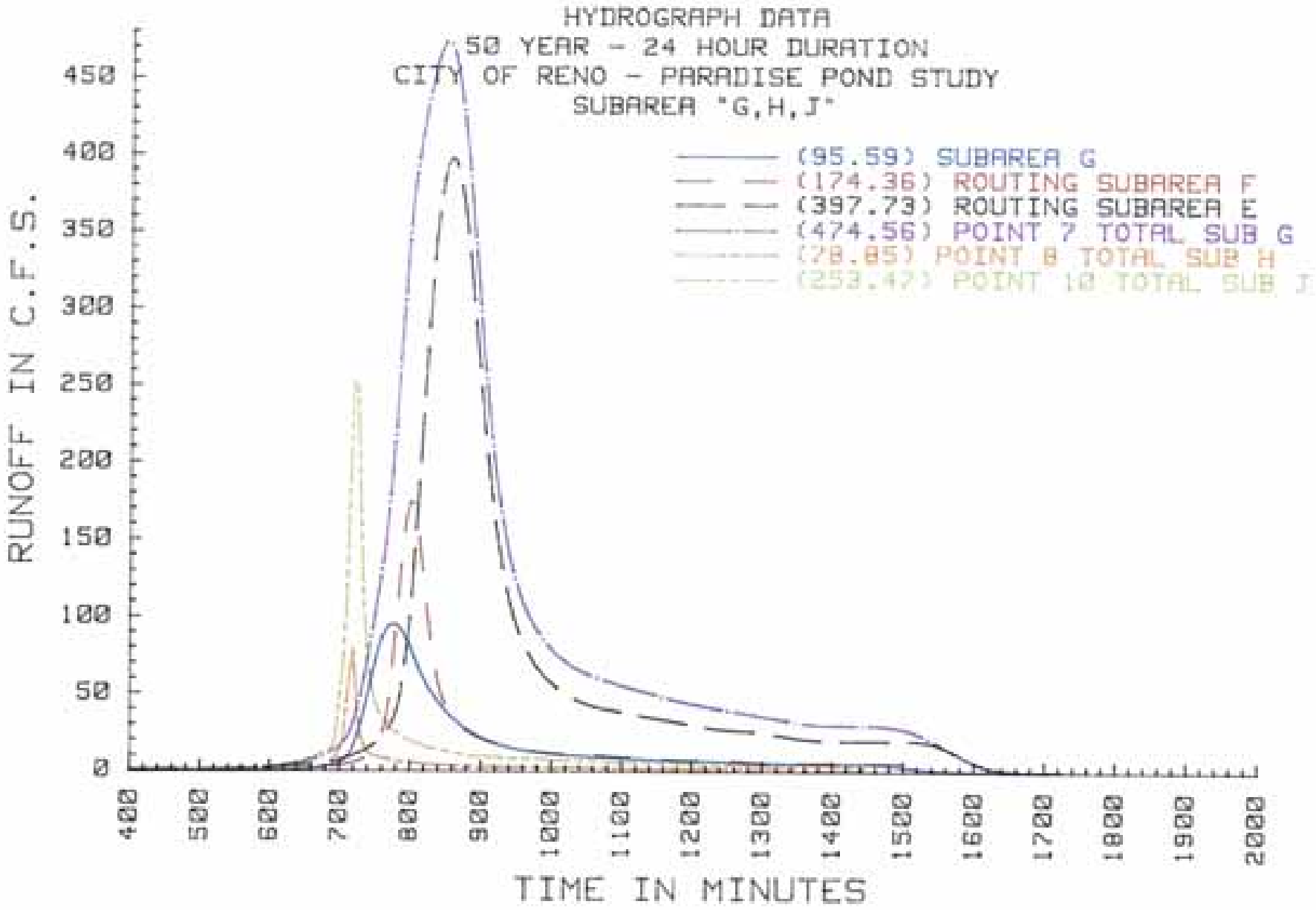
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "G,H,J"
(95.59) SUBAREA G
(174.36) ROUTING SUBAREA F
(397.73) ROUTING SUBAREA E
(474.56) POINT 7 TOTAL SUB G
(78.85) POINT 8 TOTAL SUB H
(253.47) POINT 10 TOTAL SUB J
RUNOFF IN C.F.S.
0
50
100
150
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350
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450
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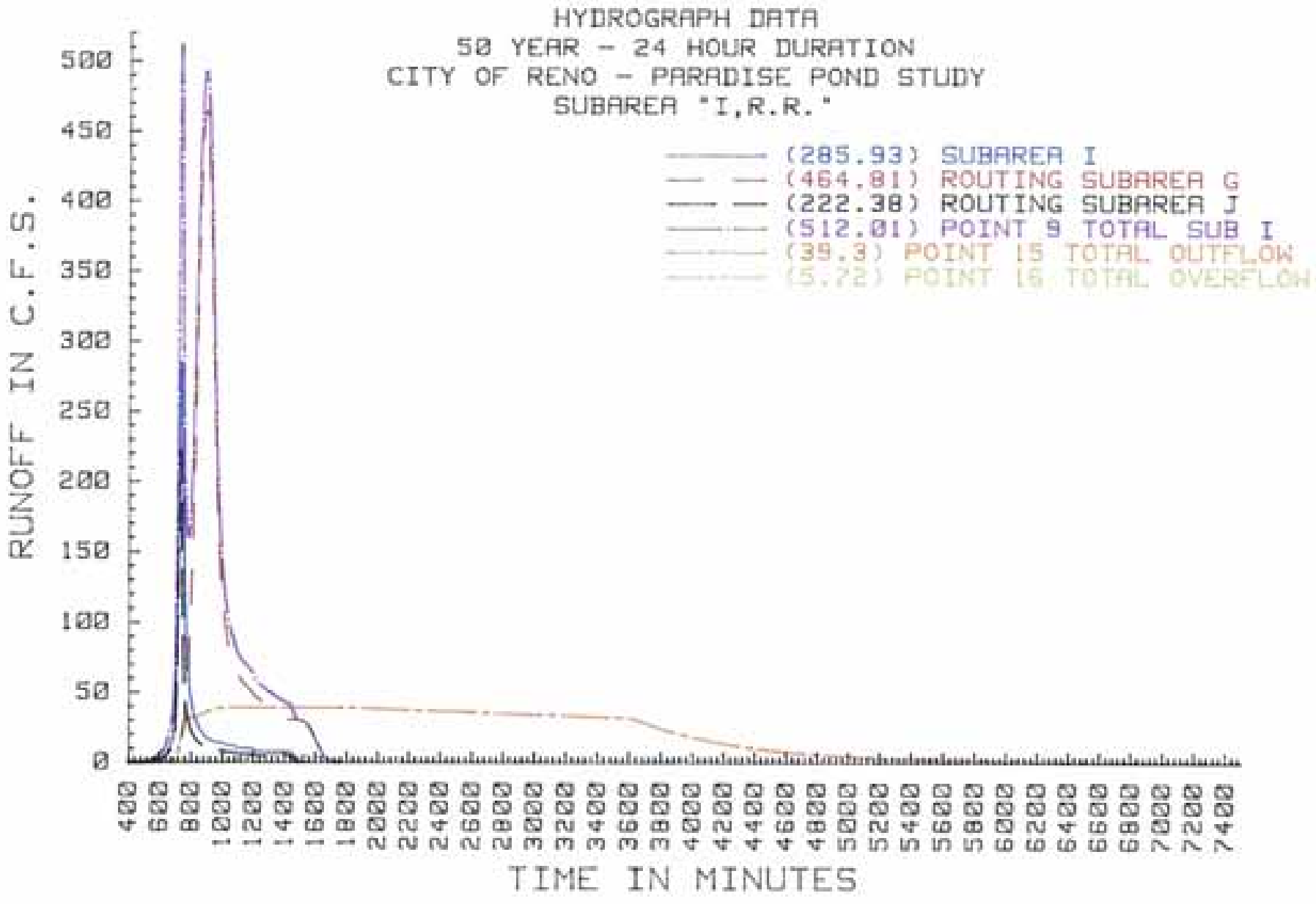
2000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,R.R."
(285.93) SUBAREA I
(464.81) ROUTING SUBAREA G
(222.38) ROUTING SUBAREA J
(512.01) POINT 9 TOTAL SUB I
(39.3) POINT 15 TOTAL OUTFLOW
(5.72) POINT 16 TOTAL OVERFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
TIME IN MINUTES
400
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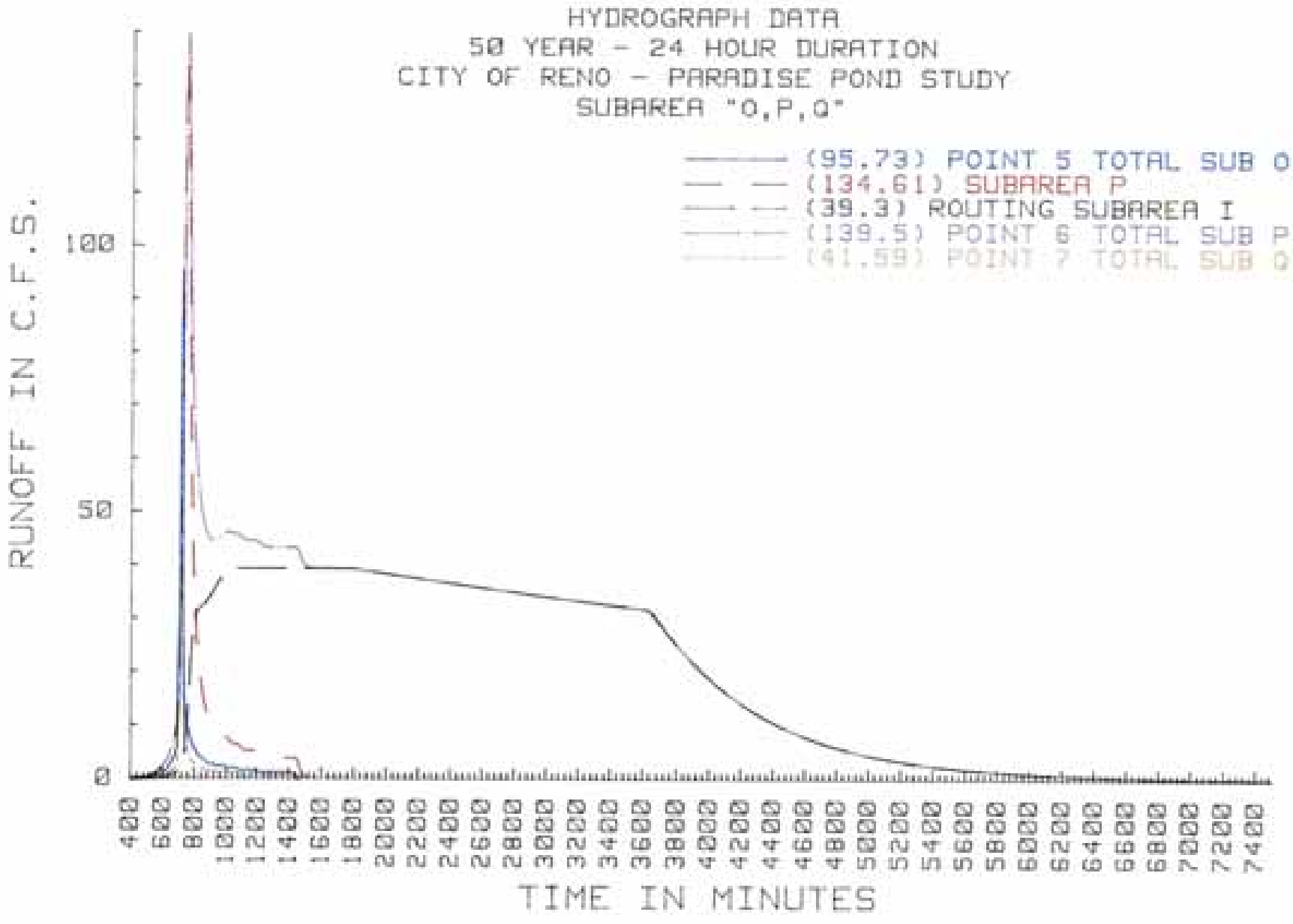
HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(95.73) POINT 5 TOTAL SUB O
(134.61) SUBAREA P
(39.3) ROUTING SUBAREA I
(139.5) POINT 6 TOTAL SUB P
(41.59) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
50
100
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
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4400
4600
4800
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6800
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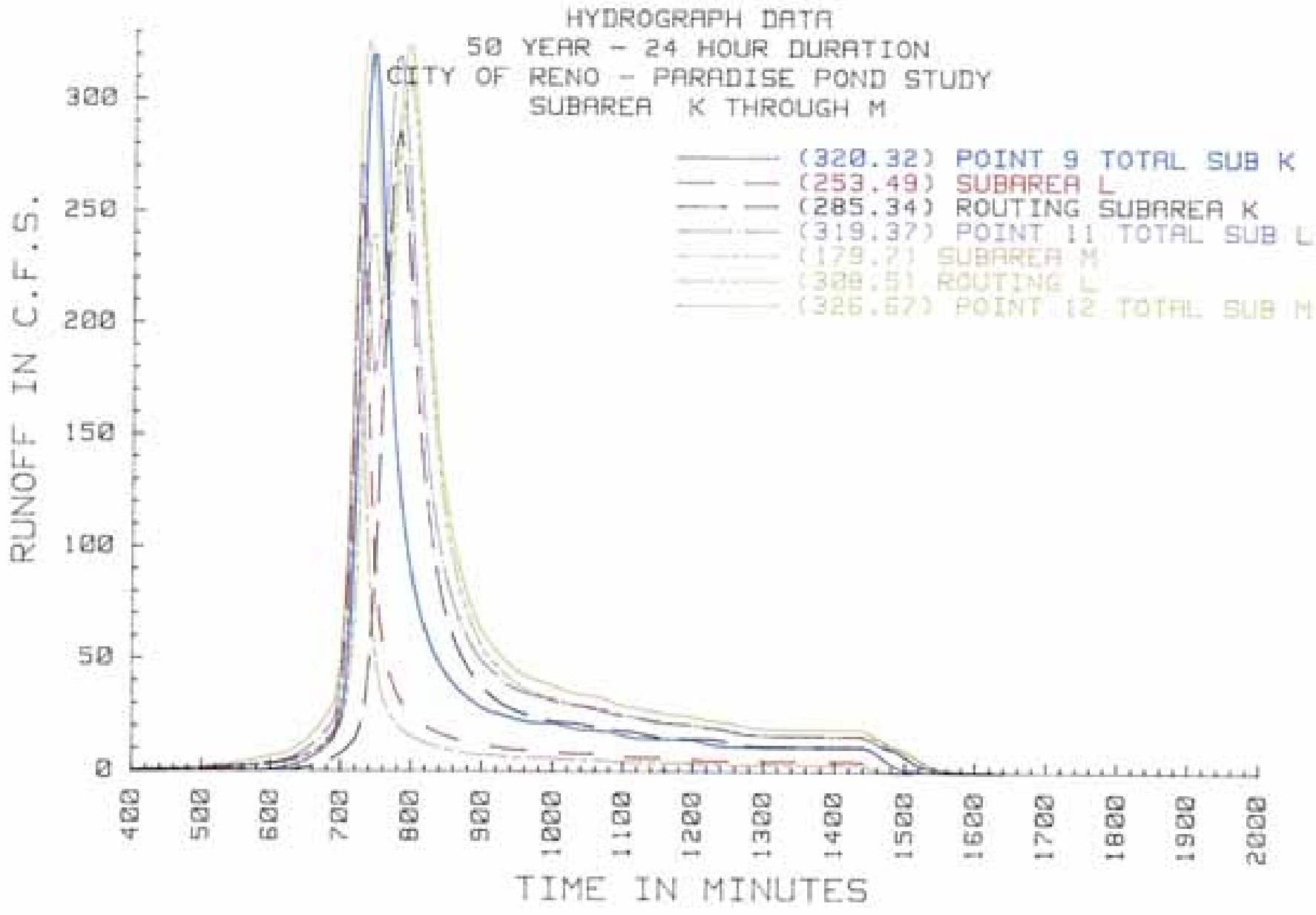
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(320.32) POINT 9 TOTAL SUB K
(253.49) SUBAREA L
(285.34) ROUTING SUBAREA K
(319.37) POINT 11 TOTAL SUB L
(179.7) SUBAREA M
(308.5) ROUTING L
(325.67) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
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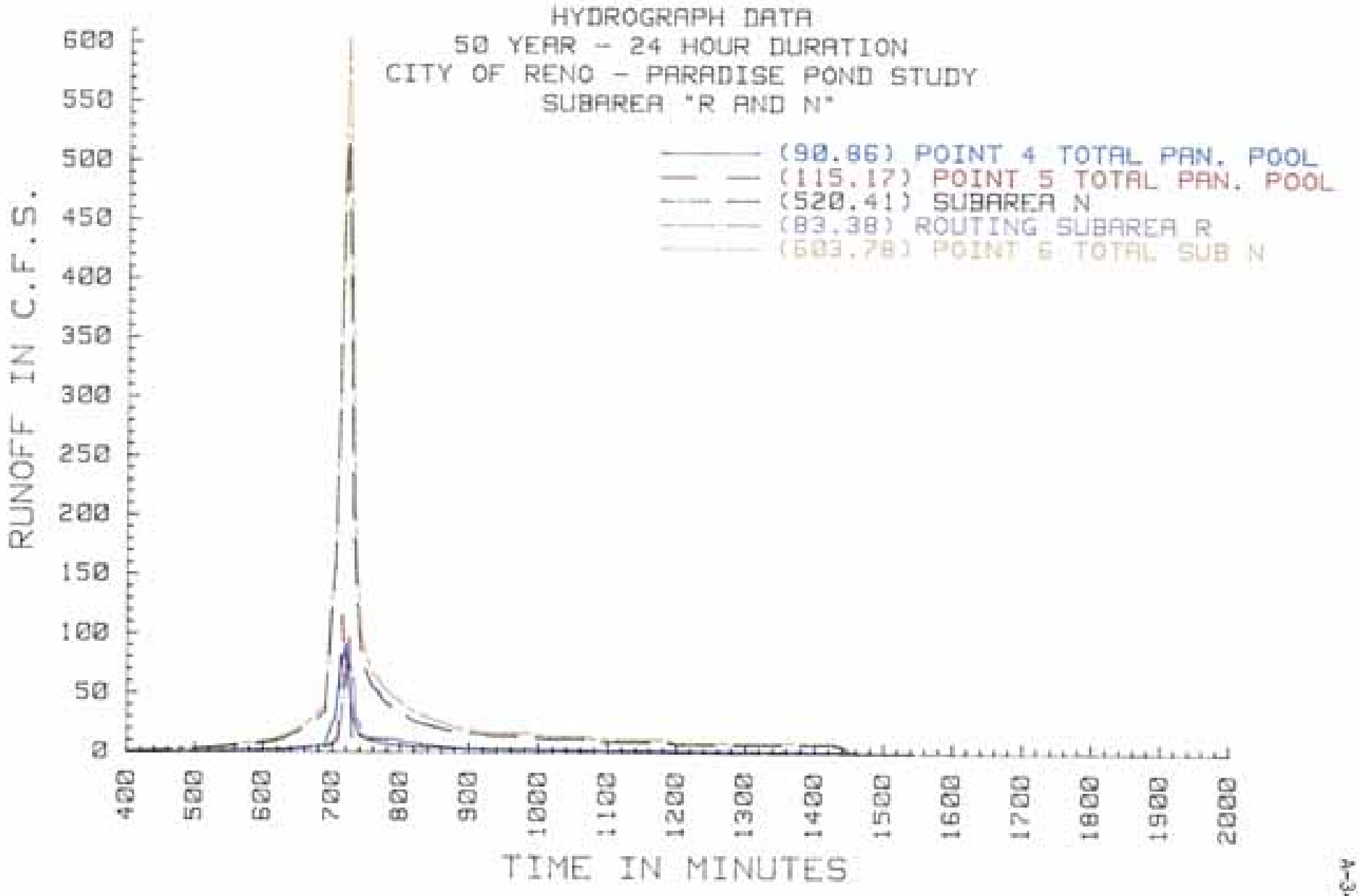
2000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "R AND N"
(90.86) POINT 4 TOTAL PAN. POOL
(115.17) POINT 5 TOTAL PAN. POOL
(520.41) SUBAREA N
(83.38) ROUTING SUBAREA R
(603.78) POINT 6 TOTAL SUB N
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
400
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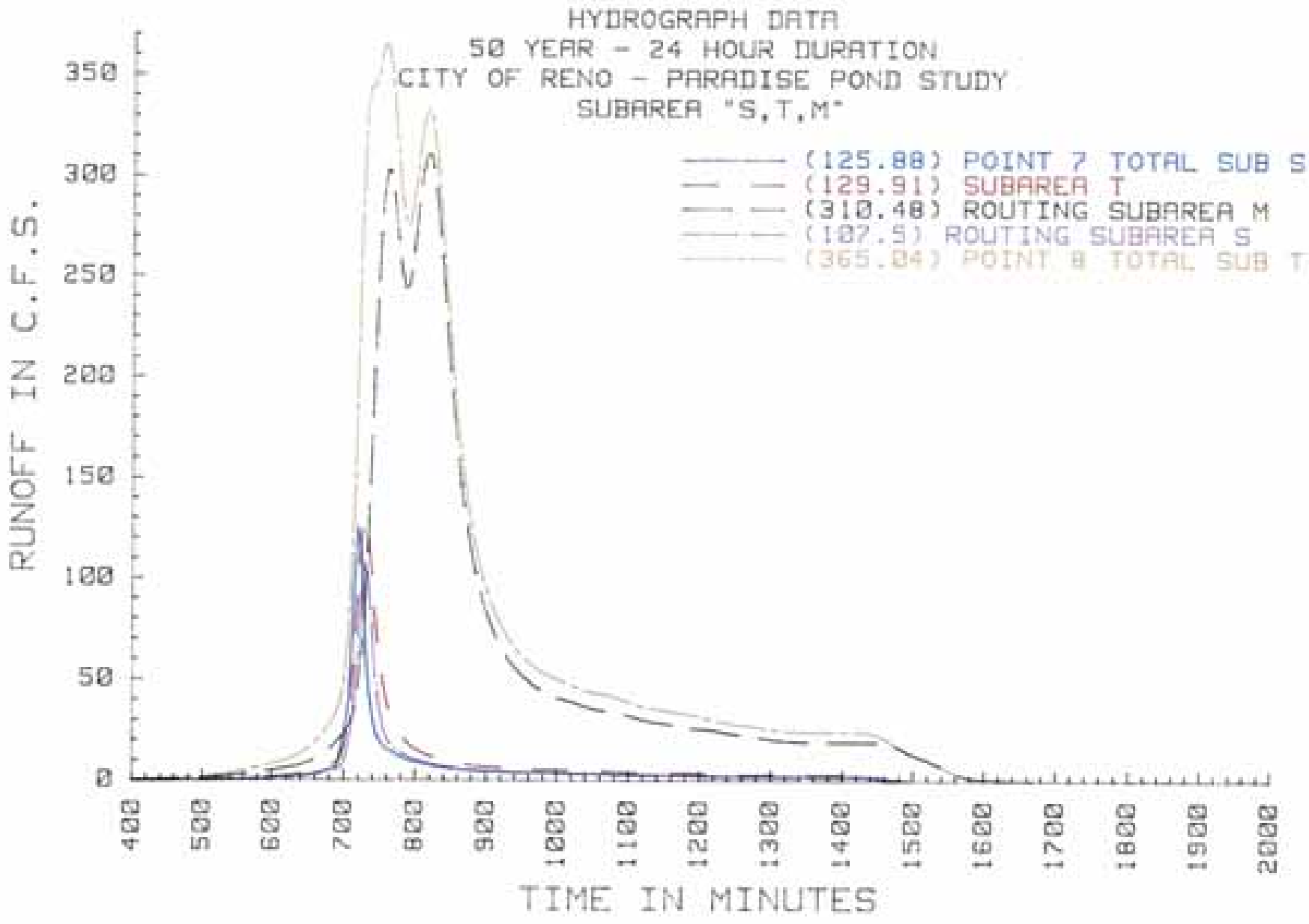
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(125.88) POINT 7 TOTAL SUB S
(129.91) SUBAREA T
(310.48) ROUTING SUBAREA M
(107.5) ROUTING SUBAREA S
(365.04) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
0
50
100
150
200
250
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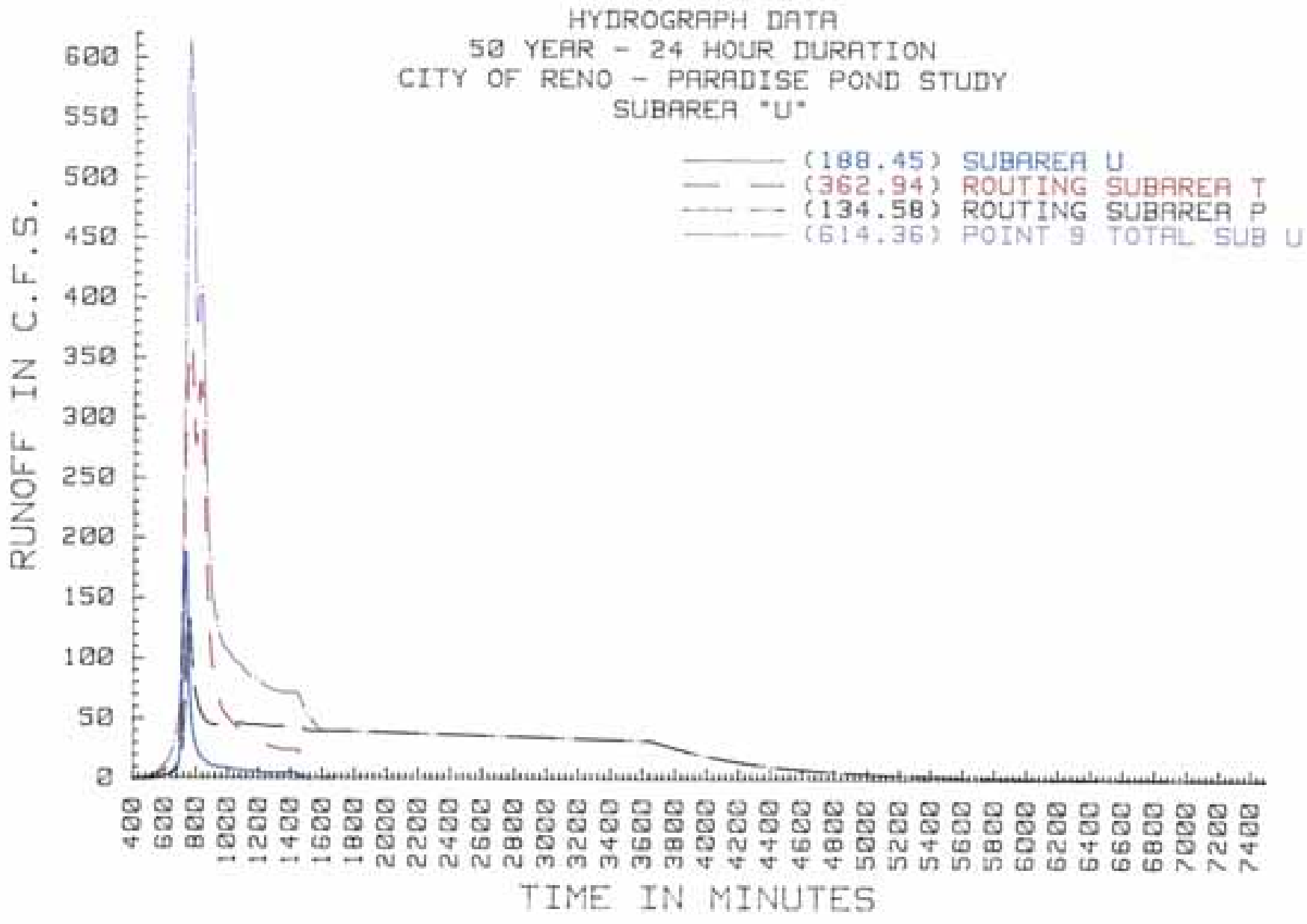
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(188.45) SUBAREA U
(362.94) ROUTING SUBAREA T
(134.58) ROUTING SUBAREA P
(614.36) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
TIME IN MINUTES
400
600
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1000
1200
1400
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4200
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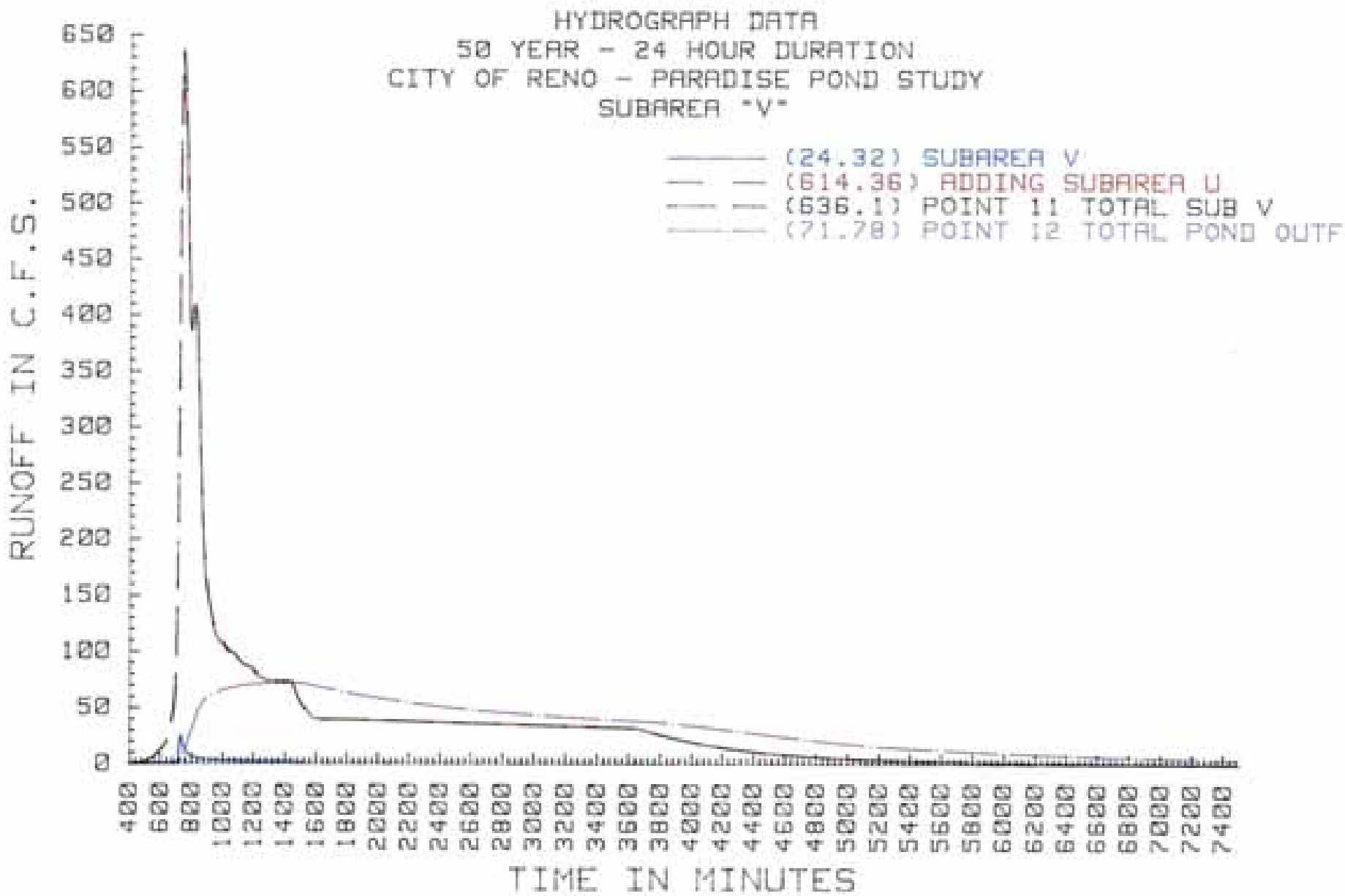
HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(24.32) SUBAREA V
(614.36) ADDING SUBAREA U
(636.1) POINT 11 TOTAL SUB V
(71.78) POINT 12 TOTAL POND OUTF
RUNOFF IN C.F.S.
650
600
550
500
450
400
350
300
250
200
150
100
50
0
400
600
800
1000
1200
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1600
1800
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2600
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4400
4600
4800
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6800
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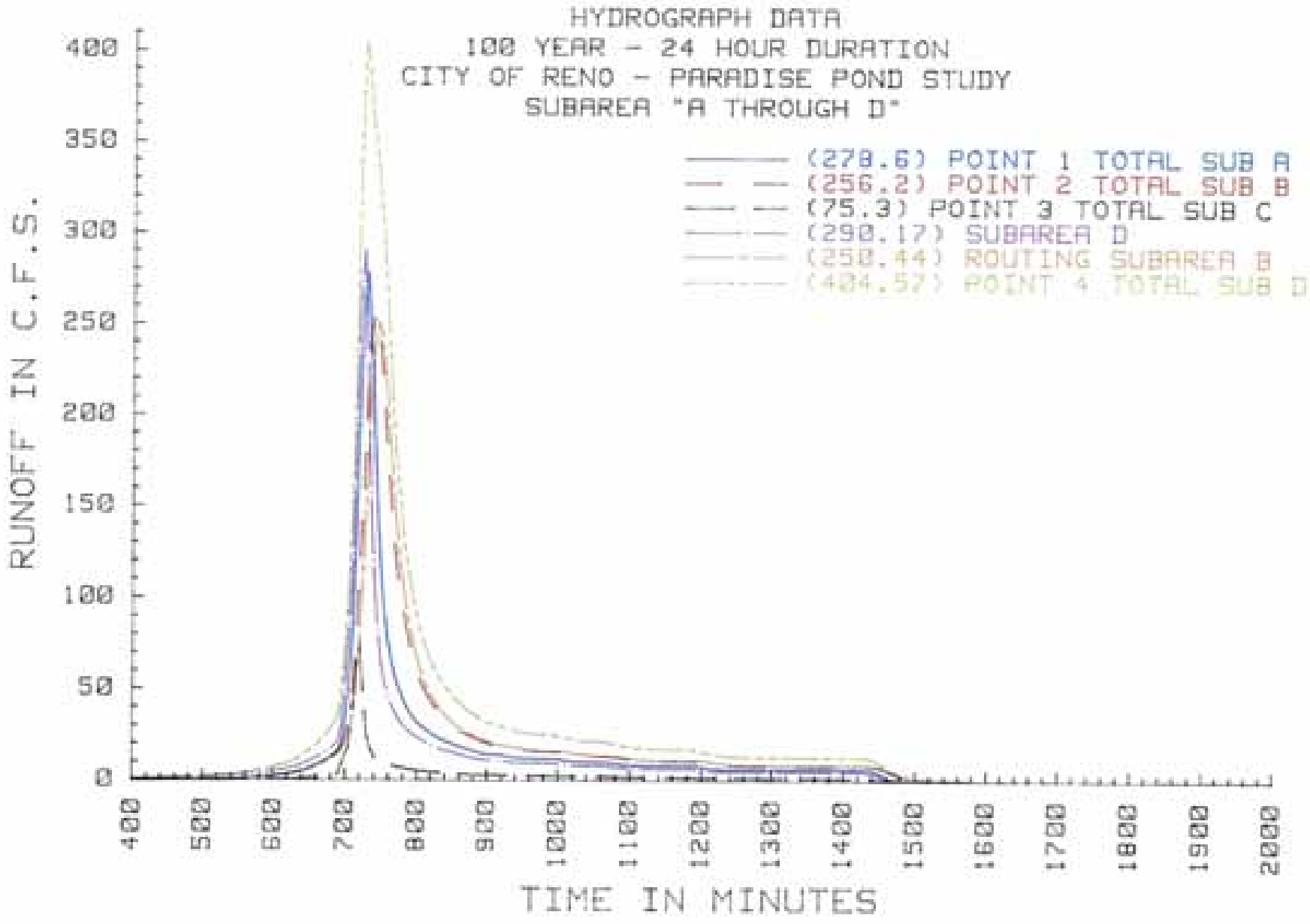
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "A THROUGH D"
(278.6) POINT 1 TOTAL SUB A
(256.2) POINT 2 TOTAL SUB B
(75.3) POINT 3 TOTAL SUB C
(290.17) SUBAREA D
(250.44) ROUTING SUBAREA B
(404.57) POINT 4 TOTAL SUB D
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
400
500
600
700
800
900
1000
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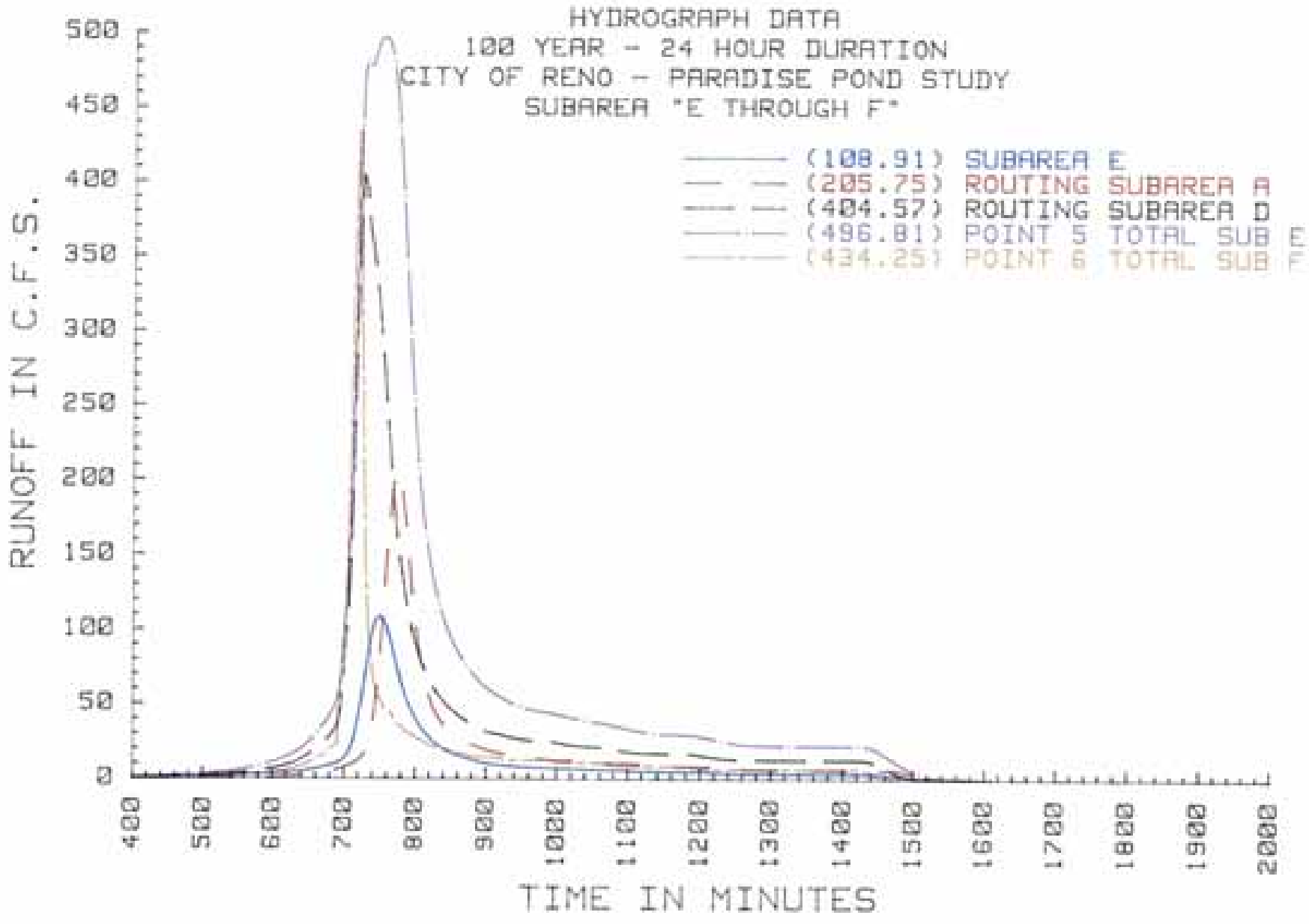
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "E THROUGH F"
(108.91) SUBAREA E
(205.75) ROUTING SUBAREA A
(404.57) ROUTING SUBAREA D
(496.81) POINT 5 TOTAL SUB E
(434.25) POINT 6 TOTAL SUB F
RUNOFF IN C.F.S.
0
50
100
150
200
250
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350
400
450
500
TIME IN MINUTES
400
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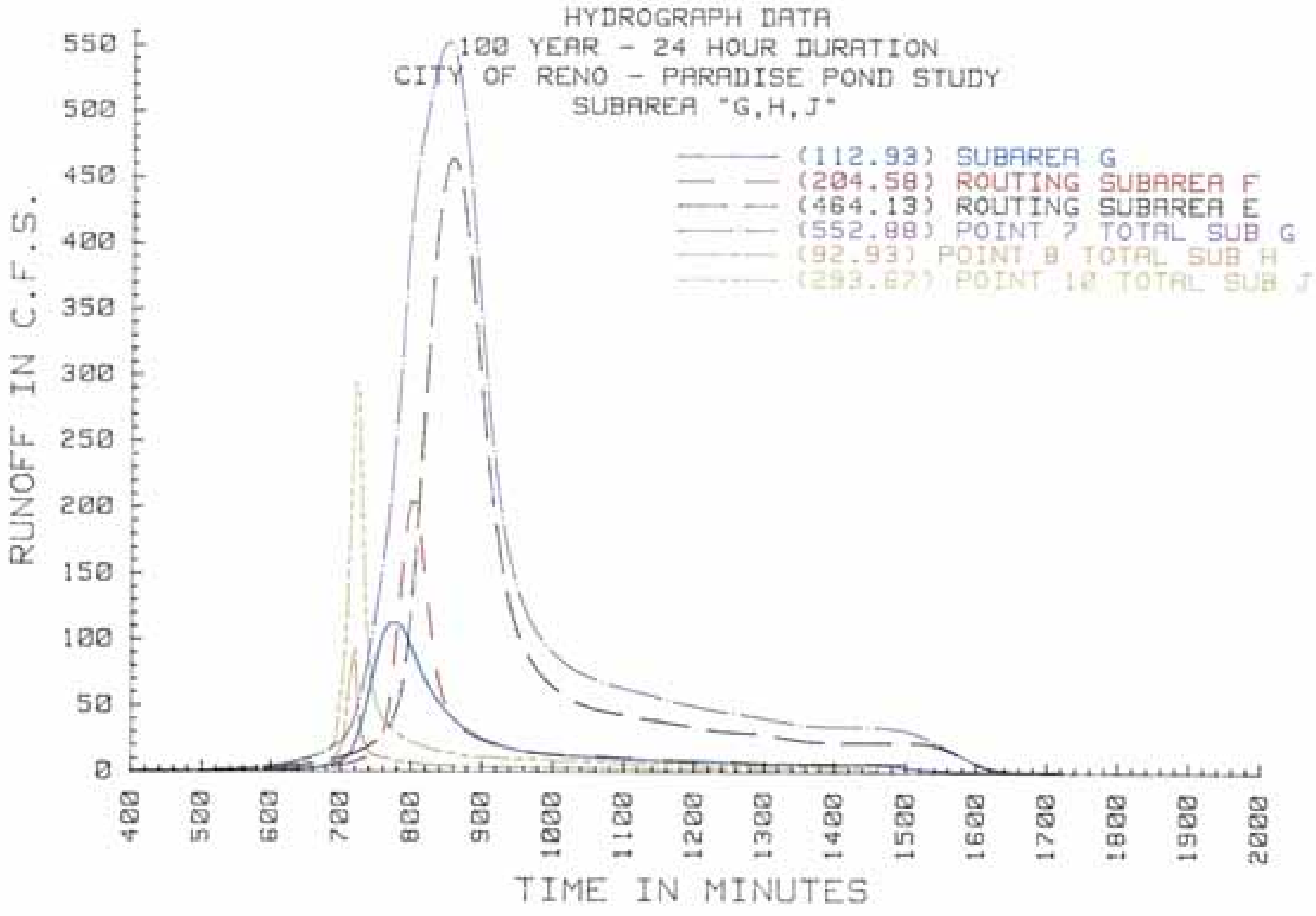
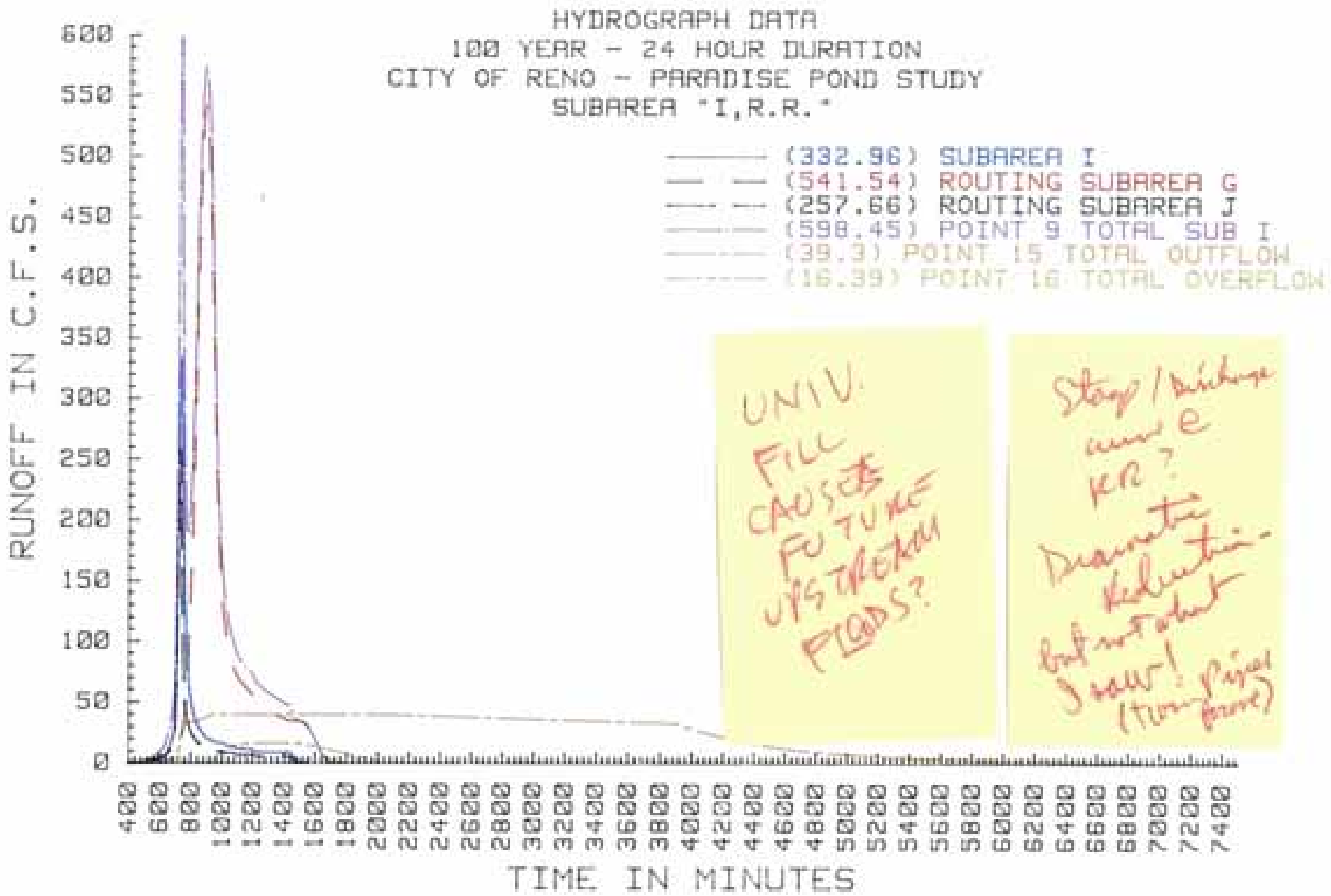

HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "G,H,J"
(112.93) SUBAREA G
(204.58) ROUTING SUBAREA F
(464.13) ROUTING SUBAREA E
(552.88) POINT 7 TOTAL SUB G
(92.93) POINT 8 TOTAL SUB H
(293.62) POINT 10 TOTAL SUB J
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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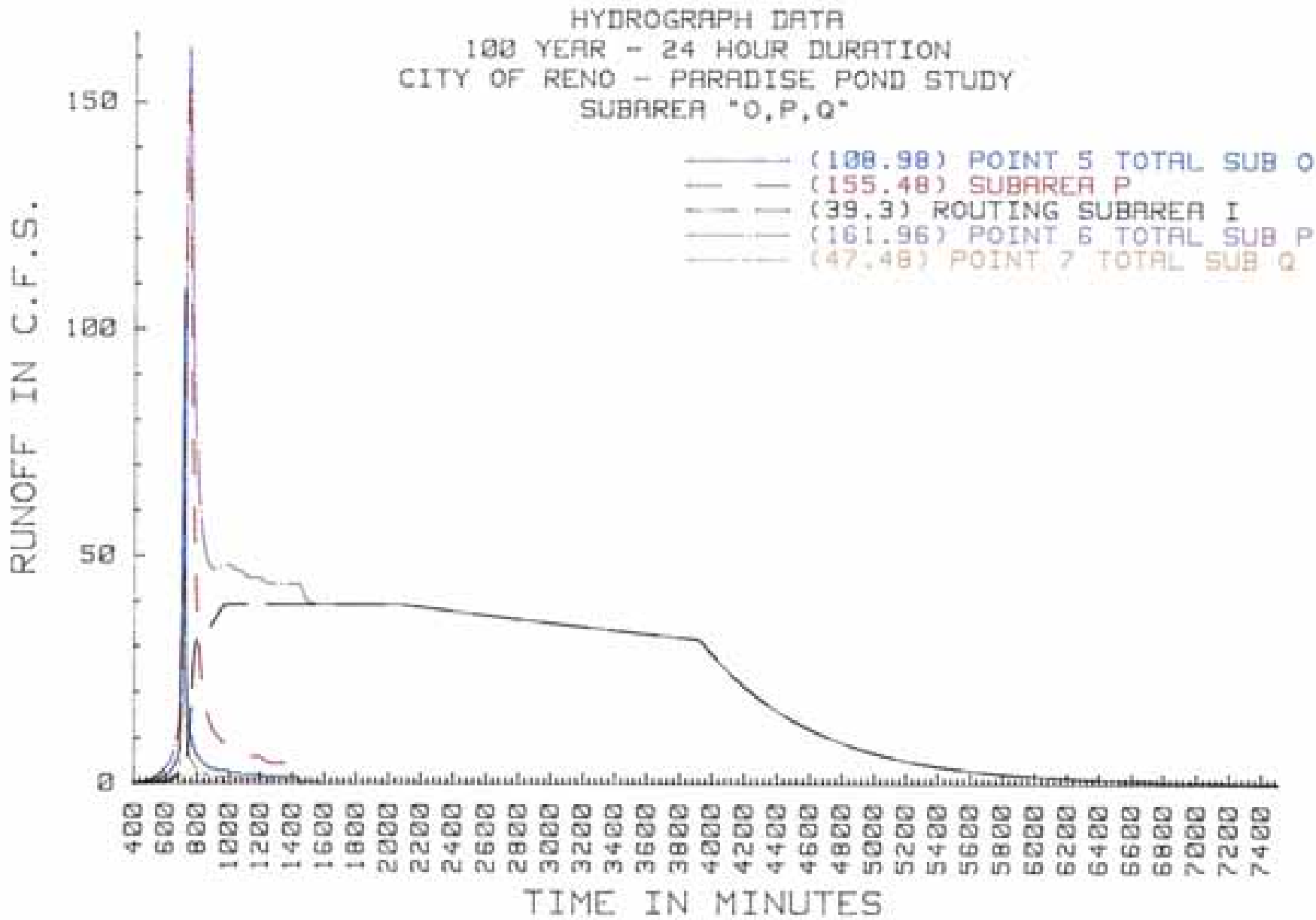
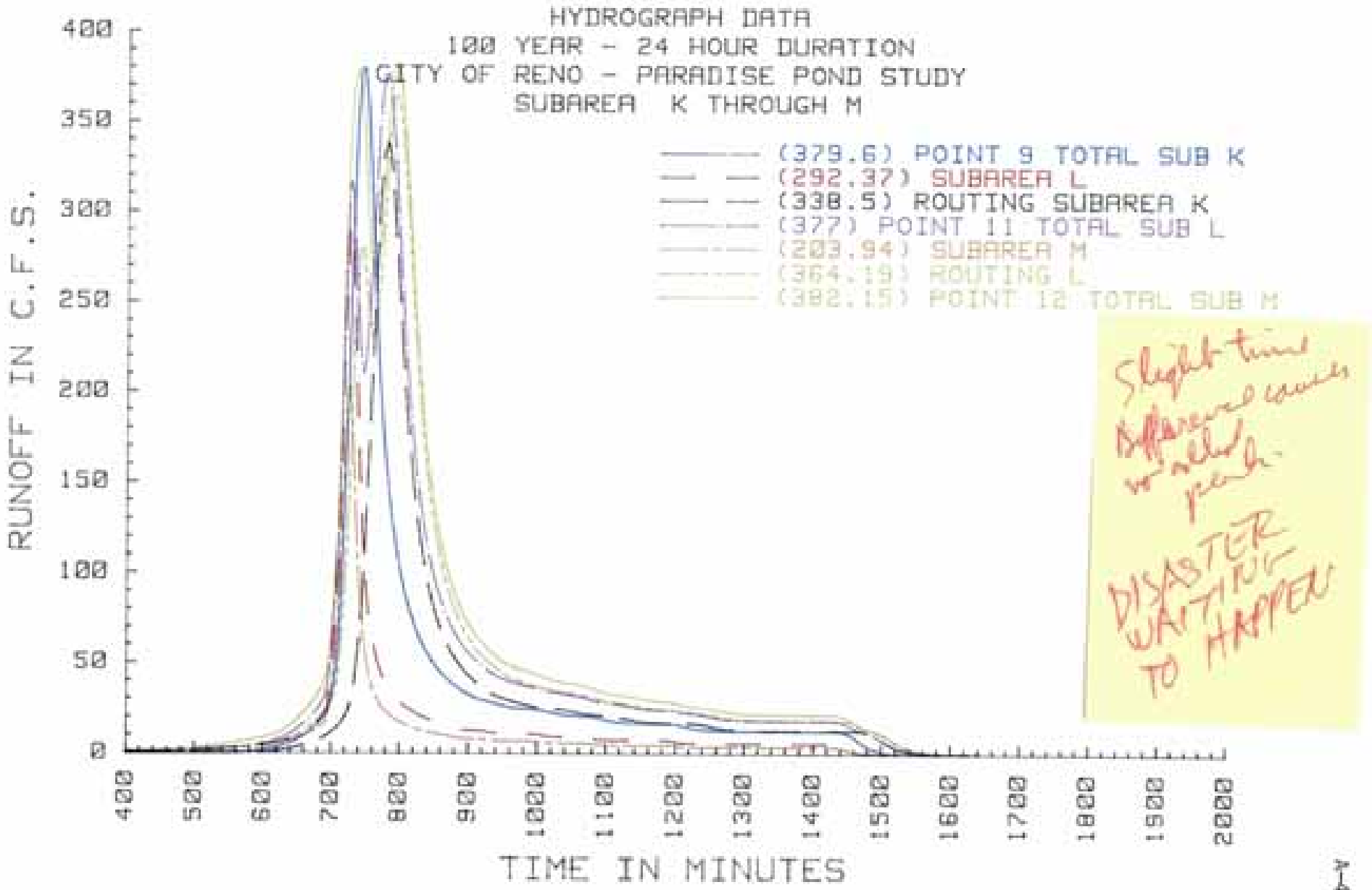
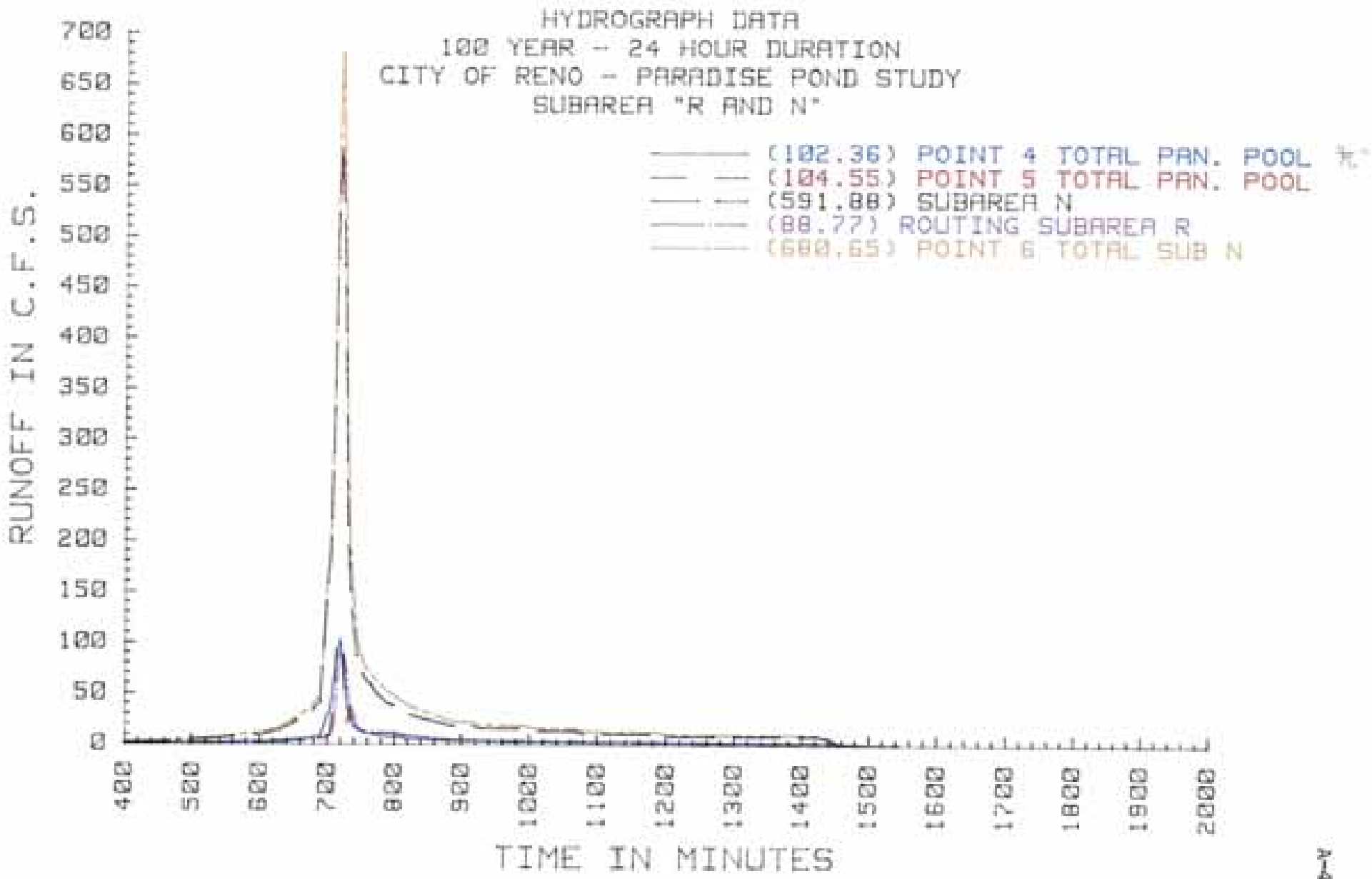
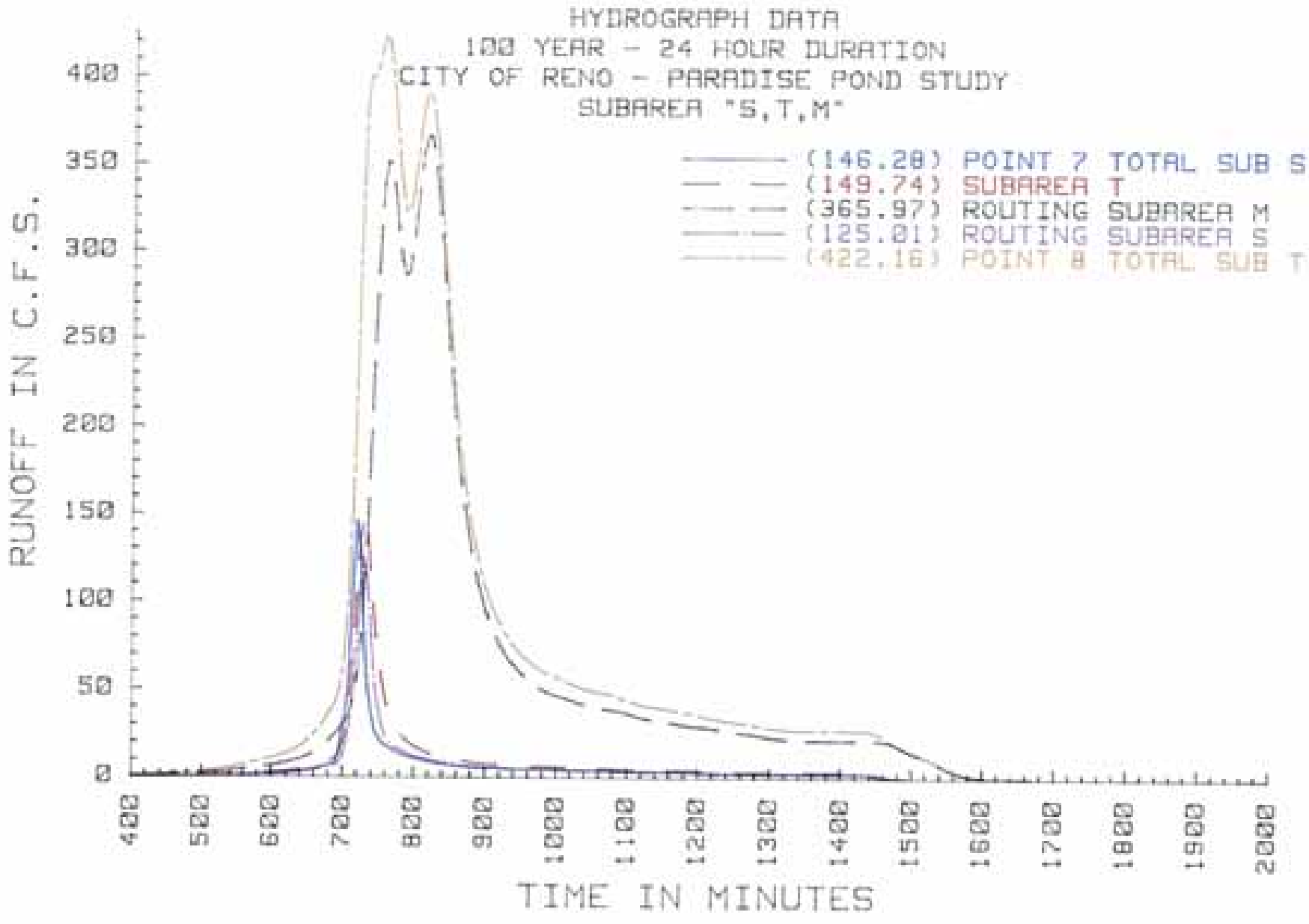
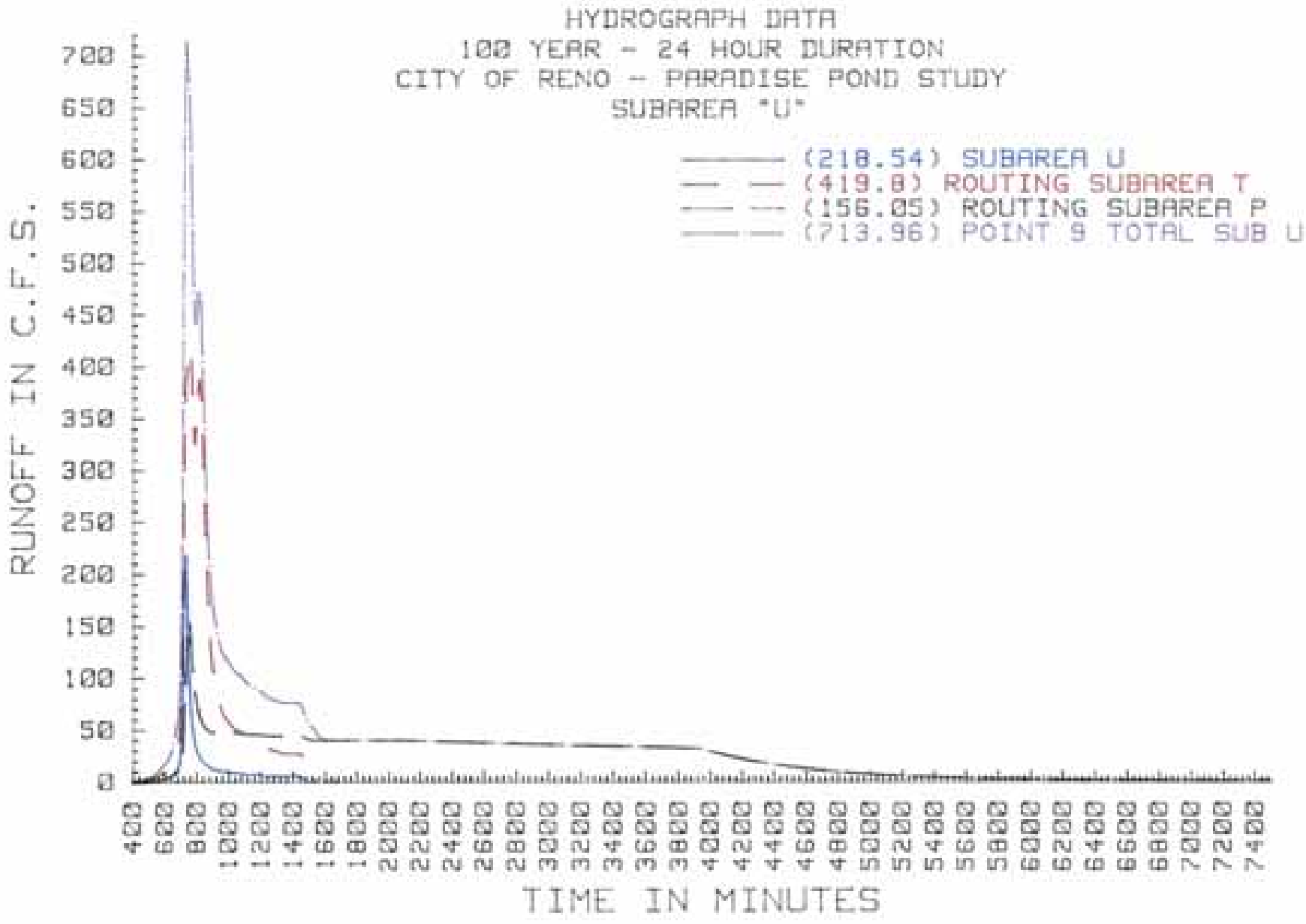
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,R.R."
(332.96) SUBAREA I
(541.54) ROUTING SUBAREA G
(257.66) ROUTING SUBAREA J
(598.45) POINT 9 TOTAL SUB I
(39.3) POINT 15 TOTAL OUTFLOW
(16.39) POINT 16 TOTAL OVERFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES
UNIV. FILL CAUSES FUTURE UPSTREAM FLOODS?
Stop/discharge curve KR? Diameter Reduction - but not what J says! (time of peak prove)


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(108.98) POINT 5 TOTAL SUB O
(155.48) SUBAREA P
(39.3) ROUTING SUBAREA I
(161.96) POINT 6 TOTAL SUB P
(47.48) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(379.6) POINT 9 TOTAL SUB K
(292.37) SUBAREA L
(338.5) ROUTING SUBAREA K
(377) POINT 11 TOTAL SUB L
(203.94) SUBAREA M
(364.19) ROUTING L
(382.15) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
Slight time difference causes wide peak
DISASTER WAITING TO HAPPEN


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "R AND N"
(102.36) POINT 4 TOTAL PAN. POOL
(104.55) POINT 5 TOTAL PAN. POOL
(591.88) SUBAREA N
(88.77) ROUTING SUBAREA R
(680.65) POINT 6 TOTAL SUB N
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(146.28) POINT 7 TOTAL SUB S
(149.74) SUBAREA T
(365.97) ROUTING SUBAREA M
(125.01) ROUTING SUBAREA S
(422.16) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(218.54) SUBAREA U
(419.8) ROUTING SUBAREA T
(156.05) ROUTING SUBAREA P
(713.96) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
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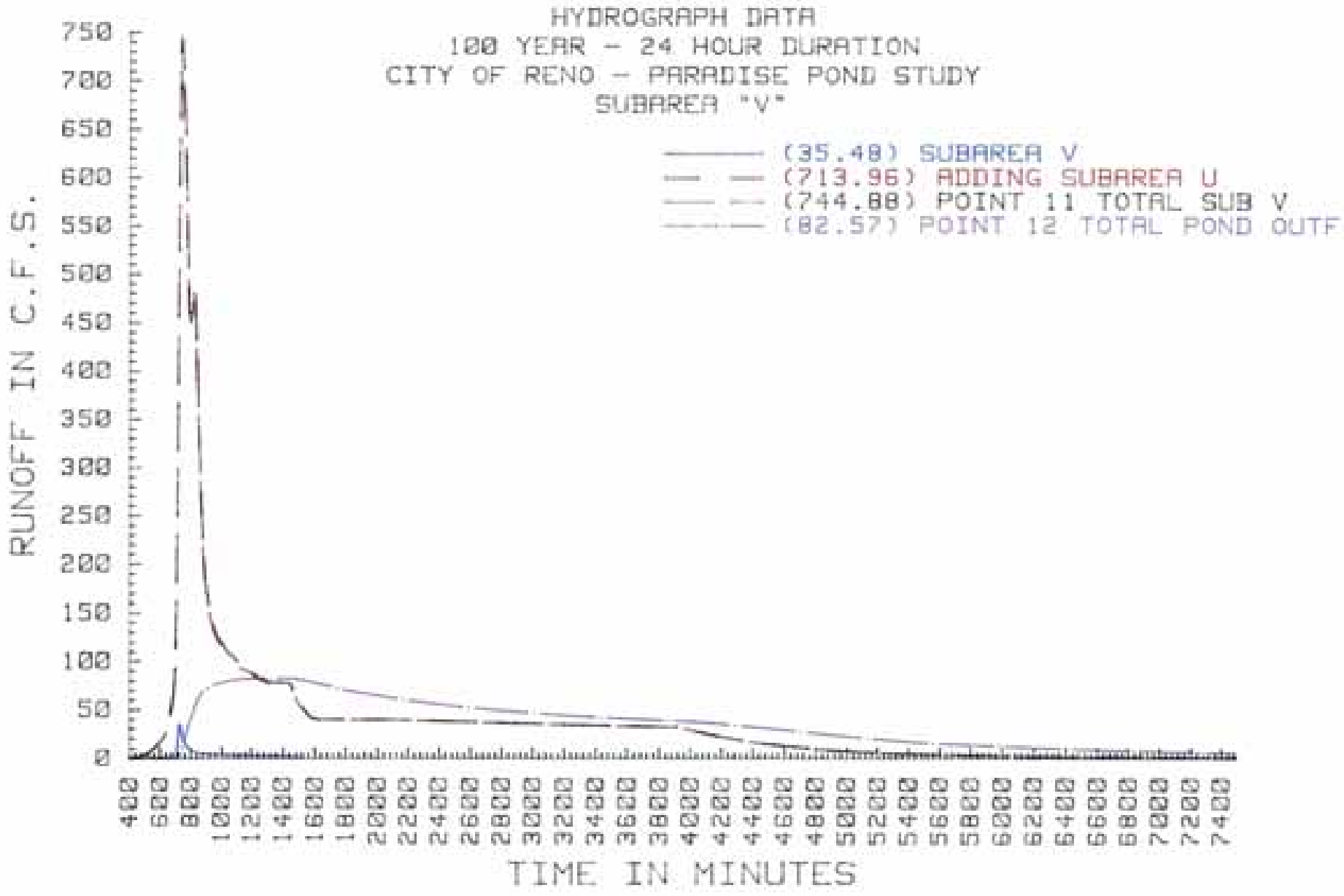

HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(35.48) SUBAREA V
(713.96) ADDING SUBAREA U
(744.88) POINT 11 TOTAL SUB V
(82.57) POINT 12 TOTAL POND OUTF
RUNOFF IN C.F.S.
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

APPENDIX B

**TABLE B-1**

CONDITION NO. 2 WITH 3-HOUR DURATION STORM

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| A | 2.75 cfs @ 110 min. | 11.20 cfs @ 80 min. | 19.68 cfs @ 60 min. | 33.80 cfs @ 60 min. |
| B | 3.30 cfs @ 130 min. | 13.47 cfs @ 105 min. | 22.97 cfs @ 90 min. | 38.01 cfs @ 75 min. |
| C | 0.23 cfs @ 155 min. | 1.48 cfs @ 75 min. | 2.76 cfs @ 55 min. | 5.15 cfs @ 50 min. |
| D | 7.82 cfs @ 105 min. | 26.45 cfs @ 80 min. | 43.31 cfs @ 80 min. | 68.04 cfs @ 75 min. |
| E | 14.37 cfs @ 130 min. | 47.14 cfs @ 105 min. | 75.56 cfs @ 100 min. | 116.72 cfs @ 95 min. |
| F | 3.80 cfs @ 95 min. | 14.40 cfs @ 50 min. | 24.88 cfs @ 45 min. | 44.08 cfs @ 35 min. |
| G | 18.44 cfs @ 215 min. | 60.21 cfs @ 200 min. | 95.82 cfs @ 195 min. | 147.56 cfs @ 190 min. |
| H | 0.38 cfs @ 125 min. | 2.03 cfs @ 75 min. | 3.76 cfs @ 50 min. | 6.72 cfs @ 50 min. |
| I | 18.26 cfs @ 260 min. | 59.53 cfs @ 245 min. | 23.88 cfs @ 235 min. | 145.96 cfs @ 230 min. |
| J | 4.32 cfs @ 75 min. | 14.74 cfs @ 50 min. | 24.47 cfs @ 40 min. | 40.34 cfs @ 40 min. |
| R.R. | 4.50 cfs @ 260 min. | 14.88 cfs @ 245 min. | 23.60 cfs @ 235 min. | 31.99 cfs @ 230 min. |
| K | 4.02 cfs @ 150 min. | 18.67 cfs @ 110 min. | 32.43 cfs @ 95 min. | 54.50 cfs @ 85 min. |
| L | 7.17 cfs @ 160 min. | 27.61 cfs @ 135 min. | 46.47 cfs @ 120 min. | 75.60 cfs @ 110 min. |
| M | 11.36 cfs @ 80 min. | 33.88 cfs @ 135 min. | 55.63 cfs @ 130 min. | 88.03 cfs @ 125 min. |
| N | 16.55 cfs @ 55 min. | 45.86 cfs @ 35 min. | 71.60 cfs @ 35 min. | 106.18 cfs @ 35 min. |

**TABLE B-1 - (con't)**

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| O | 2.00 cfs @ 50 min. | 6.40 cfs @ 30 min. | 10.77 cfs @ 30 min. | 16.86 cfs @ 30 min. |
| P | 4.65 cfs @ 115 min. | 14.85 cfs @ 395 min. | 23.56 cfs @ 390 min. | 32.08 cfs @ 70 min. |
| Q | 0.91 cfs @ 55 min. | 2.85 cfs @ 35 min. | 4.64 cfs @ 35 min. | 7.19 cfs @ 30 min. |
| R | 2.88 cfs @ 35 min. | 6.41 cfs @ 30 min. | 8.37 cfs @ 30 min. | 10.95 cfs @ 30 min. |
| S | 1.67 cfs @ 95 min. | 6.12 cfs @ 55 min. | 10.32 cfs @ 45 min. | 17.40 cfs @ 35 min. |
| T | 15.88 cfs @ 105 min. | 45.28 cfs @ 90 min. | 69.93 cfs @ 85 min. | 104.60 cfs @ 85 min. |
| U | 24.61 cfs @ 110 min. | 71.13 cfs @ 95 min. | 110.03 cfs @ 90 min. | 165.73 cfs @ 85 min. |
| V | 24.61 cfs @ 110 min. | 71.13 cfs @ 95 min. | 110.03 cfs @ 90 min. | 165.73 cfs @ 85 min. |
| Pond Outflow | 0.81 cfs w/8 ac.ft. | 3.80 cfs w/25 ac.ft. | 7.06 cfs w/37 ac.ft. | 11.54 cfs w/55 ac.ft. |
| Pond Overflow | 0 cfs | 0 cfs | 0 cfs | 0 cfs |
| W | 0 cfs | 1.45 cfs @ 160 min. | 3.31 cfs @ 135 min. | 6.57 cfs @ 120 min. |
| X | 0.81 cfs @ 1640 min. | 3.80 cfs @ 1390 min. | 7.06 cfs @ 1280 min. | 11.54 cfs @ 1245 min. |
| North Truckee Ditch | 0.81 cfs @ 1640 min. | 3.80 cfs @ 1400 min. | 7.06 cfs @ 1290 min. | 11.54 cfs @ 1255 min. |

**TABLE B-2**

CONDITION NO. 2 WITH 6-HOUR DURATION STORM

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| A | 4.44 cfs @ 215 min. | 19.78 cfs @ 165 min. | 32.51 cfs @ 165 min. | 64.51 cfs @ 160 min. |
| B | 5.58 cfs @ 235 min. | 20.28 cfs @ 180 min. | 33.25 cfs @ 180 min. | 64.91 cfs @ 175 min. |
| C | 0.53 cfs @ 360 min. | 2.70 cfs @ 155 min. | 5.56 cfs @ 150 min. | 12.52 cfs @ 150 min. |
| D | 14.25 cfs @ 160 min. | 40.17 cfs @ 160 min. | 60.64 cfs @ 160 min. | 109.27 cfs @ 160 min. |
| E | 22.64 cfs @ 215 min. | 62.85 cfs @ 200 min. | 93.42 cfs @ 200 min. | 164.25 cfs @ 195 min. |
| F | 7.48 cfs @ 155 min. | 32.16 cfs @ 150 min. | 50.44 cfs @ 150 min. | 90.93 cfs @ 150 min. |
| G | 30.85 cfs @ 320 min. | 81.25 cfs @ 300 min. | 118.63 cfs @ 295 min. | 203.76 cfs @ 290 min. |
| H | 0.72 cfs @ 245 min. | 4.25 cfs @ 150 min. | 7.88 cfs @ 150 min. | 16.24 cfs @ 150 min. |
| I | 40.22 cfs @ 360 min. | 99.19 cfs @ 345 min. | 141.93 cfs @ 340 min. | 237.75 cfs @ 335 min. |
| J | 9.55 cfs @ 155 min. | 29.24 cfs @ 155 min. | 42.94 cfs @ 150 min. | 75.31 cfs @ 150 min. |
| R.R. | 10.41 cfs @ 360 min. | 25.11 cfs @ 345 min. | 31.94 cfs @ 340 min. | 34.20 cfs @ 335 min. |
| K | 7.61 cfs @ 265 min. | 26.83 cfs @ 185 min. | 45.40 cfs @ 180 min. | 91.94 cfs @ 180 min. |
| L | 12.91 cfs @ 270 min. | 38.44 cfs @ 225 min. | 60.12 cfs @ 220 min. | 112.34 cfs @ 215 min. |
| M | 20.12 cfs @ 170 min. | 50.82 cfs @ 170 min. | 72.54 cfs @ 165 min. | 126.19 cfs @ 230 min. |
| N | 36.35 cfs @ 150 min. | 82.24 cfs @ 150 min. | 111.54 cfs @ 150 min. | 174.64 cfs @ 150 min. |

