WATER QUALITY IMPACT EVALUATION CHECKLIST

PART 1: PROJECT INFORMATION

Project Name:	SR 16 from International Golf Parkway to I-95
County:	St. Johns County
FM Number:	210447-5-32-01
Federal Aid Project No:	
Brief Project Description:	PD&E Study of SR 16 from International Golf Parkway to I-95

PART 2: DETERMINATION OF WQIE SCOPE

Does project discharge to surface or ground water? ☒ Yes ☐ No

Does project alter the drainage system? ☒ Yes ☐ No

Is the project located within a permitted MS4? ☒ Yes ☐ No
Name: FDOT D2 – St. Johns County (FLR04E019)

If the answers to the questions above are no, complete the applicable sections of Part 3 and 4, and then check Box A in Part 5.

PART 3: PROJECT BASIN AND RECEIVING WATER CHARACTERISTICS

Surface Water
Receiving water names: Sixmile Creek, Mill Creek

Water Management District: St. Johns River Water Management District

Environmental Look Around meeting date: January 30, 2025
Attach meeting minutes/notes to the checklist.

Water Control District Name(s) (list all that apply): N/A

Groundwater
Sole Source Aquifer (SSA)? ☐ Yes ☒ No
Name _____
If yes, complete Part 5, D and complete SSA Checklist shown in Part 2, Chapter 11 of the PD&E Manual

Other Aquifer? ☐ Yes ☒ No
Name_____

Springs vents? ☐ Yes ☒ No
Name _____

Well head protection area? ☐ Yes ☒ No

Name _____

Groundwater recharge? ☐ Yes ☒ No

Name _____

Notify District Drainage Engineer if karst conditions are expected or if a higher level of treatment may be needed due to a project being located within a WBID verified as Impaired in accordance with Chapter 62-303, F.A.C.

Date of notification:

PART 4: WATER QUALITY CRITERIA

List all WBIDs and all parameters for which a WBID has been verified impaired, or has a TMDL in **Table 1**. This information should be updated during each re-evaluation as required.

Note: If BMAP or RAP has been identified in **Table 1**, **Table 2** must also be completed.
*Attach notes or minutes from all coordination meetings identified in **Table 2**.*

EST recommendations confirmed with agencies? ☐ Yes ☒ No

BMAP Stakeholders contacted? ☐ Yes ☒ No

TMDL program contacted? ☐ Yes ☒ No

RAP Stakeholders contacted? ☐ Yes ☒ No

Regional water quality projects identified in the ELA? ☒ Yes ☐ No

If yes, describe:
Excess treatment credits from the Grand Oaks Regional Stormwater Management Systems (RSMS) is available to be used to meet the water quality treatment requirements for the SR 16 improvement. The Grand Oaks Community and RSMS is located adjacent to SR 16 and within the same drainage area that contributes stormwater runoff to Turnbull Creek.

Potential direct effects associated with project construction and/or operation identified? ☐ Yes ☒ No

If yes, describe:

Discuss any other relevant information related to water quality including Regulatory Agency Water Quality Requirements.

PART 5: WQIE DOCUMENTATION

☐ A. No involvement with water quality

☐ B. No water quality regulatory requirements apply.

☒C. Water quality regulatory requirements apply to this project (provide Evaluator's information below). Water quality and stormwater issues will be mitigated through compliance with the design requirements of authorized regulatory agencies.

☐ D. EPA Ground/Drinking Water Branch review required. ☐ Yes ☒ No

Concurrence received? ☐ Yes ☒ No

If Yes, Date of EPA Concurrence:

Attach the concurrence letter

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being, or have been, carried out by the Florida Department of Transportation (FDOT) pursuant to 23 U.S.C. § 327 and a Memorandum of Understanding dated May 26, 2022 and executed by the Federal Highway Administration and FDOT.

Evaluator Name (print): Sanoj Shrestha, PE	
Title: Water Resources Engineer	
Signature: Sanoj Shrestha	Date: 05/13/2025

Table 1: Water Quality Criteria

Receiving Waterbody Name (list all that apply)	FDEP Group Number/ Name	WBID(s) Numbers	Classification (I,II,III,IIIL,IV,V)	Special Designations*	NNC limits**	Verified Impaired (Y/N)	TMDL (Y/N)	Pollutants of concern	BMAP, RA Plan or SSAC
Sixmile Creek	2 / Lower St. Johns	2411	III	N/A	N/A	N	N	N/A	BMAP
Mill Creek	2 / Lower St. Johns	2460	III	N/A	N/A	Y	Y	DO / Nutrient / Fecal Coliform	BMAP

*** ONRW, OFW, Aquatic Preserve, Wild and Scenic River, Special Water, SWIM Area, Local Comp Plan, MS4 Area, Other**
**** Lakes, Spring vents, Streams, Estuaries**
Note: If BMAP or RAP has been identified in Table 1, Table 2 must also be completed.

Table 2: REGULATORY Agencies/Stakeholders Contacted

Receiving Water Name (list all that apply)	Contact and Title	Date Contacted	Follow-up Required (Y/N)	Comments
Sixmile Creek, Mill Creek	See attached meeting minutes	January 30, 2025	N	-

10748 Deerwood Park Boulevard S
Jacksonville, Florida 32256

O 904-256-2500
F 904-256-2501
rsandh.com

MEETING NOTES:

Project: 210447-5-32-01 (SR 16 from IGP to I-95)

Meeting Date: January 30, 2025

Meeting Place: SJRWMD: Jacksonville Service Center

Participants: David Miracle (SJRWMD), Christine Wentzel (SJRWMD), Shelby O'Brien (SJRWMD), Pierre Alexandre (SJRWMD), Jeff Reindl (SJRWMD), Jackson Partlow (SJRWMD), Jim Knight (FDOT), Darrell Locklear (FDOT), Mark Thomasson (NST), Jeff Littlejohn (NST), Vanessa Vitale (RS&H), CJ Youmans (RS&H), Sanoj Shrestha (RS&H)

Subject: SJRWMD Pre Application Meeting

Below are the minutes of this meeting:

- Sanoj and CJ provided an overview of the project and the no-pond design approach using the attached PowerPoint presentation.
- Jeff R.:
    - Provide cross-section.
    - Cribrate basins between the approved FEMA model and the StormWise model to achieve closer flow rates.
    - Submit all result graphs for 100-year, 25-year, and mean annual storm events.
    - Concept is good; pre-post conditions do not need to be met as long as there is no adverse impact.
    - Confirmed that pre-treatment targets sediments, trash, and skin oils, though there are no numeric criteria. The centripetal flow option allows larger flows through. Review headloss and flow capacity.
- Mark:
    - Noted that the receiving wetland, without treatment criteria, has a higher assimilative capacity for nutrients.
    - Confirmed that SR 16 falls within the approved Grand Oaks RSMS.
- David:
    - Expressed concern about discharge into Mill Creek.
- Mark:
    - Confirmed no discharge into Mill Creek.
- Jeff L.:
    - Confirmed no work has been done for the county street.
- CJ:
    - Submit Permit Application within a month. Working on baffle box design. The permit application will cover the full project limits. Parts of the project will be let for construction within 2 years, with all parts to be let for construction in 10 years.

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- Christine:
  - Concerned about wetland impacts from direct discharging.
- Jeff L.:
  - Calculations show pollutant loading is lower than the assimilative capacity.
  - Concurrence with FDEP (Tim Oates).
- Christine:
  - Wetland can handle runoff; coordination with other districts is needed.
- Jeff L.:
  - New rule allows nutrients calculations basin-wide.
- Jeff R.:
  - Asked if FAC for assimilative capacity addresses property owners.
- Jeff L.:
  - No, it does not.
  - Portions of Turnbull are under conservation.
- Christine:
  - Assess the effective removal of the baffle box for oil slicks.
- CJ:
  - Numerically demonstrate the effectiveness of the baffle box.
- David M.:
  - Raised concerns about heavy metals from baffle boxes.
- Pierre & Shelby will be reviewers.

January 30th, 2025

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Pre-Application Meeting

State Road 16 Widening
(from IGP to I-95)

Agenda

- Introductions
- Meeting Objectives
- Project Overview
- July 2024 Meeting Recap
- Criteria
- Peak Attenuation
- Pre-Treatment
- Water Quality
- Discussion

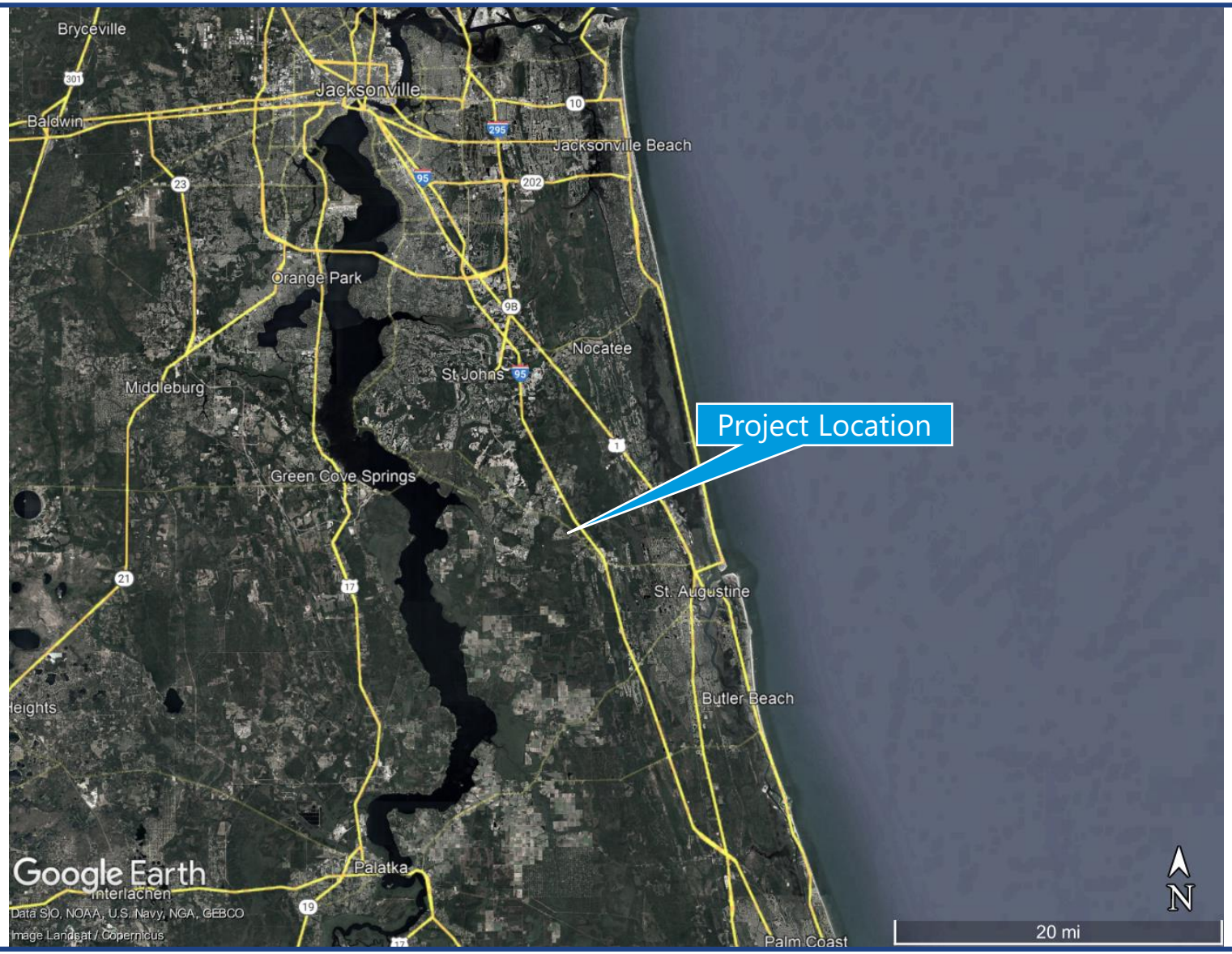
Meeting Objectives

Meeting Objectives

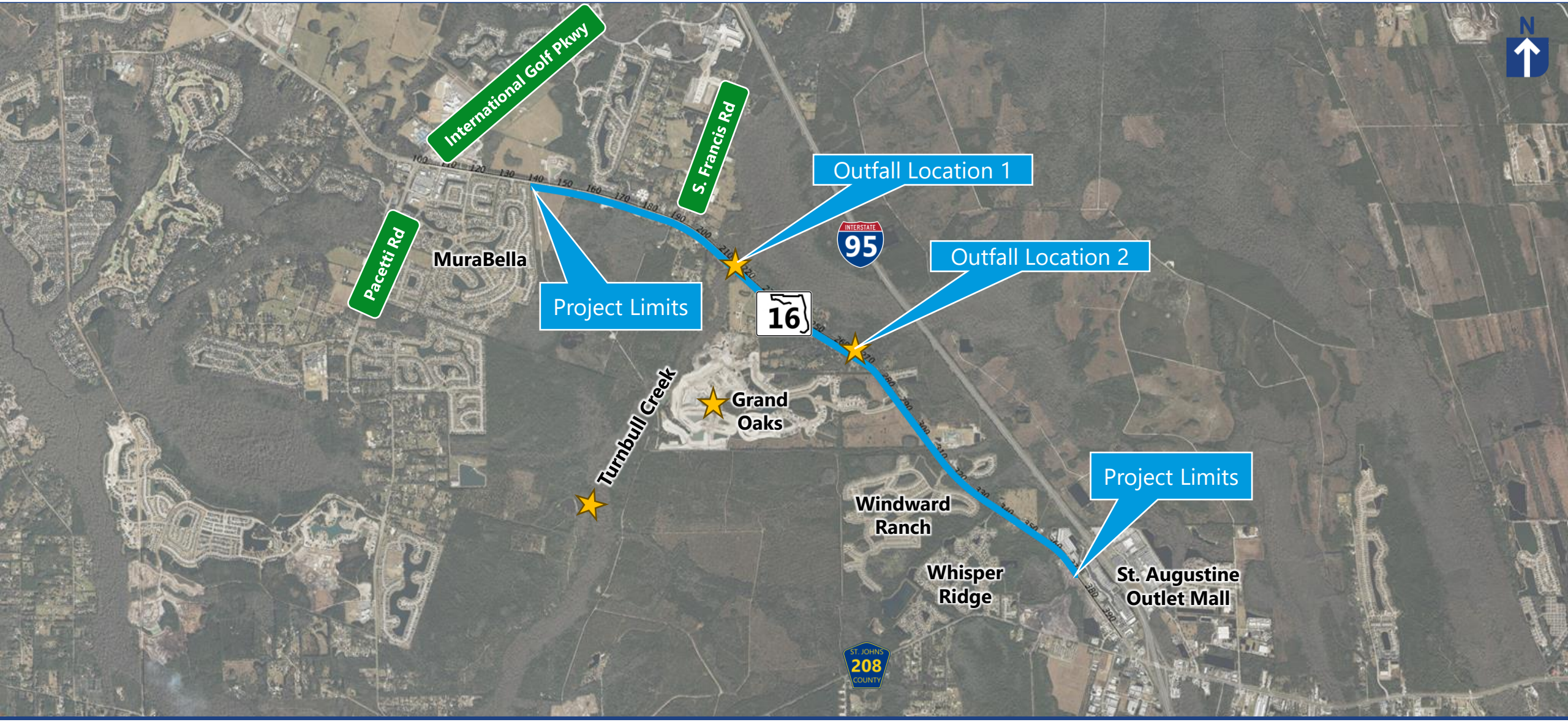
- Present the project
- Explain our approach and methodology
- Answer questions and gather feedback
- Incorporate and submit the application

