Storm... TypeII 24hr Tag: Pre 1

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.5000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-4B Pre 1
Tc = .1205 hrs
Drainage Area = 1.730 acres Runoff CN= 77

==========
Computational Time Increment = .01607 hrs
Computed Peak Time = 11.9689 hrs
Computed Peak Flow = 1.79 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 11.9738 hrs
Peak Flow, Interpolated Output = 1.79 cfs
==========

DRAINAGE AREA

ID:EX-4B
CN = 77
Area = 1.730 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

.7403 in
4649 cu.ft

HYG Volume... 4648 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .12049 hrs (ID: EX-4B)
Computational Incr, Tm = .01607 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 16.27 cfs
Unit peak time Tp = .08033 hrs
Unit receding limb, Tr = .32131 hrs
Total unit time, Tb = .40164 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-4B Pre 2
Tc = .1205 hrs
Drainage Area = 1.730 acres Runoff CN= 77

==========
Computational Time Increment = .01607 hrs
Computed Peak Time = 11.9529 hrs
Computed Peak Flow = 2.83 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 11.9571 hrs
Peak Flow, Interpolated Output = 2.83 cfs
==========

DRAINAGE AREA

ID:EX-4B
CN = 77
Area = 1.730 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

1.1409 in
7165 cu.ft

HYG Volume... 7164 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .12049 hrs (ID: EX-4B)
Computational Incr, Tm = .01607 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 16.27 cfs
Unit peak time Tp = .08033 hrs
Unit receding limb, Tr = .32131 hrs
Total unit time, Tb = .40164 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.8000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-4B Pre 25
Tc = .1205 hrs
Drainage Area = 1.730 acres Runoff CN= 77

==========
Computational Time Increment = .01607 hrs
Computed Peak Time = 11.9529 hrs
Computed Peak Flow = 8.37 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 11.9404 hrs
Peak Flow, Interpolated Output = 8.35 cfs
==========

DRAINAGE AREA

ID:EX-4B
CN = 77
Area = 1.730 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

3.3050 in
20755 cu.ft

HYG Volume... 20753 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .12049 hrs (ID: EX-4B)
Computational Incr, Tm = .01607 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 16.27 cfs
Unit peak time Tp = .08033 hrs
Unit receding limb, Tr = .32131 hrs
Total unit time, Tb = .40164 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.2000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-4B Pre100
Tc = .1205 hrs
Drainage Area = 1.730 acres Runoff CN= 77

==========
Computational Time Increment = .01607 hrs
Computed Peak Time = 11.9529 hrs
Computed Peak Flow = 11.44 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 11.9404 hrs
Peak Flow, Interpolated Output = 11.43 cfs
==========

DRAINAGE AREA

ID:EX-4B
CN = 77
Area = 1.730 acres
S = 2.9870 in
0.2S = .5974 in

Cumulative Runoff

4.5460 in
28548 cu.ft

HYG Volume... 28546 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .12049 hrs (ID: EX-4B)
Computational Incr, Tm = .01607 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 16.27 cfs
Unit peak time Tp = .08033 hrs
Unit receding limb, Tr = .32131 hrs
Total unit time, Tb = .40164 hrs

Storm... TypeII 24hr Tag: Pre 1

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.5000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-5A Pre 1
Tc = .2546 hrs
Drainage Area = 1.900 acres Runoff CN= 78

==========
Computational Time Increment = .03394 hrs
Computed Peak Time = 12.0490 hrs
Computed Peak Flow = 1.72 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0573 hrs
Peak Flow, Interpolated Output = 1.72 cfs
==========

DRAINAGE AREA

ID:EX-5A
CN = 78
Area = 1.900 acres
S = 2.8205 in
0.2S = .5641 in

Cumulative Runoff

.7879 in
5434 cu.ft

HYG Volume... 5433 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25456 hrs (ID: EX-5A)
Computational Incr, Tm = .03394 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 8.46 cfs
Unit peak time Tp = .16970 hrs
Unit receding limb, Tr = .67881 hrs
Total unit time, Tb = .84852 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-5A Pre 2
Tc = .2546 hrs
Drainage Area = 1.900 acres Runoff CN= 78

==========
Computational Time Increment = .03394 hrs
Computed Peak Time = 12.0490 hrs
Computed Peak Flow = 2.70 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0573 hrs
Peak Flow, Interpolated Output = 2.69 cfs
==========

DRAINAGE AREA

ID:EX-5A
CN = 78
Area = 1.900 acres
S = 2.8205 in
0.2S = .5641 in

Cumulative Runoff

1.2006 in
8280 cu.ft

HYG Volume... 8279 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25456 hrs (ID: EX-5A)
Computational Incr, Tm = .03394 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 8.46 cfs
Unit peak time Tp = .16970 hrs
Unit receding limb, Tr = .67881 hrs
Total unit time, Tb = .84852 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.8000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-5A Pre 25
Tc = .2546 hrs
Drainage Area = 1.900 acres Runoff CN= 78

==========
Computational Time Increment = .03394 hrs
Computed Peak Time = 12.0490 hrs
Computed Peak Flow = 7.77 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0406 hrs
Peak Flow, Interpolated Output = 7.73 cfs
==========

DRAINAGE AREA

ID:EX-5A
CN = 78
Area = 1.900 acres
S = 2.8205 in
0.2S = .5641 in

Cumulative Runoff

3.4028 in
23469 cu.ft

HYG Volume... 23467 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25456 hrs (ID: EX-5A)
Computational Incr, Tm = .03394 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 8.46 cfs
Unit peak time Tp = .16970 hrs
Unit receding limb, Tr = .67881 hrs
Total unit time, Tb = .84852 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.2000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-5A Pre100
Tc = .2546 hrs
Drainage Area = 1.900 acres Runoff CN= 78

==========
Computational Time Increment = .03394 hrs
Computed Peak Time = 12.0490 hrs
Computed Peak Flow = 10.55 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0406 hrs
Peak Flow, Interpolated Output = 10.51 cfs
==========

DRAINAGE AREA

ID:EX-5A
CN = 78
Area = 1.900 acres
S = 2.8205 in
0.2S = .5641 in

Cumulative Runoff

4.6566 in
32117 cu.ft

HYG Volume... 32114 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .25456 hrs (ID: EX-5A)
Computational Incr, Tm = .03394 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 8.46 cfs
Unit peak time Tp = .16970 hrs
Unit receding limb, Tr = .67881 hrs
Total unit time, Tb = .84852 hrs

Storm... TypeII 24hr Tag: Pre 1

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.5000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6A Pre 1
Tc = .2492 hrs
Drainage Area = 20.520 acres Runoff CN= 76

==========
Computational Time Increment = .03322 hrs
Computed Peak Time = 12.0599 hrs
Computed Peak Flow = 16.27 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0573 hrs
Peak Flow, Interpolated Output = 16.22 cfs
==========

DRAINAGE AREA

ID:EX-6A
CN = 76
Area = 20.520 acres
S = 3.1579 in
0.2S = .6316 in

Cumulative Runoff

.6945 in
51735 cu.ft

HYG Volume... 51735 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .24917 hrs (ID: EX-6A)
Computational Incr, Tm = .03322 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 93.31 cfs
Unit peak time Tp = .16611 hrs
Unit receding limb, Tr = .66445 hrs
Total unit time, Tb = .83057 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6A Pre 2
Tc = .2492 hrs
Drainage Area = 20.520 acres Runoff CN= 76

==========
Computational Time Increment = .03322 hrs
Computed Peak Time = 12.0599 hrs
Computed Peak Flow = 26.36 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0573 hrs
Peak Flow, Interpolated Output = 26.31 cfs
==========

DRAINAGE AREA

ID:EX-6A
CN = 76
Area = 20.520 acres
S = 3.1579 in
0.2S = .6316 in

Cumulative Runoff

1.0830 in
80667 cu.ft

HYG Volume... 80667 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .24917 hrs (ID: EX-6A)
Computational Incr, Tm = .03322 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 93.31 cfs
Unit peak time Tp = .16611 hrs
Unit receding limb, Tr = .66445 hrs
Total unit time, Tb = .83057 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.8000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6A Pre 25
Tc = .2492 hrs
Drainage Area = 20.520 acres Runoff CN= 76

==========
Computational Time Increment = .03322 hrs
Computed Peak Time = 12.0266 hrs
Computed Peak Flow = 79.61 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0406 hrs
Peak Flow, Interpolated Output = 79.57 cfs
==========

DRAINAGE AREA

ID:EX-6A
CN = 76
Area = 20.520 acres
S = 3.1579 in
0.2S = .6316 in

Cumulative Runoff

3.2082 in
238972 cu.ft

HYG Volume... 238971 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .24917 hrs (ID: EX-6A)
Computational Incr, Tm = .03322 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 93.31 cfs
Unit peak time Tp = .16611 hrs
Unit receding limb, Tr = .66445 hrs
Total unit time, Tb = .83057 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.2000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6A Pre100
Tc = .2492 hrs
Drainage Area = 20.520 acres Runoff CN= 76

==========
Computational Time Increment = .03322 hrs
Computed Peak Time = 12.0266 hrs
Computed Peak Flow = 109.80 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0406 hrs
Peak Flow, Interpolated Output = 109.49 cfs
==========

