LCR & COMPANY, LLC

DRAINAGE IMPACT ANALYSIS

PROJECT NUMBER: 25-024

PROJECT NAME: Home Sweet Home Personal Care Services

PROJECT LOCATION: 2400 Jefferson Island Rd(LA 675)
New Iberia, LA 70560

PROJECT OWNER: Home Sweet Home Personal Care Services, Inc.
1104 W St. Peter St
New Iberia, LA 70560

REVISION NO.: REV. 0

PREPARED FOR: A. Beazley Architecture, LLC
PO Box 80342
Lafayette, LA 70598

STATE OF LOUISIANA
LANCE C. ROBICHAUX
License No. 44480
PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

11/14/2025

CREATED BY: Lance Robichaux, PE

DATE CREATED: 11/14/2025

Table of Contents

DRAINAGE IMPACT ANALYSIS

INTRODUCTION, SITE & PROJECT OVERVIEW

Home Sweet Home Personal Care Services, Inc. is proposing a new office building located at 2400 Jefferson Island Rd (LA 675) in New Iberia, LA. The 1-acre project site is located +/-0.57 miles east from the intersection of Jefferson Island Rd and Parish Road 905 (Grand Prairie Rd), shown below in ***Figure 1 – Vicinity Map.*** The existing site has natural ground elevations ranging from EL +/- 13 to EL +/-14.2 (NAVD88) and is currently an undeveloped open pasture. The existing site sheet flows from the back portion of the property (north to south) into a roadside ditch along Jefferson Island Rd, which then flows west to an existing channel.

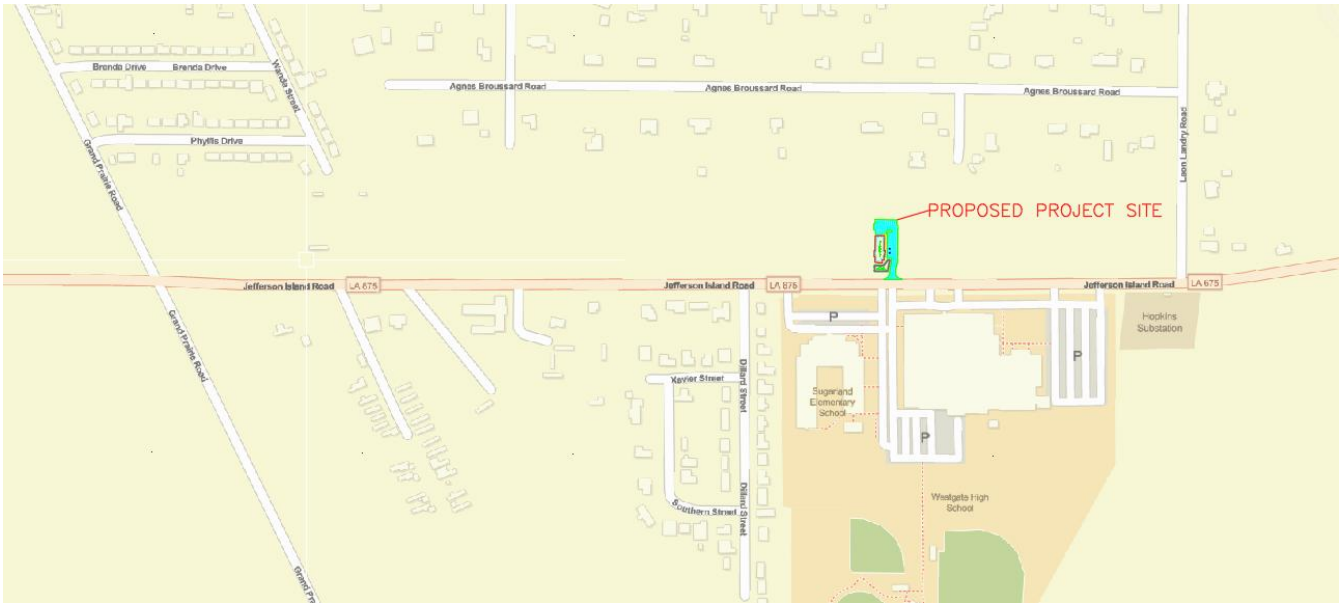


Figure 1: Vicinity Map

As shown in ***Exhibit C, FIRM Map (FIRM #22045C0205E),*** the site is not located within a Flood Hazard Zone or Floodway.

Proposed site improvements under this project include the following:

- New 4,360 sf office building facility
- New Concrete Parking Lot and Driveway
- Subsurface Drainage System and Detention Pond Area

METHOD OF ANALYSIS & MODELING STRATEGIES

The hydrologic analysis for this site utilized the Rational Method (Q = CiA) and the Modified Rational Method as required by the Louisiana Department of Transportation and Development (LADOTD). The Rational Method was used to determine peak runoff values and time of concentration for the *pre-development* conditions, while the *post-development* conditions were analyzed using the Modified Rational Method to account for routing effects and storage within the proposed drainage system.

Rainfall intensities were derived from Figure 3.4-3 (Region 1 Rainfall Intensity Curve – Rational Method) of the 2011 LADOTD Hydraulics Manual. Design storm hydrographs and peak runoff rates for the 5-, 10-, 25-, and 100-year storm events were generated using Autodesk Storm and Sanitary Analysis 2024. The detention storage for this project has been designed based on a 25-year storm event.

EXISTING CONDITIONS

As mentioned previously, the proposed project area is currently an undeveloped open pasture, sheet flowing from north to south, discharging into a roadside ditch along Jefferson Island Rd. The drainage patterns of the project site are as shown in ***Exhibit 1 – Pre-Development Drainage Area Map.*** An overview of the existing drainage area's characteristics are:

Table 1
Existing Drainage Area Details

Drainage Areas	Area (Ac)	Runoff Coefficient	TC (Min.)
Outfall Point 1 (E-DA1)	1.00	0.30	35.6

PROPOSED CONDITIONS

The proposed site plan, drainage areas, flow patterns, hydrologic data, and analysis inputs are provided in **Exhibit 2 – Post-Development Drainage Area Map** of this report. The proposed drainage patterns maintain the same direction of flow and outfall as the existing conditions. Stormwater runoff from the proposed improvements will be collected in catch basins, then conveyed to a detention area via subsurface piping. An overview of the proposed drainage area's characteristics are:

Table 2
Proposed Drainage Area Details

Drainage Areas	Area (Ac)	Runoff Coefficient	TC (Min.)
Outfall Point 1 (POST-DA1)	1.00	0.56	16.5

DESIGN COMPUTATIONS

PRE-DEVELOPMENT CALCULATIONS

Existing (Pre-Development) Drainage Area Conditions			
Description	**Runoff Coefficient - C**	**Area (sf) - A**	**C x A**
Green Area	0.30	43,491	13,047
Totals		**43,491**	**13,047**

Existing Composite C =	13,047				
	43,491				
Existing Composite C =	0.30				
Total Area A =	1.00	acres			
Peak Runoff Rate (Q) =	**C x I x A**				
Time of Concentration (TC) =	**$0.7039(HL^{0.3917})(C^{-1.1309})(S^{-0.1985})$**				
Hydraulic Length (HL) =	400	ft	EL Delta (ft) =	1.47	
Slope (S) =	0.368	%			
EXISTING Time of Concentration (TC) =	**35.02**	**mins**			

POST DEVELOPMENT CALCULATIONS

Proposed (Post-Development) Drainage Area Conditions			
Description	**Runoff Coefficient - C**	**Area (sf) - A**	**C x A**
Proposed Concrete/Bldg	0.95	17,638	16,756
Green Area	0.30	25,853	7,756
Totals		**43,491**	**24,512**

Proposed Composite C =	24,512			
	43,491			
Proposed Composite C =	0.56			
Total Area A =	1.00	acres		
Peak Runoff Rate (Q) =	**C x I x A**			
Time of Concentration (TC) =	**$0.7039(HL^{0.3917})(C^{-1.1309})(S^{-0.1985})$**			
Hydraulic Length (HL) =	375	ft	EL Delta (ft) =	1.47
Slope (S) =	0.392	%		
PROPOSED Time of Concentration (TC) =	**16.52**	**mins**		

SUMMARY

OUTFALL POINT 1 (HWY 675 ROADSIDE DITCH) PEAK RUNOFF SUMMARY:

Table 3
Outfall Point 1 Peak Runoff Summary

Rainfall Event	PRE Outfall Point 1 (cfs)	POST Outfall Point 1 (cfs)	% Change
5 – Year	1.14	1.00	12% Reduction
10 – Year	1.27	1.07	16% Reduction
25 – Year	1.46	1.15	21% Reduction
100 – Year	1.75	1.26	28% Reduction

CONCLUSION

Stormwater runoff from the proposed improvements will be collected in the detention area shown and discharged at a controlled rate using an Outfall Control Structure with a 6" orifice, as detailed on the provided drawings. Based on the calculations and analysis provided in this report, the proposed project has been designed to cause no adverse impacts or increases in stormwater peak runoff for storm events up to a 100-year event.

