

| | | | | | | | | | |
|---------|------|-------|------|------|-------|------|------|---------|---------|
| 4880. | 203. | 4584. | 72. | 101. | 1088. | 55. | 20. | 3. | 5630.00 |
| .07 | 1.35 | 4.21 | 1.39 | .045 | .030 | .045 | .000 | 5624.70 | 1400.00 |
| .000460 | 200. | 200. | 200. | 2 | 0 | 0 | .00 | 210.00 | 1610.00 |

0
 CCHV= .300 CEHV= .500
 *SECND 3024.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3024.00 | 7.15 | 5633.75 | 5633.75 | .00 | 5637.32 | 3.57 | .38 | 1.66 | 5639.00 |
| 4880. | 0. | 4880. | 0. | 0. | 322. | 0. | 28. | 4. | 5639.00 |
| .07 | .00 | 15.17 | .00 | .000 | .035 | .000 | .000 | 5626.60 | 1372.50 |
| .013395 | 310. | 290. | 290. | 20 | 11 | 0 | .00 | 45.00 | 1417.50 |

0
 SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 5632.74 , NOT 5633.75 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| | | | | | | | | | | |
|----|------|------|------|-------|-------|------|--------|-----|---------|---------|
| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
| | 1.25 | 1.56 | 2.60 | .00 | 44.00 | 2.00 | 420.00 | .00 | 5627.20 | 5626.60 |

*SECND 3024.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.61

CLASS B LOW FLOW

1
 9/30/91 2:57:59

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| | | | | | | | | | |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| SECND | DEPTH | CWSEL | CRIMS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLDBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3420 BRIDGE W.S.= 5634.39 BRIDGE VELOCITY= 15.52 CALCULATED CHANNEL AREA= 302.

| | | | | | | | | | |
|---------|---------|-----|-------|-------|-------|----------------|---------|---------|--------|
| EGPRS | EGLWC | H3 | QWEIR | QLQW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
| 5637.02 | 5638.32 | .00 | 0. | 4880. | 420. | 424. | 5637.30 | 5639.00 | 0. |

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 3024.10 | 9.84 | 5636.44 | .00 | .00 | 5638.32 | 1.89 | 1.00 | .00 | 5639.00 |
| 4880. | 0. | 4880. | 0. | 0. | 443. | 0. | 29. | 4. | 5639.00 |
| .08 | .00 | 11.02 | .00 | .000 | .035 | .000 | .000 | 5626.60 | 1372.50 |
| .005188 | 42. | 42. | 42. | 0 | 0 | 0 | .00 | 45.00 | 1417.50 |

0
 CCHV= .100 CEHV= .300
 *SECND 3025.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|-----|---------|------|-----|-----|---------|
| 3025.00 | 6.38 | 5638.38 | 5638.38 | .00 | 5640.94 | 2.56 | .22 | .20 | 5642.00 |
|---------|------|---------|---------|-----|---------|------|-----|-----|---------|

.00 .00 12.84 .00 .000 .023 .000 .000 363.00 1014.04
 .005612 40. 40. 40. 20 14 0 .00 75.05 1089.09

0
 CCHV= .100 CEHV= .300
 *SECNO 3038.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3038.00 | 6.52 | 5643.22 | 5643.22 | .00 | 5645.06 | 1.84 | 2.99 | .07 | 5640.00 |
| 4880. | 114. | 4367. | 399. | 32. | 382. | 112. | 34. | 6. | 5640.00 |
| .09 | 3.53 | 11.44 | 3.55 | .045 | .030 | .045 | .000 | 5636.70 | 1384.88 |
| .006143 | 510. | 510. | 510. | 8 | 5 | 0 | .00 | 164.88 | 1549.76 |

0
 *SECNO 3044.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

9/30/91 2:57:59

| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | GLOSS | BANK ELEV |
|---------|-------|---------|---------|--------|---------|-------|-------|---------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VRQB | XNL | XNCH | XNR | WTH | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CDRAR | TOPWID | ENDST |
| 3044.00 | 7.24 | 5648.24 | 5648.24 | .00 | 5650.15 | 1.91 | 4.46 | .02 | 5649.00 |
| 4880. | 0. | 4880. | 0. | 0. | 440. | 0. | 41. | 8. | 5650.00 |
| .10 | .00 | 11.10 | .00 | .000 | .030 | .000 | .000 | 5641.00 | 1469.50 |
| .008786 | 500. | 610. | 700. | 3 | 8 | 0 | .00 | 116.42 | 1585.92 |

0
 *SECNO 3048.000
 3301 HV CHANGED MORE THAN HVINS
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3048.00 | 7.86 | 5649.86 | 5649.86 | .00 | 5652.56 | 2.70 | 1.03 | .24 | 5660.60 |
| 4880. | 0. | 4880. | 0. | 0. | 370. | 0. | 42. | 8. | 5660.60 |
| .11 | .00 | 13.18 | .00 | .000 | .030 | .000 | .000 | 5642.00 | 1540.00 |
| .009179 | 125. | 115. | 115. | 20 | 8 | 0 | .00 | 70.00 | 1610.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|----|-----|------|------|-------|-------|------|---------|-----|---------|---------|
| | .90 | 1.50 | 2.50 | .00 | 70.00 | 4.00 | 1060.00 | .00 | 5642.00 | 5642.00 |

*SECNO 3052.000
 3301 HV CHANGED MORE THAN HVINS

CLASS A LOW FLOW

3420 BRIDGE W.S.= 5649.61 BRIDGE VELOCITY= 9.72 CALCULATED CHANNEL AREA= 502.

| EBPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|---------|---------|---------|-------|-------|---------|----------------|---------|---------|---------|
| .00 | 5652.78 | 1.04 | 0. | 4880. | 1060. | 1096. | 5658.60 | 5660.60 | 0. |
| 3052.00 | 8.90 | 5650.90 | .00 | .00 | 5652.78 | 1.88 | .23 | .00 | 5660.60 |

.11 .00 11.02 .00 .000 .000 .000 .000 5642.00 1370.00
 .005228 50. 50. 50. 0 0 0 .00 70.00 1610.00

0
1

9/30/91 2:57:59

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 3056.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3056.00 | 8.05 | 5653.05 | 5653.05 | .00 | 5656.21 | 3.15 | .58 | .38 | 5664.30 |
| 4880. | 0. | 4880. | 0. | 0. | 342. | 0. | 44. | 8. | 5664.30 |
| .11 | .00 | 14.25 | .00 | .000 | .030 | .000 | .000 | 5645.00 | 1237.48 |
| .008073 | 90. | 90. | 90. | 20 | 11 | 0 | .00 | 55.04 | 1292.52 |

0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 5651.87 , NOT 5653.05 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFO | RDLEN | BWC | BNP | BAREA | SS | ELCHU | ELCHD |
|----|-----|------|------|-------|-------|------|--------|------|---------|---------|
| | .90 | 1.50 | 2.50 | .00 | 30.00 | 2.00 | 840.00 | 2.00 | 5645.00 | 5645.00 |

*SECNO 3060.000

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 5653.04 BRIDGE VELOCITY= 13.77 CALCULATED CHANNEL AREA= 354.

| EGPRS | EGLWC | H3 | DWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|-------|---------|-----|-------|-------|-------|-------------------|---------|---------|--------|
| .00 | 5656.50 | .00 | 0. | 4880. | 840. | 906. | 5660.40 | 5664.30 | 0. |

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 3060.00 | 9.40 | 5654.40 | .00 | .00 | 5656.50 | 2.10 | .30 | .00 | 5664.30 |
| 4880. | 0. | 4880. | 0. | 0. | 419. | 0. | 44. | 8. | 5664.30 |
| .11 | .00 | 11.64 | .00 | .000 | .030 | .000 | .000 | 5645.00 | 1235.39 |
| .004571 | 15. | 15. | 15. | 0 | 0 | 0 | .00 | 59.22 | 1294.61 |

0

*SECNO 3064.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

1

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| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3070 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3064.00 | 6.26 | 5655.26 | 5655.26 | .00 | 5658.02 | 2.76 | .54 | .20 | 5663.70 |
| 4880. | 0. | 4880. | 0. | 0. | 366. | 0. | 45. | 8. | 5663.70 |
| .11 | .00 | 13.33 | .00 | .000 | .030 | .000 | .000 | 5649.00 | 1411.49 |
| .008154 | 90. | 90. | 90. | 20 | 14 | 0 | .00 | 67.02 | 1478.51 |

0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 5654.32 , NOT 5655.26 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| | | | | | | | | | | |
|----|------|------|------|-------|-------|------|--------|------|---------|---------|
| SB | XK | XKOR | COFO | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
| | 1.25 | 1.50 | 2.50 | .00 | 50.00 | 3.00 | 890.00 | 1.60 | 5649.00 | 5649.00 |

*SECNO 3068.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.45

CLASS B LOW FLOW

3420 BRIDGE W.S.= 5655.43 BRIDGE VELOCITY= 13.25 CALCULATED CHANNEL AREA= 368.

| | | | | | | | | | |
|---------|---------|---------|-------|-------|---------|----------------|---------|---------|---------|
| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
| .00 | 5658.44 | .00 | 0. | 4880. | 890. | 855. | 5661.70 | 5663.70 | 0. |
| 3068.00 | 7.77 | 5656.77 | .00 | .00 | 5658.44 | 1.67 | .42 | .00 | 5663.70 |
| 4880. | 0. | 4880. | 0. | 0. | 471. | 0. | 45. | 8. | 5663.70 |
| .11 | .00 | 10.37 | .00 | .000 | .030 | .000 | .000 | 5649.00 | 1409.43 |
| .003869 | 20. | 20. | 20. | 0 | 0 | 0 | .00 | 71.14 | 1480.57 |

0

CCHV= .100 CEHV= .300

*SECNO 3072.000

3301 HV CHANGED MORE THAN HVINS

1

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| | | | | | | | | | |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | NTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLQBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.22

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 3072.00 | 6.79 | 5658.59 | .00 | .00 | 5658.72 | .12 | .12 | .15 | 5656.00 |
| 2015. | 315. | 1700. | 0. | 542. | 553. | 0. | 48. | 9. | 5662.00 |
| .13 | .58 | 3.08 | .00 | .045 | .016 | .000 | .000 | 5651.80 | 1284.62 |
| .000134 | 165. | 165. | 165. | 2 | 0 | 0 | .00 | 448.72 | 1733.34 |

0

CCHV= .100 CEHV= .300

*SECNO 4001.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3/20 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6001.00 | 5.13 | 5662.43 | 5662.43 | .00 | 5664.09 | 1.67 | .11 | .46 | 5660.00 |
| 2015. | 142. | 1850. | 23. | 91. | 171. | 16. | 53. | 11. | 5660.00 |
| .14 | 1.57 | 10.80 | 1.40 | .050 | .016 | .050 | .000 | 5657.30 | 1462.15 |
| .001755 | 290. | 350. | 395. | 20 | 15 | 0 | .00 | 114.20 | 1576.35 |

0
*SECNO 6002.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6002.00 | 5.13 | 5663.23 | 5663.23 | .00 | 5664.89 | 1.67 | .13 | .00 | 5660.80 |
| 2015. | 142. | 1850. | 23. | 91. | 171. | 16. | 53. | 11. | 5660.80 |
| .14 | 1.57 | 10.80 | 1.40 | .050 | .016 | .050 | .000 | 5658.10 | 1462.15 |
| .001755 | 75. | 75. | 75. | 20 | 5 | 0 | .00 | 114.20 | 1576.35 |

0
SPECIAL BRIDGE

| | | | | | | | | | | |
|----|------|------|------|-------|-------|------|--------|-----|---------|-------|
| SB | XK | XKOR | COFO | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
| | 1.25 | 1.50 | 2.50 | .00 | 31.00 | 1.80 | 115.00 | .00 | 5658.80 | .00 |

*SECNO 6004.000
6870 D.S. ENERGY OF 5664.89 IS HIGHER THAN COMPUTED ENERGY OF 5664.55

3265 DIVIDED FLOW

1

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| | | | | | | | | | | |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|------|
| SECNO | DEPTH | CWSEL | CRING | WSELK | EG | HV | HL | LOSS | BANK | ELEV |
| @ | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT | |
| TIME | VLOB | VCH | VROB | YNL | XNCH | XNR | WTN | ELMIN | SSTA | |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST | |

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| | | | | | | | | | |
|---------|---------|-----|-------|------|-------|-----------|---------|---------|--------|
| EBPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID | ELLC | ELTRD | WEIRLN |
| | | | | | | AREA | | | |
| 5670.38 | 5665.75 | .16 | 1161. | 865. | 115. | 117. | 5662.80 | 5664.30 | 317. |

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS= 1300.0 1935.0 TYPE= 1 TARGET= -1300.000

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6006.00 | 5.21 | 5664.01 | 5663.89 | .00 | 5665.66 | 1.65 | .08 | -.08 | 5658.80 |
| 2015. | 128. | 1771. | 116. | 101. | 162. | 54. | 54. | 12. | 5658.80 |
| .14 | 1.27 | 10.96 | 2.16 | .050 | .016 | .050 | .000 | 5658.80 | 1391.83 |
| .001541 | 50. | 50. | 50. | 20 | 5 | 0 | .00 | 141.89 | 1576.09 |

0
CCHV= .100 CEHV= .300
*SECNO 6008.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

| | | | | | | | | | |
|---------|-------|---------|------|------|---------|------|------|---------|---------|
| 6008.00 | 6.21 | 5665.81 | .00 | .00 | 5665.89 | .08 | .07 | .16 | 5659.60 |
| 2015. | 1498. | 382. | 134. | 821. | 109. | 116. | 55. | 12. | 5662.00 |
| .15 | 1.82 | 3.50 | 1.16 | .045 | .035 | .045 | .000 | 5659.60 | 1006.20 |
| .000714 | 70. | 70. | 70. | 4 | 0 | 0 | .00 | 430.20 | 1436.41 |

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|-----------------------------|------|---------|---------|-------|---------|---------|---------|---------|---------|
| 3470 ENCROACHMENT STATIONS= | | 1723.0 | 1831.0 | TYPE= | 1 | TARGET= | 108.000 | | |
| 6012.00 | 4.08 | 5670.68 | 5670.68 | .00 | 5672.33 | 1.65 | 1.40 | .47 | 5672.40 |
| 2015. | 0. | 2015. | 0. | 0. | 195. | 0. | 65. | 16. | 5672.80 |
| .17 | .00 | 10.32 | .00 | .000 | .035 | .000 | .000 | 5666.60 | 1725.12 |
| .012765 | 750. | 750. | 750. | 20 | 14 | 0 | .00 | 59.69 | 1784.81 |

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| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPNID | ENDST |

*SECNO 6014.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.00

| | | | | | | | | | |
|-----------------------------|------|---------|--------|-------|---------|---------|---------|---------|---------|
| 3470 ENCROACHMENT STATIONS= | | 1600.0 | 1900.0 | TYPE= | 1 | TARGET= | 300.000 | | |
| 6014.00 | 4.72 | 5674.72 | .00 | .00 | 5675.02 | .30 | 2.56 | .14 | 5677.00 |
| 1930. | 0. | 1930. | 0. | 0. | 439. | 0. | 69. | 17. | 5675.00 |
| .20 | .00 | 4.40 | .00 | .000 | .035 | .000 | .000 | 5670.00 | 1617.87 |
| .002934 | 520. | 470. | 420. | 3 | 0 | 0 | .00 | 165.83 | 1783.70 |

0
1

*SECNO 6016.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .60

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 6016.00 | 3.81 | 5677.21 | .00 | .00 | 5677.69 | .48 | 2.61 | .05 | 5679.20 |
| 1930. | 0. | 1930. | 0. | 0. | 346. | 0. | 74. | 20. | 5678.00 |
| .23 | .00 | 5.58 | .00 | .000 | .035 | .000 | .000 | 5673.40 | 2105.68 |
| .008129 | 650. | 570. | 480. | 3 | 0 | 0 | .00 | 196.63 | 2302.31 |

0
1

*SECNO 6018.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6018.00 | 3.41 | 5682.01 | 5682.01 | .00 | 5683.18 | 1.17 | 3.38 | .20 | 5682.50 |
| 1930. | 0. | 1870. | 60. | 0. | 213. | 14. | 76. | 21. | 5680.00 |
| .24 | .00 | 8.78 | 3.74 | .000 | .035 | .045 | .000 | 5678.60 | 1418.91 |
| .012836 | 335. | 335. | 335. | 17 | 11 | 0 | .00 | 102.19 | 1521.09 |

0
1

CCHV= .100 CEHV= .300
*SECNO 6020.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

1

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CDRAR | TOPWID | ENDST |

3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6020.00 | 1.70 | 5685.60 | 5685.60 | .00 | 5686.07 | .47 | .48 | .07 | 5684.00 |
| 1930. | 722. | 730. | 478. | 167. | 104. | 110. | 77. | 22. | 5684.00 |
| .25 | 4.33 | 7.02 | 4.33 | .016 | .016 | .016 | .000 | 5683.90 | 1076.80 |
| .002925 | 90. | 90. | 90. | 20 | 8 | 0 | .00 | 408.94 | 1485.73 |

0
 CCHV= .100 CEHV= .300
 *SECNO 6024.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 6024.00 | 3.96 | 5685.66 | .00 | .00 | 5686.63 | .97 | .41 | .15 | 5684.30 |
| 1930. | 60. | 1870. | 0. | 24. | 234. | 0. | 77. | 22. | 5685.50 |
| .25 | 2.48 | 8.01 | .55 | .045 | .035 | .045 | .000 | 5681.70 | 1021.31 |
| .007888 | 90. | 90. | 90. | 2 | 0 | 0 | .00 | 118.24 | 1139.56 |

0
 *SECNO 6028.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 5694.00 ELREA= 5694.00

| | | | | | | | | | |
|---------|-------|---------|---------|------|---------|------|-------|---------|---------|
| 6028.00 | 3.42 | 5693.92 | 5693.92 | .00 | 5694.78 | .86 | 10.53 | .01 | 5694.00 |
| 1930. | 0. | 1930. | 0. | 0. | 259. | 0. | 83. | 25. | 5694.00 |
| .28 | .00 | 7.45 | .00 | .000 | .040 | .000 | .000 | 5690.50 | 1691.21 |
| .020145 | 1000. | 880. | 950. | 20 | 15 | 0 | .00 | 154.25 | 1845.46 |

0
 *SECNO 6030.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.72

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 6030.00 | 4.30 | 5698.00 | .00 | .00 | 5698.20 | .20 | 3.35 | .07 | 5694.00 |
| 1870. | 692. | 301. | 877. | 205. | 62. | 268. | 88. | 27. | 5694.00 |
| .33 | 3.38 | 4.84 | 3.28 | .045 | .040 | .045 | .000 | 5693.70 | 1530.01 |
| .002549 | 600. | 600. | 580. | 7 | 0 | 0 | .00 | 197.95 | 1727.97 |

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 9/30/91 2:57:59

PAGE 12

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CDRAR | TOPWID | ENDST |

CCHV= .100 CEHV= .300
 *SECNO 6032.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|-----|---------|-----|------|-----|---------|
| 6032.00 | 1.60 | 5720.00 | 5720.00 | .00 | 5720.42 | .41 | 1.87 | .06 | 5720.00 |
| 1320. | 0. | 1320. | 0. | 0. | 255. | 0. | 94. | 31. | 5720.00 |

0
 CCHV= .100 CEHV= .300
 *SECND 6036.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.38

| | | | | | | | | | |
|---------|-------|---------|-------|------|---------|------|------|---------|---------|
| 6036.00 | 6.71 | 5720.91 | .00 | .00 | 5720.92 | .01 | .46 | .04 | 5720.00 |
| 750. | 106. | 482. | 162. | 381. | 536. | 485. | 118. | 50. | 5720.00 |
| .87 | .28 | .90 | .33 | .045 | .040 | .045 | .000 | 5714.20 | 1015.44 |
| .000072 | 1450. | 1280. | 1100. | 5 | 0 | 0 | .00 | 983.93 | 1999.37 |

0
 *SECND 6040.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6040.00 | 1.72 | 5725.92 | 5725.92 | .00 | 5726.62 | .70 | .21 | .21 | 5731.30 |
| 680. | 0. | 680. | 0. | 0. | 101. | 0. | 133. | 61. | 5731.70 |
| .91 | .00 | 6.71 | .00 | .000 | .040 | .000 | .000 | 5724.20 | 1767.40 |
| .021742 | 825. | 885. | 915. | 20 | 14 | 0 | .00 | 74.30 | 1841.69 |

0
 *SECND 6048.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6048.00 | 3.31 | 5736.31 | 5736.31 | .00 | 5736.63 | .32 | 5.01 | .04 | 5734.00 |
| 680. | 102. | 449. | 129. | 74. | 81. | 77. | 135. | 64. | 5734.00 |
| .94 | 1.38 | 5.52 | 1.69 | .045 | .040 | .045 | .000 | 5733.00 | 1051.71 |
| .005581 | 450. | 510. | 550. | 4 | 18 | 0 | .00 | 464.74 | 1531.76 |

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9/30/91 2:57:59

| SECND | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| D | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELWIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICDNT | CORAR | TOPWID | ENDST |

*SECND 6052.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6052.00 | 1.80 | 5741.20 | 5741.20 | .00 | 5741.21 | .01 | .34 | .03 | 5741.10 |
| 430. | 22. | 35. | 372. | 54. | 73. | 612. | 140. | 70. | 5741.20 |
| 1.16 | .41 | .48 | .61 | .045 | .040 | .045 | .000 | 5739.40 | 925.96 |
| .000186 | 550. | 480. | 420. | 14 | 15 | 0 | .00 | 626.25 | 1582.24 |

0
 *SECND 6056.000

3265 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|-----|---------|-----|------|-----|---------|
| 6056.00 | 1.18 | 5746.18 | 5746.18 | .00 | 5746.48 | .31 | .30 | .09 | 5747.90 |
| 430. | 251. | 177. | 2. | 64. | 35. | 2. | 145. | 74. | 5748.00 |

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1

9/30/91 2:57:59

THIS RUN EXECUTED 9/30/91 2:58:49

HEC2 RELEASE DATED SEP 88 UPDATE

| | | | | | | | | | | |
|----------|--|--------|--------|--------|--------|--------|--------|---------|--------|--------|
| T1 | HEC2 WATER SURFACE PROFILES SUBCRITICAL FLOW | | | | | | | | | |
| T2 | 100 YEAR FLOOD DBPS EXISTING HYDROLOGY | | | | | | | | | |
| T3 | CREWS GULCH EXISTING CHANNEL CONDITIONS | | | | | | | | | |
| J1 | -10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 5626.7 | |
| J2 | 1 | 0 | -1 | | | | | | | |
| BT | 2 | 4880 | 3990 | | | | | | | |
| NC | .045 | .045 | .03 | .3 | .5 | | | | | |
| X1 | 3002 | 7 | 1200 | 1220 | | | | | | |
| GR | 5640 | 1000 | 5630 | 1060 | 5628 | 1182 | 5622 | 1200 | 5620.2 | 1215 |
| GR | 5622 | 1220 | 5626.2 | 1240 | | | | | | |
| X1 | 3008 | 6 | 1460 | 1662 | 500 | 500 | 500 | | | |
| GR5642.0 | 750 | 5641.9 | 1460 | 5623.0 | 1481 | 5623 | 1642 | 5641.9 | 1662 | |
| GR5642.0 | 1910 | | | | | | | | | |
| SB | 1.25 | 1.5 | 2.5 | 0 | 160 | 4.5 | 2524.4 | 1.47 | 5623.0 | 5623 |
| X1 | 3012 | 0 | 0 | 0 | 50 | 50 | 50 | | | |
| X2 | 0 | 0 | 1 | 5637.6 | 5641.9 | | | | | |
| BT | 6 | 750 | 5642 | 5642 | 1460 | 5641.9 | 5641.9 | 1460 | 5641.9 | 5637.6 |
| BT | 1662 | 5641.9 | 5637.6 | 1662 | 5641.9 | 5641.9 | 1910 | 5642 | 5642 | |
| X1 | 3016 | 12 | 1455 | 1589 | 200 | 200 | 200 | | | |
| X3 | 0 | 0 | 0 | 1400 | 0 | 1610 | | | | |
| GR | 5640 | 1000 | 5635 | 1020 | 5633 | 1200 | 5633.5 | 1265 | 5630 | 1455 |
| GR5624.7 | 1460 | 5624.7 | 1529 | 5625.7 | 1584 | 5630 | 1589 | 5631 | 1715 | |
| GR | 5635 | 1850 | 5637 | 1980 | | | | | | |
| NC | .016 | .016 | .035 | .3 | .5 | | | | | |
| X1 | 3024 | 7 | 1372.5 | 1417.5 | 310 | 290 | 290 | | | |
| GR | 5644 | 1000 | 5640 | 1160 | 5639.0 | 1372.5 | 5626.6 | 1372.5 | 5626.6 | 1417.5 |
| GR | 5639 | 1417.5 | 5640 | 1600 | 5644 | 2095 | | | | |
| SB | 1.25 | 1.56 | 2.6 | 0 | 44 | 2 | 420 | 0 | 5627.2 | 5626.6 |
| X13024.1 | 0 | 0 | 0 | 42 | 42 | 42 | | | | |
| X2 | 0 | 0 | 1 | 5637.3 | 5639.0 | 0 | .6 | | | |
| BT | 7 | 1000 | 5640 | 5640 | 1160 | 5639 | 5639 | 1372.50 | 5639.0 | 5639.0 |
| BT1372.5 | 5639.0 | 5637.3 | 1417.5 | 5639 | 5637.3 | 1417.5 | 5639 | 5639 | 5639 | 1600 |
| BT | 5640 | 5640 | 2095 | 5644 | 5644 | | | | | |
| NC | .045 | .045 | .025 | .1 | .3 | | | | | |
| X1 | 3025 | 5 | 1005 | 1100 | 40 | 40 | 40 | | | |
| GR | 5643 | 1000 | 5642 | 1005 | 5632 | 1030 | 5632 | 1074 | 5643 | 1100 |
| NC | .045 | .045 | .03 | .1 | .3 | | | | | |
| X1 | 3038 | 10 | 1405 | 1490 | 510 | 510 | 510 | | | |
| GR | 5652 | 1000 | 5650 | 1040 | 5645 | 1200 | 5644.8 | 1375 | 5640 | 1405 |
| GR5636.7 | 1420 | 5636.7 | 1430 | 5640 | 1480 | 5646 | 1610 | 5646 | 1770 | |
| X1 | 3044 | 11 | 1460 | 1600 | 500 | 700 | 610 | | | |
| GR | 5659 | 1000 | 5655 | 1310 | 5650 | 1325 | 5649 | 1460 | 5645 | 1510 |
| GR | 5641 | 1515 | 5641 | 1550 | 5645 | 1560 | 5650 | 1400 | 5655 | 1765 |
| GR | 5659 | 2000 | | | | | | | | |
| X1 | 3048 | 7 | 1540 | 1610 | 125 | 115 | 115 | | | |
| GR5660.6 | 1000 | 5660.6 | 1540 | 5648 | 1540 | 5642 | 1600 | 5642 | 1610 | |
| GR5660.6 | 1610 | 5660.6 | 1700 | | | | | | | |

| | | | | | | | | | | |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| X2 | 0 | 0 | 1 | 5658.6 | 5660.6 | | | | | |
| BT | 6 | 1000 | 5660.6 | 5660.6 | 1540 | 5660.6 | 5660.6 | 1540 | 5660.6 | 5658.6 |
| BT | 1610 | 5660.6 | 5658.6 | 1610 | 5660.6 | 5660.6 | 1700 | 5660.6 | 5660.6 | |
| X1 | 3056 | 6 | 1220 | 1310 | 90 | 90 | 90 | | | |
| GR | 5662 | 1000 | 5664.3 | 1220 | 5645 | 1250 | 5645 | 1280 | 5664.3 | 1310 |
| GR | 5666 | 1470 | | | | | | | | |
| SB | .9 | 1.5 | 2.5 | 0 | 30 | 2 | 840 | 2.00 | 5645.0 | 5645 |
| X1 | 3060 | 0 | 0 | 0 | 15 | 15 | 15 | | | |
| X2 | 0 | 0 | 1 | 5660.4 | 5664.3 | | | | | |
| BT | 6 | 1000 | 5662.0 | 5662 | 1220 | 5664.3 | 5664.3 | 1220 | 5664.3 | 5660.6 |
| BT | 1310 | 5664.3 | 5660.6 | 1310 | 5664.3 | 5664.3 | 1470 | 5666.0 | 5666 | |
| X1 | 3064 | 6 | 1400 | 1490 | 90 | 90 | 90 | | | |
| GR | 5663.7 | 1000 | 5663.7 | 1400 | 5649 | 1420 | 5649 | 1470 | 5663.7 | 1490 |
| GR | 5664 | 1710 | | | | | | | | |
| SB | 1.25 | 1.5 | 2.5 | 0 | 50 | 3 | 890 | 1.60 | 5649 | 5649 |
| X1 | 3068 | 0 | 0 | 0 | 20 | 20 | 20 | | | |
| X2 | 0 | 0 | 1 | 5661.7 | 5663.7 | | | | | |
| BT | 6 | 1000 | 5663.7 | 5663.7 | 1400 | 5663.7 | 5663.7 | 1400 | 5663.7 | 5661.7 |
| BT | 1490 | 5663.7 | 5661.7 | 1490 | 5663.7 | 5663.7 | 1710 | 5664.0 | 5664 | |
| QT | 2 | 2015 | 2850 | | | | | | | |
| NC | .045 | .045 | .016 | .1 | .3 | | | | | |
| X1 | 3072 | 7 | 1620 | 1750 | 165 | 165 | 165 | | | |
| GR | 5662 | 1000 | 5658 | 1335 | 5656 | 1550 | 5656.0 | 1620 | 5651.8 | 1670 |
| GR | 5651.8 | 1700 | 5662 | 1750 | 5664 | 2000 | | | | |
| NC | .05 | .05 | .016 | .1 | .3 | | | | | |
| X1 | 6001 | 8 | 1528 | 1563 | 290 | 395 | 350 | | | |
| GR | 5665 | 1445 | 5662.0 | 1465 | 5660.0 | 1528 | 5657.3 | 1531 | 5657.3 | 1560 |
| GR | 5660.0 | 1563 | 5664.0 | 1585 | 5666.0 | 1680 | | | | |
| X1 | 6002 | 0 | 0 | 0 | 75 | 75 | 75 | 0 | .8 | |
| SB | 1.25 | 1.5 | 2.5 | 0 | 31 | 1.8 | 115 | 00 | 5658.8 | |
| X1 | 6006 | 18 | 1524.5 | 1555.5 | 50 | 50 | 50 | | | |
| X2 | 0 | 0 | 1 | 5662.8 | 5664.3 | | | | | |
| X3 | 0 | 0 | 0 | 1300 | 0 | | | | | |
| BT | 18 | 1000 | 5664.6 | 5658 | 1172 | 5664.1 | 5658 | 1270 | 5665.3 | 5658 |
| BT | 1298 | 5665.5 | 5658 | 1299 | 5665.5 | 5658 | 1391 | 5665.3 | 5658 | 1392 |
| BT | 5665.3 | 5658 | 1517 | 5665 | 5658 | 1524.5 | 5664.3 | 5662.8 | 1540 | 5664.3 |
| BT | 5662.8 | 1555.5 | 5664.3 | 5662.8 | 1580 | 5666 | 5658 | 1674 | 5666.6 | 5658 |
| BT | 1675 | 5666.6 | 5658 | 1790 | 5667.2 | 5658 | 1791 | 5667.2 | 5658 | 1880 |
| BT | 5658.8 | 5658 | 1935 | 5669.5 | 5658 | | | | | |
| GR | 5664.6 | 1000 | 5665 | 1172 | 5665 | 1270 | 5664.5 | 1298 | 5674.5 | 1299 |
| GR | 5673.6 | 1391 | 5662 | 1392 | 5665 | 1517 | 5658.8 | 1524.5 | 5658.8 | 1540 |
| GR | 5658.8 | 1555.5 | 5665 | 1580 | 5666 | 1674 | 5676.4 | 1675 | 5677.8 | 1790 |
| GR | 5667.8 | 1791 | 5669.2 | 1880 | 5670 | 1935 | | | | |
| NC | .045 | .045 | .035 | .1 | .3 | | | | | |
| X1 | 6008 | 10 | 1330 | 1340 | 70 | 70 | 70 | | | |
| GR | 5676 | 1000 | 5666 | 1000 | 5664 | 1065 | 5662 | 1300 | 5660 | 1310 |
| GR | 5659.6 | 1320 | 5660 | 1331 | 5662 | 1340 | 5664 | 1355 | 5666 | 1445 |
| X1 | 6012 | 53 | 1723.9 | 1830.7 | 750 | 750 | 750 | | | |
| X3 | 0 | 0 | 0 | 1723 | 00 | 1831 | | | | |
| GR | 5668.3 | 999.3 | 5668.6 | 1021.8 | 5667.8 | 1047.7 | 5666.9 | 1076 | 5668 | 1109.7 |
| GR | 5668.9 | 1136 | 5670.1 | 1166.1 | 5671.4 | 1192 | 5681.4 | 1193 | 5679.7 | 1286 |
| GR | 5669.7 | 1286.6 | 5669.1 | 1329.2 | 5669.1 | 1361 | 5669.1 | 1402.8 | 5670 | 1436.4 |
| GR | 5670.7 | 1471.2 | 5680.7 | 1472 | 5678.4 | 1538 | 5668.4 | 1538.9 | 5668.4 | 1542.9 |
| GR | 5667.4 | 1544.1 | 5667.7 | 1561.4 | 5667.6 | 1576.6 | 5668 | 1578.4 | 5668 | 1581.3 |
| GR | 5669.4 | 1595.2 | 5670.4 | 1609.4 | 5671.7 | 1647.7 | 5671 | 1673.4 | 5671.5 | 1700.6 |
| GR | 5672.4 | 1723.9 | 5667.3 | 1727.5 | 5666.6 | 1750.6 | 5666.6 | 1768 | 5670.7 | 1784.9 |
| GR | 5672.2 | 1797 | 5672.1 | 1809.5 | 5671.9 | 1812.4 | 5672.8 | 1830.7 | 5672.2 | 1851.6 |
| GR | 5672.8 | 1875.3 | 5673 | 1906.4 | 5683 | 1907 | 5683.5 | 1944 | 5684 | 1981 |
| GR | 5684.5 | 2018 | 5685 | 2055 | 5685.6 | 2089 | 5675.6 | 2089.9 | 5678.1 | 2121.4 |
| GR | 5678.2 | 2135.2 | 5678.1 | 2168.8 | 5677.5 | 2192.4 | | | | |
| BT | 2 | 1930 | 2770 | | | | | | | |
| X1 | 6014 | 19 | 1600 | 1790 | 520 | 420 | 470 | | | |
| X3 | 0 | 0 | 0 | 1600 | 0 | 1900 | | | | |
| GR | 5670 | 1000 | 5669.5 | 1050 | 5680 | 1051 | 5685 | 1369 | 5675 | 1370 |

| | | | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| GR | 5677 | 1850 | 5677 | 1700 | 5687 | 1700 | 5687 | 1730 | 5677 | 1730 |
| GR | 5676 | 2000 | 5675.5 | 2035 | 5678.4 | 2100 | 5680 | 2210 | | |
| X1 | 6016 | 41 | 2087.3 | 2318.4 | 650 | 480 | 570 | | | |
| GR5685.1 | 1648.1 | 5684.8 | 1675.5 | 5684.4 | 1694 | 5684.4 | 1716.5 | 5684.4 | 1732.8 | |
| GR5683.8 | 1745.8 | 5683.8 | 1769 | 5693.8 | 1770 | 5691.7 | 1818 | 5681.4 | 1818.4 | |
| GR5681.4 | 1844.4 | 5681.3 | 1872.6 | 5680.4 | 1901 | 5680.4 | 1905.3 | 5679.9 | 1907.1 | |
| GR5680.4 | 1923.8 | 5680 | 1939.9 | 5680.2 | 1941.9 | 5680.2 | 1945.3 | 5681.4 | 1956.5 | |
| GR5683.1 | 1966.8 | 5683.1 | 1974.3 | 5693.1 | 1975 | 5693.1 | 2010 | 5683.1 | 2010.3 | |
| GR5682.4 | 2040.5 | 5681.6 | 2064.7 | 5679.2 | 2087.3 | 5676.2 | 2115 | 5675.4 | 2134.9 | |
| GR5675.3 | 2158 | 5674.8 | 2186.7 | 5673.4 | 2195.3 | 5673.4 | 2204.1 | 5675.1 | 2223.2 | |
| GR5675.9 | 2249.9 | 5676.3 | 2283.8 | 5678 | 2318.4 | 5680.7 | 2353.4 | 5682.7 | 2393.5 | |
| GR5682.6 | 2442.8 | | | | | | | | | |
| X1 | 6018 | 32 | 1415 | 1524 | 335 | 335 | 335 | | | |
| GR | 5690 | 1000 | 5700 | 1000 | 5700.1 | 1040 | 5690.1 | 1040 | 5688.8 | 1100 |
| GR5687.4 | 1145 | 5697.4 | 1145 | 5695.8 | 1190 | 5685.8 | 1190 | 5685 | 1215 | |
| GR5684.5 | 1217 | 5684.5 | 1276 | 5685 | 1278 | 5695.1 | 1305 | 5695.1 | 1360 | |
| GR5685.1 | 1360 | 5685 | 1390 | 5682.5 | 1415 | 5680 | 1435 | 5678.6 | 1440 | |
| GR5678.6 | 1450 | 5680 | 1505 | 5682.5 | 1525 | 5685 | 1560 | 5695 | 1560 | |
| GR5691.5 | 1590 | 5685.1 | 1590 | 5685.8 | 1600 | 5685 | 1640 | 5684.2 | 1645 | |
| GR5684.2 | 1680 | 5685 | 1690 | | | | | | | |
| NC | .016 | .016 | .016 | .1 | .3 | | | | | |
| X1 | 6020 | 7 | 1285 | 1348 | 90 | 90 | 90 | | | |
| GR | 5688 | 1000 | 5686 | 1025 | 5684 | 1285 | 5683.9 | 1319 | 5684 | 1348 |
| GR | 5686 | 1520 | 5687 | 1545 | | | | | | |
| NC | .045 | .045 | .035 | .1 | .3 | | | | | |
| QT | 2 | 1930 | 2710 | | | | | | | |
| X1 | 6024 | 27 | 1060.7 | 1135.1 | 90 | 90 | 90 | | | |
| GR | 5690 | 750 | 5689 | 800 | 5688 | 850 | 5687 | 900 | 5686 | 950 |
| GR5685.8 | 1000 | 5685.8 | 1016.1 | 5685.2 | 1038.8 | 5684.3 | 1060.7 | 5681.7 | 1074.5 | |
| GR5682.2 | 1081.8 | 5682.2 | 1086.1 | 5681.8 | 1088.6 | 5681.8 | 1095.6 | 5682.2 | 1106.6 | |
| GR5683.3 | 1132.3 | 5685.5 | 1135.1 | 5686.1 | 1151.6 | 5687 | 1173.7 | 5697 | 1174 | |
| GR5697.9 | 1221 | 5687.9 | 1221.8 | 5687.4 | 1253 | 5687.4 | 1257.1 | 5686.3 | 1257.7 | |
| GR5687.7 | 1274.9 | 5686.2 | 1291.6 | | | | | | | |
| NC | .045 | .045 | .04 | | | | | | | |
| X1 | 6028 | 14 | 1690 | 1848 | 1000 | 950 | 880 | | | |
| X3 | 10 | | | | | | | | | |
| GR | 5701 | 1000 | 5700 | 1040 | 5698 | 1090 | 5695.7 | 1170 | 5697 | 1240 |
| GR | 5696 | 1670 | 5694 | 1690 | 5692.0 | 1720 | 5690.5 | 1760 | 5692.0 | 1785 |
| GR | 5694 | 1848 | 5696.0 | 1878 | 5698 | 2032 | 5700 | 2088 | | |
| QT | 2 | 1870 | 2630 | | | | | | | |
| X1 | 6030 | 15 | 1605 | 1620 | 600 | 580 | 600 | | | |
| GR | 5709 | 1000 | 5708 | 1020 | 5704 | 1052 | 5704 | 1100 | 5706 | 1142 |
| GR | 5704 | 1214 | 5704 | 1482 | 5702 | 1510 | 5696 | 1540 | 5694 | 1605 |
| GR5693.7 | 1615 | 5694 | 1620 | 5696 | 1700 | 5698 | 1728 | 5706 | 1788 | |
| QT | 2 | 1320 | 1690 | | | | | | | |
| NC | .016 | .016 | .016 | .1 | .3 | | | | | |
| X1 | 6032 | 9 | 1315 | 1640 | 830 | 580 | 540 | | | |
| GR | 5730 | 1000 | 5720 | 1315 | 5718.4 | 1420 | 5719 | 1495 | 5720 | 1640 |
| GR5721.8 | 2010 | 5727.1 | 2068 | 5724 | 2195 | 5730 | 2400 | | | |
| NC | .045 | .045 | .040 | .1 | .3 | | | | | |
| QT | 2 | 750 | 1060 | | | | | | | |
| X1 | 6036 | 19 | 1480 | 1590 | 1450 | 1100 | 1280 | | | |
| GR | 5724 | 1000 | 5720 | 1020 | 5718 | 1030 | 5717.5 | 1040 | 5720 | 1050 |
| GR5720.4 | 1250 | 5720 | 1480 | 5716 | 1495 | 5714.2 | 1510 | 5714.2 | 1540 | |
| GR | 5716 | 1560 | 5720 | 1590 | 5720.2 | 1600 | 5720 | 1610 | 5719 | 1780 |
| GR | 5720 | 1915 | 5722 | 2100 | 5724 | 2165 | 5730 | 2320 | | |
| QT | 2 | 680 | 970 | | | | | | | |
| X1 | 6040 | 40 | 1748.8 | 1928 | 825 | 915 | 885 | | | |
| GR5733.9 | 1310.4 | 5732.2 | 1333.8 | 5733.2 | 1339 | 5731.9 | 1370.2 | 5731.9 | 1412.3 | |
| GR5731.9 | 1456.4 | 5731.9 | 1514.7 | 5731.7 | 1574.8 | 5731.4 | 1621.7 | 5731.2 | 1684.5 | |
| GR | 5731 | 1733.3 | 5731.3 | 1748.8 | 5724.3 | 1773 | 5724.3 | 1786.9 | 5725 | 1793.9 |
| GR5724.5 | 1803.2 | 5724.2 | 1812.4 | 5724.2 | 1829.6 | 5727.8 | 1854.9 | 5728.6 | 1875.5 | |
| GR5726.9 | 1901.8 | 5731.7 | 1928 | 5731.7 | 1945.6 | 5729.9 | 1953.3 | 5731.3 | 1959.9 | |
| GR | 5732 | 1979.3 | 5730 | 2011.5 | 5731.3 | 2066.9 | 5733 | 2111.3 | 5732.8 | 2146 |
| GR | 5733 | 2179.1 | 5734.3 | 2216 | 5735 | 2252.1 | 5732.9 | 2253.3 | 5732.9 | 2276.7 |

| AI | 0040 | 10 | 1272 | 1021 | 400 | 000 | 010 | | | |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| GR | 5740 | 1000 | 5738.0 | 1025 | 5736.1 | 1055 | 5736 | 1160 | 5736 | 1260 |
| GR | 5736.5 | 1270 | 5736 | 1282 | 5734 | 1292 | 5733 | 1302 | 5734 | 1321 |
| GR | 5736 | 1340 | 5736.5 | 1350 | 5736 | 1358 | 5736 | 1508 | 5738 | 1662 |
| GR | 5740 | 1740 | | | | | | | | |
| GT | 2 | 430 | 660 | | | | | | | |
| X1 | 6052 | 18 | 1049 | 1127.1 | 550 | 420 | 480 | | | |
| X3 | 10 | | | | | | | | | |
| GR | 5745 | 860 | 5742.5 | 900 | 5741 | 930 | 5740 | 960 | 5740 | 980 |
| GR | 5742 | 1000 | 5741.2 | 1022.1 | 5741.1 | 1049 | 5739.9 | 1072.5 | 5740.7 | 1104.7 |
| GR | 5739.4 | 1113.8 | 5739.4 | 1119.7 | 5741.2 | 1127.1 | 5740.7 | 1142.1 | 5739.5 | 1182.5 |
| GR | 5739 | 1300 | 5740 | 1450 | 5745 | 2000 | | | | |
| X1 | 6056 | 17 | 1053.7 | 1170 | 470 | 470 | 470 | | | |
| GR | 5750 | 640 | 5745 | 725 | 5746 | 800 | 5747.4 | 900 | 5748 | 950 |
| GR | 5747.8 | 1000 | 5747.9 | 1025.2 | 5747.9 | 1053.7 | 5747 | 1093 | 5745 | 1110 |
| GR | 5745 | 1125.8 | 5747.3 | 1159.7 | 5748 | 1170 | 5746 | 1200 | 5747 | 1300 |
| GR | 5748.7 | 1730 | 5749 | 1900 | | | | | | |

EJ

ER

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|-------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XLNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 3002.000

| | | | | | | | | | |
|---------|------|---------|-----|---------|---------|------|------|---------|---------|
| 3002.00 | 4.94 | 5625.14 | .00 | 5626.70 | 5625.58 | .44 | .00 | .00 | 5629.20 |
| 1100. | 0. | 1100. | 0. | 0. | 208. | 0. | 0. | 0. | 5626.20 |
| .00 | .00 | 5.30 | .00 | .035 | .030 | .035 | .000 | 5620.20 | 1183.39 |
| .001996 | 0. | 0. | 0. | 0 | 0 | 4 | .00 | 54.02 | 1237.41 |

0

*SECNO 3008.000

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 3008.00 | 2.96 | 5625.96 | .00 | .00 | 5626.04 | .08 | .43 | .04 | 5641.90 |
| 1100. | 0. | 1100. | 0. | 0. | 486. | 0. | 4. | 1. | 5641.90 |
| .06 | .00 | 2.26 | .00 | .035 | .030 | .035 | .000 | 5623.00 | 1477.71 |
| .000514 | 470. | 470. | 470. | 2 | 0 | 0 | .00 | 167.42 | 1645.13 |

0

SPECIAL BRIDGE

| SB | XK | XKDR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|------|------|------|------|--------|------|---------|-------|---------|---------|-------|
| 1.25 | 1.50 | 2.50 | .00 | 160.00 | 4.50 | 2524.40 | 1.47 | 5623.00 | 5623.00 | |

*SECNO 3012.000

3S A LOW FLOW

3420 BRIDGE W.S.= 5625.95 BRIDGE VELOCITY=, 2.33 CALCULATED CHANNEL AREA=, 472.

| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | |
|---------|---------|---------|-------|-------|---------|----------------|---------|---------|---------|
| .00 | 5626.04 | .01 | 0. | 1100. | 2524. | 2584. | 5637.60 | 5641.90 | |
| 3012.00 | 2.96 | 5625.96 | .00 | .00 | 5626.04 | .08 | .00 | .00 | 5641.90 |
| 1100. | 0. | 1100. | 0. | 0. | 487. | 0. | 4. | 1. | 5641.90 |
| .06 | .00 | 2.26 | .00 | .000 | .030 | .000 | .000 | 5623.00 | 1477.71 |
| .000511 | 50. | 50. | 50. | 0 | 0 | 0 | .00 | 167.43 | 1645.14 |

0

CCHV= .300 CEHV= .500

*SECNO 3013.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

1

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|-------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XLNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|-----|---------|------|-----|-----|---------|
| 3013.00 | 3.91 | 5626.91 | 5626.91 | .00 | 5628.88 | 1.97 | .02 | .94 | 5632.40 |
|---------|------|---------|---------|-----|---------|------|-----|-----|---------|

| | | | | | | | | | |
|---------|-----|-------|-----|------|------|------|------|---------|---------|
| .06 | .00 | 11.25 | .00 | .030 | .016 | .030 | .000 | 5623.00 | 1100.00 |
| .003427 | 20. | 20. | 20. | 20 | 11 | 0 | .00 | 25.00 | 1125.00 |

0

SPECIAL BRIDGE

| XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|------|------|------|-------|-------|------|-------|-----|---------|---------|
| 1.25 | 1.50 | 2.60 | .00 | 25.00 | 3.00 | 90.00 | .00 | 5623.50 | 5623.00 |

*SECNO 3014.000

WATER EL=X5 CARB= 5632.000

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 3014.00 | 9.00 | 5632.00 | .00 | .00 | 5634.95 | 2.95 | .15 | .49 | 5632.40 |
| 3100. | 0. | 3100. | 0. | 0. | 225. | 0. | 5. | 1. | 5632.40 |
| .07 | .00 | 13.78 | .00 | .030 | .016 | .030 | .000 | 5623.00 | 1100.00 |
| .002422 | 55. | 55. | 55. | 0 | 0 | 0 | .00 | 25.00 | 1125.00 |

0

CCHV= .100 CEHV= .300

*SECNO 3017.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---------|-------|---------|------|------|---------|------|------|---------|---------|
| 3017.00 | 10.73 | 5635.23 | .00 | .00 | 5635.40 | .16 | .17 | .28 | 5636.00 |
| 3100. | 0. | 2489. | 611. | 0. | 721. | 291. | 9. | 2. | 5628.50 |
| .09 | .00 | 3.45 | 2.10 | .035 | .030 | .035 | .000 | 5624.50 | 1227.00 |
| .000284 | 240. | 255. | 400. | 3 | 0 | 0 | .00 | 165.86 | 1392.86 |

0

*SECNO 3023.900

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 3023.90 | 9.83 | 5635.03 | .00 | .00 | 5635.59 | .56 | .07 | .12 | 5625.20 |
| 3100. | 344. | 2756. | 0. | 97. | 442. | 0. | 12. | 3. | 5636.00 |
| .10 | 3.56 | 6.23 | .00 | .035 | .030 | .035 | .000 | 5625.20 | 1380.33 |
| .000976 | 160. | 155. | 160. | 2 | 0 | 0 | .00 | 64.67 | 1445.00 |

V= .300 CEHV= .500

*SECNO 3024.000

3301 HV CHANGED MORE THAN HVINS

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SOUTHMOOR

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 3024.00 | 8.27 | 5634.77 | .00 | .00 | 5635.85 | 1.08 | .00 | .26 | 5639.00 |
| 3100. | 0. | 3100. | 0. | 0. | 372. | 0. | 12. | 3. | 5639.00 |
| .10 | .00 | 8.32 | .00 | .016 | .035 | .016 | .000 | 5626.50 | 1372.50 |
| .003487 | 1. | 1. | 1. | 2 | 0 | 0 | .00 | 45.00 | 1417.50 |

0

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|----|------|------|------|-------|-------|------|--------|-----|---------|---------|
| | 1.25 | 1.56 | 2.60 | .00 | 45.00 | 3.00 | 420.00 | .00 | 5627.30 | 5626.20 |

*SECNO 3024.100

CLASS A LOW FLOW

3420 BRIDGE W.S.= 5635.11 BRIDGE VELOCITY=, 8.83 CALCULATED CHANNEL AREA=, 328.

| PRS | EGLWC | H3 | OWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|-----|---------|-----|-------|-------|-------|-------------------|---------|---------|
| .00 | 5636.11 | .34 | 0. | 3100. | 420. | 420. | 5637.30 | 5639.00 |

| | | | | | | | | | |
|---------|------|---------|-----|-----|---------|-----|-----|-----|---------|
| 3024.10 | 8.62 | 5635.12 | .00 | .00 | 5636.11 | .99 | .26 | .00 | 5639.00 |
| 3100. | 0. | 3100. | 0. | 0. | 388. | 0. | 12. | 3. | 5639.00 |

.003091 42. 42. 42. 0 0 0 .00 45.00 1417.50
 0
 CCHV= .300 CEHV= .500
 *SECNO 3025.000
 3025.00 6.70 5635.00 .00 .00 5636.46 1.45 .12 .23 5641.80
 3100. 0. 3100. 0. 0. 321. 0. 12. 3. 5641.80
 .10 .00 9.67 .00 .016 .016 .016 .000 5628.30 1371.60
 .001402 58. 58. 58. 2 0 0 .00 59.80 1431.41

0
 *SECNO 3025.100
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
 3025.10 4.70 5637.50 5637.50 .00 5639.42 1.92 .00 .23 5641.80
 3100. 0. 3100. 0. 0. 279. 0. 12. 3. 5641.80
 .10 .00 11.11 .00 .016 .016 .016 .000 5632.80 1365.75
 .002497 1. 1. 1. 20 19 0 .00 73.71 1439.47

0
 CCHV= .100 CEHV= .300
 *SECNO 3038.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

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| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---------|-------|---------|---------|--------|---------|-------|-------|---------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VDL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | YNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLDBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 338.00 | 4.73 | 5639.93 | 5639.93 | .00 | 5641.85 | 1.92 | 2.37 | .00 | 5642.00 |
| 3100. | 0. | 3100. | 0. | 0. | 279. | 0. | 16. | 4. | 5642.00 |
| .11 | .00 | 11.12 | .00 | .035 | .030 | .035 | .000 | 5635.20 | 1391.09 |
| .008670 | 550. | 560. | 580. | 3 | 5 | 0 | .00 | 72.82 | 1463.91 |

0
 *SECNO 3044.000
 3301 HV CHANGED MORE THAN HVINS
 3044.00 6.30 5644.00 .00 .00 5645.04 1.04 3.10 .09 5646.00
 3100. 0. 3100. 0. 0. 380. 0. 21. 5. 5646.00
 .13 .00 8.17 .00 .035 .030 .035 .000 5637.70 1484.81
 .003292 500. 615. 700. 3 0 0 .00 75.39 1560.19

0
 *SECNO 3046.000
 3301 HV CHANGED MORE THAN HVINS
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
 3046.00 5.81 5643.81 5643.81 .00 5646.04 2.23 .45 .36 5646.00
 3100. 0. 3100. 0. 0. 259. 0. 21. 5. 5646.00
 .14 .00 11.97 .00 .035 .030 .035 .000 5638.00 1145.46
 .008555 90. 90. 90. 20 11 0 .00 59.07 1204.54

SECNO 3046.100
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
 3046.10 4.79 5646.39 5646.39 .00 5648.39 2.00 .01 .02 5649.60
 3100. 0. 3100. 0. 0. 273. 0. 21. 5. 5649.60
 .14 .00 11.36 .00 .035 .030 .035 .000 5641.60 1143.03

0
 *SECND 3048.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

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| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3048.00 | 6.61 | 5648.31 | 5648.31 | .00 | 5650.30 | 1.99 | 1.05 | .00 | 5660.60 |
| 3100. | 0. | 3100. | 0. | 0. | 274. | 0. | 22. | 5. | 5660.60 |
| .14 | .00 | 11.32 | .00 | .035 | .030 | .035 | .000 | 5641.70 | 1540.00 |
| .009668 | 125. | 115. | 115. | 20 | 11 | 0 | .00 | 70.00 | 1610.00 |

0

SPECIAL BRIDGE

| | | | | | | | | | | |
|----|-----|------|------|-------|-------|------|---------|-----|---------|---------|
| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
| | .90 | 1.50 | 2.50 | .00 | 70.00 | 4.00 | 1060.00 | .00 | 5641.80 | 5641.70 |

*SECND 3052.000

3301 HV CHANGED MORE THAN HVINS

CLASS A LOW FLOW

3420 BRIDGE W.S.= 5648.24 BRIDGE VELOCITY=, 7.24 CALCULATED CHANNEL AREA=, 425.

| | | | | | | | | |
|-------|---------|-----|-------|-------|-------|-------------------|---------|---------|
| EGPRS | EGLNC | H3 | BWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
| .00 | 5650.44 | .68 | 0. | 3100. | 1060. | 1109. | 5658.60 | 5660.60 |

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 3052.00 | 7.29 | 5648.99 | .00 | .00 | 5650.44 | 1.44 | .13 | .00 | 5660.60 |
| 3100. | 0. | 3100. | 0. | 0. | 321. | 0. | 22. | 5. | 5660.60 |
| .14 | .00 | 9.65 | .00 | .000 | .030 | .000 | .000 | 5641.70 | 1540.00 |
| .005801 | 50. | 50. | 50. | 0 | 0 | 0 | .00 | 70.00 | 1610.00 |

0

*SECND 3054.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 3054.00 | 8.01 | 5650.01 | .00 | .00 | 5650.63 | .62 | .12 | .08 | 5651.00 |
| 3100. | 0. | 3100. | 0. | 0. | 490. | 0. | 23. | 5. | 5651.00 |
| .14 | .00 | 6.33 | .00 | .035 | .030 | .035 | .000 | 5642.00 | 1058.41 |
| .001720 | 40. | 40. | 40. | 3 | 0 | 0 | .00 | 88.30 | 1146.70 |

0

*SECND 3054.100

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3054.10 | 4.77 | 5649.77 | 5649.77 | .00 | 5651.70 | 1.94 | .00 | .39 | 5654.00 |
| 3100. | 0. | 3100. | 0. | 0. | 278. | 0. | 23. | 5. | 5654.00 |
| .14 | .00 | 11.17 | .00 | .035 | .030 | .035 | .000 | 5645.00 | 1071.76 |
| .08587 | 1. | 1. | 1. | 20 | 11 | 0 | .00 | 71.48 | 1143.24 |

0

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SECND DEPTH CWSEL CRTWS WSELK EG HV HL QLOSS BANK ELEV

| TIME | VLOB | VCH | VROB | YNL | XNCH | XNR | WTN | ELMIN | SSTA |
|-------|-------|------|-------|--------|------|-------|-------|--------|-------|
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECND 3056.000

1 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3056.00 | 6.16 | 5651.36 | 5651.36 | .00 | 5653.86 | 2.50 | .77 | .17 | 5664.30 |
| 3100. | 0. | 3100. | 0. | 0. | 244. | 0. | 23. | 5. | 5664.30 |
| .14 | .00 | 12.69 | .00 | .035 | .030 | .035 | .000 | 5645.20 | 1240.33 |
| .008548 | 90. | 90. | 90. | 20 | 11 | 0 | .00 | 49.34 | 1289.67 |

0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 5650.43 ,NOT 5651.36 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LDW FLOW CONTROLS)

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|----|-----|------|------|-------|-------|------|--------|------|---------|---------|
| | .90 | 1.50 | 2.50 | .00 | 30.00 | 2.00 | 840.00 | 2.00 | 5645.30 | 5645.20 |

*SECND 3060.000

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 5651.46 BRIDGE VELOCITY=, 12.36 CALCULATED CHANNEL AREA=, 248.

| PRS | EGLWC | H3 | QWEIR | QLQW | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|-----|---------|-----|-------|-------|-------|-------------------|---------|---------|
| .00 | 5654.19 | .00 | 0. | 3100. | 840. | 879. | 5660.40 | 5664.30 |

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 3060.00 | 7.44 | 5652.65 | .00 | .00 | 5654.19 | 1.55 | .34 | .00 | 5664.30 |
| 3100. | 0. | 3100. | 0. | 0. | 310. | 0. | 23. | 5. | 5664.30 |
| .14 | .00 | 9.99 | .00 | .000 | .030 | .000 | .000 | 5645.20 | 1238.31 |
| .004315 | 15. | 15. | 15. | 0 | 0 | 0 | .00 | 53.39 | 1291.69 |

0

*SECND 3064.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

1

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| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VDL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | YNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 3064.00 | 4.70 | 5653.70 | 5653.70 | .00 | 5655.82 | 2.13 | .54 | .17 | 5663.70 |
| 3100. | 0. | 3100. | 0. | 0. | 265. | 0. | 24. | 5. | 5663.70 |
| .15 | .00 | 11.70 | .00 | .035 | .030 | .035 | .000 | 5649.00 | 1413.61 |
| .008731 | 90. | 90. | 90. | 20 | 14 | 0 | .00 | 62.78 | 1476.39 |

0

5227 DOWNSTREAM ELEV IS 5652.97 ,NOT 5653.70 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB XK XKOR CDFQ RDLEN BWC BWP BAREA SS ELCHU ELCHD
1.25 1.50 2.50 .00 50.00 3.00 890.00 1.60 5649.00 5649.00

ECND 3068.000

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 5653.84 BRIDGE VELOCITY=, 11.69 CALCULATED CHANNEL AREA=, 265.

EGPRS EGLWC H3 DWEIR QLOW BAREA TRAPEZOID ELIC ELTRD
AREA
.00 5656.18 .00 0. 3100. 890. 855. 5661.70 5663.70

3068.00 5.91 5654.91 .00 .00 5656.18 1.27 .35 .00 5663.70
3100. 0. 3100. 0. 0. 343. 0. 24. 5. 5663.70
.15 .00 9.04 .00 .000 .030 .000 .000 5649.00 1411.96
.004001 20. 20. 20. 0 0 0 .00 66.08 1478.04

0

CCHV= .100 CEHV= .300

*SECNO 3072.000

3072.00 4.61 5655.91 .00 .00 5657.09 1.18 .90 .01 5657.30
1920. 0. 1920. 0. 0. 221. 0. 25. 6. 5657.30
.15 .00 8.71 .00 .035 .030 .035 .000 5651.30 1652.29
.005201 205. 205. 205. 2 0 0 .00 55.41 1707.71

0

CHV= .100 CEHV= .300

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SECNO DEPTH CWSEL CRIWS WSELK EG HV HL BLOSS BANK ELEV
Q QLOB QCH QROB ALOB ACH AROB VOL TWA LEFT/RIGHT
TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
SLOPE XLOBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID ENDST

*SECNO 6001.000

6001.00 4.88 5657.88 .00 .00 5659.35 1.46 2.17 .09 5660.00
1920. 0. 1920. 0. 0. 198. 0. 27. 6. 5660.00
.16 .00 9.71 .00 .035 .030 .035 .000 5653.00 1514.53
.006662 290. 370. 395. 2 0 0 .00 50.94 1565.47

0

CCHV= .300 CEHV= .500

*SECNO 6002.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

HARVARD

6002.00 5.01 5659.01 5659.01 .00 5661.54 2.53 .34 .53 5663.80
1920. 0. 1920. 0. 0. 150. 0. 27. 6. 5663.80
.17 .00 12.77 .00 .016 .016 .016 .000 5654.00 1065.00
.003237 75. 75. 75. 20 8 0 .00 30.00 1095.00

0

SPECIAL BRIDGE

| | | | | | | | | | | |
|----|------|------|------|-------|-------|------|--------|-----|---------|---------|
| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
| | 1.25 | 1.50 | 2.50 | .00 | 32.00 | 2.00 | 240.00 | .00 | 5654.00 | 5653.50 |

*SECNO 6006.000

1 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 5658.78 BRIDGE VELOCITY=, 12.72 CALCULATED CHANNEL AREA=, 143.

| | | | | | | | | |
|-------|---------|-----|-------|-------|-------|-------------------|---------|---------|
| EGPRS | EGLMC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
| .00 | 5661.96 | .00 | 0. | 1920. | 240. | 240. | 5662.00 | 5663.30 |

| | | | | | | | | | |
|---------|------|---------|-----|------|---------|------|------|---------|---------|
| 6006.00 | 6.41 | 5660.41 | .00 | .00 | 5661.96 | 1.55 | .41 | .00 | 5663.80 |
| 1920. | 0. | 1920. | 0. | 0. | 192. | 0. | 28. | 6. | 5663.80 |
| .17 | .00 | 9.99 | .00 | .000 | .016 | .000 | .000 | 5654.00 | 1065.00 |
| .001563 | 50. | 50. | 50. | 0 | 0 | 0 | .00 | 30.00 | 1095.00 |

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| | | | | | | | | | |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | LOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

V= .100 CEHV= .300

*SECNO 6008.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6008.00 | 6.49 | 5661.19 | 5661.19 | .00 | 5663.33 | 2.14 | .20 | .18 | 5658.70 |
| 1920. | 37. | 1846. | 37. | 9. | 155. | 9. | 28. | 6. | 5658.70 |
| .17 | 3.96 | 11.93 | 3.96 | .035 | .030 | .035 | .000 | 5654.70 | 1162.53 |
| .006962 | 70. | 70. | 70. | 20 | 5 | 0 | .00 | 44.94 | 1207.47 |

0

*SECNO 6012.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------|------|---------|---------|
| 3470 ENCROACHMENT STATIONS= | 1700.0 | 1810.0 | TYPE= | 1 | TARGET= | 110.000 | | | |
| 6012.00 | 6.53 | 5668.63 | 5668.63 | .00 | 5670.56 | 1.93 | 5.00 | .02 | 5666.10 |
| 1920. | 64. | 1791. | 64. | 16. | 156. | 16. | 31. | 7. | 5666.10 |
| .19 | 3.92 | 11.48 | 3.92 | .035 | .030 | .035 | .000 | 5662.10 | 1732.01 |
| .006380 | 750. | 750. | 750. | 3 | 5 | 0 | .00 | 55.97 | 1787.99 |

0

*SECNO 6014.000

1 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|-----------------------------|--------|---------|---------|-----|---------|---------|------|-----|---------|
| 3470 ENCROACHMENT STATIONS= | 1369.0 | 1900.0 | TYPE= | 1 | TARGET= | 531.000 | | | |
| 6014.00 | 5.45 | 5674.75 | 5674.75 | .00 | 5675.60 | .85 | 2.84 | .11 | 5671.50 |

| | | | | | | | | | |
|-----------------|------|---------|------|------|---------|------|------|---------|---------|
| .21 | 4.49 | 9.97 | 4.52 | .035 | .030 | .035 | .000 | 5669.30 | 1633.06 |
| .005954 | 520. | 470. | 420. | 20 | 14 | 0 | .00 | 157.52 | 1790.59 |
| 0 | | | | | | | | | |
| *SECND 6016.000 | | | | | | | | | |
| 6016.00 | 5.29 | 5677.49 | .00 | .00 | 5677.86 | .37 | 2.21 | .05 | 5674.20 |
| 1860. | 702. | 548. | 611. | 179. | 79. | 171. | 38. | 11. | 5674.20 |
| .24 | 3.93 | 6.90 | 3.56 | .035 | .030 | .035 | .000 | 5672.20 | 2103.06 |
| 002881 | 650. | 570. | 480. | 2 | 0 | 0 | .00 | 205.02 | 2308.09 |

0
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| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECND 6018.000

3301 HV CHANGED MORE THAN HVINS
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6018.00 | 5.33 | 5679.83 | 5679.83 | .00 | 5681.36 | 1.52 | 1.38 | .35 | 5676.50 |
| 1860. | 97. | 1456. | 307. | 21. | 133. | 65. | 41. | 12. | 5676.50 |
| .25 | 4.65 | 10.92 | 4.75 | .035 | .030 | .035 | .000 | 5674.50 | 1417.50 |
| .006357 | 335. | 335. | 335. | 20 | 5 | 0 | .00 | 76.38 | 1493.88 |

0

HV= .300 CEHV= .500
END 6020.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
QUEBEC

