

*Revised Drainage Calculations for
City of Clermont and SJRWMD*

CLERMONT COMMERCE CENTER
(NE Corner of Hancock Road and Trade Ave., Clermont, FL)

Prepared by:

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1.0 SUMMARY

The subject site is approximately 9.4 acres. The site is located within Section 34, Township 22 South, Range 26 East within Lake County, Florida. More specifically, the property is located at the northeast corner of Hancock Road and Trade Avenue in Clermont, Florida, 34711. The site is currently undeveloped and is heavily wooded with Oak, Ash and Pine trees. The property slopes from the north, east, west and south property boundaries toward the lowest portion of the project site at the center.

The proposed project includes construction of two warehouse/office buildings, truck court, driveways, parking and stormwater retention ponds. More specifically, the area of the building along the south property line will be 63,000 square feet and the building to the north will be 44,400 square feet for a total floor area of 107,400 square feet. Stormwater runoff from the proposed improvements will be managed through two on-site dry retention ponds. The stormwater management system has been designed to address the pollution abatement criteria and the attenuation of the peak runoff. The design meets or exceeds the requirements of the St. Johns River Water Management District (SJRWMD), and the City of Clermont. The proposed basin summary table below defines the proposed development basins.

The retention ponds will be designed to retain 100% of the stormwater runoff for the 100-year 24-hour storm event; therefore, the pre-development condition was not analyzed. The post development condition was analyzed as two separate drainage basins which are described as the following:

Table 1: Post Development Basin Summary

BASIN NAME	A	B
BASIN AREA (AC)	15.471	17.582
IMPERVIOUS AREA (AC)	0.330	9.305*
% IMPERVIOUS	2	53
Tc (MIN.)	73	35
CN	34	69

*A portion of the impervious area was the semi-pervious stabilized and grassed emergency access road on the north side of the project site.

A summary of the post development impervious and pervious areas for onsite and offsite for each basin is provided in the table below:

ONSITE/OFFSITE IMPERVIOUS AND PERVIOUS AREAS			
ONSITE	Basin A	Basin B	Onsite Total
ONSITE Impervious Area (ac)	0.258	5.697	5.955
ONSITE Pervious Area (ac)	0.747	2.703	3.450
ONSITE Total Areas (ac)	1.005	8.400	9.405
OFFSITE	Basin A	Basin B	Offsite Total
OFFSITE Impervious Area (ac)	0.072	3.608	3.680
OFFSITE Pervious Area (ac)	14.394	5.574	19.968
OFFSITE Total Areas (ac)	14.466	9.182	23.648
ONSITE AND OFFSITE	Basin A	Basin B	Total
COMBINED Impervious Areas (ac)	0.330	9.305	9.635
COMBINED Pervious Areas (ac)	15.141	8.277	23.418
Total	15.471	17.582	33.053

1.1 SOILS AND GROUNDWATER

A review of the information published by the United States Department of Agriculture, National Resources Conservation Service website indicates soil types within the project boundaries consist of Candler Fine Sand, 0 to 5 percent slopes (Hydrologic Group A Soil); Candler Fine Sand, 5 to 12 percent slopes (Hydrologic Group A Soil); Lake Fine Sand 0 to 5 percent slopes (Hydrologic Group A Soil).

Professional Service Industries (PSI) completed fourteen standard penetration test borings at the location of the buildings to a depth of 25 feet below ground surface (bgs), three auger borings at the location of the ponds to a depth of 15 feet bgs, and five auger borings at the location of the parking and driveway to a depth of 7 feet bgs. Groundwater was not observed in any of the borings. The estimated normal seasonal high groundwater depth was estimated at 50 feet bgs. Please refer to the Updated Report Geotechnical Engineering Services report dated February 20, 2018, submitted under separate cover. In addition, please refer to the table within the Stormwater Management section of the aforementioned report for stormwater design parameters.

1.2 WETLANDS

No wetlands exist on site. Please refer to the Preliminary Environmental Assessment Report by Bio-Tech Consulting and dated February 1, 2018 submitted under separate cover.

1.3 EXISTING DRAINAGE

The project site contains a landlocked depressed area at the center of the property that collects stormwater runoff from the area within the project boundaries as well stormwater runoff from offsite areas north, south, east and west of the project site.

The offsite area to the east encompasses a portion of the Crothall Laundry Services Facility (building, parking and driveways). The Crothall Laundry Services Facility does not have a stormwater management pond to provide water quality and attenuation. The stormwater runoff from the south portion of the Crothall Laundry Services sheet flows to the west via overland flow to the landlocked depressed area at the center of the project site. The stormwater runoff from the north portion of the Crothall Laundry Services sheet flows to the west via overland flow to an existing 24-inch pipe to the landlocked depressed area at the center of the project site.

The offsite area north of the project site is undeveloped and vegetated with trees and brush. The stormwater runoff from the area north of the project site sheet flows overland to the south toward the landlocked depressed area at the center of the project site.

A portion of the Hancock Road right of way west and southwest of the project site generates stormwater runoff that flows along the east side of Hancock Road and eventually into the landlocked depressed area at the center of the project site.

The offsite area south of the project site is undeveloped and vegetated with trees and brush. The runoff from the area to the south of the project site sheet flows overland north towards an east-west roadside swale along the south side of Trade Avenue. The runoff is directed across Trade Avenue via an existing 30-inch pipe to the landlocked depressed area at the center of the project site.

2.0 PROPOSED DEVELOPMENT

The proposed project includes construction of one 44,400 sf warehouse building on the north side and one 63,000 sf building on the south side of the project site as well as a truck court, driveways, parking and two stormwater retention ponds. Offsite improvements include restriping a portion of Hancock Road, water main connection across (directional

drill) Hancock Road and construction (directional drill) of approximately 1,800 linear feet of sanitary force main along the east side of Hancock Road to make connection with the lift station to the north.

Stormwater runoff from the proposed improvements will be managed through two on-site dry retention ponds. The stormwater management system has been designed to address the pollution abatement criteria and the attenuation of the peak runoff. The design meets or exceeds the requirements of the St. Johns River Water Management District (SJRWMD), and the City of Clermont.

2.1 REQUIRED PERMITS AND REVIEWS

- City of Clermont, Florida
- Lake County, Florida
- St. Johns Water Management District (SJRWMD) Permit

2.2 STORMWATER MANAGEMENT

Stormwater runoff from the basins will be collected within the dry retention ponds located within the south and east portions of the property. The storm water management system is designed to meet or exceed all requirements of City of Apopka and the SJRWMD.

2.2.1 BASIN

Basin A includes an offsite area to the south of Trade Avenue as well as proposed dry retention Pond A located adjacent to Trade Avenue along the south side of the project site. The runoff from the basin flows from south to north towards a roadside swale along the south side of Trade Avenue. The runoff collects in the swale and runs east and west towards a an existing 30-inch pipe. The stormwater runoff from the south side of Trade Avenue is conveyed to the proposed onsite dry retention Pond A located along the north side of Trade Avenue via the existing 30-inch pipe. A post-development drainage map is provided in Appendix A.