EXHIBITS

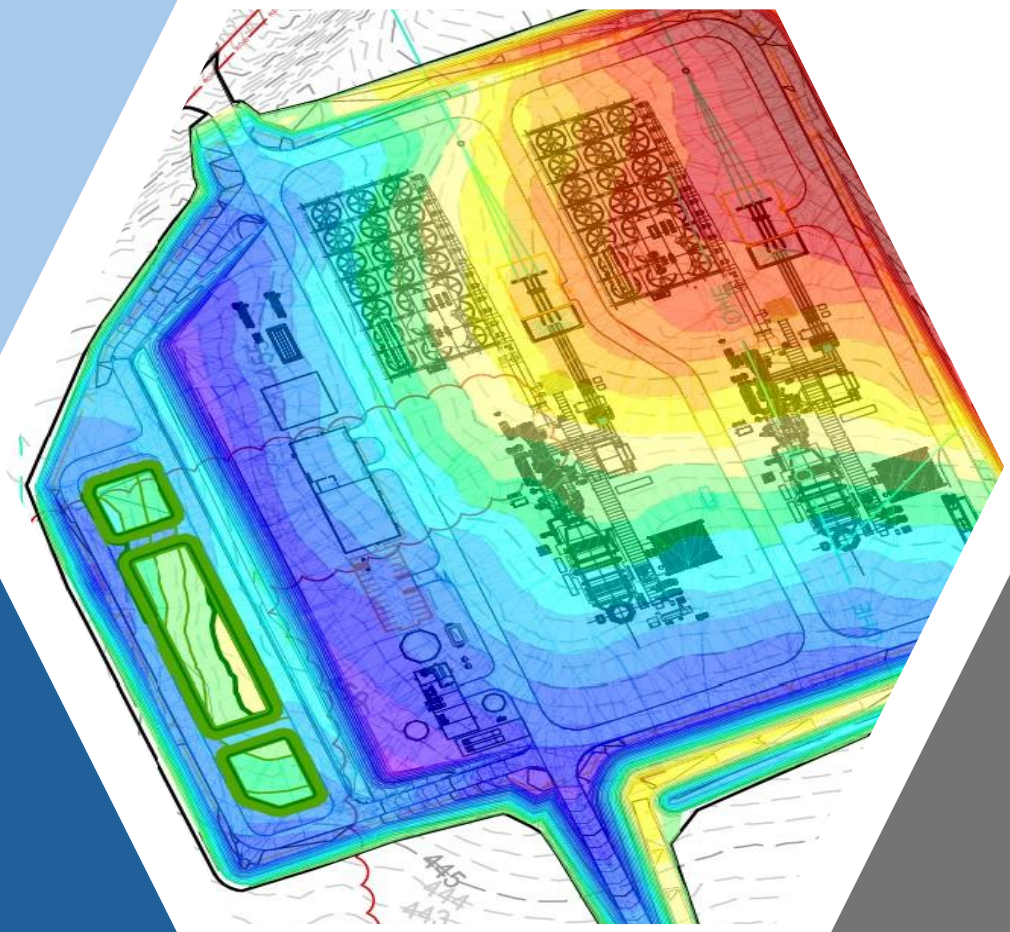
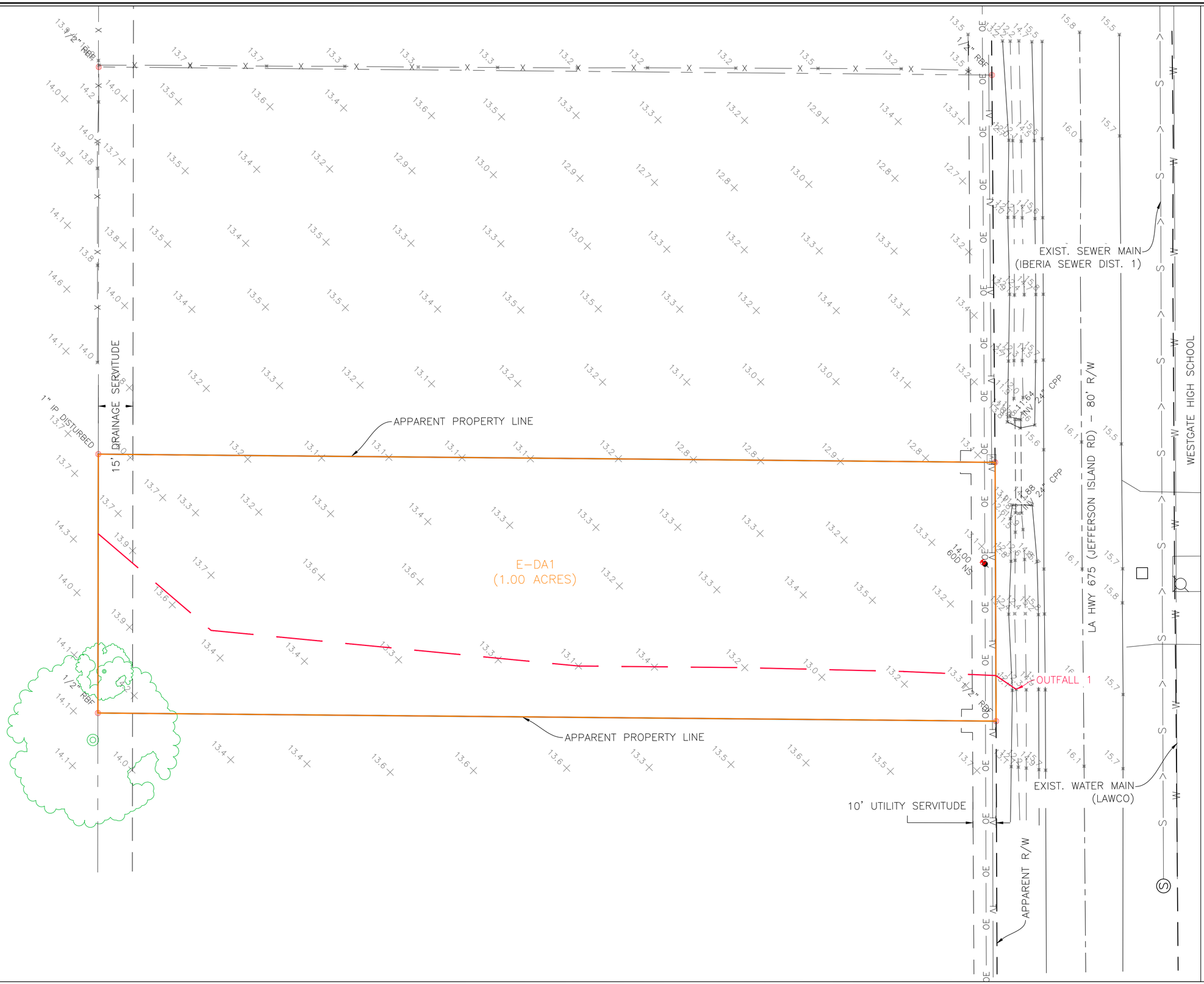


EXHIBIT 1 – PRE-DEVELOPMENT DRAINAGE AREA MAP



0 40 80 Feet

LEGEND:

- EASEMENT
- FENCE
- ELECTRICAL LINE
- TEL/COMM.
- GAS LINE
- STORM SEWER PIPE
- SANITARY SEWER PIPE
- WATER MAIN
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- ROAD CENTERLINE
- APPROX. PROPERTY LINE
- TOPOGRAPHIC BENCHMARK
- FOUND PROPERTY CORNER
- CATCH BASIN
- FIRE HYDRANT
- POWER POLE
- SANITARY MANHOLE
- TELEPHONE PEDESTAL
- WATER METER
- WATER VALVE

SURVEY NOTES:

1. SURVEY DATA COLLECTED BY LCR & COMPANY, LLC ON JULY 25, 2025.
2. ALL SPOT ELEVATIONS SHOWN ARE EXISTING AS OF THE DATE OF THIS SURVEY.
3. HORIZONTAL DATUM AND DISTANCES ARE REFERENCED TO LOUISIANA STATE PLANE, NAD83, LOUISIANA SOUTH ZONE (1702), U.S. SURVEY FEET.
4. ELEVATIONS ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), U.S. SURVEY FEET (GEOID 18).

FLOOD NOTE:

THIS PROPERTY HAS BEEN DETERMINED TO BE LOCATED IN FLOOD "ZONE X – OTHER AREAS" (AREA DETERMINED TO BE OUTSIDE 500-YR FLOOD PLAIN) AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR LAFAYETTE PARISH, LOUISIANA, FIRM PANEL ID 22045C0205E EFFECTIVE DATE DECEMBER 2, 2011.