DRAINAGE AREA

ID:EX-6A
CN = 76
Area = 20.520 acres
S = 3.1579 in
0.2S = .6316 in

Cumulative Runoff

4.4358 in
330413 cu.ft

HYG Volume... 330412 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .24917 hrs (ID: EX-6A)
Computational Incr, Tm = .03322 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 93.31 cfs
Unit peak time Tp = .16611 hrs
Unit receding limb, Tr = .66445 hrs
Total unit time, Tb = .83057 hrs

Storm... TypeII 24hr Tag: Pre 1

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 1 year storm
Duration = 24.0000 hrs Rain Depth = 2.5000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6B Pre 1
Tc = .2779 hrs
Drainage Area = 4.190 acres Runoff CN= 80

==========
Computational Time Increment = .03705 hrs
Computed Peak Time = 12.0773 hrs
Computed Peak Flow = 4.22 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0740 hrs
Peak Flow, Interpolated Output = 4.21 cfs
==========

DRAINAGE AREA

ID:EX-6B
CN = 80
Area = 4.190 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

.8889 in
13520 cu.ft

HYG Volume... 13519 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .27785 hrs (ID: EX-6B)
Computational Incr, Tm = .03705 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 17.09 cfs
Unit peak time Tp = .18523 hrs
Unit receding limb, Tr = .74094 hrs
Total unit time, Tb = .92617 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6B Pre 2
Tc = .2779 hrs
Drainage Area = 4.190 acres Runoff CN= 80

==========
Computational Time Increment = .03705 hrs
Computed Peak Time = 12.0773 hrs
Computed Peak Flow = 6.40 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0740 hrs
Peak Flow, Interpolated Output = 6.39 cfs
==========

DRAINAGE AREA

ID:EX-6B
CN = 80
Area = 4.190 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

1.3255 in
20160 cu.ft

HYG Volume... 20160 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .27785 hrs (ID: EX-6B)
Computational Incr, Tm = .03705 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 17.09 cfs
Unit peak time Tp = .18523 hrs
Unit receding limb, Tr = .74094 hrs
Total unit time, Tb = .92617 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.8000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6B Pre 25
Tc = .2779 hrs
Drainage Area = 4.190 acres Runoff CN= 80

==========
Computational Time Increment = .03705 hrs
Computed Peak Time = 12.0403 hrs
Computed Peak Flow = 17.40 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0406 hrs
Peak Flow, Interpolated Output = 17.40 cfs
==========

DRAINAGE AREA

ID:EX-6B
CN = 80
Area = 4.190 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

3.6013 in
54774 cu.ft

HYG Volume... 54774 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .27785 hrs (ID: EX-6B)
Computational Incr, Tm = .03705 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 17.09 cfs
Unit peak time Tp = .18523 hrs
Unit receding limb, Tr = .74094 hrs
Total unit time, Tb = .92617 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 7.2000 in
Rain Dir = H:\Document\Derrick\14-03-087 Shady Creek\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = H:\Document\Derrick\14-03-087 Shady Creek\
HYG File - ID = work_pad.hyg - EX-6B Pre100
Tc = .2779 hrs
Drainage Area = 4.190 acres Runoff CN= 80

==========
Computational Time Increment = .03705 hrs
Computed Peak Time = 12.0403 hrs
Computed Peak Flow = 23.42 cfs

Time Increment for HYG File = .0167 hrs
Peak Time, Interpolated Output = 12.0406 hrs
Peak Flow, Interpolated Output = 23.41 cfs
==========

DRAINAGE AREA

ID:EX-6B
CN = 80
Area = 4.190 acres
S = 2.5000 in
0.2S = .5000 in

Cumulative Runoff

4.8793 in
74213 cu.ft

HYG Volume... 74213 cu.ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc = .27785 hrs (ID: EX-6B)
Computational Incr, Tm = .03705 hrs = 0.20000 Tp

Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
K = 483.43/645.333, K = .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp = 1.6698 (solved from K = .7491)

Unit peak, qp = 17.09 cfs
Unit peak time Tp = .18523 hrs
Unit receding limb, Tr = .74094 hrs
Total unit time, Tb = .92617 hrs

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #1

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-1A	EX-1A	work_pad.hyg	EX-1A	Pre 1
EX-1B	EX-1B	work_pad.hyg	EX-1B	Pre 1

INFLOWS TO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-1A	Pre 1	59847	12.1242	16.07
work_pad.hyg	EX-1B	Pre 1	20908	12.0741	6.52

TOTAL FLOW INTO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #1	Pre 1	80755	12.1075	22.12

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #1

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-1A	EX-1A	work_pad.hyg	EX-1A	Pre 2
EX-1B	EX-1B	work_pad.hyg	EX-1B	Pre 2

INFLOWS TO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-1A	Pre 2	87439	12.1242	23.84
work_pad.hyg	EX-1B	Pre 2	31178	12.0741	9.90

TOTAL FLOW INTO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #1	Pre 2	118617	12.0908	33.12

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #1

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-1A	EX-1A	work_pad.hyg	EX-1A	Pre 25
EX-1B	EX-1B	work_pad.hyg	EX-1B	Pre 25

INFLOWS TO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-1A	Pre 25	228089	12.1242	62.04
work_pad.hyg	EX-1B	Pre 25	84710	12.0407	27.01

TOTAL FLOW INTO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #1	Pre 25	312799	12.0741	87.95

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #1

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-1A	EX-1A	work_pad.hyg	EX-1A	Pre100
EX-1B	EX-1B	work_pad.hyg	EX-1B	Pre100

INFLOWS TO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-1A	Pre100	306065	12.1242	82.44
work_pad.hyg	EX-1B	Pre100	114774	12.0407	36.34

TOTAL FLOW INTO: P.O.I. #1

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #1	Pre100	420838	12.0741	117.53

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #2

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-2	EX-2A	work_pad.hyg	EX-2A	Pre 1

INFLOWS TO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-2A	Pre 1	27781	12.0908	8.32

TOTAL FLOW INTO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #2	Pre 1	27781	12.0908	8.32

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #2

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-2	EX-2A	work_pad.hyg	EX-2A	Pre 2

INFLOWS TO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-2A	Pre 2	41427	12.0908	12.64

TOTAL FLOW INTO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #2	Pre 2	41427	12.0908	12.64

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #2

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-2	EX-2A	work_pad.hyg	EX-2A	Pre 25

INFLOWS TO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-2A	Pre 25	112555	12.0574	34.38

TOTAL FLOW INTO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #2	Pre 25	112556	12.0574	34.38

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #2

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-2	EX-2A	work_pad.hyg	EX-2A	Pre100

INFLOWS TO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-2A	Pre100	152501	12.0574	46.28

TOTAL FLOW INTO: P.O.I. #2

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #2	Pre100	152501	12.0574	46.28

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #3

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-3A	EX-3A	work_pad.hyg	EX-3A	Pre 1
EX-3B	EX-3B	work_pad.hyg	EX-3B	Pre 1
EX-3C	EX-3C	work_pad.hyg	EX-3C	Pre 1

INFLOWS TO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-3A	Pre 1	209992	12.1576	50.74
work_pad.hyg	EX-3B	Pre 1	10324	12.1409	2.68
work_pad.hyg	EX-3C	Pre 1	2389	12.1242	.65

TOTAL FLOW INTO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #3	Pre 1	222705	12.1576	54.04

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #3

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-3A	EX-3A	work_pad.hyg	EX-3A	Pre 2
EX-3B	EX-3B	work_pad.hyg	EX-3B	Pre 2
EX-3C	EX-3C	work_pad.hyg	EX-3C	Pre 2

INFLOWS TO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-3A	Pre 2	319969	12.1576	80.24
work_pad.hyg	EX-3B	Pre 2	15395	12.1075	4.10
work_pad.hyg	EX-3C	Pre 2	3423	12.0908	.94

TOTAL FLOW INTO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #3	Pre 2	338788	12.1576	85.21

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #3

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-3A	EX-3A	work_pad.hyg	EX-3A	Pre 25
EX-3B	EX-3B	work_pad.hyg	EX-3B	Pre 25
EX-3C	EX-3C	work_pad.hyg	EX-3C	Pre 25

INFLOWS TO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-3A	Pre 25	906901	12.1576	233.09
work_pad.hyg	EX-3B	Pre 25	41829	12.1075	11.36
work_pad.hyg	EX-3C	Pre 25	8586	12.0908	2.35

TOTAL FLOW INTO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #3	Pre 25	957317	12.1576	246.37

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #3

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-3A	EX-3A	work_pad.hyg	EX-3A	Pre100
EX-3B	EX-3B	work_pad.hyg	EX-3B	Pre100
EX-3C	EX-3C	work_pad.hyg	EX-3C	Pre100

INFLOWS TO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-3A	Pre100	1241061	12.1576	317.33
work_pad.hyg	EX-3B	Pre100	56674	12.1075	15.30
work_pad.hyg	EX-3C	Pre100	11414	12.0908	3.10

TOTAL FLOW INTO: P.O.I. #3

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #3	Pre100	1309148	12.1409	335.27

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #4

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-4A	EX-4A	work_pad.hyg	EX-4A	Pre 1
EX-4B	EX-4B	work_pad.hyg	EX-4B	Pre 1

INFLOWS TO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-4A	Pre 1	44469	12.0908	11.91
work_pad.hyg	EX-4B	Pre 1	4648	11.9739	1.79

TOTAL FLOW INTO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #4	Pre 1	49117	12.0908	12.94