Project Overview

Project Location

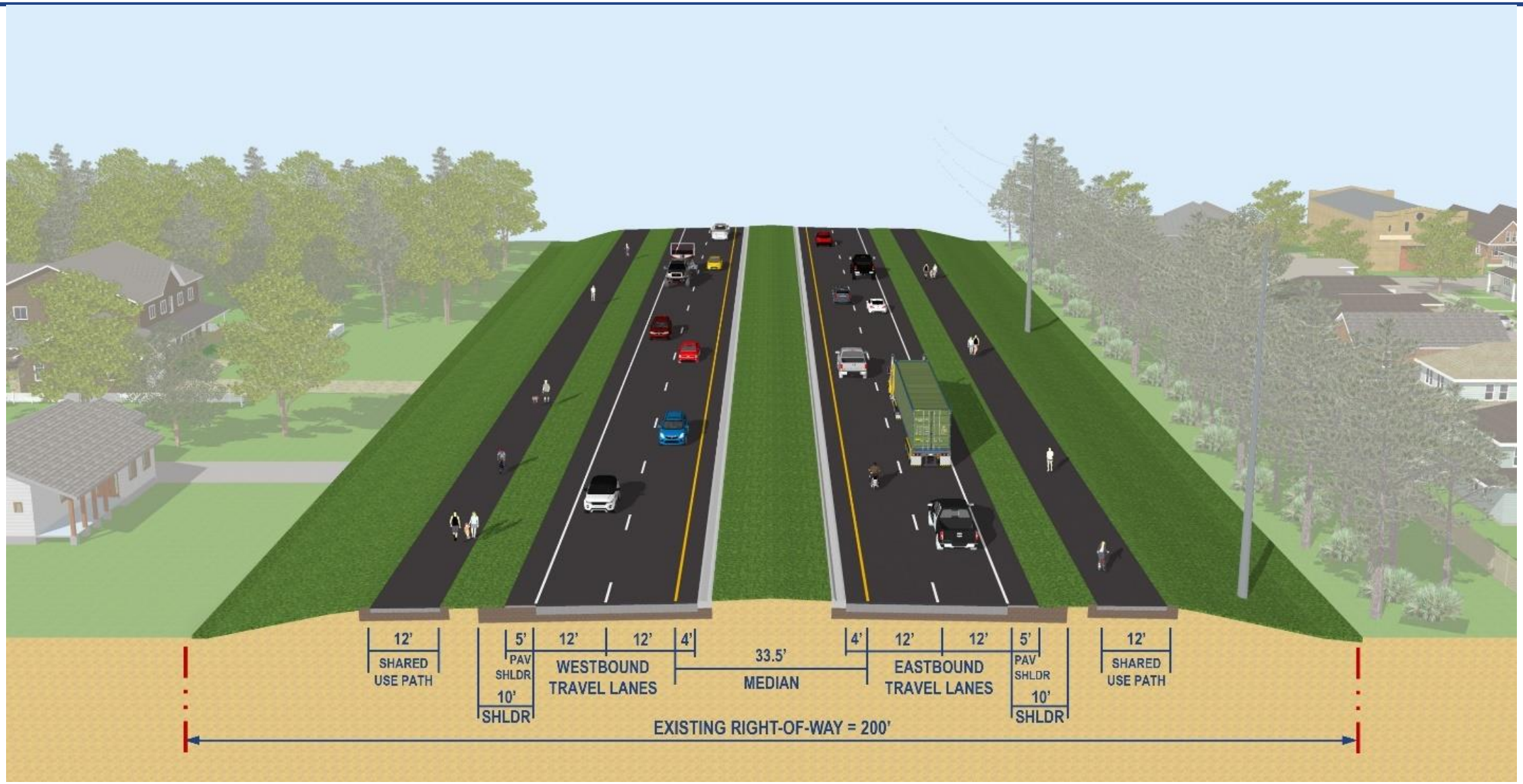


Project Location



Typical Sections: Existing Condition

Typical Sections: Proposed Condition



July 2024 Meeting Recap

July 2024 Meeting Recap

- Discussed a no-pond stormwater management option.
- Water Quality
  - The FDOT SR 16 project is within the same drainage area as Grand Oaks Regional Stormwater Management Systems (RSMS).
  - Treatment credits from the Grand Oaks RSMS can be released to FDOT for the proposed development of SR 16.
- Water Quantity
  - Peak attenuation is a presumptive criteria.
  - A higher-level standards of assurance would be needing to demonstrate no adverse impacts by discharging stormwater runoff.
  - Pre-treatment will be required to collect sediment, oil, grease, and trash before discharging stormwater runoff.

Criteria

SJRWMD Flood Protection Criteria

SJRWMD AH Volume I Section 8.4

8.4 Additional Criteria

8.4.1 Flood Damage

Activities shall not cause adverse flooding. Information on design and performance standards to avoid and minimize flood damage is contained in Volume II specific to the geographic area covered by each District.

8.4.2 Storage and Conveyance

Floodways and floodplains, and levels of flood flows or velocities of adjacent streams, impoundments or other water courses must not be altered so as to adversely impact the off-site storage and conveyance capabilities of the water resource. Projects that alter existing conveyance systems (such as by rerouting an existing ditch) must not adversely affect existing conveyance capabilities. Also, the applicant shall provide reasonable assurance that proposed velocities are non-erosive or that erosion control measures (such as riprap and concrete lined channels) are sufficient to safely convey the flow. Information on design and performance standards to achieve storage and conveyance requirements are in Volume II specific to the geographic area covered by each District.

Florida Statute 373.413(6)

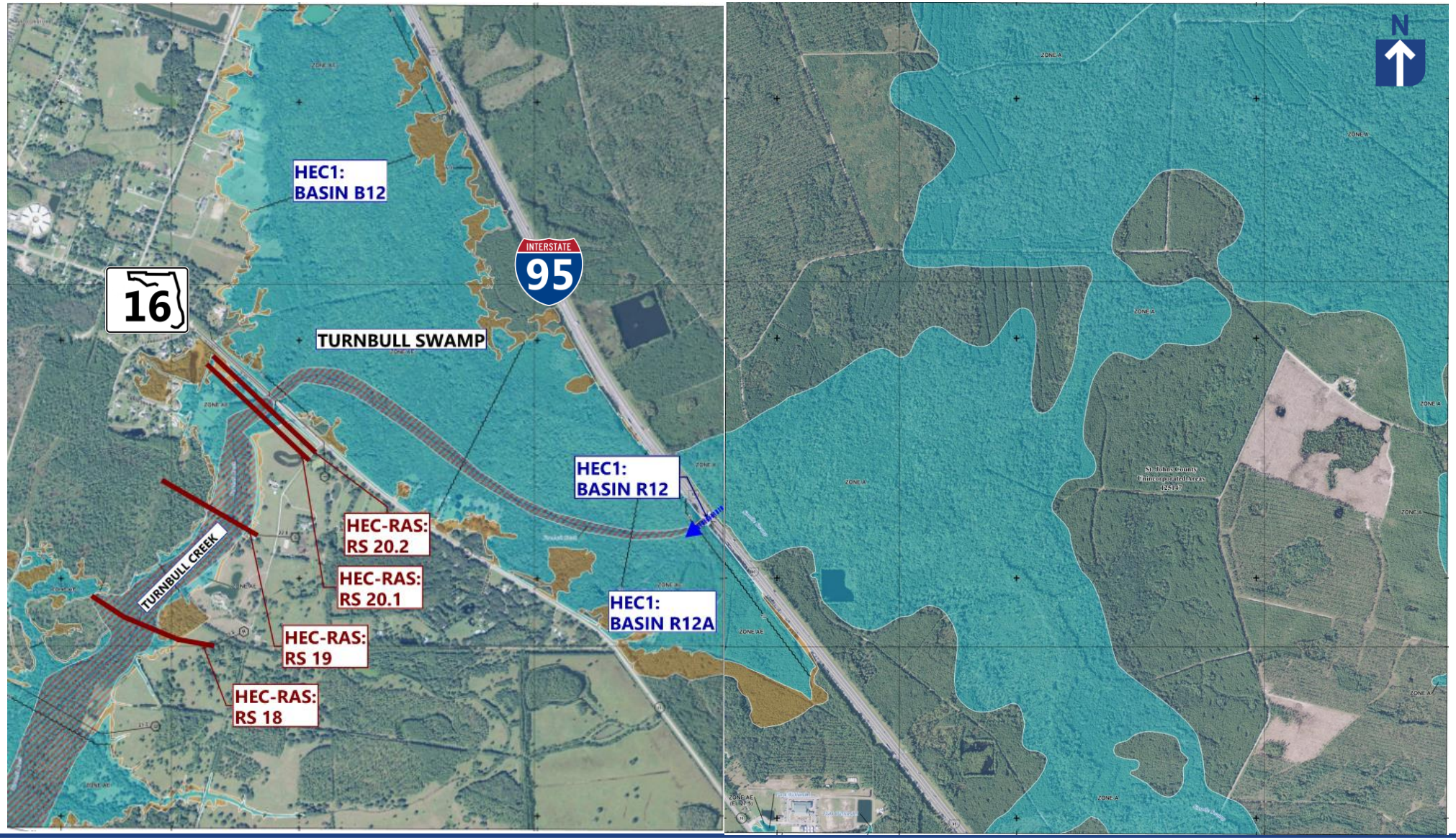
- 373.413(6) It is the intent of the Legislature that the governing board or department exercise flexibility in the permitting of stormwater management systems associated with the construction or alteration of systems serving state transportation projects and facilities. Because of the unique limitations of linear facilities, the governing board or department shall balance the expenditure of public funds for stormwater treatment for state transportation projects and facilities with the benefits to the public in providing the most cost-efficient and effective method of achieving the treatment objectives. In consideration thereof, the governing board or department shall allow alternatives to onsite treatment, including, but not limited to, regional stormwater treatment systems. The Department of Transportation is responsible for treating stormwater generated from state transportation projects but is not responsible for the abatement of pollutants and flows entering its stormwater management systems from offsite sources; however, this subsection does not prohibit the Department of Transportation from receiving and managing such pollutants and flows when cost effective and prudent. Further, in association with right-of-way acquisition for state transportation projects, the Department of Transportation is responsible for providing stormwater treatment and attenuation for the acquired right-of-way but is not responsible for modifying permits for adjacent lands affected by right-of-way acquisition when it is not the permittee. The governing board or department may establish, by rule, specific criteria to implement the management and treatment alternatives and activities under this subsection.

Peak Attenuation

StormWise (ICPR) Modeling Method

- FEMA Flood Insurance Study (FIS) of Turnbull Creek
  - HEC-RAS and HEC1 used for the approved FEMA model
- Basins
  - FEMA Model data imported into StormWise (formally ICPR)
  - HEC1 Basin and routing data calibrated for StormWise
- Hydraulics
  - Stage storage modeled for Turnbull Swamp.
  - HEC-RAS channel data imported directly into StormWise
  - HEC-RAS bridge hydraulics imported as a rating curve.

