



October 21, 2024

El Paso County
Planning & Community Development
2880 International Circle, Suite 110
Colorado Springs, CO 80910

Attn.: Project Manager

RE: Bradley Point Filing No .1
Private Detention/Stormwater Quality Pond 1 and Private Detention/Stormwater Quality Pond 2

Dear Project Manager:

Per the construction drawings for "Bradley Point Filing No. 1" improvements were made to construct two (2) water quality and stormwater detention facilities. A field change was made to extend the 24" RCP storm pipe into the forebays of the two ponds in lieu of using flared end sections. This field change is not anticipated to negatively affect the function of the ponds and/or water quality. In addition, a broader or widened swale was constructed along the southern property line of Lot 1 to better accommodate the truck traffic. The swale is of adequate capacity (see provided calculation) to convey the 100-year flows and protect the downstream property. Per these findings and the provided analysis, the two ponds are in general compliance with the current El Paso County Drainage Criteria and with the approved Final Drainage Report for this project.

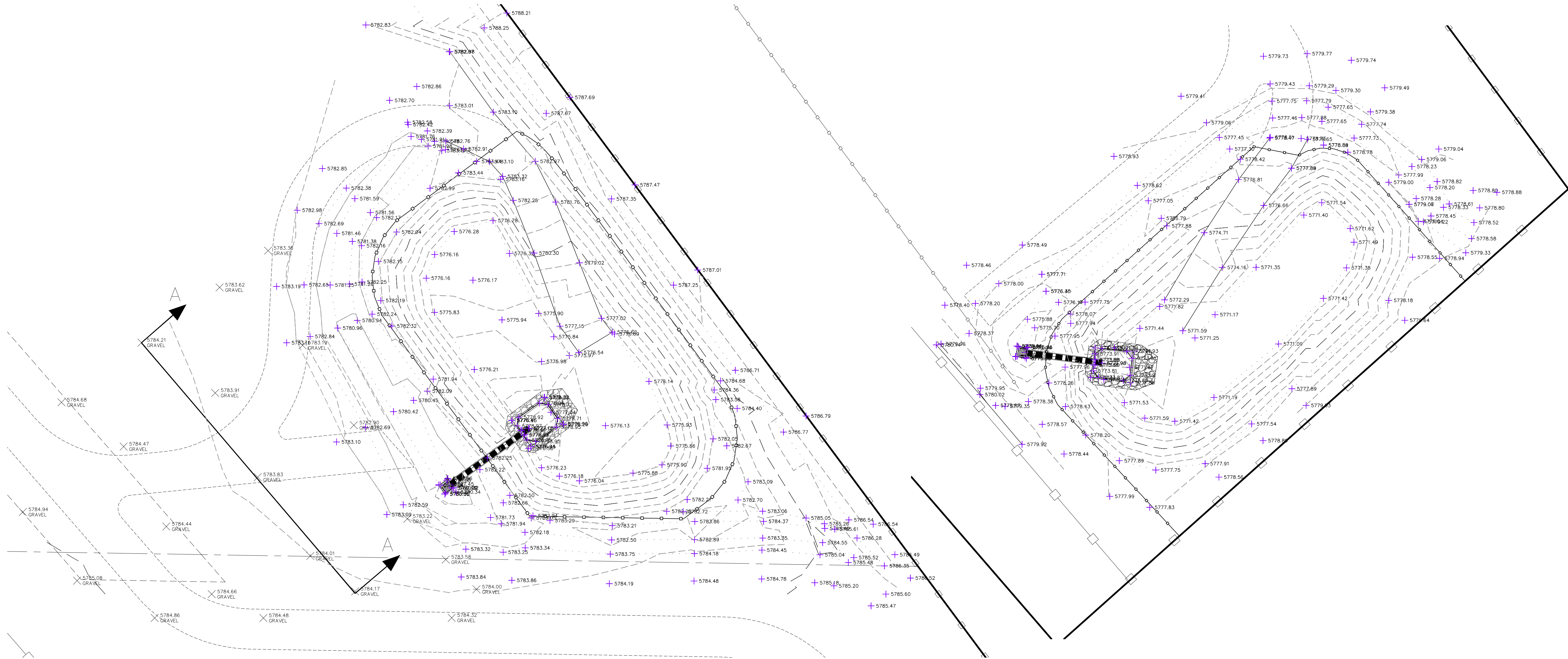
Based upon this information and periodic site visits to the project during significant/key phases of the stormwater BMP installation, M&S Civil Consultants, Inc. is of the opinion that the stormwater BMPs have been constructed in general compliance with the approved design plans, and specifications as filed with El Paso County.