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #4

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-4A	EX-4A	work_pad.hyg	EX-4A	Pre 2
EX-4B	EX-4B	work_pad.hyg	EX-4B	Pre 2

INFLOWS TO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-4A	Pre 2	71085	12.0908	20.38
work_pad.hyg	EX-4B	Pre 2	7164	11.9572	2.83

TOTAL FLOW INTO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #4	Pre 2	78248	12.0908	21.96

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #4

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-4A	EX-4A	work_pad.hyg	EX-4A	Pre 25
EX-4B	EX-4B	work_pad.hyg	EX-4B	Pre 25

INFLOWS TO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-4A	Pre 25	220605	12.0908	66.63
work_pad.hyg	EX-4B	Pre 25	20753	11.9405	8.35

TOTAL FLOW INTO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #4	Pre 25	241358	12.0574	71.46

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #4

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-4A	EX-4A	work_pad.hyg	EX-4A	Pre100
EX-4B	EX-4B	work_pad.hyg	EX-4B	Pre100

INFLOWS TO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-4A	Pre100	308301	12.0908	92.93
work_pad.hyg	EX-4B	Pre100	28546	11.9405	11.43

TOTAL FLOW INTO: P.O.I. #4

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #4	Pre100	336848	12.0574	99.84

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #5

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-5	EX-5A	work_pad.hyg	EX-5A	Pre 1

INFLOWS TO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-5A	Pre 1	5433	12.0574	1.72

TOTAL FLOW INTO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #5	Pre 1	5433	12.0574	1.72

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #5

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-5	EX-5A	work_pad.hyg	EX-5A	Pre 2

INFLOWS TO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-5A	Pre 2	8279	12.0574	2.69

TOTAL FLOW INTO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #5	Pre 2	8279	12.0574	2.69

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #5

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-5	EX-5A	work_pad.hyg	EX-5A	Pre 25

INFLOWS TO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-5A	Pre 25	23467	12.0407	7.73

TOTAL FLOW INTO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #5	Pre 25	23467	12.0407	7.73

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #5

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-5	EX-5A	work_pad.hyg	EX-5A	Pre100

INFLOWS TO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-5A	Pre100	32114	12.0407	10.51

TOTAL FLOW INTO: P.O.I. #5

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #5	Pre100	32114	12.0407	10.51

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #6

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-6A	EX-6A	work_pad.hyg	EX-6A	Pre 1
EX-6B	EX-6B	work_pad.hyg	EX-6B	Pre 1

INFLOWS TO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-6A	Pre 1	51735	12.0574	16.22
work_pad.hyg	EX-6B	Pre 1	13519	12.0741	4.21

TOTAL FLOW INTO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #6	Pre 1	65254	12.0574	20.38

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #6

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-6A	EX-6A	work_pad.hyg	EX-6A	Pre 2
EX-6B	EX-6B	work_pad.hyg	EX-6B	Pre 2

INFLOWS TO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-6A	Pre 2	80667	12.0574	26.31
work_pad.hyg	EX-6B	Pre 2	20160	12.0741	6.39

TOTAL FLOW INTO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #6	Pre 2	100827	12.0574	32.66

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #6

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-6A	EX-6A	work_pad.hyg	EX-6A	Pre 25
EX-6B	EX-6B	work_pad.hyg	EX-6B	Pre 25

INFLOWS TO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-6A	Pre 25	238971	12.0407	79.57
work_pad.hyg	EX-6B	Pre 25	54774	12.0407	17.40

TOTAL FLOW INTO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #6	Pre 25	293745	12.0407	96.97

SUMMARY FOR HYDROGRAPH ADDITION
at Node: P.O.I. #6

HYG Directory: H:\Document\Derrick\14-03-087 Shady Creek\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
EX-6A	EX-6A	work_pad.hyg	EX-6A	Pre100
EX-6B	EX-6B	work_pad.hyg	EX-6B	Pre100

INFLOWS TO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	EX-6A	Pre100	330412	12.0407	109.49
work_pad.hyg	EX-6B	Pre100	74213	12.0407	23.41

TOTAL FLOW INTO: P.O.I. #6

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	P.O.I. #6	Pre100	404626	12.0407	132.90

Index of Starting Page Numbers for ID Names

Appendix

B

Proposed Analysis 1-year, 2-year, 25-Year and 100-Year 24 Hour

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JOB TITLE
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Project Date: 2/19/2015
Project Engineer:
Project Title: THE VILLAGES AT SHADY CREEK
Project Comments:
THE VILLAGES AT SHADY CREEK
DETENTION ANALYSIS
14-03-087
PROPOSED CONDITIONS
2/19/15

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: MSD NEW

Return Event	Total Depth in	Rainfall Type	RNF ID
Dev 1	2.5000	Synthetic Curve	TypeII 24hr
Dev 2	3.1000	Synthetic Curve	TypeII 24hr
Dev100	7.2000	Synthetic Curve	TypeII 24hr
Dev 25	5.8000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
BASIN C	IN POND	1	101527		11.9405	29.03		
BASIN C	IN POND	2	146055		11.9405	42.13		
BASIN C	IN POND	100	492881		11.9238	131.10		
BASIN C	IN POND	25	369800		11.9238	100.75		
BASIN C	OUT POND	1	96797	R	13.4435	2.26	599.29	478906
BASIN C	OUT POND	2	139630	R	13.2097	3.60	599.64	504203
BASIN C	OUT POND	100	479216	R	12.1075	46.29	600.72	593654
BASIN C	OUT POND	25	358164	R	12.4582	24.51	600.42	565894
BASIN D	IN POND	1	48297		12.0073	17.96		
BASIN D	IN POND	2	67912		11.9906	25.16		
BASIN D	IN POND	100	215885		11.9906	76.72		
BASIN D	IN POND	25	163894		11.9906	59.08		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
BASIN D	OUT POND	1	48297		12.1242	10.58	615.21	8100
BASIN D	OUT POND	2	67912		12.1409	12.25	615.64	13642
BASIN D	OUT POND	100	215885		12.2411	18.44	618.09	68014
BASIN D	OUT POND	25	163894		12.2077	16.34	617.27	47555
BASIN E	IN POND	1	342209		12.0240	87.02		
BASIN E	IN POND	2	480642		12.0240	124.61		
BASIN E	IN POND	100	1524304		12.0240	399.38		
BASIN E	IN POND	25	1157654		12.0240	307.05		
BASIN E	OUT POND	1	331594		12.4081	27.87	602.95	1106315
BASIN E	OUT POND	2	470028		12.3413	45.34	603.31	1146792
BASIN E	OUT POND	100	1513690		12.1910	230.83	605.00	1349695
BASIN E	OUT POND	25	1147039		12.1743	193.90	604.43	1278772
BASIN F	IN POND	1	118803		12.0240	42.11		
BASIN F	IN POND	2	165618		12.0240	58.43		
BASIN F	IN POND	100	515111		12.0073	173.70		
BASIN F	IN POND	25	392702		12.0073	134.27		
BASIN F	OUT POND	1	118786		12.2411	14.35	614.85	453824
BASIN F	OUT POND	2	165601		12.2244	22.32	615.16	469329
BASIN F	OUT POND	100	515095		12.1910	77.23	617.02	571488
BASIN F	OUT POND	25	392686		12.1910	61.91	616.40	536209
BASIN G	IN POND	1	88777		12.0240	30.78		
BASIN G	IN POND	2	125737		12.0240	43.61		
BASIN G	IN POND	100	408424		12.0240	136.20		
BASIN G	IN POND	25	308647		12.0240	104.34		
BASIN G	OUT POND	1	81164	R	12.5918	3.75	632.86	123298
BASIN G	OUT POND	2	116785	R	12.4916	6.59	633.31	140587
BASIN G	OUT POND	100	395754	R	12.3747	26.30	636.11	273539
BASIN G	OUT POND	25	296781	R	12.3580	20.82	635.19	225759