EXISTING UTILITY NOTES:

1. UTILITY LOCATIONS SHOWN ARE APPROXIMATE BASED ON VISIBLE ABOVE GROUND FEATURES AND LA ONE CALL MARKINGS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO DEMOLITION OR CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REPAIR TO EXISTING UTILITIES DUE TO DAMAGE INCURRED DURING CONSTUCTION.
4. CONTRACTOR SHALL IMMEDIATLEY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

LCR & COMPANY, LLC
318 Belle Grove Blvd
Lafayette, LA 70503
(337) 207-3761

EXISTING DRAINAGE AREA MAP

HOME SWEET HOME
JEFFERSON ISLAND ROAD
NEW IBERIA, LOUISIANA

PRELIMINARY

STAMP:

SIGNATURE:

11/1/25

DATE:

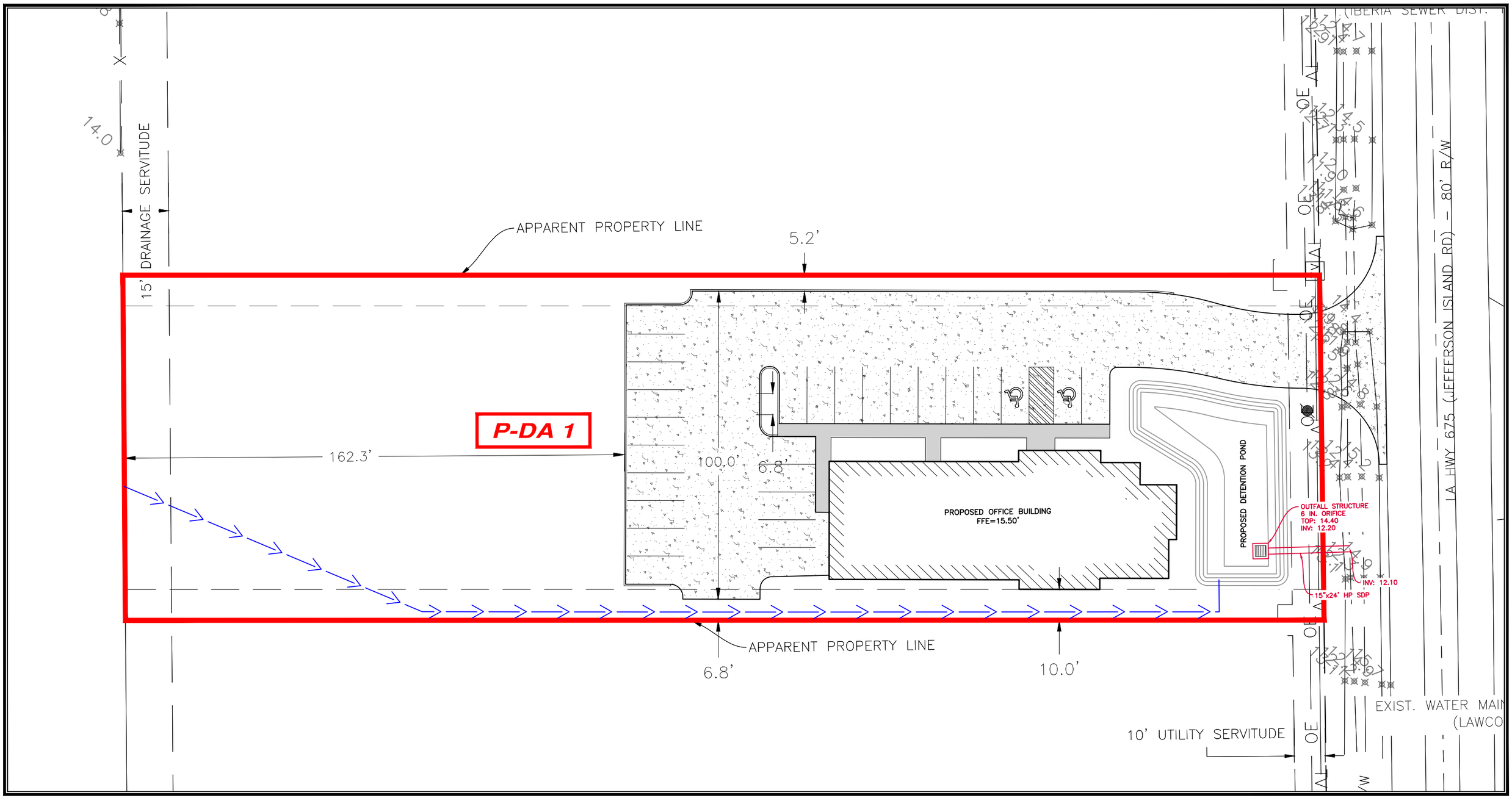
NO.	DATE	REVISION DESCRIPTION	BY

DRAWN BY: L. ROBICHAUX
CHECKED BY: L. ROBICHAUX
ENGINEER: L. ROBICHAUX
FILE: SEE LEFT
LCR PROJ # 25-024
DATE: 11/1/2025

SHEET C-3

EXHIBIT 2 – POST DEVELOPMENT DRAINAGE AREA MAP

C:\Users\Trey Bex\LCR & Company, LLC Dropbox\LCR & Company, LLC Team Folder\2. Projects\Engineering\25-024 Home Sweet Home\CIVIL\CAD\DRAINAGE\DRAINAGE AREAS\25-024 POST-DEV DRAINAGE AREAS.dwg Trey Bex November 14, 2025 - 1:50pm



LCR & COMPANY, LLC

318 Belle Grove Blvd
Lafayette, LA 70503
(337) 207-3761

LEGEND:

DRAINAGE AREA BOUNDARY

HYDRAULIC LENGTH

PROPOSED DRAINAGE AREA NUMBER P-DA 1

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWN BY: J. SMITH	CHECKED BY: XXX
ENGINEER: L. ROBICHAUX	DATE: 8/6/2025
LCR PROJ # 25-024	FILE: SEE LEFT

0 30' 60'

SCALE: 1"=30'

NO.	DATE	REVISION DESCRIPTION	BY

POST-DEVELOPMENT DRAINAGE AREAS

FOR

HOME SWEET HOME

2400 JEFFERSON ISLAND ROAD
NEW IBERIA, LOUISIANA

SHEET
POST-DEV

EXHIBIT 3A – 5 YR REPORT & HYDROGRAPH (RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Rational
Time of Concentration..... User-Defined
Return Period..... 5 years
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

Runoff Quantity Continuity	Volume acre-ft	Depth inches
Total Precipitation	0.308	1.845
Continuity Error (%)	0.599	

Flow Routing Continuity	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.123	0.040
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****

Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	2.21	3.79	0.66	1.14	0.300	0	00:35:00
PROPOSED	1.48	5.39	0.83	3.02	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.03	0.48	12.68	0	00:28	0	0	0:00:00
POSTOUT	0.02	0.42	12.52	0	00:28	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.05	1.30	13.50	0	00:28	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Maximum Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Flooding Overflow cfs	Flooding Occurrence days	Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	0.88	0	00:28	0.00		
POSTOUT	OUTFALL	0.00	0.88	0	00:28	0.00		
PREOUT	OUTFALL	1.14	1.14	0	00:35	0.00		
POND-1	STORAGE	3.02	3.02	0	00:16	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	2.000	47	0	00:28	0.060	1	0.88	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	10.48	0.33	0.88
PREOUT	4.86	0.57	1.14
System	7.67	0.90	1.96

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:28	2.20	1.00	0.88	3.61	0.24	0.36	0	Calculated
Orifice-01	ORIFICE	0	00:28			0.88			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 08:51:45 2025
Analysis ended on: Fri Nov 14 08:51:47 2025
Total elapsed time: 00:00:02