Basin B encompasses most of the post developed onsite basin as well as offsite areas east of the site (Crothall Laundry Services), offsite areas west and southwest of the site (east portion of Hancock Road ROW), as well as offsite areas to the north. The runoff from the southwest and west portion (offsite) of Basin B will sheet flow from the southwest and west along the Hancock Road ROW into a proposed inlet along the Hancock Road ROW adjacent the west central project boundary, and the stormwater will be conveyed via onsite secondary stormwater pipes to proposed Pond B located adjacent to the east property boundary. The runoff from

the north portion (offsite) of Basin B will sheet flow from the north to the south and into proposed inlets onsite and the stormwater will be conveyed via secondary stormwater pipes to proposed Pond B. A portion (south portion) of the Crothall Laundry Services property on the east side of Basin B will sheet flow from west to east into proposed Pond B. A portion (north portion) of the Crothall Laundry Services property on the east side of Basin B is conveyed to proposed Pond B via an existing 24-inch storm pipe. The onsite portion of Basin B will sheet flow to the secondary system of inlets and pipes and be routed to proposed Pond B. A post-development drainage map is provided in Appendix A.

2.2.2 CN CALCULATIONS

The USDA National Resources Conservation Service indicates the in-situ soils, which will be retained on site for fill are classified within Hydrologic Group A. The curve number for the pervious areas of the post development drainage basin were based on in-situ soils designated as Hydrologic Group A. The calculations are provided in Appendix B.

2.2.3 TIME OF CONCENTRATION

The post development time of concentration was calculated for the proposed post development drainage basins. The resulting time of concentration is provided in Appendix B.

2.2.4 TAILWATER CONDITION

The onsite stormwater will be retained onsite via the dry retention ponds; therefore, a tailwater condition was not required for the analysis of the stormwater management system.

2.3 POLLUTION ABATEMENT VOLUME (PAV)

Dry retention ponds are utilized for the Best Management Practice (BMP) to reduce the discharge of pollutants associated with stormwater runoff. The following are the PAV (Treatment Volume) requirements:

The PAV requirements for on-line dry retention pond are as follows:

The greater of:

½" of runoff over the basin (on-line)

or
1- ¼" of runoff over the impervious area (on-line)
plus
½" over entire site (on-line).

All PAV is provided within the dry retention ponds. The supporting required and provided PAV calculations are included within Appendix C.

2.4 PROPOSED DEVELOPMENT RUNOFF

The runoff from Basin A will sheet flow from the south to the north towards a swale along the south side of Trade Avenue and across Trade Avenue via an existing 30-inch stormwater pipe into proposed Pond A located along the south side of the project site adjacent to Trade Avenue. The stormwater is treated via percolation through the permeable soils into the shallow ground aquifer. The stormwater analysis for the post development was completed using Ponds (Ver. 3.2). Please refer to Appendix D for an input report, hydrographs, and routing report.

The runoff from the west portion (offsite) of Basin B will sheet flow from the southwest and west along the Hancock Road ROW into a proposed inlet along the Hancock Road ROW adjacent the west central project boundary and the stormwater will be conveyed via secondary stormwater pipes to proposed Pond B located adjacent to the east property boundary. The runoff from the north portion (offsite) of Basin B will sheet flow from the north to the south and into proposed inlets onsite and the stormwater will be conveyed via secondary stormwater pipes to proposed Pond B. The runoff from the east portion (offsite) of Basin B will sheet flow into proposed Pond B. A portion (north portion) of the Crothall Laundry Services property on the east side of Basin B is conveyed to proposed Pond B via an existing 24-inch storm pipe. The onsite portion of Basin B will sheet flow to the secondary system of inlets and pipes and be routed to proposed Pond B.

The stormwater collected within proposed Pond A and Pond B is treated via percolation through the permeable soils into the shallow ground aquifer. The stormwater analysis for the post development was completed using Ponds (Ver. 3.2). Please refer to Appendix D for an input report, hydrographs, and routing report.

No stormwater discharge is proposed from the proposed dry retention ponds.

2.5 PAV RECOVERY

SJRWMD requires that the PAV be recovered within 3 days (72 hours). PSI performed permeability tests within some of the borings completed onsite.

PSI recommended an estimated horizontal saturated hydraulic conductivity of surficial aquifer of 45 ft/day and an estimated vertical unsaturated hydraulic conductivity of surficial aquifer of 30 ft/day within their report. According to the PSI report, a factor of safety was not applied to the above referenced values.

A horizontal saturated hydraulic conductivity of surficial aquifer of 22.5 ft/day was used for the drawdown analysis of the proposed ponds, which incorporated a factor of safety of 2 (vertical unsaturated hydraulic conductivity of surficial aquifer was not used). Please refer to the Updated Geotechnical Engineering Services report by PSI submitted under separate cover. Recovery time at 72 hours was determined by using Ponds (Ver. 3.2). Please see supporting recovery analysis in Appendix D.

2.6 CONCLUSION

The design meets or exceeds all requirements of SJRWMD and City of Clermont. An input report and routing results are provided in Appendix D.

The post-development pond stages were determined using PONDSD (Ver. 3.2). Please refer to Appendix D for the input report, and drainage analysis summary. A summary table is provided below:

Pond A	
Top of Bank Elevation (FT)	159.00
25 Year 24 Hour Storm Event Maximum Stage w/Infiltration	152.00
100 Year 24 Hour Storm Event Maximum Stage w/Infiltration	154.41
Mean Annual 24 Hour Storm Event Maximum Stage w/Infiltration	152.00
Mean Annual 24 Hour Storm Event Maximum Stage without Infiltration	154.13
100 Year 24 Hour Storm 14 Day Recovery – Did Pond Recover?	YES
72 Hour Drawdown - Did Pond Recover?	YES

Pond A	
Top of Bank Elevation (FT)	159.10
25 Year 24 Hour Storm Event Maximum Stage w/Infiltration	156.45
100 Year 24 Hour Storm Event Maximum Stage w/Infiltration	159.06
Mean Annual 24 Hour Storm Event Maximum Stage w/ Infiltration	148.01
Mean Annual 24 Hour Storm Event Maximum Stage without Infiltration	153.16
100 Year 24 Hour Storm 14 Day Recovery – Did Pond Recover?	YES
72 Hour Drawdown - Did Pond Recover?	YES

2.7 WETLAND IMPACTS/MITIGATION

No wetlands exist on site. Please refer to the Preliminary Environmental Assessment Report by Bio-Tech Consulting and dated February 1, 2018 submitted under separate cover.