Statement Of Engineer In Responsible Charge

To the best of my knowledge, information and belief, for the referenced project above, the improvements have been constructed in general compliance with the approved design plans and specifications as filed with El Paso County to provide the required storage volume and meet the required release rates documented by the SDI design form, the stage areas, elevations and outlet dimensions. In addition, to the best of my knowledge, information and belief, for the referenced project above, the site and adjacent properties (as affected by work performed under the County permit) are stable with respect to settlement and subsidence, sloughing of cut and fill slopes, revegetation or other ground cover, and that the improvements (public improvements, common development improvements, site grading and paving) meet or exceed the minimum design requirements.

Virgil A. Sanchez
Colorado P.E. No.37160
For and on behalf of M&S Civil
Consultants Inc.





POND 1

POND 2

POND CERTIFICATION

FOREBAY INLETS

DESIGNED INVERT 18" IN = 5777.10', SURVEY INVERT 18" IN = 5777.12"

VOLUME

DESIGNED VOLUME = 0.626 ACRE FEET @ 6281.88' (100 YR SURFACE)
 PROVIDED VOLUME = 0.63 ACRE FEET @ 6281.9' (100 YR SURFACE)

POND CERTIFICATION

FOREBAY INLETS

DESIGNED INVERT 24" IN = 5772.10', SURVEY INVERT 24" IN = 5771.98'

VOLUME

DESIGNED VOLUME = 0.576 ACRE FEET @ 6276.61' (100 YR SURFACE)
 PROVIDED VOLUME = 0.58 ACRE FEET @ 6276.6' (100 YR SURFACE)



FOR LOCATING & MARKING GAS, ELECTRIC, WATER & TELEPHONE LINES

FOR BURIED UTILITY INFORMATION
48 HRS BEFORE YOU DIG
 CALL 1-800-922-1987

NO.	DATE	BY	DESCRIPTION

VIRGIL A. SANCHEZ, COLORADO, P.E. NO. 37160

FOR AND ON BEHALF OF
 M&S CIVIL CONSULTANTS, INC.