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
BASIN H IN	POND	1	38593		12.0073	14.10		
BASIN H IN	POND	2	54267		12.0073	19.79		
BASIN H IN	POND	100	172508		11.9906	60.23		
BASIN H IN	POND	25	130964		11.9906	46.34		
BASIN H OUT	POND	1	38415		12.3747	2.35	637.86	120706
BASIN H OUT	POND	2	54028	R	12.3246	3.88	638.19	127733
BASIN H OUT	POND	100	171898	R	12.1576	30.43	639.96	169159
BASIN H OUT	POND	25	130470	R	12.2077	15.13	639.55	158900
OS-BASIN C	JCT	1	96796	R	13.4435	2.26		
OS-BASIN C	JCT	2	139629	R	13.2097	3.60		
OS-BASIN C	JCT	100	479215	R	12.1075	46.29		
OS-BASIN C	JCT	25	358163	R	12.4582	24.51		
OS-BASIN D	JCT	1	48297		12.1242	10.58		
OS-BASIN D	JCT	2	67912		12.1409	12.25		
OS-BASIN D	JCT	100	215885		12.2411	18.44		
OS-BASIN D	JCT	25	163894		12.2077	16.34		
OS-BASIN E	JCT	1	331594		12.4081	27.87		
OS-BASIN E	JCT	2	470028		12.3413	45.34		
OS-BASIN E	JCT	100	1513690		12.1910	230.83		
OS-BASIN E	JCT	25	1147039		12.1743	193.90		
OS-BASIN F	JCT	1	118786		12.2411	14.35		
OS-BASIN F	JCT	2	165601		12.2244	22.32		
OS-BASIN F	JCT	100	515095		12.1910	77.23		
OS-BASIN F	JCT	25	392686		12.1910	61.91		
OS-BASIN G	JCT	1	81164	R	12.5918	3.75		
OS-BASIN G	JCT	2	116784	R	12.4916	6.59		
OS-BASIN G	JCT	100	395753	R	12.3747	26.30		
OS-BASIN G	JCT	25	296781	R	12.3580	20.82		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
OS-BASIN H	JCT	1	38414		12.3747	2.35		
OS-BASIN H	JCT	2	54028	R	12.3246	3.88		
OS-BASIN H	JCT	100	171898	R	12.1576	30.43		
OS-BASIN H	JCT	25	130470	R	12.2077	15.13		
*P.O.I. #1	JCT	1	82519		12.6252	3.80		
*P.O.I. #1	JCT	2	118804		12.4916	6.68		
*P.O.I. #1	JCT	100	403191		12.3747	26.64		
*P.O.I. #1	JCT	25	302271		12.3580	21.08		
*P.O.I. #2	JCT	1	42434		12.0407	2.72		
*P.O.I. #2	JCT	2	59901		12.0407	4.34		
*P.O.I. #2	JCT	100	194114	R	12.0908	47.73		
*P.O.I. #2	JCT	25	145791		12.2077	16.16		
*P.O.I. #3	JCT	1	333404		12.4248	27.98		
*P.O.I. #3	JCT	2	472921		12.3580	45.52		
*P.O.I. #3	JCT	100	1526242		12.1910	231.88		
*P.O.I. #3	JCT	25	1156020		12.1743	194.58		
*P.O.I. #4	JCT	1	96796		13.3934	2.26		
*P.O.I. #4	JCT	2	139629		13.1930	3.60		
*P.O.I. #4	JCT	100	479216		12.1075	46.22		
*P.O.I. #4	JCT	25	358163		12.4582	24.51		
*P.O.I. #5	JCT	1	1127		11.9238	.49		
*P.O.I. #5	JCT	2	1585		11.9238	.69		
*P.O.I. #5	JCT	100	5043		11.9238	2.09		
*P.O.I. #5	JCT	25	3829		11.9238	1.61		
*P.O.I. #6A	JCT	1	36006		12.0073	12.40		
*P.O.I. #6A	JCT	2	53167		11.9405	18.62		
*P.O.I. #6A	JCT	100	191376		11.9405	66.82		
*P.O.I. #6A	JCT	25	141825		11.9405	49.93		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
*P.O.I. #6B	JCT	1	42525		11.9238	17.94		
*P.O.I. #6B	JCT	2	63111		11.9238	27.11		
*P.O.I. #6B	JCT	100	229774		11.9238	97.51		
*P.O.I. #6B	JCT	25	169932		11.9238	72.88		
PR0-6B	AREA	1	37151		11.9238	15.75		
PR0-6B	AREA	2	54828		11.9238	23.61		
PR0-6B	AREA	100	196771		11.9238	83.36		
PR0-6B	AREA	25	145938		11.9238	62.52		
PRO-1A	AREA	1	67868		12.0240	24.33		
PRO-1A	AREA	2	94558		12.0240	33.70		
PRO-1A	AREA	100	293650		12.0073	99.97		
PRO-1A	AREA	25	223936		12.0073	77.34		
PRO-1B	AREA	1	20909		12.0741	6.70		
PRO-1B	AREA	2	31179		12.0574	10.16		
PRO-1B	AREA	100	114774		12.0407	37.30		
PRO-1B	AREA	25	84711		12.0407	27.76		
PRO-1C	AREA	1	1355		11.9238	.57		
PRO-1C	AREA	2	2020		11.9238	.87		
PRO-1C	AREA	100	7439		11.9238	3.16		
PRO-1C	AREA	25	5490		11.9238	2.36		
PRO-2A	AREA	1	38593		12.0073	14.10		
PRO-2A	AREA	2	54267		12.0073	19.79		
PRO-2A	AREA	100	172508		11.9906	60.23		
PRO-2A	AREA	25	130964		11.9906	46.34		
PRO-2B	AREA	1	4020		11.9405	1.62		
PRO-2B	AREA	2	5873		11.9405	2.40		
PRO-2B	AREA	100	20560		11.9405	8.26		
PRO-2B	AREA	25	15322		11.9405	6.22		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
PRO-3A	AREA	1	116413		12.0240	41.34		
PRO-3A	AREA	2	162194		12.0240	57.33		
PRO-3A	AREA	100	503694		12.0073	170.13		
PRO-3A	AREA	25	384114		12.0073	131.56		
PRO-3B	AREA	1	213099		12.0240	76.44		
PRO-3B	AREA	2	299645		12.0240	107.11		
PRO-3B	AREA	100	952533		12.0073	325.66		
PRO-3B	AREA	25	723137		12.0073	250.67		
PRO-3C	AREA	1	10325		12.1075	2.84		
PRO-3C	AREA	2	15396		12.1075	4.33		
PRO-3C	AREA	100	56677		12.0908	16.04		
PRO-3C	AREA	25	41832		12.0908	11.92		
PRO-3D	AREA	1	1810		11.9906	.67		
PRO-3D	AREA	2	2894		11.9739	1.12		
PRO-3D	AREA	100	12552		11.9572	5.01		
PRO-3D	AREA	25	8981		11.9572	3.60		
PRO-3E	AREA	1	2389		12.0407	.78		
PRO-3E	AREA	2	3424		12.0407	1.13		
PRO-3E	AREA	100	11417		12.0407	3.66		
PRO-3E	AREA	25	8588		12.0407	2.79		
PRO-4A	AREA	1	48297		12.0073	17.96		
PRO-4A	AREA	2	67912		11.9906	25.16		
PRO-4A	AREA	100	215885		11.9906	76.72		
PRO-4A	AREA	25	163894		11.9906	59.08		
PRO-4B	AREA	1	48581		11.9238	20.73		
PRO-4B	AREA	2	70979		11.9238	30.64		
PRO-4B	AREA	100	248449		11.9238	104.83		
PRO-4B	AREA	25	185152		11.9238	79.07		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
PRO-4C	AREA	1	4649		11.9405	1.84		
PRO-4C	AREA	2	7164		11.9405	2.95		
PRO-4C	AREA	100	28548		11.9238	11.85		
PRO-4C	AREA	25	20755		11.9405	8.68		
PRO-5A	AREA	1	1127		11.9238	.49		
PRO-5A	AREA	2	1585		11.9238	.69		
PRO-5A	AREA	100	5043		11.9238	2.09		
PRO-5A	AREA	25	3829		11.9238	1.61		
PRO-6A	AREA	1	17822		11.9238	7.64		
PRO-6A	AREA	2	25783		11.9238	11.15		
PRO-6A	AREA	100	88057		11.9238	36.99		
PRO-6A	AREA	25	65934		11.9238	28.06		
PRO-6C	AREA	1	12809		12.0574	4.04		
PRO-6C	AREA	2	19101		12.0574	6.15		
PRO-6C	AREA	100	70316		12.0574	22.47		
PRO-6C	AREA	25	51898		12.0574	16.75		
PRO-6D	AREA	1	5374		11.9572	2.12		
PRO-6D	AREA	2	8282		11.9405	3.38		
PRO-6D	AREA	100	33002		11.9405	13.61		
PRO-6D	AREA	25	23994		11.9405	9.97		
PRO-6E	AREA	1	5375		11.9405	2.20		
PRO-6E	AREA	2	8283		11.9238	3.50		
PRO-6E	AREA	100	33004		11.9238	14.15		
PRO-6E	AREA	25	23995		11.9238	10.36		

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = MSD NEW

Storm Tag Name = Dev 1

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 1 yr
Total Rainfall Depth= 2.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
BASIN C IN	POND	101527		11.9405	29.03	
BASIN C OUT	POND	96797	R	13.4435	2.26	599.29
BASIN D IN	POND	48297		12.0073	17.96	
BASIN D OUT	POND	48297		12.1242	10.58	615.21
BASIN E IN	POND	342209		12.0240	87.02	
BASIN E OUT	POND	331594		12.4081	27.87	602.95
BASIN F IN	POND	118803		12.0240	42.11	
BASIN F OUT	POND	118786		12.2411	14.35	614.85
BASIN G IN	POND	88777		12.0240	30.78	
BASIN G OUT	POND	81164	R	12.5918	3.75	632.86
BASIN H IN	POND	38593		12.0073	14.10	
BASIN H OUT	POND	38415		12.3747	2.35	637.86
OS-BASIN C	JCT	96796	R	13.4435	2.26	
OS-BASIN D	JCT	48297		12.1242	10.58	
OS-BASIN E	JCT	331594		12.4081	27.87	
OS-BASIN F	JCT	118786		12.2411	14.35	
OS-BASIN G	JCT	81164	R	12.5918	3.75	
OS-BASIN H	JCT	38414		12.3747	2.35	
Outfall P.O.I. #1	JCT	82519		12.6252	3.80	
Outfall P.O.I. #2	JCT	42434		12.0407	2.72	
Outfall P.O.I. #3	JCT	333404		12.4248	27.98	
Outfall P.O.I. #4	JCT	96796		13.3934	2.26	
Outfall P.O.I. #5	JCT	1127		11.9238	.49	
Outfall P.O.I. #6A	JCT	36006		12.0073	12.40	
Outfall P.O.I. #6B	JCT	42525		11.9238	17.94	
PRO-6B	AREA	37151		11.9238	15.75	
PRO-1A	AREA	67868		12.0240	24.33	
PRO-1B	AREA	20909		12.0741	6.70	
PRO-1C	AREA	1355		11.9238	.57	
PRO-2A	AREA	38593		12.0073	14.10	
PRO-2B	AREA	4020		11.9405	1.62	
PRO-3A	AREA	116413		12.0240	41.34	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
PRO-3B	AREA	213099		12.0240	76.44	
PRO-3C	AREA	10325		12.1075	2.84	
PRO-3D	AREA	1810		11.9906	.67	
PRO-3E	AREA	2389		12.0407	.78	
PRO-4A	AREA	48297		12.0073	17.96	
PRO-4B	AREA	48581		11.9238	20.73	
PRO-4C	AREA	4649		11.9405	1.84	
PRO-5A	AREA	1127		11.9238	.49	
PRO-6A	AREA	17822		11.9238	7.64	
PRO-6C	AREA	12809		12.0574	4.04	
PRO-6D	AREA	5374		11.9572	2.12	
PRO-6E	AREA	5375		11.9405	2.20	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = MSD NEW