TABLE B-2 - (con't)

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| O | 5.15 cfs @ 150 min. | 12.08 cfs @ 150 min. | 16.96 cfs @ 145 min. | 27.45 cfs @ 145 min. |
| P | 10.39 cfs @ 570 min. | 25.08 cfs @ 560 min. | 31.94 cfs @ 560 min. | 50.56 cfs @ 175 min. |
| Q | 2.23 cfs @ 150 min. | 5.48 cfs @ 150 min. | 7.63 cfs @ 150 min. | 12.16 cfs @ 150 min. |
| R | 5.13 cfs @ 150 min. | 8.44 cfs @ 150 min. | 10.90 cfs @ 150 min. | 31.06 cfs @ 145 min. |
| S | 3.58 cfs @ 155 min. | 12.34 cfs @ 150 min. | 19.23 cfs @ 150 min. | 34.51 cfs @ 150 min. |
| T | 25.76 cfs @ 195 min. | 63.72 cfs @ 190 min. | 90.43 cfs @ 190 min. | 149.37 cfs @ 185 min. |
| U | 39.04 cfs @ 200 min. | 98.93 cfs @ 190 min. | 141.74 cfs @ 185 min. | 237.80 cfs @ 185 min. |
| V | 39.04 cfs @ 200 min. | 98.93 cfs @ 190 min. | 141.74 cfs @ 185 min. | 238.00 cfs @ 185 min. |
| Pond Outflow | 2.28 cfs w/19 ac.ft. | 8.11 cfs w/41 ac.ft. | 12.00 cfs w/56.5 ac.ft. | 17.54 cfs w/89 ac.ft. |
| Pond Overflow | 0 cfs | 0 cfs | 0 cfs | 0 cfs |
| W | 0.62 cfs @ 370 min. | 2.48 cfs @ 285 min. | 4.22 cfs @ 245 min. | 10.25 cfs @ 195 min. |
| X | 2.28 cfs @ 1680 min. | 8.11 cfs @ 1400 min. | 12.00 cfs @ 1385 min. | 18.66 cfs @ 365 min. |
| North Truckee Ditch | 2.28 cfs @ 1690 min. | 8.11 cfs @ 1410 min. | 12.00 cfs @ 1395 min. | 18.56 cfs @ 375 min. |

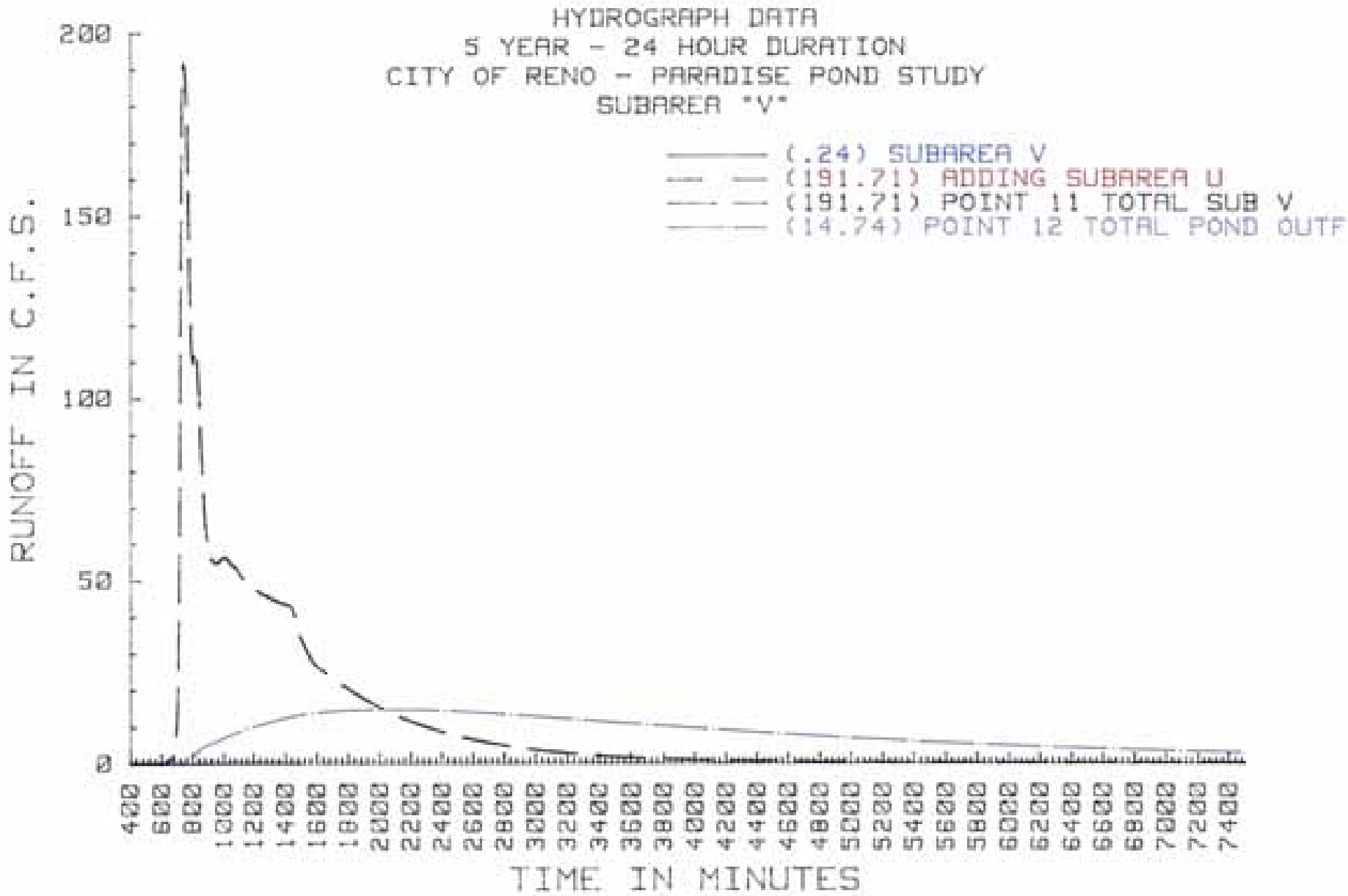
TABLE B-3

CONDITION NO. 2 WITH 24-HOUR DURATION STORM

| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| A | 61.48 cfs @ 730 min. | 158.82 cf @ 730 min. | 237.00 cfs @ 730 min. | 278.60 cfs @ 730 min. |
| B | 54.62 cfs @ 745 min. | 143.92 cfs @ 740 min. | 217.10 cfs @ 740 min. | 256.20 cfs @ 740 min. |
| C | 14.36 cfs @ 720 min. | 41.29 cfs @ 720 min. | 63.42 cfs @ 720 min. | 75.30 cfs @ 720 min. |
| D | 104.77 cfs @ 725 min. | 241.01 cfs @ 725 min. | 348.08 cfs @ 725 min. | 404.57 cfs @ 725 min. |
| E | 121.82 cfs @ 760 min. | 291.19 cfs @ 755 min. | 425.59 cfs @ 755 min. | 496.81 cfs @ 755 min. |
| F | 110.52 cfs @ 720 min. | 258.26 cfs @ 720 min. | 373.59 cfs @ 720 min. | 434.25 cfs @ 720 min. |
| G | 139.30 cfs @ 850 min. | 326.44 cfs @ 850 min. | 474.56 cfs @ 850 min. | 552.88 cfs @ 850 min. |
| H | 19.74 cfs @ 720 min. | 52.44 cfs @ 720 min. | 78.85 cfs @ 720 min. | 92.93 cfs @ 720 min. |
| I | 151.41 cfs @ 735 min. | 351.63 cfs @ 735 min. | 512.01 cfs @ 735 min. | 598.45 cfs @ 730 min. |
| J | 80.99 cfs @ 725 min. | 176.79 cfs @ 720 min. | 253.47 cfs @ 720 min. | 293.67 cfs @ 720 min. |
| R.R. | 31.73 cfs @ 735 min. | 36.35 cfs @ 735 min. | 45.02 cfs @ 735 min. | 55.69 cfs @ 730 min. |
| K | 75.30 cfs @ 745 min. | 209.81 cfs @ 745 min. | 320.32 cfs @ 745 min. | 379.60 cfs @ 745 min. |
| L | 82.34 cfs @ 730 min. | 211.65 cfs @ 780 min. | 319.37 cfs @ 780 min. | 377.00 cfs @ 780 min. |
| M | 106.17 cfs @ 735 min. | 228.51 cfs @ 735 min. | 326.67 cfs @ 735 min. | 382.15 cfs @ 795 min. |
| N | 201.78 cfs @ 720 min. | 425.35 cfs @ 720 min. | 603.78 cfs @ 720 min. | 680.65 cfs @ 720 min. |

**TABLE B-3 - (con't)**

| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| O | 35.20 cfs @ 720 min. | 70.00 cfs @ 720 min. | 95.73 cfs @ 720 min. | 108.98 cfs @ 720 min. |
| P | 43.86 cfs @ 745 min. | 97.13 cfs @ 740 min. | 139.50 cfs @ 740 min. | 161.96 cfs @ 740 min. |
| Q | 14.88 cfs @ 720 min. | 30.18 cfs @ 720 min. | 41.59 cfs @ 720 min. | 47.48 cfs @ 720 min. |
| R | 37.09 cfs @ 720 min. | 68.34 cfs @ 720 min. | 90.86 cfs @ 720 min. | 102.36 cfs @ 720 min. |
| S | 37.35 cfs @ 720 min. | 87.07 cfs @ 720 min. | 125.88 cfs @ 720 min. | 146.28 cfs @ 720 min. |
| T | 120.10 cfs @ 755 min. | 256.49 cfs @ 755 min. | 365.04 cfs @ 755 min. | 422.16 cfs @ 755 min. |
| U | 191.71 cfs @ 745 min. | 426.02 cfs @ 740 min. | 614.36 cfs @ 740 min. | 713.96 cfs @ 740 min. |
| V | 191.71 cfs @ 745 min. | 433.38 cfs @ 740 min. | 636.10 cfs @ 740 min. | 744.88 cfs @ 740 min. |
| Pond Outflow | 14.74 cfs w/67.5ac.ft. | 23.59 cfs w/141.0ac.ft. | 48.06 cfs w/154.2ac.ft. | 69.84 cfs w/161.4ac.ft. |
| Pond Overflow | 0 cfs | 2.09 cfs | 26.56 cfs | 48.34 cfs |
| W | 6.55 cfs @ 760 min. | 28.54 cfs @ 755 min. | 49.94 cfs @ 750 min. | 62.02 cfs @ 750 min. |
| X | 14.74 cfs @ 2035 min. | 35.82 cfs @ 750 min. | 63.08 cfs @ 745 min. | 78.89 cfs @ 745 min. |
| North Truckee Ditch | 14.74 cfs @ 2045 min. | 35.27 cfs @ 760 min. | 62.11 cfs @ 760 min. | 77.62 cfs @ 755 min. |


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(.24) SUBAREA V
(191.71) ADDING SUBAREA U
(191.71) POINT 11 TOTAL SUB V
(14.74) POINT 12 TOTAL POND OUTF
RUNOFF IN C.F.S.
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
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6800
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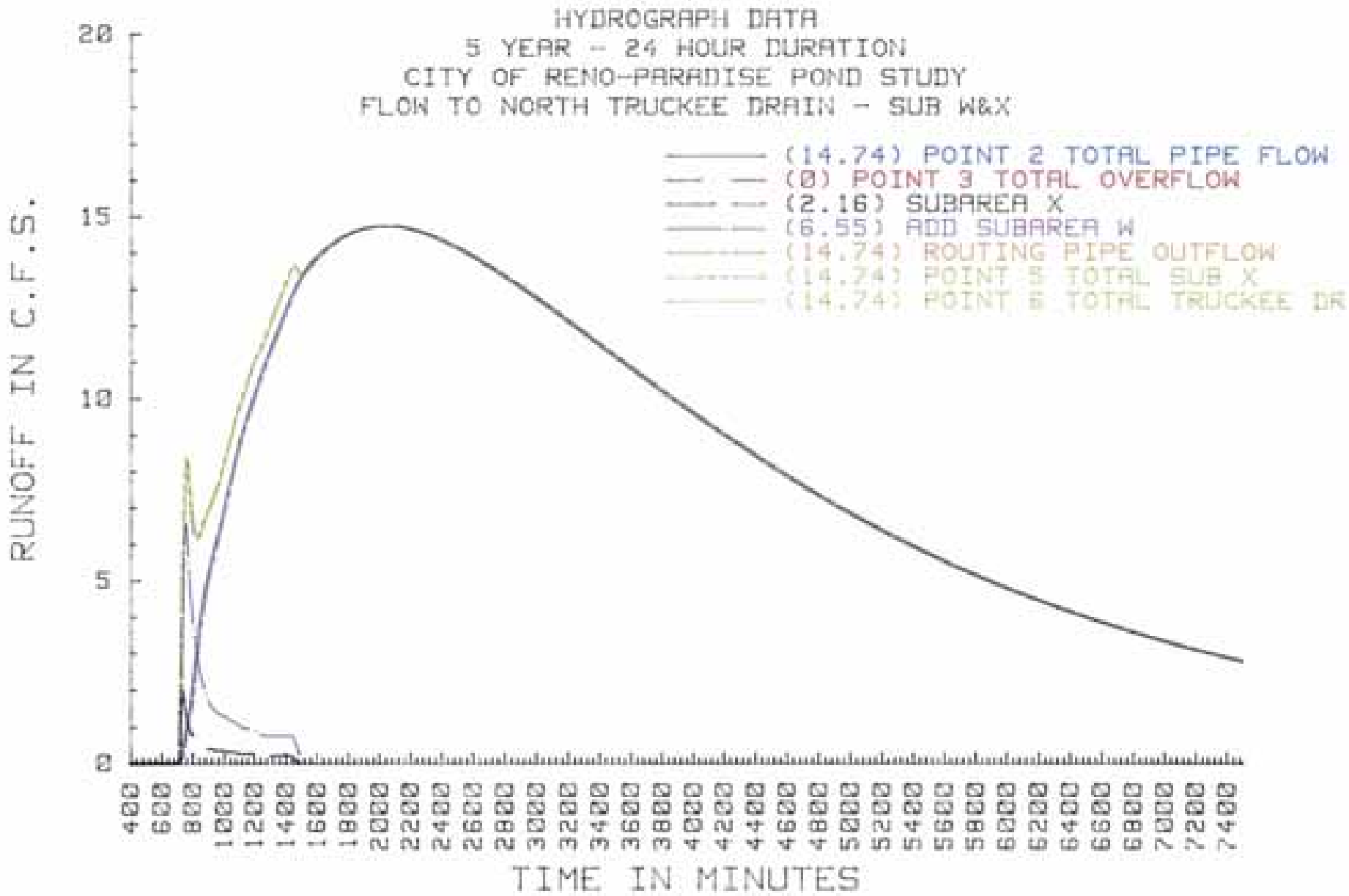
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO-PARADISE POND STUDY
FLOW TO NORTH TRUCKEE DRAIN - SUB W&X
(14.74) POINT 2 TOTAL PIPE FLOW
(0) POINT 3 TOTAL OVERFLOW
(2.16) SUBAREA X
(6.55) ADD SUBAREA W
(14.74) ROUTING PIPE OUTFLOW
(14.74) POINT 5 TOTAL SUB X
(14.74) POINT 6 TOTAL TRUCKEE DR
RUNOFF IN C.F.S.
0
5
10
15
20
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
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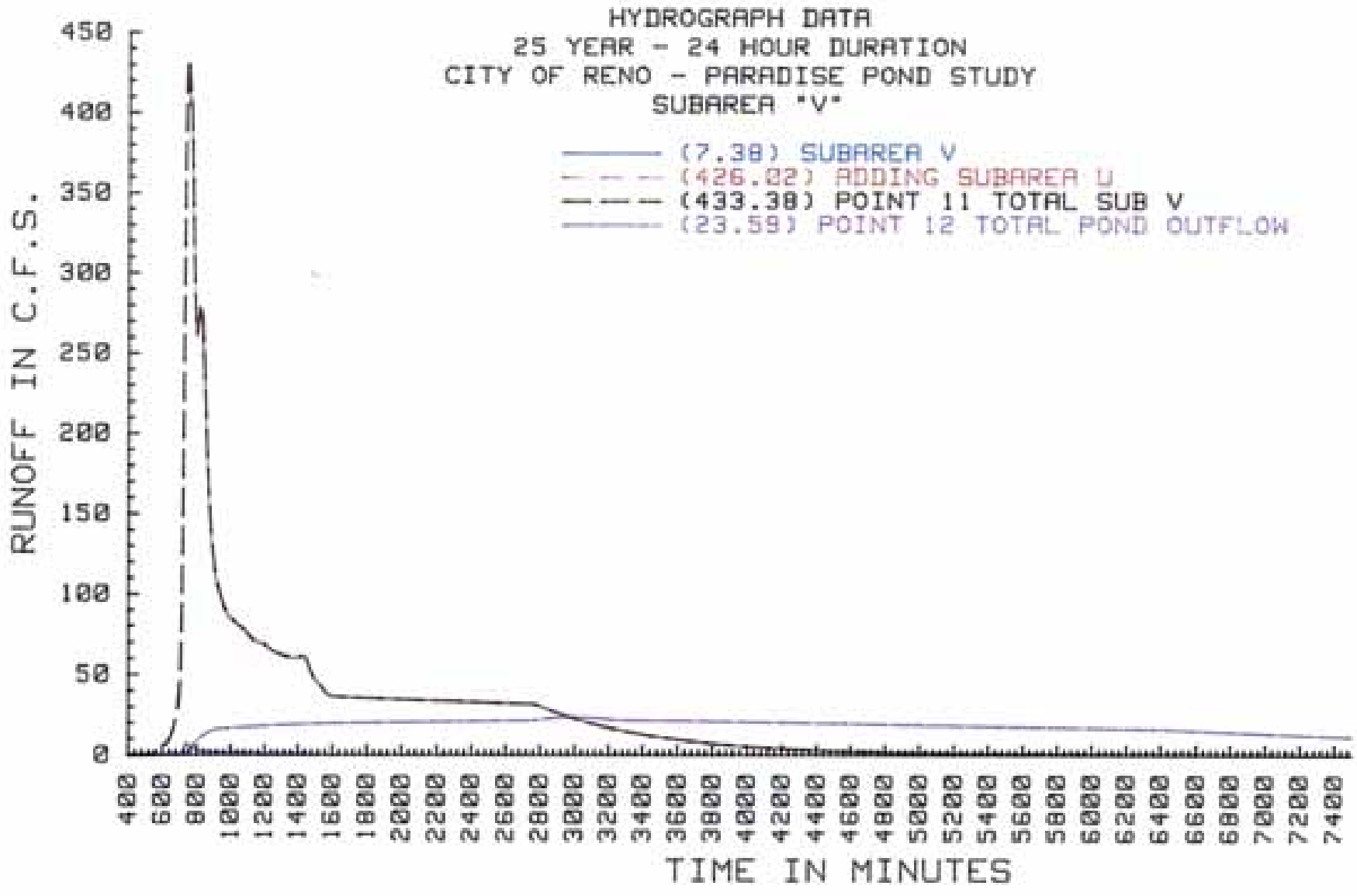
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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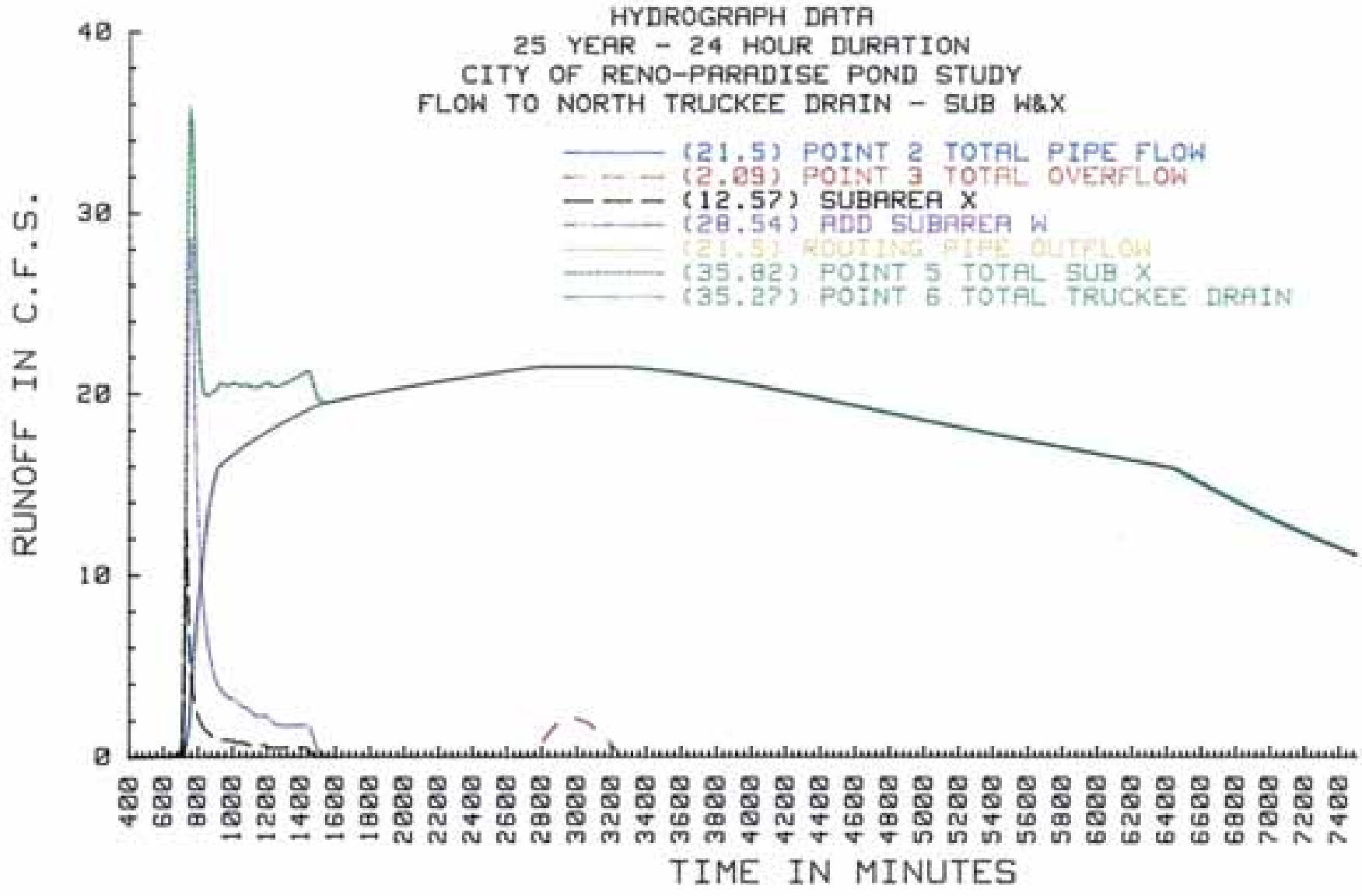
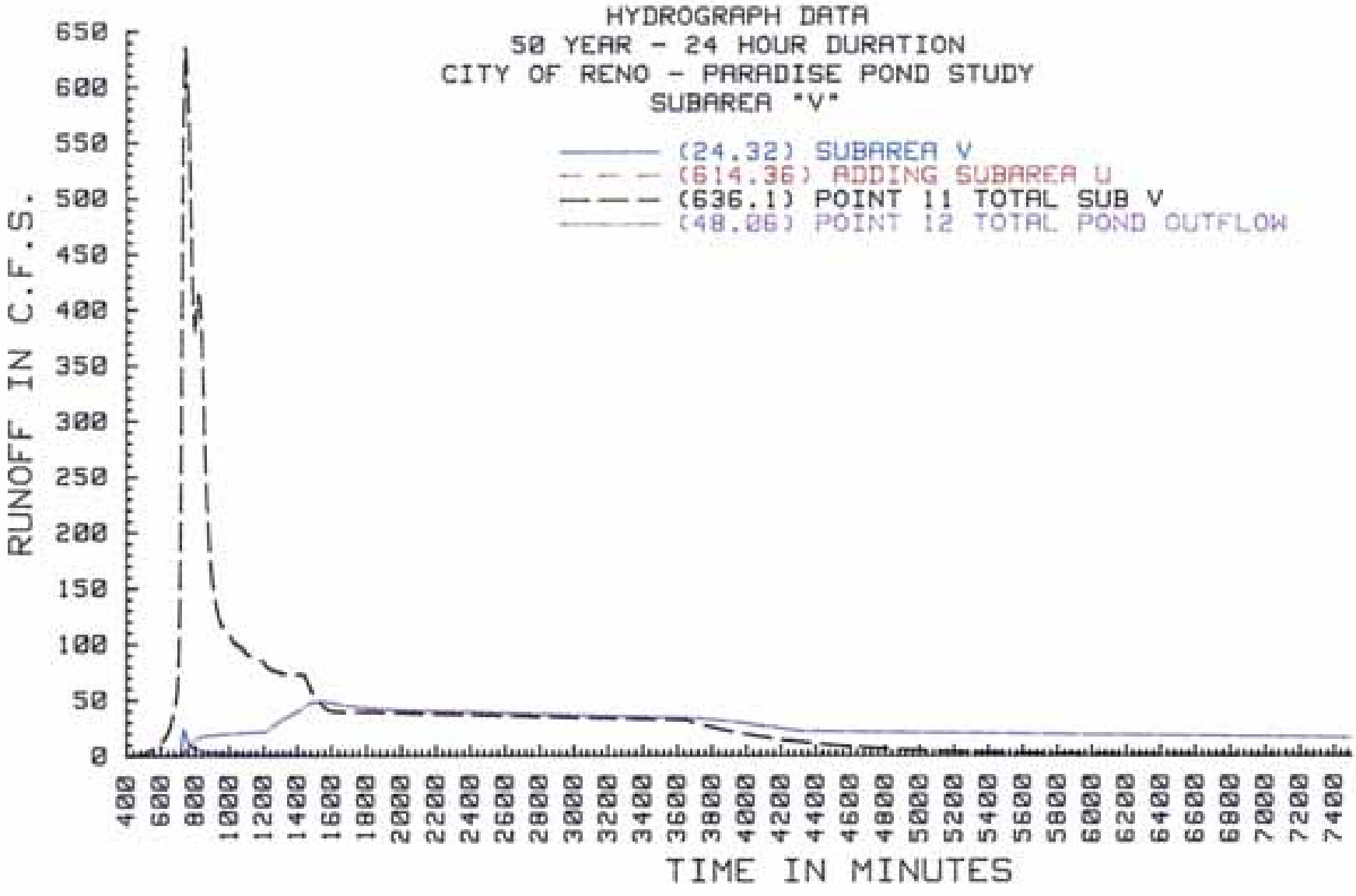
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(7.38) SUBAREA V
(426.02) ADDING SUBAREA U
(433.38) POINT 11 TOTAL SUB V
(23.59) POINT 12 TOTAL POND OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO-PARADISE POND STUDY
FLOW TO NORTH TRUCKEE DRAIN - SUB W&X
(21.5) POINT 2 TOTAL PIPE FLOW
(2.09) POINT 3 TOTAL OVERFLOW
(12.57) SUBAREA X
(28.54) ADD SUBAREA W
(21.5) ROUTING PIPE OUTFLOW
(35.82) POINT 5 TOTAL SUB X
(35.27) POINT 6 TOTAL TRUCKEE DRAIN
RUNOFF IN C.F.S.
0
10
20
30
40
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(24.32) SUBAREA V
(614.36) ADDING SUBAREA U
(636.1) POINT 11 TOTAL SUB V
(48.06) POINT 12 TOTAL POND OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
650
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
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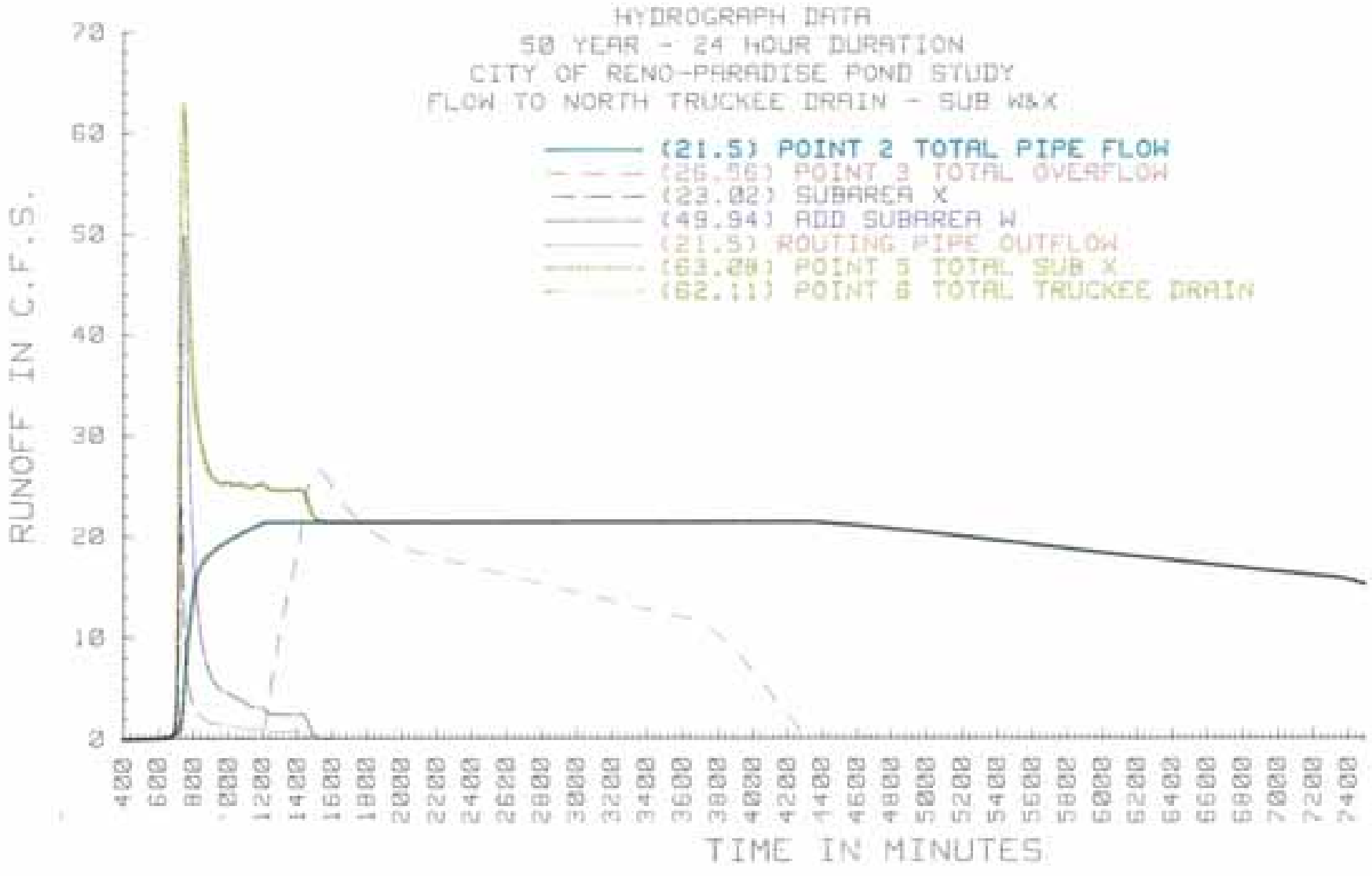
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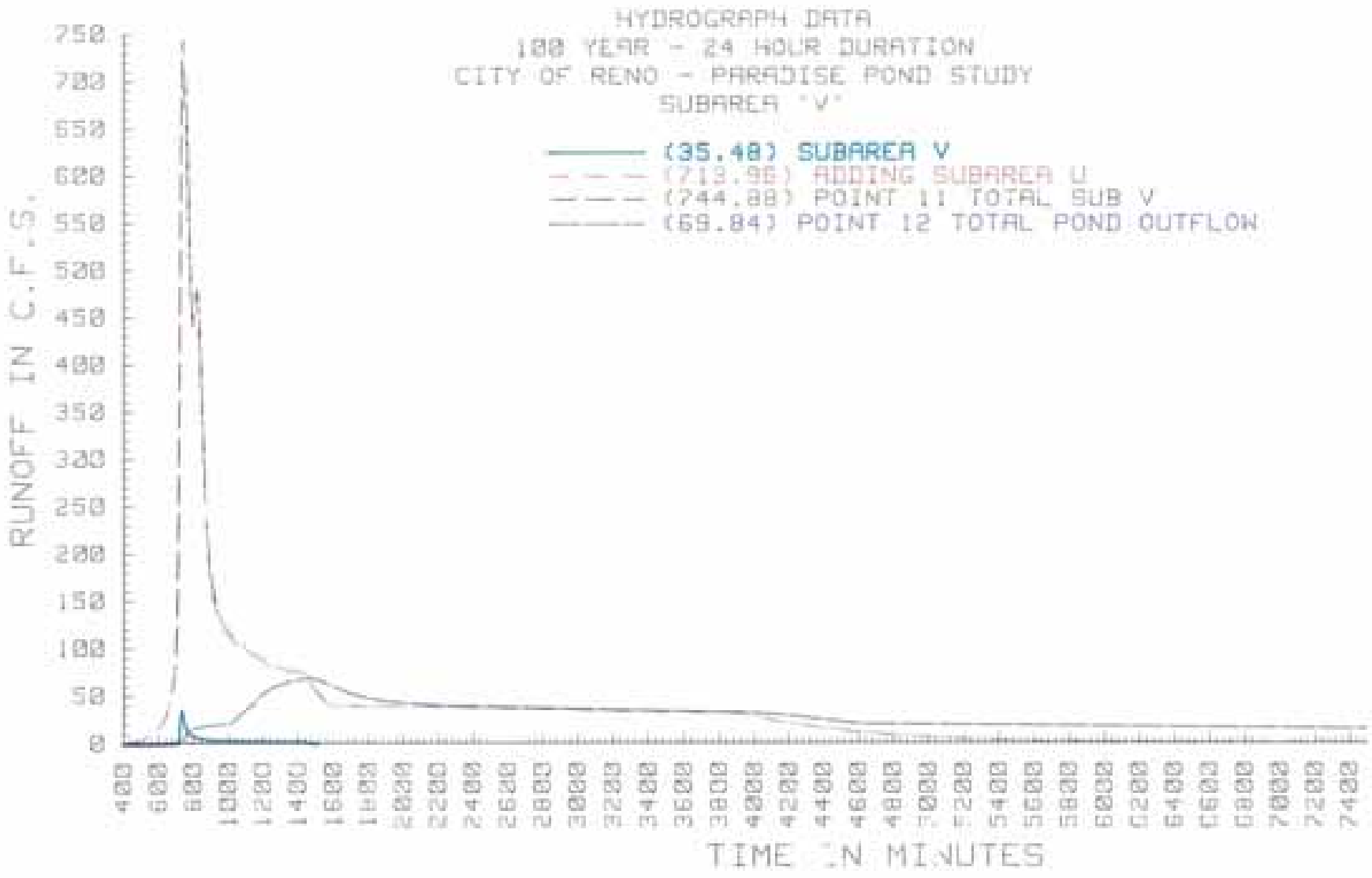
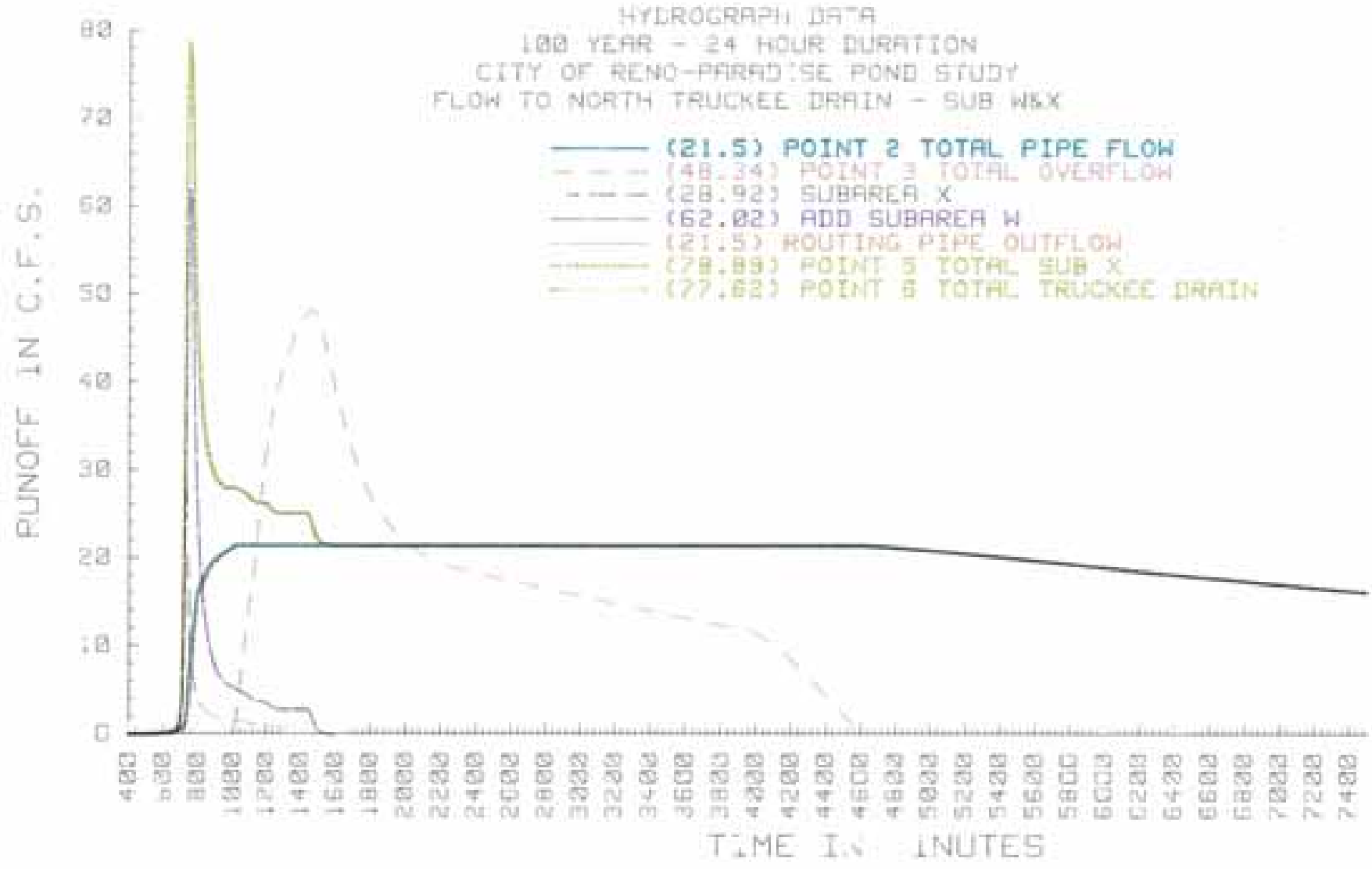
50 YEAR - 24 HOUR DURATION
CITY OF RENO-PARADISE POND STUDY
FLOW TO NORTH TRUCKEE DRAIN - SUB W&X
(21.5) POINT 2 TOTAL PIPE FLOW
(26.56) POINT 3 TOTAL OVERFLOW
(23.02) SUBAREA X
(49.94) ADD SUBAREA W
(21.5) ROUTING PIPE OUTFLOW
(63.28) POINT 5 TOTAL SUB X
(62.11) POINT 6 TOTAL TRUCKEE DRAIN
RUNOFF IN C.F.S.
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(35.48) SUBAREA V
(713.96) ADDING SUBAREA U
(744.88) POINT 11 TOTAL SUB V
(69.84) POINT 12 TOTAL POND OUTFLOW
RUNOFF IN C.F.S.
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO-PARADISE POND STUDY
FLOW TO NORTH TRUCKEE DRAIN - SUB W&X
(21.5) POINT 2 TOTAL PIPE FLOW
(48.34) POINT 3 TOTAL OVERFLOW
(28.92) SUBAREA X
(62.02) ADD SUBAREA W
(21.5) ROUTING PIPE OUTFLOW
(78.89) POINT 5 TOTAL SUB X
(77.62) POINT 6 TOTAL TRUCKEE DRAIN
RUNOFF IN C.F.S.
TIME IN MINUTES

APPENDIX C

**TABLE C-1**

CONDITION NO. 3 WITH 3-HOUR DURATION STORM

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| A | 2.75 cfs @ 110 min. | 11.20 cfs @ 80 min. | 19.68 cfs @ 60 min. | 33.80 cfs @ 60 min. |
| B | 3.30 cfs @ 130 min. | 13.47 cfs @ 105 min. | 22.97 cfs @ 90 min. | 38.01 cfs @ 75 min. |
| C | 0.23 cfs @ 155 min. | 1.48 cfs @ 75 min. | 2.76 cfs @ 55 min. | 5.15 cfs @ 50 min. |
| D | 7.82 cfs @ 105 min. | 26.45 cfs @ 80 min. | 43.31 cfs @ 80 min. | 68.04 cfs @ 75 min. |
| E | 14.37 cfs @ 130 min. | 47.14 cfs @ 105 min. | 75.56 cfs @ 100 min. | 116.72 cfs @ 95 min. |
| F | 3.80 cfs @ 95 min. | 14.40 cfs @ 50 min. | 24.88 cfs @ 45 min. | 44.08 cfs @ 35 min. |
| G | 18.44 cfs @ 215 min. | 60.21 cfs @ 200 min. | 95.82 cfs @ 195 min. | 147.56 cfs @ 190 min. |
| H | 0.38 cfs @ 125 min. | 2.03 cfs @ 75 min. | 3.76 cfs @ 50 min. | 6.72 cfs @ 50 min. |
| I | 18.26 cfs @ 260 min. | 59.53 cfs @ 245 min. | 23.88 cfs @ 235 min. | 145.96 cfs @ 230 min. |
| J | 4.32 cfs @ 75 min. | 14.74 cfs @ 50 min. | 24.47 cfs @ 40 min. | 40.34 cfs @ 40 min. |
| R.R. | 4.50 cfs @ 260 min. | 14.88 cfs @ 245 min. | 23.60 cfs @ 235 min. | 31.99 cfs @ 230 min. |
| K | 4.02 cfs @ 150 min. | 18.67 cfs @ 110 min. | 32.43 cfs @ 95 min. | 54.50 cfs @ 85 min. |
| L | 7.17 cfs @ 160 min. | 27.61 cfs @ 135 min. | 46.47 cfs @ 120 min. | 75.60 cfs @ 110 min. |
| M | 11.36 cfs @ 80 min. | 33.88 cfs @ 135 min. | 55.63 cfs @ 130 min. | 88.03 cfs @ 125 min. |
| N | 16.55 cfs @ 55 min. | 45.86 cfs @ 35 min. | 71.60 cfs @ 35 min. | 106.18 cfs @ 35 min. |

**TABLE C-1 - (con't)**

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| Split Box | 4.49 cfs @ 405 min. | 14.85 cfs @ 395 min. | 23.56 cfs @ 390 min. | 31.99 cfs @ 390 min. |
| Freeway | 4.49 cfs @ 405 min. | 14.85 cfs @ 395 min. | 23.56 cfs @ 390 min. | 31.99 cfs @ 390 min. |
| O | 2.00 cfs @ 50 min. | 6.40 cfs @ 30 min. | 10.77 cfs @ 30 min. | 16.86 cfs @ 30 min. |
| P | 4.36 cfs @ 105 min. | 12.81 cfs @ 80 min. | 20.21 cfs @ 75 min. | 31.16 cfs @ 70 min. |
| Q | 0.91 cfs @ 55 min. | 2.85 cfs @ 35 min. | 4.64 cfs @ 35 min. | 7.19 cfs @ 30 min. |
| R | 2.88 cfs @ 35 min. | 6.41 cfs @ 30 min. | 8.37 cfs @ 30 min. | 10.95 cfs @ 30 min. |
| S | 28.05 cfs @ 75 min. | 77.51 cfs @ 55 min. | 116.99 cfs @ 50 min. | 173.60 cfs @ 50 min. |
| T | 3.29 cfs @ 85 min. | 10.27 cfs @ 60 min. | 16.47 cfs @ 55 min. | 25.56 cfs @ 55 min. |
| U | 37.96 cfs @ 85 min. | 107.36 cfs @ 65 min. | 168.11 cfs @ 60 min. | 253.90 cfs @ 60 min. |
| V | 37.96 cfs @ 85 min. | 107.36 cfs @ 65 min. | 168.11 cfs @ 60 min. | 253.90 cfs @ 60 min. |
| Paradise Pond outlet; one 30-inch pipe under inlet condition: | | | | |
| | 0.71 cfs @ 85 min. w/7.1 ac.ft. | 2.68 cfs @ 65 min. w/20.4 ac.ft. | 5.47 cfs @ 60 min. w/31 ac.ft. | 9.35 cfs @ 60 min. w/45.8 ac.ft. |
| | 2.88 cfs @ 35 min. | 6.41 cfs @ 30 min. | 8.37 cfs @ 30 min. | 10.95 cfs @ 30 min. |

**TABLE C-2**

CONDITION NO. 3 WITH 6-HOUR DURATION STORM

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| A | 4.44 cfs @ 215 min. | 19.78 cfs @ 165 min. | 32.51 cfs @ 165 min. | 64.51 cfs @ 160 min. |
| B | 5.58 cfs @ 235 min. | 20.28 cfs @ 180 min. | 33.25 cfs @ 180 min. | 64.91 cfs @ 175 min. |
| C | 0.53 cfs @ 360 min. | 2.70 cfs @ 155 min. | 5.56 cfs @ 150 min. | 12.52 cfs @ 150 min. |
| D | 14.25 cfs @ 160 min. | 40.17 cfs @ 160 min. | 60.64 cfs @ 160 min. | 109.27 cfs @ 160 min. |
| E | 22.64 cfs @ 215 min. | 62.85 cfs @ 200 min. | 93.42 cfs @ 200 min. | 164.25 cfs @ 195 min. |
| F | 7.48 cfs @ 155 min. | 32.16 cfs @ 150 min. | 50.44 cfs @ 150 min. | 90.93 cfs @ 150 min. |
| G | 30.85 cfs @ 320 min. | 81.25 cfs @ 300 min. | 118.63 cfs @ 295 min. | 203.76 cfs @ 290 min. |
| H | 0.72 cfs @ 245 min. | 4.25 cfs @ 150 min. | 7.88 cfs @ 150 min. | 16.24 cfs @ 150 min. |
| I | 40.22 cfs @ 360 min. | 99.19 cfs @ 345 min. | 141.93 cfs @ 340 min. | 237.75 cfs @ 335 min. |
| J | 9.55 cfs @ 155 min. | 29.24 cfs @ 155 min. | 42.94 cfs @ 150 min. | 75.31 cfs @ 150 min. |
| R.R. | 10.41 cfs @ 360 min. | 25.11 cfs @ 345 min. | 31.94 cfs @ 340 min. | 34.20 cfs @ 335 min. |
| K | 7.61 cfs @ 265 min. | 26.83 cfs @ 185 min. | 45.40 cfs @ 180 min. | 91.94 cfs @ 180 min. |
| L | 12.91 cfs @ 270 min. | 38.44 cfs @ 225 min. | 60.12 cfs @ 220 min. | 112.34 cfs @ 215 min. |
| M | 20.12 cfs @ 170 min. | 50.82 cfs @ 170 min. | 72.54 cfs @ 165 min. | 126.19 cfs @ 230 min. |
| N | 36.35 cfs @ 150 min. | 82.24 cfs @ 150 min. | 111.54 cfs @ 150 min. | 174.64 cfs @ 150 min. |

**TABLE C-2 - (con't)**

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| Split Box | 10.39 cfs @ 570 min. | 25.08 cfs @ 560 min. | 31.94 cfs @ 560 min. | 34.20 cfs @ 580 min. |
| Freeway | 10.39 cfs @ 570 min. | 25.08 cfs @ 560 min. | 31.94 cfs @ 560 min. | 34.20 cfs @ 580 min. |
| O | 5.15 cfs @ 150 min. | 12.08 cfs @ 150 min. | 16.96 cfs @ 145 min. | 27.45 cfs @ 145 min. |
| P | 7.28 cfs @ 185 min. | 19.80 cfs @ 175 min. | 29.04 cfs @ 175 min. | 49.42 cfs @ 175 min. |
| Q | 2.23 cfs @ 150 min. | 5.48 cfs @ 150 min. | 7.63 cfs @ 150 min. | 12.16 cfs @ 150 min. |
| R | 5.13 cfs @ 150 min. | 8.44 cfs @ 150 min. | 10.90 cfs @ 150 min. | 31.06 cfs @ 145 min. |
| S | 54.18 cfs @ 155 min. | 129.91 cfs @ 150 min. | 183.30 cfs @ 150 min. | 301.32 cfs @ 150 min. |
| T | 6.30 cfs @ 165 min. | 17.52 cfs @ 165 min. | 25.68 cfs @ 160 min. | 43.91 cfs @ 160 min. |
| U | 65.57 cfs @ 170 min. | 168.55 cfs @ 160 min. | 243.33 cfs @ 160 min. | 415.65 cfs @ 160 min. |
| V | 65.57 cfs @ 170 min. | 168.55 cfs @ 160 min. | 243.33 cfs @ 160 min. | 415.65 cfs @ 160 min. |
| Paradise Pond Outlet; One 30-inch pipe under inlet condition: | | | | |
| | 1.54 cfs @ 170 min. w/15.3ac.ft. | 6.28 cfs @ 160 min. w/34.0ac.ft. | 9.60 cfs @ 160 min. w/46.8ac.ft. | 16.13 cfs @ 160 min. w/75.0ac.ft. |

**TABLE C-3**

CONDITION NO. 3 WITH 24-HOUR DURATION STORM

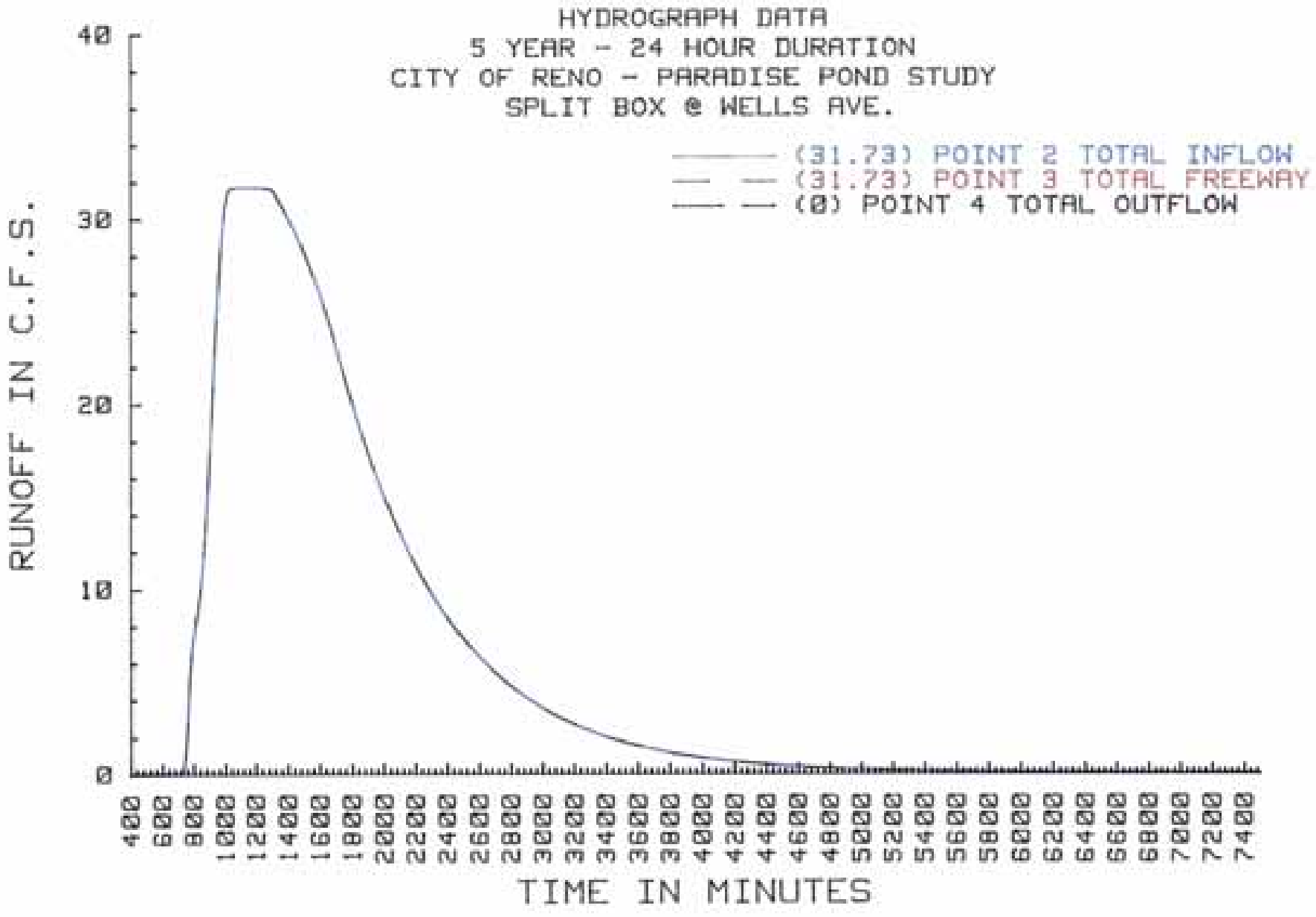
| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| A | 61.48 cfs @ 730 min. | 158.82 cf @ 730 min. | 237.00 cfs @ 730 min. | 278.60 cfs @ 730 min. |
| B | 54.62 cfs @ 745 min. | 143.92 cfs @ 740 min. | 217.10 cfs @ 740 min. | 256.20 cfs @ 740 min. |
| C | 14.36 cfs @ 720 min. | 41.29 cfs @ 720 min. | 63.42 cfs @ 720 min. | 75.30 cfs @ 720 min. |
| D | 104.77 cfs @ 725 min. | 241.01 cfs @ 725 min. | 348.08 cfs @ 725 min. | 404.57 cfs @ 725 min. |
| E | 121.82 cfs @ 760 min. | 291.19 cfs @ 755 min. | 425.59 cfs @ 755 min. | 496.81 cfs @ 755 min. |
| F | 110.52 cfs @ 720 min. | 258.26 cfs @ 720 min. | 373.59 cfs @ 720 min. | 434.25 cfs @ 720 min. |
| G | 139.30 cfs @ 850 min. | 326.44 cfs @ 850 min. | 474.56 cfs @ 850 min. | 552.88 cfs @ 850 min. |
| H | 19.74 cfs @ 720 min. | 52.44 cfs @ 720 min. | 78.85 cfs @ 720 min. | 92.93 cfs @ 720 min. |
| I | 151.41 cfs @ 735 min. | 351.63 cfs @ 735 min. | 512.01 cfs @ 735 min. | 598.45 cfs @ 730 min. |
| J | 80.99 cfs @ 725 min. | 176.79 cfs @ 720 min. | 253.47 cfs @ 720 min. | 293.67 cfs @ 720 min. |
| R.R. | 31.73 cfs @ 735 min. | 36.35 cfs @ 735 min. | 45.02 cfs @ 735 min. | 55.69 cfs @ 730 min. |
| K | 75.30 cfs @ 745 min. | 209.81 cfs @ 745 min. | 320.32 cfs @ 745 min. | 379.60 cfs @ 745 min. |
| L | 82.34 cfs @ 730 min. | 211.65 cfs @ 780 min. | 319.37 cfs @ 780 min. | 377.00 cfs @ 780 min. |
| M | 106.17 cfs @ 735 min. | 228.51 cfs @ 735 min. | 326.67 cfs @ 735 min. | 382.15 cfs @ 795 min. |
| N | 201.78 cfs @ 720 min. | 425.35 cfs @ 720 min. | 603.78 cfs @ 720 min. | 680.65 cfs @ 720 min. |

**TABLE C-3 - (con't)**

| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| Split Box | 31.73 cfs @1115 min. | 36.35 cfs @1355 min. | 39.30 cfs @1185 min. | 39.30 cfs @1105 min. |
| Freeway | 31.73 cfs @1115 min. | 36.35 cfs @1355 min. | 39.30 cfs @1185 min. | 39.30 cfs @1105 min. |
| O | 35.30 cfs @ 720 min. | 70.00 cfs @ 720 min. | 95.73 cfs @ 720 min. | 108.98 cfs @ 720 min. |
| P | 43.11 cfs @ 745 min. | 94.71 cfs @ 740 min. | 134.61 cfs @ 740 min. | 155.48 cfs @ 740 min. |
| Q | 14.88 cfs @ 720 min. | 30.18 cfs @ 720 min. | 41.59 cfs @ 720 min. | 47.48 cfs @ 720 min. |
| R | 37.09 cfs @ 720 min. | 68.34 cfs @ 720 min. | ~~41.59~~ 91 cfs @ 720 min. | ~~47.48~~ 102 cfs @ 720 min. |
| S | 311.01 cfs @ 720 min. | 670.82 cfs @ 720 min. | 959.38 cfs @ 720 min. | 1094.54 cfs @ 720 min. |
| T | 42.17 cfs @ 730 min. | 91.89 cfs @ 730 min. | 129.91 cfs @ 730 min. | 149.74 cfs @ 730 min. |
| U | 385.60 cfs @ 730 min. | 847.93 cfs @ 730 min. | 1191.16 cfs @ 730 min. | 1371.71 cfs @ 730 min. |
| V | 385.60 cfs @ 730 min. | 854.19 cfs @ 730 min. | 1214.46 cfs @ 730 min. | 1406.94 cfs @ 730 min. |

Paradise Pond Outlet; the minimum size pipe under inlet condition to keep from overflowing Paradise Pond:

| 30" pipe | 60" pipe | 2-60" pipes | 2-66" pipes |
|---|---|---|---|
| 10.50 cfs | 50.36 cfs | 134.99 cfs | 177.66 cfs |
| @ 730 min. | @ 730 min. | @ 730 min. | @ 730 min. |
| w/50.4 ac.ft. | w/88.2 ac.ft. | w/109.8 ac.ft. | w/124.5 ac.ft. |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CITY OF RENO - PARADISE POND STUDY
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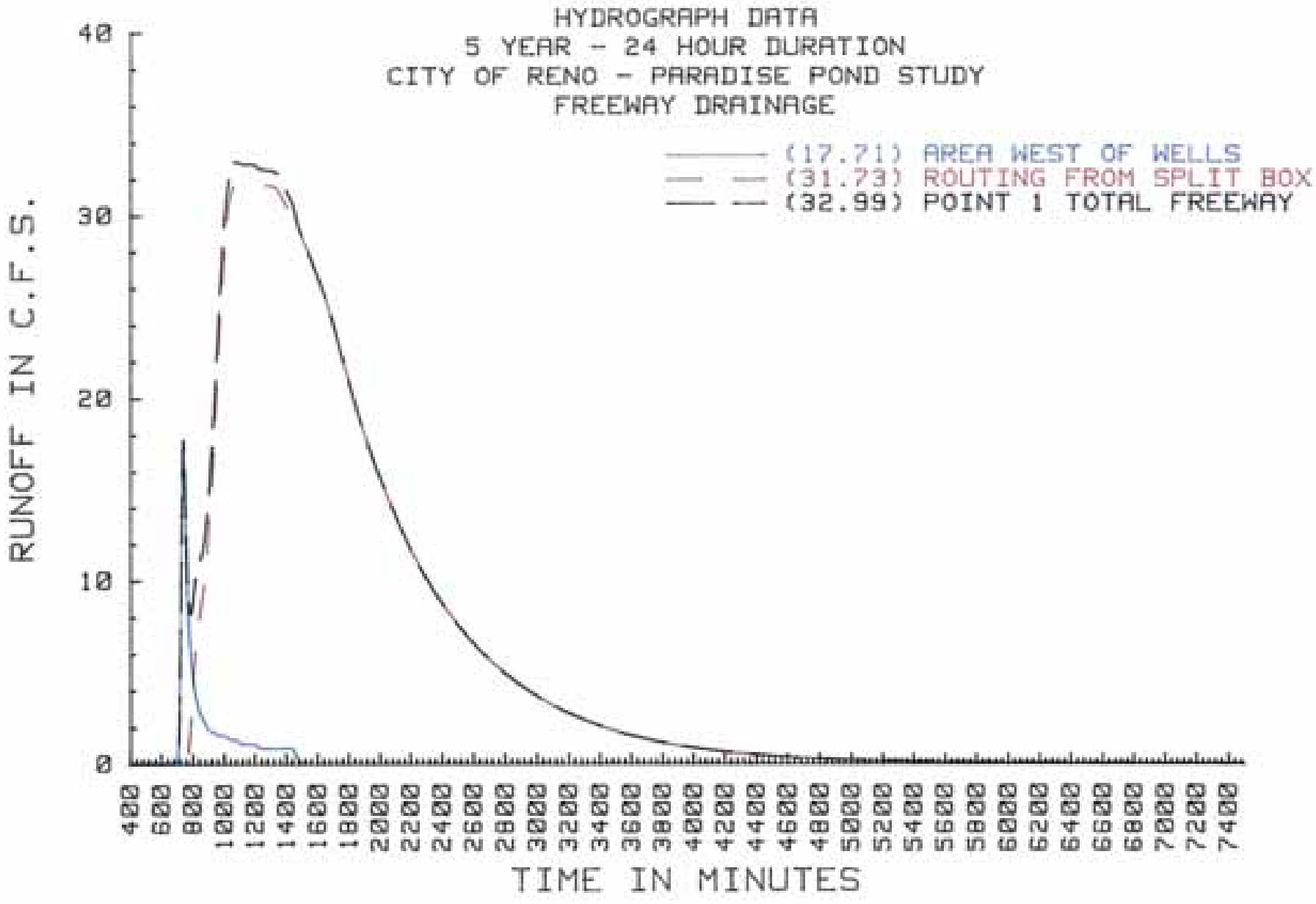
(31.73) POINT 3 TOTAL FREEWAY
(0) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
10
20
30
40
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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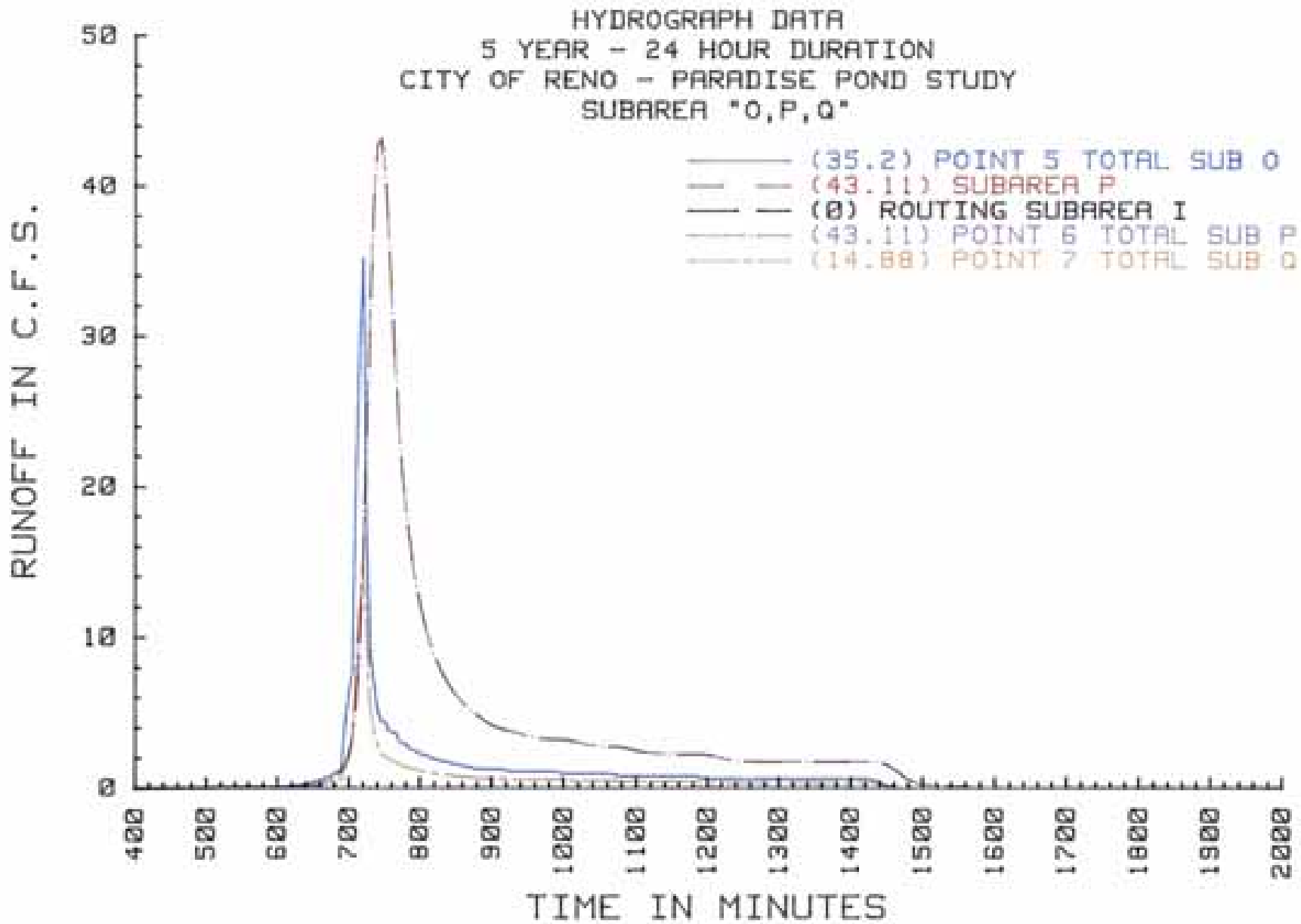
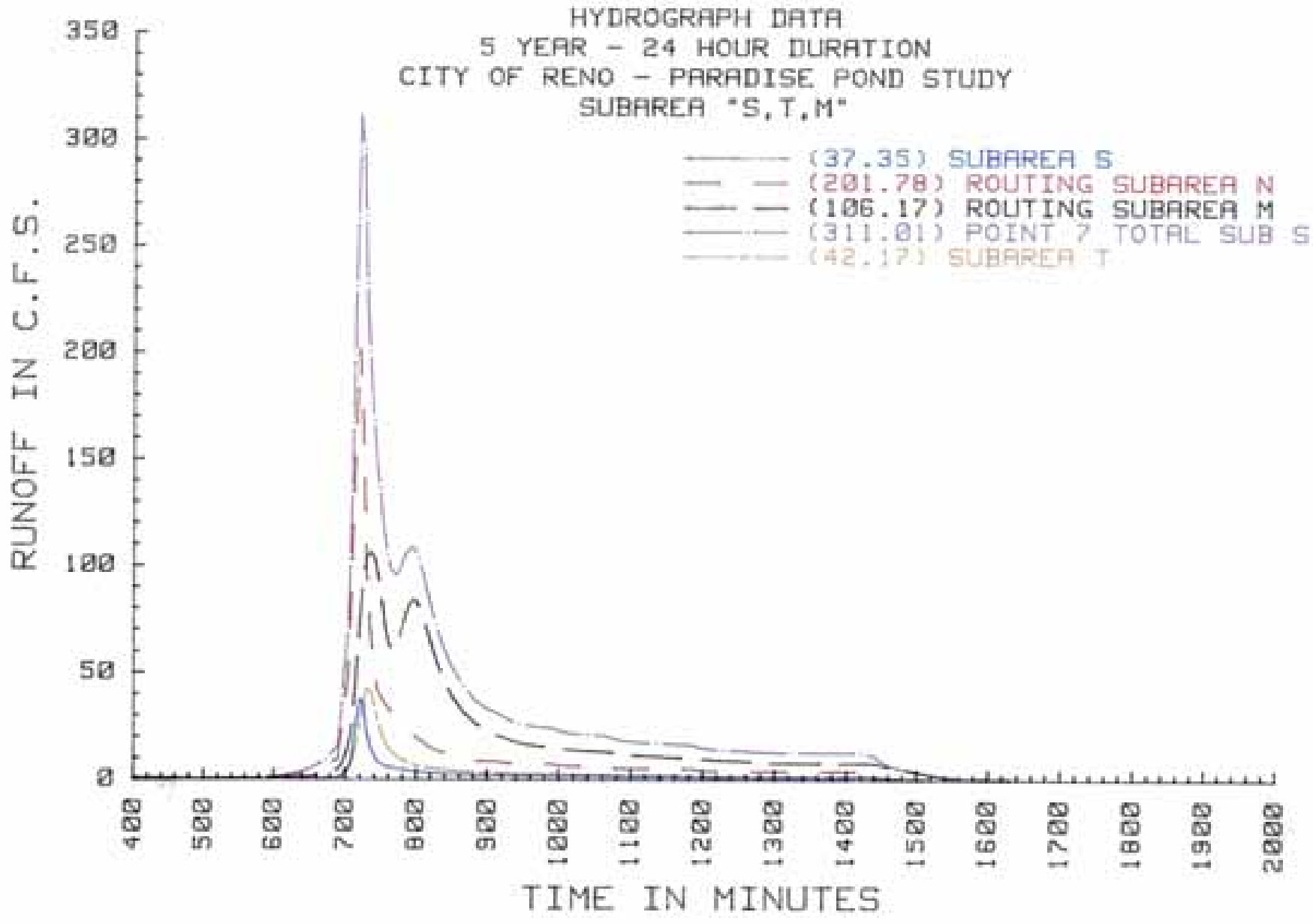
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(17.71) AREA WEST OF WELLS
(31.73) ROUTING FROM SPLIT BOX
(32.99) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(35.2) POINT 5 TOTAL SUB O
(43.11) SUBAREA P
(0) ROUTING SUBAREA I
(43.11) POINT 6 TOTAL SUB P
(14.88) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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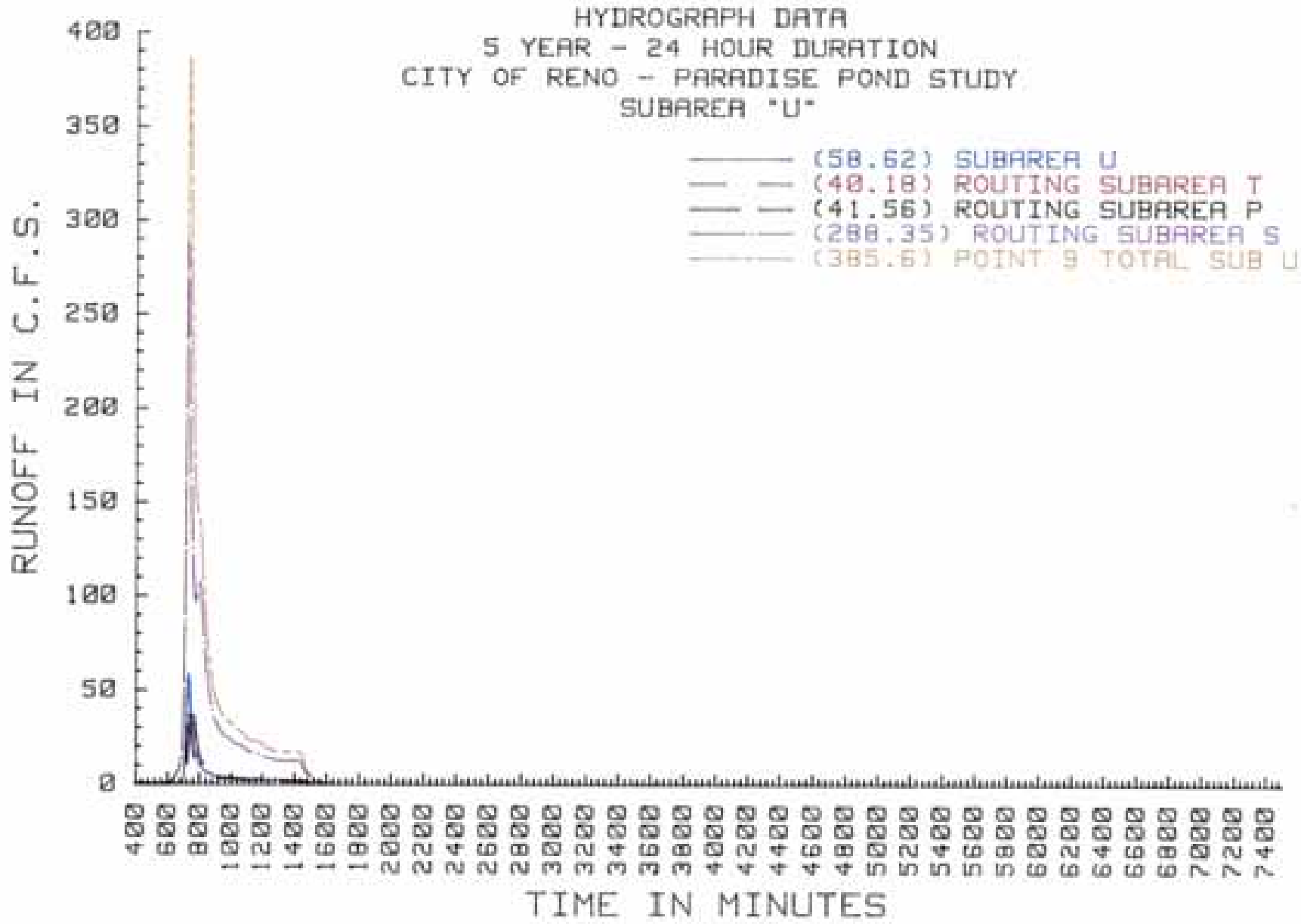
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(37.35) SUBAREA S
(201.78) ROUTING SUBAREA N
(106.17) ROUTING SUBAREA M
(311.01) POINT 7 TOTAL SUB S
(42.17) SUBAREA T
RUNOFF IN C.F.S.
350
300
250
200
150
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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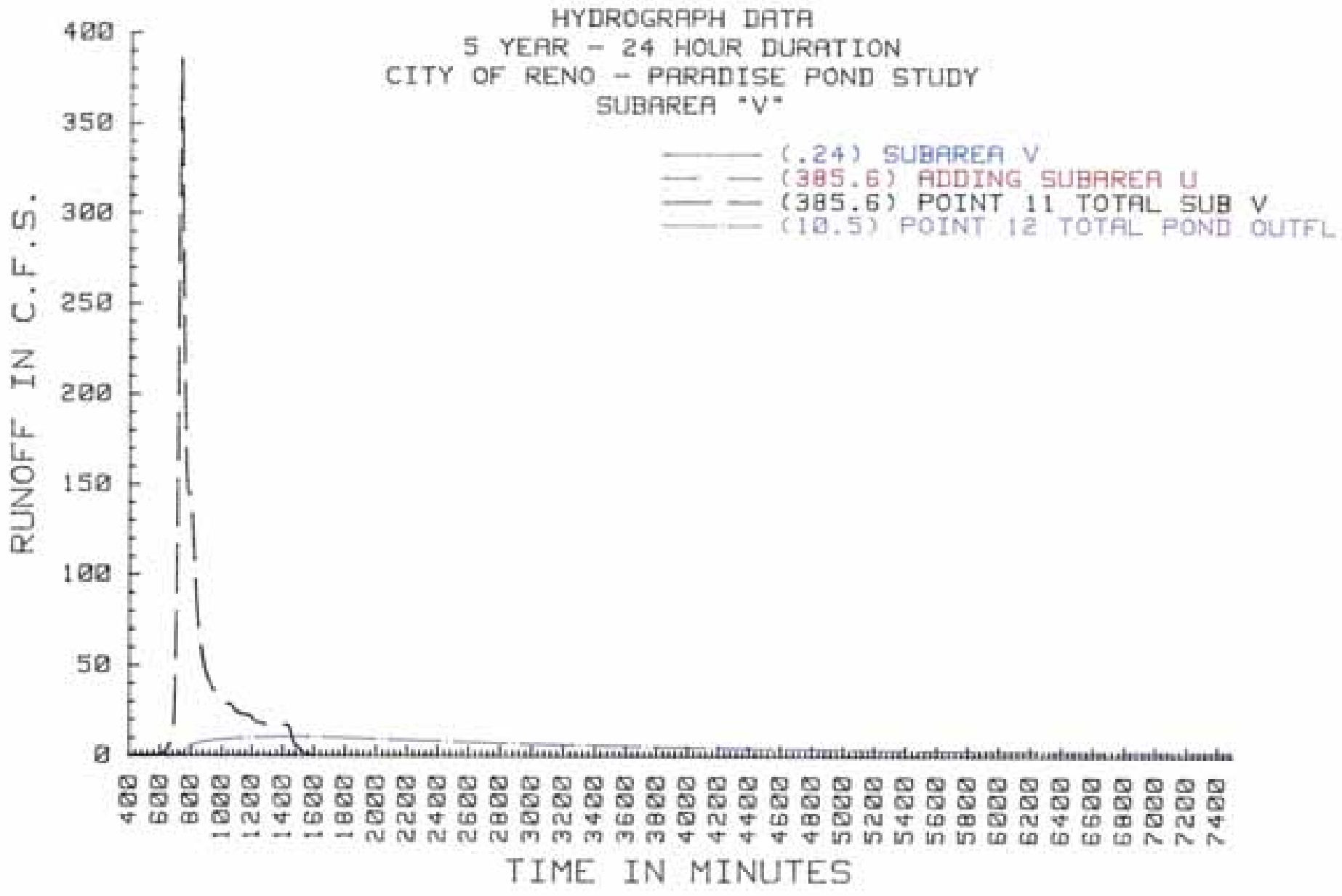
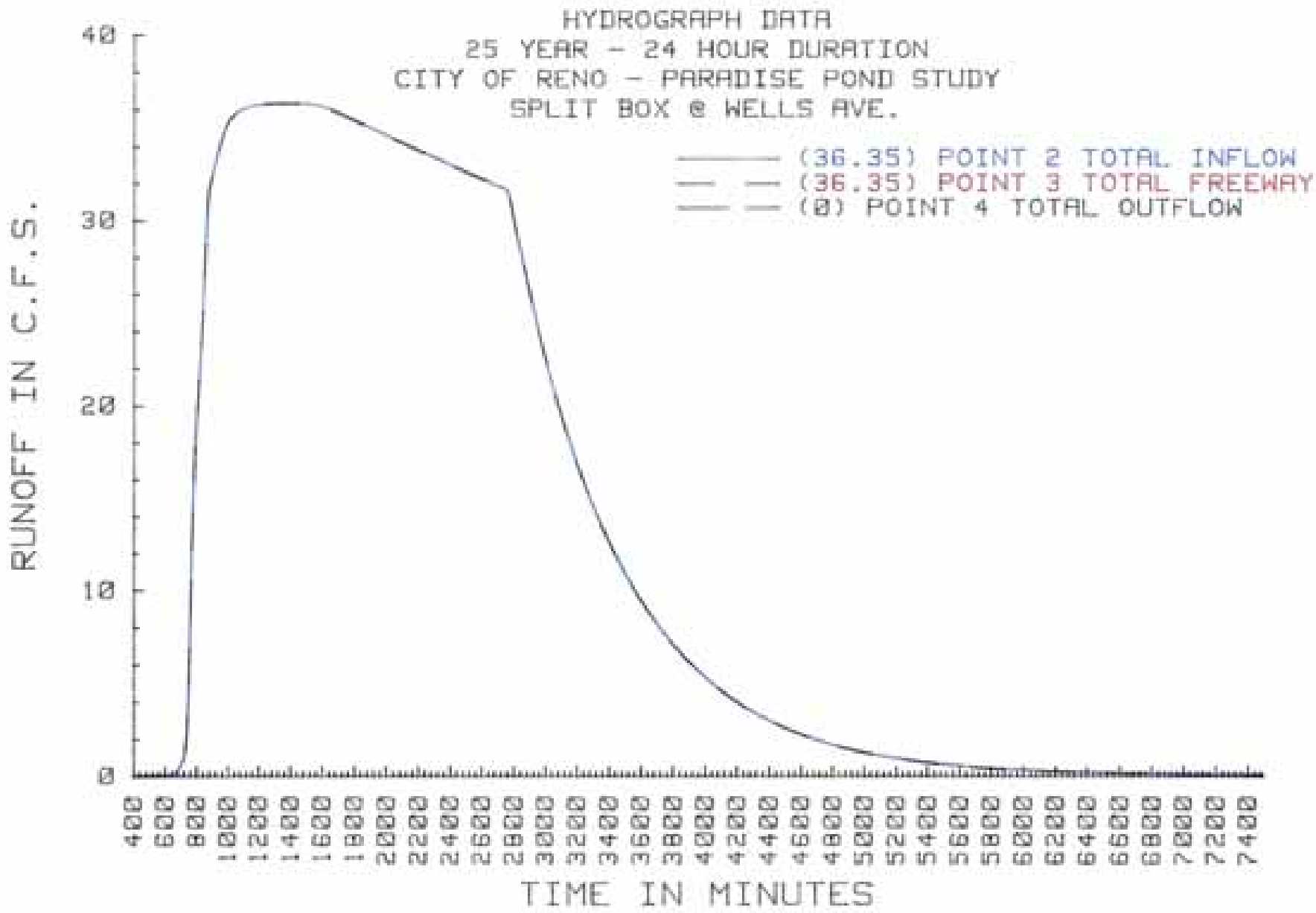
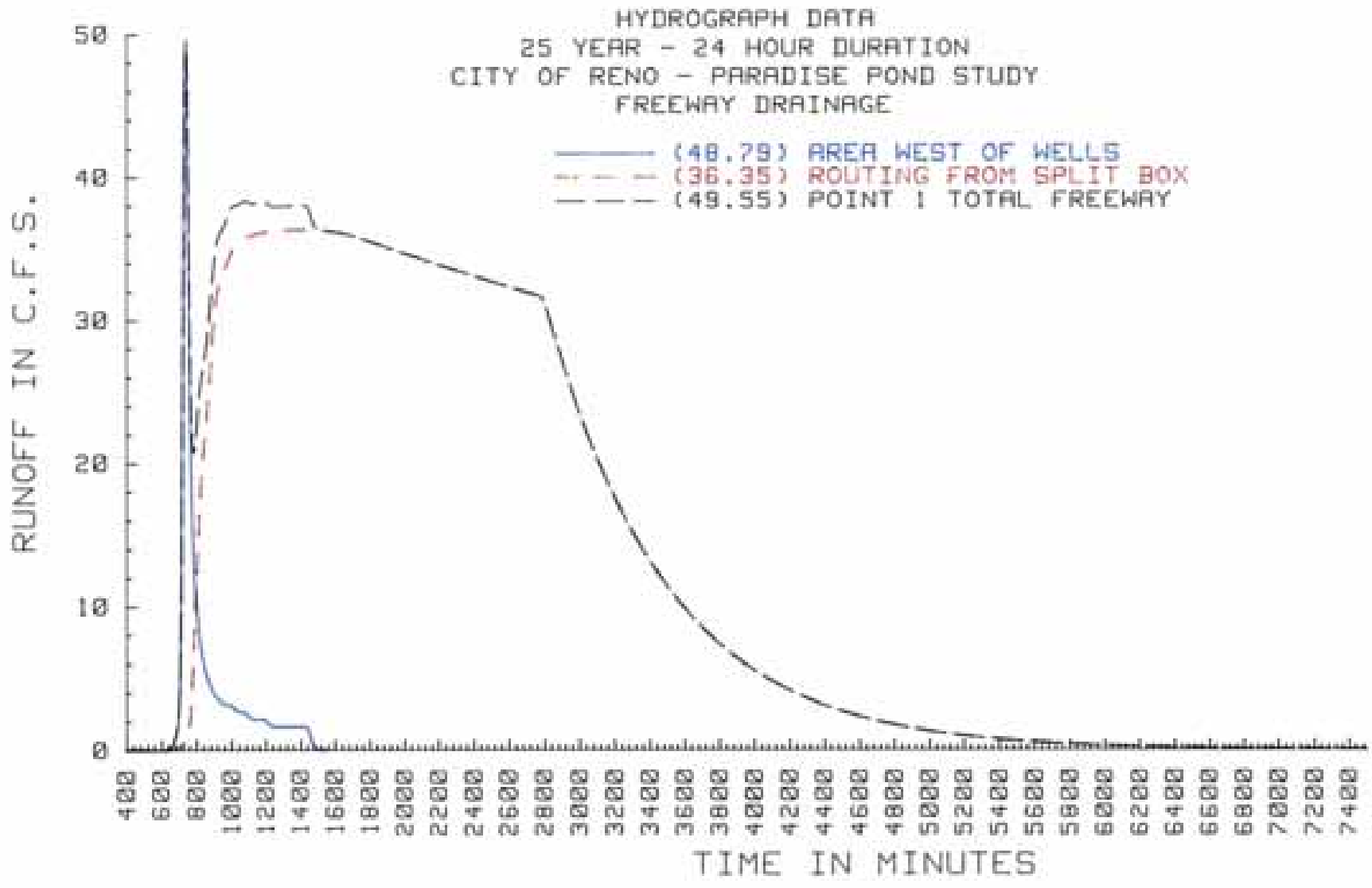
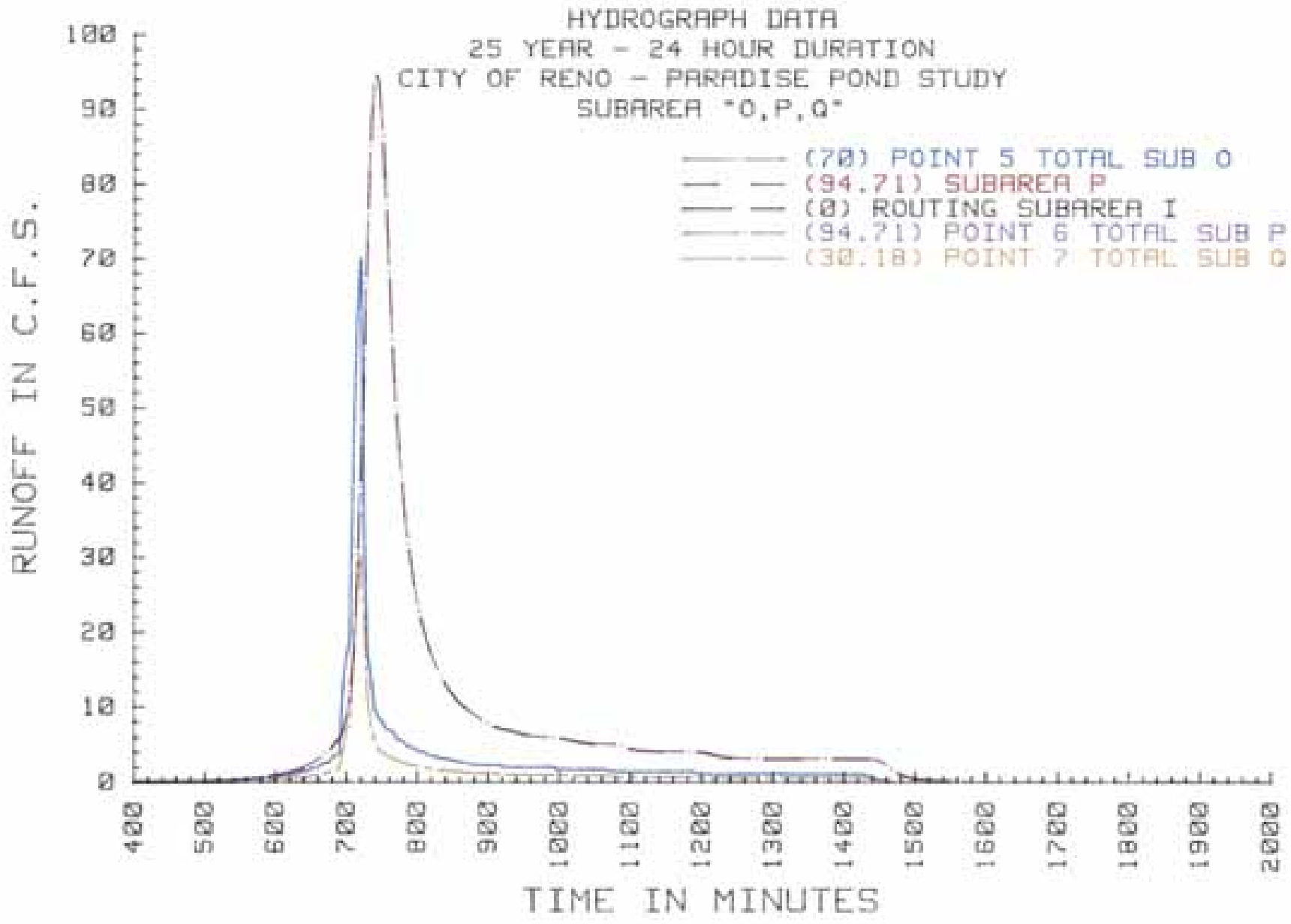
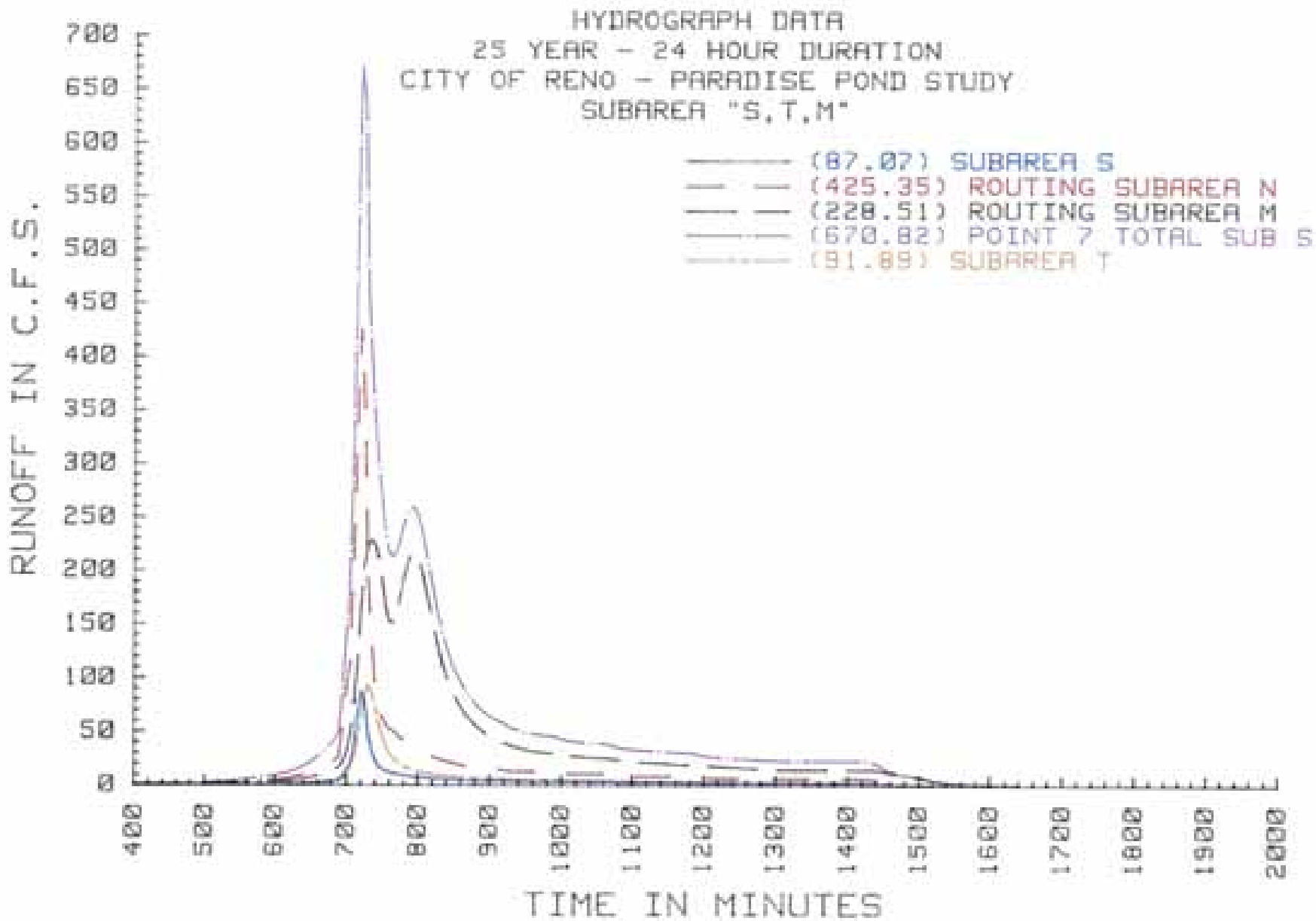
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(58.62) SUBAREA U
(40.18) ROUTING SUBAREA T
(41.56) ROUTING SUBAREA P
(288.35) ROUTING SUBAREA S
(385.6) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400