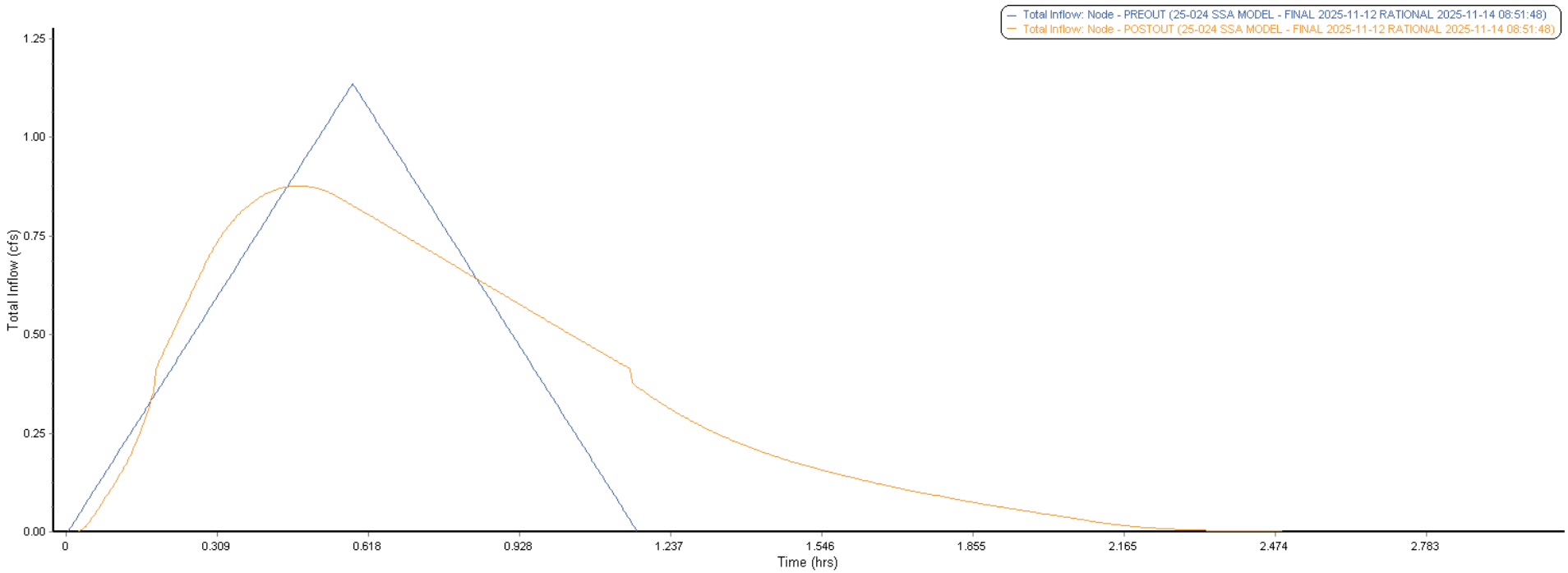

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 08:51:48)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 08:51:48)
Total Inflow (cfs)
1.25
1.00
0.75
0.50
0.25
0.00
0
0.309
0.618
0.928
1.237
1.546
1.855
2.165
2.474
2.783
Time (hrs)

EXHIBIT 3B – 10 YR REPORT & HYDROGRAPH (RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Rational
Time of Concentration..... User-Defined
Return Period..... 10 years
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.341	2.047
Continuity Error (%)	0.600	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.136	0.044
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****

Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	2.47	4.23	0.74	1.27	0.300	0	00:35:00
PROPOSED	1.63	5.91	0.91	3.31	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.03	0.50	12.70	0	00:28	0	0	0:00:00
POSTOUT	0.02	0.43	12.53	0	00:28	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.06	1.41	13.61	0	00:28	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Maximum Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Flooding Overflow cfs	Flooding Occurrence days	Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	0.93	0	00:28	0.00		
POSTOUT	OUTFALL	0.00	0.93	0	00:28	0.00		
PREOUT	OUTFALL	1.27	1.27	0	00:35	0.00		
POND-1	STORAGE	3.31	3.31	0	00:16	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	2.227	52	0	00:28	0.069	2	0.93	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	10.78	0.35	0.93
PREOUT	4.86	0.64	1.27
System	7.82	0.99	2.15

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:28	2.23	1.00	0.93	3.61	0.26	0.37	0	Calculated
Orifice-01	ORIFICE	0	00:28			0.93			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 09:30:03 2025
Analysis ended on: Fri Nov 14 09:30:05 2025
Total elapsed time: 00:00:02

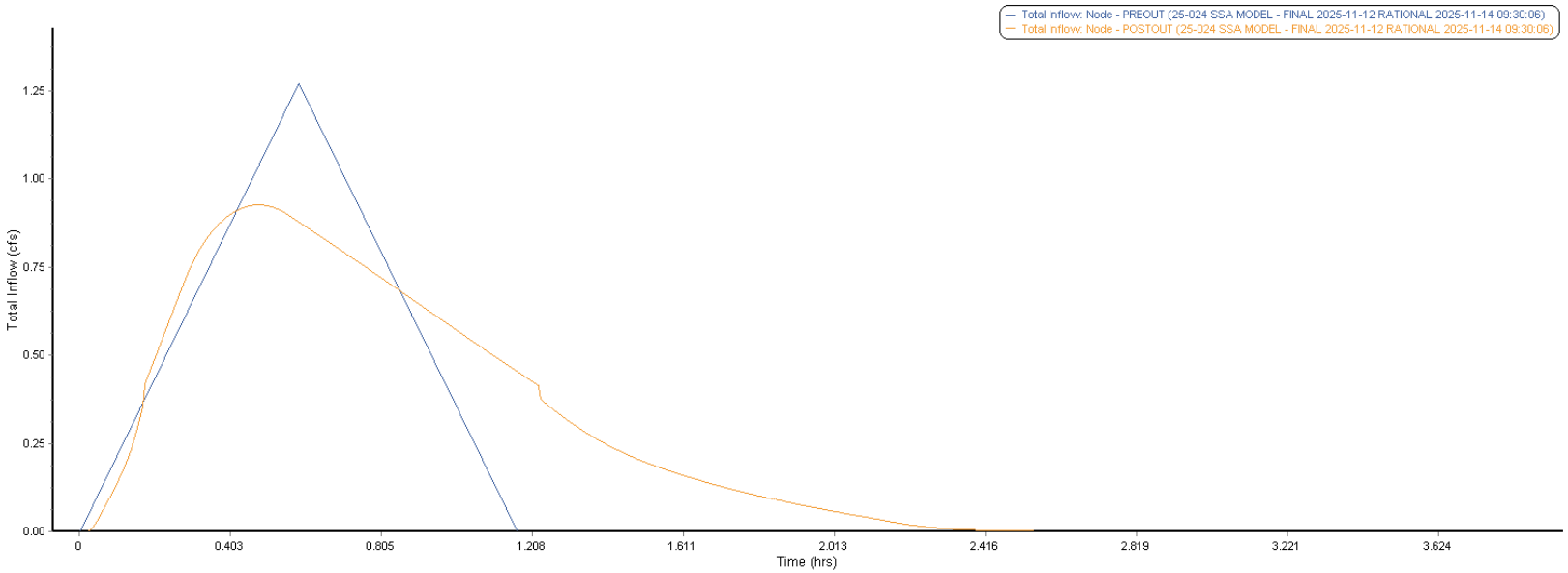

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 09:30:06)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 09:30:06)
Total Inflow (cfs)
1.25
1.00
0.75
0.50
0.25
0.00
0
0.403
0.805
1.208
1.611
2.013
2.416
2.819
3.221
3.624
Time (hrs)

EXHIBIT 3C – 25 REPORT & HYDROGRAPH (RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Rational
Time of Concentration..... User-Defined
Return Period..... 25 years
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.390	2.338
Continuity Error (%)	0.601	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.156	0.051
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****

Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	2.83	4.85	0.85	1.46	0.300	0	00:35:00
PROPOSED	1.84	6.71	1.03	3.76	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.03	0.52	12.72	0	00:28	0	0	0:00:00
POSTOUT	0.03	0.45	12.55	0	00:28	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.06	1.58	13.78	0	00:28	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Maximum Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Flooding Overflow cfs	Flooding Occurrence days	Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	1.00	0	00:28	0.00		
POSTOUT	OUTFALL	0.00	1.00	0	00:28	0.00		
PREOUT	OUTFALL	1.46	1.46	0	00:35	0.00		
POND-1	STORAGE	3.75	3.75	0	00:16	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	2.578	60	0	00:28	0.083	2	1.00	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	11.21	0.38	1.00
PREOUT	4.86	0.73	1.46
System	8.04	1.11	2.40

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:28	2.27	1.00	1.00	3.61	0.28	0.39	0	Calculated
Orifice-01	ORIFICE	0	00:28			1.00			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 09:32:44 2025
Analysis ended on: Fri Nov 14 09:32:47 2025
Total elapsed time: 00:00:03