Storm Tag Name = Dev 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.1000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
BASIN C IN	POND	146055		11.9405	42.13	
BASIN C OUT	POND	139630	R	13.2097	3.60	599.64
BASIN D IN	POND	67912		11.9906	25.16	
BASIN D OUT	POND	67912		12.1409	12.25	615.64
BASIN E IN	POND	480642		12.0240	124.61	
BASIN E OUT	POND	470028		12.3413	45.34	603.31
BASIN F IN	POND	165618		12.0240	58.43	
BASIN F OUT	POND	165601		12.2244	22.32	615.16
BASIN G IN	POND	125737		12.0240	43.61	
BASIN G OUT	POND	116785	R	12.4916	6.59	633.31
BASIN H IN	POND	54267		12.0073	19.79	
BASIN H OUT	POND	54028	R	12.3246	3.88	638.19
OS-BASIN C	JCT	139629	R	13.2097	3.60	
OS-BASIN D	JCT	67912		12.1409	12.25	
OS-BASIN E	JCT	470028		12.3413	45.34	
OS-BASIN F	JCT	165601		12.2244	22.32	
OS-BASIN G	JCT	116784	R	12.4916	6.59	
OS-BASIN H	JCT	54028	R	12.3246	3.88	
Outfall P.O.I. #1	JCT	118804		12.4916	6.68	
Outfall P.O.I. #2	JCT	59901		12.0407	4.34	
Outfall P.O.I. #3	JCT	472921		12.3580	45.52	
Outfall P.O.I. #4	JCT	139629		13.1930	3.60	
Outfall P.O.I. #5	JCT	1585		11.9238	.69	
Outfall P.O.I. #6A	JCT	53167		11.9405	18.62	
Outfall P.O.I. #6B	JCT	63111		11.9238	27.11	
PR0-6B	AREA	54828		11.9238	23.61	
PRO-1A	AREA	94558		12.0240	33.70	
PRO-1B	AREA	31179		12.0574	10.16	
PRO-1C	AREA	2020		11.9238	.87	
PRO-2A	AREA	54267		12.0073	19.79	
PRO-2B	AREA	5873		11.9405	2.40	
PRO-3A	AREA	162194		12.0240	57.33	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
PRO-3B	AREA	299645		12.0240	107.11	
PRO-3C	AREA	15396		12.1075	4.33	
PRO-3D	AREA	2894		11.9739	1.12	
PRO-3E	AREA	3424		12.0407	1.13	
PRO-4A	AREA	67912		11.9906	25.16	
PRO-4B	AREA	70979		11.9238	30.64	
PRO-4C	AREA	7164		11.9405	2.95	
PRO-5A	AREA	1585		11.9238	.69	
PRO-6A	AREA	25783		11.9238	11.15	
PRO-6C	AREA	19101		12.0574	6.15	
PRO-6D	AREA	8282		11.9405	3.38	
PRO-6E	AREA	8283		11.9238	3.50	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = MSD NEW

Storm Tag Name = Dev 25

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 5.8000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
BASIN C IN	POND	369800		11.9238	100.75	
BASIN C OUT	POND	358164	R	12.4582	24.51	600.42
BASIN D IN	POND	163894		11.9906	59.08	
BASIN D OUT	POND	163894		12.2077	16.34	617.27
BASIN E IN	POND	1157654		12.0240	307.05	
BASIN E OUT	POND	1147039		12.1743	193.90	604.43
BASIN F IN	POND	392702		12.0073	134.27	
BASIN F OUT	POND	392686		12.1910	61.91	616.40
BASIN G IN	POND	308647		12.0240	104.34	
BASIN G OUT	POND	296781	R	12.3580	20.82	635.19
BASIN H IN	POND	130964		11.9906	46.34	
BASIN H OUT	POND	130470	R	12.2077	15.13	639.55
OS-BASIN C	JCT	358163	R	12.4582	24.51	
OS-BASIN D	JCT	163894		12.2077	16.34	
OS-BASIN E	JCT	1147039		12.1743	193.90	
OS-BASIN F	JCT	392686		12.1910	61.91	
OS-BASIN G	JCT	296781	R	12.3580	20.82	
OS-BASIN H	JCT	130470	R	12.2077	15.13	
Outfall P.O.I. #1	JCT	302271		12.3580	21.08	
Outfall P.O.I. #2	JCT	145791		12.2077	16.16	
Outfall P.O.I. #3	JCT	1156020		12.1743	194.58	
Outfall P.O.I. #4	JCT	358163		12.4582	24.51	
Outfall P.O.I. #5	JCT	3829		11.9238	1.61	
Outfall P.O.I. #6A	JCT	141825		11.9405	49.93	
Outfall P.O.I. #6B	JCT	169932		11.9238	72.88	
PRO-6B	AREA	145938		11.9238	62.52	
PRO-1A	AREA	223936		12.0073	77.34	
PRO-1B	AREA	84711		12.0407	27.76	
PRO-1C	AREA	5490		11.9238	2.36	
PRO-2A	AREA	130964		11.9906	46.34	
PRO-2B	AREA	15322		11.9405	6.22	
PRO-3A	AREA	384114		12.0073	131.56	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
PRO-3B	AREA	723137		12.0073	250.67	
PRO-3C	AREA	41832		12.0908	11.92	
PRO-3D	AREA	8981		11.9572	3.60	
PRO-3E	AREA	8588		12.0407	2.79	
PRO-4A	AREA	163894		11.9906	59.08	
PRO-4B	AREA	185152		11.9238	79.07	
PRO-4C	AREA	20755		11.9405	8.68	
PRO-5A	AREA	3829		11.9238	1.61	
PRO-6A	AREA	65934		11.9238	28.06	
PRO-6C	AREA	51898		12.0574	16.75	
PRO-6D	AREA	23994		11.9405	9.97	
PRO-6E	AREA	23995		11.9238	10.36	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

DEFAULT Design Storm File,ID = MSD NEW

Storm Tag Name = Dev100

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 7.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
BASIN C	IN POND	492881		11.9238	131.10	
BASIN C	OUT POND	479216	R	12.1075	46.29	600.72
BASIN D	IN POND	215885		11.9906	76.72	
BASIN D	OUT POND	215885		12.2411	18.44	618.09
BASIN E	IN POND	1524304		12.0240	399.38	
BASIN E	OUT POND	1513690		12.1910	230.83	605.00
BASIN F	IN POND	515111		12.0073	173.70	
BASIN F	OUT POND	515095		12.1910	77.23	617.02
BASIN G	IN POND	408424		12.0240	136.20	
BASIN G	OUT POND	395754	R	12.3747	26.30	636.11
BASIN H	IN POND	172508		11.9906	60.23	
BASIN H	OUT POND	171898	R	12.1576	30.43	639.96
OS-BASIN C	JCT	479215	R	12.1075	46.29	
OS-BASIN D	JCT	215885		12.2411	18.44	
OS-BASIN E	JCT	1513690		12.1910	230.83	
OS-BASIN F	JCT	515095		12.1910	77.23	
OS-BASIN G	JCT	395753	R	12.3747	26.30	
OS-BASIN H	JCT	171898	R	12.1576	30.43	
Outfall P.O.I. #1	JCT	403191		12.3747	26.64	
Outfall P.O.I. #2	JCT	194114	R	12.0908	47.73	
Outfall P.O.I. #3	JCT	1526242		12.1910	231.88	
Outfall P.O.I. #4	JCT	479216		12.1075	46.22	
Outfall P.O.I. #5	JCT	5043		11.9238	2.09	
Outfall P.O.I. #6A	JCT	191376		11.9405	66.82	
Outfall P.O.I. #6B	JCT	229774		11.9238	97.51	
PRO-6B	AREA	196771		11.9238	83.36	
PRO-1A	AREA	293650		12.0073	99.97	
PRO-1B	AREA	114774		12.0407	37.30	
PRO-1C	AREA	7439		11.9238	3.16	
PRO-2A	AREA	172508		11.9906	60.23	
PRO-2B	AREA	20560		11.9405	8.26	
PRO-3A	AREA	503694		12.0073	170.13	

