Cole and ASSOCIATES INCORPORATED

2008

OK JB 2-4-08

STORM WATER MANAGEMENT REPORT FOR 2, 15, 25, AND 100 YEAR STORMS

Meadowlands-Phase I

12/26/07

STATE OF MISSOURI
WILLIAM J. COBB
NUMBER PE-2004017146
PROFESSIONAL ENGINEER

Prepared For:	New Covenant Health Care LL 47 Cambrian Way St. Charles, MO 63301
Prepared By:	Cole & Associates Inc. 10777 Sunset Office Drive St. Louis, MO 63127
Date:	December 14, 2007
Job #:	06-0086

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PURPOSE OF THE REPORT

The purpose of this report is to present the hydraulic analysis for the 2, 15, 25 and 100-year 20 minute storm events as required by the City of O'Fallon for the Belleau Creek Watershed. The site will consist of a senior community and commercial development. The Rational Method, using the runoff factors outlined in Section 405.23 of the City of O'Fallon's Subdivision and Land Development Code. The detention volume and routing calculations were all performed with the computer software program "Pond Pack" by Haestad Methods.

METHOD OF ANALYSIS

The Phase I project area that is included in with the design of this detention basin consists of approximately 9.34 acres. The acreage includes 7.96 acres contributing to the basin and 1.38 acres which bypasses the basin. The contributing area consists of 60% impervious area, including the building and parking lots and 40% green space. The by-pass area consists of 70% impervious area and 30% green space.

The existing runoff release rates were based on the runoff rates as outlined in Section 405.23. A summary of the existing and proposed release rates, as well as the detention required for the site is summarized below and detailed in the attached exhibits

DETENTION DESIGN

As stated above, this report is for the detention of the commercial development containing 9.34 acres into the Belleau Creek watershed. A concrete outflow structure as shown on the construction plans and as outlined in the Pond Pack results will consist of a low flow orifice and weir sized to pass the 2, 15, 25 and 100 year storm events. The release structure is modeled using free outfall conditions with level pool routing. An overflow device will be placed at the top of the release structure in order to pass 100 year storms in the event of a blocked low-flow orifice condition. The top of berm elevation of the basin is 510.00. The water surface elevation for the basin during each event is detailed within this report and as shown on the improvement plans.

SUMMARY OF CALCULATIONS

Existing Conditions – 9.34 Acres

Storm Event	Buildings/Gravel (1.13 Acres)	Greenspace (8.21 Acres)	Total
2 Yr	1.13x1.61=1.82cfs	8.21x1.15=9.44cfs	11.26cfs
15 Yr	1.13x2.42=2.73cfs	8.21x1.87=15.35cfs	18.08cfs
25 Yr	1.13x2.99=3.38cfs	8.21x2.31=18.97cfs	22.35cfs
100 Yr	1.13x3.82=4.32cfs	8.21x2.95=24.22cfs	28.54cfs

Postdeveloped Conditions

Contributing to Basin – 7.96 Acres

Storm Event	Impervious (4.77 Acres)	Greenspace (3.19 Acres)	Total
2 Yr	4.77x2.39=11.40cfs	3.19x1.15=3.66cfs	15.06cfs
15 Yr	4.77x3.85=18.36cfs	3.19x1.87=5.96cfs	24.32cfs
25 Yr	4.77x4.75=22.65cfs	3.19x2.31=7.36cfs	30.01cfs
100 Yr	4.77x6.08=29.00cfs	3.19x2.95=9.41cfs	38.41cfs

Bypass – 1.38 Acres

Storm Event	Impervious (0.96 Acres)	Greenspace (0.42 Acres)	Total
2 Yr	0.96x2.39=2.29cfs	0.42x1.15=0.48cfs	2.77cfs
15 Yr	0.96x3.85=3.69cfs	0.42x1.87=0.79cfs	4.48cfs
25 Yr	0.96x4.75=4.56cfs	0.42x2.31=0.97cfs	5.53cfs
100 Yr	0.96x6.08=5.83cfs	0.42x2.95=1.24cfs	7.07cfs

Total Release from Outlet

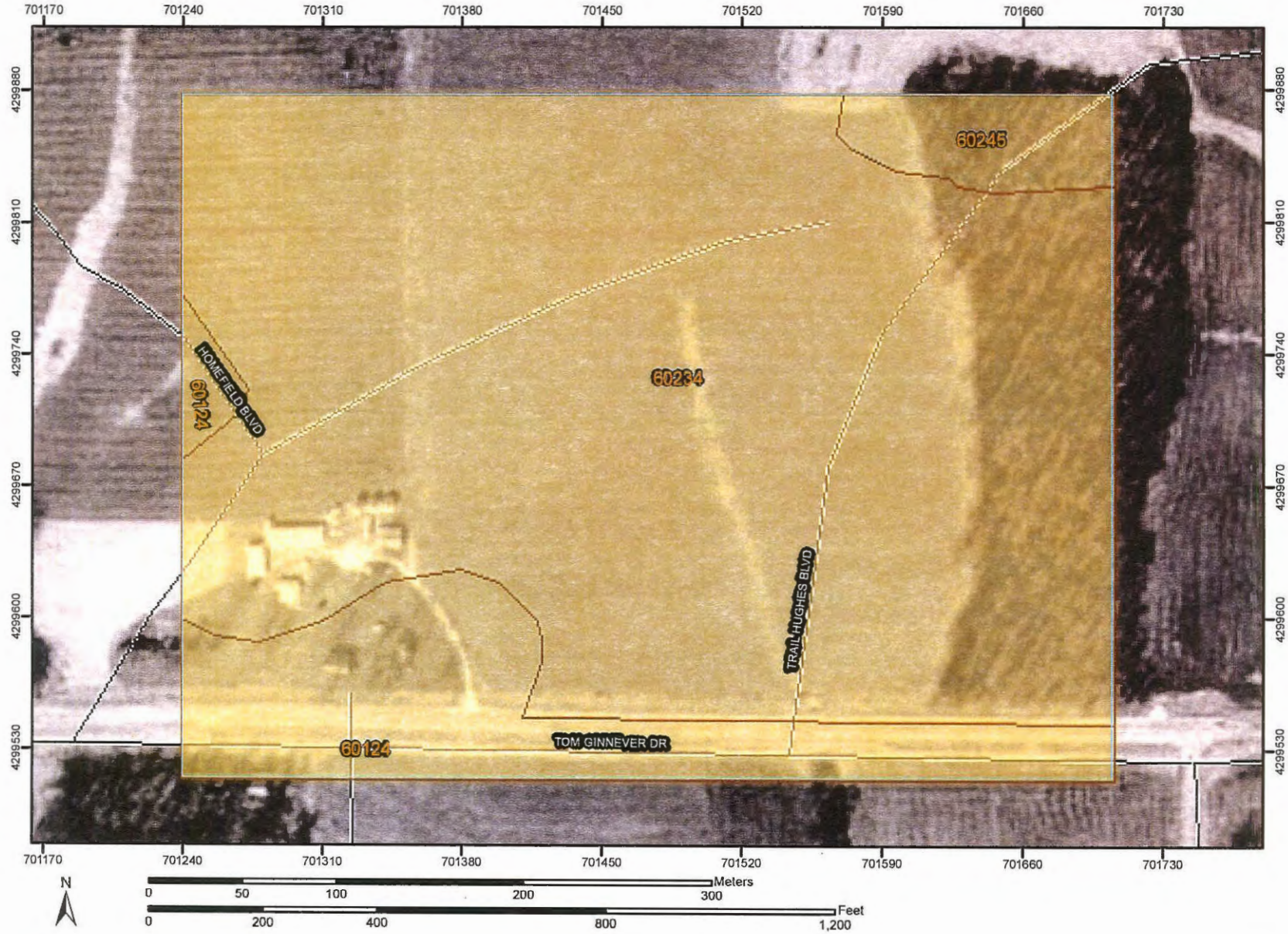
Strom Event	Pond Outflow	Elevation	Total Outflow(w/ bypass)
2 Yr	8.18	505.39	10.93 ✓
15 Yr	10.56	506.62	14.86 ✓
25 Yr	15.18	507.15	20.43 ✓
100 Yr	21.63	507.73	28.54 ✓
100 Yr (Low Flow Blocked)	37.45	508.26	44.52

The soils map and pre and post conditions are attached in Exhibit A. A copy of the Drainage Area Map for the project and the detention size and release structures are included within the improvement plans.

The Pond Pack reports for the proposed conditions are attached in the Exhibits following this report.

EXHIBIT A

SOILS MAP
EXISTING CONDITIONS
DETENTION AREA
SCHEMATICS OF CONTROL STRUCTURE


701170
701240
701310
701380
701450
701520
701590
701660
701730
4299880
4299810
4299740
4299670
4299600
4299530
60245
60234
60124
HOMEFIELD BLVD
TRAIL HUGHES BLVD
TOM GINNEVER DR
N
Meters
0
50
100
200
300
Feet
0
200
400
800
1,200

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Soil Ratings
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Political Features

Municipalities
- Cities
- Urban Areas

Water Features
- Oceans
- Streams and Canals

Transportation
- Rails

Roads
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 15N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: St Charles County, Missouri
Survey Area Data: Version 7, Nov 1, 2007

Date(s) aerial images were photographed: 1996

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — St Charles County, Missouri				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
60124	Harvester-Urban land complex, 2 to 9 percent slopes	C	6.9	15.7%
60234	Weller silt loam, 2 to 5 percent slopes	C	35.7	80.7%
60245	Winfield silt loam, 9 to 14 percent slopes	C	1.6	3.7%
Totals for Area of Interest (AOI)			44.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

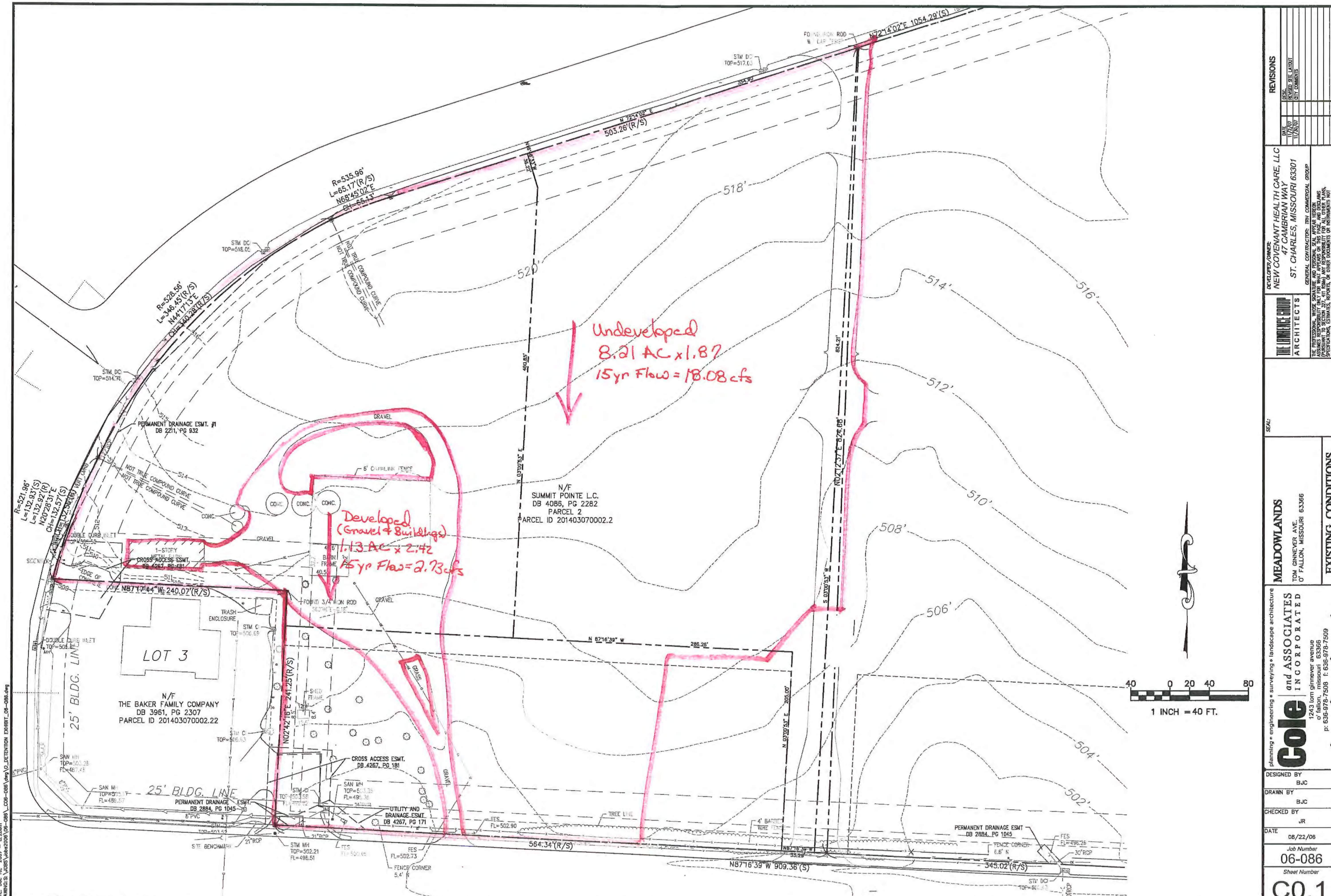
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

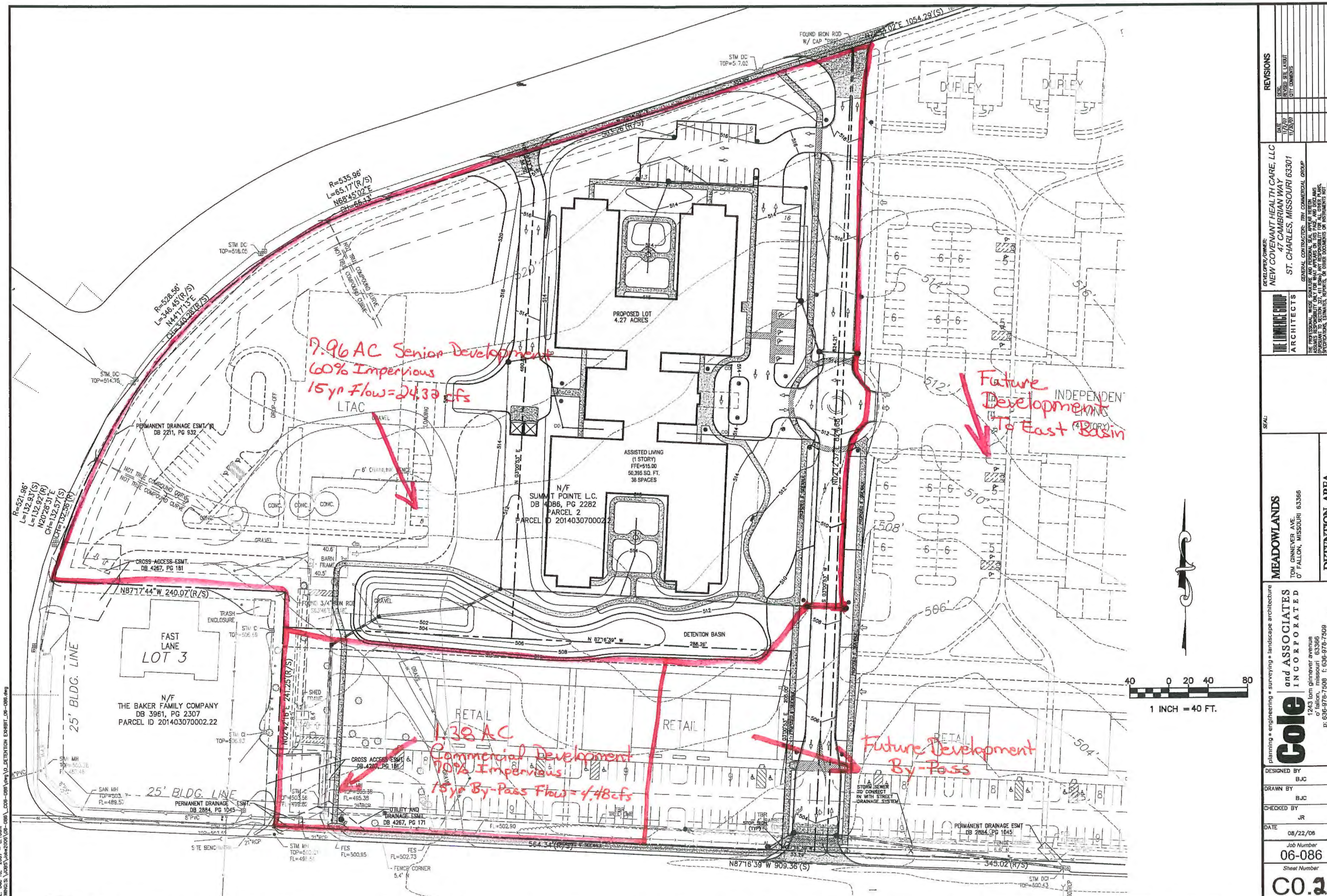
Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