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6020.00 | 5.04 | 5680.04 | 5680.04 | .00 | 5682.55 | 2.52 | .40 | .50 | 5683.90 |
| 1860. | 0. | 1860. | 0. | 0. | 146. | 0. | 41. | 12. | 5683.90 |
| .25 | .00 | 12.73 | .00 | .016 | .016 | .016 | .000 | 5675.00 | 1305.00 |
| .003239 | 90. | 90. | 90. | 3 | 8 | 0 | .00 | 29.00 | 1334.00 |

0

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 5679.35 ,NOT 5680.04 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFD | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|----|------|------|------|-------|-------|------|--------|-----|---------|---------|
| | 1.25 | 1.50 | 2.50 | .00 | 29.00 | 1.00 | 168.00 | .00 | 5675.50 | 5675.00 |

*SECND 6021.000

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

0 BRIDGE W.S.= 5680.40 BRIDGE VELOCITY=, 12.89 CALCULATED CHANNEL AREA=, 137.

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| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|-------|-----|------|-----|-------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |

SLOPE XLDBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID ENDST

EGPRS EGLWC H3 QWEIR QLOW BAREA TRAPEZOID AREA ELLC ELTRD
5682.89 5683.37 .00 0. 1860. 168. 168. 5681.50 5683.90

6021.00 6.21 5681.71 .00 .00 5683.37 1.65 .81 .00 5683.90
1860. 0. 1860. 0. 0. 180. 0. 41. 12. 5683.90
.25 .00 10.32 .00 .000 .016 .000 .000 5675.50 1305.00
.001740 40. 40. 40. 0 0 0 .00 29.00 1334.00

0

CCHV= .100 CEHV= .300

*SECND 6024.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

6024.00 6.24 5682.44 5682.44 .00 5684.20 1.76 .21 .03 5678.20
1830. 203. 1452. 175. 39. 125. 32. 42. 12. 5678.20
.25 5.21 11.64 5.53 .035 .030 .035 .000 5676.20 1111.70
.006126 70. 70. 70. 20 5 0 .00 60.49 1172.20

0

*SECND 6024.100

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

6024.10 5.02 5683.22 5683.22 .00 5684.80 1.58 .01 .02 5680.00
1830. 178. 1534. 118. 39. 142. 26. 42. 12. 5680.00
.25 4.57 10.83 4.54 .035 .030 .035 .000 5678.20 1105.83
.006199 1. 1. 1. 20 13 0 .00 70.29 1176.12

*SECND 6025.000

3280 CROSS SECTION 6025.00 EXTENDED .06 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

6025.00 5.86 5685.06 5685.06 .00 5685.98 .91 .44 .07 5682.20
1830. 306. 1445. 79. 120. 170. 25. 42. 12. 5682.20
.26 2.54 8.52 3.20 .035 .030 .035 .000 5679.20 1000.00
.003393 99. 99. 99. 20 8 0 .00 208.29 1208.29

0

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SECND DEPTH CWSEL CRINS WSELK EG HV HL QLOSS BANK ELEV
Q BLOB QCH QROB ALOB ACH AROB VOL TWA LEFT/RIGHT
TIME VLOB VCH VROB XNL XNCH XNR WTN ELMIN SSTA
SLOPE XLDBL XLCH XLOBR ITRIAL IDC ICONT CORAR TOPWID ENDST

*CNO 6025.100

3280 CROSS SECTION 6025.10 EXTENDED .47 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

6025.10 3.27 5685.47 5685.47 .00 5686.19 .72 .00 .02 5684.00
1830. 404. 1389. 36. 126. 183. 14. 42. 12. 5684.00

.005949 1. 1. 1. 20 11 0 .00 213.39 1213.39

0

*SECND 6028.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

95 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 5694.00 ELREA= 5694.00

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6028.00 | 5.19 | 5693.19 | 5693.19 | .00 | 5694.18 | .99 | 5.45 | .08 | 5694.00 |
| 1830. | 0. | 1830. | 0. | 0. | 229. | 0. | 47. | 15. | 5694.00 |
| .28 | .00 | 8.00 | .00 | .035 | .030 | .035 | .000 | 5688.00 | 1702.17 |
| .011633 | 850. | 650. | 800. | 10 | 14 | 0 | .00 | 120.26 | 1822.44 |

0

*SECND 6030.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 6030.00 | 4.40 | 5697.20 | .00 | .00 | 5697.57 | .37 | 3.33 | .06 | 5694.00 |
| 1780. | 591. | 452. | 737. | 147. | 66. | 186. | 51. | 17. | 5694.00 |
| .32 | 4.02 | 6.85 | 3.95 | .035 | .030 | .035 | .000 | 5692.80 | 1533.98 |
| .003225 | 600. | 600. | 580. | 4 | 0 | 0 | .00 | 182.87 | 1716.85 |

0

CCHV= .200 CEHV= .400

*SECND 6031.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CHSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6031.00 | 3.58 | 5699.18 | 5699.18 | .00 | 5700.68 | 1.50 | 1.28 | .45 | 5698.60 |
| 1130. | 1. | 1127. | 1. | 1. | 114. | 2. | 54. | 18. | 5698.60 |
| .33 | .95 | 9.85 | .95 | .035 | .016 | .035 | .000 | 5695.60 | 1046.09 |
| .002626 | 430. | 410. | 500. | 20 | 15 | 0 | .00 | 46.28 | 1092.36 |

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| SECND | DEPTH | CHSEL | CRINS | WSELK | EG | HV | HL | LOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XNCH | XNR | MTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

CCHV= .200 CEHV= .400

*SECND 6031.100

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CHSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6031.10 | 6.49 | 5706.49 | 5706.49 | .00 | 5709.76 | 3.27 | .24 | .71 | 5712.00 |
| 1130. | 0. | 1130. | 0. | 0. | 78. | 0. | 54. | 18. | 5712.00 |
| .33 | .00 | 14.52 | .00 | .016 | .016 | .016 | .000 | 5700.00 | 1000.00 |
| .005368 | 65. | 65. | 65. | 20 | 14 | 0 | .00 | 12.00 | 1012.00 |

V= .100 CEHV= .300

*SECND 6033.000

WATER EL=X5 CARD= 5720.800

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 6033.00 | 6.80 | 5720.80 | .00 | .00 | 5720.80 | .00 | .00 | .33 | 5722.00 |
| 1130. | 0. | 1130. | 0. | 0. | 5622. | 0. | 71. | 21. | 5722.00 |
| .69 | .00 | .20 | .00 | .016 | .016 | .016 | .000 | 5714.00 | 1000.00 |
| .000000 | 260. | 260. | 260. | 0 | 0 | 0 | .00 | 873.50 | 1873.50 |

CCHV= .100 CEHV= .300

*SECND 6036.000

| | | | | | | | | | |
|---------|-------|---------|-------|------|---------|------|------|---------|---------|
| 6036.00 | 6.58 | 5720.78 | .00 | .00 | 5720.81 | .03 | .00 | .01 | 5720.00 |
| 1060. | 92. | 817. | 151. | 320. | 521. | 432. | 152. | 43. | 5720.00 |
| .91 | .29 | 1.57 | .35 | .045 | .025 | .045 | .000 | 5714.20 | 1016.10 |
| .000088 | 1030. | 1030. | 1030. | 3 | 0 | 0 | .00 | 971.12 | 1987.22 |

SECND 6040.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6040.00 | 2.11 | 5726.31 | 5726.31 | .00 | 5727.16 | .85 | .24 | .25 | 5731.30 |
| 970. | 0. | 970. | 0. | 0. | 131. | 0. | 167. | 53. | 5731.70 |
| .95 | .00 | 7.40 | .00 | .045 | .025 | .045 | .000 | 5724.20 | 1766.05 |
| .007863 | 825. | 885. | 915. | 20 | 17 | 0 | .00 | 78.39 | 1844.44 |

0

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| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CDRAR | TOPWID | ENDST |

*SECND 6048.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6048.00 | 3.64 | 5736.64 | 5736.64 | .00 | 5737.01 | .37 | 2.05 | .05 | 5734.00 |
| 970. | 193. | 573. | 204. | 153. | 91. | 149. | 170. | 57. | 5734.00 |
| .98 | 1.27 | 6.29 | 1.37 | .045 | .025 | .045 | .000 | 5733.00 | 1046.52 |
| .002450 | 450. | 510. | 550. | 20 | 14 | 0 | .00 | 510.55 | 1557.06 |

0

*SECND 6052.000

3285 DIVIDED FLOW

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|---------|------|---------|---------|------|---------|------|------|---------|---------|
| 6052.00 | .94 | 5739.94 | 5739.94 | .00 | 5740.22 | .28 | 2.22 | .01 | 5741.10 |
| 660. | 0. | 26. | 634. | 0. | 5. | 152. | 173. | 61. | 5741.20 |
| 1.01 | .00 | 5.19 | 4.18 | .045 | .025 | .045 | .000 | 5739.00 | 1071.62 |
| .032927 | 550. | 480. | 420. | 20 | 14 | 0 | .00 | 288.84 | 1441.72 |

0

*SECND 6056.000

3285 DIVIDED FLOW

| | | | | | | | | | |
|---------|------|---------|------|------|---------|------|------|---------|---------|
| 6056.00 | 1.45 | 5746.45 | .00 | .00 | 5746.62 | .18 | 6.39 | .01 | 5747.90 |
| 430. | 214. | 205. | 11. | 96. | 47. | 12. | 174. | 64. | 5748.00 |
| 1.05 | 2.22 | 4.34 | .92 | .045 | .025 | .045 | .000 | 5745.00 | 700.35 |
| 005674 | 470. | 470. | 470. | 7 | 0 | 0 | .00 | 233.09 | 1245.02 |

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 HEC2 RELEASE DATED NOV.76 UPDATED MAY 1984
 ERROR CORR - 01,02,03,04,05,06
 MODIFICATION - 50,51,52,53,54,55,56
 IBM-PC-XT VERSION 1.1

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CREWS GULCH FEB 19

SUMMARY PRINTOUT TABLE 150

| SECD | XLCH | ELTRD | ELLC | ELMIN | D | CWSEL | CRWS | EG | 10K*G | VCH | AREA | .01K |
|------------|--------|-----------|-----------|---------|---------|---------|---------|---------|-------|-------|---------|---------|
| 3002.000 | .00 | .00 | .00 | 5620.20 | 1100.00 | 5625.14 | .00 | 5625.58 | 19.96 | 5.30 | 207.62 | 246.23 |
| 3008.000 | 470.00 | .00 | .00 | 5623.00 | 1100.00 | 5625.96 | .00 | 5626.04 | 5.14 | 2.26 | 485.89 | 485.26 |
| 3012.000 | 50.00 | 5641.90 | 5637.60 | 5623.00 | 1100.00 | 5625.96 | .00 | 5626.04 | 5.11 | 2.26 | 486.79 | 486.73 |
| * 3013.000 | 20.00 | .00 | .00 | 5623.00 | 1100.00 | 5626.91 | 5626.91 | 5628.88 | 34.27 | 11.25 | 97.74 | 187.92 |
| * 3014.000 | 55.00 | 100000.00 | 100000.00 | 5623.00 | 3100.00 | 5632.00 | .00 | 5634.95 | 24.22 | 13.78 | 225.00 | 629.87 |
| 3017.000 | 255.00 | .00 | .00 | 5624.50 | 3100.00 | 5635.23 | .00 | 5635.40 | 2.84 | 3.45 | 1011.68 | 1838.20 |
| 3023.900 | 155.00 | .00 | .00 | 5625.20 | 3100.00 | 5635.03 | .00 | 5635.59 | 9.76 | 6.23 | 539.17 | 992.05 |
| 3024.000 | 1.00 | .00 | .00 | 5626.50 | 3100.00 | 5634.77 | .00 | 5635.85 | 34.87 | 8.32 | 372.39 | 525.00 |
| 3024.100 | 42.00 | 5639.00 | 5637.30 | 5626.50 | 3100.00 | 5635.12 | .00 | 5636.11 | 30.91 | 7.99 | 387.82 | 557.61 |
| 3025.000 | 58.00 | .00 | .00 | 5628.30 | 3100.00 | 5635.00 | .00 | 5636.46 | 14.02 | 9.67 | 320.53 | 827.89 |
| * 3025.100 | 1.00 | .00 | .00 | 5632.80 | 3100.00 | 5637.50 | 5637.50 | 5639.42 | 24.97 | 11.11 | 278.90 | 620.35 |
| * 3038.000 | 560.00 | .00 | .00 | 5635.20 | 3100.00 | 5639.93 | 5639.93 | 5641.85 | 86.70 | 11.12 | 278.65 | 332.93 |
| 3044.000 | 615.00 | .00 | .00 | 5637.70 | 3100.00 | 5644.00 | .00 | 5645.04 | 32.92 | 8.17 | 379.53 | 540.31 |
| * 3046.000 | 90.00 | .00 | .00 | 5638.00 | 3100.00 | 5643.81 | 5643.81 | 5646.04 | 85.55 | 11.97 | 258.95 | 335.16 |
| * 3046.100 | 1.00 | .00 | .00 | 5641.60 | 3100.00 | 5646.39 | 5646.39 | 5648.39 | 87.02 | 11.36 | 272.88 | 332.31 |
| * 3048.000 | 115.00 | .00 | .00 | 5641.70 | 3100.00 | 5648.31 | 5648.31 | 5650.30 | 96.68 | 11.32 | 273.80 | 315.28 |
| 3052.000 | 50.00 | 5660.60 | 5658.60 | 5641.70 | 3100.00 | 5648.99 | .00 | 5650.44 | 58.01 | 9.65 | 321.38 | 407.02 |

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| SECD | XLCH | ELTRD | ELLC | ELMIN | D | CWSEL | CRWS | EG | 10K*G | VCH | AREA | .01K |
|------------|-------|-------|------|---------|---------|---------|---------|---------|-------|-------|--------|--------|
| 3054.000 | 40.00 | .00 | .00 | 5642.00 | 3100.00 | 5650.01 | .00 | 5650.63 | 17.20 | 6.33 | 489.88 | 747.50 |
| * 3054.100 | 1.00 | .00 | .00 | 5645.00 | 3100.00 | 5649.77 | 5649.77 | 5651.70 | 85.87 | 11.17 | 277.57 | 334.53 |
| * 3056.000 | 90.00 | .00 | .00 | 5645.20 | 3100.00 | 5651.36 | 5651.36 | 5653.86 | 85.48 | 12.69 | 244.22 | 335.30 |

| | | | | | | | | | | | | | |
|---|----------|--------|---------|---------|---------|---------|---------|---------|---------|--------|-------|---------|----------|
| * | 3060.000 | 15.00 | 5664.30 | 5660.40 | 5645.20 | 3100.00 | 5652.65 | .00 | 5654.19 | 43.15 | 9.99 | 310.40 | 471.94 |
| * | 3064.000 | 90.00 | .00 | .00 | 5649.00 | 3100.00 | 5653.70 | 5653.70 | 5655.82 | 87.31 | 11.70 | 264.85 | 331.77 |
| * | 3068.000 | 20.00 | 5663.70 | 5661.70 | 5649.00 | 3100.00 | 5654.91 | .00 | 5656.18 | 40.01 | 9.04 | 342.87 | 490.09 |
| | 3072.000 | 205.00 | .00 | .00 | 5651.30 | 1920.00 | 5655.91 | .00 | 5657.09 | 52.01 | 8.71 | 220.54 | 266.23 |
| | 6001.000 | 370.00 | .00 | .00 | 5653.00 | 1920.00 | 5657.88 | .00 | 5659.35 | 66.62 | 9.71 | 197.70 | 235.23 |
| * | 6002.000 | 75.00 | .00 | .00 | 5654.00 | 1920.00 | 5659.01 | 5659.01 | 5661.54 | 32.37 | 12.77 | 150.35 | 337.46 |
| * | 6006.000 | 50.00 | 5663.30 | 5662.00 | 5654.00 | 1920.00 | 5660.41 | .00 | 5661.96 | 15.63 | 9.99 | 192.16 | 485.64 |
| * | 6008.000 | 70.00 | .00 | .00 | 5654.70 | 1920.00 | 5661.19 | 5661.19 | 5663.33 | 69.62 | 11.93 | 173.33 | 230.10 |
| * | 6012.000 | 750.00 | .00 | .00 | 5662.10 | 1920.00 | 5668.63 | 5668.63 | 5670.56 | 63.80 | 11.48 | 188.85 | 240.39 |
| * | 6014.000 | 470.00 | .00 | .00 | 5669.30 | 1860.00 | 5674.75 | 5674.75 | 5675.60 | 59.54 | 9.97 | 313.06 | 241.04 |
| | 6016.000 | 570.00 | .00 | .00 | 5672.20 | 1860.00 | 5677.49 | .00 | 5677.86 | 28.81 | 6.90 | 429.52 | 346.55 |
| * | 6018.000 | 335.00 | .00 | .00 | 5674.50 | 1860.00 | 5679.83 | 5679.83 | 5681.36 | 63.57 | 10.92 | 218.92 | 233.28 |
| * | 6020.000 | 90.00 | .00 | .00 | 5675.00 | 1860.00 | 5680.04 | 5680.04 | 5682.55 | 32.39 | 12.73 | 146.08 | 326.81 |
| * | 6021.000 | 40.00 | 5683.90 | 5681.50 | 5675.50 | 1860.00 | 5681.71 | .00 | 5683.37 | 17.40 | 10.32 | 180.17 | 445.89 |
| * | 6024.000 | 70.00 | .00 | .00 | 5676.20 | 1830.00 | 5682.44 | 5682.44 | 5684.20 | 61.26 | 11.64 | 195.37 | 233.80 |
| * | 6024.100 | 1.00 | .00 | .00 | 5678.20 | 1830.00 | 5683.22 | 5683.22 | 5684.80 | 61.99 | 10.83 | 206.62 | 232.43 |
| | 6025.000 | 99.00 | .00 | .00 | 5679.20 | 1830.00 | 5685.06 | 5685.06 | 5685.98 | 33.93 | 8.52 | 314.64 | 314.19 |
| * | 6025.100 | 1.00 | .00 | .00 | 5682.20 | 1830.00 | 5685.47 | 5685.47 | 5686.19 | 59.49 | 7.60 | 322.70 | 237.26 |
| * | 6028.000 | 650.00 | .00 | .00 | 5688.00 | 1830.00 | 5693.19 | 5693.19 | 5694.18 | 116.33 | 8.00 | 228.84 | 169.67 |
| | 6030.000 | 600.00 | .00 | .00 | 5692.80 | 1780.00 | 5697.20 | .00 | 5697.57 | 32.25 | 6.85 | 399.34 | 313.45 |
| * | 6031.000 | 410.00 | .00 | .00 | 5695.60 | 1130.00 | 5699.18 | 5699.18 | 5700.68 | 26.26 | 9.85 | 117.11 | 220.51 |
| * | 6031.100 | 65.00 | .00 | .00 | 5700.00 | 1130.00 | 5706.49 | 5706.49 | 5709.76 | 53.68 | 14.52 | 77.82 | 154.22 |
| * | 6033.000 | 260.00 | .00 | .00 | 5714.00 | 1130.00 | 5720.80 | .00 | 5720.80 | .00 | .20 | 5621.73 | 17969.73 |

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PAGE 18

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRWS | EG | 10K*5 | VCH | AREA | .01K |
|---|----------|---------|-------|------|---------|---------|---------|---------|---------|--------|------|---------|---------|
| | 6036.000 | 1030.00 | .00 | .00 | 5714.20 | 1060.00 | 5720.78 | .00 | 5720.81 | .88 | 1.57 | 1273.51 | 1127.61 |
| * | 6040.000 | 885.00 | .00 | .00 | 5724.20 | 970.00 | 5726.31 | 5726.31 | 5727.16 | 78.63 | 7.40 | 131.14 | 109.39 |
| | 6048.000 | 510.00 | .00 | .00 | 5733.00 | 970.00 | 5736.64 | 5736.64 | 5737.01 | 24.50 | 6.29 | 392.81 | 195.99 |
| * | 6052.000 | 480.00 | .00 | .00 | 5739.00 | 660.00 | 5739.94 | 5739.94 | 5740.22 | 329.27 | 5.19 | 156.85 | 36.37 |
| | 6056.000 | 470.00 | .00 | .00 | 5745.00 | 430.00 | 5746.45 | .00 | 5746.62 | 56.74 | 4.34 | 155.38 | 57.09 |

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SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|------------|---------|---------|--------|--------|--------|--------|--------|
| 3002.000 | 1100.00 | 5625.14 | .00 | .00 | -1.56 | 54.02 | .00 |
| 3008.000 | 1100.00 | 5625.96 | .00 | .82 | .00 | 167.42 | 470.00 |
| 3012.000 | 1100.00 | 5625.96 | .00 | .00 | .00 | 167.43 | 50.00 |
| * 3013.000 | 1100.00 | 5626.91 | .00 | .95 | .00 | 25.00 | 20.00 |
| * 3014.000 | 3100.00 | 5632.00 | .00 | 5.09 | .00 | 25.00 | 55.00 |
| 3017.000 | 3100.00 | 5635.23 | .00 | 3.23 | .00 | 165.86 | 255.00 |
| 3023.900 | 3100.00 | 5635.03 | .00 | -.20 | .00 | 64.67 | 155.00 |
| 3024.000 | 3100.00 | 5634.77 | .00 | -.26 | .00 | 45.00 | 1.00 |
| 3024.100 | 3100.00 | 5635.12 | .00 | .34 | .00 | 45.00 | 42.00 |
| 3025.000 | 3100.00 | 5635.00 | .00 | -.11 | .00 | 59.80 | 58.00 |
| * 3025.100 | 3100.00 | 5637.50 | .00 | 2.49 | .00 | 73.71 | 1.00 |
| * 3038.000 | 3100.00 | 5639.93 | .00 | 2.43 | .00 | 72.82 | 560.00 |
| 3044.000 | 3100.00 | 5644.00 | .00 | 4.07 | .00 | 75.39 | 615.00 |
| * 3046.000 | 3100.00 | 5643.81 | .00 | -.19 | .00 | 59.07 | 90.00 |
| * 3046.100 | 3100.00 | 5646.39 | .00 | 2.58 | .00 | 68.95 | 1.00 |
| * 3048.000 | 3100.00 | 5648.31 | .00 | 1.92 | .00 | 70.00 | 115.00 |
| 3052.000 | 3100.00 | 5648.99 | .00 | .68 | .00 | 70.00 | 50.00 |
| 3054.000 | 3100.00 | 5650.01 | .00 | 1.02 | .00 | 88.30 | 40.00 |
| * 3054.100 | 3100.00 | 5649.77 | .00 | -.25 | .00 | 71.48 | 1.00 |
| * 3056.000 | 3100.00 | 5651.36 | .00 | 1.59 | .00 | 49.34 | 90.00 |
| * 3060.000 | 3100.00 | 5652.65 | .00 | 1.29 | .00 | 53.39 | 15.00 |
| * 3064.000 | 3100.00 | 5653.70 | .00 | 1.05 | .00 | 62.78 | 90.00 |
| * 3068.000 | 3100.00 | 5654.91 | .00 | 1.21 | .00 | 66.08 | 20.00 |
| 3072.000 | 1920.00 | 5655.91 | .00 | 1.01 | .00 | 55.41 | 205.00 |

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PAGE 20

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|------------|---------|---------|--------|--------|--------|--------|--------|
| 6001.000 | 1920.00 | 5657.88 | .00 | 1.97 | .00 | 50.94 | 370.00 |
| * 6002.000 | 1920.00 | 5659.01 | .00 | 1.13 | .00 | 30.00 | 75.00 |

| | | | | | | | | |
|---|----------|---------|---------|-----|-------|-----|--------|---------|
| * | 6006.000 | 1920.00 | 5660.41 | .00 | 1.39 | .00 | 30.00 | 50.00 |
| * | 6008.000 | 1920.00 | 5661.19 | .00 | .79 | .00 | 44.94 | 70.00 |
| * | 6012.000 | 1920.00 | 5668.63 | .00 | 7.44 | .00 | 55.97 | 750.00 |
| | 6014.000 | 1860.00 | 5674.75 | .00 | 6.11 | .00 | 157.52 | 470.00 |
| | 6016.000 | 1860.00 | 5677.49 | .00 | 2.74 | .00 | 205.02 | 570.00 |
| * | 6018.000 | 1860.00 | 5679.83 | .00 | 2.34 | .00 | 76.38 | 335.00 |
| * | 6020.000 | 1860.00 | 5680.04 | .00 | .20 | .00 | 29.00 | 90.00 |
| * | 6021.000 | 1860.00 | 5681.71 | .00 | 1.68 | .00 | 29.00 | 40.00 |
| * | 6024.000 | 1830.00 | 5682.44 | .00 | .73 | .00 | 60.49 | 70.00 |
| * | 6024.100 | 1830.00 | 5683.22 | .00 | .78 | .00 | 70.29 | 1.00 |
| * | 6025.000 | 1830.00 | 5685.06 | .00 | 1.84 | .00 | 208.29 | 99.00 |
| * | 6025.100 | 1830.00 | 5685.47 | .00 | .41 | .00 | 213.39 | 1.00 |
| * | 6028.000 | 1830.00 | 5693.19 | .00 | 7.72 | .00 | 120.26 | 650.00 |
| | 6030.000 | 1780.00 | 5697.20 | .00 | 4.01 | .00 | 182.87 | 600.00 |
| * | 6031.000 | 1130.00 | 5699.18 | .00 | 1.98 | .00 | 46.28 | 410.00 |
| * | 6031.100 | 1130.00 | 5706.49 | .00 | 7.31 | .00 | 12.00 | 65.00 |
| | 6033.000 | 1130.00 | 5720.80 | .00 | 14.31 | .00 | 873.50 | 260.00 |
| | 6036.000 | 1060.00 | 5720.78 | .00 | -.02 | .00 | 971.12 | 1030.00 |
| * | 6040.000 | 970.00 | 5726.31 | .00 | 5.53 | .00 | 78.39 | 885.00 |
| * | 6048.000 | 970.00 | 5736.64 | .00 | 10.33 | .00 | 510.55 | 510.00 |
| * | 6052.000 | 660.00 | 5739.94 | .00 | 3.31 | .00 | 288.84 | 480.00 |
| | 6056.000 | 430.00 | 5746.45 | .00 | 6.50 | .00 | 233.09 | 470.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 3013.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
 CAUTION SECNO= 3013.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO= 3013.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

E SECNO= 3014.000 PROFILE= 1 WSEL BASED ON X5 CARD

CAUTION SECNO= 3025.100 PROFILE= 1 CRITICAL DEPTH ASSUMED
 CAUTION SECNO= 3025.100 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO= 3025.100 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 3038.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
 CAUTION SECNO= 3038.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

C
 C 4
 C 3024 SOUTHMOOR
 C 3048 US 85-87
 C 6002 HARVARD
 C 6020 QUEBEC
 T1 HEC2 WATER SURFACE PROFILES SUBCRITICAL FLOW
 T2 100 YEAR FLOOD IMPROVED CONDITION
 T3 CREWS GULCH FEB 1989 FILE NAME CREWINP.DAT
 J1 -10 2 0 0 .0020 0 0 0 5626.7
 J2 -1 0 -1
 QT 1 1100
 NC .035 .035 .03 .1 .3
 X1 3002 8 1175.5 1240.5
 GR 5640 1000 5630 1060 5629.2 1175.5 5620.2 1193 5620.2 1223
 GR5626.2 1240.5
 X1 3008 8 1460 1662 470 470 470
 GR5642.0 750 5641.9 1460 5623.0 1481 5623 1642 5641.9 1662
 GR5642.0 1910
 SB 1.25 1.5 2.5 0 160 4.5 2524.4 1.47 5623.0 5623
 X1 3012 0 0 0 50 50 50
 X2 0 0 1 5637.6 5641.9
 BT 6 750 5642 5642 1460 5641.9 5641.9 1460 5641.9 5637.6
 BT 1662 5641.9 5637.6 1662 5641.9 5641.9 1910 5642 5642
 NC .03 .03 .016 .3 .5
 X1 3013 8 1100 1125 20 20 20
 GR 5638 1000 5632.4 1032 5632.4 1100 5623 1100 5623 1125
 GR5632.4 1125 5632.4 1200 5640 1220
 QT 1 3100
 SB 1.25 1.5 2.6 0 25 3 90 0 5623.5 5623
 X1 3014 0 0 0 55 55 55
 X2 0 0 1 5627.5 5632.4
 X5 1 5632
 BT 6 1032 5632.4 5632.4 1100 5632.4 5632.4 1100 5632.4 5627.5
 BT 1125 5632.4 5627.5 1125 5632.4 5632.4 1200 5632.4 5632.4
 NC .035 .035 .030 .1 .3
 X1 3017 8 1225 1310 240 400 255
 GR 5636 1000 5636 1225 5624.5 1255 5624.5 1300.0 5628.5 1310
 GR 5629 1340 5633.0 1352 5640 1480
 X13023.9 4 1400 1445 160 160 155
 GR5635.2 1380 5625.2 1400 5625.2 1445 5636.0 1445
 NC .016 .016 .035 .3 .5
 X1 3024 7 1372.5 1417.5 1 1 1
 GR 5641 1000 5640 1160 5639 1372.5 5626.5 1372.5 5626.5 1417.5
 GR 5639 1417.5 5640 1600 5644 2095
 SB 1.25 1.56 2.6 0 45 3 420 0 5627.3 5626.2
 X13024.1 0 0 0 42 42 42
 X2 0 0 1 5637.3 5639
 BT 7 1000 5640 5640 1160 5639 5639 1372.5 5639 5639
 BT1372.5 5639 5627.2 1417.5 5639 5627.3 1417.5 5639 5639 1600
 BT 5640 5640
 NC .016 .016 .016 .3 .5
 X1 3025 6 1355 1455 58 58 58
 GR5641.8 1355 5632.8 1377 5628.3 1377 5628.3 1422 5632.3 1422
 GR5641.8 1455

| | | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| X13025.1 | 4 | 1355 | 1455 | 1 | 1 | 1 | | | |
| GR5641.8 | 1355 | 5632.8 | 1377.5 | 5632.8 | 1422.5 | 5641.8 | 1455 | | |
| NC .035 | .035 | .030 | .1 | .3 | | | | | |
| X1 3038 | 9 | 1385 | 1470 | 550 | 580 | 560 | | | |
| GR5656.7 | 1000 | 5650 | 1040 | 5646 | 1360 | 5642 | 1385 | 5635.2 | 1405 |
| GR5635.2 | 1450 | 5642 | 1470 | 5646 | 1610 | 5646 | 1770 | | |
| X1 3044 | 10 | 1480 | 1565 | 500 | 700 | 615 | | | |
| GR 5659 | 1000 | 5655 | 1310 | 5650 | 1325 | 5646 | 1480 | 5637.7 | 1500 |
| GR5637.7 | 1545 | 5646 | 1565 | 5650 | 1600 | 5655 | 1765 | 5659 | 2000 |
| X1 3046 | 7 | 1140 | 1210 | 90 | 90 | 90 | | | |
| GR 5660 | 1000 | 5646.0 | 1140 | 5638.0 | 1160.0 | 5638.0 | 1190.0 | 5646.0 | 1210 |
| GR 5650 | 1350 | 5656 | 1450 | | | | | | |
| X13046.1 | 7 | 1135 | 1220 | 1 | 1 | 1 | | | |
| GR 5660 | 1000 | 5649.6 | 1135 | 5641.6 | 1155.0 | 5641.6 | 1200 | 5649.6 | 1220 |
| GR 5650 | 1350 | 5656 | 1450 | | | | | | |
| X1 3048 | 7 | 1540 | 1610 | 125 | 115 | 115 | | | |
| GR5660.6 | 1000 | 5660.6 | 1540 | 5648 | 1540 | 5641.7 | 1600 | 5641.7 | 1610 |
| GR5660.6 | 1610 | 5660.6 | 1700 | | | | | | |
| SB .9 | 1.5 | 2.5 | 0 | 70 | 4 | 1060 | 0 | 5641.8 | 5641.7 |
| X1 3052 | 0 | 0 | 0 | 50 | 50 | 50 | | | |
| X2 0 | 0 | 1 | 5658.6 | 5660.6 | | | | | |
| BT 6 | 1000 | 5660.6 | 5660.6 | 1540 | 5660.6 | 5660.6 | 1540 | 5660.6 | 5658.6 |
| BT 1610 | 5660.6 | 5658.6 | 1610 | 5660.6 | 5660.6 | 1700 | 5660.6 | 5660.6 | |
| X1 3054 | 6 | 1055 | 1150 | 40 | 40 | 40 | | | |
| GR 5660 | 1000 | 5651 | 1055 | 5642 | 1086.0 | 5642 | 1120 | 5651 | 1150 |
| GR 5660 | 1220 | | | | | | | | |
| X13054.1 | 6 | 1060 | 1155 | 1 | 1 | 1 | | | |
| GR 5660 | 1000 | 5654 | 1060 | 5645 | 1085.0 | 5645 | 1130 | 5654 | 1155 |
| GR 5660 | 1220 | | | | | | | | |
| X1 3056 | 6 | 1220 | 1310 | 90 | 90 | 90 | | | |
| GR 5662 | 1000 | 5664.3 | 1220 | 5645.2 | 1250 | 5645.2 | 1280 | 5664.3 | 1310 |
| GR 5666 | 1470 | | | | | | | | |
| SB .9 | 1.5 | 2.5 | 0 | 30 | 2 | 840 | 2.00 | 5645.3 | 5645.2 |
| X1 3060 | 0 | 0 | 0 | 15 | 15 | 15 | | | |
| X2 0 | 0 | 1 | 5660.4 | 5664.3 | | | | | |
| BT 6 | 1000 | 5662.0 | 5662 | 1220 | 5664.3 | 5664.3 | 1220 | 5664.3 | 5660.6 |
| BT 1310 | 5664.3 | 5660.6 | 1310 | 5664.3 | 5664.3 | 1470 | 5666.0 | 5666 | |
| X1 3064 | 6 | 1400 | 1490 | 90 | 90 | 90 | | | |
| GR5663.7 | 1000 | 5663.7 | 1400 | 5649 | 1420 | 5649 | 1470 | 5663.7 | 1490 |
| GR 5664 | 1710 | | | | | | | | |
| SB 1.25 | 1.5 | 2.5 | 0 | 50 | 3 | 890 | 1.60 | 5649 | 5649 |
| X1 3068 | 0 | 0 | 0 | 20 | 20 | 20 | | | |
| X2 0 | 0 | 1 | 5661.7 | 5663.7 | | | | | |
| BT 6 | 1000 | 5663.7 | 5663.7 | 1400 | 5663.7 | 5663.7 | 1400 | 5663.7 | 5661.7 |
| BT 1490 | 5663.7 | 5661.7 | 1490 | 5663.7 | 5663.7 | 1710 | 5664.0 | 5664 | |
| NC .035 | .035 | .03 | .1 | .3 | | | | | |
| BT 1 | 1920 | | | | | | | | |
| X1 3072 | 7 | 1650 | 1710 | 205 | 205 | 205 | | | |
| GR 5662 | 1180 | 5660 | 1250 | 5657.3 | 1650 | 5651.3 | 1660 | 5651.3 | 1700 |
| GR5657.3 | 1710 | 5660 | 1740 | | | | | | |
| NC .035 | .035 | .030 | .1 | .3 | | | | | |
| X1 6001 | 10 | 1510 | 1570 | 290 | 395 | 370 | | | |
| GR 5662 | 1280 | 5660 | 1290 | 5662 | 1320 | 5673 | 1425 | 5662 | 1465 |
| GR 5660 | 1510 | 5653 | 1525 | 5653 | 1555 | 5660 | 1570 | 5664 | 1600 |
| NC .016 | .016 | .016 | .3 | .5 | | | | | |