NETWORK SUMMARY -- NODES
(Trun.= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left & Rt)

Node ID	Type	HYG Vol cu.ft	Trun.	Qpeak hrs	Qpeak cfs	Max WSEL ft
PRO-3B	AREA	952533		12.0073	325.66	
PRO-3C	AREA	56677		12.0908	16.04	
PRO-3D	AREA	12552		11.9572	5.01	
PRO-3E	AREA	11417		12.0407	3.66	
PRO-4A	AREA	215885		11.9906	76.72	
PRO-4B	AREA	248449		11.9238	104.83	
PRO-4C	AREA	28548		11.9238	11.85	
PRO-5A	AREA	5043		11.9238	2.09	
PRO-6A	AREA	88057		11.9238	36.99	
PRO-6C	AREA	70316		12.0574	22.47	
PRO-6D	AREA	33002		11.9405	13.61	
PRO-6E	AREA	33004		11.9238	14.15	

Title... Project Date: 2/19/2015
Project Engineer:
Project Title: THE VILLAGES AT SHADY CREEK
Project Comments:
THE VILLAGES AT SHADY CREEK
DETENTION ANALYSIS
14-03-087
PROPOSED CONDITIONS
2/19/15

DESIGN STORMS SUMMARY

Design Storm File,ID = MSD NEW

Storm Tag Name = Dev 1

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 1 yr
Total Rainfall Depth= 2.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = Dev 2

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.1000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = Dev100

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 7.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = Dev 25

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 5.8000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	30.00	ft
2yr, 24hr P	3.1000	in
Slope	.333000	ft/ft
Avg.Velocity	.28	ft/sec

Segment #1 Time: .0299 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	200.00	ft
Slope	.040000	ft/ft
Unpaved		
Avg.Velocity	3.23	ft/sec

Segment #2 Time: .0172 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	.7850	sq.ft
Wetted Perimeter	3.14	ft
Hydraulic Radius	.25	ft
Slope	.010000	ft/ft
Mannings n	.0130	
Hydraulic Length	118.00	ft
Avg.Velocity	4.55	ft/sec

Segment #3 Time: .0072 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	212.00	ft

Avg.Velocity 7.46 ft/sec

Segment #4 Time: .0079 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.075000	ft/ft
Mannings n	.0130	
Hydraulic Length	285.00	ft

Avg.Velocity 14.45 ft/sec

Segment #5 Time: .0055 hrs

Segment #6: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.200000	ft/ft
Mannings n	.0130	
Hydraulic Length	64.00	ft

Avg.Velocity 23.59 ft/sec

Segment #6 Time: .0008 hrs

Segment #7: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	536.00	ft

Avg.Velocity 10.21 ft/sec

Segment #7 Time: .0146 hrs

Total Tc: .0831 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==========

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	60.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #1 Time: .1606 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	200.00	ft
Slope	.020000	ft/ft
Paved		
Avg.Velocity	2.87	ft/sec

Segment #2 Time: .0193 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	172.00	ft
Avg.Velocity	7.46	ft/sec

Segment #3 Time: .0064 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.010000	ft/ft
Mannings n	.0130	
Hydraulic Length	270.00	ft
Avg.Velocity	7.22	ft/sec

Segment #4 Time: .0104 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	4.9100	sq.ft
Wetted Perimeter	7.85	ft
Hydraulic Radius	.63	ft
Slope	.005000	ft/ft
Mannings n	.0130	
Hydraulic Length	136.00	ft
Avg.Velocity	5.93	ft/sec

Segment #5 Time: .0064 hrs

Total Tc: .2031 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	100.00	ft
2yr, 24hr P	3.1000	in
Slope	.040000	ft/ft
Avg.Velocity	.15	ft/sec

Segment #1 Time: .1831 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	400.00	ft
Slope	.030000	ft/ft
Unpaved		
Avg.Velocity	2.79	ft/sec

Segment #2 Time: .0398 hrs

Segment #3: Tc: TR-55 Shallow

Hydraulic Length	300.00	ft
Slope	.020000	ft/ft
Unpaved		
Avg.Velocity	2.28	ft/sec

Segment #3 Time: .0365 hrs

==========
Total Tc: .2594 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	30.00	ft
2yr, 24hr P	3.1000	in
Slope	.200000	ft/ft
Avg.Velocity	.23	ft/sec

Segment #1 Time: .0367 hrs

==========
Total Tc: .0367 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	50.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft

Avg.Velocity .10 ft/sec

Segment #1 Time: .1388 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	200.00	ft
Slope	.010000	ft/ft

Paved

Avg.Velocity 2.03 ft/sec

Segment #2 Time: .0273 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	.7850	sq.ft
Wetted Perimeter	3.14	ft
Hydraulic Radius	.25	ft
Slope	.030000	ft/ft
Mannings n	.0130	
Hydraulic Length	200.00	ft

Avg.Velocity 7.88 ft/sec

Segment #3 Time: .0071 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.005000	ft/ft
Mannings n	.0130	
Hydraulic Length	90.00	ft
Avg.Velocity	3.73	ft/sec

Segment #4 Time: .0067 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.005000	ft/ft
Mannings n	.0130	
Hydraulic Length	184.00	ft
Avg.Velocity	5.11	ft/sec

Segment #5 Time: .0100 hrs

==========
Total Tc: .1899 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400
Hydraulic Length	30.00 ft
2yr, 24hr P	3.1000 in
Slope	.020000 ft/ft
Avg.Velocity	.09 ft/sec

Segment #1 Time: .0922 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	200.00 ft
Slope	.020000 ft/ft
Paved	
Avg.Velocity	2.87 ft/sec

Segment #2 Time: .0193 hrs

Total Tc: .1116 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	50.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #1 Time: .1388 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	550.00	ft
Slope	.020000	ft/ft
Paved		
Avg.Velocity	2.87	ft/sec

Segment #2 Time: .0531 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.035000	ft/ft
Mannings n	.0130	
Hydraulic Length	316.50	ft
Avg.Velocity	9.87	ft/sec

Segment #3 Time: .0089 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	1.7670	sq.ft
Wetted Perimeter	4.71	ft
Hydraulic Radius	.38	ft
Slope	.013000	ft/ft
Mannings n	.0130	
Hydraulic Length	176.00	ft
Avg.Velocity	6.80	ft/sec

Segment #4 Time: .0072 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	83.00	ft
Avg.Velocity	10.21	ft/sec

Segment #5 Time: .0023 hrs

==========
Total Tc: .2103 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	50.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #1 Time: .1388 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	200.00	ft
Slope	.020000	ft/ft
Paved		
Avg.Velocity	2.87	ft/sec

Segment #2 Time: .0193 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	377.00	ft
Avg.Velocity	7.46	ft/sec

Segment #3 Time: .0140 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	1.7670	sq.ft
Wetted Perimeter	4.71	ft
Hydraulic Radius	.38	ft
Slope	.030000	ft/ft
Mannings n	.0130	
Hydraulic Length	60.00	ft
Avg.Velocity	10.33	ft/sec

Segment #4 Time: .0016 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.010000	ft/ft
Mannings n	.0130	
Hydraulic Length	584.21	ft
Avg.Velocity	7.22	ft/sec

Segment #5 Time: .0225 hrs

Segment #6: Tc: TR-55 Channel

Flow Area	4.9100	sq.ft
Wetted Perimeter	7.85	ft
Hydraulic Radius	.63	ft
Slope	.030000	ft/ft
Mannings n	.0130	
Hydraulic Length	330.00	ft
Avg.Velocity	14.52	ft/sec

Segment #6 Time: .0063 hrs

Segment #7: Tc: TR-55 Channel

Flow Area	9.6200	sq.ft
Wetted Perimeter	11.00	ft
Hydraulic Radius	.87	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	103.00	ft

Avg.Velocity 14.82 ft/sec

Segment #7 Time: .0019 hrs

Total Tc: .2045 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400
Hydraulic Length	100.00 ft
2yr, 24hr P	3.1000 in
Slope	.020000 ft/ft
Avg.Velocity	.11 ft/sec

Segment #1 Time: .2416 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	900.00 ft
Slope	.020000 ft/ft
Paved	
Avg.Velocity	2.87 ft/sec

Segment #2 Time: .0870 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	1.7670 sq.ft
Wetted Perimeter	4.71 ft
Hydraulic Radius	.38 ft
Slope	.015000 ft/ft
Mannings n	.0130
Hydraulic Length	115.00 ft
Avg.Velocity	7.30 ft/sec

Segment #3 Time: .0044 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	371.36	ft
Avg.Velocity	10.21	ft/sec

Segment #4 Time: .0101 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	4.9100	sq.ft
Wetted Perimeter	7.85	ft
Hydraulic Radius	.63	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	342.00	ft
Avg.Velocity	11.85	ft/sec

Segment #5 Time: .0080 hrs

Segment #6: Tc: TR-55 Channel

Flow Area	9.6200	sq.ft
Wetted Perimeter	11.00	ft
Hydraulic Radius	.87	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	103.00	ft
Avg.Velocity	14.82	ft/sec

Segment #6 Time: .0019 hrs

==========
Total Tc: .3530 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	100.00	ft
2yr, 24hr P	3.1000	in
Slope	.120000	ft/ft
Avg.Velocity	.24	ft/sec

