

A N N E X E « Q C - 6 3 »

DÉTAILS DES CALCULS DE LA MODÉLISATION HELP

WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.3554 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999975000E-04 CM/SEC

LAYER 3

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS = 50.00 CM
POROSITY = 0.4170 VOL/VOL
FIELD CAPACITY = 0.0450 VOL/VOL
WILTING POINT = 0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.0963 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999978000E-02 CM/SEC
SLOPE = 2.00 PERCENT
DRAINAGE LENGTH = 50.0 METERS

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS = 0.20 CM
POROSITY = 0.0000 VOL/VOL
FIELD CAPACITY = 0.0000 VOL/VOL
WILTING POINT = 0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY = 0.00 HOLES/HECTARE
FML INSTALLATION DEFECTS = 0.00 HOLES/HECTARE
FML PLACEMENT QUALITY = 1 - PERFECT

LAYER 5

TYPE 3 - BARRIER SOIL LINER
MATERIAL TEXTURE NUMBER 0

THICKNESS = 100.00 CM
POROSITY = 0.4270 VOL/VOL
FIELD CAPACITY = 0.4180 VOL/VOL
WILTING POINT = 0.3670 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999972000E-09 CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT
SOIL DATA BASE USING SOIL TEXTURE # 5 WITH BARE
GROUND CONDITIONS, A SURFACE SLOPE OF 1.% AND
A SLOPE LENGTH OF 200. METERS.

SCS RUNOFF CURVE NUMBER = 82.50
FRACTION OF AREA ALLOWING RUNOFF = 0.0 PERCENT
AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES

EVAPORATIVE ZONE DEPTH = 20.0 CM
 INITIAL WATER IN EVAPORATIVE ZONE = 9.140 CM
 UPPER LIMIT OF EVAPORATIVE STORAGE = 9.140 CM
 LOWER LIMIT OF EVAPORATIVE STORAGE = 1.160 CM
 INITIAL SNOW WATER = 3.014 CM
 INITIAL WATER IN LAYER MATERIALS = 376.487 CM
 TOTAL INITIAL WATER = 379.501 CM
 TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
 Granby Quebec

MAXIMUM LEAF AREA INDEX = 3.50
 START OF GROWING SEASON (JULIAN DATE) = 125
 END OF GROWING SEASON (JULIAN DATE) = 275
 AVERAGE ANNUAL WIND SPEED = 11.00 KPH
 AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 70.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR ALBANY NEW YORK

NORMAL MEAN MONTHLY PRECIPITATION (MM)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 101.6 | 73.8 | 91.6 | 85.7 | 94.0 | 107.4 |
| 128.4 | 124.4 | 111.1 | 98.7 | 104.7 | 106.0 |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR MONTPELIER VERMONT

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES CELSIUS)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| -10.2 | -8.4 | -2.4 | 5.4 | 12.9 | 17.6 |
| 20.1 | 18.9 | 14.0 | 7.8 | 1.1 | -6.4 |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR MONTPELIER VERMONT

STATION LATITUDE = 45.38 DEGREES

MONTHLY TOTALS (MM) FOR YEAR 1

 JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

| | | | | | | |
|--|--------|--------|--------|--------|--------|--------|
| PRECIPITATION | 104.7 | 68.0 | 92.2 | 64.3 | 53.9 | 128.1 |
| | 117.3 | 105.1 | 136.6 | 44.2 | 192.1 | 142.0 |
| RUNOFF | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| EVAPOTRANSPIRATION | 10.35 | 13.55 | 27.39 | 59.99 | 59.22 | 90.54 |
| | 99.13 | 68.77 | 67.91 | 21.79 | 25.26 | 11.22 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 3.739 | 3.840 | 4.932 | 7.889 | 10.610 | 15.883 |
| | 30.017 | 34.908 | 31.665 | 30.821 | 35.877 | 32.779 |
| PERCOLATION THROUGH LAYER 5 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |

MONTHLY SUMMARIES FOR DAILY HEADS (CM)

| | | | | | | |
|--|--------|--------|--------|--------|--------|--------|
| AVERAGE DAILY HEAD ON LAYER 5 | 2.923 | 3.517 | 4.287 | 7.878 | 10.469 | 15.978 |
| | 26.931 | 30.385 | 28.880 | 27.535 | 31.830 | 28.909 |
| STD. DEVIATION OF DAILY HEAD ON LAYER 5 | 0.250 | 0.279 | 0.720 | 0.613 | 0.625 | 2.425 |
| | 1.890 | 0.407 | 0.665 | 1.117 | 0.700 | 1.322 |

ANNUAL TOTALS FOR YEAR 1

| | MM | CU. METERS | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION | 1248.50 | 12485.004 | 100.00 |
| RUNOFF | 0.000 | 0.000 | 0.00 |
| EVAPOTRANSPIRATION | 555.114 | 5551.137 | 44.46 |
| DRAINAGE COLLECTED FROM LAYER 3 | 242.9600 | 2429.600 | 19.46 |
| PERC./LEAKAGE THROUGH LAYER 5 | 0.005798 | 0.058 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 5 | 182.9353 | | |
| CHANGE IN WATER STORAGE | 450.421 | 4504.206 | 36.08 |
| SOIL WATER AT START OF YEAR | 3764.870 | 37648.703 | |
| SOIL WATER AT END OF YEAR | 4215.291 | 42152.906 | |
| SNOW WATER AT START OF YEAR | 30.143 | 301.425 | 2.41 |
| SNOW WATER AT END OF YEAR | 30.143 | 301.425 | 2.41 |
| ANNUAL WATER BUDGET BALANCE | 0.0004 | 0.004 | 0.00 |

AVERAGE MONTHLY VALUES (MM) FOR YEARS 1 THROUGH 1

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

PRECIPITATION

| | | | | | | |
|-----------------|------------------|-----------------|-----------------|----------------|-----------------|------------------|
| TOTALS | 104.70 117.30 | 68.00 105.10 | 92.20 136.60 | 64.30 44.20 | 53.90 192.10 | 128.10 142.00 |
| STD. DEVIATIONS | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 |

RUNOFF

| | | | | | | |
|-----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| TOTALS | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 |
| STD. DEVIATIONS | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 |

EVAPOTRANSPIRATION

| | | | | | | |
|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| TOTALS | 10.347 99.126 | 13.552 68.765 | 27.386 67.906 | 59.993 21.792 | 59.220 25.264 | 90.539 11.224 |
| STD. DEVIATIONS | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 |

LATERAL DRAINAGE COLLECTED FROM LAYER 3

| | | | | | | |
|-----------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| TOTALS | 3.7389 30.0174 | 3.8405 34.9084 | 4.9317 31.6647 | 7.8886 30.8212 | 10.6098 35.8768 | 15.8833 32.7787 |
| STD. DEVIATIONS | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 |

PERCOLATION/LEAKAGE THROUGH LAYER 5

| | | | | | | |
|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| TOTALS | 0.0001 0.0007 | 0.0001 0.0008 | 0.0001 0.0007 | 0.0002 0.0007 | 0.0003 0.0008 | 0.0004 0.0008 |
| STD. DEVIATIONS | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 |

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (CM)

DAILY AVERAGE HEAD ACROSS LAYER 5

| | | | | | | |
|-----------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|
| AVERAGES | 2.9230 26.9313 | 3.5166 30.3852 | 4.2869 28.8802 | 7.8775 27.5348 | 10.4692 31.8304 | 15.9778 28.9093 |
| STD. DEVIATIONS | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 |

| | MM | | CU. METERS | PERCENT |
|---|-----------|------------|------------|----------|
| PRECIPITATION | 1248.50 | (0.000) | 12485.0 | 100.00 |
| RUNOFF | 0.000 | (0.0000) | 0.00 | 0.000 |
| EVAPOTRANSPIRATION | 555.114 | (0.0000) | 5551.14 | 44.462 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 3 | 242.96002 | (0.00000) | 2429.600 | 19.46015 |
| PERCOLATION/LEAKAGE THROUGH FROM LAYER 5 | 0.00580 | (0.00000) | 0.058 | 0.00046 |
| AVERAGE HEAD ACROSS TOP OF LAYER 5 | 182.935 | (0.000) | | |
| CHANGE IN WATER STORAGE | 450.421 | (0.0000) | 4504.21 | 36.077 |