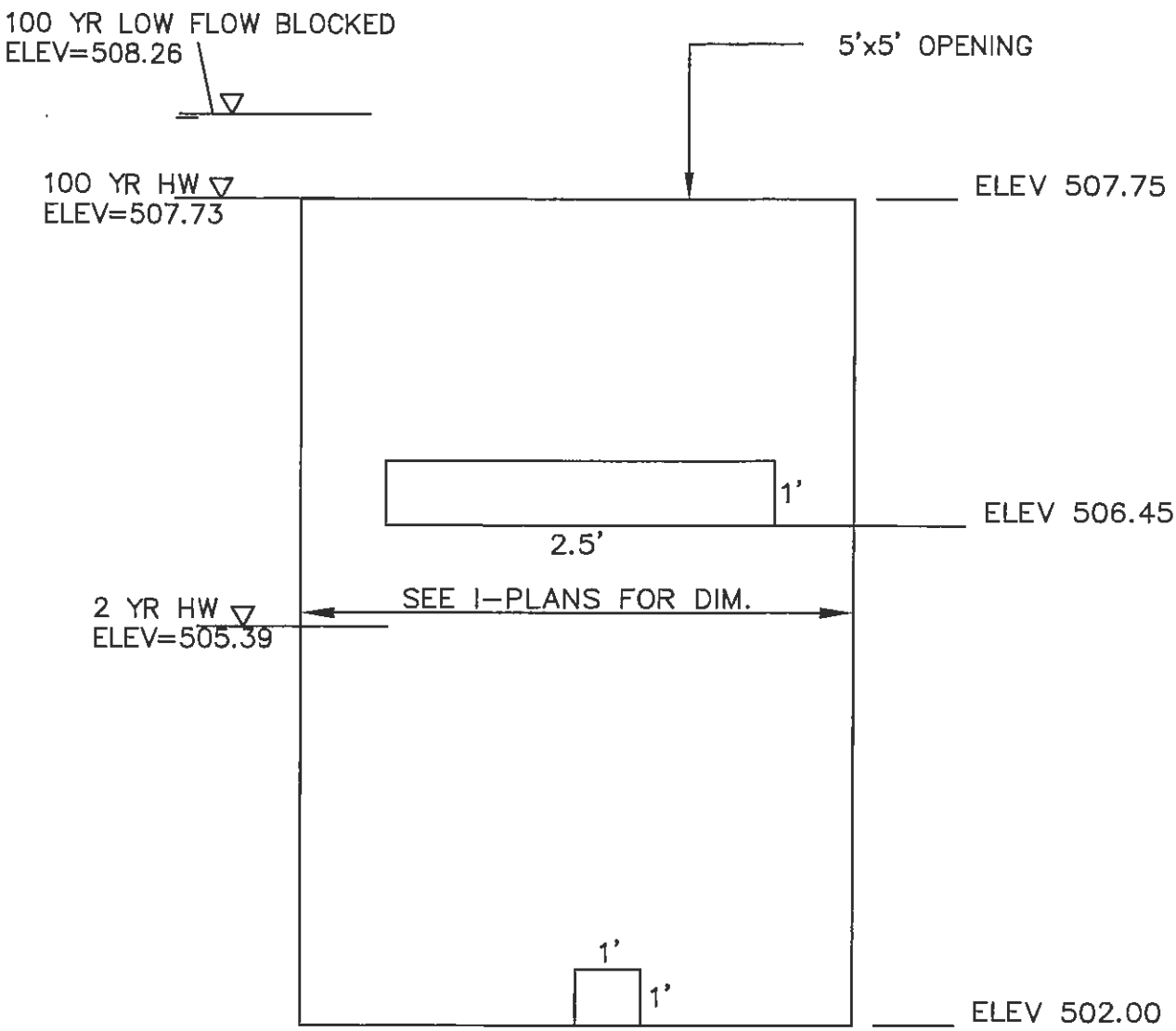
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.



Undeveloped
8.21 AC x 1.87
15yr Flow = 18.08 cfs
Developed
(Gravel & Buildings)
1.13 AC x 2.42
15yr Flow = 2.73 cfs
N/F
SUMMIT POINTE L.C.
DB 4086, PG 2282
PARCEL 2
PARCEL ID 201403070002.2
LOT 3
N/F
THE BAKER FAMILY COMPANY
DB 3961, PG 2307
PARCEL ID 201403070002.22
25' BLDG. LINE
PERMANENT DRAINAGE ESMT. #1
DB 2211, PG 932
CROSS ACCESS ESMT.
DB 4267, PG 181
PERMANENT DRAINAGE ESMT.
DB 2884, PG 1045
UTILITY AND DRAINAGE ESMT
DB 4267, PG 171
NOT TRUE COMPOUND CURVE
1-STORY METAL BLDG.
GRAVEL
CONC.
6' CHAINLINK FENCE
TRASH ENCLOSURE
TREE LINE
SITE BENCHMARK
N72°14'02"E 1054.29'(S)
503.26'(R/S)
R=535.96'
L=65.17'(R/S)
N68°45'02"E
CH=65.13'
R=528.56'
L=346.45'(R/S)
N44°17'13"E
CH=340.28'(R/S)
R=521.96'
L=132.93'(S)
132.92'(R)
N20°28'31"E
CH=132.57'(S)
N87°17'44"W 240.07'(R/S)
N02°42'16"E 241.25'(R/S)
N 87°16'39" W
564.34'(R/S)
N87°16'39"W 909.36'(S)
345.02'(R/S)
518'
520'
516'
514'
512'
510'
508'
506'
504'
502'
40 0 20 40 80
1 INCH = 40 FT.
REVISIONS
DEVELOPER/OWNER:
NEW COVENANT HEALTH CARE, LLC
47 CAMBRIAN WAY
ST. CHARLES, MISSOURI 63301
GENERAL CONTRACTOR: TRH COMMERCIAL GROUP
THE LAWRENCE GROUP ARCHITECTS
MEADOWLANDS
TOM GINNEVER AVE.
O'FALLON, MISSOURI 63366
EXISTING CONDITIONS
Cole and ASSOCIATES INCORPORATED
planning • engineering • surveying • landscape architecture
1243 tom ginnever avenue
o'fallon, missouri 63366
p: 636-978-7508 f: 636-978-7509
DESIGNED BY BJC
DRAWN BY BJC
CHECKED BY JR
DATE 08/22/06
Job Number 06-086
Sheet Number C0.1


7.96 AC Senior Development
60% Impervious
15yr Flow=24.32 cfs
1.38 AC
Commercial Development
70% Impervious
15yr By-Pass Flow=4.48 cfs
Future Development To East Basin
Future Development By-Pass
PROPOSED LOT
4.27 ACRES
ASSISTED LIVING
(1 STORY)
FFE=515.00
50,395 SQ. FT.
38 SPACES
N/F
SUMMIT POINTE L.C.
DB 4086, PG 2282
PARCEL 2
PARCEL ID 201403070002
DETENTION BASIN
N 87°16'39" W
288.26'
LTAC
DUPLEX
DUPLEX
INDEPENDENT LIVING
RETAIL
RETAIL
RETAIL
FAST LANE
LOT 3
N/F
THE BAKER FAMILY COMPANY
DB 3961, PG 2307
PARCEL ID 201403070002.22
25' BLDG. LINE
25' BLDG. LINE
PERMANENT DRAINAGE ESMT.
DB 2211, PG 932
CROSS ACCESS ESMT.
DB 4267, PG 181
PERMANENT DRAINAGE ESMT.
DB 2884, PG 1045
UTILITY AND DRAINAGE ESMT.
DB 4267, PG 171
N87°17'44" W 240.07'(R/S)
N02°42'16" E 241.25'(R/S)
564.34'(R/S)
N87°16'39 W 909.36'(S)
345.02'(R/S)
R=535.96'
L=65.17'(R/S)
N68°45'02"E
CH=65.13'
R=528.56'
L=346.45'(R/S)
N44°17'13"E
CH=340.28'(R/S)
R=521.96'
L=132.93'(S)
L=132.92'(R)
N20°28'31"E
CH=132.57'(S)
CH=132.56'(R)
1054.29'(S)
FOUND IRON ROD W/ CAP
STM DC TOP=517.03
STM DC TOP=516.05
STM DC TOP=514.75
NOT TRUE COMPOUND CURVE
TRASH ENCLOSURE
BARN FRAME
FOUND 3/4" IRON ROD
CONC.
GRAVEL
6' CHAINLINK FENCE
SHED FRAME
SITE BENCHMARK
SAN MH
STM MH
FES FL=500.85
FES FL=502.73
FENCE CORNER 5.4'
STORM SEWER TO CONNECT IN WITH STREET DRAINAGE SYSTEM
40 0 20 40 80
1 INCH = 40 FT.
REVISIONS
DATE 11/2/07 11/30/07
DESC. REVISED SITE LAYOUT CITY COMMENTS
DEVELOPER/OWNER: NEW COVENANT HEALTH CARE, LLC
47 CAMBRIAN WAY
ST. CHARLES, MISSOURI 63301
GENERAL CONTRACTOR: TRH COMMERCIAL GROUP
THE LAWRENCE GROUP ARCHITECTS
MEADOWLANDS
TOM GINNEVER AVE.
O'FALLON, MISSOURI 63366
DETENTION AREA
planning • engineering • surveying • landscape architecture
Cole and ASSOCIATES INCORPORATED
1243 tom ginnever avenue
o'fallon, missouri 63366
p: 636-978-7508 f: 636-978-7509
DESIGNED BY BJC
DRAWN BY BJC
CHECKED BY JR
DATE 08/22/06
Job Number 06-086
Sheet Number C0.2
LAYOUT: EXP OF AREA
DATE: Dec 10, 2007 - 8:10am



ABOVE GROUND BASIN RELEASE STRUCTURE

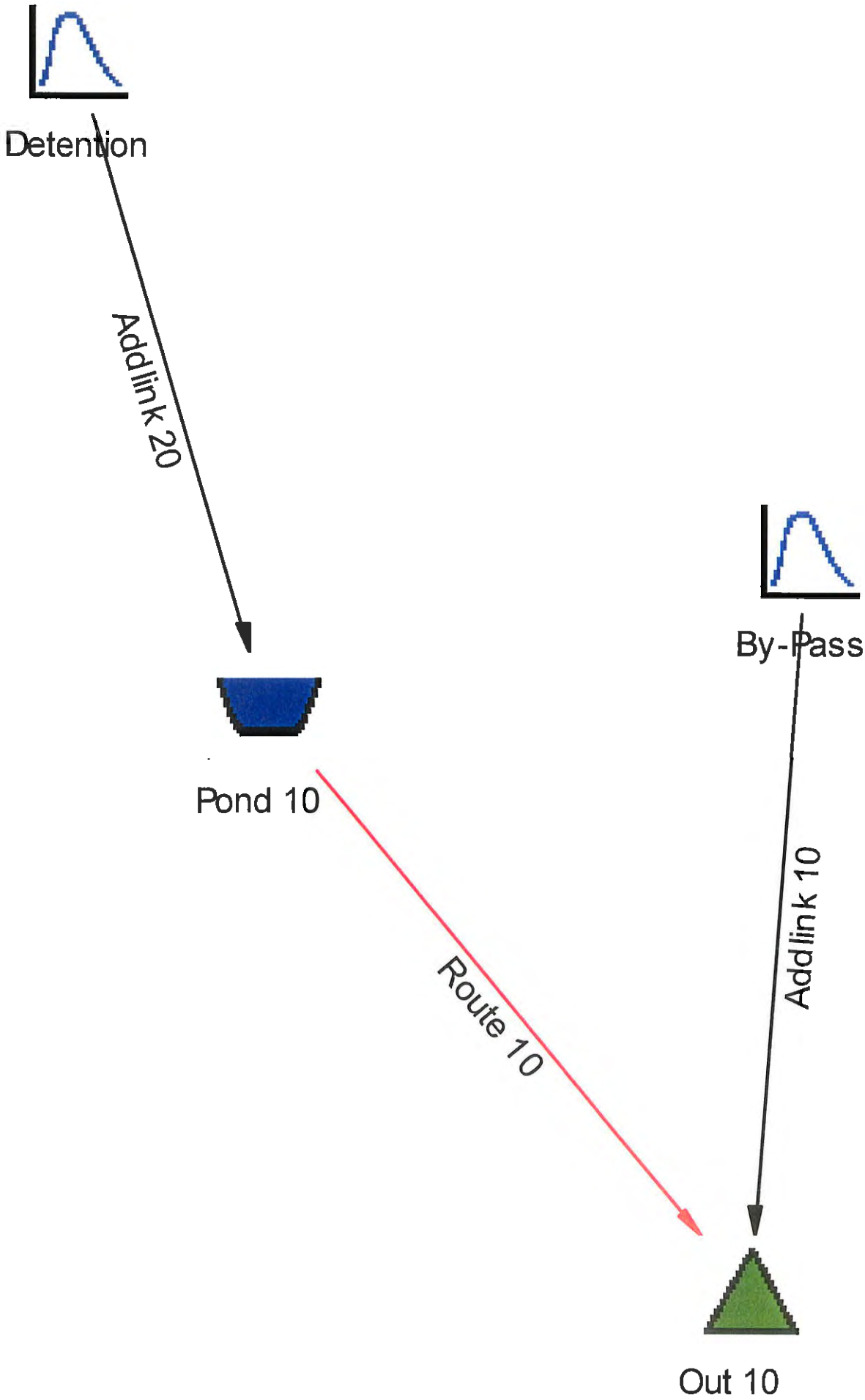
planning • engineering • surveying • landscape architecture
Cole and ASSOCIATES INCORPORATED
10777 sunset office drive
saint louis, missouri 63127
p: 314 984 9887 f: 314 984 0587

Project: MEADOWLANDS PHASE I

Addendum Dwg No.
Project No. 06-086
Date: 12/14/07
Reference drawing:
Sheet

EXHIBIT B

2, 15, 25, & 100 YEAR STORM EVENT ROUTING


Detention
Addlink 20
By-Pass
Pond 10
Route 10
Addlink 10
Out 10

==========
JOB TITLE
==========

Project Date: 8/28/2006
Project Engineer: Cole & Associates
Project Title: Meadowlands
Project Comments:
Proposed

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********** RUNOFF HYDROGRAPHS **********

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Read HYG 3.01

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Read HYG 3.02

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BY-PASS..... 100
Read HYG 3.04

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********** HYG ADDITION **********

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Node: Addition Summary 4.07

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POND 10 OUT 2
Time-Elev 5.01

POND 10 OUT 15
Time-Elev 5.02

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MASTER DESIGN STORM SUMMARY

Hydrograph Queue Only Network

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method
Hydrograph File Import Option Used For 2 node(s)

(*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 min	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
BY-PASS		HYG	100	8060		1.00	7.07		
BY-PASS		HYG	25	6304		1.00	5.53		
BY-PASS		HYG	15	5107		1.00	4.48		
BY-PASS		HYG	2	3158		1.00	2.77		
DETENTION		HYG	100	43787		1.00	38.41		
DETENTION		HYG	25	34200		1.00	30.00		
DETENTION		HYG	15	27725		1.00	24.32		
DETENTION		HYG	2	17168		1.00	15.06		
*OUT 10		JCT	100	51847		19.00	28.54		
*OUT 10		JCT	25	40504		19.00	20.43		
*OUT 10		JCT	15	32832		19.00	14.86		
*OUT 10		JCT	2	20326		19.00	10.93		
POND 10	IN	POND	100	43787		1.00	38.41		
POND 10	IN	POND	25	34200		1.00	30.00		
POND 10	IN	POND	15	27725		1.00	24.32		
POND 10	IN	POND	2	17168		1.00	15.06		
POND 10	OUT	POND	100	43787		19.50	21.63	507.73	29722
POND 10	OUT	POND	25	34200		19.50	15.18	507.15	23369
POND 10	OUT	POND	15	27725		19.50	10.56	506.62	18385
POND 10	OUT	POND	2	17168		19.50	8.18	505.39	9352