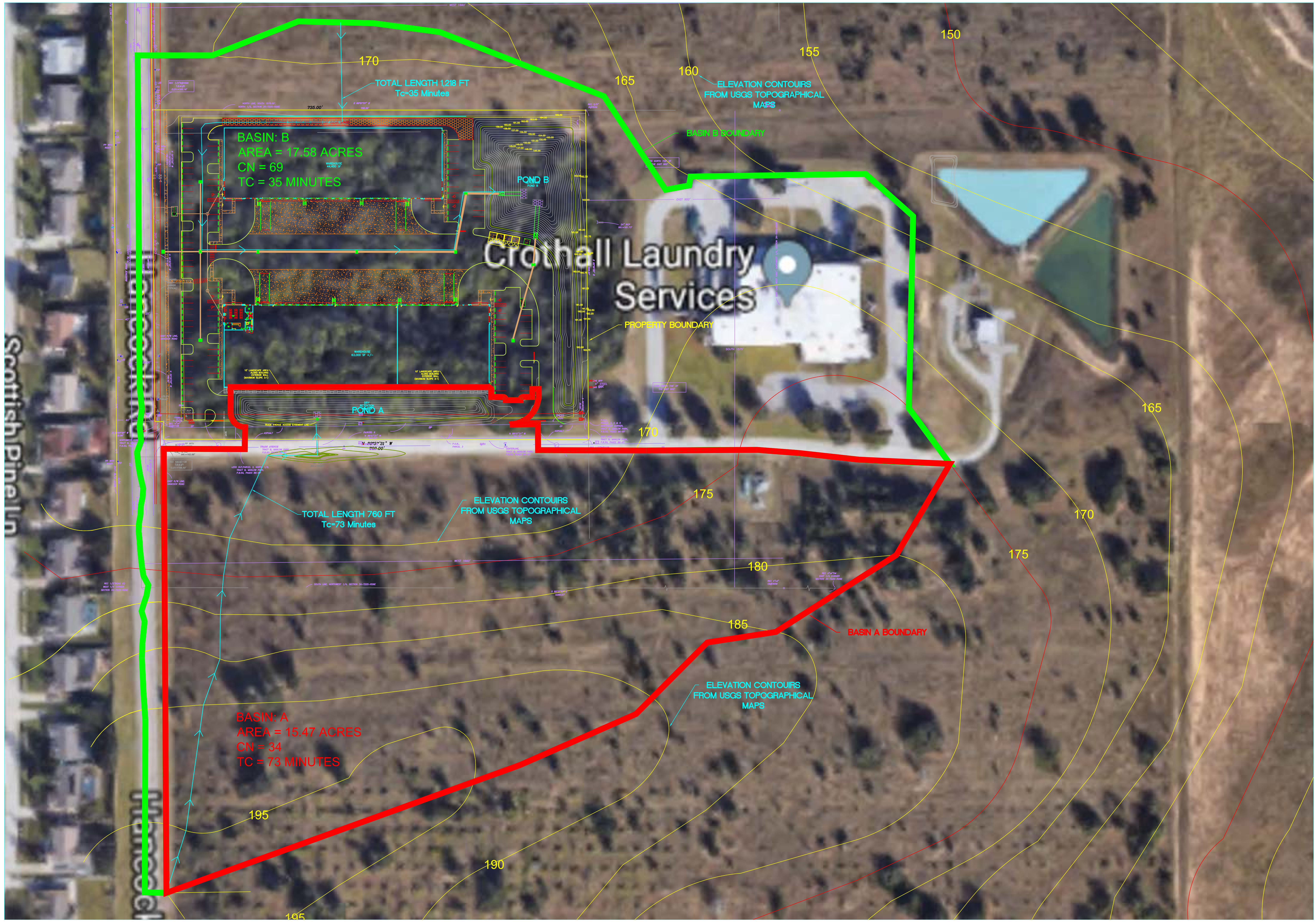
3.0 MONITORING

The proposed project is within the Lake Apopka Hydrologic Basin; therefore, 10 years of monitoring will be conducted following the completion of the construction to show the system is recovering and will not discharge to Lake Apopka or its tributaries.

APPENDIX A

POST DRAINAGE BASIN MAP

Drawing name: \\cnd-server\Projects\2600-MC000\17-300-Clermont-BTS\Exhibits\Post Development Drainage Basin Map Revised.dwg Post Development Drainage Basin Map Nov. 02, 2018 2:28pm by Eric



CLERMONT COMMERCE CENTER HANCOCK ROAD CLERMONT FLORIDA LAKE COUNTY FLORIDA		POST DRAINAGE BASIN MAP		SCALE: AS NOTED DESIGNED BY: EPL DRAWN BY: EPL CHECKED BY: CSL	DESIGN ENGINEER: CHAD S. LINN, P.E. FLORIDA REGISTRATION NUMBER: 57524 SEAL	No. _____ REVISIONS _____ DATE _____ BY _____
DATE 10/9/18		PROJECT NO. 2600-16-200		SHEET NUMBER EX-1		

APPENDIX B

POST

CURVE NUMBER AND TIME

OF CONCENTRATION

CALCULATIONS

CURVE NUMBER

CURVE NUMBER WORKSHEET SITE POST-DEVELOPMENT

Basin Name = A

Basin Area = 15.471 acres

AREA	SCS SOIL TYPE	COVER TYPE AND CONDITIONS	CURVE NUMBER	SUB TOTAL
		Grass (Lawns, Parks, Golf Courses, etc.)		
0.919	A	Poor	68.0	0.0
	A	Fair	49.0	0.0
	A	Good	39.0	35.8
		Brush (Brush-Weed-Grass)		
	A	Poor	48.0	0.0
	A	Fair	35.0	0.0
	A	Good	30.0	0.0
		Woods/Grass (Orchard or Tree Farm)		
14.222	A	Poor	57.0	0.0
	A	Fair	43.0	0.0
	A	Good	32.0	455.1
		Woods		
	A	Poor	45.0	0.0
	A	Fair	36.0	0.0
	A	Good	30.0	0.0
0.330	A,B,C,D	Semi-Impervious (Gravel)	78.0	0.0
	A,B,C,D	Impervious (Pavement, Concrete, Roofs)	98.0	32.3

WEIGHTED CURVE NUMBER = 34

WEIGHTED CURVE NUMBER = SUM (CN*AREA) / TOTAL AREA

**CURVE NUMBER WORKSHEET
SITE POST-DEVELOPMENT**

Basin Name = B

Basin Area = 17.582 acres

AREA	SCS SOIL TYPE	COVER TYPE AND CONDITIONS	CURVE NUMBER	SUB TOTAL
		Grass (Lawns, Parks, Golf Courses, etc.)		
5.205	A	Poor	68.0	0.0
	A	Fair	49.0	0.0
	A	Good	39.0	203.0
		Brush (Brush-Weed-Grass)		
	A	Poor	48.0	0.0
	A	Fair	35.0	0.0
	A	Good	30.0	0.0
		Woods/Grass (Orchard or Tree Farm)		
2.365	A	Poor	57.0	0.0
	A	Fair	43.0	0.0
	A	Good	32.0	75.7
		Woods		
0.707	A	Poor	45.0	0.0
	A	Fair	36.0	0.0
	A	Good	30.0	21.2
0.134	A,B,C,D	Semi-Impervious (Gravel)	78.0	10.5
9.171	A,B,C,D	Impervious (Pavement, Concrete, Roofs)	98.0	898.8

WEIGHTED CURVE NUMBER = 69

WEIGHTED CURVE NUMBER = SUM (CN*AREA) / TOTAL AREA

TIME OF CONCENTRATION

BASIN A

CALCULATE POST-DEVELOPMENT T_c NUMBER

OVERLAND FLOW < 300 ft.

L= 300 FT
N= 0.8
S= 0.005

SHALLOW CONC. FLOW > 300 ft.

L= 460 FT
V= 1.9 FT/SEC

Intensity IN1= 3.5 IN/HR
IN2= 4 IN/HR
IN3= 5 IN/HR

SHALLOW CONC. FLOW > 300 ft.

L= 0 FT
V= 2 FT/SEC

T_c = T_o overland flow + T_s shallow conc. flow

$$T_o = .93 * (L^{.6} * N^{.6}) / (IN^{.4} * S^{.3})$$

T_{o1} = 74.01 MIN
T_{o2} = 70.16 MIN
T_{o3} = 64.17 MIN

T_o avg. = 69.45

$$T_s = L/V$$

T_s = 4.04

$$T_c = T_o + T_s$$

T_c = 73.48 => USE 73 MIN
USE 73 MIN

BASIN B

CALCULATE POST-DEVELOPMENT T_c NUMBER

OVERLAND FLOW < 300 ft.