212 N. WABATCH AVE. STE 305
 COLORADO SPRINGS, CO 80903
 PHONE: 719.555.5465

BRADLEY POINT FILING NO. 1
AS-BUILT

PROJECT NO. 70-074
 SCALE: HORIZONTAL: 1"=20'
 VERTICAL: N/A

DESIGNED BY: ###
 DRAWN BY: SPM
 CHECKED BY: SPM

DATE: 08/08/2024
 SHEET 9 OF 9
BMPAB

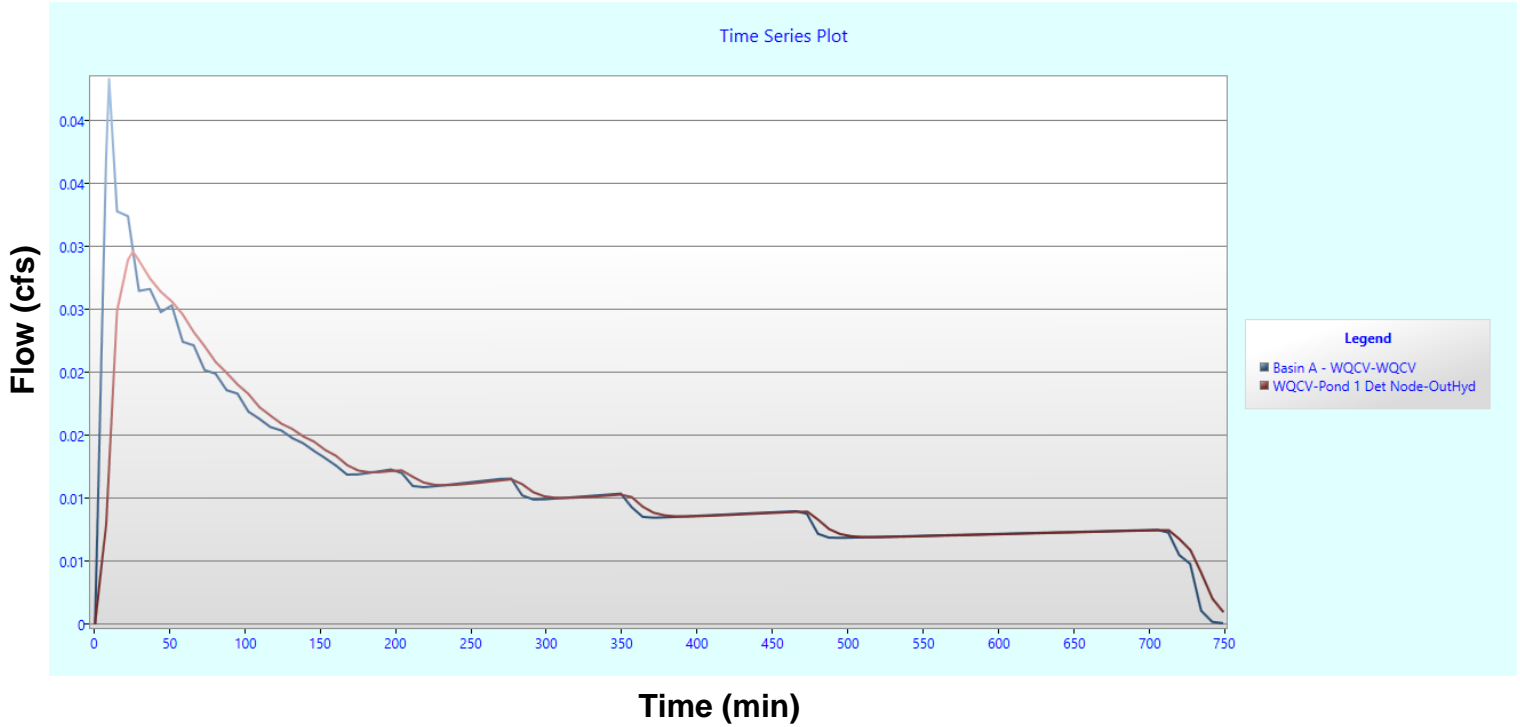
CAUTION

StormSHED 4G Analyses

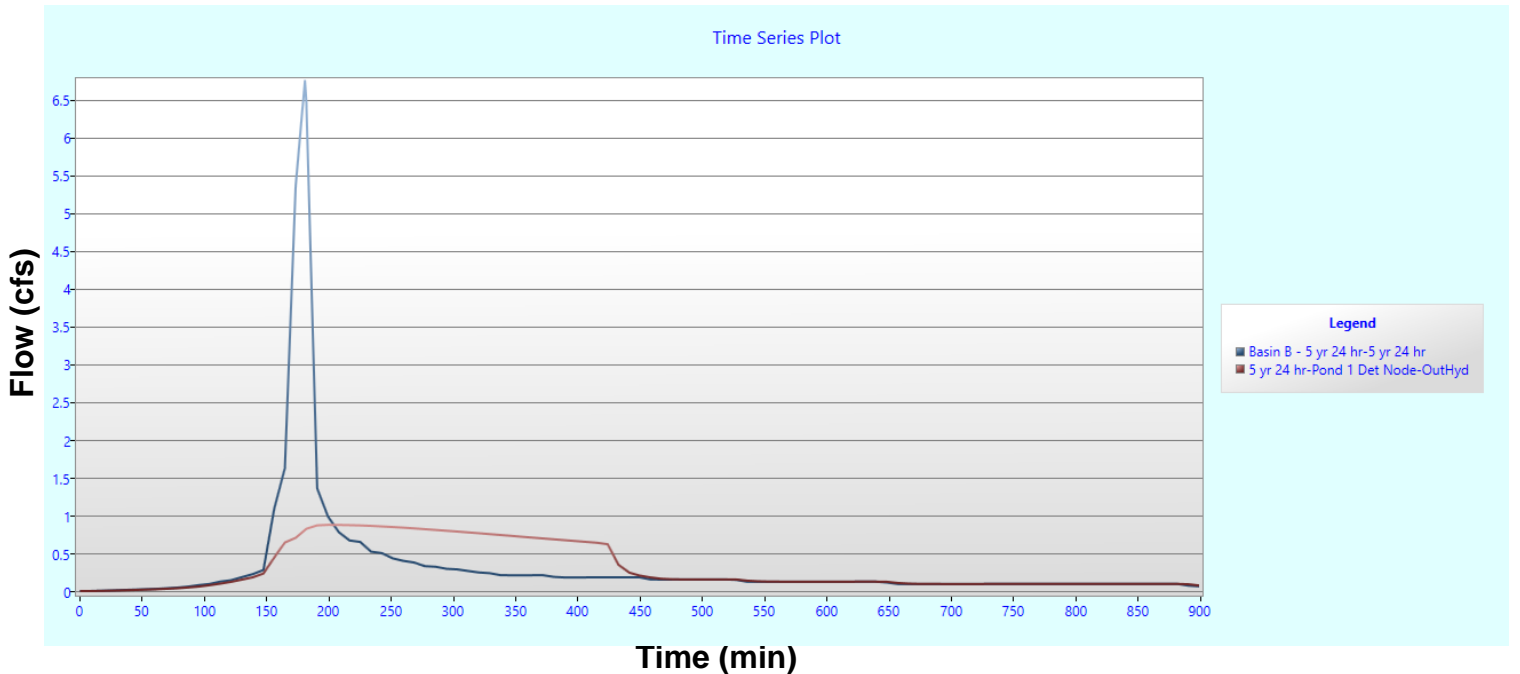
North Pond Summary Table (POND 1)

Design Event	Match Flows (cfs)	Peak Q (cfs)	Max Depth (ft)	Vol (cf)	HtoE	% Vol
WQCV	0.0432	0.0295	0.0047	15.7203	0.01	99.92
5 yr 24 hr	6.7560	0.8970	1.6587	6,668.4623	0.01	99.99
100 yr 24 hr	20.4919	1.5600	4.8800	27,287.7935	0.12	99.95