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

	Node ID		Type	HYG Vol cu.ft	Trun.	Qpeak min	Qpeak cfs	Max WSEL ft
	BY-PASS		HYG	3158		1.00	2.77	
	DETENTION		HYG	17168		1.00	15.06	
Outfall	OUT 10		JCT	20326		19.00	10.93	
	POND 10	IN	POND	17168		1.00	15.06	
	POND 10	OUT	POND	17168		19.50	8.18	505.39

NETWORK RUNOFF NODE SEQUENCE

Runoff Data	Apply to Node		Receiving Link	
Read HYGDETENTION	HYG Qin	DETENTION	Add Hyd	DETENTION
Read HYGBY-PASS	HYG Qin	BY-PASS	Add Hyd	BY-PASS

NETWORK ROUTING SEQUENCE

Link Operation	UPstream Node	DNstream Node
Add Hyd ADDLINK 20	HYG Qin DETENTION	Pond POND 10 IN
POND ROUTE TOTAL OUTFLOW...		
Total Pond Outflow	Pond POND 10 IN	Outflow POND 10 OUT
SET POND ROUTING LINK TO TOTAL POND OUTFLOW...		
Outlet ROUTE 10	Outflow POND 10 OUT	Jct OUT 10
Add Hyd ADDLINK 10	HYG Qin BY-PASS	Jct OUT 10

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

	Node ID		Type	HYG Vol cu.ft	Trun.	Qpeak min	Qpeak cfs	Max WSEL ft
	BY-PASS		HYG	5107		1.00	4.48	
	DETENTION		HYG	27725		1.00	24.32	
Outfall	OUT 10		JCT	32832		19.00	14.86	
	POND 10	IN	POND	27725		1.00	24.32	
	POND 10	OUT	POND	27725		19.50	10.56	506.62

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

	Node ID		Type	HYG Vol cu.ft	Trun.	Qpeak min	Qpeak cfs	Max WSEL ft
	BY-PASS		HYG	6304		1.00	5.53	
	DETENTION		HYG	34200		1.00	30.00	
Outfall	OUT 10		JCT	40504		19.00	20.43	
	POND 10	IN	POND	34200		1.00	30.00	
	POND 10	OUT	POND	34200		19.50	15.18	507.15

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

	Node ID		Type	HYG Vol cu.ft	Trun.	Qpeak min	Qpeak cfs	Max WSEL ft
	BY-PASS		HYG	8060		1.00	7.07	
	DETENTION		HYG	43787		1.00	38.41	
Outfall	OUT 10		JCT	51847		19.00	28.54	
	POND 10	IN	POND	43787		1.00	38.41	
	POND 10	OUT	POND	43787		19.50	21.63	507.73

HYG file =
HYG ID = 2yr bypass
HYG Tag =

Peak Discharge =	2.77 cfs
Time to Peak =	1.00 min
HYG Volume =	3158 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	2.77	2.77	2.77	2.77
5.00	2.77	2.77	2.77	2.77	2.77
10.00	2.77	2.77	2.77	2.77	2.77
15.00	2.77	2.77	2.77	2.77	2.77
20.00	.00				

HYG file =
HYG ID = 15yr bypass
HYG Tag =

Peak Discharge =	4.48 cfs
Time to Peak =	1.00 min
HYG Volume =	5107 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	4.48	4.48	4.48	4.48
5.00	4.48	4.48	4.48	4.48	4.48
10.00	4.48	4.48	4.48	4.48	4.48
15.00	4.48	4.48	4.48	4.48	4.48
20.00	.00				

HYG file =
HYG ID = 25yr bypass
HYG Tag =

Peak Discharge =	5.53 cfs
Time to Peak =	1.00 min
HYG Volume =	6304 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	5.53	5.53	5.53	5.53
5.00	5.53	5.53	5.53	5.53	5.53
10.00	5.53	5.53	5.53	5.53	5.53
15.00	5.53	5.53	5.53	5.53	5.53
20.00	.00				

HYG file =
HYG ID = 15 year
HYG Tag = 15yr

Peak Discharge =	24.32 cfs
Time to Peak =	1.00 min
HYG Volume =	27725 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	24.32	24.32	24.32	24.32
5.00	24.32	24.32	24.32	24.32	24.32
10.00	24.32	24.32	24.32	24.32	24.32
15.00	24.32	24.32	24.32	24.32	24.32
20.00	.00				

HYG file =
HYG ID = 25 year
HYG Tag = 25

Peak Discharge =	30.00 cfs
Time to Peak =	1.00 min
HYG Volume =	34200 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	30.00	30.00	30.00	30.00
5.00	30.00	30.00	30.00	30.00	30.00
10.00	30.00	30.00	30.00	30.00	30.00
15.00	30.00	30.00	30.00	30.00	30.00
20.00	.00				

TOTAL NODE INFLOW...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = OUT 10
HYG Tag = 2

Peak Discharge =	10.93 cfs
Time to Peak =	19.00 min
HYG Volume =	20326 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	3.36	6.22	6.86	7.46
2.50	7.76	7.98	8.20	8.41	8.62
5.00	8.76	8.88	8.99	9.11	9.22
7.50	9.33	9.44	9.55	9.64	9.72
10.00	9.80	9.87	9.95	10.03	10.10
12.50	10.18	10.25	10.32	10.39	10.45
15.00	10.50	10.56	10.61	10.66	10.72
17.50	10.77	10.82	10.87	10.93	9.57
20.00	8.15	8.09	8.03	7.97	7.91
22.50	7.85	7.79	7.73	7.68	7.62
25.00	7.55	7.47	7.40	7.33	7.26
27.50	7.19	7.12	7.05	6.98	6.92
30.00	6.85	6.78	6.69	6.60	6.51
32.50	6.43	6.35	6.26	6.18	6.10
35.00	6.02	5.94	5.84	5.72	5.59
37.50	5.47	5.35	5.23	5.12	5.00
40.00	4.89	4.74	4.48	4.24	4.01
42.50	3.79	3.58	3.34	2.77	2.31
45.00	1.92	1.19	.26	.05	.01
47.50	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: S:\JOBS\Jobs2006\06-086\Data-C\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	BY-PASS	work_pad.hyg	15yr bypass	
ROUTE 10	POND 10 IN	work_pad.hyg	ROUTE 10	15

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	15yr bypass		5107	1.00	4.48
work_pad.hyg	ROUTE 10	15	27725	19.50	10.56

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	OUT 10	15	32832	19.00	14.86

TOTAL NODE INFLOW...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = OUT 10
HYG Tag = 15

Peak Discharge =	14.86 cfs
Time to Peak =	19.00 min
HYG Volume =	32832 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	4.60	8.42	9.39	9.82
2.50	10.23	10.53	10.77	11.01	11.24
5.00	11.42	11.59	11.75	11.92	12.08
7.50	12.21	12.33	12.45	12.57	12.69
10.00	12.81	12.91	13.00	13.10	13.19
12.50	13.28	13.37	13.46	13.54	13.61
15.00	13.68	13.76	13.83	13.90	13.97
17.50	14.04	14.19	14.53	14.86	12.80
20.00	10.46	10.22	9.98	9.75	9.63
22.50	9.55	9.50	9.46	9.41	9.37
25.00	9.32	9.28	9.23	9.19	9.15
27.50	9.10	9.06	9.01	8.96	8.91
30.00	8.86	8.81	8.75	8.70	8.65
32.50	8.60	8.55	8.50	8.45	8.40
35.00	8.35	8.29	8.23	8.17	8.11
37.50	8.05	7.99	7.93	7.87	7.81
40.00	7.76	7.70	7.64	7.58	7.50
42.50	7.43	7.36	7.29	7.22	7.15
45.00	7.08	7.01	6.94	6.88	6.81
47.50	6.72	6.63	6.55	6.46	6.38
50.00	6.29	6.21	6.13	6.05	5.97
52.50	5.89	5.77	5.64	5.51	5.39
55.00	5.28	5.16	5.05	4.93	4.83
57.50	4.58	4.33	4.09	3.87	3.66
60.00	3.46	2.98	2.48	2.06	1.71
62.50	.40	.09	.02	.00	.00

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: S:\JOBS\Jobs2006\06-086\Data-C\

Upstream Link ID	Upstream Node ID		HYG file	HYG ID	HYG tag
ADDLINK 10	BY-PASS		work_pad.hyg	25yr bypass	
ROUTE 10	POND 10	IN	work_pad.hyg	ROUTE 10	25

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	25yr bypass		6304	1.00	5.53
work_pad.hyg	ROUTE 10	25	34200	19.50	15.18

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	OUT 10	25	40504	19.00	20.43

TOTAL NODE INFLOW...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = OUT 10
HYG Tag = 25

Peak Discharge =	20.43 cfs
Time to Peak =	19.00 min
HYG Volume =	40504 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	5.37	9.76	10.68	11.22
2.50	11.62	11.93	12.24	12.49	12.71
5.00	12.93	13.15	13.32	13.48	13.64
7.50	13.81	13.95	14.07	14.20	14.33
10.00	14.45	14.57	14.67	14.77	14.87
12.50	14.96	15.06	15.23	15.70	16.16
15.00	16.61	17.05	17.48	17.90	18.31
17.50	18.71	19.27	19.86	20.43	17.94
20.00	14.90	14.36	13.83	13.33	13.00
22.50	12.70	12.40	12.11	11.83	11.56
25.00	11.29	11.03	10.77	10.52	10.28
27.50	10.04	9.80	9.65	9.56	9.51
30.00	9.47	9.42	9.38	9.33	9.29
32.50	9.24	9.20	9.16	9.11	9.07
35.00	9.03	8.98	8.92	8.87	8.82
37.50	8.77	8.72	8.66	8.61	8.56
40.00	8.51	8.46	8.41	8.36	8.31
42.50	8.25	8.19	8.12	8.06	8.00
45.00	7.94	7.89	7.83	7.77	7.71
47.50	7.65	7.59	7.52	7.45	7.38
50.00	7.30	7.23	7.16	7.10	7.03
52.50	6.96	6.89	6.83	6.74	6.66
55.00	6.57	6.48	6.40	6.31	6.23
57.50	6.15	6.07	5.99	5.91	5.80
60.00	5.67	5.54	5.42	5.30	5.19
62.50	5.07	4.96	4.85	4.65	4.39
65.00	4.15	3.92	3.71	3.50	3.12
67.50	2.59	2.16	1.79	.71	.15
70.00	.03	.01	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: S:\JOBS\Jobs2006\06-086\Data-C\

Upstream Link ID	Upstream Node ID		HYG file	HYG ID	HYG tag
ADDLINK 10	BY-PASS		work_pad.hyg	100yr bypass	
ROUTE 10	POND 10	IN	work_pad.hyg	ROUTE 10	100

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	100yr bypass		8060	1.00	7.07
work_pad.hyg	ROUTE 10	100	43787	19.50	21.63

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	OUT 10	100	51847	19.00	28.54

TOTAL NODE INFLOW...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = OUT 10
HYG Tag = 100

Peak Discharge =	28.54 cfs
Time to Peak =	19.00 min
HYG Volume =	51847 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	6.49	11.75	12.57	13.16
2.50	13.58	13.97	14.27	14.57	14.83
5.00	15.05	15.28	15.48	15.66	15.83
7.50	16.01	16.16	16.30	16.44	16.58
10.00	16.86	17.52	18.17	18.81	19.43
12.50	20.03	20.78	21.68	22.55	23.38
15.00	24.19	24.96	25.71	26.43	26.98
17.50	27.38	27.78	28.16	28.54	25.17
20.00	21.37	20.90	20.45	20.00	19.48
22.50	18.77	18.09	17.43	16.79	16.18
25.00	15.59	15.03	14.48	13.95	13.44
27.50	13.07	12.76	12.47	12.18	11.90
30.00	11.62	11.35	11.09	10.83	10.58
32.50	10.33	10.09	9.86	9.67	9.57
35.00	9.52	9.48	9.43	9.39	9.34
37.50	9.30	9.25	9.21	9.17	9.12
40.00	9.08	9.03	8.99	8.94	8.88
42.50	8.83	8.78	8.73	8.68	8.63
45.00	8.57	8.52	8.47	8.42	8.37
47.50	8.32	8.26	8.20	8.14	8.08
50.00	8.02	7.96	7.90	7.84	7.78
52.50	7.72	7.67	7.61	7.54	7.46
55.00	7.39	7.32	7.25	7.18	7.11
57.50	7.04	6.97	6.91	6.84	6.76
60.00	6.68	6.59	6.50	6.42	6.33
62.50	6.25	6.17	6.09	6.01	5.93
65.00	5.83	5.70	5.57	5.45	5.33
67.50	5.21	5.10	4.99	4.88	4.71
70.00	4.45	4.20	3.97	3.76	3.55
72.50	3.25	2.70	2.25	1.87	1.00
75.00	.22	.05	.01	.00	

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	502.00	502.58	503.02	503.24	503.46
2.50	503.58	503.68	503.78	503.88	503.98
5.00	504.05	504.12	504.18	504.24	504.30
7.50	504.37	504.43	504.49	504.54	504.59
10.00	504.64	504.69	504.73	504.78	504.83
12.50	504.87	504.92	504.96	505.01	505.05
15.00	505.08	505.12	505.16	505.20	505.23
17.50	505.27	505.30	505.34	505.38	505.39
20.00	505.37	505.33	505.29	505.25	505.20
22.50	505.16	505.12	505.08	505.05	505.01
25.00	504.96	504.92	504.87	504.83	504.78
27.50	504.74	504.70	504.65	504.61	504.57
30.00	504.53	504.48	504.43	504.39	504.34
32.50	504.29	504.25	504.20	504.16	504.11
35.00	504.07	504.03	503.98	503.92	503.86
37.50	503.80	503.75	503.69	503.64	503.59
40.00	503.54	503.48	503.38	503.30	503.21
42.50	503.14	503.06	502.98	502.82	502.68
45.00	502.56	502.35	502.08	502.02	502.00
47.50	502.00				

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	502.00	502.69	503.19	503.54	503.74
2.50	503.93	504.09	504.22	504.35	504.47
5.00	504.58	504.69	504.79	504.89	504.99
7.50	505.08	505.17	505.25	505.33	505.42
10.00	505.50	505.57	505.64	505.71	505.78
12.50	505.85	505.91	505.98	506.04	506.10
15.00	506.16	506.22	506.28	506.33	506.39
17.50	506.45	506.50	506.55	506.59	506.62
20.00	506.61	506.57	506.54	506.51	506.47
22.50	506.44	506.40	506.36	506.33	506.29
25.00	506.25	506.22	506.18	506.15	506.11
27.50	506.08	506.04	506.01	505.97	505.93
30.00	505.89	505.85	505.81	505.77	505.74
32.50	505.70	505.66	505.62	505.59	505.55
35.00	505.51	505.47	505.43	505.39	505.34
37.50	505.30	505.26	505.22	505.18	505.14
40.00	505.10	505.06	505.02	504.98	504.93
42.50	504.89	504.84	504.80	504.76	504.71
45.00	504.67	504.63	504.58	504.54	504.50
47.50	504.45	504.41	504.36	504.31	504.26
50.00	504.22	504.17	504.13	504.09	504.04
52.50	504.00	503.94	503.88	503.82	503.77
55.00	503.71	503.66	503.61	503.56	503.51
57.50	503.42	503.33	503.24	503.17	503.09
60.00	503.02	502.88	502.73	502.60	502.50
62.50	502.12	502.03	502.01	502.00	502.00