| | | | | | | | | | | |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| X1 | 6002 | 6 | 1065 | 1095 | 75 | 75 | 75 | 0 | .5 | |
| GR | 5663.3 | 1000 | 5663.3 | 1065 | 5653.5 | 1065 | 5653.5 | 1095 | 5663.3 | 1095 |
| GR | 5664 | 1125 | | | | | | | | |
| SB | 1.25 | 1.5 | 2.5 | 0 | 32 | 2.0 | 240 | 00 | 5654.0 | 5653.5 |
| X1 | 6006 | 0 | 0 | 0 | 50 | 50 | 50 | | | |
| X2 | 0 | 0 | 1 | 5662.0 | 5663.3 | | | | | |
| BT | 6 | 1000 | 5663.3 | 5663.3 | 1065 | 5663.3 | 5663.3 | 1065 | 5663.3 | 5662.0 |
| BT | 1095 | 5663.3 | 5662.0 | 1095 | 5663.3 | 5663.3 | 1125 | 5664 | 5664 | |
| NC | .035 | .035 | .03 | .1 | .3 | | | | | |
| X1 | 6008 | 25 | 1170 | 1200 | 70 | 70 | 70 | | | |
| GR | 5663.8 | 950 | 5663.5 | 1000 | 5662.4 | 1023.6 | 5662.8 | 1030.9 | 5662.8 | 1038 |
| GR | 5663.1 | 1059 | 5663.2 | 1083.2 | 5663.9 | 1108.2 | 5663.8 | 1128 | 5664.5 | 1140.9 |
| GR | 5663.7 | 1155.0 | 5658.7 | 1170 | 5654.7 | 1180 | 5654.7 | 1190 | 5658.7 | 1200 |
| GR | 5663.7 | 1215 | 5666 | 1262.1 | 5667.1 | 1283.2 | 5666.9 | 1301 | 5666.4 | 1303.9 |
| GR | 5667.5 | 1310.6 | 5667.9 | 1325.4 | 5668 | 1350 | 5668.3 | 1400 | 5678.3 | 1401 |
| X1 | 6012 | 25 | 1745 | 1775 | 750 | 750 | 750 | | | |
| X3 | 0 | 0 | 0 | 1700 | 00 | 1810 | | | | |
| GR | 5669.4 | 1595.2 | 5670.4 | 1609.4 | 5671.7 | 1647.7 | 5671 | 1673.4 | 5672 | 1700 |
| GR | 5670.0 | 1725.0 | 5666.1 | 1745 | 5662.1 | 1755 | 5662.1 | 1765 | 5666.1 | 1775.0 |
| GR | 5670.0 | 1795 | 5672.1 | 1810 | 5671.9 | 1812.4 | 5672.8 | 1830.7 | 5672.2 | 1851.6 |
| GR | 5672.8 | 1875.3 | 5673 | 1906.4 | 5683 | 1907 | 5683.5 | 1944 | 5684 | 1981 |
| BR | 5684.5 | 2018 | 5685 | 2055 | 5685.6 | 2089 | 5675.6 | 2089.9 | 5678.1 | 2121.4 |
| QT | 1 | 1860 | | | | | | | | |
| X1 | 6014 | 19 | 1655 | 1670 | 520 | 420 | 470 | | | |
| X3 | 0 | 0 | 0 | 1369 | 0 | 1900 | | | | |
| GR | 5670 | 1000 | 5669.5 | 1050 | 5680 | 1051 | 5685 | 1369 | 5675 | 1370 |
| GR | 5675.2 | 1630 | 5671.5 | 1655 | 5669.3 | 1655 | 5669.3 | 1670 | 5671.5 | 1670 |
| GR | 5675 | 1800 | 5677 | 1900 | 5687 | 1900 | 5687 | 1950 | 5677 | 1950 |
| GR | 5676 | 2000 | 5675.5 | 2035 | 5678.4 | 2100 | 5680 | 2210 | | |
| X1 | 6016 | 41 | 2190 | 2205 | 650 | 480 | 570 | | | |
| GR | 5685.1 | 1648.1 | 5684.8 | 1675.5 | 5684.4 | 1694 | 5684.4 | 1716.5 | 5684.4 | 1732.8 |
| GR | 5683.8 | 1745.8 | 5683.8 | 1769 | 5693.8 | 1770 | 5691.7 | 1818 | 5681.4 | 1818.4 |
| GR | 5681.4 | 1844.4 | 5681.3 | 1872.6 | 5680.4 | 1901 | 5680.4 | 1905.3 | 5679.9 | 1907.1 |
| GR | 5680.4 | 1923.8 | 5680 | 1939.9 | 5680.2 | 1941.9 | 5680.2 | 1945.3 | 5681.4 | 1956.5 |
| GR | 5683.1 | 1966.8 | 5683.1 | 1974.3 | 5693.1 | 1975 | 5693.1 | 2010 | 5683.1 | 2010.3 |
| GR | 5682.4 | 2040.5 | 5681.6 | 2064.7 | 5679.2 | 2087.3 | 5676.2 | 2115 | 5675.4 | 2134.9 |
| GR | 5675.3 | 2158 | 5674.2 | 2190 | 5672.2 | 2190.0 | 5672.2 | 2205 | 5674.2 | 2205 |
| GR | 5675.9 | 2249.9 | 5676.3 | 2283.8 | 5678 | 2318.4 | 5680.7 | 2353.4 | 5682.7 | 2393.5 |
| GR | 5682.6 | 2442.8 | | | | | | | | |
| X1 | 6018 | 32 | 1430 | 1455 | 335 | 335 | 335 | | | |
| GR | 5690 | 1000 | 5700 | 1000 | 5700.1 | 1040 | 5690.1 | 1040 | 5688.8 | 1100 |
| GR | 5687.4 | 1145 | 5697.4 | 1145 | 5695.8 | 1190 | 5685.8 | 1190 | 5685 | 1215 |
| GR | 5684.5 | 1217 | 5684.5 | 1276 | 5685 | 1278 | 5695.1 | 1305 | 5695.1 | 1360 |
| GR | 5685.1 | 1360 | 5685 | 1390 | 5680.5 | 1415 | 5676.5 | 1430 | 5674.5 | 1430 |
| GR | 5674.5 | 1455 | 5676.5 | 1455 | 5682.5 | 1525 | 5685 | 1560 | 5695 | 1560 |
| GR | 5691.5 | 1590 | 5685.1 | 1590 | 5685.8 | 1600 | 5685 | 1640 | 5684.2 | 1645 |
| GR | 5684.2 | 1680 | 5685 | 1690 | | | | | | |
| NC | .016 | .016 | .016 | .3 | .5 | | | | | |
| X1 | 6020 | 9 | 1305 | 1334 | 90 | 90 | 90 | | | |
| GR | 5688 | 1000 | 5686 | 1025 | 5683.9 | 1305 | 5675 | 1305 | 5675 | 1334 |
| GR | 5683.9 | 1334 | 5684.5 | 1348 | 5686 | 1520 | 5687 | 1545 | | |
| SB | 1.25 | 1.5 | 2.5 | 0 | 29 | 1 | 168 | 0 | 5675.5 | 5675.0 |
| X1 | 6021 | 9 | 1305 | 1334 | 40 | 40 | 40 | | | |
| X2 | 0 | 0 | 1 | 5681.5 | 5683.9 | | | | | |
| BT | 9 | 1000 | 5688 | 5688 | 1025 | 5686 | 5686 | 1305 | 5683.9 | 5683.9 |

| | | | | | | | | | | |
|----------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| BT | 1305 | 5683.9 | 5681.5 | 1334 | 5683.9 | 5681.5 | 1334 | 5683.9 | 5683.9 | 1348 |
| BT5683.9 | | 5683.9 | 1520 | 5686 | 5686 | 1545 | 5687 | 5687 | | |
| GR | 5688 | 1000 | 5686 | 1025 | 5683.9 | 1305 | 5675.5 | 1305 | 5675.5 | 1334 |
| GR5683.9 | | 1334 | 5683.9 | 1348 | 5686 | 1520 | 5687 | 1545 | | |
| NC | .035 | .035 | .030 | .1 | .3 | | | | | |
| QT | 1 | 1830 | | | | | | | | |
| X1 | 6024 | 10 | 1135 | 1155 | 70 | 70 | 70 | | | |
| GR5685.0 | | 1000 | 5684.0 | 1100 | 5680 | 1130 | 5678.2 | 1135 | 5674.2 | 1135 |
| GR5674.2 | | 1155 | 5678.2 | 1155 | 5680 | 1160 | 5684 | 1180 | 5686 | 1200 |
| X16024.1 | | 8 | 1130 | 1160 | 1 | 1 | 1 | | | |
| GR | 5685 | 1000 | 5684 | 1100 | 5680 | 1130 | 5678.2 | 1135 | 5678.2 | 1155 |
| GR | 5680 | 1160 | 5684 | 1180 | 5686 | 1200 | | | | |
| X1 | 6025 | 8 | 1154 | 1186 | 99 | 99 | 99 | | | |
| GR | 5685 | 1000 | 5684 | 1130 | 5682.2 | 1154 | 5679.2 | 1160 | 5679.2 | 1180 |
| GR5682.2 | | 1186 | 5684 | 1195 | 5686 | 1220 | | | | |
| X16025.1 | | 6 | 1130 | 1195 | 1 | 1 | 1 | | | |
| GR | 5685 | 1000 | 5684 | 1130 | 5682.2 | 1154 | 5682.2 | 1186 | 5684 | 1195 |
| GR | 5686 | 1220 | | | | | | | | |
| X1 | 6028 | 17 | 1690 | 1848 | 850 | 800 | 650 | | | |
| X3 | 10 | | | | | | | | | |
| GR | 5702 | 1000 | 5700 | 1040 | 5698 | 1090 | 5695.7 | 1170 | 5697 | 1240 |
| GR | 5696 | 1670 | 5694 | 1690 | 5692.0 | 1720 | 5690 | 1740 | 5688 | 1740 |
| GR | 5688 | 1760 | 5690.5 | 1760 | 5692 | 1785 | 5694 | 1848 | 5696 | 1878 |
| GR | 5698 | 2032 | 5700 | 2088 | | | | | | |
| QT | 1 | 1780 | | | | | | | | |
| X1 | 6030 | 16 | 1605 | 1620 | 600 | 580 | 600 | | | |
| GR | 5709 | 1000 | 5708 | 1020 | 5704 | 1052 | 5704 | 1100 | 5706 | 1142 |
| GR | 5704 | 1214 | 5704 | 1482 | 5702 | 1510 | 5696 | 1540 | 5694 | 1605 |
| GR5692.8 | | 1605 | 5692.8 | 1620 | 5694 | 1620 | 5696 | 1700 | 5698 | 1728 |
| GR | 5706 | 1788 | | | | | | | | |
| QT | 1 | 1130 | | | | | | | | |
| NC | .035 | .035 | .016 | .2 | .4 | | | | | |
| X1 | 6031 | 6 | 1050 | 1087 | 430 | 500 | 410 | | | |
| GR | 5706 | 1000 | 5698.6 | 1050 | 5695.6 | 1056 | 5695.6 | 1081 | 5698.6 | 1087 |
| GR | 5704 | 1137 | | | | | | | | |
| NC | .016 | .016 | .016 | .2 | .4 | | | | | |
| X16031.1 | | 4 | 1000 | 1012 | 65 | 65 | 65 | | | |
| GR | 5712 | 1000 | 5700 | 1000 | 5700 | 1012 | 5712 | 1012 | | |
| NC | .016 | .016 | .016 | .1 | .3 | | | | | |
| X1 | 6033 | 4 | 1000 | 1890 | 260 | 260 | 260 | | | |
| X5 | 1 | 5720.8 | | | | | | | | |
| GR | 5722 | 1000 | 5714 | 1000 | 5714 | 1780 | 5722 | 1890 | | |
| NC | .045 | .045 | .025 | .1 | .3 | | | | | |
| QT | 1 | 1060 | | | | | | | | |
| X1 | 6036 | 19 | 1480 | 1590 | 1030 | 1030 | 1030 | | | |
| GR | 5724 | 1000 | 5720 | 1020 | 5718 | 1030 | 5717.5 | 1040 | 5720 | 1050 |
| GR5720.4 | | 1250 | 5720 | 1480 | 5716 | 1495 | 5714.2 | 1510 | 5714.2 | 1540 |
| GR | 5716 | 1560 | 5720 | 1590 | 5720.2 | 1600 | 5720 | 1610 | 5719 | 1780 |
| GR | 5720 | 1915 | 5722 | 2100 | 5724 | 2165 | 5730 | 2320 | | |
| QT | 1 | 970 | | | | | | | | |
| X1 | 6040 | 40 | 1748.8 | 1928 | 825 | 915 | 885 | | | |
| GR5733.9 | | 1310.4 | 5732.2 | 1333.8 | 5733.2 | 1339 | 5731.9 | 1370.2 | 5731.9 | 1412.3 |
| GR5731.9 | | 1456.4 | 5731.9 | 1514.7 | 5731.7 | 1574.8 | 5731.4 | 1621.7 | 5731.2 | 1684.5 |
| GR | 5731 | 1733.3 | 5731.3 | 1748.8 | 5724.3 | 1773 | 5724.3 | 1786.9 | 5725 | 1793.9 |
| GR5724.5 | | 1803.2 | 5724.2 | 1812.4 | 5724.2 | 1829.6 | 5727.8 | 1854.9 | 5728.6 | 1875.5 |

| | | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| BR5726.9 | 1901.8 | 5731.7 | 1928 | 5731.7 | 1945.6 | 5729.9 | 1953.3 | 5731.3 | 1959.9 |
| GR 5732 | 1979.3 | 5730 | 2011.5 | 5731.3 | 2066.9 | 5733 | 2111.3 | 5732.8 | 2146 |
| GR 5733 | 2179.1 | 5734.3 | 2216 | 5735 | 2252.1 | 5732.9 | 2253.3 | 5732.9 | 2276.7 |
| BR5732.2 | 2292.6 | 5732.2 | 2324.4 | 5732.2 | 2374.1 | 5732.8 | 2420 | 5734 | 2464.5 |
| X1 6048 | 16 | 1292 | 1321 | 450 | 550 | 510 | | | |
| GR 5740 | 1000 | 5738.0 | 1025 | 5736.1 | 1055 | 5736 | 1160 | 5736 | 1260 |
| BR5736.5 | 1270 | 5736 | 1282 | 5734 | 1292 | 5733 | 1302 | 5734 | 1321 |
| GR 5736 | 1340 | 5736.5 | 1350 | 5736 | 1358 | 5736 | 1508 | 5738 | 1662 |
| GR 5740 | 1740 | | | | | | | | |
| QT 1 | 660 | | | | | | | | |
| X1 6052 | 18 | 1049 | 1127.1 | 550 | 420 | 480 | | | |
| GR 5745 | 860 | 5742.5 | 900 | 5741 | 930 | 5740 | 960 | 5740 | 980 |
| GR 5742 | 1000 | 5741.2 | 1022.1 | 5741.1 | 1049 | 5739.9 | 1072.5 | 5740.7 | 1104.7 |
| BR5739.4 | 1113.8 | 5739.4 | 1119.7 | 5741.2 | 1127.1 | 5740.7 | 1142.1 | 5739.5 | 1182.5 |
| GR 5739 | 1300 | 5740 | 1450 | 5745 | 2000 | | | | |
| QT 1 | 430 | | | | | | | | |
| X1 6056 | 17 | 1053.7 | 1170 | 470 | 470 | 470 | | | |
| GR 5750 | 640 | 5745 | 725 | 5746 | 800 | 5747.4 | 900 | 5748 | 950 |
| BR5747.8 | 1000 | 5747.9 | 1025.2 | 5747.9 | 1053.7 | 5747 | 1093 | 5745 | 1110 |
| GR 5745 | 1125.8 | 5747.3 | 1159.7 | 5748 | 1170 | 5746 | 1200 | 5747 | 1300 |
| BR5748.7 | 1730 | 5749 | 1900 | | | | | | |
| EJ | | | | | | | | | |

ER

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|*****
* WATER SURFACE PROFILES *
* VERSION OF SEPTEMBER 1988 *
* ERROR: 01,02 *
* UPDATED: 4 APRIL 1989 *
* RUN DATE 6/30/91 TIME 1:10:23 *
*****

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*****
* U.S. ARMY CORPS OF ENGINEERS *
* THE HYDROLOGIC ENGINEERING CENTER *
* 609 SECOND STREET, SUITE D *
* DAVIS, CALIFORNIA 95616-4687 *
* (916) 756-1104, (916) 551-1748 *
*****

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X X XXXXXXX XXXXX XXXXX
X X X X X X X
X X X X X
XXXXXXXX XXXX X XXXXX XXXXX
X X X X X
X X X X X X
X X XXXXXXX XXXXX XXXXXXX

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END OF BANNER

1
6/30/91 1:10:24

PAGE 1

THIS RUN EXECUTED 6/30/91 1:10:24

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*****
HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

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ERROR CORR - 01,02
MODIFICATION -