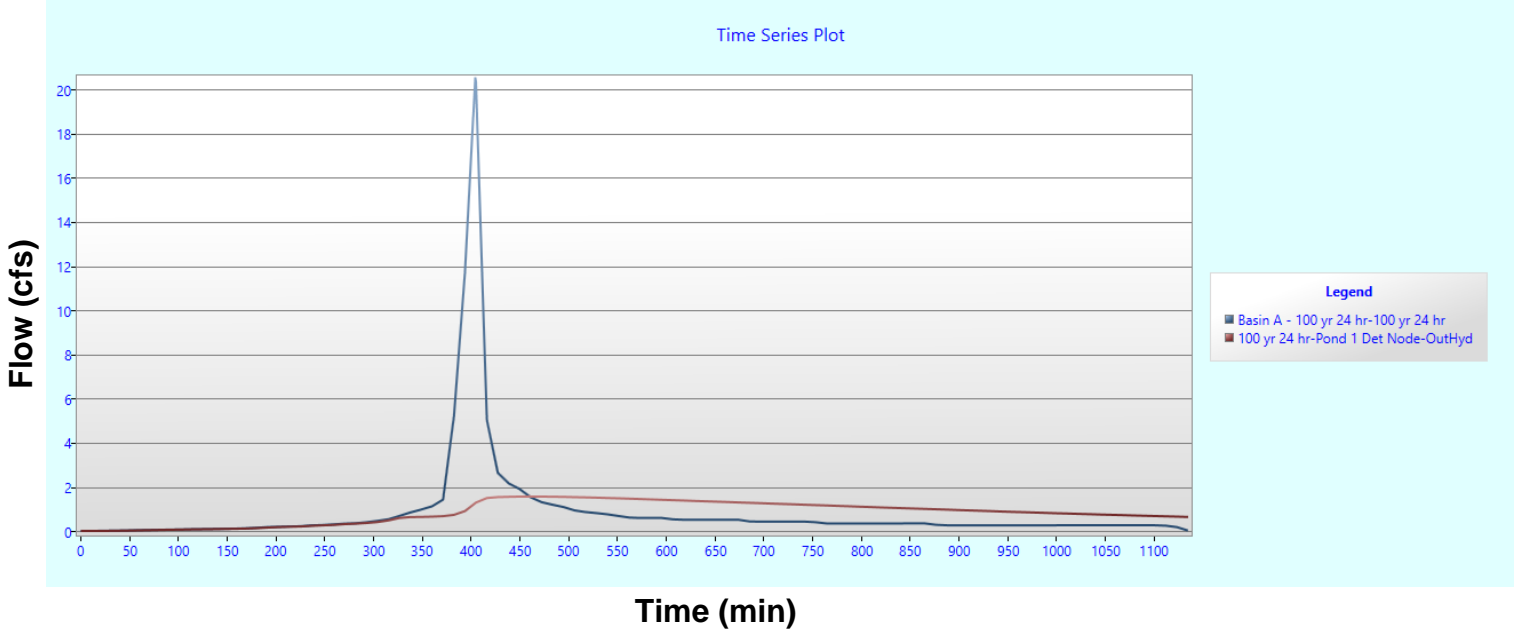
North Pond: WQCV Inflow and Outflow Hydrographs