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	502.00	502.77	503.30	503.65	503.91
2.50	504.11	504.28	504.45	504.60	504.73
5.00	504.87	505.01	505.12	505.23	505.35
7.50	505.46	505.56	505.66	505.75	505.84
10.00	505.94	506.03	506.11	506.19	506.27
12.50	506.34	506.42	506.50	506.56	506.63
15.00	506.69	506.75	506.81	506.87	506.93
17.50	506.99	507.04	507.08	507.13	507.15
20.00	507.13	507.08	507.04	507.00	506.96
22.50	506.92	506.88	506.84	506.80	506.76
25.00	506.72	506.69	506.65	506.61	506.58
27.50	506.55	506.51	506.48	506.44	506.41
30.00	506.37	506.34	506.30	506.26	506.23
32.50	506.19	506.16	506.12	506.09	506.05
35.00	506.02	505.98	505.94	505.90	505.86
37.50	505.82	505.78	505.75	505.71	505.67
40.00	505.63	505.59	505.56	505.52	505.48
42.50	505.44	505.40	505.35	505.31	505.27
45.00	505.23	505.19	505.15	505.11	505.07
47.50	505.03	504.99	504.94	504.90	504.85
50.00	504.81	504.77	504.72	504.68	504.64
52.50	504.59	504.55	504.51	504.47	504.42
55.00	504.37	504.32	504.28	504.23	504.19
57.50	504.14	504.10	504.05	504.01	503.95
60.00	503.90	503.84	503.78	503.73	503.67
62.50	503.62	503.57	503.52	503.44	503.35
65.00	503.27	503.18	503.11	503.04	502.92
67.50	502.76	502.63	502.53	502.21	502.04
70.00	502.01	502.00	502.00		

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	502.00	502.87	503.45	503.82	504.11
2.50	504.34	504.56	504.74	504.93	505.10
5.00	505.26	505.41	505.56	505.69	505.82
7.50	505.95	506.07	506.18	506.29	506.41
10.00	506.51	506.60	506.70	506.78	506.87
12.50	506.96	507.03	507.10	507.17	507.24
15.00	507.30	507.36	507.42	507.47	507.53
17.50	507.57	507.62	507.67	507.71	507.73
20.00	507.70	507.64	507.59	507.54	507.48
22.50	507.43	507.38	507.32	507.27	507.23
25.00	507.18	507.14	507.09	507.05	507.01
27.50	506.97	506.93	506.89	506.85	506.81
30.00	506.77	506.73	506.69	506.66	506.62
32.50	506.59	506.55	506.52	506.49	506.45
35.00	506.42	506.38	506.34	506.31	506.27
37.50	506.24	506.20	506.16	506.13	506.09
40.00	506.06	506.02	505.99	505.95	505.91
42.50	505.87	505.83	505.79	505.75	505.72
45.00	505.68	505.64	505.60	505.57	505.53
47.50	505.49	505.45	505.41	505.36	505.32
50.00	505.28	505.24	505.20	505.16	505.12
52.50	505.08	505.04	505.00	504.95	504.91
55.00	504.86	504.82	504.78	504.73	504.69
57.50	504.65	504.60	504.56	504.52	504.48
60.00	504.43	504.38	504.33	504.29	504.24
62.50	504.20	504.15	504.11	504.06	504.02
65.00	503.97	503.91	503.85	503.79	503.74
67.50	503.69	503.63	503.58	503.53	503.46
70.00	503.37	503.28	503.20	503.13	503.05
72.50	502.96	502.79	502.66	502.55	502.29
75.00	502.06	502.01	502.00	502.00	

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	0	61	332	606	975
2.50	1251	1510	1795	2107	2444
5.00	2720	2973	3230	3490	3752
7.50	4016	4283	4552	4789	5019
10.00	5250	5482	5716	5952	6189
12.50	6427	6667	6908	7143	7350
15.00	7558	7767	7977	8187	8399
17.50	8612	8825	9039	9254	9352
20.00	9214	8963	8718	8476	8240
22.50	8009	7782	7560	7342	7128
25.00	6888	6648	6414	6186	5963
27.50	5746	5534	5327	5125	4927
30.00	4735	4535	4317	4106	3901
32.50	3702	3509	3322	3140	2964
35.00	2793	2627	2440	2227	2031
37.50	1850	1684	1532	1392	1264
40.00	1147	1015	836	688	565
42.50	463	379	298	171	98
45.00	56	13	0	0	0
47.50	0				

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	0	106	531	1164	1669
2.50	2287	2861	3386	3929	4491
5.00	4996	5494	6006	6531	7068
7.50	7539	8016	8501	8996	9500
10.00	10012	10462	10917	11379	11848
12.50	12323	12805	13293	13740	14176
15.00	14618	15065	15518	15977	16441
17.50	16911	17352	17759	18161	18385
20.00	18257	17961	17674	17397	17109
22.50	16815	16512	16215	15921	15633
25.00	15348	15069	14793	14522	14254
27.50	13991	13732	13477	13198	12914
30.00	12635	12361	12091	11826	11565
32.50	11309	11057	10809	10566	10326
35.00	10091	9834	9570	9312	9059
37.50	8812	8569	8331	8097	7869
40.00	7645	7425	7210	6982	6740
42.50	6504	6273	6048	5829	5615
45.00	5406	5202	5003	4809	4619
47.50	4400	4186	3979	3778	3583
50.00	3393	3210	3031	2858	2690
52.50	2527	2307	2104	1918	1746
55.00	1589	1445	1312	1191	1079
57.50	901	741	609	500	409
60.00	334	212	122	70	40
62.50	1	0	0	0	0

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	0	141	686	1431	2190
2.50	2946	3643	4376	5057	5725
5.00	6418	7130	7760	8409	9076
7.50	9761	10403	11022	11654	12301
10.00	12961	13606	14204	14813	15435
12.50	16068	16713	17337	17904	18467
15.00	19027	19584	20137	20686	21231
17.50	21771	22252	22708	23152	23369
20.00	23150	22727	22325	21941	21527
22.50	21121	20729	20350	19984	19631
25.00	19289	18959	18640	18331	18032
27.50	17743	17464	17179	16889	16585
30.00	16287	15992	15702	15417	15136
32.50	14860	14587	14319	14055	13795
35.00	13539	13267	12983	12702	12427
37.50	12156	11890	11628	11371	11118
40.00	10869	10625	10384	10148	9899
42.50	9634	9375	9121	8871	8627
45.00	8388	8154	7924	7699	7478
47.50	7262	7042	6799	6561	6329
50.00	6103	5882	5667	5456	5251
52.50	5051	4855	4665	4453	4238
55.00	4029	3826	3630	3439	3254
57.50	3074	2900	2730	2566	2359
60.00	2152	1962	1787	1626	1479
62.50	1344	1219	1106	945	778
65.00	639	525	430	351	244
67.50	140	80	46	3	0
70.00	0	0	0		

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	0	208	966	1896	2940
2.50	3892	4866	5774	6734	7646
5.00	8541	9475	10386	11250	12143
7.50	13065	13938	14789	15665	16567
10.00	17444	18248	19054	19861	20669
12.50	21477	22233	22926	23607	24274
15.00	24928	25568	26194	26806	27377
17.50	27916	28450	28977	29499	29722
20.00	29357	28716	28097	27499	26908
22.50	26303	25729	25182	24663	24168
25.00	23697	23249	22822	22415	22027
27.50	21621	21212	20817	20435	20066
30.00	19710	19366	19033	18711	18400
32.50	18099	17808	17526	17245	16957
35.00	16654	16354	16059	15768	15481
37.50	15200	14922	14649	14380	14115
40.00	13854	13597	13333	13047	12766
42.50	12489	12217	11950	11687	11429
45.00	11175	10925	10680	10438	10201
47.50	9959	9694	9433	9178	8928
50.00	8682	8442	8207	7976	7750
52.50	7528	7311	7098	6853	6614
55.00	6381	6154	5932	5715	5504
57.50	5297	5096	4899	4707	4503
60.00	4286	4076	3872	3674	3482
62.50	3295	3114	2939	2768	2603
65.00	2408	2197	2004	1825	1662
67.50	1511	1373	1247	1131	987
70.00	813	669	549	450	368
72.50	276	158	91	52	8
75.00	0	0	0	0	

Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (cu.ft)	Volume Sum (cu.ft)
502.00	-----	0	0	0	0
504.00	-----	3790	3790	2527	2527
506.00	-----	7290	16336	10891	13418
508.00	-----	12500	29336	19557	32975
510.00	-----	20894	49555	33037	66011

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.= 502.00 ft
Increment = .50 ft
Max. Elev.= 510.00 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
Orifice-Area	3	--->	TW	507.450	510.000
Weir-Rectangular	2	--->	TW	506.450	507.450
Inlet Box	4	--->	TW	507.750	510.000
Orifice-Area	1	--->	TW	502.000	510.000

TW SETUP, DS Channel

OUTLET STRUCTURE INPUT DATA

Structure ID = 3
Structure Type = Orifice-Area

# of Openings	=	1
Invert Elev.	=	506.45 ft
Area	=	2.5000 sq.ft
Top of Orifice	=	507.45 ft
Datum Elev.	=	506.95 ft
Orifice Coeff.	=	.600

Structure ID = 2
Structure Type = Weir-Rectangular

# of Openings	=	1
Crest Elev.	=	506.45 ft
Weir Length	=	2.50 ft
Weir Coeff.	=	3.000000

Weir TW effects (Use adjustment equation)

OUTLET STRUCTURE INPUT DATA

```
Structure ID      = 4
Structure Type    = Inlet Box
-----------------------------------
# of Openings     =         1
Invert Elev.      =    507.75 ft
Orifice Area      =   25.0000 sq.ft
Orifice Coeff.    =      .600
Weir Length       =     20.00 ft
Weir Coeff.       =     3.000
K, Reverse        =     1.000
Mannings n        =     .0000
Kev,Charged Riser =      .000
Weir Submergence  = No
Orifice H to crest= Yes
```

```
Structure ID      = 1
Structure Type    = Orifice-Area
-----------------------------------
# of Openings     =         1
Invert Elev.      =    502.00 ft
Area              =    1.0000 sq.ft
Top of Orifice    =    503.00 ft
Datum Elev.       =    502.50 ft
Orifice Coeff.    =      .600
```

```
Structure ID      = TW
Structure Type    = TW SETUP, DS Channel
-----------------------------------
FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations=    30
Min. TW tolerance =    .01 ft
Max. TW tolerance =    .01 ft
Min. HW tolerance =    .01 ft
Max. HW tolerance =    .01 ft
Min.  Q tolerance =    .10 cfs
Max.  Q tolerance =    .10 cfs
```

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (Orifice-Area)
Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, ft	Device Q, cfs	Tail Water TW Elev, ft	Converge +/-ft	Notes Computation Messages
502.00	.00	Free Outfall		
		E < El= 507.450		
502.50	.00	Free Outfall		
		E < El= 507.450		
503.00	.00	Free Outfall		
		E < El= 507.450		
503.50	.00	Free Outfall		
		E < El= 507.450		
504.00	.00	Free Outfall		
		E < El= 507.450		
504.50	.00	Free Outfall		
		E < El= 507.450		
505.00	.00	Free Outfall		
		E < El= 507.450		
505.50	.00	Free Outfall		
		E < El= 507.450		
506.00	.00	Free Outfall		
		E < El= 507.450		
506.45	.00	Free Outfall		
		E < El= 507.450		
506.50	.00	Free Outfall		
		E < El= 507.450		
507.00	.00	Free Outfall		
		E < El= 507.450		
507.50	8.92	Free Outfall		
		H =.55		
507.75	10.76	Free Outfall		
		H =.80		
508.00	12.33	Free Outfall		
		H =1.05		
508.50	14.98	Free Outfall		
		H =1.55		
509.00	17.23	Free Outfall		
		H =2.05		

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (Orifice-Area)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
509.50	19.21	Free Outfall		
	H =2.55			
510.00	21.01	Free Outfall		
	H =3.05			

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Weir-Rectangular)
Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, ft	Device Q, cfs	Tail Water TW Elev, ft	Converge +/-ft	Notes Computation Messages
502.00	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
502.50	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
503.00	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
503.50	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
504.00	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
504.50	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
505.00	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
505.50	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
506.00	.00	Free Outfall		
		HW & TW below Inv.El.=506.450		
506.45	.00	Free Outfall		
		H=.00; Htw=.00; Qfree=.00;		
506.50	.08	Free Outfall		
		H=.05; Htw=.00; Qfree=.08;		
507.00	3.06	Free Outfall		
		H=.55; Htw=.00; Qfree=3.06;		
507.50	.00	Free Outfall		
		E >= E2= 507.450		
507.75	.00	Free Outfall		
		E >= E2= 507.450		
508.00	.00	Free Outfall		
		E >= E2= 507.450		
508.50	.00	Free Outfall		
		E >= E2= 507.450		
509.00	.00	Free Outfall		
		E >= E2= 507.450		

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q	Tail Water	Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
509.50	.00	Free Outfall
		E >= E2= 507.450
510.00	.00	Free Outfall
		E >= E2= 507.450

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 4 (Inlet Box)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
502.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
502.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
503.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
503.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
504.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
504.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
505.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
505.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
506.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
506.45	.00	Free Outfall		HW & TW < Inv.El.=507.750
506.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
507.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
507.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
507.75	.00	Free Outfall		Weir: H =.00ft
508.00	7.50	Free Outfall		Weir: H =.25ft
508.50	38.97	Free Outfall		Weir: H =.75ft
509.00	83.85	Free Outfall		Weir: H =1.25ft

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Area)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q	Tail Water	Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
509.50	12.73	Free Outfall H =7.00		
510.00	13.18	Free Outfall H =7.50		

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
502.00	.00	Free Outfall	1	
502.50	1.70	Free Outfall	1	
503.00	3.40	Free Outfall	1	
503.50	4.81	Free Outfall	1	
504.00	5.89	Free Outfall	1	
504.50	6.81	Free Outfall	1	
505.00	7.61	Free Outfall	1	
505.50	8.34	Free Outfall	1	
506.00	9.00	Free Outfall	1	
506.45	9.57	Free Outfall	2	+1
506.50	9.71	Free Outfall	2	+1
507.00	13.27	Free Outfall	2	+1
507.50	19.69	Free Outfall	3	+1
507.75	21.79	Free Outfall	3	+4 +1
508.00	31.12	Free Outfall	3	+4 +1
508.50	65.74	Free Outfall	3	+4 +1
509.00	113.35	Free Outfall	3	+4 +1
509.50	170.85	Free Outfall	3	+4 +1
510.00	214.68	Free Outfall	3	+4 +1

TOTAL NODE INFLOW...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 2

Peak Discharge =	15.06 cfs
Time to Peak =	1.00 min
HYG Volume =	17168 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	7.53	15.06	15.06	15.06
2.50	15.06	15.06	15.06	15.06	15.06
5.00	15.06	15.06	15.06	15.06	15.06
7.50	15.06	15.06	15.06	15.06	15.06
10.00	15.06	15.06	15.06	15.06	15.06
12.50	15.06	15.06	15.06	15.06	15.06
15.00	15.06	15.06	15.06	15.06	15.06
17.50	15.06	15.06	15.06	15.06	7.53
20.00	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: POND 10 IN

HYG Directory: S:\JOBS\Jobs2006\06-086\Data-C\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 20	DETENTION	work_pad.hyg	15 year	15yr

INFLOWS TO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	15 year	15yr	27725	1.00	24.32

TOTAL FLOW INTO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	POND 10 IN	15	27725	1.00	24.32

LEVEL POOL ROUTING SUMMARY

HYG Dir = S:\JOBS\Jobs2006\06-086\Data-C\
Inflow HYG file = work_pad.hyg - POND 10 IN 15
Outflow HYG file = work_pad.hyg - POND 10 OUT 15

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	502.00 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.50 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	24.32 cfs	at	1.00 min
Peak Outflow	=	10.56 cfs	at	19.50 min
Peak Elevation	=	506.62 ft		
Peak Storage	=	18385 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	27725
- Infiltration	=	0
- HYG Vol OUT	=	27725
- Retained Vol	=	0
Unrouted Vol	= -	cu.ft (.000% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = S:\JOBS\Jobs2006\06-086\Data-C\
Inflow HYG file = work_pad.hyg - POND 10 IN 25
Outflow HYG file = work_pad.hyg - POND 10 OUT 25

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	502.00 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.50 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	30.00 cfs	at	1.00 min
Peak Outflow	=	15.18 cfs	at	19.50 min
Peak Elevation	=	507.15 ft		
Peak Storage	=	23369 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	34200
- Infiltration	=	0
- HYG Vol OUT	=	34200
- Retained Vol	=	0
Unrouted Vol	= -	cu.ft (.000% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = S:\JOBS\Jobs2006\06-086\Data-C\
Inflow HYG file = work_pad.hyg - POND 10 IN 100
Outflow HYG file = work_pad.hyg - POND 10 OUT 100