L= 170 FT
N= 0.8
S= 0.032

SHALLOW CONC. FLOW > 300 ft.

L= 203 FT
V= 1.75 FT/SEC

Intensity

IN1= 3.5 IN/HR
IN2= 4 IN/HR
IN3= 5 IN/HR

SHALLOW CONC. FLOW > 300 ft.

L= 130 FT
V= 1.5 FT/SEC

PIPE FLOW

L= 715 FT
V= 4 FT/SEC

T_c = T_o overland flow + T_s shallow conc. flow

$$T_o = .93 * (L^{.6} * N^{.6}) / (IN^{.4} * S^{.3})$$

T_{o1} = 30.16 MIN
T_{o2} = 28.59 MIN
T_{o3} = 26.15 MIN

T_o avg. = 28.30

$$T_s = L/V$$

T_s = 3.38

T_p = 2.98

$$T_c = T_o + T_s + T_p$$

T_c = 34.66 => USE 35 MIN
USE 35 MIN

APPENDIX C

**REQUIRED TREATMENT
VOLUME
AND
PROVIDED TREATMENT
VOLUME CALCULATIONS**

REQUIRED TREATMENT VOLUME CALCULATIONS BASIN A

11/1/2018

Determine the required Pollution Abatement Volume (PAV) for water quality treatment for the proposed Post Basin for SJRWMD and City of New Smyrna Beach criteria.

CRITERIA: The stormwater management system is required to store a minimum volume equal to the first one-half inch of runoff from the developed site or 1.25 inches time the percentage of impervious area plus one-half inch over entire site for online storage only, which ever is greater.

Site Post Basin – Online Storage

1. Compute the first half inch of runoff from the developed site (Va): Basin = 15.471 AC

$$\begin{aligned}
 &V_a = 0.5 \text{ inch} * \text{developed site} \\
 &V_a = 0.5 \text{ inch} * (1 \text{ foot} / 12 \text{ inches}) = 15.471 \text{ ac} \\
 &\quad \mathbf{V_a = 0.6446 \text{ ac-ft}} \quad \text{for the first half inch of runoff} \\
 &\quad = 28080 \text{ ft}^3
 \end{aligned}$$

$$\begin{aligned}
 &V_b = 0.5 * \text{developed site} \\
 &V_b = 0.5 * (1 \text{ foot} / 12 \text{ inches}) = 15.471 \text{ ac} \\
 &\quad \mathbf{V_b = 0.6446 \text{ ac-ft}} \\
 &\quad = 28080 \text{ ft}^3
 \end{aligned}$$

$$\begin{aligned}
 \text{Total } V_a + V_b &= 0.6446 + 0.6446 = 1.2893 \text{ ac-ft} \quad (\text{Required retention storage}) \\
 &= 56160 \text{ ft}^3
 \end{aligned}$$

2. Compute 1.25 inches times the percentage of impervious (Vb): Impervious = 0.33 AC

$$\begin{aligned}
 &V_c = 1.25 * \text{total impervious} \\
 &V_c = 1.25 * (1 \text{ foot} / 12 \text{ inches}) * 0.33 \\
 &\quad \mathbf{V_c = 0.0344 \text{ ac-ft}} \quad \text{for the first half inch of runoff} \\
 &\quad = 1497 \text{ ft}^3
 \end{aligned}$$

$$\begin{aligned}
 &V_b = 0.5 * \text{developed site} \\
 &V_b = 0.5 * (1 \text{ foot} / 12 \text{ inches}) = 15.471 \text{ ac} \\
 &\quad \mathbf{V_b = 0.6446 \text{ ac-ft}} \\
 &\quad = 28080 \text{ ft}^3
 \end{aligned}$$

$$\begin{aligned}
 \text{Total } V_c + V_b &= 0.0344 + 0.6446 = 0.6790 \text{ ac-ft} \quad (\text{Required retention storage}) \\
 &= 29577 \text{ ft}^3
 \end{aligned}$$

Since the 1.29 ac-ft , for one half inch over the site area is > 0.68 ac-ft for 1.25 inches times the impervious area, the required pollution abatement volume is 1.29 ac-ft

REQUIRED TREATMENT VOLUME CALCULATIONS BASIN B

11/1/2018

Determine the required Pollution Abatement Volume (PAV) for water quality treatment for the proposed Post Basin for SJRWMD and City of New Smyrna Beach criteria.

CRITERIA: The stormwater management system is required to store a minimum volume equal to the first one-half inch of runoff from the developed site or 1.25 inches time the percentage of impervious area plus one-half inch over entire site for online storage only, which ever is greater.

Site Post Basin – Online Storage

1. Compute the first half inch of runoff from the developed site (Va): Basin = 17.582 AC

$$\begin{aligned} & \text{Va} = 0.5 \text{ inch} * \text{developed site} \\ & \text{Va} = 0.5 \text{ inch} * (1 \text{ foot} / 12 \text{ inches}) = 17.582 \text{ ac} \\ & \quad \text{Va} = \quad \mathbf{0.7326} \quad \mathbf{ac-ft} \\ & \quad = \quad 31911 \quad \text{ft}^3 \end{aligned} \quad \begin{array}{l} \\ \\ \text{for the first half inch of runoff} \end{array}$$

$$\begin{aligned} & \text{Vb} = 0.5 * \text{developed site} \\ & \text{Vb} = 0.5 * (1 \text{ foot} / 12 \text{ inches}) = 17.582 \text{ ac} \\ & \quad \text{Vb} = \quad \mathbf{0.7326} \quad \mathbf{ac-ft} \\ & \quad = \quad 31911 \quad \text{ft}^3 \end{aligned}$$

$$\begin{array}{rclclcl} \text{Total Va + Vb} & = & \mathbf{0.7326} & + & \mathbf{0.7326} & = & \mathbf{1.4652} & \mathbf{ac-ft} & \\ & & & & & = & \mathbf{63823} & \mathbf{ft}^3 & \text{(Required retention storage)} \end{array}$$

2. Compute 1.25 inches times the percentage of impervious (Vc): Impervious = 9.284 AC

$$\begin{aligned} & \text{Vc} = 1.25 * \text{total impervious} \\ & \text{Vc} = 1.25 * (1 \text{ foot} / 12 \text{ inches}) * 9.284 \\ & \quad \text{Vc} = \quad \mathbf{0.9671} \quad \mathbf{ac-ft} \\ & \quad = \quad 42126 \quad \text{ft}^3 \end{aligned} \quad \begin{array}{l} \\ \\ \text{for the first half inch of runoff} \end{array}$$

$$\begin{aligned} & \text{Vb} = 0.5 * \text{developed site} \\ & \text{Vb} = 0.5 * (1 \text{ foot} / 12 \text{ inches}) = 17.582 \text{ ac} \\ & \quad \text{Vb} = \quad \mathbf{0.7326} \quad \mathbf{ac-ft} \\ & \quad = \quad 31911 \quad \text{ft}^3 \end{aligned}$$

$$\begin{array}{rclclcl} \text{Total Vc + Vb} & = & \mathbf{0.9671} & + & \mathbf{0.7326} & = & \mathbf{1.6997} & \mathbf{ac-ft} & \\ & & & & & = & \mathbf{74037} & \mathbf{ft}^3 & \text{(Required retention storage)} \end{array}$$