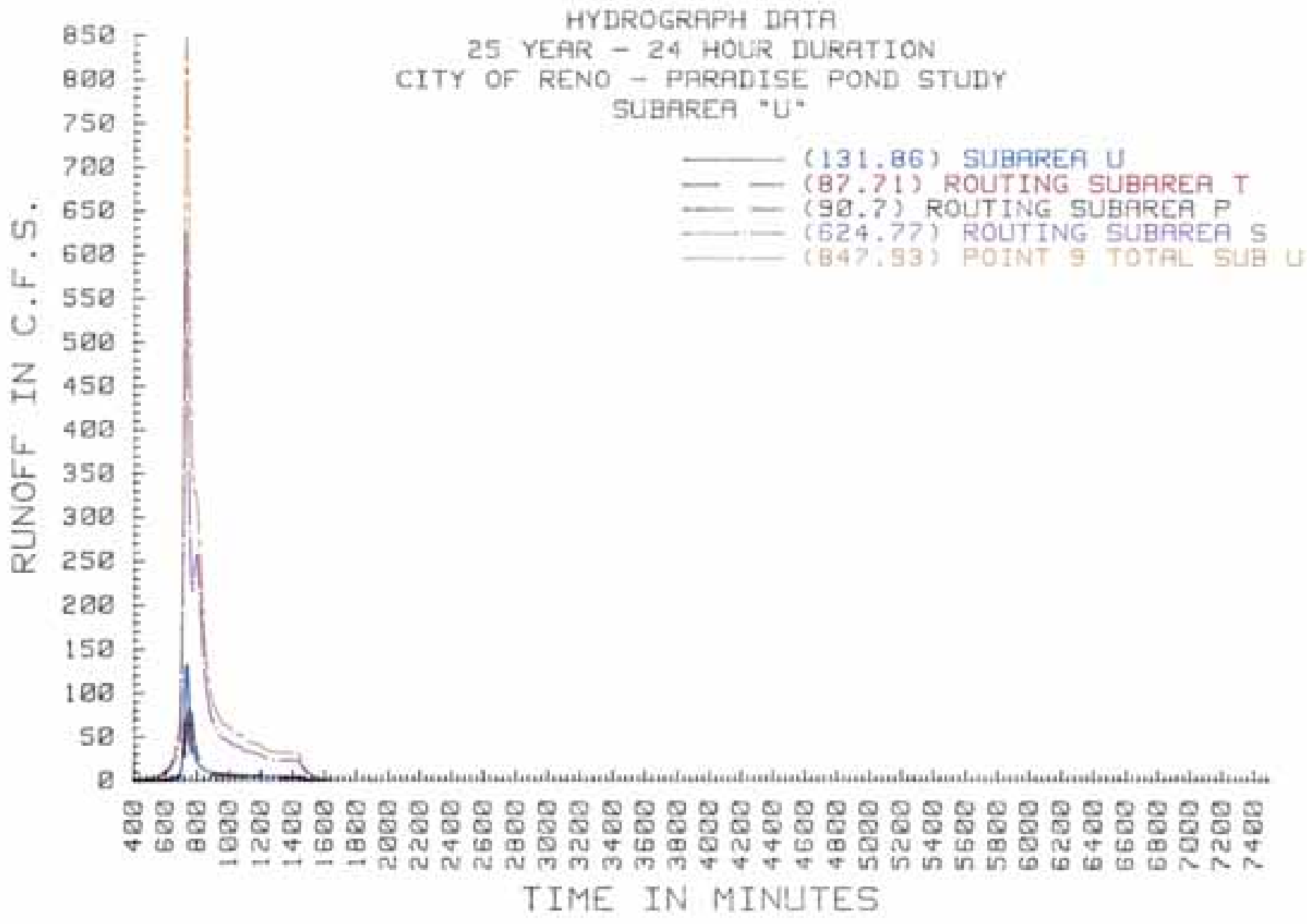

HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(.24) SUBAREA V
(385.6) ADDING SUBAREA U
(385.6) POINT 11 TOTAL SUB V
(10.5) POINT 12 TOTAL POND OUTFL
RUNOFF IN C.F.S.
400
350
300
250
200
150
100
50
0
400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200 7400
TIME IN MINUTES

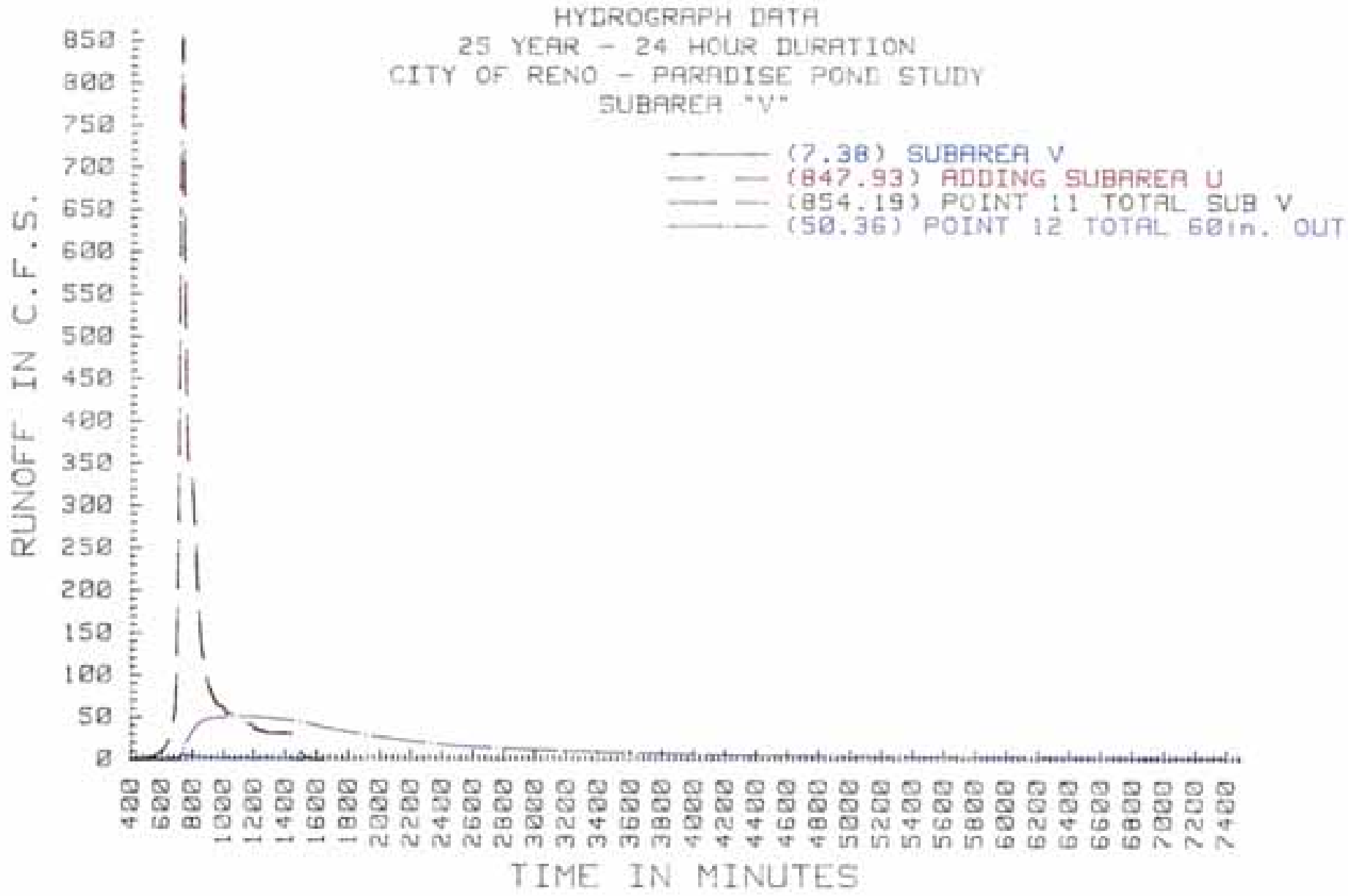

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(36.35) POINT 2 TOTAL INFLOW
(36.35) POINT 3 TOTAL FREEWAY
(0) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
10
20
30
40
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

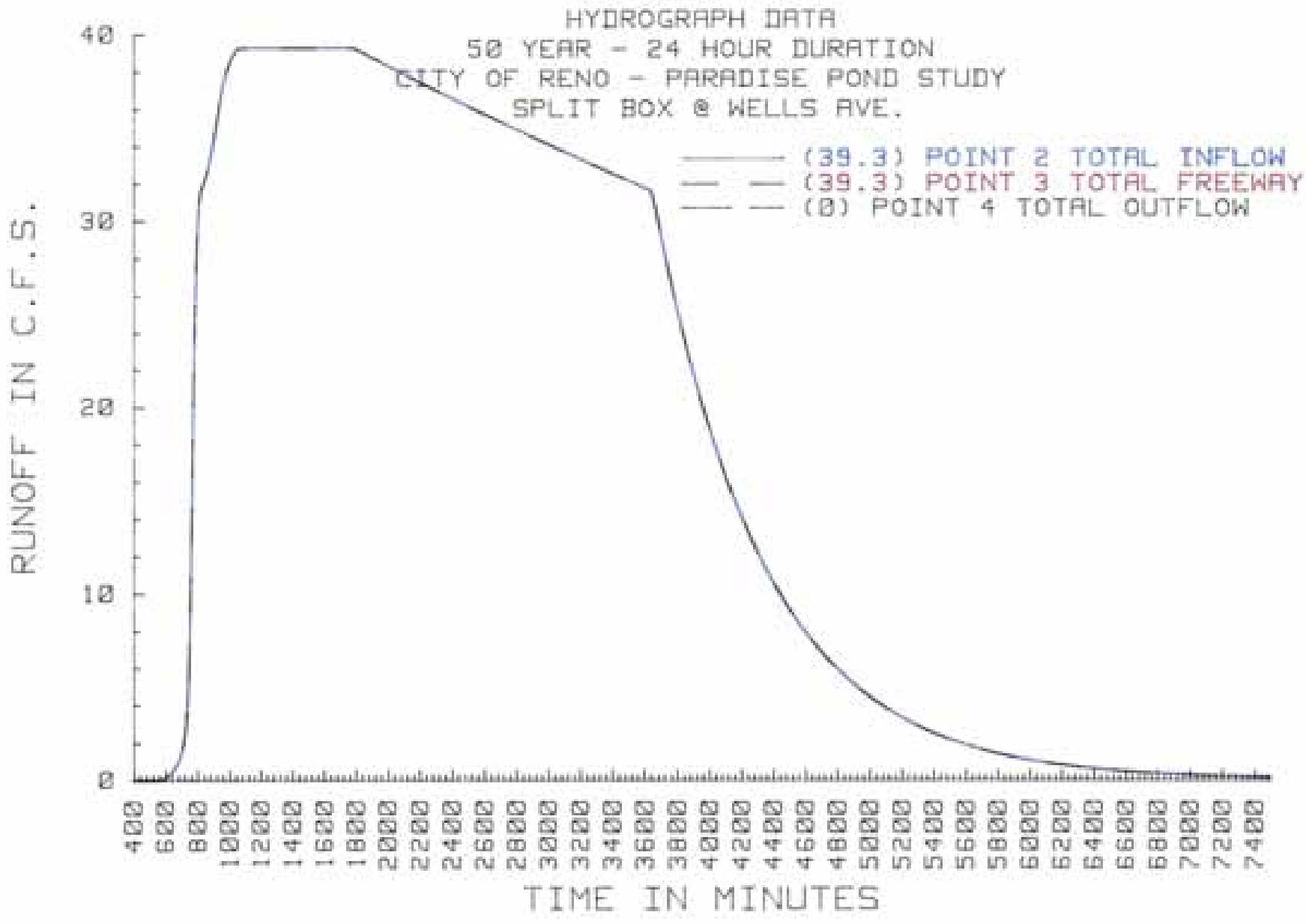

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(48.79) AREA WEST OF WELLS
(36.35) ROUTING FROM SPLIT BOX
(49.55) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

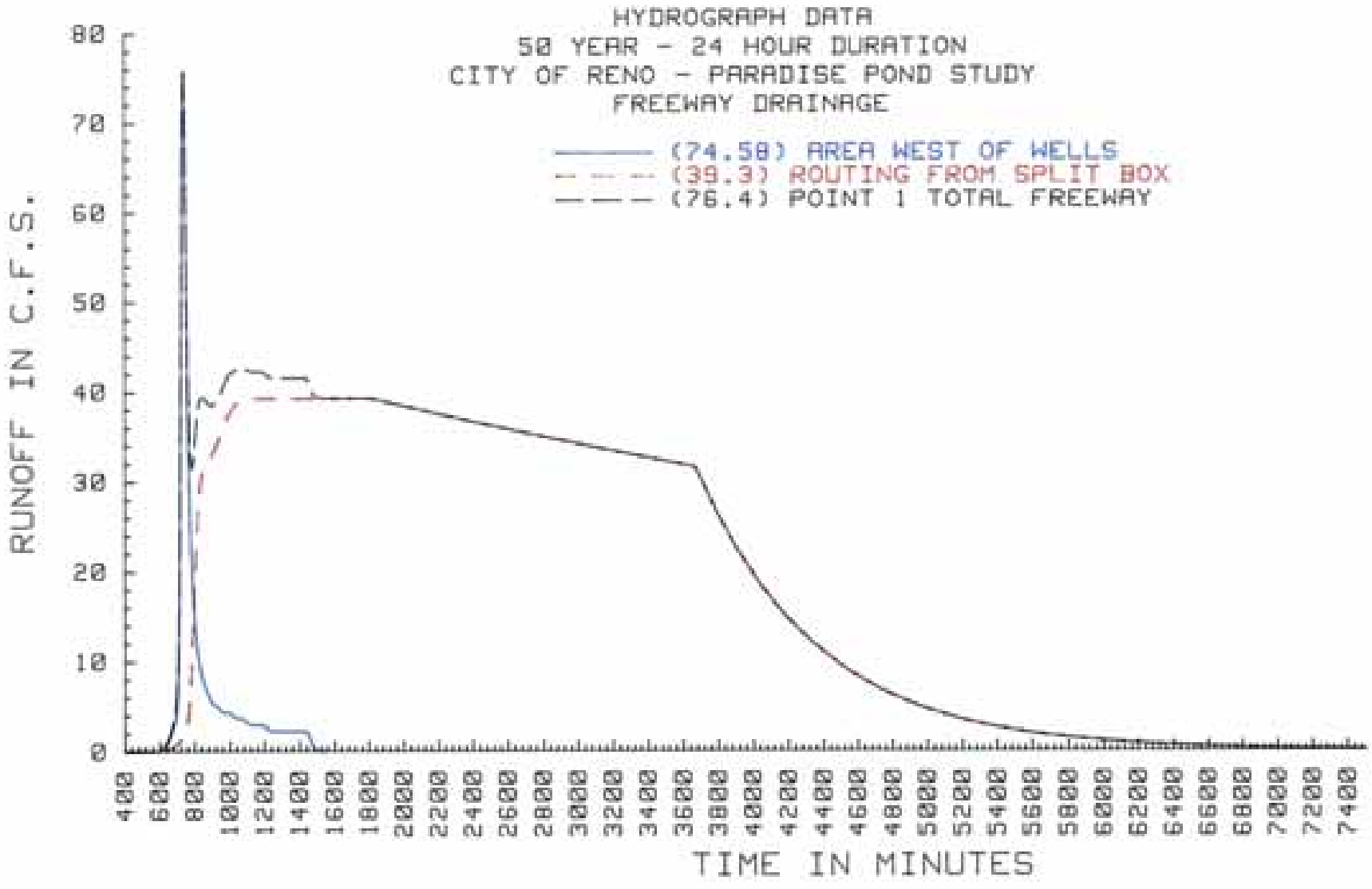

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(70) POINT 5 TOTAL SUB O
(94.71) SUBAREA P
(0) ROUTING SUBAREA I
(94.71) POINT 6 TOTAL SUB P
(30.18) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

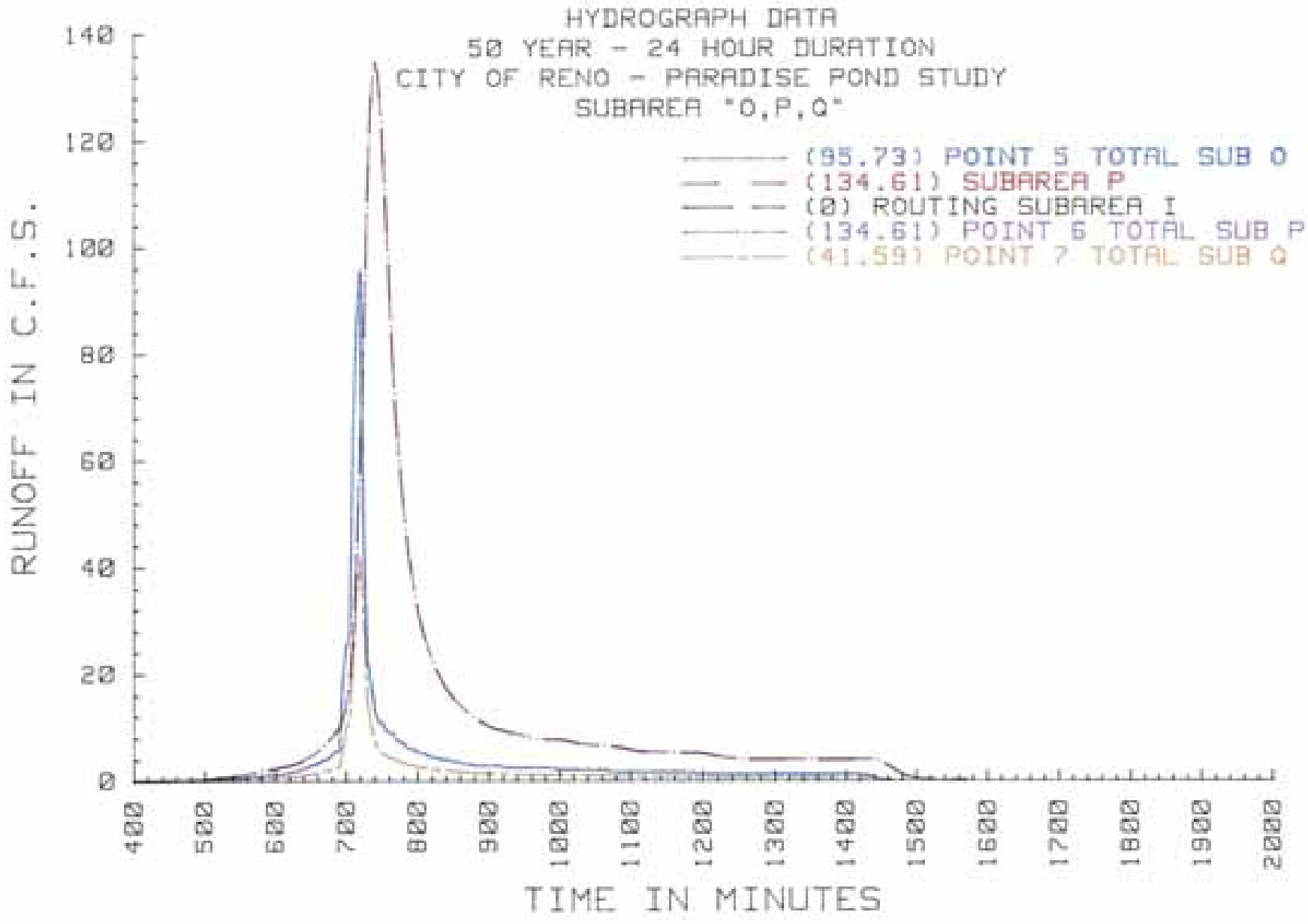

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(87.07) SUBAREA S
(425.35) ROUTING SUBAREA N
(228.51) ROUTING SUBAREA M
(670.82) POINT 7 TOTAL SUB S
(91.89) SUBAREA T
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

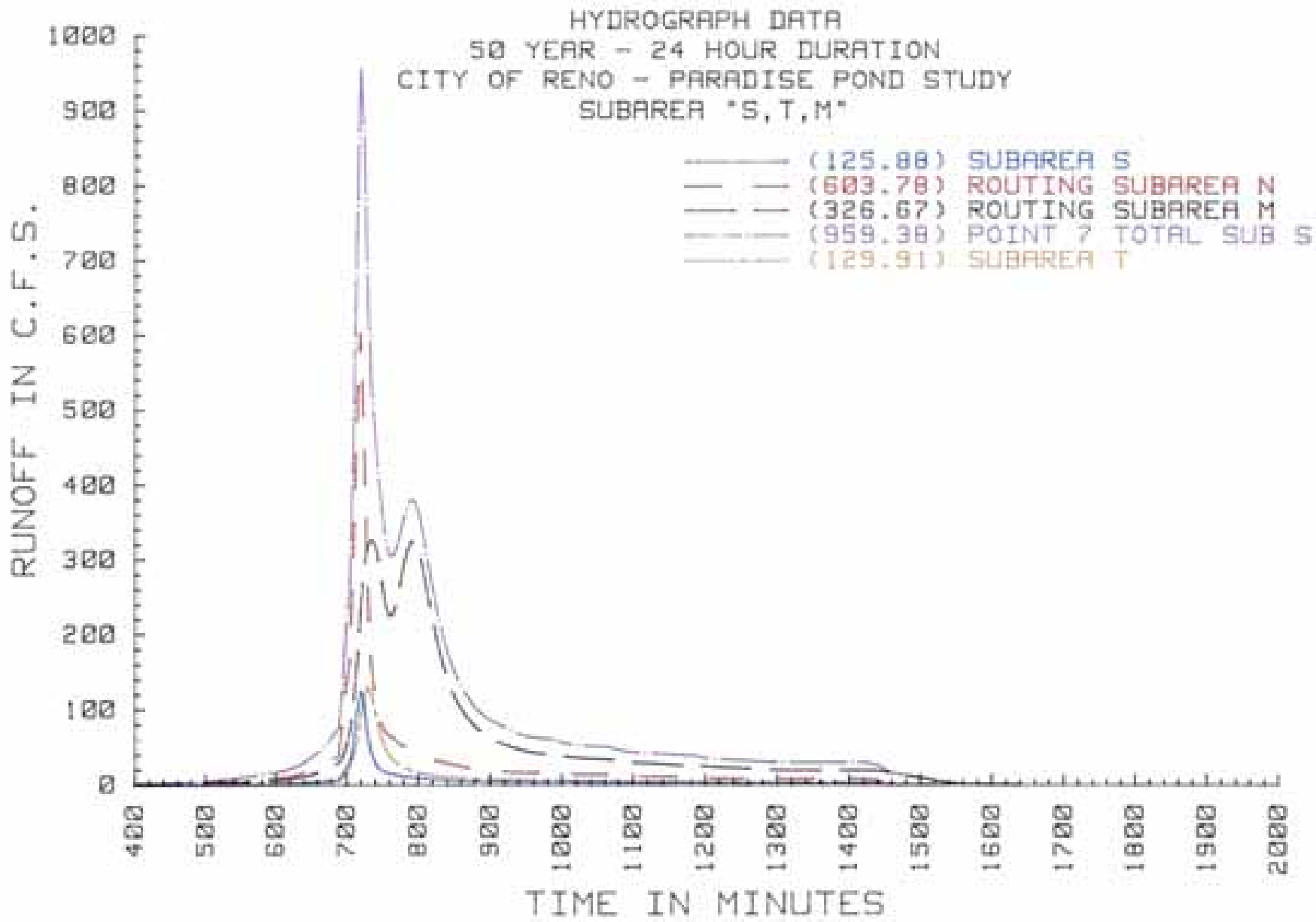

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(131.86) SUBAREA U
(87.71) ROUTING SUBAREA T
(90.7) ROUTING SUBAREA P
(624.77) ROUTING SUBAREA S
(847.93) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

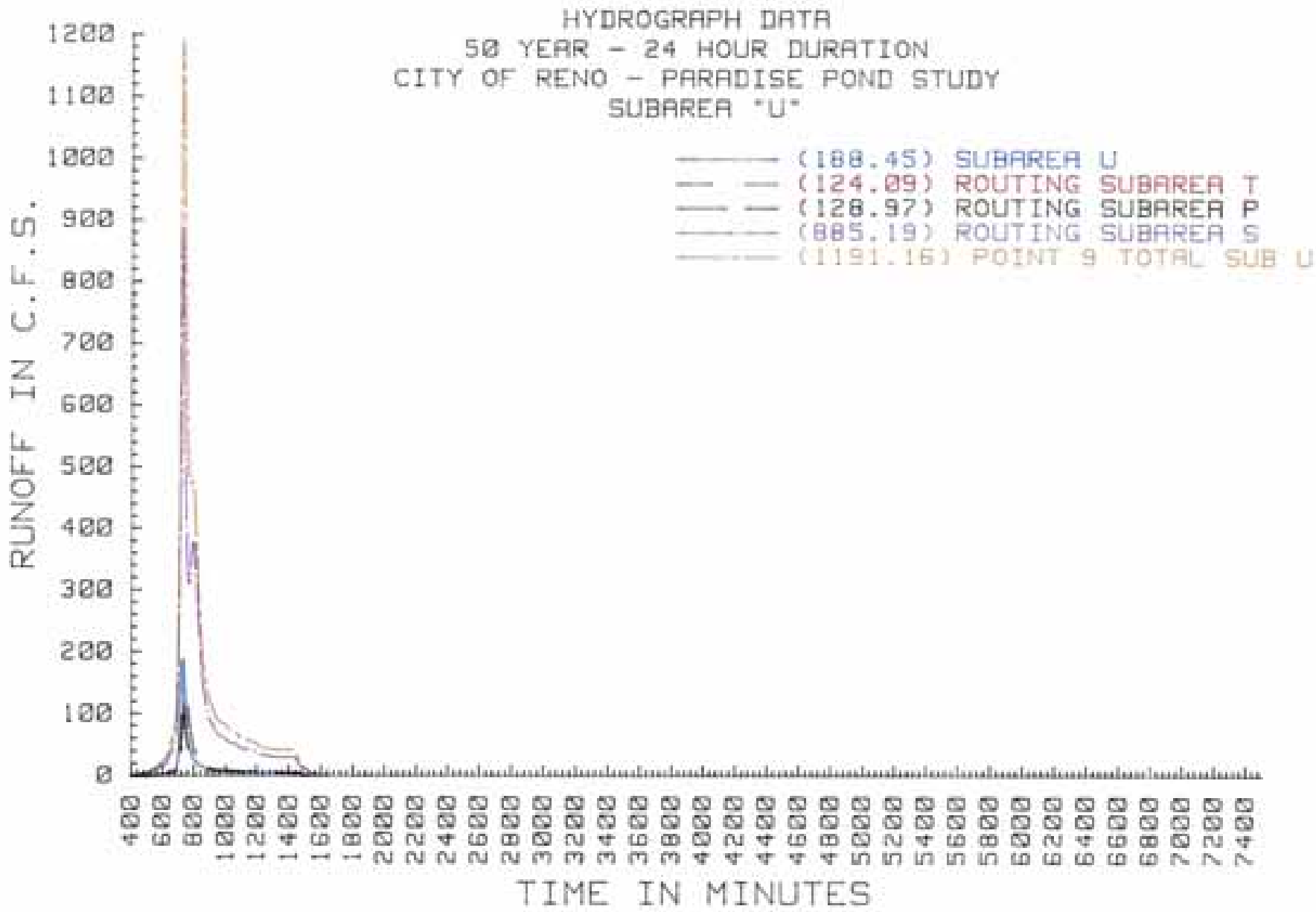

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(7.38) SUBAREA V
(847.93) ADDING SUBAREA U
(854.19) POINT 11 TOTAL SUB V
(50.36) POINT 12 TOTAL 60in. OUT
RUNOFF IN C.F.S.
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

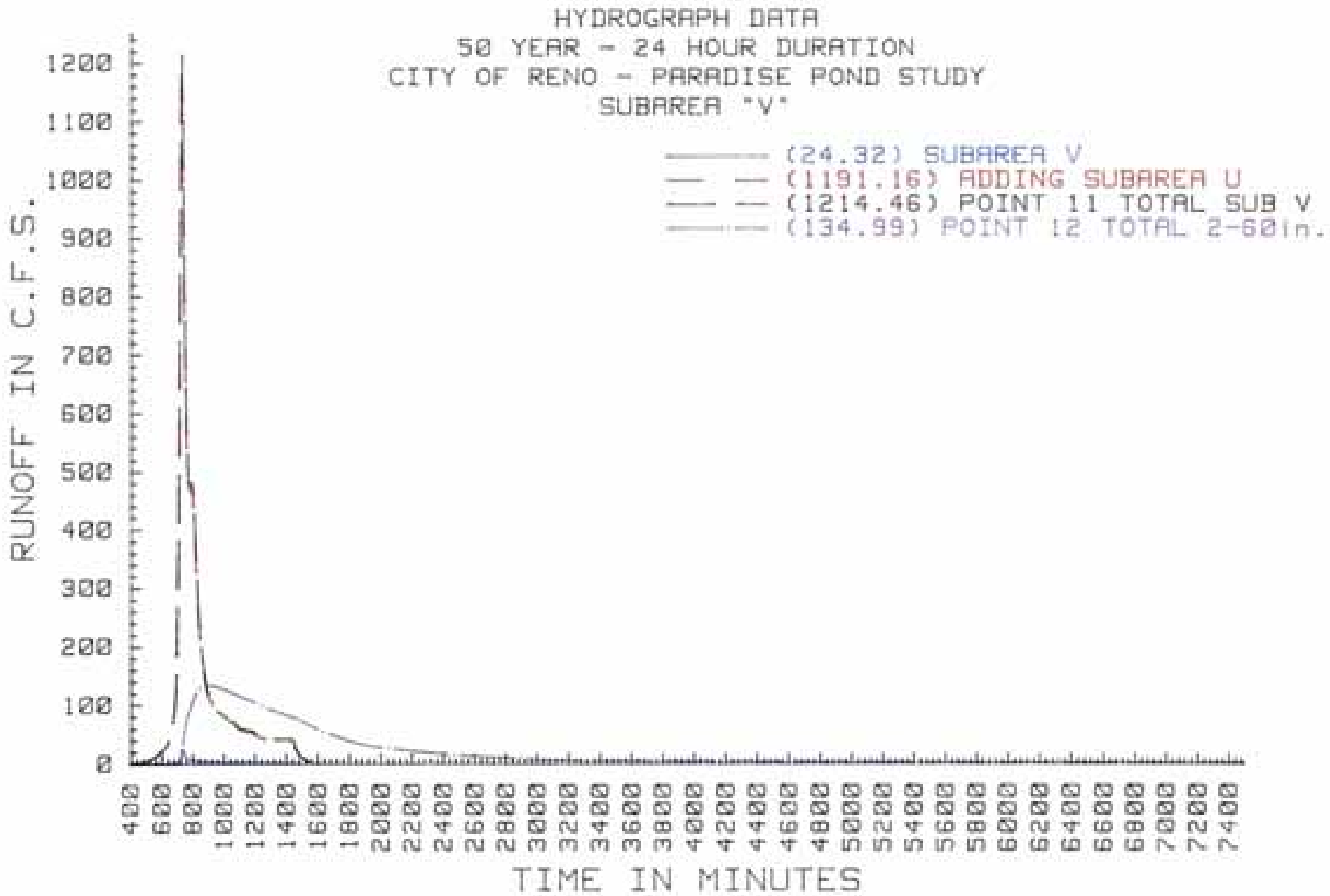

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(39.3) POINT 2 TOTAL INFLOW
(39.3) POINT 3 TOTAL FREEWAY
(0) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
10
20
30
40
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

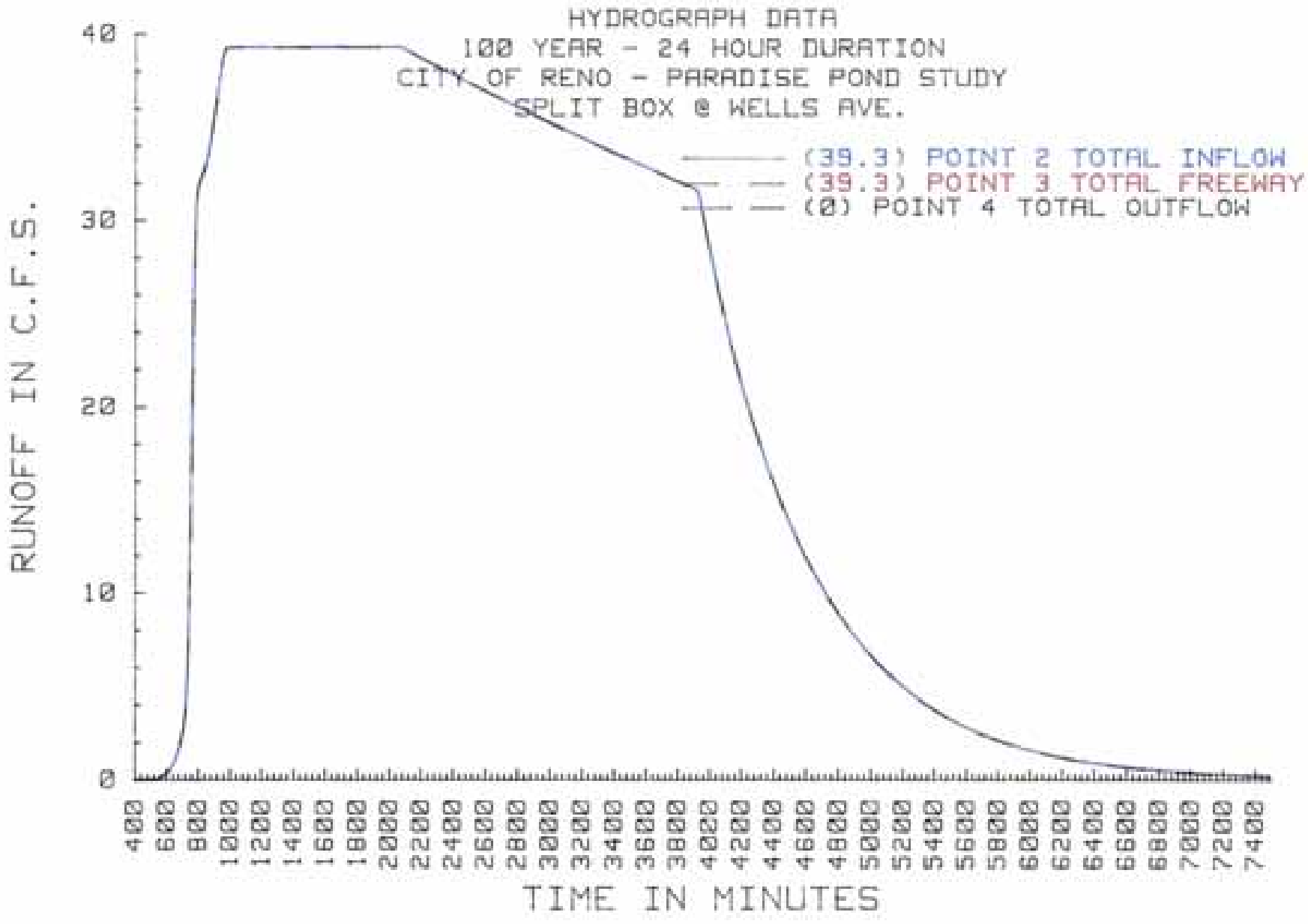

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(74.58) AREA WEST OF WELLS
(39.3) ROUTING FROM SPLIT BOX
(76.4) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

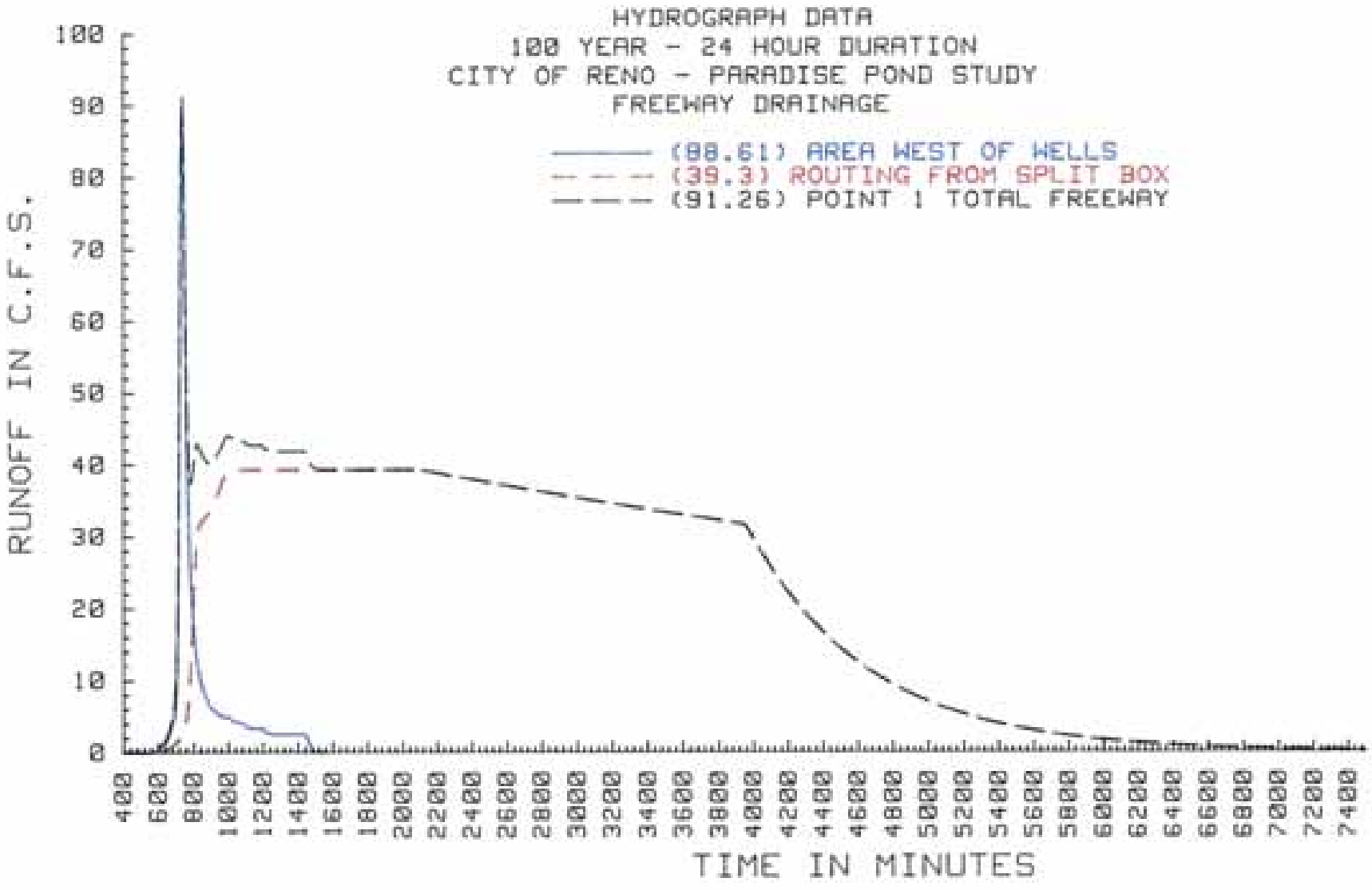

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(95.73) POINT 5 TOTAL SUB O
(134.61) SUBAREA P
(0) ROUTING SUBAREA I
(134.61) POINT 6 TOTAL SUB P
(41.59) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
20
40
60
80
100
120
140
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

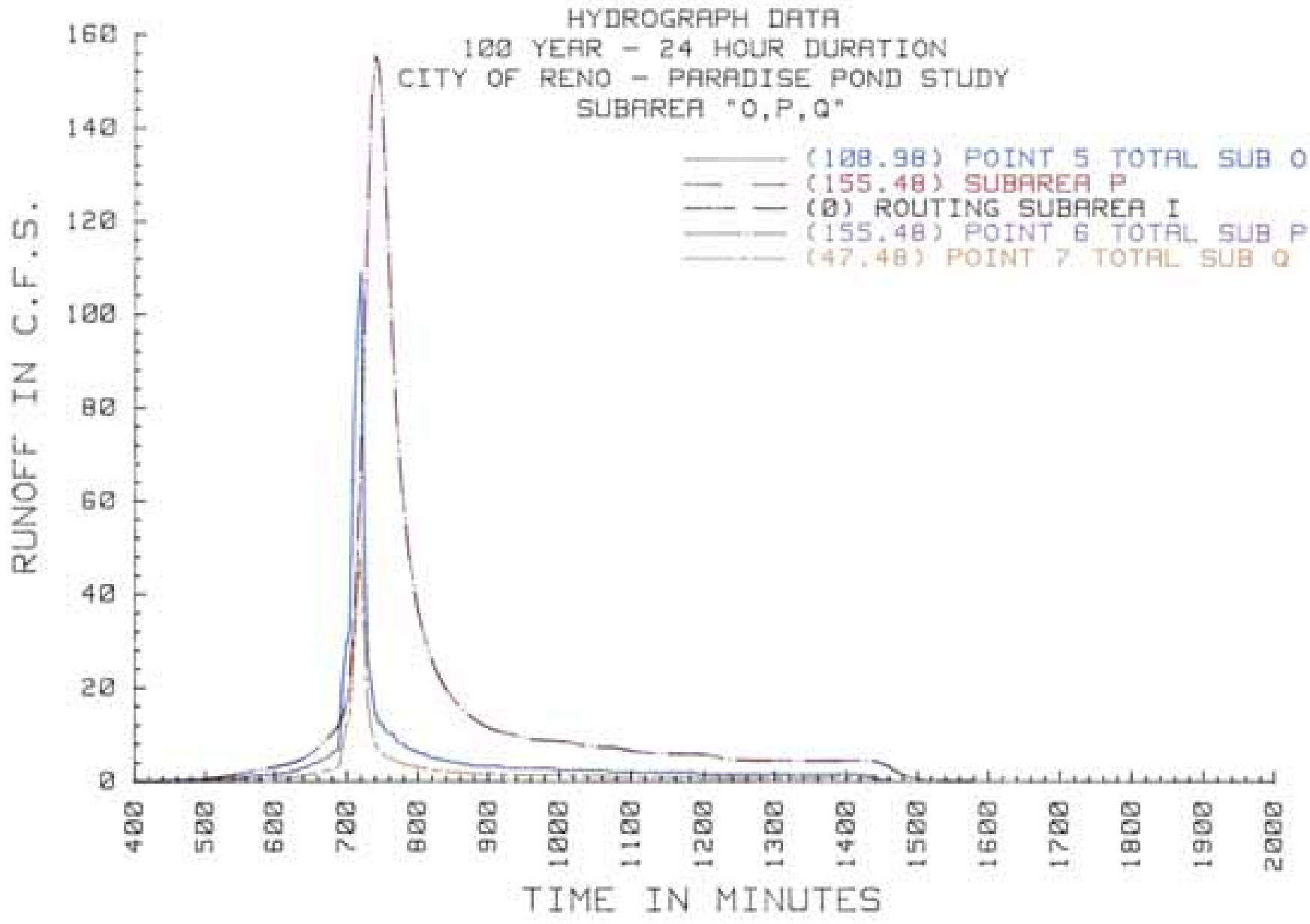

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(125.88) SUBAREA S
(603.78) ROUTING SUBAREA N
(326.67) ROUTING SUBAREA M
(959.38) POINT 7 TOTAL SUB S
(129.91) SUBAREA T
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

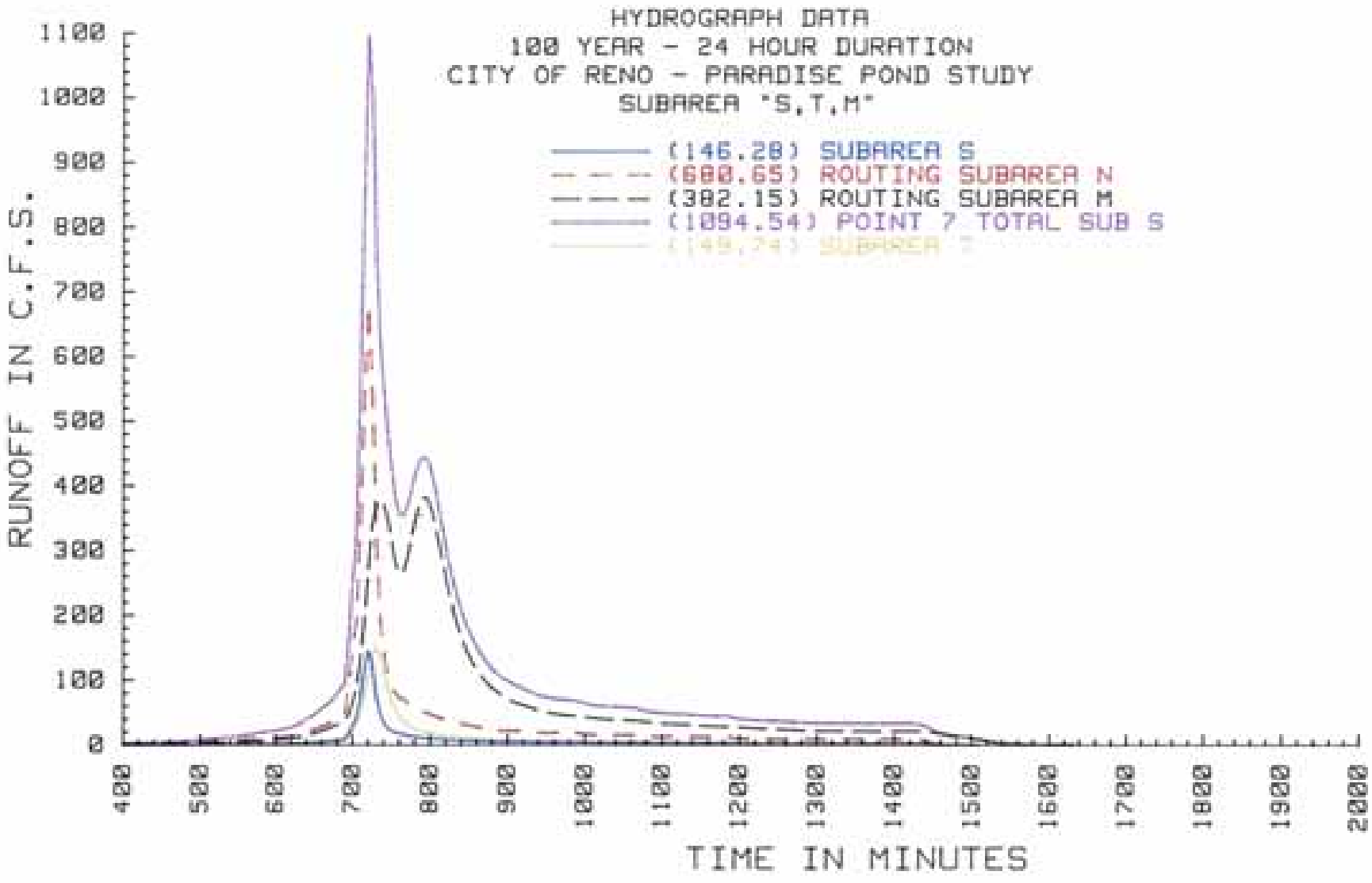

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(188.45) SUBAREA U
(124.09) ROUTING SUBAREA T
(128.97) ROUTING SUBAREA P
(885.19) ROUTING SUBAREA S
(1191.16) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400

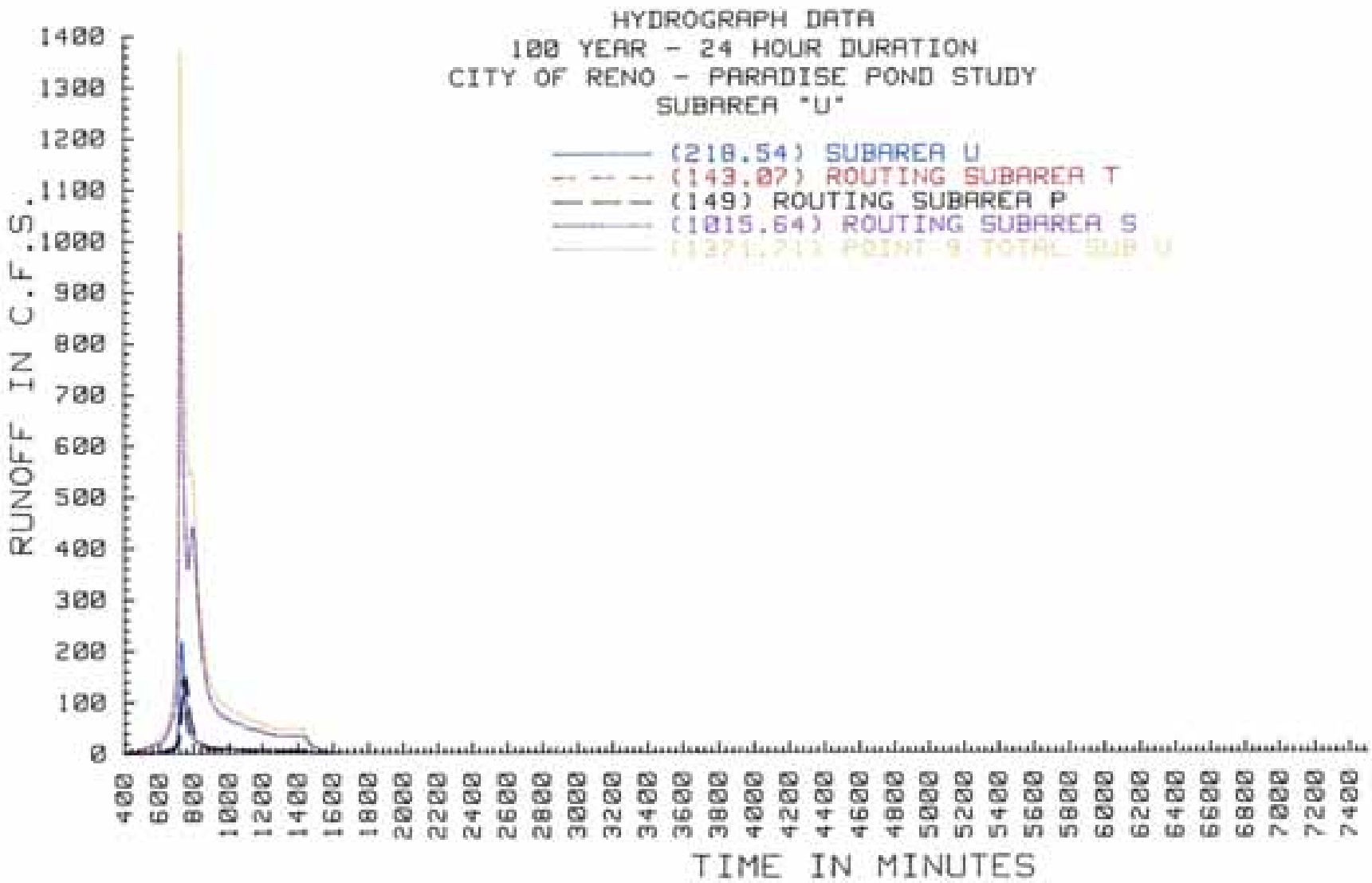

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(24.32) SUBAREA V
(1191.16) ADDING SUBAREA U
(1214.46) POINT 11 TOTAL SUB V
(134.99) POINT 12 TOTAL 2-60in.
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400

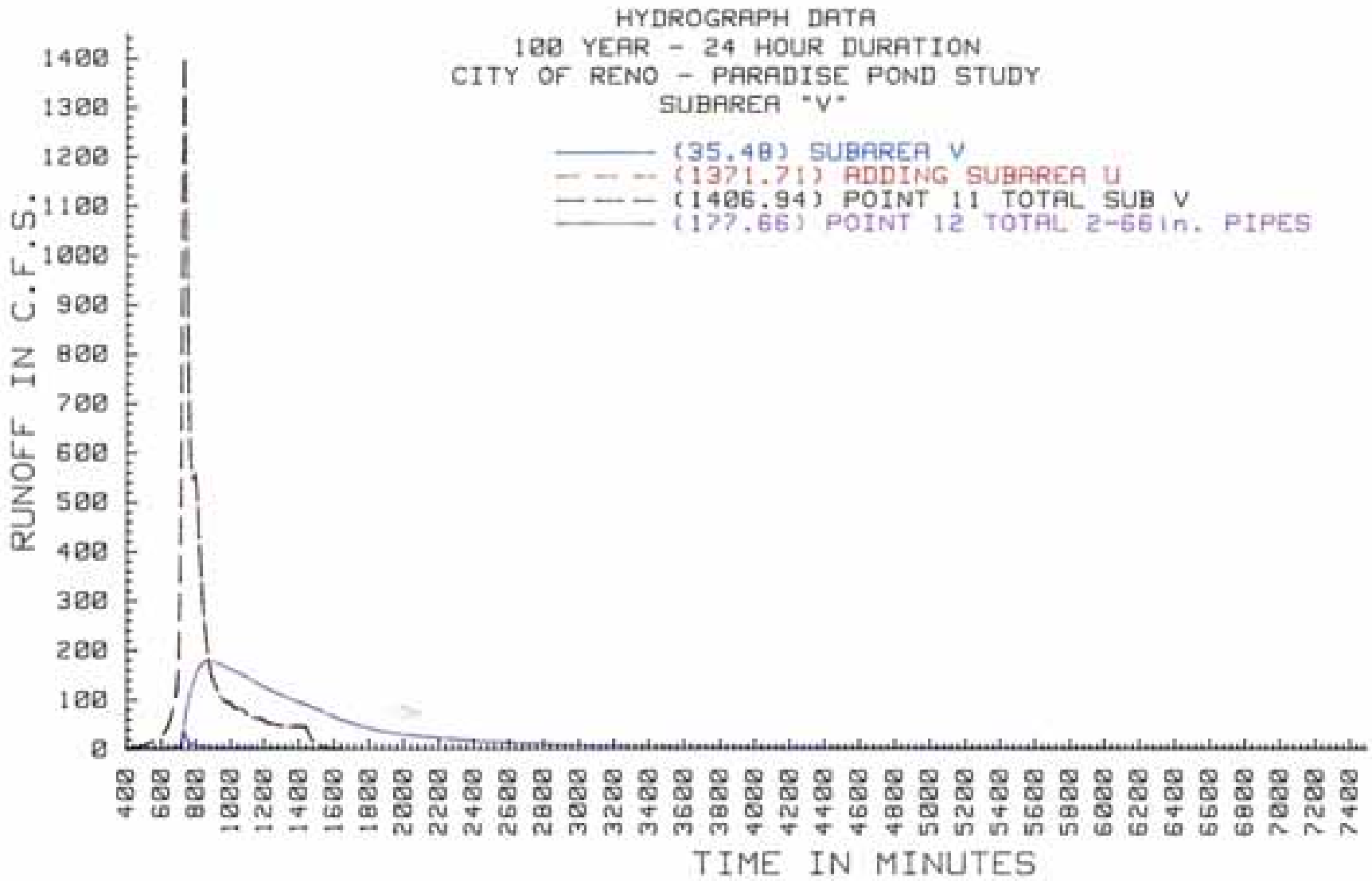

HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(39.3) POINT 2 TOTAL INFLOW
(39.3) POINT 3 TOTAL FREEWAY
(0) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
10
20
30
40
400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200 7400
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(88.61) AREA WEST OF WELLS
(39.3) ROUTING FROM SPLIT BOX
(91.26) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(108.98) POINT 5 TOTAL SUB O
(155.48) SUBAREA P
(0) ROUTING SUBAREA I
(155.48) POINT 6 TOTAL SUB P
(47.48) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
20
40
60
80
100
120
140
160
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(146.28) SUBAREA S
(680.65) ROUTING SUBAREA N
(382.15) ROUTING SUBAREA M
(1094.54) POINT 7 TOTAL SUB S
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(218.54) SUBAREA U
(143.07) ROUTING SUBAREA T
(149) ROUTING SUBAREA P
(1015.64) ROUTING SUBAREA S
(1271.71) POINT-9 TOTAL SUB U
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(35.48) SUBAREA V
(1371.71) ADDING SUBAREA U
(1406.94) POINT 11 TOTAL SUB V
(177.66) POINT 12 TOTAL 2-66in. PIPES
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

# APPENDIX D

**TABLE D-1**

CONDITION NO. 4 WITH 3-HOUR DURATION STORM

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| A | 2.75 cfs @ 110 min. | 11.20 cfs @ 80 min. | 19.68 cfs @ 60 min. | 33.80 cfs @ 60 min. |
| B | 3.30 cfs @ 130 min. | 13.47 cfs @ 105 min. | 22.97 cfs @ 90 min. | 38.01 cfs @ 75 min. |
| C | 0.23 cfs @ 155 min. | 1.48 cfs @ 75 min. | 2.76 cfs @ 55 min. | 5.15 cfs @ 50 min. |
| D | 7.82 cfs @ 105 min. | 26.45 cfs @ 80 min. | 43.31 cfs @ 80 min. | 68.04 cfs @ 75 min. |
| E | 14.37 cfs @ 130 min. | 47.14 cfs @ 105 min. | 75.56 cfs @ 100 min. | 116.72 cfs @ 95 min. |
| F | 3.80 cfs @ 95 min. | 14.40 cfs @ 50 min. | 24.88 cfs @ 45 min. | 44.08 cfs @ 35 min. |
| G | 18.44 cfs @ 215 min. | 60.21 cfs @ 200 min. | 95.82 cfs @ 195 min. | 147.56 cfs @ 190 min. |
| H | 0.38 cfs @ 125 min. | 2.03 cfs @ 75 min. | 3.76 cfs @ 50 min. | 6.72 cfs @ 50 min. |
| I | 18.26 cfs @ 260 min. | 59.53 cfs @ 245 min. | 23.88 cfs @ 235 min. | 145.96 cfs @ 230 min. |
| J | 4.32 cfs @ 75 min. | 14.74 cfs @ 50 min. | 24.47 cfs @ 40 min. | 40.34 cfs @ 40 min. |
| K | 4.02 cfs @ 150 min. | 18.67 cfs @ 110 min. | 32.43 cfs @ 95 min. | 54.50 cfs @ 85 min. |
| L | 7.17 cfs @ 160 min. | 27.61 cfs @ 135 min. | 46.47 cfs @ 120 min. | 75.60 cfs @ 110 min. |
| M | 11.36 cfs @ 80 min. | 33.88 cfs @ 135 min. | 55.63 cfs @ 130 min. | 88.03 cfs @ 125 min. |
| N | 16.55 cfs @ 55 min. | 45.86 cfs @ 35 min. | 71.60 cfs @ 35 min. | 106.18 cfs @ 35 min. |

**TABLE D-1 - (con't)**

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| Evans | 16.97 cfs @ 0.5 ac.ft. | 52.15 cfs @ 3.0 ac.ft. | 79.85 cfs @ 5.6 ac.ft. | 117.59 cfs @ 10.1 ac.ft. |
| Split Box | 16.88 cfs @ 320 min. | 51.89 cfs @ 310 min. | 79.49 cfs @ 310 min. | 117.11 cfs @ 310 min. |
| Freeway | 16.88 cfs @ 320 min. | 50.00 cfs @ 310 min. | 50.00 cfs @ 310 min. | 50.00 cfs @ 310 min. |
| O | 2.00 cfs @ 50 min. | 6.40 cfs @ 30 min. | 10.77 cfs @ 30 min. | 16.86 cfs @ 30 min. |
| P | 4.36 cfs @ 105 min. | 12.81 cfs @ 80 min. | 29.50 cfs @ 310 min. | 67.12 cfs @ 310 min. |
| Q | 0.91 cfs @ 55 min. | 2.85 cfs @ 35 min. | 4.64 cfs @ 35 min. | 7.19 cfs @ 30 min. |
| R | 2.88 cfs @ 35 min. | 6.41 cfs @ 30 min. | 8.37 cfs @ 30 min. | 10.95 cfs @ 30 min. |
| S | 28.05 cfs @ 75 min. | 77.51 cfs @ 55 min. | 116.99 cfs @ 50 min. | 173.60 cfs @ 50 min. |
| T | 3.29 cfs @ 85 min. | 10.27 cfs @ 60 min. | 16.47 cfs @ 55 min. | 25.56 cfs @ 55 min. |
| U | 37.96 cfs @ 85 min. | 107.36 cfs @ 65 min. | 168.11 cfs @ 60 min. | 253.90 cfs @ 60 min. |
| V | 37.96 cfs @ 85 min. | 107.36 cfs @ 65 min. | 168.11 cfs @ 60 min. | 253.90 cfs @ 60 min. |

Paradise Pond Outlet; One 30-inch pipe under inlet condition:

| | | | |
|---|---|---|---|
| 0.71 cfs @ 85 min. w/7.1 ac.ft. | 2.68 cfs @ 65 min. w/20.4 ac.ft. | 6.56 cfs @ 60 min. w/35 ac.ft. | 12.79 cfs @ 60 min. w/59.7 ac.ft. |

**TABLE D-2**

CONDITION NO. 4 WITH 6-HOUR DURATION STORM

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| A | 4.44 cfs @ 215 min. | 19.78 cfs @ 165 min. | 32.51 cfs @ 165 min. | 64.51 cfs @ 160 min. |
| B | 5.58 cfs @ 235 min. | 20.28 cfs @ 180 min. | 33.25 cfs @ 180 min. | 64.91 cfs @ 175 min. |
| C | 0.53 cfs @ 360 min. | 2.70 cfs @ 155 min. | 5.56 cfs @ 150 min. | 12.52 cfs @ 150 min. |
| D | 14.25 cfs @ 160 min. | 40.17 cfs @ 160 min. | 60.64 cfs @ 160 min. | 109.27 cfs @ 160 min. |
| E | 22.64 cfs @ 215 min. | 62.85 cfs @ 200 min. | 93.42 cfs @ 200 min. | 164.25 cfs @ 195 min. |
| F | 7.48 cfs @ 155 min. | 32.16 cfs @ 150 min. | 50.44 cfs @ 150 min. | 90.93 cfs @ 150 min. |
| G | 30.85 cfs @ 320 min. | 81.25 cfs @ 300 min. | 118.63 cfs @ 295 min. | 203.76 cfs @ 290 min. |
| H | 0.72 cfs @ 245 min. | 4.25 cfs @ 150 min. | 7.88 cfs @ 150 min. | 16.24 cfs @ 150 min. |
| I | 40.22 cfs @ 360 min. | 99.19 cfs @ 345 min. | 141.93 cfs @ 340 min. | 237.75 cfs @ 335 min. |
| J | 9.55 cfs @ 155 min. | 29.24 cfs @ 155 min. | 42.94 cfs @ 150 min. | 75.31 cfs @ 150 min. |
| K | 7.61 cfs @ 265 min. | 26.83 cfs @ 185 min. | 45.40 cfs @ 180 min. | 91.94 cfs @ 180 min. |
| L | 12.91 cfs @ 270 min. | 38.44 cfs @ 225 min. | 60.12 cfs @ 220 min. | 112.34 cfs @ 215 min. |
| M | 20.12 cfs @ 170 min. | 50.82 cfs @ 170 min. | 72.54 cfs @ 165 min. | 126.19 cfs @ 230 min. |
| N | 36.35 cfs @ 150 min. | 82.24 cfs @ 150 min. | 111.54 cfs @ 150 min. | 174.64 cfs @ 150 min. |

**TABLE D-2 - (con't)**

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| Evans | 35.98 cfs @ 1.6 ac.ft. | 80.69 cfs @ 5.7 ac.ft. | 111.20 cfs @ 9.2 ac.ft. | 173.98 cfs @ 18.3 ac.ft. |
| Split Box | 35.63 cfs @ 410 min. | 80.18 cfs @ 415 min. | 110.59 cfs @ 415 min. | 173.09 cfs @ 415 min. |
| Freeway | 35.63 cfs @ 410 min. | 50.00 cfs @ 415 min. | 50.00 cfs @ 415 min. | 50.00 cfs @ 415 min. |
| O | 5.15 cfs @ 150 min. | 12.08 cfs @ 150 min. | 16.96 cfs @ 145 min. | 27.45 cfs @ 145 min. |
| P | 7.28 cfs @ 185 min. | 31.53 cfs @ 405 min. | 62.31 cfs @ 405 min. | 125.32 cfs @ 410 min. |
| Q | 2.23 cfs @ 150 min. | 5.48 cfs @ 150 min. | 7.63 cfs @ 150 min. | 12.16 cfs @ 150 min. |
| R | 5.13 cfs @ 150 min. | 8.44 cfs @ 150 min. | 10.90 cfs @ 150 min. | 31.06 cfs @ 145 min. |
| S | 54.18 cfs @ 155 min. | 129.91 cfs @ 150 min. | 183.30 cfs @ 150 min. | 301.32 cfs @ 150 min. |
| T | 6.30 cfs @ 165 min. | 17.52 cfs @ 165 min. | 25.68 cfs @ 160 min. | 43.91 cfs @ 160 min. |
| U | 65.57 cfs @ 170 min. | 168.55 cfs @ 160 min. | 243.33 cfs @ 160 min. | 415.65 cfs @ 160 min. |
| V | 65.57 cfs @ 170 min. | 168.55 cfs @ 160 min. | 243.33 cfs @ 160 min. | 415.65 cfs @ 160 min. |

Paradise Pond Outlet; One 30-inch pipe under inlet conditions:

| | | | |
|---|---|---|---|
| 1.54 cfs @ 170 min. w/15.3ac.ft. | 7.56 cfs @ 160 min. w/38.9ac.ft. | 12.80 cfs @ 160 min. w/59.7ac.ft. | 19.08 cfs @ 160 min. w/111.6ac.ft. |