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	502.00 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.50 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	38.41 cfs	at	1.00 min
Peak Outflow	=	21.63 cfs	at	19.50 min
Peak Elevation	=	507.73 ft		
Peak Storage	=	29722 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	43787
- Infiltration	=	0
- HYG Vol OUT	=	43787
- Retained Vol	=	0
Unrouted Vol	= -	cu.ft (.000% of Inflow Volume)

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EXHIBIT C

100 YEAR BLOCKED FLOW

JOB TITLE

Project Date: 8/28/2006
Project Engineer: Cole & Associates
Project Title: Meadowlands
Project Comments:
Proposed

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MASTER DESIGN STORM SUMMARY

Hydrograph Queue Only Network

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method
Hydrograph File Import Option Used For 2 node(s)

(*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 min	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
BY-PASS		HYG	100	8060		1.00	7.07		
BY-PASS		HYG	25	6304		1.00	5.53		
BY-PASS		HYG	15	5107		1.00	4.48		
BY-PASS		HYG	2	3158		1.00	2.77		
DETENTION		HYG	100	43787		1.00	38.41		
DETENTION		HYG	25	34200		1.00	30.00		
DETENTION		HYG	15	27725		1.00	24.32		
DETENTION		HYG	2	17168		1.00	15.06		
*OUT 10		JCT	100	51832		19.00	44.52		
*OUT 10		JCT	25	40489		19.00	33.93		
*OUT 10		JCT	15	32817		19.00	25.13		
*OUT 10		JCT	2	20311		19.00	12.26		
POND 10	IN	POND	100	43787		1.00	38.41		
POND 10	IN	POND	25	34200		1.00	30.00		
POND 10	IN	POND	15	27725		1.00	24.32		
POND 10	IN	POND	2	17168		1.00	15.06		
POND 10	OUT	POND	100	43772		19.00	37.45	508.26	36325
POND 10	OUT	POND	25	34185		19.00	28.40	508.13	34574
POND 10	OUT	POND	15	27710		19.00	20.65	508.01	33125
POND 10	OUT	POND	2	17153		19.50	9.52	507.58	27999

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

	Node ID		Type	HYG Vol cu.ft	Trun.	Qpeak min	Qpeak cfs	Max WSEL ft
	BY-PASS		HYG	3158		1.00	2.77	
	DETENTION		HYG	17168		1.00	15.06	
Outfall	OUT 10		JCT	20311		19.00	12.26	
	POND 10	IN	POND	17168		1.00	15.06	
	POND 10	OUT	POND	17153		19.50	9.52	507.58

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

	Node ID		Type	HYG Vol cu.ft	Trun.	Qpeak min	Qpeak cfs	Max WSEL ft
	BY-PASS		HYG	8060		1.00	7.07	
	DETENTION		HYG	43787		1.00	38.41	
Outfall	OUT 10		JCT	51832		19.00	44.52	
	POND 10	IN	POND	43787		1.00	38.41	
	POND 10	OUT	POND	43772		19.00	37.45	508.26

HYG file =
HYG ID = 100yr bypass
HYG Tag =

Peak Discharge =	7.07 cfs
Time to Peak =	1.00 min
HYG Volume =	8060 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	7.07	7.07	7.07	7.07
5.00	7.07	7.07	7.07	7.07	7.07
10.00	7.07	7.07	7.07	7.07	7.07
15.00	7.07	7.07	7.07	7.07	7.07
20.00	.00				

HYG file =
HYG ID = 100 year
HYG Tag = 100

Peak Discharge =	38.41 cfs
Time to Peak =	1.00 min
HYG Volume =	43787 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = 1.00 min
Time on left represents time for first value in each row.

Time min					
.00	.00	38.41	38.41	38.41	38.41
5.00	38.41	38.41	38.41	38.41	38.41
10.00	38.41	38.41	38.41	38.41	38.41
15.00	38.41	38.41	38.41	38.41	38.41
20.00	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: OUT 10

HYG Directory: S:\JOBS\Jobs2006\06-086\Data-C\

Upstream Link ID	Upstream Node ID		HYG file	HYG ID	HYG tag
ADDLINK 10	BY-PASS		work_pad.hyg	100yr bypass	
ROUTE 10	POND 10	IN	work_pad.hyg	ROUTE 10	100

INFLOWS TO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	100yr bypass		8060	1.00	7.07
work_pad.hyg	ROUTE 10	100	43772	19.00	37.45

TOTAL FLOW INTO: OUT 10

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	OUT 10	100	51832	19.00	44.52

TOTAL NODE INFLOW...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = OUT 10
HYG Tag = 100

Peak Discharge =	44.52 cfs
Time to Peak =	19.00 min
HYG Volume =	51832 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	3.59	7.63	8.36	9.09
2.50	9.79	10.74	11.90	13.02	14.10
5.00	15.15	16.09	16.65	17.20	17.74
7.50	19.81	22.02	24.03	25.87	27.98
10.00	30.46	32.58	34.41	35.98	37.32
12.50	38.48	39.47	40.32	41.05	41.68
15.00	42.22	42.68	43.07	43.42	43.71
17.50	43.96	44.17	44.36	44.52	39.76
20.00	32.46	27.86	23.92	20.53	18.49
22.50	16.91	15.45	14.13	12.92	11.81
25.00	10.79	10.56	10.36	10.16	9.97
27.50	9.78	9.59	9.41	9.23	9.05
30.00	8.84	8.55	8.26	7.99	7.72
32.50	7.46	7.22	6.97	6.74	6.52
35.00	6.30	6.09	5.89	5.69	5.50
37.50	5.32	5.14	4.97	4.80	4.64
40.00	4.49	4.34	4.20	4.06	3.92
42.50	3.79	3.66	3.54	3.42	3.31
45.00	3.20	3.09	3.02	2.96	2.90
47.50	2.85	2.79	2.74	2.68	2.63
50.00	2.58	2.53	2.48	2.43	2.38
52.50	2.34	2.29	2.25	2.20	2.16
55.00	2.12	2.08	2.04	2.00	1.96
57.50	1.92	1.88	1.85	1.81	1.78
60.00	1.74	1.71	1.67	1.64	1.61
62.50	1.58	1.55	1.52	1.49	1.46
65.00	1.43	1.40	1.38	1.35	1.32
67.50	1.30	1.27	1.25	1.22	1.20
70.00	1.18	1.15	1.13	1.11	1.09
72.50	1.07	1.04	1.02	1.00	.98
75.00	.97	.95	.93	.91	.89

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
77.50	.88	.86	.84	.83	.81
80.00	.79	.78	.76	.75	.73
82.50	.72	.71	.69	.68	.66
85.00	.65	.64	.63	.61	.60
87.50	.59	.58	.57	.56	.55
90.00	.54	.53	.51	.50	.49
92.50	.49	.48	.47	.46	.45
95.00	.44	.43	.42	.41	.41
97.50	.40	.39	.38	.38	.37
100.00	.36	.35	.35	.34	.33
102.50	.33	.32	.31	.31	.30
105.00	.30	.29	.29	.28	.27
107.50	.27	.26	.26	.25	.25
110.00	.24	.24	.23	.23	.23
112.50	.22	.22	.21	.21	.20
115.00	.20	.20	.19	.19	.19
117.50	.18	.18	.17	.17	.17
120.00	.16	.16	.16	.16	.15
122.50	.15	.15	.14	.14	.14
125.00	.14	.13	.13	.13	.13
127.50	.12	.12	.12	.12	.11
130.00	.11	.11	.11	.10	.10
132.50	.10	.10	.10	.09	.09
135.00	.09	.09	.09	.09	.08
137.50	.08	.08	.08	.08	.08
140.00	.08	.08	.08	.08	.08
142.50	.08	.08	.08	.08	.08
145.00	.08	.08	.08	.07	.07
147.50	.07	.07	.07	.07	.07
150.00	.07	.07	.07	.07	.07
152.50	.07	.07	.07	.07	.07
155.00	.07	.07	.07	.07	.07
157.50	.07	.07	.06	.06	.06
160.00	.06	.06	.06	.06	.06
162.50	.06	.06	.06	.06	.06
165.00	.06	.06	.06	.06	.06
167.50	.06	.06	.06	.06	.06
170.00	.06	.06	.06	.06	.06
172.50	.05	.05	.05	.05	.05
175.00	.05	.05	.05	.05	.05
177.50	.05	.05	.05	.05	.05
180.00	.05	.05	.05	.05	.05
182.50	.05	.05	.05	.05	.05
185.00	.05	.05	.05	.05	.05
187.50	.05	.05	.05	.05	.04

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
190.00	.04	.04	.04	.04	.04
192.50	.04	.04	.04	.04	.04
195.00	.04	.04	.04	.04	.04
197.50	.04	.04	.04	.04	.04
200.00	.04	.04	.04	.04	.04
202.50	.04	.04	.04	.04	.04
205.00	.04	.04	.04	.04	.04
207.50	.04	.04	.04	.04	.04
210.00	.04	.03	.03	.03	.03
212.50	.03	.03	.03	.03	.03
215.00	.03	.03	.03	.03	.03
217.50	.03	.03	.03	.03	.03
220.00	.03	.03	.03	.03	.03
222.50	.03	.03	.03	.03	.03
225.00	.03	.03	.03	.03	.03
227.50	.03	.03	.03	.03	.03
230.00	.03	.03	.03	.03	.03
232.50	.03	.03	.03	.03	.03
235.00	.03	.03	.03	.03	.03
237.50	.03	.03	.02	.02	.02
240.00	.02	.02	.02	.02	.02
242.50	.02	.02	.02	.02	.02
245.00	.02	.02	.02	.02	.02
247.50	.02	.02	.02	.02	.02
250.00	.02	.02	.02	.02	.02
252.50	.02	.02	.02	.02	.02
255.00	.02	.02	.02	.02	.02
257.50	.02	.02	.02	.02	.02
260.00	.02	.02	.02	.02	.02
262.50	.02	.02	.02	.02	.02
265.00	.02	.02	.02	.02	.02
267.50	.02	.02	.02	.02	.02
270.00	.02	.02	.02	.02	.02
272.50	.02	.02	.02	.02	.02
275.00	.02	.02	.02	.02	.02
277.50	.02	.02	.02	.02	.02
280.00	.02	.02	.01	.01	.01
282.50	.01	.01	.01	.01	.01
285.00	.01	.01	.01	.01	.01
287.50	.01	.01	.01	.01	.01
290.00	.01	.01	.01	.01	.01
292.50	.01	.01	.01	.01	.01
295.00	.01	.01	.01	.01	.01
297.50	.01	.01	.01	.01	.01
300.00	.01	.01	.01	.01	.01

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
302.50	.01	.01	.01	.01	.01
305.00	.01	.01	.01	.01	.01
307.50	.01	.01	.01	.01	.01
310.00	.01	.01	.01	.01	.01
312.50	.01	.01	.01	.01	.01
315.00	.01	.01	.01	.01	.01
317.50	.01	.01	.01	.01	.01
320.00	.01	.01	.01	.01	.01
322.50	.01	.01	.01	.01	.01
325.00	.01	.01	.01	.01	.01
327.50	.01	.01	.01	.01	.01
330.00	.01	.01	.01	.01	.01
332.50	.01	.01	.01	.01	.01
335.00	.01	.01	.01	.01	.01
337.50	.01	.01	.01	.01	.01
340.00	.01	.01	.01	.01	.01
342.50	.01	.01	.01	.01	.01
345.00	.01	.01	.01	.01	.01
347.50	.01	.01	.01	.01	.01
350.00	.01	.01	.01	.01	.01
352.50	.01	.01	.01	.01	.01
355.00	.01	.01	.01	.01	.01
357.50	.01	.01	.01	.01	.01
360.00	.01	.01	.01	.01	.01
362.50	.01	.01	.01	.01	.01
365.00	.01	.01	.01	.01	.01
367.50	.01	.01	.01	.01	.01
370.00	.01	.01	.01	.01	.01
372.50	.01	.00	.00	.00	.00
375.00	.00	.00	.00	.00	.00
377.50	.00	.00	.00	.00	.00
380.00	.00	.00	.00	.00	.00
382.50	.00	.00	.00	.00	.00
385.00	.00	.00	.00	.00	.00
387.50	.00	.00	.00	.00	.00
390.00	.00	.00	.00	.00	.00
392.50	.00	.00	.00	.00	.00
395.00	.00	.00	.00	.00	.00
397.50	.00	.00	.00	.00	.00
400.00	.00	.00	.00	.00	.00
402.50	.00	.00	.00	.00	.00
405.00	.00	.00	.00	.00	.00
407.50	.00	.00	.00	.00	.00
410.00	.00	.00	.00	.00	.00
412.50	.00	.00	.00	.00	.00

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min		
415.00	.00	.00

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	506.45	506.48	506.58	506.70	506.82
2.50	506.94	507.05	507.15	507.25	507.34
5.00	507.43	507.51	507.59	507.66	507.74
7.50	507.80	507.87	507.92	507.97	508.02
10.00	508.05	508.08	508.11	508.13	508.15
12.50	508.17	508.18	508.20	508.21	508.22
15.00	508.22	508.23	508.24	508.24	508.25
17.50	508.25	508.25	508.26	508.26	508.24
20.00	508.19	508.12	508.06	508.01	507.96
22.50	507.92	507.88	507.84	507.81	507.78
25.00	507.75	507.72	507.70	507.67	507.64
27.50	507.62	507.59	507.57	507.54	507.52
30.00	507.49	507.47	507.44	507.42	507.40
32.50	507.38	507.35	507.33	507.31	507.29
35.00	507.28	507.26	507.24	507.22	507.21
37.50	507.19	507.18	507.16	507.15	507.14
40.00	507.12	507.11	507.10	507.09	507.07
42.50	507.06	507.05	507.04	507.03	507.02
45.00	507.01	507.00	506.99	506.98	506.97
47.50	506.96	506.95	506.95	506.94	506.93
50.00	506.92	506.91	506.90	506.89	506.89
52.50	506.88	506.87	506.86	506.86	506.85
55.00	506.84	506.84	506.83	506.82	506.82
57.50	506.81	506.80	506.80	506.79	506.78
60.00	506.78	506.77	506.77	506.76	506.76
62.50	506.75	506.75	506.74	506.74	506.73
65.00	506.73	506.72	506.72	506.71	506.71
67.50	506.70	506.70	506.70	506.69	506.69
70.00	506.68	506.68	506.68	506.67	506.67
72.50	506.66	506.66	506.66	506.65	506.65
75.00	506.65	506.65	506.64	506.64	506.64
77.50	506.63	506.63	506.63	506.62	506.62
80.00	506.62	506.62	506.61	506.61	506.61
82.50	506.61	506.60	506.60	506.60	506.60
85.00	506.60	506.59	506.59	506.59	506.59
87.50	506.59	506.58	506.58	506.58	506.58
90.00	506.58	506.57	506.57	506.57	506.57
92.50	506.57	506.57	506.56	506.56	506.56
95.00	506.56	506.56	506.56	506.56	506.55
97.50	506.55	506.55	506.55	506.55	506.55
100.00	506.55	506.55	506.54	506.54	506.54
102.50	506.54	506.54	506.54	506.54	506.54
105.00	506.54	506.53	506.53	506.53	506.53