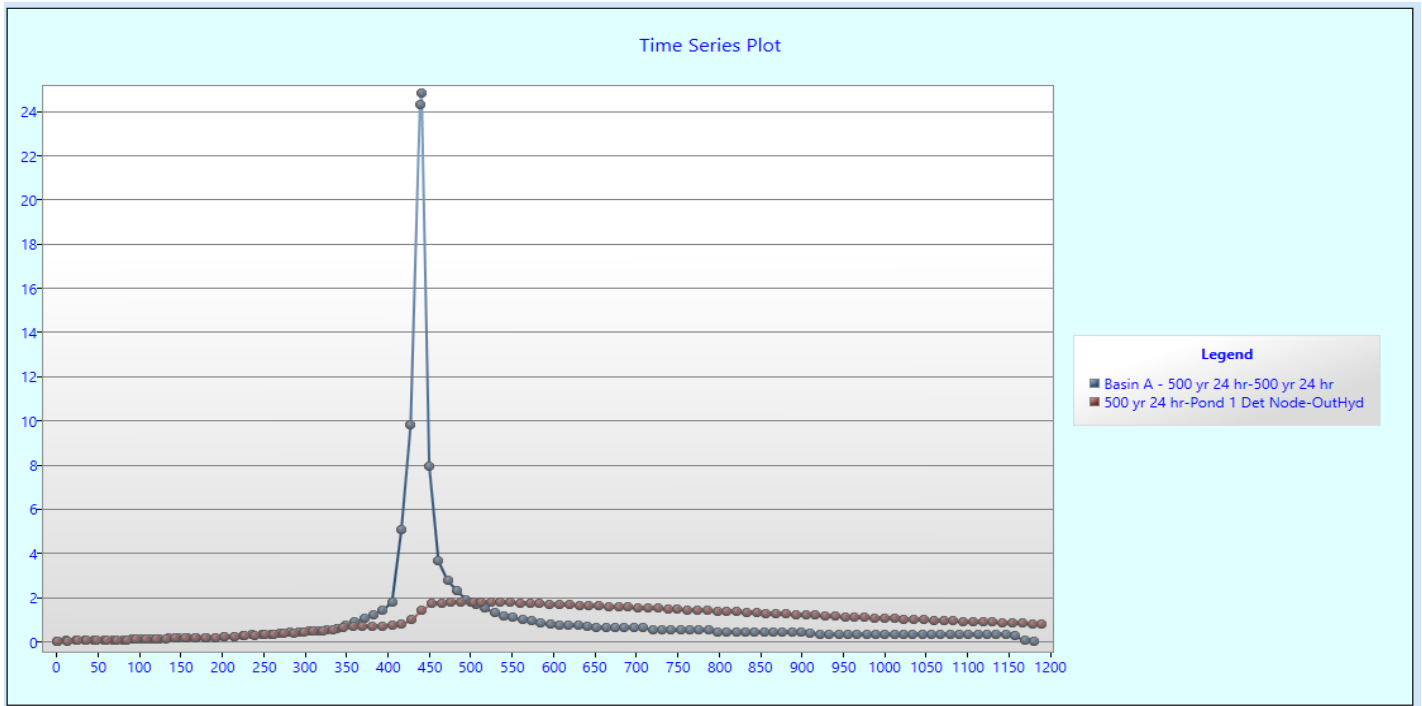
North Pond: 5 YR Inflow and Outflow Hydrographs