**TABLE D-3**

CONDITION NO. 4 WITH 24-HOUR DURATION STORM

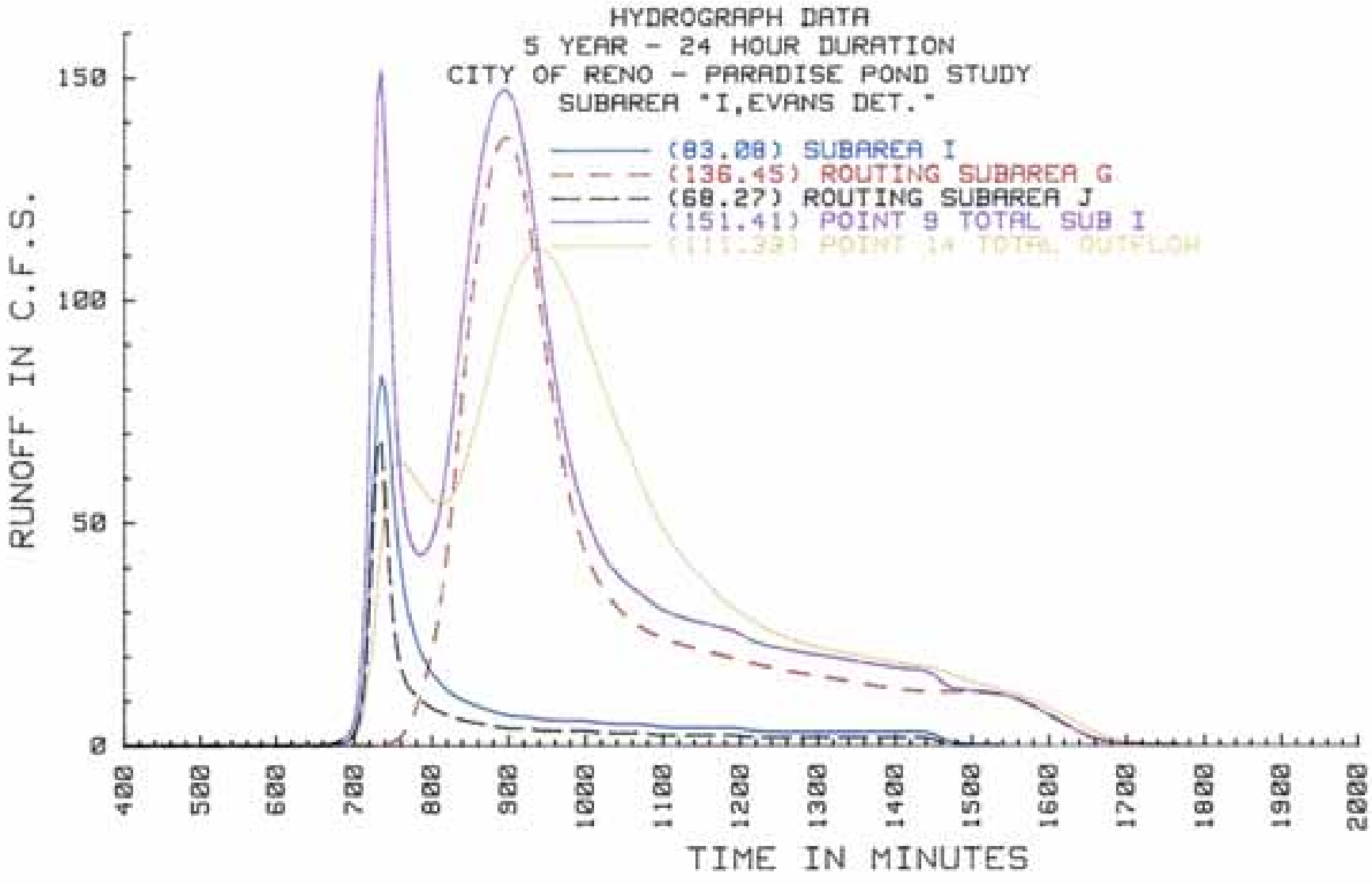
| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| A | 61.48 cfs @ 730 min. | 158.82 cf @ 730 min. | 237.00 cfs @ 730 min. | 278.60 cfs @ 730 min. |
| B | 54.62 cfs @ 745 min. | 143.92 cfs @ 740 min. | 217.10 cfs @ 740 min. | 256.20 cfs @ 740 min. |
| C | 14.36 cfs @ 720 min. | 41.29 cfs @ 720 min. | 63.42 cfs @ 720 min. | 75.30 cfs @ 720 min. |
| D | 104.77 cfs @ 725 min. | 241.01 cfs @ 725 min. | 348.08 cfs @ 725 min. | 404.57 cfs @ 725 min. |
| E | 121.82 cfs @ 760 min. | 291.19 cfs @ 755 min. | 425.59 cfs @ 755 min. | 496.81 cfs @ 755 min. |
| F | 110.52 cfs @ 720 min. | 258.26 cfs @ 720 min. | 373.59 cfs @ 720 min. | 434.25 cfs @ 720 min. |
| G | 139.30 cfs @ 850 min. | 326.44 cfs @ 850 min. | 474.56 cfs @ 850 min. | 552.88 cfs @ 850 min. |
| H | 19.74 cfs @ 720 min. | 52.44 cfs @ 720 min. | 78.85 cfs @ 720 min. | 92.93 cfs @ 720 min. |
| I | 151.41 cfs @ 735 min. | 351.63 cfs @ 735 min. | 512.01 cfs @ 735 min. | 598.45 cfs @ 730 min. |
| J | 80.99 cfs @ 725 min. | 176.79 cfs @ 720 min. | 253.47 cfs @ 720 min. | 293.67 cfs @ 720 min. |
| K | 75.30 cfs @ 745 min. | 209.81 cfs @ 745 min. | 320.32 cfs @ 745 min. | 379.60 cfs @ 745 min. |
| L | 82.34 cfs @ 730 min. | 211.65 cfs @ 780 min. | 319.37 cfs @ 780 min. | 377.00 cfs @ 780 min. |
| M | 106.17 cfs @ 735 min. | 228.51 cfs @ 735 min. | 326.67 cfs @ 735 min. | 382.15 cfs @ 795 min. |
| N | 201.78 cfs @ 720 min. | 425.35 cfs @ 720 min. | 603.78 cfs @ 720 min. | 680.65 cfs @ 720 min. |

**TABLE D-3 - (con't)**

| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| Evans | 111.33 cfs @ 735 min. | 234.09 cfs @ 735 min. | 396.26 cfs @ 735 min. | 404.61 cfs @ 730 min. |
| Split Box | 110.68 cfs @ 970 min. | 231.80 cfs @ 970 min. | 395.52 cfs @ 960 min. | 404.27 cfs @ 970 min. |
| Freeway | 53.45 cfs @ 820 min. | 60.72 cfs @ 790 min. | 93.12 cfs @ 740 min. | 112.07 cfs @ 740 min. |
| O | 35.20 cfs @ 720 min. | 70.00 cfs @ 720 min. | 95.73 cfs @ 720 min. | 108.98 cfs @ 720 min. |
| P | 63.98 cfs @ 970 min. | 187.69 cfs @ 970 min. | 353.48 cfs @ 960 min. | 363.11 cfs @ 965 min. |
| Q | 14.88 cfs @ 720 min. | 30.18 cfs @ 720 min. | 41.59 cfs @ 720 min. | 47.48 cfs @ 720 min. |
| R | 37.09 cfs @ 720 min. | 68.34 cfs @ 720 min. | ~~41.59~~ 94 cfs @ 720 min. | ~~47.48~~ 102 cfs @ 720 min. |
| S | 311.01 cfs @ 720 min. | 670.82 cfs @ 720 min. | 959.38 cfs @ 720 min. | 1094.54 cfs @ 720 min. |
| T | 42.17 cfs @ 730 min. | 91.89 cfs @ 730 min. | 129.91 cfs @ 730 min. | 149.74 cfs @ 730 min. |
| U | 385.60 cfs @ 730 min. | 847.93 cfs @ 730 min. | 1191.16 cfs @ 730 min. | 1371.71 cfs @ 730 min. |
| V | 385.60 cfs @ 730 min. | 854.19 cfs @ 730 min. | 1214.46 cfs @ 730 min. | 1406.94 cfs @ 730 min. |

Paradise Pond Outlet; the minimum size pipe under inlet condition to keep from overflowing Paradise Pond:

| 30" pipe | 2-60" pipe | 3-66" pipes | 4-66" pipes |
|---|---|---|---|
| 13.40 cfs | 141.14 cfs | 296.99 cfs | 391.61 cfs |
| @ 730 min. | @ 730 min. | @ 730 min. | @ 730 min. |
| w/62.1 ac.ft. | w/113.8ac.ft. | w/135.7 ac.ft. | w/134.5 ac.ft. |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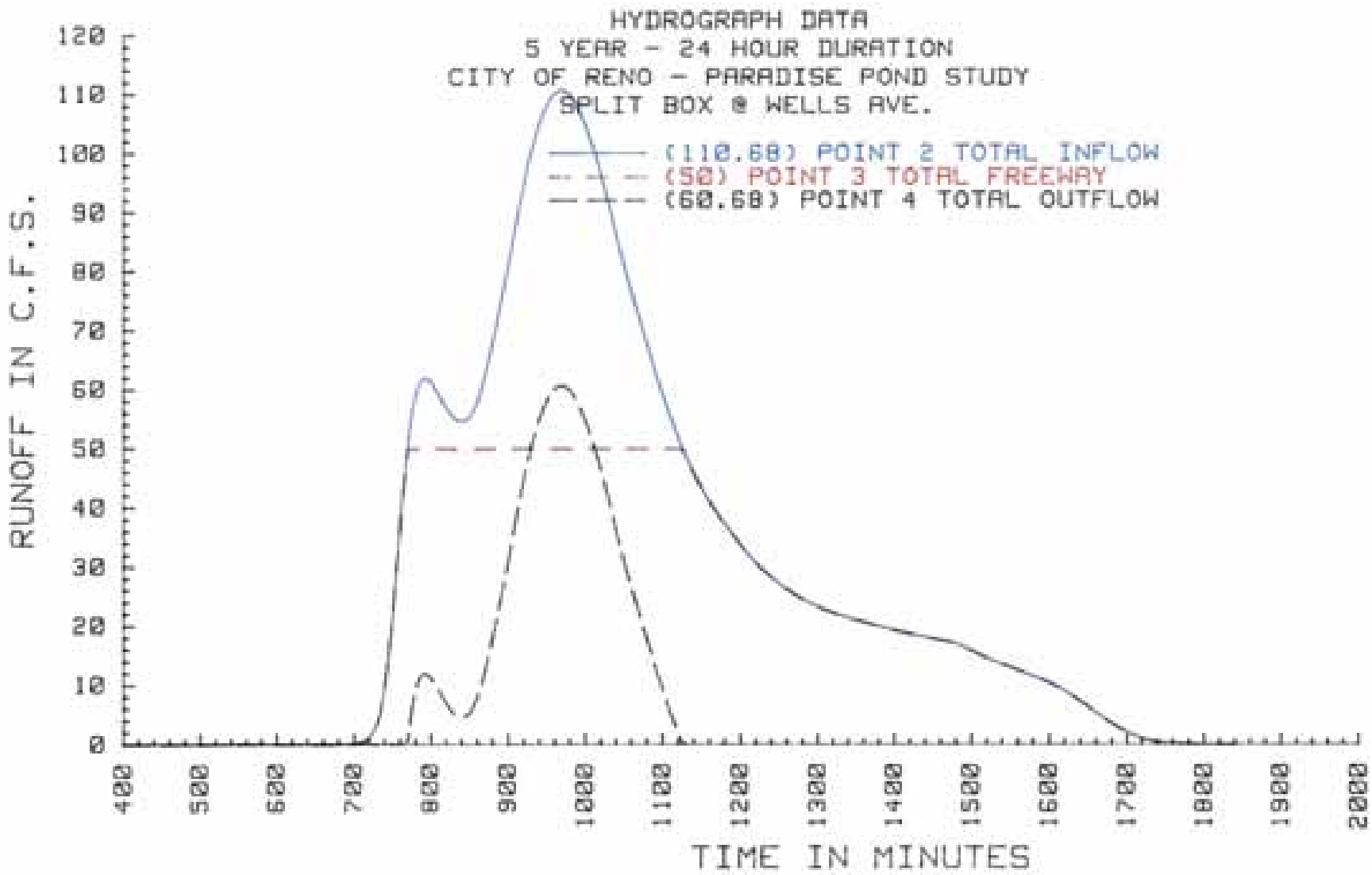
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(83.08) SUBAREA I
(136.45) ROUTING SUBAREA G
(68.27) ROUTING SUBAREA J
(151.41) POINT 9 TOTAL SUB I
(111.33) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
150
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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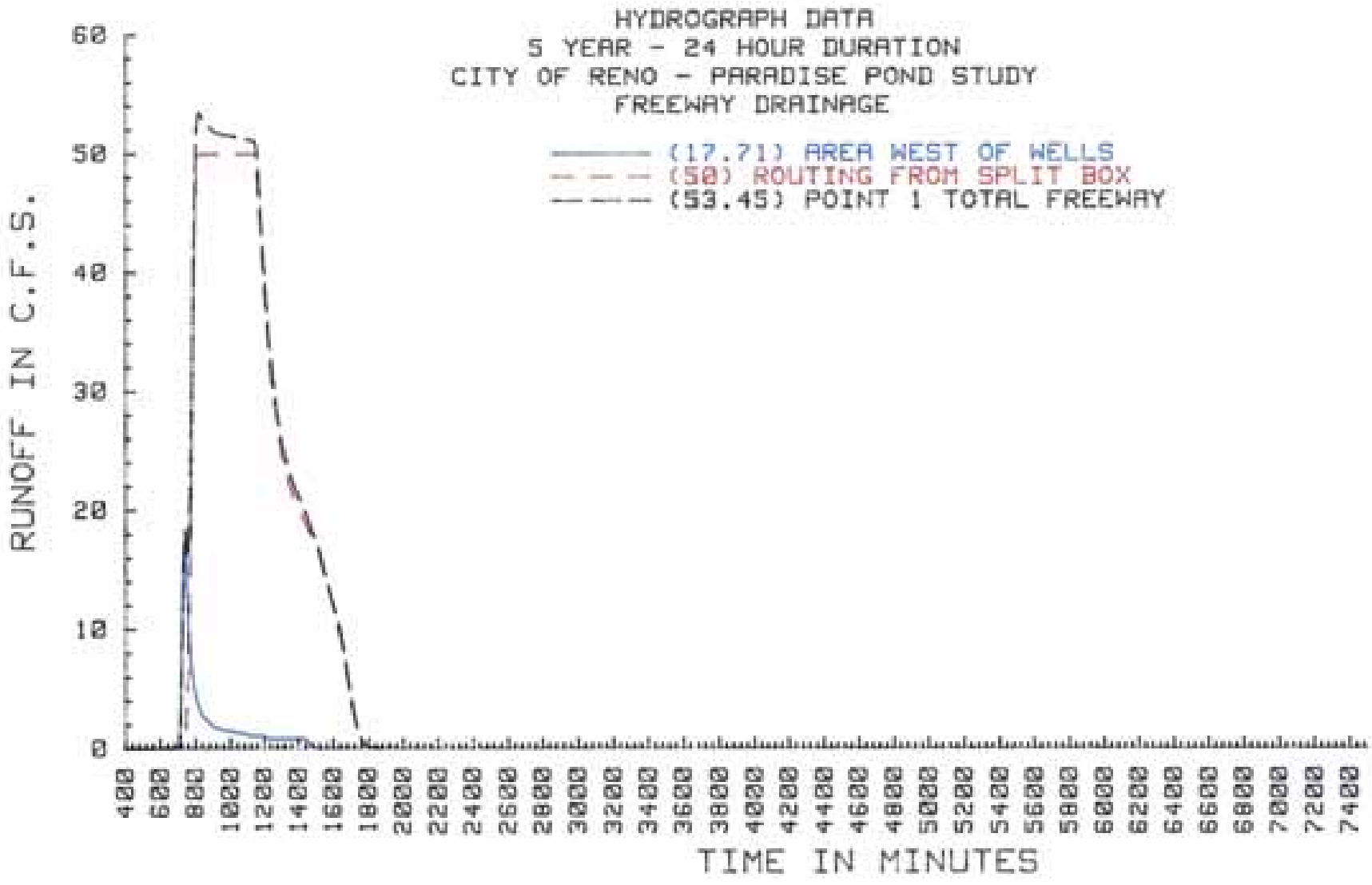
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(110.68) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(60.68) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(17.71) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(53.45) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
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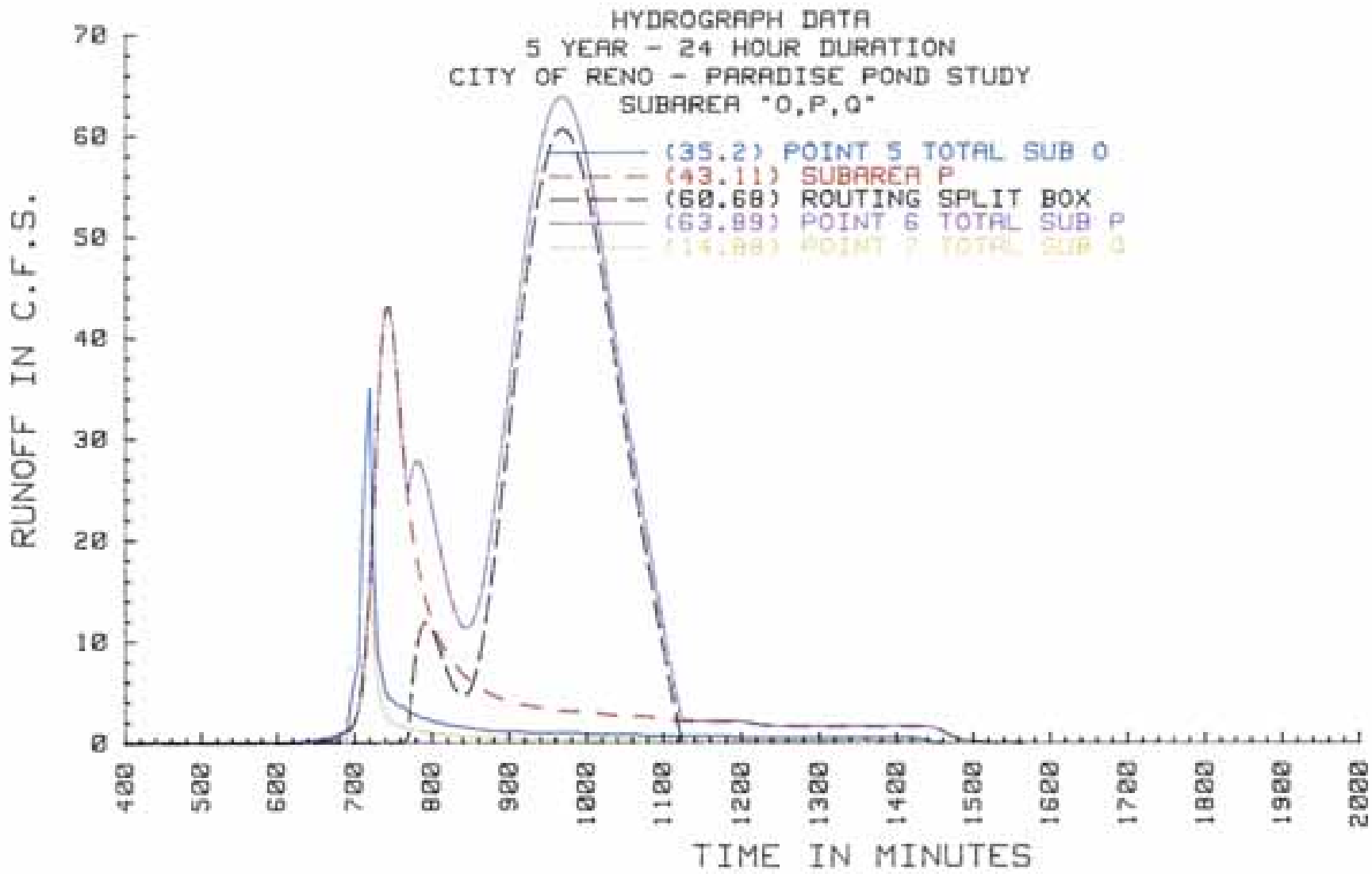
6200
6400
6600
6800
7000
7200
7400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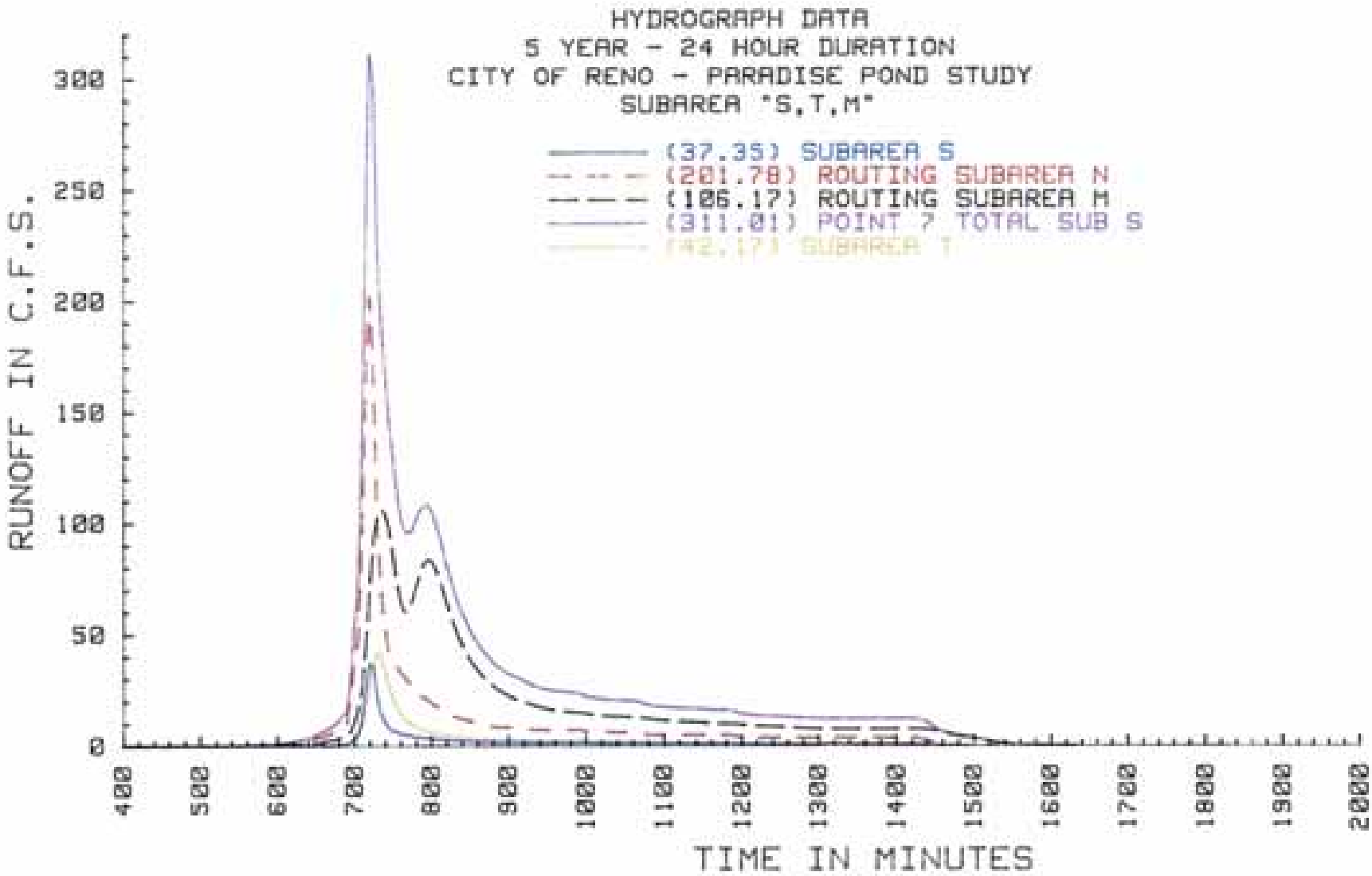
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(35.2) POINT 5 TOTAL SUB O
(43.11) SUBAREA P
(60.68) ROUTING SPLIT BOX
(63.89) POINT 6 TOTAL SUB P
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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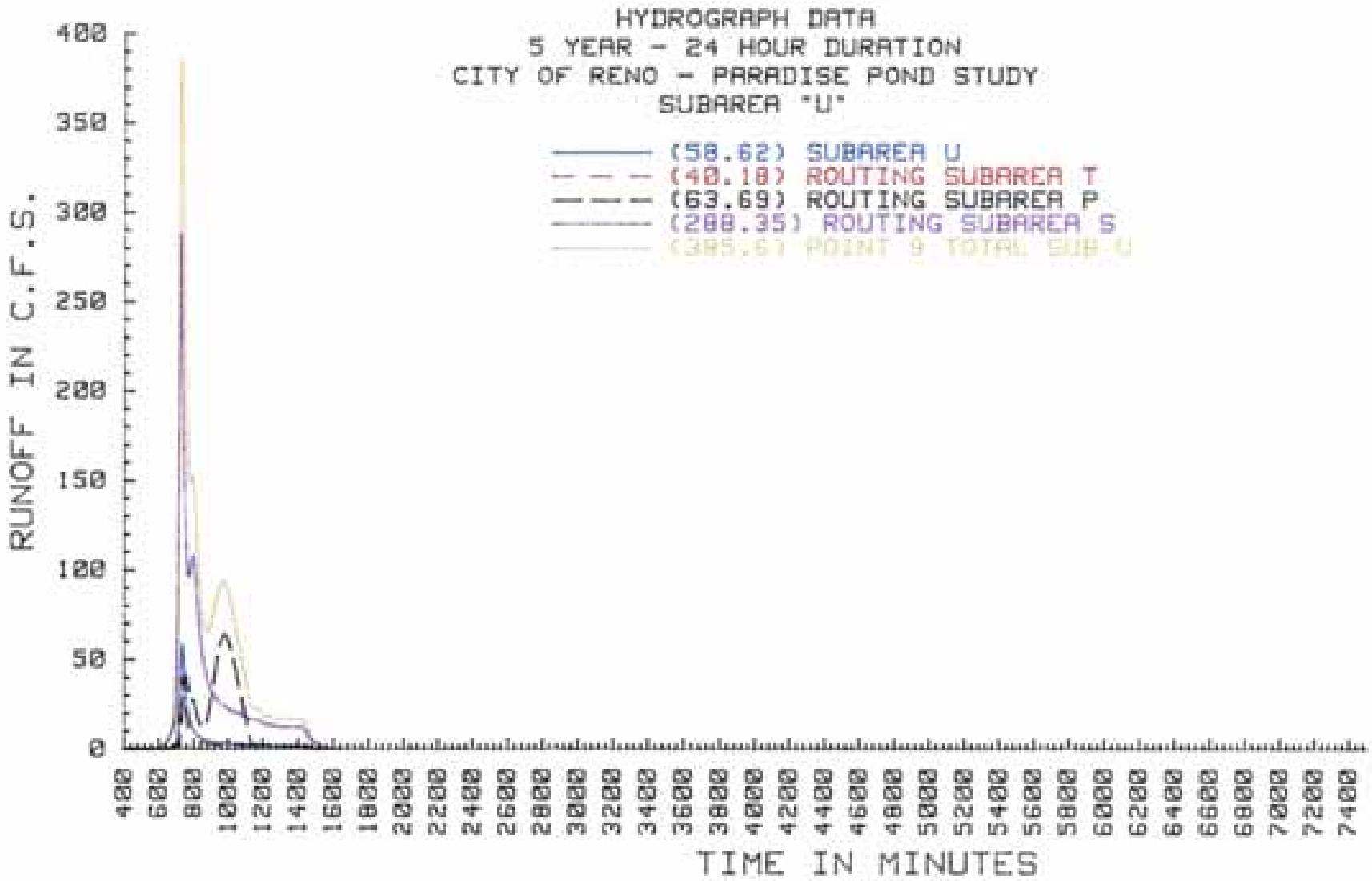
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(37.35) SUBAREA S
(201.78) ROUTING SUBAREA N
(106.17) ROUTING SUBAREA M
(311.01) POINT 7 TOTAL SUB S
(42.17) SUBAREA T
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(58.62) SUBAREA U
(40.18) ROUTING SUBAREA T
(63.69) ROUTING SUBAREA P
(288.35) ROUTING SUBAREA S
(385.61) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
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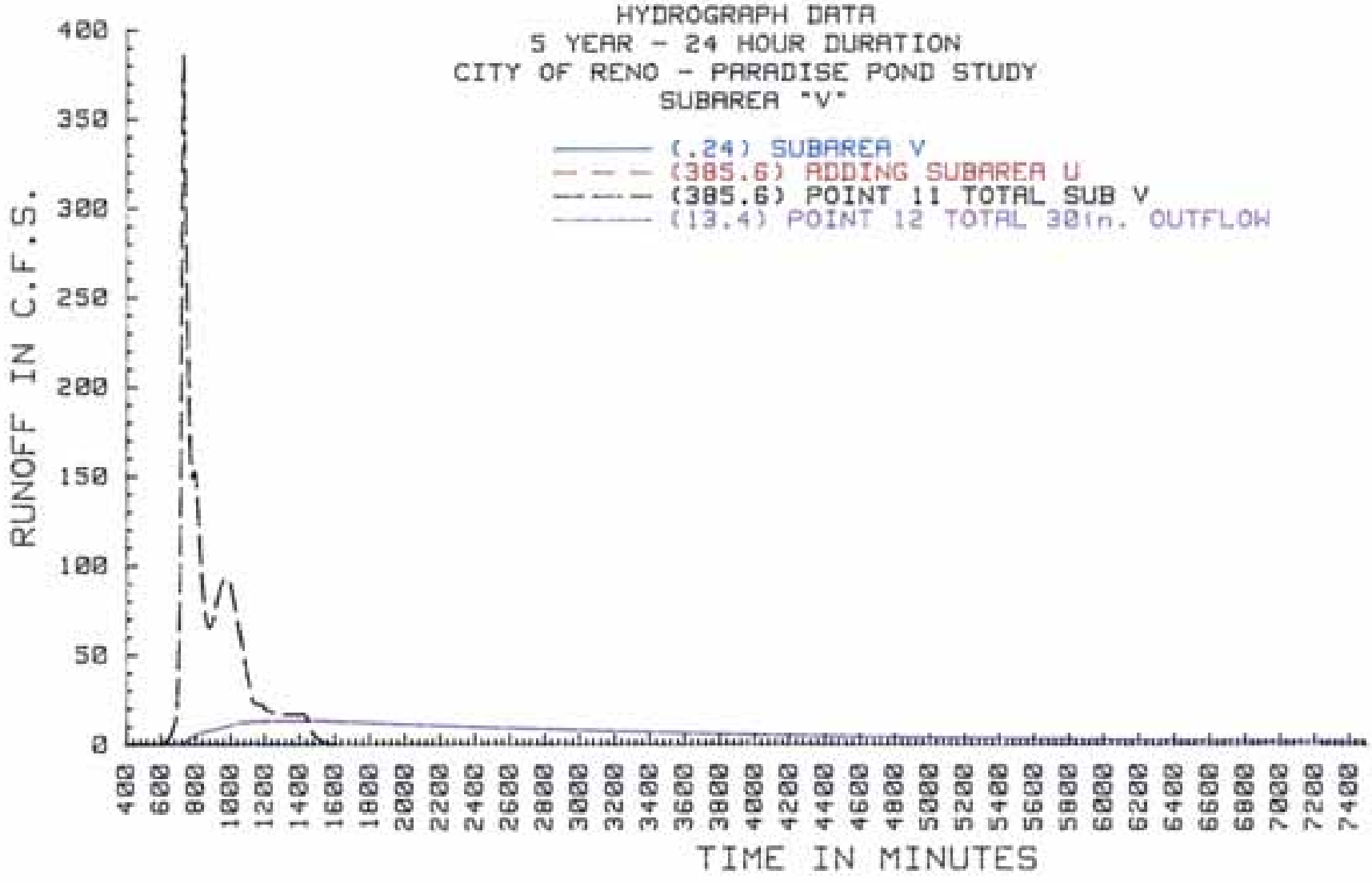
6200
6400
6600
6800
7000
7200
7400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5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(.24) SUBAREA V
(385.6) ADDING SUBAREA U
(385.6) POINT 11 TOTAL SUB V
(13.4) POINT 12 TOTAL 30in. OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
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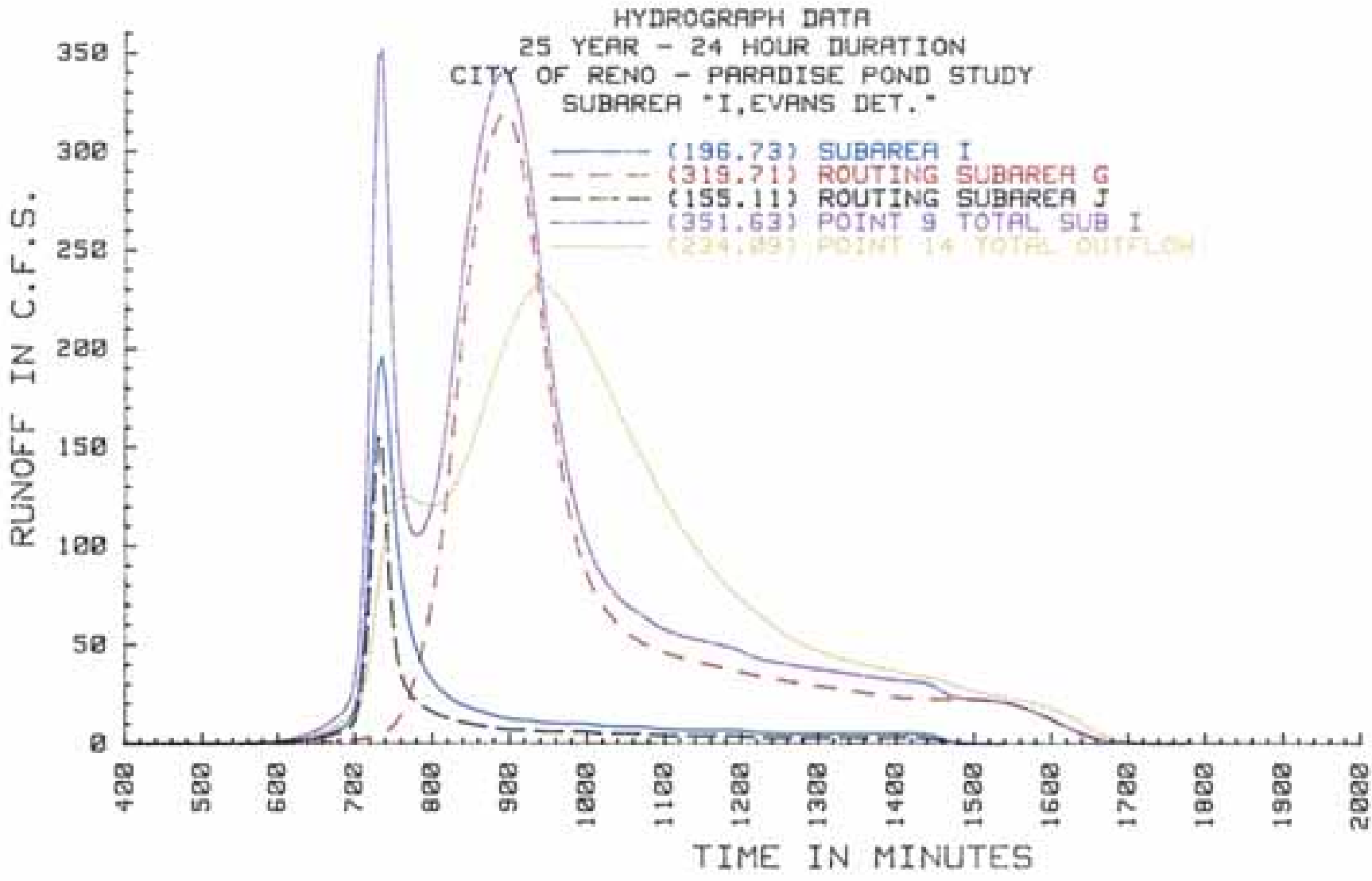
6200
6400
6600
6800
7000
7200
7400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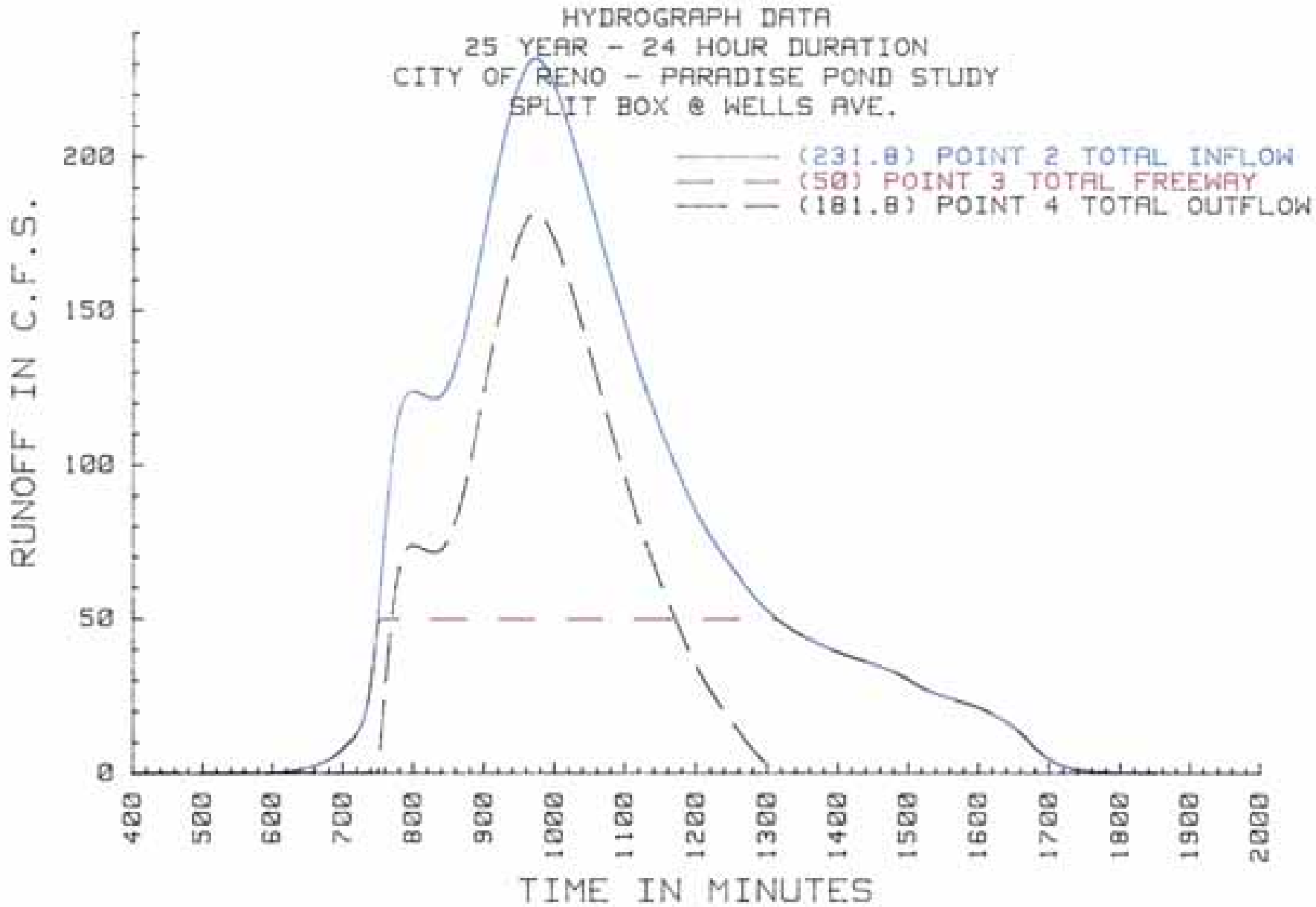
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(196.73) SUBAREA I
(319.71) ROUTING SUBAREA G
(155.11) ROUTING SUBAREA J
(351.63) POINT 9 TOTAL SUB I
(224.09) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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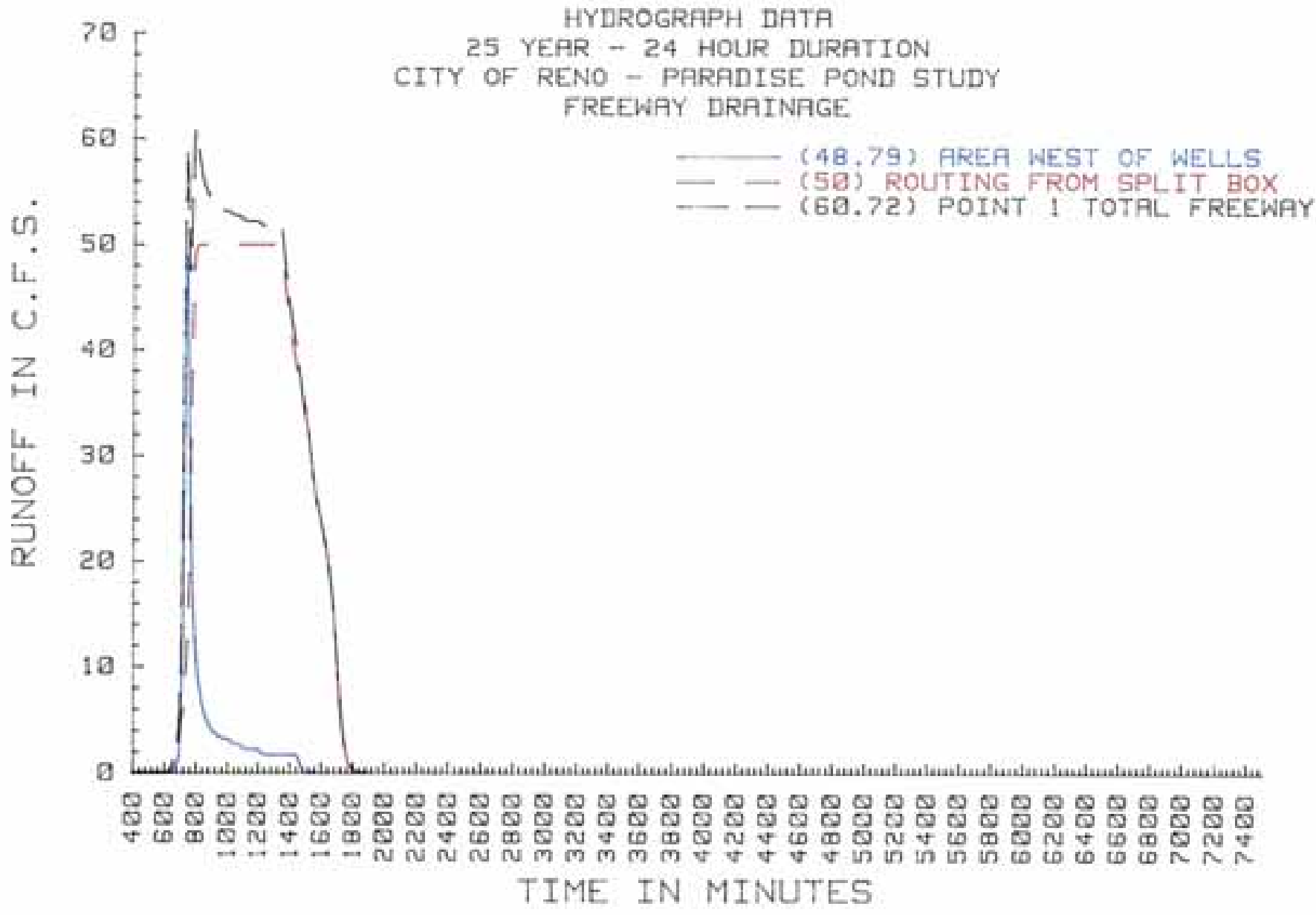
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(231.8) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(181.8) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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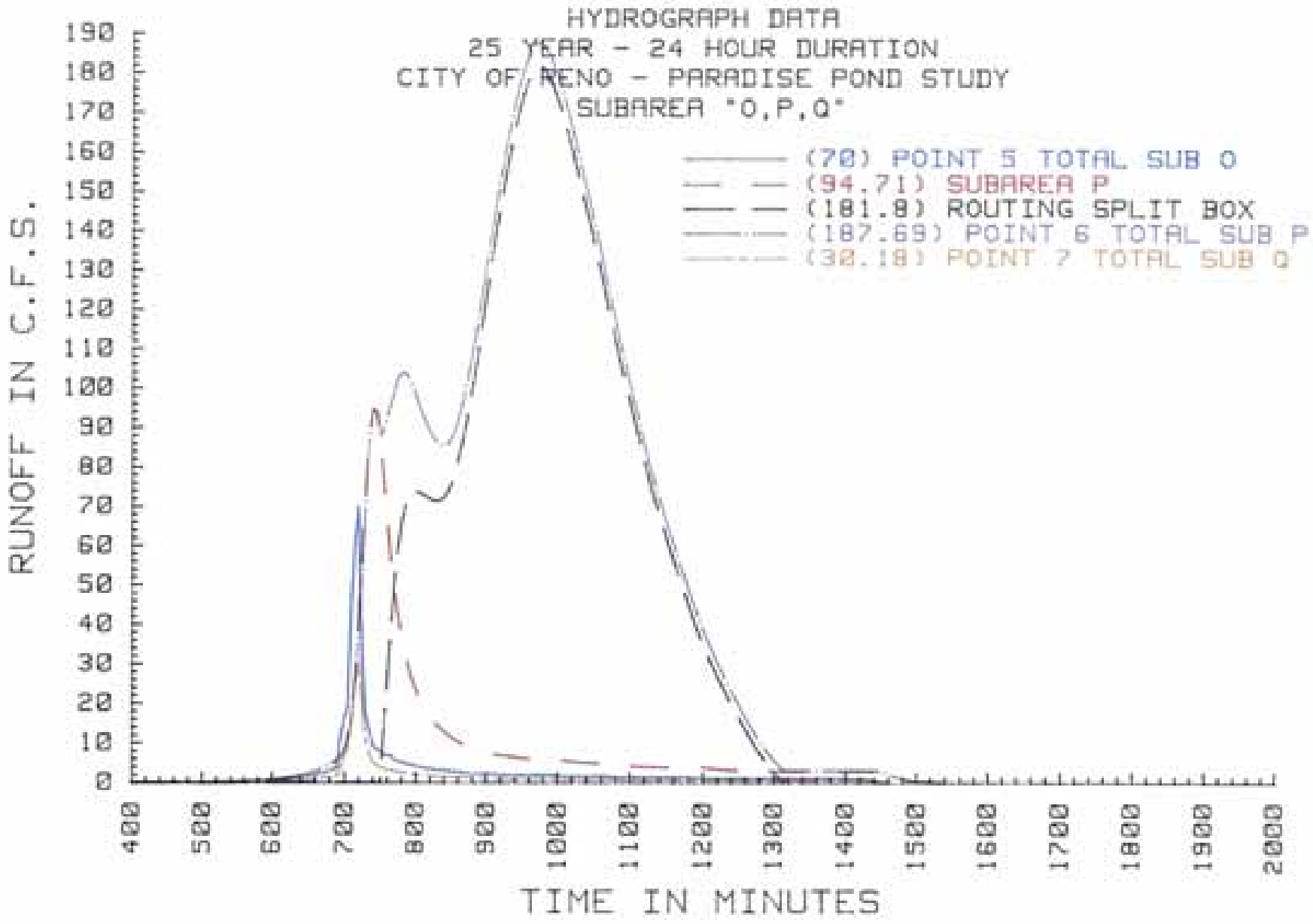
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(48.79) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(60.72) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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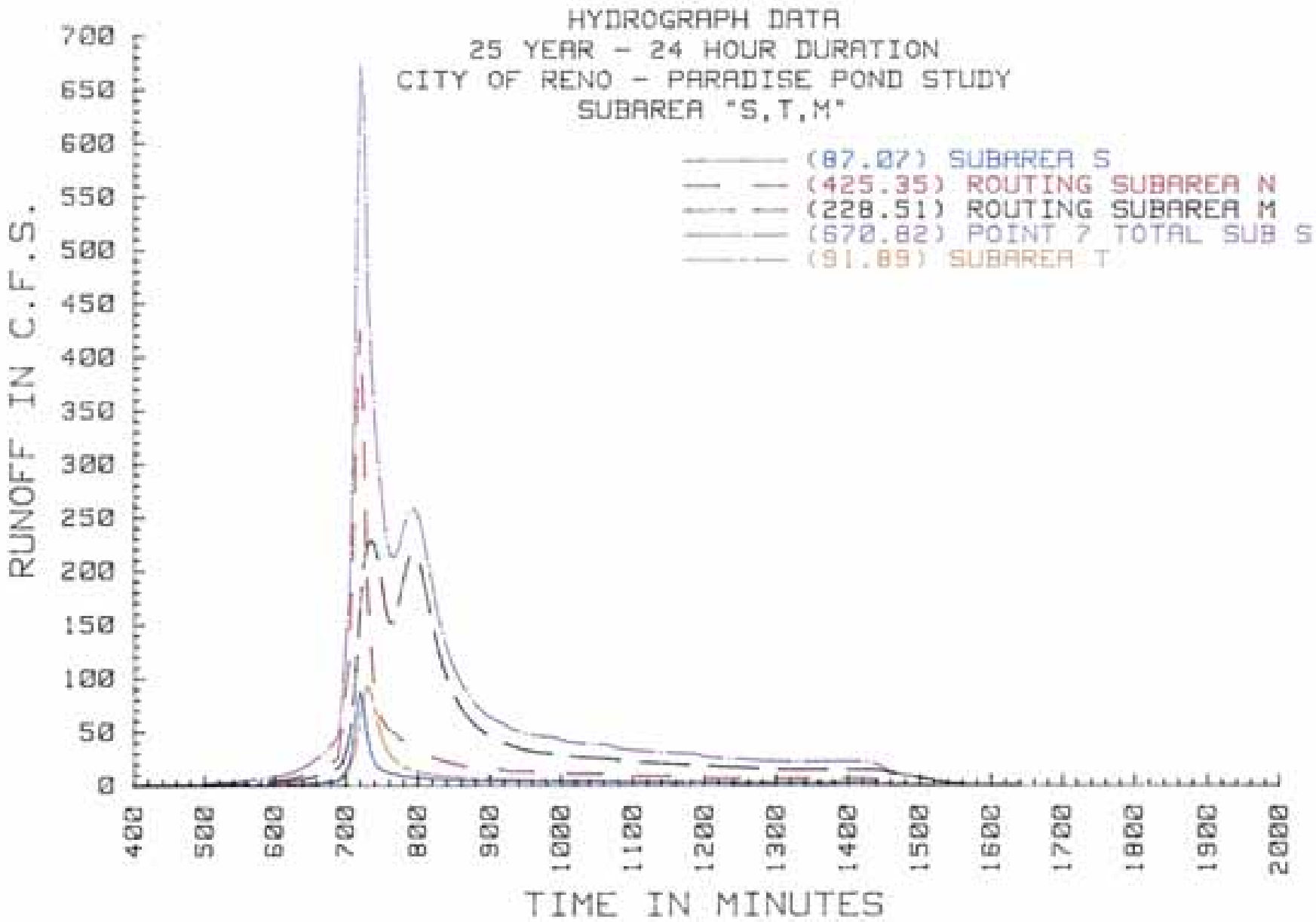
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(70) POINT 5 TOTAL SUB O
(94.71) SUBAREA P
(181.8) ROUTING SPLIT BOX
(187.69) POINT 6 TOTAL SUB P
(30.18) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000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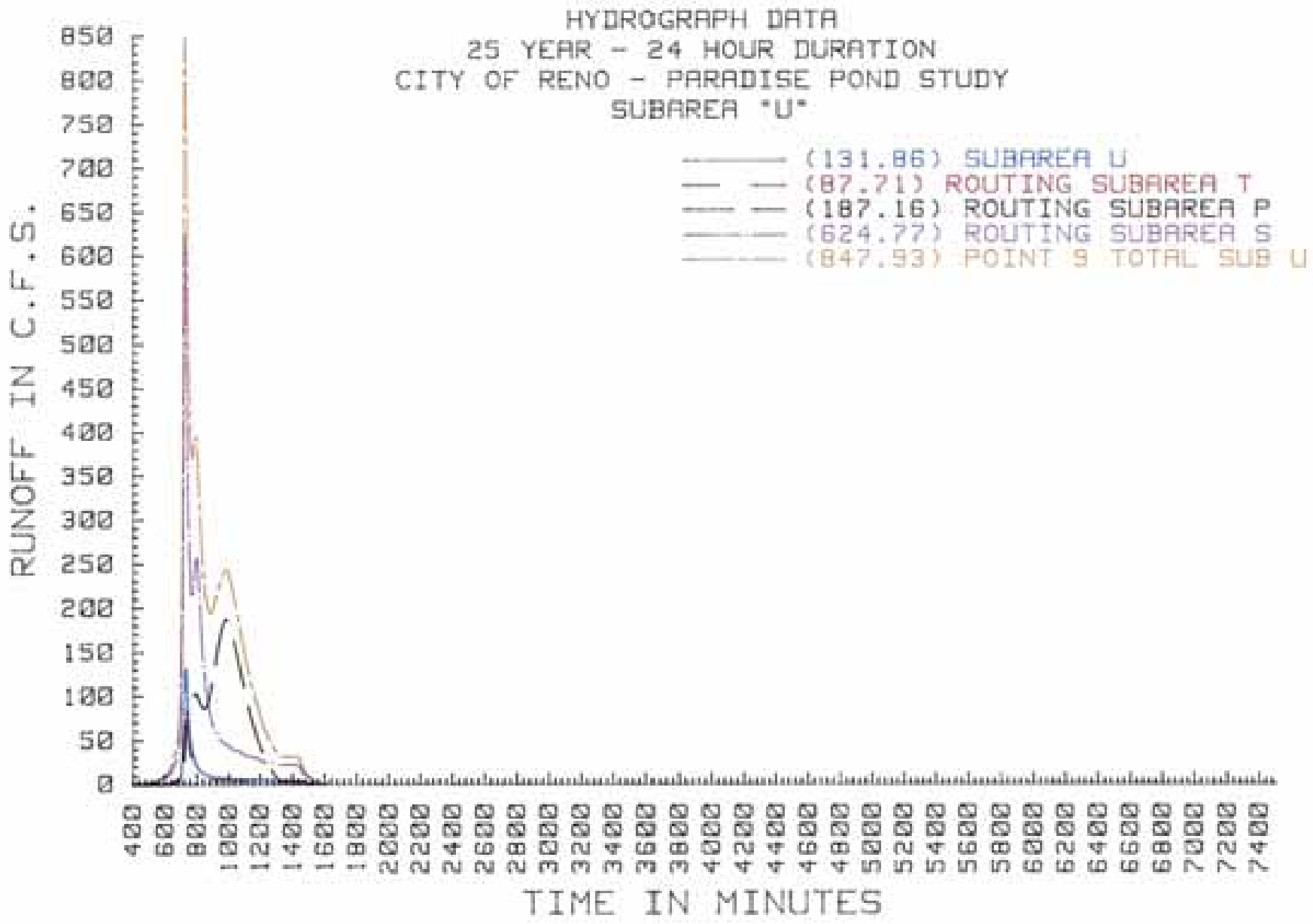
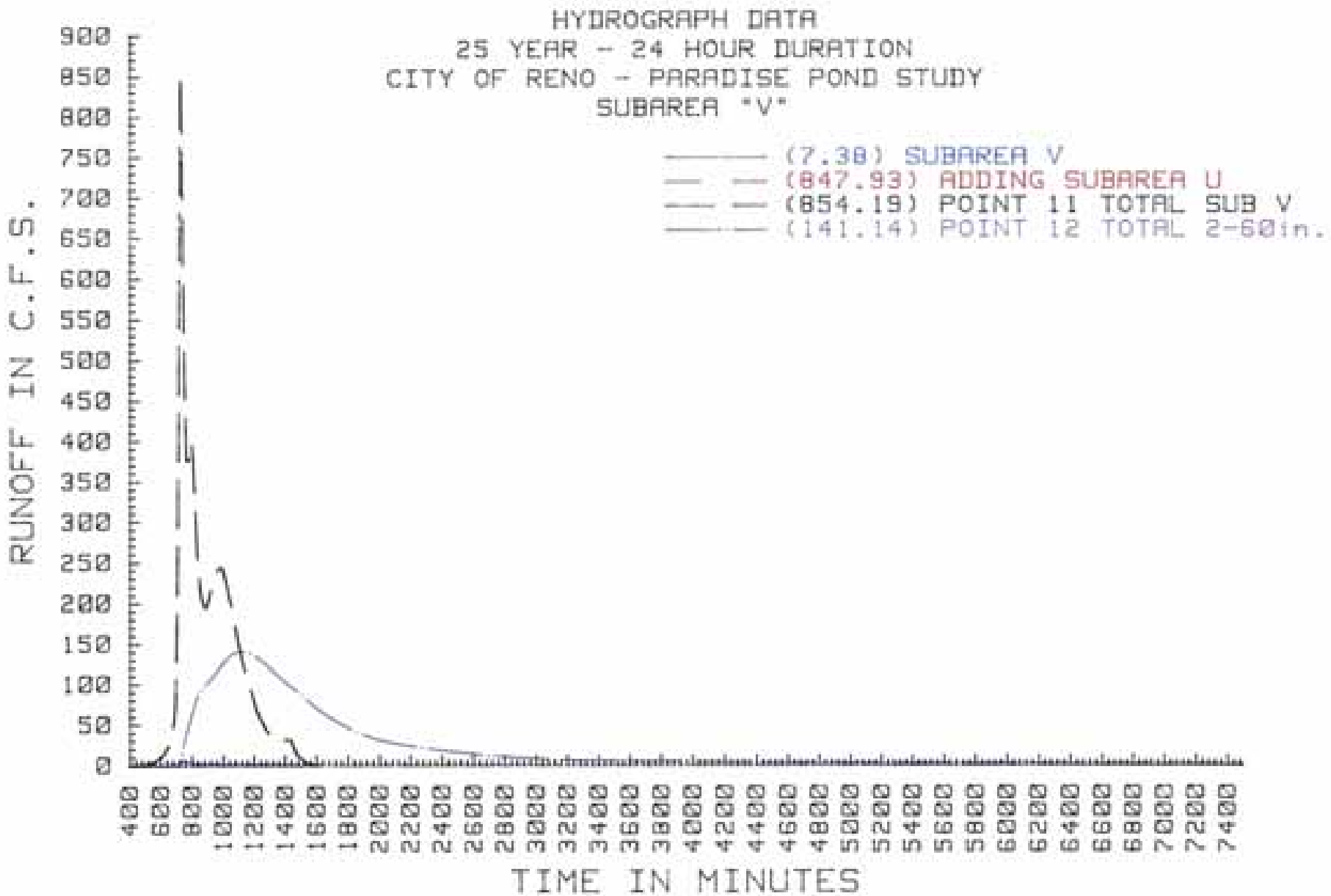
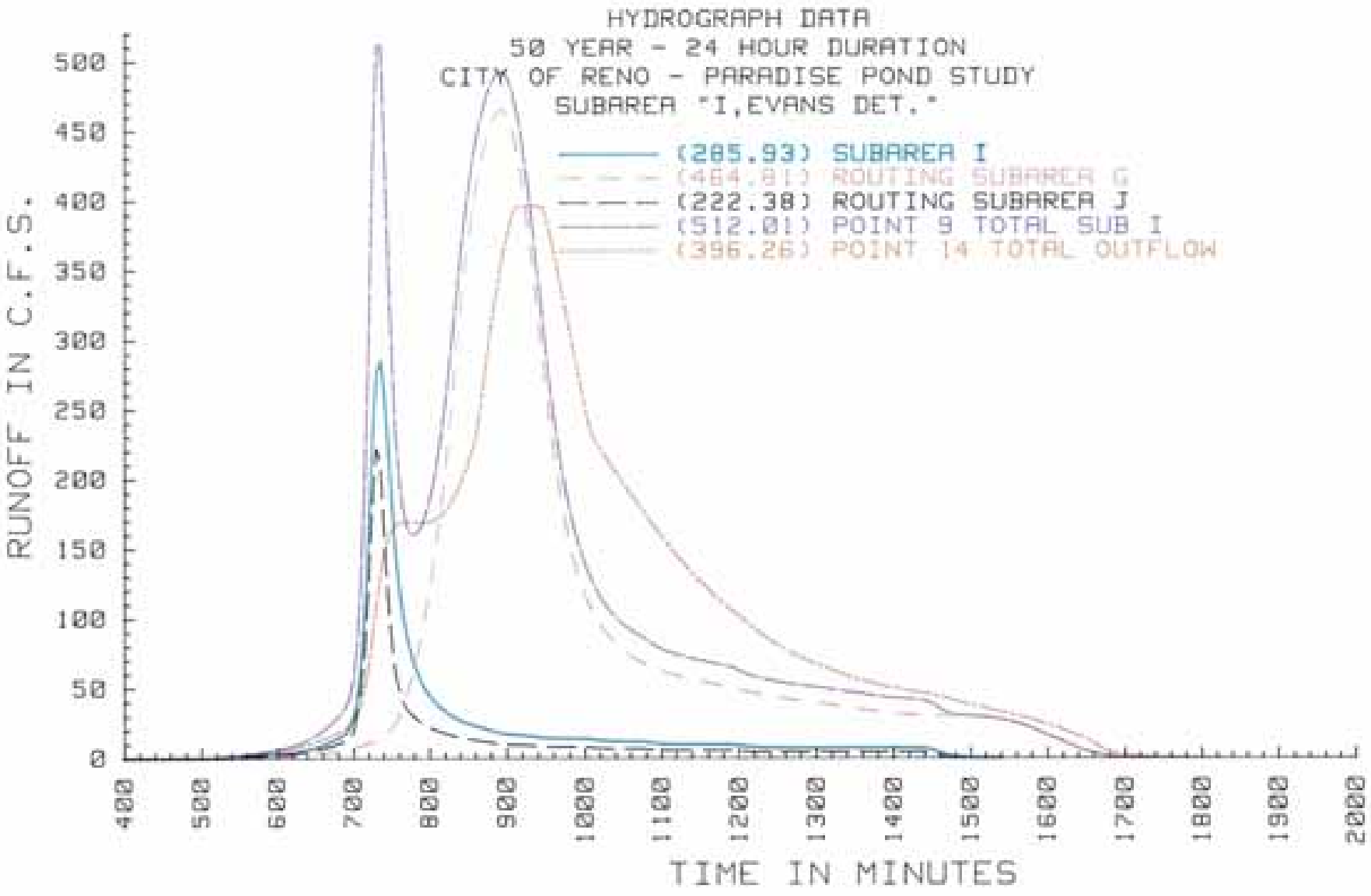
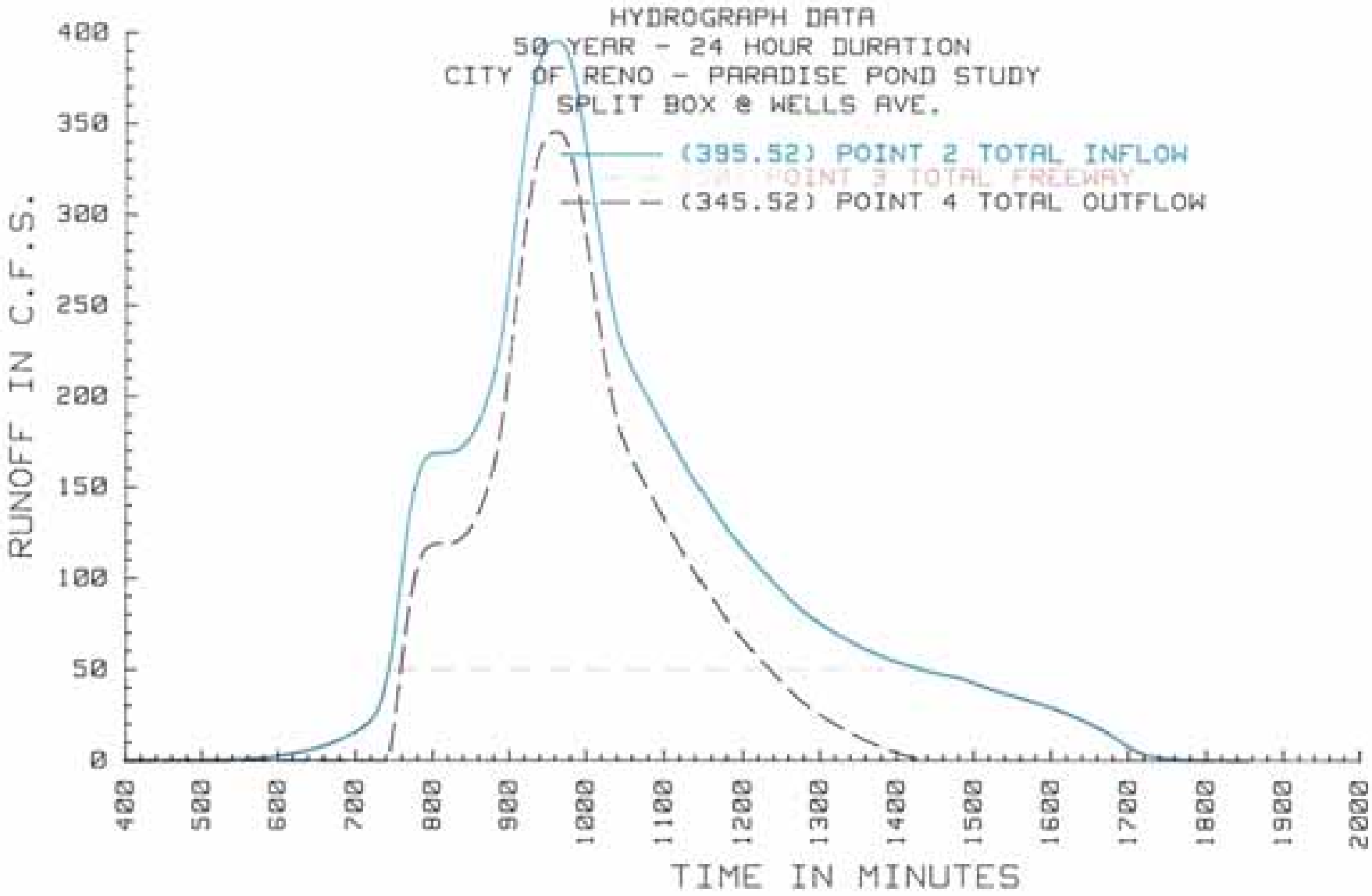
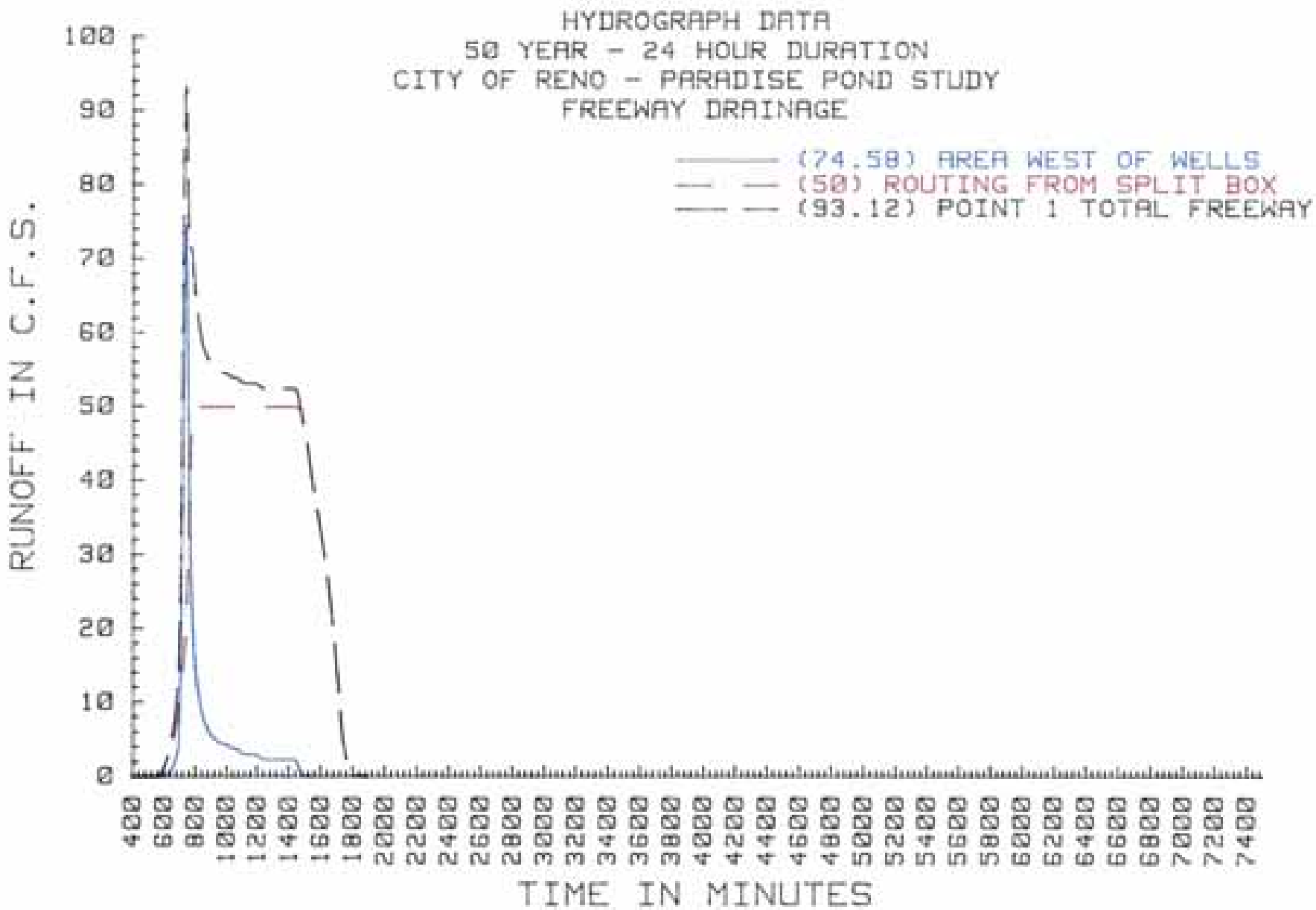
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(87.07) SUBAREA S
(425.35) ROUTING SUBAREA N
(228.51) ROUTING SUBAREA M
(670.82) POINT 7 TOTAL SUB S
(91.89) SUBAREA T
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

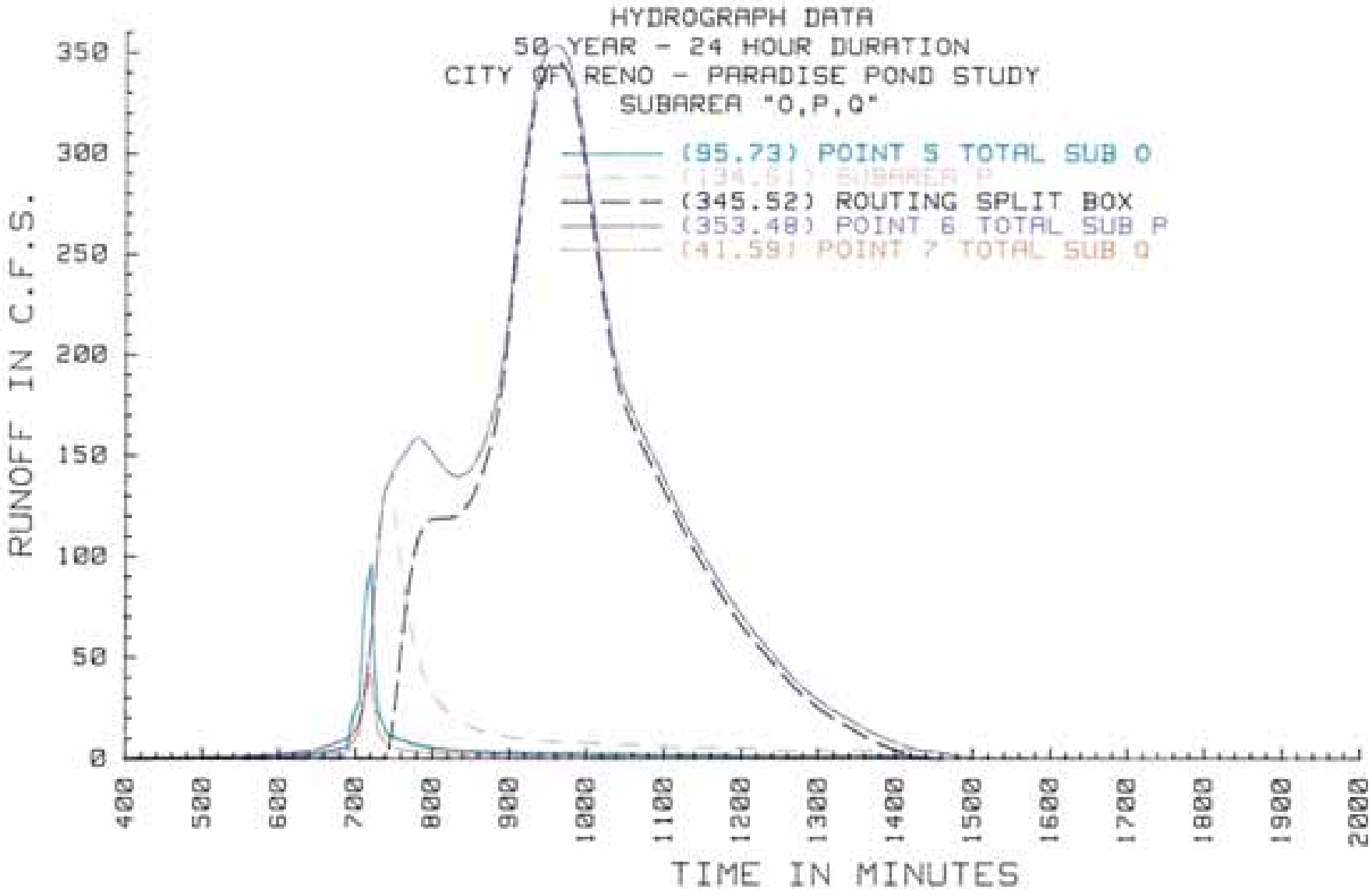

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(131.86) SUBAREA U
(87.71) ROUTING SUBAREA T
(187.16) ROUTING SUBAREA P
(624.77) ROUTING SUBAREA S
(847.93) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

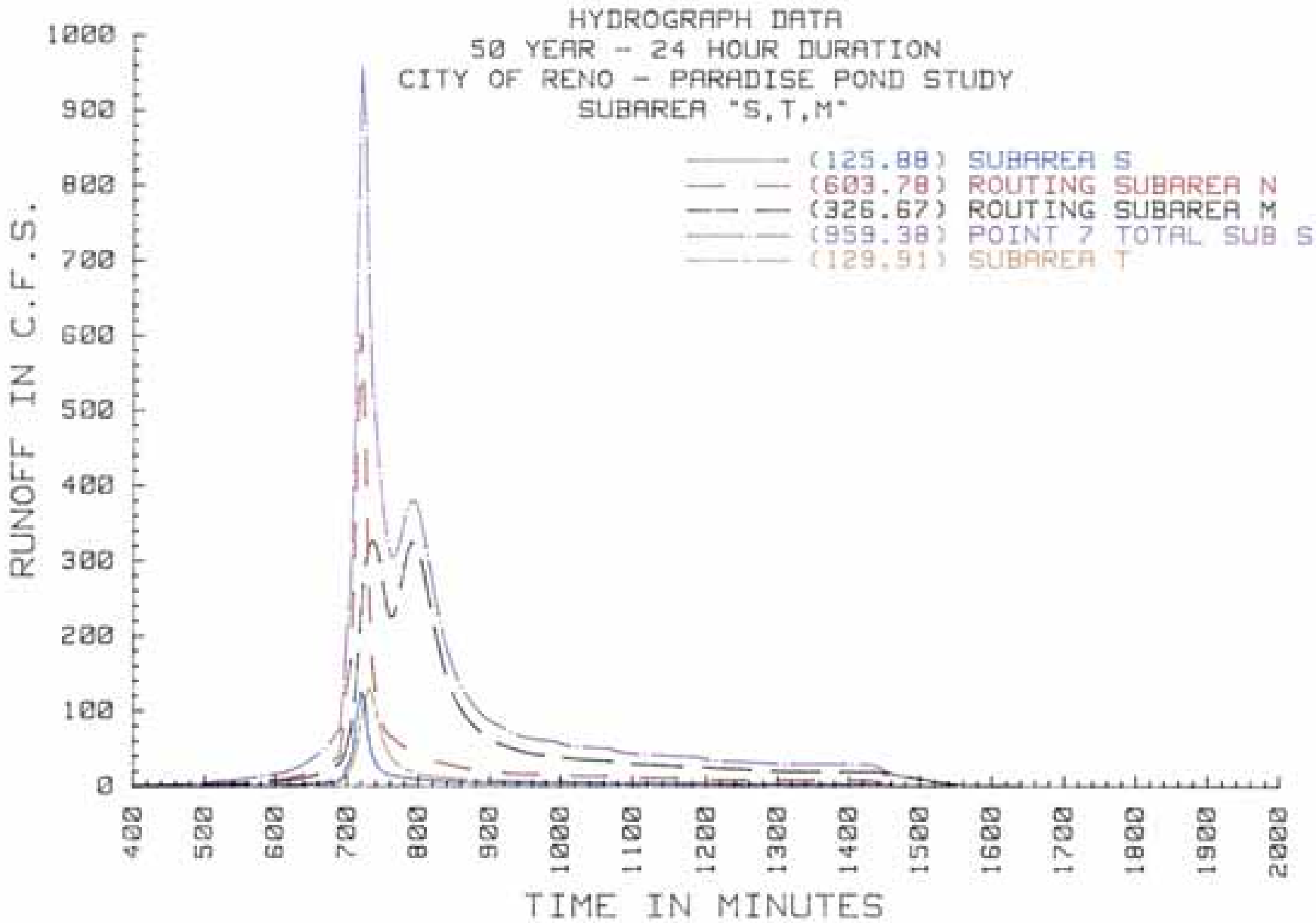

HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(7.38) SUBAREA V
(847.93) ADDING SUBAREA U
(854.19) POINT 11 TOTAL SUB V
(141.14) POINT 12 TOTAL 2-60in.
RUNOFF IN C.F.S.
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