PEAK DAILY VALUES FOR YEARS 1 THROUGH 1

| | (MM) | (CU. METERS) |
|-------------------------------------|----------|--------------|
| PRECIPITATION | 46.80 | 468.000 |
| RUNOFF | 0.000 | 0.0000 |
| DRAINAGE COLLECTED FROM LAYER 3 | 1.22942 | 12.29423 |
| PERCOLATION/LEAKAGE THROUGH LAYER 5 | 0.000028 | 0.00028 |
| AVERAGE HEAD ACROSS LAYER 5 | 325.171 | |
| SNOW WATER | 101.73 | 1017.2820 |
| MAXIMUM VEG. SOIL WATER (VOL/VOL) | | 0.4570 |
| MINIMUM VEG. SOIL WATER (VOL/VOL) | | 0.0429 |

 FINAL WATER STORAGE AT END OF YEAR 1

| LAYER | (CM) | (VOL/VOL) |
|------------|----------|-----------|
| 1 | 9.1400 | 0.4570 |
| 2 | 356.2091 | 0.3958 |
| 3 | 13.4800 | 0.2696 |
| 4 | 0.0000 | 0.0000 |
| 5 | 42.7000 | 0.4270 |
| SNOW WATER | 0.000 | |

WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.3300 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999975000E-04 CM/SEC

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 0
THICKNESS = 900.00 CM
POROSITY = 0.6710 VOL/VOL
FIELD CAPACITY = 0.2920 VOL/VOL
WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.4000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999975000E-04 CM/SEC

LAYER 4

TYPE 2 - LATERAL DRAINAGE LAYER

MATERIAL TEXTURE NUMBER 1
THICKNESS = 50.00 CM
POROSITY = 0.4170 VOL/VOL
FIELD CAPACITY = 0.0450 VOL/VOL
WILTING POINT = 0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999978000E-02 CM/SEC
SLOPE = 2.00 PERCENT
DRAINAGE LENGTH = 50.0 METERS

LAYER 5

TYPE 4 - FLEXIBLE MEMBRANE LINER

MATERIAL TEXTURE NUMBER 35
THICKNESS = 0.20 CM
POROSITY = 0.0000 VOL/VOL
FIELD CAPACITY = 0.0000 VOL/VOL
WILTING POINT = 0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY = 0.00 HOLES/HECTARE
FML INSTALLATION DEFECTS = 0.00 HOLES/HECTARE
FML PLACEMENT QUALITY = 1 - PERFECT

LAYER 6

TYPE 3 - BARRIER SOIL LINER

MATERIAL TEXTURE NUMBER 0
THICKNESS = 100.00 CM
POROSITY = 0.4270 VOL/VOL
FIELD CAPACITY = 0.4180 VOL/VOL
WILTING POINT = 0.3670 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999972000E-09 CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT SOIL DATA BASE USING SOIL TEXTURE # 5 WITH BARE GROUND CONDITIONS, A SURFACE SLOPE OF 1.% AND A SLOPE LENGTH OF 200. METERS.

SCS RUNOFF CURVE NUMBER = 82.50
 FRACTION OF AREA ALLOWING RUNOFF = 0.0 PERCENT
 AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES
 EVAPORATIVE ZONE DEPTH = 20.0 CM
 INITIAL WATER IN EVAPORATIVE ZONE = 2.620 CM
 UPPER LIMIT OF EVAPORATIVE STORAGE = 9.140 CM
 LOWER LIMIT OF EVAPORATIVE STORAGE = 1.160 CM
 INITIAL SNOW WATER = 0.000 CM
 INITIAL WATER IN LAYER MATERIALS = 707.320 CM
 TOTAL INITIAL WATER = 707.320 CM
 TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
 Granby Quebec

MAXIMUM LEAF AREA INDEX = 3.50
 START OF GROWING SEASON (JULIAN DATE) = 125
 END OF GROWING SEASON (JULIAN DATE) = 275
 AVERAGE ANNUAL WIND SPEED = 11.00 KPH
 AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 70.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR ALBANY NEW YORK

NORMAL MEAN MONTHLY PRECIPITATION (MM)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 101.6 | 73.8 | 91.6 | 85.7 | 94.0 | 107.4 |
| 128.4 | 124.4 | 111.1 | 98.7 | 104.7 | 106.0 |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR MONTPELIER VERMONT

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES CELSIUS)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| -10.2 | -8.4 | -2.4 | 5.4 | 12.9 | 17.6 |
| 20.1 | 18.9 | 14.0 | 7.8 | 1.1 | -6.4 |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING

STATION LATITUDE = 45.38 DEGREES

MONTHLY TOTALS (MM) FOR YEAR 1

| | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|--|-----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION | 104.7 117.3 | 68.0 105.1 | 92.2 136.6 | 64.3 44.2 | 53.9 192.1 | 128.1 142.0 |
| RUNOFF | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 |
| EVAPOTRANSPIRATION | 8.43 98.52 | 16.33 68.55 | 27.16 67.85 | 59.49 21.82 | 59.24 25.22 | 91.14 11.22 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 4 | 7.042 47.954 | 23.871 45.385 | 42.215 39.117 | 48.478 35.764 | 50.942 33.869 | 47.988 28.849 |
| PERCOLATION THROUGH LAYER 6 | 0.000 0.001 | 0.001 0.001 | 0.001 0.001 | 0.001 0.001 | 0.001 0.001 | 0.001 0.001 |

MONTHLY SUMMARIES FOR DAILY HEADS (CM)

| | | | | | | |
|--|-----------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON LAYER 6 | 6.579 38.621 | 23.885 37.084 | 35.107 33.996 | 39.873 30.957 | 40.366 30.446 | 39.582 26.012 |
| STD. DEVIATION OF DAILY HEAD ON LAYER 6 | 3.247 0.590 | 6.717 0.622 | 1.935 1.047 | 0.658 0.895 | 0.238 0.317 | 0.235 3.147 |

ANNUAL TOTALS FOR YEAR 1

| | MM | CU. METERS | PERCENT |
|---------------------------------|----------|------------|---------|
| PRECIPITATION | 1248.50 | 12485.004 | 100.00 |
| RUNOFF | 0.000 | 0.000 | 0.00 |
| EVAPOTRANSPIRATION | 554.979 | 5549.786 | 44.45 |
| DRAINAGE COLLECTED FROM LAYER 4 | 451.4739 | 4514.739 | 36.16 |
| PERC./LEAKAGE THROUGH LAYER 6 | 0.010059 | 0.101 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 6 | 318.7573 | | |
| CHANGE IN WATER STORAGE | 242.038 | 2420.381 | 19.39 |
| SOIL WATER AT START OF YEAR | 7073.198 | 70731.984 | |

| | | | |
|-----------------------------|----------|-----------|------|
| SOIL WATER AT END OF YEAR | 7285.094 | 72850.937 | |
| SNOW WATER AT START OF YEAR | 0.000 | 0.000 | 0.00 |
| SNOW WATER AT END OF YEAR | 30.143 | 301.425 | 2.41 |
| ANNUAL WATER BUDGET BALANCE | -0.0003 | -0.003 | 0.00 |