Since the 1.70 , ac-ft for 1.25 inch times impervious area is > 1.47 ac-ft for one-half inches over the developed site, the required pollution abatement volume is 1.70 ac-ft
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PROVIDED POLLUTION ABATEMENT VOLUME CALCULATIONS

PROPOSED DRY POND A						
Stage	Area (sq.-ft.)	Area (ac.)	Volume (cu.-ft.)	Volume (ac-ft.)	Sum Volume (cu.-ft.)	Sum Volume (ac-ft)
152.00	528	0.01	-	-	-	-
153.00	2328	0.05	1428.00	0.03	1428.00	0.03
154.00	4821	0.11	3574.50	0.08	5002.50	0.11
154.41	5817	0.13	2180.79	0.05	7183.29	0.16
155.00	7250	0.17	3854.77	0.09	11038.06	0.25
156.00	9696	0.22	8473.00	0.19	19511.06	0.45
157.00	12217	0.28	10956.50	0.25	30467.56	0.70
158.00	14813	0.34	13515.00	0.31	43982.56	1.01
158.78	16892	0.39	12364.95	0.28	56347.51	1.29
159.00	17479	0.40	3780.81	0.09	60128.32	1.38

Therefore **1.29** ac-ft of PAV will be provided in the pond system within the basin at elevation **158.78** FT

The 100YR 24HR MAX STAGE PER THE PONDS PROGRAM IS **154.41** FT
 BASED ON THE MAX STAGE THE ASSOCIATED VOLUME TO BE RECOVERED IN
 14 DAYS IS **7183** CU-FT

PROVIDED POLLUTION ABATEMENT VOLUME CALCULATIONS

PROPOSED DRY POND B						
Stage	Area (sq.-ft.)	Area (ac.)	Volume (cu.-ft.)	Volume (ac-ft.)	Sum Volume (cu.-ft.)	Sum Volume (ac-ft)
143.00	3713	0.09	-	-	-	-
144.00	4562	0.10	4137.50	0.09	4137.50	0.09
145.00	5527	0.13	5044.50	0.12	9182.00	0.21
146.00	6583	0.15	6055.00	0.14	15237.00	0.35
147.00	7741	0.18	7162.00	0.16	22399.00	0.51
148.00	8989	0.21	8365.00	0.19	30764.00	0.71
149.00	10374	0.24	9681.50	0.22	40445.50	0.93
150.00	11763	0.27	11068.50	0.25	51514.00	1.18
151.00	13227	0.30	12495.00	0.29	64009.00	1.47
151.73	14490	0.33	10116.70	0.23	74125.70	1.70
152.00	14957	0.34	3975.35	0.09	78101.05	1.79
153.00	16705	0.38	15831.00	0.36	93932.05	2.16
154.00	18563	0.43	17634.00	0.40	111566.05	2.56
155.00	20599	0.47	19581.00	0.45	131147.05	3.01
156.00	23869	0.55	22234.00	0.51	153381.05	3.52
157.00	27356	0.63	25612.50	0.59	178993.55	4.11
158.00	30960	0.71	29158.00	0.67	208151.55	4.78
159.00	34536	0.79	32748.00	0.75	240899.55	5.53
159.06	34730	0.80	2077.98	0.05	242977.53	5.58
159.10	34895	0.80	1392.50	0.03	244370.03	5.61

Therefore **1.70** ac-ft of PAV will be provided in the pond system within the basin at elevation **151.73** FT

The 100YR 24HR MAX STAGE PER THE PONDS PROGRAM IS **159.06** FT
 BASED ON THE MAX STAGE THE ASSOCIATED VOLUME TO BE RECOVERED IN
 14 DAYS IS **242978** CU-FT

POND A
PONDS / ICPR Program
Equivalent Pond Dimensions

Input Data

PONDS INPUT DATA

Pond Stage Height (h) in feet	7
Volume of Pond (V) in cubic feet	60,129
Effective Perimeter (P) in linear feet	892

Equivalent Length of Pond (L) in feet	426
Equivalent Width of Pond (W) in feet	20

POND B
PONDS / ICPR Program
Equivalent Pond Dimensions

Input Data

PONDS INPUT DATA

Pond Stage Height (h) in feet	16.1
Volume of Pond (V) in cubic feet	244,370
Effective Perimeter (P) in linear feet	1198

Equivalent Length of Pond (L) in feet	572
Equivalent Width of Pond (W) in feet	27

APPENDIX D

POST DEVELOPMENT DRAINAGE ANALYSIS FOR STORM EVENTS

**25 YR 24 HR STORM EVENT
100 YR 24 HR STORM EVENT
MEAN ANNUAL WITH
INFILTRATION
MEAN ANNUAL WITHOUT
INFILTRATION**

POND A

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Project Data

Project Name: CLERMONT COMMERCE CENTER

Simulation Description: MEAN ANNUAL WITHOUT INFILTRATION
MEAN ANNUAL WITH INFILTRATION
25YR-24HR
100YR-24HR
100 YR-24 HR RECOVERY
72 HOUR DRAWDOWN

Project Number: 2600-17-300

Engineer : ERIC LAGASSEY

Supervising Engineer: CHAD LINN

Date: 10-09-2018

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum): 137.00

Water Table Elevation, [WT] (ft datum): 137.50

Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day): 22.50

Fillable Porosity, [n] (%): 25.00

Vertical infiltration was not considered.

Geometry Data

Equivalent Pond Length, [L] (ft): 426.0

Equivalent Pond Width, [W] (ft): 20.0

Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

<u>Stage</u> <u>(ft datum)</u>	<u>Area</u> <u>(ft²)</u>
152.00	528.0
153.00	2328.0
154.00	4821.0
155.00	7250.0
156.00	9696.0
157.00	12217.0
158.00	14813.0
159.00	17479.0

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Scenario Input Data

Scenario 2 :: BASIN A 25YR24HR STORM W/INFILTRATION

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres) 15.471
Time Of Concentration (minutes) 73.0
DCIA (%) 2.4
Curve Number 34
Design Rainfall Depth (inches) 8.6
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

Scenario 3 :: BASIN A 100YR24HR STORM W/INFILTRATION

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres) 15.471
Time Of Concentration (minutes) 73.0
DCIA (%) 2.4
Curve Number 34
Design Rainfall Depth (inches) 10.6
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

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Scenario Input Data (cont'd.)

