

CITY OF HAM LAKE, MINNESOTA  
 EXHIBIT B  
 DITCH PLAN

RFC ENGINEERING, INC.

DWG: 0215 EXHIBIT B

DATE: 10/23/03

JOB NUMBER: 0215

SHEET: 1 of 1

SCALE: 1"=100'

JAY NO. 65

# ROSEWOOD DITCH CAPACITY

Type II 24-hr Rainfall=5.85"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points

Runoff by SCS TR-20 method, UH=SCS, Type II 24-hr Rainfall=5.85"

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

## Reach 1R: EXISTING CHANNEL

Length= 1,000.0' Max Vel= 0.0 fps Capacity= 73.06 cfs Outflow= 0.00 cfs 0.000 af

## Reach 2R: EXISTING DRIVEWAY CULVERT

Length= 41.0' Max Vel= 0.0 fps Capacity= 7.65 cfs Outflow= 0.00 cfs 0.000 af

## Reach 3R: PROPOSED CHANNEL

Length= 1,000.0' Max Vel= 0.0 fps Capacity= 157.51 cfs Outflow= 0.00 cfs 0.000 af

## Reach 4R: PROPOSED STORM DRAIN

Length= 400.0' Max Vel= 0.0 fps Capacity= 19.87 cfs Outflow= 0.00 cfs 0.000 af

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## Reach 1R: EXISTING CHANNEL

[43] Hint: Has no inflow (Outflow=Zero)

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

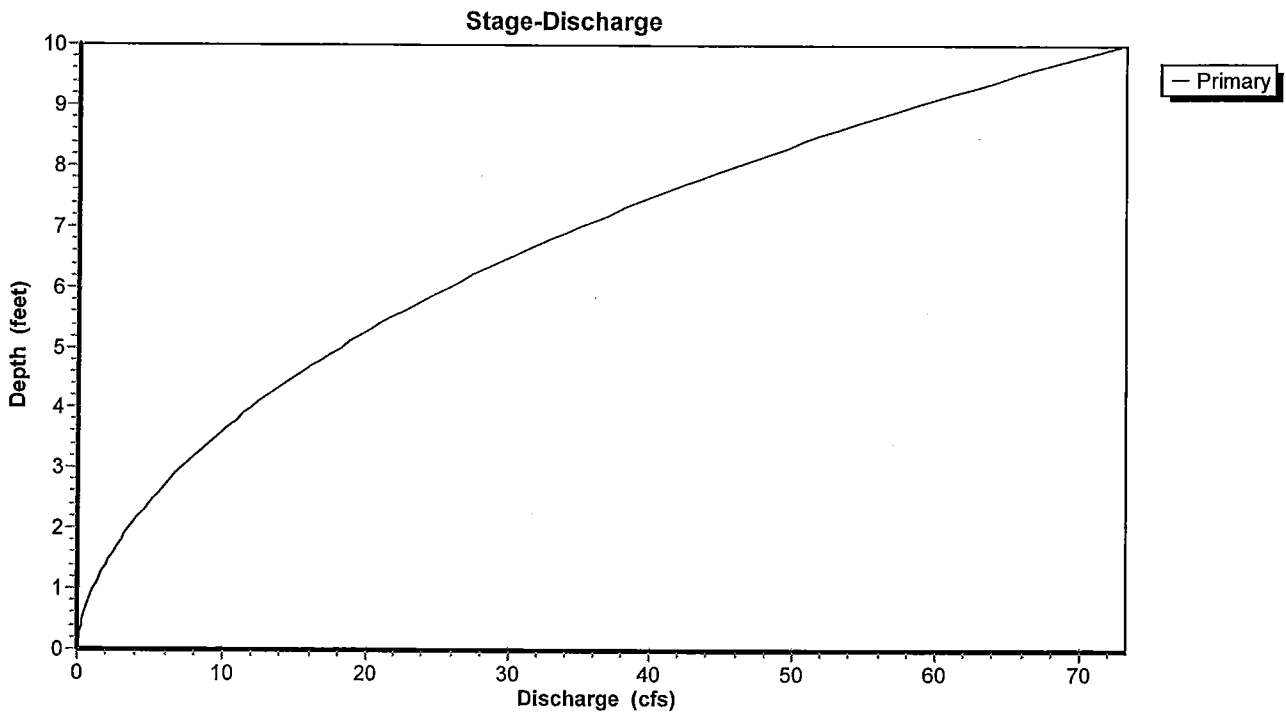
Peak Depth= 0.00'

Capacity at bank full= 73.06 cfs

3.00' x 10.00' deep channel, n= 0.035 Length= 1,000.0' Slope= 0.0001 1/1'

Side Slope Z-value= 0.5 1/1'

## Reach 1R: EXISTING CHANNEL



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## Reach 1R: EXISTING CHANNEL

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
0.00	0.00	1.04	1.21	2.08	3.80	3.12	7.65
0.02	0.00	1.06	1.25	2.10	3.86	3.14	7.74
0.04	0.01	1.08	1.29	2.12	3.92	3.16	7.83
0.06	0.01	1.10	1.33	2.14	3.99	3.18	7.92
0.08	0.02	1.12	1.37	2.16	4.05	3.20	8.00
0.10	0.03	1.14	1.41	2.18	4.11	3.22	8.09
0.12	0.04	1.16	1.45	2.20	4.18	3.24	8.18
0.14	0.05	1.18	1.49	2.22	4.24	3.26	8.27
0.16	0.06	1.20	1.53	2.24	4.31	3.28	8.36
0.18	0.07	1.22	1.57	2.26	4.37	3.30	8.46
0.20	0.08	1.24	1.61	2.28	4.44	3.32	8.55
0.22	0.10	1.26	1.65	2.30	4.51	3.34	8.64
0.24	0.11	1.28	1.70	2.32	4.57	3.36	8.73
0.26	0.13	1.30	1.74	2.34	4.64	3.38	8.82
0.28	0.15	1.32	1.78	2.36	4.71	3.40	8.92
0.30	0.16	1.34	1.83	2.38	4.78	3.42	9.01
0.32	0.18	1.36	1.87	2.40	4.85	3.44	9.11
0.34	0.20	1.38	1.92	2.42	4.92	3.46	9.20
0.36	0.22	1.40	1.97	2.44	4.99	3.48	9.30
0.38	0.24	1.42	2.01	2.46	5.06	3.50	9.40
0.40	0.26	1.44	2.06	2.48	5.13	3.52	9.49
0.42	0.28	1.46	2.11	2.50	5.20	3.54	9.59
0.44	0.30	1.48	2.15	2.52	5.27	3.56	9.69
0.46	0.32	1.50	2.20	2.54	5.34	3.58	9.79
0.48	0.35	1.52	2.25	2.56	5.42	3.60	9.88
0.50	0.37	1.54	2.30	2.58	5.49	3.62	9.98
0.52	0.40	1.56	2.35	2.60	5.56	3.64	10.08
0.54	0.42	1.58	2.40	2.62	5.64	3.66	10.18
0.56	0.45	1.60	2.45	2.64	5.71	3.68	10.29
0.58	0.47	1.62	2.50	2.66	5.79	3.70	10.39
0.60	0.50	1.64	2.55	2.68	5.86	3.72	10.49
0.62	0.53	1.66	2.60	2.70	5.94	3.74	10.59
0.64	0.55	1.68	2.66	2.72	6.02	3.76	10.69
0.66	0.58	1.70	2.71	2.74	6.09	3.78	10.80
0.68	0.61	1.72	2.76	2.76	6.17	3.80	10.90
0.70	0.64	1.74	2.82	2.78	6.25	3.82	11.01
0.72	0.67	1.76	2.87	2.80	6.33	3.84	11.11
0.74	0.70	1.78	2.92	2.82	6.41	3.86	11.22
0.76	0.73	1.80	2.98	2.84	6.49	3.88	11.32
0.78	0.76	1.82	3.03	2.86	6.57	3.90	11.43
0.80	0.79	1.84	3.09	2.88	6.65	3.92	11.54
0.82	0.82	1.86	3.15	2.90	6.73	3.94	11.65
0.84	0.86	1.88	3.20	2.92	6.81	3.96	11.76
0.86	0.89	1.90	3.26	2.94	6.89	3.98	11.86
0.88	0.92	1.92	3.32	2.96	6.97	4.00	11.97
0.90	0.96	1.94	3.38	2.98	7.06	4.02	12.08
0.92	0.99	1.96	3.44	3.00	7.14	4.04	12.19
0.94	1.03	1.98	3.50	3.02	7.22	4.06	12.31
0.96	1.06	2.00	3.55	3.04	7.31	4.08	12.42
0.98	1.10	2.02	3.61	3.06	7.39	4.10	12.53
1.00	1.14	2.04	3.68	3.08	7.48	4.12	12.64
1.02	1.17	2.06	3.74	3.10	7.57	4.14	12.76

**ROSEWOOD DITCH CAPACITY**

Type II 24-hr Rainfall=5.85"

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**Reach 1R: EXISTING CHANNEL (continued)**