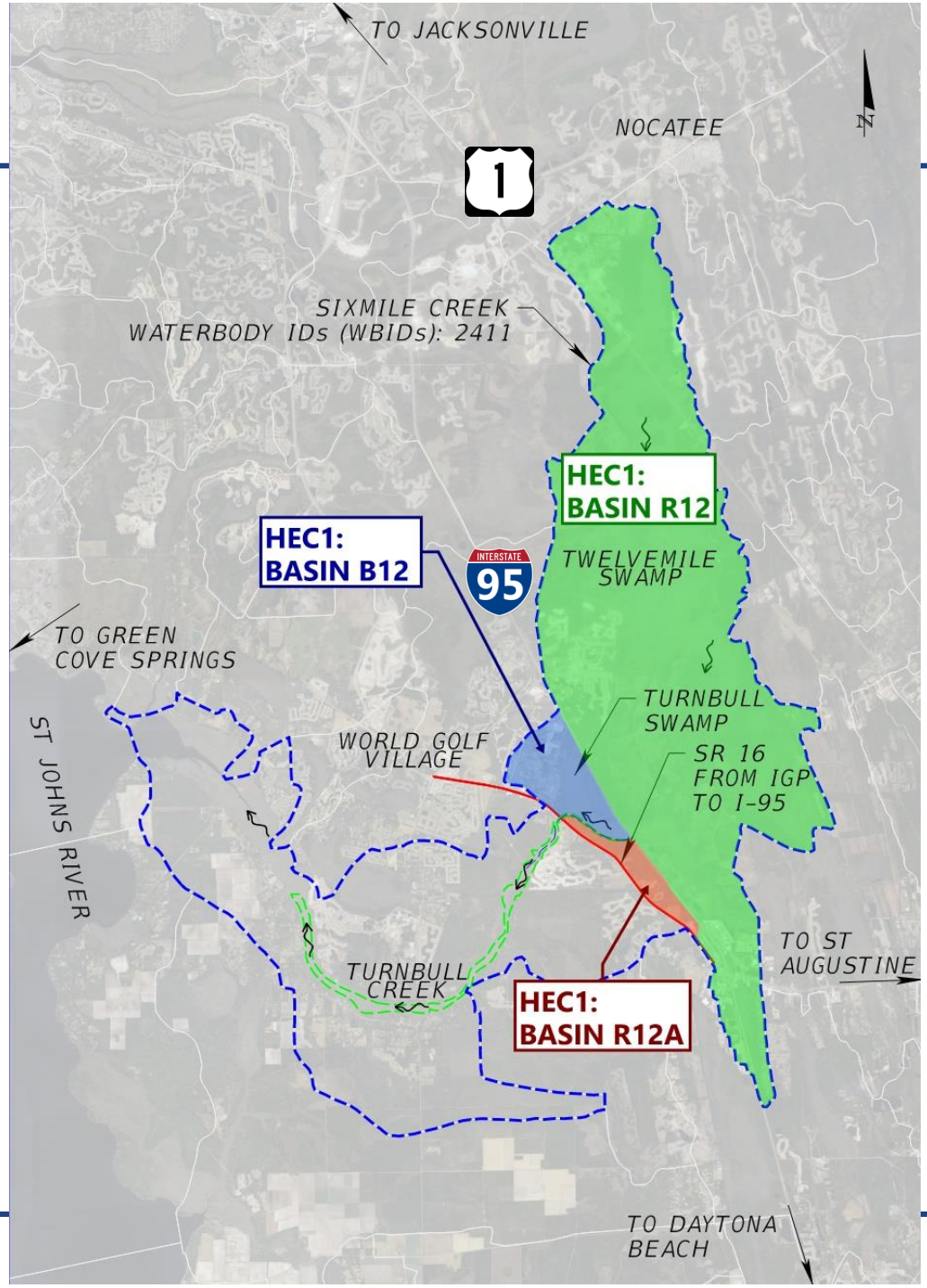
StormWise (ICPR) Model: FEMA FIS



SR 16 from IGP to I-95

SJRWMD Pre Application Meeting

StormWise Model: WBID Map

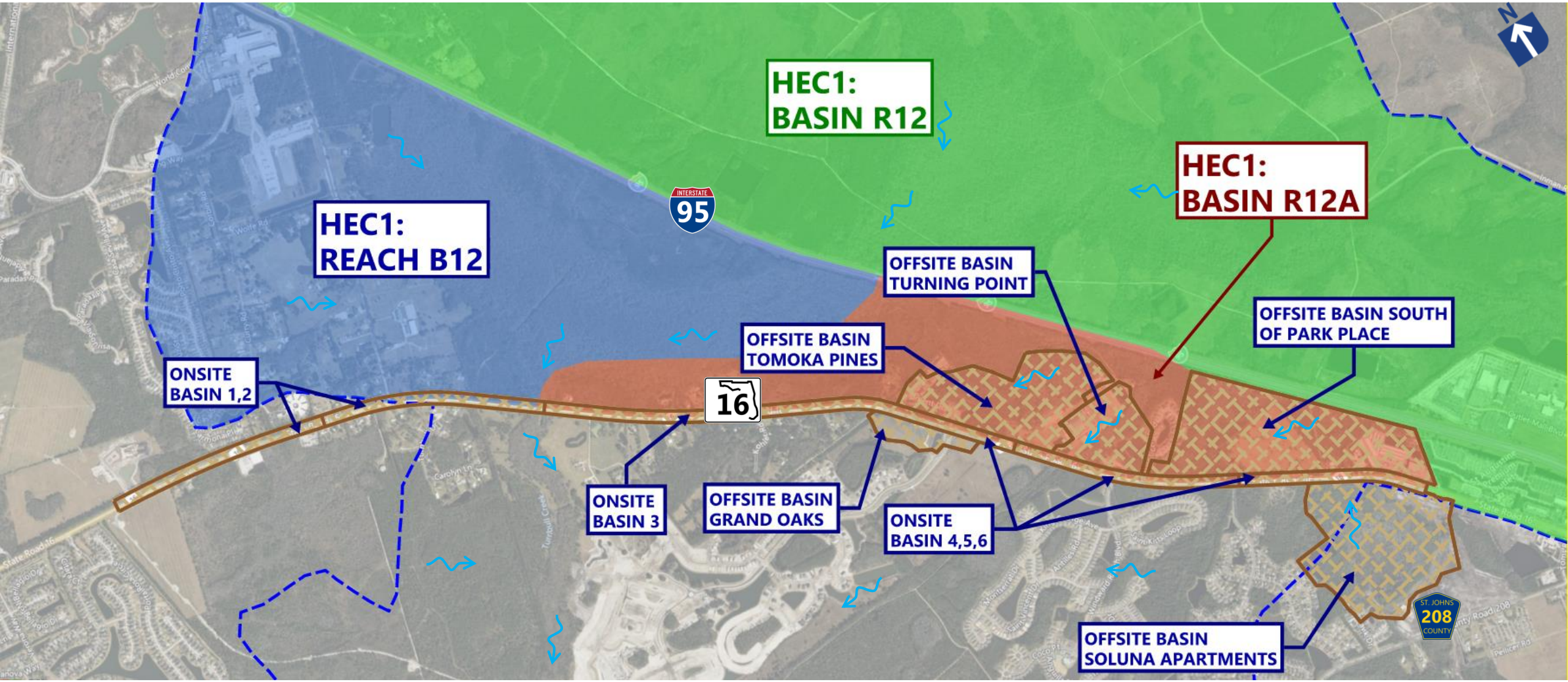


StormWise Model: Basin Calibration

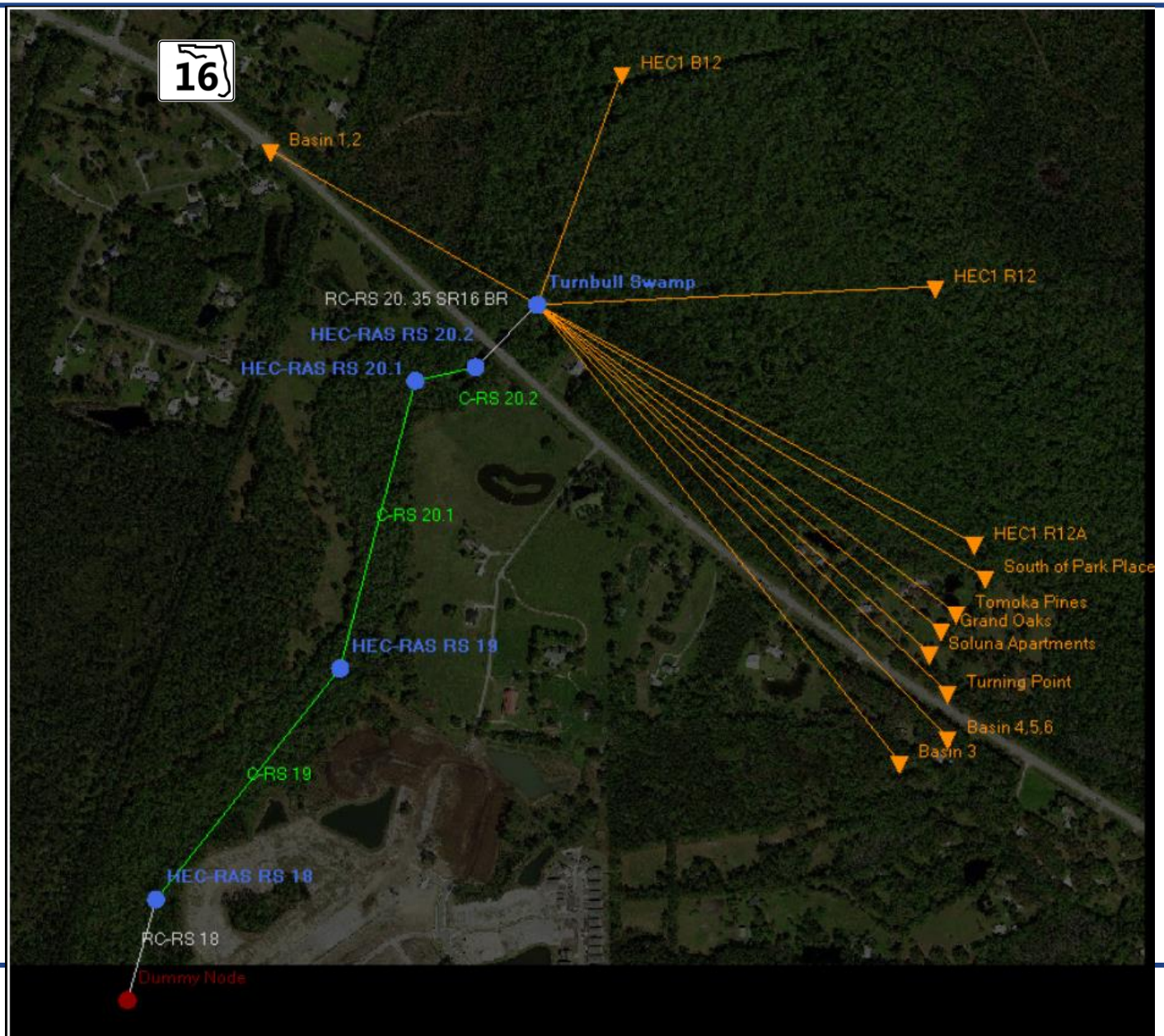
- **HEC1 Inputs**
  - Area: Square Miles
  - Curve Number
  - Lag Time: Hours
  - Peak Rate Factor
- **StormWise**
  - Area: Acres
  - Curve Number
  - TC: Minutes
  - Peak Rate Factor

Basin Name	FEMA HEC1		StormWise	
	Peak Flow (cfs)	Peak Time (hr)	Peak Flow (cfs)	Peak Time (hr)
B12	639	36	582	38
R12	1760	77	1727	79
R12A	506	27	487	26