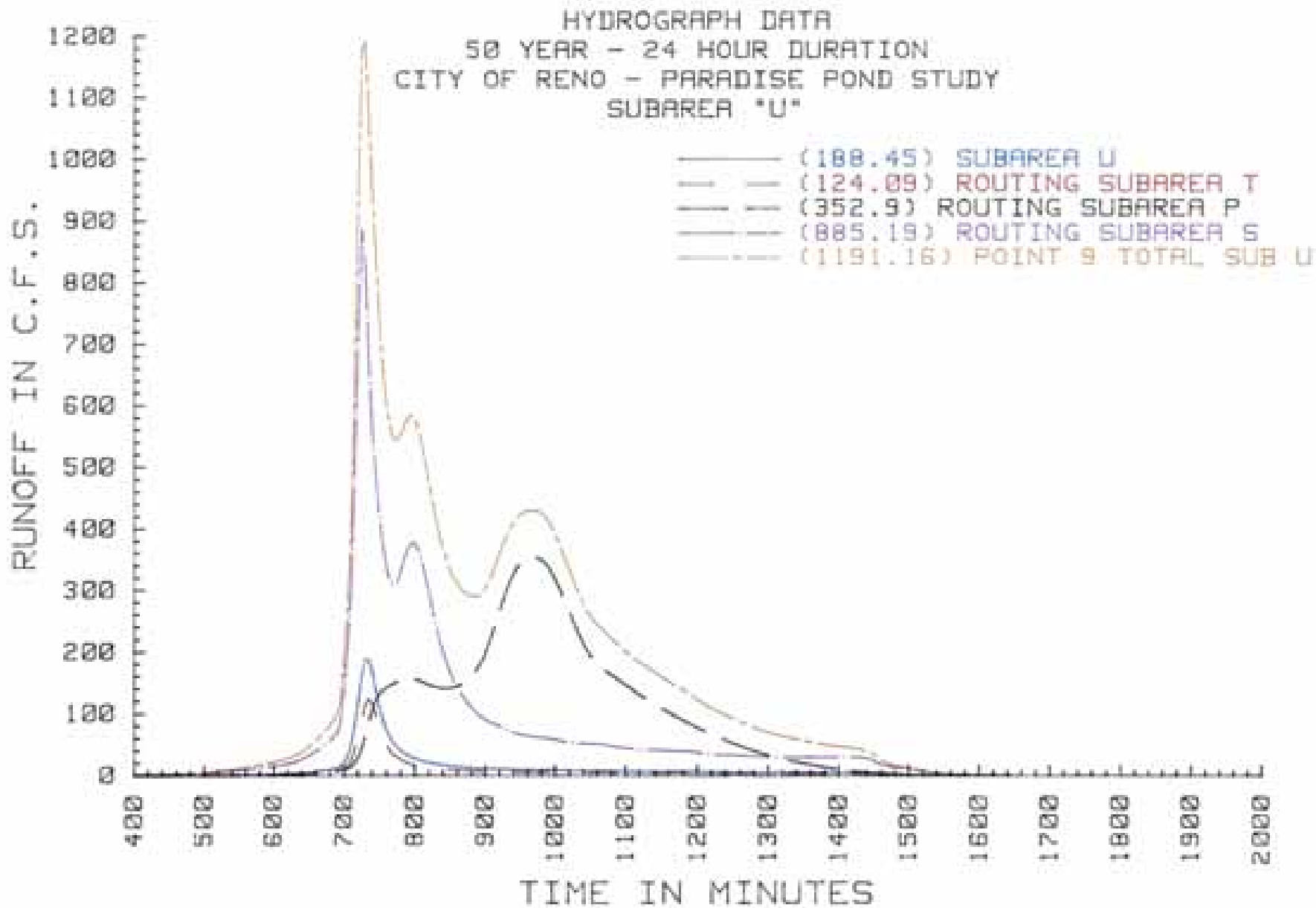

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(285.93) SUBAREA I
(464.81) ROUTING SUBAREA G
(222.38) ROUTING SUBAREA J
(512.01) POINT 9 TOTAL SUB I
(396.26) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

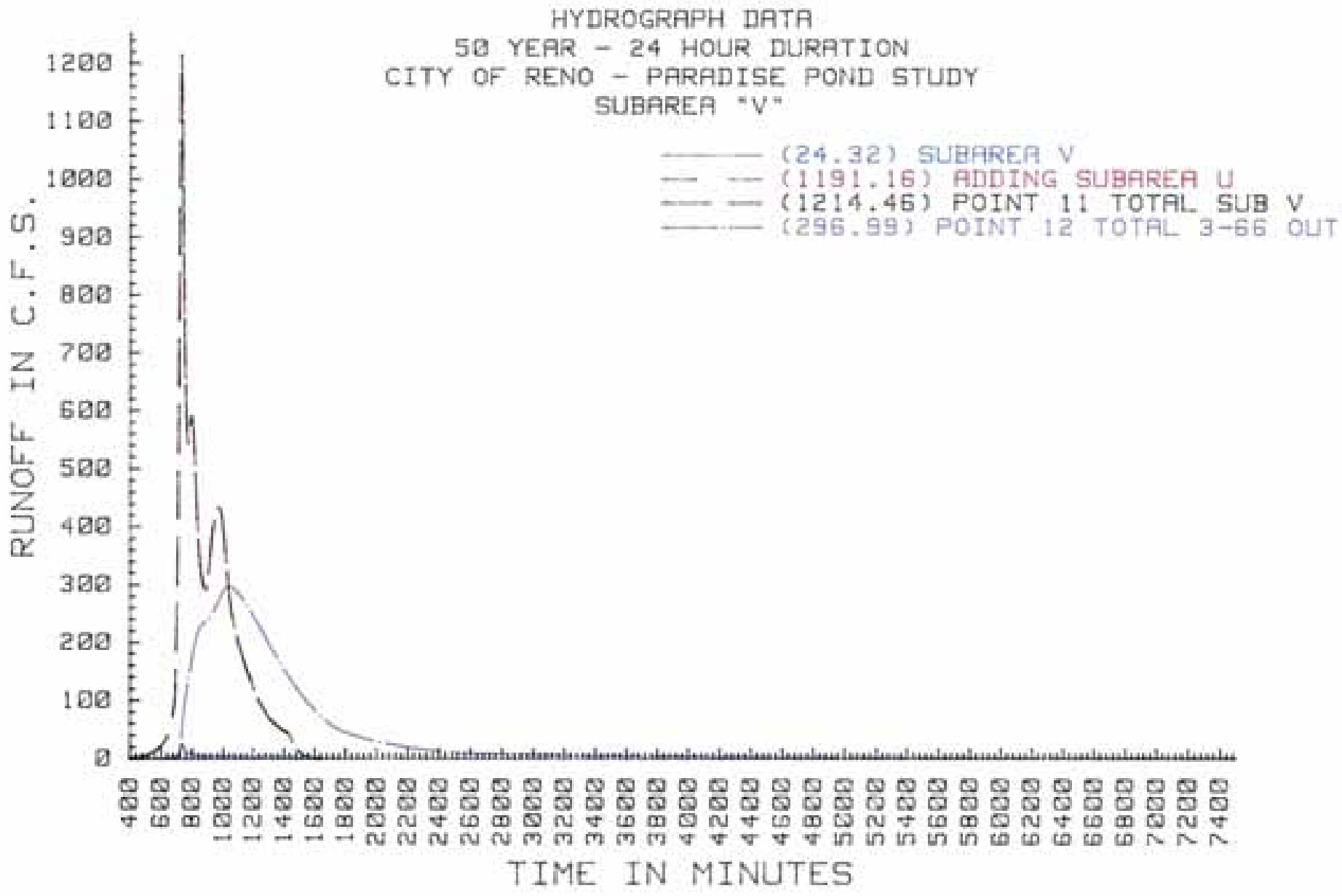

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(395.52) POINT 2 TOTAL INFLOW
(345.52) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

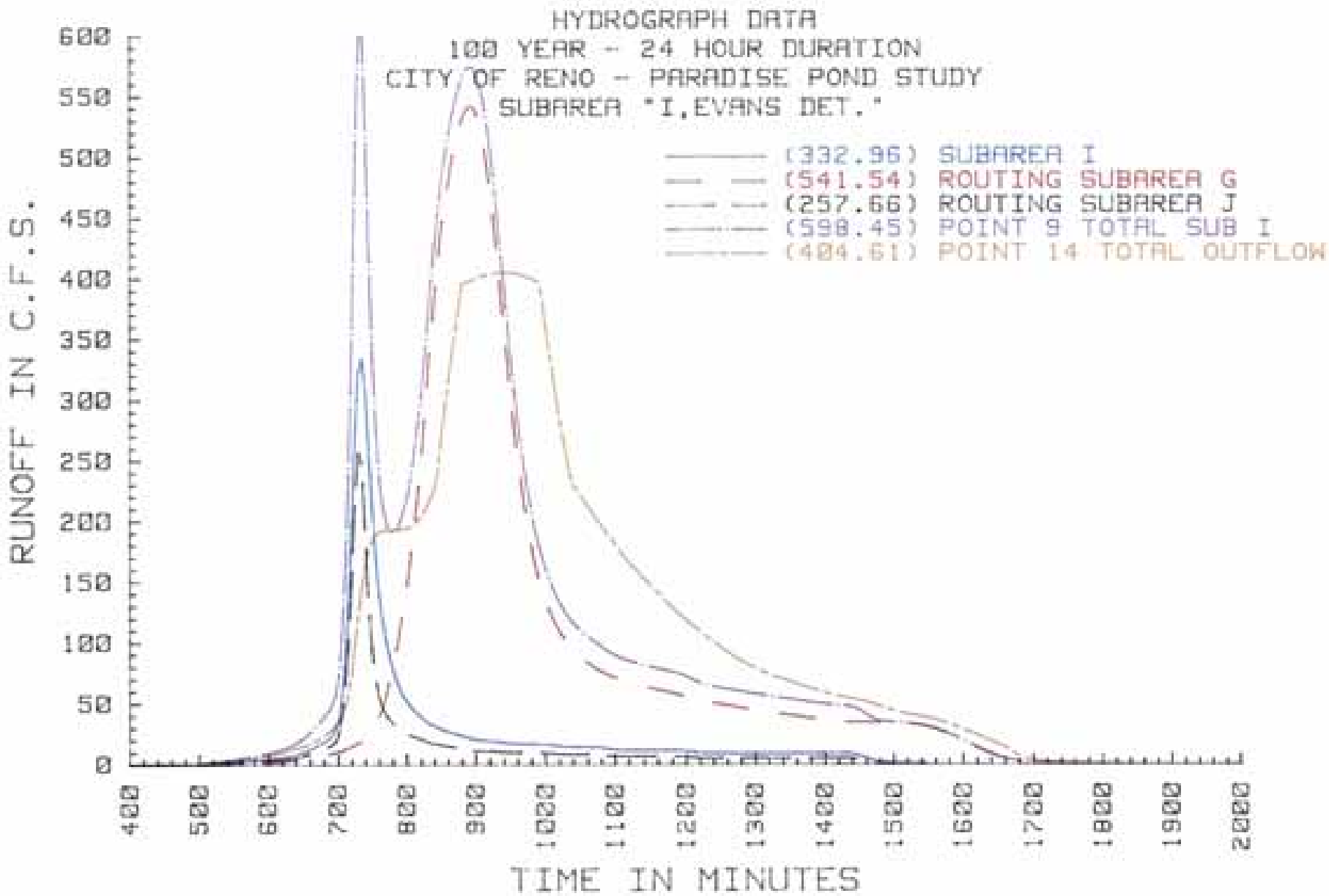

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(74.58) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(93.12) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
100
90
80
70
60
50
40
30
20
10
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

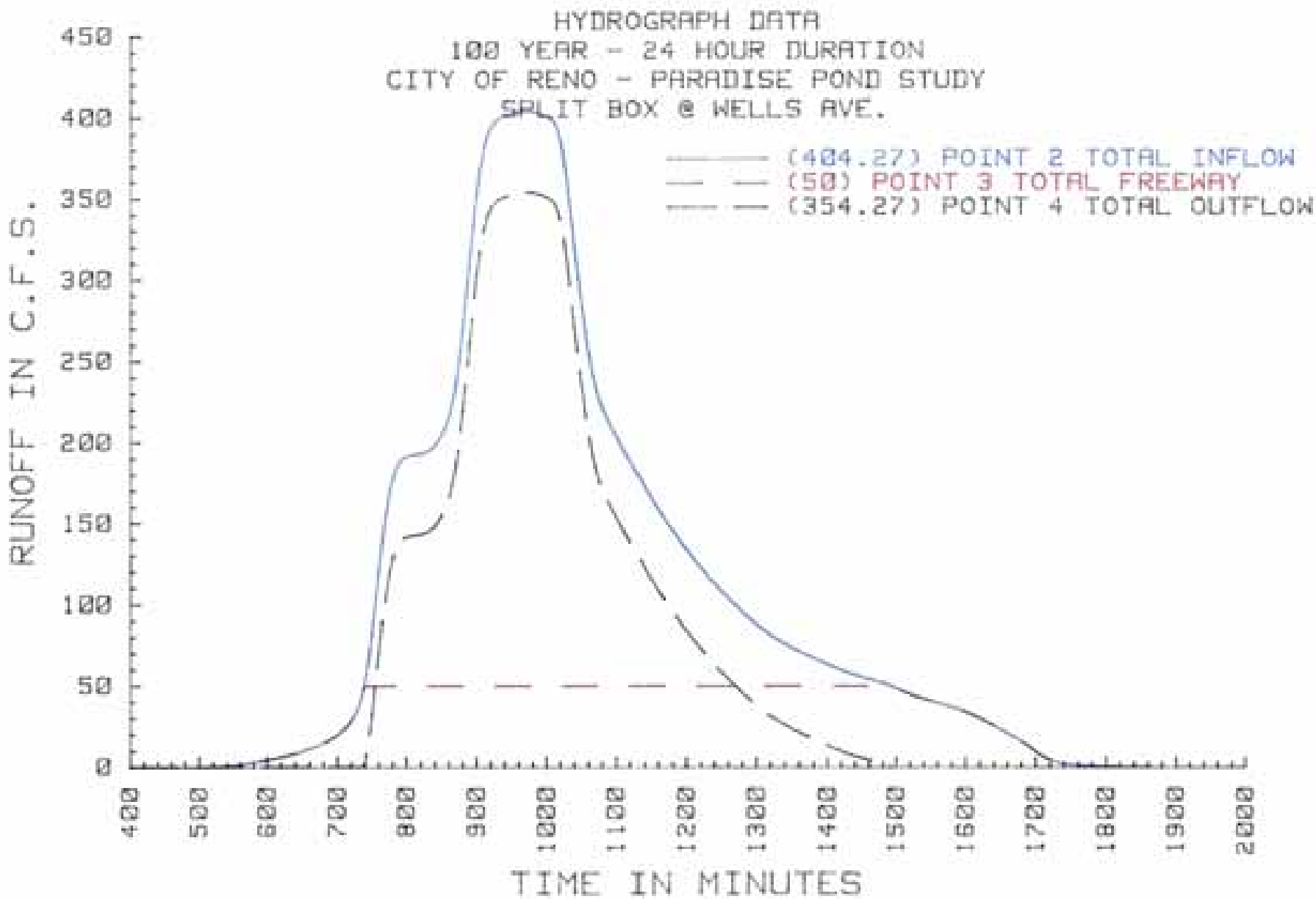

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(95.73) POINT 5 TOTAL SUB O
(134.61) SUBAREA P
(345.52) ROUTING SPLIT BOX
(353.48) POINT 6 TOTAL SUB P
(41.59) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

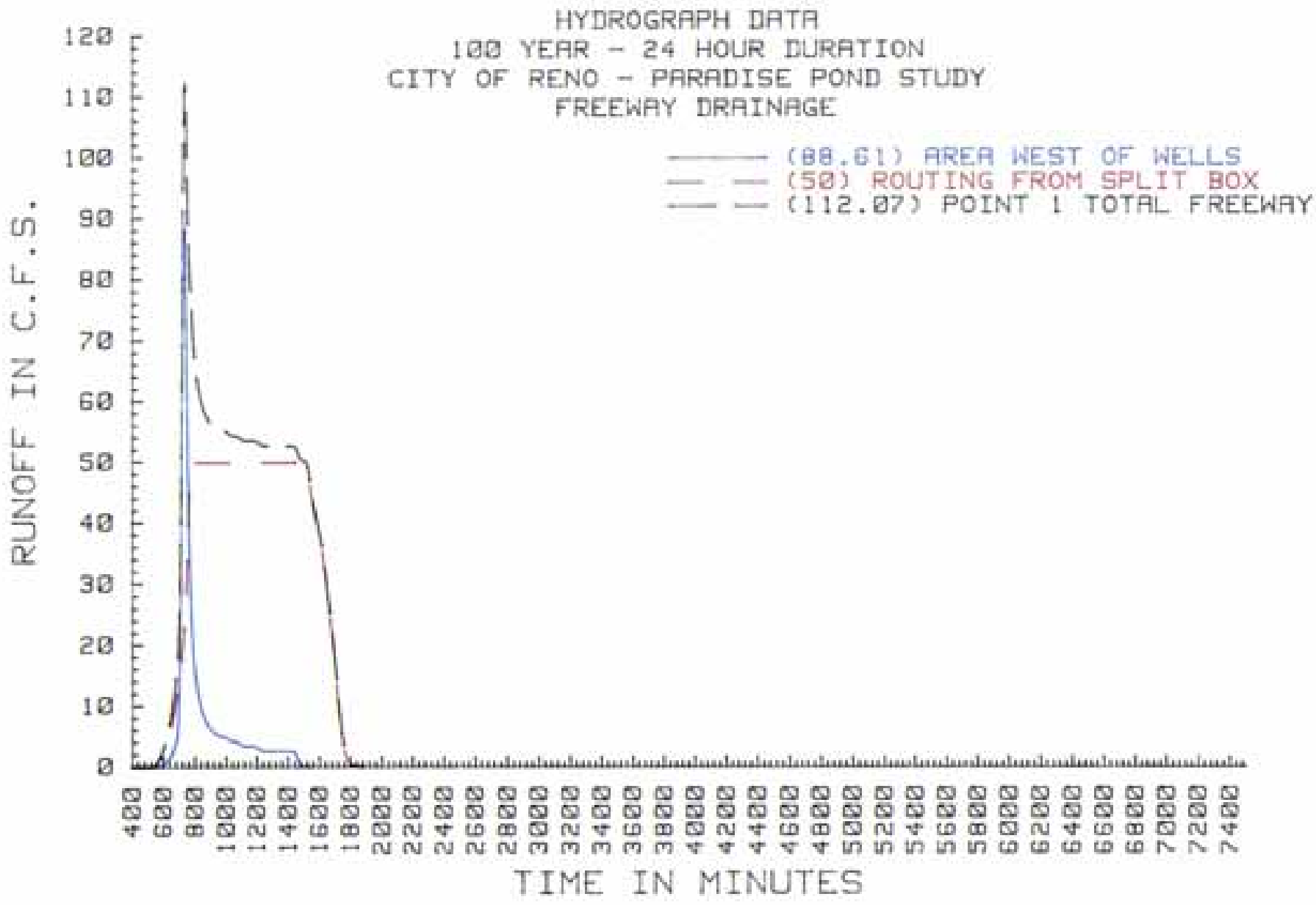

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(125.88) SUBAREA S
(603.78) ROUTING SUBAREA N
(326.67) ROUTING SUBAREA M
(959.38) POINT 7 TOTAL SUB S
(129.91) SUBAREA T
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000

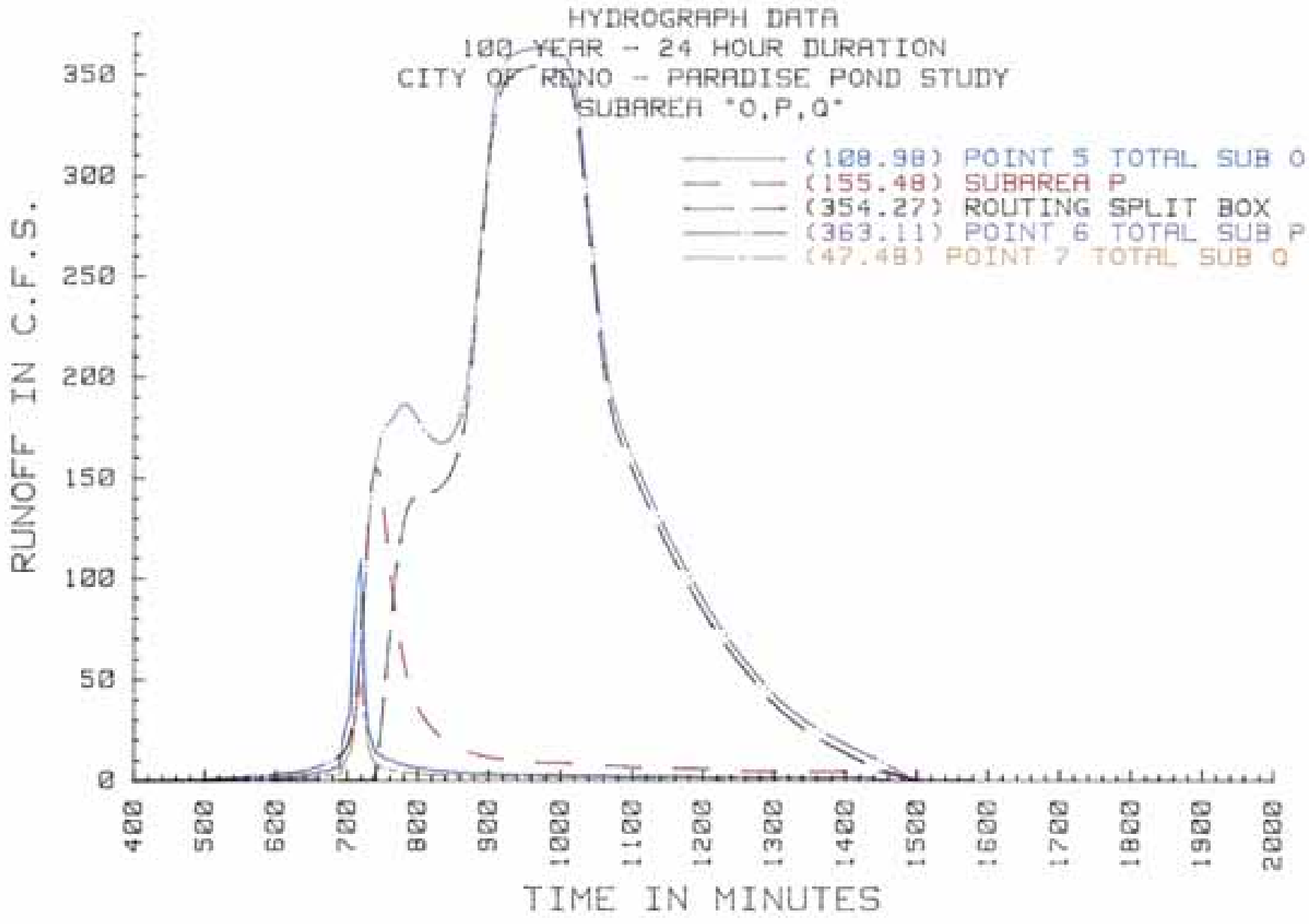

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(188.45) SUBAREA U
(124.09) ROUTING SUBAREA T
(352.9) ROUTING SUBAREA P
(885.19) ROUTING SUBAREA S
(1191.16) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

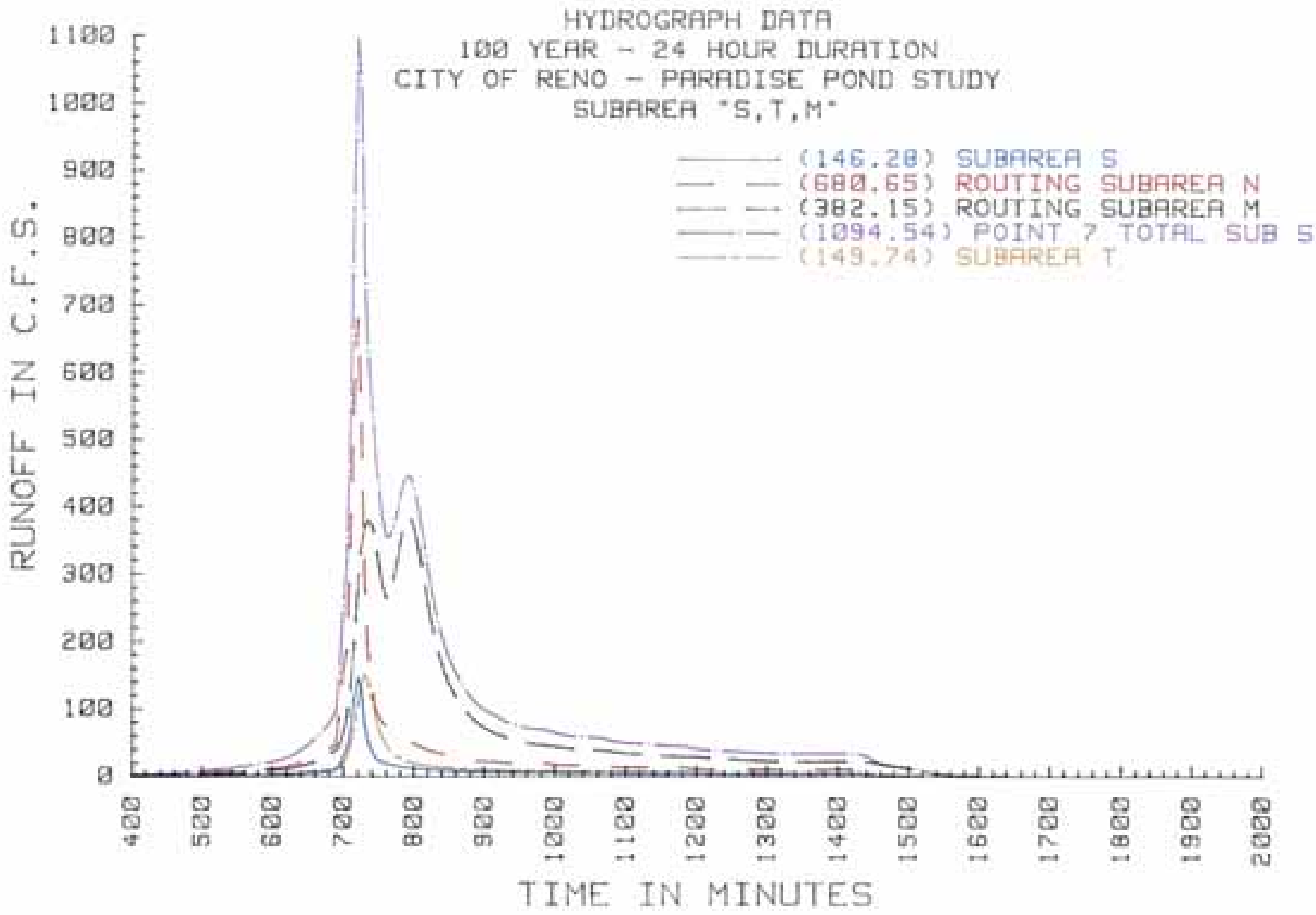

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(24.32) SUBAREA V
(1191.16) ADDING SUBAREA U
(1214.46) POINT 11 TOTAL SUB V
(296.99) POINT 12 TOTAL 3-66 OUT
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES

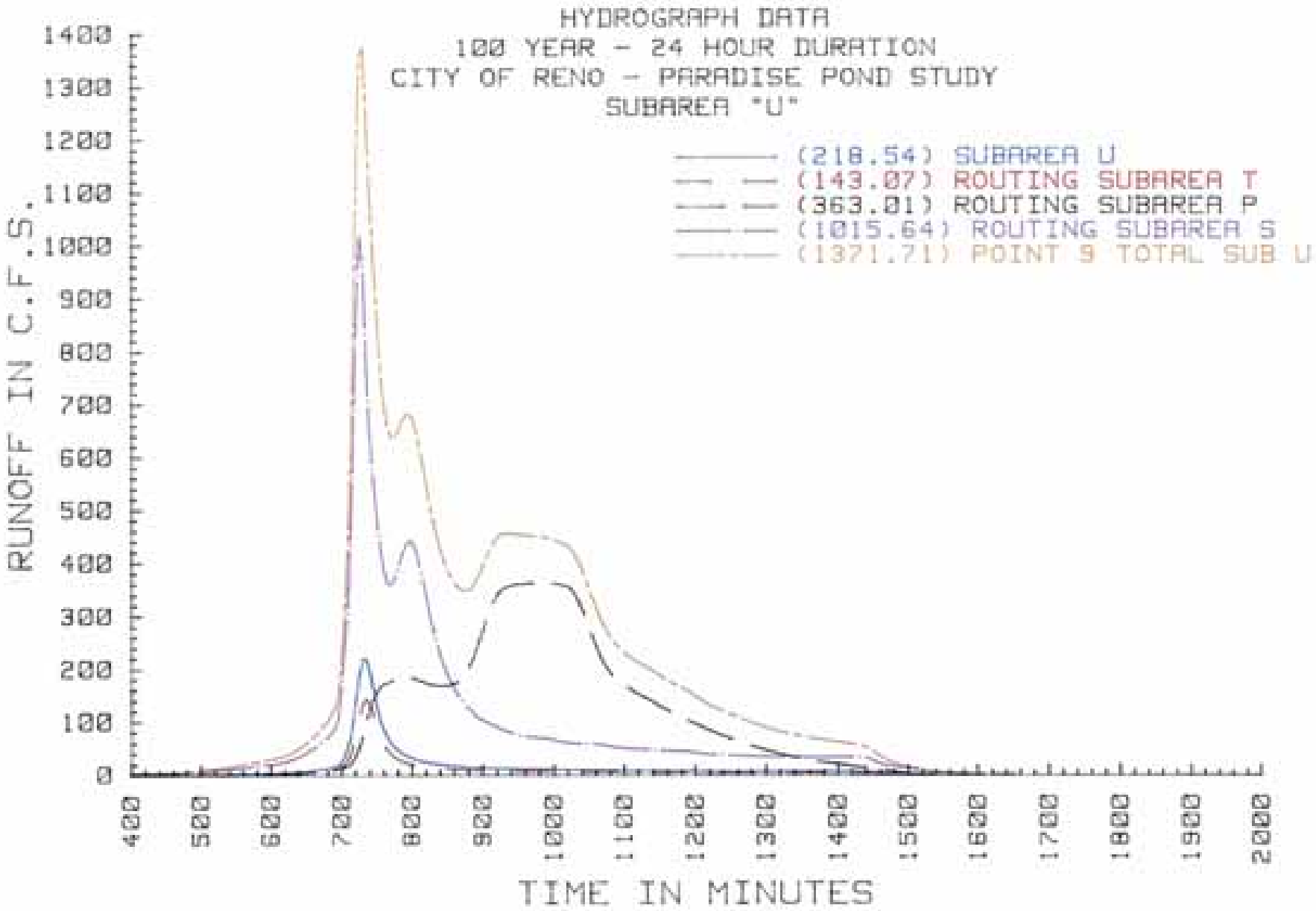

HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(332.96) SUBAREA I
(541.54) ROUTING SUBAREA G
(257.66) ROUTING SUBAREA J
(598.45) POINT 9 TOTAL SUB I
(404.61) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

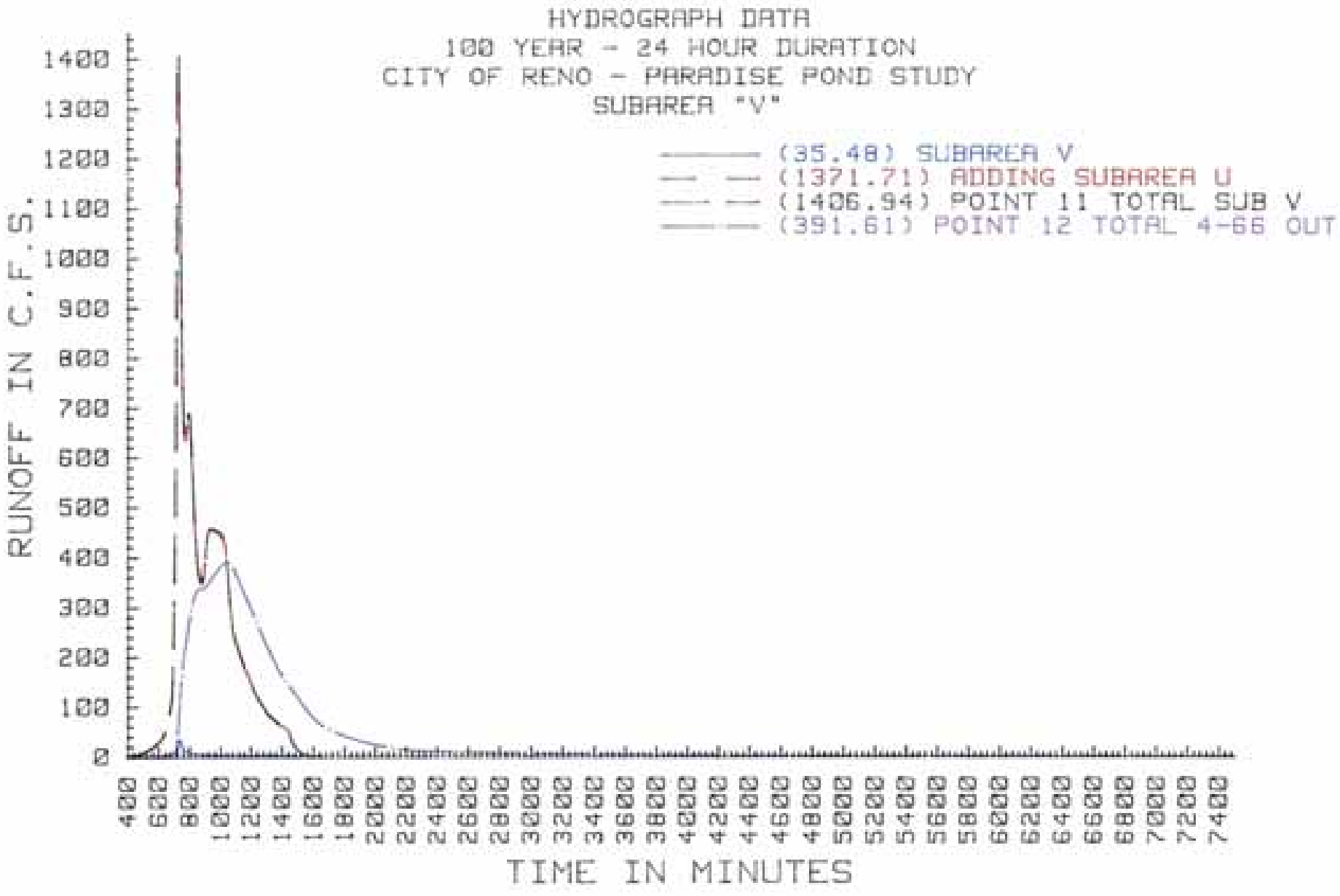

HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(404.27) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(354.27) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
450
400
350
300
250
200
150
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(88.61) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(112.07) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(108.98) POINT 5 TOTAL SUB O
(155.48) SUBAREA P
(354.27) ROUTING SPLIT BOX
(363.11) POINT 6 TOTAL SUB P
(47.48) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(146.28) SUBAREA S
(680.65) ROUTING SUBAREA N
(382.15) ROUTING SUBAREA M
(1094.54) POINT 7 TOTAL SUB S
(149.74) SUBAREA T
RUNOFF IN C.F.S.
1100
1000
900
800
700
600
500
400
300
200
100
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(218.54) SUBAREA U
(143.07) ROUTING SUBAREA T
(363.01) ROUTING SUBAREA P
(1015.64) ROUTING SUBAREA S
(1371.71) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(35.48) SUBAREA V
(1371.71) ADDING SUBAREA U
(1406.94) POINT 11 TOTAL SUB V
(391.61) POINT 12 TOTAL 4-66 OUT
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400

# APPENDIX E

**TABLE E-1**

CONDITION NO. 5 WITH 3-HOUR DURATION STORM

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| A | 2.75 cfs @ 110 min. | 11.20 cfs @ 80 min. | 19.68 cfs @ 60 min. | 33.80 cfs @ 60 min. |
| B | 3.30 cfs @ 130 min. | 13.47 cfs @ 105 min. | 22.97 cfs @ 90 min. | 38.01 cfs @ 75 min. |
| C | 0.23 cfs @ 155 min. | 1.48 cfs @ 75 min. | 2.76 cfs @ 55 min. | 5.15 cfs @ 50 min. |
| D | 7.82 cfs @ 105 min. | 26.45 cfs @ 80 min. | 43.31 cfs @ 80 min. | 68.04 cfs @ 75 min. |
| E | 14.37 cfs @ 130 min. | 47.14 cfs @ 105 min. | 75.56 cfs @ 100 min. | 116.72 cfs @ 95 min. |
| F | 3.80 cfs @ 95 min. | 14.40 cfs @ 50 min. | 24.88 cfs @ 45 min. | 44.08 cfs @ 35 min. |
| G | 18.44 cfs @ 215 min. | 60.21 cfs @ 200 min. | 95.82 cfs @ 195 min. | 147.56 cfs @ 190 min. |
| H | 0.38 cfs @ 125 min. | 2.03 cfs @ 75 min. | 3.76 cfs @ 50 min. | 6.72 cfs @ 50 min. |
| I | 18.26 cfs @ 260 min. | 59.53 cfs @ 245 min. | 23.88 cfs @ 235 min. | 145.96 cfs @ 230 min. |
| J | 4.32 cfs @ 75 min. | 14.74 cfs @ 50 min. | 24.47 cfs @ 40 min. | 40.34 cfs @ 40 min. |
| Evans | 16.97 cfs @ 0.5 ac.ft. | 52.15 cfs @ 3.0 ac.ft. | 79.85 cfs @ 5.6 ac.ft. | 117.59 cfs @ 10.1 ac.ft. |
| Split Box | 16.88 cfs @ 320 min. | 51.89 cfs @ 310 min. | 79.49 cfs @ 310 min. | 117.11 cfs @ 310 min. |
| Freeway | 16.88 cfs @ 320 min. | 50.00 cfs @ 310 min. | 50.00 cfs @ 310 min. | 50.00 cfs @ 310 min. |

TABLE E-1 - (con't)

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| K | 0.98 cfs @ 150 min. w/0.5 ac.ft. | 4.92 cfs @ 110 min. w/2.5 ac.ft. | 8.54 cfs @ 95 min. w/4.3 ac.ft. | 13.94 cfs @ 85 min. w/7.0 ac.ft. |
| L | 5.92 cfs @ 80 min. | 18.82 cfs @ 55 min. | 30.24 cfs @ 50 min. | 47.44 cfs @ 45 min. |
| M | 11.36 cfs @ 80 min. | 32.36 cfs @ 65 min. | 50.74 cfs @ 60 min. | 76.61 cfs @ 60 min. |
| N | 16.55 cfs @ 55 min. | 45.86 cfs @ 35 min. | 71.60 cfs @ 35 min. | 106.18 cfs @ 35 min. |
| O | 2.00 cfs @ 50 min. | 6.40 cfs @ 30 min. | 10.77 cfs @ 30 min. | 16.86 cfs @ 30 min. |
| P | 4.36 cfs @ 105 min. | 12.81 cfs @ 80 min. | 29.50 cfs @ 310 min. | 67.12 cfs @ 310 min. |
| Q | 0.91 cfs @ 55 min. | 2.85 cfs @ 35 min. | 4.64 cfs @ 35 min. | 7.19 cfs @ 30 min. |
| R | 2.88 cfs @ 35 min. | 6.41 cfs @ 30 min. | 8.37 cfs @ 30 min. | 10.95 cfs @ 30 min. |
| S | 28.05 cfs @ 75 min. | 77.51 cfs @ 55 min. | 116.99 cfs @ 50 min. | 173.57 cfs @ 50 min. |
| T | 3.29 cfs @ 85 min. | 10.27 cfs @ 60 min. | 16.47 cfs @ 55 min. | 25.56 cfs @ 55 min. |
| U | 37.96 cfs @ 85 min. | 107.36 cfs @ 65 min. | 168.07 cfs @ 60 min. | 253.75 cfs @ 60 min. |
| V | 37.96 cfs @ 85 min. | 107.36 cfs @ 65 min. | 168.07 cfs @ 60 min. | 253.75 cfs @ 60 min. |

Paradise Pond Outlet; One 30-inch pipe under inlet conditions:

| | | | |
|---|---|---|---|
| 0.67 cfs @ 85 min. w/6.6ac.ft. | 2.22 cfs @ 65 min. w/18.7ac.ft. | 5.83 cfs @ 60 min. w/32.3ac.ft. | 11.80 cfs @ 60 min. w/55.7ac.ft. |

**TABLE E-2**

CONDITION NO. 5 WITH 6-HOUR DURATION STORM

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| A | 4.44 cfs @ 215 min. | 19.78 cfs @ 165 min. | 32.51 cfs @ 165 min. | 64.51 cfs @ 160 min. |
| B | 5.58 cfs @ 235 min. | 20.28 cfs @ 180 min. | 33.25 cfs @ 180 min. | 64.91 cfs @ 175 min. |
| C | 0.53 cfs @ 360 min. | 2.70 cfs @ 155 min. | 5.56 cfs @ 150 min. | 12.52 cfs @ 150 min. |
| D | 14.25 cfs @ 160 min. | 40.17 cfs @ 160 min. | 60.64 cfs @ 160 min. | 109.27 cfs @ 160 min. |
| E | 22.64 cfs @ 215 min. | 62.85 cfs @ 200 min. | 93.42 cfs @ 200 min. | 164.25 cfs @ 195 min. |
| F | 7.48 cfs @ 155 min. | 32.16 cfs @ 150 min. | 50.44 cfs @ 150 min. | 90.93 cfs @ 150 min. |
| G | 30.85 cfs @ 320 min. | 81.25 cfs @ 300 min. | 118.63 cfs @ 295 min. | 203.76 cfs @ 290 min. |
| H | 0.72 cfs @ 245 min. | 4.25 cfs @ 150 min. | 7.88 cfs @ 150 min. | 16.24 cfs @ 150 min. |
| I | 40.22 cfs @ 360 min. | 99.19 cfs @ 345 min. | 141.93 cfs @ 340 min. | 237.75 cfs @ 335 min. |
| J | 9.55 cfs @ 155 min. | 29.24 cfs @ 155 min. | 42.94 cfs @ 150 min. | 75.31 cfs @ 150 min. |
| Evans | 35.98 cfs @ 1.6 ac.ft. | 80.69 cfs @ 5.7 ac.ft. | 111.20 cfs @ 9.2 ac.ft. | 173.98 cfs @ 18.3 ac.ft. |
| Split Box | 35.63 cfs @ 410 min. | 80.18 cfs @ 415 min. | 110.59 cfs @ 415 min. | 173.09 cfs @ 415 min. |
| Freeway | 35.63 cfs @ 410 min. | 50.00 cfs @ 415 min. | 50.00 cfs @ 415 min. | 50.00 cfs @ 415 min. |

**TABLE E-2 - (con't)**

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| K | 3.10 cfs @ 265 min. w/1.6 ac.ft. | 8.87 cfs @ 185 min. w/4.4 ac.ft. | 13.12 cfs @ 180 min. w/6.6 ac.ft. | 22.77 cfs @ 180 min. w/11.4 ac.ft. |
| L | 11.97 cfs @ 160 min. | 33.58 cfs @ 160 min. | 48.55 cfs @ 160 min. | 83.21 cfs @ 155 min. |
| M | 20.12 cfs @ 170 min. | 50.76 cfs @ 170 min. | 72.47 cfs @ 165 min. | 120.22 cfs @ 165 min. |
| N | 36.35 cfs @ 150 min. | 82.24 cfs @ 150 min. | 111.54 cfs @ 150 min. | 174.64 cfs @ 150 min. |
| O | 5.15 cfs @ 150 min. | 12.08 cfs @ 150 min. | 16.96 cfs @ 145 min. | 27.45 cfs @ 145 min. |
| P | 7.28 cfs @ 185 min. | 31.53 cfs @ 405 min. | 62.31 cfs @ 405 min. | 125.32 cfs @ 410 min. |
| Q | 2.23 cfs @ 150 min. | 5.48 cfs @ 150 min. | 7.63 cfs @ 150 min. | 12.16 cfs @ 150 min. |
| R | 5.13 cfs @ 150 min. | 8.44 cfs @ 150 min. | 10.90 cfs @ 150 min. | 31.06 cfs @ 145 min. |
| S | 54.18 cfs @ 155 min. | 129.91 cfs @ 150 min. | 183.30 cfs @ 150 min. | 301.32 cfs @ 150 min. |
| T | 6.30 cfs @ 165 min. | 17.52 cfs @ 165 min. | 25.68 cfs @ 160 min. | 43.91 cfs @ 160 min. |
| U | 65.57 cfs @ 170 min. | 168.55 cfs @ 160 min. | 243.32 cfs @ 160 min. | 415.60 cfs @ 160 min. |
| V | 65.57 cfs @ 170 min. | 168.55 cfs @ 160 min. | 243.32 cfs @ 160 min. | 415.60 cfs @ 160 min. |

Paradise Pond Outlet; One 30-inch pipe under inlet conditions:

| | | | |
|---|---|---|---|
| 1.42 cfs @ 170 min. w/14.2ac.ft. | 6.73 cfs @ 160 min. w/35.7ac.ft. | 11.79 cfs @ 160 min. w/55.6ac.ft. | 18.52 cfs @ 160 min. w/105.2ac.ft. |

**TABLE E-3**

CONDITION NO. 5 WITH 24-HOUR DURATION STORM

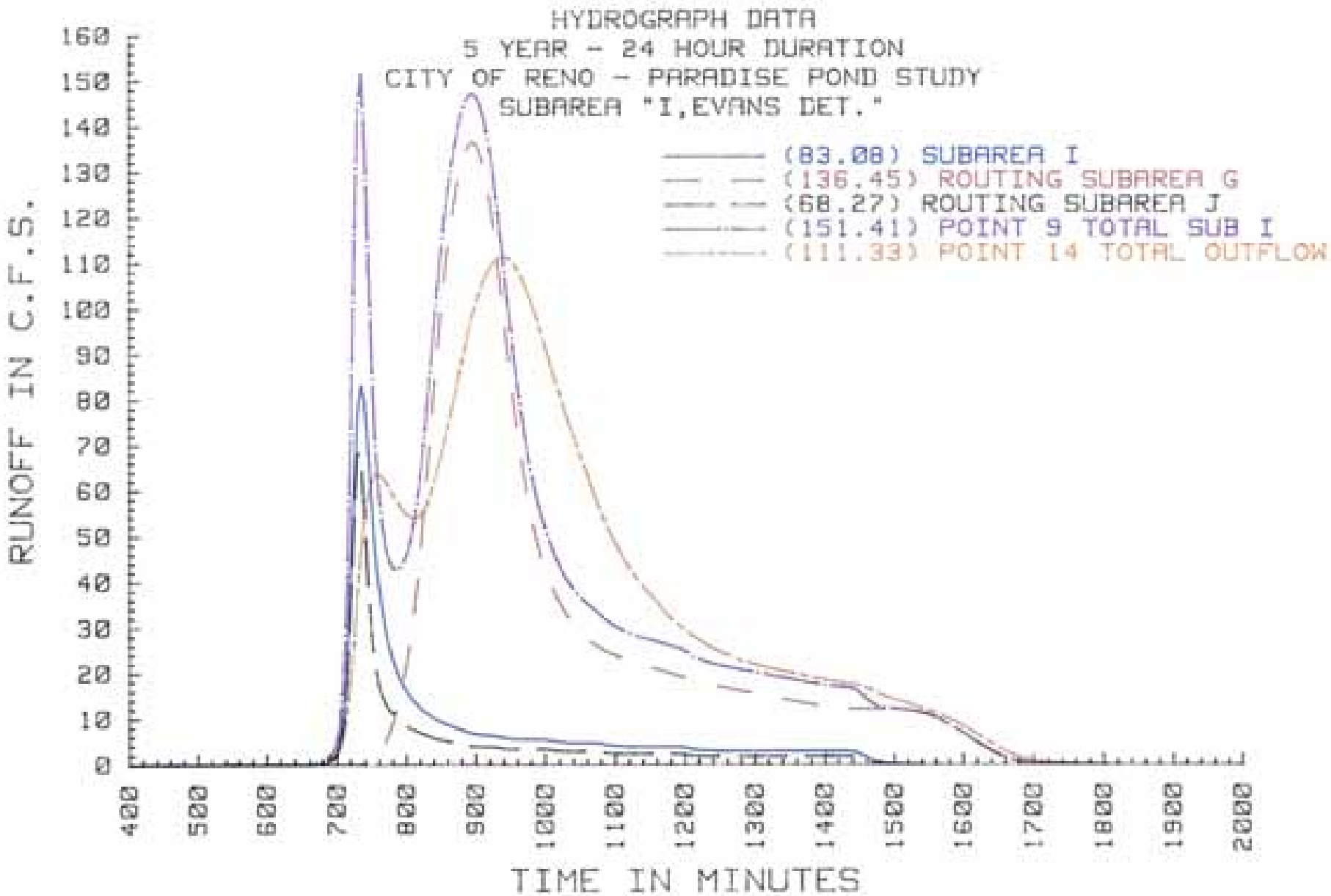
| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| A | 61.48 cfs @ 730 min. | 158.82 cf @ 730 min. | 237.00 cfs @ 730 min. | 278.60 cfs @ 730 min. |
| B | 54.62 cfs @ 745 min. | 143.92 cfs @ 740 min. | 217.10 cfs @ 740 min. | 256.20 cfs @ 740 min. |
| C | 14.36 cfs @ 720 min. | 41.29 cfs @ 720 min. | 63.42 cfs @ 720 min. | 75.30 cfs @ 720 min. |
| D | 104.77 cfs @ 725 min. | 241.01 cfs @ 725 min. | 348.08 cfs @ 725 min. | 404.57 cfs @ 725 min. |
| E | 121.82 cfs @ 760 min. | 291.19 cfs @ 755 min. | 425.59 cfs @ 755 min. | 496.81 cfs @ 755 min. |
| F | 110.52 cfs @ 720 min. | 258.26 cfs @ 720 min. | 373.59 cfs @ 720 min. | 434.25 cfs @ 720 min. |
| G | 139.30 cfs @ 850 min. | 326.44 cfs @ 850 min. | 474.56 cfs @ 850 min. | 552.88 cfs @ 850 min. |
| H | 19.74 cfs @ 720 min. | 52.44 cfs @ 720 min. | 78.85 cfs @ 720 min. | 92.93 cfs @ 720 min. |
| I | 151.41 cfs @ 735 min. | 351.63 cfs @ 735 min. | 512.01 cfs @ 735 min. | 598.45 cfs @ 730 min. |
| J | 80.99 cfs @ 725 min. | 176.79 cfs @ 720 min. | 253.47 cfs @ 720 min. | 293.67 cfs @ 720 min. |
| Evans | 111.33 cfs @ 735 min. | 234.09 cfs @ 735 min. | 396.26 cfs @ 735 min. | 404.61 cfs @ 730 min. |
| Split Box | 110.68 cfs @ 970 min. | 231.80 cfs @ 970 min. | 395.52 cfs @ 960 min. | 404.27 cfs @ 970 min. |
| Freeway | 53.45 cfs @ 820 min. | 60.72 cfs @ 790 min. | 93.12 cfs @ 740 min. | 112.07 cfs @ 740 min. |

**TABLE E-3 (con't)**

| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| K | 75.30 cfs @ 745 min. | 209.81 cfs @ 745 min. | 320.32 cfs @ 745 min. | 379.60 cfs @ 745 min. |
| L | 81.76 cfs @ 730 min. | 179.30 cfs @ 725 min. | 254.81 cfs @ 725 min. | 294.47 cfs @ 725 min. |
| M | 106.03 cfs @ 735 min. | 223.01 cfs @ 735 min. | 312.42 cfs @ 735 min. | 359.18 cfs @ 735 min. |
| N | 201.78 cfs @ 720 min. | 425.35 cfs @ 720 min. | 603.78 cfs @ 720 min. | 680.65 cfs @ 720 min. |
| O | 35.20 cfs @ 720 min. | 70.00 cfs @ 720 min. | 95.73 cfs @ 720 min. | 108.98 cfs @ 720 min. |
| P | 63.89 cfs @ 970 min. | 187.69 cfs @ 970 min. | 353.48 cfs @ 960 min. | 363.11 cfs @ 965 min. |
| Q | 14.88 cfs @ 720 min. | 30.18 cfs @ 720 min. | 41.59 cfs @ 720 min. | 47.48 cfs @ 720 min. |
| R | 37.09 cfs @ 720 min. | 68.34 cfs @ 720 min. | 90.86 cfs @ 720 min. | 102.36 cfs @ 720 min. |
| S | 311.01 cfs @ 720 min. | 668.50 cfs @ 720 min. | 950.85 cfs @ 720 min. | 1082.38 cfs @ 720 min. |
| T | 42.17 cfs @ 730 min. | 91.89 cfs @ 730 min. | 129.91 cfs @ 730 min. | 149.74 cfs @ 730 min. |
| U | 385.59 cfs @ 730 min. | 844.81 cfs @ 730 min. | 1181.15 cfs @ 730 min. | 1357.71 cfs @ 730 min. |
| V | 385.59 cfs @ 730 min. | 851.07 cfs @ 730 min. | 1204.44 cfs @ 730 min. | 1392.94 cfs @ 730 min. |

Paradise Pond Outlet; the minimum size pipe under inlet conditions to keep from overflowing Paradise Pond:

| 1-30" pipe | 2-60" pipes | 3-66" pipes | 4-66" pipes |
|---|---|---|---|
| 12.80 cfs @ 730 min. w/59.7ac.ft. | 133.10 cfs @ 730 min. w/108.6ac.ft. | 272.07 cfs @ 730 min. w/126.6ac.ft. | 361.20 cfs @ 730 min. w/126.1ac.ft. |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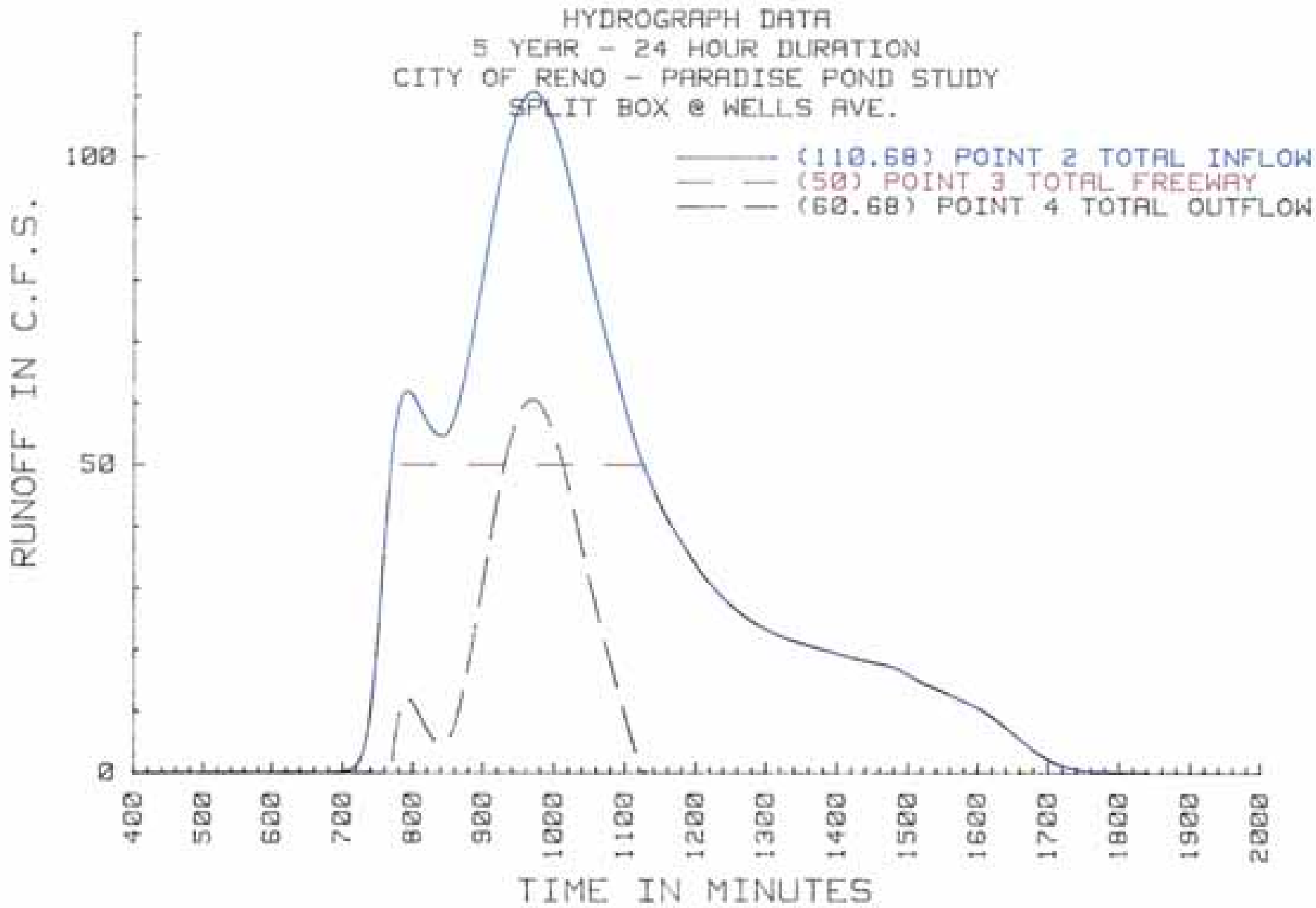
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(83.08) SUBAREA I
(136.45) ROUTING SUBAREA G
(68.27) ROUTING SUBAREA J
(151.41) POINT 9 TOTAL SUB I
(111.33) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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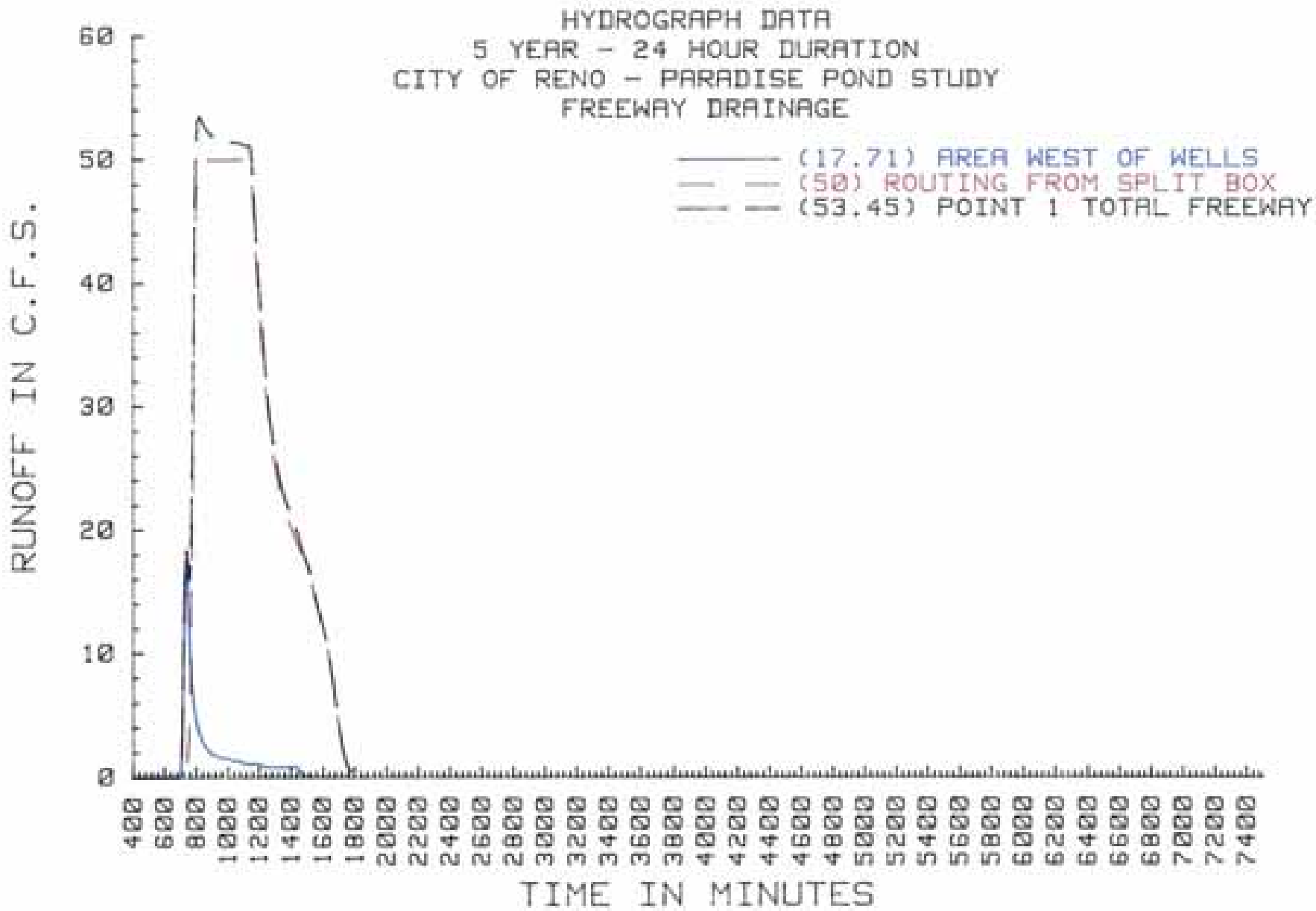
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(110.68) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(60.68) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(17.71) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(53.45) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
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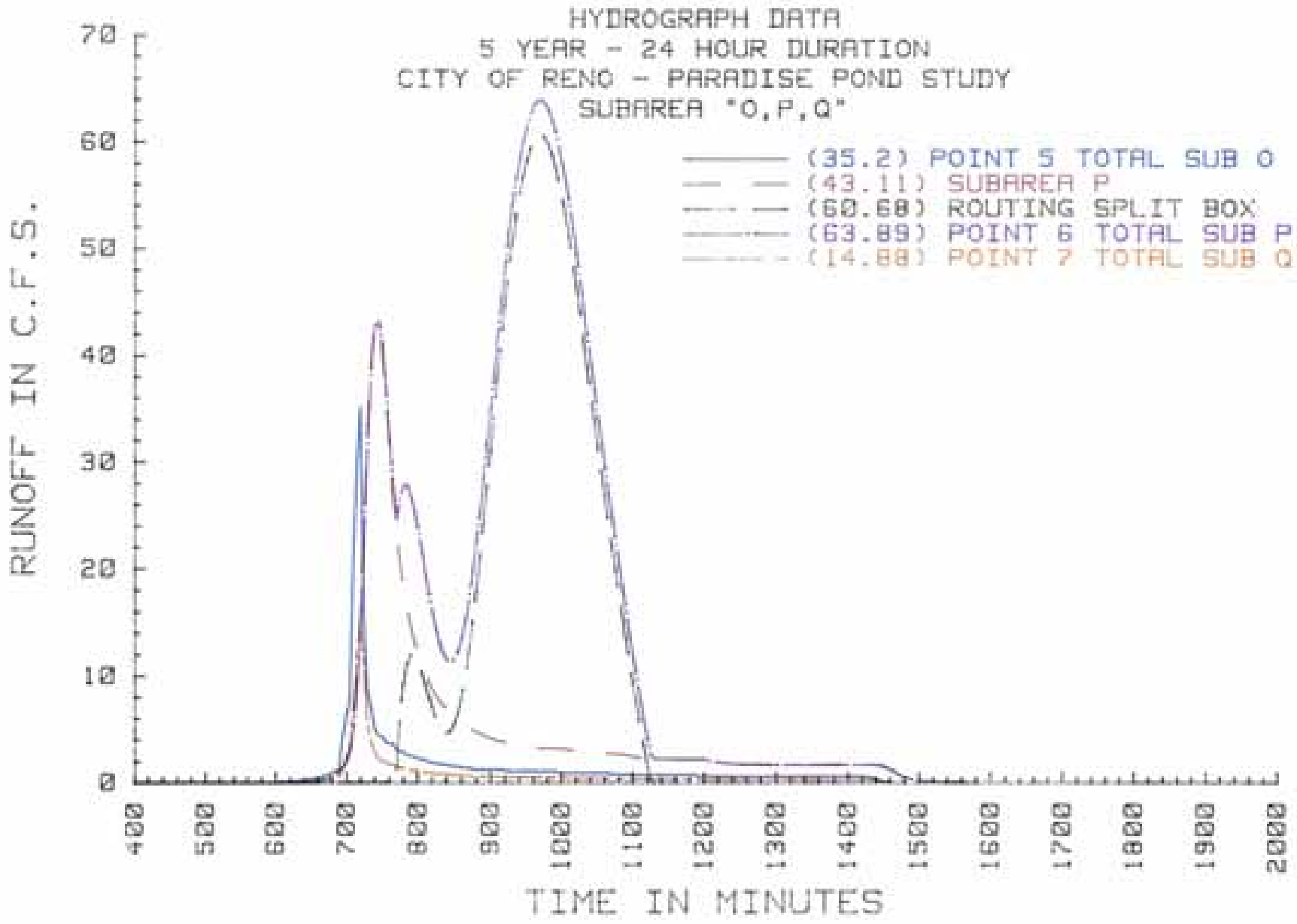
6000
6200
6400
6600
6800
7000
7200
7400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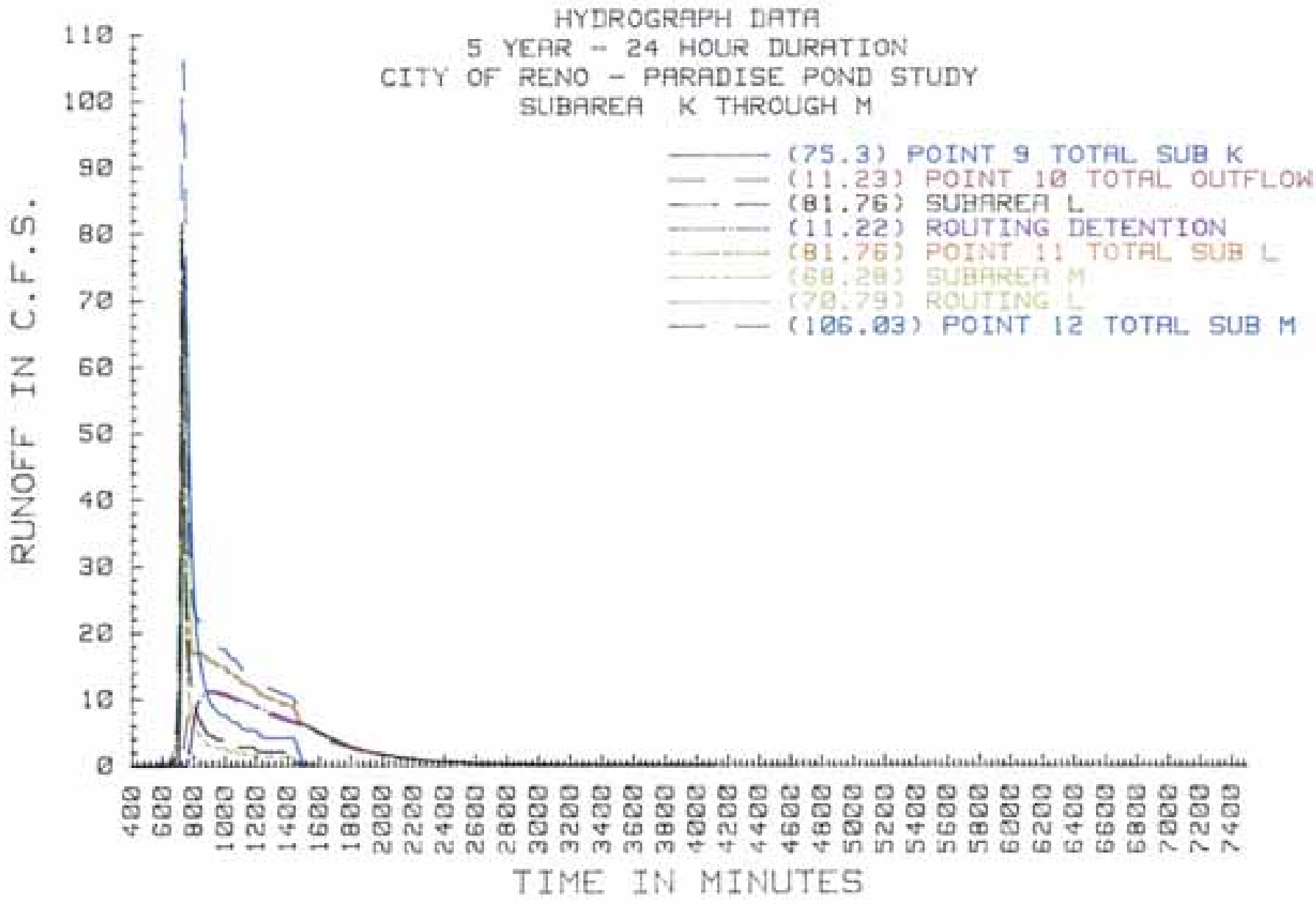
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(35.2) POINT 5 TOTAL SUB O
(43.11) SUBAREA P
(60.68) ROUTING SPLIT BOX
(63.89) POINT 6 TOTAL SUB P
(14.88) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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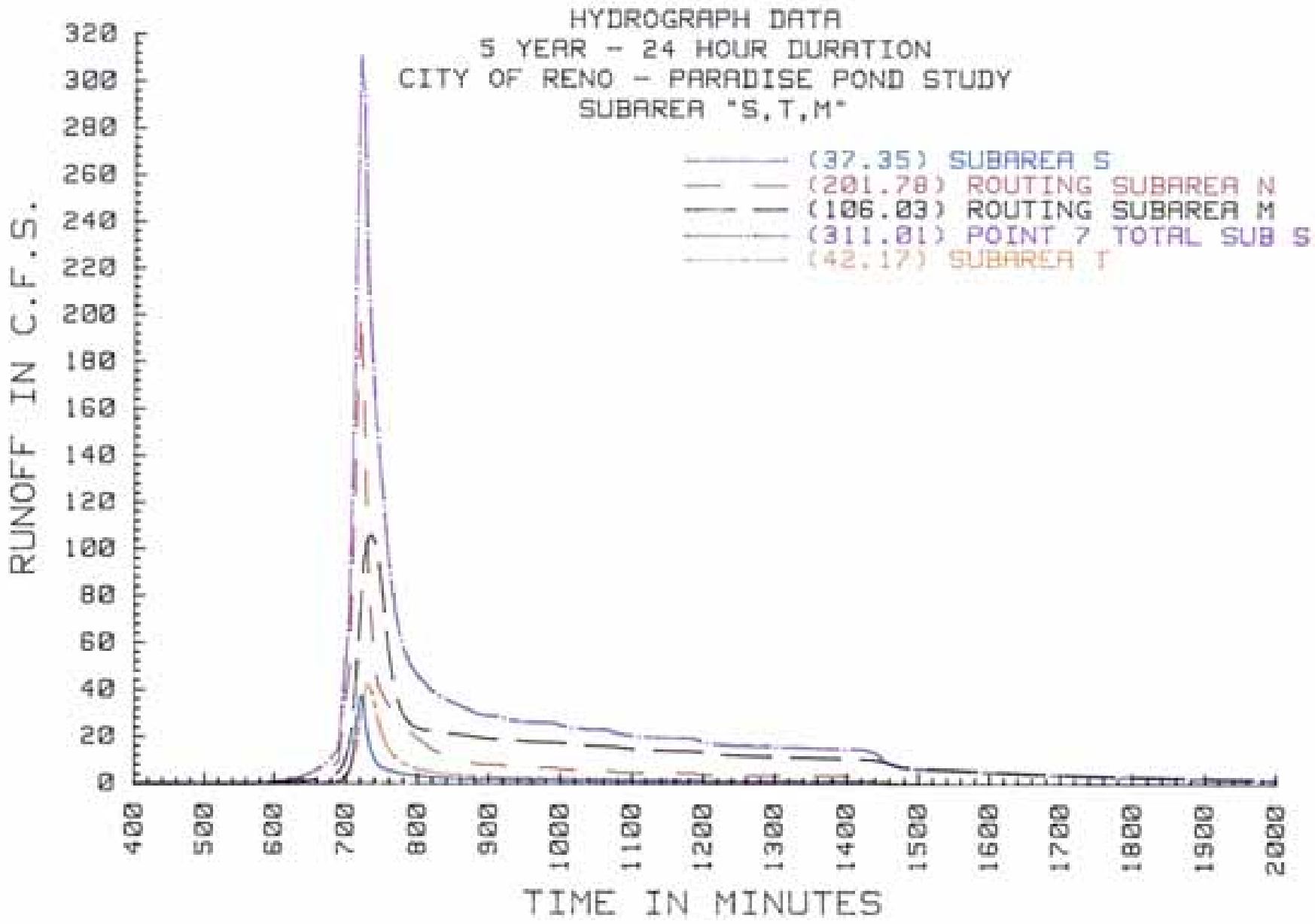
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(75.3) POINT 9 TOTAL SUB K
(11.23) POINT 10 TOTAL OUTFLOW
(81.76) SUBAREA L
(11.22) ROUTING DETENTION
(81.76) POINT 11 TOTAL SUB L
(68.28) SUBAREA M
(70.79) ROUTING L
(106.03) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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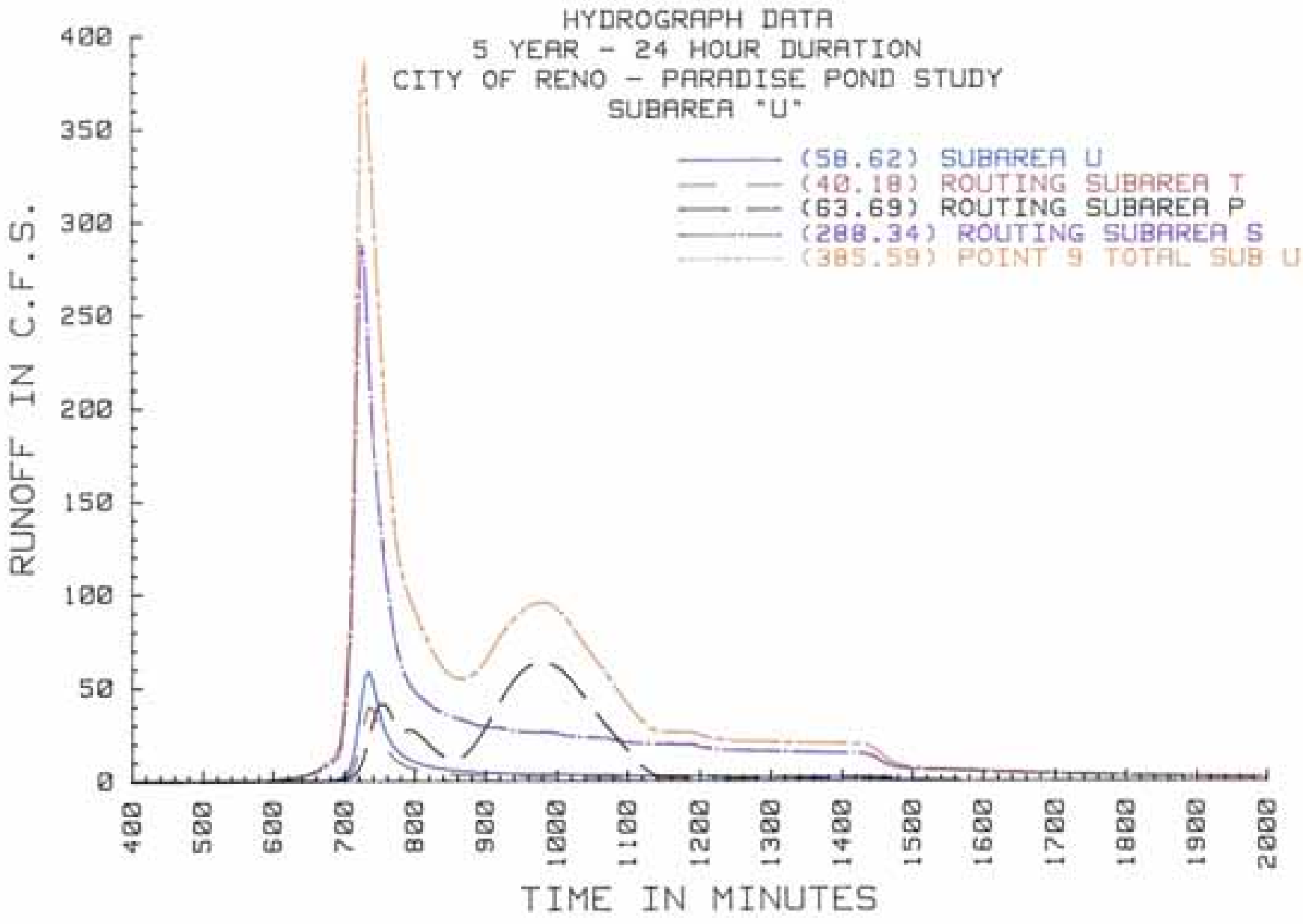
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(37.35) SUBAREA S
(201.78) ROUTING SUBAREA N
(106.03) ROUTING SUBAREA M
(311.01) POINT 7 TOTAL SUB S
(42.17) SUBAREA T
RUNOFF IN C.F.S.
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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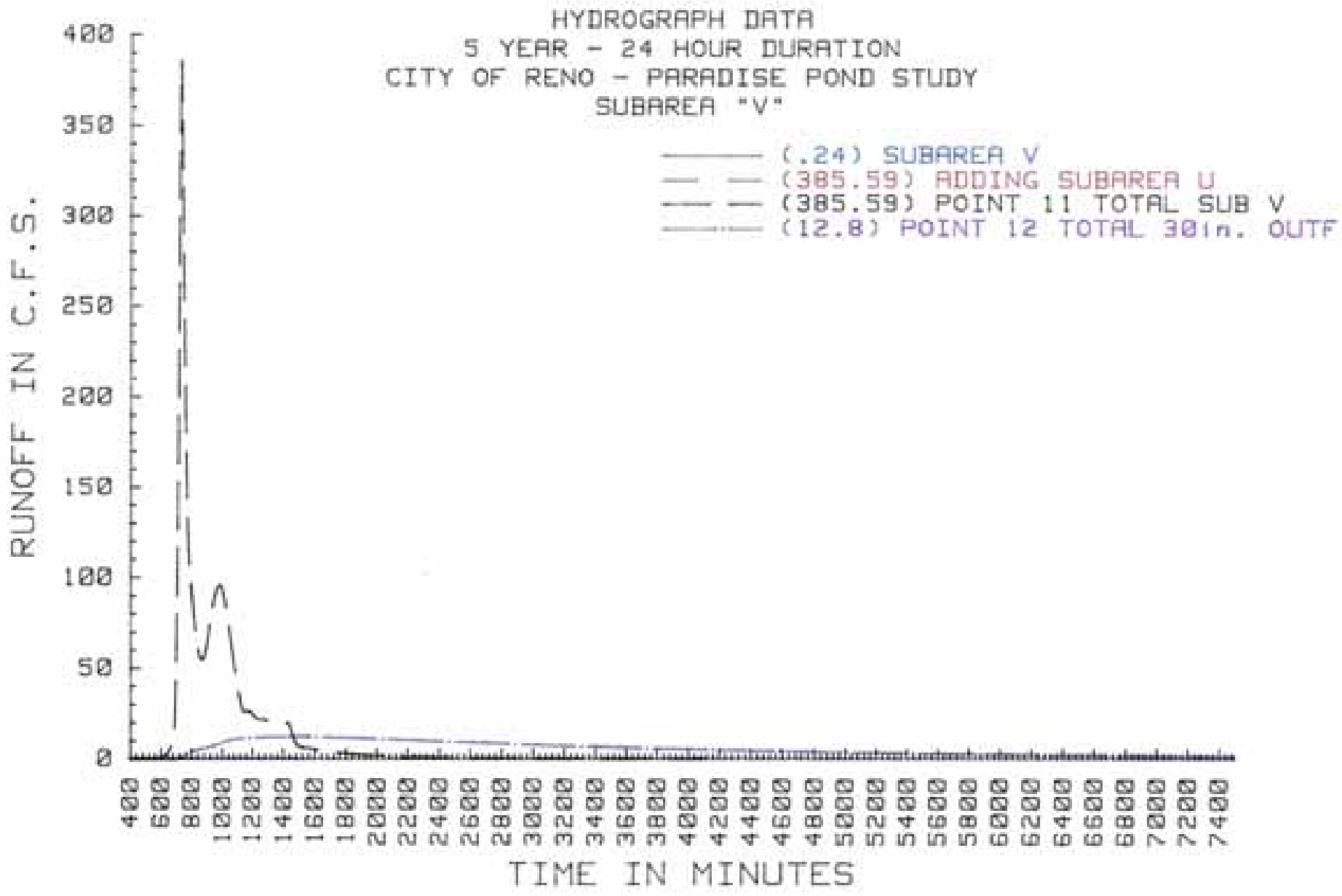
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(58.62) SUBAREA U
(40.18) ROUTING SUBAREA T
(63.69) ROUTING SUBAREA P
(288.34) ROUTING SUBAREA S
(385.59) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000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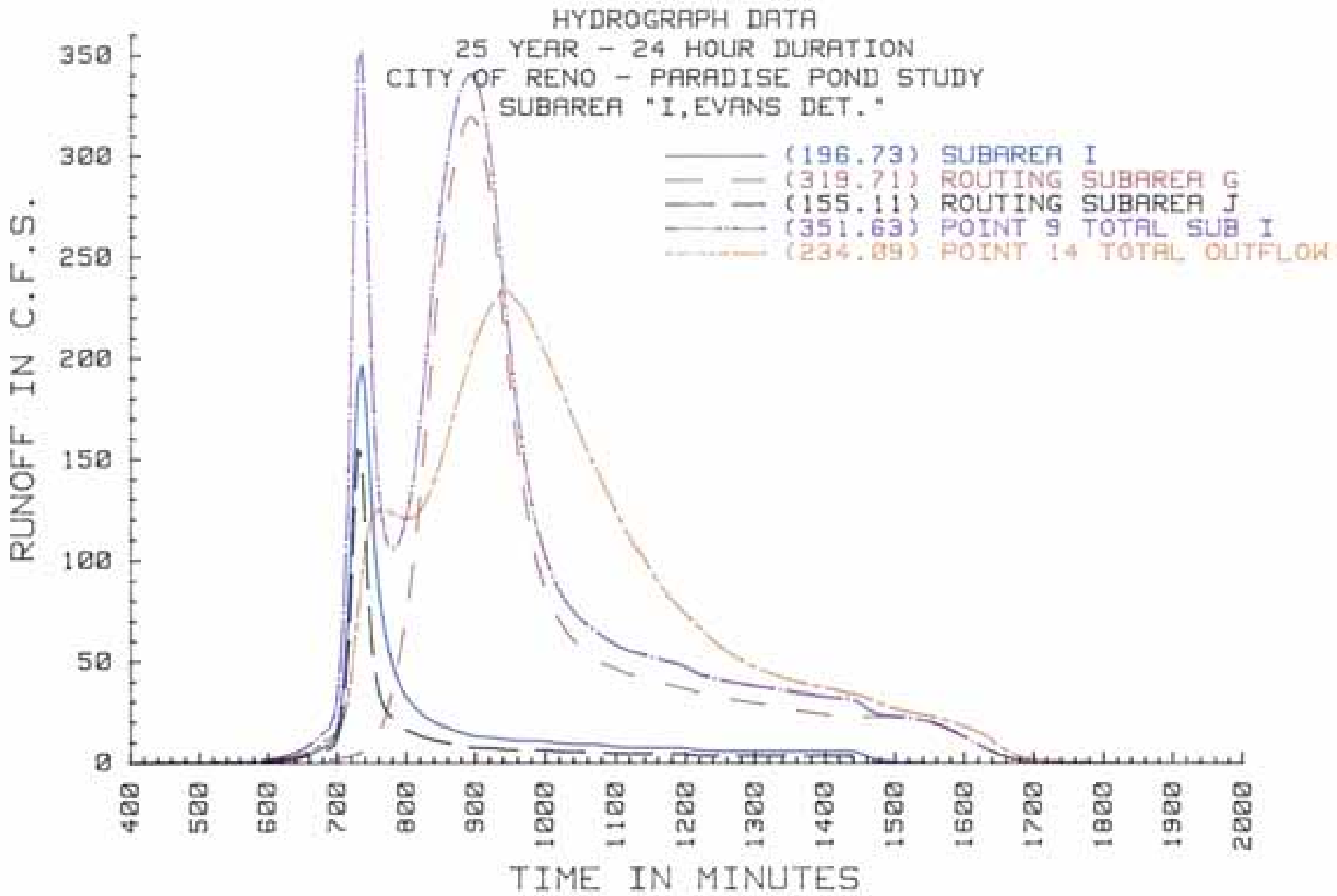
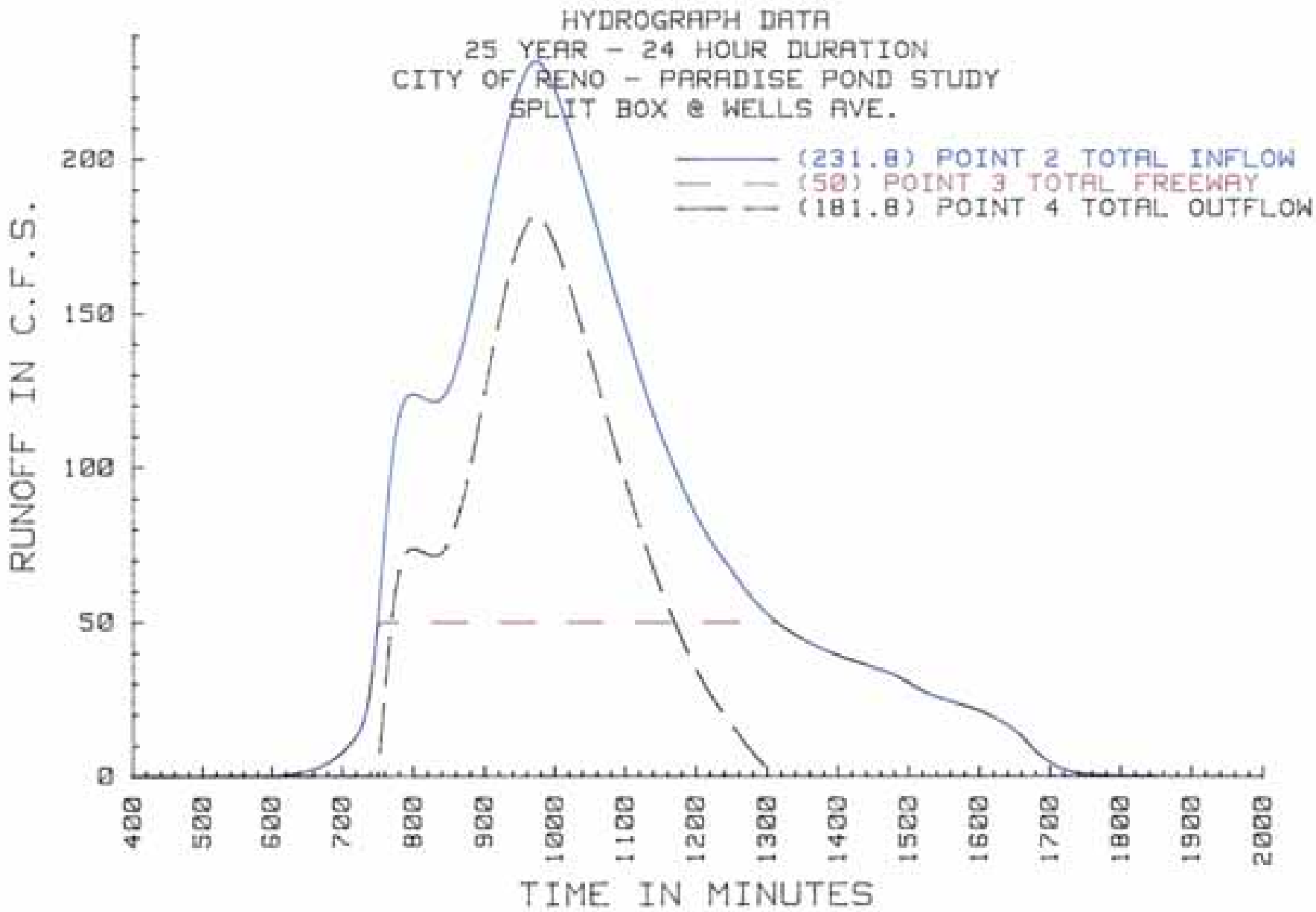
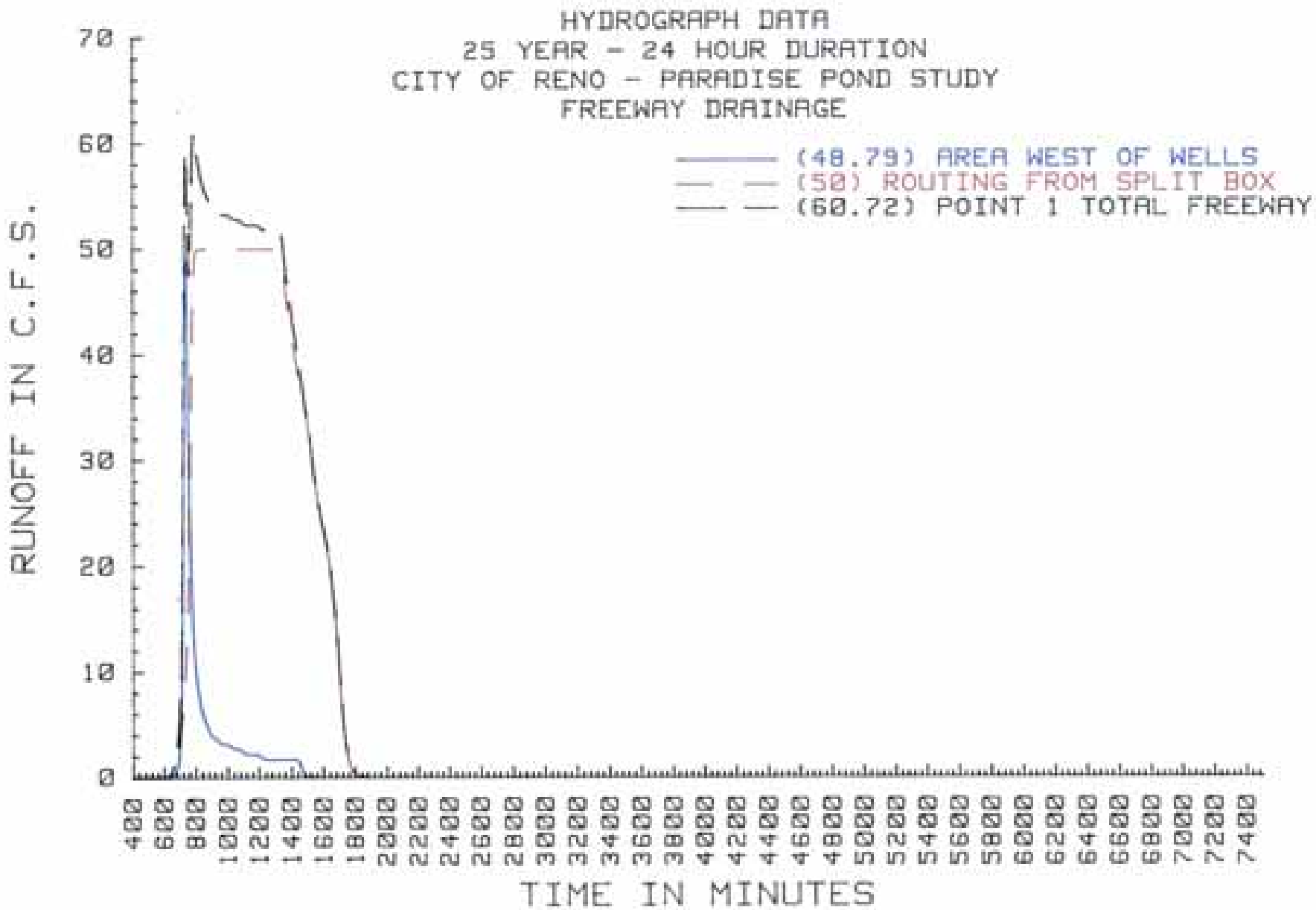
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(.24) SUBAREA V
(385.59) ADDING SUBAREA U
(385.59) POINT 11 TOTAL SUB V
(12.8) POINT 12 TOTAL 30in. OUTF
RUNOFF IN C.F.S.
400
350
300
250
200
150
100
50
0
400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200 7400
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(196.73) SUBAREA I
(319.71) ROUTING SUBAREA G
(155.11) ROUTING SUBAREA J
(351.63) POINT 9 TOTAL SUB I
(234.09) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(231.8) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(181.8) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(48.79) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(60.72) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
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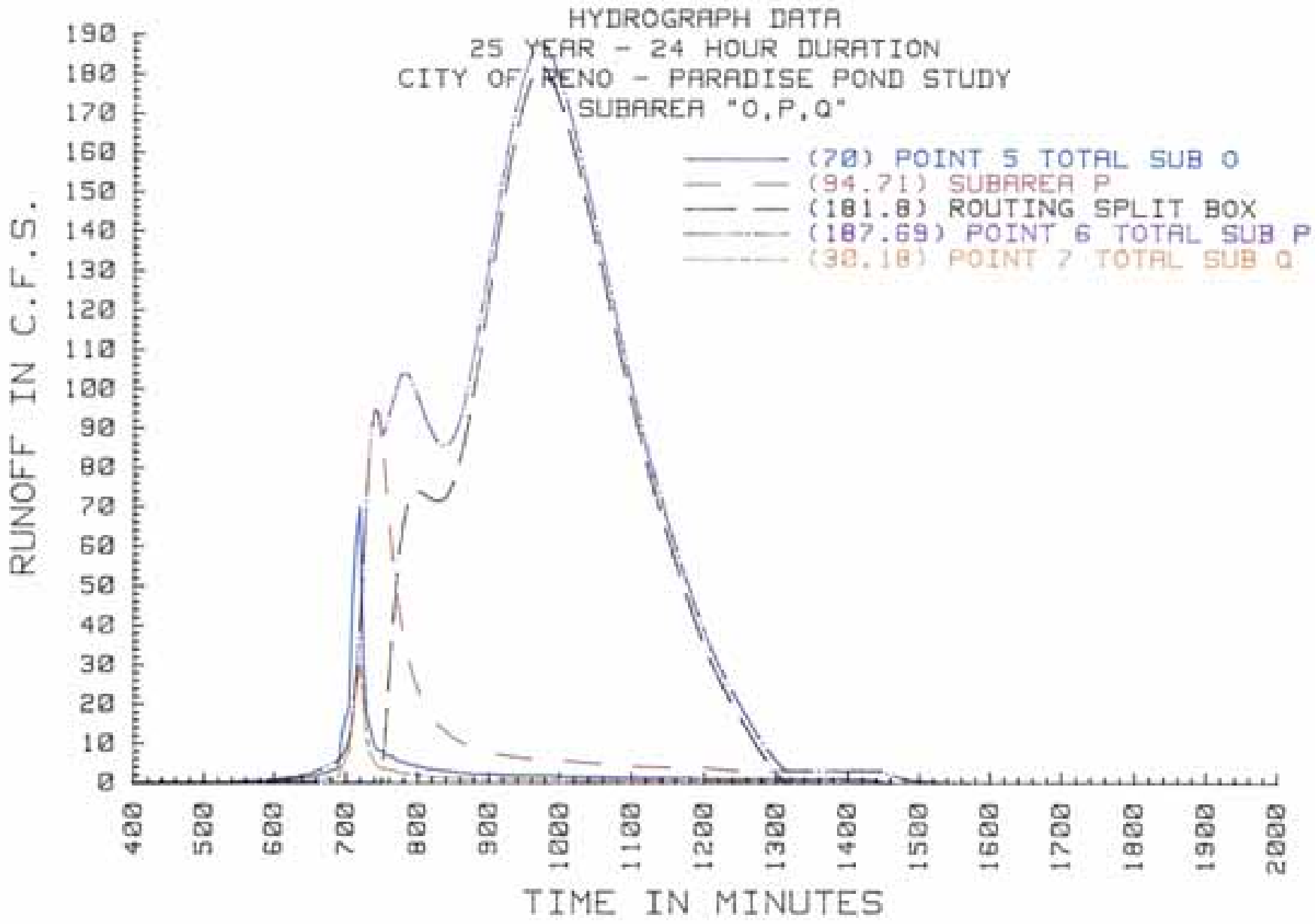
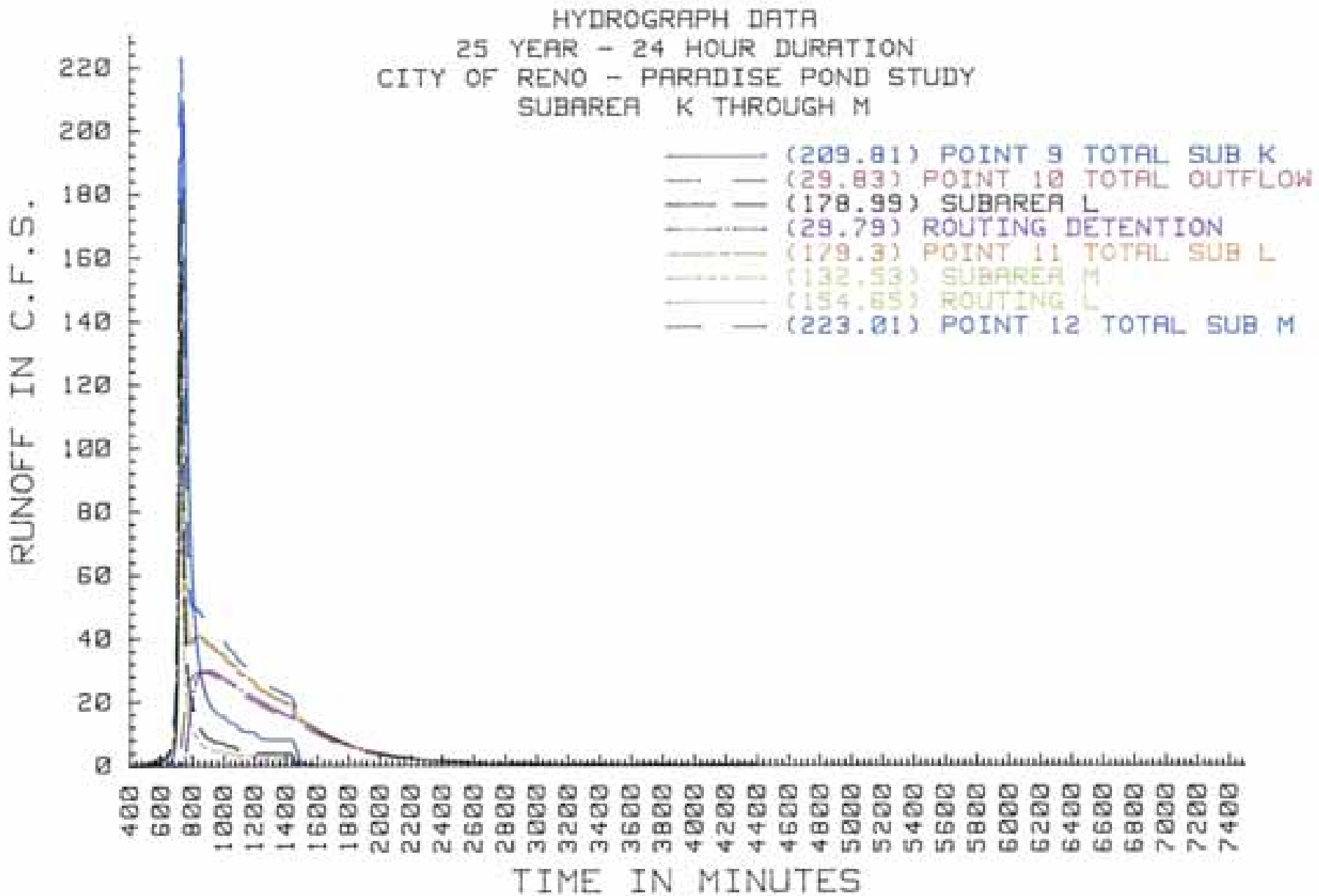
6200
6400
6600
6800
7000
7200
7400