AVERAGE MONTHLY VALUES (MM) FOR YEARS 1 THROUGH 1

| | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|--|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| <u>PRECIPITATION</u> | | | | | | |
| TOTALS | 104.70 117.30 | 68.00 105.10 | 92.20 136.60 | 64.30 44.20 | 53.90 192.10 | 128.10 142.00 |
| STD. DEVIATIONS | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 |
| <u>RUNOFF</u> | | | | | | |
| TOTALS | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 |
| STD. DEVIATIONS | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 |
| <u>EVAPOTRANSPIRATION</u> | | | | | | |
| TOTALS | 8.426 98.520 | 16.326 68.553 | 27.159 67.853 | 59.492 21.824 | 59.245 25.221 | 91.139 11.223 |
| STD. DEVIATIONS | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 | 0.000 0.000 |
| <u>LATERAL DRAINAGE COLLECTED FROM LAYER 4</u> | | | | | | |
| TOTALS | 7.0419 47.9539 | 23.8708 45.3848 | 42.2148 39.1166 | 48.4781 35.7640 | 50.9422 33.8690 | 47.9885 28.8492 |
| STD. DEVIATIONS | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 |
| <u>PERCOLATION/LEAKAGE THROUGH LAYER 6</u> | | | | | | |
| TOTALS | 0.0002 0.0010 | 0.0006 0.0010 | 0.0009 0.0009 | 0.0010 0.0008 | 0.0011 0.0008 | 0.0010 0.0007 |
| STD. DEVIATIONS | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 | 0.0000 0.0000 |

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (CM)

DAILY AVERAGE HEAD ACROSS LAYER 6

| AVERAGES | 6.5793 | 23.8846 | 35.1073 | 39.8733 | 40.3660 | 39.5821 |
|-----------------|---------|---------|---------|---------|---------|---------|
| | 38.6210 | 37.0838 | 33.9964 | 30.9566 | 30.4465 | 26.0119 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 1

| | MM | | CU. METERS | PERCENT |
|--|-----------|------------|------------|----------|
| PRECIPITATION | 1248.50 | (0.000) | 12485.0 | 100.00 |
| RUNOFF | 0.000 | (0.0000) | 0.00 | 0.000 |
| EVAPOTRANSPIRATION | 554.979 | (0.0000) | 5549.79 | 44.452 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 4 | 451.47394 | (0.00000) | 4514.739 | 36.16130 |
| PERCOLATION/LEAKAGE THROUGH FROM LAYER 6 | 0.01006 | (0.00000) | 0.101 | 0.00081 |
| AVERAGE HEAD ACROSS TOP OF LAYER 6 | 318.757 | (0.000) | | |
| CHANGE IN WATER STORAGE | 242.038 | (0.0000) | 2420.38 | 19.386 |

PEAK DAILY VALUES FOR YEARS 1 THROUGH 1

| | (MM) | (CU. METERS) |
|-------------------------------------|----------|--------------|
| PRECIPITATION | 46.80 | 468.000 |
| RUNOFF | 0.000 | 0.0000 |
| DRAINAGE COLLECTED FROM LAYER 4 | 1.65822 | 16.58217 |
| PERCOLATION/LEAKAGE THROUGH LAYER 6 | 0.000035 | 0.00035 |
| AVERAGE HEAD ACROSS LAYER 6 | 406.321 | |
| SNOW WATER | 89.98 | 899.8135 |
| MAXIMUM VEG. SOIL WATER (VOL/VOL) | | 0.4570 |
| MINIMUM VEG. SOIL WATER (VOL/VOL) | | 0.0429 |

FINAL WATER STORAGE AT END OF YEAR 1

| <u>LAYER</u> | <u>(CM)</u> | <u>(VOL/VOL)</u> |
|--------------|-------------|------------------|
| 1 | 9.1400 | 0.4570 |
| 2 | 342.9835 | 0.3811 |
| 3 | 322.2433 | 0.3580 |
| 4 | 11.4426 | 0.2289 |
| 5 | 0.0000 | 0.0000 |
| 6 | 42.7000 | 0.4270 |
| SNOW WATER | 0.000 | |

WILTING POINT = 0.1350 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.2840 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.190000006000E-03 CM/SEC

LAYER 3

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS = 0.10 CM
POROSITY = 0.0000 VOL/VOL
FIELD CAPACITY = 0.0000 VOL/VOL
WILTING POINT = 0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.199999996000E-12 CM/SEC
FML PINHOLE DENSITY = 4.00 HOLES/HECTARE
FML INSTALLATION DEFECTS = 4.00 HOLES/HECTARE
FML PLACEMENT QUALITY = 3 - GOOD

LAYER 4

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 5

THICKNESS = 30.00 CM
POROSITY = 0.4570 VOL/VOL
FIELD CAPACITY = 0.1310 VOL/VOL
WILTING POINT = 0.0580 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1310 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.100000005000E-02 CM/SEC

LAYER 5

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

THICKNESS = 2300.00 CM
POROSITY = 0.6710 VOL/VOL
FIELD CAPACITY = 0.2920 VOL/VOL
WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.4000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.499999987000E-04 CM/SEC

LAYER 6

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS = 50.00 CM
POROSITY = 0.4170 VOL/VOL
FIELD CAPACITY = 0.0450 VOL/VOL
WILTING POINT = 0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.999999978000E-02 CM/SEC
SLOPE = 2.00 PERCENT
DRAINAGE LENGTH = 50.0 METERS

LAYER 7

TYPE 4 - FLEXIBLE MEMBRANE LINER

MATERIAL TEXTURE NUMBER 35

| | | | |
|----------------------------|---|--------------------|---------------|
| THICKNESS | = | 0.15 | CM |
| POROSITY | = | 0.0000 | VOL/VOL |
| FIELD CAPACITY | = | 0.0000 | VOL/VOL |
| WILTING POINT | = | 0.0000 | VOL/VOL |
| INITIAL SOIL WATER CONTENT | = | 0.0000 | VOL/VOL |
| EFFECTIVE SAT. HYD. COND. | = | 0.199999996000E-12 | CM/SEC |
| FML PINHOLE DENSITY | = | 0.00 | HOLES/HECTARE |
| FML INSTALLATION DEFECTS | = | 0.00 | HOLES/HECTARE |
| FML PLACEMENT QUALITY | = | 1 - | PERFECT |

LAYER 8

TYPE 3 - BARRIER SOIL LINER

MATERIAL TEXTURE NUMBER 29

| | | | |
|----------------------------|---|--------------------|---------|
| THICKNESS | = | 100.00 | CM |
| POROSITY | = | 0.4510 | VOL/VOL |
| FIELD CAPACITY | = | 0.4190 | VOL/VOL |
| WILTING POINT | = | 0.3320 | VOL/VOL |
| INITIAL SOIL WATER CONTENT | = | 0.4510 | VOL/VOL |
| EFFECTIVE SAT. HYD. COND. | = | 0.680000028000E-06 | CM/SEC |

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT
SOIL DATA BASE USING SOIL TEXTURE # 5 WITH A
FAIR STAND OF GRASS, A SURFACE SLOPE OF 2.0%
AND A SLOPE LENGTH OF 125. METERS.

| | | | |
|------------------------------------|---|---------|----------|
| SCS RUNOFF CURVE NUMBER | = | 63.40 | |
| FRACTION OF AREA ALLOWING RUNOFF | = | 100.0 | PERCENT |
| AREA PROJECTED ON HORIZONTAL PLANE | = | 0.4047 | HECTARES |
| EVAPORATIVE ZONE DEPTH | = | 20.0 | CM |
| INITIAL WATER IN EVAPORATIVE ZONE | = | 3.385 | CM |
| UPPER LIMIT OF EVAPORATIVE STORAGE | = | 9.360 | CM |
| LOWER LIMIT OF EVAPORATIVE STORAGE | = | 1.545 | CM |
| INITIAL SNOW WATER | = | 0.000 | CM |
| INITIAL WATER IN LAYER MATERIALS | = | 988.775 | CM |
| TOTAL INITIAL WATER | = | 988.775 | CM |
| TOTAL SUBSURFACE INFLOW | = | 0.00 | MM/YR |

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
Granby Quebec

| | | |
|---------------------------------------|---|------|
| MAXIMUM LEAF AREA INDEX | = | 3.50 |
| START OF GROWING SEASON (JULIAN DATE) | = | 125 |
| END OF GROWING SEASON (JULIAN DATE) | = | 275 |

AVERAGE ANNUAL WIND SPEED = 11.00 KPH
 AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 70.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR ALBANY NEW YORK