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*****
T1 HEC2 WATER SURFACE PROFILES SUBCRITICAL FLOW
T2 100 YEAR FLOODWAY DBPS EXISTING HYDROLOGY
T3 CREWS GULCH EXISTING CHANNEL CONDITIONS

```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FD |
|----|--------|-------|-------|-------|-------|--------|-------|-----|--------|--------|
| | -10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 5626.7 | |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIN | ITRACE |
| | 1 | 0 | -1 | | | | | | | |

1
6/30/91 1:10:24

PAGE 2

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*PROF 1

0

CCHV= .300 CEHV= .500

*SECNO 3002.000

3280 CROSS SECTION 3002.00 EXTENDED 4.38 FEET

3720 CRITICAL DEPTH ASSUMED

| 3470 ENCROACHMENT STATIONS= | 1100.0 | 1240.0 | TYPE= | 1 | TARGET= | 140.000 |
|-----------------------------|--------|---------|---------|---------|---------|---------------------------|
| 3002.00 | 10.38 | 5630.58 | 5630.58 | 5626.70 | 5632.68 | 2.10 .00 .00 5622.00 |
| 4880. | 1270. | 2222. | 1388. | 257. | 142. | 177. 0. 0. 5620.20 |
| .00 | 4.94 | 15.63 | 7.84 | .045 | .030 | .045 .000 5620.20 1100.00 |
| .005008 | 0. | 0. | 0. | 0 | 13 | 0 .00 140.00 1240.00 |

0

*SECNO 3008.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.75

| 3470 ENCROACHMENT STATIONS= | 1470.0 | 1650.0 | TYPE= | 1 | TARGET= | 180.000 |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 3008.00 | 10.37 | 5633.37 | .00 | .00 | 5633.49 | .12 .22 .59100000.00 |
| 4880. | 0. | 4828. | 52. | 0. | 1729. | 53. 14. 2. 5623.00 |
| .05 | .00 | 2.79 | .99 | .000 | .030 | .045 .000 5623.00 1470.00 |
| .000151 | 500. | 500. | 500. | 2 | 0 | 0 .00 180.00 1650.00 |

0

SPECIAL BRIDGE

| SB | XK | XKDR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|----|------|------|------|-------|--------|------|---------|------|---------|---------|
| | 1.25 | 1.50 | 2.50 | .00 | 160.00 | 4.50 | 2524.40 | 1.47 | 5623.00 | 5623.00 |

*SECNO 3012.000

CLASS A LOW FLOW

3420 BRIDGE W.S.= 5633.37 BRIDGE VELOCITY= 2.76 CALCULATED CHANNEL AREA= 1770.

1

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PAGE 3

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|-------|---------|-----|-------|-------|-------|----------------|---------|---------|--------|
| .00 | 5633.49 | .01 | 0. | 4880. | 2524. | 2584. | 5637.60 | 5641.90 | 0. |

| 3470 ENCROACHMENT STATIONS= | 1470.0 | 1650.0 | TYPE= | 1 | TARGET= | 180.000 |
|-----------------------------|--------|---------|-------|-----|---------|----------------------|
| 3012.00 | 10.38 | 5633.38 | .00 | .00 | 5633.49 | .12 .00 .00100000.00 |

.000154 50. 50. 50. 0 0 0 .00 180.00 1650.00

0
*SECNO 3016.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .49

3470 ENCRDACHMENT STATIONS= 1420.0 1570.0 TYPE= 1 TARGET= 150.000
3016.00 8.61 5633.31 .00 .00 5633.67 .36 .06 .12 5630.00
4880. 173. 4707. 0. 105. 962. 0. 22. 3. 100000.00
.07 1.66 4.90 .00 .045 .030 .000 .000 5624.70 1420.00
.000644 200. 200. 200. 2 0 0 .00 150.00 1570.00

0
CCHV= .300 CEHV= .500
*SECNO 3024.000

3301 HV CHANGED MORE THAN HVINS

3695 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCRDACHMENT STATIONS= 1373.0 1417.0 TYPE= 1 TARGET= 44.000
3024.00 7.25 5633.85 5633.85 .00 5637.48 3.63 .50 1.63100000.00
4880. 0. 4880. 0. 0. 319. 0. 27. 3. 5626.60
.07 .00 15.29 .00 .000 .035 .000 .000 5626.60 1373.00
.013501 310. 290. 290. 20 11 0 .00 44.00 1417.00

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6/30/91 1:10:24

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| R | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENBET |

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 5632.74 , NOT 5633.85 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

| SB | XK | XKOR | COFO | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|------|------|------|------|-------|------|--------|-------|---------|---------|-------|
| 1.25 | 1.56 | 2.60 | .00 | 44.00 | 2.00 | 420.00 | .00 | 5627.20 | 5626.60 | |

*SECNO 3024.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.57

CLASS B LOW FLOW

3420 BRIDGE W.S.= 5634.38 BRIDGE VELOCITY= 15.53 CALCULATED CHANNEL AREA= 302.

| EGPRS | ESLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID | ELLC | ELTRD | WEIRLN |
|---------|---------|-----|-------|-------|-------|-----------|---------|---------|--------|
| 5637.12 | 5638.41 | .00 | G. | 4880. | 420. | 424. | 5637.30 | 5639.00 | 0. |

3470 ENCRDACHMENT STATIONS= 1373.0 1417.0 TYPE= 1 TARGET= 44.000

| | | | | | | | | | |
|---------|-----|-------|-----|------|------|------|------|---------|---------|
| .07 | .00 | 11.28 | .00 | .000 | .035 | .000 | .000 | 5626.60 | 1373.00 |
| .005477 | 42. | 42. | 42. | 0 | 0 | 0 | .00 | 44.00 | 1417.00 |

0
 CCHV= .100 CEHV= .300
 *SECND 3025.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1014.0 | 1089.0 | TYPE= | 1 | TARGET= | 75.000 |
| 3025.00 | 6.35 | 5638.35 | 5638.35 | .00 | 5640.96 | 2.61 .33 .19100000.00 |
| 4880. | 0. | 733. | 4147. | 0. | 50. | 327. 27. 4. 5632.00 |
| .07 | .00 | 14.54 | 12.68 | .000 | .025 | .045 .000 5632.00 1014.12 |
| .014149 | 40. | 40. | 40. | 20 | 14 | 0 .00 74.88 1089.00 |

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 6/30/91 1:10:24

| SECND | DEPTH | CWSEL | CRIMS | WSELK | EG | HV | HL | OLSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| @ | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

CCHV= .100 CEHV= .300
 *SECND 3038.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATID = 1.62

| | | | | | | |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1390.0 | 1500.0 | TYPE= | 1 | TARGET= | 110.000 |
| 3038.00 | 6.78 | 5643.48 | .00 | .00 | 5645.26 | 1.78 4.21 .08 5640.00 |
| 4880. | 137. | 4460. | 283. | 34. | 402. | 61. 33. 5. 5640.00 |
| .09 | 3.99 | 11.10 | 4.68 | .045 | .030 | .045 .000 5636.70 1390.00 |
| .005401 | 510. | 510. | 510. | 3 | 0 | 0 .00 110.00 1500.00 |

0
 *SECND 3044.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1470.0 | 1580.0 | TYPE= | 1 | TARGET= | 110.000 |
| 3044.00 | 7.16 | 5648.16 | 5648.16 | .00 | 5650.17 | 2.01 4.17 .07100000.00 |
| 4880. | 0. | 4880. | 0. | 0. | 429. | 0. 39. 6. 5647.50 |
| .10 | .00 | 11.39 | .00 | .000 | .030 | .000 .000 5641.00 1470.51 |
| .008896 | 500. | 610. | 700. | 2 | B | 0 .00 109.49 1580.00 |

0
 *SECND 3048.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|-----|---------|-----------------------|
| 3470 ENCROACHMENT STATIONS= | 1540.0 | 1610.0 | TYPE= | 1 | TARGET= | 70.000 |
| 3048.00 | 7.87 | 5649.87 | 5649.87 | .00 | 5652.56 | 2.69 1.04 .20 5660.60 |
| 4880. | 0. | 4880. | 0. | 0. | 371. | 0. 40. 5. 5642.00 |

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6/30/91 1:10:24

| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | YNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CDRAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|----|-----|------|------|-------|-------|------|---------|-----|---------|---------|
| | .90 | 1.50 | 2.50 | .00 | 70.00 | 4.00 | 1060.00 | .00 | 5642.00 | 5642.00 |

*SECNO 3052.000

3301 HV CHANGED MORE THAN HVINS

CLASS A LOW FLOW

3420 BRIDGE W.S.= 5649.62 BRIDGE VELOCITY= 9.71 CALCULATED CHANNEL AREA= 503.

| EGPRS | EBLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|-------|---------|------|-------|-------|-------|----------------|---------|---------|--------|
| .00 | 5652.78 | 1.03 | 0. | 4880. | 1060. | 1096. | 5658.60 | 5660.60 | 0. |

| 3470 ENCRDACHMENT STATIONS= | 1540.0 | 1610.0 | TYPE= | 1 | TARGET= | 70.000 |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 3052.00 | 8.90 | 5650.90 | .00 | .00 | 5652.78 | 1.89 .23 .00 5660.60 |
| 4880. | 0. | 4880. | 0. | 0. | 443. | 0. 41. 6. 5642.00 |
| .11 | .00 | 11.02 | .00 | .000 | .030 | .000 .000 5642.00 1540.00 |
| .005226 | 50. | 50. | 50. | 0 | 0 | 0 .00 70.00 1610.00 |

*SECNO 3056.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| 3470 ENCRDACHMENT STATIONS= | 1236.0 | 1292.0 | TYPE= | 1 | TARGET= | 54.000 |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3056.00 | 8.23 | 5653.23 | 5653.23 | .00 | 5656.59 | 3.36 .56 .44100000.00 |
| 4880. | 0. | 4533. | 347. | 0. | 299. | 52. 41. 7. 5645.00 |
| .11 | .00 | 15.15 | 6.62 | .000 | .030 | .045 .000 5645.00 1238.00 |
| .007426 | 90. | 90. | 90. | 20 | 11 | 0 .00 54.00 1292.00 |

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| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | YNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CDRAR | TOPWID | ENDST |

SPECIAL BRIDGE

SB XK XKOR COFO RDLEN BWC BWP BAREA SS ELCHU ELCHD
 .90 1.50 2.50 .00 30.00 2.00 840.00 2.00 5645.00 5645.00

*SECND 3060.000

6110 EGLWC OF 5656.51 LESS THAN XEB OF 5656.59

3301 HV CHANGED MORE THAN HVINS

CLASS B LOW FLOW

3420 BRIDGE W.S.= 5653.04 BRIDGE VELOCITY= 13.77 CALCULATED CHANNEL AREA= 354.

| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
|-------|---------|-----|-------|-------|-------|-------------------|---------|---------|--------|
| .00 | 5656.51 | .00 | 0. | 4880. | 840. | 906. | 5660.40 | 5664.30 | 0. |

| 3470 ENCRDACHMENT STATIONS= | 1236.0 | 1294.0 | TYPE= | 1 | TARGET= | 56.000 | | |
|-----------------------------|--------|---------|-------|------|---------|--------|------|-----------------|
| 3060.00 | 9.40 | 5654.40 | .00 | .00 | 5656.59 | 2.11 | .00 | .00100000.00 |
| 4880. | 0. | 4880. | 0. | 0. | 419. | 0. | 42. | 7. 5645.00 |
| .11 | .00 | 11.64 | .00 | .000 | .030 | .000 | .000 | 5645.00 1236.00 |
| .004516 | 15. | 15. | 15. | 0 | 0 | 0 | .00 | 58.00 1294.00 |

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*SECND 3064.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| 3470 ENCRDACHMENT STATIONS= | 1412.0 | 1478.0 | TYPE= | 1 | TARGET= | 66.000 | | |
|-----------------------------|--------|---------|---------|------|---------|--------|------|-----------------|
| 3064.00 | 6.32 | 5655.32 | 5655.32 | .00 | 5658.20 | 2.88 | .52 | .23100000.00 |
| 4880. | 0. | 4732. | 148. | 0. | 343. | 27. | 42. | 7. 5649.00 |
| .11 | .00 | 13.80 | 5.47 | .000 | .030 | .045 | .000 | 5649.00 1412.00 |
| .007650 | 90. | 90. | 90. | 20 | 14 | 0 | .00 | 66.00 1478.00 |

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| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| @ | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 5654.32 , NOT 5655.32 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB XK XKOR COFO RDLEN BWC BWP BAREA SS ELCHU ELCHD
 1.25 1.50 2.50 .00 50.00 3.00 890.00 1.60 5649.00 5649.00

*SECND 3068.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.41

CLASS B LOW FLOW

| | | | | | | | | | |
|-------|---------|-----|-------|-------|-------|-------------------|---------|---------|--------|
| EGPRS | EGLWC | H3 | QWEIR | QLOW | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
| .00 | 5658.44 | .00 | 0. | 4880. | 890. | 855. | 5661.70 | 5663.70 | 0. |

3470 ENCRDACHMENT STATIONS= 1410.0 1480.0 TYPE= 1 TARGET= 70.000
 3068.00 7.77 5656.77 .00 .00 5658.44 1.67 .24 .00100000.00
 4880. 0. 4880. 0. 0. 470. 0. 43. 7. 5649.00
 .11 .00 10.37 .00 .000 .030 .000 .000 5649.00 1410.00
 .003837 20. 20. 20. 0 0 0 .00 70.00 1480.00

0
 2CHV= .100 CEHV= .600
 *SECRN 3072.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.69

| | | | | | | |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 3470 ENCRDACHMENT STATIONS= | 1600.0 | 1735.0 | TYPE= | 1 | TARGET= | 135.000 |
| 3072.00 | 6.69 | 5658.49 | .00 | .00 | 5658.76 | .27 .17 .14 5656.00 |
| 2015. | 42. | 1852. | 121. | 50. | 430. | 110. 45. 7. 5651.80 |
| .12 | .85 | 4.30 | 1.10 | .045 | .016 | .045 .000 5651.80 1600.00 |
| .000229 | 165. | 165. | 165. | 3 | 0 | 0 .00 132.80 1732.80 |

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| | | | | | | | | | |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| SEONO | DEPTH | OWSEL | CRIMS | WSELK | EB | HV | HL | DLOSS | BANK ELEV |
| 0 | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICDNT | CORAR | TDPWID | ENDST |

2CHV= .100 CEHV= .300
 *SECRN 6001.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCRDACHMENT STATIONS= | 1490.0 | 1575.0 | TYPE= | 1 | TARGET= | 85.000 |
| 6001.00 | 5.01 | 5662.31 | 5662.31 | .00 | 5664.13 | 1.82 .18 .47 5660.00 |
| 2015. | 119. | 1874. | 21. | 65. | 167. | 15. 48. 8. 5660.00 |
| .13 | 1.84 | 11.21 | 1.47 | .050 | .016 | .050 .000 5657.30 1490.00 |
| .001958 | 290. | 350. | 395. | 20 | 15 | 0 .00 85.00 1575.00 |

0
 *SECRN 6002.000
 3685 21 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCRDACHMENT STATIONS= | 1490.0 | 1575.0 | TYPE= | 1 | TARGET= | 85.000 |
| 6002.00 | 5.01 | 5663.11 | 5663.11 | .00 | 5664.93 | 1.82 .15 .00 5660.80 |
| 2015. | 119. | 1874. | 21. | 65. | 167. | 15. 48. 8. 5660.80 |
| .13 | 1.84 | 11.21 | 1.47 | .050 | .016 | .050 .000 5658.10 1490.00 |
| .001955 | 75. | 75. | 75. | 20 | 5 | 0 .00 85.00 1575.00 |

| | | | | | | | | | | |
|----|------|------|------|-------|-------|------|--------|-----|---------|-------|
| SB | XK | XKOR | COFO | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
| | 1.25 | 1.50 | 2.50 | .00 | 31.00 | 1.80 | 115.00 | .00 | 5658.80 | .00 |

*SECND 6006.000

6270 D.S. ENERGY OF 5664.93 IS HIGHER THAN COMPUTED ENERGY OF 5664.51
 PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

| | | | | | | | | | |
|---------|---------|-----|-------|------|-------|-------------------|---------|---------|--------|
| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD | WEIRLN |
| 5670.26 | 5665.93 | .17 | 1135. | 893. | 115. | 117. | 5662.80 | 5664.30 | 302. |

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

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| | | | | | | | | | |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| SECNO | DEPTH | CWSEL | CRIMS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CDRAR | TOPWID | ENDST |

3710 WSEL ASSUMED BASED ON MIN DIFF

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCRDACHMENT STATIONS= | 1470.0 | 1570.0 | TYPE= | 1 | TARGET= | 100.000 |
| 6006.00 | 4.88 | 5663.68 | 5663.66 | .00 | 5665.88 | 2.20 .10 -.10 5658.80 |
| 2015. | 30. | 1867. | 118. | 14. | 151. | 44. 49. 8. 5658.80 |
| .13 | 2.09 | 12.35 | 2.68 | .050 | .016 | .050 .000 5658.80 1518.60 |
| .002138 | 50. | 50. | 50. | 20 | 8 | 0 .00 51.40 1570.00 |

0

CCHV= .100 CEHV= .300
 *SECNO 6008.000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 3470 ENCRDACHMENT STATIONS= | 1250.0 | 1350.0 | TYPE= | 1 | TARGET= | 100.000 |
| 6008.00 | 6.27 | 5665.88 | .00 | .00 | 5666.23 | .35 .16 .18 5660.00 |
| 2015. | 1646. | 268. | 100. | 359. | 44. | 32. 49. 8. 5662.00 |
| .14 | 4.58 | 6.12 | 3.13 | .045 | .035 | .045 .000 5659.60 1250.00 |
| .002601 | 70. | 70. | 70. | 4 | 0 | 0 .00 100.00 1350.00 |

0

*SECNO 6012.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCRDACHMENT STATIONS= | 1726.0 | 1784.0 | TYPE= | 1 | TARGET= | 58.000 |
| 6012.00 | 4.05 | 5670.65 | 5670.65 | .00 | 5672.34 | 1.69 3.73 .40100000.00 |
| 2015. | 0. | 2015. | 0. | 0. | 193. | 0. 55. 10. 100000.00 |
| .16 | .00 | 10.44 | .00 | .000 | .035 | .000 .000 5666.60 1726.00 |
| .013003 | 750. | 750. | 750. | 20 | 14 | 0 .00 58.00 1784.00 |

0

*SECNO 6014.000

3301 HV CHANGED MORE THAN HVINS

1

| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | LOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|------|--------|------------|
| @ | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CRAR | TOPWID | ENDST |

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.02

| 3470 ENCROACHMENT STATIONS= | 1620.0 | 1740.0 | TYPE= | 1 | TARGET= | 120.000 |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 6014.00 | 4.66 | 5674.66 | .00 | .00 | 5675.04 | .38 2.57 .13100000.00 |
| 1930. | 0. | 1930. | 0. | 0. | 389. | 0. 58. 11. 100000.00 |
| .18 | .00 | 4.96 | .00 | .000 | .035 | .000 .000 5670.00 1620.00 |
| .002920 | 520. | 470. | 420. | 4 | 0 | 0 .00 120.00 1740.00 |

*SECNO 6016.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .57

| 3470 ENCROACHMENT STATIONS= | 2130.0 | 2280.0 | TYPE= | 1 | TARGET= | 150.000 |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 6016.00 | 3.77 | 5677.17 | .00 | .00 | 5677.79 | .62 2.68 .07100000.00 |
| 1930. | 0. | 1930. | 0. | 0. | 305. | 0. 62. 12. 100000.00 |
| .21 | .00 | 6.33 | .00 | .000 | .035 | .000 .000 5673.40 2130.00 |
| .008838 | 650. | 570. | 480. | 3 | 0 | 0 .00 150.00 2280.00 |

*SECNO 6018.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| 3470 ENCROACHMENT STATIONS= | 1420.0 | 1520.0 | TYPE= | 1 | TARGET= | 100.000 |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 6018.00 | 3.37 | 5681.97 | 5681.97 | .00 | 5683.11 | 1.15 3.68 .16100000.00 |
| 1930. | 0. | 1930. | 0. | 0. | 225. | 0. 64. 13. 100000.00 |
| .22 | .00 | 8.59 | .00 | .000 | .035 | .000 .000 5678.60 1420.00 |
| .014043 | 335. | 335. | 335. | 15 | 11 | 0 .00 100.00 1520.00 |

CEHV= .100 CEHV= .300

*SECNO 6020.000

3485 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

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| SECNO | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | LOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|------|--------|------------|
| @ | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XLN | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CRAR | TOPWID | ENDST |

| 3470 ENCROACHMENT STATIONS= | 1230.0 | 1370.0 | TYPE= | 1 | TARGET= | 140.000 |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 6020.00 | 1.99 | 5685.89 | 5685.89 | .00 | 5686.80 | .91 .52 .02 5684.00 |
| 1930. | 665. | 986. | 280. | 92. | 122. | 39. 65. 14. 5684.00 |
| .22 | 7.19 | 8.06 | 7.20 | .016 | .016 | .016 .000 5683.90 1230.00 |
| .003103 | 90. | 90. | 90. | 20 | 14 | 0 .00 140.00 1370.00 |

CEHV= .100 CEHV= .300

3470 ENCRDACHMENT STATIONS= 1030.0 1139.0 TYPE= 1 TARGET= 109.000
 6024.00 4.91 5686.61 .00 .00 5687.12 .51 .27 .04 5684.30
 1930. 134. 1790. 6. 52. 304. 4. 65. 14. 5685.50
 .23 2.57 5.89 1.60 .045 .035 .045 .000 5681.70 1030.00
 .003006 90. 90. 90. 3 0 0 .00 109.00 1139.00

*SECNO 6028.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

3470 ENCRDACHMENT STATIONS= 1730.0 1810.0 TYPE= 1 TARGET= 80.000
 6028.00 3.64 5694.14 5694.14 .00 5695.42 1.33 5.40 .25100000.00
 1930. 0. 1930. 0. 0. 203. 0. 71. 16. 100000.00
 .25 .00 9.26 .00 .000 .040 .000 .000 5690.50 1730.00
 .018508 1000. 880. 950. 20 19 0 .00 80.00 1810.00

*SECNO 6030.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.51

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| SECNO | DEPTH | CWSEL | CRIMS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCRDACHMENT STATIONS= 1580.0 1680.0 TYPE= 1 TARGET= 100.000
 6030.00 5.03 5698.73 .00 .00 5699.05 .32 3.47 .10 5694.00
 1870. 455. 411. 1004. 109. 73. 239. 75. 17. 5694.00
 .29 4.19 5.62 4.21 .045 .040 .045 .000 5693.70 1580.00
 .002768 600. 600. 580. 6 0 0 .00 100.00 1680.00

DCHV= .100 CEHV= .300

*SECNO 6032.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

3470 ENCRDACHMENT STATIONS= 1370.0 1600.0 TYPE= 1 TARGET= 230.000
 6032.00 1.62 5720.02 5720.02 .00 5720.53 .51 1.85 .06100000.00
 1320. 0. 1320. 0. 0. 230. 0. 80. 19. 100000.00
 .32 .00 5.74 .00 .000 .016 .000 .000 5718.40 1370.00
 .003848 830. 540. 580. 20 17 0 .00 230.00 1600.00

DCHV= .100 CEHV= .300

*SECNO 6036.000

3301 HV CHANGED MORE THAN HVINS

1600

| | | | | | | |
|-----------------------------|--------|-------------------|-------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1050.0 | 1050.0 | TYPE= | 1 | TARGET= | 800.000 |
| 6036.00 | 6.83 | 5721.03 | .00 | .00 | 5721.04 | .01 .46 .05 5720.00 |
| 750. | 90. | 506. | 154. | 360. | 549. | 404. 103. 35. 5720.00 |
| .80 | .25 | .92 | .38 | .045 | .040 | .045 .000 5714.20 1050.00 |
| .000073 | 1450. | 1280. | 1100. | 4 | 0 | 0 .00 800.00 1850.00 |

0
*SECNO 6040.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY

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| | | | | | | | | | |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| SECNO | DEPTH | CWSEL | CRWS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
| Q | QLOB | QCH | QRQB | ALOB | ACH | ARQB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VRQB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1770.0 | 1840.0 | TYPE= | 1 | TARGET= | 70.000 |
| 6040.00 | 1.72 | 5725.92 | 5725.92 | .00 | 5726.64 | .72 .21 .21100000.00 |
| 680. | 0. | 680. | 0. | 0. | 100. | 0. 117. 43. 100000.00 |
| .84 | .00 | 6.81 | .00 | .000 | .040 | .000 .000 5724.20 1770.00 |
| .021406 | 825. | 885. | 915. | 20 | 11 | 0 .00 70.00 1840.00 |

0
*SECNO 6048.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1200.0 | 1350.0 | TYPE= | 1 | TARGET= | 150.000 |
| 6048.00 | 3.19 | 5736.19 | 5736.19 | .00 | 5736.82 | .63 6.94 .01 5734.00 |
| 680. | 55. | 543. | 81. | 24. | 78. | 23. 118. 44. 5734.00 |
| .86 | 2.28 | 6.96 | 3.54 | .045 | .040 | .045 .000 5733.00 1200.00 |
| .009415 | 450. | 510. | 550. | 4 | 21 | 0 .00 130.25 1343.83 |

0
*SECNO 6052.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATID = .63

| | | | | | | |
|-----------------------------|--------|---------|-------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1050.0 | 1200.0 | TYPE= | 1 | TARGET= | 150.000 |
| 6052.00 | 1.66 | 5741.06 | .00 | .00 | 5741.23 | .17 4.36 .05100000.00 |
| 430. | 0. | 193. | 237. | 0. | 62. | 68. 119. 46. 5741.20 |
| .90 | .00 | 3.12 | 3.46 | .000 | .040 | .045 .000 5739.40 1050.00 |
| .009421 | 550. | 480. | 420. | 4 | 0 | 0 .00 145.05 1200.00 |

0
*SECNO 6056.000

| | | | | | | |
|-----------------------------|--------|---------|---------|------|---------|---------------------------|
| 3470 ENCROACHMENT STATIONS= | 1095.0 | 1150.0 | TYPE= | 1 | TARGET= | 55.000 |
| 6056.00 | 1.89 | 5746.89 | 5746.83 | .00 | 5747.46 | .57 6.12 .12100000.00 |
| 430. | 0. | 430. | 0. | 0. | 71. | 0. 121. 47. 100000.00 |
| .92 | .00 | 6.05 | .00 | .000 | .040 | .000 .000 5745.00 1095.00 |

THIS RUN EXECUTED 6/30/91 1:11:34

HEC2 RELEASE DATED SEP 88 UPDATED APR 1989

ERROR CORR - 01,02
MODIFICATION -

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CREWS GULCH EXISTING CHA

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRINS | EG | 10*KS | VCH | AREA | .01K |
|------------|--------|---------|---------|---------|---------|---------|---------|---------|--------|-------|---------|---------|
| * 3002.000 | .00 | .00 | .00 | 5620.20 | 4880.00 | 5630.58 | 5630.58 | 5632.68 | 50.08 | 15.63 | 576.09 | 689.61 |
| * 3008.000 | 500.00 | .00 | .00 | 5623.00 | 4880.00 | 5633.37 | .00 | 5633.49 | 1.51 | 2.79 | 1781.75 | 3967.36 |
| 3012.000 | 50.00 | 5641.90 | 5637.60 | 5623.00 | 4880.00 | 5633.38 | .00 | 5633.49 | 1.54 | 2.74 | 1782.98 | 3928.17 |
| * 3016.000 | 200.00 | .00 | .00 | 5624.70 | 4880.00 | 5633.31 | .00 | 5633.67 | 6.44 | 4.90 | 1066.09 | 1922.73 |
| * 3024.000 | 290.00 | .00 | .00 | 5626.60 | 4880.00 | 5633.85 | 5633.85 | 5637.48 | 135.01 | 15.29 | 319.19 | 419.99 |