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(70) POINT 5 TOTAL SUB O
(94.71) SUBAREA P
(181.8) ROUTING SPLIT BOX
(187.69) POINT 6 TOTAL SUB P
(38.18) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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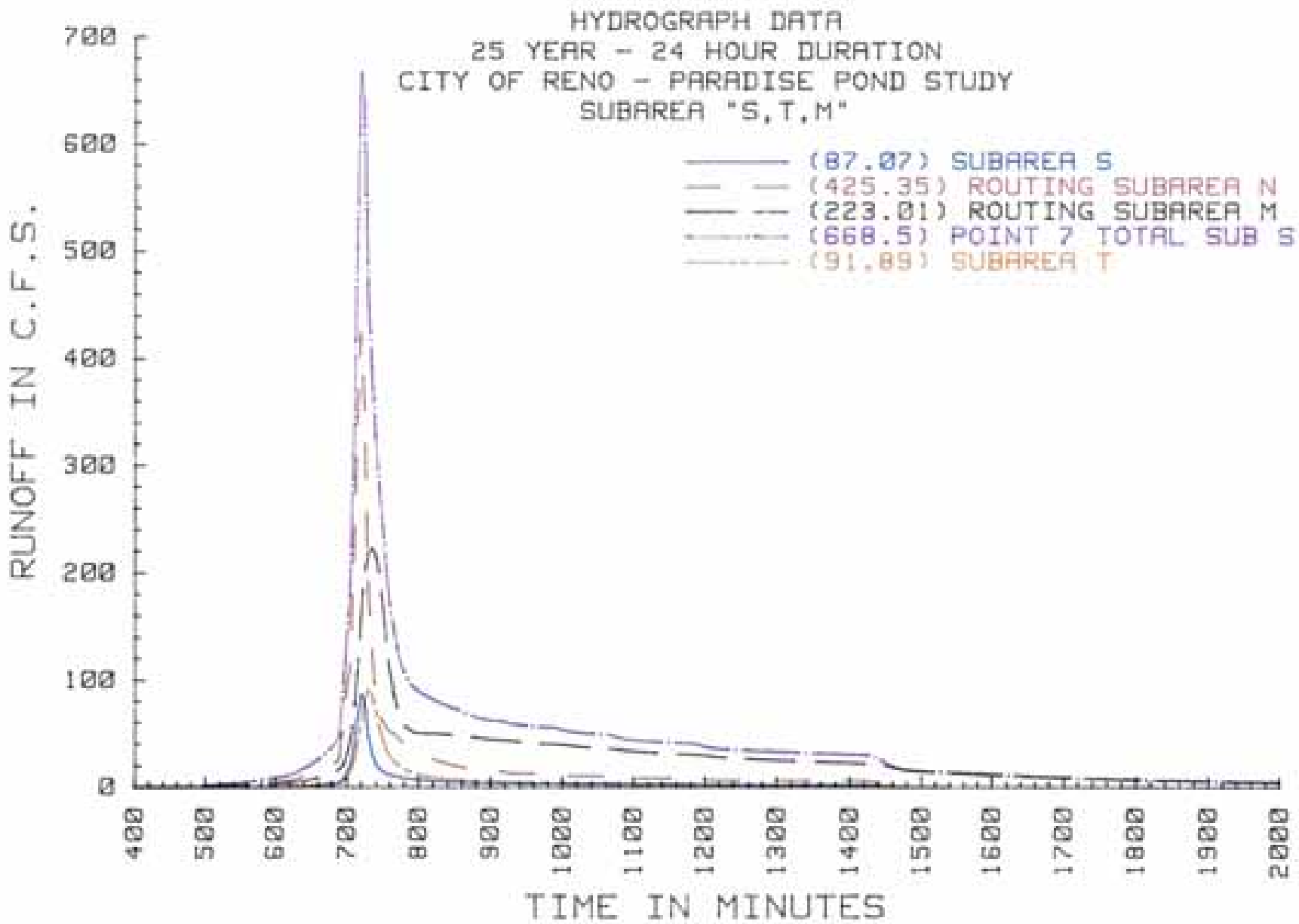
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(209.81) POINT 9 TOTAL SUB K
(29.83) POINT 10 TOTAL OUTFLOW
(178.99) SUBAREA L
(29.79) ROUTING DETENTION
(179.3) POINT 11 TOTAL SUB L
(132.53) SUBAREA M
(154.65) ROUTING L
(223.01) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
20
40
60
80
100
120
140
160
180
200
220
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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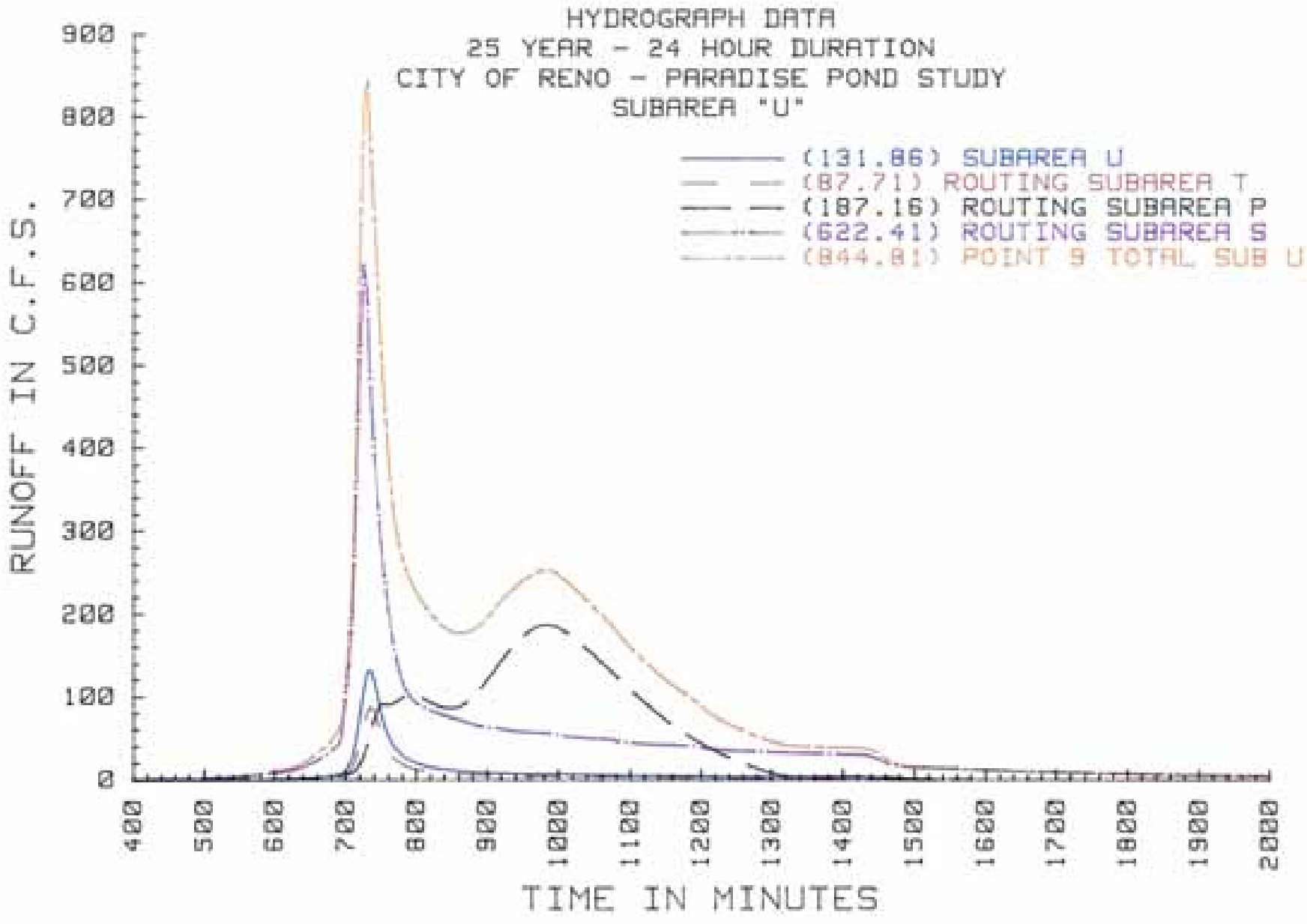
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(87.07) SUBAREA S
(425.35) ROUTING SUBAREA N
(223.01) ROUTING SUBAREA M
(668.5) POINT 7 TOTAL SUB S
(91.89) SUBAREA T
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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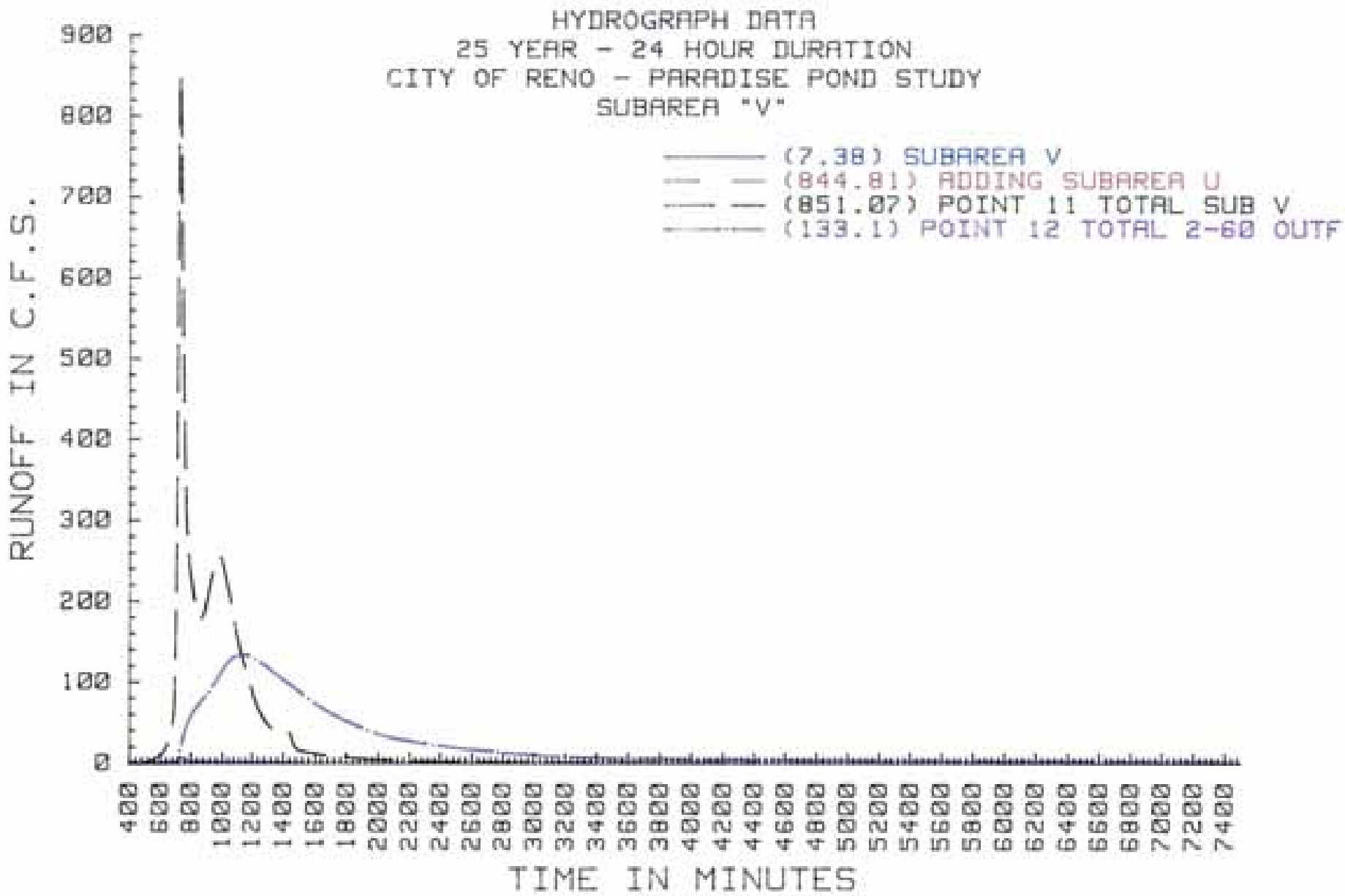
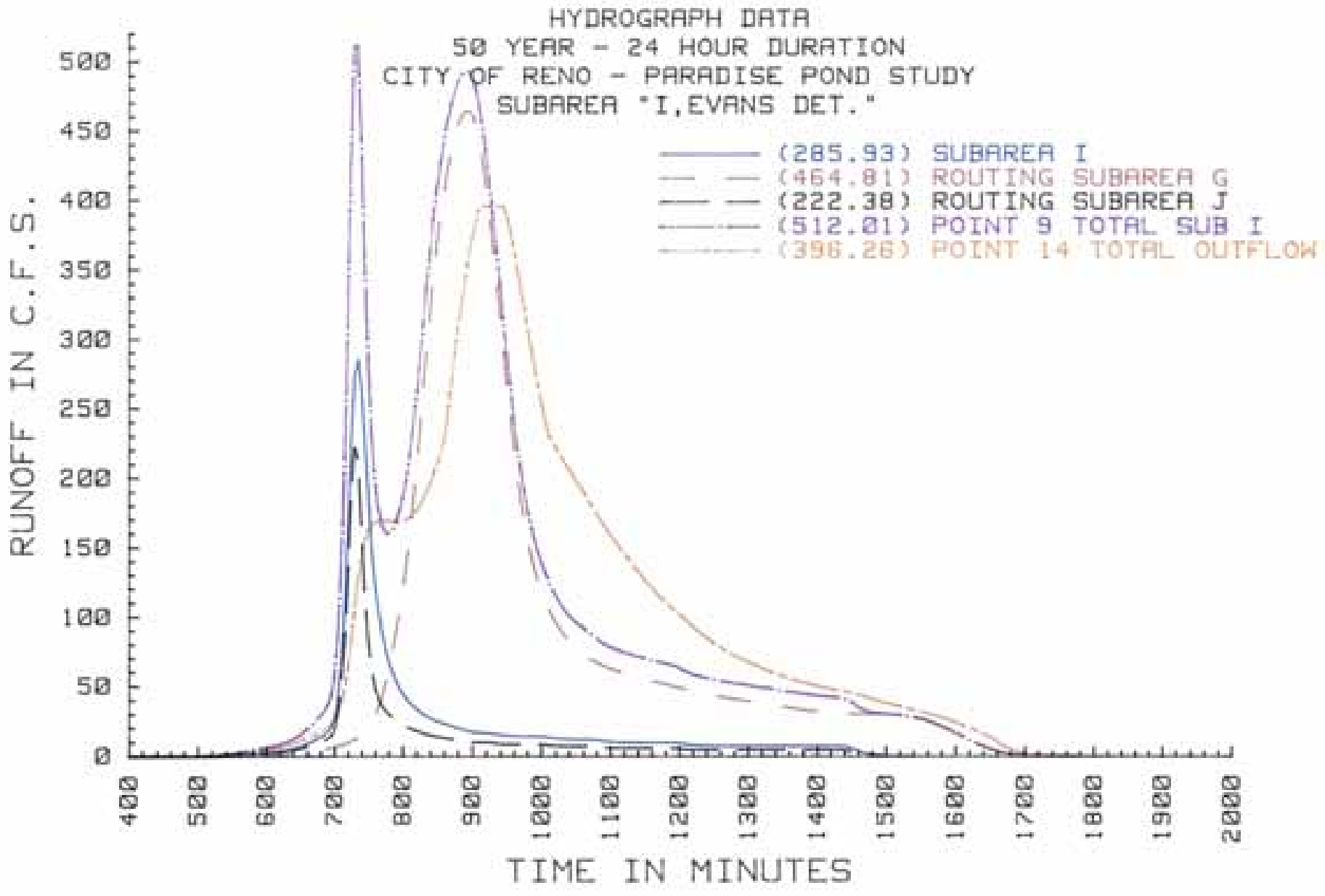
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(131.86) SUBAREA U
(87.71) ROUTING SUBAREA T
(187.16) ROUTING SUBAREA P
(622.41) ROUTING SUBAREA S
(844.81) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(7.38) SUBAREA V
(844.81) ADDING SUBAREA U
(851.07) POINT 11 TOTAL SUB V
(133.1) POINT 12 TOTAL 2-60 OUTF
RUNOFF IN C.F.S.
900
800
700
600
500
400
300
200
100
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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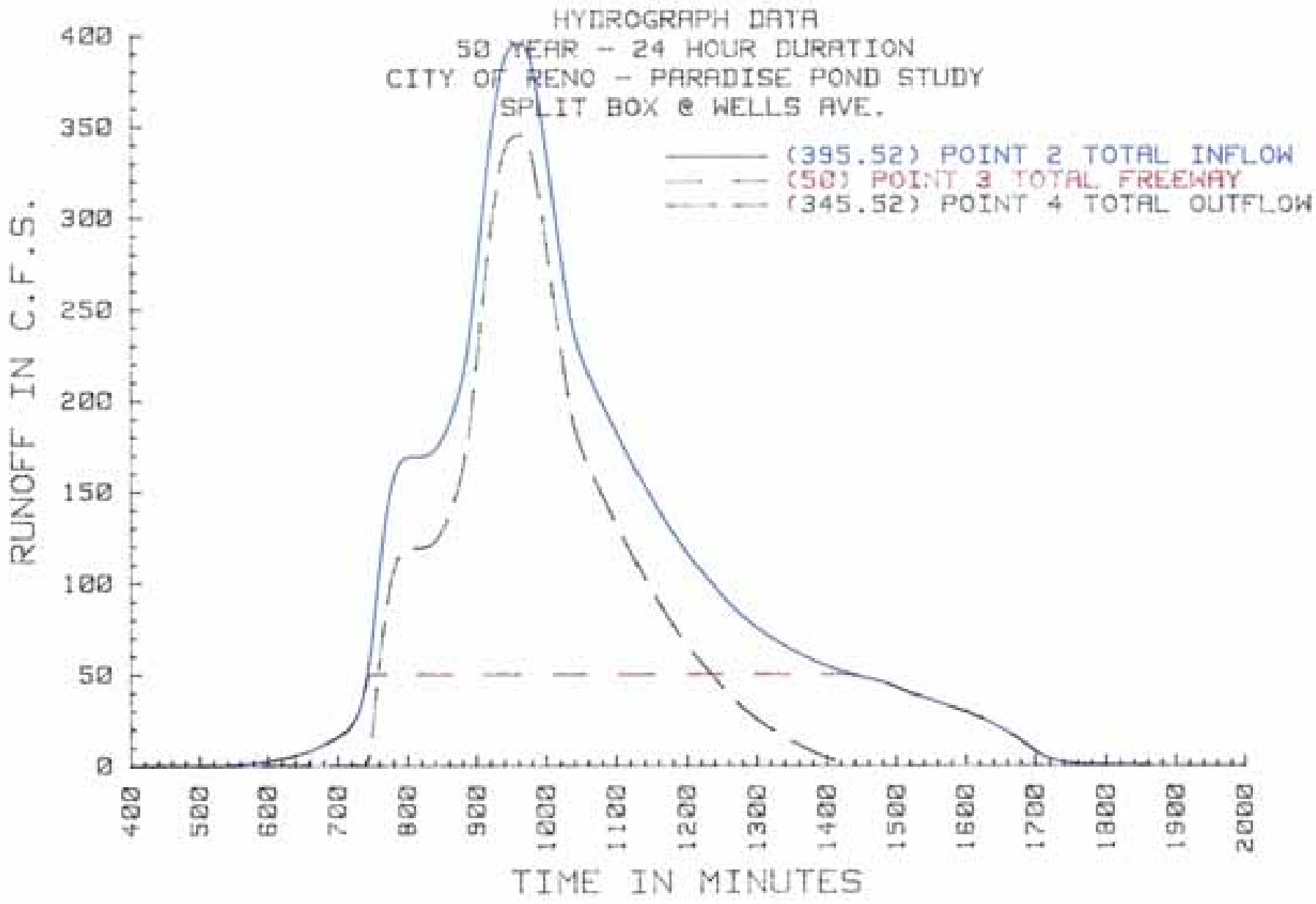
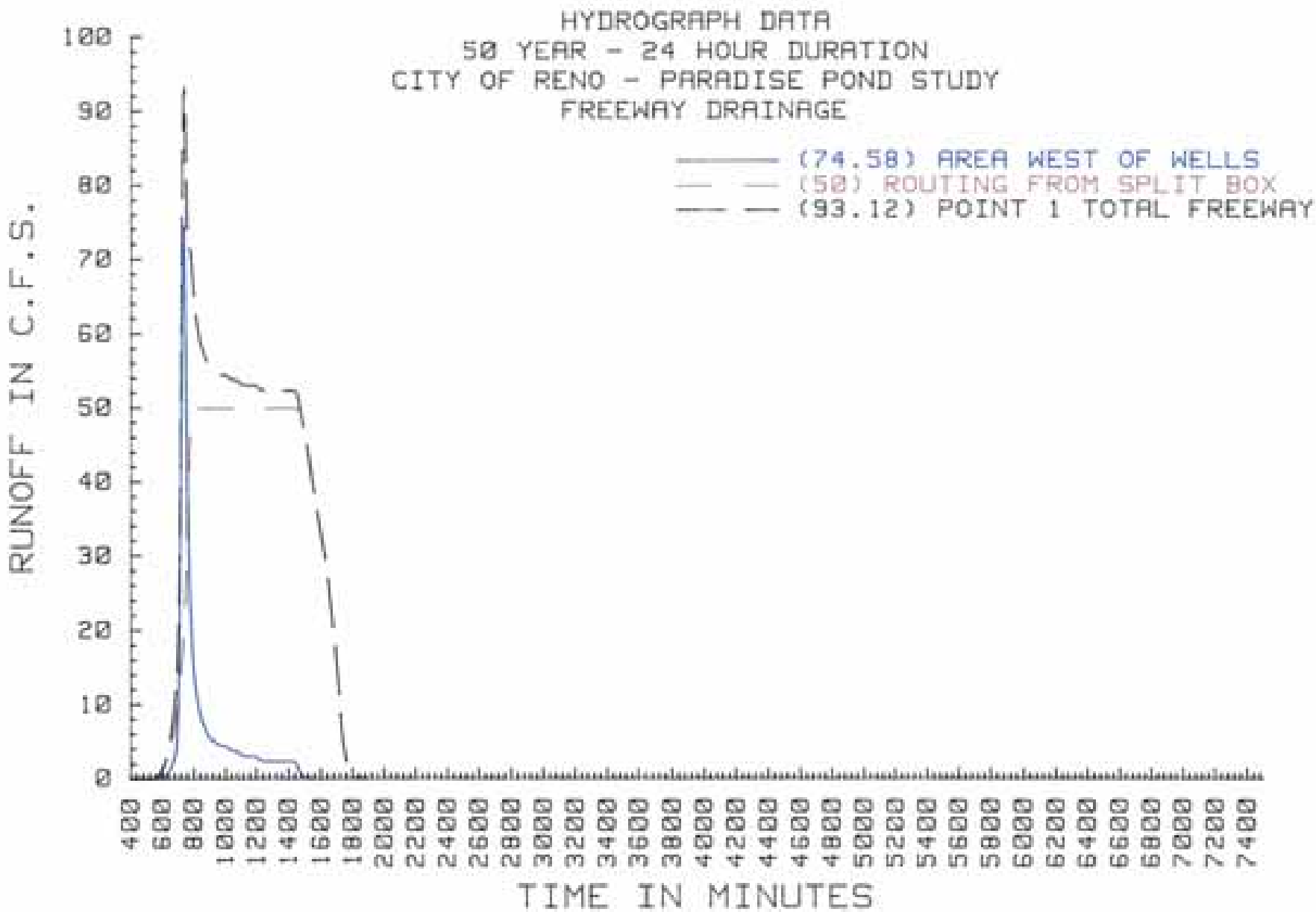
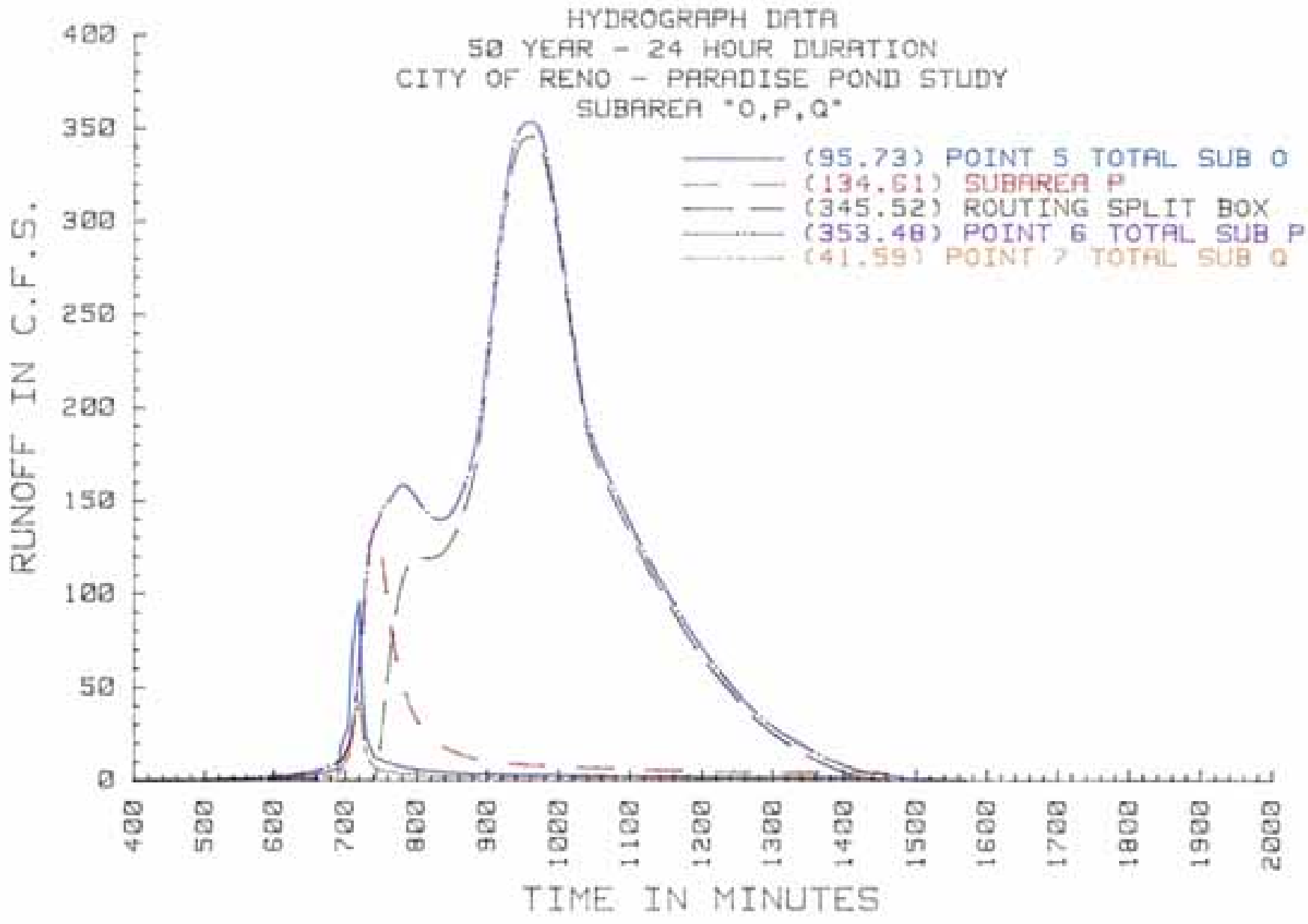
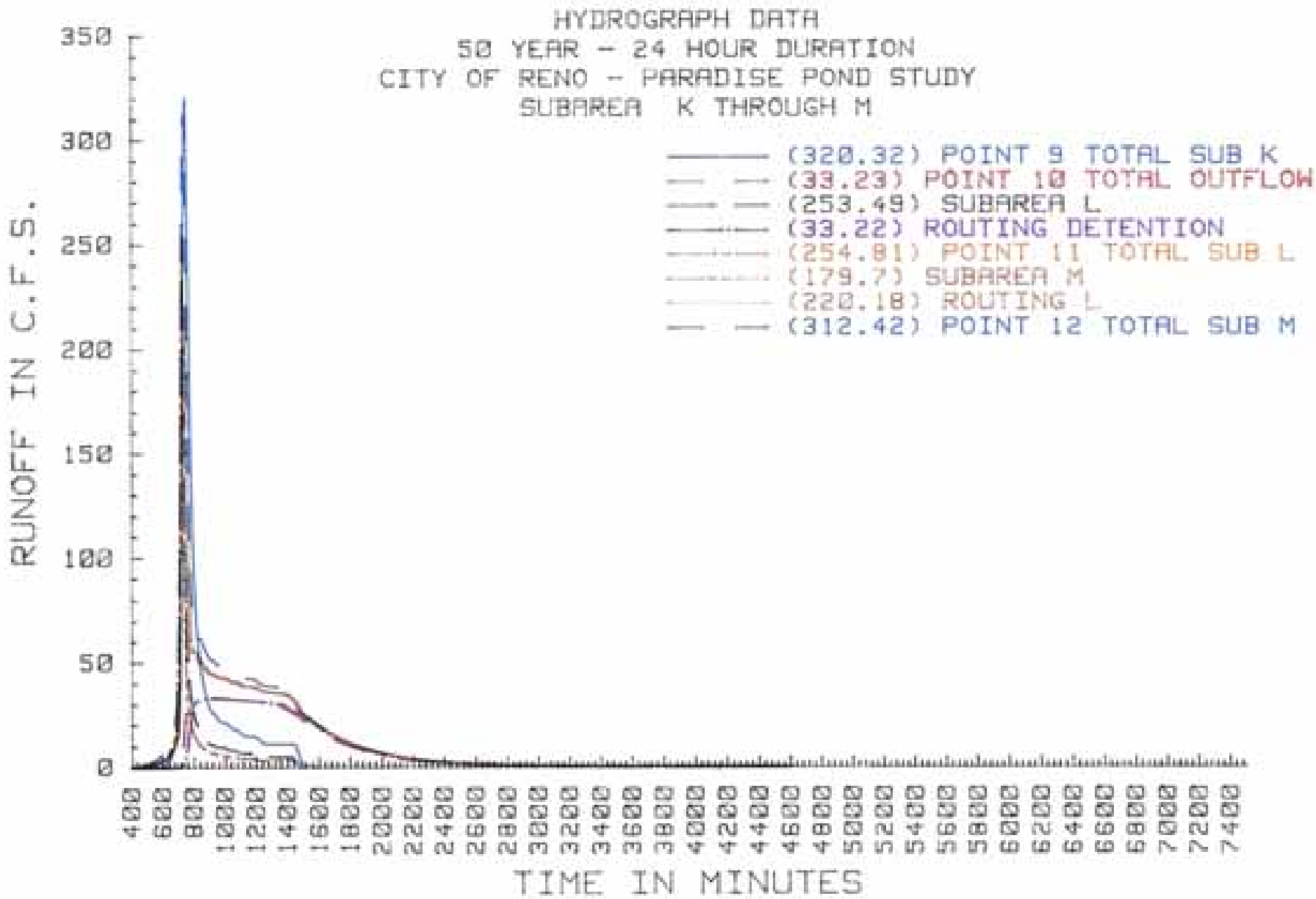
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(285.93) SUBAREA I
(464.81) ROUTING SUBAREA G
(222.38) ROUTING SUBAREA J
(512.01) POINT 9 TOTAL SUB I
(396.26) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(395.52) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(345.52) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(74.58) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(93.12) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
100
90
80
70
60
50
40
30
20
10
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(95.73) POINT 5 TOTAL SUB O
(134.61) SUBAREA P
(345.52) ROUTING SPLIT BOX
(353.48) POINT 6 TOTAL SUB P
(41.59) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(320.32) POINT 9 TOTAL SUB K
(33.23) POINT 10 TOTAL OUTFLOW
(253.49) SUBAREA L
(33.22) ROUTING DETENTION
(254.81) POINT 11 TOTAL SUB L
(179.7) SUBAREA M
(220.18) ROUTING L
(312.42) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
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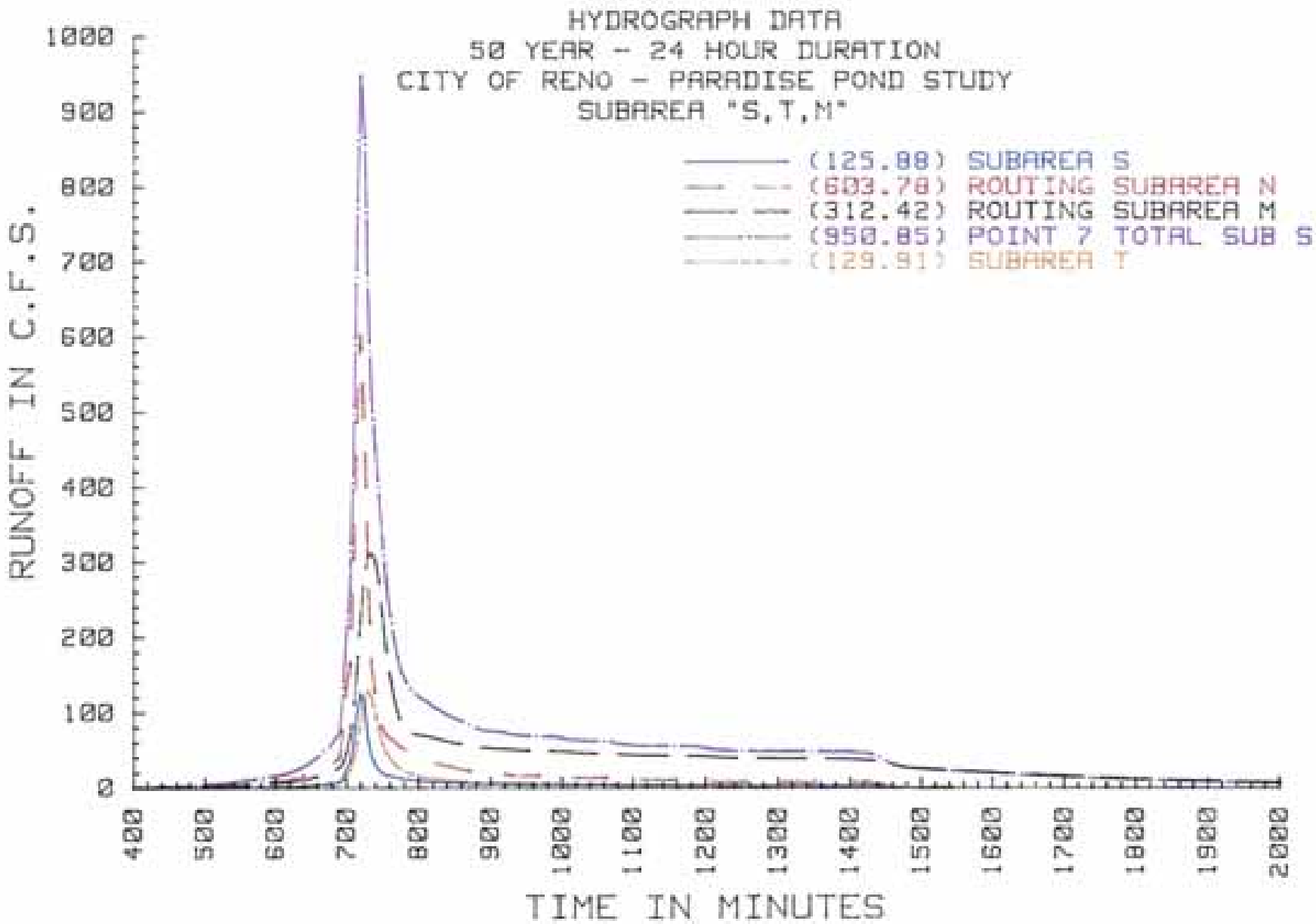
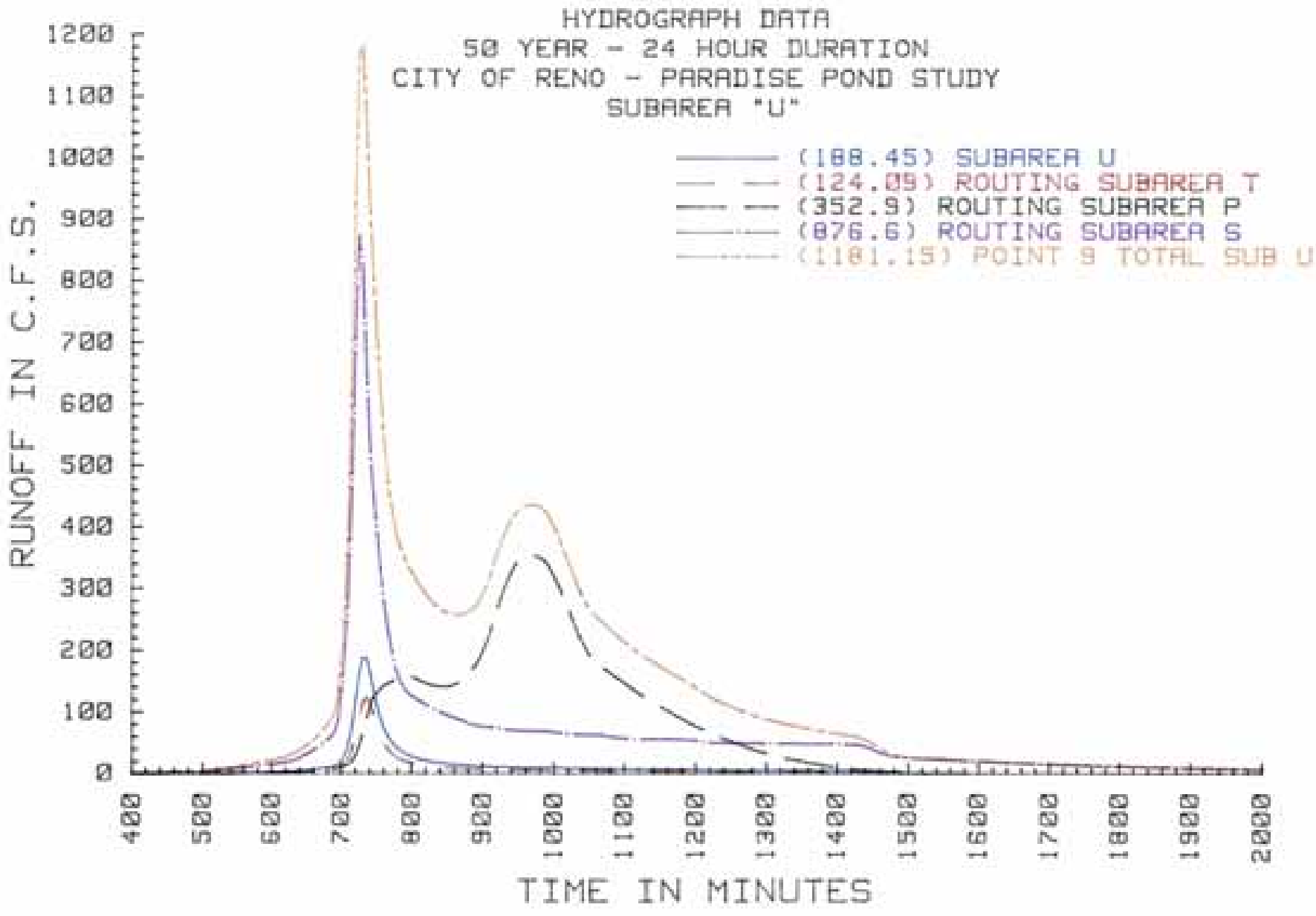
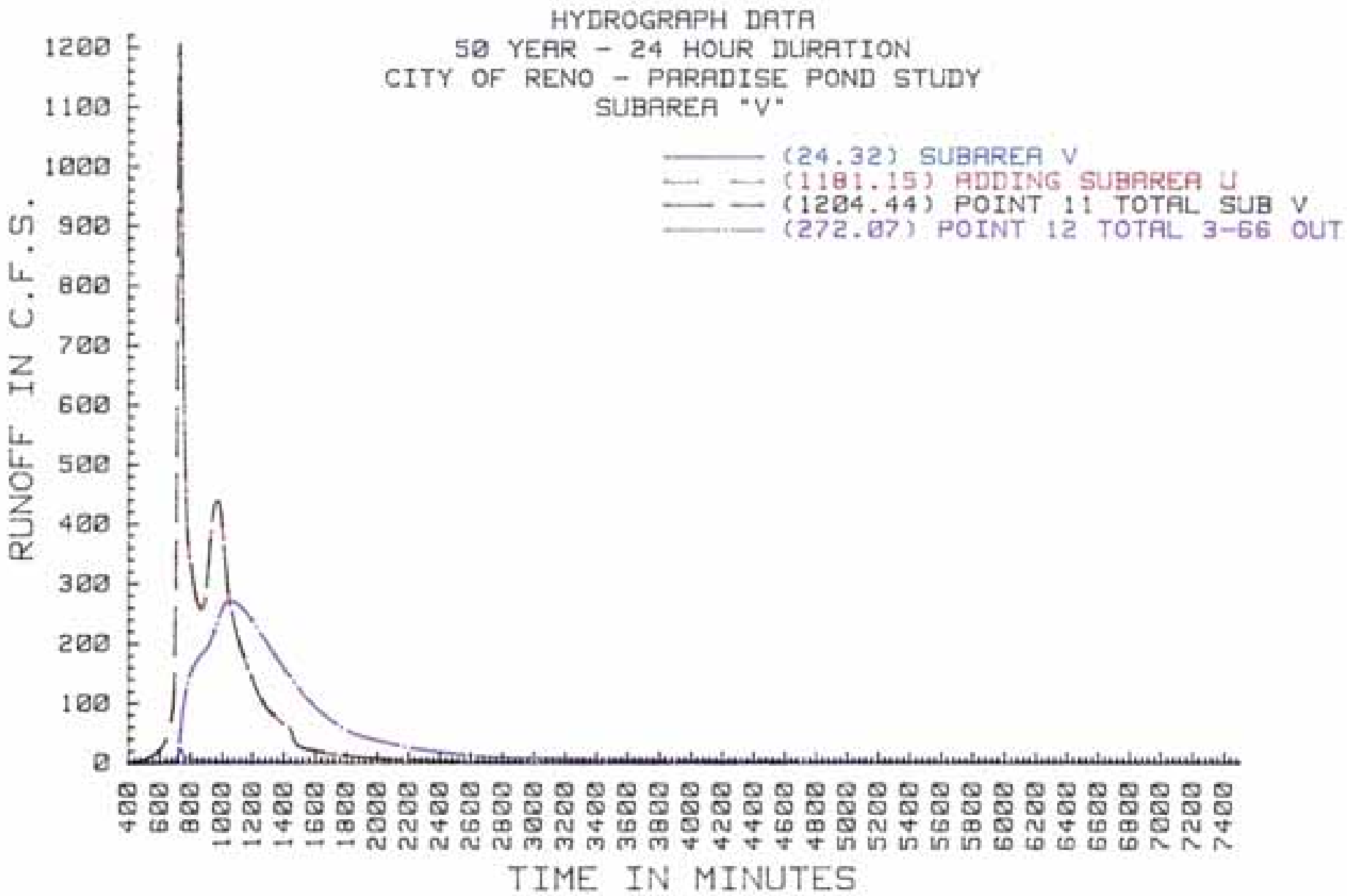
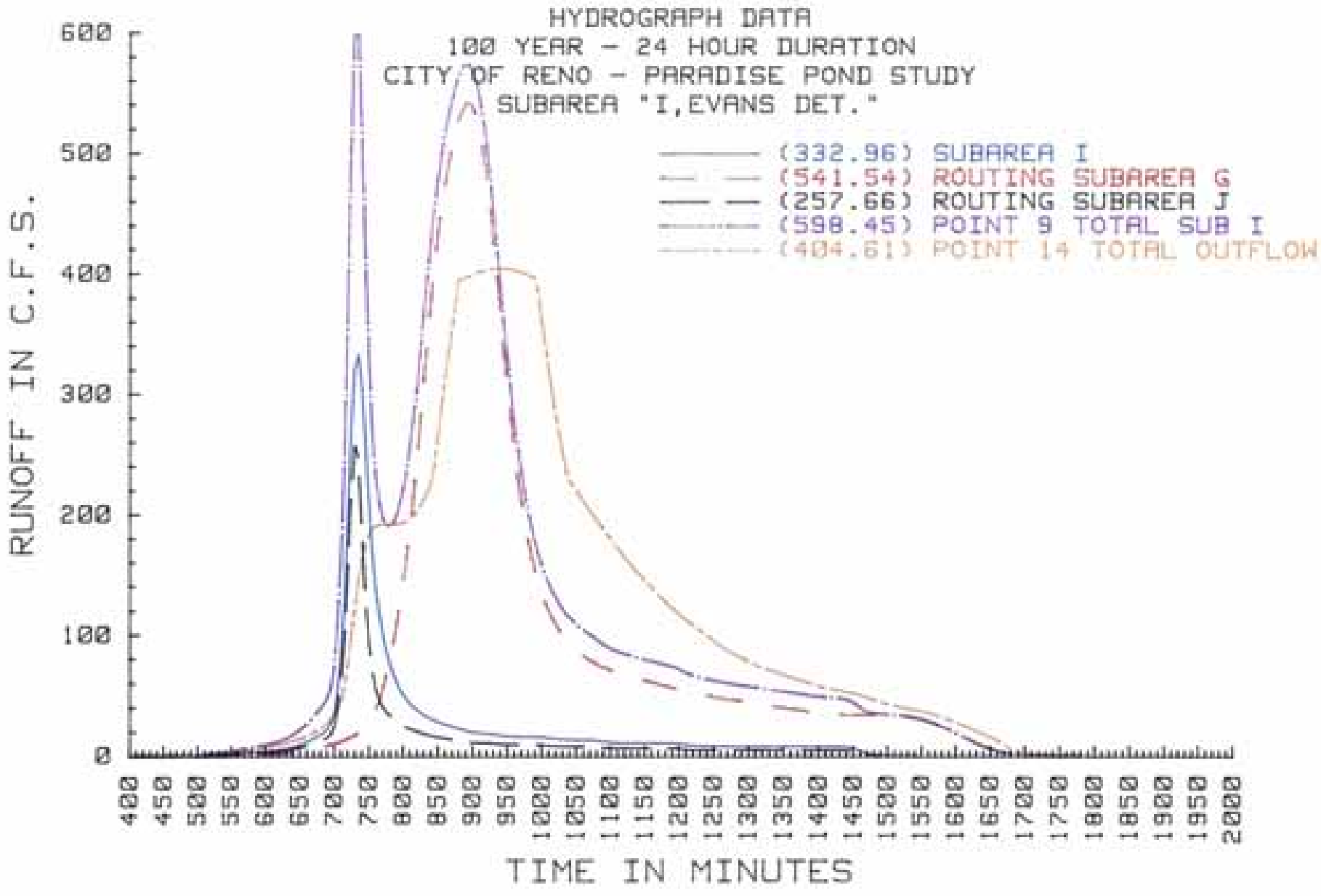
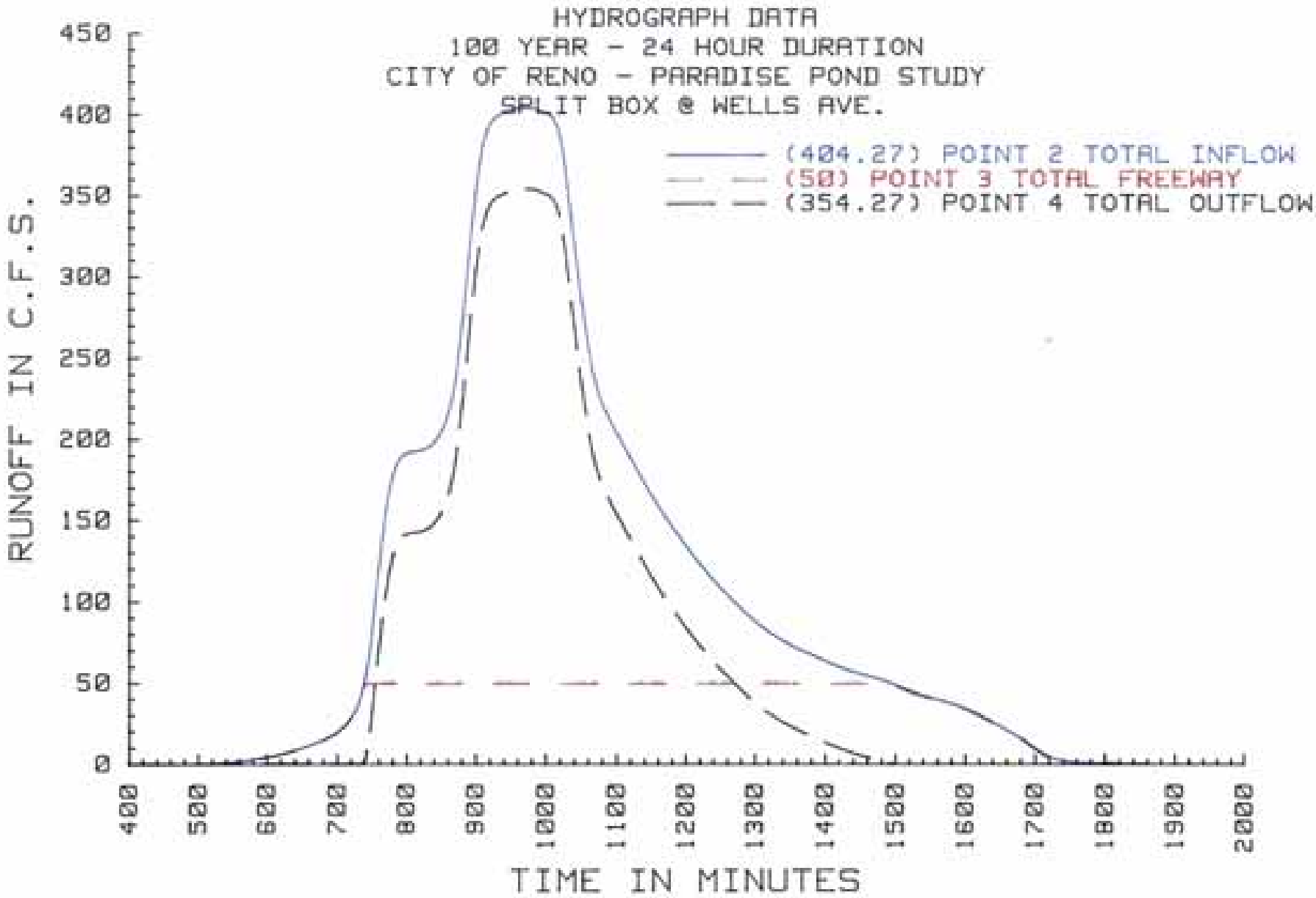
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400

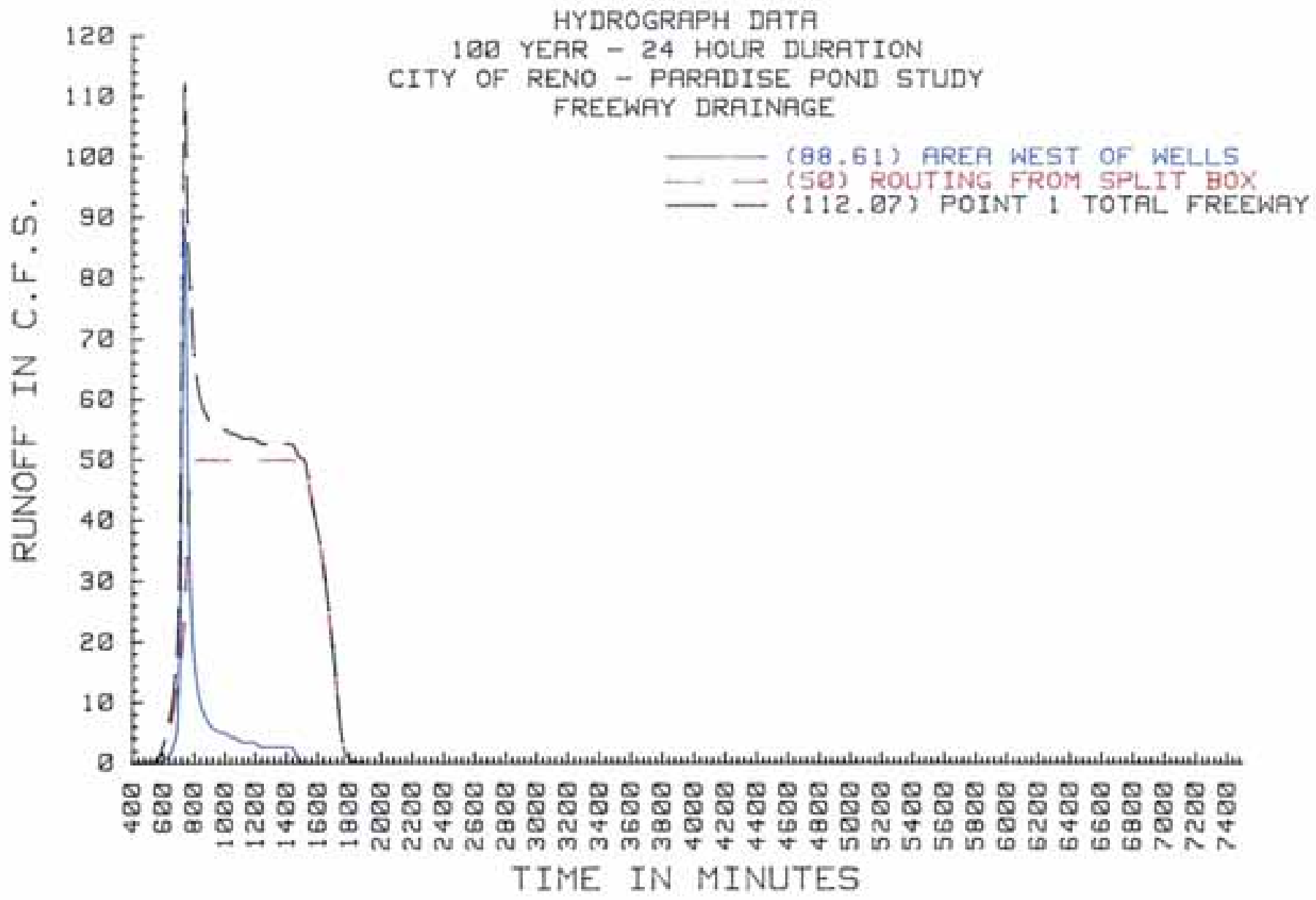

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(125.88) SUBAREA S
(603.78) ROUTING SUBAREA N
(312.42) ROUTING SUBAREA M
(950.85) POINT 7 TOTAL SUB S
(129.91) SUBAREA T
RUNOFF IN C.F.S.
1000
900
800
700
600
500
400
300
200
100
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

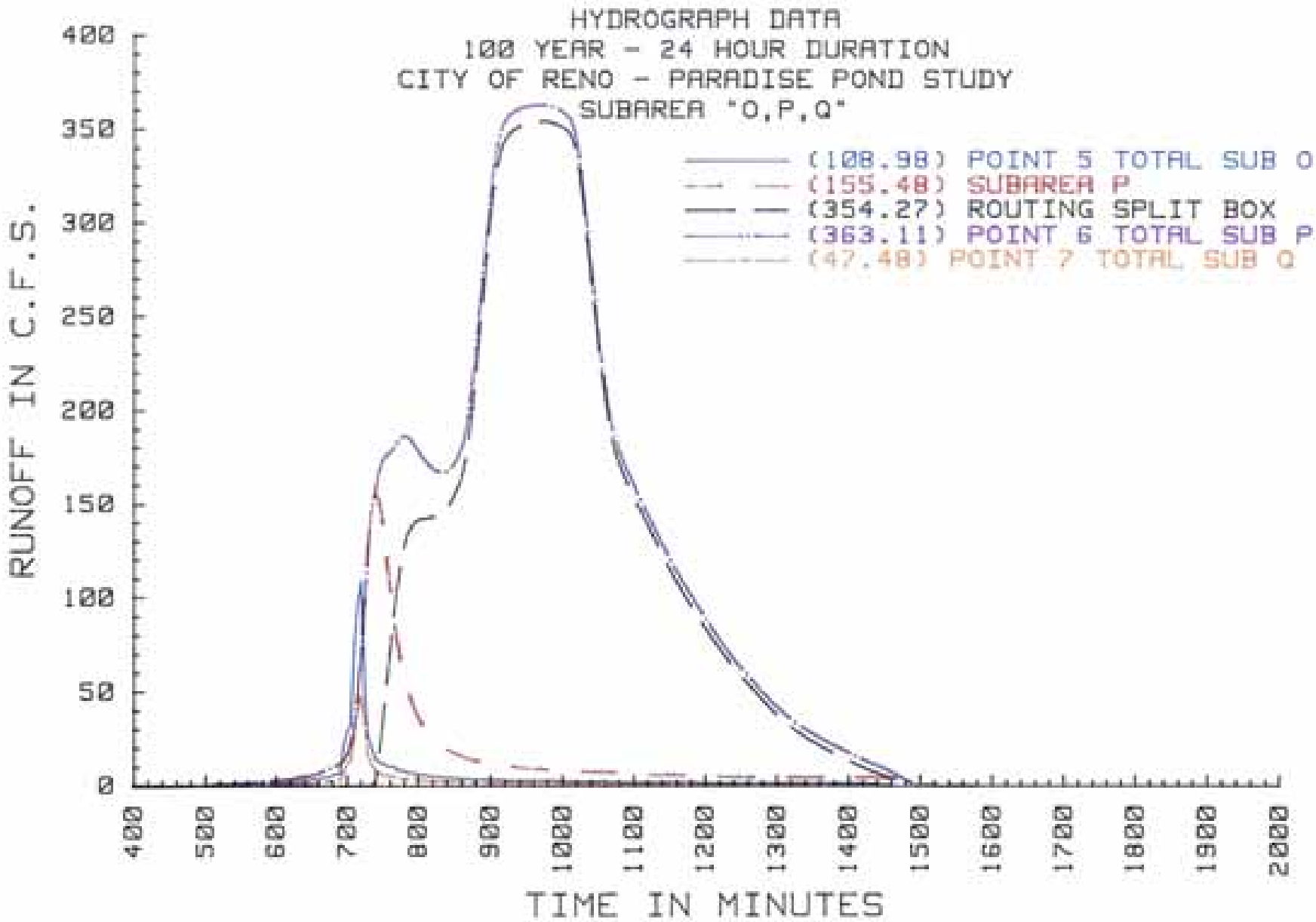

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(188.45) SUBAREA U
(124.09) ROUTING SUBAREA T
(352.9) ROUTING SUBAREA P
(876.6) ROUTING SUBAREA S
(1181.15) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES

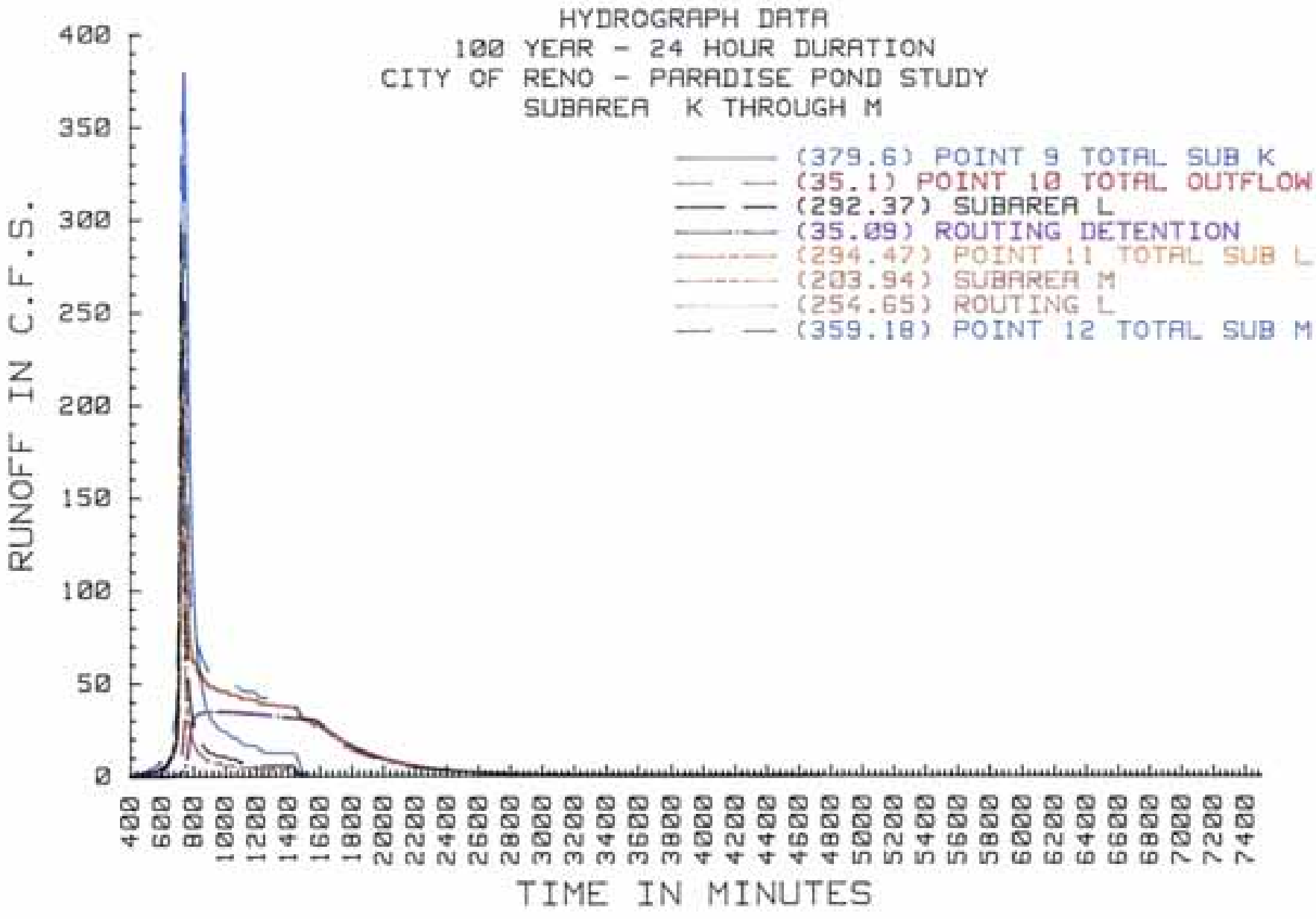

HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(24.32) SUBAREA V
(1181.15) ADDING SUBAREA U
(1204.44) POINT 11 TOTAL SUB V
(272.07) POINT 12 TOTAL 3-66 OUT
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(332.96) SUBAREA I
(541.54) ROUTING SUBAREA G
(257.66) ROUTING SUBAREA J
(598.45) POINT 9 TOTAL SUB I
(404.61) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
TIME IN MINUTES
400
450
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750
1800
1850
1900
1950
2000


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(404.27) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(354.27) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(88.61) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(112.07) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(108.98) POINT 5 TOTAL SUB O
(155.48) SUBAREA P
(354.27) ROUTING SPLIT BOX
(363.11) POINT 6 TOTAL SUB P
(47.48) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(379.6) POINT 9 TOTAL SUB K
(35.1) POINT 10 TOTAL OUTFLOW
(292.37) SUBAREA L
(35.09) ROUTING DETENTION
(294.47) POINT 11 TOTAL SUB L
(203.94) SUBAREA M
(254.65) ROUTING L
(359.18) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
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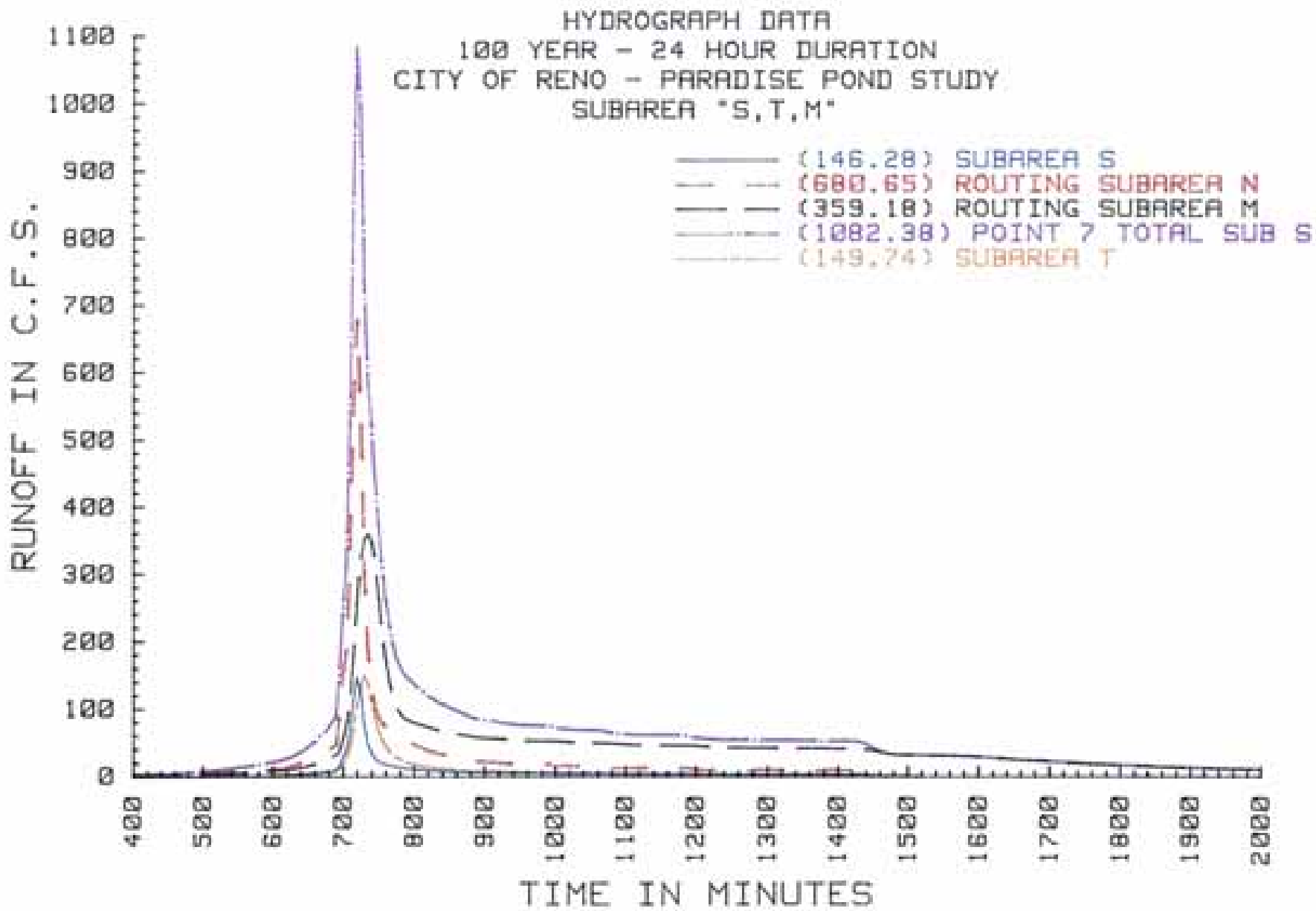
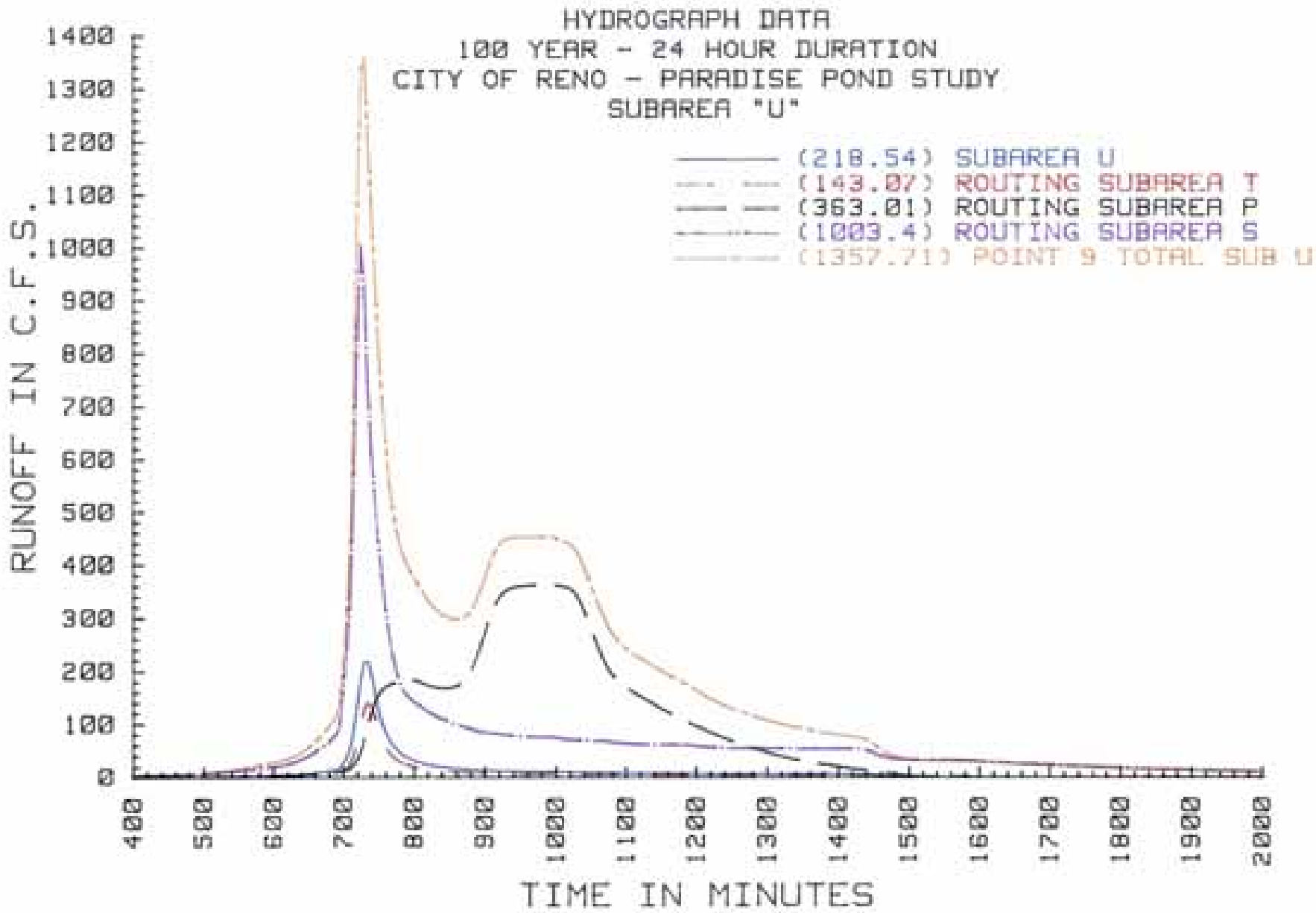
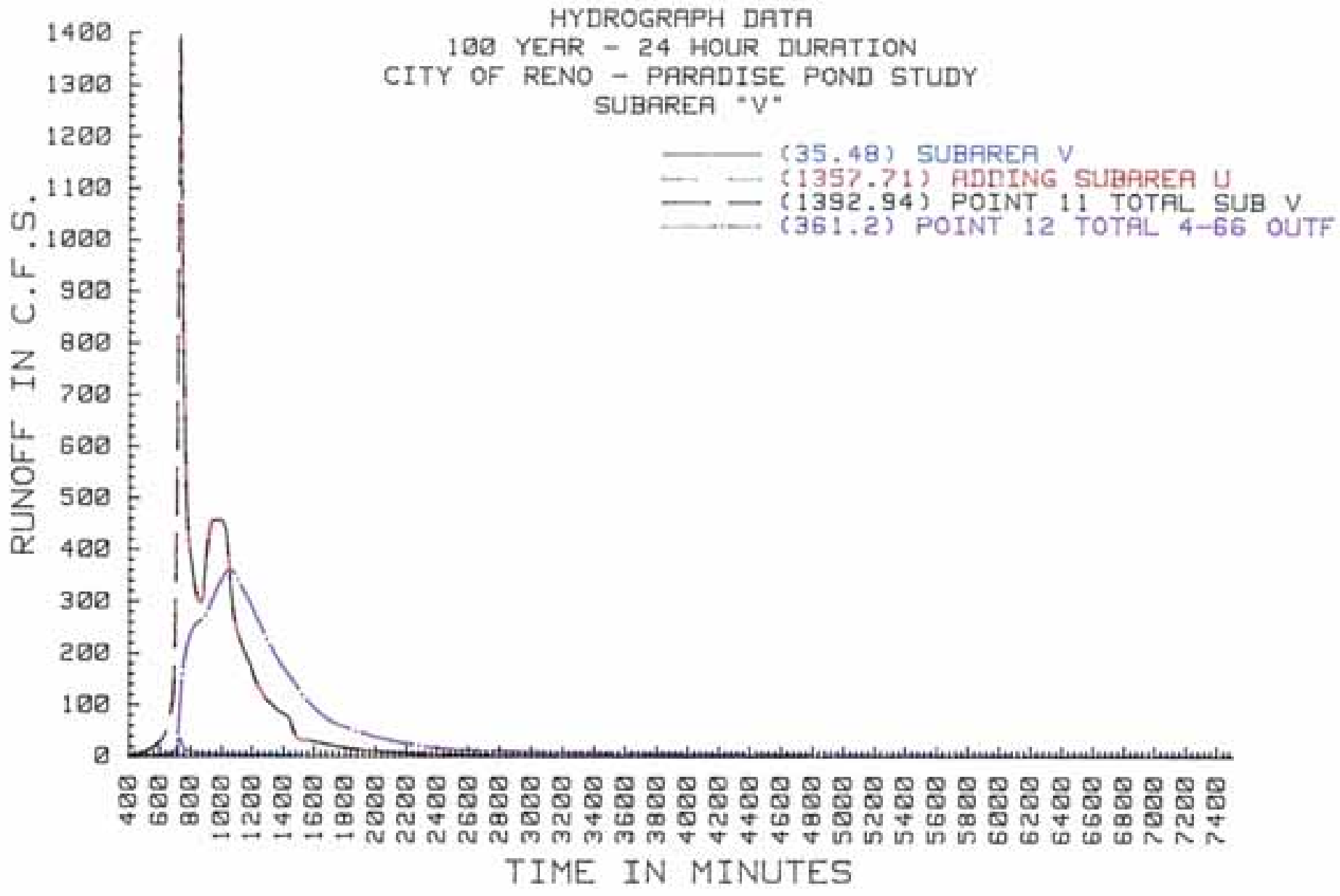
6200
6400
6600
6800
7000
7200
7400


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(146.28) SUBAREA S
(680.65) ROUTING SUBAREA N
(359.18) ROUTING SUBAREA M
(1082.38) POINT 7 TOTAL SUB S
(149.74) SUBAREA T
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(218.54) SUBAREA U
(143.07) ROUTING SUBAREA T
(363.01) ROUTING SUBAREA P
(1003.4) ROUTING SUBAREA S
(1357.71) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(35.48) SUBAREA V
(1357.71) ADDING SUBAREA U
(1392.94) POINT 11 TOTAL SUB V
(361.2) POINT 12 TOTAL 4-66 OUTF
RUNOFF IN C.F.S.
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
100
0
400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5200 5400 5600 5800 6000 6200 6400 6600 6800 7000 7200 7400
TIME IN MINUTES

# APPENDIX F

**TABLE F-1**

CONDITION NO. 6 WITH 3-HOUR DURATION STORM

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| A | 2.75 cfs @ 110 min. | 11.20 cfs @ 80 min. | 19.68 cfs @ 60 min. | 33.80 cfs @ 60 min. |
| B | 3.30 cfs @ 130 min. | 13.47 cfs @ 105 min. | 22.97 cfs @ 90 min. | 38.01 cfs @ 75 min. |
| C | 0.23 cfs @ 155 min. | 1.48 cfs @ 75 min. | 2.76 cfs @ 55 min. | 5.15 cfs @ 50 min. |
| D | 7.82 cfs @ 105 min. | 26.45 cfs @ 80 min. | 43.31 cfs @ 80 min. | 68.04 cfs @ 75 min. |
| E | 14.37 cfs @ 130 min. | 47.14 cfs @ 105 min. | 75.56 cfs @ 100 min. | 116.72 cfs @ 95 min. |
| F | 3.80 cfs @ 95 min. | 14.40 cfs @ 50 min. | 24.88 cfs @ 45 min. | 44.08 cfs @ 35 min. |
| G | 18.44 cfs @ 215 min. | 60.21 cfs @ 200 min. | 95.82 cfs @ 195 min. | 147.56 cfs @ 190 min. |
| H | 0.38 cfs @ 125 min. | 2.03 cfs @ 75 min. | 3.76 cfs @ 50 min. | 6.72 cfs @ 50 min. |
| I | 18.26 cfs @ 260 min. | 59.53 cfs @ 245 min. | 23.88 cfs @ 235 min. | 145.96 cfs @ 230 min. |
| J | 4.32 cfs @ 75 min. | 14.74 cfs @ 50 min. | 24.47 cfs @ 40 min. | 40.34 cfs @ 40 min. |
| Evans | 16.97 cfs @ 0.5 ac.ft. | 52.15 cfs @ 3.0 ac.ft. | 79.85 cfs @ 5.6 ac.ft. | 117.59 cfs @ 10.1 ac.ft. |
| Split Box | 16.88 cfs @ 320 min. | 51.89 cfs @ 310 min. | 79.49 cfs @ 310 min. | 117.11 cfs @ 310 min. |
| Freeway | 16.88 cfs @ 320 min. | 50.00 cfs @ 310 min. | 50.00 cfs @ 310 min. | 50.00 cfs @ 310 min. |

**TABLE F-1 - (con't)**

| Subarea Totals | 5-Year 3-Hour | 25-Year 3-Hour | 50-Year 3-Hour | 100-Year 3-Hour |
|---|---|---|---|---|
| K | 0.98 cfs @ 150 min. w/0.5 ac.ft. | 4.92 cfs @ 110 min. w/2.5 ac.ft. | 8.54 cfs @ 95 min. w/4.3 ac.ft. | 13.94 cfs @ 85 min. w/7.0 ac.ft. |
| L | 5.92 cfs @ 80 min. | 18.82 cfs @ 55 min. | 30.24 cfs @ 50 min. | 47.44 cfs @ 45 min. |
| M | 11.36 cfs @ 80 min. | 32.36 cfs @ 65 min. | 50.74 cfs @ 60 min. | 76.61 cfs @ 60 min. |
| N | 16.55 cfs @ 55 min. | 45.86 cfs @ 35 min. | 71.60 cfs @ 35 min. | 106.18 cfs @ 35 min. |
| O | 2.00 cfs @ 50 min. | 6.40 cfs @ 30 min. | 10.77 cfs @ 30 min. | 16.86 cfs @ 30 min. |
| P | 4.36 cfs @ 105 min. | 12.81 cfs @ 80 min. | 29.50 cfs @ 310 min. | 67.12 cfs @ 310 min. |
| Q | 0.91 cfs @ 55 min. | 2.85 cfs @ 35 min. | 4.64 cfs @ 35 min. | 7.19 cfs @ 30 min. |
| R | 2.88 cfs @ 35 min. | 6.41 cfs @ 30 min. | 8.37 cfs @ 30 min. | 10.95 cfs @ 30 min. |
| S | 28.05 cfs @ 75 min. | 77.51 cfs @ 55 min. | 116.99 cfs @ 50 min. | 173.57 cfs @ 50 min. |
| T | 3.29 cfs @ 85 min. | 10.27 cfs @ 60 min. | 16.47 cfs @ 55 min. | 25.56 cfs @ 55 min. |
| U | 13.47 cfs @ 110 min. | 38.90 cfs @ 85 min. | 60.70 cfs @ 75 min. | 93.42 cfs @ 70 min. |
| V | 13.47 cfs @ 110 min. | 38.90 cfs @ 85 min. | 60.70 cfs @ 75 min. | 93.42 cfs @ 70 min. |

Paradise Pond Outlet; One 30-inch pipe under inlet condition:

| | | | | |
|---|---|---|---|---|
| | 0.53 cfs @ 110 min. w/5.2ac.ft. | 1.53 cfs @ 85 min. w/15.2ac.ft. | 3.96 cfs @ 75 min. w/25.2ac.ft. | 8.92 cfs @ 70 min. w/44.0ac.ft. |

**TABLE F-2**

CONDITION NO. 6 WITH 6-HOUR DURATION STORM

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| A | 4.44 cfs @ 215 min. | 19.78 cfs @ 165 min. | 32.51 cfs @ 165 min. | 64.51 cfs @ 160 min. |
| B | 5.58 cfs @ 235 min. | 20.28 cfs @ 180 min. | 33.25 cfs @ 180 min. | 64.91 cfs @ 175 min. |
| C | 0.53 cfs @ 360 min. | 2.70 cfs @ 155 min. | 5.56 cfs @ 150 min. | 12.52 cfs @ 150 min. |
| D | 14.25 cfs @ 160 min. | 40.17 cfs @ 160 min. | 60.64 cfs @ 160 min. | 109.27 cfs @ 160 min. |
| E | 22.64 cfs @ 215 min. | 62.85 cfs @ 200 min. | 93.42 cfs @ 200 min. | 164.25 cfs @ 195 min. |
| F | 7.48 cfs @ 155 min. | 32.16 cfs @ 150 min. | 50.44 cfs @ 150 min. | 90.93 cfs @ 150 min. |
| G | 30.85 cfs @ 320 min. | 81.25 cfs @ 300 min. | 118.63 cfs @ 295 min. | 203.76 cfs @ 290 min. |
| H | 0.72 cfs @ 245 min. | 4.25 cfs @ 150 min. | 7.88 cfs @ 150 min. | 16.24 cfs @ 150 min. |
| I | 40.22 cfs @ 360 min. | 99.19 cfs @ 345 min. | 141.93 cfs @ 340 min. | 237.75 cfs @ 335 min. |
| J | 9.55 cfs @ 155 min. | 29.24 cfs @ 155 min. | 42.94 cfs @ 150 min. | 75.31 cfs @ 150 min. |
| Evans | 35.98 cfs @ 1.6 ac.ft. | 80.69 cfs @ 5.7 ac.ft. | 111.20 cfs @ 9.2 ac.ft. | 173.98 cfs @ 18.3 ac.ft. |
| Split Box | 35.63 cfs @ 410 min. | 80.18 cfs @ 415 min. | 110.59 cfs @ 415 min. | 173.09 cfs @ 415 min. |
| Freeway | 35.63 cfs @ 410 min. | 50.00 cfs @ 415 min. | 50.00 cfs @ 415 min. | 50.00 cfs @ 415 min. |

**TABLE F-2 - (con't)**

CONDITION NO. 6 WITH 6-HOUR DURATION STORMS

| Subarea Totals | 5-Year 6-Hour | 25-Year 6-Hour | 50-Year 6-Hour | 100-Year 6-Hour |
|---|---|---|---|---|
| K | 3.10 cfs @ 265 min. w/1.6 ac.ft. | 8.87 cfs @ 185 min. w/4.4 ac.ft. | 13.12 cfs @ 180 min. w/6.6 ac.ft. | 22.77 cfs @ 180 min. w/11.4 ac.ft. |
| L | 11.97 cfs @ 160 min. | 33.58 cfs @ 160 min. | 48.55 cfs @ 160 min. | 83.21 cfs @ 155 min. |
| M | 20.12 cfs @ 170 min. | 50.76 cfs @ 170 min. | 72.47 cfs @ 165 min. | 120.22 cfs @ 165 min. |
| N | 36.35 cfs @ 150 min. | 82.24 cfs @ 150 min. | 111.54 cfs @ 150 min. | 174.64 cfs @ 150 min. |
| O | 5.15 cfs @ 150 min. | 12.08 cfs @ 150 min. | 16.96 cfs @ 145 min. | 27.45 cfs @ 145 min. |
| P | 7.28 cfs @ 185 min. | 31.53 cfs @ 405 min. | 62.31 cfs @ 405 min. | 125.32 cfs @ 410 min. |
| Q | 2.23 cfs @ 150 min. | 5.48 cfs @ 150 min. | 7.63 cfs @ 150 min. | 12.16 cfs @ 150 min. |
| R | 5.13 cfs @ 150 min. | 8.44 cfs @ 150 min. | 10.90 cfs @ 150 min. | 31.06 cfs @ 145 min. |
| S | 54.18 cfs @ 155 min. | 129.91 cfs @ 150 min. | 183.30 cfs @ 150 min. | 301.32 cfs @ 150 min. |
| T | 6.30 cfs @ 165 min. | 17.52 cfs @ 165 min. | 25.68 cfs @ 160 min. | 43.91 cfs @ 160 min. |
| U | 20.93 cfs @ 185 min. | 58.37 cfs @ 175 min. | 94.67 cfs @ 375 min. | 182.41 cfs @ 375 min. |
| V | 20.93 cfs @ 185 min. | 58.37 cfs @ 175 min. | 95.13 cfs @ 375 min. | 183.99 cfs @ 375 min. |

Paradise Pond Outlet; One 30-inch pipe under inlet condition:

| | | | |
|---|---|---|---|
| 1.14 cfs @ 185 min. w/11.4ac.ft. | 4.63 cfs @ 175 min. w/27.8ac.ft. | 8.92 cfs @ 375 min. w/44.1ac.ft. | 17.15 cfs @ 375 min. w/87.8ac.ft. |

**TABLE F-3**

CONDITION NO. 6 WITH 24-HOUR DURATION STORM

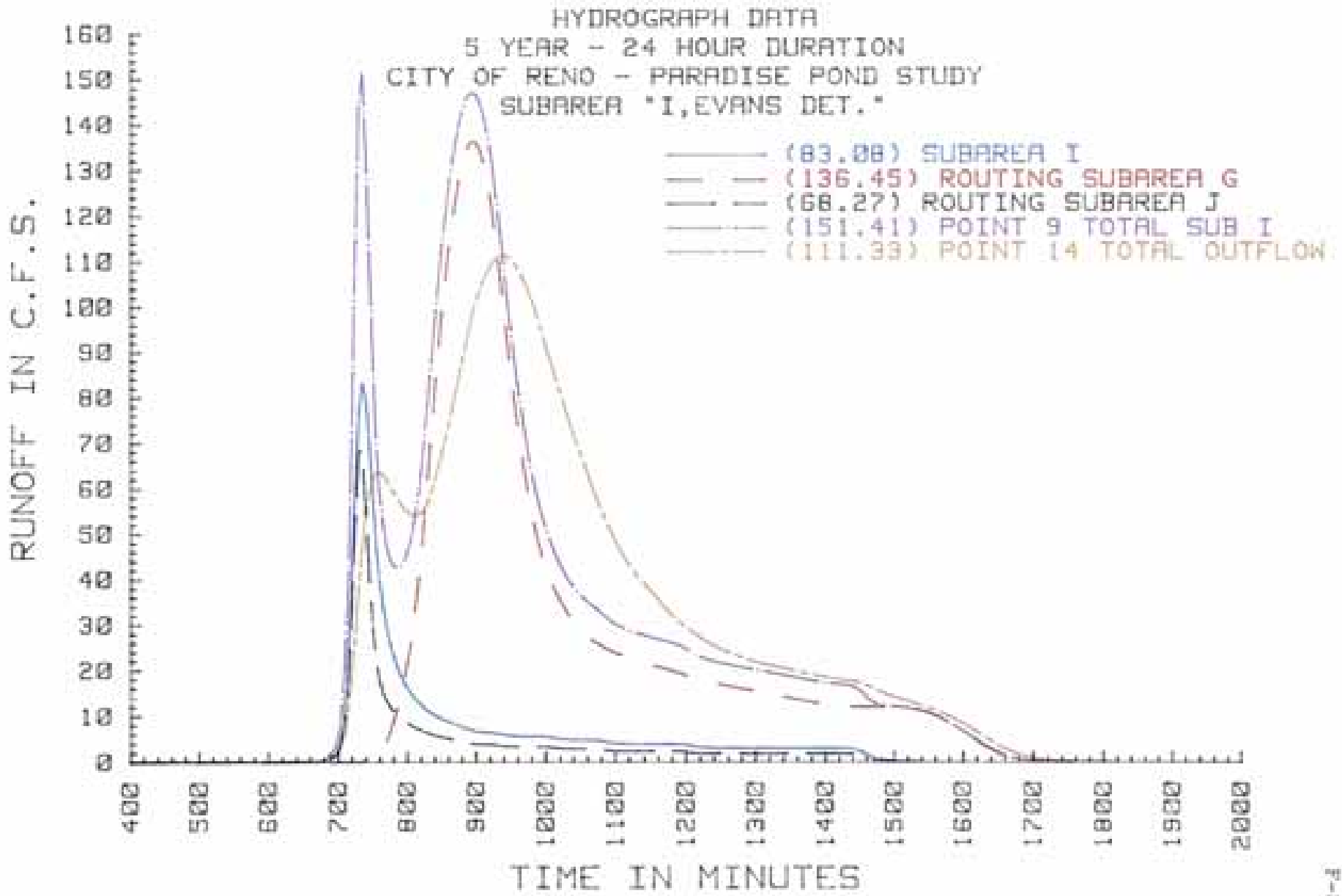
| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| A | 61.48 cfs @ 730 min. | 158.82 cf @ 730 min. | 237.00 cfs @ 730 min. | 278.60 cfs @ 730 min. |
| B | 54.62 cfs @ 745 min. | 143.92 cfs @ 740 min. | 217.10 cfs @ 740 min. | 256.20 cfs @ 740 min. |
| C | 14.36 cfs @ 720 min. | 41.29 cfs @ 720 min. | 63.42 cfs @ 720 min. | 75.30 cfs @ 720 min. |
| D | 104.77 cfs @ 725 min. | 241.01 cfs @ 725 min. | 348.08 cfs @ 725 min. | 404.57 cfs @ 725 min. |
| E | 121.82 cfs @ 760 min. | 291.19 cfs @ 755 min. | 425.59 cfs @ 755 min. | 496.81 cfs @ 755 min. |
| F | 110.52 cfs @ 720 min. | 258.26 cfs @ 720 min. | 373.59 cfs @ 720 min. | 434.25 cfs @ 720 min. |
| G | 139.30 cfs @ 850 min. | 326.44 cfs @ 850 min. | 474.56 cfs @ 850 min. | 552.88 cfs @ 850 min. |
| H | 19.74 cfs @ 720 min. | 52.44 cfs @ 720 min. | 78.85 cfs @ 720 min. | 92.93 cfs @ 720 min. |
| I | 151.41 cfs @ 735 min. | 351.63 cfs @ 735 min. | 512.01 cfs @ 735 min. | 598.45 cfs @ 730 min. |
| J | 80.99 cfs @ 725 min. | 176.79 cfs @ 720 min. | 253.47 cfs @ 720 min. | 293.67 cfs @ 720 min. |
| Evans | 111.33 cfs @ 735 min. | 234.09 cfs @ 735 min. | 396.26 cfs @ 735 min. | 404.61 cfs @ 730 min. |
| Split Box | 110.68 cfs @ 970 min. | 231.80 cfs @ 970 min. | 395.52 cfs @ 960 min. | 404.27 cfs @ 970 min. |
| Freeway | 53.45 cfs @ 820 min. | 60.72 cfs @ 790 min. | 93.12 cfs @ 740 min. | 112.07 cfs @ 740 min. |

**TABLE F-3 (con't)**

| Subarea Totals | 5-Year 24-Hour | 25-Year 24-Hour | 50-Year 24-Hour | 100-Year 24-Hour |
|---|---|---|---|---|
| K | 75.30 cfs @ 745 min. | 209.81 cfs @ 745 min. | 320.32 cfs @ 745 min. | 379.60 cfs @ 745 min. |
| L | 81.76 cfs @ 730 min. | 179.30 cfs @ 725 min. | 254.81 cfs @ 725 min. | 294.47 cfs @ 725 min. |
| M | 106.03 cfs @ 735 min. | 223.01 cfs @ 735 min. | 312.42 cfs @ 735 min. | 359.18 cfs @ 735 min. |
| N | 201.78 cfs @ 720 min. | 425.35 cfs @ 720 min. | 603.78 cfs @ 720 min. | 680.65 cfs @ 720 min. |
| O | 35.20 cfs @ 720 min. | 70.00 cfs @ 720 min. | 95.73 cfs @ 720 min. | 108.98 cfs @ 720 min. |
| P | 63.89 cfs @ 970 min. | 187.69 cfs @ 970 min. | 353.48 cfs @ 960 min. | 363.11 cfs @ 965 min. |
| Q | 14.88 cfs @ 720 min. | 30.18 cfs @ 720 min. | 41.59 cfs @ 720 min. | 47.48 cfs @ 720 min. |
| R | 37.09 cfs @ 720 min. | 68.34 cfs @ 720 min. | 90.86 cfs @ 720 min. | 102.36 cfs @ 720 min. |
| S | 311.01 cfs @ 720 min. | 668.50 cfs @ 720 min. | 950.85 cfs @ 720 min. | 1082.38 cfs @ 720 min. |
| T | 42.17 cfs @ 730 min. | 91.89 cfs @ 730 min. | 129.91 cfs @ 730 min. | 149.74 cfs @ 730 min. |
| U | 131.72 cfs @ 740 min. | 308.55 cfs @ 740 min. | 456.69 cfs @ 965 min. | 526.13 cfs @ 740 min. |
| V | 131.72 cfs @ 740 min. | 315.91 cfs @ 740 min. | 472.82 cfs @ 740 min. | 560.13 cfs @ 735 min. |

Paradise Pond Outlet; the minimum size pipe under inlet conditions to keep from overflowing Paradise Pond:

| 1-30" pipe | 1-60" pipes | 3-60" pipes | 3-66" pipes |
|---|---|---|---|
| 10.14 cfs @ 740 min. w/49.0ac.ft. | 71.37 cfs @ 740 min. w/114.8ac.ft. | 226.82 cfs @ 740 min. w/120.3ac.ft. | 277.57 cfs @ 735 min. w/128.6ac.ft. |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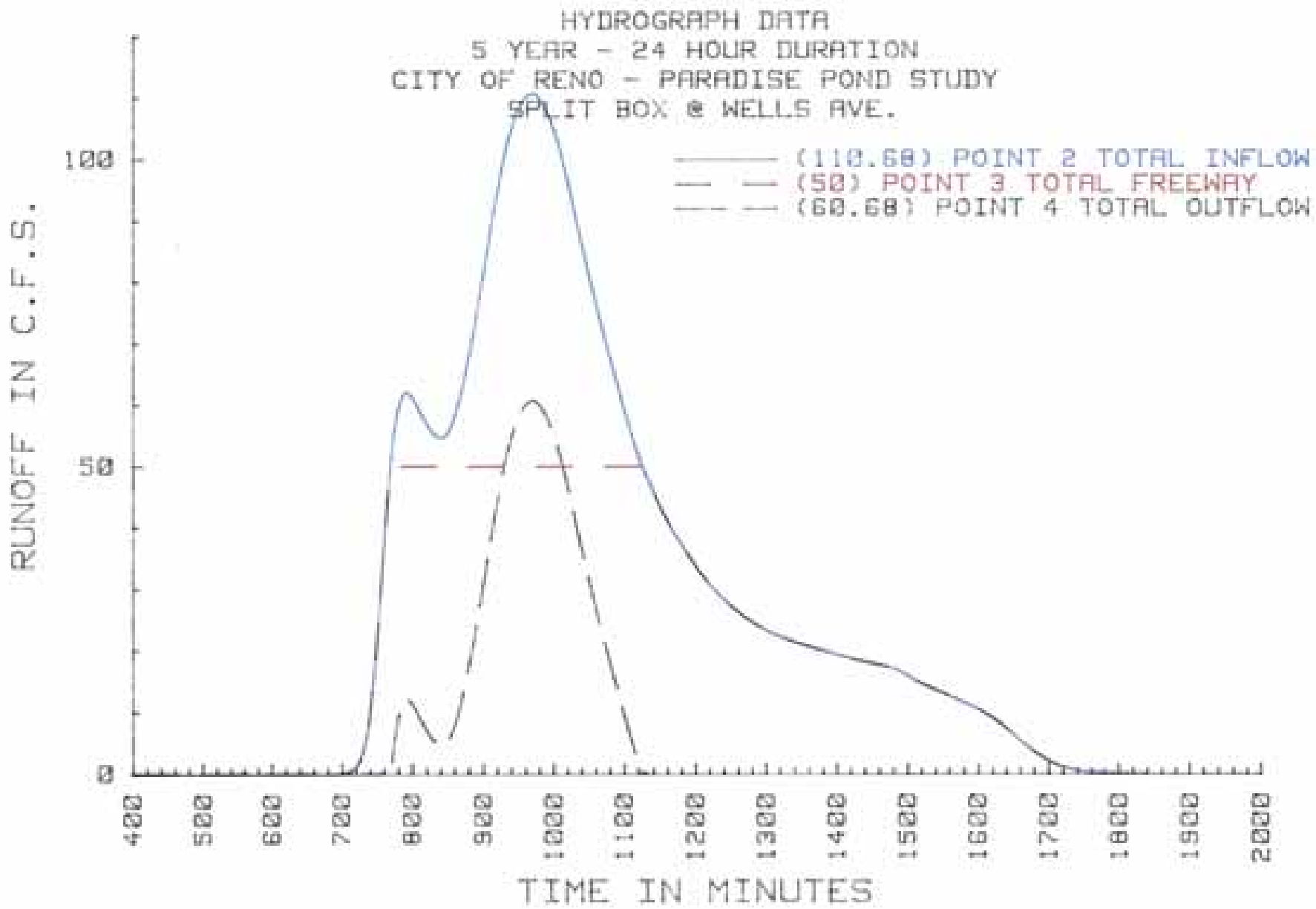
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(83.08) SUBAREA I
(136.45) ROUTING SUBAREA G
(68.27) ROUTING SUBAREA J
(151.41) POINT 9 TOTAL SUB I
(111.33) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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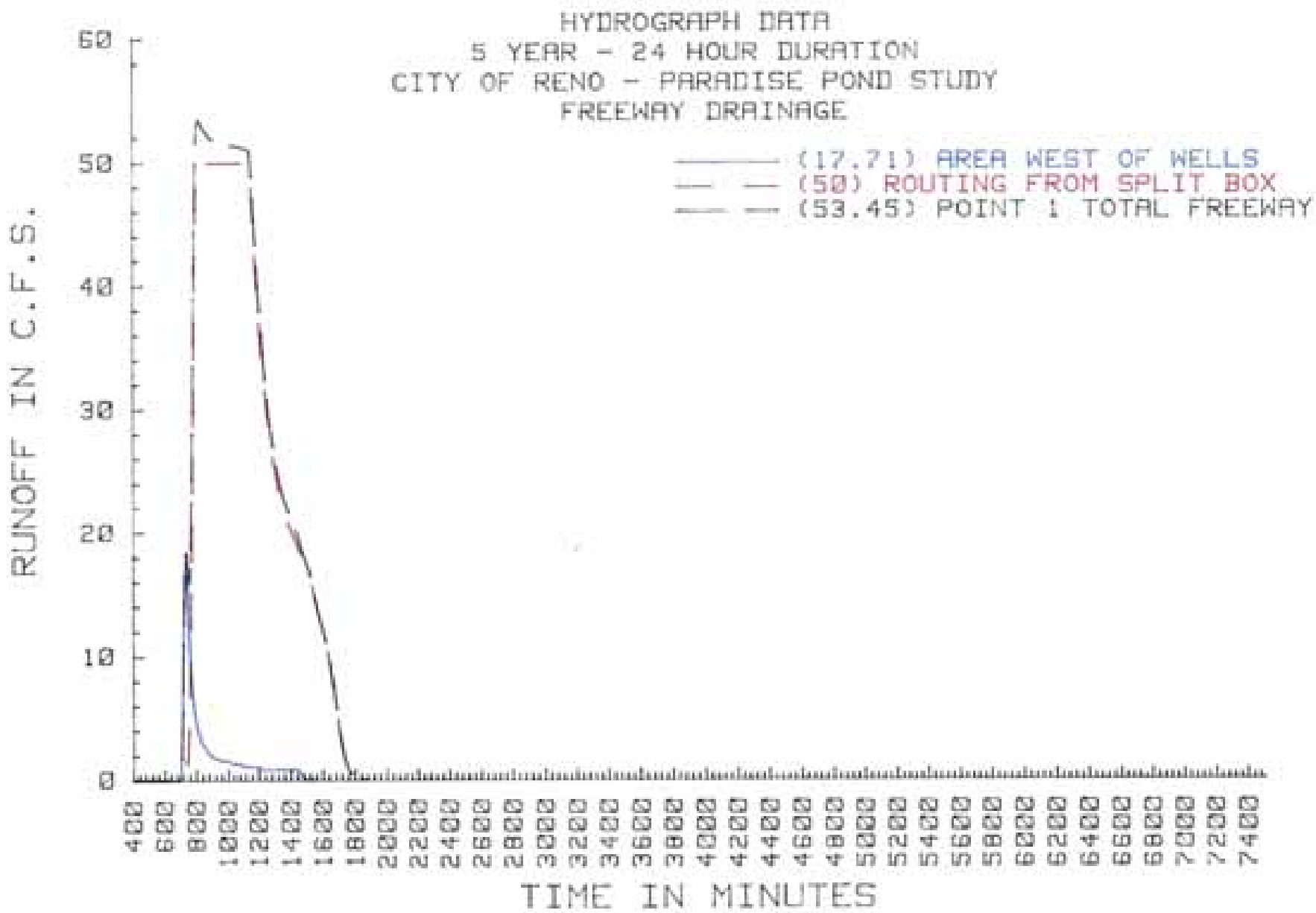
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(110.68) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(60.68) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(17.71) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(53.45) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
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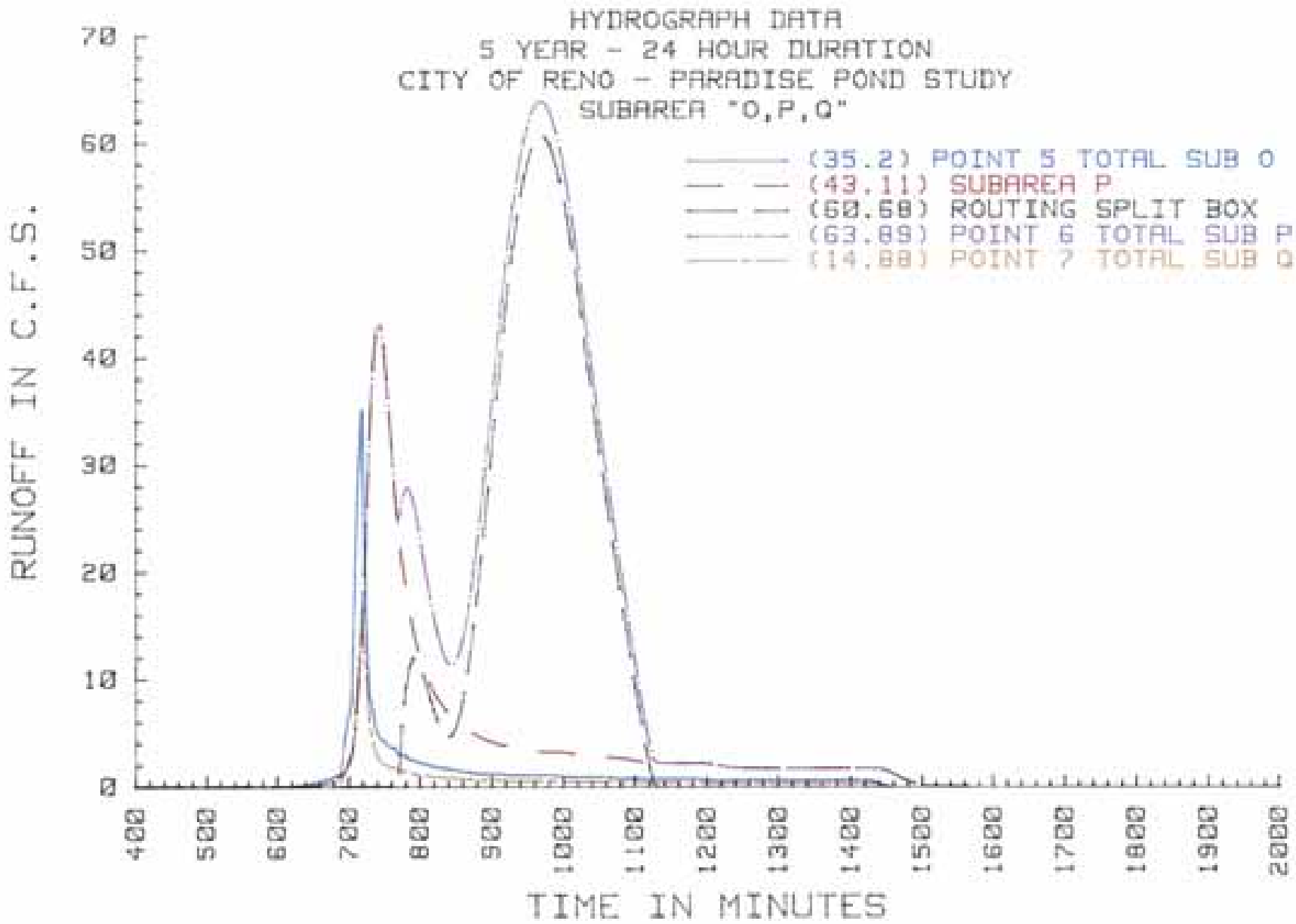
6200
6400
6600
6800
7000
7200
7400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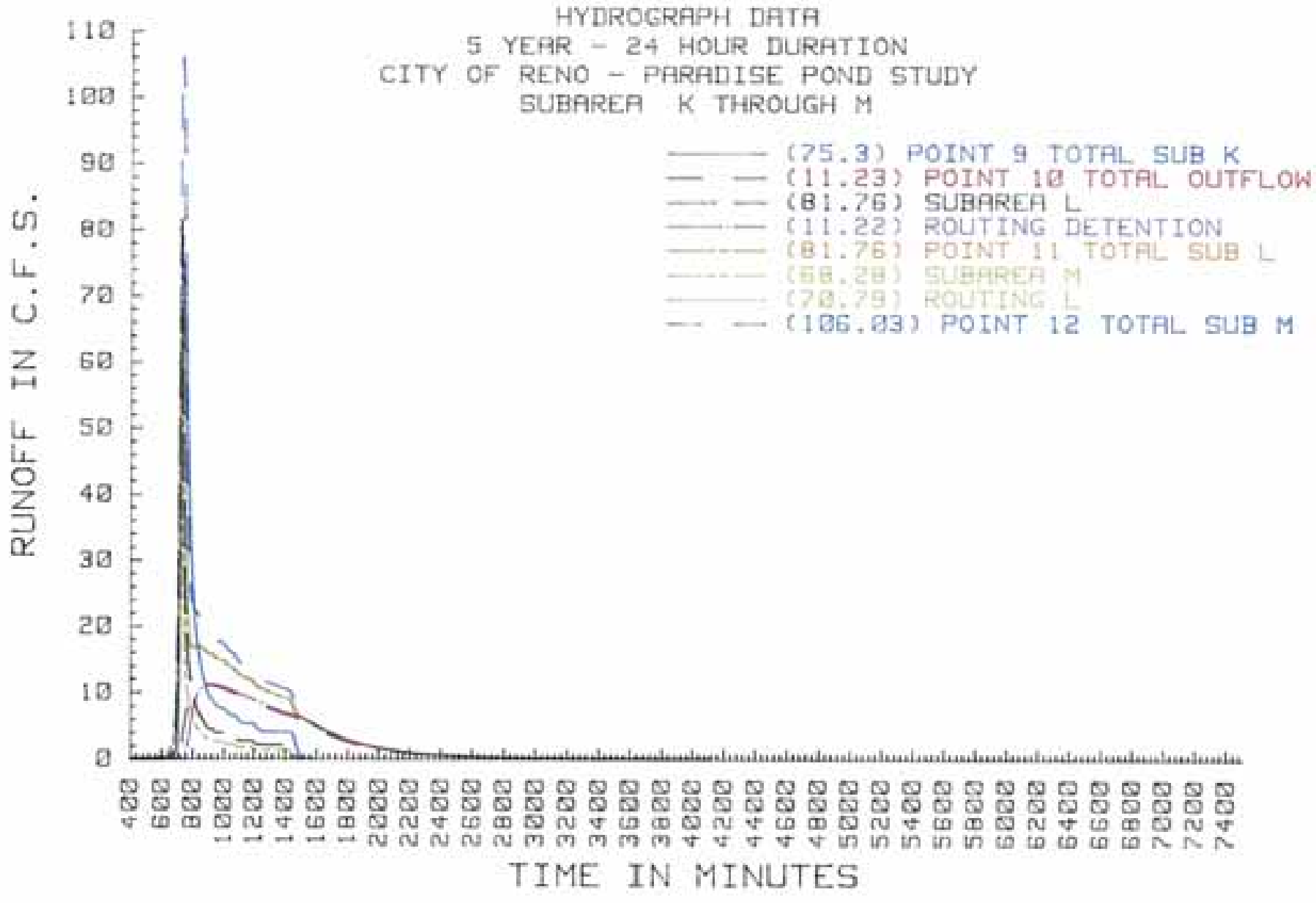
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(35.2) POINT 5 TOTAL SUB O
(43.11) SUBAREA P
(60.68) ROUTING SPLIT BOX
(63.89) POINT 6 TOTAL SUB P
(14.88) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(75.3) POINT 9 TOTAL SUB K
(11.23) POINT 10 TOTAL OUTFLOW
(81.76) SUBAREA L
(11.22) ROUTING DETENTION
(81.76) POINT 11 TOTAL SUB L
(68.28) SUBAREA M
(70.79) ROUTING L
(106.03) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
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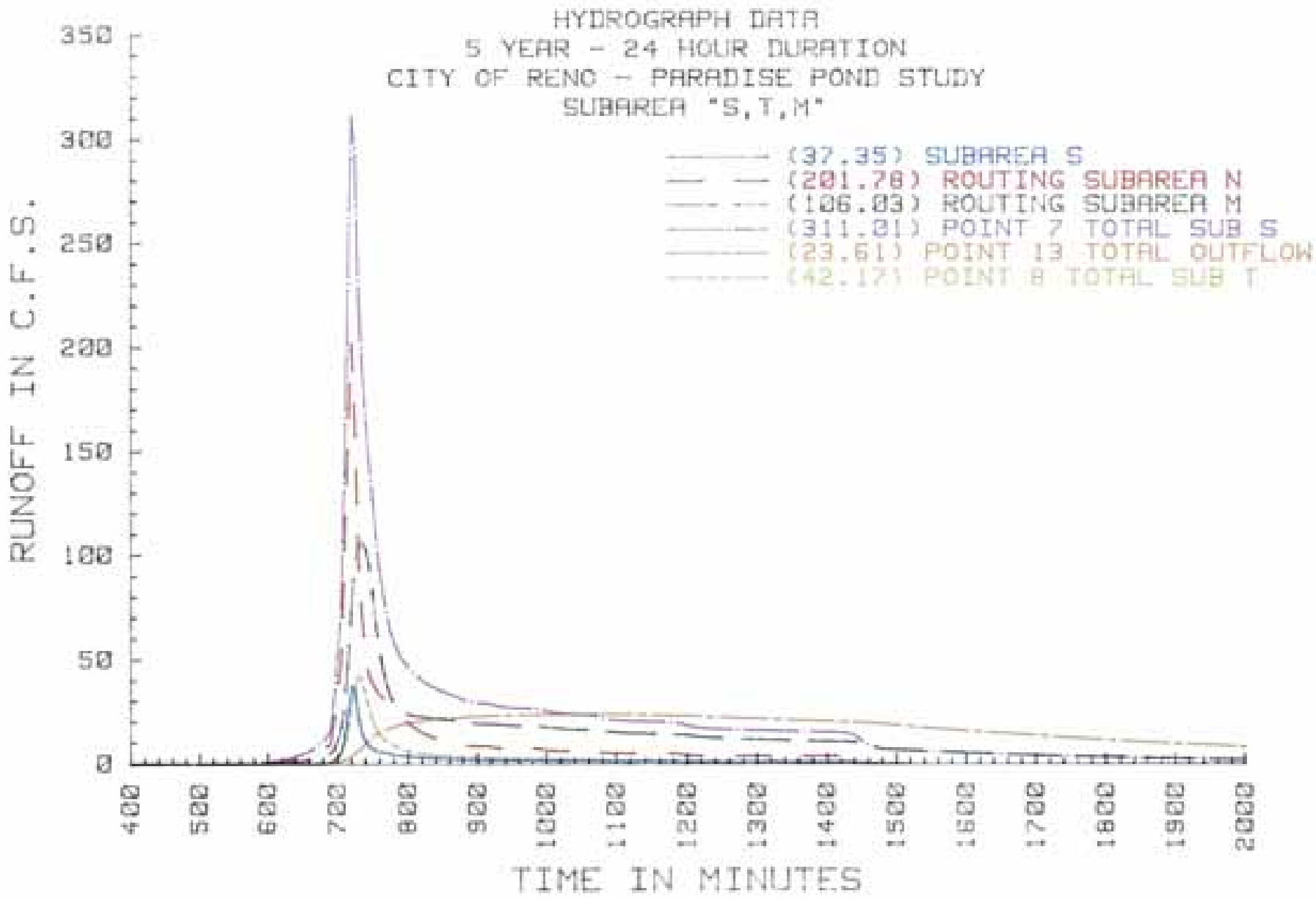
6200
6400
6600
6800
7000
7200
7400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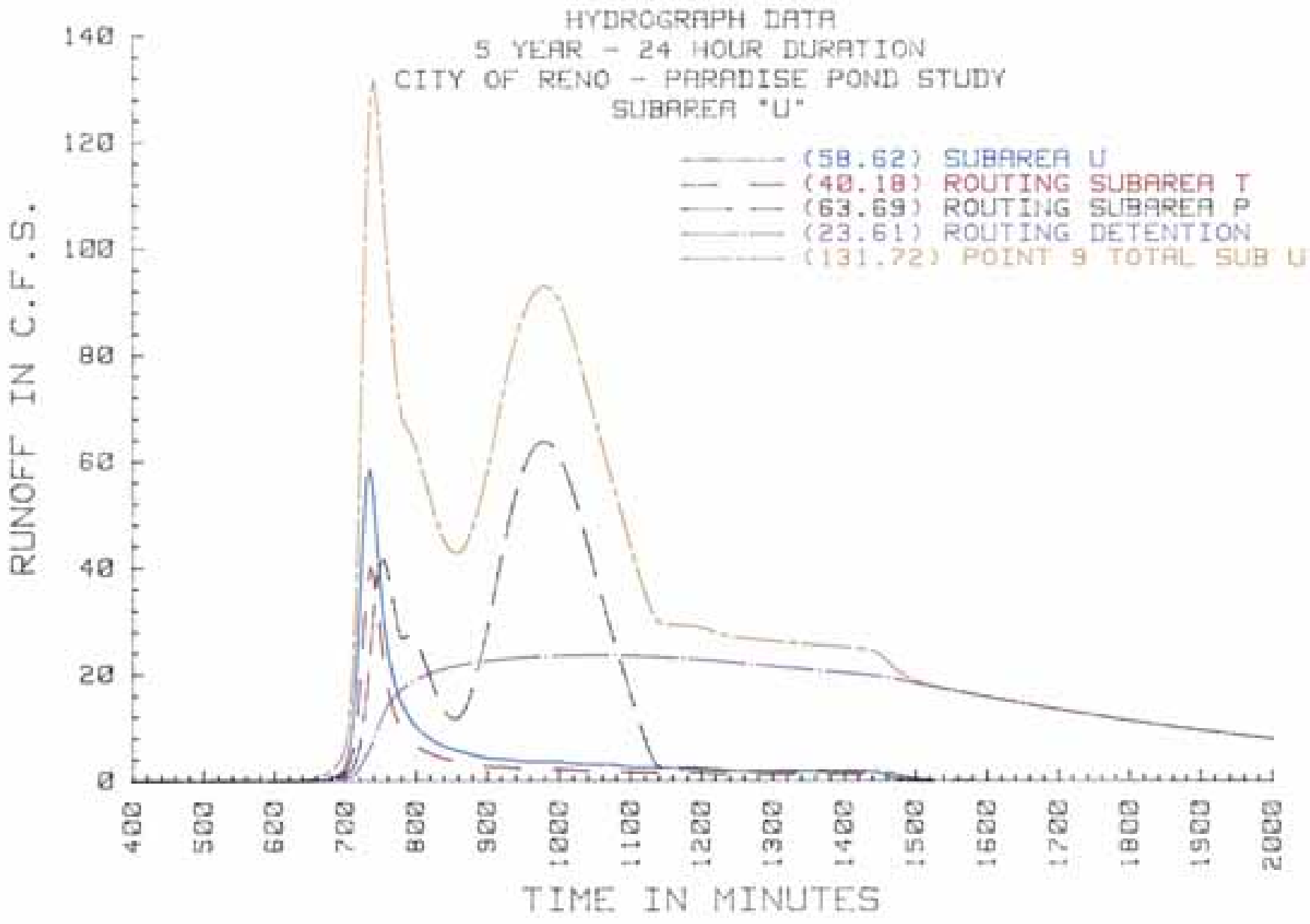
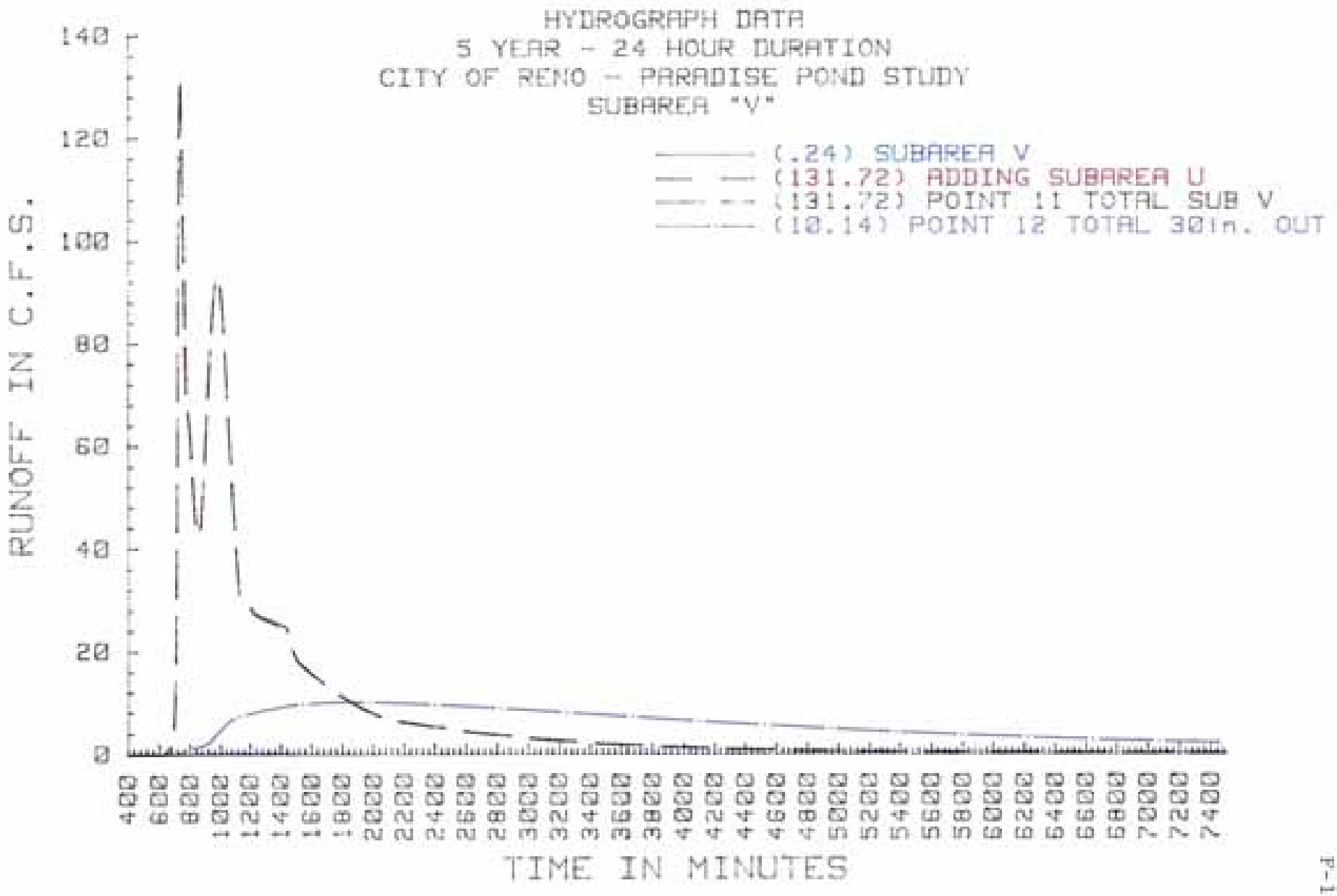
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(37.35) SUBAREA S
(201.78) ROUTING SUBAREA N
(106.03) ROUTING SUBAREA M
(311.01) POINT 7 TOTAL SUB S
(23.61) POINT 13 TOTAL OUTFLOW
(42.17) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(58.62) SUBAREA U
(40.18) ROUTING SUBAREA T
(63.69) ROUTING SUBAREA P
(23.61) ROUTING DETENTION
(131.72) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
20
40
60
80
100
120
140
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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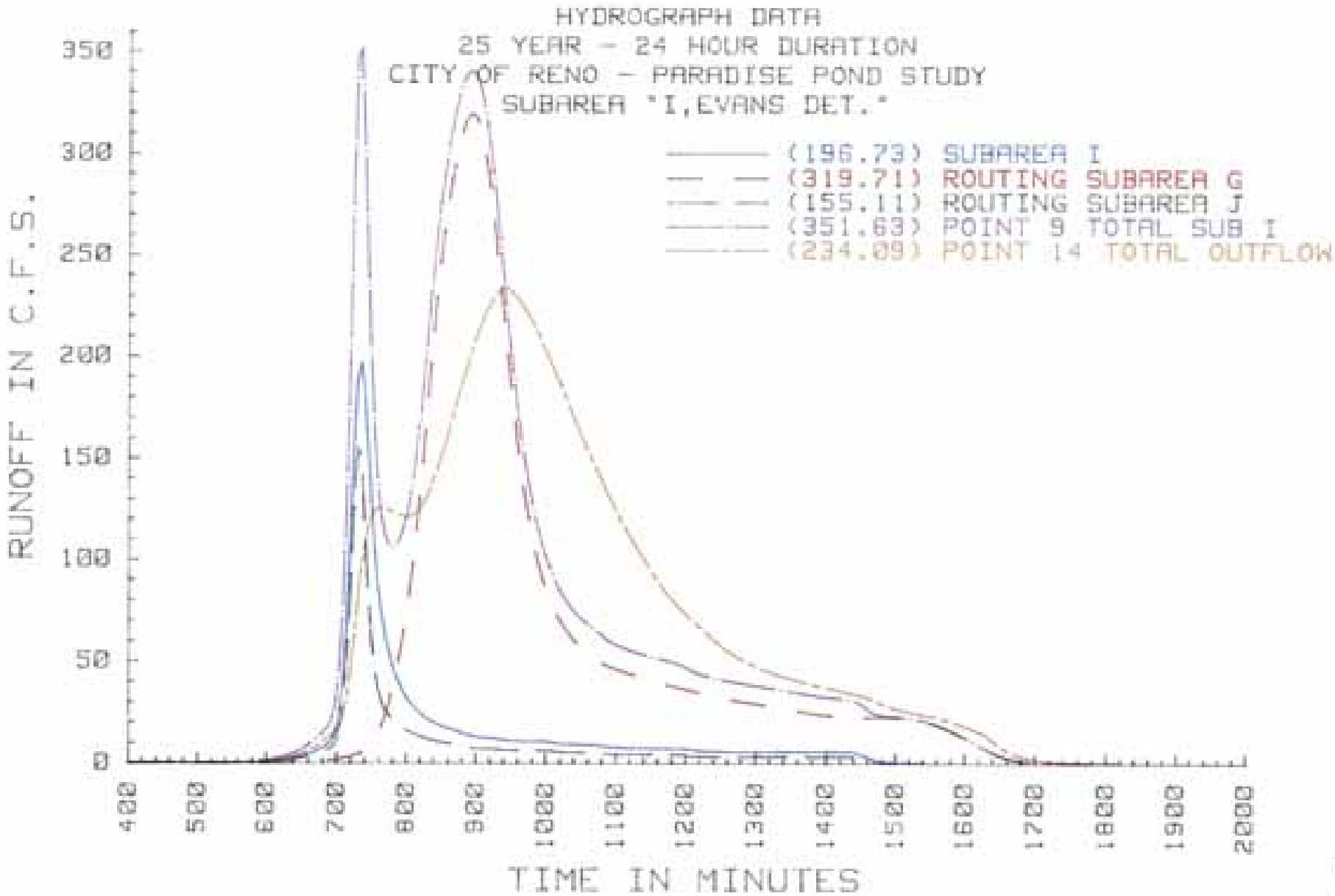
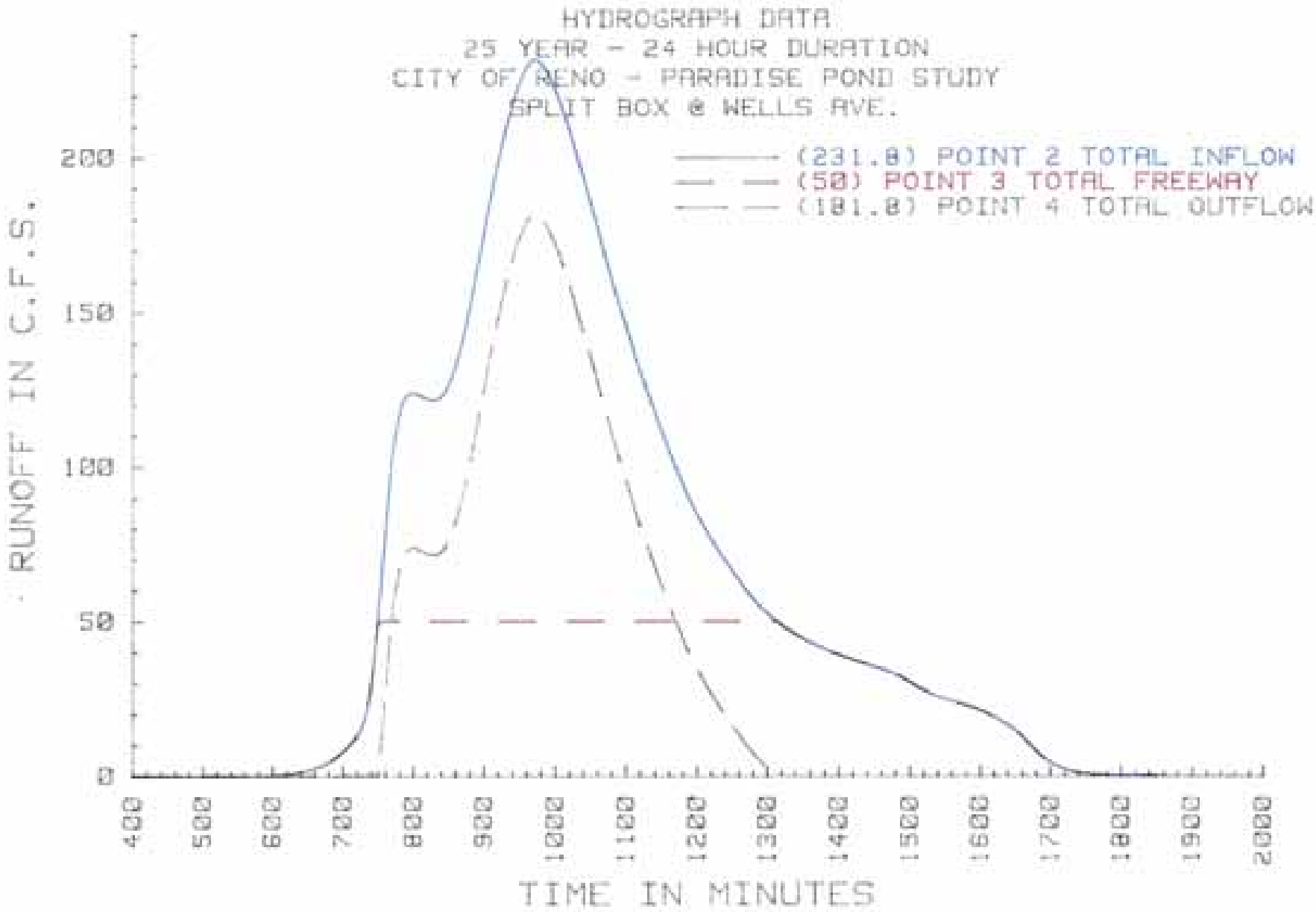
5 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(.24) SUBAREA V
(131.72) ADDING SUBAREA U
(131.72) POINT 11 TOTAL SUB V
(10.14) POINT 12 TOTAL 30in. OUT
RUNOFF IN C.F.S.
0
20
40
60
80
100
120
140
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(196.73) SUBAREA I
(319.71) ROUTING SUBAREA G
(155.11) ROUTING SUBAREA J
(351.63) POINT 9 TOTAL SUB I
(234.09) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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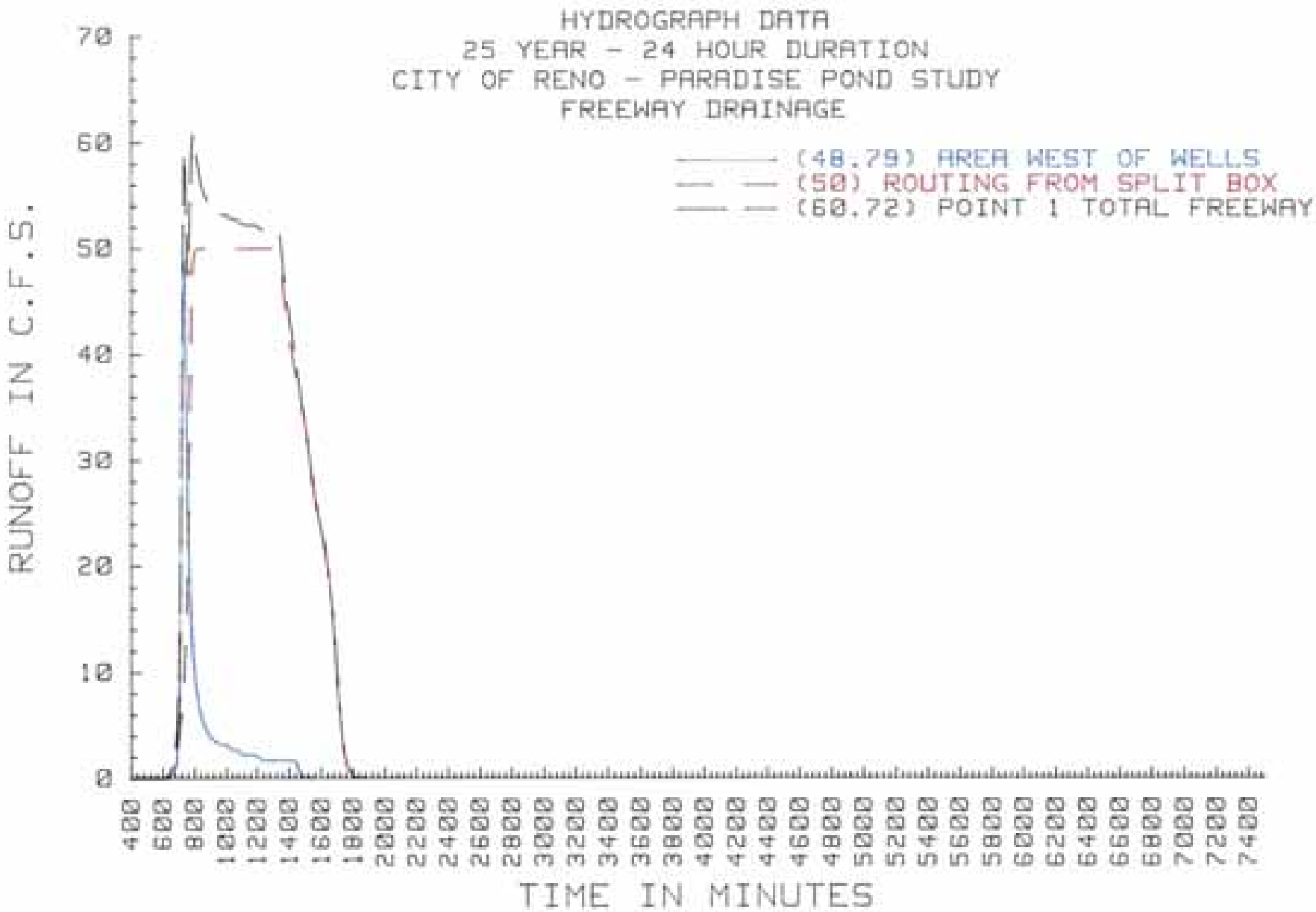
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(231.8) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(181.8) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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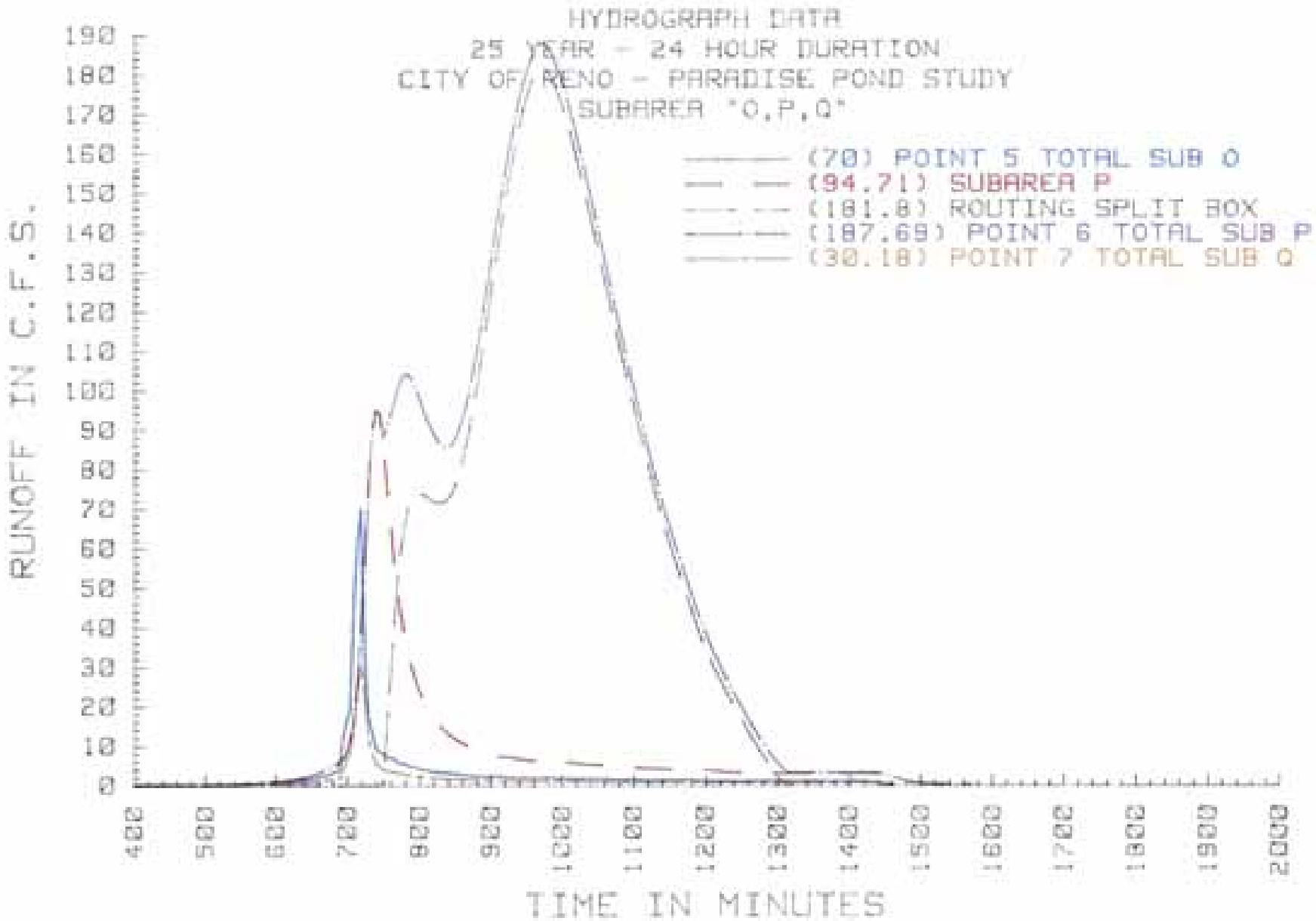
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(48.79) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(60.72) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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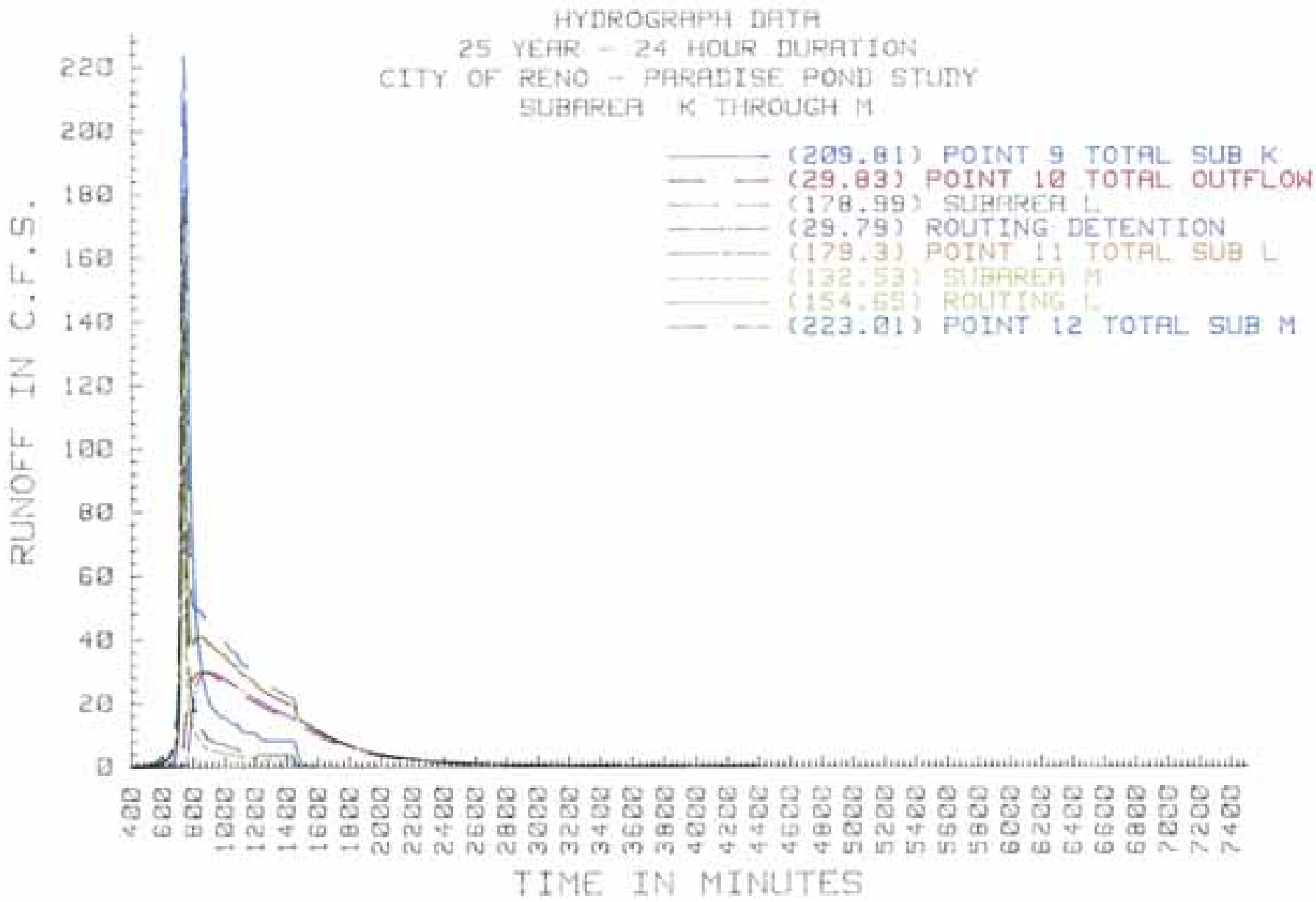
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(70) POINT 5 TOTAL SUB O
(94.71) SUBAREA P
(181.8) ROUTING SPLIT BOX
(187.69) POINT 6 TOTAL SUB P
(30.18) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
150
170
180
190
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES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25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(209.81) POINT 9 TOTAL SUB K
(29.83) POINT 10 TOTAL OUTFLOW
(178.99) SUBAREA L
(29.79) ROUTING DETENTION
(179.3) POINT 11 TOTAL SUB L
(132.53) SUBAREA M
(154.65) ROUTING L
(223.01) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
20
40
60
80
100
120
140
160
180
200
220
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
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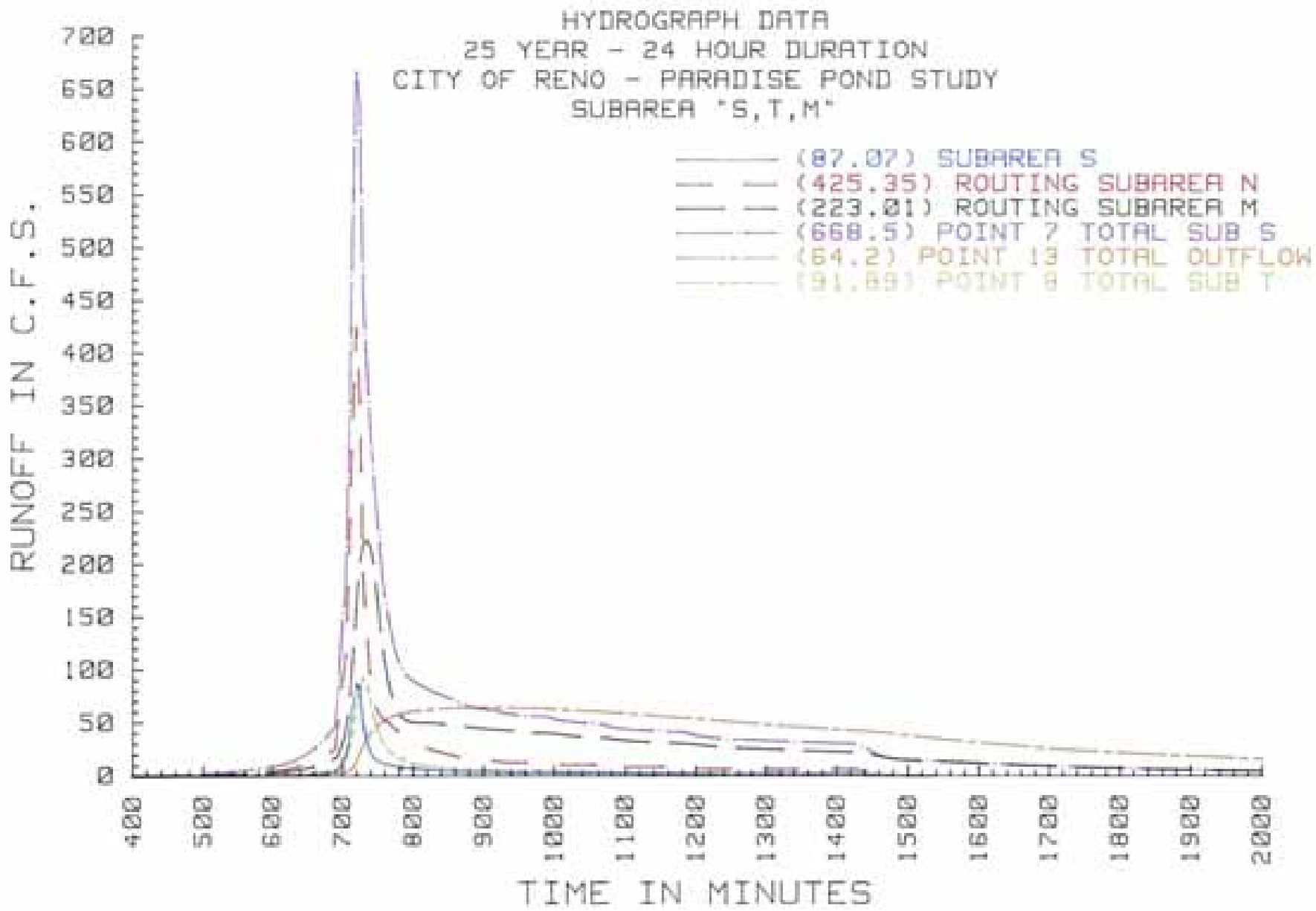
6200
6400
6600
6800
7000
7200
7400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25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(87.07) SUBAREA S
(425.35) ROUTING SUBAREA N
(223.01) ROUTING SUBAREA M
(668.5) POINT 7 TOTAL SUB S
(64.2) POINT 13 TOTAL OUTFLOW
(91.89) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
400
500
600
700
800
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1200
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1600
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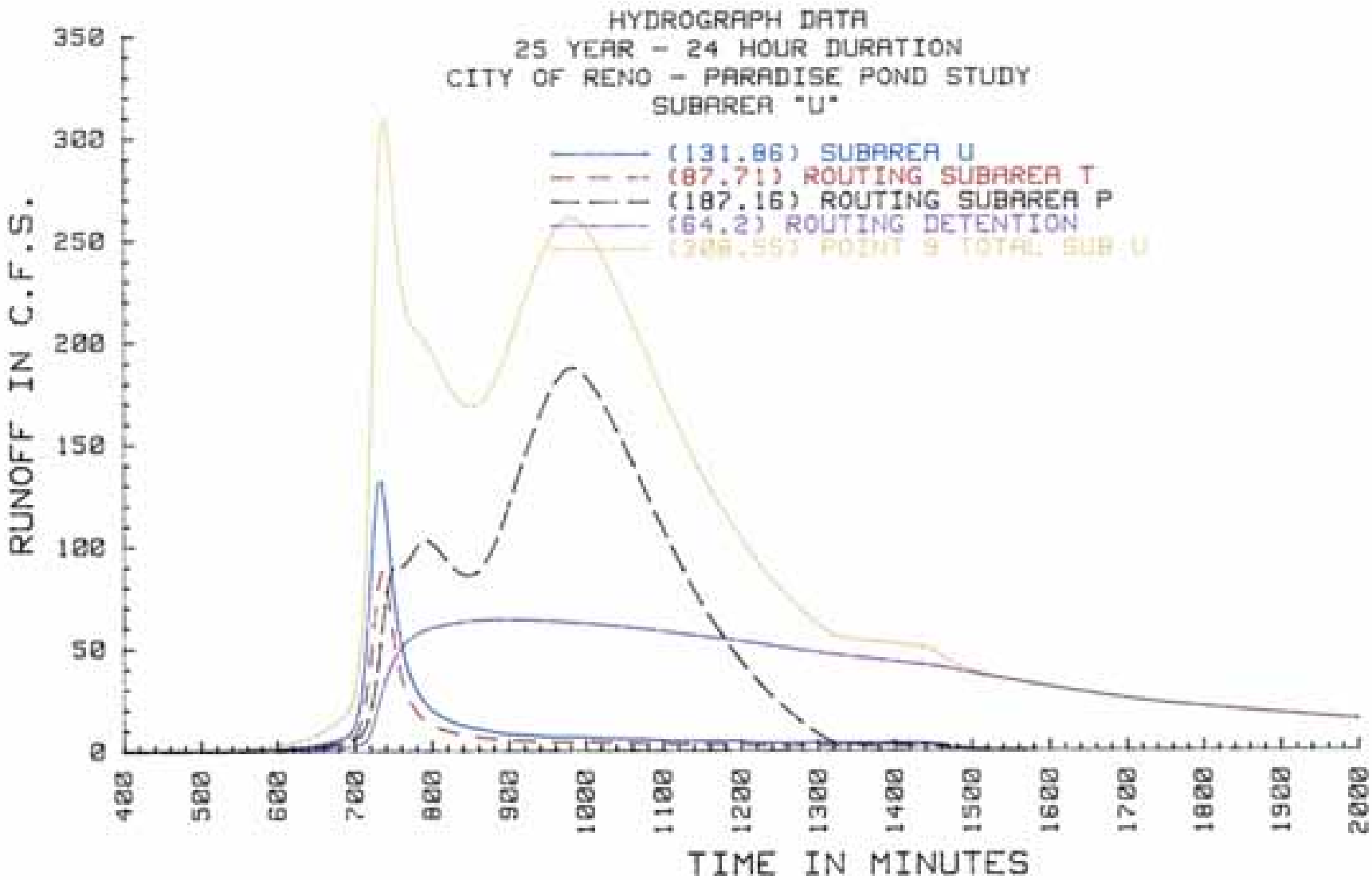
1900
2000
TIME IN MINUTES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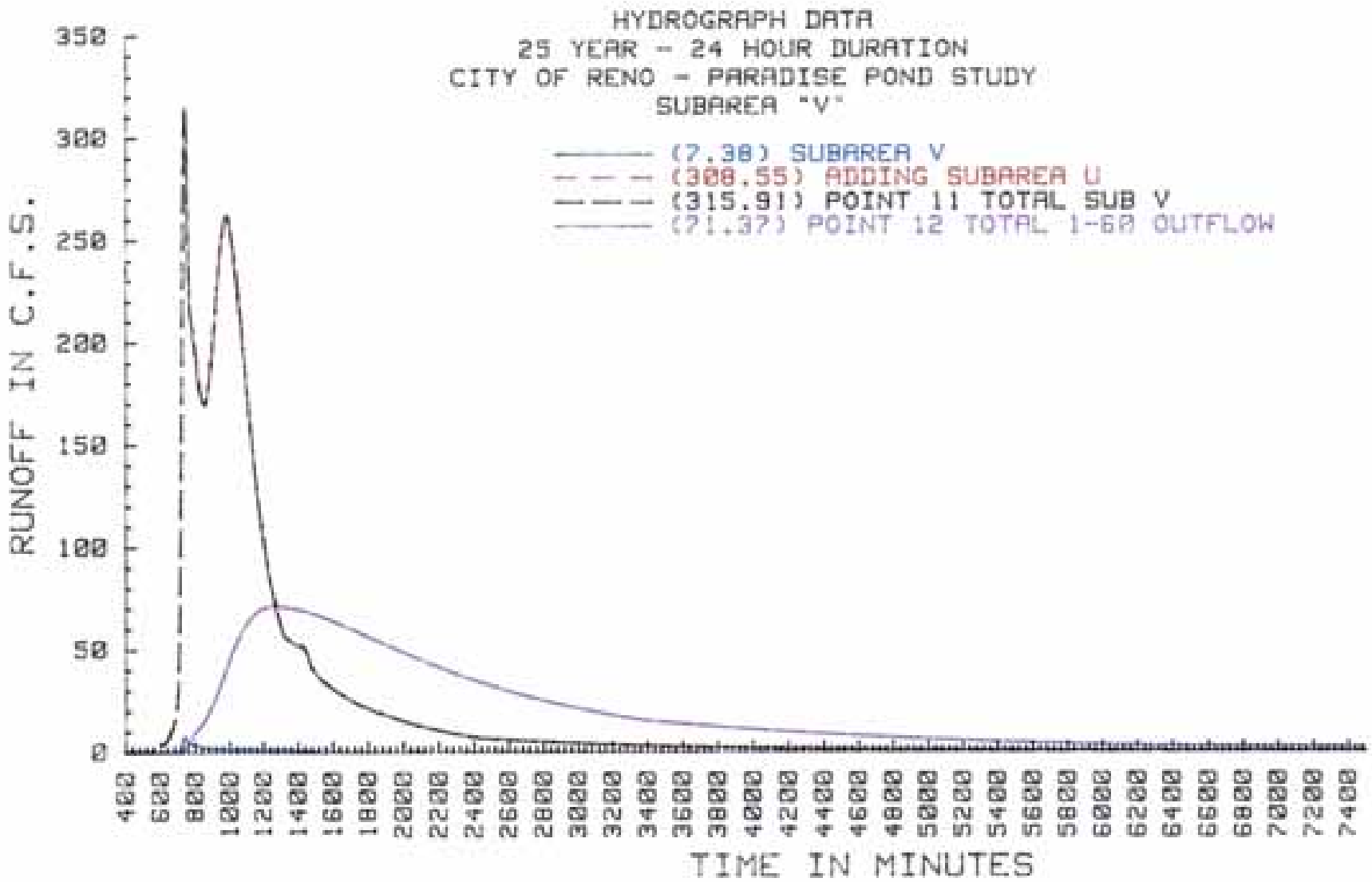
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(131.86) SUBAREA U
(87.71) ROUTING SUBAREA T
(187.16) ROUTING SUBAREA P
(64.2) ROUTING DETENTION
(208.55) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
25 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(7.38) SUBAREA V
(308.55) ADDING SUBAREA U
(315.91) POINT 11 TOTAL SUB V
(71.37) POINT 12 TOTAL 1-60 OUTFLOW
RUNOFF IN C.F.S.
350
300
250
200
150
100
50
0
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
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5600
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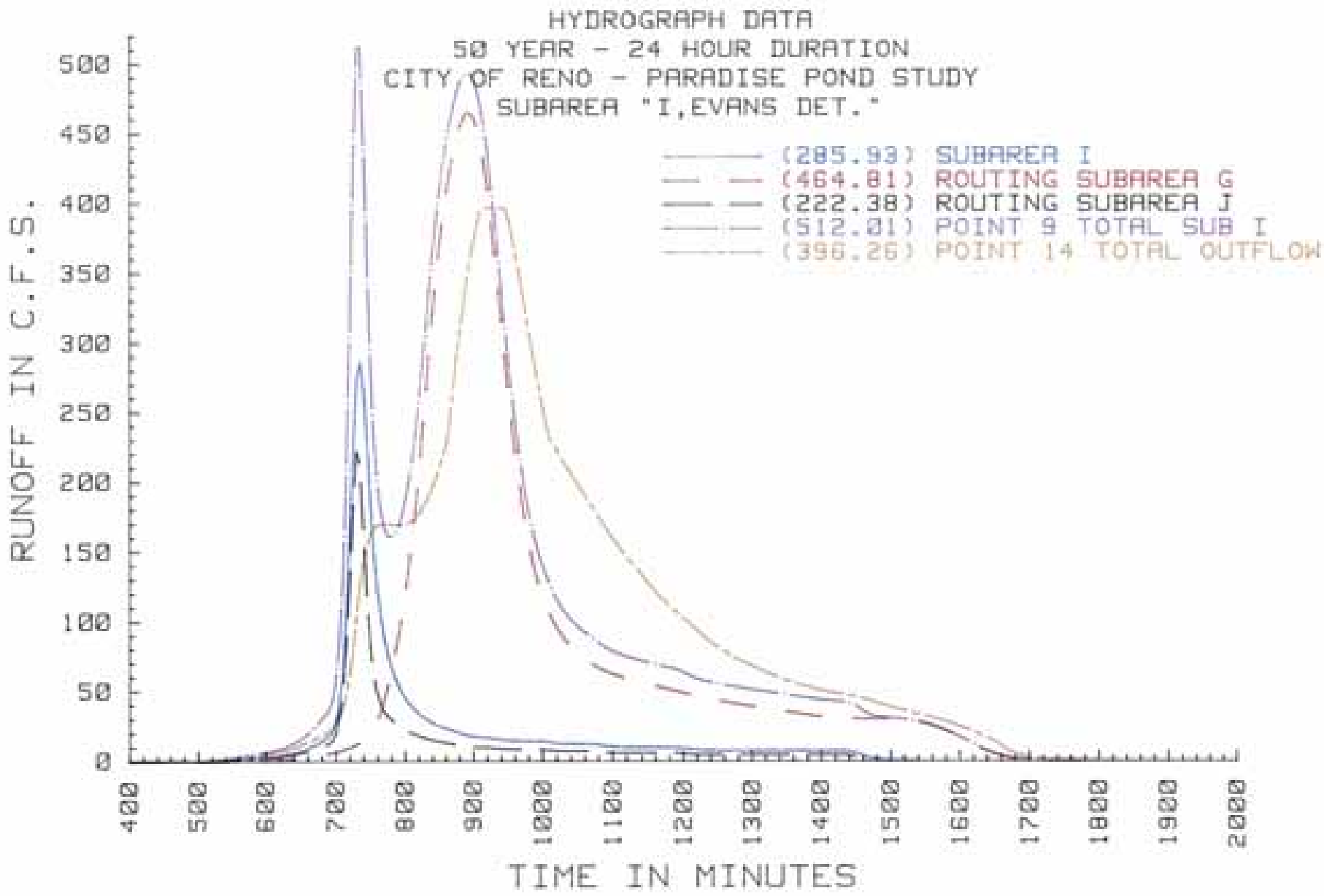
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES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50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(285.93) SUBAREA I
(464.81) ROUTING SUBAREA G
(222.38) ROUTING SUBAREA J
(512.01) POINT 9 TOTAL SUB I
(396.26) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
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350
400
450
500
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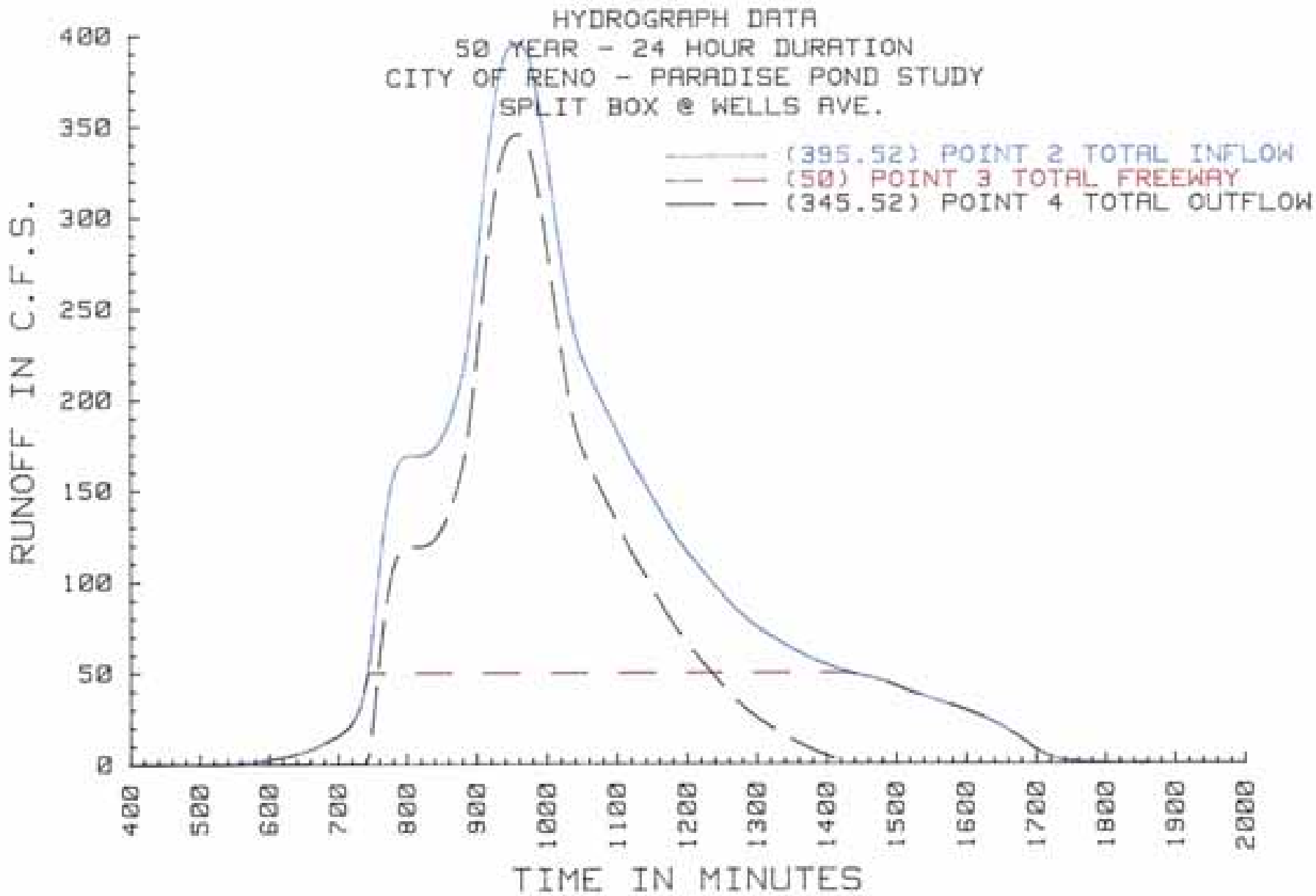
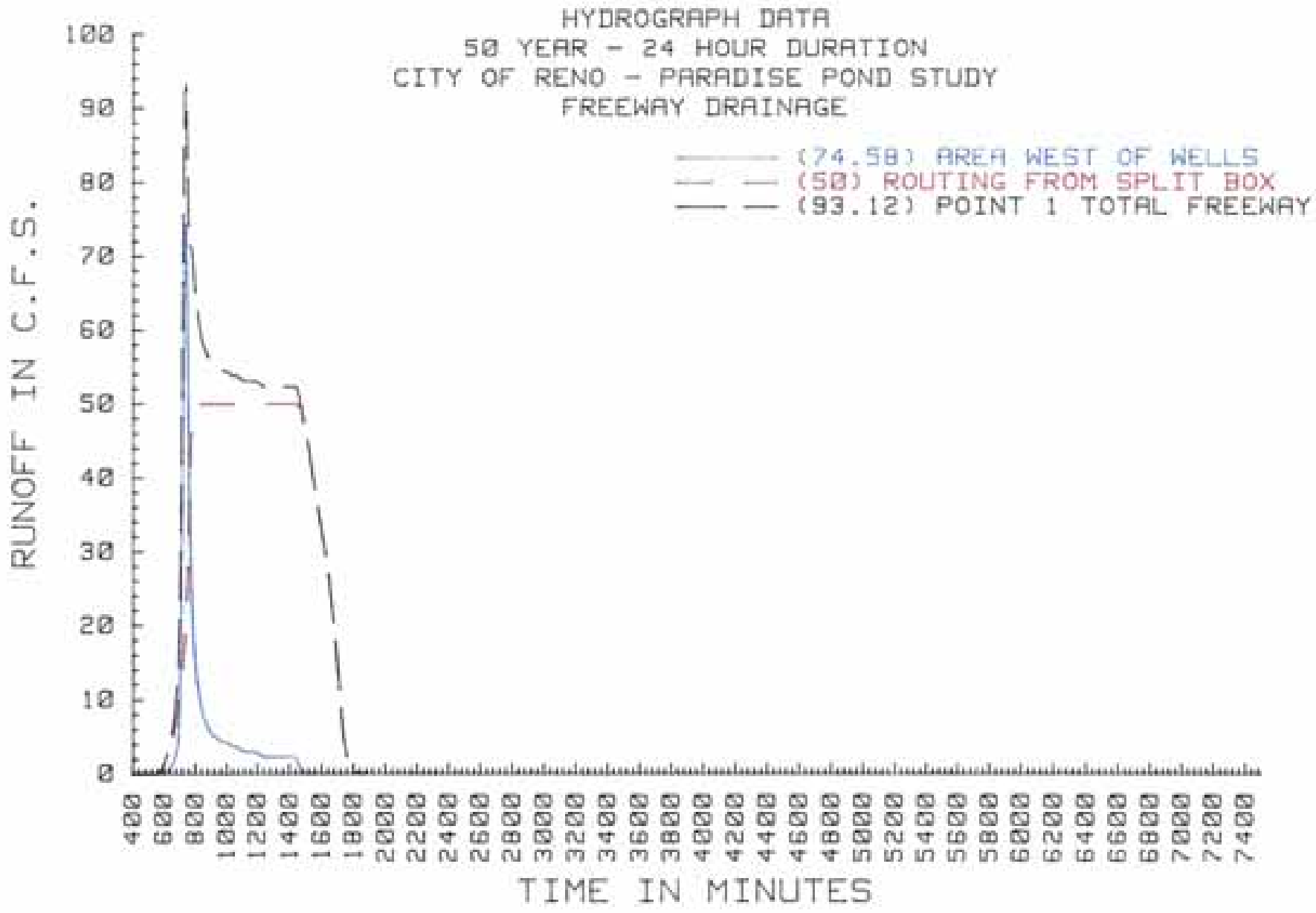
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(395.52) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(345.52) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(74.58) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(93.12) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
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5600
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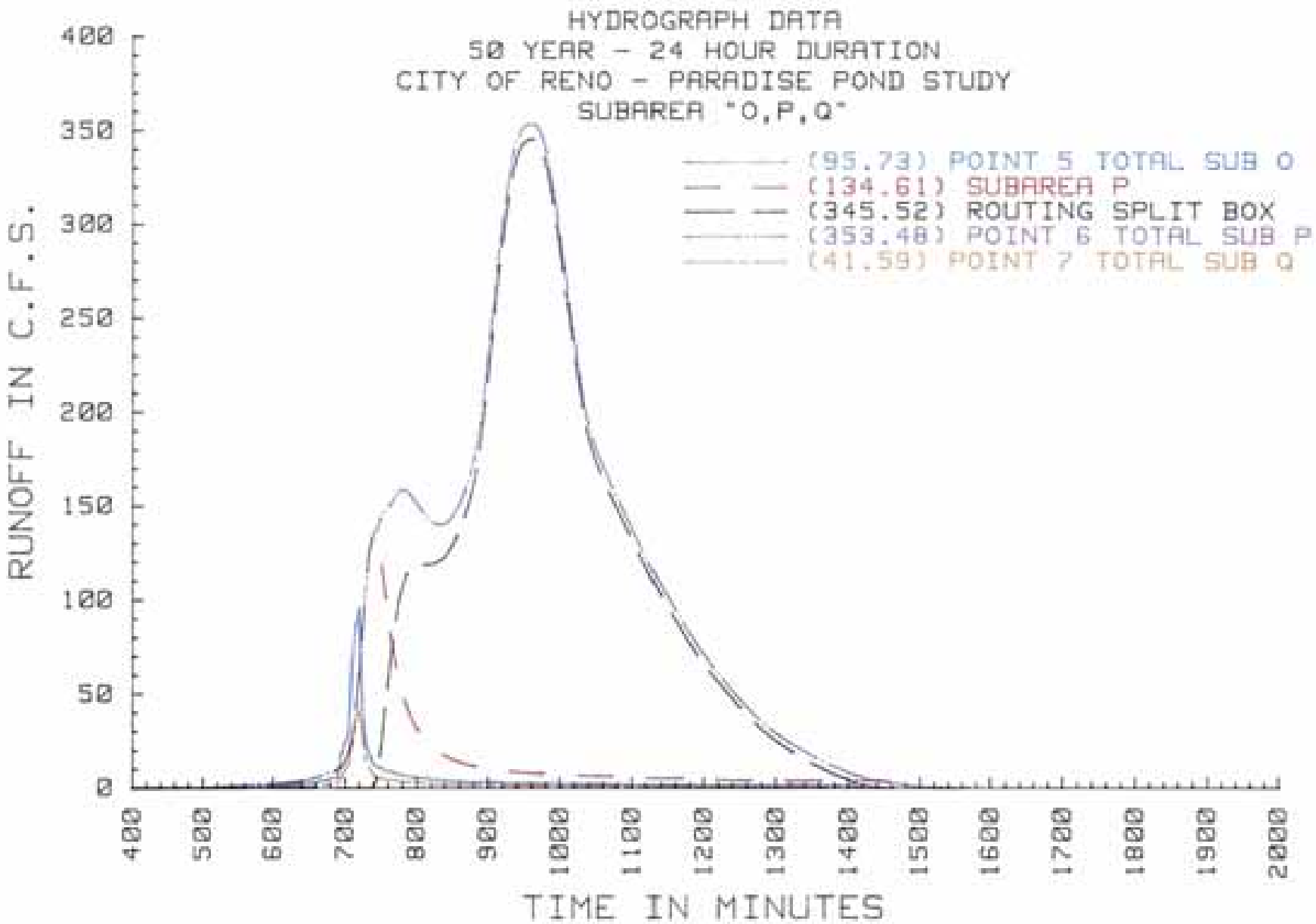
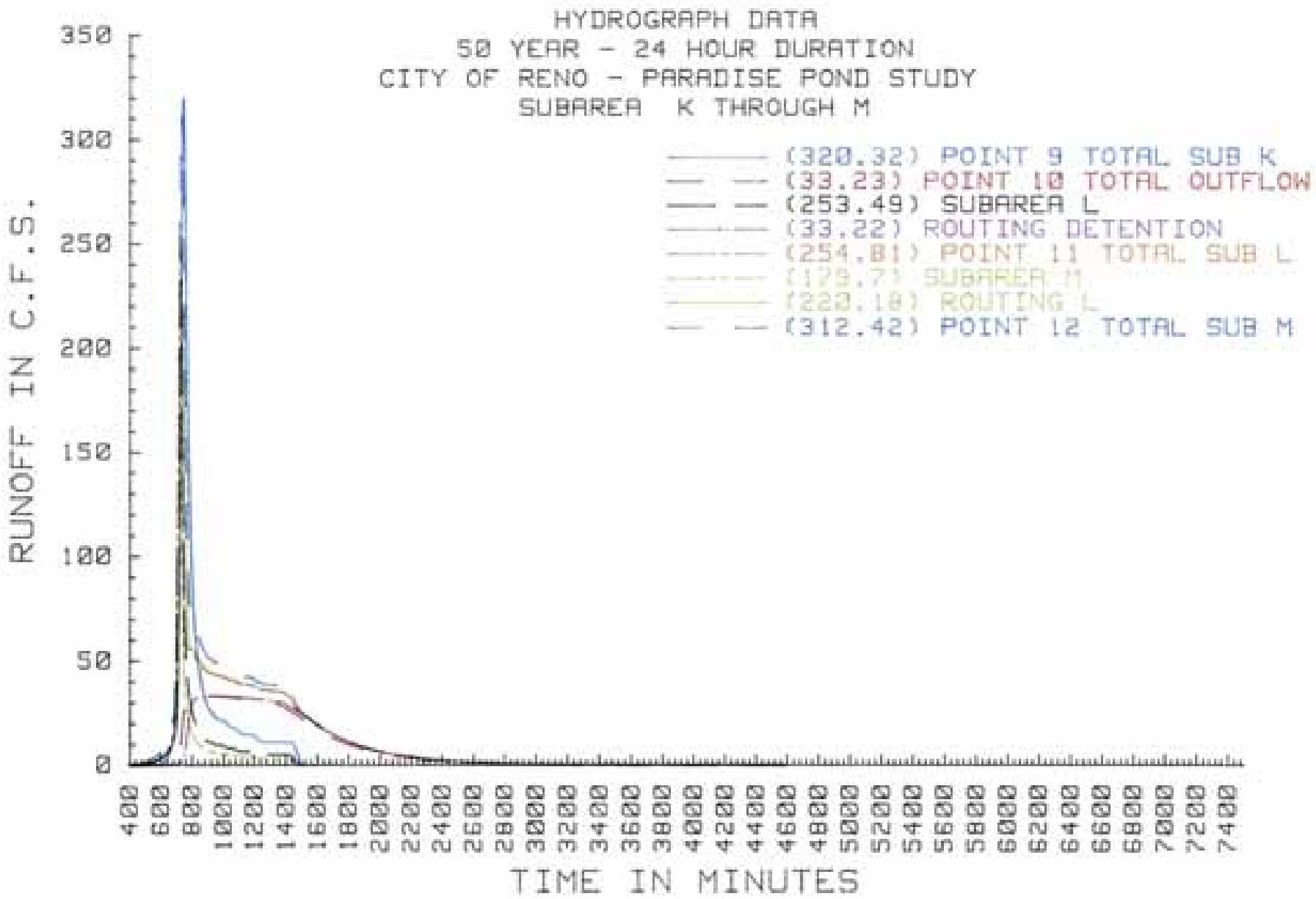
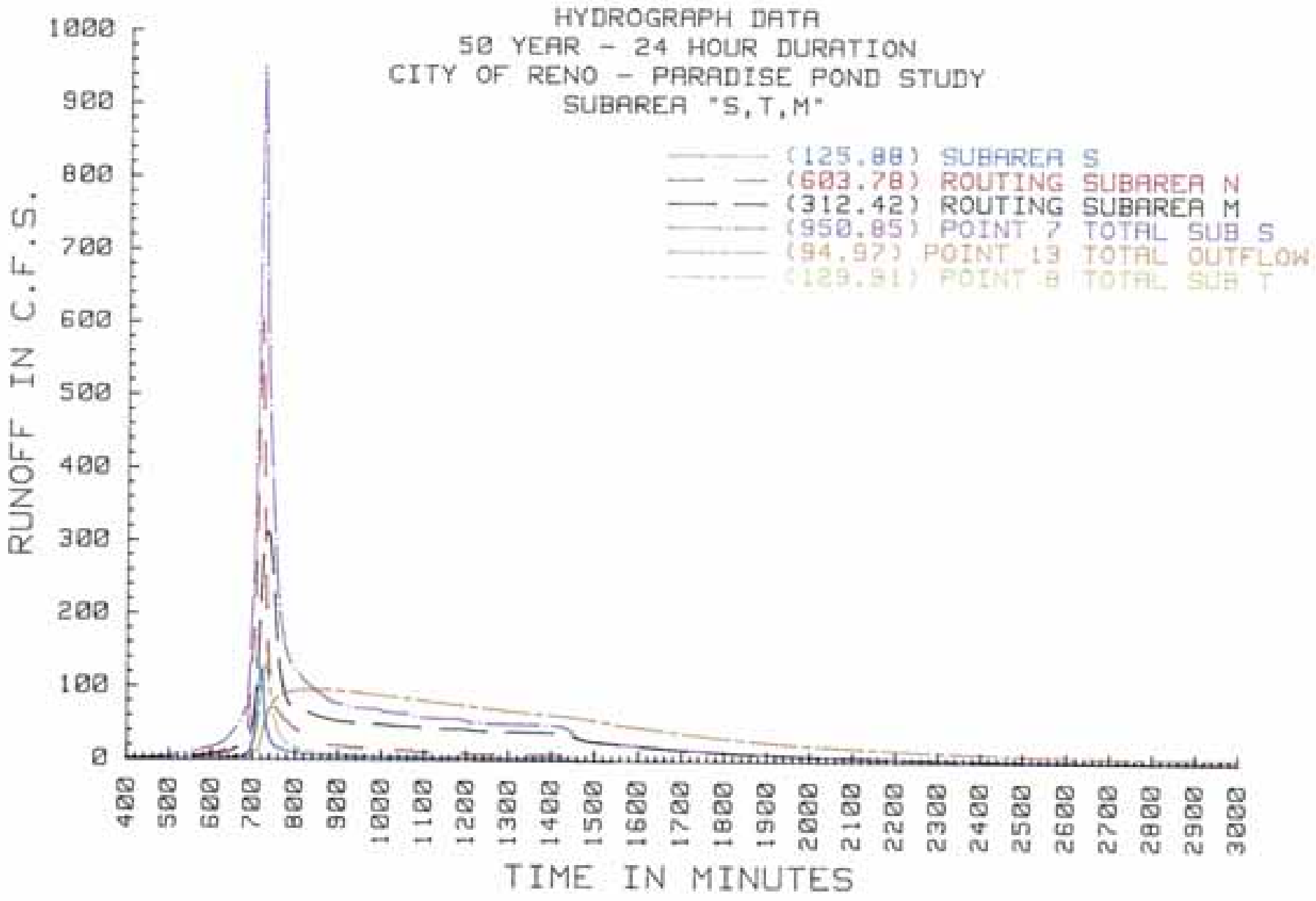
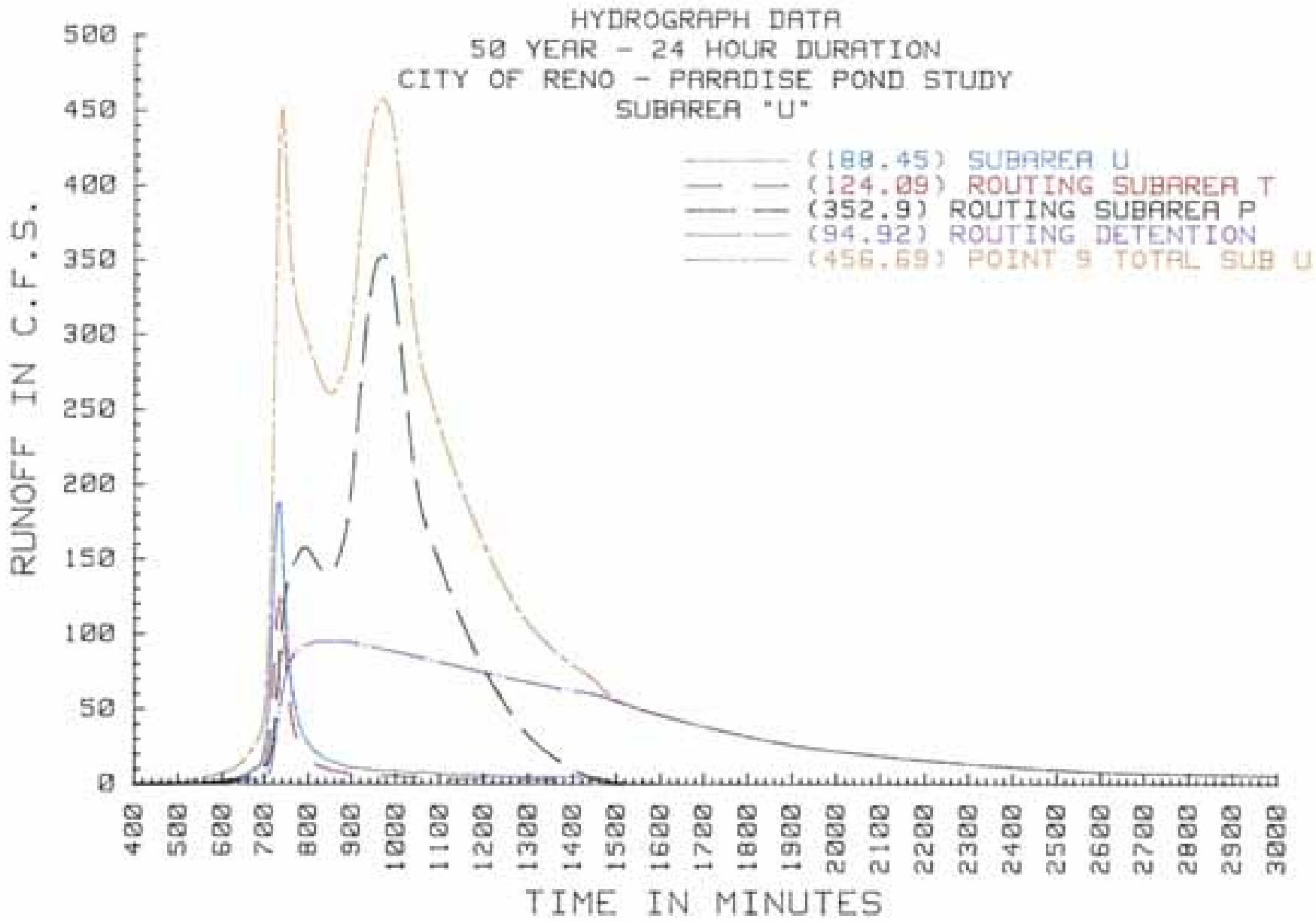
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(95.73) POINT 5 TOTAL SUB O
(134.61) SUBAREA P
(345.52) ROUTING SPLIT BOX
(353.48) POINT 6 TOTAL SUB P
(41.59) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(320.32) POINT 9 TOTAL SUB K
(33.23) POINT 10 TOTAL OUTFLOW
(253.49) SUBAREA L
(33.22) ROUTING DETENTION
(254.81) POINT 11 TOTAL SUB L
(179.7) SUBAREA M
(220.18) ROUTING L
(312.42) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(125.88) SUBAREA S
(603.78) ROUTING SUBAREA N
(312.42) ROUTING SUBAREA M
(950.85) POINT 7 TOTAL SUB S
(94.97) POINT 13 TOTAL OUTFLOW
(129.91) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
1000
900
800
700
600
500
400
300
200
100
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
TIME IN MINUTES