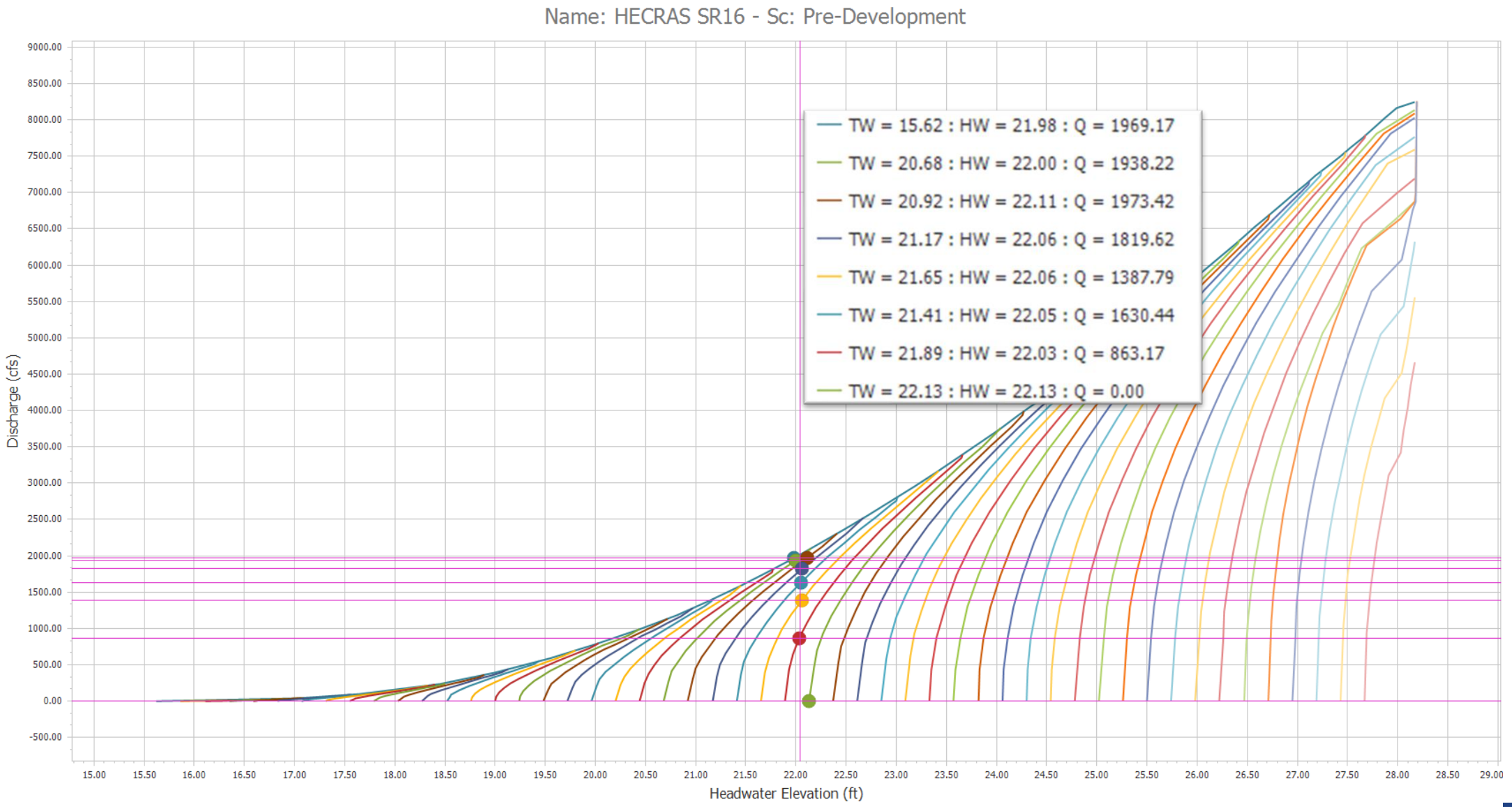
StormWise Model: SR 16 Project Basins



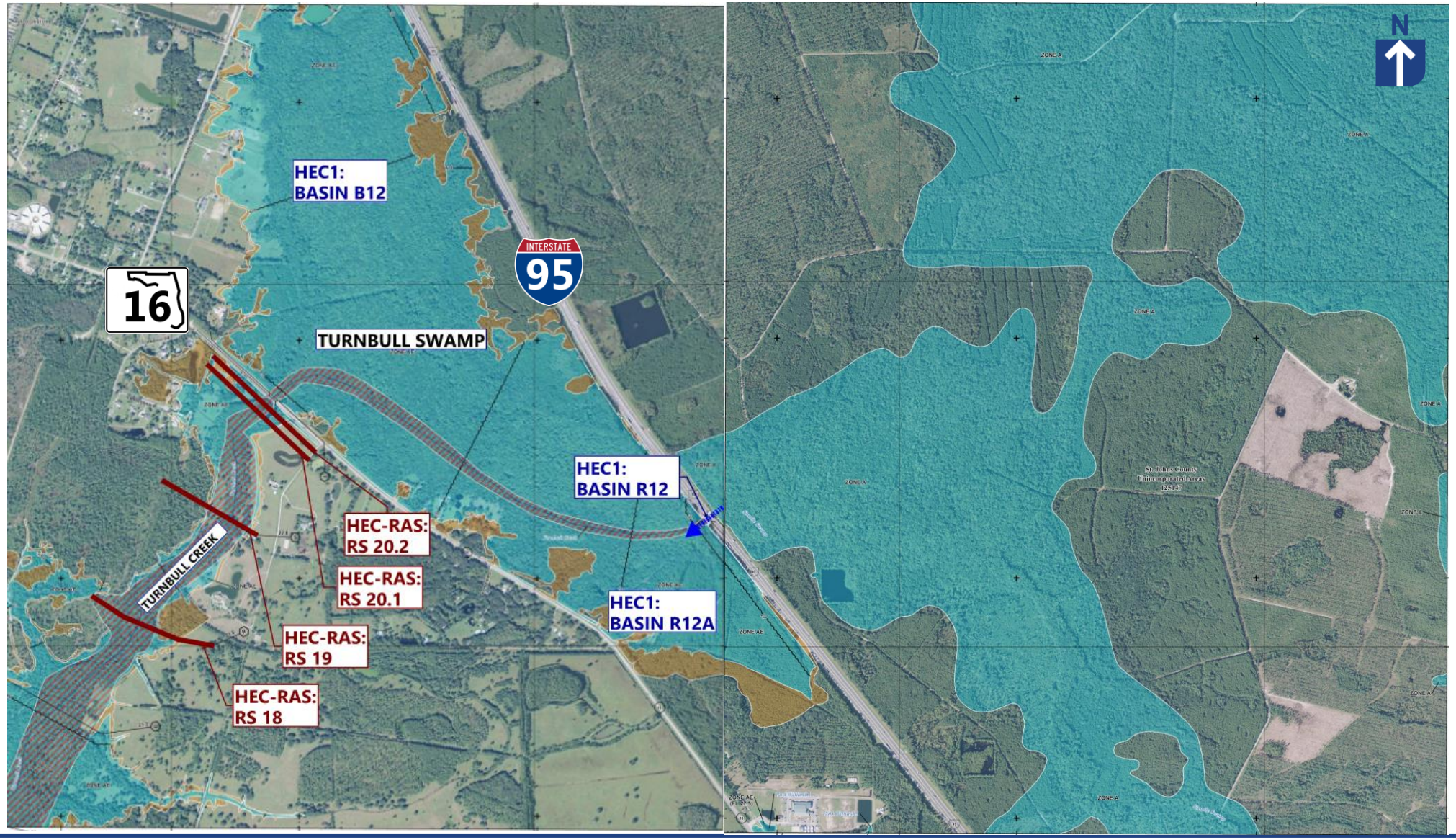
StormWise Model



StormWise Model: SR 16 Bridge Rating Curve



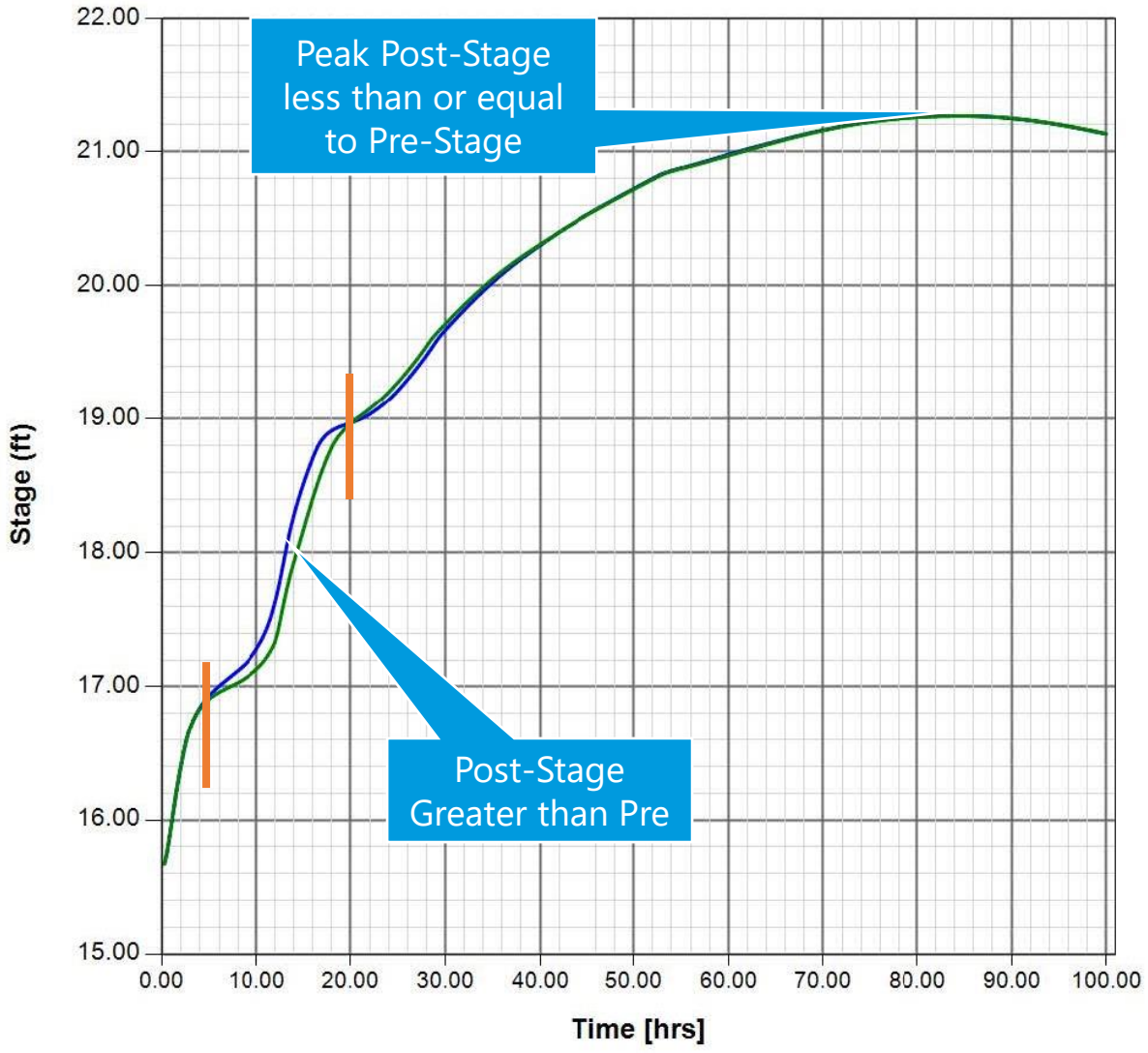
StormWise (ICPR) Model: FEMA FIS



SR 16 from IGP to I-95

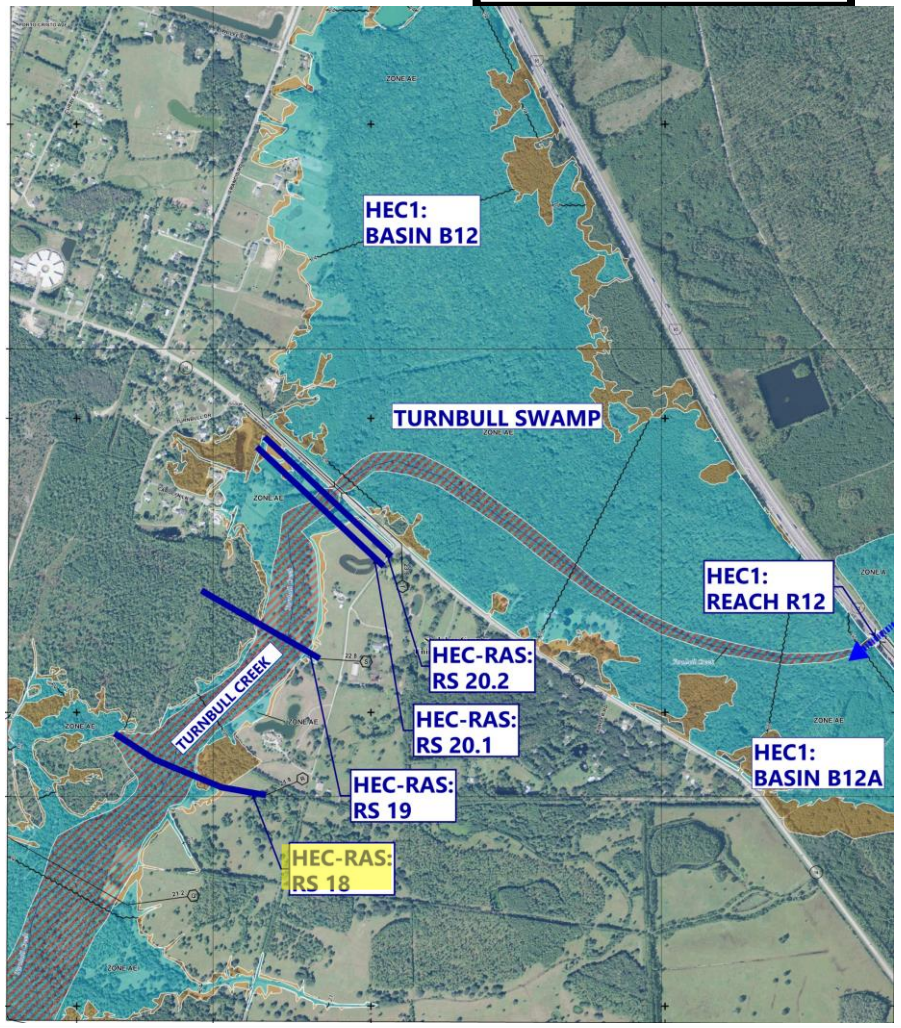
SJRWMD Pre Application Meeting

Stage | Multi-Scenario [Node: HEC-RAS RS 18] Sim: 100yr24hr

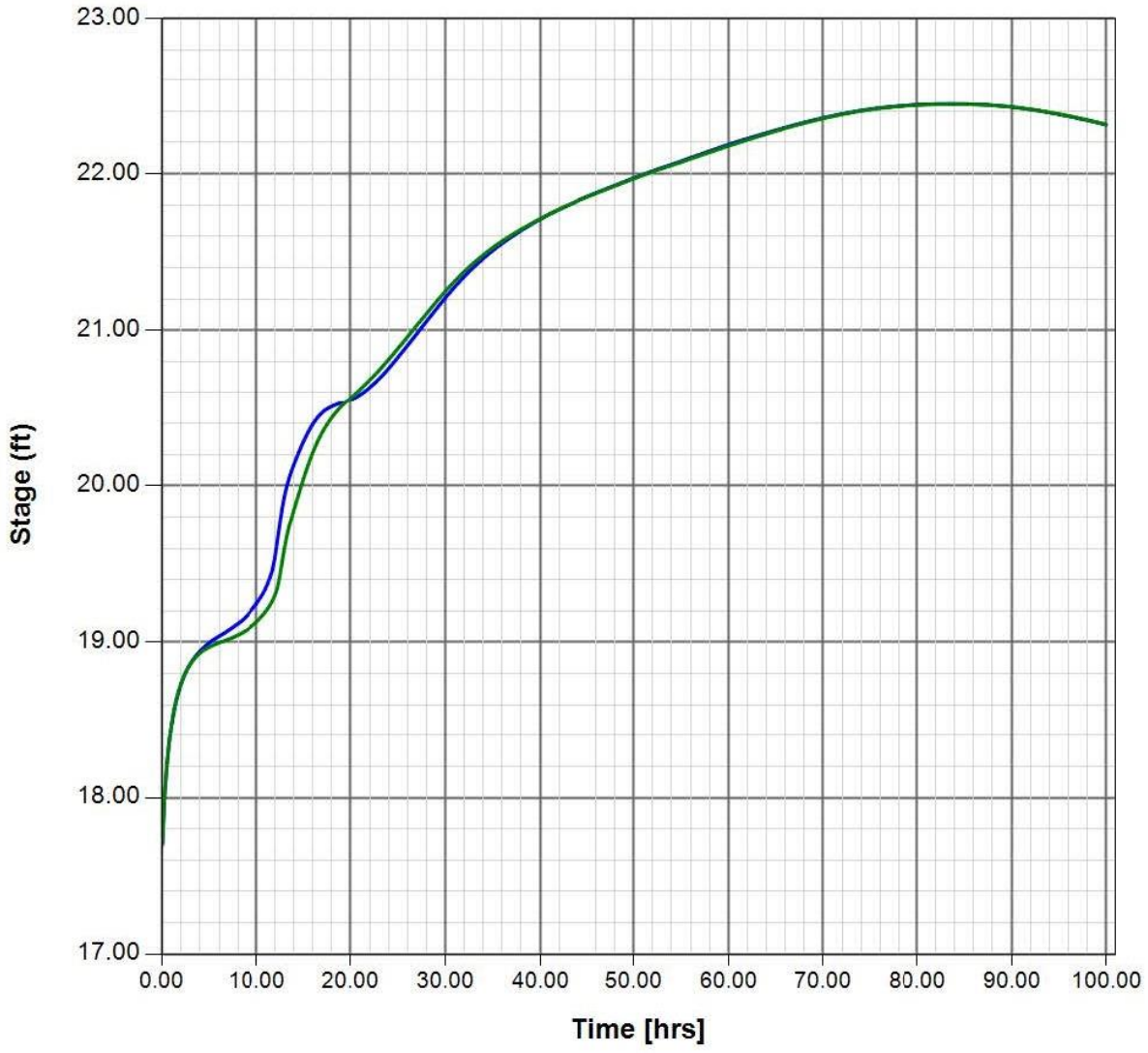


Post-Development
Pre-Development

Storm Event: 100 YR / 24 HR

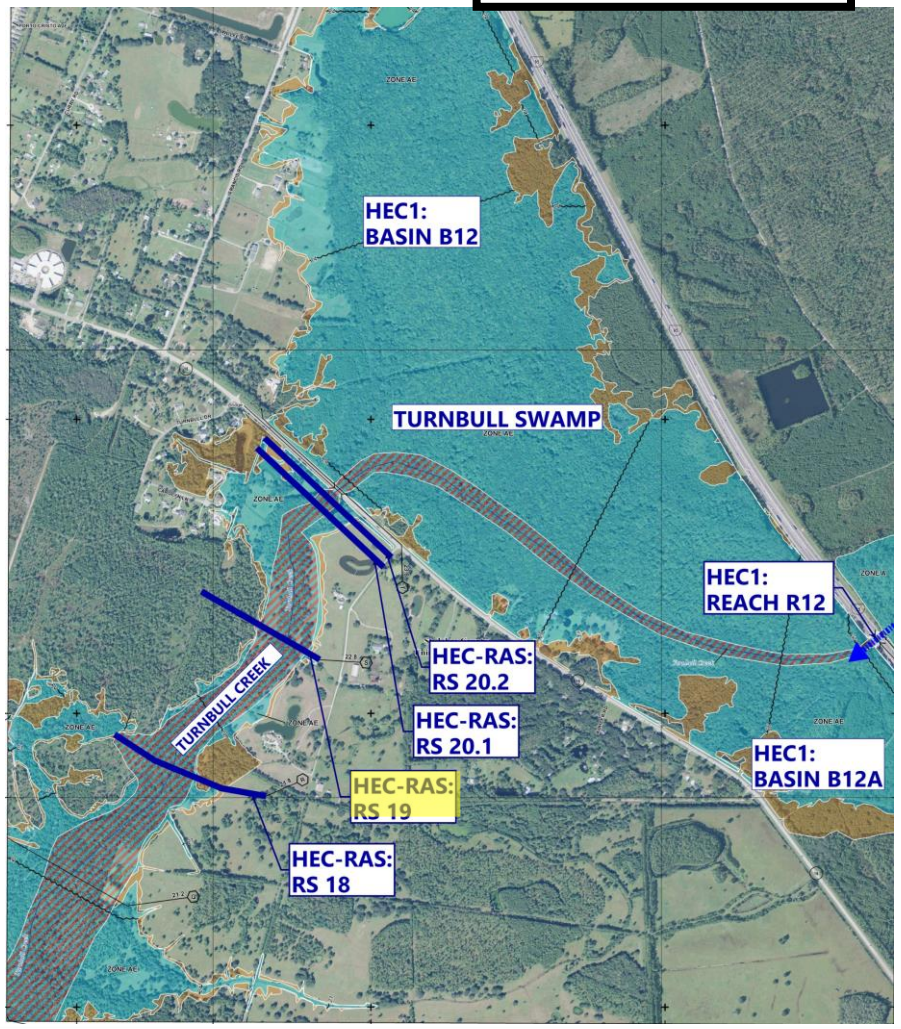


Stage | Multi-Scenario [Node: HEC-RAS RS 19] Sim: 100yr24hr