North Pond: 100 YR Inflow and Outflow Hydrographs



North Pond: 500 YR Inflow and Outflow Hydrograph and Summary Table

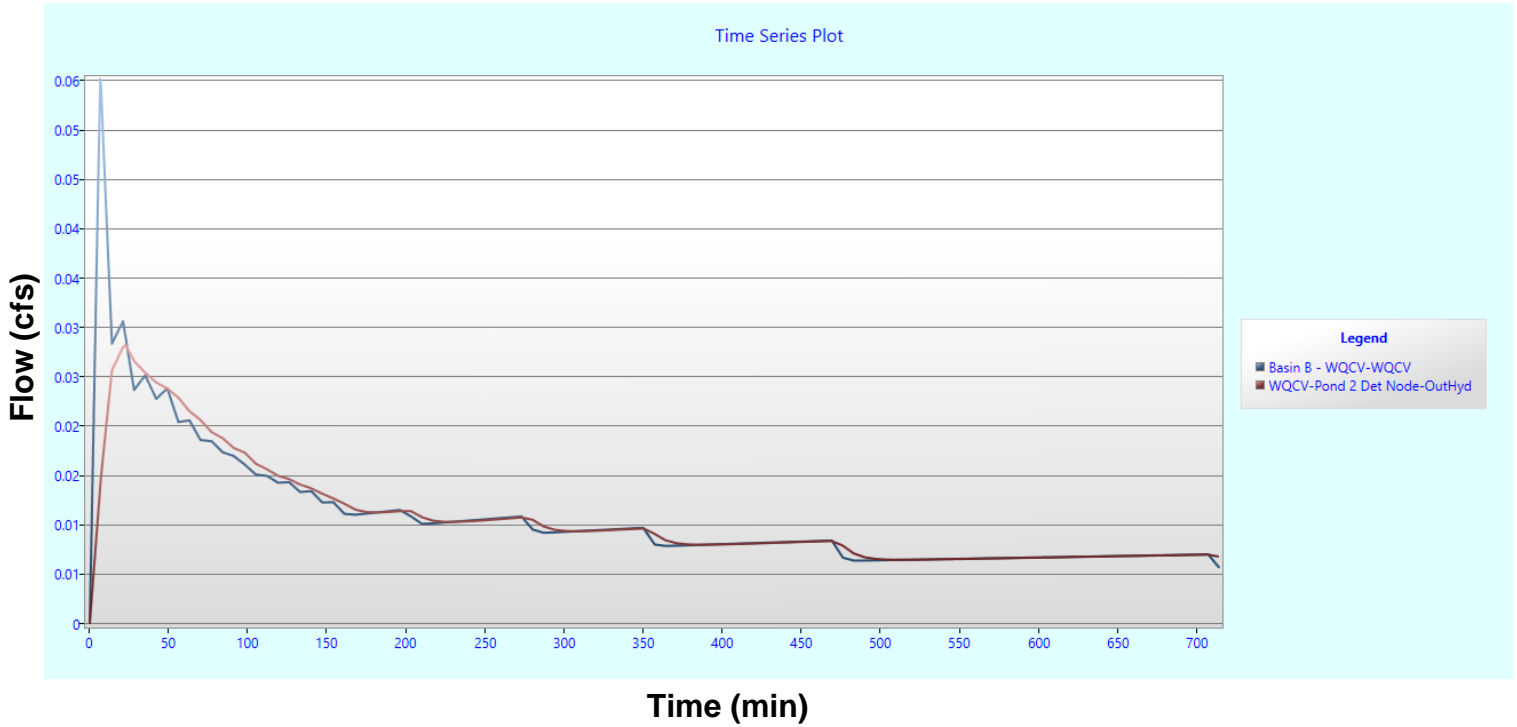


Design Event	Match Flows (cfs)	Peak Q (cfs)	Max Depth (ft)	Vol (cf)	HtoE	% Vol
500 yr 24 hr	24.7740	1.7555	5.7144	34,511.9753	1.42	99.96

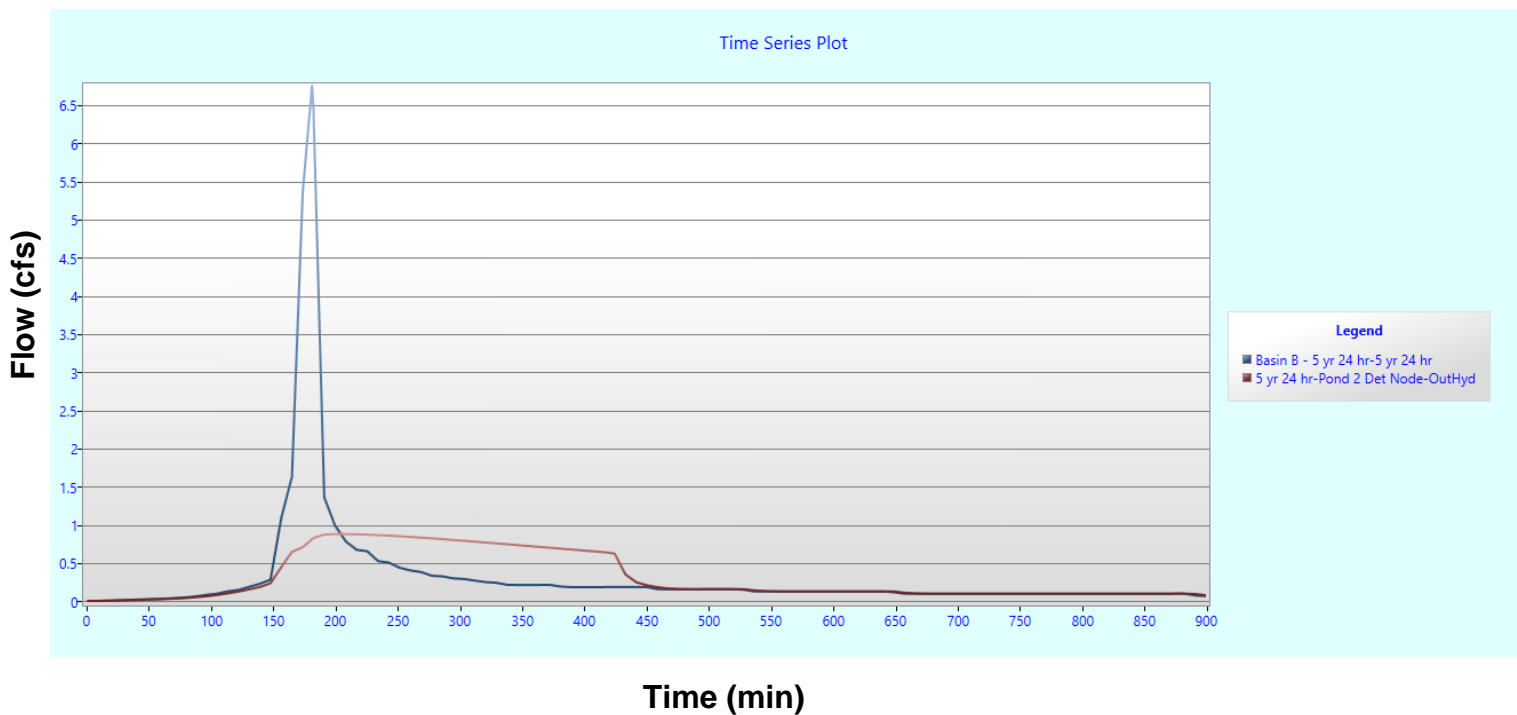
South Pond Summary Table (POND 2)