Scenario 6 :: BASIN A MEAN ANNUAL STORM W/INFILTRATION

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres) 15.471
Time Of Concentration (minutes) 73.0
DCIA (%) 2.4
Curve Number 34
Design Rainfall Depth (inches) 4.2
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

Scenario 7 :: BASIN A MEAN ANNUAL STORM WITHOUT INFILTRATION

Hydrograph Type: Inline SCS
• **Modflow Routing:** **Routed without infiltration**
Repetitions: 1

Basin Area (acres) 15.471
Time Of Concentration (minutes) 73.0
DCIA (%) 2.4
Curve Number 34
Design Rainfall Depth (inches) 4.2
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

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Summary of Results :: Scenario 2 :: BASIN A 25YR24HR STORM W/INFILTRATION

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	748.065	140.69		
Maximum	0.000	152.00		
Inflow				
Rate - Maximum - Positive	12.978		4.1990	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	27.902			61853.5
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			61853.5
Infiltration				
Rate - Maximum - Positive	12.978		4.1204	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	27.902			61853.5
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			61853.5
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

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Summary of Results :: Scenario 3 :: BASIN A 100YR24HR STORM W/INFILTRATION

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	748.065	141.71		
Maximum	16.060	154.41		
Inflow				
Rate - Maximum - Positive	12.816		8.6707	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	27.902			108676.1
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			108676.1
Infiltration				
Rate - Maximum - Positive	12.816		8.4892	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	27.902			108676.1
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			108676.1
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

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Summary of Results :: Scenario 6 :: BASIN A MEAN ANNUAL STORM W/INFILTRATION

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	748.065	139.09		
Maximum	0.000	152.00		
Inflow				
Rate - Maximum - Positive	12.653		0.5213	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	27.902			5626.6
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			5626.6
Infiltration				
Rate - Maximum - Positive	12.653		0.5118	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	27.902			5626.6
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			5626.6
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

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Summary of Results :: Scenario 7 :: *BASIN A MEAN ANNUAL STORM WITHOUT INFILTRATION*

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	0.000	152.00		
Maximum	27.902	154.13		
Inflow				
Rate - Maximum - Positive	12.653		0.5213	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	27.902			5626.6
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			5626.6
Infiltration				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			0.0
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	748.065			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

POND B

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Project Data

Project Name: CLERMONT COMMERCE CENTER

Simulation Description: MEAN ANNUAL WITHOUT INFILTRATION
MEAN ANNUAL WITH INFILTRATION
25YR-24HR
100YR-24HR
100YR-24HR RECOVERY
72 HOUR DRAWDOWN

Project Number: 2600-17-300

Engineer : ERIC LAGASSEY

Supervising Engineer: CHAD LINN

Date: 10-09-2018

Aquifer Data

Base Of Aquifer Elevation, [B] (ft datum): 137.00

Water Table Elevation, [WT] (ft datum): 137.50

Horizontal Saturated Hydraulic Conductivity, [Kh] (ft/day): 22.50

Fillable Porosity, [n] (%): 25.00

Vertical infiltration was not considered.

Geometry Data

Equivalent Pond Length, [L] (ft): 572.0

Equivalent Pond Width, [W] (ft): 27.0

Ground water mound is expected to intersect the pond bottom

Stage vs Area Data

<u>Stage</u> <u>(ft datum)</u>	<u>Area</u> <u>(ft²)</u>
143.00	3713.0
144.00	4562.0
145.00	5527.0
146.00	6583.0
147.00	7741.0
148.00	8989.0
149.00	10374.0
150.00	11763.0
151.00	13227.0
152.00	14957.0
153.00	16705.0
154.00	18563.0
155.00	20599.0
156.00	23869.0

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Stage vs Area Data (cont'd.)

Stage (ft datum)	Area (ft²)
157.00	27356.0
158.00	30960.0
159.00	34536.0
159.10	34895.0

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Scenario Input Data

Scenario 2 :: 25YR24HR STORM W/INFILTRATION

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres) 17.582
Time Of Concentration (minutes) 35.0
DCIA (%) 4.5
Curve Number 69
Design Rainfall Depth (inches) 8.6
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

Scenario 3 :: 100YR24HR STORM W/INFILTRATION

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres) 17.582
Time Of Concentration (minutes) 35.0
DCIA (%) 4.5
Curve Number 69
Design Rainfall Depth (inches) 10.6
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

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Scenario Input Data (cont'd.)

Scenario 6 :: MEAN ANNUAL STORM W/INFILTRATION

Hydrograph Type: Inline SCS
Modflow Routing: Routed with infiltration
Repetitions: 1

Basin Area (acres) 17.582
Time Of Concentration (minutes) 35.0
DCIA (%) 4.5
Curve Number 69
Design Rainfall Depth (inches) 4.2
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

Scenario 7 :: MEAN ANNUAL STORM WITHOUT INFILTRATION

Hydrograph Type: Inline SCS
• **Modflow Routing:** **Routed without infiltration**
Repetitions: 1

Basin Area (acres) 17.582
Time Of Concentration (minutes) 35.0
DCIA (%) 4.5
Curve Number 69
Design Rainfall Depth (inches) 4.2
Design Rainfall Duration (hours) 24.0
Shape Factor UHG 484
Rainfall Distribution SCS Type II Florida Modified

Initial ground water level (ft datum) 137.50 (default)

Time After
Storm Event
(days)

30.000

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Summary of Results :: Scenario 2 :: 25YR24HR STORM W/INFILTRATION

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	7.156	140.83		
Maximum	18.822	156.45		
Inflow				
Rate - Maximum - Positive	12.211		48.2192	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	25.900			320622.8
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			320622.8
Infiltration				
Rate - Maximum - Positive	12.367		7.0447	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	745.978			314646.4
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			314646.4
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

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Summary of Results :: Scenario 3 :: 100YR24HR STORM W/INFILTRATION

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	6.222	140.94		
Maximum	20.378	159.06		
Inflow				
Rate - Maximum - Positive	12.211		65.4523	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	25.900			434103.2
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			434103.2
Infiltration				
Rate - Maximum - Positive	12.367		8.3913	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	745.978			419693.1
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			419693.1
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

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Summary of Results :: Scenario 6 :: MEAN ANNUAL STORM W/INFILTRATION

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	9.878	140.55		
Maximum	16.411	148.01		
Inflow				
Rate - Maximum - Positive	12.211		13.4292	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	25.900			96666.5
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			96666.5
Infiltration				
Rate - Maximum - Positive	11.978		8.9528	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	745.978			96666.5
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			96666.5
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

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Retention Pond Recovery - Refined Method
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Summary of Results :: Scenario 7 :: MEAN ANNUAL STORM WITHOUT INFILTRATION

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	0.000	143.00		
Maximum	25.744	153.16		
Inflow				
Rate - Maximum - Positive	12.211		13.4292	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	25.900			96666.5
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			96666.5
Infiltration				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			0.0
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	745.978			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.
72 Hour Stage and Infiltration Volume	N.A.	N.A.		N.A.