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
107.50	506.53	506.53	506.53	506.53	506.53
110.00	506.53	506.53	506.53	506.52	506.52
112.50	506.52	506.52	506.52	506.52	506.52
115.00	506.52	506.52	506.52	506.52	506.52
117.50	506.52	506.52	506.52	506.51	506.51
120.00	506.51	506.51	506.51	506.51	506.51
122.50	506.51	506.51	506.51	506.51	506.51
125.00	506.51	506.51	506.51	506.51	506.51
127.50	506.51	506.51	506.51	506.51	506.51
130.00	506.50	506.50	506.50	506.50	506.50
132.50	506.50	506.50	506.50	506.50	506.50
135.00	506.50	506.50	506.50	506.50	506.50
137.50	506.50	506.50	506.50	506.50	506.50
140.00	506.50	506.50	506.50	506.50	506.50
142.50	506.50	506.50	506.50	506.50	506.50
145.00	506.50	506.50	506.50	506.49	506.49
147.50	506.49	506.49	506.49	506.49	506.49
150.00	506.49	506.49	506.49	506.49	506.49
152.50	506.49	506.49	506.49	506.49	506.49
155.00	506.49	506.49	506.49	506.49	506.49
157.50	506.49	506.49	506.49	506.49	506.49
160.00	506.49	506.49	506.49	506.49	506.49
162.50	506.49	506.49	506.49	506.49	506.49
165.00	506.49	506.49	506.49	506.49	506.49
167.50	506.48	506.48	506.48	506.48	506.48
170.00	506.48	506.48	506.48	506.48	506.48
172.50	506.48	506.48	506.48	506.48	506.48
175.00	506.48	506.48	506.48	506.48	506.48
177.50	506.48	506.48	506.48	506.48	506.48
180.00	506.48	506.48	506.48	506.48	506.48
182.50	506.48	506.48	506.48	506.48	506.48
185.00	506.48	506.48	506.48	506.48	506.48
187.50	506.48	506.48	506.48	506.48	506.48
190.00	506.48	506.48	506.48	506.48	506.48
192.50	506.48	506.48	506.48	506.48	506.48
195.00	506.48	506.47	506.47	506.47	506.47
197.50	506.47	506.47	506.47	506.47	506.47
200.00	506.47	506.47	506.47	506.47	506.47
202.50	506.47	506.47	506.47	506.47	506.47
205.00	506.47	506.47	506.47	506.47	506.47
207.50	506.47	506.47	506.47	506.47	506.47
210.00	506.47	506.47	506.47	506.47	506.47
212.50	506.47	506.47	506.47	506.47	506.47
215.00	506.47	506.47	506.47	506.47	506.47

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
217.50	506.47	506.47	506.47	506.47	506.47
220.00	506.47	506.47	506.47	506.47	506.47
222.50	506.47	506.47	506.47	506.47	506.47
225.00	506.47	506.47	506.47	506.47	506.47
227.50	506.47	506.47	506.47	506.47	506.47
230.00	506.47	506.47	506.47	506.47	506.47
232.50	506.47	506.47	506.47	506.47	506.47
235.00	506.47	506.47	506.47	506.47	506.47
237.50	506.47	506.47	506.46	506.46	506.46
240.00	506.46	506.46	506.46	506.46	506.46
242.50	506.46	506.46	506.46	506.46	506.46
245.00	506.46	506.46	506.46	506.46	506.46
247.50	506.46	506.46	506.46	506.46	506.46
250.00	506.46	506.46	506.46	506.46	506.46
252.50	506.46	506.46	506.46	506.46	506.46
255.00	506.46	506.46	506.46	506.46	506.46
257.50	506.46	506.46	506.46	506.46	506.46
260.00	506.46	506.46	506.46	506.46	506.46
262.50	506.46	506.46	506.46	506.46	506.46
265.00	506.46	506.46	506.46	506.46	506.46
267.50	506.46	506.46	506.46	506.46	506.46
270.00	506.46	506.46	506.46	506.46	506.46
272.50	506.46	506.46	506.46	506.46	506.46
275.00	506.46	506.46	506.46	506.46	506.46
277.50	506.46	506.46	506.46	506.46	506.46
280.00	506.46	506.46	506.46	506.46	506.46
282.50	506.46	506.46	506.46	506.46	506.46
285.00	506.46	506.46	506.46	506.46	506.46
287.50	506.46	506.46	506.46	506.46	506.46
290.00	506.46	506.46	506.46	506.46	506.46
292.50	506.46	506.46	506.46	506.46	506.46
295.00	506.46	506.46	506.46	506.46	506.46
297.50	506.46	506.46	506.46	506.46	506.46
300.00	506.46	506.46	506.46	506.46	506.46
302.50	506.46	506.46	506.46	506.46	506.46
305.00	506.46	506.46	506.46	506.46	506.46
307.50	506.46	506.46	506.46	506.46	506.46
310.00	506.46	506.46	506.46	506.46	506.46
312.50	506.46	506.46	506.46	506.46	506.46
315.00	506.46	506.46	506.46	506.46	506.46
317.50	506.46	506.46	506.46	506.46	506.46
320.00	506.46	506.46	506.46	506.46	506.46
322.50	506.46	506.46	506.46	506.46	506.46
325.00	506.46	506.46	506.46	506.46	506.46

TIME vs. ELEVATION (ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
327.50	506.46	506.46	506.46	506.46	506.46
330.00	506.46	506.46	506.45	506.45	506.45
332.50	506.45	506.45	506.45	506.45	506.45
335.00	506.45	506.45	506.45	506.45	506.45
337.50	506.45	506.45	506.45	506.45	506.45
340.00	506.45	506.45	506.45	506.45	506.45
342.50	506.45	506.45	506.45	506.45	506.45
345.00	506.45	506.45	506.45	506.45	506.45
347.50	506.45	506.45	506.45	506.45	506.45
350.00	506.45	506.45	506.45	506.45	506.45
352.50	506.45	506.45	506.45	506.45	506.45
355.00	506.45	506.45	506.45	506.45	506.45
357.50	506.45	506.45	506.45	506.45	506.45
360.00	506.45	506.45	506.45	506.45	506.45
362.50	506.45	506.45	506.45	506.45	506.45
365.00	506.45	506.45	506.45	506.45	506.45
367.50	506.45	506.45	506.45	506.45	506.45
370.00	506.45	506.45	506.45	506.45	506.45
372.50	506.45	506.45	506.45	506.45	506.45
375.00	506.45	506.45	506.45	506.45	506.45
377.50	506.45	506.45	506.45	506.45	506.45
380.00	506.45	506.45	506.45	506.45	506.45
382.50	506.45	506.45	506.45	506.45	506.45
385.00	506.45	506.45	506.45	506.45	506.45
387.50	506.45	506.45	506.45	506.45	506.45
390.00	506.45	506.45	506.45	506.45	506.45
392.50	506.45	506.45	506.45	506.45	506.45
395.00	506.45	506.45	506.45	506.45	506.45
397.50	506.45	506.45	506.45	506.45	506.45
400.00	506.45	506.45	506.45	506.45	506.45
402.50	506.45	506.45	506.45	506.45	506.45
405.00	506.45	506.45	506.45	506.45	506.45
407.50	506.45	506.45	506.45	506.45	506.45
410.00	506.45	506.45	506.45	506.45	506.45
412.50	506.45	506.45	506.45	506.45	506.45
415.00	506.45	506.45			

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
.00	16932	17218	18032	19123	20229
2.50	21351	22408	23393	24370	25338
5.00	26295	27229	28086	28943	29799
7.50	30589	31319	31995	32622	33173
10.00	33631	34029	34373	34670	34927
12.50	35149	35340	35505	35646	35769
15.00	35873	35964	36042	36108	36166
17.50	36215	36257	36294	36325	36085
20.00	35351	34472	33730	33104	32516
22.50	31977	31489	31046	30645	30282
25.00	29952	29623	29303	28990	28686
27.50	28390	28101	27819	27545	27277
30.00	27010	26733	26467	26212	25967
32.50	25731	25504	25286	25077	24875
35.00	24681	24494	24315	24142	23975
37.50	23815	23661	23513	23369	23232
40.00	23099	22971	22848	22729	22615
42.50	22505	22399	22296	22197	22102
45.00	22010	21922	21828	21732	21639
47.50	21547	21458	21370	21285	21201
50.00	21119	21039	20960	20884	20808
52.50	20735	20663	20593	20524	20457
55.00	20391	20326	20263	20201	20141
57.50	20082	20024	19967	19912	19857
60.00	19804	19752	19701	19651	19602
62.50	19554	19508	19462	19417	19373
65.00	19330	19288	19246	19206	19166
67.50	19128	19090	19052	19016	18980
70.00	18945	18911	18877	18845	18812
72.50	18781	18750	18720	18690	18661
75.00	18633	18605	18577	18551	18525
77.50	18499	18474	18449	18425	18401
80.00	18378	18355	18333	18311	18290
82.50	18269	18249	18228	18209	18190
85.00	18171	18152	18134	18116	18099
87.50	18082	18065	18048	18032	18017
90.00	18001	17986	17971	17957	17942
92.50	17928	17915	17901	17888	17875
95.00	17863	17850	17838	17826	17815
97.50	17803	17792	17781	17770	17760
100.00	17749	17739	17729	17719	17710
102.50	17701	17691	17682	17674	17665
105.00	17657	17648	17640	17632	17624

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
107.50	17617	17609	17602	17595	17587
110.00	17580	17574	17567	17560	17554
112.50	17548	17541	17535	17530	17524
115.00	17518	17513	17507	17502	17497
117.50	17491	17486	17481	17477	17472
120.00	17467	17463	17458	17453	17449
122.50	17445	17441	17437	17433	17429
125.00	17425	17421	17418	17414	17411
127.50	17407	17404	17400	17397	17394
130.00	17391	17388	17385	17382	17379
132.50	17376	17373	17370	17368	17365
135.00	17362	17360	17358	17355	17353
137.50	17350	17348	17345	17343	17340
140.00	17338	17335	17333	17330	17328
142.50	17326	17323	17321	17319	17316
145.00	17314	17312	17310	17307	17305
147.50	17303	17300	17298	17296	17294
150.00	17292	17289	17287	17285	17283
152.50	17281	17279	17277	17275	17273
155.00	17271	17269	17266	17265	17263
157.50	17261	17258	17257	17255	17253
160.00	17251	17249	17247	17245	17243
162.50	17242	17239	17238	17236	17234
165.00	17232	17230	17229	17227	17225
167.50	17223	17221	17220	17218	17216
170.00	17215	17213	17211	17210	17208
172.50	17206	17205	17203	17201	17200
175.00	17198	17197	17195	17193	17192
177.50	17190	17189	17187	17186	17184
180.00	17183	17181	17180	17178	17177
182.50	17175	17174	17172	17171	17169
185.00	17168	17166	17165	17164	17162
187.50	17161	17160	17158	17157	17155
190.00	17154	17153	17152	17150	17149
192.50	17148	17146	17145	17144	17142
195.00	17141	17140	17139	17138	17136
197.50	17135	17134	17133	17131	17130
200.00	17129	17128	17127	17125	17124
202.50	17123	17122	17121	17120	17119
205.00	17118	17116	17115	17114	17113
207.50	17112	17111	17110	17109	17108
210.00	17107	17106	17105	17104	17103
212.50	17102	17101	17100	17099	17098
215.00	17097	17095	17094	17094	17093

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
217.50	17092	17091	17090	17089	17088
220.00	17087	17086	17085	17084	17083
222.50	17082	17081	17081	17080	17079
225.00	17078	17077	17076	17075	17075
227.50	17073	17073	17072	17071	17070
230.00	17069	17069	17068	17067	17066
232.50	17065	17065	17064	17063	17062
235.00	17061	17061	17060	17059	17058
237.50	17058	17057	17056	17055	17055
240.00	17054	17053	17052	17052	17051
242.50	17050	17049	17049	17048	17047
245.00	17047	17046	17045	17045	17044
247.50	17043	17043	17042	17041	17041
250.00	17040	17039	17039	17038	17037
252.50	17037	17036	17036	17035	17034
255.00	17034	17033	17033	17032	17031
257.50	17031	17030	17030	17029	17029
260.00	17028	17027	17027	17026	17025
262.50	17025	17024	17024	17023	17023
265.00	17022	17022	17021	17021	17020
267.50	17020	17019	17019	17018	17018
270.00	17017	17017	17016	17015	17015
272.50	17014	17014	17013	17013	17012
275.00	17012	17012	17011	17011	17010
277.50	17010	17009	17009	17008	17008
280.00	17007	17007	17007	17006	17006
282.50	17005	17005	17004	17004	17003
285.00	17003	17002	17002	17002	17001
287.50	17001	17000	17000	17000	16999
290.00	16999	16998	16998	16998	16997
292.50	16997	16996	16996	16996	16995
295.00	16995	16995	16994	16994	16994
297.50	16993	16993	16992	16992	16992
300.00	16991	16991	16990	16990	16990
302.50	16989	16989	16989	16988	16988
305.00	16988	16987	16987	16987	16986
307.50	16986	16986	16986	16985	16985
310.00	16985	16984	16984	16984	16983
312.50	16983	16983	16982	16982	16982
315.00	16982	16981	16981	16981	16980
317.50	16980	16980	16980	16979	16979
320.00	16978	16978	16978	16978	16977
322.50	16977	16977	16977	16976	16976
325.00	16976	16976	16975	16975	16975

TIME vs. VOLUME (cu.ft)

Time min	Output Time increment = .50 min Time on left represents time for first value in each row.				
327.50	16975	16974	16974	16974	16974
330.00	16973	16973	16973	16973	16972
332.50	16972	16972	16972	16971	16971
335.00	16971	16971	16970	16970	16970
337.50	16970	16970	16969	16969	16969
340.00	16969	16969	16968	16968	16968
342.50	16968	16967	16967	16967	16967
345.00	16967	16966	16966	16966	16966
347.50	16965	16965	16965	16965	16965
350.00	16964	16964	16964	16964	16964
352.50	16963	16963	16963	16963	16963
355.00	16963	16962	16962	16962	16962
357.50	16962	16961	16961	16961	16961
360.00	16961	16961	16960	16960	16960
362.50	16960	16960	16960	16959	16959
365.00	16959	16959	16959	16959	16958
367.50	16958	16958	16958	16958	16958
370.00	16958	16957	16957	16957	16957
372.50	16957	16957	16957	16956	16956
375.00	16956	16956	16956	16956	16956
377.50	16955	16955	16955	16955	16955
380.00	16955	16955	16954	16954	16954
382.50	16954	16954	16954	16954	16954
385.00	16953	16953	16953	16953	16953
387.50	16953	16953	16953	16952	16952
390.00	16952	16952	16952	16952	16951
392.50	16951	16951	16951	16951	16951
395.00	16951	16951	16951	16950	16950
397.50	16950	16950	16950	16950	16950
400.00	16950	16950	16950	16949	16949
402.50	16949	16949	16949	16949	16949
405.00	16949	16949	16948	16948	16948
407.50	16948	16948	16948	16948	16948
410.00	16948	16948	16948	16947	16947
412.50	16947	16947	16947	16947	16947
415.00	16947	16947			

Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (cu.ft)	Volume Sum (cu.ft)
502.00	-----	0	0	0	0
504.00	-----	3790	3790	2527	2527
506.00	-----	7290	16336	10891	13418
508.00	-----	12500	29336	19557	32975
510.00	-----	20894	49555	33037	66011

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.= 502.00 ft
Increment = .50 ft
Max. Elev.= 510.00 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	--->	TW	506.450	507.450
Inlet Box	4	--->	TW	507.750	510.000
Orifice-Area	3	--->	TW	507.450	510.000

TW SETUP, DS Channel

OUTLET STRUCTURE INPUT DATA

Structure ID = 2
Structure Type = Weir-Rectangular

# of Openings	=	1
Crest Elev.	=	506.45 ft
Weir Length	=	2.50 ft
Weir Coeff.	=	3.000000

Weir TW effects (Use adjustment equation)

Structure ID = 4
Structure Type = Inlet Box

# of Openings	=	1
Invert Elev.	=	507.75 ft
Orifice Area	=	25.0000 sq.ft
Orifice Coeff.	=	.600
Weir Length	=	20.00 ft
Weir Coeff.	=	3.000
K, Reverse	=	1.000
Mannings n	=	.0000
Kev,Charged Riser	=	.000
Weir Submergence	=	No
Orifice H to crest	=	Yes

OUTLET STRUCTURE INPUT DATA

Structure ID = 3
Structure Type = Orifice-Area

# of Openings = 1
Invert Elev. = 506.45 ft
Area = 2.5000 sq.ft
Top of Orifice = 507.45 ft
Datum Elev. = 506.95 ft
Orifice Coeff. = .600

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q	Tail Water	Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
502.00	.00	Free Outfall		HW & TW below Inv.El.=506.450
502.50	.00	Free Outfall		HW & TW below Inv.El.=506.450
503.00	.00	Free Outfall		HW & TW below Inv.El.=506.450
503.50	.00	Free Outfall		HW & TW below Inv.El.=506.450
504.00	.00	Free Outfall		HW & TW below Inv.El.=506.450
504.50	.00	Free Outfall		HW & TW below Inv.El.=506.450
505.00	.00	Free Outfall		HW & TW below Inv.El.=506.450
505.50	.00	Free Outfall		HW & TW below Inv.El.=506.450
506.00	.00	Free Outfall		HW & TW below Inv.El.=506.450
506.45	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
506.50	.08	Free Outfall		H=.05; Htw=.00; Qfree=.08;
507.00	3.06	Free Outfall		H=.55; Htw=.00; Qfree=3.06;
507.50	.00	Free Outfall		E >= E2= 507.450
507.75	.00	Free Outfall		E >= E2= 507.450
508.00	.00	Free Outfall		E >= E2= 507.450
508.50	.00	Free Outfall		E >= E2= 507.450
509.00	.00	Free Outfall		E >= E2= 507.450

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
509.50	.00	Free Outfall		
		E >= E2=	507.450	
510.00	.00	Free Outfall		
		E >= E2=	507.450	

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 4 (Inlet Box)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, ft	Device Q, cfs	Tail Water TW Elev, ft	Converge +/-ft	Notes Computation Messages
502.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
502.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
503.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
503.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
504.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
504.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
505.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
505.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
506.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
506.45	.00	Free Outfall		HW & TW < Inv.El.=507.750
506.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
507.00	.00	Free Outfall		HW & TW < Inv.El.=507.750
507.50	.00	Free Outfall		HW & TW < Inv.El.=507.750
507.75	.00	Free Outfall		Weir: H =.00ft
508.00	7.50	Free Outfall		Weir: H =.25ft
508.50	38.97	Free Outfall		Weir: H =.75ft
509.00	83.85	Free Outfall		Weir: H =1.25ft

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 4 (Inlet Box)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev. ft	Device Q cfs	Tail Water TW Elev ft	Converge +/-ft	Notes Computation Messages
509.50	138.90	Free Outfall		
		Weir: H =1.75ft		
510.00	180.49	Free Outfall		
		Orifice: H =2.25; Riser orifice equation controlling.		