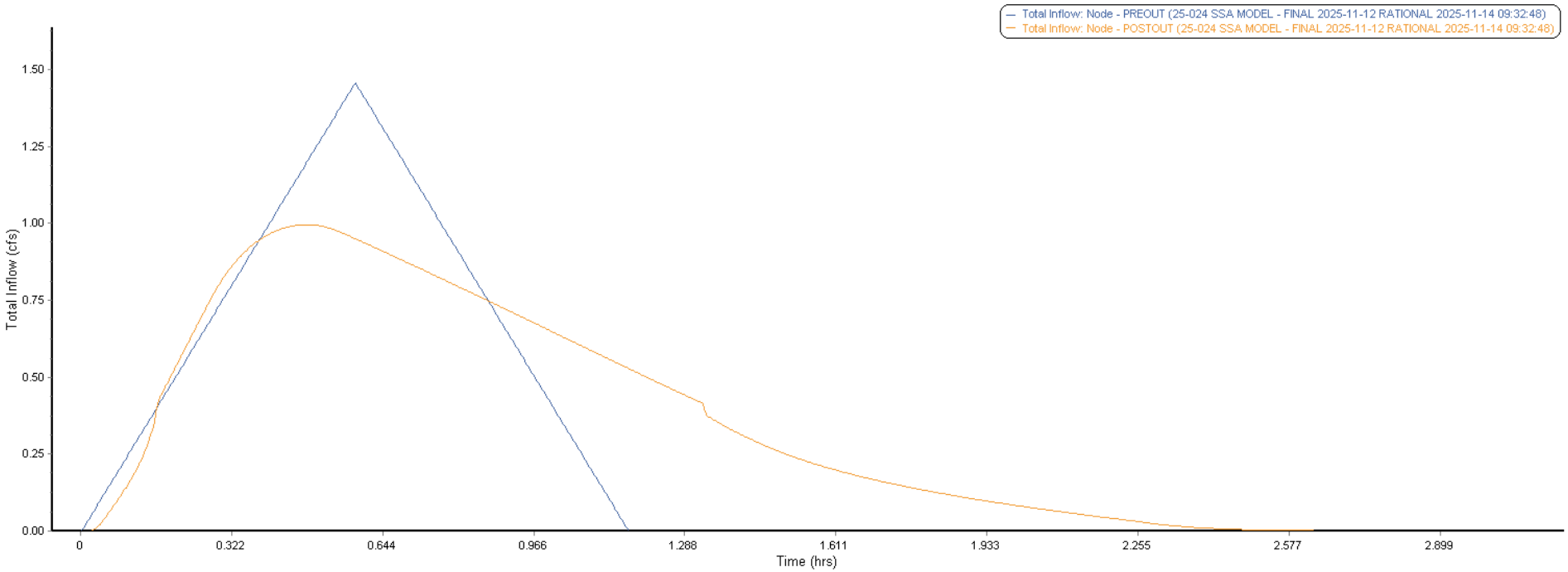

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 09:32:48)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 09:32:48)
Total Inflow (cfs)
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
0.322
0.644
0.966
1.288
1.611
1.933
2.255
2.577
2.899
Time (hrs)

EXHIBIT 3D – 100 YR REPORT & HYDROGRAPH (RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Rational
Time of Concentration..... User-Defined
Return Period..... 100 years
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.465	2.790
Continuity Error (%)	0.601	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.185	0.060
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****

Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	3.39	5.82	1.02	1.75	0.300	0	00:35:00
PROPOSED	2.19	7.95	1.22	4.45	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.03	0.55	12.75	0	00:29	0	0	0:00:00
POSTOUT	0.03	0.47	12.57	0	00:29	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.08	1.82	14.02	0	00:29	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Maximum Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	1.09	0	00:29	0.00		
POSTOUT	OUTFALL	0.00	1.09	0	00:29	0.00		
PREOUT	OUTFALL	1.75	1.75	0	00:35	0.00		
POND-1	STORAGE	4.45	4.45	0	00:16	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	3.138	73	0	00:29	0.107	2	1.09	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	11.85	0.43	1.09
PREOUT	4.86	0.87	1.75
System	8.35	1.30	2.80

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:29	2.33	1.00	1.09	3.61	0.30	0.41	0	Calculated
Orifice-01	ORIFICE	0	00:29			1.09			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 09:34:40 2025
Analysis ended on: Fri Nov 14 09:34:43 2025
Total elapsed time: 00:00:03

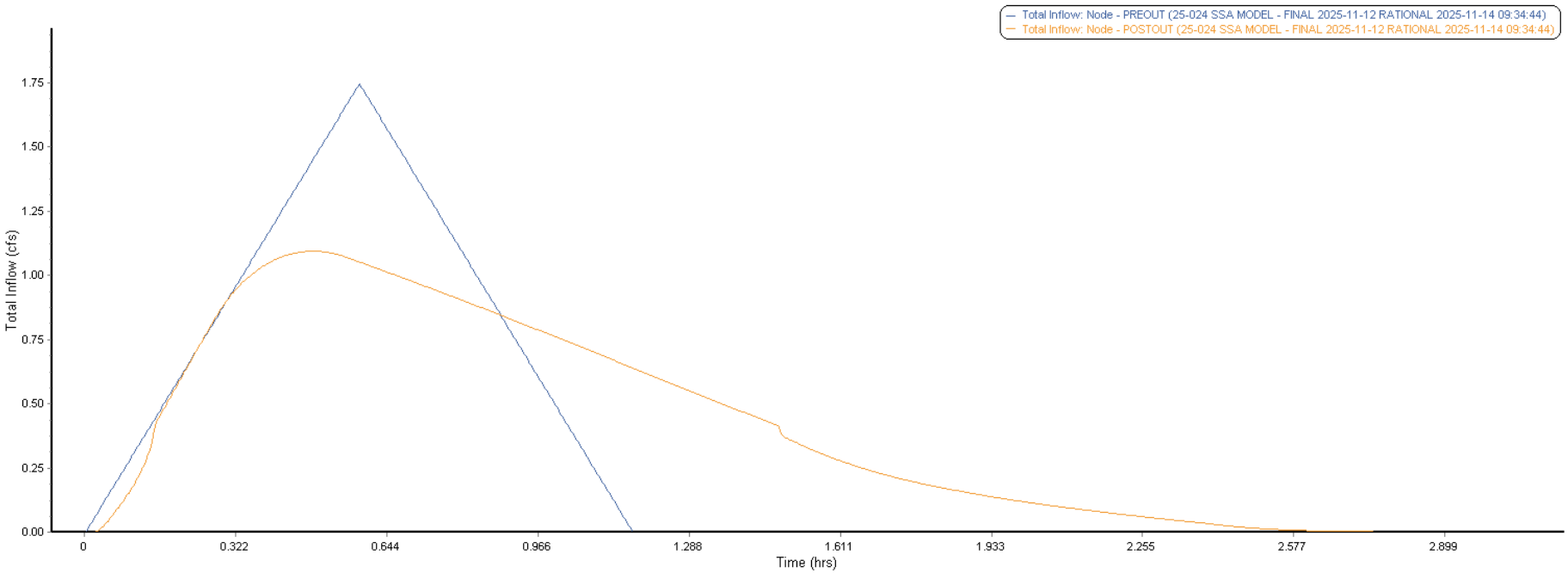

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 09:34:44)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 RATIONAL 2025-11-14 09:34:44)
Total Inflow (cfs)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
0.322
0.644
0.966
1.288
1.611
1.933
2.255
2.577
2.899
Time (hrs)

EXHIBIT 4A – 5 YR REPORT & HYDROGRAPH (MODIFIED RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Modified Rational
Time of Concentration..... User-Defined
Return Period..... 5 years
Storm Duration..... 33 min
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.364	2.182
Continuity Error (%)	1.000	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.154	0.050
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****
Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	2.21	3.79	0.66	1.14	0.300	0	00:35:00
PROPOSED	2.15	3.92	1.21	2.19	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.03	0.52	12.72	0	00:42	0	0	0:00:00
POSTOUT	0.03	0.45	12.55	0	00:42	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.08	1.59	13.79	0	00:42	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	1.00	0	00:42	0.00		
POSTOUT	OUTFALL	0.00	1.00	0	00:42	0.00		
PREOUT	OUTFALL	1.14	1.14	0	00:35	0.00		
POND-1	STORAGE	2.19	2.19	0	00:16	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	2.599	60	0	00:42	0.099	2	1.00	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	12.26	0.41	1.00
PREOUT	4.86	0.57	1.14
System	8.56	0.98	2.09

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:42	2.27	1.00	1.00	3.61	0.28	0.39	0	Calculated
Orifice-01	ORIFICE	0	00:42			1.00			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 09:38:06 2025
Analysis ended on: Fri Nov 14 09:38:08 2025
Total elapsed time: 00:00:02