APPENDIX E

POST DEVELOPMENT DRAINAGE ANALYSIS FOR 100YR 24HR STORM EVENT 14 DAY RECOVERY

POND A

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Retention Pond Recovery - Refined Method
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Scenario Input Data

Scenario 8 :: 100YR 24HR STORM 14 DAY RECOVERY

Hydrograph Type: Slug Load
 Modflow Routing: Routed with infiltration

Treatment Volume (ft³) 7184

Initial ground water level (ft datum) 137.50 (default)

<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>
0.100	2.500	5.500	8.500	11.500
0.250	3.000	6.000	9.000	12.000
0.500	3.500	6.500	9.500	12.500
1.000	4.000	7.000	10.000	13.000
1.500	4.500	7.500	10.500	13.500
2.000	5.000	8.000	11.000	14.000

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Summary of Results :: Scenario 8 :: 100YR 24HR STORM 14 DAY RECOVERY

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	336.000	139.15		
Maximum	0.002	154.41		
Inflow				
Rate - Maximum - Positive	0.002		1197.3330	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	0.002			7184.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	336.000			7184.0
Infiltration				
Rate - Maximum - Positive	0.002		3.1191	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	2.400			7184.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	336.000			7184.0
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	336.000			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	36.000	141.57		7184.0
72 Hour Stage and Infiltration Volume	72.000	140.60		7184.0

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Detailed Results :: Scenario 8 :: 100YR 24HR STORM 14 DAY RECOVERY

Elapsed Time	Instantaneous Inflow Rate	Outside Recharge	Stage Elevation	Infiltration Rate	Combined Instantaneous Discharge	Cumulative Inflow	Cumulative Infiltration	Combined Cumulative	
0.00	1197.3330	0.00000	152.00000	3.12224	0	0.000	0.00000	0	N.A.
0.00	1197.3330	0.00000	154.40690	3.11906	0	7184.000	18.72392	0	S
2.40	0.0000	0.00000	147.26520	0.49807	0	7184.000	7184.00000	0	S
6.00	0.0000	0.00000	144.88290	0.00000	0	7184.000	7184.00000	0	S
12.00	0.0000	0.00000	143.42260	0.00000	0	7184.000	7184.00000	0	S
24.00	0.0000	0.00000	142.23020	0.00000	0	7184.000	7184.00000	0	S
36.00	0.0000	0.00000	141.57060	0.00000	0	7184.000	7184.00000	0	S
48.00	0.0000	0.00000	141.14220	0.00000	0	7184.000	7184.00000	0	S
60.00	0.0000	0.00000	140.83590	0.00000	0	7184.000	7184.00000	0	S
72.00	0.0000	0.00000	140.60260	0.00000	0	7184.000	7184.00000	0	S
84.00	0.0000	0.00000	140.41710	0.00000	0	7184.000	7184.00000	0	S
96.00	0.0000	0.00000	140.26470	0.00000	0	7184.000	7184.00000	0	S
108.00	0.0000	0.00000	140.13640	0.00000	0	7184.000	7184.00000	0	S
120.00	0.0000	0.00000	140.02640	0.00000	0	7184.000	7184.00000	0	S
132.00	0.0000	0.00000	139.93040	0.00000	0	7184.000	7184.00000	0	S
144.00	0.0000	0.00000	139.84580	0.00000	0	7184.000	7184.00000	0	S
156.00	0.0000	0.00000	139.77030	0.00000	0	7184.000	7184.00000	0	S
168.00	0.0000	0.00000	139.70230	0.00000	0	7184.000	7184.00000	0	S
180.00	0.0000	0.00000	139.64070	0.00000	0	7184.000	7184.00000	0	S
192.00	0.0000	0.00000	139.58450	0.00000	0	7184.000	7184.00000	0	S
204.00	0.0000	0.00000	139.53290	0.00000	0	7184.000	7184.00000	0	S
216.00	0.0000	0.00000	139.48520	0.00000	0	7184.000	7184.00000	0	S
228.00	0.0000	0.00000	139.44110	0.00000	0	7184.000	7184.00000	0	S
240.00	0.0000	0.00000	139.40000	0.00000	0	7184.000	7184.00000	0	S
252.00	0.0000	0.00000	139.36160	0.00000	0	7184.000	7184.00000	0	S
264.00	0.0000	0.00000	139.32570	0.00000	0	7184.000	7184.00000	0	S
276.00	0.0000	0.00000	139.29180	0.00000	0	7184.000	7184.00000	0	S
288.00	0.0000	0.00000	139.26000	0.00000	0	7184.000	7184.00000	0	S
300.00	0.0000	0.00000	139.22990	0.00000	0	7184.000	7184.00000	0	S
312.00	0.0000	0.00000	139.20140	0.00000	0	7184.000	7184.00000	0	S
324.00	0.0000	0.00000	139.17440	0.00000	0	7184.000	7184.00000	0	S
336.00	0.0000	0.00000	139.14870	----	----	7184.000	7184.00000	0	N.A.

POND B

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Scenario Input Data

Scenario 8 :: 100YR 24HR 14 DAY RECOVERY

Hydrograph Type: Slug Load
 Modflow Routing: Routed with infiltration

Treatment Volume (ft³) 242978

Initial ground water level (ft datum) 137.50 (default)

Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)	Time After Storm Event (days)
0.100	2.500	5.500	8.500	11.500
0.250	3.000	6.000	9.000	12.000
0.500	3.500	6.500	9.500	12.500
1.000	4.000	7.000	10.000	13.000
1.500	4.500	7.500	10.500	13.500
2.000	5.000	8.000	11.000	14.000

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Summary of Results :: Scenario 8 :: 100YR 24HR 14 DAY RECOVERY

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	336.000	142.81		
Maximum	0.002	159.06		
Inflow				
Rate - Maximum - Positive	0.002		40496.3300	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	0.002			242978.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	336.000			242978.0
Infiltration				
Rate - Maximum - Positive	2.400		5.5921	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	312.000			242978.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	336.000			242978.0
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	336.000			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	36.000	150.61		184029.3
72 Hour Stage and Infiltration Volume	72.000	147.89		213176.3

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Detailed Results :: Scenario 8 :: 100YR 24HR 14 DAY RECOVERY

Elapsed Time	Instantaneous Inflow Rate	Outside Recharge	Stage Elevation	Infiltration Rate	Combined Instantaneous Discharge	Cumulative Inflow	Cumulative Infiltration	Combined Cumulative	
0.00	40496.3300	0.00000	143.00000	3.59661	0	0.000	0.00000	0	N.A.
0.00	40496.3300	0.00000	159.05940	3.60201	0	242978.000	21.59586	0	S
2.40	0.0000	0.00000	156.97380	5.59212	0	242978.000	64699.85000	0	S
6.00	0.0000	0.00000	155.54000	2.25862	0	242978.000	100231.80000	0	S
12.00	0.0000	0.00000	153.98830	1.22085	0	242978.000	131628.50000	0	S
24.00	0.0000	0.00000	152.04100	0.60649	0	242978.000	164263.10000	0	S
36.00	0.0000	0.00000	150.60900	0.38051	0	242978.000	184029.30000	0	S
48.00	0.0000	0.00000	149.50290	0.25872	0	242978.000	197139.40000	0	S
60.00	0.0000	0.00000	148.61920	0.18561	0	242978.000	206382.50000	0	S
72.00	0.0000	0.00000	147.89210	0.13838	0	242978.000	213176.30000	0	S
84.00	0.0000	0.00000	147.28300	0.10639	0	242978.000	218338.60000	0	S
96.00	0.0000	0.00000	146.76470	0.08389	0	242978.000	222368.40000	0	S
108.00	0.0000	0.00000	146.31830	0.06755	0	242978.000	225586.80000	0	S
120.00	0.0000	0.00000	145.92910	0.05537	0	242978.000	228204.80000	0	S
132.00	0.0000	0.00000	145.58680	0.04611	0	242978.000	230370.80000	0	S
144.00	0.0000	0.00000	145.28310	0.03892	0	242978.000	232188.90000	0	S
156.00	0.0000	0.00000	145.01140	0.03322	0	242978.000	233733.10000	0	S
168.00	0.0000	0.00000	144.76670	0.02867	0	242978.000	235059.30000	0	S
180.00	0.0000	0.00000	144.54510	0.02498	0	242978.000	236210.20000	0	S
192.00	0.0000	0.00000	144.34330	0.02194	0	242978.000	237217.50000	0	S
204.00	0.0000	0.00000	144.15850	0.01940	0	242978.000	238105.50000	0	S
216.00	0.0000	0.00000	143.98840	0.01727	0	242978.000	238893.50000	0	S
228.00	0.0000	0.00000	143.83130	0.01549	0	242978.000	239597.90000	0	S
240.00	0.0000	0.00000	143.68590	0.01397	0	242978.000	240231.70000	0	S
252.00	0.0000	0.00000	143.55060	0.01267	0	242978.000	240805.00000	0	S
264.00	0.0000	0.00000	143.42430	0.01154	0	242978.000	241326.10000	0	S
276.00	0.0000	0.00000	143.30610	0.01055	0	242978.000	241801.70000	0	S
288.00	0.0000	0.00000	143.19510	0.00968	0	242978.000	242237.40000	0	S
300.00	0.0000	0.00000	143.09060	0.00857	0	242978.000	242638.00000	0	S
312.00	0.0000	0.00000	142.99220	0.00393	0	242978.000	242978.00000	0	S
324.00	0.0000	0.00000	142.90090	0.00000	0	242978.000	242978.00000	0	S
336.00	0.0000	0.00000	142.81460	----	----	242978.000	242978.00000	0	N.A.