NORMAL MEAN MONTHLY PRECIPITATION (MM)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 101.6 | 73.8 | 91.6 | 85.7 | 94.0 | 107.4 |
| 128.4 | 124.4 | 111.1 | 98.7 | 104.7 | 106.0 |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR MONTPELIER VERMONT

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES CELSIUS)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| -10.2 | -8.4 | -2.4 | 5.4 | 12.9 | 17.6 |
| 20.1 | 18.9 | 14.0 | 7.8 | 1.1 | -6.4 |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR MONTPELIER VERMONT

STATION LATITUDE = 45.38 DEGREES

ANNUAL TOTALS FOR YEAR 1

| | MM | CU. METERS | PERCENT |
|---------------------------------|-----------|------------|---------|
| PRECIPITATION | 1248.50 | 12485.004 | 100.00 |
| RUNOFF | 467.418 | 4674.179 | 37.44 |
| EVAPOTRANSPIRATION | 589.406 | 5894.055 | 47.21 |
| PERC./LEAKAGE THROUGH LAYER 3 | 17.547337 | 175.473 | 1.41 |
| AVG. HEAD ON TOP OF LAYER 3 | 264.5314 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 350.4648 | 3504.647 | 28.07 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.010881 | 0.109 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 257.8972 | | |
| CHANGE IN WATER STORAGE | -158.799 | -1587.994 | -12.72 |
| SOIL WATER AT START OF YEAR | 10001.348 | 100013.477 | |
| SOIL WATER AT END OF YEAR | 9812.405 | 98124.055 | |
| SNOW WATER AT START OF YEAR | 0.000 | 0.000 | 0.00 |

| | | | |
|-----------------------------|--------|---------|------|
| SNOW WATER AT END OF YEAR | 30.143 | 301.425 | 2.41 |
| ANNUAL WATER BUDGET BALANCE | 0.0008 | 0.008 | 0.00 |

ANNUAL TOTALS FOR YEAR 2

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1295.70 | 12957.003 | 100.00 |
| RUNOFF | 673.333 | 6733.331 | 51.97 |
| EVAPOTRANSPIRATION | 591.555 | 5915.546 | 45.66 |
| PERC./LEAKAGE THROUGH LAYER 3 | 29.551352 | 295.514 | 2.28 |
| AVG. HEAD ON TOP OF LAYER 3 | 455.1341 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 336.0798 | 3360.798 | 25.94 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.010834 | 0.108 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 257.8518 | | |
| CHANGE IN WATER STORAGE | -240463.437 | -2404634.250 | -18558.57 |
| SOIL WATER AT START OF YEAR | 249235.094 | 2492351.000 | |
| SOIL WATER AT END OF YEAR | 9506.908 | 95069.078 | |
| SNOW WATER AT START OF YEAR | 765.621 | 7656.207 | 59.09 |
| SNOW WATER AT END OF YEAR | 30.361 | 303.606 | 2.34 |
| ANNUAL WATER BUDGET BALANCE | 240158.1870 | 2401581.750 | 18535.01 |

ANNUAL TOTALS FOR YEAR 3

| | MM | CU. METERS | PERCENT |
|---------------------------------|-----------|------------|---------|
| PRECIPITATION | 1524.30 | 15243.002 | 100.00 |
| RUNOFF | 748.036 | 7480.357 | 49.07 |
| EVAPOTRANSPIRATION | 678.164 | 6781.635 | 44.49 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.559946 | 305.599 | 2.00 |
| AVG. HEAD ON TOP OF LAYER 3 | 472.7785 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 246.3138 | 2463.138 | 16.16 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.008363 | 0.084 | 0.00 |

| | | | |
|-----------------------------|-------------|--------------|-----------|
| AVG. HEAD ON TOP OF LAYER 8 | 198.9555 | | |
| CHANGE IN WATER STORAGE | -232857.578 | -2328575.750 | -15276.36 |
| SOIL WATER AT START OF YEAR | 241475.469 | 2414754.750 | |
| SOIL WATER AT END OF YEAR | 9289.364 | 92893.648 | |
| SNOW WATER AT START OF YEAR | 771.159 | 7711.593 | 50.59 |
| SNOW WATER AT END OF YEAR | 99.684 | 996.842 | 6.54 |
| ANNUAL WATER BUDGET BALANCE | 232709.3590 | 2327093.750 | 15266.64 |

ANNUAL TOTALS FOR YEAR 4

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1088.80 | 10887.999 | 100.00 |
| RUNOFF | 518.523 | 5185.232 | 47.62 |
| EVAPOTRANSPIRATION | 514.970 | 5149.696 | 47.30 |
| PERC./LEAKAGE THROUGH LAYER 3 | 28.562006 | 285.620 | 2.62 |
| AVG. HEAD ON TOP OF LAYER 3 | 436.0714 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 206.6027 | 2066.027 | 18.98 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.007169 | 0.072 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 170.0479 | | |
| CHANGE IN WATER STORAGE | -229244.078 | -2292440.750 | -21054.75 |
| SOIL WATER AT START OF YEAR | 235949.844 | 2359498.500 | |
| SOIL WATER AT END OF YEAR | 9113.641 | 91136.406 | |
| SNOW WATER AT START OF YEAR | 2531.978 | 25319.783 | 232.55 |
| SNOW WATER AT END OF YEAR | 124.106 | 1241.055 | 11.40 |
| ANNUAL WATER BUDGET BALANCE | 229092.7970 | 2290928.000 | 21040.85 |

ANNUAL TOTALS FOR YEAR 5

| | MM | CU. METERS | PERCENT |
|--------------------|---------|------------|---------|
| PRECIPITATION | 1019.50 | 10195.002 | 100.00 |
| RUNOFF | 453.005 | 4530.045 | 44.43 |
| EVAPOTRANSPIRATION | 637.427 | 6374.267 | 62.52 |

| | | | |
|---------------------------------|-------------|--------------|-----------|
| PERC./LEAKAGE THROUGH LAYER 3 | 28.121201 | 281.212 | 2.76 |
| AVG. HEAD ON TOP OF LAYER 3 | 429.2583 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 174.1864 | 1741.864 | 17.09 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.006121 | 0.061 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 145.6199 | | |
| CHANGE IN WATER STORAGE | -225646.125 | -2256461.250 | -22133.02 |
| SOIL WATER AT START OF YEAR | 231486.469 | 2314864.750 | |
| SOIL WATER AT END OF YEAR | 8965.077 | 89650.773 | |
| SNOW WATER AT START OF YEAR | 3152.280 | 31522.801 | 309.20 |
| SNOW WATER AT END OF YEAR | 27.544 | 275.444 | 2.70 |
| ANNUAL WATER BUDGET BALANCE | 225401.0160 | 2254010.000 | 22108.97 |

ANNUAL TOTALS FOR YEAR 6

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1249.40 | 12494.001 | 100.00 |
| RUNOFF | 544.179 | 5441.794 | 43.56 |
| EVAPOTRANSPIRATION | 640.330 | 6403.302 | 51.25 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.835669 | 308.357 | 2.47 |
| AVG. HEAD ON TOP OF LAYER 3 | 477.7515 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 149.3791 | 1493.791 | 11.96 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.005277 | 0.053 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 125.5353 | | |
| CHANGE IN WATER STORAGE | -219504.469 | -2195044.750 | -17568.79 |
| SOIL WATER AT START OF YEAR | 227712.953 | 2277129.500 | |
| SOIL WATER AT END OF YEAR | 8847.629 | 88476.289 | |
| SNOW WATER AT START OF YEAR | 699.627 | 6996.273 | 56.00 |
| SNOW WATER AT END OF YEAR | 60.499 | 604.988 | 4.84 |
| ANNUAL WATER BUDGET BALANCE | 219419.9530 | 2194199.500 | 17562.03 |