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
4.16	12.87	5.20	19.57	6.24	27.86	7.28	37.88
4.18	12.98	5.22	19.71	6.26	28.04	7.30	38.09
4.20	13.10	5.24	19.85	6.28	28.21	7.32	38.30
4.22	13.21	5.26	20.00	6.30	28.39	7.34	38.51
4.24	13.33	5.28	20.15	6.32	28.57	7.36	38.72
4.26	13.45	5.30	20.29	6.34	28.75	7.38	38.94
4.28	13.56	5.32	20.44	6.36	28.93	7.40	39.15
4.30	13.68	5.34	20.59	6.38	29.11	7.42	39.37
4.32	13.80	5.36	20.73	6.40	29.29	7.44	39.58
4.34	13.92	5.38	20.88	6.42	29.47	7.46	39.80
4.36	14.04	5.40	21.03	6.44	29.65	7.48	40.01
4.38	14.16	5.42	21.18	6.46	29.83	7.50	40.23
4.40	14.28	5.44	21.33	6.48	30.02	7.52	40.45
4.42	14.40	5.46	21.48	6.50	30.20	7.54	40.67
4.44	14.52	5.48	21.64	6.52	30.38	7.56	40.89
4.46	14.64	5.50	21.79	6.54	30.57	7.58	41.11
4.48	14.77	5.52	21.94	6.56	30.76	7.60	41.33
4.50	14.89	5.54	22.10	6.58	30.94	7.62	41.55
4.52	15.01	5.56	22.25	6.60	31.13	7.64	41.77
4.54	15.14	5.58	22.40	6.62	31.32	7.66	41.99
4.56	15.26	5.60	22.56	6.64	31.50	7.68	42.21
4.58	15.39	5.62	22.72	6.66	31.69	7.70	42.44
4.60	15.51	5.64	22.87	6.68	31.88	7.72	42.66
4.62	15.64	5.66	23.03	6.70	32.07	7.74	42.89
4.64	15.77	5.68	23.19	6.72	32.26	7.76	43.12
4.66	15.90	5.70	23.35	6.74	32.46	7.78	43.34
4.68	16.02	5.72	23.51	6.76	32.65	7.80	43.57
4.70	16.15	5.74	23.67	6.78	32.84	7.82	43.80
4.72	16.28	5.76	23.83	6.80	33.03	7.84	44.03
4.74	16.41	5.78	23.99	6.82	33.23	7.86	44.26
4.76	16.54	5.80	24.15	6.84	33.42	7.88	44.49
4.78	16.68	5.82	24.31	6.86	33.62	7.90	44.72
4.80	16.81	5.84	24.47	6.88	33.82	7.92	44.95
4.82	16.94	5.86	24.64	6.90	34.01	7.94	45.18
4.84	17.07	5.88	24.80	6.92	34.21	7.96	45.42
4.86	17.21	5.90	24.97	6.94	34.41	7.98	45.65
4.88	17.34	5.92	25.13	6.96	34.61	8.00	45.88
4.90	17.47	5.94	25.30	6.98	34.81	8.02	46.12
4.92	17.61	5.96	25.46	7.00	35.01	8.04	46.36
4.94	17.75	5.98	25.63	7.02	35.21	8.06	46.59
4.96	17.88	6.00	25.80	7.04	35.41	8.08	46.83
4.98	18.02	6.02	25.97	7.06	35.61	8.10	47.07
5.00	18.16	6.04	26.14	7.08	35.81	8.12	47.31
5.02	18.30	6.06	26.31	7.10	36.02	8.14	47.55
5.04	18.43	6.08	26.48	7.12	36.22	8.16	47.79
5.06	18.57	6.10	26.65	7.14	36.43	8.18	48.03
5.08	18.71	6.12	26.82	7.16	36.63	8.20	48.27
5.10	18.85	6.14	26.99	7.18	36.84	8.22	48.51
5.12	19.00	6.16	27.16	7.20	37.04	8.24	48.75
5.14	19.14	6.18	27.34	7.22	37.25	8.26	49.00
5.16	19.28	6.20	27.51	7.24	37.46	8.28	49.24
5.18	19.42	6.22	27.69	7.26	37.67	8.30	49.49

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Type II 24-hr Rainfall=5.85"

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## Reach 1R: EXISTING CHANNEL (continued)

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
8.32	49.73	9.36	63.54
8.34	49.98	9.38	63.83
8.36	50.23	9.40	64.11
8.38	50.48	9.42	64.40
8.40	50.73	9.44	64.69
8.42	50.98	9.46	64.98
8.44	51.23	9.48	65.27
8.46	51.48	9.50	65.56
8.48	51.73	9.52	65.85
8.50	51.98	9.54	66.14
8.52	52.23	9.56	66.43
8.54	52.49	9.58	66.72
8.56	52.74	9.60	67.02
8.58	53.00	9.62	67.31
8.60	53.25	9.64	67.61
8.62	53.51	9.66	67.90
8.64	53.77	9.68	68.20
8.66	54.03	9.70	68.50
8.68	54.29	9.72	68.80
8.70	54.55	9.74	69.10
8.72	54.81	9.76	69.40
8.74	55.07	9.78	69.70
8.76	55.33	9.80	70.00
8.78	55.59	9.82	70.30
8.80	55.86	9.84	70.60
8.82	56.12	9.86	70.91
8.84	56.39	9.88	71.21
8.86	56.65	9.90	71.52
8.88	56.92	9.92	71.82
8.90	57.19	9.94	72.13
8.92	57.45	9.96	72.44
8.94	57.72	9.98	72.75
8.96	57.99	10.00	<b>73.06</b>
8.98	58.26		
9.00	58.53		
9.02	58.81		
9.04	59.08		
9.06	59.35		
9.08	59.63		
9.10	59.90		
9.12	60.18		
9.14	60.45		
9.16	60.73		
9.18	61.01		
9.20	61.29		
9.22	61.56		
9.24	61.84		
9.26	62.13		
9.28	62.41		
9.30	62.69		
9.32	62.97		
9.34	63.26		

# ROSEWOOD DITCH CAPACITY

Type II 24-hr Rainfall=5.85"

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## Reach 2R: EXISTING DRIVEWAY CULVERT

[43] Hint: Has no inflow (Outflow=Zero)

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min

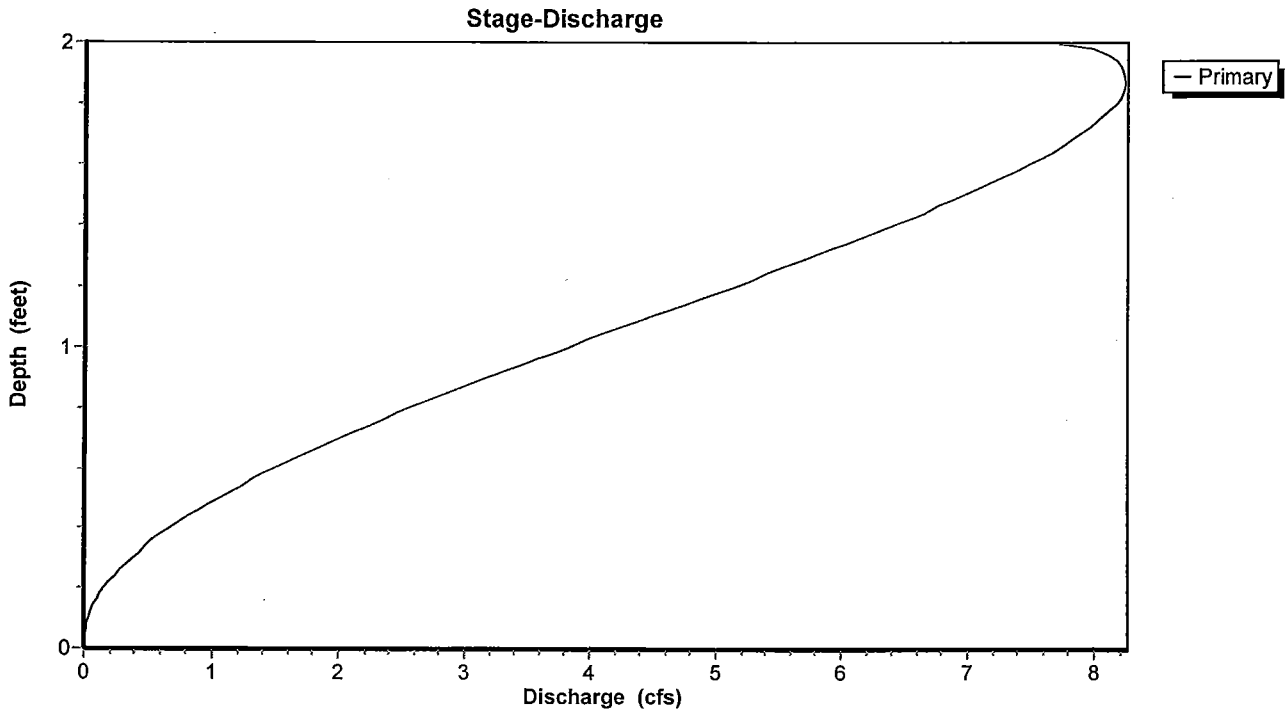
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

Peak Depth= 0.00'

Capacity at bank full= 7.65 cfs

24.0" Diameter Pipe n= 0.024 Length= 41.0' Slope= 0.0039 '/'

## Reach 2R: EXISTING DRIVEWAY CULVERT



# ROSEWOOD DITCH CAPACITY

Type II 24-hr Rainfall=5.85"

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## Reach 2R: EXISTING DRIVEWAY CULVERT

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
0.00	0.00	0.52	1.13	1.04	4.09	1.56	7.29
0.01	0.00	0.53	1.18	1.05	4.15	1.57	7.34
0.02	0.00	0.54	1.22	1.06	4.22	1.58	7.39
0.03	0.00	0.55	1.27	1.07	4.29	1.59	7.44
0.04	0.01	0.56	1.31	1.08	4.35	1.60	7.48
0.05	0.01	0.57	1.36	1.09	4.42	1.61	7.53
0.06	0.01	0.58	1.40	1.10	4.48	1.62	7.57
0.07	0.02	0.59	1.45	1.11	4.55	1.63	7.62
0.08	0.02	0.60	1.50	1.12	4.62	1.64	7.66
0.09	0.03	0.61	1.55	1.13	4.68	1.65	7.70
0.10	0.04	0.62	1.60	1.14	4.75	1.66	7.74
0.11	0.05	0.63	1.65	1.15	4.81	1.67	7.78
0.12	0.05	0.64	1.70	1.16	4.88	1.68	7.82
0.13	0.06	0.65	1.75	1.17	4.95	1.69	7.85
0.14	0.08	0.66	1.80	1.18	5.01	1.70	7.89
0.15	0.09	0.67	1.85	1.19	5.08	1.71	7.92
0.16	0.10	0.68	1.91	1.20	5.14	1.72	7.95
0.17	0.11	0.69	1.96	1.21	5.21	1.73	7.99
0.18	0.13	0.70	2.01	1.22	5.27	1.74	8.02
0.19	0.14	0.71	2.07	1.23	5.34	1.75	8.04
0.20	0.16	0.72	2.12	1.24	5.40	1.76	8.07
0.21	0.18	0.73	2.18	1.25	5.47	1.77	8.09
0.22	0.20	0.74	2.23	1.26	5.53	1.78	8.12
0.23	0.21	0.75	2.29	1.27	5.60	1.79	8.14
0.24	0.23	0.76	2.35	1.28	5.66	1.80	8.16
0.25	0.25	0.77	2.40	1.29	5.73	1.81	8.18
0.26	0.28	0.78	2.46	1.30	5.79	1.82	8.19
0.27	0.30	0.79	2.52	1.31	5.85	1.83	8.20
0.28	0.32	0.80	2.58	1.32	5.92	1.84	8.22
0.29	0.35	0.81	2.64	1.33	5.98	1.85	8.22
0.30	0.37	0.82	2.70	1.34	6.04	1.86	8.23
0.31	0.40	0.83	2.76	1.35	6.10	1.87	8.23
0.32	0.43	0.84	2.82	1.36	6.17	1.88	<b>8.23</b>
0.33	0.45	0.85	2.88	1.37	6.23	1.89	8.23
0.34	0.48	0.86	2.94	1.38	6.29	1.90	8.23
0.35	0.51	0.87	3.00	1.39	6.35	1.91	8.22
0.36	0.54	0.88	3.06	1.40	6.41	1.92	8.20
0.37	0.57	0.89	3.13	1.41	6.47	1.93	8.18
0.38	0.60	0.90	3.19	1.42	6.53	1.94	8.16
0.39	0.64	0.91	3.25	1.43	6.59	1.95	8.13
0.40	0.67	0.92	3.31	1.44	6.64	1.96	8.09
0.41	0.70	0.93	3.38	1.45	6.70	1.97	8.04
0.42	0.74	0.94	3.44	1.46	6.76	1.98	7.98
0.43	0.78	0.95	3.50	1.47	6.82	1.99	7.89
0.44	0.81	0.96	3.57	1.48	6.87	2.00	7.65
0.45	0.85	0.97	3.63	1.49	6.93		
0.46	0.89	0.98	3.70	1.50	6.98		
0.47	0.93	0.99	3.76	1.51	7.03		
0.48	0.97	1.00	3.83	1.52	7.09		
0.49	1.01	1.01	3.89	1.53	7.14		
0.50	1.05	1.02	3.96	1.54	7.19		
0.51	1.09	1.03	4.02	1.55	7.24		