Segment #1 Time: .1180 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	150.00	ft
Slope	.150000	ft/ft
Unpaved		
Avg.Velocity	6.25	ft/sec

Segment #2 Time: .0067 hrs

==========
Total Tc: .1247 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	90.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft
Avg.Velocity	.11	ft/sec

Segment #1 Time: .2221 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	60.00	ft
Slope	.100000	ft/ft
Unpaved		
Avg.Velocity	5.10	ft/sec

Segment #2 Time: .0033 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	.7850	sq.ft
Wetted Perimeter	3.14	ft
Hydraulic Radius	.25	ft
Slope	.015000	ft/ft
Mannings n	.0130	
Hydraulic Length	239.00	ft
Avg.Velocity	5.57	ft/sec

Segment #3 Time: .0119 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.040000	ft/ft
Mannings n	.0130	
Hydraulic Length	242.00	ft
Avg.Velocity	10.55	ft/sec

Segment #4 Time: .0064 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.015000	ft/ft
Mannings n	.0130	
Hydraulic Length	199.00	ft
Avg.Velocity	8.84	ft/sec

Segment #5 Time: .0063 hrs

Segment #6: Tc: TR-55 Channel

Flow Area	4.9100	sq.ft
Wetted Perimeter	7.85	ft
Hydraulic Radius	.63	ft
Slope	.010000	ft/ft
Mannings n	.0130	
Hydraulic Length	268.00	ft
Avg.Velocity	8.38	ft/sec

Segment #6 Time: .0089 hrs

==========
Total Tc: .2588 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	50.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft
Avg.Velocity	.10	ft/sec

Segment #1 Time: .1388 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	80.00	ft
Slope	.010000	ft/ft
Paved		
Avg.Velocity	2.03	ft/sec

Segment #2 Time: .0109 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.010000	ft/ft
Mannings n	.0130	
Hydraulic Length	474.00	ft
Avg.Velocity	5.27	ft/sec

Segment #3 Time: .0250 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	53.00	ft
Avg.Velocity	10.21	ft/sec

Segment #4 Time: .0014 hrs

Total Tc: .1761 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0130	
Hydraulic Length	30.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft
Avg.Velocity	.93	ft/sec

Segment #1 Time: .0090 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	400.00	ft
Slope	.020000	ft/ft
Paved		
Avg.Velocity	2.87	ft/sec

Segment #2 Time: .0386 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.020000	ft/ft
Mannings n	.0130	
Hydraulic Length	75.39	ft
Avg.Velocity	7.46	ft/sec

Segment #3 Time: .0028 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.080000	ft/ft
Mannings n	.0130	
Hydraulic Length	150.00	ft

Avg.Velocity 14.92 ft/sec

Segment #4 Time: .0028 hrs

Segment #5: Tc: TR-55 Shallow

Hydraulic Length	300.00	ft
Slope	.060000	ft/ft
Unpaved		

Avg.Velocity 3.95 ft/sec

Segment #5 Time: .0211 hrs

Total Tc: .0743 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400
Hydraulic Length	50.00 ft
2yr, 24hr P	3.1000 in
Slope	.120000 ft/ft
Avg.Velocity	.20 ft/sec

Segment #1 Time: .0678 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	450.00 ft
Slope	.060000 ft/ft
Unpaved	
Avg.Velocity	3.95 ft/sec

Segment #2 Time: .0316 hrs

==========
Total Tc: .0994 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.0130
Hydraulic Length	20.00 ft
2yr, 24hr P	3.1000 in
Slope	.020000 ft/ft
Avg.Velocity	.86 ft/sec

Segment #1 Time: .0065 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	130.00 ft
Slope	.020000 ft/ft
Unpaved	
Avg.Velocity	2.28 ft/sec

Segment #2 Time: .0158 hrs

==========
Total Tc: .0223 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	30.00	ft
2yr, 24hr P	3.1000	in
Slope	.330000	ft/ft
Avg.Velocity	.28	ft/sec

Segment #1 Time: .0301 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	200.00	ft
Slope	.120000	ft/ft
Unpaved		
Avg.Velocity	5.59	ft/sec

Segment #2 Time: .0099 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	.7850	sq.ft
Wetted Perimeter	3.14	ft
Hydraulic Radius	.25	ft
Slope	.160000	ft/ft
Mannings n	.0130	
Hydraulic Length	68.00	ft
Avg.Velocity	18.19	ft/sec

Segment #3 Time: .0010 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	.7850	sq.ft
Wetted Perimeter	3.14	ft
Hydraulic Radius	.25	ft
Slope	.085000	ft/ft
Mannings n	.0130	
Hydraulic Length	93.00	ft
Avg.Velocity	13.26	ft/sec

Segment #4 Time: .0019 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.060000	ft/ft
Mannings n	.0130	
Hydraulic Length	172.00	ft
Avg.Velocity	12.92	ft/sec

Segment #5 Time: .0037 hrs

Segment #6: Tc: TR-55 Channel

Flow Area	1.7670	sq.ft
Wetted Perimeter	4.71	ft
Hydraulic Radius	.38	ft
Slope	.040000	ft/ft
Mannings n	.0130	
Hydraulic Length	170.00	ft
Avg.Velocity	11.92	ft/sec

Segment #6 Time: .0040 hrs

Segment #7: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.010000	ft/ft
Mannings n	.0130	
Hydraulic Length	198.00	ft
Avg.Velocity	7.22	ft/sec

Segment #7 Time: .0076 hrs

Segment #8: Tc: TR-55 Channel

Flow Area	4.9100	sq.ft
Wetted Perimeter	7.85	ft
Hydraulic Radius	.63	ft
Slope	.005000	ft/ft
Mannings n	.0130	
Hydraulic Length	38.00	ft
Avg.Velocity	5.93	ft/sec

Segment #8 Time: .0018 hrs

==========

Total Tc: .0600 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs

==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	100.00	ft
2yr, 24hr P	3.1000	in
Slope	.020000	ft/ft
Avg.Velocity	.11	ft/sec

Segment #1 Time: .2416 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	150.00	ft
Slope	.200000	ft/ft
Unpaved		
Avg.Velocity	7.22	ft/sec

Segment #2 Time: .0058 hrs

Segment #3: Tc: TR-55 Channel

Flow Area	.7850	sq.ft
Wetted Perimeter	3.14	ft
Hydraulic Radius	.25	ft
Slope	.160000	ft/ft
Mannings n	.0130	
Hydraulic Length	68.00	ft
Avg.Velocity	18.19	ft/sec

Segment #3 Time: .0010 hrs

Segment #4: Tc: TR-55 Channel

Flow Area	.7850	sq.ft
Wetted Perimeter	3.14	ft
Hydraulic Radius	.25	ft
Slope	.085000	ft/ft
Mannings n	.0130	
Hydraulic Length	93.00	ft
Avg.Velocity	13.26	ft/sec

Segment #4 Time: .0019 hrs

Segment #5: Tc: TR-55 Channel

Flow Area	1.2270	sq.ft
Wetted Perimeter	3.93	ft
Hydraulic Radius	.31	ft
Slope	.060000	ft/ft
Mannings n	.0130	
Hydraulic Length	172.00	ft
Avg.Velocity	12.92	ft/sec

Segment #5 Time: .0037 hrs

Segment #6: Tc: TR-55 Channel

Flow Area	1.7670	sq.ft
Wetted Perimeter	4.71	ft
Hydraulic Radius	.38	ft
Slope	.040000	ft/ft
Mannings n	.0130	
Hydraulic Length	170.00	ft
Avg.Velocity	11.92	ft/sec

Segment #6 Time: .0040 hrs

Segment #7: Tc: TR-55 Channel

Flow Area	3.1400	sq.ft
Wetted Perimeter	6.28	ft
Hydraulic Radius	.50	ft
Slope	.010000	ft/ft
Mannings n	.0130	
Hydraulic Length	198.00	ft
Avg.Velocity	7.22	ft/sec

Segment #7 Time: .0076 hrs

Segment #8: Tc: TR-55 Channel

Flow Area	4.9100	sq.ft
Wetted Perimeter	7.85	ft
Hydraulic Radius	.63	ft
Slope	.005000	ft/ft
Mannings n	.0130	
Hydraulic Length	38.00	ft
Avg.Velocity	5.93	ft/sec

Segment #8 Time: .0018 hrs

Total Tc: .2675 hrs

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

==== SCS Channel Flow ==

R = Aq / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

Tc = (Lf / V) / (3600sec/hr)

Where: R = Hydraulic radius
Aq = Flow area, sq.ft.
Wp = Wetted perimeter, ft
V = Velocity, ft/sec
Sf = Slope, ft/ft
n = Mannings n
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400	
Hydraulic Length	100.00	ft
2yr, 24hr P	3.1000	in
Slope	.200000	ft/ft
Avg.Velocity	.29	ft/sec

Segment #1 Time: .0962 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	50.00	ft
Slope	.020000	ft/ft
Unpaved		
Avg.Velocity	2.28	ft/sec

Segment #2 Time: .0061 hrs

==========
Total Tc: .1023 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n	.2400
Hydraulic Length	20.00 ft
2yr, 24hr P	3.1000 in
Slope	.333000 ft/ft
Avg.Velocity	.26 ft/sec

Segment #1 Time: .0216 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length	50.00 ft
Slope	.020000 ft/ft
Unpaved	
Avg.Velocity	2.28 ft/sec

Segment #2 Time: .0061 hrs

==========
Total Tc: .0277 hrs

Calculated Tc < Min.Tc:
Use Minimum Tc...
Use Tc = .0833 hrs
==========

Tc Equations used...