ANNUAL TOTALS FOR YEAR 7

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1422.90 | 14228.998 | 100.00 |
| RUNOFF | 640.528 | 6405.283 | 45.02 |
| EVAPOTRANSPIRATION | 706.110 | 7061.101 | 49.62 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.401287 | 304.013 | 2.14 |
| AVG. HEAD ON TOP OF LAYER 3 | 470.1380 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 128.4540 | 1284.540 | 9.03 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.004532 | 0.045 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 107.8188 | | |
| CHANGE IN WATER STORAGE | -217410.500 | -2174105.000 | -15279.40 |
| SOIL WATER AT START OF YEAR | 224729.766 | 2247297.750 | |
| SOIL WATER AT END OF YEAR | 8751.139 | 87511.383 | |
| SNOW WATER AT START OF YEAR | 1536.668 | 15366.685 | 108.00 |
| SNOW WATER AT END OF YEAR | 104.792 | 1047.915 | 7.36 |
| ANNUAL WATER BUDGET BALANCE | 217358.3120 | 2173583.250 | 15275.73 |

ANNUAL TOTALS FOR YEAR 8

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1367.50 | 13675.003 | 100.00 |
| RUNOFF | 647.007 | 6470.069 | 47.31 |
| EVAPOTRANSPIRATION | 717.479 | 7174.789 | 52.47 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.670809 | 306.708 | 2.24 |
| AVG. HEAD ON TOP OF LAYER 3 | 473.8197 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 114.5524 | 1145.524 | 8.38 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.004019 | 0.040 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 95.3306 | | |
| CHANGE IN WATER STORAGE | -216196.234 | -2161962.500 | -15809.59 |
| SOIL WATER AT START OF YEAR | 222278.922 | 2222789.250 | |
| SOIL WATER AT END OF YEAR | 8665.745 | 86657.453 | |
| SNOW WATER AT START OF YEAR | 2661.705 | 26617.049 | 194.64 |
| SNOW WATER AT END OF YEAR | 78.643 | 786.435 | 5.75 |

ANNUAL WATER BUDGET BALANCE 216084.6870 2160847.000 15801.44

ANNUAL TOTALS FOR YEAR 9

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1110.40 | 11103.998 | 100.00 |
| RUNOFF | 450.603 | 4506.034 | 40.58 |
| EVAPOTRANSPIRATION | 652.262 | 6522.619 | 58.74 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.316887 | 303.169 | 2.73 |
| AVG. HEAD ON TOP OF LAYER 3 | 468.7578 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 102.6487 | 1026.487 | 9.24 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.003569 | 0.036 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 84.9168 | | |
| CHANGE IN WATER STORAGE | -213458.203 | -2134582.000 | -19223.54 |
| SOIL WATER AT START OF YEAR | 220109.922 | 2201099.250 | |
| SOIL WATER AT END OF YEAR | 8593.331 | 85933.312 | |
| SNOW WATER AT START OF YEAR | 1997.544 | 19975.436 | 179.89 |
| SNOW WATER AT END OF YEAR | 55.939 | 559.389 | 5.04 |
| ANNUAL WATER BUDGET BALANCE | 213363.0780 | 2133630.750 | 19214.98 |

ANNUAL TOTALS FOR YEAR 10

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1119.10 | 11191.004 | 100.00 |
| RUNOFF | 351.212 | 3512.124 | 31.38 |
| EVAPOTRANSPIRATION | 654.585 | 6545.850 | 58.49 |
| PERC./LEAKAGE THROUGH LAYER 3 | 29.822544 | 298.225 | 2.66 |
| AVG. HEAD ON TOP OF LAYER 3 | 459.4477 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 93.7856 | 937.856 | 8.38 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.003232 | 0.032 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 76.8799 | | |
| CHANGE IN WATER STORAGE | -211022.672 | -2110226.750 | -18856.46 |

| | | | |
|-----------------------------|-------------|-------------|----------|
| SOIL WATER AT START OF YEAR | 218270.609 | 2182706.000 | |
| SOIL WATER AT END OF YEAR | 8523.426 | 85234.250 | |
| SNOW WATER AT START OF YEAR | 1420.848 | 14208.481 | 126.96 |
| SNOW WATER AT END OF YEAR | 145.359 | 1453.589 | 12.99 |
| ANNUAL WATER BUDGET BALANCE | 211042.2030 | 2110422.000 | 18858.20 |

ANNUAL TOTALS FOR YEAR 11

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 885.90 | 8858.998 | 100.00 |
| RUNOFF | 453.750 | 4537.496 | 51.22 |
| EVAPOTRANSPIRATION | 514.573 | 5145.734 | 58.08 |
| PERC./LEAKAGE THROUGH LAYER 3 | 28.580120 | 285.801 | 3.23 |
| AVG. HEAD ON TOP OF LAYER 3 | 437.5287 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 86.1701 | 861.701 | 9.73 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.002932 | 0.029 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 69.7486 | | |
| CHANGE IN WATER STORAGE | -211686.953 | -2116869.500 | -23895.13 |
| SOIL WATER AT START OF YEAR | 216495.016 | 2164950.000 | |
| SOIL WATER AT END OF YEAR | 8472.714 | 84727.141 | |
| SNOW WATER AT START OF YEAR | 3692.117 | 36921.172 | 416.76 |
| SNOW WATER AT END OF YEAR | 27.476 | 274.757 | 3.10 |
| ANNUAL WATER BUDGET BALANCE | 211518.3440 | 2115183.500 | 23876.10 |

ANNUAL TOTALS FOR YEAR 12

| | MM | CU. METERS | PERCENT |
|-------------------------------|-----------|------------|---------|
| PRECIPITATION | 962.30 | 9623.001 | 100.00 |
| RUNOFF | 360.023 | 3600.231 | 37.41 |
| EVAPOTRANSPIRATION | 576.272 | 5762.716 | 59.88 |
| PERC./LEAKAGE THROUGH LAYER 3 | 29.363281 | 293.633 | 3.05 |

| | | | |
|---------------------------------|-------------|--------------|-----------|
| AVG. HEAD ON TOP OF LAYER 3 | 450.1244 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 81.2471 | 812.471 | 8.44 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.002732 | 0.027 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 64.8217 | | |
| CHANGE IN WATER STORAGE | -207459.859 | -2074598.620 | -21558.75 |
| SOIL WATER AT START OF YEAR | 215206.922 | 2152069.250 | |
| SOIL WATER AT END OF YEAR | 8417.956 | 84179.555 | |
| SNOW WATER AT START OF YEAR | 697.882 | 6978.820 | 72.52 |
| SNOW WATER AT END OF YEAR | 26.989 | 269.885 | 2.80 |
| ANNUAL WATER BUDGET BALANCE | 207404.6250 | 2074046.250 | 21553.01 |

ANNUAL TOTALS FOR YEAR 13

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1035.80 | 10358.001 | 100.00 |
| RUNOFF | 413.629 | 4136.288 | 39.93 |
| EVAPOTRANSPIRATION | 615.466 | 6154.664 | 59.42 |
| PERC./LEAKAGE THROUGH LAYER 3 | 28.800003 | 288.000 | 2.78 |
| AVG. HEAD ON TOP OF LAYER 3 | 441.7728 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 74.7637 | 747.637 | 7.22 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.002470 | 0.025 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 58.7582 | | |
| CHANGE IN WATER STORAGE | -206124.703 | -2061247.000 | -19900.05 |
| SOIL WATER AT START OF YEAR | 213816.078 | 2138160.750 | |
| SOIL WATER AT END OF YEAR | 8371.661 | 83716.609 | |
| SNOW WATER AT START OF YEAR | 685.509 | 6855.092 | 66.18 |
| SNOW WATER AT END OF YEAR | 5.223 | 52.230 | 0.50 |
| ANNUAL WATER BUDGET BALANCE | 206056.6410 | 2060566.370 | 19893.47 |