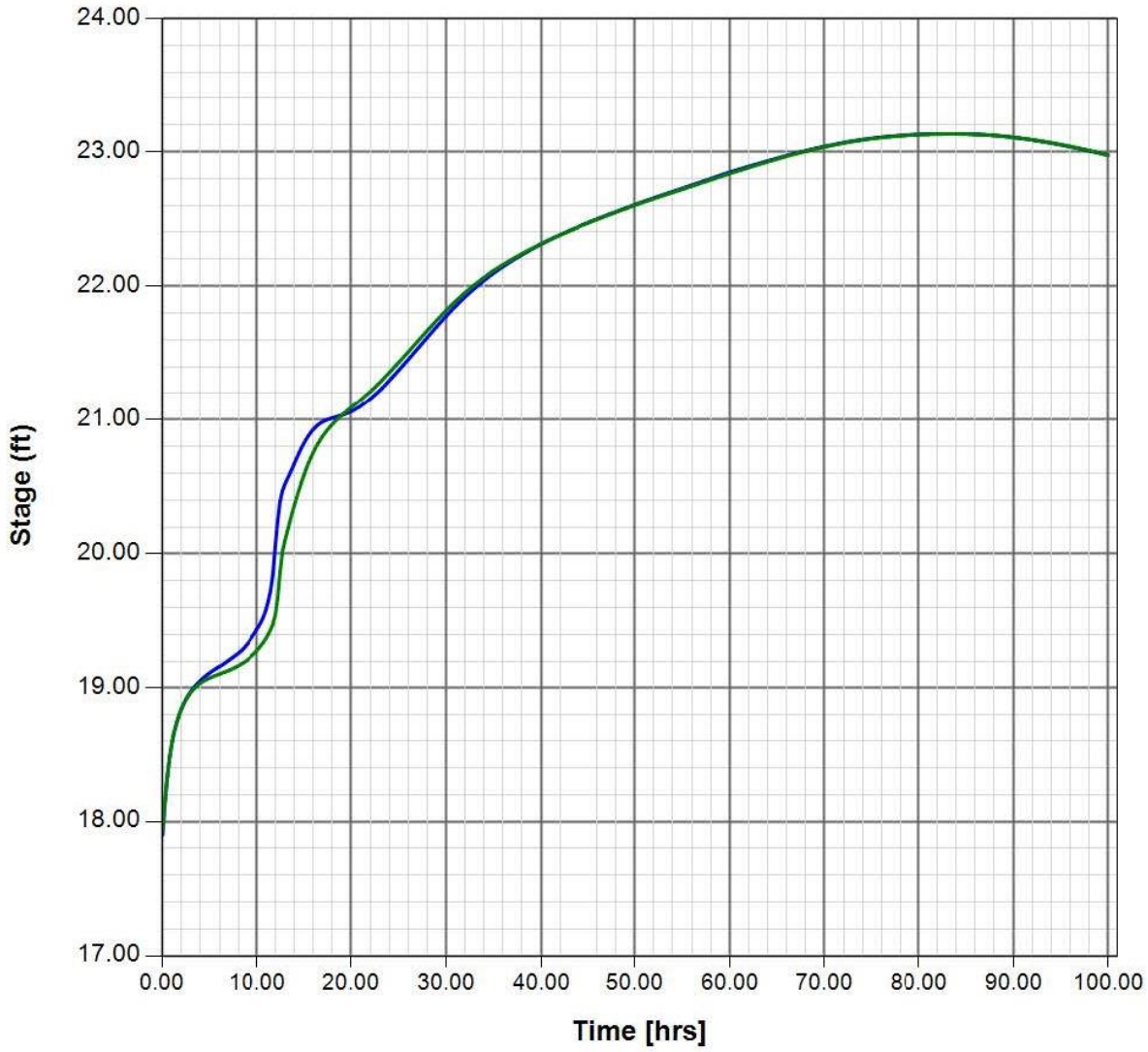


Post-Development
Pre-Development

Storm Event: 100 YR / 24 HR

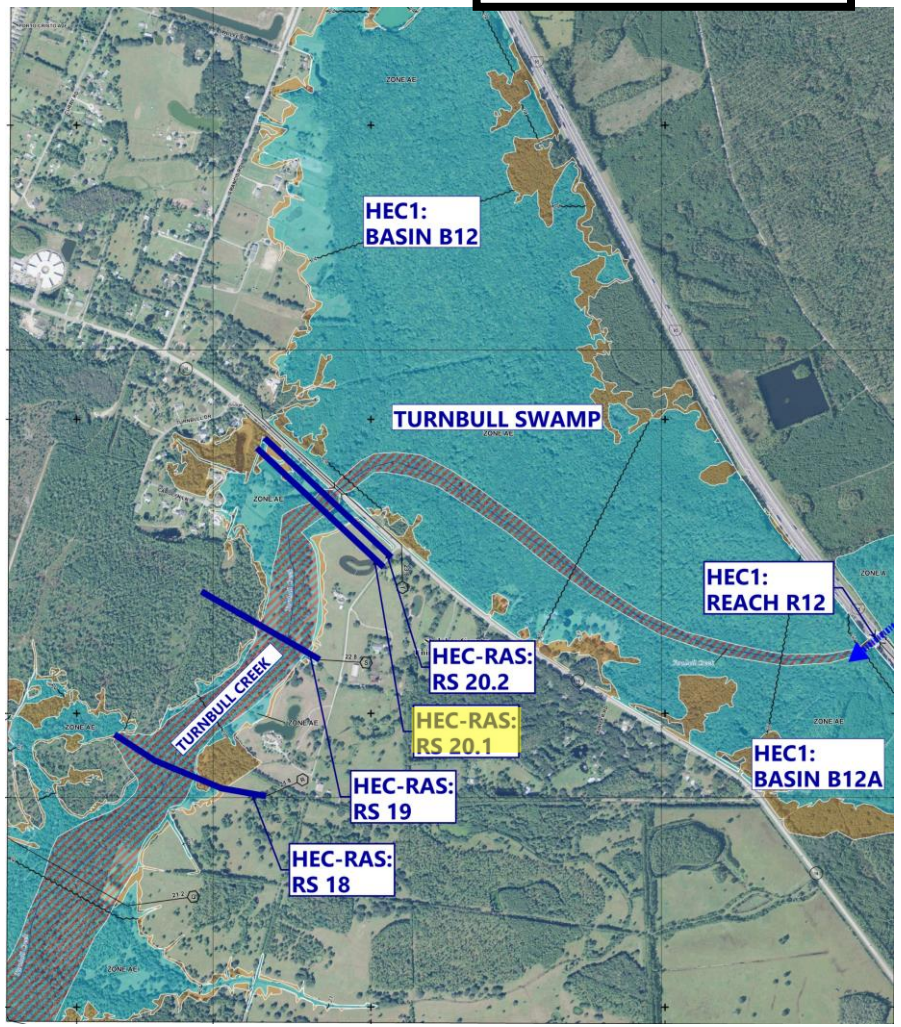


Stage | Multi-Scenario [Node: HEC-RAS RS 20.1] Sim: 100yr24hr

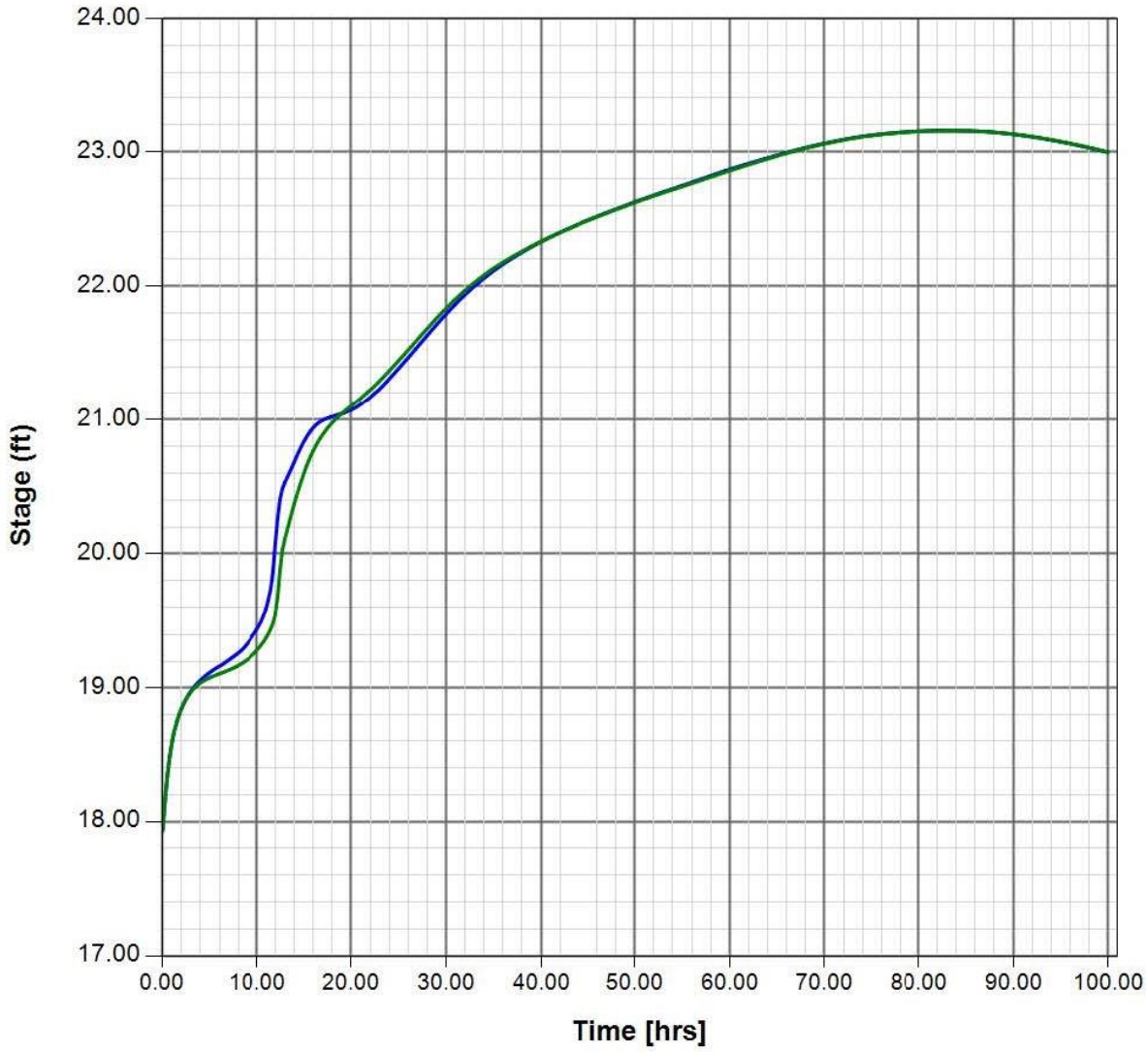


Post-Development
Pre-Development

Storm Event:
100 YR / 24 HR

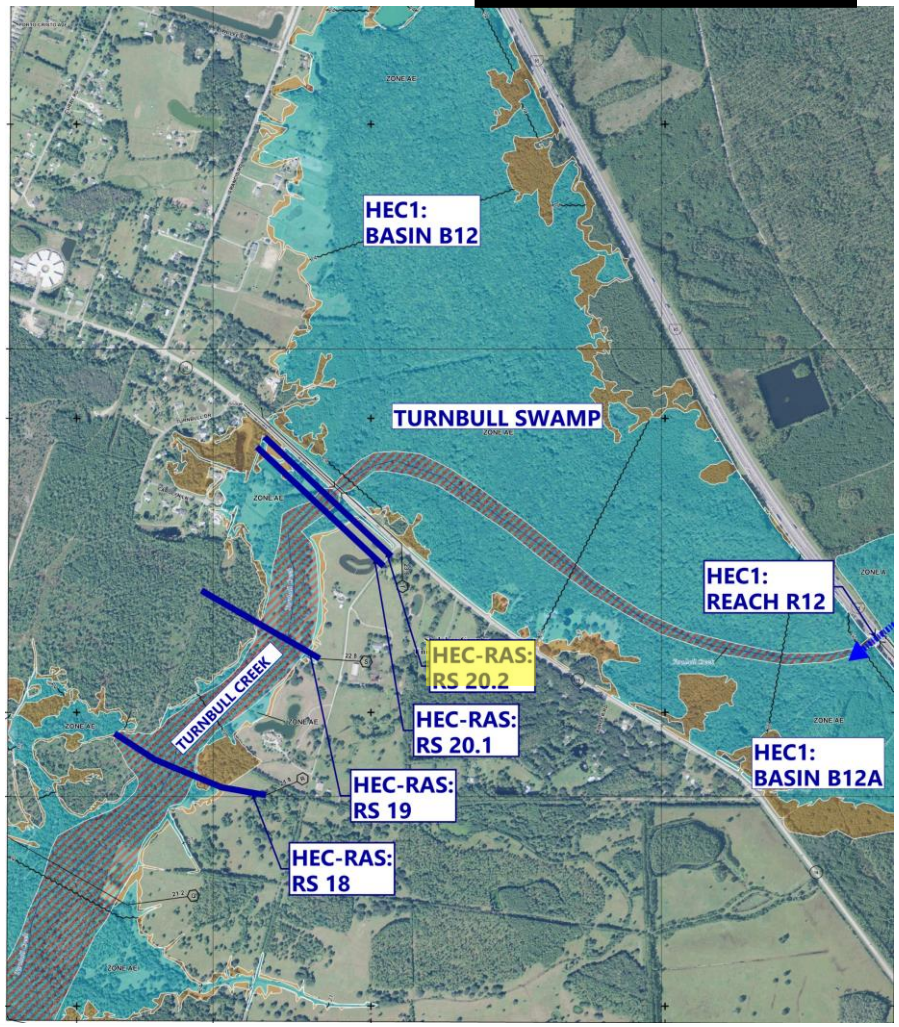


Stage | Multi-Scenario [Node: HEC-RAS RS 20.2] Sim: 100yr24hr

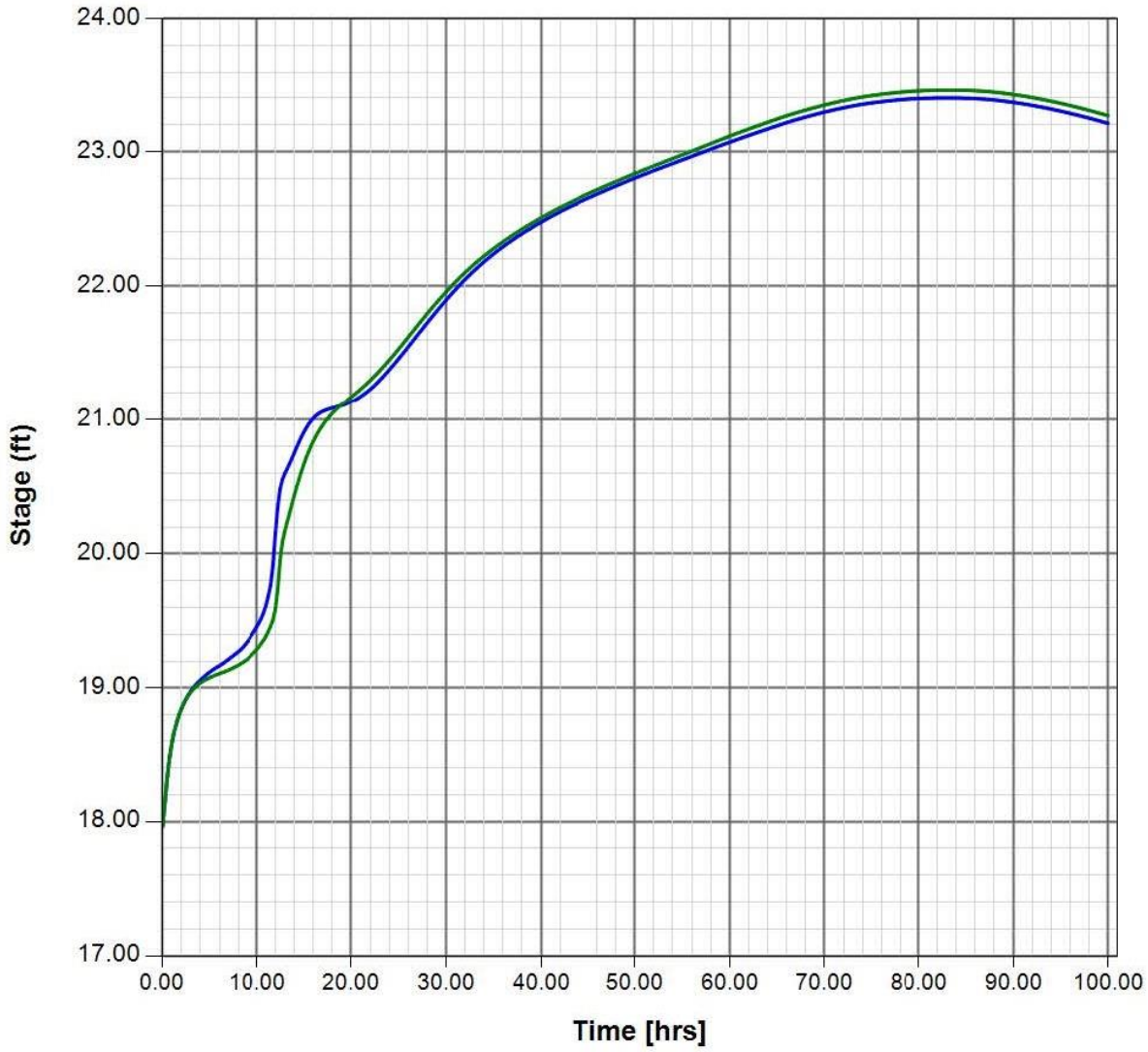


Post-Development
Pre-Development

Storm Event: 100 YR / 24 HR

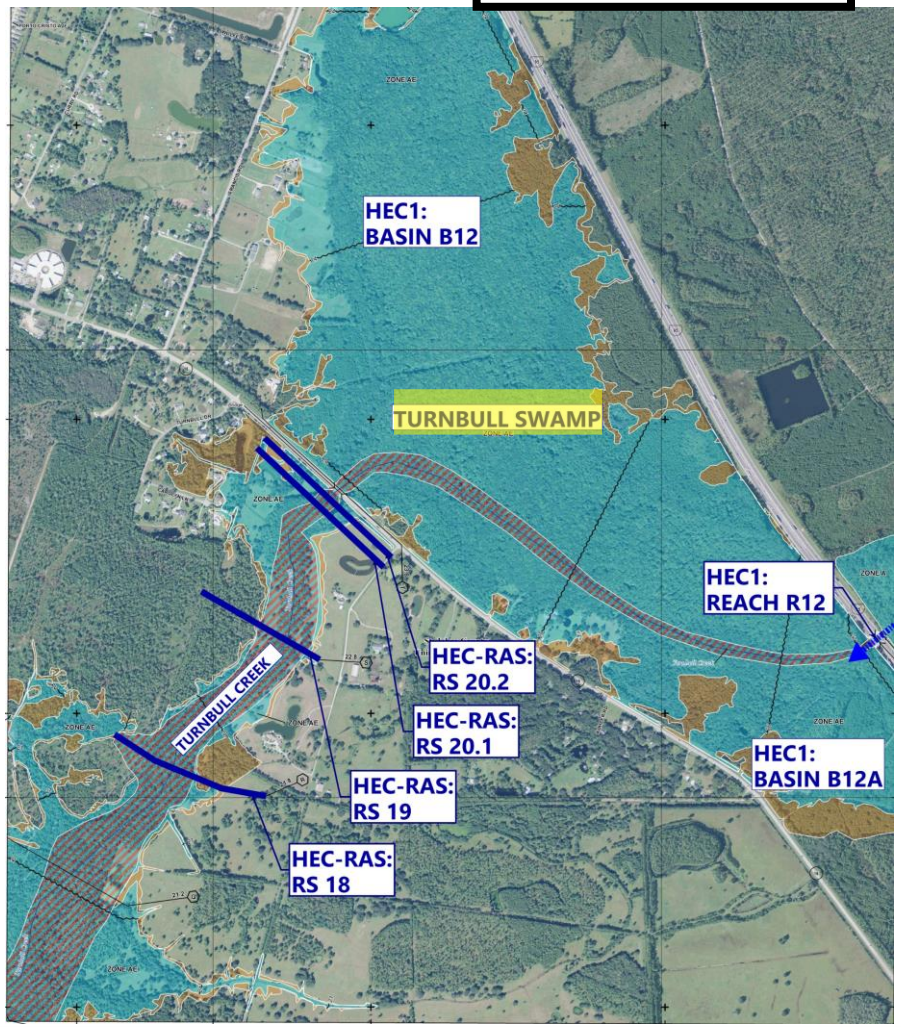


Stage | Multi-Scenario [Node: Turnbull Swamp] Sim: 100yr24hr



Post-Development
Pre-Development