==== SCS TR-55 Sheet Flow ==========

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ==========

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
100% IMPERVIOUS	98	2.900			98.00
TYPE D/ GRASS	80	3.050			80.00
TYPE C/ GRASS	74	2.860			74.00
TYPE C/ WOODS	70	2.050			70.00
COMPOSITE AREA & WEIGHTED CN --->		10.860			81.34 (81)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100 % IMPRVIOUS	98	5.440			98.00
TYPE D/ GRASS	80	8.820			80.00
COMPOSITE AREA & WEIGHTED CN --->		14.260			86.87 (87)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
TYPE D/ GRASS	80	6.480			80.00
COMPOSITE AREA & WEIGHTED CN --->		6.480			80.00 (80)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
TYPE D/ GRASS	80	.420			80.00
COMPOSITE AREA & WEIGHTED CN --->		.420			80.00 (80)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100% IMPERVIOUS	98	2.820			98.00
TYPE D/ GRASS	80	5.730			80.00
COMPOSITE AREA & WEIGHTED CN --->		8.550			85.94 (86)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
100% IMPERVIOUS	98	.140			98.00
TYPE D/ GRASS	80	.970			80.00
COMPOSITE AREA & WEIGHTED CN --->		1.110			82.27 (82)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
100% IMPERVIOUS	98	9.570			98.00
TYPE D/ GRASS	80	14.200			80.00
TYPE C/ GRASS	74	.690			74.00
COMPOSITE AREA & WEIGHTED CN --->		24.460			86.87 (87)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100% IMPERVIOUS	98	17.480			98.00
TYPE D/ GRASS	80	20.850			80.00
TYPE D/ WOODS	77	.030			77.00
TYPE C/ GRASS	74	8.490			74.00
TYPE C/ WOODS	70	.360			70.00
COMPOSITE AREA & WEIGHTED CN --->		47.210			85.51 (86)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
TYPE D/ GRASS	80	3.200			80.00
COMPOSITE AREA & WEIGHTED CN --->		3.200			80.00 (80)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
TYPE C/ GRASS	74	.820			74.00
COMPOSITE AREA & WEIGHTED CN --->		.820			74.00 (74)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100% IMPERVIOUS	98	.120			98.00
TYPE D/ GRASS	80	.470			80.00
COMPOSITE AREA & WEIGHTED CN --->		.590			83.66 (84)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100% IMPERVIOUS	98	4.030			98.00
TYPE D/ GRASS	80	4.810			80.00
TYPE C/ GRASS	74	1.860			74.00
COMPOSITE AREA & WEIGHTED CN --->		10.700			85.74 (86)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100% IMPERVIOUS	98	4.020			98.00
TYPE D/ GRASS	80	3.330			80.00
TYPE C/ GRASS	74	5.240			74.00
TYPE C/ WOODS	70	.820			70.00
COMPOSITE AREA & WEIGHTED CN --->		13.410			82.44 (82)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
TYPE D/ GRASS	80	.830			80.00
TYPE C/ GRASS	74	.900			74.00
COMPOSITE AREA & WEIGHTED CN --->		1.730			76.88 (77)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
100% IMPERVIOUS	98	.100			98.00
TYPE D/ GRASS	80	.100			80.00
TYPE C/ GRASS	74	.050			74.00
COMPOSITE AREA & WEIGHTED CN --->		.250			86.00 (86)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100% IMPERVIOUS	98	1.290			98.00
TYPE D/ GRASS	80	2.120			80.00
TYPE C/ GRASS	74	1.040			74.00
TYPE C/ WOODS	70	.200			70.00
COMPOSITE AREA & WEIGHTED CN --->		4.650			83.22 (83)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
100% IMPERVIOUS	98	.860			98.00
TYPE D/ GRASS	80	.480			80.00
TYPE C/ GRASS	74	2.630			74.00
COMPOSITE AREA & WEIGHTED CN --->		3.970			79.92 (80)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
TYPE D/ WOODS	77	2.000			77.00
COMPOSITE AREA & WEIGHTED CN --->		2.000			77.00 (77)

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
TYPE D/ WOODS	77	2.000			77.00
COMPOSITE AREA & WEIGHTED CN --->		2.000			77.00 (77)

POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
582.00	6588.000	.1512	.0000	0	0
584.00	9499.000	.2181	.5509	15998	15998
586.00	12914.000	.2965	.7688	22326	38324
588.00	16731.000	.3841	1.0180	29563	67887
590.00	21717.000	.4986	1.3202	38340	106227
592.00	28055.000	.6441	1.7093	49637	155864
594.00	35260.000	.8095	2.1755	63178	219042
596.00	42914.000	.9852	2.6876	78049	297090
597.50	49039.000	1.1258	3.1641	68914	366004
598.00	57775.000	1.3263	3.6741	26674	392678
598.50	67313.000	1.5453	4.3033	31242	423919
600.00	75130.000	1.7247	4.9026	106779	530698
600.50	94402.000	2.1672	5.8253	42291	572989
602.00	103542.000	2.3770	6.8138	148405	721395

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
613.00	.000	.0000	.0000	0	0
613.50	400.000	.0092	.0092	67	67
614.00	2024.000	.0465	.0763	554	621
614.50	5081.000	.1166	.2367	1719	2339
615.00	9380.000	.2153	.4905	3561	5900
615.50	13802.000	.3169	.7934	5760	11660
616.00	19451.000	.4465	1.1395	8273	19933
617.00	23246.000	.5337	1.4683	21320	41253
618.00	25789.000	.5920	1.6878	24507	65760
620.00	30027.000	.6893	1.9202	55762	121522

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
582.00	19283.000	.4427	.0000	0	0
584.00	23370.000	.5365	1.4665	42588	42588
586.00	27735.000	.6367	1.7577	51043	93630
588.00	32369.000	.7431	2.0676	60044	153675
590.00	40829.000	.9373	2.5150	73034	226709
592.00	47781.000	1.0969	3.0482	88519	315228
594.00	55201.000	1.2672	3.5431	102893	418121
596.00	63150.000	1.4497	4.0724	118262	536383
598.00	71624.000	1.6443	4.6379	134685	671068
600.00	80621.000	1.8508	5.2395	152156	823224
601.00	87013.000	1.9975	5.7711	83797	907021
602.00	105767.000	2.4281	6.6279	96238	1003259
604.00	117580.000	2.6993	7.6874	223243	1226501
606.00	143021.000	3.2833	8.9596	260186	1486688

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
598.00	7591.000	.1743	.0000	0	0
600.00	10914.000	.2506	.6338	18405	18405
602.00	15096.000	.3466	.8918	25897	44302
604.00	19596.000	.4499	1.1913	34594	78896
606.00	24518.000	.5629	1.5159	44022	122918
608.00	29953.000	.6876	1.8726	54380	177299
610.00	35927.000	.8248	2.2655	65790	243088
612.00	42243.000	.9698	2.6889	78085	321173
614.00	48160.000	1.1056	3.1108	90338	411512
616.00	54696.000	1.2556	3.5395	102787	514298
618.00	61258.000	1.4063	3.9908	115892	630190

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
624.00	3849.000	.0884	.0000	0	0
626.00	6449.000	.1480	.3508	10187	10187
628.00	10135.000	.2327	.5663	16446	26633
630.00	14332.000	.3290	.8384	24346	50979
631.50	24468.000	.5617	1.3206	28763	79742
632.00	31997.000	.7346	1.9386	14074	93816
634.00	44164.000	1.0139	2.6114	75835	169651
636.00	54025.000	1.2402	3.3755	98024	267675
637.50	61589.000	1.4139	3.9784	86649	354323

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

POND VOLUME CALCULATIONS

Planimeter scale: 1.00 ft/in

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (cu.ft)	Volume Sum (cu.ft)
624.00	2541.000	.0583	.0000	0	0
626.00	3761.000	.0863	.2156	6262	6262
628.00	5234.000	.1202	.3084	8955	15217
630.00	6966.000	.1599	.4187	12159	27376
632.00	8923.000	.2048	.5458	15849	43224
634.00	11011.000	.2528	.6852	19897	63122
636.00	13225.000	.3036	.8334	24202	87324
637.00	19273.000	.4424	1.1126	16154	103478
638.00	21215.000	.4870	1.3937	20236	123715
640.00	25268.000	.5801	1.5986	46424	170139
641.00	27380.000	.6286	1.8125	26317	196456

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2 = Lower and upper elevations of the increment
Area1,Area2 = Areas computed for EL1, EL2, respectively
Volume = Incremental volume between EL1 and EL2

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 582.00 ft
Increment = .30 ft
Max. Elev.= 602.00 ft

****
OUTLET CONNECTIVITY
****

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	2	--->	CV	598.500	600.000
Orifice-Area	3	--->	CV	600.000	602.000
Orifice-Area	5	--->	CV	601.000	602.000
Weir-Rectangular	4	--->	CV	600.000	601.000
Culvert-Circular	CV	--->	TW	591.900	602.000

TW SETUP, DS Channel