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (Orifice-Area)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, ft	Device Q, cfs	Tail Water TW Elev, ft	Converge +/-ft	Notes Computation Messages
502.00	.00	Free Outfall		
		E < El= 507.450		
502.50	.00	Free Outfall		
		E < El= 507.450		
503.00	.00	Free Outfall		
		E < El= 507.450		
503.50	.00	Free Outfall		
		E < El= 507.450		
504.00	.00	Free Outfall		
		E < El= 507.450		
504.50	.00	Free Outfall		
		E < El= 507.450		
505.00	.00	Free Outfall		
		E < El= 507.450		
505.50	.00	Free Outfall		
		E < El= 507.450		
506.00	.00	Free Outfall		
		E < El= 507.450		
506.45	.00	Free Outfall		
		E < El= 507.450		
506.50	.00	Free Outfall		
		E < El= 507.450		
507.00	.00	Free Outfall		
		E < El= 507.450		
507.50	8.92	Free Outfall		
		H =.55		
507.75	10.76	Free Outfall		
		H =.80		
508.00	12.33	Free Outfall		
		H =1.05		
508.50	14.98	Free Outfall		
		H =1.55		
509.00	17.23	Free Outfall		
		H =2.05		

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 3 (Orifice-Area)

Upstream ID = (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q Tail Water Notes

WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
509.50	19.21	Free Outfall		
	H =2.55			
510.00	21.01	Free Outfall		
	H =3.05			

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
502.00	.00	Free Outfall		None contributing
502.50	.00	Free Outfall		None contributing
503.00	.00	Free Outfall		None contributing
503.50	.00	Free Outfall		None contributing
504.00	.00	Free Outfall		None contributing
504.50	.00	Free Outfall		None contributing
505.00	.00	Free Outfall		None contributing
505.50	.00	Free Outfall		None contributing
506.00	.00	Free Outfall		None contributing
506.45	.00	Free Outfall		2
506.50	.08	Free Outfall		2
507.00	3.06	Free Outfall		2
507.50	8.92	Free Outfall		3
507.75	10.76	Free Outfall		4 +3
508.00	19.83	Free Outfall		4 +3
508.50	53.95	Free Outfall		4 +3
509.00	101.08	Free Outfall		4 +3
509.50	158.12	Free Outfall		4 +3
510.00	201.50	Free Outfall		4 +3

LEVEL POOL ROUTING DATA

HYG Dir = S:\JOBS\Jobs2006\06-086\Data-C\
Inflow HYG file = work_pad.hyg - POND 10 IN 100
Outflow HYG file = work_pad.hyg - POND 10 OUT 100

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 506.45 ft
Starting Volume = 16932 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .50 min

Elevation ft	Outflow cfs	Storage cu.ft	Area sq.ft	Infilt. cfs	Q Total cfs	2S/t + O cfs
502.00	.00	0	0	.00	.00	.00
502.50	.00	39	237	.00	.00	2.63
503.00	.00	316	948	.00	.00	21.06
503.50	.00	1066	2132	.00	.00	71.06
504.00	.00	2527	3790	.00	.00	168.45
504.50	.00	4611	4559	.00	.00	307.39
505.00	.00	7097	5398	.00	.00	473.14
505.50	.00	10021	6309	.00	.00	668.06
506.00	.00	13418	7290	.00	.00	894.51
506.45	.00	16932	8341	.00	.00	1128.80
506.50	.08	17352	8462	.00	.08	1156.88
507.00	3.06	21894	9720	.00	3.06	1462.65
507.50	8.92	27087	11067	.00	8.92	1814.72
507.75	10.76	29941	11772	.00	10.76	2006.85
508.00	19.83	32975	12500	.00	19.83	2218.16
508.50	53.95	39694	14397	.00	53.95	2700.20
509.00	101.08	47395	16429	.00	101.08	3260.74
509.50	158.12	56145	18594	.00	158.12	3901.13
510.00	201.50	66011	20894	.00	201.50	4602.28

SUMMARY FOR HYDROGRAPH ADDITION
at Node: POND 10 IN

HYG Directory: S:\JOBS\Jobs2006\06-086\Data-C\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 20	DETENTION	work_pad.hyg	100 year	100

INFLOWS TO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	100 year	100	43787	1.00	38.41

TOTAL FLOW INTO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time min	Peak Flow cfs
work_pad.hyg	POND 10 IN	100	43787	1.00	38.41

TOTAL NODE INFLOW...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 100

Peak Discharge = 38.41 cfs
Time to Peak = 1.00 min
HYG Volume = 43787 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	19.20	38.41	38.41	38.41
2.50	38.41	38.41	38.41	38.41	38.41
5.00	38.41	38.41	38.41	38.41	38.41
7.50	38.41	38.41	38.41	38.41	38.41
10.00	38.41	38.41	38.41	38.41	38.41
12.50	38.41	38.41	38.41	38.41	38.41
15.00	38.41	38.41	38.41	38.41	38.41
17.50	38.41	38.41	38.41	38.41	19.21
20.00	.00				

POND ROUTED TOTAL OUTFLOW HYG...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = POND 10 OUT
HYG Tag = 2

Peak Discharge = 9.52 cfs
Time to Peak = 19.50 min
HYG Volume = 17153 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	.02	.10	.39	.68
2.50	.96	1.23	1.50	1.77	2.03
5.00	2.28	2.53	2.77	3.01	3.38
7.50	3.77	4.14	4.51	4.86	5.20
10.00	5.53	5.84	6.15	6.45	6.74
12.50	7.01	7.28	7.54	7.79	8.03
15.00	8.27	8.49	8.71	8.92	9.04
17.50	9.16	9.27	9.38	9.49	9.52
20.00	9.41	9.23	9.06	8.85	8.56
22.50	8.27	8.00	7.73	7.47	7.22
25.00	6.98	6.75	6.53	6.31	6.10
27.50	5.90	5.70	5.51	5.33	5.15
30.00	4.98	4.81	4.65	4.50	4.35
32.50	4.20	4.06	3.93	3.80	3.67
35.00	3.55	3.43	3.31	3.20	3.10
37.50	3.02	2.96	2.90	2.85	2.79
40.00	2.74	2.68	2.63	2.58	2.53
42.50	2.48	2.43	2.39	2.34	2.29
45.00	2.25	2.21	2.16	2.12	2.08
47.50	2.04	2.00	1.96	1.92	1.88
50.00	1.85	1.81	1.78	1.74	1.71
52.50	1.68	1.64	1.61	1.58	1.55
55.00	1.52	1.49	1.46	1.43	1.40
57.50	1.38	1.35	1.32	1.30	1.27
60.00	1.25	1.22	1.20	1.18	1.15
62.50	1.13	1.11	1.09	1.07	1.05
65.00	1.02	1.01	.99	.97	.95
67.50	.93	.91	.89	.88	.86
70.00	.84	.83	.81	.79	.78
72.50	.76	.75	.73	.72	.71
75.00	.69	.68	.67	.65	.64

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
77.50	.63	.61	.60	.59	.58
80.00	.57	.56	.55	.54	.53
82.50	.52	.51	.50	.49	.48
85.00	.47	.46	.45	.44	.43
87.50	.42	.42	.41	.40	.39
90.00	.38	.38	.37	.36	.35
92.50	.35	.34	.33	.33	.32
95.00	.32	.31	.30	.30	.29
97.50	.29	.28	.27	.27	.26
100.00	.26	.25	.25	.24	.24
102.50	.23	.23	.23	.22	.22
105.00	.21	.21	.20	.20	.20
107.50	.19	.19	.19	.18	.18
110.00	.17	.17	.17	.16	.16
112.50	.16	.16	.15	.15	.15
115.00	.14	.14	.14	.14	.13
117.50	.13	.13	.13	.12	.12
120.00	.12	.12	.11	.11	.11
122.50	.11	.10	.10	.10	.10
125.00	.10	.10	.09	.09	.09
127.50	.09	.09	.08	.08	.08
130.00	.08	.08	.08	.08	.08
132.50	.08	.08	.08	.08	.08
135.00	.08	.08	.08	.08	.08
137.50	.08	.07	.07	.07	.07
140.00	.07	.07	.07	.07	.07
142.50	.07	.07	.07	.07	.07
145.00	.07	.07	.07	.07	.07
147.50	.07	.07	.07	.07	.07
150.00	.06	.06	.06	.06	.06
152.50	.06	.06	.06	.06	.06
155.00	.06	.06	.06	.06	.06
157.50	.06	.06	.06	.06	.06
160.00	.06	.06	.06	.06	.06
162.50	.06	.06	.06	.05	.05
165.00	.05	.05	.05	.05	.05
167.50	.05	.05	.05	.05	.05
170.00	.05	.05	.05	.05	.05
172.50	.05	.05	.05	.05	.05
175.00	.05	.05	.05	.05	.05
177.50	.05	.05	.05	.05	.05
180.00	.05	.05	.04	.04	.04
182.50	.04	.04	.04	.04	.04
185.00	.04	.04	.04	.04	.04
187.50	.04	.04	.04	.04	.04

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
190.00	.04	.04	.04	.04	.04
192.50	.04	.04	.04	.04	.04
195.00	.04	.04	.04	.04	.04
197.50	.04	.04	.04	.04	.04
200.00	.04	.04	.04	.04	.03
202.50	.03	.03	.03	.03	.03
205.00	.03	.03	.03	.03	.03
207.50	.03	.03	.03	.03	.03
210.00	.03	.03	.03	.03	.03
212.50	.03	.03	.03	.03	.03
215.00	.03	.03	.03	.03	.03
217.50	.03	.03	.03	.03	.03
220.00	.03	.03	.03	.03	.03
222.50	.03	.03	.03	.03	.03
225.00	.03	.03	.03	.03	.03
227.50	.03	.03	.03	.03	.03
230.00	.02	.02	.02	.02	.02
232.50	.02	.02	.02	.02	.02
235.00	.02	.02	.02	.02	.02
237.50	.02	.02	.02	.02	.02
240.00	.02	.02	.02	.02	.02
242.50	.02	.02	.02	.02	.02
245.00	.02	.02	.02	.02	.02
247.50	.02	.02	.02	.02	.02
250.00	.02	.02	.02	.02	.02
252.50	.02	.02	.02	.02	.02
255.00	.02	.02	.02	.02	.02
257.50	.02	.02	.02	.02	.02
260.00	.02	.02	.02	.02	.02
262.50	.02	.02	.02	.02	.02
265.00	.02	.02	.02	.02	.02
267.50	.02	.02	.02	.02	.02
270.00	.02	.02	.02	.02	.02
272.50	.01	.01	.01	.01	.01
275.00	.01	.01	.01	.01	.01
277.50	.01	.01	.01	.01	.01
280.00	.01	.01	.01	.01	.01
282.50	.01	.01	.01	.01	.01
285.00	.01	.01	.01	.01	.01
287.50	.01	.01	.01	.01	.01
290.00	.01	.01	.01	.01	.01
292.50	.01	.01	.01	.01	.01
295.00	.01	.01	.01	.01	.01
297.50	.01	.01	.01	.01	.01
300.00	.01	.01	.01	.01	.01

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
302.50	.01	.01	.01	.01	.01
305.00	.01	.01	.01	.01	.01
307.50	.01	.01	.01	.01	.01
310.00	.01	.01	.01	.01	.01
312.50	.01	.01	.01	.01	.01
315.00	.01	.01	.01	.01	.01
317.50	.01	.01	.01	.01	.01
320.00	.01	.01	.01	.01	.01
322.50	.01	.01	.01	.01	.01
325.00	.01	.01	.01	.01	.01
327.50	.01	.01	.01	.01	.01
330.00	.01	.01	.01	.01	.01
332.50	.01	.01	.01	.01	.01
335.00	.01	.01	.01	.01	.01
337.50	.01	.01	.01	.01	.01
340.00	.01	.01	.01	.01	.01
342.50	.01	.01	.01	.01	.01
345.00	.01	.01	.01	.01	.01
347.50	.01	.01	.01	.01	.01
350.00	.01	.01	.01	.01	.01
352.50	.01	.01	.01	.01	.01
355.00	.01	.01	.01	.01	.01
357.50	.01	.01	.01	.01	.01
360.00	.01	.01	.01	.01	.01
362.50	.01	.01	.01	.01	.00
365.00	.00	.00	.00	.00	.00
367.50	.00	.00	.00	.00	.00
370.00	.00	.00	.00	.00	.00
372.50	.00	.00	.00	.00	.00
375.00	.00	.00	.00	.00	.00
377.50	.00	.00	.00	.00	.00
380.00	.00	.00	.00	.00	.00
382.50	.00	.00	.00	.00	.00
385.00	.00	.00	.00	.00	.00
387.50	.00	.00	.00	.00	.00
390.00	.00	.00	.00	.00	.00
392.50	.00	.00	.00	.00	.00
395.00	.00	.00	.00	.00	.00
397.50	.00	.00	.00	.00	.00
400.00	.00	.00	.00	.00	.00
402.50	.00	.00	.00	.00	.00
405.00	.00	.00	.00	.00	.00

POND ROUTED TOTAL OUTFLOW HYG...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = POND 10 OUT
HYG Tag = 15

Peak Discharge =	20.65 cfs
Time to Peak =	19.00 min
HYG Volume =	27710 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	.04	.28	.75	1.21
2.50	1.66	2.10	2.53	2.96	3.60
5.00	4.29	4.95	5.60	6.22	6.83
7.50	7.41	7.97	8.52	8.99	9.29
10.00	9.57	9.86	10.13	10.40	10.67
12.50	11.52	12.62	13.62	14.54	15.38
15.00	16.15	16.85	17.49	18.08	18.61
17.50	19.10	19.55	20.04	20.65	20.31
20.00	18.90	17.28	15.79	14.44	13.20
22.50	12.07	11.03	10.61	10.41	10.21
25.00	10.01	9.82	9.63	9.45	9.27
27.50	9.09	8.91	8.62	8.33	8.05
30.00	7.78	7.52	7.27	7.03	6.80
32.50	6.57	6.35	6.14	5.93	5.74
35.00	5.55	5.36	5.18	5.01	4.84
37.50	4.68	4.53	4.38	4.23	4.09
40.00	3.95	3.82	3.69	3.57	3.45
42.50	3.34	3.23	3.12	3.03	2.97
45.00	2.92	2.86	2.80	2.75	2.70
47.50	2.64	2.59	2.54	2.49	2.44
50.00	2.40	2.35	2.30	2.26	2.21
52.50	2.17	2.13	2.09	2.05	2.01
55.00	1.97	1.93	1.89	1.86	1.82
57.50	1.78	1.75	1.72	1.68	1.65
60.00	1.62	1.59	1.55	1.52	1.49
62.50	1.47	1.44	1.41	1.38	1.35
65.00	1.33	1.30	1.28	1.25	1.23
67.50	1.20	1.18	1.16	1.14	1.11
70.00	1.09	1.07	1.05	1.03	1.01
72.50	.99	.97	.95	.93	.91
75.00	.90	.88	.86	.85	.83