| * 3024.100 | 42.00 | 5639.00 | 5637.30 | 5626.60 | 4880.00 | 5636.44 | .00 | 5638.41 | 54.77 | 11.28 | 432.79 | 659.40 |
| * 3025.000 | 40.00 | .00 | .00 | 5632.00 | 4880.00 | 5638.35 | 5638.35 | 5640.96 | 141.49 | 14.54 | 377.56 | 410.26 |
| * 3038.000 | 510.00 | .00 | .00 | 5636.70 | 4880.00 | 5643.48 | .00 | 5645.26 | 54.01 | 11.10 | 496.61 | 664.03 |
| * 3044.000 | 610.00 | .00 | .00 | 5641.00 | 4880.00 | 5648.16 | 5648.16 | 5650.17 | 88.96 | 11.39 | 428.51 | 517.41 |
| * 3048.000 | 115.00 | .00 | .00 | 5642.00 | 4880.00 | 5649.87 | 5649.87 | 5652.56 | 91.42 | 13.16 | 370.76 | 510.38 |
| 3052.000 | 50.00 | 5660.60 | 5658.60 | 5642.00 | 4880.00 | 5650.90 | .00 | 5652.78 | 52.26 | 11.02 | 442.98 | 675.07 |
| * 3056.000 | 90.00 | .00 | .00 | 5645.00 | 4880.00 | 5653.23 | 5653.23 | 5656.59 | 74.26 | 15.15 | 351.70 | 566.30 |
| * 3060.000 | 15.00 | 5664.30 | 5660.40 | 5645.00 | 4880.00 | 5654.40 | .00 | 5656.59 | 45.16 | 11.64 | 419.13 | 726.14 |
| * 3064.000 | 90.00 | .00 | .00 | 5649.00 | 4880.00 | 5655.32 | 5655.32 | 5658.20 | 76.50 | 13.80 | 370.03 | 557.93 |
| * 3068.000 | 20.00 | 5663.70 | 5661.70 | 5649.00 | 4880.00 | 5656.77 | .00 | 5658.44 | 38.37 | 10.37 | 470.40 | 787.87 |
| * 3072.000 | 165.00 | .00 | .00 | 5651.80 | 2015.00 | 5658.49 | .00 | 5658.76 | 2.29 | 4.30 | 589.80 | 1332.88 |
| * 6001.000 | 350.00 | .00 | .00 | 5657.30 | 2015.00 | 5662.31 | 5662.31 | 5664.13 | 19.58 | 11.21 | 246.46 | 455.42 |

| | | | | | | | | | | | | |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|--------|-------|---------|--------|
| * 6002.000 | 75.00 | .00 | .00 | 5658.10 | 2015.00 | 5663.11 | 5663.11 | 5664.93 | 19.55 | 11.21 | 246.58 | 455.69 |
| * 6006.000 | 50.00 | 5664.30 | 5662.80 | 5658.80 | 2015.00 | 5663.68 | 5663.66 | 5665.88 | 21.38 | 12.35 | 209.63 | 435.79 |
| 6008.000 | 70.00 | .00 | .00 | 5659.60 | 2015.00 | 5665.88 | .00 | 5666.23 | 26.01 | 6.12 | 434.96 | 395.11 |
| * 6012.000 | 750.00 | .00 | .00 | 5666.60 | 2015.00 | 5670.65 | 5670.65 | 5672.34 | 130.03 | 10.44 | 193.02 | 176.71 |
| * 6014.000 | 470.00 | .00 | .00 | 5670.00 | 1930.00 | 5674.66 | .00 | 5675.04 | 29.20 | 4.96 | 389.06 | 357.16 |
| * 6016.000 | 570.00 | .00 | .00 | 5673.40 | 1930.00 | 5677.17 | .00 | 5677.79 | 88.38 | 6.33 | 304.93 | 205.29 |
| * 6018.000 | 335.00 | .00 | .00 | 5678.60 | 1930.00 | 5681.97 | 5681.97 | 5683.11 | 140.43 | 8.59 | 224.60 | 162.87 |
| * 6020.000 | 90.00 | .00 | .00 | 5683.90 | 1930.00 | 5685.89 | 5685.89 | 5686.80 | 31.03 | 8.06 | 253.67 | 346.46 |
| 6024.000 | 90.00 | .00 | .00 | 5681.70 | 1930.00 | 5686.61 | .00 | 5687.12 | 30.06 | 5.89 | 359.93 | 352.04 |
| * 6028.000 | 880.00 | .00 | .00 | 5690.50 | 1930.00 | 5694.14 | 5694.14 | 5695.48 | 185.08 | 9.26 | 208.32 | 141.86 |
| * 6030.000 | 600.00 | .00 | .00 | 5693.70 | 1870.00 | 5698.73 | .00 | 5699.05 | 27.68 | 5.62 | 420.24 | 355.46 |
| * 6032.000 | 540.00 | .00 | .00 | 5718.40 | 1320.00 | 5720.02 | 5720.02 | 5720.53 | 38.48 | 5.74 | 229.94 | 212.80 |
| * 6036.000 | 1280.00 | .00 | .00 | 5714.20 | 750.00 | 5721.03 | .00 | 5721.04 | .73 | .92 | 1313.26 | 878.34 |
| * 6040.000 | 885.00 | .00 | .00 | 5724.20 | 680.00 | 5725.92 | 5725.92 | 5726.64 | 214.06 | 6.81 | 99.89 | 46.48 |
| * 6048.000 | 510.00 | .00 | .00 | 5733.00 | 680.00 | 5736.19 | 5736.19 | 5736.82 | 94.15 | 6.96 | 125.26 | 70.08 |
| * 6052.000 | 480.00 | .00 | .00 | 5739.40 | 430.00 | 5741.06 | .00 | 5741.23 | 94.21 | 3.12 | 130.27 | 44.30 |
| 6056.000 | 470.00 | .00 | .00 | 5745.00 | 430.00 | 5746.89 | 5746.83 | 5747.46 | 191.37 | 6.05 | 71.02 | 31.08 |

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CREWS GULCH EXISTING CHA

SUMMARY PRINTOUT TABLE 150

| SECD | Q | CNSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|------------|---------|---------|--------|--------|--------|--------|--------|
| * 3002.000 | 4880.00 | 5630.58 | .00 | .00 | 3.88 | 140.00 | .00 |
| * 3008.000 | 4880.00 | 5633.37 | .00 | 2.79 | .00 | 180.00 | 500.00 |
| 3012.000 | 4880.00 | 5633.38 | .00 | .01 | .00 | 180.00 | 50.00 |
| * 3016.000 | 4880.00 | 5633.31 | .00 | -.07 | .00 | 150.00 | 200.00 |
| * 3024.000 | 4880.00 | 5633.25 | .00 | .54 | .00 | 44.00 | 290.00 |
| * 3024.100 | 4880.00 | 5636.44 | .00 | 2.58 | .00 | 44.00 | 42.00 |
| * 3025.000 | 4880.00 | 5638.35 | .00 | 1.91 | .00 | 74.88 | 40.00 |
| * 3038.000 | 4880.00 | 5643.48 | .00 | 5.13 | .00 | 110.00 | 510.00 |
| * 3044.000 | 4880.00 | 5648.16 | .00 | 4.68 | .00 | 109.49 | 610.00 |
| * 3048.000 | 4880.00 | 5649.87 | .00 | 1.71 | .00 | 70.00 | 115.00 |

| | | | | | | | |
|------------|---------|---------|-----|------|-----|--------|--------|
| * 3056.000 | 4880.00 | 5653.23 | .00 | 2.33 | .00 | 54.00 | 90.00 |
| * 3060.000 | 4880.00 | 5654.40 | .00 | 1.17 | .00 | 58.00 | 15.00 |
| * 3064.000 | 4880.00 | 5655.32 | .00 | .92 | .00 | 66.00 | 90.00 |
| * 3068.000 | 4880.00 | 5656.77 | .00 | 1.45 | .00 | 70.00 | 20.00 |
| * 3072.000 | 2015.00 | 5658.49 | .00 | 1.72 | .00 | 132.80 | 165.00 |
| * 6001.000 | 2015.00 | 5662.31 | .00 | 3.82 | .00 | 85.00 | 350.00 |
| * 6002.000 | 2015.00 | 5663.11 | .00 | .80 | .00 | 85.00 | 75.00 |
| * 6006.000 | 2015.00 | 5663.68 | .00 | .57 | .00 | 51.40 | 50.00 |
| 6008.000 | 2015.00 | 5665.88 | .00 | 2.20 | .00 | 100.00 | 70.00 |
| * 6012.000 | 2015.00 | 5670.65 | .00 | 4.77 | .00 | 58.00 | 750.00 |
| * 6014.000 | 1930.00 | 5674.66 | .00 | 4.01 | .00 | 120.00 | 470.00 |
| * 6016.000 | 1930.00 | 5677.17 | .00 | 2.52 | .00 | 150.00 | 570.00 |
| * 6018.000 | 1930.00 | 5681.97 | .00 | 4.79 | .00 | 100.00 | 335.00 |

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| SECNO | Ø | CNSL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|------------|---------|---------|--------|--------|--------|--------|---------|
| * 6020.000 | 1930.00 | 5685.89 | .00 | 3.93 | .00 | 140.00 | 90.00 |
| 6024.000 | 1930.00 | 5686.61 | .00 | .72 | .00 | 109.00 | 90.00 |
| * 6028.000 | 1930.00 | 5694.14 | .00 | 7.53 | .00 | 80.00 | 880.00 |
| * 6030.000 | 1870.00 | 5698.73 | .00 | 4.58 | .00 | 100.00 | 600.00 |
| * 6032.000 | 1320.00 | 5720.02 | .00 | 21.29 | .00 | 230.00 | 540.00 |
| * 6036.000 | 750.00 | 5721.03 | .00 | 1.01 | .00 | 800.00 | 1280.00 |
| * 6040.000 | 680.00 | 5725.92 | .00 | 4.89 | .00 | 70.00 | 885.00 |
| * 6048.000 | 680.00 | 5736.19 | .00 | 10.27 | .00 | 130.25 | 510.00 |
| * 6052.000 | 430.00 | 5741.06 | .00 | 4.86 | .00 | 145.05 | 480.00 |
| 6056.000 | 430.00 | 5746.89 | .00 | 5.84 | .00 | 55.00 | 470.00 |

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 3002.000 PROFILE= 1 CRITICAL DEPTH ASSUMED

HEC2 WATER SURFACE PROFILES SUBCRITICAL FLOW
 100 YEAR FLOODWAY DBPS EXISTING HYDROLOGY
 CREWS GULCH EXISTING CHANNEL CONDITIONS

| | | | | | | | | | | | |
|----------|------|--------|--------|--------|--------|--------|--------|---------|--------|--------|--|
| T3 | | | | | | | | | | | |
| J1 | -10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5626.7 | |
| J2 | 1 | 0 | -1 | | | | | | | | |
| JT | 2 | 4880 | 3990 | | | | | | | | |
| NC | .045 | .045 | .03 | .3 | .5 | | | | | | |
| X1 | 3002 | 7 | 1200 | 1220 | | | | | | | |
| X3 | 0 | 0 | 0 | 1100 | 0 | 1240 | | | | | |
| RR | 5640 | 1000 | 5630 | 1060 | 5628 | 1182 | 5622 | 1200 | 5620.2 | 1215 | |
| GR | 5622 | 1220 | 5626.2 | 1240 | | | | | | | |
| X1 | 3008 | 6 | 1460 | 1662 | 500 | 500 | 500 | | | | |
| X3 | 0 | 0 | 0 | 1470 | 0 | 1650 | | | | | |
| RR5642.0 | | 750 | 5641.9 | 1460 | 5623.0 | 1481 | 5623 | 1642 | 5641.9 | 1662 | |
| GR5642.0 | | 1910 | | | | | | | | | |
| RR | 1.25 | 1.5 | 2.5 | 0 | 160 | 4.5 | 2524.4 | 1.47 | 5623.0 | 5623 | |
| X1 | 3012 | 0 | 0 | 0 | 50 | 50 | 50 | | | | |
| X2 | 0 | 0 | 1 | 5637.6 | 5641.9 | | | | | | |
| X3 | 0 | 0 | 0 | 1470 | 0 | 1650 | | | | | |
| JT | 6 | 750 | 5642 | 5642 | 1460 | 5641.9 | 5641.9 | 1460 | 5641.9 | 5637.6 | |
| BT | 1662 | 5641.9 | 5637.6 | 1662 | 5641.9 | 5641.9 | 1910 | 5642 | 5642 | | |
| X1 | 3016 | 12 | 1455 | 1589 | 200 | 200 | 200 | | | | |
| X3 | 0 | 0 | 0 | 1420 | 0 | 1570 | | | | | |
| RR | 5640 | 1000 | 5635 | 1020 | 5633 | 1200 | 5633.5 | 1265 | 5630 | 1455 | |
| GR5624.7 | | 1460 | 5624.7 | 1529 | 5625.7 | 1584 | 5630 | 1589 | 5631 | 1715 | |
| RR | 5635 | 1850 | 5637 | 1980 | | | | | | | |
| | .016 | .016 | .035 | .3 | .5 | | | | | | |
| J1 | 3024 | 7 | 1372.5 | 1417.5 | 310 | 290 | 290 | | | | |
| X3 | 0 | 0 | 0 | 1373 | 0 | 1417 | | | | | |
| GR | 5644 | 1000 | 5640 | 1160 | 5639.0 | 1372.5 | 5626.6 | 1372.5 | 5626.6 | 1417.5 | |
| RR | 5639 | 1417.5 | 5640 | 1600 | 5644 | 2095 | | | | | |
| RR | 1.25 | 1.56 | 2.6 | 0 | 44 | 2 | 420 | 0 | 5627.2 | 5626.6 | |
| X13024.1 | | 0 | 0 | 0 | 42 | 42 | 42 | | | | |
| X2 | 0 | 0 | 1 | 5637.3 | 5639.0 | 0 | .6 | | | | |
| X3 | 0 | 0 | 0 | 1373 | 0 | 1417 | | | | | |
| BT | 7 | 1000 | 5640 | 5640 | 1160 | 5639 | 5639 | 1372.50 | 5639.0 | 5639.0 | |
| BT1372.5 | | 5639.0 | 5637.3 | 1417.5 | 5639 | 5637.3 | 1417.5 | 5639 | 5639 | 1600 | |
| BT | 5640 | 5640 | 2095 | 5644 | 5644 | | | | | | |
| NC | .045 | .045 | .025 | .1 | .3 | | | | | | |
| X1 | 3025 | 5 | 1005 | 1100 | 40 | 40 | 40 | | | | |
| X3 | 0 | 0 | 0 | 1014 | 0 | 1089 | | | | | |
| RR | 5643 | 1000 | 5642 | 1005 | 5632 | 1030 | 5632 | 1074 | 5643 | 1100 | |
| NC | .045 | .045 | .03 | .1 | .3 | | | | | | |
| X1 | 3038 | 10 | 1405 | 1480 | 510 | 510 | 510 | | | | |
| X3 | 0 | 0 | 0 | 1390 | 0 | 1500 | | | | | |
| RR | 5652 | 1000 | 5650 | 1040 | 5645 | 1200 | 5644.8 | 1375 | 5640 | 1405 | |
| GR5636.7 | | 1420 | 5636.7 | 1430 | 5640 | 1480 | 5646 | 1610 | 5646 | 1770 | |
| X1 | 3044 | 11 | 1460 | 1600 | 500 | 700 | 610 | | | | |
| X3 | 0 | 0 | 0 | 1470 | 0 | 1580 | | | | | |
| RR | 5659 | 1000 | 5655 | 1310 | 5650 | 1325 | 5649 | 1460 | 5645 | 1510 | |
| RR | 5641 | 1515 | 5641 | 1550 | 5645 | 1560 | 5650 | 1600 | 5655 | 1765 | |
| RR | 5659 | 2000 | | | | | | | | | |
| | 3048 | 7 | 1540 | 1610 | 125 | 115 | 115 | | | | |
| X3 | 0 | 0 | 0 | 1540 | 0 | 1610 | | | | | |
| GR5660.6 | | 1000 | 5660.6 | 1540 | 5648 | 1540 | 5642 | 1600 | 5642 | 1610 | |
| GR5660.6 | | 1610 | 5660.6 | 1700 | | | | | | | |
| RR | .9 | 1.5 | 2.5 | 0 | 70 | 4 | 1060 | 0 | 5642.0 | 5642 | |
| X1 | 3052 | 0 | 0 | 0 | 50 | 50 | 50 | | | | |
| X2 | 0 | 0 | 1 | 5658.6 | 5660.6 | | | | | | |

| | | | | | | | | | | |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| BT | 1610 | 5660.6 | 5658.6 | 1610 | 5660.6 | 5660.6 | 1700 | 5660.6 | 5660.6 | |
| X1 | 3056 | 6 | 1220 | 1310 | 90 | 90 | 90 | | | |
| X3 | 0 | 0 | 0 | 1238 | 0 | 1292 | | | | |
| BR | 5662 | 1000 | 5664.3 | 1220 | 5645 | 1250 | 5645 | 1280 | 5664.3 | 1310 |
| BR | 5666 | 1470 | | | | | | | | |
| SB | .9 | 1.5 | 2.5 | 0 | 30 | 2 | 840 | 2.00 | 5645.0 | 5645 |
| | 3060 | 0 | 0 | 0 | 15 | 15 | 15 | | | |
| X2 | 0 | 0 | 1 | 5660.4 | 5664.3 | | | | | |
| X3 | 0 | 0 | 0 | 1236 | 0 | 1294 | | | | |
| BT | 6 | 1000 | 5662.0 | 5662 | 1220 | 5664.3 | 5664.3 | 1220 | 5664.3 | 5660.6 |
| BT | 1310 | 5664.3 | 5660.6 | 1310 | 5664.3 | 5664.3 | 1470 | 5666.0 | 5666 | |
| X1 | 3064 | 6 | 1400 | 1490 | 90 | 90 | 90 | | | |
| X3 | 0 | 0 | 0 | 1412 | 0 | 1478 | | | | |
| BR | 5663.7 | 1000 | 5663.7 | 1400 | 5649 | 1420 | 5649 | 1470 | 5663.7 | 1490 |
| BR | 5664 | 1710 | | | | | | | | |
| SB | 1.25 | 1.5 | 2.5 | 0 | 50 | 3 | 890 | 1.60 | 5649 | 5649 |
| X1 | 3068 | 0 | 0 | 0 | 20 | 20 | 20 | | | |
| X2 | 0 | 0 | 1 | 5661.7 | 5663.7 | | | | | |
| X3 | 0 | 0 | 0 | 1410 | 0 | 1480 | | | | |
| BT | 6 | 1000 | 5663.7 | 5663.7 | 1400 | 5663.7 | 5663.7 | 1400 | 5663.7 | 5661.7 |
| BT | 1490 | 5663.7 | 5661.7 | 1490 | 5663.7 | 5663.7 | 1710 | 5664.0 | 5664 | |
| BT | 2 | 2015 | 2850 | | | | | | | |
| NC | .045 | .045 | .016 | .1 | .6 | | | | | |
| X1 | 3072 | 8 | 1620 | 1750 | 165 | 165 | 165 | | | |
| X3 | 0 | 0 | 0 | 1600 | 0 | 1735 | | | | |
| BR | 5662 | 1000 | 5658 | 1335 | 5656 | 1550 | 5656.0 | 1620 | 5651.8 | 1670 |
| BR | 5651.8 | 1700 | 5662 | 1750 | 5664 | 2000 | | | | |
| NC | .05 | .05 | .016 | .1 | .3 | | | | | |
| X1 | 6001 | 8 | 1528 | 1563 | 290 | 395 | 350 | | | |
| X3 | 0 | 0 | 0 | 1490 | 0 | 1575 | | | | |
| BR | 5665.0 | 1445 | 5662.0 | 1465 | 5660.0 | 1528 | 5657.3 | 1531 | 5657.3 | 1560 |
| | 5660.0 | 1563 | 5664.0 | 1585 | 5666.0 | 1680 | | | | |
| SB | 6002 | 0 | 0 | 0 | 75 | 75 | 75 | 0 | .8 | |
| X3 | 0 | 0 | 0 | 1490 | 0 | 1575 | | | | |
| SB | 1.25 | 1.5 | 2.5 | 0 | 31 | 1.8 | 115 | 00 | 5658.8 | |
| X1 | 6006 | 18 | 1524.5 | 1555.5 | 50 | 50 | 50 | | | |
| X2 | 0 | 0 | 1 | 5662.8 | 5664.3 | | | | | |
| X3 | 0 | 0 | 0 | 1470 | 0 | 1570 | | | | |
| BT | 18 | 1000 | 5664.6 | 5658 | 1172 | 5664.1 | 5658 | 1270 | 5665.3 | 5658 |
| BT | 1298 | 5665.5 | 5658 | 1299 | 5665.5 | 5658 | 1391 | 5665.3 | 5658 | 1392 |
| BT | 5665.3 | 5658 | 1517 | 5665 | 5658 | 1524.5 | 5664.3 | 5662.8 | 1540 | 5664.3 |
| BT | 5662.8 | 1555.5 | 5664.3 | 5662.8 | 1580 | 5666 | 5658 | 1674 | 5666.6 | 5658 |
| BT | 1675 | 5666.6 | 5658 | 1790 | 5667.2 | 5658 | 1791 | 5667.2 | 5658 | 1880 |
| BT | 5658.8 | 5658 | 1935 | 5669.5 | 5658 | | | | | |
| BR | 5664.6 | 1000 | 5665 | 1172 | 5665 | 1270 | 5664.5 | 1298 | 5674.5 | 1299 |
| BR | 5673.6 | 1391 | 5662 | 1392 | 5665 | 1517 | 5658.8 | 1524.5 | 5658.8 | 1540 |
| BR | 5658.8 | 1555.5 | 5665 | 1580 | 5666 | 1674 | 5676.4 | 1675 | 5677.8 | 1790 |
| BR | 5667.8 | 1791 | 5669.2 | 1880 | 5670 | 1935 | | | | |
| NC | .045 | .045 | .035 | .1 | .3 | | | | | |
| X1 | 6008 | 10 | 1331 | 1340 | 70 | 70 | 70 | | | |
| X3 | 0 | 0 | 0 | 1250 | 0 | 1350 | | | | |
| BR | 5676 | 1000 | 5666 | 1000 | 5664 | 1065 | 5662 | 1300 | 5660 | 1310 |
| BR | 5659.6 | 1320 | 5660 | 1331 | 5662 | 1340 | 5664 | 1355 | 5666 | 1445 |
| X1 | 6012 | 53 | 1723.9 | 1830.7 | 750 | 750 | 750 | | | |
| X3 | 0 | 0 | 0 | 1726 | 00 | 1784 | | | | |
| BR | 5668.3 | 999.3 | 5668.6 | 1021.8 | 5667.8 | 1047.7 | 5666.9 | 1076 | 5668 | 1109.7 |
| BR | 5668.9 | 1136 | 5670.1 | 1166.1 | 5671.4 | 1192 | 5681.4 | 1193 | 5679.7 | 1286 |
| | 5669.7 | 1286.6 | 5669.1 | 1329.2 | 5669.1 | 1361 | 5669.1 | 1402.8 | 5670 | 1436.4 |
| BR | 5670.7 | 1471.2 | 5680.7 | 1472 | 5678.4 | 1538 | 5668.4 | 1538.9 | 5668.4 | 1542.9 |
| BR | 5667.4 | 1544.1 | 5667.7 | 1561.4 | 5667.6 | 1576.6 | 5668 | 1578.4 | 5668 | 1581.3 |
| BR | 5669.4 | 1595.2 | 5670.4 | 1609.4 | 5671.7 | 1647.7 | 5671 | 1673.4 | 5671.5 | 1700.6 |
| BR | 5672.4 | 1723.9 | 5667.3 | 1727.5 | 5666.6 | 1750.6 | 5666.6 | 1768 | 5670.7 | 1784.9 |
| BR | 5672.2 | 1797 | 5672.1 | 1809.5 | 5671.9 | 1812.4 | 5672.8 | 1830.7 | 5672.2 | 1851.6 |
| BR | 5672.8 | 1875.3 | 5673 | 1906.4 | 5683 | 1907 | 5683.5 | 1944 | 5684 | 1981 |

| | | | | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|-----|
| QT | 2 | 1930 | 2770 | | | | | | | | 780 |
| X1 | 6014 | 19 | 1600 | 1790 | 520 | 420 | 470 | | | | |
| X3 | 0 | 0 | 0 | 1620 | 0 | 1740 | | | | | |
| GR | 5670 | 1000 | 5669.5 | 1050 | 5680 | 1051 | 5685 | 1369 | 5675 | 1370 | |
| GR5675.2 | | 1500 | 5677 | 1600 | 5670 | 1655 | 5670 | 1675 | 5675 | 1790 | |
| GR | 5677 | 1850 | 5677 | 1900 | 5687 | 1900 | 5687 | 1950 | 5677 | 1950 | 2.3 |
| | 5676 | 2000 | 5675.5 | 2035 | 5678.4 | 2100 | 5680 | 2210 | | | 4.5 |
| X1 | 6016 | 41 | 2087.3 | 2318.4 | 650 | 480 | 570 | | | | 3.9 |
| X3 | 0 | 0 | 0 | 2130 | 0 | 2280 | | | | | 5.5 |
| GR5685.1 | 1648.1 | 5684.8 | 1675.5 | 5684.4 | 1694 | 5684.4 | 1716.5 | 5684.4 | 1732.8 | | 9.9 |
| GR5683.8 | 1745.8 | 5683.8 | 1769 | 5693.8 | 1770 | 5691.7 | 1818 | 5681.4 | 1818.4 | 146 | |
| GR5681.4 | 1844.4 | 5681.3 | 1872.6 | 5680.4 | 1901 | 5680.4 | 1905.3 | 5679.9 | 1907.1 | 6.7 | |
| GR5680.4 | 1923.8 | 5680 | 1939.9 | 5680.2 | 1941.9 | 5680.2 | 1945.3 | 5681.4 | 1956.5 | 4.5 | |
| GR5683.1 | 1966.8 | 5683.1 | 1974.3 | 5693.1 | 1975 | 5693.1 | 2010 | 5683.1 | 2010.3 | | |
| GR5682.4 | 2040.5 | 5681.6 | 2064.7 | 5679.2 | 2087.3 | 5676.2 | 2115 | 5675.4 | 2134.9 | | |
| GR5675.3 | 2158 | 5674.8 | 2186.7 | 5673.4 | 2195.3 | 5673.4 | 2204.1 | 5675.1 | 2223.2 | 260 | |
| GR5675.9 | 2249.9 | 5676.3 | 2283.8 | 5678 | 2318.4 | 5680.7 | 2353.4 | 5682.7 | 2393.5 | 321 | |
| GR5682.6 | 2442.8 | | | | | | | | | 662 | |
| X1 | 6018 | 32 | 1415 | 1524 | 335 | 335 | 335 | | | | |
| X3 | 0 | 0 | 0 | 1420 | 0 | 1520 | | | | | |
| GR | 5690 | 1000 | 5700 | 1000 | 5700.1 | 1040 | 5690.1 | 1040 | 5688.8 | 1100 | |
| GR5687.4 | 1145 | 5697.4 | 1145 | 5695.8 | 1190 | 5685.8 | 1190 | 5685 | 1215 | | |
| GR5684.5 | 1217 | 5684.5 | 1276 | 5685 | 1278 | 5695.1 | 1305 | 5695.1 | 1360 | 980 | |
| GR5685.1 | 1360 | 5685 | 1390 | 5682.5 | 1415 | 5680 | 1435 | 5678.6 | 1440 | 4.7 | |
| GR5678.6 | 1450 | 5680 | 1505 | 5682.5 | 1525 | 5685 | 1560 | 5695 | 1560 | 2.5 | |
| GR5691.5 | 1590 | 5685.1 | 1590 | 5685.8 | 1600 | 5685 | 1640 | 5684.2 | 1645 | | |
| GR5684.2 | 1680 | 5685 | 1690 | | | | | | | | |
| NC | .016 | .016 | .016 | .1 | .3 | | | | | | |
| X1 | 6020 | 7 | 1285 | 1348 | 90 | 90 | 90 | | | | 950 |
| X3 | 0 | 0 | 0 | 1230 | 0 | 1370 | | | | | 110 |
| GR | 5688 | 1000 | 5686 | 1025 | 5684 | 1285 | 5683.9 | 1319 | 5684 | 1348 | 300 |
| | 5686 | 1520 | 5687 | 1545 | | | | | | | |
| NC | .045 | .045 | .035 | .1 | .3 | | | | | | |
| QT | 2 | 1930 | 2710 | | | | | | | | |
| X1 | 6024 | 27 | 1060.7 | 1135.1 | 90 | 90 | 90 | | | | |
| X3 | 0 | 0 | 0 | 1030 | 0 | 1139 | | | | | |
| GR | 5690 | 750 | 5689 | 800 | 5688 | 850 | 5687 | 900 | 5686 | 950 | |
| GR5685.8 | 1000 | 5685.8 | 1016.1 | 5685.2 | 1038.8 | 5684.3 | 1060.7 | 5681.7 | 1074.5 | | |
| GR5682.2 | 1081.8 | 5682.2 | 1086.1 | 5681.8 | 1088.6 | 5681.8 | 1095.6 | 5682.2 | 1106.6 | | |
| GR5683.3 | 1132.3 | 5685.5 | 1135.1 | 5686.1 | 1151.6 | 5687 | 1173.7 | 5697 | 1174 | | |
| GR5697.9 | 1221 | 5687.9 | 1221.8 | 5687.4 | 1253 | 5687.4 | 1257.1 | 5686.3 | 1257.7 | | |
| GR5687.7 | 1274.9 | 5686.2 | 1291.6 | | | | | | | | |
| NC | .045 | .045 | .04 | | | | | | | | |
| X1 | 6028 | 14 | 1690 | 1848 | 1000 | 950 | 880 | | | | |
| X3 | 0 | 0 | 0 | 1730 | 0 | 1810 | | | | | |
| GR | 5701 | 1000 | 5700 | 1040 | 5698 | 1090 | 5695.7 | 1170 | 5697 | 1240 | |
| GR | 5696 | 1670 | 5694 | 1690 | 5692.0 | 1720 | 5690.5 | 1760 | 5692.0 | 1785 | |
| GR | 5694 | 1848 | 5696.0 | 1878 | 5698 | 2032 | 5700 | 2088 | | | |
| QT | 2 | 1870 | 2630 | | | | | | | | |
| X1 | 6030 | 15 | 1605 | 1620 | 600 | 580 | 600 | | | | |
| X3 | 0 | 0 | 0 | 1580 | 0 | 1680 | | | | | |
| GR | 5709 | 1000 | 5708 | 1020 | 5704 | 1082 | 5704 | 1100 | 5706 | 1142 | |
| GR | 5704 | 1214 | 5704 | 1482 | 5702 | 1510 | 5696 | 1540 | 5694 | 1605 | |
| GR5693.7 | 1615 | 5694 | 1620 | 5696 | 1700 | 5698 | 1728 | 5706 | 1788 | | |
| QT | 2 | 1320 | 1690 | | | | | | | | |
| NC | .016 | .016 | .016 | .1 | .3 | | | | | | |
| X1 | 6032 | 9 | 1315 | 1640 | 830 | 880 | 540 | | | | |
| X3 | 0 | 0 | 0 | 1370 | 0 | 1600 | | | | | |
| GR | 5730 | 1000 | 5720 | 1315 | 5718.4 | 1420 | 5719 | 1495 | 5720 | 1640 | |
| GR5721.8 | 2010 | 5727.1 | 2068 | 5724 | 2195 | 5730 | 2400 | | | | |
| NC | .045 | .045 | .040 | .1 | .3 | | | | | | |
| QT | 2 | 750 | 1060 | | | | | | | | |
| X1 | 6036 | 19 | 1480 | 1590 | 1450 | 1100 | 1280 | | | | |
| X3 | 0 | 0 | 0 | 1050 | 0 | 1400 | | | | | |
| GR | 5730 | 1000 | 5720 | 1000 | 5718.4 | 1100 | 5719 | 1170 | 5720 | 1240 | |

| | | | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| GR | 5716 | 1560 | 5720 | 1590 | 5720.2 | 1600 | 5720 | 1610 | 5719 | 1780 |
| GR | 5720 | 1915 | 5722 | 2100 | 5724 | 2165 | 5730 | 2320 | | |
| QT | 2 | 680 | 970 | | | | | | | |
| X1 | 6040 | 40 | 1748.8 | 1928 | 825 | 915 | 885 | | | |
| X3 | 0 | 0 | 0 | 1770 | 0 | 1840 | | | | |
| GR5733.9 | 1310.4 | 5732.2 | 1333.8 | 5733.2 | 1339 | 5731.9 | 1370.2 | 5731.9 | 1412.3 | |
| | 5731.9 | 1456.4 | 5731.9 | 1514.7 | 5731.7 | 1574.8 | 5731.4 | 1621.7 | 5731.2 | 1684.5 |
| GR | 5731 | 1733.3 | 5731.3 | 1748.8 | 5724.3 | 1773 | 5724.3 | 1786.9 | 5725 | 1793.9 |
| GR5724.5 | 1803.2 | 5724.2 | 1812.4 | 5724.2 | 1829.6 | 5727.8 | 1854.9 | 5728.6 | 1875.5 | |
| GR5726.9 | 1901.8 | 5731.7 | 1928 | 5731.7 | 1945.6 | 5729.9 | 1953.3 | 5731.3 | 1959.9 | |
| GR | 5732 | 1979.3 | 5730 | 2011.5 | 5731.3 | 2066.9 | 5733 | 2111.3 | 5732.8 | 2146 |
| GR | 5733 | 2179.1 | 5734.3 | 2216 | 5735 | 2252.1 | 5732.9 | 2253.3 | 5732.9 | 2276.7 |
| GR5732.2 | 2292.6 | 5732.2 | 2324.4 | 5732.2 | 2374.1 | 5732.8 | 2420 | 5734 | 2464.5 | |
| X1 | 6048 | 16 | 1292 | 1321 | 450 | 550 | 510 | | | |
| X3 | 0 | 0 | 0 | 1200 | 0 | 1350 | | | | |
| GR | 5740 | 1000 | 5738.0 | 1025 | 5736.1 | 1055 | 5736 | 1160 | 5736 | 1260 |
| GR5736.5 | 1270 | 5736 | 1282 | 5734 | 1292 | 5733 | 1302 | 5734 | 1321 | |
| GR | 5736 | 1340 | 5736.5 | 1350 | 5736 | 1358 | 5736 | 1508 | 5738 | 1662 |
| GR | 5740 | 1740 | | | | | | | | |
| QT | 2 | 430 | 660 | | | | | | | |
| X1 | 6052 | 18 | 1049 | 1127.1 | 550 | 420 | 480 | | | |
| X3 | 0 | 0 | 0 | 1050 | 0 | 1200 | | | | |
| GR | 5745 | 860 | 5742.5 | 900 | 5741 | 930 | 5740 | 960 | 5740 | 980 |
| GR | 5742 | 1000 | 5741.2 | 1022.1 | 5741.1 | 1049 | 5739.9 | 1072.5 | 5740.7 | 1104.7 |
| GR5739.4 | 1113.8 | 5739.4 | 1119.7 | 5741.2 | 1127.1 | 5740.7 | 1142.1 | 5739.5 | 1182.5 | |
| GR | 5739 | 1300 | 5740 | 1450 | 5745 | 2000 | | | | |
| X1 | 6056 | 17 | 1053.7 | 1170 | 470 | 470 | 470 | | | |
| X3 | 0 | 0 | 0 | 1095 | 0 | 1150 | | | | |
| GR | 5750 | 640 | 5745 | 725 | 5746 | 800 | 5747.4 | 900 | 5748 | 950 |
| GR5747.8 | 1000 | 5747.9 | 1025.2 | 5747.9 | 1053.7 | 5747 | 1093 | 5745 | 1110 | |
| GR | 5745 | 1125.8 | 5747.3 | 1159.7 | 5748 | 1170 | 5746 | 1200 | 5747 | 1300 |
| | 5748.7 | 1730 | 5749 | 1900 | | | | | | |

ER

BIG JOHNSON RESERVOIR/CREWS GULCH
DRAINAGE BASIN PLANNING STUDY

TECHNICAL ADDENDUM

Section VII-B

BAC-2 Water Surface Profile Program Printouts

Fountain Mesa Tributary

Existing Channel Conditions

10- and 100-year Frequencies

(for floodplain information refer to Sheet 2 of 2,
Floodplain Delineation Map, Fountain Mesa Tributary,
contained in the map pocket)

C:\HYDRICS>

WATER SURFACE PROFILES

* VERSION OF NOVEMBER 1976 *
* UPDATED MAY 1984 *
* IBM-PC-XT VERSION *
* RUN DATE 10/20/89 TIME 03:40:59 *

* U.S. ARMY CORPS OF ENGINEERS
* THE HYDROLOGIC ENGINEERING CENTER
* 607 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616
* (916) 440-2105 (FIS) 443-2165

X XXXXXX XXXXX
X X X X X X
X Y X X X X
XXXXXXXX XXXX Z XXXXX XXXXX
X X X X X X
X Y X X X X
Y X XXXXXX XXXXX XXXXXXX

10/20/89 03:41:00

PAGE 1

THIS RUN EXECUTED 10/20/89 03:41:01

DEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION 1.1

C
T1 FOUNTAIN MESA
T2 2 HOUR STORM 100-YEAR EXISTING CONDITION
T3 BIG JOHNSON/CRENS BULCH DRAINAGE BASIN PLANNING STUDY

Table with columns: J1, ICHECK, INQ, WINV, IDIR, STRT, METRIC, HYDUS, Q, WSEL, PD, J2, NPROF, IPIOT, PPFVS, XSECV, XSECH, FA, ALLDC, IBW, CHWIN, ITRACE. Rows include data for BT, NC, and XI.