Design Event	Match Flows (cfs)	Peak Q (cfs)	Max Depth (ft)	Vol (cf)	HtoE	% Vol
WQCV	0.0551	0.0281	0.0045	14,9835	0.01	99.95
5 yr 24 hr	6.7430	0.8767	1.5473	6,143.8109	0.01	99.97
100 yr 24 hr	19.9827	1.4999	4.6147	25,163.8586	0.01	99.96

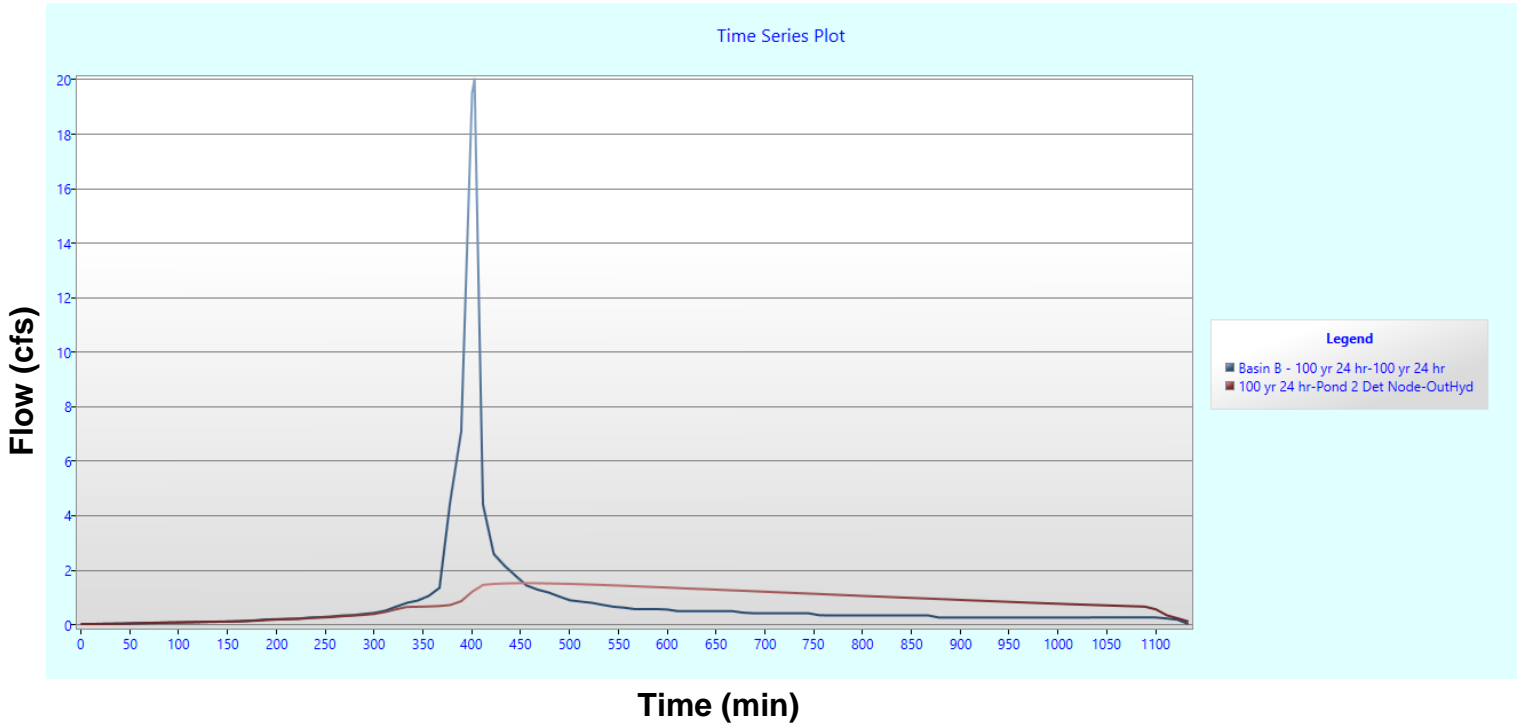
South Pond: WQCV Inflow and Outflow Hydrographs