ANNUAL TOTALS FOR YEAR 14

MM CU. METERS PERCENT

| | | | |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1108.30 | 11082.999 | 100.00 |
| RUNOFF | 446.264 | 4462.637 | 40.27 |
| EVAPOTRANSPIRATION | 582.051 | 5820.505 | 52.52 |
| PERC./LEAKAGE THROUGH LAYER 3 | 29.422262 | 294.223 | 2.65 |
| AVG. HEAD ON TOP OF LAYER 3 | 452.6413 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 69.8303 | 698.303 | 6.30 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.002279 | 0.023 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 54.2075 | | |
| CHANGE IN WATER STORAGE | -204385.828 | -2043858.250 | -18441.38 |
| SOIL WATER AT START OF YEAR | 212640.187 | 2126402.000 | |
| SOIL WATER AT END OF YEAR | 8329.010 | 83290.094 | |
| SNOW WATER AT START OF YEAR | 132.664 | 1326.639 | 11.97 |
| SNOW WATER AT END OF YEAR | 58.026 | 580.262 | 5.24 |
| ANNUAL WATER BUDGET BALANCE | 204395.9690 | 2043959.620 | 18442.30 |

ANNUAL TOTALS FOR YEAR 15

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1046.10 | 10461.000 | 100.00 |
| RUNOFF | 474.140 | 4741.396 | 45.32 |
| EVAPOTRANSPIRATION | 576.509 | 5765.090 | 55.11 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.457016 | 304.570 | 2.91 |
| AVG. HEAD ON TOP OF LAYER 3 | 471.0349 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 65.7683 | 657.683 | 6.29 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.002115 | 0.021 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 50.3298 | | |
| CHANGE IN WATER STORAGE | -204713.984 | -2047139.870 | -19569.26 |
| SOIL WATER AT START OF YEAR | 211556.844 | 2115568.500 | |
| SOIL WATER AT END OF YEAR | 8298.092 | 82980.922 | |
| SNOW WATER AT START OF YEAR | 1473.866 | 14738.656 | 140.89 |
| SNOW WATER AT END OF YEAR | 18.625 | 186.253 | 1.78 |
| ANNUAL WATER BUDGET BALANCE | 204643.6720 | 2046436.750 | 19562.54 |

ANNUAL TOTALS FOR YEAR 16

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1487.50 | 14875.000 | 100.00 |
| RUNOFF | 756.292 | 7562.917 | 50.84 |
| EVAPOTRANSPIRATION | 655.980 | 6559.800 | 44.10 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.435526 | 304.355 | 2.05 |
| AVG. HEAD ON TOP OF LAYER 3 | 469.4566 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 61.3876 | 613.876 | 4.13 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.001937 | 0.019 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 45.9516 | | |
| CHANGE IN WATER STORAGE | -202914.047 | -2029140.500 | -13641.28 |
| SOIL WATER AT START OF YEAR | 210771.531 | 2107715.250 | |
| SOIL WATER AT END OF YEAR | 8268.326 | 82683.266 | |
| SNOW WATER AT START OF YEAR | 473.081 | 4730.814 | 31.80 |
| SNOW WATER AT END OF YEAR | 62.230 | 622.295 | 4.18 |
| ANNUAL WATER BUDGET BALANCE | 202927.8910 | 2029278.870 | 13642.21 |

ANNUAL TOTALS FOR YEAR 17

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 920.60 | 9206.002 | 100.00 |
| RUNOFF | 340.159 | 3401.595 | 36.95 |
| EVAPOTRANSPIRATION | 561.194 | 5611.942 | 60.96 |
| PERC./LEAKAGE THROUGH LAYER 3 | 28.134768 | 281.348 | 3.06 |
| AVG. HEAD ON TOP OF LAYER 3 | 429.6931 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 58.1254 | 581.254 | 6.31 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.001806 | 0.018 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 42.9796 | | |
| CHANGE IN WATER STORAGE | -203304.437 | -2033044.370 | -22083.90 |
| SOIL WATER AT START OF YEAR | 210015.484 | 2100154.750 | |

| | | | |
|-----------------------------|-------------|-------------|----------|
| SOIL WATER AT END OF YEAR | 8211.657 | 82116.570 | |
| SNOW WATER AT START OF YEAR | 1580.630 | 15806.296 | 171.70 |
| SNOW WATER AT END OF YEAR | 80.016 | 800.163 | 8.69 |
| ANNUAL WATER BUDGET BALANCE | 203265.5620 | 2032655.500 | 22079.68 |

ANNUAL TOTALS FOR YEAR 18

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| | ----- | ----- | ----- |
| PRECIPITATION | 1494.90 | 14949.002 | 100.00 |
| RUNOFF | 709.513 | 7095.133 | 47.46 |
| EVAPOTRANSPIRATION | 708.737 | 7087.365 | 47.41 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.303289 | 303.033 | 2.03 |
| AVG. HEAD ON TOP OF LAYER 3 | 468.0563 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 56.7637 | 567.637 | 3.80 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.001751 | 0.018 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 41.6458 | | |
| CHANGE IN WATER STORAGE | -202296.937 | -2022969.500 | -13532.47 |
| SOIL WATER AT START OF YEAR | 208576.094 | 2085760.870 | |
| SOIL WATER AT END OF YEAR | 8211.586 | 82115.852 | |
| SNOW WATER AT START OF YEAR | 2032.413 | 20324.131 | 135.96 |
| SNOW WATER AT END OF YEAR | 99.974 | 999.739 | 6.69 |
| ANNUAL WATER BUDGET BALANCE | 202316.8280 | 2023168.250 | 13533.80 |

ANNUAL TOTALS FOR YEAR 19

| | MM | CU. METERS | PERCENT |
|---------------------------------|-----------|------------|---------|
| | ----- | ----- | ----- |
| PRECIPITATION | 1237.80 | 12378.000 | 100.00 |
| RUNOFF | 592.105 | 5921.045 | 47.84 |
| EVAPOTRANSPIRATION | 583.527 | 5835.274 | 47.14 |
| PERC./LEAKAGE THROUGH LAYER 3 | 30.143429 | 301.434 | 2.44 |
| AVG. HEAD ON TOP OF LAYER 3 | 465.3801 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 53.5080 | 535.080 | 4.32 |

| | | | |
|-------------------------------|-------------|--------------|-----------|
| PERC./LEAKAGE THROUGH LAYER 8 | 0.001619 | 0.016 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 38.5190 | | |
| CHANGE IN WATER STORAGE | -202793.406 | -2027934.000 | -16383.37 |
| SOIL WATER AT START OF YEAR | 208574.281 | 2085742.750 | |
| SOIL WATER AT END OF YEAR | 8186.871 | 81868.703 | |
| SNOW WATER AT START OF YEAR | 2539.336 | 25393.361 | 205.15 |
| SNOW WATER AT END OF YEAR | 133.348 | 1333.475 | 10.77 |
| ANNUAL WATER BUDGET BALANCE | 202802.0620 | 2028020.500 | 16384.07 |

ANNUAL TOTALS FOR YEAR 20

| | MM | CU. METERS | PERCENT |
|---------------------------------|-------------|--------------|-----------|
| PRECIPITATION | 1225.30 | 12253.000 | 100.00 |
| RUNOFF | 592.517 | 5925.167 | 48.36 |
| EVAPOTRANSPIRATION | 736.064 | 7360.637 | 60.07 |
| PERC./LEAKAGE THROUGH LAYER 3 | 29.984039 | 299.840 | 2.45 |
| AVG. HEAD ON TOP OF LAYER 3 | 461.4979 | | |
| DRAINAGE COLLECTED FROM LAYER 6 | 51.1081 | 511.081 | 4.17 |
| PERC./LEAKAGE THROUGH LAYER 8 | 0.001520 | 0.015 | 0.00 |
| AVG. HEAD ON TOP OF LAYER 8 | 36.0575 | | |
| CHANGE IN WATER STORAGE | -203167.719 | -2031677.120 | -16581.06 |
| SOIL WATER AT START OF YEAR | 207946.516 | 2079465.120 | |
| SOIL WATER AT END OF YEAR | 8165.827 | 81658.273 | |
| SNOW WATER AT START OF YEAR | 3387.027 | 33870.273 | 276.42 |
| SNOW WATER AT END OF YEAR | 0.000 | 0.000 | 0.00 |
| ANNUAL WATER BUDGET BALANCE | 203013.3120 | 2030133.120 | 16568.46 |