| | | | | | | | | | | |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| BR | 5717.400 | 1400.000 | 5718.000 | 1550.000 | 5718.400 | 1070.000 | 5717.000 | 1180.000 | 5717.000 | 1220.000 |
| | .045 | .045 | .045 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2.000 | 9.000 | 1070.000 | 1170.000 | 190.000 | 400.000 | 330.000 | .000 | .000 | .000 |
| BR | 5726.000 | 1000.000 | 5722.000 | 1040.000 | 5720.000 | 1070.000 | 5719.000 | 1120.000 | 5720.000 | 1170.000 |
| BR | 5724.000 | 1190.000 | 5726.000 | 1230.000 | 5727.000 | 1255.000 | 5737.000 | 1256.000 | .000 | .000 |
| | 2.000 | 520.000 | 180.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | .016 | .016 | .016 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| BELLA VISTA | | | | | | | | | | |
| | 3.000 | 8.000 | 1090.000 | 1365.000 | 420.000 | 320.000 | 410.000 | .000 | .000 | .000 |
| BR | 5734.000 | 1000.000 | 5732.000 | 1030.000 | 5730.000 | 1090.000 | 5728.000 | 1250.000 | 5728.000 | 1260.000 |
| BR | 5730.000 | 1365.000 | 5732.000 | 1395.000 | 5734.000 | 1425.000 | .000 | .000 | .000 | .000 |
| | .045 | .045 | .045 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 4.000 | 6.000 | 1100.000 | 1235.000 | 625.000 | 565.000 | 640.000 | .000 | .000 | .000 |
| BR | 5748.000 | 1000.000 | 5746.000 | 1100.000 | 5745.000 | 1190.000 | 5746.000 | 1235.000 | 5750.000 | 1235.000 |
| BR | 5760.000 | 1295.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 2.000 | 440.000 | 150.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | .016 | .016 | .016 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| METROPOLITAN | | | | | | | | | | |
| | 5.000 | 9.000 | 1050.000 | 1235.000 | 570.000 | 570.000 | 635.000 | .000 | .000 | .000 |
| BR | 5772.000 | 1000.000 | 5770.000 | 1020.000 | 5768.000 | 1050.000 | 5767.500 | 1095.000 | 5767.000 | 1095.000 |
| BR | 5766.000 | 1175.000 | 5768.000 | 1235.000 | 5770.000 | 1310.000 | 5772.000 | 1335.000 | .000 | .000 |

03:41:00

| | | | | | | | | | | |
|----|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | .045 | .045 | .045 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | 8.000 | 1030.000 | 1145.000 | 480.000 | 510.000 | 530.000 | .000 | .000 | .000 | .000 |
| BR | 5784.000 | 1000.000 | 5780.000 | 1030.000 | 5778.000 | 1050.000 | 5772.000 | 1115.000 | 5774.000 | 1130.000 |
| BR | 5780.000 | 1145.000 | 5782.000 | 1150.000 | 5784.000 | 1190.000 | .000 | .000 | .000 | .000 |
| | 10.000 | 1065.000 | 1142.000 | 590.000 | 665.000 | 675.000 | .000 | .000 | .000 | .000 |
| BR | 5792.000 | 1000.000 | 5794.000 | 1020.000 | 5792.000 | 1033.000 | 5790.000 | 1060.000 | 5788.000 | 1065.000 |
| BR | 5786.000 | 1110.000 | 5788.000 | 1138.000 | 5790.000 | 1142.000 | 5794.500 | 1150.000 | 5795.200 | 1270.000 |
| | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

03:41:00

| DEPTH | CWSEL | CRINS | WSELK | EB | RV | HL | GLOSS | BANK ELEV |
|-------|-------|-------|--------|------|-------|-------|--------|------------|
| QLOB | QCH | CRQB | ALQB | ACH | ARQB | VDL | TW4 | LEFT/RIGHT |
| VLOB | VCH | VRQB | ARL | XRCH | XNR | WTN | ELMIN | SETA |
| XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | ERRAR | TOPWID | ENOST |

| | | | | | | | | |
|------------------------|-------|---------|---------|---------|---------|------|------|---------|
| CRITICAL DEPTH ASSUMED | DRURY | | | | | | | |
| 1.00 | .81 | 5717.81 | 5717.81 | 5719.00 | 5718.05 | .24 | .00 | 8723.00 |
| 570 | 0. | 526. | 44. | 0. | -131. | 22. | 0. | 5717.40 |
| 1.00 | .00 | 4.03 | 2.05 | .016 | .016 | .016 | .000 | 5717.00 |
| 0.5970 | 0. | 0. | 0. | 0 | 18 | 0 | .00 | 332.64 |
| 1503.74 | | | | | | | | |
| CRITICAL DEPTH ASSUMED | | | | | | | | |
| 2.00 | 1.50 | 5720.50 | 5720.50 | .00 | 5720.99 | .48 | 2.81 | 5720.50 |
| 570 | 4. | 544. | 1. | 5. | 100. | 1. | 1. | 5720.50 |

08932 190. 330. 400. 20 17 0 .00 110.04 1172.51

SECD 3.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

BELLA VISTA

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|
| 5.00 | 1.23 | 5729.23 | 5729.23 | .00 | 5729.56 | .34 | 3.93 | .00 | 5730.00 |
| 520. | 0. | 520. | 0. | 0. | 112. | 0. | 2. | 3. | 5730.00 |
| .04 | .00 | 4.65 | .00 | .016 | .016 | .016 | .000 | 5728.00 | 1151.91 |
| 004464 | 420. | 410. | 320. | 5 | 15 | 0 | .00 | 172.45 | 1324.37 |

SECD 4.000

5885 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|
| 4.00 | 1.27 | 5746.27 | 5746.27 | .00 | 5746.65 | .38 | 6.05 | .00 | 5746.00 |
| 520. | 3. | 517. | 0. | 2. | 104. | 0. | 4. | 5. | 5746.00 |
| .08 | 1.56 | 4.96 | 1.55 | .045 | .045 | .045 | .000 | 5745.00 | 1086.43 |
| 051905 | 625. | 640. | 565. | 20 | 8 | 0 | .00 | 150.61 | 1237.04 |

SECD 5.000

7185 MINIMUM SPECIFIC ENERGY

10/20/89 03:41:00

PAGE 4

| SECD | DEPTH | CWSEL | CRINS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|-------|-------|-------|-------|--------|------|-------|-------|--------|------------|
| Q | QLOS | QCH | QROB | ALOB | ACH | AROS | VOL | TWR | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLEN | XLBR | ITRIAL | IDC | ICONT | CORAR | TOPNID | ENDST |

CRITICAL DEPTH ASSUMED

METROPOLITAN

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|
| 5.00 | 1.06 | 5767.66 | 5767.66 | .00 | 5768.00 | .34 | 6.35 | .00 | 5768.00 |
| 440. | 0. | 440. | 0. | 0. | 94. | 0. | 5. | 8. | 5768.00 |
| .11 | .00 | 4.68 | .00 | .016 | .016 | .016 | .000 | 5766.00 | 1080.59 |
| 004329 | 670. | 635. | 570. | 5 | 15 | 0 | .00 | 139.85 | 1220.43 |

SECD 6.000

5885 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|
| 5.00 | 2.68 | 5774.68 | 5774.68 | .00 | 5775.40 | .72 | 4.42 | .00 | 5780.00 |
| 440. | 0. | 440. | 0. | 0. | 65. | 0. | 6. | 9. | 5780.00 |
| .14 | .00 | 6.81 | .00 | .045 | .045 | .045 | .000 | 5772.00 | 1085.98 |
| 027072 | 480. | 500. | 510. | 20 | 20 | 0 | .00 | 45.72 | 1131.70 |

SECD 7.000

5885 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|-------|---------|---------|
| 5.00 | 1.86 | 5788.66 | 5788.66 | .00 | 5789.01 | .35 | 13.31 | .00 | 5796.00 |
| 440. | 1. | 439. | 0. | 1. | 92. | 0. | 7. | 10. | 5790.00 |
| .17 | 1.87 | 4.76 | .00 | .045 | .045 | .045 | .000 | 5786.80 | 1063.35 |
| 015599 | 590. | 675. | 665. | 6 | 0 | 0 | .00 | 75.93 | 1139.32 |

10/20/89 03:41:00

PAGE 5

THIS RUN EXECUTED 10/20/89 03:41:30

 RELEASE DATED NOV 76 UPDATED MAY 1984
 ERROR CORR - 01,02,03,04,05,06
 MODIFICATION - 50,51,52,53,54,55,56

FOUNTAIN WESA
 2 HOUR STORM 10 YEAR EXISTING CONDITION
 L TO R LOOKING DOWNSTREAM

| CHECK | INQ | MINV | IDIR | STRT | METRIC | HVINS | S | WSEL | FD |
|----------|-------|--------|-------|---------|--------|-------|------|----------|--------|
| -10. | 3. | 0. | 0. | .000000 | .00 | .0 | 0. | 5718.000 | .000 |
| 12 NPRDF | IPLDT | FRFVS | XSECV | XSECH | FN | ALLDC | IDW | CHHTM | ITRACE |
| 15.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

10/20/89 03:41:00

PAGE 5

| SECNO | DEPTH | WSEL | CRINS | WSELK | EG | HV | HL | GLOSS | BANK ELEV |
|-------|-------|------|-------|--------|------|-------|-------|--------|------------|
| | QLOB | QCH | QROB | ALOB | ACH | AROB | VBL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROS | XNL | XNCH | XNE | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | COSPR | TOPNID | ENDST |

*PRDF 2

*SECNO 1.000

DRURY

| | | | | | | | | | |
|--------|------|---------|-----|---------|---------|------|------|---------|---------|
| 1.00 | 1.00 | 5718.00 | .00 | 5718.00 | 5718.01 | .01 | .00 | .00 | 5722.00 |
| .200 | 0. | 175. | 25. | 0. | 174. | 45. | 0. | 0. | 5717.40 |
| .00 | .00 | 1.01 | .56 | .016 | .016 | .016 | .000 | 5717.00 | 1160.00 |
| 000180 | 0. | 0. | 0. | 0 | 0 | 0 | .00 | 390.00 | 1550.00 |

*SECNO 2.000

3685 20 TRIALS ATTEMPTED WSEL, WSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|
| 2.00 | .99 | 5719.99 | 5719.99 | .00 | 5720.25 | .26 | .21 | .00 | 5720.00 |
| .200 | 0. | 200. | 0. | 0. | 49. | 0. | 1. | 2. | 5720.00 |
| .02 | .00 | 4.07 | .00 | .045 | .045 | .045 | .000 | 5719.00 | 1070.42 |
| 003865 | 190. | 330. | 400. | 20 | 5 | 0 | .00 | 59.17 | 1169.58 |

*SECNO 3.000

3785 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

BELLA VISTA

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|
| 3.00 | .78 | 5728.78 | 5728.78 | .00 | 5729.00 | .21 | 4.67 | .00 | 5730.00 |
| .180 | 0. | 190. | 0. | 0. | 48. | 0. | 2. | 3. | 5730.00 |
| .05 | .00 | 3.72 | .00 | .016 | .016 | .016 | .000 | 5728.00 | 1197.36 |
| 000504 | 420. | 410. | 320. | 7 | 15 | 0 | .00 | 113.71 | 1351.09 |

*SECNO 4.000

3685 20 TRIALS ATTEMPTED WSEL, WSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|
| 4.00 | .84 | 5745.84 | 5745.84 | .00 | 5746.00 | .22 | 7.03 | .00 | 5746.00 |
| .180 | 0. | 190. | 0. | 0. | 48. | 0. | 2. | 5. | 5746.00 |
| .10 | .00 | 3.75 | .00 | .045 | .045 | .045 | .000 | 5745.00 | 1114.11 |
| 040799 | 625. | 640. | 535. | 20 | 5 | 0 | .00 | 113.84 | 1227.95 |

*SECNO 5.000

3685 20 TRIALS ATTEMPTED WSEL, WSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

| SECNO | DEPTH | CWSEL | CRWS | WSEL | ES | HW | HL | DLSS | CANK | ELEV |
|-------|-------|-------|-------|--------|------|-------|------|-------|------------|------|
| Q | QLOS | QCH | QROP | ALOB | ACH | ASOT | VOL | TWP | LEFT/RIGHT | |
| TIME | VLOB | VCH | VROB | XNL | XNOH | XNR | TYN | ELMIN | ESTA | |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | TEONT | CORR | TDWTD | ENBST | |

5720 CRITICAL DEPTH ASSUMED

METROPOLITAN

| | | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|--|
| 5.00 | .62 | 5767.22 | 5767.22 | .00 | 5767.42 | .20 | 7.87 | .00 | 5768.00 | |
| 150. | 0. | 150. | 0. | 0. | 42. | 0. | 3. | 6. | 5768.00 | |
| .15 | .00 | 3.60 | .00 | .016 | .016 | .016 | .100 | 5766.60 | 1095.00 | |
| 005254 | 670. | 635. | 570. | 20 | 19 | 0 | .00 | 106.52 | 1201.52 | |

SECNO 6.000

685 MINIMUM SPECIFIC ENERGY

5720 CRITICAL DEPTH ASSUMED

| | | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|------|---------|---------|--|
| 5.00 | 1.75 | 5773.75 | 5773.75 | .00 | 5774.19 | .45 | 5.32 | .00 | 5780.00 | |
| 150. | 0. | 150. | 0. | 0. | 28. | 0. | 3. | 7. | 5780.00 | |
| .18 | .00 | 5.36 | .00 | .045 | .045 | .045 | .000 | 5772.00 | 1096.08 | |
| 031870 | 480. | 500. | 510. | 9 | 23 | 0 | .00 | 32.02 | 1129.10 | |

SECNO 7.000

685 TRIALS ATTEMPTED WSEL,CWSEL

5710 WSEL ASSUMED BASED ON MIN DIFF

| | | | | | | | | | | |
|--------|------|---------|---------|------|---------|------|-------|---------|---------|--|
| 5.00 | 1.27 | 5788.07 | 5787.88 | .00 | 5788.22 | .15 | 14.03 | 9.15 | 5790.00 | |
| 150. | 0. | 150. | 0. | 0. | 49. | 0. | 4. | 8. | 5790.00 | |
| .24 | .04 | 3.06 | .00 | .045 | .045 | .045 | .000 | 5786.80 | 1084.82 | |
| 014525 | 590. | 675. | 665. | 20 | 14 | 0 | .00 | 73.32 | 1138.14 | |

00789 03:41:00

THIS RUN EXECUTED 10/20/89 03:41:53

 HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
 ERROR CORR - 01,02,03,04,05,06
 MODIFICATION - 50,51,52,53,54,55,56
 IBM-PC-XT VERSION 1.1

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

16 JOHNSON/CREWS GULCH

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELT60 | ELLC | ELMIN | R | CWSEL | CRWS | ES | 10K48 | VCH | AREA | MIN |
|-------|--------|-------|------|---------|--------|---------|---------|---------|--------|------|--------|--------|
| 1.000 | .00 | .00 | .00 | 5717.00 | 570.00 | 5717.81 | 5717.81 | 5718.05 | 37.70 | 4.03 | 152.15 | 70.97 |
| 1.000 | .00 | .00 | .00 | 5717.00 | 200.00 | 5718.00 | .00 | 5718.01 | 1.80 | 4.01 | 219.02 | 149.10 |
| 2.000 | 330.00 | .00 | .00 | 5719.00 | 570.00 | 5720.50 | 5720.50 | 5720.99 | 299.32 | 5.63 | 102.82 | 70.51 |
| 2.000 | 330.00 | .00 | .00 | 5719.00 | 200.00 | 5719.99 | 5719.99 | 5720.25 | 385.85 | 4.07 | 49.17 | 10.17 |
| 3.000 | 410.00 | .00 | .00 | 5728.00 | 520.00 | 5729.23 | 5729.23 | 5729.56 | 44.64 | 4.85 | 111.95 | 77.53 |
| 3.000 | 410.00 | .00 | .00 | 5726.00 | 180.00 | 5729.78 | 5729.78 | 5729.60 | 59.94 | 3.72 | 48.41 | 25.45 |

| | | | | | | | | | | | | |
|-------|--------|-----|-----|---------|--------|---------|---------|---------|--------|------|--------|-------|
| 4.000 | 440.00 | .00 | .00 | 5745.00 | 520.00 | 5745.27 | 5745.27 | 5746.63 | 319.05 | 4.96 | 106.27 | 29.11 |
| 4.000 | 440.00 | .00 | .00 | 5745.00 | 180.00 | 5745.84 | 5745.84 | 5746.06 | 407.99 | 3.75 | 45.00 | 2.91 |
| 5.000 | 635.00 | .00 | .00 | 5766.60 | 440.00 | 5767.66 | 5767.66 | 5768.00 | 43.29 | 4.68 | 74.04 | 66.26 |
| 5.000 | 635.00 | .00 | .00 | 5766.50 | 150.00 | 5767.22 | 5767.22 | 5767.42 | 52.54 | 3.60 | 41.70 | 20.67 |
| 6.000 | 500.00 | .00 | .00 | 5772.00 | 440.00 | 5774.68 | 5774.68 | 5775.40 | 270.72 | 6.91 | 54.95 | 16.77 |
| 6.000 | 500.00 | .00 | .00 | 5772.00 | 150.00 | 5773.75 | 5773.75 | 5774.15 | 312.70 | 5.36 | 27.96 | 8.40 |
| 7.000 | 675.00 | .00 | .00 | 5786.80 | 440.00 | 5788.66 | .00 | 5789.01 | 155.99 | 4.75 | 92.83 | 35.27 |
| 7.000 | 675.00 | .00 | .00 | 5786.80 | 150.00 | 5788.07 | 5788.07 | 5788.22 | 145.25 | 3.06 | 49.06 | 12.60 |

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BIG JOHNSON/CREWS GULCH

SUMMARY PRINTOUT TABLE 150

| SECD | Q | DWSEL | DIFWSP | DIFWSX | DIFKNS | TOPWID | XLCH |
|-------|--------|---------|--------|--------|--------|--------|--------|
| 1.000 | 570.00 | 5717.51 | .00 | .00 | -1.19 | 332.64 | .00 |
| 1.000 | 200.00 | 5718.00 | .19 | .00 | .00 | 390.00 | .00 |
| 2.000 | 570.00 | 5720.50 | .00 | 2.69 | .00 | 110.08 | 330.00 |
| 2.000 | 200.00 | 5719.99 | -.51 | 1.99 | .00 | 99.17 | 330.00 |
| 3.000 | 520.00 | 5729.23 | .00 | 8.72 | .00 | 172.45 | 410.00 |
| 3.000 | 180.00 | 5728.73 | -.44 | 8.79 | .00 | 113.71 | 410.00 |
| 4.000 | 520.00 | 5746.77 | .00 | 17.05 | .00 | 150.61 | 640.00 |
| 4.000 | 180.00 | 5745.84 | -.43 | 17.06 | .00 | 113.84 | 640.00 |
| 5.000 | 440.00 | 5767.66 | .00 | 21.39 | .00 | 139.85 | 635.00 |
| 5.000 | 150.00 | 5767.22 | -.44 | 21.38 | .00 | 106.52 | 635.00 |
| 6.000 | 440.00 | 5774.68 | .00 | 7.02 | .00 | 45.72 | 500.00 |
| 6.000 | 150.00 | 5773.75 | -.93 | 6.53 | .00 | 32.02 | 500.00 |
| 7.000 | 440.00 | 5788.66 | .00 | 13.98 | .00 | 75.96 | 675.00 |
| 7.000 | 150.00 | 5788.07 | -.58 | 14.33 | .00 | 73.32 | 675.00 |

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SUMMARY OF ERRORS AND SPECIAL

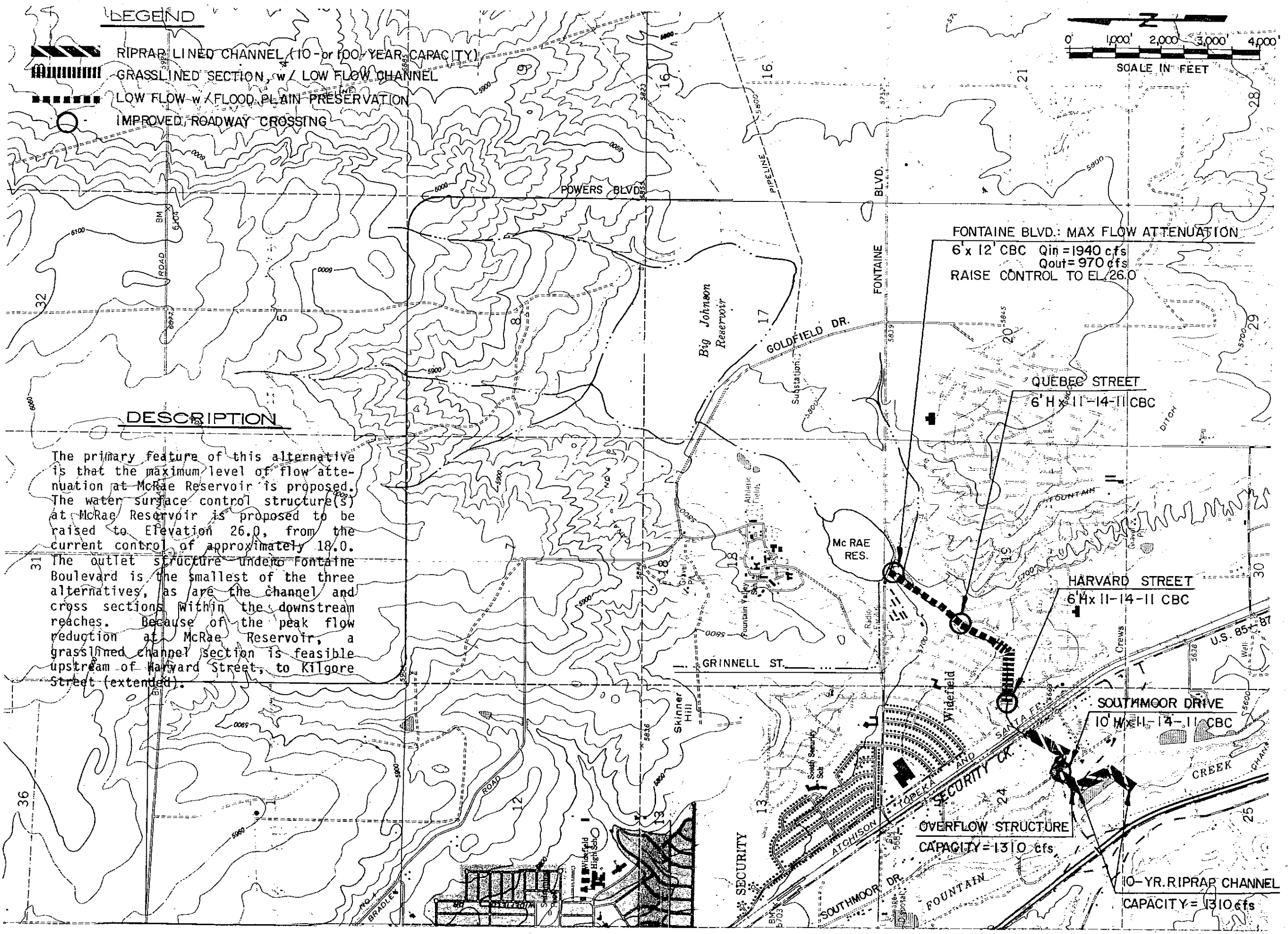
- CAUTION SECD= 1.000 PROF 1 CRITICAL DEPTH ASSUMED
- CAUTION SECD= 2.000 PROF 1 CRITICAL DEPTH ASSUMED
- CAUTION SECD= 2.000 PROF 1 PROBABLE MINIMUM SPECIFIC ENERGY
- CAUTION SECD= 2.000 FR 1 20 TRIALS ATTEMPTED TO BALANCE GSEL
- FLDN SECD= 2.000 PROF 2 CRITICAL DEPTH ASSUMED
- CAUTION SECD= 2.000 PROF 2 PROBABLE MINIMUM SPECIFIC ENERGY
- CAUTION SECD= 2.000 FR 2 20 TRIALS ATTEMPTED TO BALANCE GSEL
- CAUTION SECD= 3.000 PROF 1 CRITICAL DEPTH ASSUMED
- CAUTION SECD= 3.000 PROF 1 MINIMUM SPECIFIC ENERGY
- CAUTION SECD= 3.000 PROF 2 CRITICAL DEPTH ASSUMED

BIG JOHNSON RESERVOIR/CREWS GULCH
DRAINAGE BASIN PLANNING STUDY
TECHNICAL ADDENDUM



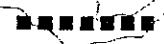

Section VIII

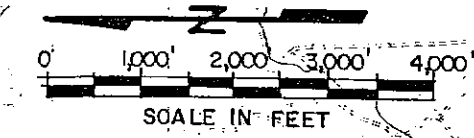
Alternative Plan Development Information

Conceptual Plan Layouts
Alternative Channel Design Spreadsheets
Alternative Channel Cost Estimation Spreadsheets



LEGEND

-  RIPRAP LINED CHANNEL (10- or 100-YEAR CAPACITY)
-  GRASSLINED SECTION, w / LOW FLOW CHANNEL
-  LOW FLOW w / FLOOD PLAIN PRESERVATION
-  IMPROVED ROADWAY CROSSING



DESCRIPTION

The primary feature of this alternative is that the maximum level of flow attenuation at McRae Reservoir is proposed. The water surface control structure(s) at McRae Reservoir is proposed to be raised to Elevation 26.0, from the current control of approximately 18.0. The outlet structure under Fontaine Boulevard is the smallest of the three alternatives, as are the channel and cross sections within the downstream reaches. Because of the peak flow reduction at McRae Reservoir, a grasslined channel section is feasible upstream of Harvard Street, to Kilgore Street (extended).

FONTAINE BLVD.: MAX FLOW ATTENUATION
 6' x 12' CBC $Q_{in} = 1940$ cfs
 $Q_{out} = 970$ cfs
 RAISE CONTROL TO EL. 26.0

QUEBEC STREET
 6' H x 11'-14"-11' CBC

HARVARD STREET
 6' H x 11'-14"-11' CBC

SOUTHMOOR DRIVE
 10' H x 11'-14"-11' CBC

OVERFLOW STRUCTURE
 CAPACITY = 1310 cfs

10-YR. RIPRAP CHANNEL
 CAPACITY = 1310 cfs




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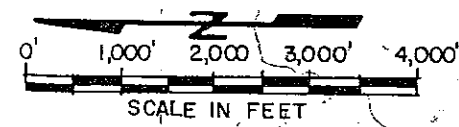
BIG JOHNSON RESERVOIR/
 CREWS GULCH DRAINAGE
 BASIN PLANNING STUDY
 ALTERNATIVE I : REACHES 1-3

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| Project No. | 88.05.09 |
| Date: | 10/88 |
| Design: | RNW |
| Drawn: | EAK |
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| Revisions: | |

FIGURE 4

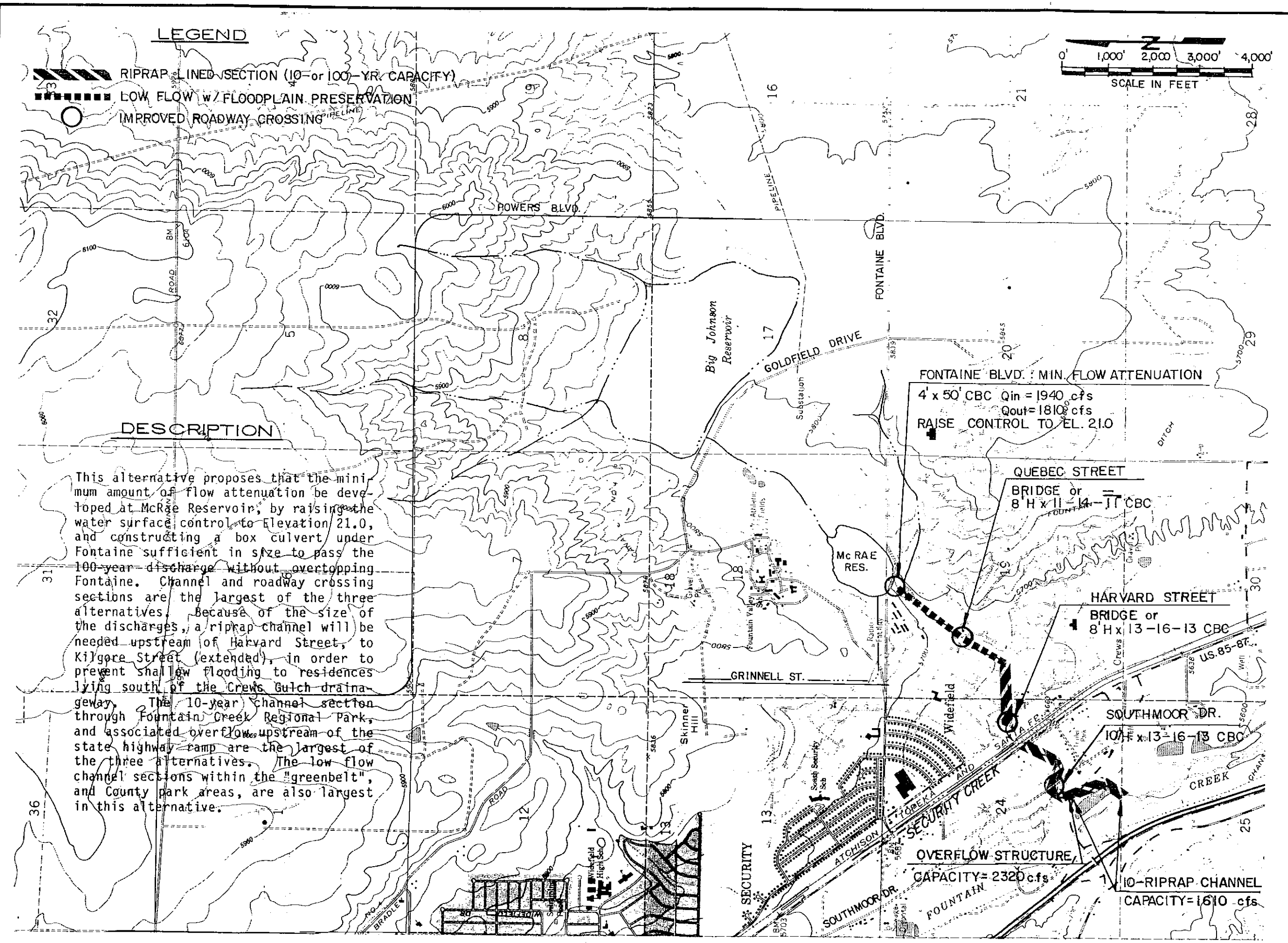
LEGEND

-  RIPRAP LINED SECTION (10- or 100-YR. CAPACITY)
-  LOW FLOW w/ FLOODPLAIN PRESERVATION
-  IMPROVED ROADWAY CROSSING



DESCRIPTION

This alternative proposes that the minimum amount of flow attenuation be developed at McRae Reservoir, by raising the water surface control to Elevation 21.0, and constructing a box culvert under Fontaine sufficient in size to pass the 100-year discharge without overtopping Fontaine. Channel and roadway crossing sections are the largest of the three alternatives. Because of the size of the discharges, a riprap channel will be needed upstream of Harvard Street, to Kilgore Street (extended), in order to prevent shallow flooding to residences lying south of the Crews Gulch drainage way. The 10-year channel section through Fountain Creek Regional Park, and associated overflows upstream of the state highway ramp are the largest of the three alternatives. The low flow channel sections within the "greenbelt", and County park areas, are also largest in this alternative.



FONTAINE BLVD.: MIN. FLOW ATTENUATION
 4' x 50' CBC $Q_{in} = 1940$ cfs
 $Q_{out} = 1810$ cfs
 RAISE CONTROL TO EL. 21.0

QUEBEC STREET
 BRIDGE or
 8' H x 11'-14'-11" CBC

HARVARD STREET
 BRIDGE or
 8' H x 13'-16'-13" CBC

SOUTHMOOR DR.
 10' H x 13'-16'-13" CBC

OVERFLOW STRUCTURE
 CAPACITY = 2320 cfs

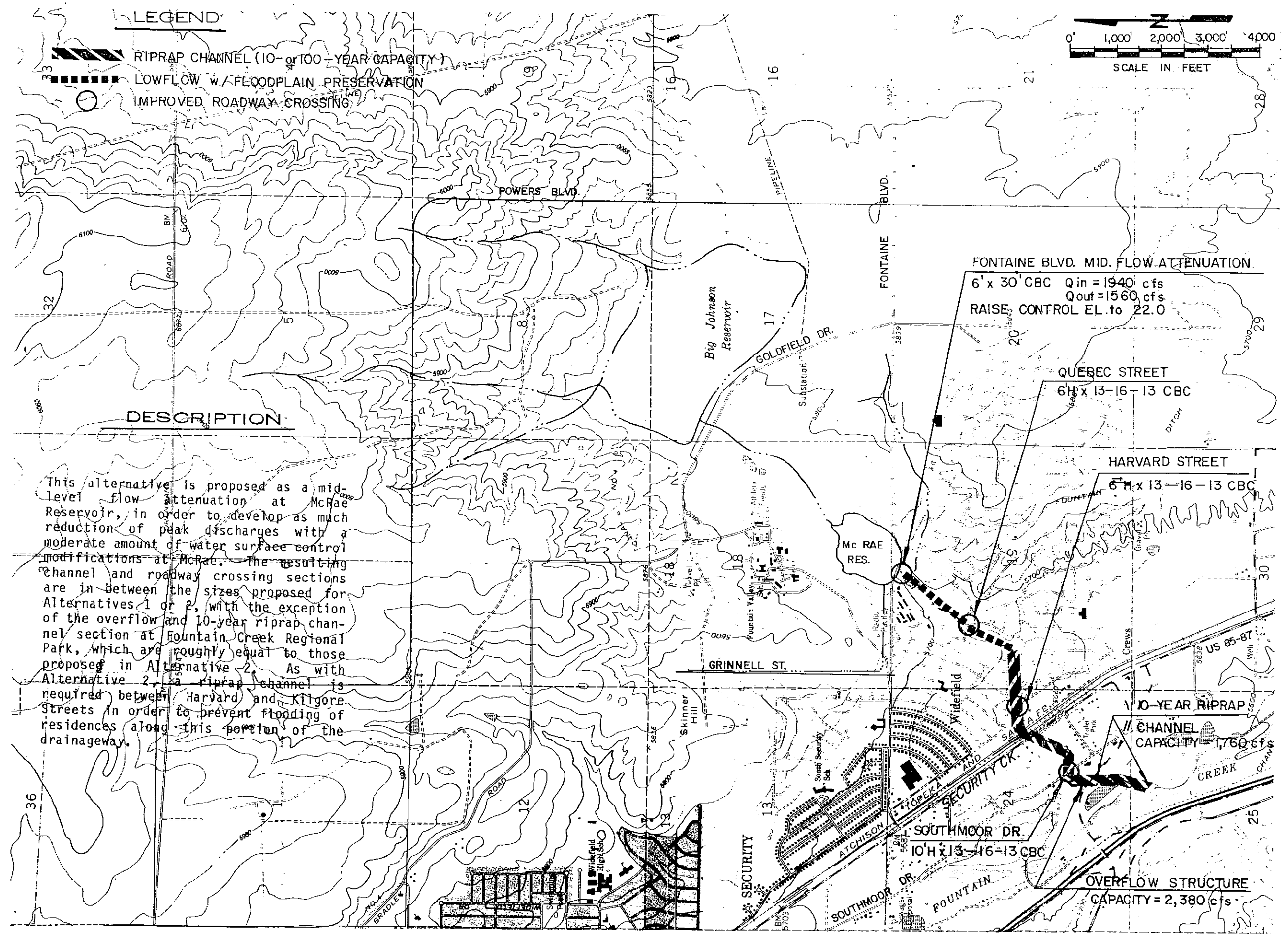
10-RIPRAP CHANNEL
 CAPACITY = 1610 cfs

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BIG JOHNSON RESERVOIR/
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 BASIN PLANNING STUDY
 ALTERNATIVE 2: REACHES 1-3

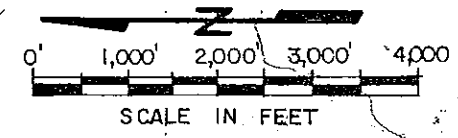
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| Date: 10/88 |
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| Revisions: |

FIGURE 5



LEGEND

- RIPRAP CHANNEL (10- or 100- YEAR CAPACITY)
- LOWFLOW w/ FLOODPLAIN PRESERVATION
- IMPROVED ROADWAY CROSSING



DESCRIPTION

This alternative is proposed as a mid-level flow attenuation at McRae Reservoir, in order to develop as much reduction of peak discharges with a moderate amount of water surface control modifications at McRae. The resulting channel and roadway crossing sections are in between the sizes proposed for Alternatives 1 or 2, with the exception of the overflow and 10-year riprap channel section at Fountain Creek Regional Park, which are roughly equal to those proposed in Alternative 2. As with Alternative 2, a riprap channel is required between Harvard and Kilgore Streets in order to prevent flooding of residences along this portion of the drainageway.

FONTAINE BLVD. MID. FLOW ATTENUATION
 6' x 30' CBC Q_{in} = 1940 cfs
 Q_{out} = 1560 cfs
 RAISE CONTROL EL. to 22.0

QUEBEC STREET
 6' x 13-16-13 CBC

HARVARD STREET
 6' x 13-16-13 CBC

10-YEAR RIPRAP CHANNEL
 CAPACITY = 1,760 cfs

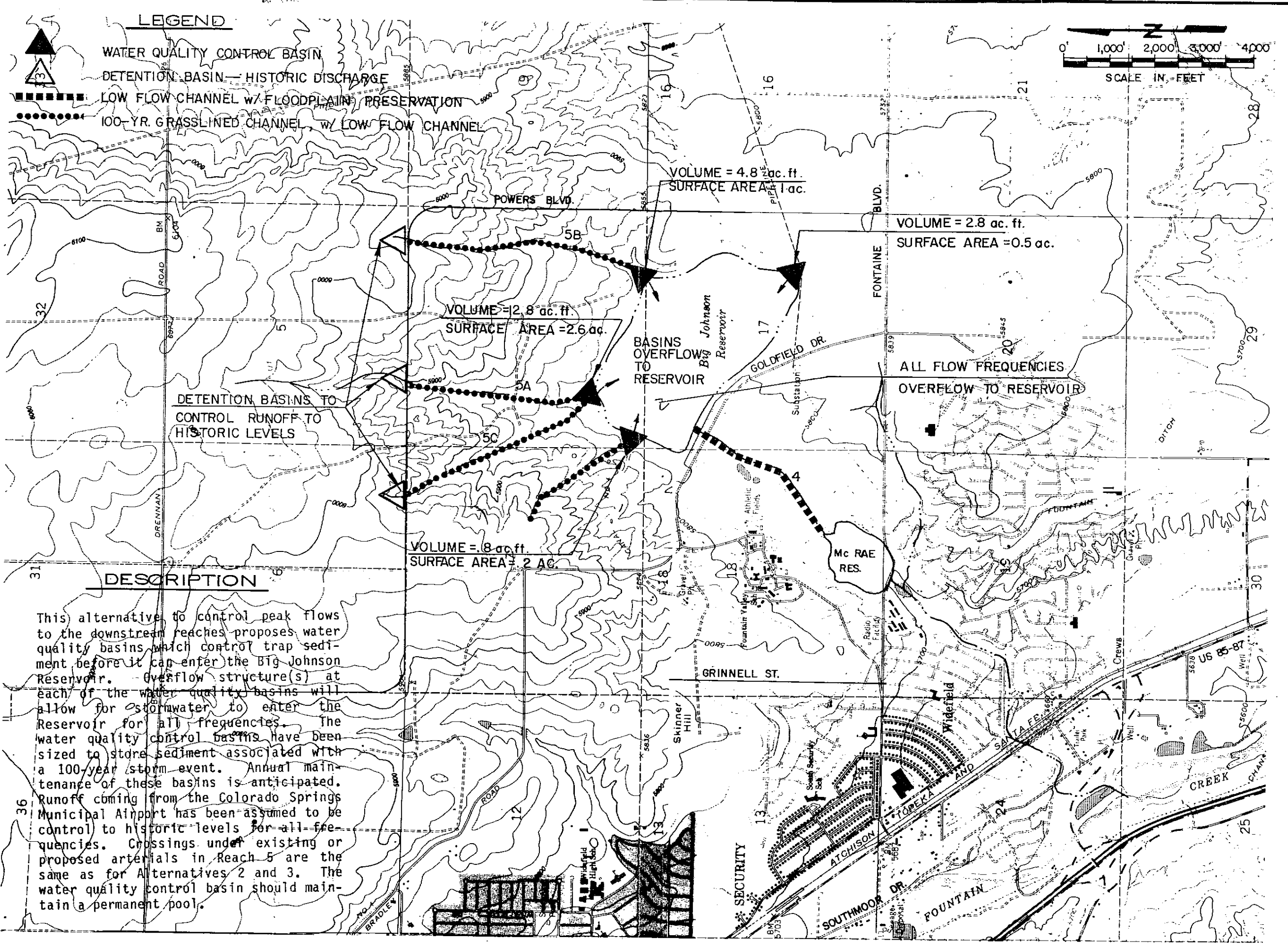
OVERFLOW STRUCTURE
 CAPACITY = 2,380 cfs

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 CREWS GULCH DRAINAGE
 BASIN PLANNING STUDY
 ALTERNATIVE 3: REACHES 1-3

| |
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| Revisions: |

FIGURE 6

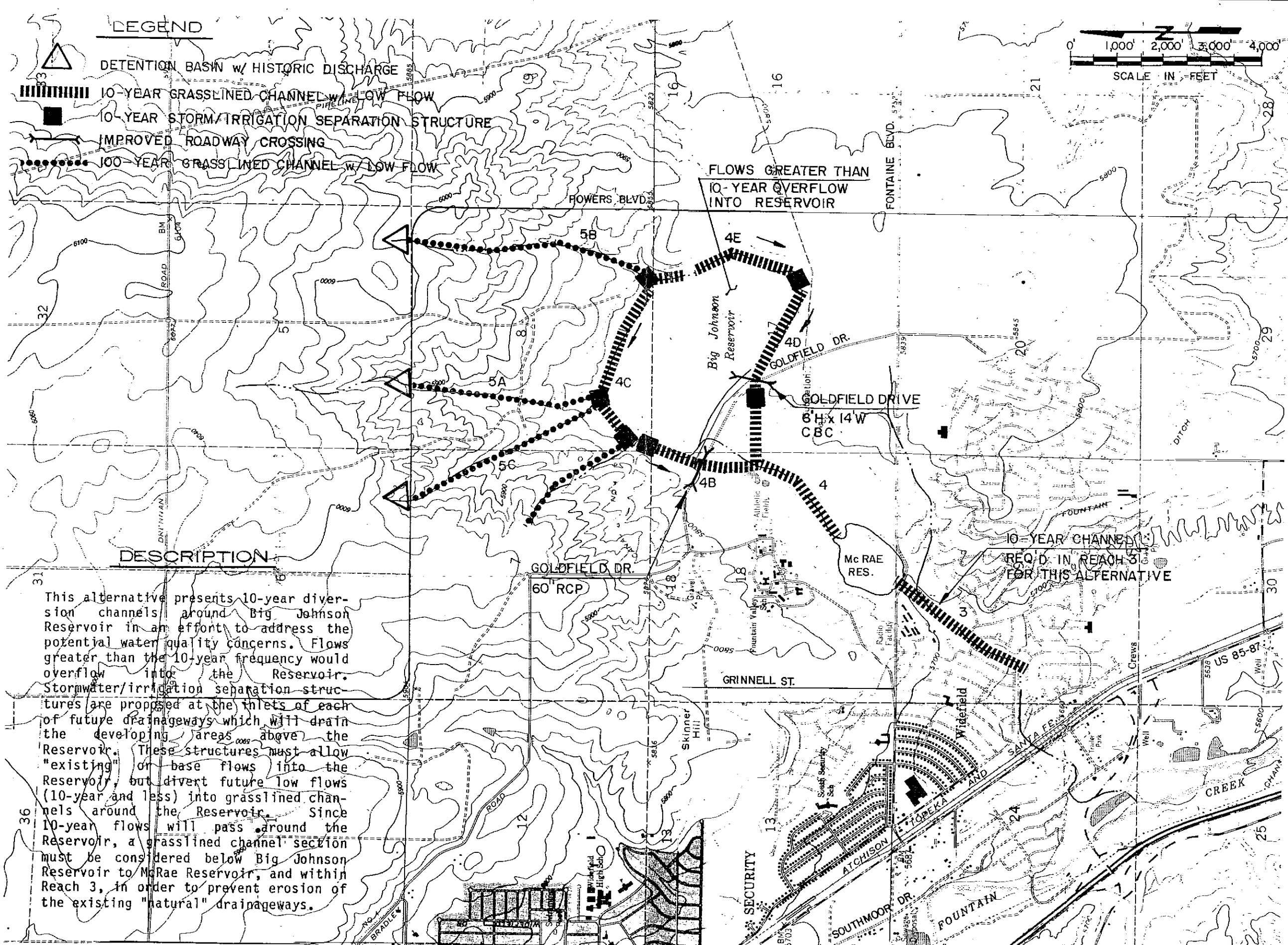


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BIG JOHNSON RESERVOIR/
 CREWS GULCH DRAINAGE
 BASIN PLANNING STUDY
 ALTERNATIVE 1: REACHES 4 & 5

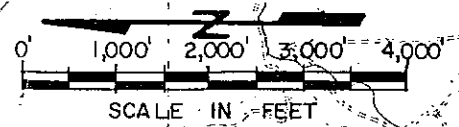
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FIGURE 7



LEGEND

- DETENTION BASIN w/ HISTORIC DISCHARGE
- 10-YEAR GRASSLINED CHANNEL w/ LOW FLOW
- 10-YEAR STORM/IRRIGATION SEPARATION STRUCTURE
- IMPROVED ROADWAY CROSSING
- 100-YEAR GRASSLINED CHANNEL w/ LOW FLOW



DESCRIPTION

This alternative presents 10-year diversion channels around Big Johnson Reservoir in an effort to address the potential water quality concerns. Flows greater than the 10-year frequency would overflow into the Reservoir. Stormwater/irrigation separation structures are proposed at the inlets of each of future drainageways which will drain the developing areas above the Reservoir. These structures must allow "existing" or base flows into the Reservoir, but divert future low flows (10-year and less) into grasslined channels around the Reservoir. Since 10-year flows will pass around the Reservoir, a grasslined channel section must be considered below Big Johnson Reservoir to McRae Reservoir, and within Reach 3, in order to prevent erosion of the existing "natural" drainageways.

FLWS GREATER THAN 10-YEAR OVERFLOW INTO RESERVOIR

10-YEAR CHANNEL REQ'D IN REACH 3 FOR THIS ALTERNATIVE

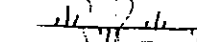




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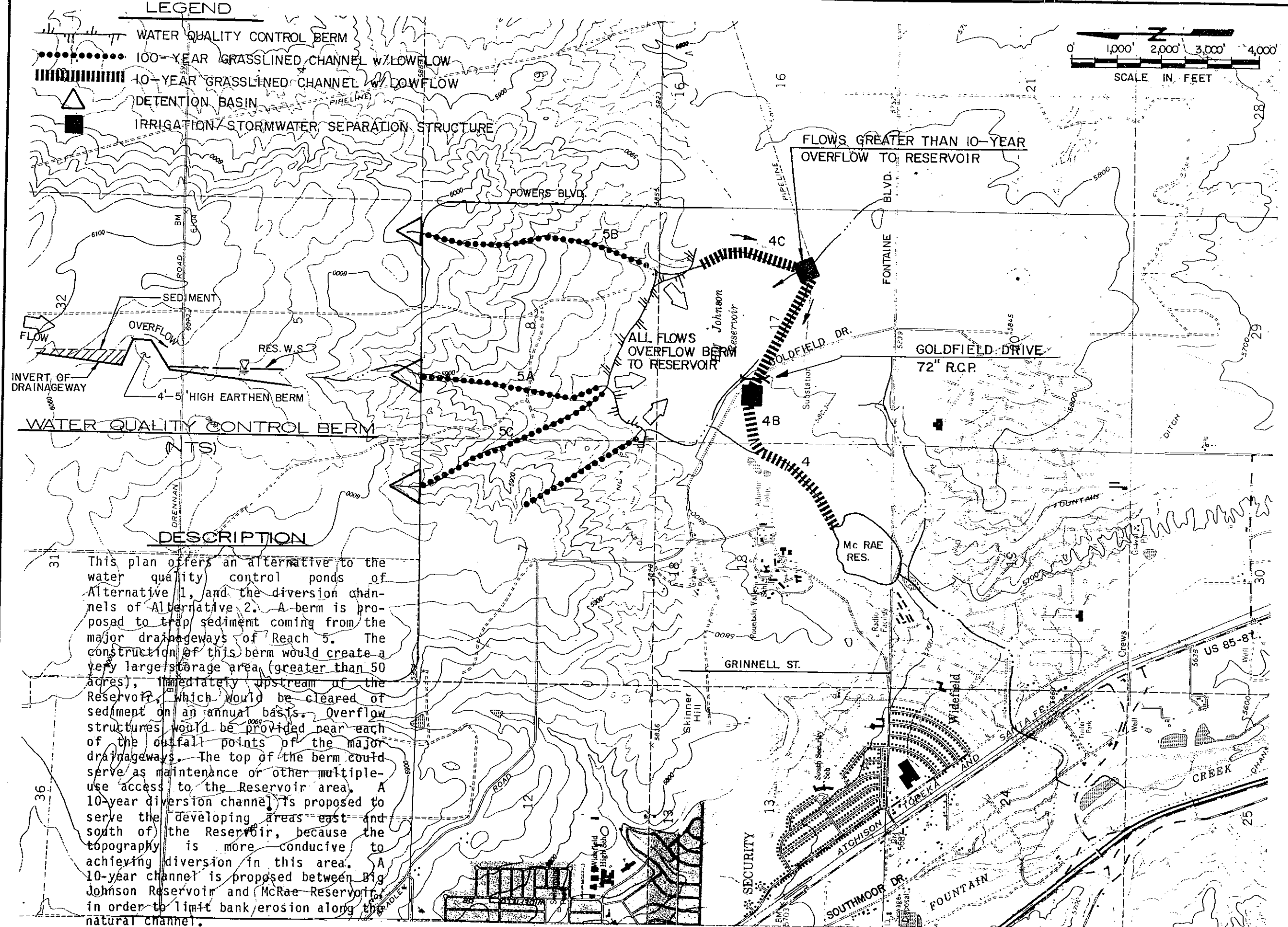
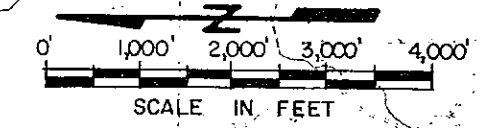
**BIG JOHNSON RESERVOIR/
 CREWS GULCH DRAINAGE
 BASIN PLANNING STUDY**
 ALTERNATIVE 2: REACHES 4 & 5

| | |
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| Project No. | 88.05.09 |
| Date: | 10/88 |
| Design: | RNW |
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| Revisions: | |

FIGURE 8

LEGEND

-  WATER QUALITY CONTROL BERM
-  100-YEAR GRASSLINED CHANNEL W/ OVFLOW
-  10-YEAR GRASSLINED CHANNEL W/ OVFLOW
-  DETENTION BASIN
-  IRRIGATION/STORMWATER SEPARATION STRUCTURE



DESCRIPTION

This plan offers an alternative to the water quality control ponds of Alternative 1, and the diversion channels of Alternative 2. A berm is proposed to trap sediment coming from the major drainageways of Reach 5. The construction of this berm would create a very large storage area (greater than 50 acres), immediately upstream of the Reservoir, which would be cleared of sediment on an annual basis. Overflow structures would be provided near each of the outfall points of the major drainageways. The top of the berm could serve as maintenance or other multiple-use access to the Reservoir area. A 10-year diversion channel is proposed to serve the developing areas east and south of the Reservoir, because the topography is more conducive to achieving diversion in this area. A 100-year channel is proposed between Big Johnson Reservoir and McRae Reservoir, in order to limit bank erosion along the natural channel.

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BIG JOHNSON RESERVOIR/