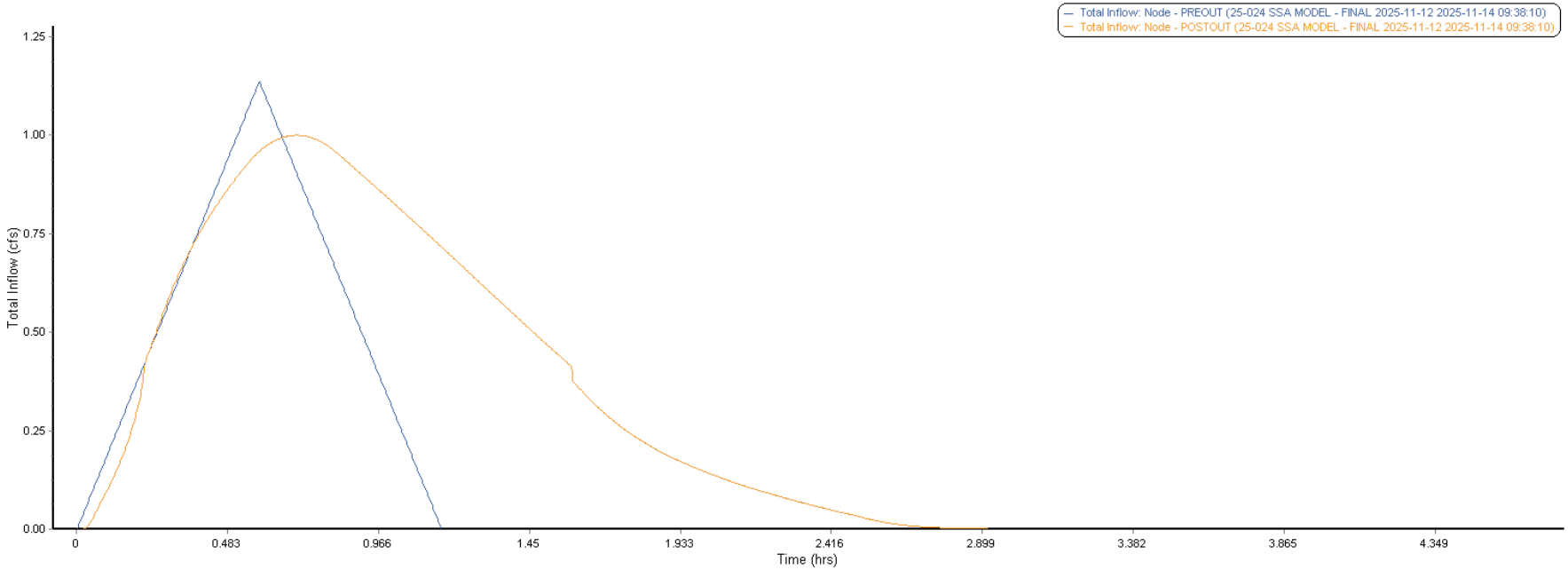

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 09:38:10)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 09:38:10)
Total Inflow (cfs)
1.25
1.00
0.75
0.50
0.25
0.00
0
0.483
0.966
1.45
1.933
2.416
2.899
3.382
3.865
4.349
Time (hrs)

EXHIBIT 4B – 10 YR REPORT & HYDROGRAPH (MODIFIED RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Modified Rational
Time of Concentration..... User-Defined
Return Period..... 10 years
Storm Duration..... 33 min
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.406	2.437
Continuity Error (%)	1.000	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.173	0.056
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****
Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	2.47	4.23	0.74	1.27	0.300	0	00:35:00
PROPOSED	2.41	4.37	1.35	2.45	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.04	0.54	12.74	0	00:42	0	0	0:00:00
POSTOUT	0.03	0.47	12.57	0	00:42	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.09	1.75	13.95	0	00:42	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	1.07	0	00:42	0.00		
POSTOUT	OUTFALL	0.00	1.07	0	00:42	0.00		
PREOUT	OUTFALL	1.27	1.27	0	00:35	0.00		
POND-1	STORAGE	2.45	2.45	0	00:16	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	2.973	69	0	00:42	0.117	3	1.07	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	12.70	0.44	1.07
PREOUT	4.86	0.64	1.27
System	8.78	1.08	2.29

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:42	2.31	1.00	1.07	3.61	0.29	0.40	0	Calculated
Orifice-01	ORIFICE	0	00:42			1.07			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 10:02:53 2025
Analysis ended on: Fri Nov 14 10:02:55 2025
Total elapsed time: 00:00:02

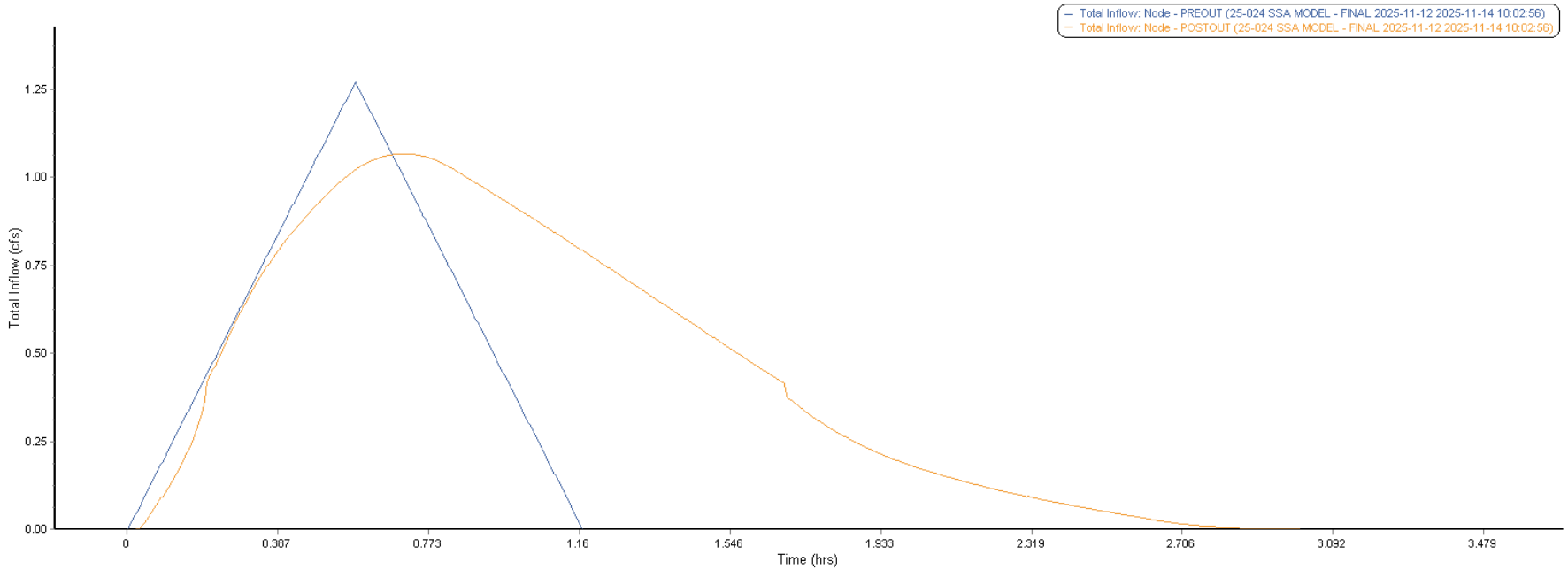

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 10:02:56)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 10:02:56)
Total Inflow (cfs)
1.25
1.00
0.75
0.50
0.25
0.00
0
0.387
0.773
1.16
1.546
1.933
2.319
2.706
3.092
3.479
Time (hrs)

EXHIBIT 4C – 25 YR REPORT & HYDROGRAPH (MODIFIED RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Modified Rational
Time of Concentration..... User-Defined
Return Period..... 25 years
Storm Duration..... 33 min
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.466	2.793
Continuity Error (%)	1.000	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.198	0.064
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****
Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	2.83	4.85	0.85	1.46	0.300	0	00:35:00
PROPOSED	2.75	5.01	1.54	2.80	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.04	0.56	12.76	0	00:42	0	0	0:00:00
POSTOUT	0.04	0.49	12.59	0	00:43	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.10	1.98	14.18	0	00:42	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	1.15	0	00:42	0.00		
POSTOUT	OUTFALL	0.00	1.15	0	00:43	0.00		
PREOUT	OUTFALL	1.46	1.46	0	00:35	0.00		
POND-1	STORAGE	2.80	2.80	0	00:16	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	3.508	82	0	00:42	0.144	3	1.15	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	13.27	0.48	1.15
PREOUT	4.86	0.73	1.46
System	9.07	1.21	2.56

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:43	2.36	1.00	1.15	3.61	0.32	0.42	0	Calculated
Orifice-01	ORIFICE	0	00:42			1.15			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 11:08:38 2025
Analysis ended on: Fri Nov 14 11:08:40 2025
Total elapsed time: 00:00:02