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## Reach 3R: PROPOSED CHANNEL

[43] Hint: Has no inflow (Outflow=Zero)

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min  
Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

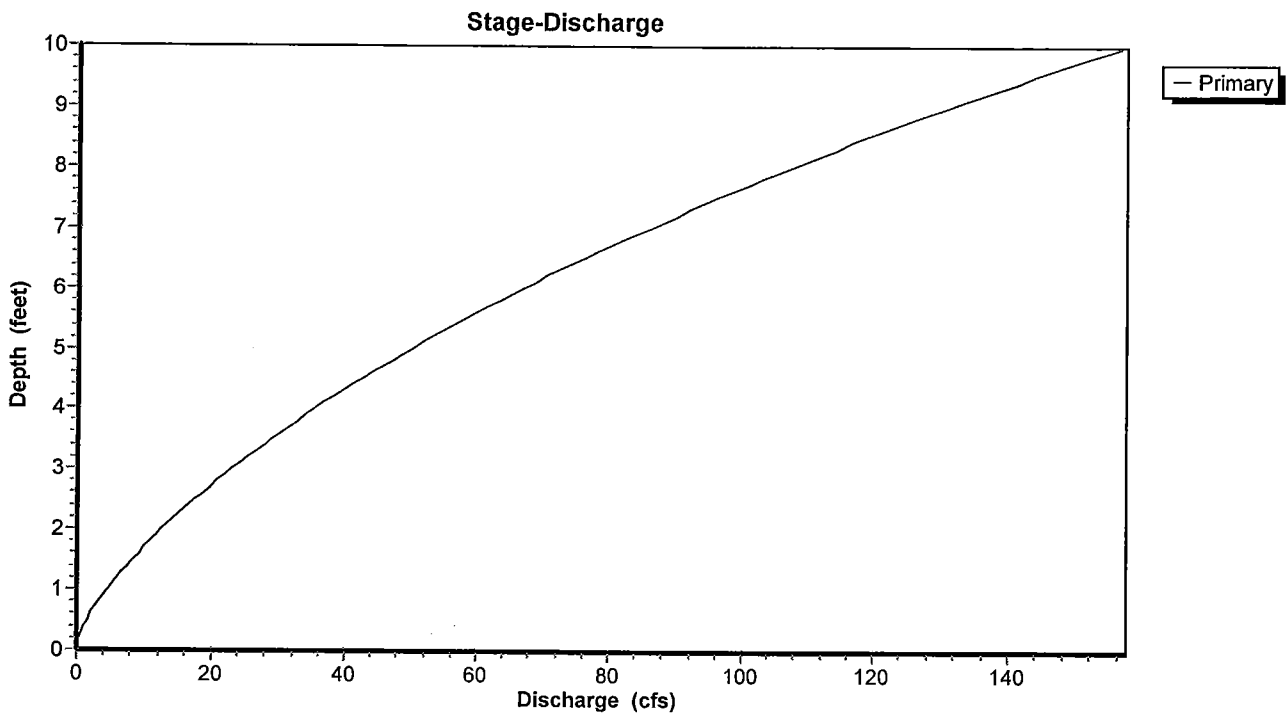
Peak Depth= 0.00'

Capacity at bank full= 157.51 cfs

3.00' x 10.00' deep channel, n= 0.035 Length= 1,000.0' Slope= 0.0020 '/'

Side Slope Z-value= 0.2 '/'

## Reach 3R: PROPOSED CHANNEL



# ROSEWOOD DITCH CAPACITY

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## Reach 3R: PROPOSED CHANNEL

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
0.00	0.00	1.04	4.76	2.08	13.32	3.12	24.34
0.02	0.01	1.06	4.90	2.10	13.51	3.14	24.58
0.04	0.03	1.08	5.04	2.12	13.70	3.16	24.82
0.06	0.05	1.10	5.18	2.14	13.89	3.18	25.05
0.08	0.08	1.12	5.32	2.16	14.09	3.20	25.29
0.10	0.12	1.14	5.46	2.18	14.28	3.22	25.53
0.12	0.16	1.16	5.61	2.20	14.47	3.24	25.77
0.14	0.21	1.18	5.75	2.22	14.67	3.26	26.00
0.16	0.26	1.20	5.90	2.24	14.86	3.28	26.25
0.18	0.31	1.22	6.04	2.26	15.06	3.30	26.49
0.20	0.37	1.24	6.19	2.28	15.26	3.32	26.73
0.22	0.43	1.26	6.34	2.30	15.46	3.34	26.97
0.24	0.49	1.28	6.49	2.32	15.66	3.36	27.22
0.26	0.56	1.30	6.64	2.34	15.86	3.38	27.46
0.28	0.63	1.32	6.79	2.36	16.06	3.40	27.71
0.30	0.70	1.34	6.95	2.38	16.26	3.42	27.95
0.32	0.77	1.36	7.10	2.40	16.46	3.44	28.20
0.34	0.85	1.38	7.26	2.42	16.67	3.46	28.45
0.36	0.93	1.40	7.41	2.44	16.87	3.48	28.70
0.38	1.02	1.42	7.57	2.46	17.08	3.50	28.95
0.40	1.10	1.44	7.73	2.48	17.29	3.52	29.20
0.42	1.19	1.46	7.89	2.50	17.49	3.54	29.45
0.44	1.28	1.48	8.05	2.52	17.70	3.56	29.70
0.46	1.37	1.50	8.21	2.54	17.91	3.58	29.95
0.48	1.46	1.52	8.38	2.56	18.12	3.60	30.21
0.50	1.56	1.54	8.54	2.58	18.33	3.62	30.46
0.52	1.66	1.56	8.70	2.60	18.54	3.64	30.72
0.54	1.76	1.58	8.87	2.62	18.76	3.66	30.98
0.56	1.86	1.60	9.04	2.64	18.97	3.68	31.23
0.58	1.96	1.62	9.20	2.66	19.18	3.70	31.49
0.60	2.07	1.64	9.37	2.68	19.40	3.72	31.75
0.62	2.17	1.66	9.54	2.70	19.61	3.74	32.01
0.64	2.28	1.68	9.71	2.72	19.83	3.76	32.27
0.66	2.39	1.70	9.88	2.74	20.05	3.78	32.53
0.68	2.50	1.72	10.06	2.76	20.27	3.80	32.79
0.70	2.62	1.74	10.23	2.78	20.49	3.82	33.06
0.72	2.73	1.76	10.41	2.80	20.71	3.84	33.32
0.74	2.85	1.78	10.58	2.82	20.93	3.86	33.59
0.76	2.97	1.80	10.76	2.84	21.15	3.88	33.85
0.78	3.08	1.82	10.93	2.86	21.37	3.90	34.12
0.80	3.21	1.84	11.11	2.88	21.60	3.92	34.39
0.82	3.33	1.86	11.29	2.90	21.82	3.94	34.66
0.84	3.45	1.88	11.47	2.92	22.05	3.96	34.92
0.86	3.58	1.90	11.65	2.94	22.27	3.98	35.19
0.88	3.70	1.92	11.83	2.96	22.50	4.00	35.47
0.90	3.83	1.94	12.02	2.98	22.73	4.02	35.74
0.92	3.96	1.96	12.20	3.00	22.96	4.04	36.01
0.94	4.09	1.98	12.38	3.02	23.18	4.06	36.28
0.96	4.22	2.00	12.57	3.04	23.42	4.08	36.56
0.98	4.35	2.02	12.76	3.06	23.65	4.10	36.83
1.00	4.49	2.04	12.94	3.08	23.88	4.12	37.11
1.02	4.62	2.06	13.13	3.10	24.11	4.14	37.39

# ROSEWOOD DITCH CAPACITY

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Type II 24-hr Rainfall=5.85"

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## Reach 3R: PROPOSED CHANNEL (continued)