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 BASIN PLANNING STUDY
 ALTERNATIVE 3 : REACHES 4 & 5

| | |
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| Revisions: | |

FIGURE 9

TABLE 4:
TRAPEZOIDAL CHANNEL WORKSHEET

ALTERNATIVE: #1 REACHES 1 - 3 MAXIMUM FLOW ATTENUATION AT McRAE RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH BASIN
EL PASO COUNTY, COLORADO DRAINAGE BASIN PLANNING STUDY

DEPTH = 7 FT (MAX) RIPRAP
DEPTH = 5 FT (MAX) GRASSLINED

AVERAGE VELOCITY = 7 FPS (RIPRAP)
AVERAGE VELOCITY = 5 FPS (GRASSLINED)

| REACH NUMBER | COMMENT | CHANNEL SEGMENT NO. | CHANNEL LENGTH (FT) | DESIGN FLOW (CFS) | AVERAGE VELOCITY (FPS) | CHANNEL DEPTH (FT) | REQUIRED AREA (SF) | EXISTING SLOPE (FT/FT) | FUTURE SLOPE (FT/FT) | CHANNEL BOTTOM WIDTH | CHANNEL TOP WIDTH | HYDRAULIC RADIUS (FEET) | ROW TO BE ACQUIRED (FEET) | TOTAL DROP WIDTH (FT) | DROP IN SEGMENT (FT) | NUMBER OF DROPS |
|--------------|-------------|---------------------|---------------------|-------------------|------------------------|--------------------|--------------------|------------------------|----------------------|----------------------|-------------------|-------------------------|---------------------------|-----------------------|----------------------|-----------------|
| 1 | RIPRAP | 1A | 1180 | 1310 | 7.0 | 5.0 | 187.1 | 0.009 | 0.0036 | 23 | 48 | 3.50 | 0 | 293.0 | 6.4 | 2 |
| 1 | RIPRAP | 1B | 1960 | 3260 | 7.0 | 5.0 | 465.7 | 0.009 | 0.0022 | 49 | 84 | 4.30 | 0 | 425.0 | 13.3 | 5 |
| 1 | RIPRAP | 1C | 800 | 3260 | 7.0 | 5.0 | 465.7 | 0.015 | 0.0150 | 90 | 105 | 4.00 | 0 | 0.0 | 0.0 | 0 |
| 2 | GRASS-LINED | 2A | 1250 | 2120 | 5.0 | 5.0 | 424.0 | 0.008 | 0.0022 | 62 | 105 | 4.00 | 0 | 318.0 | 7.3 | 3 |
| 3 | LOWFLOW | 3A | 1010 | 250 | 5.0 | 2.0 | 50.0 | 0.008 | 0.0030 | 25 | 25 | 1.72 | 0 | 70.0 | 5.1 | 2 |
| 3 | LOWFLOW | 3B | 1980 | 250 | 5.0 | 2.0 | 50.0 | 0.008 | 0.0030 | 25 | 25 | 1.72 | 0 | 35.0 | 9.9 | 1 |

TABLE 5:
 TRAPEZOIDAL CHANNEL WORKSHEET GULCH

ALTERNATIVE: # 2 REACHES 1 - 3 MINIMUM DETENTION AT McRAE RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH BASIN
 EL PASO COUNTY, COLORADO DRAINAGE BASIN PLANNING STUDY

DEPTH = 7 FT (MAX) RIPRAP
 DEPTH = 5 FT (MAX) GRASSLINED

AVERAGE VELOCITY = 7 FPS (RIPRAP)
 AVERAGE VELOCITY = 5 FPS (GRASSLINED)

| REACH NUMBER | COMMENT | CHANNEL SEGMENT | CHANNEL LENGTH (FT) | DESIGN FLOW (CFS) | AVERAGE VELOCITY (FPS) | CHANNEL DEPTH (FT) | REQUIRED AREA (SF) | EXISTING SLOPE (FT/FT) | FUTURE SLOPE (FT/FT) | CHANNEL BOTTOM WIDTH | CHANNEL TOP WIDTH | HYDRAULIC RADIUS (FEET) | ROW TO BE ACQUIRED (FEET) | TOTAL DROP WIDTH (FT) | DROP IN SEGMENT (FT) | NUMBER OF DROPS |
|--------------|----------|-----------------|---------------------|-------------------|------------------------|--------------------|--------------------|------------------------|----------------------|----------------------|-------------------|-------------------------|---------------------------|-----------------------|----------------------|-----------------|
| 1 | RIPRAP | 1A | 1180 | 1610 | 7.0 | 5.0 | 230.0 | 0.009 | 0.0029 | 23 | 48 | 3.50 | 0 | 307.0 | 7.2 | 2 |
| 1 | RIPRAP | 1B | 1960 | 3930 | 7.0 | 5.0 | 561.4 | 0.009 | 0.0020 | 49 | 84 | 4.30 | 0 | 495.0 | 13.7 | 5 |
| 1 | RIPRAP | 1C | 800 | 3930 | 7.0 | 5.0 | 561.4 | 0.015 | 0.0150 | 90 | 105 | 4.00 | 0 | 0.0 | 0.0 | 0 |
| 2 | RIPRAP | 2A | 1250 | 3010 | 5.0 | 5.0 | 602.0 | 0.008 | 0.0029 | 62 | 105 | 4.00 | 0 | 330.0 | 6.4 | 3 |
| 3 | LOW FLOW | 3A | 1010 | 250 | 5.0 | 2.0 | 50.0 | 0.008 | 0.0030 | 25 | 25 | 1.72 | 0 | 70.0 | 5.1 | 2 |
| 3 | LOW FLOW | 3B | 1980 | 250 | 5.0 | 2.0 | 50.0 | 0.008 | 0.0030 | 25 | 25 | 1.72 | 0 | 35.0 | 9.9 | 1 |

TABLE 6:
TRAPEZOIDAL CHANNEL WORKSHEET

ALTERNATIVE: # 3 REACHES 1 - 3 MID-LEVEL FLOW ATTENUATION AT McRAE RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH BASIN
EL PASO COUNTY, COLORADO DRAINAGE BASIN PLANNING STUDY

DEPTH = 7 FT (MAX) RIPRAP
DEPTH = 5 FT (MAX) GRASSLINED

AVERAGE VELOCITY = 7 FPS (RIPRAP)
AVERAGE VELOCITY = 5 FPS (GRASSLINED)

| CHANNEL SEGMENT | COMMENT | CHANNEL SEGMENT | CHANNEL LENGTH (FT) | DESIGN FLOW (CFS) | AVERAGE VELOCITY (FPS) | CHANNEL DEPTH (FT) | REQUIRED AREA (SF) | EXISTING SLOPE (FT/FT) | FUTURE SLOPE (FT/FT) | CHANNEL BOTTOM WIDTH | CHANNEL TOP WIDTH | HYDRAULIC RADIUS (FEET) | ROW TO BE ACQUIRED (FEET) | TOTAL DROP WIDTH (FT) | DROP IN SEGMENT (FT) | NUMBER OF DROPS |
|-----------------|----------|-----------------|---------------------|-------------------|------------------------|--------------------|--------------------|------------------------|----------------------|----------------------|-------------------|-------------------------|---------------------------|-----------------------|----------------------|-----------------|
| 1 | RIPRAP | A | 1180 | 1760 | 7.0 | 5.0 | 251.4 | 0.009 | 0.0026 | 23 | 48 | 3.50 | 0 | 306.0 | 7.6 | 2 |
| 1 | RIPRAP | B | 1960 | 4140 | 7.0 | 5.0 | 591.4 | 0.009 | 0.0020 | 49 | 84 | 4.30 | 0 | 575.0 | 13.7 | 5 |
| 1 | RIPRAP | C | 800 | 4140 | 7.0 | 5.0 | 591.4 | 0.015 | 0.0150 | 90 | 105 | 4.00 | 0 | 0.0 | 0.0 | 0 |
| 2 | RIPRAP | A | 1250 | 2710 | 5.0 | 5.0 | 542.0 | 0.008 | 0.0030 | 62 | 105 | 4.00 | 0 | 300.0 | 6.3 | 3 |
| 3 | LOW FLOW | A | 1010 | 250 | 5.0 | 2.0 | 50.0 | 0.008 | 0.0030 | 25 | 25 | 1.72 | 0 | 70.0 | 5.1 | 2 |
| 3 | LOW FLOW | B | 1980 | 250 | 5.0 | 2.0 | 50.0 | 0.008 | 0.0030 | 25 | 25 | 1.72 | 0 | 35.0 | 9.9 | 1 |

TABLE 7:
TRAPEZOIDAL CHANNEL WORKSHEET

ALTERNATIVE: #1 REACHES 4 - 5 WATER QUALITY PONDS AT BIG JOHNSON

BIG JOHNSON RESERVOIR/CREWS GULCH BASIN
EL PASO COUNTY, COLORADO DRAINAGE BASIN PLANNING STUDY

DEPTH = 7 FT (MAX) RIPRAP
DEPTH = 5 FT (MAX) GRASSLINED

AVERAGE VELOCITY = 7 FPS (RIPRAP)
AVERAGE VELOCITY = 5 FPS (GRASSLINED)

| REACH NUMBER | COMMENT | CHANNEL SEGMENT NO. | CHANNEL LENGTH (FT) | DESIGN FLOW (CFS) | AVERAGE VELOCITY (FPS) | CHANNEL DEPTH (FT) | REQUIRED AREA (SF) | EXISTING SLOPE (FT/FT) | FUTURE SLOPE (FT/FT) | CHANNEL BOTTOM WIDTH | CHANNEL TOP WIDTH | HYDRAULIC RADIUS (FEET) | ROW TO BE ACQUIRED (FEET) | TOTAL DROP WIDTH (FT) | DROP IN SEGMENT (FT) | NUMBER OF DROPS |
|--------------|-------------|---------------------|---------------------|-------------------|------------------------|--------------------|--------------------|------------------------|----------------------|----------------------|-------------------|-------------------------|---------------------------|-----------------------|----------------------|-----------------|
| 4 | LOWFLOW | 4 | 2600 | 100 | 3.0 | 2.0 | 33.3 | 0.012 | 0.0040 | 16 | 16 | 1.70 | 30 | 140.0 | 20.8 | 7 |
| 5 | GRASS-LINED | 5A | 3500 | 960 | 5.0 | 5.0 | 192.0 | 0.034 | 0.0030 | 20 | 60 | 3.33 | 0 | 2310.0 | 105.0 | 33 |
| 5 | GRASS-LINED | 5B | 5300 | 580 | 5.0 | 3.0 | 116.0 | 0.032 | 0.0050 | 20 | 45 | 2.20 | 0 | 2420.0 | 143.0 | 44 |
| 5 | GRASS-LINED | 5C | 4000 | 640 | 5.0 | 3.0 | 128.0 | 0.028 | 0.0050 | 25 | 50 | 2.80 | 0 | 1680.0 | 92.0 | 28 |

TABLE 8:
TRAPEZOIDAL CHANNEL WORKSHEET

ALTERNATIVE: #2 REACHES 4 - 5 DIVERSION CHANNELS AROUND BIG JOHNSON RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH BASIN
EL PASO COUNTY, COLORADO DRAINAGE BASIN PLANNING STUDY

DEPTH = 7 FT (MAX) RIPRAP
DEPTH = 5 FT (MAX) GRASSLINED

AVERAGE VELOCITY = 7 FPS (RIPRAP)
AVERAGE VELOCITY = 5 FPS (GRASSLINED)

| REACH NUMBER | COMMENT | CHANNEL SEGMENT NO. | CHANNEL LENGTH (FT) | DESIGN FLOW (CFS) | AVERAGE VELOCITY (FPS) | CHANNEL DEPTH (FT) | REQUIRED AREA (SF) | EXISTING SLOPE (FT/FT) | FUTURE SLOPE (FT/FT) | CHANNEL BOTTOM WIDTH | CHANNEL TOP WIDTH | HYDRAULIC RADIUS (FEET) | ROW TO BE ACQUIRED (FEET) | TOTAL DROP WIDTH (FT) | DROP IN SEGMENT (FT) | NUMBER OF DROPS |
|--------------|-------------|---------------------|---------------------|-------------------|------------------------|--------------------|--------------------|------------------------|----------------------|----------------------|-------------------|-------------------------|---------------------------|-----------------------|----------------------|-----------------|
| 4 | GRASS-LINED | 4 | 2600 | 1400 | 5.0 | 5.0 | 280.0 | 0.012 | 0.003 | 40 | 80 | 3.30 | 105 | 770 | 23.4 | 8 |
| 4 | GRASS-LINED | 4B | 1600 | 500 | 5.0 | 3.0 | 100.0 | 0.025 | 0.005 | 21 | 45 | 2.20 | 70 | 550 | 32.0 | 10 |
| 4 | GRASS-LINED | 4C | 4500 | 500 | 5.0 | 3.0 | 100.0 | 0.025 | 0.005 | 21 | 45 | 2.20 | 0 | 0 | 0.0 | 0 |
| 4 | GRASS-LINED | 4D | 4200 | 1100 | 5.0 | 5.0 | 220.0 | 0.015 | 0.003 | 20 | 60 | 3.30 | 85 | 980 | 50.4 | 14 |
| 4 | GRASS-LINED | 4E | 5000 | 100 | 5.0 | 2.0 | 20.0 | 0.003 | 0.005 | 21 | 45 | 2.20 | 0 | 0 | 0.0 | 0 |
| 5 | GRASS-LINED | 5A | 3500 | 960 | 5.0 | 5.0 | 192.0 | 0.034 | 0.003 | 20 | 60 | 3.70 | 0 | 2310 | 108.5 | 33 |
| 5 | GRASS-LINED | 5B | 5300 | 580 | 5.0 | 3.0 | 116.0 | 0.032 | 0.005 | 20 | 45 | 2.40 | 0 | 2420 | 143.1 | 44 |
| 5 | GRASS-LINED | 5C | 4000 | 640 | 5.0 | 3.0 | 128.0 | 0.028 | 0.005 | 25 | 50 | 2.60 | 0 | 1680 | 92.0 | 28 |

TABLE 13
COST ANALYSIS WORKSHEET

ALTERNATIVE: #1 REACHES 1 - 3 MAXIMUM FLOW ATTENUATION AT McRAE RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH
DRAINAGE BASIN PLANNING STUDY

NOTE: COST PER UNIT MEASUREMENT ENTERED BELOW DESCRIPTION

| REACH NUMBER | COMMENT | RIGHT OF WAY COST (\$/FT) | MAINT. ROAD (\$/FT.) | CHANNEL EXCAV. (\$/FT) | SEED, MULCH FERT (\$/FT) | RIPRAP (\$/FT.) | LOW-FLOW CHANNEL (\$/FT) | DROP STR (\$/FT OF WIDTH) | CHANNEL COST (\$/FT) | COST CHANNEL & DROPS | CHANNEL COST | ANNUAL O & M (\$/FT) | DROP STRUCTURE COST | RIGHT OF WAY |
|----------------|-------------|---------------------------|----------------------|------------------------|--------------------------|-----------------|--------------------------|---------------------------|----------------------|----------------------|------------------|----------------------|---------------------|--------------|
| 1 | RIPRAP | \$0.00 | \$18.00 | \$10.00 | \$3.00 | \$132.00 | \$0.00 | \$435.00 | \$163.00 | \$319,795 | \$192,340 | \$2,360 | \$127,455 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$38.00 | \$6.00 | \$172.00 | \$0.00 | \$435.00 | \$234.00 | \$643,515 | \$458,640 | \$3,920 | \$184,875 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$20.00 | \$0.00 | \$50.00 | \$0.00 | \$435.00 | \$88.00 | \$70,400 | \$70,400 | \$1,600 | \$0 | \$0.00 |
| 2 | GRASS-LINED | \$0.00 | \$0.00 | \$34.00 | \$16.00 | \$0.00 | \$70.00 | \$435.00 | \$120.00 | \$288,330 | \$150,000 | \$5,625 | \$138,330 | \$0.00 |
| 3 | LOWFLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$124,178 | \$93,728 | \$2,020 | \$30,450 | \$0.00 |
| 3 | LOWFLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$198,969 | \$183,744 | \$3,960 | \$15,225 | \$0.00 |
| SUBTOTAL -> | | | | | | | | | | \$1,645,187 | \$1,148,852 | \$19,485 | \$496,335 | \$0 |
| | | | | | | | | | | | PRESENT WORTH OF | \$232,359 | | |
| GRAND TOTAL -> | | | | | | | | | | \$1,877,546 | | | | |

TABLE 13
COST ANALYSIS WORKSHEET

ALTERNATIVE: #1 REACHES 1 - 3 MAXIMUM FLOW ATTENUATION AT McRAE RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH
DRAINAGE BASIN PLANNING STUDY

NOTE: COST PER UNIT MEASUREMENT ENTERED BELOW DESCRIPTION

| REACH NUMBER | COMMENT | RIGHT OF WAY COST (\$/FT) | MAINT. ROAD (\$/FT.) | CHANNEL EXCAV. (\$/FT) | SEED, MULCH FERT (\$/FT) | RIPRAP (\$/FT.) | LOW-FLOW CHANNEL (\$/FT) | DROP STR (\$/FT OF WIDTH) | CHANNEL COST (\$/FT) | COST CHANNEL & DROPS | CHANNEL COST | ANNUAL O & M (\$/FT) | DROP STRUCTURE COST | RIGHT OF WAY |
|----------------|-------------|---------------------------|----------------------|------------------------|--------------------------|-----------------|--------------------------|---------------------------|----------------------|----------------------|------------------|----------------------|---------------------|--------------|
| 1 | RIPRAP | \$0.00 | \$18.00 | \$10.00 | \$3.00 | \$132.00 | \$0.00 | \$435.00 | \$163.00 | \$319,795 | \$192,340 | \$2,360 | \$127,455 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$38.00 | \$6.00 | \$172.00 | \$0.00 | \$435.00 | \$234.00 | \$643,515 | \$458,640 | \$3,920 | \$184,875 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$20.00 | \$0.00 | \$50.00 | \$0.00 | \$435.00 | \$88.00 | \$70,400 | \$70,400 | \$1,600 | \$0 | \$0.00 |
| 2 | GRASS-LINED | \$0.00 | \$0.00 | \$34.00 | \$16.00 | \$0.00 | \$70.00 | \$435.00 | \$120.00 | \$288,330 | \$150,000 | \$5,625 | \$138,330 | \$0.00 |
| 3 | LOWFLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$124,178 | \$93,728 | \$2,020 | \$30,450 | \$0.00 |
| 3 | LOWFLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$198,969 | \$183,744 | \$3,960 | \$15,225 | \$0.00 |
| SUBTOTAL -> | | | | | | | | | | \$1,645,187 | \$1,148,852 | \$19,485 | \$496,335 | \$0 |
| | | | | | | | | | | | PRESENT WORTH OF | \$232,359 | | |
| GRAND TOTAL -> | | | | | | | | | | \$1,877,546 | | | | |

COST ANALYSIS WORKSHEET CREWS GULCH
 TABLE 14:
 ALTERNATIVE: # 2 REACHES 1 - 3 MINIMUM FLOW ATTENUATION AT McRAE RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH
 DRAINAGE BASIN PLANNING STUDY

NOTE: COST PER UNIT MEASUREMENT ENTERED BELOW DESCRIPTION

| REACH NUMBER | COMMENT | RIGHT OF WAY COST (\$/FT) | MAINT. ROAD (\$/FT.) | CHANNEL EXCAV. (\$/FT) | SEED, MULCH FERT (\$/FT) | RIPRAP (\$/FT.) | LOW-FLOW CHANNEL (\$/FT) | DROP STRUC (\$/FT OF WIDTH) | TOTAL COST (\$/FT) | TOTAL COST CHANNEL & DROPS | CHANNEL COST | ANNUAL O & M (\$/FT) | DROP STRUCTURE COST | RIGHT OF WAY |
|----------------|----------|---------------------------|----------------------|------------------------|--------------------------|-----------------|--------------------------|-----------------------------|--------------------|----------------------------|--------------|----------------------|---------------------|--------------|
| 1 | RIPRAP | \$0.00 | \$18.00 | \$16.00 | \$3.00 | \$132.00 | \$0.00 | \$435.00 | \$169.00 | \$332,965 | \$199,420 | \$2,360 | \$133,545 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$52.00 | \$6.00 | \$172.00 | \$0.00 | \$435.00 | \$248.00 | \$701,405 | \$486,080 | \$3,920 | \$215,325 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$20.00 | \$0.00 | \$50.00 | \$0.00 | \$435.00 | \$88.00 | \$70,400 | \$70,400 | \$1,600 | \$0 | \$0.00 |
| 2 | RIPRAP | \$0.00 | \$0.00 | \$30.00 | \$16.00 | \$132.00 | \$70.00 | \$435.00 | \$248.00 | \$453,550 | \$310,000 | \$2,500 | \$143,550 | \$0.00 |
| 3 | LOW FLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$124,178 | \$93,728 | \$2,020 | \$30,450 | \$0.00 |
| 3 | LOW FLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$198,969 | \$183,744 | \$3,960 | \$15,225 | \$0.00 |
| SUBTOTAL -> | | | | | | | | | | \$1,881,467 | \$1,343,372 | \$16,360 | \$538,095 | |
| | | | | | | | | | | PRESENT WORTH OF | | \$195,093 | | |
| GRAND TOTAL -> | | | | | | | | | | \$2,076,560 | | | | |

TABLE 15
COST ANALYSIS WORKSHEET

ALTERNATIVE: # 3 REACHES 1 - 3 MID-LEVEL FLOW ATTENUATION AT McRAE RESERVOIR

BIG JOHNSON RESERVOIR / CREWS GULCH
DRAINAGE BASIN PLANNING STUDY

NOTE: COST PER UNIT MEASUREMENT ENTERED BELOW DESCRIPTION

| CHANNEL SEGMENT | COMMENT | RIGHT OF WAY COST (\$/FT) | MAINT. ROAD (\$/FT.) | CHANNEL EXCAV. (\$/FT) | SEED, MULCH FERT (\$/FT) | RIPRAP (\$/FT.) | LOW-FLOW CHANNEL (\$/FT) | DROP STRUC (\$/FT OF WIDTH) | TOTAL COST (\$/FT) | TOTAL COST CHANNEL & DROPS | CHANNEL COST | ANNUAL O & M (\$/FT) | DROP STRUCTURE COST | RIGHT OF WAY |
|-----------------|----------|---------------------------|----------------------|------------------------|--------------------------|-----------------|--------------------------|-----------------------------|--------------------|----------------------------|-----------------------------|----------------------|---------------------|--------------|
| 1 | RIPRAP | \$0.00 | \$18.00 | \$19.00 | \$3.00 | \$132.00 | \$0.00 | \$435.00 | \$172.00 | \$336,070 | \$202,960 | \$2,360 | \$133,110 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$68.00 | \$6.00 | \$172.00 | \$0.00 | \$435.00 | \$264.00 | \$767,565 | \$517,440 | \$3,920 | \$250,125 | \$0.00 |
| 1 | RIPRAP | \$0.00 | \$18.00 | \$20.00 | \$0.00 | \$50.00 | \$0.00 | \$435.00 | \$88.00 | \$70,400 | \$70,400 | \$1,600 | \$0 | \$0.00 |
| 2 | RIPRAP | \$0.00 | \$0.00 | \$25.00 | \$16.00 | \$132.00 | \$70.00 | \$435.00 | \$243.00 | \$434,250 | \$303,750 | \$2,500 | \$130,500 | \$0.00 |
| 3 | LOW FLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$124,178 | \$93,728 | \$2,020 | \$30,450 | \$0.00 |
| 3 | LOW FLOW | \$0.00 | \$18.00 | \$3.30 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$92.80 | \$198,969 | \$183,744 | \$3,960 | \$15,225 | \$0.00 |
| SUBTOTAL -> | | | | | | | | | | \$1,931,432 ^{ok} | \$1,372,022 | \$16,360 | \$559,410 | |
| | | | | | | | | | | | PRESENT WORTH OF ANN MAINT. | \$195,093 | | |
| GRAND TOTAL-> | | | | | | | | | | \$2,126,525 | | | | |

TABLE 16:
COST ANALYSIS WORKSHEET

ALTERNATIVE: #1 REACHES 4 - 5 WATER QUALITY BASINS AT BIG JOHNSON RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH
DRAINAGE BASIN PLANNING STUDY

NOTE: COST PER UNIT MEASUREMENT ENTERED BELOW DESCRIPTION

| REACH NUMBER | COMMENT | RIGHT OF WAY COST (\$/FT) | MAINT. ROAD (\$/FT.) | CHANNEL EXCAV. (\$/FT) | SEED, MULCH FERT (\$/FT) | RIPRAP (\$/FT.) | LOW-FLOW CHANNEL (\$/FT) | DROP STRUC (\$/FT OF WIDTH) | TOTAL COST (\$/FT) | TOTAL COST CHANNEL & DROPS | CHANNEL COST | ANNUAL O & M (\$/FT) | DROP STRUCTURE COST | RIGHT OF WAY |
|----------------------------|-------------|---------------------------|----------------------|------------------------|--------------------------|-----------------|--------------------------|-----------------------------|--------------------|----------------------------|--------------|----------------------|---------------------|--------------|
| 4 | LOWFLOW | \$16.00 | \$18.00 | \$9.00 | \$1.50 | \$0.00 | \$70.00 | \$435.00 | \$114.50 | \$358,600 | \$297,700 | \$5,200 | \$60,900 | \$41,600 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$11.00 | \$12.00 | \$0.00 | \$70.00 | \$435.00 | \$111.00 | \$1,393,350 | \$388,500 | \$15,750 | \$1,004,850 | \$0 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$1,614,500 | \$561,800 | \$23,850 | \$1,052,700 | \$0 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$1,154,800 | \$424,000 | \$18,000 | \$730,800 | \$0 |
| SUBTOTAL -> | | | | | | | | | | \$4,521,250 | \$1,672,000 | \$62,800 | \$2,849,250 | \$41,600 |
| PRESENT WORTH OF ANN MAINT | | | | | | | | | | | | \$748,890 | | |
| GRAND TOTAL -> | | | | | | | | | | \$5,270,140 | | | | |

TABLE 17:
COST ANALYSIS WORKSHEET CREWS GULCH

ALTERNATIVE: #2 REACHES 4 - 5 DIVERSION CHANNELS AROUND BIG JOHNSON RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH
DRAINAGE BASIN PLANNING STUDY

NOTE: COST PER UNIT MEASUREMENT ENTERED BELOW DESCRIPTION

| REACH NUMBER | COMMENT | RIGHT OF WAY COST (\$/FT) | MAINT. ROAD (\$/FT.) | CHANNEL EXCAV. (\$/FT) | SEED, MULCH FERT (\$/FT) | RIPRAP (\$/FT.) | LOW-FLOW CHANNEL (\$/FT) | DROP STRUC (\$/FT OF WIDTH) | TOTAL COST (\$/FT) | TOTAL COST CHANNEL & DROPS | CHANNEL COST | ANNUAL O & M (\$/FT) | DROP STRUCTURE COST | RIGHT OF WAY |
|----------------------------------|-------------|---------------------------|----------------------|------------------------|--------------------------|-----------------|--------------------------|-----------------------------|--------------------|----------------------------|--------------|----------------------|---------------------|--------------|
| 4 | GRASS-LINED | \$34.00 | \$18.00 | \$10.00 | \$15.00 | \$0.00 | \$70.00 | \$435.00 | \$147.00 | \$717,150 | \$382,200 | \$11,700 | \$334,950 | \$88,400 |
| 4 | GRASS-LINED | \$23.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$129.00 | \$445,650 | \$206,400 | \$7,200 | \$239,250 | \$36,800 |
| 4 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$477,000 | \$477,000 | \$20,250 | \$0 | \$0 |
| 4 | GRASS-LINED | \$14.00 | \$18.00 | \$11.00 | \$12.00 | \$0.00 | \$70.00 | \$435.00 | \$125.00 | \$951,300 | \$525,000 | \$18,900 | \$426,300 | \$58,800 |
| 4 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$530,000 | \$530,000 | \$22,500 | \$0 | \$0 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$11.00 | \$12.00 | \$0.00 | \$70.00 | \$435.00 | \$111.00 | \$1,393,350 | \$388,500 | \$15,750 | \$1,004,850 | \$0 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$1,614,500 | \$561,800 | \$23,850 | \$1,052,700 | \$0 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$1,154,800 | \$424,000 | \$18,000 | \$730,800 | \$0 |
| SUBTOTAL -> | | | | | | | | | | \$7,283,750 | \$3,494,900 | \$138,150 | \$3,788,850 | \$184,000 |
| NET PRESENT WORTH OF ANN. MAINT. | | | | | | | | | | | | | \$1,647,439 | |
| GRAND TOTAL-> | | | | | | | | | | | \$8,931,189 | | | |

TABLE 18:
COST ANALYSIS WORKSHEET CREWS GULCH

ALTERNATIVE: #3 REACHES 4 - 5 WQ BASIN IN COMBINATION WITH DIVERSION AROUND BIG JOHNSON RESERVOIR

BIG JOHNSON RESERVOIR/CREWS GULCH
DRAINAGE BASIN PLANNING STUDY

NOTE: COST PER UNIT MEASUREMENT ENTERED BELOW DESCRIPTION

| REACH NUMBER | COMMENT | RIGHT OF WAY COST (\$/FT) | MAINT. ROAD (\$/FT.) | CHANNEL EXCAV. (\$/FT) | SEED, MULCH FERT (\$/FT) | RIPRAP (\$/FT.) | LOW-FLOW CHANNEL (\$/FT) | DROP STRUC (\$/FT OF WIDTH) | TOTAL COST (\$/FT) | TOTAL COST CHANNEL & DROPS | CHANNEL COST | ANNUAL O & M (\$/FT) | DROP STRUCTURE COST | RIGHT OF WAY |
|-------------------------------|-------------|---------------------------|----------------------|------------------------|--------------------------|-----------------|--------------------------|-----------------------------|--------------------|----------------------------|--------------|----------------------|---------------------|--------------|
| 4 | GRASS-LINED | \$35.00 | \$18.00 | \$11.00 | \$12.00 | \$0.00 | \$70.00 | \$435.00 | \$146.00 | \$623,200 | \$379,600 | \$11,700 | \$243,600 | \$91,000 |
| 4 | GRASS-LINED | \$35.00 | \$18.00 | \$11.00 | \$12.00 | \$0.00 | \$70.00 | \$435.00 | \$146.00 | \$1,301,050 | \$905,200 | \$27,900 | \$395,850 | \$217,000 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$11.00 | \$12.00 | \$0.00 | \$70.00 | \$435.00 | \$111.00 | \$1,393,350 | \$388,500 | \$15,750 | \$1,004,850 | \$0 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$1,614,500 | \$561,800 | \$23,850 | \$1,052,700 | \$0 |
| 5 | GRASS-LINED | \$0.00 | \$18.00 | \$7.00 | \$11.00 | \$0.00 | \$70.00 | \$435.00 | \$106.00 | \$1,154,800 | \$424,000 | \$18,000 | \$730,800 | \$0 |
| SUBTOTAL -> | | | | | | | | | | \$6,086,900 | \$2,659,100 | \$97,200 | \$3,427,800 | \$308,000 |
| PRESENT WORTH OF ANNUAL MAINT | | | | | | | | | | | | \$1,159,110 | | |
| GRAND TOTAL -> | | | | | | | | | | \$7,246,010 | | | | |