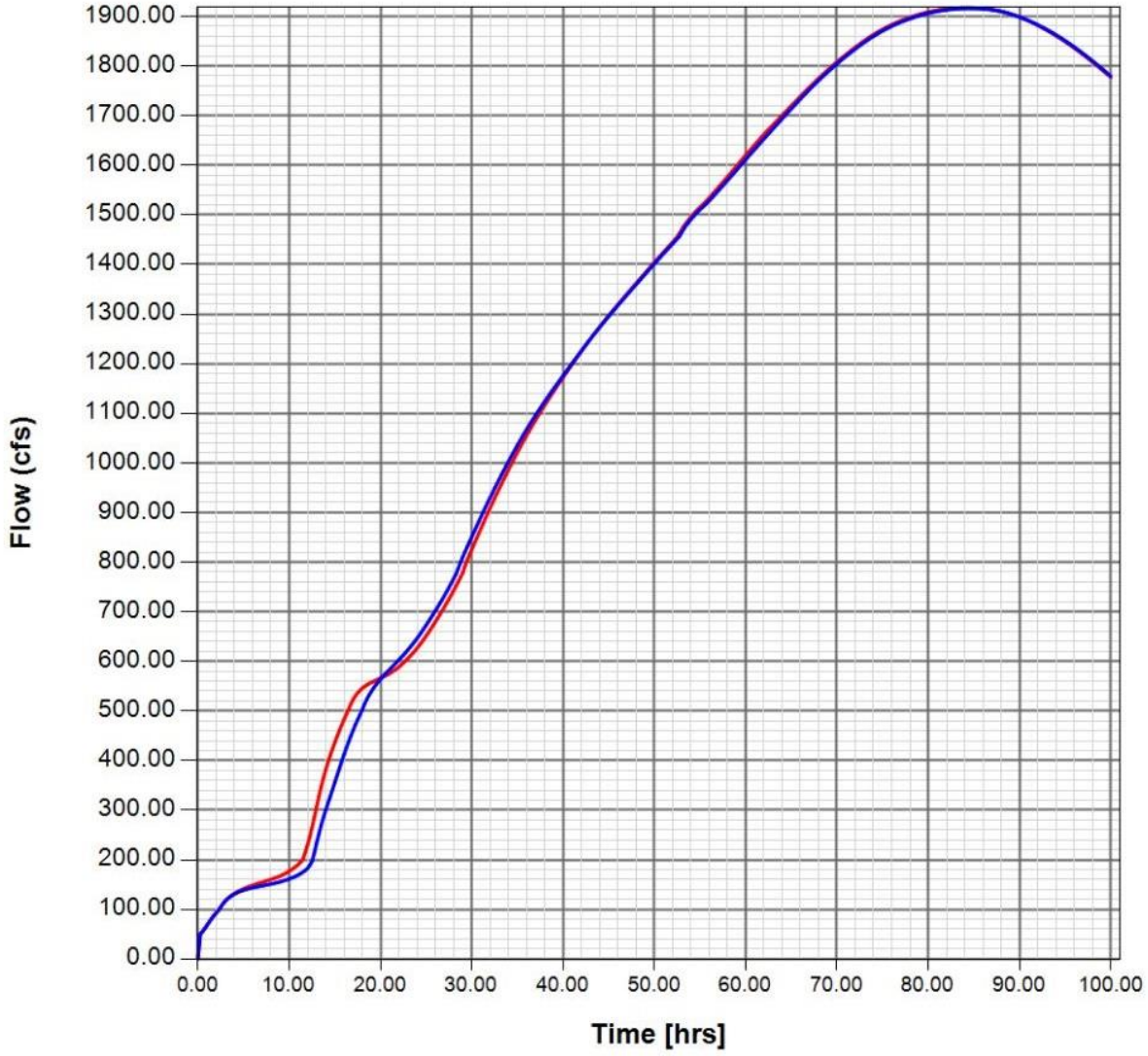
Storm Event:
100 YR / 24 HR



100YR / 24 HR Results Summary

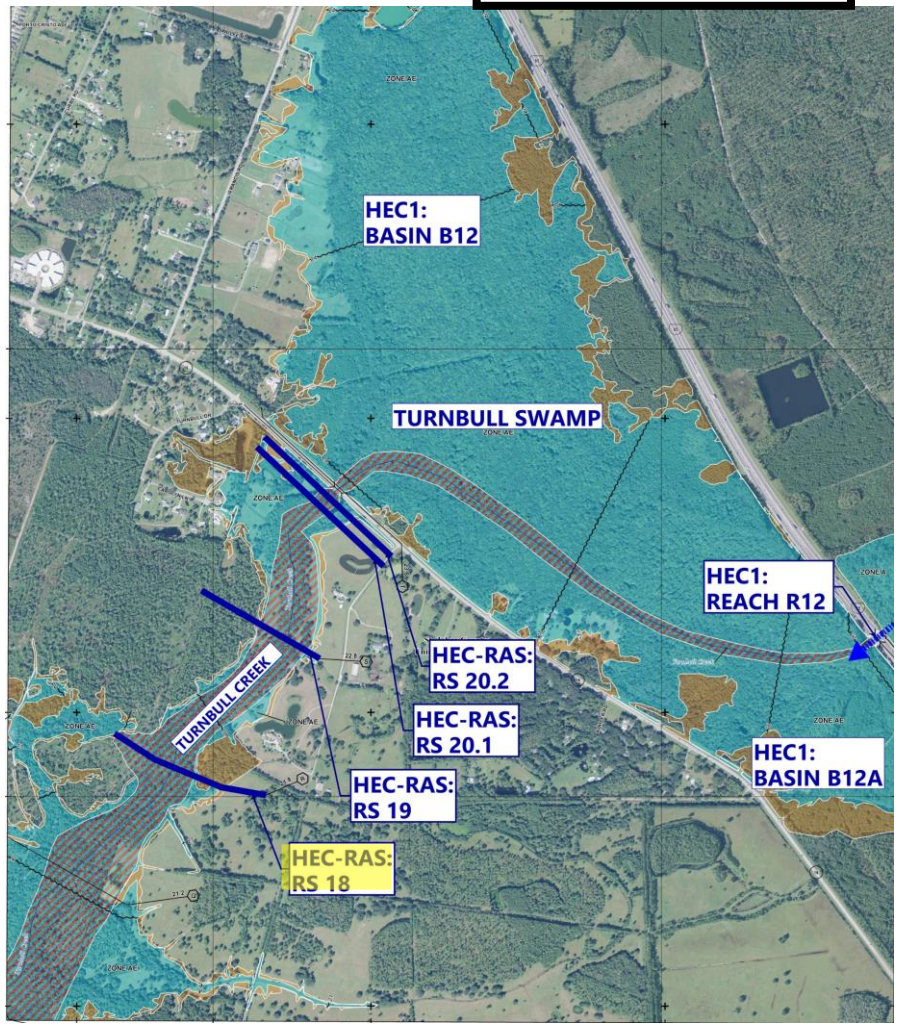
Node	Post-Stage > Pre-Stage by 0.01ft			Peak Stage				
				Pre-Development		Post-Development		Post minus Pre Stage (ft)
	Begin (hr)	End (hr)	Max Delta (ft)	Elevation (ft)	Time (hr)	Elevation (ft)	Time (hr)	
HEC-RAS RS 18	4.50	19.50	0.35	21.26	80.25	21.26	79.75	0.00
HEC-RAS RS 19	4.25	19.25	0.34	22.45	83.25	22.45	81.75	0.00
HEC-RAS RS 20.1	4.00	18.50	0.58	23.13	79.75	23.13	79.00	0.00
HEC-RAS RS 20.2	3.50	18.50	0.59	23.16	83.00	23.16	81.25	0.00
Turnbull Swamp	3.25	18.50	0.62	23.46	81.00	23.40	80.00	-0.06