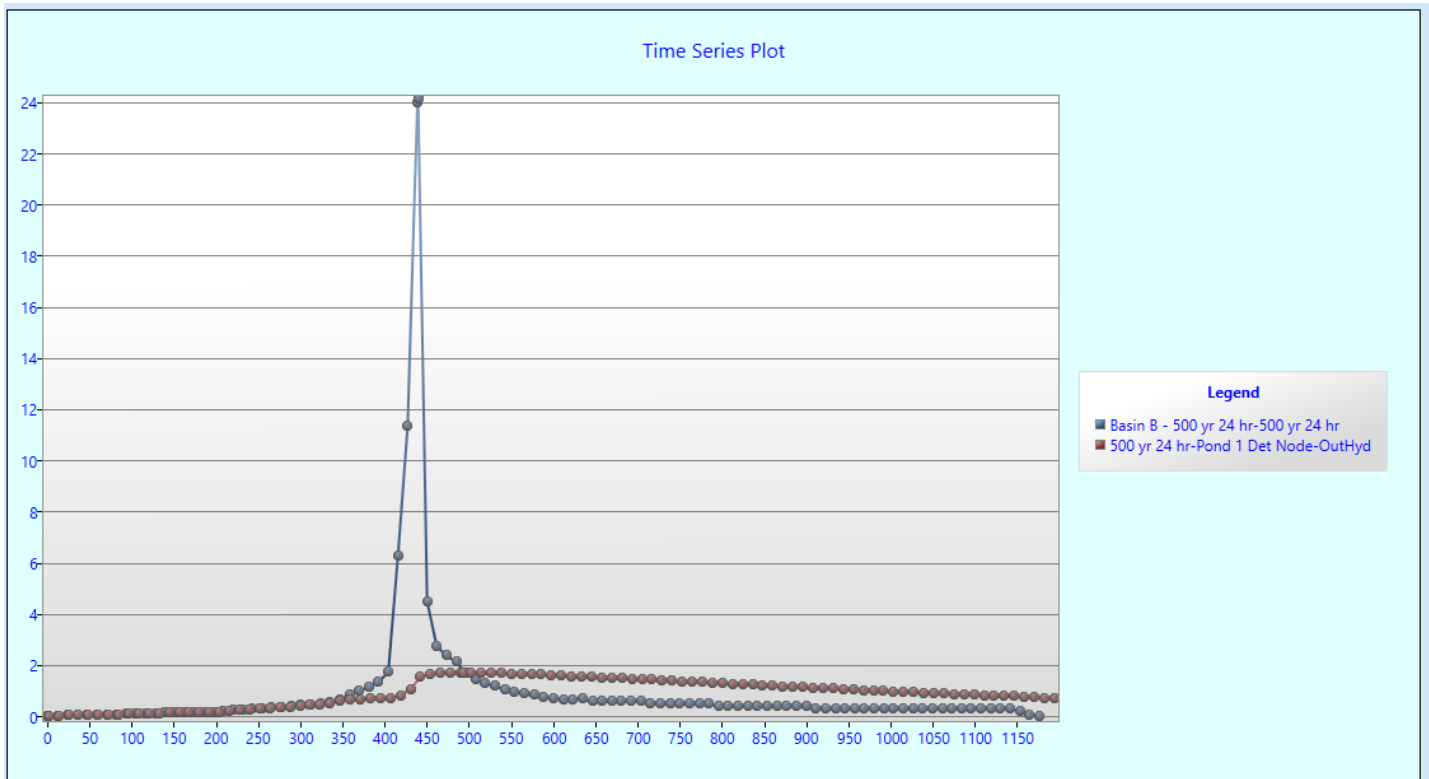
South Pond: 5 YR Inflow and Outflow Hydrographs



South Pond: 100 YR Inflow and Outflow Hydrographs



South Pond: 500 YR Inflow and Outflow Hydrograph and Summary Table



Design Event	Match Flows (cfs)	Peak Q (cfs)	Max Depth (ft)	Vol (cf)	HtoE	% Vol
500 yr 24 hr	24.0984	1.6845	5.4160	31,832.7139	1.05	99.95

Worksheet for 1/3 DP1 Design Flow - Section A-A - 6.6 cfs

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth
Input Data	
Channel Slope	0.019 ft/ft
Discharge	6.60 cfs

Section Definitions

Station (ft)	Elevation (ft)
0+00	84.21
0+66	83.83
1+23	84.17

Roughness Segment Definitions

Start Station	Ending Station	Roughness Coefficient
(0+00, 84.21)	(1+23, 84.17)	0.027

Options

Current Roughness Weighted Method	Pavlovskii's Method
Open Channel Weighting Method	Pavlovskii's Method
Closed Channel Weighting Method	Pavlovskii's Method

Results

Normal Depth	2.0 in
Roughness Coefficient	0.027
Elevation	83.99 ft
Elevation Range	83.8 to 84.2 ft
Flow Area	4.6 ft ²
Wetted Perimeter	56.0 ft
Hydraulic Radius	1.0 in
Top Width	55.99 ft
Normal Depth	2.0 in
Critical Depth	1.9 in
Critical Slope	0.025 ft/ft
Velocity	1.44 ft/s
Velocity Head	0.03 ft
Specific Energy	0.20 ft
Froude Number	0.885
Flow Type	Subcritical

GVF Input Data

Worksheet for 1/3 DP1 Design Flow - Section A-A - 6.6 cfs

GVF Input Data

Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	2.0 in
Critical Depth	1.9 in
Channel Slope	0.019 ft/ft
Critical Slope	0.025 ft/ft













WARNING
THIS AREA IS A STORMWATER
FACILITY AND IS SUBJECT
TO PERIODIC FLOODING