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
77.50	.81	.80	.78	.77	.75
80.00	.74	.72	.71	.69	.68
82.50	.67	.65	.64	.63	.62
85.00	.61	.59	.58	.57	.56
87.50	.55	.54	.53	.52	.51
90.00	.50	.49	.48	.47	.46
92.50	.45	.44	.43	.42	.42
95.00	.41	.40	.39	.39	.38
97.50	.37	.36	.36	.35	.34
100.00	.34	.33	.32	.32	.31
102.50	.30	.30	.29	.29	.28
105.00	.28	.27	.27	.26	.25
107.50	.25	.25	.24	.24	.23
110.00	.23	.22	.22	.21	.21
112.50	.21	.20	.20	.19	.19
115.00	.19	.18	.18	.18	.17
117.50	.17	.17	.16	.16	.16
120.00	.15	.15	.15	.14	.14
122.50	.14	.14	.13	.13	.13
125.00	.13	.12	.12	.12	.12
127.50	.11	.11	.11	.11	.11
130.00	.10	.10	.10	.10	.10
132.50	.09	.09	.09	.09	.09
135.00	.08	.08	.08	.08	.08
137.50	.08	.08	.08	.08	.08
140.00	.08	.08	.08	.08	.08
142.50	.08	.08	.08	.08	.08
145.00	.07	.07	.07	.07	.07
147.50	.07	.07	.07	.07	.07
150.00	.07	.07	.07	.07	.07
152.50	.07	.07	.07	.07	.07
155.00	.07	.07	.07	.07	.06
157.50	.06	.06	.06	.06	.06
160.00	.06	.06	.06	.06	.06
162.50	.06	.06	.06	.06	.06
165.00	.06	.06	.06	.06	.06
167.50	.06	.06	.06	.06	.06
170.00	.06	.05	.05	.05	.05
172.50	.05	.05	.05	.05	.05
175.00	.05	.05	.05	.05	.05
177.50	.05	.05	.05	.05	.05
180.00	.05	.05	.05	.05	.05
182.50	.05	.05	.05	.05	.05
185.00	.05	.05	.05	.05	.05
187.50	.04	.04	.04	.04	.04

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
190.00	.04	.04	.04	.04	.04
192.50	.04	.04	.04	.04	.04
195.00	.04	.04	.04	.04	.04
197.50	.04	.04	.04	.04	.04
200.00	.04	.04	.04	.04	.04
202.50	.04	.04	.04	.04	.04
205.00	.04	.04	.04	.04	.04
207.50	.04	.04	.03	.03	.03
210.00	.03	.03	.03	.03	.03
212.50	.03	.03	.03	.03	.03
215.00	.03	.03	.03	.03	.03
217.50	.03	.03	.03	.03	.03
220.00	.03	.03	.03	.03	.03
222.50	.03	.03	.03	.03	.03
225.00	.03	.03	.03	.03	.03
227.50	.03	.03	.03	.03	.03
230.00	.03	.03	.03	.03	.03
232.50	.03	.03	.03	.03	.03
235.00	.03	.03	.03	.02	.02
237.50	.02	.02	.02	.02	.02
240.00	.02	.02	.02	.02	.02
242.50	.02	.02	.02	.02	.02
245.00	.02	.02	.02	.02	.02
247.50	.02	.02	.02	.02	.02
250.00	.02	.02	.02	.02	.02
252.50	.02	.02	.02	.02	.02
255.00	.02	.02	.02	.02	.02
257.50	.02	.02	.02	.02	.02
260.00	.02	.02	.02	.02	.02
262.50	.02	.02	.02	.02	.02
265.00	.02	.02	.02	.02	.02
267.50	.02	.02	.02	.02	.02
270.00	.02	.02	.02	.02	.02
272.50	.02	.02	.02	.02	.02
275.00	.02	.02	.02	.02	.02
277.50	.02	.02	.02	.01	.01
280.00	.01	.01	.01	.01	.01
282.50	.01	.01	.01	.01	.01
285.00	.01	.01	.01	.01	.01
287.50	.01	.01	.01	.01	.01
290.00	.01	.01	.01	.01	.01
292.50	.01	.01	.01	.01	.01
295.00	.01	.01	.01	.01	.01
297.50	.01	.01	.01	.01	.01
300.00	.01	.01	.01	.01	.01

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
302.50	.01	.01	.01	.01	.01
305.00	.01	.01	.01	.01	.01
307.50	.01	.01	.01	.01	.01
310.00	.01	.01	.01	.01	.01
312.50	.01	.01	.01	.01	.01
315.00	.01	.01	.01	.01	.01
317.50	.01	.01	.01	.01	.01
320.00	.01	.01	.01	.01	.01
322.50	.01	.01	.01	.01	.01
325.00	.01	.01	.01	.01	.01
327.50	.01	.01	.01	.01	.01
330.00	.01	.01	.01	.01	.01
332.50	.01	.01	.01	.01	.01
335.00	.01	.01	.01	.01	.01
337.50	.01	.01	.01	.01	.01
340.00	.01	.01	.01	.01	.01
342.50	.01	.01	.01	.01	.01
345.00	.01	.01	.01	.01	.01
347.50	.01	.01	.01	.01	.01
350.00	.01	.01	.01	.01	.01
352.50	.01	.01	.01	.01	.01
355.00	.01	.01	.01	.01	.01
357.50	.01	.01	.01	.01	.01
360.00	.01	.01	.01	.01	.01
362.50	.01	.01	.01	.01	.01
365.00	.01	.01	.01	.01	.01
367.50	.01	.01	.01	.01	.01
370.00	.01	.01	.00	.00	.00
372.50	.00	.00	.00	.00	.00
375.00	.00	.00	.00	.00	.00
377.50	.00	.00	.00	.00	.00
380.00	.00	.00	.00	.00	.00
382.50	.00	.00	.00	.00	.00
385.00	.00	.00	.00	.00	.00
387.50	.00	.00	.00	.00	.00
390.00	.00	.00	.00	.00	.00
392.50	.00	.00	.00	.00	.00
395.00	.00	.00	.00	.00	.00
397.50	.00	.00	.00	.00	.00
400.00	.00	.00	.00	.00	.00
402.50	.00	.00	.00	.00	.00
405.00	.00	.00	.00	.00	.00
407.50	.00	.00	.00	.00	.00
410.00	.00	.00	.00	.00	.00
412.50	.00	.00	.00		

POND ROUTED TOTAL OUTFLOW HYG...
HYG file = S:\JOBS\Jobs2006\06-086\Data-C\work_pad.hyg
HYG ID = POND 10 OUT
HYG Tag = 25

Peak Discharge =	28.40 cfs
Time to Peak =	19.00 min
HYG Volume =	34185 cu.ft

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
.00	.00	.04	.39	.97	1.53
2.50	2.09	2.63	3.24	4.13	4.99
5.00	5.83	6.63	7.41	8.16	8.89
7.50	9.31	9.70	10.09	10.47	11.14
10.00	12.76	14.24	15.59	16.83	17.96
12.50	18.99	20.01	21.42	22.64	23.68
15.00	24.57	25.34	26.00	26.57	27.05
17.50	27.47	27.83	28.14	28.40	27.57
20.00	24.73	21.22	18.85	17.24	15.76
22.50	14.40	13.17	12.04	11.00	10.61
25.00	10.40	10.20	10.01	9.82	9.63
27.50	9.44	9.26	9.09	8.90	8.61
30.00	8.32	8.04	7.78	7.52	7.27
32.50	7.02	6.79	6.56	6.35	6.13
35.00	5.93	5.73	5.54	5.36	5.18
37.50	5.01	4.84	4.68	4.52	4.37
40.00	4.23	4.08	3.95	3.82	3.69
42.50	3.57	3.45	3.33	3.22	3.12
45.00	3.03	2.97	2.91	2.86	2.80
47.50	2.75	2.69	2.64	2.59	2.54
50.00	2.49	2.44	2.39	2.35	2.30
52.50	2.26	2.21	2.17	2.13	2.09
55.00	2.05	2.01	1.97	1.93	1.89
57.50	1.85	1.82	1.78	1.75	1.71
60.00	1.68	1.65	1.62	1.58	1.55
62.50	1.52	1.49	1.46	1.44	1.41
65.00	1.38	1.35	1.33	1.30	1.28
67.50	1.25	1.23	1.20	1.18	1.16
70.00	1.13	1.11	1.09	1.07	1.05
72.50	1.03	1.01	.99	.97	.95
75.00	.93	.91	.90	.88	.86

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
77.50	.84	.83	.81	.80	.78
80.00	.77	.75	.74	.72	.71
82.50	.69	.68	.67	.65	.64
85.00	.63	.62	.60	.59	.58
87.50	.57	.56	.55	.54	.53
90.00	.52	.51	.50	.49	.48
92.50	.47	.46	.45	.44	.43
95.00	.42	.42	.41	.40	.39
97.50	.38	.38	.37	.36	.36
100.00	.35	.34	.34	.33	.32
102.50	.32	.31	.30	.30	.29
105.00	.29	.28	.28	.27	.27
107.50	.26	.25	.25	.24	.24
110.00	.24	.23	.23	.22	.22
112.50	.21	.21	.21	.20	.20
115.00	.19	.19	.19	.18	.18
117.50	.18	.17	.17	.17	.16
120.00	.16	.16	.15	.15	.15
122.50	.14	.14	.14	.14	.13
125.00	.13	.13	.13	.12	.12
127.50	.12	.12	.11	.11	.11
130.00	.11	.11	.10	.10	.10
132.50	.10	.10	.09	.09	.09
135.00	.09	.09	.08	.08	.08
137.50	.08	.08	.08	.08	.08
140.00	.08	.08	.08	.08	.08
142.50	.08	.08	.08	.08	.08
145.00	.08	.08	.07	.07	.07
147.50	.07	.07	.07	.07	.07
150.00	.07	.07	.07	.07	.07
152.50	.07	.07	.07	.07	.07
155.00	.07	.07	.07	.07	.07
157.50	.07	.06	.06	.06	.06
160.00	.06	.06	.06	.06	.06
162.50	.06	.06	.06	.06	.06
165.00	.06	.06	.06	.06	.06
167.50	.06	.06	.06	.06	.06
170.00	.06	.06	.06	.05	.05
172.50	.05	.05	.05	.05	.05
175.00	.05	.05	.05	.05	.05
177.50	.05	.05	.05	.05	.05
180.00	.05	.05	.05	.05	.05
182.50	.05	.05	.05	.05	.05
185.00	.05	.05	.05	.05	.05
187.50	.05	.05	.04	.04	.04

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
190.00	.04	.04	.04	.04	.04
192.50	.04	.04	.04	.04	.04
195.00	.04	.04	.04	.04	.04
197.50	.04	.04	.04	.04	.04
200.00	.04	.04	.04	.04	.04
202.50	.04	.04	.04	.04	.04
205.00	.04	.04	.04	.04	.04
207.50	.04	.04	.04	.04	.03
210.00	.03	.03	.03	.03	.03
212.50	.03	.03	.03	.03	.03
215.00	.03	.03	.03	.03	.03
217.50	.03	.03	.03	.03	.03
220.00	.03	.03	.03	.03	.03
222.50	.03	.03	.03	.03	.03
225.00	.03	.03	.03	.03	.03
227.50	.03	.03	.03	.03	.03
230.00	.03	.03	.03	.03	.03
232.50	.03	.03	.03	.03	.03
235.00	.03	.03	.03	.03	.03
237.50	.02	.02	.02	.02	.02
240.00	.02	.02	.02	.02	.02
242.50	.02	.02	.02	.02	.02
245.00	.02	.02	.02	.02	.02
247.50	.02	.02	.02	.02	.02
250.00	.02	.02	.02	.02	.02
252.50	.02	.02	.02	.02	.02
255.00	.02	.02	.02	.02	.02
257.50	.02	.02	.02	.02	.02
260.00	.02	.02	.02	.02	.02
262.50	.02	.02	.02	.02	.02
265.00	.02	.02	.02	.02	.02
267.50	.02	.02	.02	.02	.02
270.00	.02	.02	.02	.02	.02
272.50	.02	.02	.02	.02	.02
275.00	.02	.02	.02	.02	.02
277.50	.02	.02	.02	.02	.02
280.00	.01	.01	.01	.01	.01
282.50	.01	.01	.01	.01	.01
285.00	.01	.01	.01	.01	.01
287.50	.01	.01	.01	.01	.01
290.00	.01	.01	.01	.01	.01
292.50	.01	.01	.01	.01	.01
295.00	.01	.01	.01	.01	.01
297.50	.01	.01	.01	.01	.01
300.00	.01	.01	.01	.01	.01

HYDROGRAPH ORDINATES (cfs)
Output Time increment = .50 min
Time on left represents time for first value in each row.

Time min					
302.50	.01	.01	.01	.01	.01
305.00	.01	.01	.01	.01	.01
307.50	.01	.01	.01	.01	.01
310.00	.01	.01	.01	.01	.01
312.50	.01	.01	.01	.01	.01
315.00	.01	.01	.01	.01	.01
317.50	.01	.01	.01	.01	.01
320.00	.01	.01	.01	.01	.01
322.50	.01	.01	.01	.01	.01
325.00	.01	.01	.01	.01	.01
327.50	.01	.01	.01	.01	.01
330.00	.01	.01	.01	.01	.01
332.50	.01	.01	.01	.01	.01
335.00	.01	.01	.01	.01	.01
337.50	.01	.01	.01	.01	.01
340.00	.01	.01	.01	.01	.01
342.50	.01	.01	.01	.01	.01
345.00	.01	.01	.01	.01	.01
347.50	.01	.01	.01	.01	.01
350.00	.01	.01	.01	.01	.01
352.50	.01	.01	.01	.01	.01
355.00	.01	.01	.01	.01	.01
357.50	.01	.01	.01	.01	.01
360.00	.01	.01	.01	.01	.01
362.50	.01	.01	.01	.01	.01
365.00	.01	.01	.01	.01	.01
367.50	.01	.01	.01	.01	.01
370.00	.01	.01	.01	.01	.00
372.50	.00	.00	.00	.00	.00
375.00	.00	.00	.00	.00	.00
377.50	.00	.00	.00	.00	.00
380.00	.00	.00	.00	.00	.00
382.50	.00	.00	.00	.00	.00
385.00	.00	.00	.00	.00	.00
387.50	.00	.00	.00	.00	.00
390.00	.00	.00	.00	.00	.00
392.50	.00	.00	.00	.00	.00
395.00	.00	.00	.00	.00	.00
397.50	.00	.00	.00	.00	.00
400.00	.00	.00	.00	.00	.00
402.50	.00	.00	.00	.00	.00
405.00	.00	.00	.00	.00	.00
407.50	.00	.00	.00	.00	.00
410.00	.00	.00	.00	.00	.00
412.50	.00	.00	.00	.00	.00

LEVEL POOL ROUTING SUMMARY

HYG Dir = S:\JOBS\Jobs2006\06-086\Data-C\
Inflow HYG file = work_pad.hyg - POND 10 IN 100
Outflow HYG file = work_pad.hyg - POND 10 OUT 100

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet 1

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	506.45 ft
Starting Volume	=	16932 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.50 min

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	38.41 cfs	at	1.00 min
Peak Outflow	=	37.45 cfs	at	19.00 min
Peak Elevation	=	508.26 ft		
Peak Storage	=	36325 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	16932
+ HYG Vol IN	=	43787
- Infiltration	=	0
- HYG Vol OUT	=	43772
- Retained Vol	=	16947
Unrouted Vol	= -	cu.ft (.001% of Inflow Volume)

Index of Starting Page Numbers for ID Names

----- O -----
Outlet 1... 8.01, 8.04, 8.10

----- P -----
POND 10... 7.01, 9.01, 9.02, 9.04,
9.08, 9.12, 5.01, 6.01, 9.16

----- W -----
Watershed... 1.01, 2.01, 2.02