Flow | Multi-Scenario [Link: RC-RS 18] Sim: 100yr24hr

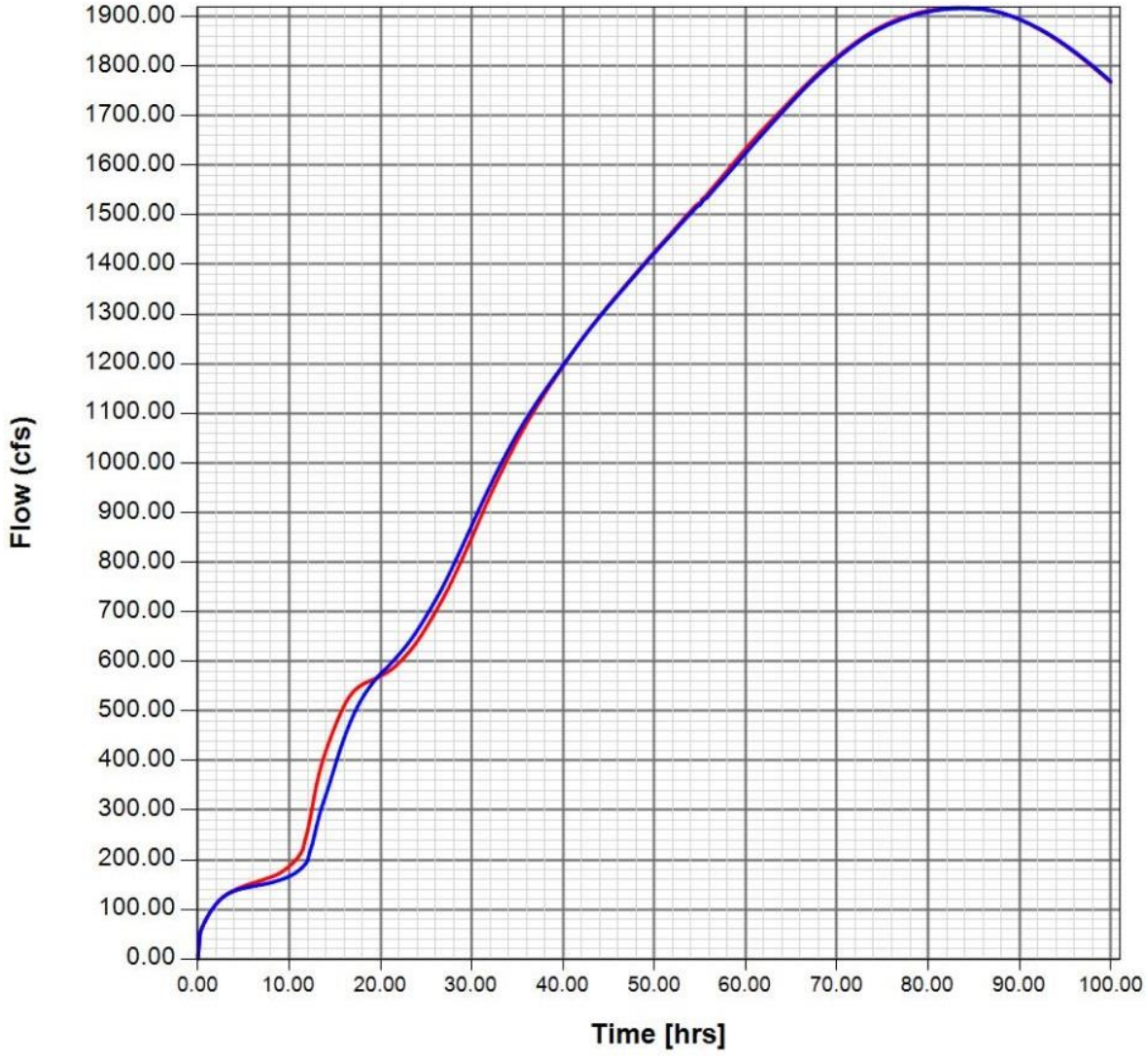


Post-Development
Pre-Development

Storm Event: 100 YR / 24 HR

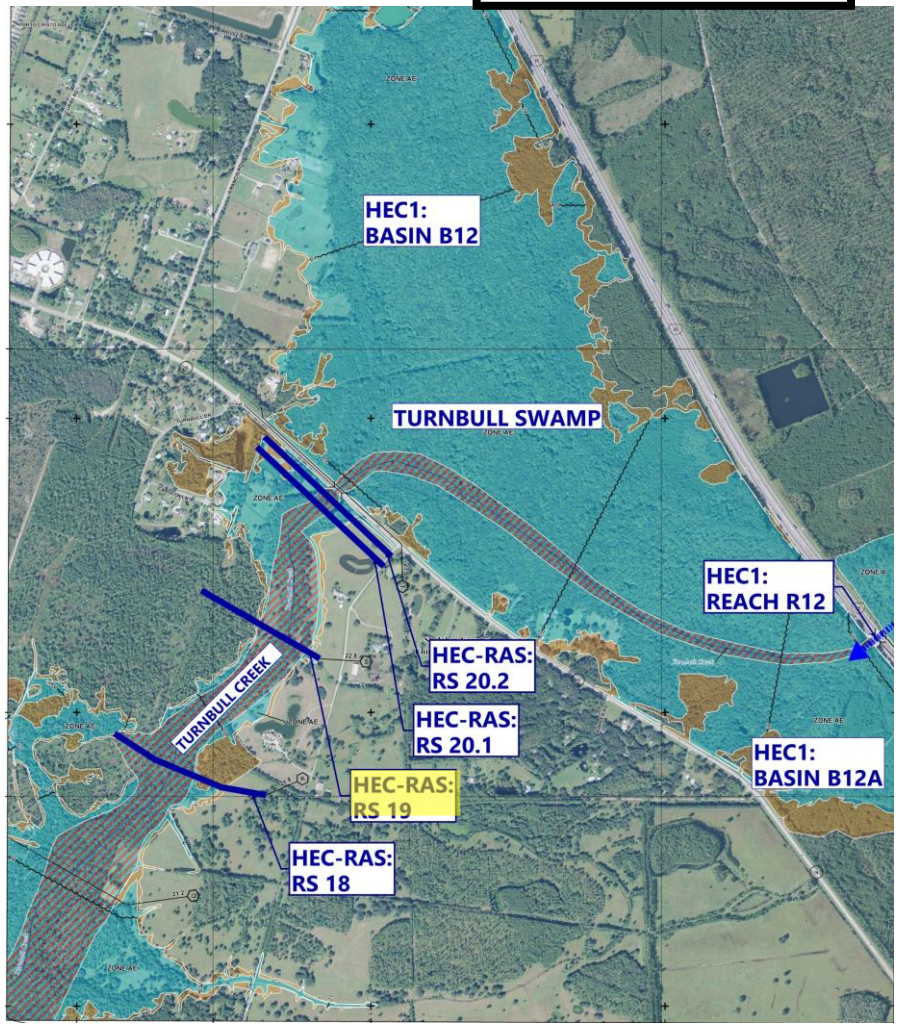


Flow | Multi-Scenario [Link: C-RS 19] Sim: 100yr24hr

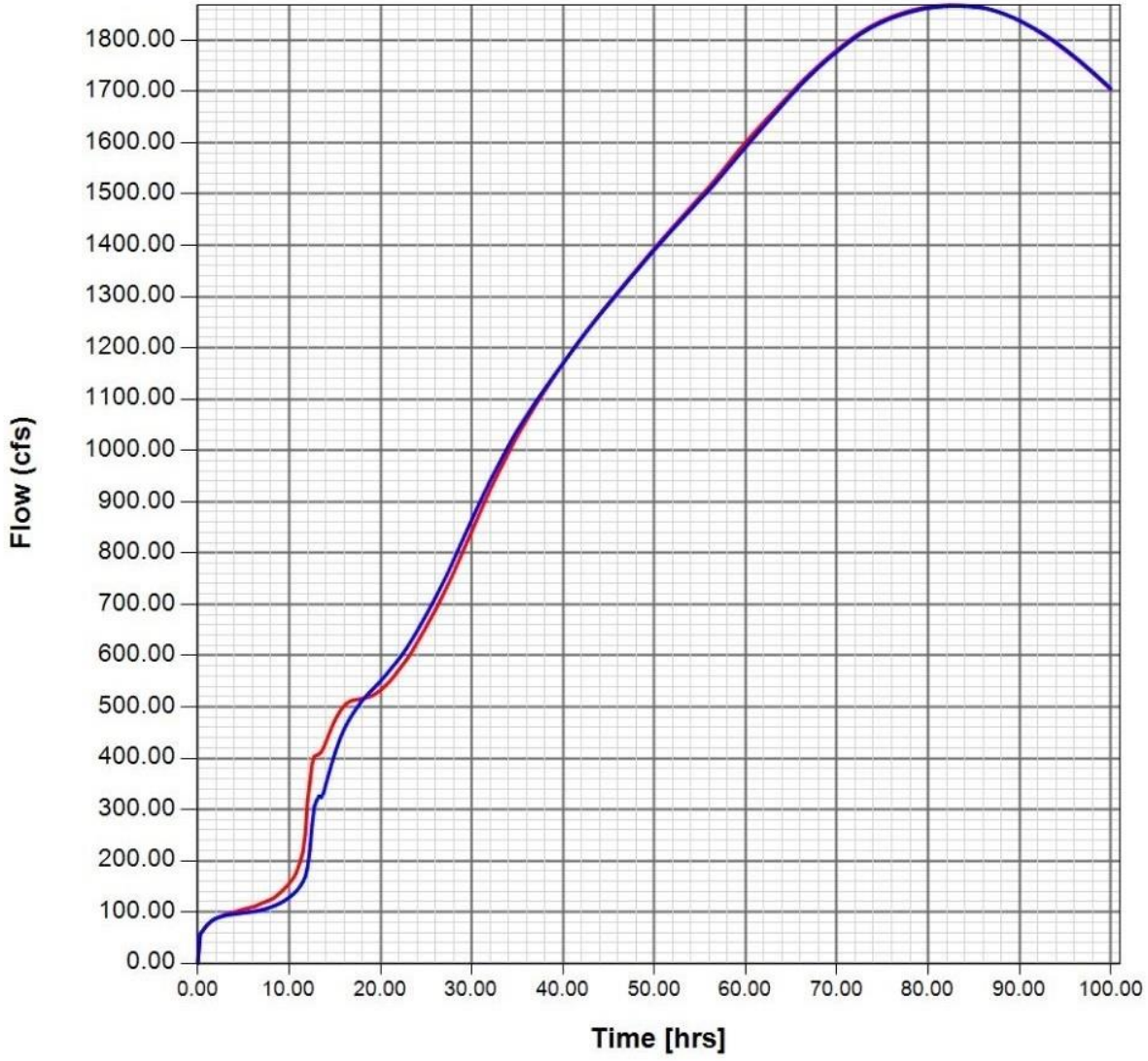


Post-Development
Pre-Development

Storm Event: 100 YR / 24 HR

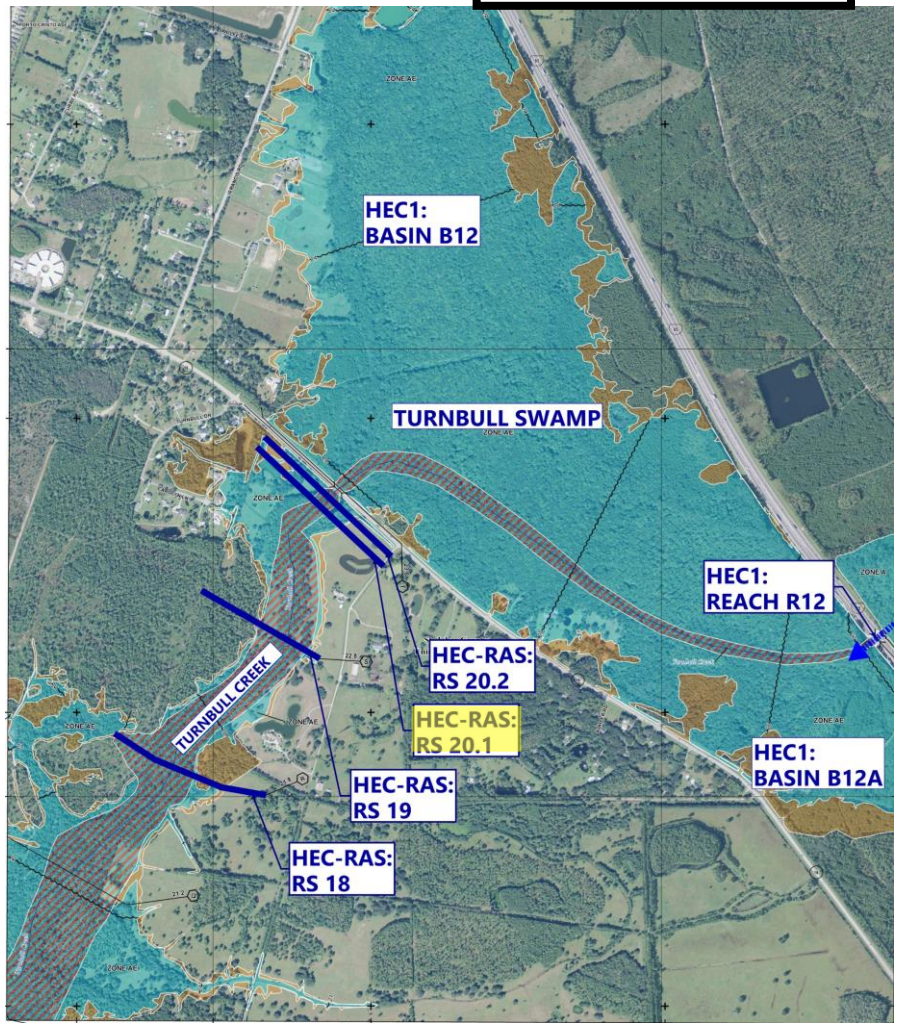


Flow | Multi-Scenario [Link: C-RS 20.1] Sim: 100yr24hr

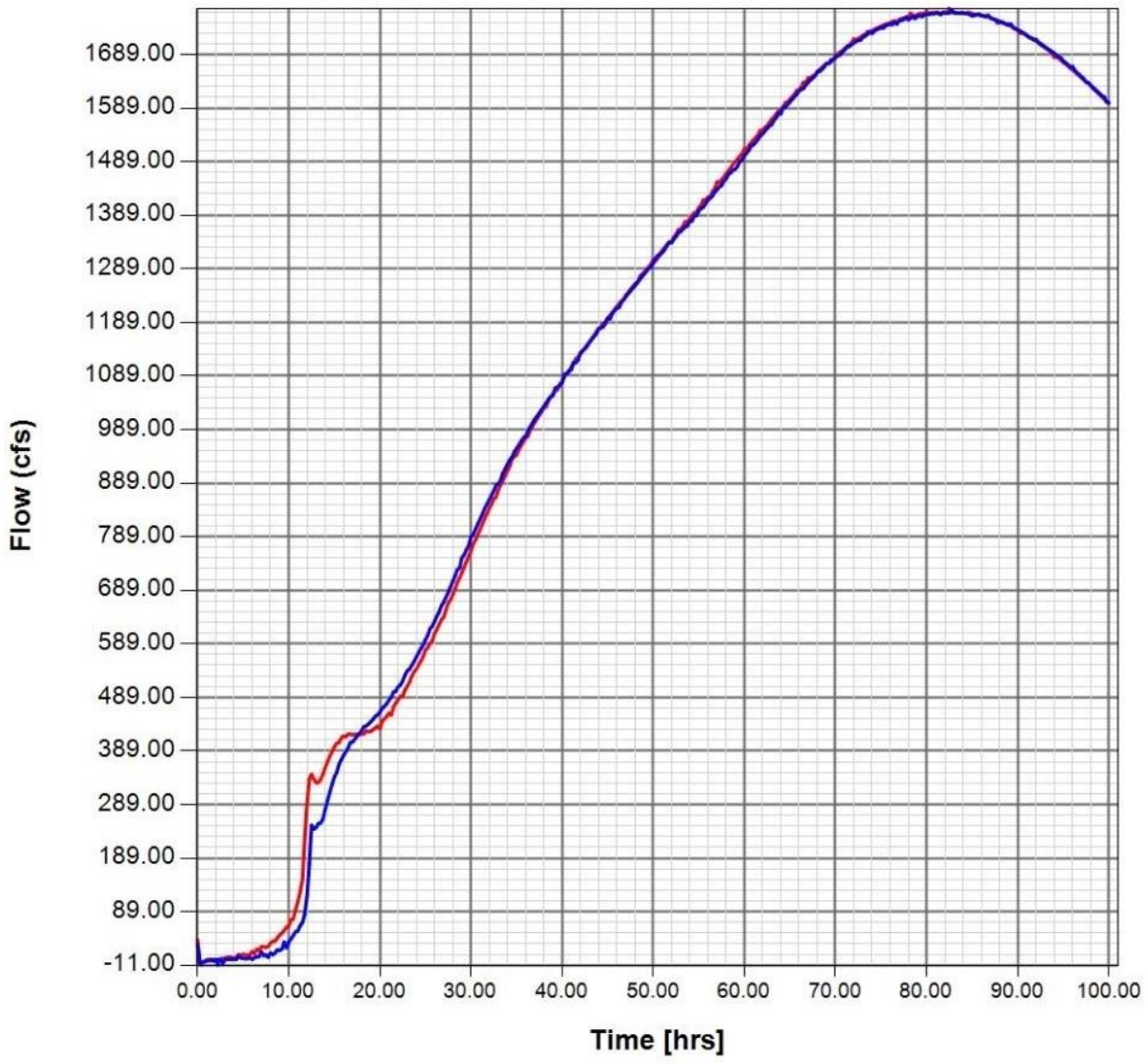


Post-Development
Pre-Development

Storm Event: 100 YR / 24 HR

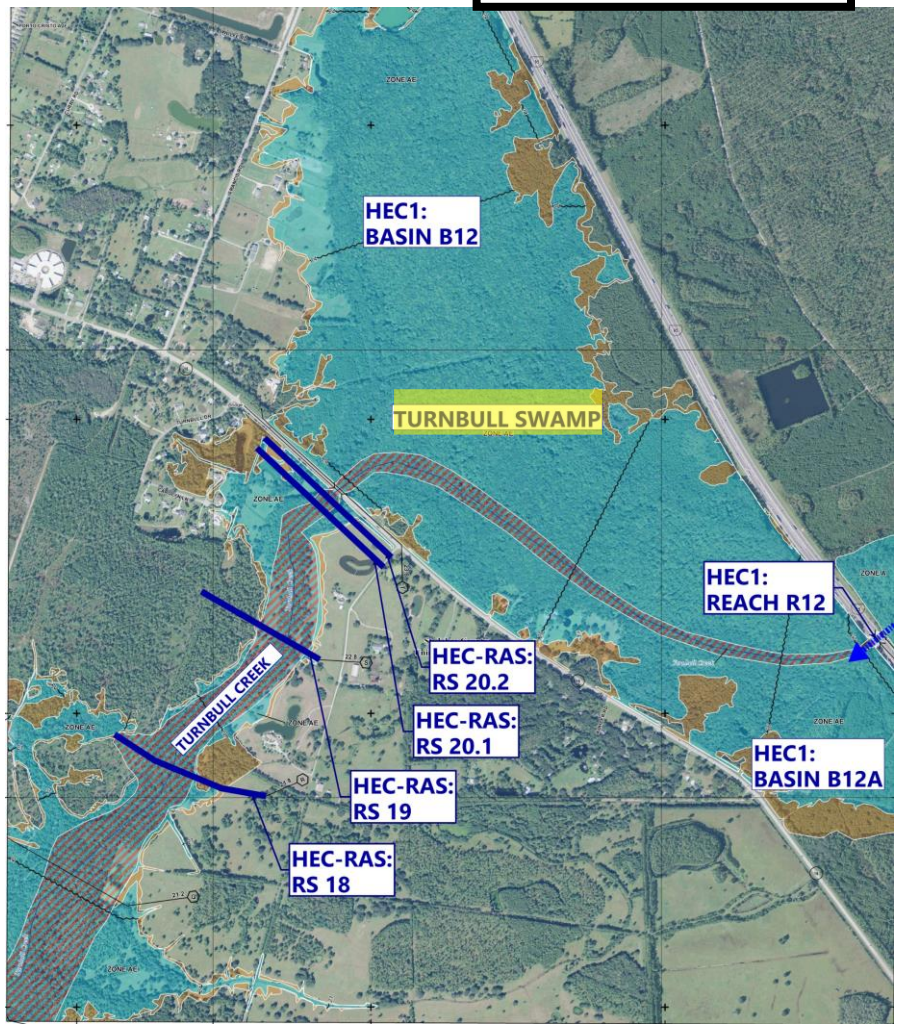


Flow | Multi-Scenario [Link: RC-RS 20. 35 SR16 BR] Sim: 100yr24hr



Post-Development
Pre-Development

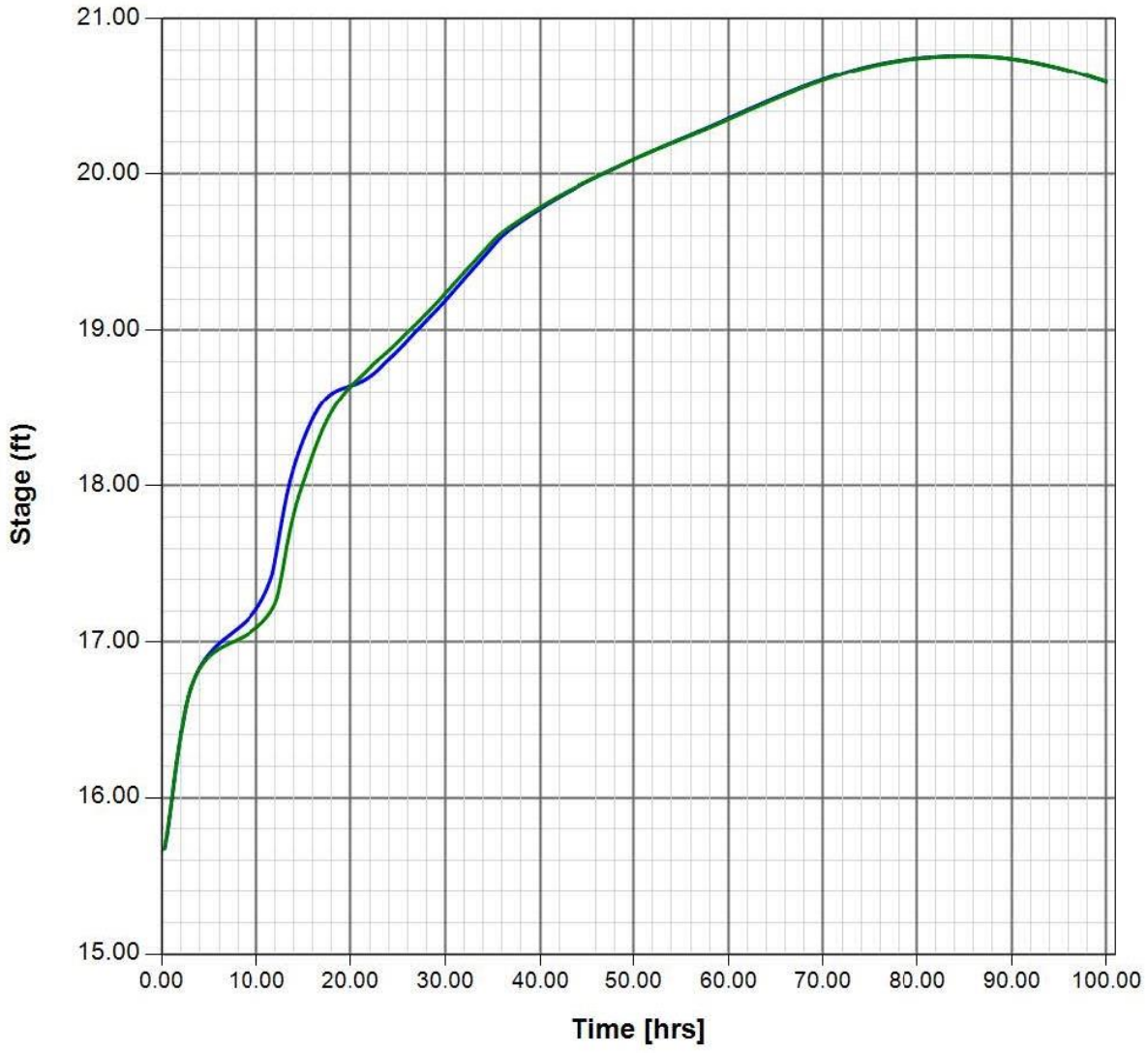
Storm Event: 100 YR / 24 HR



100YR / 24 HR Results Summary

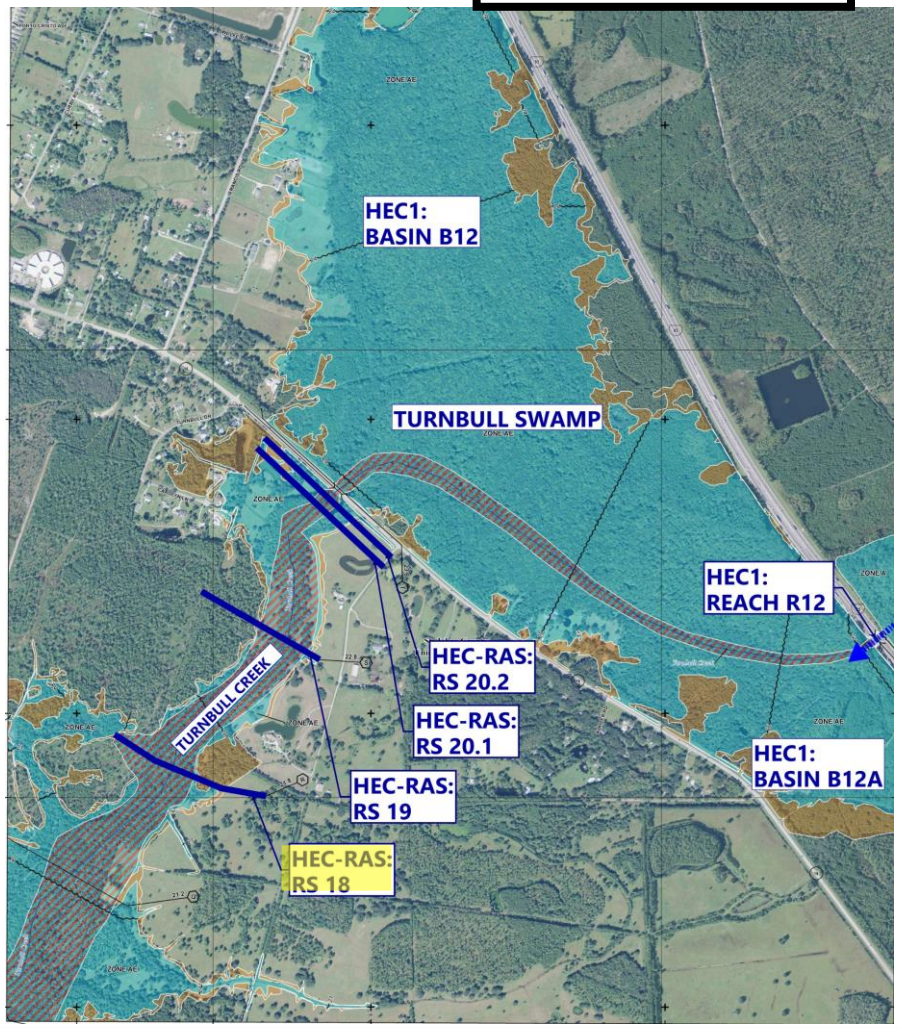
Link	Peak Flow				
	Pre-Development		Post-Development		Post minus Pre Flow (cfs)
	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	
C-RS 18	1916.05	84.64	1917.52	84.37	1.47
C-RS 19	1916.22	83.77	1917.69	83.36	1.47
C-RS 20.1	1866.73	82.92	1868.09	82.28	1.36
C-RS Turnbull	1772.01	82.79	1774.82	82.47	2.81