Storage Nodes

Storage Node : POND-1

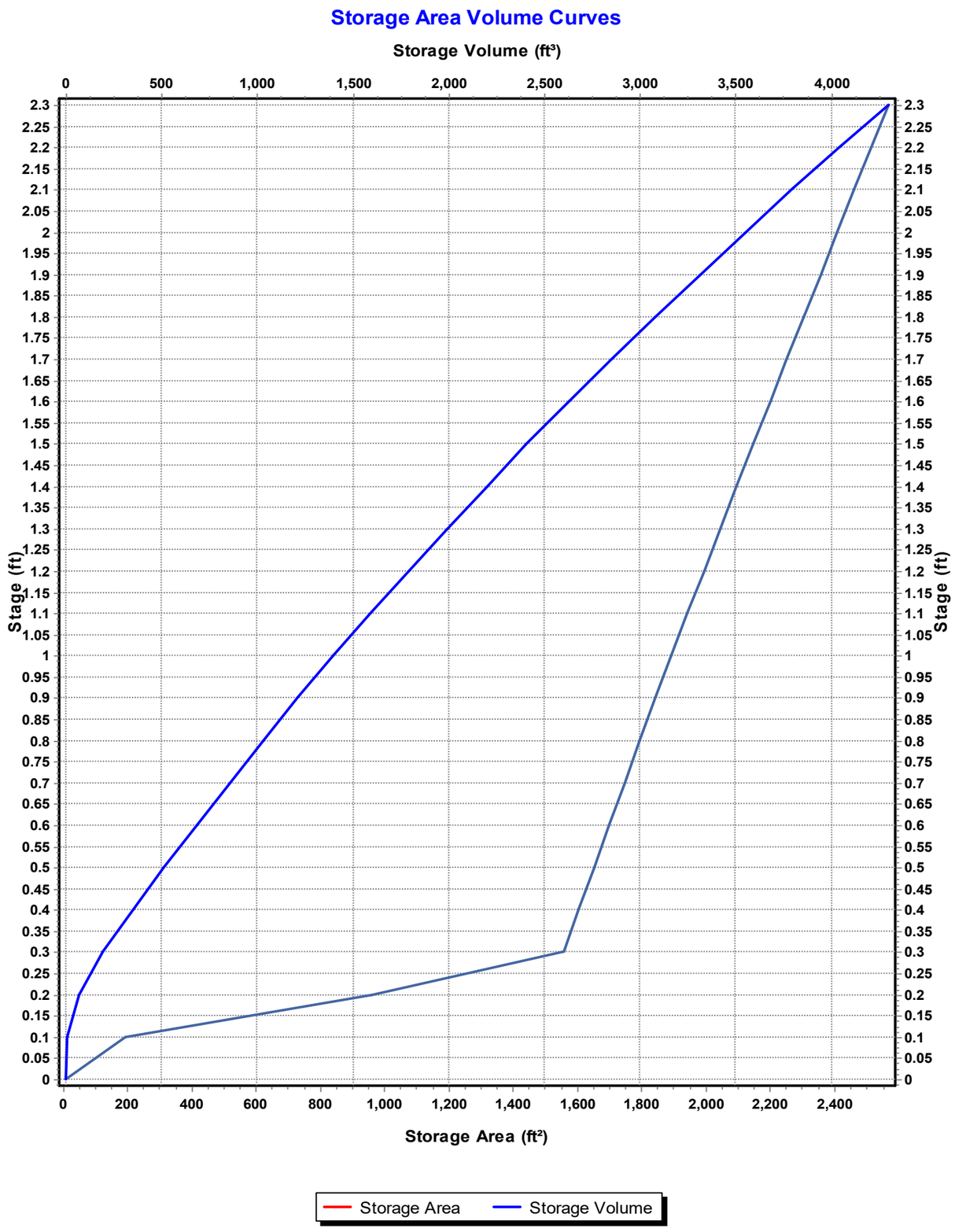
Input Data

Invert Elevation (ft)	12.20
Max (Rim) Elevation (ft)	14.50
Max (Rim) Offset (ft)	2.30
Initial Water Elevation (ft)	12.20
Initial Water Depth (ft)	0.00
Ponded Area (ft^2)	0.00
Evaporation Loss	0.00

Storage Area Volume Curves

Storage Curve : D-POND

Stage (ft)	Storage Area (ft^2)	Storage Volume (ft^3)
0	8.86	0
0.1	194.64	10.18
0.2	960.26	67.93
0.3	1560.6	193.97
0.4	1607.02	352.35
0.5	1653.81	515.39
0.6	1700.94	683.13
0.7	1748.44	855.6
0.8	1796.29	1032.84
0.9	1845.63	1214.94
1	1895.33	1401.99
1.1	1945.37	1594.03
1.2	1995.75	1791.09
1.3	2046.49	1993.2
1.4	2097.86	2200.42
1.5	2149.54	2412.79
1.6	2201.52	2630.34
1.7	2253.8	2853.11
1.8	2306.39	3081.12
1.9	2358.75	3314.38
2	2411.35	3552.89
2.1	2464.21	3796.67
2.2	2517.32	4045.75
2.3	2570.68	4300.15



Outflow Orifices

SN	Element ID	Orifice Type	Orifice Shape	Flap Gate	Circular Orifice Diameter (in)	Rectangular Orifice Height (in)	Rectangular Orifice Width (in)	Orifice Invert Elevation (ft)	Orifice Coefficient
1	Orifice-01	Side	CIRCULAR	No					

Output Summary Results

Peak Inflow (cfs)	2.8
Peak Lateral Inflow (cfs)	2.8
Peak Outflow (cfs)	1.15
Peak Exfiltration Flow Rate (cfm)	0
Max HGL Elevation Attained (ft)	14.18
Max HGL Depth Attained (ft)	1.98
Average HGL Elevation Attained (ft)	12.3
Average HGL Depth Attained (ft)	0.1
Time of Max HGL Occurrence (days hh:mm)	0 00:42
Total Exfiltration Volume (1000-ft^3)	0
Total Flooded Volume (ac-in)	0
Total Time Flooded (min)	0
Total Retention Time (sec)	0

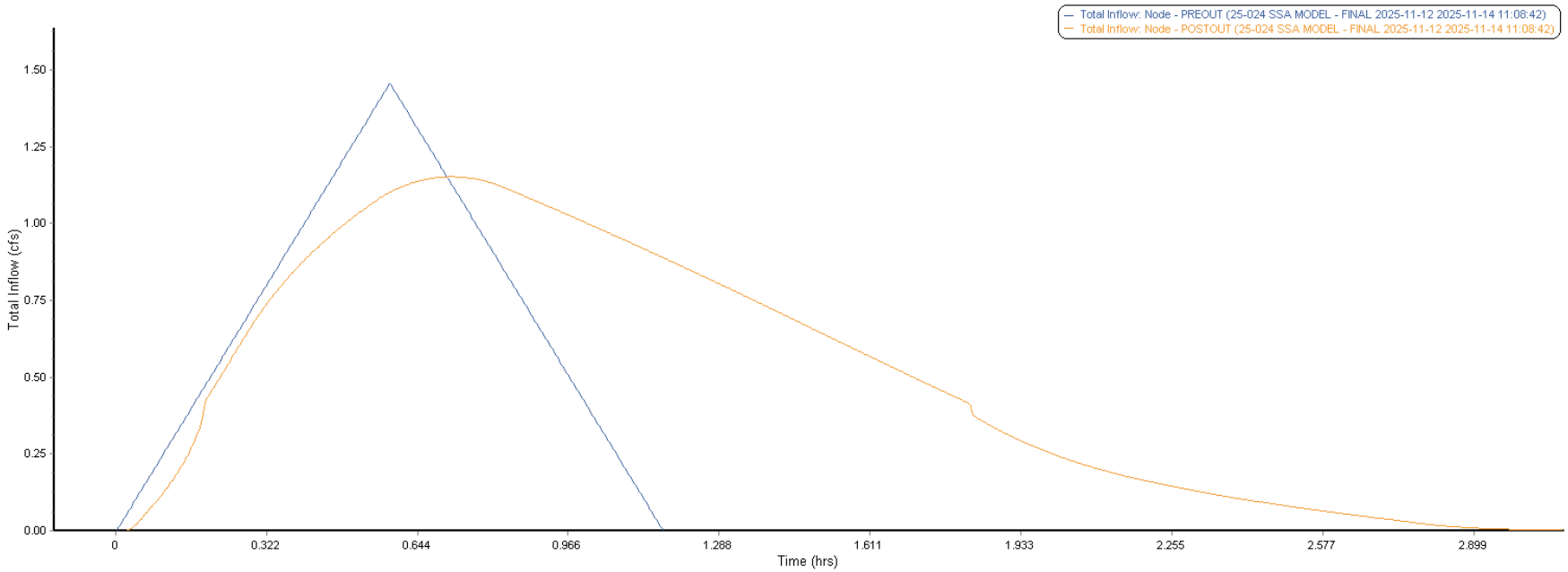

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 11:08:42)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 11:08:42)
Total Inflow (cfs)
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
0.322
0.644
0.966
1.288
1.611
1.933
2.255
2.577
2.899
Time (hrs)

EXHIBIT 4D – 100 YR REPORT & HYDROGRAPH (MODIFIED RATIONAL METHOD)

****
Project Description
****
File Name ..... 25-024 SSA MODEL - FINAL 2025-11-12.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. Modified Rational
Time of Concentration..... User-Defined
Return Period..... 100 years
Storm Duration..... 33 min
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date OCT-30-2025 00:00:00
Ending Date OCT-31-2025 00:00:00
Report Time Step 00:00:10

****
Element Count
****
Number of subbasins 2
Number of nodes 4
Number of links 2

****
Subbasin Summary
****

Subbasin ID	Total Area acres
EXIST.	1.00
PROPOSED	1.00

****
Node Summary
****

Node ID	Element Type	Invert Elevation ft	Maximum Elev. ft	Ponded Area ft²	External Inflow
OUTFALL-BOX	JUNCTION	12.20	14.00	0.00	
POSTOUT	OUTFALL	12.10	13.35	0.00	
PREOUT	OUTFALL	12.10	12.10	0.00	
POND-1	STORAGE	12.20	14.50	0.00	

****
Link Summary
****

Link ID	From Node	To Node	Element Type	Length ft	Slope %	Manning's Roughness
Link-01	OUTFALL-BOX	POSTOUT	CONDUIT	24.0	0.4167	0.0150
Orifice-01	POND-1	OUTFALL-BOX	ORIFICE			

****
Cross Section Summary
****

Link ID	Shape	Depth/ Diameter ft	Width ft	No. of Barrels	Cross Sectional Area ft²	Full Flow Hydraulic Radius ft	Design Flow Capacity cfs
Link-01	CIRCULAR	1.25	1.25	1	1.23	0.31	3.61

********** Runoff Quantity Continuity **********	Volume acre-ft	Depth inches
Total Precipitation	0.558	3.347
Continuity Error (%)	1.000	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
External Inflow	0.000	0.000
External Outflow	0.235	0.077
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Runoff Coefficient Computations Report
****

Subbasin EXIST.