AVERAGE MONTHLY VALUES (MM) FOR YEARS 1 THROUGH 20

JAN/JUL FEB/AUG MAR/SEP APR/OCT MAY/NOV JUN/DEC

 PRECIPITATION

| | | | | | | |
|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|
| TOTALS | 90.13 118.80 | 79.88 105.08 | 99.07 117.74 | 93.10 92.15 | 87.58 111.60 | 103.89 93.53 |
| STD. DEVIATIONS | 37.01 45.77 | 29.13 32.06 | 40.39 64.67 | 35.54 43.20 | 40.21 49.46 | 40.79 45.75 |

 RUNOFF

| | | | | | | |
|-----------------|------------------|------------------|-------------------|------------------|------------------|------------------|
| TOTALS | 11.887 4.633 | 18.731 4.706 | 236.579 32.989 | 67.128 33.846 | 10.416 74.659 | 14.905 21.133 |
| STD. DEVIATIONS | 26.240 11.005 | 37.744 15.517 | 112.811 45.258 | 82.466 36.240 | 23.259 48.810 | 20.858 26.956 |

 EVAPOTRANSPIRATION

| | | | | | | |
|-----------------|------------------|-----------------|------------------|------------------|------------------|-------------------|
| TOTALS | 9.528 113.798 | 8.891 83.853 | 22.212 76.135 | 55.232 32.218 | 75.091 19.610 | 116.343 11.722 |
| STD. DEVIATIONS | 1.314 36.189 | 2.284 19.235 | 8.513 14.573 | 11.377 4.346 | 18.003 3.286 | 15.700 1.201 |

 PERCOLATION/LEAKAGE THROUGH LAYER 3

| | | | | | | |
|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| TOTALS | 2.0939 2.4240 | 1.8374 2.4976 | 1.9931 2.5511 | 2.1519 2.8284 | 2.7880 2.9308 | 2.5667 2.4378 |
| STD. DEVIATIONS | 0.4942 0.2720 | 0.4327 0.2511 | 0.4694 0.2806 | 0.5329 0.3203 | 0.4579 0.2501 | 0.3183 0.1841 |

 LATERAL DRAINAGE COLLECTED FROM LAYER 6

| | | | | | | |
|-----------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| TOTALS | 10.5469 11.1428 | 9.5136 11.0362 | 10.6644 10.6127 | 10.7512 10.8579 | 11.2014 10.3601 | 10.8095 10.5603 |
| STD. DEVIATIONS | 7.7601 9.0324 | 6.6064 8.7675 | 7.1342 8.3090 | 7.7379 8.4230 | 8.5880 7.9431 | 8.6209 8.0095 |

 PERCOLATION/LEAKAGE THROUGH LAYER 8

| | | | | | | |
|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| TOTALS | 0.0004 0.0004 | 0.0003 0.0004 | 0.0004 0.0004 | 0.0004 0.0004 | 0.0004 0.0003 | 0.0004 0.0004 |
| STD. DEVIATIONS | 0.0003 0.0003 | 0.0002 0.0003 | 0.0002 0.0003 | 0.0003 0.0003 | 0.0003 0.0003 | 0.0003 0.0003 |

 AVERAGES OF MONTHLY AVERAGED DAILY HEADS (CM)

 DAILY AVERAGE HEAD ACROSS LAYER 3

| | | | | | | |
|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| AVERAGES | 36.7495 43.7109 | 35.8732 45.2489 | 35.0161 48.1712 | 39.8286 52.2365 | 51.4532 56.4675 | 48.5373 43.9996 |
| STD. DEVIATIONS | 8.6550 5.7018 | 8.4488 5.2960 | 8.2474 6.1181 | 10.3025 6.7621 | 9.3087 5.4622 | 6.8130 3.8859 |

 DAILY AVERAGE HEAD ACROSS LAYER 8

| | | | | | | |
|-----------------|-------------------|-------------------|--------------------|--------------------|-------------------|-------------------|
| AVERAGES | 9.7756 10.2994 | 9.8918 10.2256 | 10.0430 10.1804 | 10.3800 10.0903 | 10.4102 9.9613 | 10.3398 9.8348 |
| STD. DEVIATIONS | 7.0417 | 6.6894 | 6.6125 | 7.3390 | 7.7473 | 7.9569 |

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 20

| | MM | | CU. METERS | PERCENT |
|---|-----------------------|--|-------------|----------|
| PRECIPITATION | 1192.53 (194.562) | | 11925.3 | 100.00 |
| RUNOFF | 531.612 (131.3901) | | 5316.12 | 44.578 |
| EVAPOTRANSPIRATION | 624.633 (64.6479) | | 6246.33 | 52.379 |
| PERCOLATION/LEAKAGE THROUGH FROM LAYER 3 | 29.10064 (2.85283) | | 291.006 | 2.44024 |
| AVERAGE HEAD ACROSS TOP OF LAYER 3 | 447.744 (45.773) | | | |
| LATERAL DRAINAGE COLLECTED FROM LAYER 6 | 128.05698 (91.02656) | | 1280.570 | 10.73826 |
| PERCOLATION/LEAKAGE THROUGH FROM LAYER 8 | 0.00426 (0.00296) | | 0.043 | 0.00036 |
| AVERAGE HEAD ACROSS TOP OF LAYER 8 | 101.194 (70.323) | | | |
| CHANGE IN WATER STORAGE | ***** (*****) | | -2027405.12 | ***** |

PEAK DAILY VALUES FOR YEARS 1 THROUGH 20

| | (MM) | (CU. METERS) |
|-------------------------------------|----------|--------------|
| PRECIPITATION | 110.10 | 1101.000 |
| RUNOFF | 213.583 | 2135.8335 |
| PERCOLATION/LEAKAGE THROUGH LAYER 3 | 0.103081 | 1.03081 |
| AVERAGE HEAD ACROSS LAYER 3 | 599.995 | |
| DRAINAGE COLLECTED FROM LAYER 6 | 1.24552 | 12.45522 |
| PERCOLATION/LEAKAGE THROUGH LAYER 8 | 0.000038 | 0.00038 |
| AVERAGE HEAD ACROSS LAYER 8 | 328.420 | |
| SNOW WATER | 395.12 | 3951.1919 |
| MAXIMUM VEG. SOIL WATER (VOL/VOL) | | 0.4680 |
| MINIMUM VEG. SOIL WATER (VOL/VOL) | | 0.0433 |

FINAL WATER STORAGE AT END OF YEAR 20

| LAYER | (CM) | (VOL/VOL) |
|------------|----------|-----------|
| 1 | 6.8396 | 0.4560 |
| 2 | 22.2745 | 0.4950 |
| 3 | 0.0000 | 0.0000 |
| 4 | 5.4925 | 0.1831 |
| 5 | 720.4016 | 0.3132 |
| 6 | 5.1147 | 0.1023 |
| 7 | 0.0000 | 0.0000 |
| 8 | 45.1000 | 0.4510 |
| SNOW WATER | 0.000 | |

WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.3300 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.99999975000E-04 CM/SEC

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

THICKNESS = 900.00 CM
POROSITY = 0.6710 VOL/VOL
FIELD CAPACITY = 0.2920 VOL/VOL
WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.4000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.99999975000E-04 CM/SEC

LAYER 4

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 0

THICKNESS = 900.00 CM
POROSITY = 0.6710 VOL/VOL
FIELD CAPACITY = 0.2920 VOL/VOL
WILTING POINT = 0.0770 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.4000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.99999975000E-04 CM/SEC

LAYER 5

TYPE 2 - LATERAL DRAINAGE LAYER
MATERIAL TEXTURE NUMBER 1

THICKNESS = 50.00 CM
POROSITY = 0.4170 VOL/VOL
FIELD CAPACITY = 0.0450 VOL/VOL
WILTING POINT = 0.0180 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.99999978000E-02 CM/SEC
SLOPE = 2.00 PERCENT
DRAINAGE LENGTH = 50.0 METERS