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
4.16	37.66	5.20	53.29	6.24	71.28	7.28	91.73
4.18	37.94	5.22	53.61	6.26	71.65	7.30	92.15
4.20	38.22	5.24	53.93	6.28	72.02	7.32	92.57
4.22	38.50	5.26	54.26	6.30	72.39	7.34	92.99
4.24	38.78	5.28	54.59	6.32	72.77	7.36	93.41
4.26	39.06	5.30	54.91	6.34	73.14	7.38	93.83
4.28	39.35	5.32	55.24	6.36	73.51	7.40	94.26
4.30	39.63	5.34	55.57	6.38	73.89	7.42	94.68
4.32	39.92	5.36	55.90	6.40	74.27	7.44	95.10
4.34	40.20	5.38	56.23	6.42	74.64	7.46	95.53
4.36	40.49	5.40	56.56	6.44	75.02	7.48	95.96
4.38	40.77	5.42	56.89	6.46	75.40	7.50	96.38
4.40	41.06	5.44	57.23	6.48	75.78	7.52	96.81
4.42	41.35	5.46	57.56	6.50	76.16	7.54	97.24
4.44	41.64	5.48	57.90	6.52	76.54	7.56	97.67
4.46	41.93	5.50	58.23	6.54	76.93	7.58	98.10
4.48	42.22	5.52	58.57	6.56	77.31	7.60	98.53
4.50	42.51	5.54	58.91	6.58	77.69	7.62	98.97
4.52	42.81	5.56	59.24	6.60	78.08	7.64	99.40
4.54	43.10	5.58	59.58	6.62	78.47	7.66	99.84
4.56	43.40	5.60	59.92	6.64	78.85	7.68	100.27
4.58	43.69	5.62	60.26	6.66	79.24	7.70	100.71
4.60	43.99	5.64	60.61	6.68	79.63	7.72	101.15
4.62	44.29	5.66	60.95	6.70	80.02	7.74	101.59
4.64	44.58	5.68	61.29	6.72	80.41	7.76	102.03
4.66	44.88	5.70	61.64	6.74	80.80	7.78	102.47
4.68	45.18	5.72	61.98	6.76	81.20	7.80	102.91
4.70	45.48	5.74	62.33	6.78	81.59	7.82	103.35
4.72	45.79	5.76	62.68	6.80	81.98	7.84	103.80
4.74	46.09	5.78	63.03	6.82	82.38	7.86	104.24
4.76	46.39	5.80	63.37	6.84	82.78	7.88	104.69
4.78	46.70	5.82	63.72	6.86	83.17	7.90	105.13
4.80	47.00	5.84	64.08	6.88	83.57	7.92	105.58
4.82	47.31	5.86	64.43	6.90	83.97	7.94	106.03
4.84	47.61	5.88	64.78	6.92	84.37	7.96	106.48
4.86	47.92	5.90	65.13	6.94	84.77	7.98	106.93
4.88	48.23	5.92	65.49	6.96	85.17	8.00	107.38
4.90	48.54	5.94	65.84	6.98	85.58	8.02	107.83
4.92	48.85	5.96	66.20	7.00	85.98	8.04	108.29
4.94	49.16	5.98	66.56	7.02	86.39	8.06	108.74
4.96	49.47	6.00	66.91	7.04	86.79	8.08	109.19
4.98	49.79	6.02	67.27	7.06	87.20	8.10	109.65
5.00	50.10	6.04	67.63	7.08	87.61	8.12	110.11
5.02	50.42	6.06	67.99	7.10	88.01	8.14	110.57
5.04	50.73	6.08	68.36	7.12	88.42	8.16	111.03
5.06	51.05	6.10	68.72	7.14	88.83	8.18	111.49
5.08	51.36	6.12	69.08	7.16	89.25	8.20	111.95
5.10	51.68	6.14	69.45	7.18	89.66	8.22	112.41
5.12	52.00	6.16	69.81	7.20	90.07	8.24	112.87
5.14	52.32	6.18	70.18	7.22	90.49	8.26	113.34
5.16	52.64	6.20	70.55	7.24	90.90	8.28	113.80
5.18	52.96	6.22	70.91	7.26	91.32	8.30	114.27

# ROSEWOOD DITCH CAPACITY

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Type II 24-hr Rainfall=5.85"

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## Reach 3R: PROPOSED CHANNEL (continued)

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
8.32	114.73	9.36	140.38
8.34	115.20	9.38	140.90
8.36	115.67	9.40	141.42
8.38	116.14	9.42	141.94
8.40	116.61	9.44	142.46
8.42	117.08	9.46	142.99
8.44	117.56	9.48	143.51
8.46	118.03	9.50	144.04
8.48	118.50	9.52	144.56
8.50	118.98	9.54	145.09
8.52	119.46	9.56	145.62
8.54	119.93	9.58	146.15
8.56	120.41	9.60	146.68
8.58	120.89	9.62	147.21
8.60	121.37	9.64	147.75
8.62	121.86	9.66	148.28
8.64	122.34	9.68	148.81
8.66	122.82	9.70	149.35
8.68	123.31	9.72	149.89
8.70	123.79	9.74	150.43
8.72	124.28	9.76	150.97
8.74	124.77	9.78	151.51
8.76	125.25	9.80	152.05
8.78	125.74	9.82	152.59
8.80	126.23	9.84	153.13
8.82	126.73	9.86	153.68
8.84	127.22	9.88	154.22
8.86	127.71	9.90	154.77
8.88	128.21	9.92	155.31
8.90	128.70	9.94	155.86
8.92	129.20	9.96	156.41
8.94	129.70	9.98	156.96
8.96	130.20	10.00	157.51
8.98	130.69		
9.00	131.20		
9.02	131.70		
9.04	132.20		
9.06	132.70		
9.08	133.21		
9.10	133.71		
9.12	134.22		
9.14	134.73		
9.16	135.24		
9.18	135.75		
9.20	136.26		
9.22	136.77		
9.24	137.28		
9.26	137.79		
9.28	138.31		
9.30	138.82		
9.32	139.34		
9.34	139.86		

# ROSEWOOD DITCH CAPACITY

Type II 24-hr Rainfall=5.85"

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## Reach 4R: PROPOSED STORM DRAIN

[43] Hint: Has no inflow (Outflow=Zero)

Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.0 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 0.0 fps, Avg. Travel Time= 0.0 min

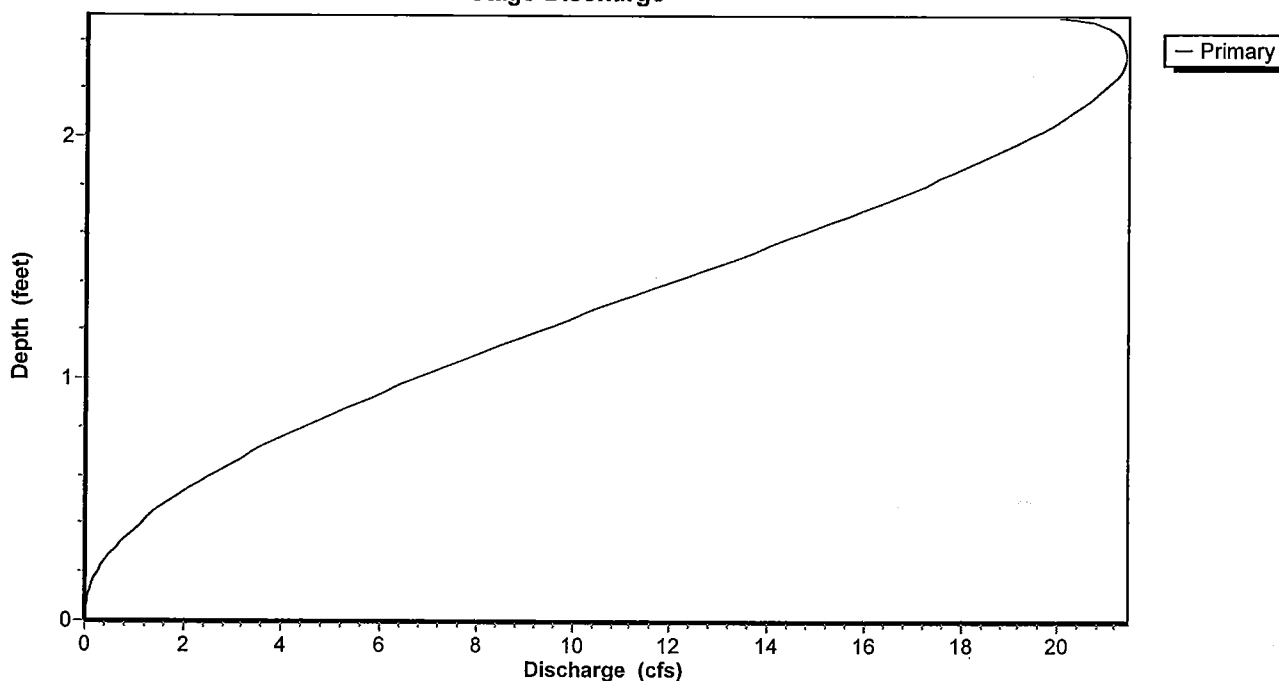
Peak Depth= 0.00'

Capacity at bank full= 19.87 cfs

30.0" Diameter Pipe n= 0.012 Length= 400.0' Slope= 0.0020 '/'

## Reach 4R: PROPOSED STORM DRAIN

Stage-Discharge



# ROSEWOOD DITCH CAPACITY

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Type II 24-hr Rainfall=5.85"

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## Reach 4R: PROPOSED STORM DRAIN

Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)	Elevation (feet)	Discharge (cfs)
0.00	0.00	0.52	1.88	1.04	7.19	1.56	14.16
0.01	0.00	0.53	1.96	1.05	7.32	1.57	14.30
0.02	0.00	0.54	2.03	1.06	7.44	1.58	14.43
0.03	0.00	0.55	2.11	1.07	7.57	1.59	14.57
0.04	0.01	0.56	2.19	1.08	7.70	1.60	14.70
0.05	0.01	0.57	2.27	1.09	7.83	1.61	14.83
0.06	0.02	0.58	2.35	1.10	7.95	1.62	14.97
0.07	0.03	0.59	2.43	1.11	8.08	1.63	15.10
0.08	0.04	0.60	2.51	1.12	8.21	1.64	15.23
0.09	0.05	0.61	2.59	1.13	8.34	1.65	15.36
0.10	0.06	0.62	2.68	1.14	8.47	1.66	15.49
0.11	0.07	0.63	2.77	1.15	8.60	1.67	15.62
0.12	0.09	0.64	2.85	1.16	8.74	1.68	15.75
0.13	0.10	0.65	2.94	1.17	8.87	1.69	15.88
0.14	0.12	0.66	3.03	1.18	9.00	1.70	16.01
0.15	0.14	0.67	3.12	1.19	9.13	1.71	16.13
0.16	0.16	0.68	3.21	1.20	9.27	1.72	16.26
0.17	0.18	0.69	3.31	1.21	9.40	1.73	16.39
0.18	0.21	0.70	3.40	1.22	9.53	1.74	16.51
0.19	0.23	0.71	3.50	1.23	9.67	1.75	16.64
0.20	0.26	0.72	3.59	1.24	9.80	1.76	16.76
0.21	0.29	0.73	3.69	1.25	9.94	1.77	16.88
0.22	0.32	0.74	3.79	1.26	10.07	1.78	17.01
0.23	0.35	0.75	3.89	1.27	10.21	1.79	17.13
0.24	0.38	0.76	3.99	1.28	10.34	1.80	17.25
0.25	0.41	0.77	4.09	1.29	10.48	1.81	17.37
0.26	0.45	0.78	4.20	1.30	10.61	1.82	17.49
0.27	0.49	0.79	4.30	1.31	10.75	1.83	17.60
0.28	0.53	0.80	4.41	1.32	10.89	1.84	17.72
0.29	0.57	0.81	4.51	1.33	11.02	1.85	17.84
0.30	0.61	0.82	4.62	1.34	11.16	1.86	17.95
0.31	0.65	0.83	4.73	1.35	11.30	1.87	18.06
0.32	0.70	0.84	4.84	1.36	11.43	1.88	18.18
0.33	0.74	0.85	4.95	1.37	11.57	1.89	18.29
0.34	0.79	0.86	5.06	1.38	11.71	1.90	18.40
0.35	0.84	0.87	5.17	1.39	11.84	1.91	18.51
0.36	0.89	0.88	5.28	1.40	11.98	1.92	18.61
0.37	0.94	0.89	5.39	1.41	12.12	1.93	18.72
0.38	0.99	0.90	5.51	1.42	12.26	1.94	18.83
0.39	1.05	0.91	5.62	1.43	12.39	1.95	18.93
0.40	1.10	0.92	5.74	1.44	12.53	1.96	19.03
0.41	1.16	0.93	5.86	1.45	12.67	1.97	19.13
0.42	1.22	0.94	5.97	1.46	12.80	1.98	19.23
0.43	1.28	0.95	6.09	1.47	12.94	1.99	19.33
0.44	1.34	0.96	6.21	1.48	13.08	2.00	19.42
0.45	1.40	0.97	6.33	1.49	13.21	2.01	19.52
0.46	1.47	0.98	6.45	1.50	13.35	2.02	19.61
0.47	1.53	0.99	6.57	1.51	13.49	2.03	19.70
0.48	1.60	1.00	6.70	1.52	13.62	2.04	19.79
0.49	1.67	1.01	6.82	1.53	13.76	2.05	19.88
0.50	1.74	1.02	6.94	1.54	13.89	2.06	19.97
0.51	1.81	1.03	7.07	1.55	14.03	2.07	20.05

# ROSEWOOD DITCH CAPACITY

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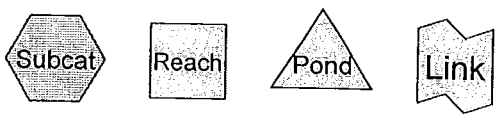
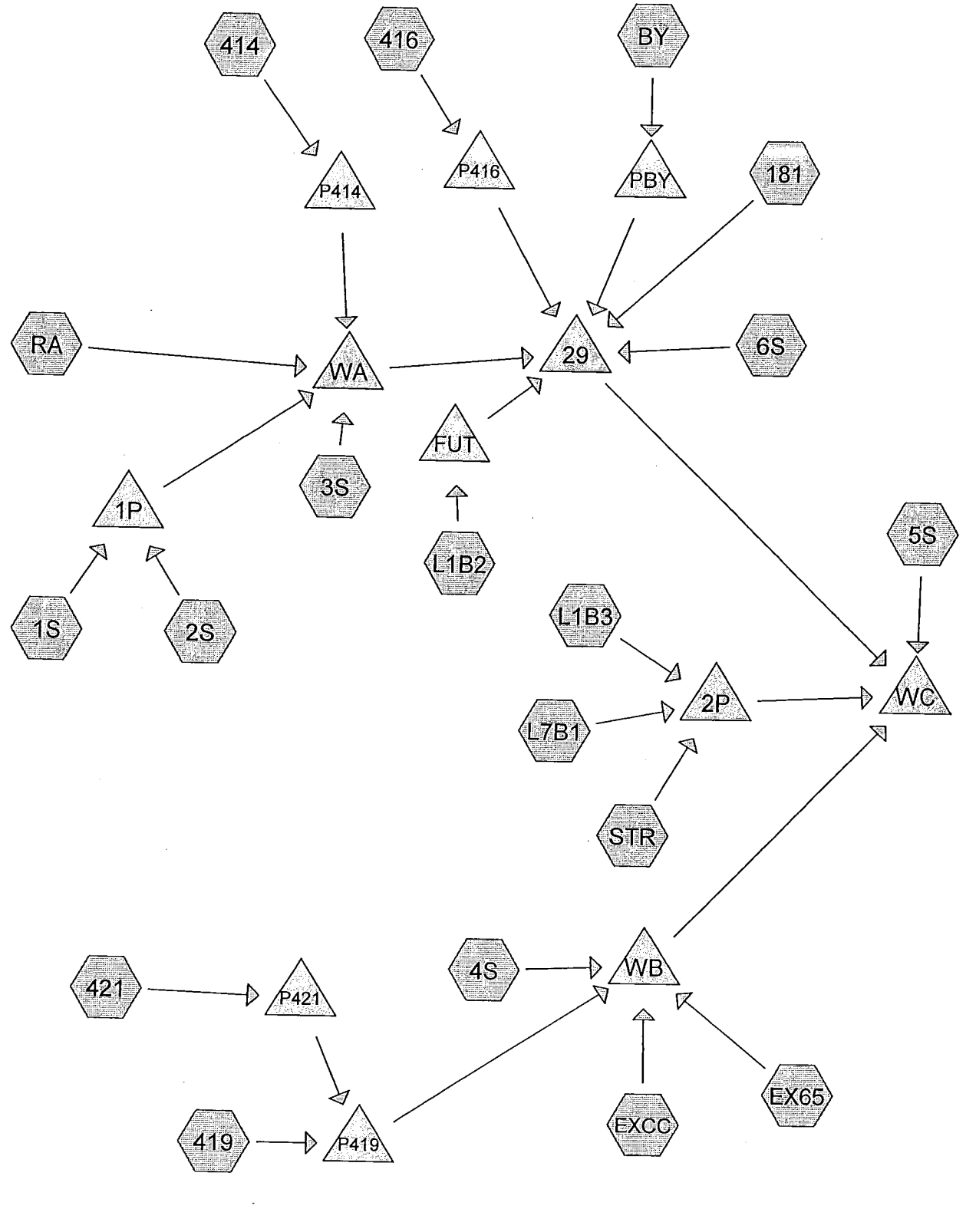
Type II 24-hr Rainfall=5.85"

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## Reach 4R: PROPOSED STORM DRAIN (continued)

Elevation (feet)	Discharge (cfs)
2.08	20.13
2.09	20.21
2.10	20.29
2.11	20.37
2.12	20.44
2.13	20.51
2.14	20.58
2.15	20.65
2.16	20.71
2.17	20.78
2.18	20.84
2.19	20.89
2.20	20.95
2.21	21.00
2.22	21.05
2.23	21.10
2.24	21.14
2.25	21.18
2.26	21.22
2.27	21.25
2.28	21.28
2.29	21.31
2.30	21.33
2.31	21.35
2.32	21.36
2.33	21.37
2.34	21.38
2.35	<b>21.38</b>
2.36	21.37
2.37	21.36
2.38	21.34
2.39	21.32
2.40	21.29
2.41	21.25
2.42	21.21
2.43	21.15
2.44	21.08
2.45	21.00
2.46	20.90
2.47	20.78
2.48	20.62
2.49	20.41
2.50	19.87



**Drainage Diagram for 02587 (6-10-03) Proposed**  
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**02587 (6-10-03) Proposed**

*Type II 24-hr Rainfall=5.85"*

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6/12/2003

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points  
Runoff by SCS TR-20 method, UH=SCS, Type II 24-hr Rainfall=5.85"  
Reach routing by Sim-Route method - Pond routing by Sim-Route method

**Subcatchment 1S: DIRECT RUNOFF TO POND 1**

Tc=8.0 min CN=57 Area=92,650 sf Runoff= 5.39 cfs 0.281 af

**Subcatchment 2S: AREA TO POND 1**

Tc=9.2 min CN=58 Area=142,000 sf Runoff= 8.29 cfs 0.452 af

**Subcatchment 3S: DIRECT RUNOFF TO WETLAND A**

Tc=11.3 min CN=70 Area=6.132 ac Runoff= 24.24 cfs 1.373 af

**Subcatchment 4S: DIRECT RUNOFF TO WETLAND B**

Tc=13.3 min CN=67 Area=9.894 ac Runoff= 32.56 cfs 1.993 af

**Subcatchment 5S: DIRECT RUNOFF TO WETLAND C**

Tc=7.1 min CN=53 Area=69,184 sf Runoff= 3.25 cfs 0.170 af

**Subcatchment 6S: DIRECT TO 29**

Tc=12.0 min CN=49 Area=1.760 ac Runoff= 2.04 cfs 0.147 af

**Subcatchment 181: 181ST AVENUE**

Tc=3.9 min CN=98 Area=0.790 ac Runoff= 7.03 cfs 0.369 af

**Subcatchment 414: 414S FROM CITY CALCS**

Tc=43.3 min CN=72 Area=10.000 ac Runoff= 19.16 cfs 2.393 af

**Subcatchment 416: 416S FROM CITY CALCS**

Tc=40.0 min CN=75 Area=22.760 ac Runoff= 51.10 cfs 5.983 af

**Subcatchment 419: 419S FROM CITY CALCS**

Tc=85.4 min CN=65 Area=127.000 ac Runoff= 111.38 cfs 23.737 af

**Subcatchment 421: 421S FROM CITY CALCS**

Tc=36.2 min CN=67 Area=9.000 ac Runoff= 16.18 cfs 1.813 af

**Subcatchment BY: STREET & BACKYARDS**

Tc=12.4 min CN=77 Area=3.250 ac Runoff= 15.35 cfs 0.907 af

**Subcatchment EX65: OFFSITE HWY 65**

Tc=6.3 min CN=53 Area=347,918 sf Runoff= 16.95 cfs 0.854 af

**Subcatchment EXCC: COUNTRY CREEK 1**

Tc=33.9 min CN=70 Area=21.330 ac Runoff= 45.17 cfs 4.776 af

**Subcatchment L1B2: COMMERCIAL AREA (L1B2)**

Tc=6.0 min CN=83 Area=63,500 sf Runoff= 9.94 cfs 0.480 af

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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**Subcatchment L1B3: COMMERCIAL AREA (L1B3)**