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(188.45) SUBAREA U
(124.09) ROUTING SUBAREA T
(352.9) ROUTING SUBAREA P
(94.92) ROUTING DETENTION
(456.69) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
TIME IN MINUTES
400
500
600
700
800
900
1000
1100
1200
1300
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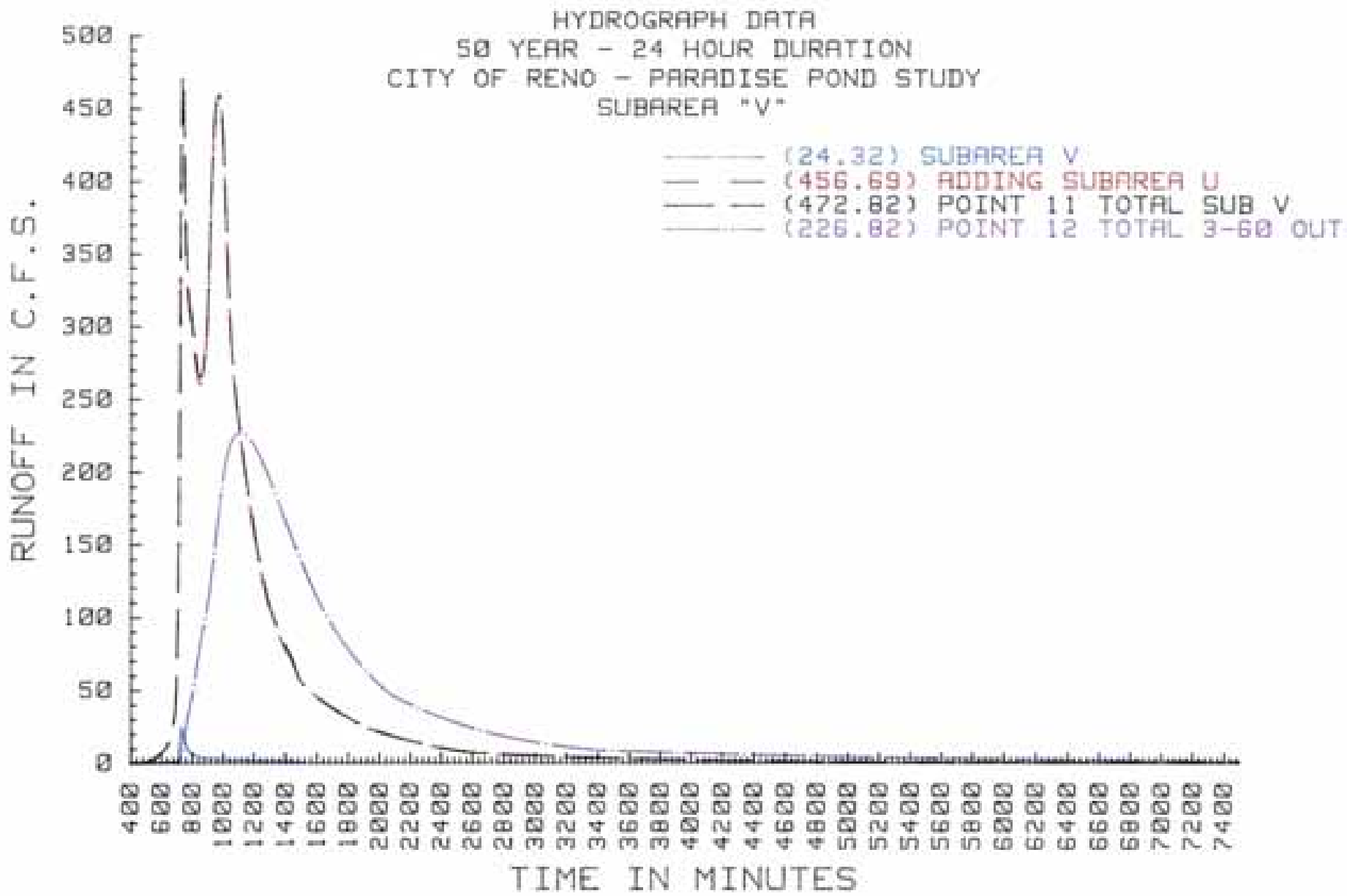
2300
2400
2500
2600
2700
2800
2900
3000


HYDROGRAPH DATA
50 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(24.32) SUBAREA V
(456.69) ADDING SUBAREA U
(472.82) POINT 11 TOTAL SUB V
(226.82) POINT 12 TOTAL 3-60 OUT
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
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4200
4400
4600
4800
5000
5200
5400
5600
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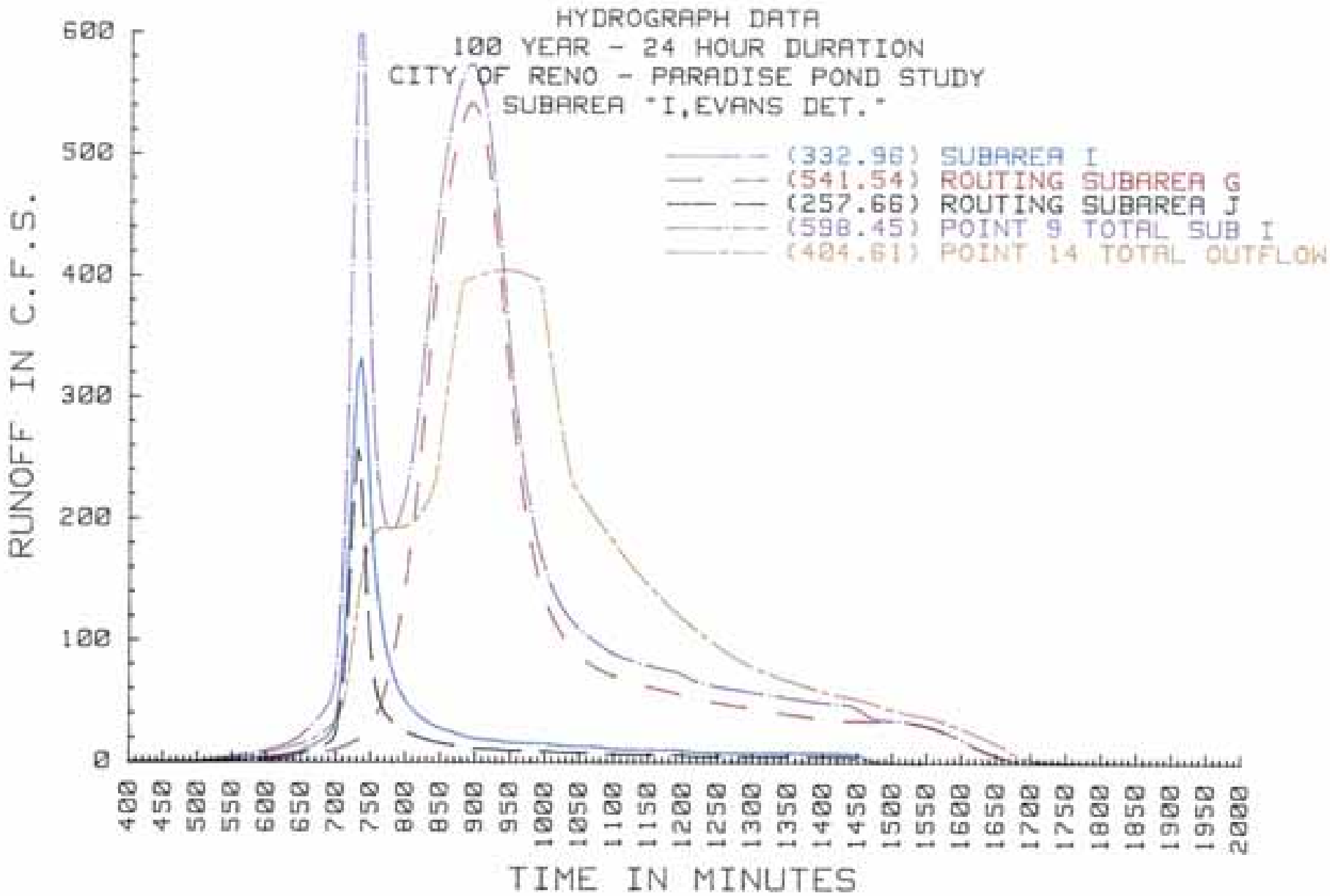
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "I,EVANS DET."
(332.96) SUBAREA I
(541.54) ROUTING SUBAREA G
(257.66) ROUTING SUBAREA J
(598.45) POINT 9 TOTAL SUB I
(404.61) POINT 14 TOTAL OUTFLOW
RUNOFF IN C.F.S.
0
100
200
300
400
500
600
TIME IN MINUTES
400
450
500
550
600
650
700
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300
1350
1400
1450
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1550
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1650
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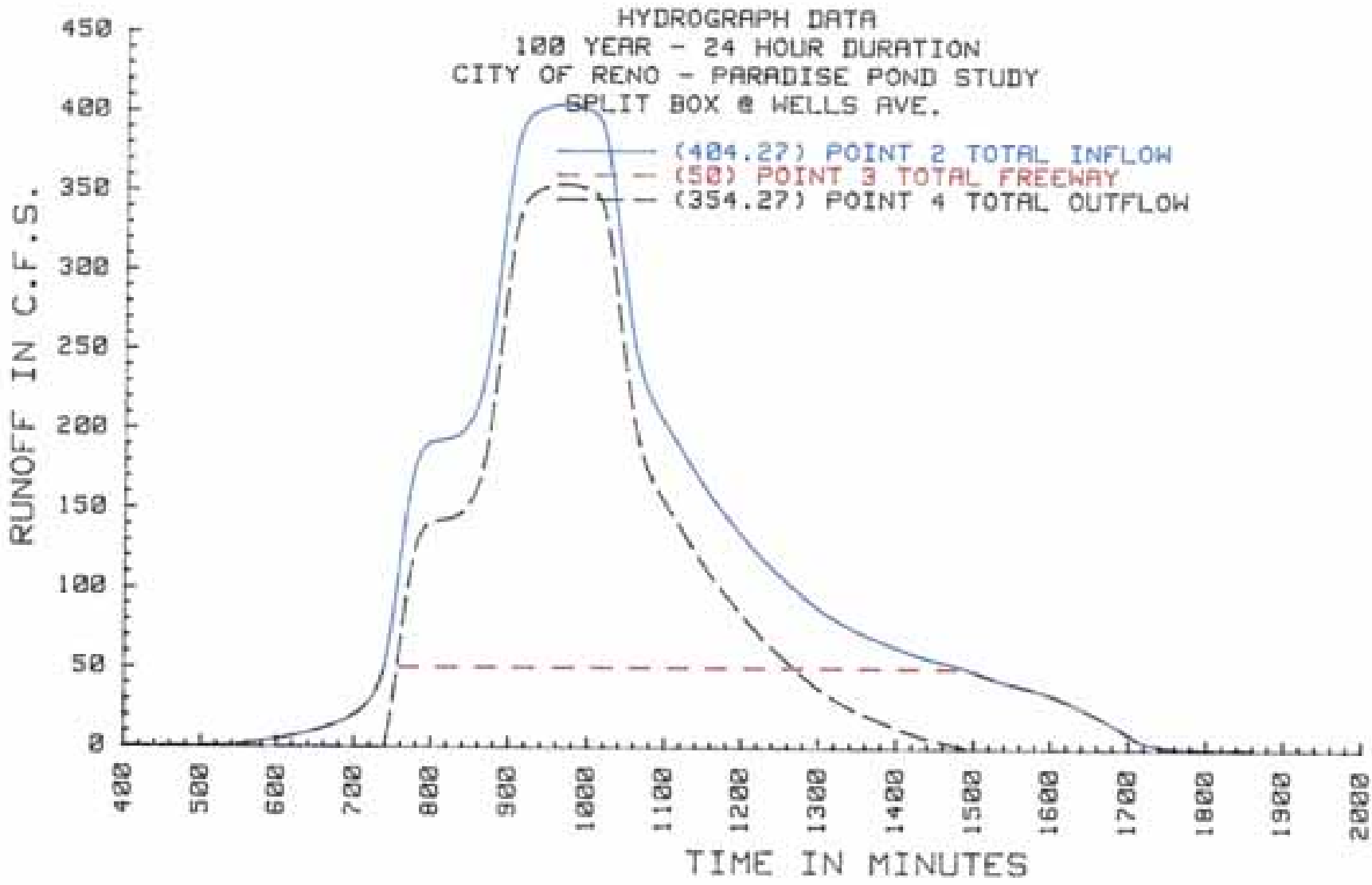
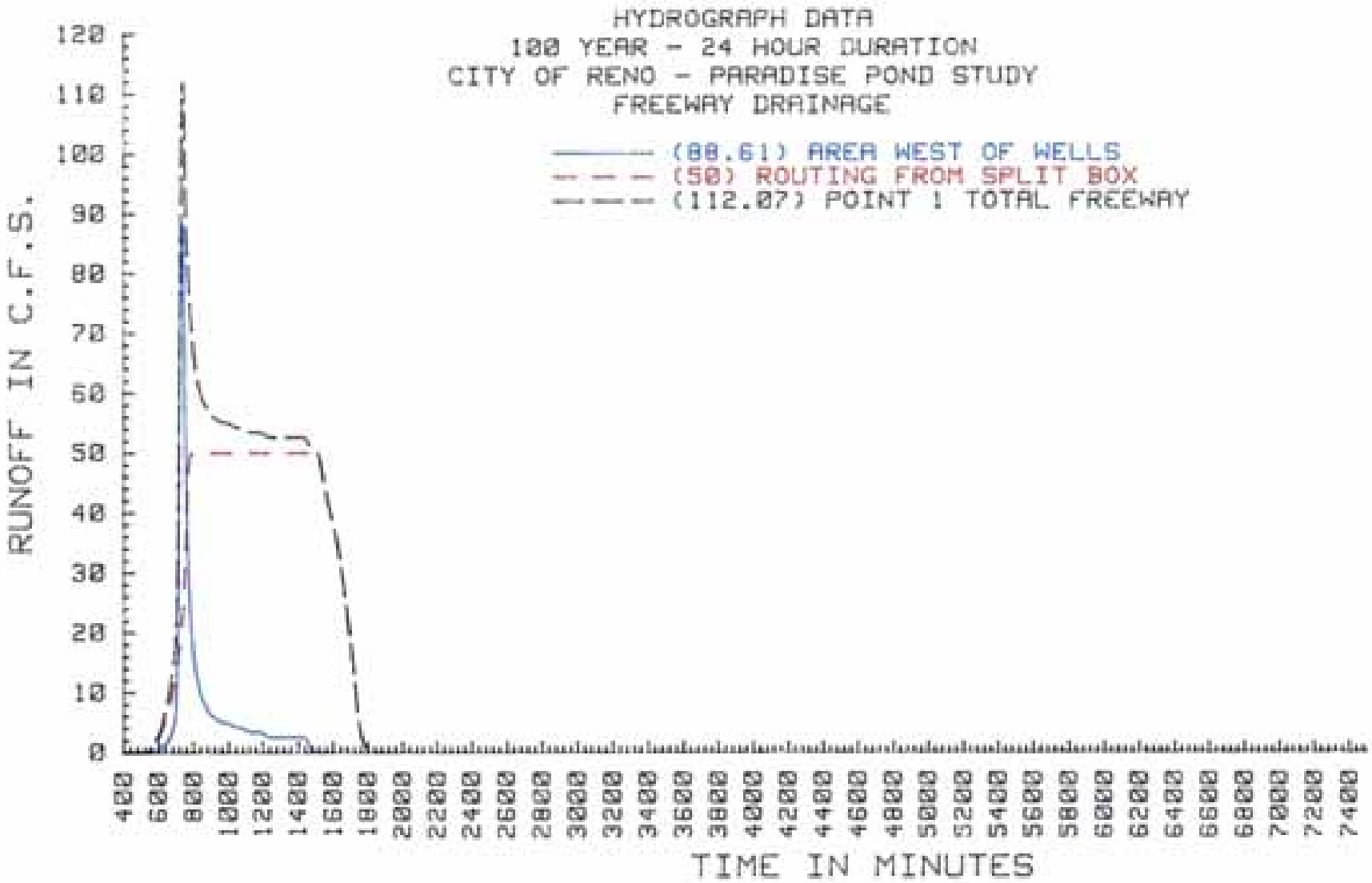
1750
1800
1850
1900
1950
2000


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SPLIT BOX @ WELLS AVE.
(404.27) POINT 2 TOTAL INFLOW
(50) POINT 3 TOTAL FREEWAY
(354.27) POINT 4 TOTAL OUTFLOW
RUNOFF IN C.F.S.
450
400
350
300
250
200
150
100
50
0
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
FREEWAY DRAINAGE
(88.61) AREA WEST OF WELLS
(50) ROUTING FROM SPLIT BOX
(112.07) POINT 1 TOTAL FREEWAY
RUNOFF IN C.F.S.
0
10
20
30
40
50
60
70
80
90
100
110
120
TIME IN MINUTES
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
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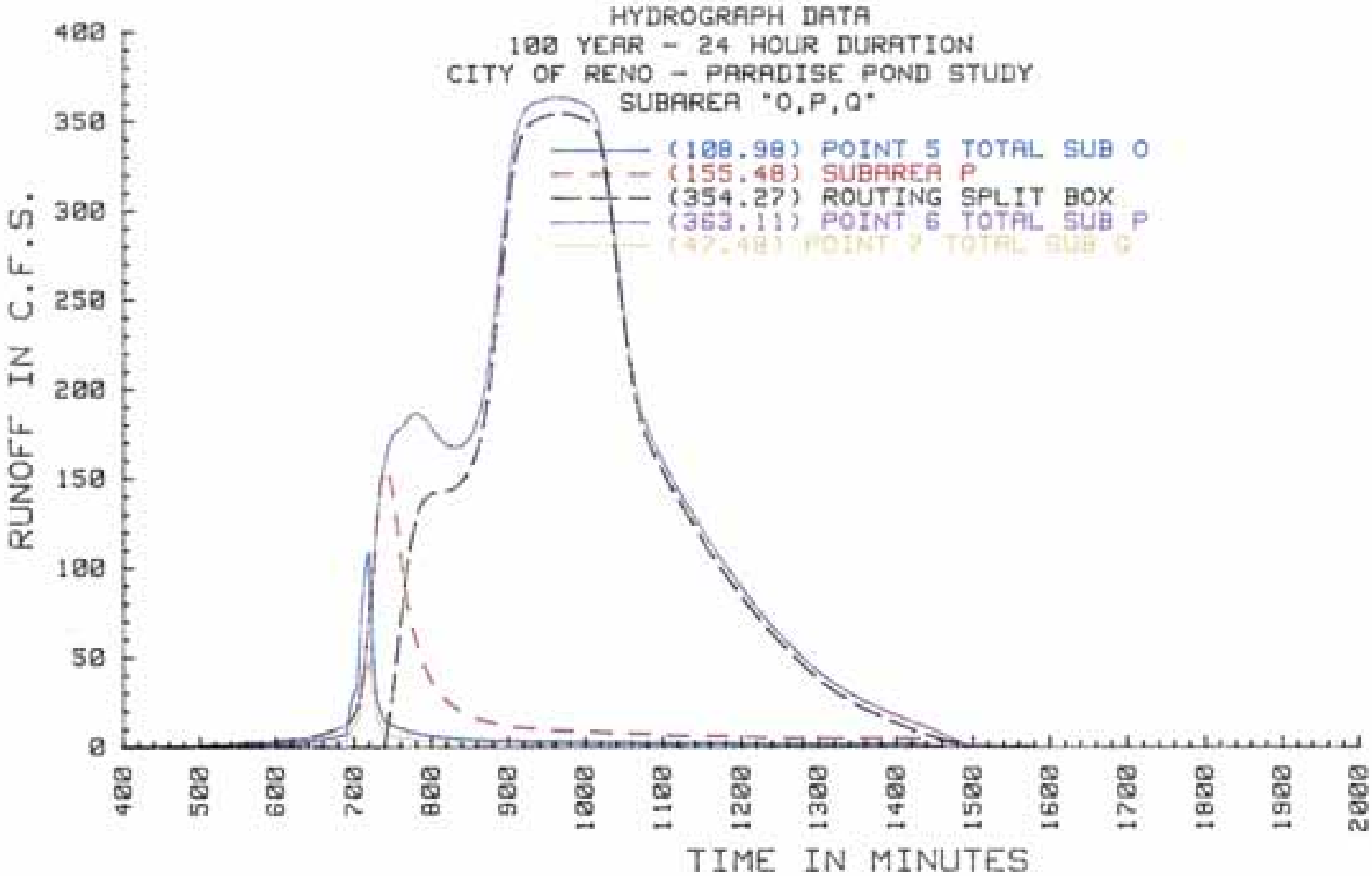
HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "O,P,Q"
(108.98) POINT 5 TOTAL SUB O
(155.48) SUBAREA P
(354.27) ROUTING SPLIT BOX
(363.11) POINT 6 TOTAL SUB P
(47.48) POINT 7 TOTAL SUB Q
RUNOFF IN C.F.S.
0
50
100
150
200
250
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350
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900
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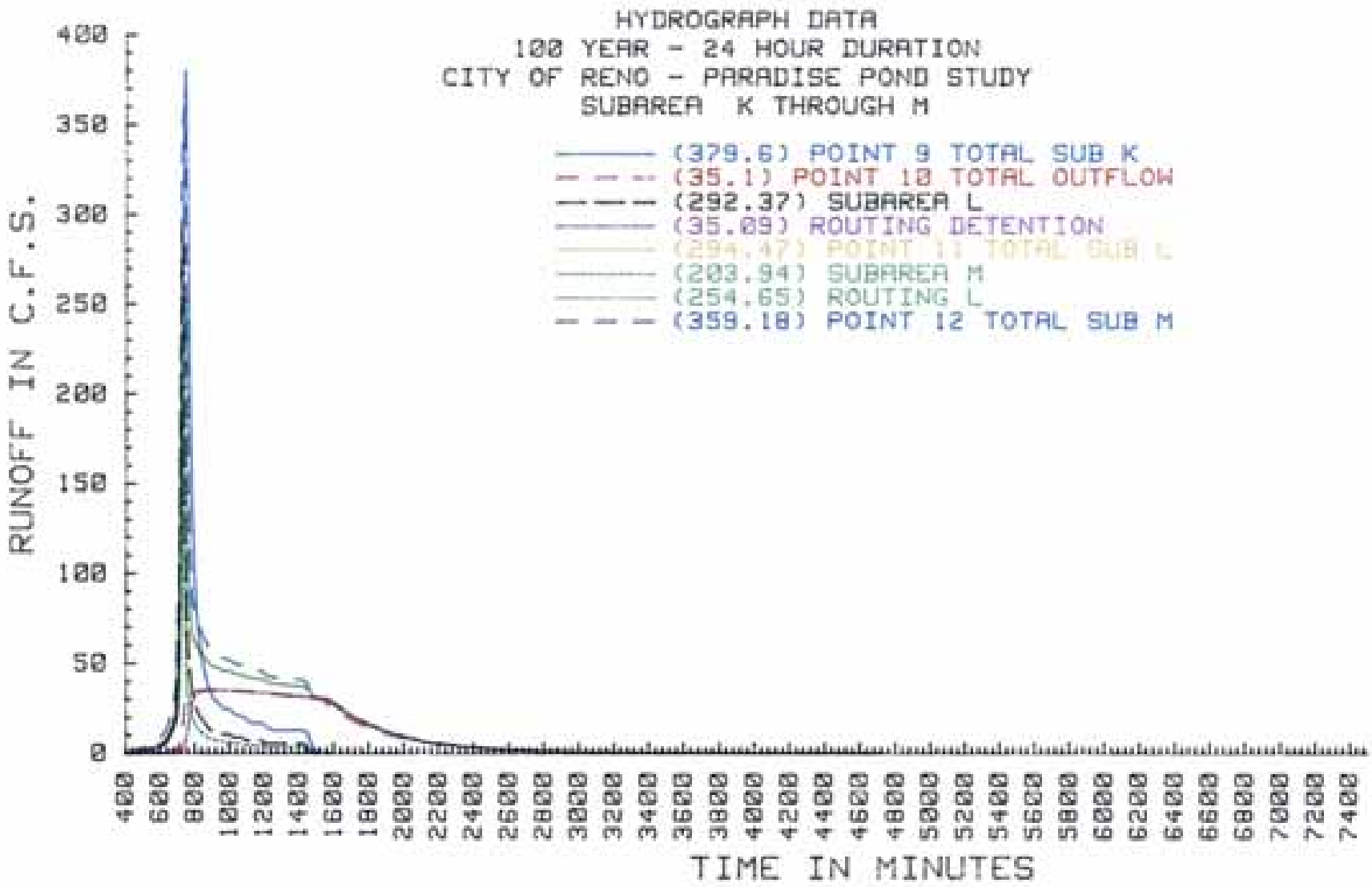
2000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA K THROUGH M
(379.6) POINT 9 TOTAL SUB K
(35.1) POINT 10 TOTAL OUTFLOW
(292.37) SUBAREA L
(35.09) ROUTING DETENTION
(294.47) POINT 11 TOTAL SUB L
(203.94) SUBAREA M
(254.65) ROUTING L
(359.18) POINT 12 TOTAL SUB M
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
TIME IN MINUTES
400
600
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1000
1200
1400
1600
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2200
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2600
2800
3000
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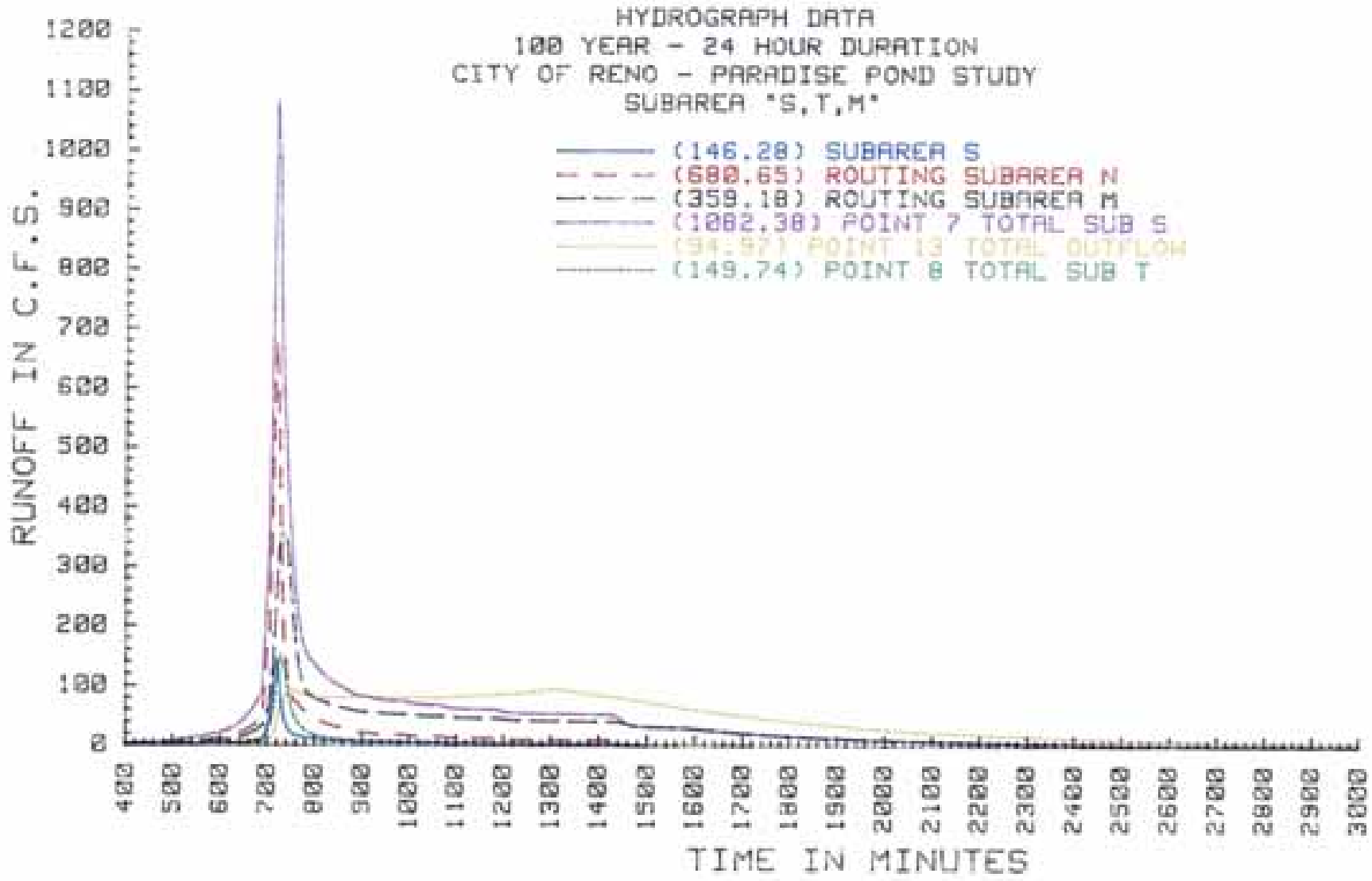
HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "S,T,M"
(146.28) SUBAREA S
(680.65) ROUTING SUBAREA N
(359.18) ROUTING SUBAREA M
(1082.38) POINT 7 TOTAL SUB S
(94.97) POINT 13 TOTAL OUTFLOW
(149.74) POINT 8 TOTAL SUB T
RUNOFF IN C.F.S.
0
100
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700
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900
1000
1100
1200
400
500
600
700
800
900
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1200
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2600
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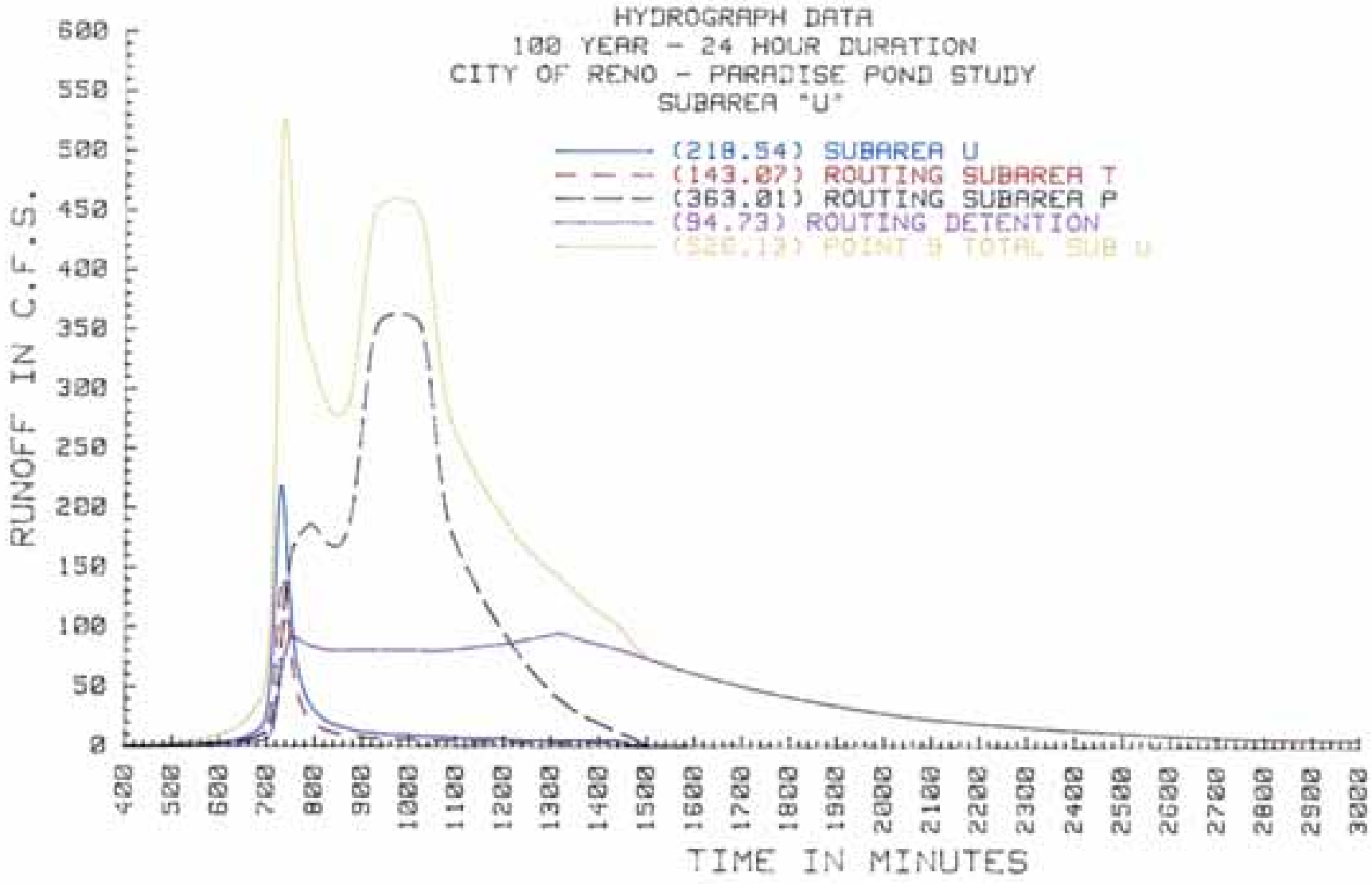
2800
2900
3000
TIME IN MINUTES


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "U"
(218.54) SUBAREA U
(143.07) ROUTING SUBAREA T
(363.01) ROUTING SUBAREA P
(94.73) ROUTING DETENTION
(SEE.13) POINT 9 TOTAL SUB U
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
TIME IN MINUTES
400
500
600
700
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900
1000
1100
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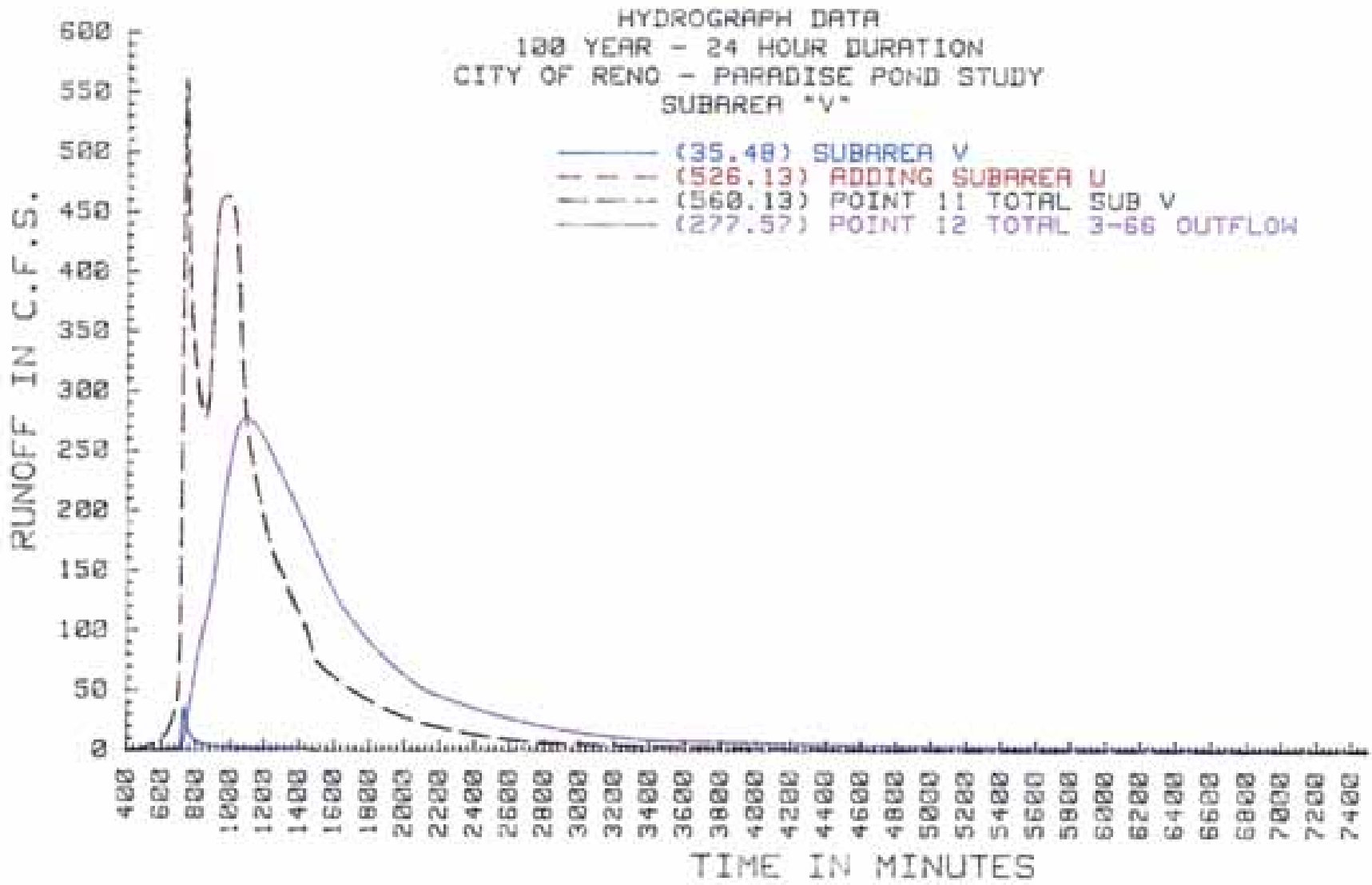
3000


HYDROGRAPH DATA
100 YEAR - 24 HOUR DURATION
CITY OF RENO - PARADISE POND STUDY
SUBAREA "V"
(35.48) SUBAREA V
(526.13) ADDING SUBAREA U
(560.13) POINT 11 TOTAL SUB V
(277.57) POINT 12 TOTAL 3-66 OUTFLOW
RUNOFF IN C.F.S.
0
50
100
150
200
250
300
350
400
450
500
550
600
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
3000
3200
3400
3600
3800
4000
4200
4400
4600
4800
5000
5200
5400
5600
5800
6000
6200
6400
6600
6800
7000
7200
7400
TIME IN MINUTES