LAYER 6

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 35

THICKNESS = 0.20 CM
POROSITY = 0.0000 VOL/VOL
FIELD CAPACITY = 0.0000 VOL/VOL
WILTING POINT = 0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.19999996000E-12 CM/SEC
FML PINHOLE DENSITY = 0.00 HOLES/HECTARE
FML INSTALLATION DEFECTS = 0.00 HOLES/HECTARE
FML PLACEMENT QUALITY = 1 - PERFECT

LAYER 7

TYPE 3 - BARRIER SOIL LINER

MATERIAL TEXTURE NUMBER 0

THICKNESS = 100.00 CM
 POROSITY = 0.4270 VOL/VOL
 FIELD CAPACITY = 0.4180 VOL/VOL
 WILTING POINT = 0.3670 VOL/VOL
 INITIAL SOIL WATER CONTENT = 0.4270 VOL/VOL
 EFFECTIVE SAT. HYD. COND. = 0.999999972000E-09 CM/SEC

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT SOIL DATA BASE USING SOIL TEXTURE # 5 WITH BARE GROUND CONDITIONS, A SURFACE SLOPE OF 1.% AND A SLOPE LENGTH OF 200. METERS.

SCS RUNOFF CURVE NUMBER = 82.50
 FRACTION OF AREA ALLOWING RUNOFF = 0.0 PERCENT
 AREA PROJECTED ON HORIZONTAL PLANE = 0.4047 HECTARES
 EVAPORATIVE ZONE DEPTH = 20.0 CM
 INITIAL WATER IN EVAPORATIVE ZONE = 2.620 CM
 UPPER LIMIT OF EVAPORATIVE STORAGE = 9.140 CM
 LOWER LIMIT OF EVAPORATIVE STORAGE = 1.160 CM
 INITIAL SNOW WATER = 0.000 CM
 INITIAL WATER IN LAYER MATERIALS = 1067.320 CM
 TOTAL INITIAL WATER = 1067.320 CM
 TOTAL SUBSURFACE INFLOW = 0.00 MM/YR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM Granby Quebec

MAXIMUM LEAF AREA INDEX = 3.50
 START OF GROWING SEASON (JULIAN DATE) = 125
 END OF GROWING SEASON (JULIAN DATE) = 275
 AVERAGE ANNUAL WIND SPEED = 11.00 KPH
 AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 70.00 %
 AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 70.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING COEFFICIENTS FOR ALBANY NEW YORK

NORMAL MEAN MONTHLY PRECIPITATION (MM)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| 101.6 | 73.8 | 91.6 | 85.7 | 94.0 | 107.4 |
| 128.4 | 124.4 | 111.1 | 98.7 | 104.7 | 106.0 |

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR MONTPELIER VERMONT

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES CELSIUS)

| JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|---------|---------|---------|---------|---------|---------|
| -10.2 | -8.4 | -2.4 | 5.4 | 12.9 | 17.6 |
| 20.1 | 18.9 | 14.0 | 7.8 | 1.1 | -6.4 |

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR MONTPELIER VERMONT

STATION LATITUDE = 45.38 DEGREES

MONTHLY TOTALS (MM) FOR YEAR 1

| | JAN/JUL | FEB/AUG | MAR/SEP | APR/OCT | MAY/NOV | JUN/DEC |
|--|-----------------|------------------|------------------|------------------|------------------|------------------|
| PRECIPITATION | 104.7 117.3 | 68.0 105.1 | 92.2 136.6 | 64.3 44.2 | 53.9 192.1 | 128.1 142.0 |
| RUNOFF | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 | 0.00 0.00 |
| EVAPOTRANSPIRATION | 8.43 98.52 | 16.33 68.55 | 27.16 67.85 | 59.49 21.82 | 59.24 25.22 | 91.14 11.22 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 5 | 6.978 53.288 | 13.612 56.554 | 21.375 56.666 | 31.703 60.694 | 40.228 58.190 | 46.882 55.446 |
| PERCOLATION THROUGH LAYER 7 | 0.000 0.001 | 0.000 0.001 | 0.001 0.001 | 0.001 0.001 | 0.001 0.001 | 0.001 0.001 |

MONTHLY SUMMARIES FOR DAILY HEADS (CM)

| | | | | | | |
|--|-----------------|------------------|------------------|------------------|------------------|------------------|
| AVERAGE DAILY HEAD ON LAYER 7 | 6.523 41.701 | 14.802 43.520 | 20.134 44.609 | 28.903 45.759 | 33.860 45.454 | 38.903 42.909 |
| STD. DEVIATION OF DAILY HEAD ON LAYER 7 | 3.009 0.558 | 1.206 0.274 | 4.164 0.548 | 1.022 0.140 | 1.658 0.814 | 1.161 0.243 |

ANNUAL TOTALS FOR YEAR 1

| | MM | CU. METERS | PERCENT |
|--|----|------------|---------|
|--|----|------------|---------|

PERCOLATION/LEAKAGE THROUGH LAYER 7

| | | | | | | |
|-----------------|--------|--------|--------|--------|--------|--------|
| TOTALS | 0.0002 | 0.0004 | 0.0005 | 0.0007 | 0.0009 | 0.0010 |
| | 0.0011 | 0.0012 | 0.0012 | 0.0012 | 0.0012 | 0.0011 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (CM)

DAILY AVERAGE HEAD ACROSS LAYER 7

| | | | | | | |
|-----------------|---------|---------|---------|---------|---------|---------|
| AVERAGES | 6.5231 | 14.8024 | 20.1337 | 28.9026 | 33.8601 | 38.9030 |
| | 41.7010 | 43.5204 | 44.6095 | 45.7591 | 45.4537 | 42.9093 |
| STD. DEVIATIONS | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 1

| | MM | | CU. METERS | PERCENT |
|--|-----------|------------|------------|----------|
| PRECIPITATION | 1248.50 | (0.000) | 12485.0 | 100.00 |
| RUNOFF | 0.000 | (0.0000) | 0.00 | 0.000 |
| EVAPOTRANSPIRATION | 554.979 | (0.0000) | 5549.79 | 44.452 |
| LATERAL DRAINAGE COLLECTED FROM LAYER 5 | 501.61703 | (0.00000) | 5016.170 | 40.17756 |
| PERCOLATION/LEAKAGE THROUGH FROM LAYER 7 | 0.01073 | (0.00000) | 0.107 | 0.00086 |
| AVERAGE HEAD ACROSS TOP OF LAYER 7 | 339.231 | (0.000) | | |
| CHANGE IN WATER STORAGE | 191.895 | (0.0000) | 1918.95 | 15.370 |

PEAK DAILY VALUES FOR YEARS 1 THROUGH 1

| | (MM) | (CU. METERS) |
|-------------------------------------|----------|--------------|
| PRECIPITATION | 46.80 | 468.000 |
| RUNOFF | 0.000 | 0.0000 |
| DRAINAGE COLLECTED FROM LAYER 5 | 1.98883 | 19.88833 |
| PERCOLATION/LEAKAGE THROUGH LAYER 7 | 0.000040 | 0.00040 |
| AVERAGE HEAD ACROSS LAYER 7 | 462.680 | |
| SNOW WATER | 89.98 | 899.8135 |
| MAXIMUM VEG. SOIL WATER (VOL/VOL) | | 0.4570 |
| MINIMUM VEG. SOIL WATER (VOL/VOL) | | 0.0429 |

 FINAL WATER STORAGE AT END OF YEAR 1

| LAYER | (CM) | (VOL/VOL) |
|------------|----------|-----------|
| 1 | 9.1400 | 0.4570 |
| 2 | 342.9835 | 0.3811 |
| 3 | 322.2433 | 0.3580 |
| 4 | 348.1964 | 0.3869 |
| 5 | 18.2319 | 0.3646 |
| 6 | 0.0000 | 0.0000 |
| 7 | 42.7000 | 0.4270 |
| SNOW WATER | 0.000 | |