Tc=5.9 min CN=85 Area=106,408 sf Runoff= 17.40 cfs 0.847 af

**Subcatchment L7B1: COMMERCIAL AREA (L7B1)**

Tc=5.2 min CN=81 Area=56,500 sf Runoff= 8.71 cfs 0.405 af

**Subcatchment RA: RUSTIC ACRES**

Tc=19.2 min CN=51 Area=2.500 ac Runoff= 2.63 cfs 0.238 af

**Subcatchment STR: FRONTAGE ROAD (TO POND 2)**

Tc=5.3 min CN=76 Area=44,500 sf Runoff= 6.04 cfs 0.277 af

**Pond 1P: PROPOSED POND 1**

Peak Storage= 107,989 cf Inflow= 13.65 cfs 0.733 af  
Primary= 0.83 cfs 0.698 af Outflow= 0.83 cfs 0.698 af

**Pond 2P: PROPOSED POND 2**

Peak Storage= 48,397 cf Inflow= 32.12 cfs 1.529 af  
Primary= 8.48 cfs 1.526 af Outflow= 8.48 cfs 1.526 af

**Pond 29: Ditch 29**

Peak Storage= 17,570 cf Inflow= 46.02 cfs 11.684 af  
Primary= 20.23 cfs 11.507 af Outflow= 20.23 cfs 11.507 af

**Pond FUT: FUTURE POND (L1B2)**

Peak Storage= 14,678 cf Inflow= 9.94 cfs 0.480 af  
Primary= 5.57 cfs 0.480 af Outflow= 5.57 cfs 0.480 af

**Pond P414: 414P FROM CITY CALCS**

Peak Storage= 1.154 af Inflow= 19.16 cfs 2.393 af  
Primary= 4.06 cfs 2.247 af Outflow= 4.06 cfs 2.247 af

**Pond P416: 416P FROM CITY CALCS**

Peak Storage= 2.148 af Inflow= 51.10 cfs 5.983 af  
Primary= 17.78 cfs 5.663 af Outflow= 17.78 cfs 5.663 af

**Pond P419: 419P FROM CITY CALCS**

Peak Storage= 14.673 af Inflow= 116.02 cfs 25.507 af  
Primary= 17.02 cfs 20.209 af Outflow= 17.02 cfs 20.209 af

**Pond P421: 421P FROM CITY CALCS**

Peak Storage= 0.716 af Inflow= 16.18 cfs 1.813 af  
Primary= 4.64 cfs 1.770 af Outflow= 4.64 cfs 1.770 af

**Pond PBY: BACKYARD POND**

Peak Storage= 19,108 cf Inflow= 15.35 cfs 0.907 af  
Primary= 3.22 cfs 0.884 af Outflow= 3.22 cfs 0.884 af

**Pond WA: WETLAND A**

Peak Storage= 1.970 af Inflow= 26.34 cfs 4.555 af  
Primary= 33.01 cfs 4.140 af Outflow= 33.01 cfs 4.140 af

**Pond WB: WETLAND B**

Peak Storage= 2.274 af Inflow= 66.02 cfs 27.831 af  
Primary= 33.27 cfs 27.069 af Outflow= 33.27 cfs 27.069 af

**Pond WC: WETLAND C**

Peak Storage= 62,717 cf Inflow= 59.16 cfs 40.270 af  
Primary= 59.12 cfs 40.270 af Outflow= 59.12 cfs 40.270 af

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*Type II 24-hr Rainfall=5.85"*

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**Runoff Area = 235.597 ac Volume = 47.495 af Average Depth = 2.42"**

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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**Subcatchment 1S: DIRECT RUNOFF TO POND 1**

Runoff = 5.39 cfs @ 12.01 hrs, Volume= 0.281 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (sf)	CN	Description
21,587	100	POND NWL
65,363	39	>75% Grass cover, Good, HSG A
5,700	98	Paved parking & roofs
92,650	57	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	120	0.0600	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"

**Subcatchment 2S: AREA TO POND 1**

Runoff = 8.29 cfs @ 12.02 hrs, Volume= 0.452 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (sf)	CN	Description
109,000	46	2 acre lots, 12% imp, HSG A
33,000	98	BITUMINOUS
142,000	58	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	180	0.0947	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"

**Subcatchment 3S: DIRECT RUNOFF TO WETLAND A**

Runoff = 24.24 cfs @ 12.04 hrs, Volume= 1.373 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
2.050	39	>75% Grass cover, Good, HSG A
3.912	85	WETLAND
0.170	98	Paved parking & roofs
6.132	70	Weighted Average

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Type II 24-hr Rainfall=5.85"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	195	0.0660	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"

**Subcatchment 4S: DIRECT RUNOFF TO WETLAND B**

Runoff = 32.56 cfs @ 12.06 hrs, Volume= 1.993 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
3.960	39	>75% Grass cover, Good, HSG A
5.844	85	WETLAND
0.090	98	Paved parking & roofs
9.894	67	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.3	180	0.0375	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"

**Subcatchment 5S: DIRECT RUNOFF TO WETLAND C**

Runoff = 3.25 cfs @ 12.00 hrs, Volume= 0.170 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (sf)	CN	Description
48,384	39	>75% Grass cover, Good, HSG A
20,800	85	WETLAND
69,184	53	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	82	0.0366	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"

**Subcatchment 6S: DIRECT TO 29**

Runoff = 2.04 cfs @ 12.06 hrs, Volume= 0.147 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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Area (ac)	CN	Description
1.460	39	>75% Grass cover, Good, HSG A
0.300	98	Paved parking & roofs
1.760	49	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	220	0.0682	0.3		Sheet Flow, sheet Grass: Short n= 0.150 P2= 2.80"

**Subcatchment 181: 181ST AVENUE**

Runoff = 7.03 cfs @ 11.94 hrs, Volume= 0.369 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
0.790	98	STREET

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	500	0.0200	2.1		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps

**Subcatchment 414: 414S FROM CITY CALCS**

Runoff = 19.16 cfs @ 12.41 hrs, Volume= 2.393 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
2.795	100	POND
7.205	61	OPEN SPACES
10.000	72	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.6	500	0.0010	0.5		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
25.7	300	0.0200	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"
43.3	800	Total			

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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**Subcatchment 416: 416S FROM CITY CALCS**

Runoff = 51.10 cfs @ 12.36 hrs, Volume= 5.983 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
1.390	78	SUB #1 (-3.250 AC)
10.090	74	SUB #2
2.710	78	SUB #3
2.540	81	SUB #4
1.980	82	SUB #5
0.890	76	SUB #6
0.000	98	SUB #7 (-0.790 AC)
0.160	98	SUB #8
3.000	60	OPEN SPACE
22.760	75	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
40.0					Direct Entry,

**Subcatchment 419: 419S FROM CITY CALCS**

Runoff = 111.38 cfs @ 13.00 hrs, Volume= 23.737 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
10.160	100	POND
6.350	85	WETLAND
110.490	61	OPEN SPACES
127.000	65	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
59.7	1,700	0.0010	0.5		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
25.7	300	0.0200	0.2		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"
85.4	2,000	Total			

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Type II 24-hr Rainfall=5.85"

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**Subcatchment 421: 421S FROM CITY CALCS**

Runoff = 16.18 cfs @ 12.34 hrs, Volume= 1.813 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
1.404	100	POND
7.596	61	OPEN SPACES
9.000	67	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	300	0.0010	0.5		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps Sheet Flow, Grass: Short n= 0.150 P2= 2.70"
25.7	300	0.0200	0.2		
36.2	600	Total			

**Subcatchment BY: STREET & BACKYARDS**

Runoff = 15.35 cfs @ 12.04 hrs, Volume= 0.907 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
3.250	77	1/8 acre lots, 65% imp, HSG A

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0200	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"
6.3	800	0.0200	2.1		
12.4	850	Total			Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps

**Subcatchment EX65: OFFSITE HWY 65**

Runoff = 16.95 cfs @ 11.99 hrs, Volume= 0.854 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (sf)	CN	Description
267,598	39	>75% Grass cover, Good, HSG A
80,320	98	HIGHWAY 65
347,918	53	Weighted Average



**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	800	0.0200	2.1		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps

**Subcatchment EXCC: COUNTRY CREEK 1**

Runoff = 45.17 cfs @ 12.31 hrs, Volume= 4.776 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
13.320	61	1/4 acre lots, 38% imp, HSG A
7.510	85	WETLAND
0.500	100	POND
21.330	70	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.9	300	0.0100	0.1		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"

**Subcatchment L1B2: COMMERCIAL AREA (L1B2)**

Runoff = 9.94 cfs @ 11.97 hrs, Volume= 0.480 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (sf)	CN	Description
50,000	90	Commercial
10,000	39	>75% Grass cover, Good, HSG A
3,500	100	POND NWL
63,500	83	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	110	0.1000	0.3		Sheet Flow, Grass: Short n= 0.150 P2= 2.70"

**Subcatchment L1B3: COMMERCIAL AREA (L1B3)**

Runoff = 17.40 cfs @ 11.97 hrs, Volume= 0.847 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

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Type II 24-hr Rainfall=5.85"

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Area (sf)	CN	Description
96,408	90	Commercial
10,000	39	>75% Grass cover, Good, HSG A
106,408	85	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9	120	0.1250	0.3		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.70"

**Subcatchment L7B1: COMMERCIAL AREA (L7B1)**

Runoff = 8.71 cfs @ 11.96 hrs, Volume= 0.405 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (sf)	CN	Description
46,500	90	Commercial
10,000	39	>75% Grass cover, Good, HSG A
56,500	81	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	30	0.0200	0.1		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.70"
1.1	100	0.0100	1.5		<b>Shallow Concentrated Flow,</b> Grassed Waterway Kv= 15.0 fps
5.2	130	Total			

**Subcatchment RA: RUSTIC ACRES**

Runoff = 2.63 cfs @ 12.14 hrs, Volume= 0.238 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (ac)	CN	Description
2.500	51	1 acre lots, 20% imp, HSG A

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	250	0.0288	0.2		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 2.70"

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Type II 24-hr Rainfall=5.85"

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**Subcatchment STR: FRONTAGE ROAD (TO POND 2)**

Runoff = 6.04 cfs @ 11.96 hrs, Volume= 0.277 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs  
Type II 24-hr Rainfall=5.85"

Area (sf)	CN	Description
44,500	76	Street and ROW

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	30	0.0200	0.1		Sheet Flow,
					Grass: Short n= 0.150 P2= 2.70"
1.2	150	0.0200	2.1		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
5.3	180	Total			