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.30
Composite Area & Weighted Runoff Coeff.	1.00		0.30

Subbasin PROPOSED

Soil/Surface Description	Area (acres)	Soil Group	Runoff Coeff.
-	1.00	-	0.56
Composite Area & Weighted Runoff Coeff.	1.00		0.56

****
Subbasin Runoff Summary
****

Subbasin ID	Accumulated Precip in	Rainfall Intensity in/hr	Total Runoff in	Peak Runoff cfs	Weighted Runoff Coeff	Time of Concentration days	Time of Concentration hh:mm:ss
EXIST.	3.39	5.82	1.02	1.75	0.300	0	00:35:00
PROPOSED	3.30	6.00	1.85	3.36	0.560	0	00:16:30

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	Time of Max Occurrence hh:mm	Total Flooded Volume acre-in	Total Flooded Time minutes	Retention Time hh:mm:ss
OUTFALL-BOX	0.05	0.59	12.79	0	00:40	0	0	0:00:00
POSTOUT	0.04	0.51	12.61	0	00:40	0	0	0:00:00
PREOUT	0.00	0.00	12.10	0	00:00	0	0	0:00:00
POND-1	0.12	2.30	14.50	0	00:40	0.02	3	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	Time of Peak Inflow Occurrence hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	Time of Peak Flooding Occurrence hh:mm
OUTFALL-BOX	JUNCTION	0.00	1.26	0	00:40	0.00		
POSTOUT	OUTFALL	0.00	1.26	0	00:40	0.00		
PREOUT	OUTFALL	1.75	1.75	0	00:35	0.00		
POND-1	STORAGE	3.36	3.36	0	00:16	0.67	0	00:40

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	Time of Max Ponded Volume hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfm	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
POND-1	4.300	100	0	00:40	0.188	4	1.26	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
POSTOUT	14.06	0.54	1.26
PREOUT	4.86	0.87	1.75
System	9.46	1.42	2.96

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days	Time of Peak Flow Occurrence hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time Surcharged minutes	Reported Condition
Link-01	CONDUIT	0	00:40	2.42	1.00	1.26	3.61	0.35	0.44	0	Calculated
Orifice-01	ORIFICE	0	00:40			1.26			1.00		

****
Highest Flow Instability Indexes
****
All links are stable.

WARNING 108 : Surcharge elevation defined for Junction OUTFALL-BOX is below junction maximum elevation. Assumed surcharge elevation equal to maximum elevation.

Analysis began on: Fri Nov 14 11:10:28 2025
Analysis ended on: Fri Nov 14 11:10:31 2025
Total elapsed time: 00:00:03

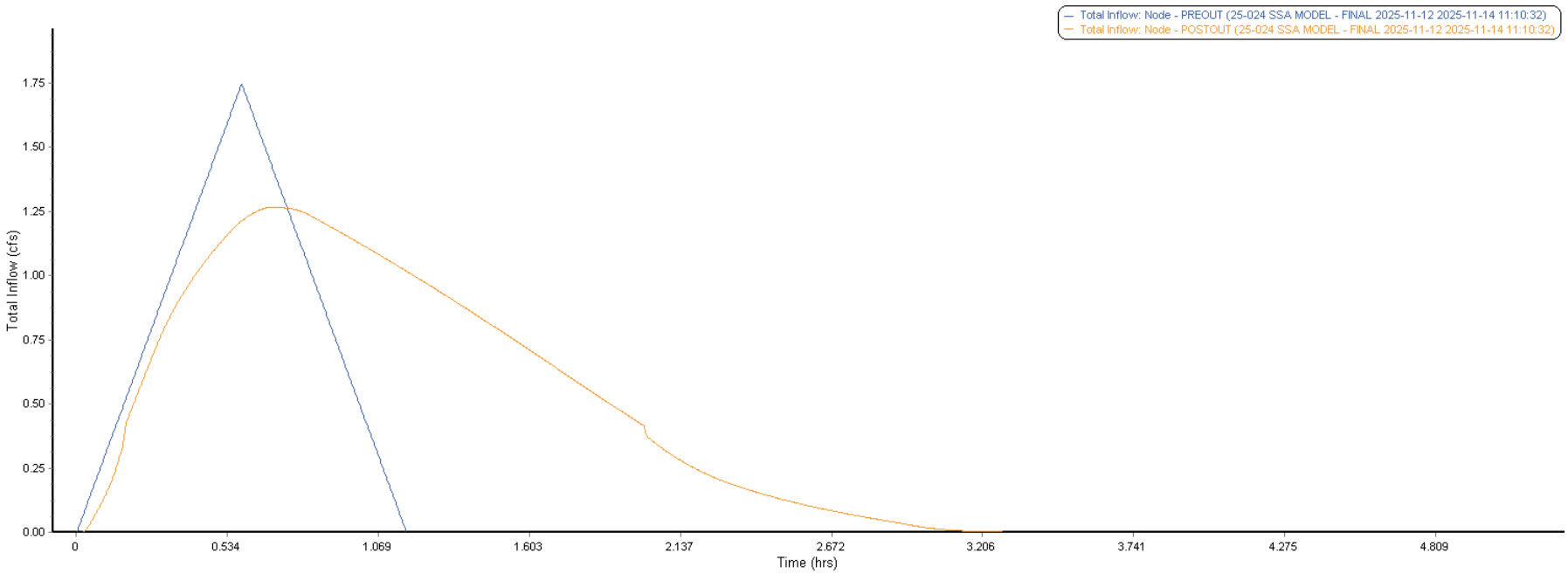

Total Inflow: Node - PREOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 11:10:32)
Total Inflow: Node - POSTOUT (25-024 SSA MODEL - FINAL 2025-11-12 2025-11-14 11:10:32)
Total Inflow (cfs)
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
0.534
1.069
1.603
2.137
2.672
3.206
3.741
4.275
4.809
Time (hrs)

EXHIBIT 5 - FEMA FIRMETTE

National Flood Hazard Layer FIRMette

FEMA

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS
  - Without Base Flood Elevation (BFE) *Zone A, V, A99*
  - With BFE or Depth *Zone AE, AO, AH, VE, AR*
  - Regulatory Floodway
- OTHER AREAS OF FLOOD HAZARD
  - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
  - Future Conditions 1% Annual Chance Flood Hazard *Zone X*
  - Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
  - Area with Flood Risk due to Levee *Zone D*
- OTHER AREAS
  - NO SCREEN Area of Minimal Flood Hazard *Zone X*
  - Effective LOMRs
  - Area of Undetermined Flood Hazard *Zone D*
- GENERAL STRUCTURES
  - Channel, Culvert, or Storm Sewer
  - Levee, Dike, or Floodwall
- OTHER FEATURES
  - 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
  - Coastal Transect
  - Base Flood Elevation Line (BFE)
  - Limit of Study
  - Jurisdiction Boundary
  - Coastal Transect Baseline
  - Profile Baseline
  - Hydrographic Feature
- MAP PANELS
  - Digital Data Available
  - No Digital Data Available
  - Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 11/1/2025 at 4:45 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

EXHIBIT 6 – LADOTD RAINFALL INTENSITY DATA

Louisiana DOTD Intensities for Region 1

Rainfall Intensity Values (inches/hour)

Duration	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
5 min	6.96	7.50	8.06	9.05	9.79	10.65
10 min	5.79	6.41	6.96	7.86	8.54	9.28
15 min	4.96	5.62	6.15	6.97	7.59	8.25
30 min	3.51	4.14	4.61	5.27	5.78	6.30
1 hr	2.25	2.77	3.14	3.64	4.03	4.41
2 hr	1.34	1.72	1.98	2.33	2.61	2.88
3 hr	0.97	1.27	1.48	1.76	1.98	2.20
6 hr	0.54	0.74	0.87	1.06	1.20	1.35
12 hr	0.30	0.42	0.50	0.62	0.71	0.82
24 hr	0.16	0.23	0.29	0.36	0.42	0.49
2 day	0.09	0.13	0.16	0.21	0.24	0.29

Formula: I = a × (D + b)^c where I = Rainfall intensity (in/hr), D = Duration (hours)