APPENDIX F

POST DEVELOPMENT DRAINAGE ANALYSIS FOR 72 HOUR RECOVERY

POND A

PONDS Version 3.2.0274
Retention Pond Recovery - Refined Method
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Scenario Input Data

Scenario 4 :: 72 Hour Drawdown

Hydrograph Type: Slug Load
Modflow Routing: Routed with infiltration

Treatment Volume (ft³) 56160

Initial ground water level (ft datum) 137.50 (default)

<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>
0.100	2.000
0.250	2.500
0.500	3.000
1.000	3.500
1.500	4.000

PONDS Version 3.2.0274
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Summary of Results :: Scenario 4 :: 72 Hour Drawdown

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	96.000	142.38		
Maximum	0.002	158.77		
Inflow				
Rate - Maximum - Positive	0.002		9360.0000	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	0.002			56160.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			56160.0
Infiltration				
Rate - Maximum - Positive	2.400		3.3742	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	6.000			56160.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			56160.0
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	36.000	144.78		56160.0
72 Hour Stage and Infiltration Volume	72.000	142.99		56160.0

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Detailed Results :: Scenario 4 :: 72 Hour Drawdown

Elapsed Time	Instantaneous Inflow Rate	Outside Recharge	Stage Elevation	Infiltration Rate	Combined Instantaneous Discharge	Cumulative Inflow	Cumulative Infiltration	Combined Cumulative	
0.00	9360.0000	0.00000	152.00000	2.63958	0	0.000	0.00000	0	N.A.
0.00	9360.0000	0.00000	158.76790	2.64274	0	56160.000	15.84696	0	S
2.40	0.0000	0.00000	155.34320	3.37418	0	56160.000	42489.41000	0	S
6.00	0.0000	0.00000	151.62430	0.65927	0	56160.000	56160.00000	0	S
12.00	0.0000	0.00000	148.41900	0.00000	0	56160.000	56160.00000	0	S
24.00	0.0000	0.00000	146.03870	0.00000	0	56160.000	56160.00000	0	S
36.00	0.0000	0.00000	144.77600	0.00000	0	56160.000	56160.00000	0	S
48.00	0.0000	0.00000	143.97510	0.00000	0	56160.000	56160.00000	0	S
60.00	0.0000	0.00000	143.41090	0.00000	0	56160.000	56160.00000	0	S
72.00	0.0000	0.00000	142.98580	0.00000	0	56160.000	56160.00000	0	S
84.00	0.0000	0.00000	142.64990	0.00000	0	56160.000	56160.00000	0	S
96.00	0.0000	0.00000	142.37540	----	----	56160.000	56160.00000	0	N.A.

POND B

PONDS Version 3.2.0274
Retention Pond Recovery - Refined Method
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Scenario Input Data

Scenario 4 :: 72 Hour Drawdown

Hydrograph Type: Slug Load
Modflow Routing: Routed with infiltration

Treatment Volume (ft³) 73999

Initial ground water level (ft datum) 137.50 (default)

<u>Time After Storm Event (days)</u>	<u>Time After Storm Event (days)</u>
0.100	2.000
0.250	2.500
0.500	3.000
1.000	3.500
1.500	4.000

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Summary of Results :: Scenario 4 :: 72 Hour Drawdown

	Time (hours)	Stage (ft datum)	Rate (ft ³ /s)	Volume (ft ³)
Stage				
Minimum	96.000	141.85		
Maximum	0.002	151.72		
Inflow				
Rate - Maximum - Positive	0.002		12333.1700	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	0.002			73999.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			73999.0
Infiltration				
Rate - Maximum - Positive	0.002		2.6970	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	60.000			73999.0
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			73999.0
Combined Discharge				
Rate - Maximum - Positive	None		None	
Rate - Maximum - Negative	None		None	
Cumulative Volume - Maximum Positive	None			None
Cumulative Volume - Maximum Negative	None			None
Cumulative Volume - End of Simulation	96.000			0.0
Discharge Structure 1 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 2 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Discharge Structure 3 - inactive				
Rate - Maximum - Positive	disabled		disabled	
Rate - Maximum - Negative	disabled		disabled	
Cumulative Volume - Maximum Positive	disabled			disabled
Cumulative Volume - Maximum Negative	disabled			disabled
Cumulative Volume - End of Simulation	disabled			disabled
Pollution Abatement:				
36 Hour Stage and Infiltration Volume	36.000	143.95		70093.3
72 Hour Stage and Infiltration Volume	72.000	142.38		73999.0

PONDS Version 3.2.0274
Retention Pond Recovery - Refined Method
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Detailed Results :: Scenario 4 :: 72 Hour Drawdown

Elapsed Time	Instantaneous Inflow Rate	Outside Recharge	Stage Elevation	Infiltration Rate	Combined Instantaneous Discharge	Cumulative Inflow	Cumulative Infiltration	Combined Cumulative	
0.00	12333.1700	0.00000	143.00000	2.69586	0	0.000	0.00000	0	N.A.
0.00	12333.1700	0.00000	151.72010	2.69702	0	73999.000	16.17864	0	S
2.40	0.0000	0.00000	149.28450	2.56509	0	73999.000	30546.17000	0	S
6.00	0.0000	0.00000	147.81210	0.88098	0	73999.000	44901.77000	0	S
12.00	0.0000	0.00000	146.43770	0.40804	0	73999.000	55769.51000	0	S
24.00	0.0000	0.00000	144.93370	0.16578	0	73999.000	65181.07000	0	S
36.00	0.0000	0.00000	143.94890	0.09060	0	73999.000	70093.27000	0	S
48.00	0.0000	0.00000	143.25900	0.04521	0	73999.000	73008.80000	0	S
60.00	0.0000	0.00000	142.75610	0.01146	0	73999.000	73999.00000	0	S
72.00	0.0000	0.00000	142.38340	0.00000	0	73999.000	73999.00000	0	S
84.00	0.0000	0.00000	142.09070	0.00000	0	73999.000	73999.00000	0	S
96.00	0.0000	0.00000	141.85200	----	----	73999.000	73999.00000	0	N.A.