**Pond 1P: PROPOSED POND 1**

Inflow = 13.65 cfs @ 12.01 hrs, Volume= 0.733 af  
 Outflow = 0.83 cfs @ 13.49 hrs, Volume= 0.698 af, Atten= 94%, Lag= 88.8 min  
 Primary = 0.83 cfs @ 13.49 hrs, Volume= 0.698 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Starting Elev= 903.50' Storage= 93,386 cf  
 Peak Elev= 904.14' Storage= 107,989 cf (14,603 cf above starting storage)  
 Flood Elev= 905.00' Storage= 128,713 cf (35,326 cf above starting storage)  
 Plug-Flow detention time= (not calculated)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
894.00	3,236	0	0
895.00	4,456	3,846	3,846
896.00	5,668	5,062	8,908
897.00	6,737	6,203	15,111
898.00	8,163	7,450	22,561
899.00	9,650	8,907	31,467
900.00	11,145	10,398	41,865
901.00	12,744	11,945	53,809
902.00	14,400	13,572	67,381
902.50	15,529	7,482	74,863
903.00	18,488	8,504	83,368
903.50	21,587	10,019	93,386
904.00	22,886	11,118	104,505
905.00	25,530	24,208	128,713

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Type II 24-hr Rainfall=5.85"

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**Primary OutFlow (Dynamic Tailwater)**



#	Routing	Invert	Outlet Devices
1	Device 2	903.50'	0.50' x 1.38' Vert. Orifice/Grate C= 0.600
2	Primary	902.30'	15.0" x 45.0' long Culvert Ke= 0.500 Outlet Invert= 902.20' S= 0.0022 ' /' n= 0.012 Cc= 0.900

**Pond 2P: PROPOSED POND 2**

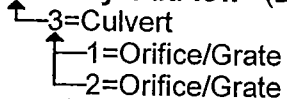
Inflow = 32.12 cfs @ 11.97 hrs, Volume= 1.529 af  
 Outflow = 8.48 cfs @ 12.10 hrs, Volume= 1.526 af, Atten= 74%, Lag= 8.1 min  
 Primary = 8.48 cfs @ 12.10 hrs, Volume= 1.526 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Starting Elev= 900.75' Storage= 21,725 cf  
 Peak Elev= 903.06' Storage= 48,397 cf (26,671 cf above starting storage)  
 Flood Elev= 904.00' Storage= 61,776 cf (40,051 cf above starting storage)  
 Plug-Flow detention time= 266.5 min calculated for 1.027 af (67% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
895.00	827	0	0
896.00	1,671	1,249	1,249
897.00	2,591	2,131	3,380
898.00	3,608	3,100	6,480
899.00	4,689	4,149	10,628
899.75	5,248	3,726	14,354
900.00	6,409	1,457	15,812
900.75	9,361	5,914	21,725
901.00	9,811	2,397	24,122
902.00	11,674	10,743	34,864
903.00	13,554	12,614	47,478
904.00	15,042	14,298	61,776

**Primary OutFlow (Dynamic Tailwater)**



#	Routing	Invert	Outlet Devices
1	Device 3	900.75'	0.75' x 2.35' Vert. Orifice/Grate C= 0.600
2	Device 3	903.10'	48.0" Horiz. Orifice/Grate Limited to weir flow C= 0.600
3	Primary	900.00'	18.0" x 38.0' long Culvert Ke= 0.500 Outlet Invert= 899.70' S= 0.0079 ' /' n= 0.012 Cc= 0.900

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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**Pond 29: Ditch 29**

[86] Warning: Oscillations may require smaller dt

[80] Warning: Exceeded Pond P416 by 1.02' @ 9.09 hrs (5.36 cfs)

[80] Warning: Exceeded Pond PBY by 0.01' @ 14.83 hrs (0.41 cfs)

[80] Warning: Exceeded Pond WA by 0.88' @ 12.57 hrs (105.91 cfs)

Inflow = 46.02 cfs @ 14.94 hrs, Volume= 11.684 af  
 Outflow = 20.23 cfs @ 13.23 hrs, Volume= 11.507 af, Atten= 56%, Lag= 0.0 min  
 Primary = 20.23 cfs @ 13.23 hrs, Volume= 11.507 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Peak Elev= 902.10' Storage= 17,570 cf

Plug-Flow detention time= 27.6 min calculated for 11.504 af (98% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
896.76	0	0	0
898.00	935	580	580
899.00	2,063	1,499	2,079
900.00	3,246	2,655	4,733
901.00	5,200	4,223	8,956
902.00	9,430	7,315	16,271
903.00	17,559	13,495	29,766
904.00	21,675	19,617	49,383

**Primary OutFlow (Dynamic Tailwater)**

←1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	896.76'	<b>30.0" x 395.0' long Culvert</b> Ke= 0.610 Outlet Invert= 895.97' S= 0.0020 '/ n= 0.012 Cc= 0.900

**Pond FUT: FUTURE POND (L1B2)**

Inflow = 9.94 cfs @ 11.97 hrs, Volume= 0.480 af  
 Outflow = 5.57 cfs @ 12.06 hrs, Volume= 0.480 af, Atten= 44%, Lag= 5.1 min  
 Primary = 5.57 cfs @ 12.06 hrs, Volume= 0.480 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Starting Elev= 902.00' Storage= 9,077 cf

Peak Elev= 903.25' Storage= 14,678 cf (5,601 cf above starting storage)

Flood Elev= 904.00' Storage= 18,690 cf (9,613 cf above starting storage)

Plug-Flow detention time= 245.3 min calculated for 0.272 af (57% of inflow)

Storage and wetted areas determined by Prismatic sections

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Type II 24-hr Rainfall=5.85"

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
898.00	992	0	0
899.00	1,534	1,263	1,263
900.00	2,188	1,861	3,124
901.00	2,951	2,570	5,694
902.00	3,816	3,384	9,077
903.00	4,781	4,299	13,376
904.00	5,848	5,315	18,690

**Primary OutFlow (Dynamic Tailwater)**

- 1=Culvert
- 2=Orifice/Grate
- 3=Orifice/Grate

#	Routing	Invert	Outlet Devices
1	Primary	899.00'	<b>15.0" x 20.0' long Culvert</b> Ke= 0.500 Outlet Invert= 898.50' S= 0.0250 '/' n= 0.012 Cc= 0.900
2	Device 1	902.00'	<b>1.25' x 1.25' Vert. Orifice/Grate</b> C= 0.600
3	Device 1	903.25'	<b>48.0" Horiz. Orifice/Grate</b> Limited to weir flow C= 0.600

**Pond P414: 414P FROM CITY CALCS**

[86] Warning: Oscillations may require smaller dt

Inflow = 19.16 cfs @ 12.41 hrs, Volume= 2.393 af  
 Outflow = 4.06 cfs @ 13.42 hrs, Volume= 2.247 af, Atten= 79%, Lag= 60.7 min  
 Primary = 4.06 cfs @ 13.42 hrs, Volume= 2.247 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Peak Elev= 902.18' Storage= 1.154 af  
 Flood Elev= 906.50' Storage= 11.270 af  
 Plug-Flow detention time= 277.3 min calculated for 2.247 af (94% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
901.00	0.000	0.000	0.000
902.50	1.960	1.470	1.470
904.50	2.520	4.480	5.950
906.50	2.800	5.320	11.270

**Primary OutFlow (Dynamic Tailwater)**

- 1=Culvert
- 2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	901.00'	<b>18.0" x 55.0' long Culvert</b> Ke= 0.500 Outlet Invert= 900.80' S= 0.0036 '/' n= 0.012 Cc= 0.900
2	Device 1	901.00'	<b>30.0' long Broad-Crested Rectangular Weir</b>

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Head (feet) 0.50  
Coef. (English) 3.00

**Pond P416: 416P FROM CITY CALCS**

[86] Warning: Oscillations may require smaller dt

Inflow = 51.10 cfs @ 12.36 hrs, Volume= 5.983 af  
Outflow = 17.78 cfs @ 12.95 hrs, Volume= 5.663 af, Atten= 65%, Lag= 34.9 min  
Primary = 17.78 cfs @ 12.95 hrs, Volume= 5.663 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Starting Elev= 897.87' Storage= 0.061 af  
Peak Elev= 902.66' Storage= 2.148 af (2.087 af above starting storage)  
Flood Elev= 903.50' Storage= 5.306 af (5.245 af above starting storage)  
Plug-Flow detention time= 97.3 min calculated for 5.600 af (94% of inflow)  
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
895.70	0.000	0.000	0.000
897.30	0.030	0.024	0.024
899.00	0.100	0.111	0.135
900.50	0.120	0.165	0.300
902.20	0.710	0.706	1.005
902.50	2.830	0.531	1.536
903.50	4.710	3.770	5.306

Primary OutFlow (Dynamic Tailwater)  
↑1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	897.87'	30.0" x 68.0' long Culvert Ke= 0.500 Outlet Invert= 897.68' S= 0.0028 '/ n= 0.012 Cc= 0.900

**Pond P419: 419P FROM CITY CALCS**

[86] Warning: Oscillations may require smaller dt

Inflow = 116.02 cfs @ 13.00 hrs, Volume= 25.507 af  
Outflow = 17.02 cfs @ 16.36 hrs, Volume= 20.209 af, Atten= 85%, Lag= 201.8 min  
Primary = 17.02 cfs @ 16.36 hrs, Volume= 20.209 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Peak Elev= 902.27' Storage= 14.673 af  
Plug-Flow detention time= 494.6 min calculated for 20.204 af (79% of inflow)  
Storage and wetted areas determined by Prismatic sections

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
900.00	6.300	0.000	0.000
900.40	6.400	2.540	2.540
900.80	6.400	2.560	5.100
901.20	6.500	2.580	7.680
901.60	6.500	2.600	10.280
902.00	6.600	2.620	12.900
902.40	6.700	2.660	15.560
902.80	6.700	2.680	18.240
903.20	6.800	2.700	20.940
903.60	6.800	2.720	23.660
904.00	6.900	2.740	26.400

**Primary OutFlow (Dynamic Tailwater)**

↑ 2=Culvert  
 ↑ 1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Device 2	900.00'	<b>30.0' long Broad-Crested Rectangular Weir</b> Head (feet) 0.50 Coef. (English) 3.00
2	Primary	900.00'	<b>24.0" x 50.0' long Culvert</b> Ke= 0.500 Outlet Invert= 899.50' S= 0.0100 '/' n= 0.012 Cc= 0.900

**Pond P421: 421P FROM CITY CALCS**

Inflow = 16.18 cfs @ 12.34 hrs, Volume= 1.813 af  
 Outflow = 4.64 cfs @ 13.01 hrs, Volume= 1.770 af, Atten= 71%, Lag= 39.9 min  
 Primary = 4.64 cfs @ 13.01 hrs, Volume= 1.770 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Peak Elev= 904.36' Storage= 0.716 af  
 Plug-Flow detention time= 163.0 min calculated for 1.769 af (98% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
902.90	0.000	0.000	0.000
904.90	0.980	0.980	0.980
906.90	1.260	2.240	3.220
908.90	1.400	2.660	5.880

**Primary OutFlow (Dynamic Tailwater)**

↑ 1=Culvert  
 ↑ 2=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	902.90'	<b>15.0" x 55.0' long Culvert</b> Ke= 0.500 Outlet Invert= 902.66' S= 0.0044 '/' n= 0.012 Cc= 0.900



**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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2 Device 1 902.90' **30.0' long Broad-Crested Rectangular Weir**  
 Head (feet) 0.50  
 Coef. (English) 3.00

**Pond PBY: BACKYARD POND**

[86] Warning: Oscillations may require smaller dt

Inflow = 15.35 cfs @ 12.04 hrs, Volume= 0.907 af  
 Outflow = 3.22 cfs @ 12.17 hrs, Volume= 0.884 af, Atten= 79%, Lag= 7.7 min  
 Primary = 3.22 cfs @ 12.17 hrs, Volume= 0.884 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Starting Elev= 899.00' Storage= 0 cf  
 Peak Elev= 902.12' Storage= 19,108 cf  
 Flood Elev= 904.50' Storage= 54,750 cf  
 Plug-Flow detention time= 201.8 min calculated for 0.884 af (98% of inflow)  
 Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
900.85	0	0	0
904.50	30,000	54,750	54,750

**Primary OutFlow (Dynamic Tailwater)**

↑1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	900.85'	<b>18.0" x 78.0' long Culvert</b> Ke= 0.500 Outlet Invert= 899.34' S= 0.0194 '/' n= 0.012 Cc= 0.900

**Pond WA: WETLAND A**

[88] Warning: Qout&gt;Qin may require smaller dt

[86] Warning: Oscillations may require smaller dt

Inflow = 26.34 cfs @ 12.04 hrs, Volume= 4.555 af  
 Outflow = 33.01 cfs @ 14.94 hrs, Volume= 4.140 af, Atten= 0%, Lag= 173.7 min  
 Primary = 33.01 cfs @ 14.94 hrs, Volume= 4.140 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Peak Elev= 901.71' Storage= 1.970 af  
 Flood Elev= 904.50' Storage= 7.433 af  
 Plug-Flow detention time= 210.2 min calculated for 4.139 af (91% of inflow)  
 Storage and wetted areas determined by Prismatic sections

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
900.70	0.000	0.000	0.000
903.35	3.912	5.183	5.183

**Primary OutFlow (Dynamic Tailwater)**

↑1=Broad-Crested Rectangular Weir

#	Routing	Invert	Outlet Devices
1	Primary	900.90'	<b>30.0' long Broad-Crested Rectangular Weir</b> Head (feet) 0.50 Coef. (English) 3.00

**Pond WB: WETLAND B**

[86] Warning: Oscillations may require smaller dt

[80] Warning: Exceeded Pond P419 by 0.84' @ 12.32 hrs (4.63 cfs)

Inflow	=	66.02 cfs @ 12.06 hrs,	Volume=	27.831 af
Outflow	=	33.27 cfs @ 12.58 hrs,	Volume=	27.069 af, Atten= 50%, Lag= 31.6 min
Primary	=	33.27 cfs @ 12.58 hrs,	Volume=	27.069 af

Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Peak Elev= 901.02' Storage= 2.274 af

Flood Elev= 904.50' Storage= 19.095 af

Plug-Flow detention time= 62.3 min calculated for 27.062 af (97% of inflow)

Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
895.00	0.000	0.000	0.000
897.00	0.160	0.160	0.160
900.70	0.160	0.592	0.752
905.00	9.494	20.756	21.508

**Primary OutFlow (Dynamic Tailwater)**

↑1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	895.18'	<b>60.0" x 110.0' long Culvert</b> Ke= 0.500 Outlet Invert= 895.00' S= 0.0016 '/ n= 0.012 Cc= 0.900

**Pond WC: WETLAND C**

[80] Warning: Exceeded Pond 29 by 3.94' @ 0.00 hrs (27.06 cfs)

[80] Warning: Exceeded Pond WB by 5.70' @ 9.13 hrs (131.15 cfs)

Inflow	=	59.16 cfs @ 12.55 hrs,	Volume=	40.270 af
Outflow	=	59.12 cfs @ 12.58 hrs,	Volume=	40.270 af, Atten= 0%, Lag= 1.9 min
Primary	=	59.12 cfs @ 12.58 hrs,	Volume=	40.270 af

**02587 (6-10-03) Proposed**

Type II 24-hr Rainfall=5.85"

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Routing by Sim-Route method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Starting Elev= 900.70' Storage= 58,998 cf

Peak Elev= 900.89' Storage= 62,717 cf (3,719 cf above starting storage)

Flood Elev= 904.50' Storage= 184,907 cf (125,908 cf above starting storage)

Plug-Flow detention time= 51.6 min calculated for 38.906 af (97% of inflow)

Storage and wetted areas determined by Prismatic sections

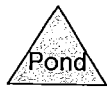
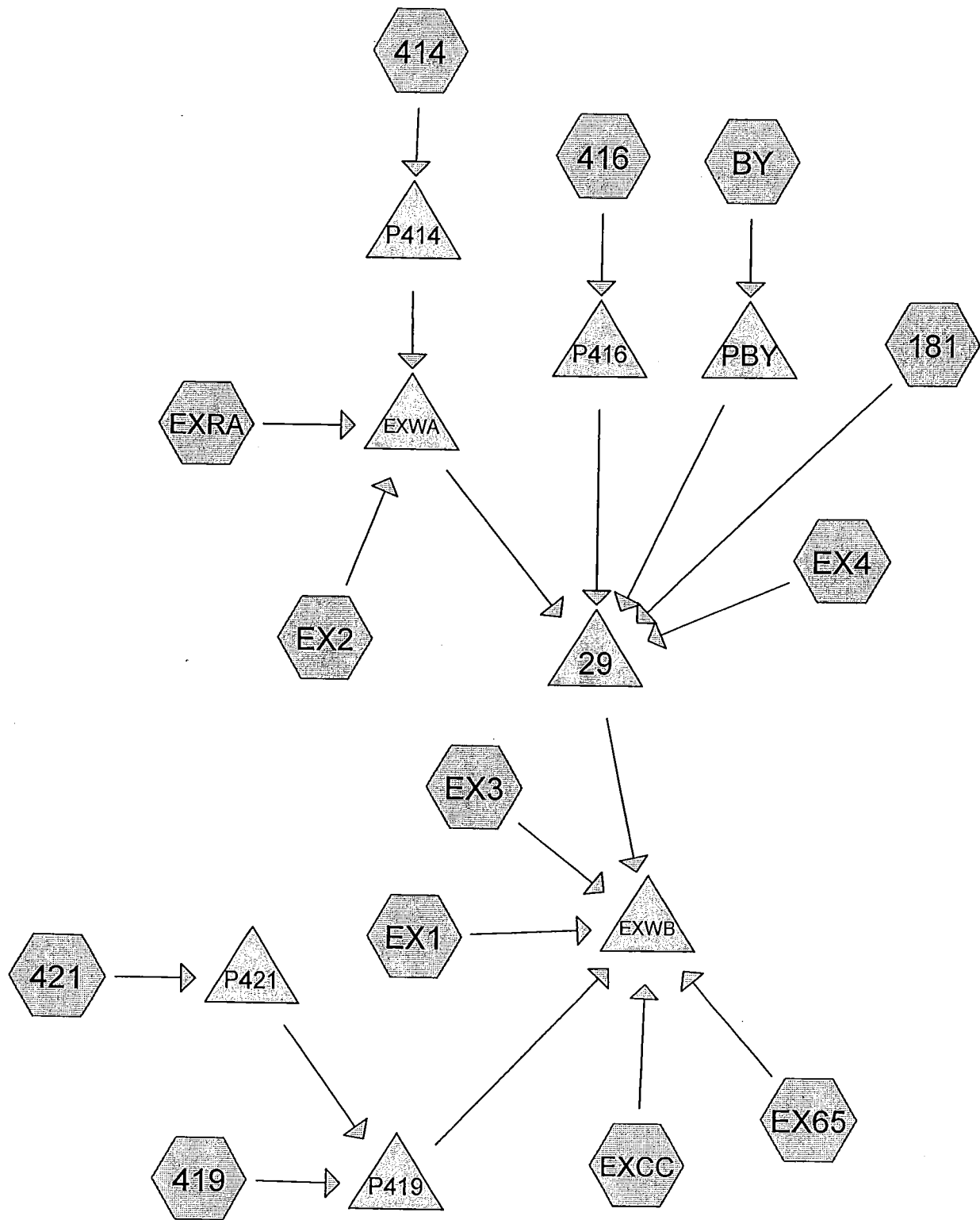
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
895.00	501	0	0
896.00	4,553	2,527	2,527
897.00	7,604	6,079	8,606
898.00	10,677	9,141	17,746
899.00	13,815	12,246	29,992
900.00	17,004	15,410	45,402
901.00	21,844	19,424	64,826
902.00	31,413	26,629	91,454
903.00	37,525	34,469	125,923
904.00	41,120	39,323	165,246

**Primary OutFlow (Dynamic Tailwater)**

↑ 2=Special (user-defined)

↑ 1=Culvert

#	Routing	Invert	Outlet Devices
1	Device 2	895.00'	<b>72.0" x 100.0' long Culvert</b> Ke= 0.500 Outlet Invert= 895.00' S= 0.0000 '/' n= 0.012 Cc= 0.900
2	Primary	895.00'	<b>Special (user-defined)</b> Head (feet) 0.00 5.70 5.80 5.90 6.00 6.10 6.20 6.30 6.40 6.50 6.60 6.70 6.80 Disch. (cfs) 0.00 0.00 42.61 60.66 74.57 86.10 96.27 105.45 113.90 121.77 12



**Drainage Diagram for 02587 (6-10-03) Existing**  
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