Stage | Multi-Scenario [Node: HEC-RAS RS 18] Sim: 25yr24hr

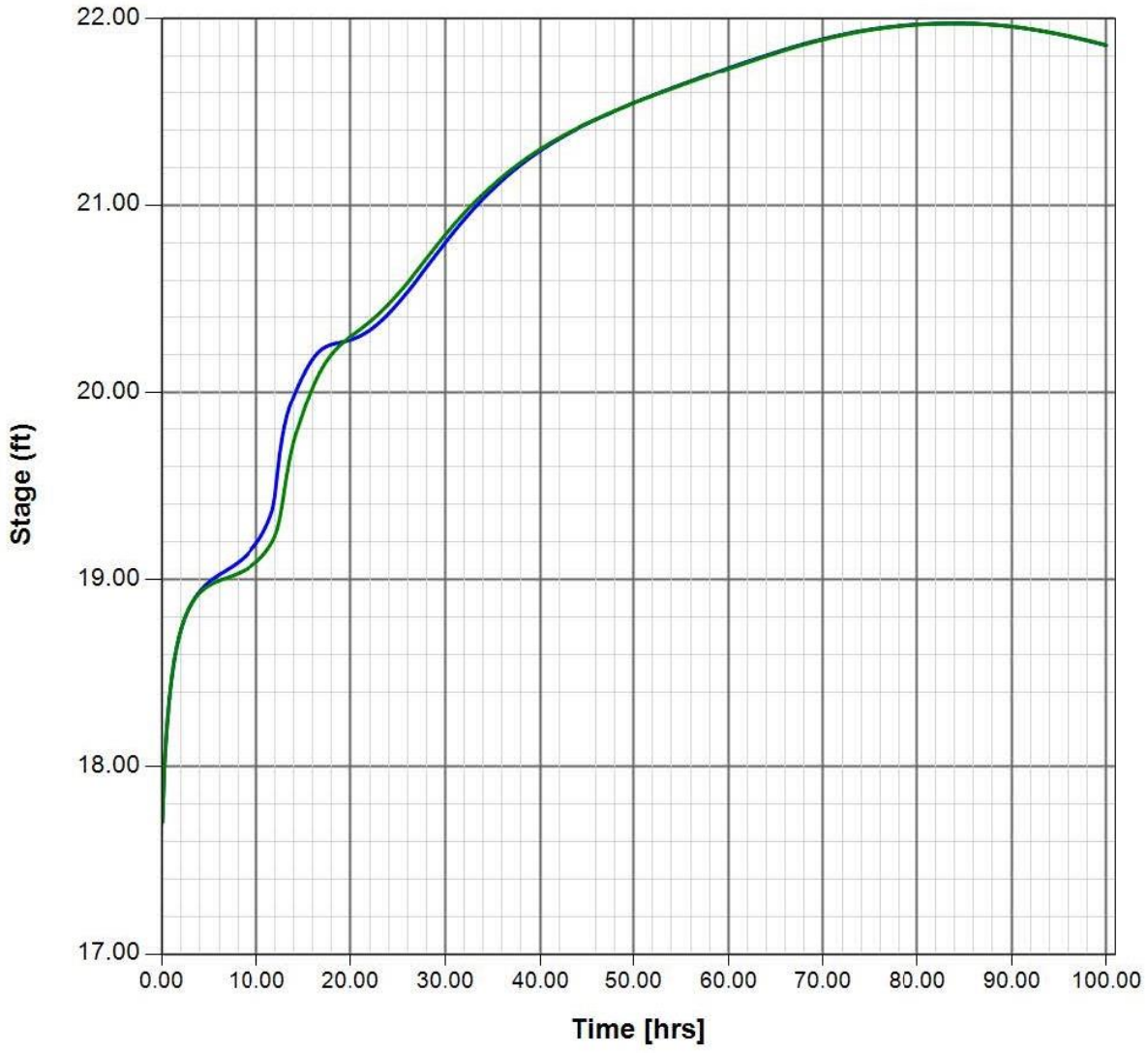


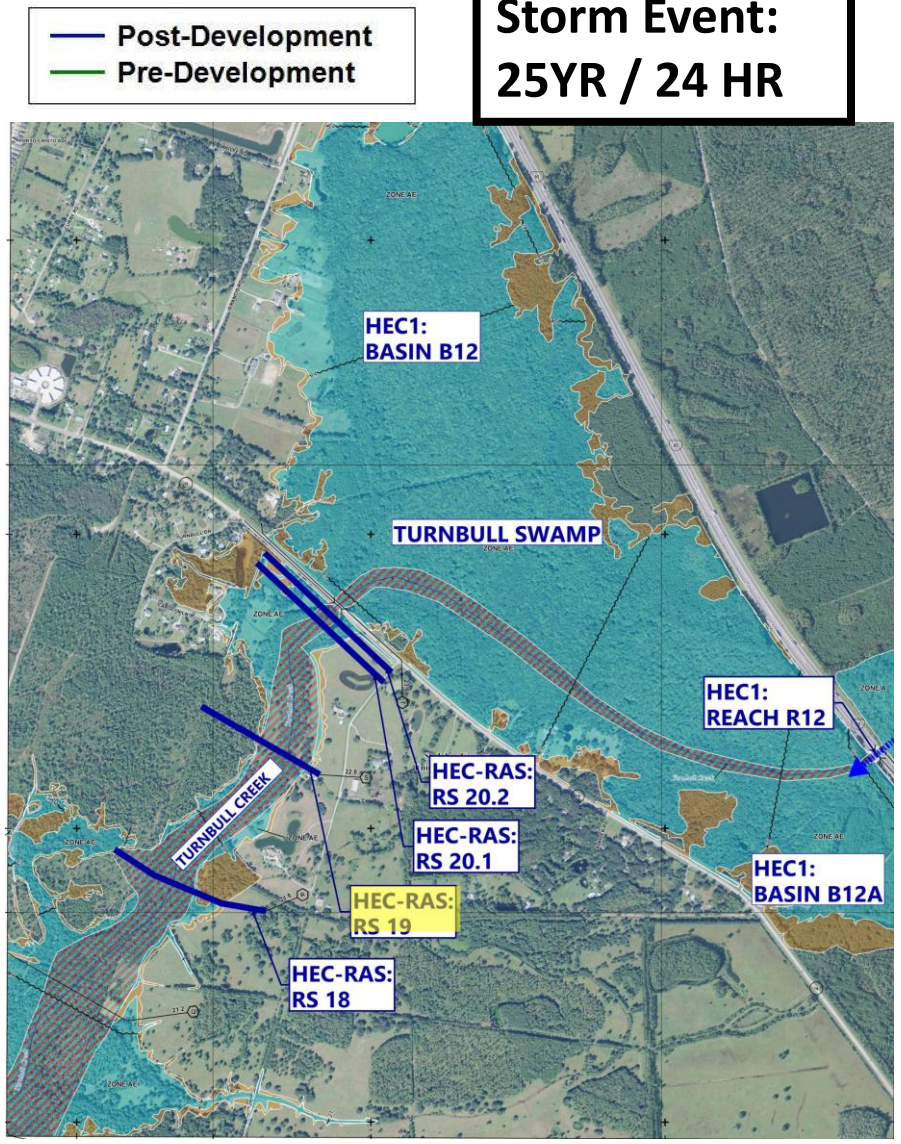
Post-Development
Pre-Development

Storm Event: 25YR / 24 HR

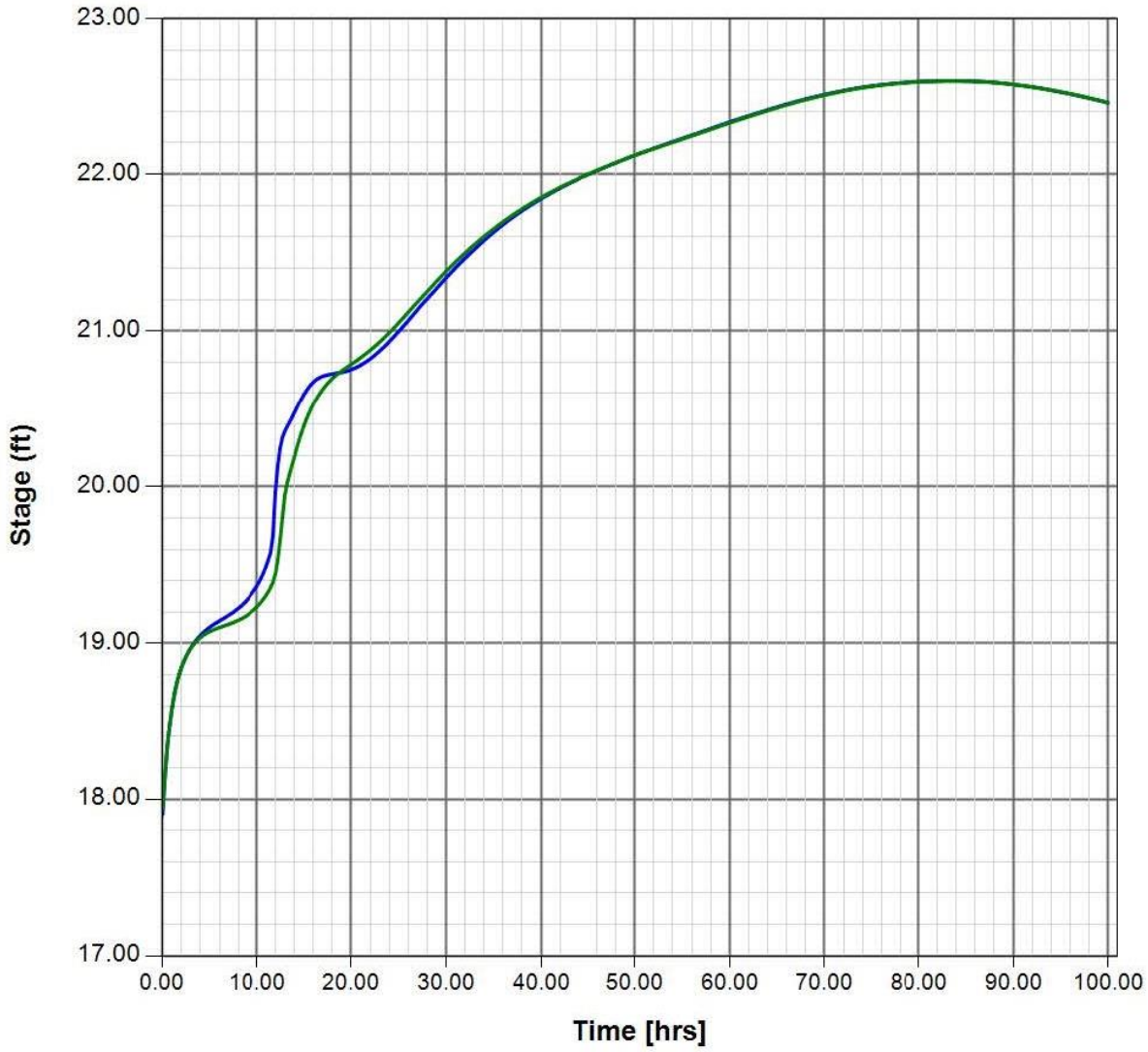


Stage | Multi-Scenario [Node: HEC-RAS RS 19] Sim: 25yr24hr



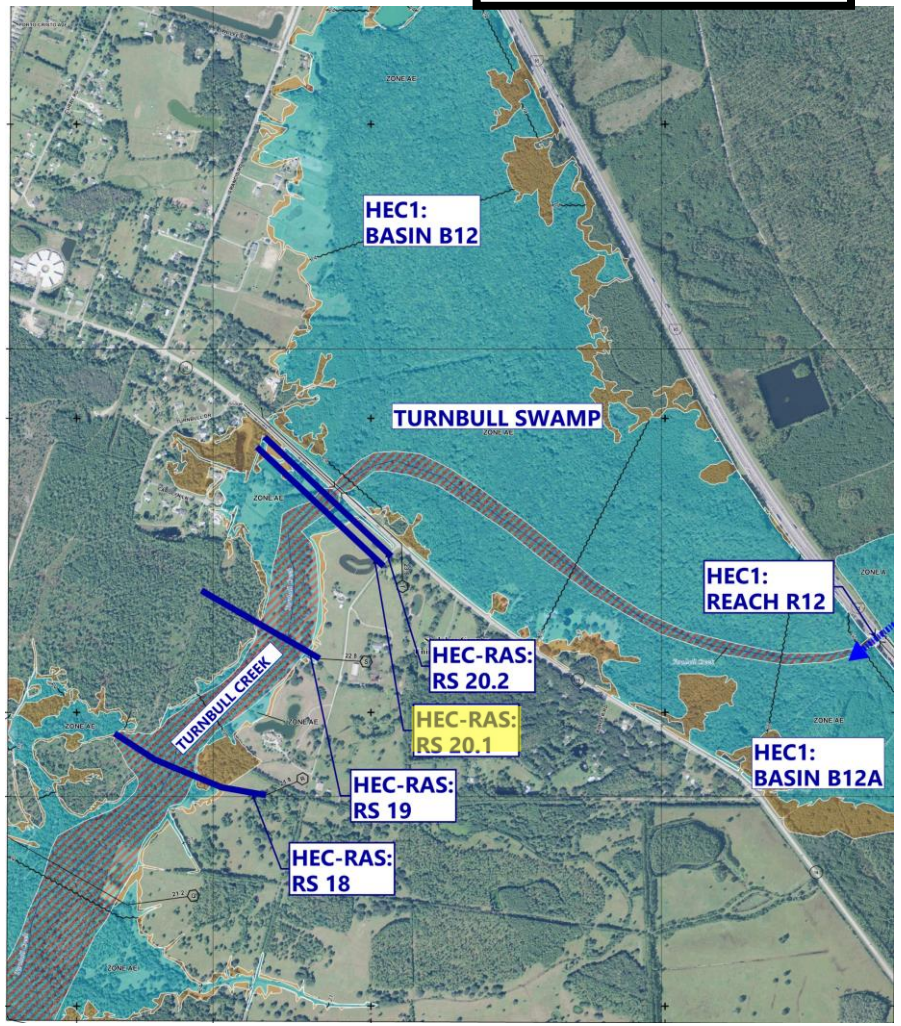


Stage | Multi-Scenario [Node: HEC-RAS RS 20.1] Sim: 25yr24hr

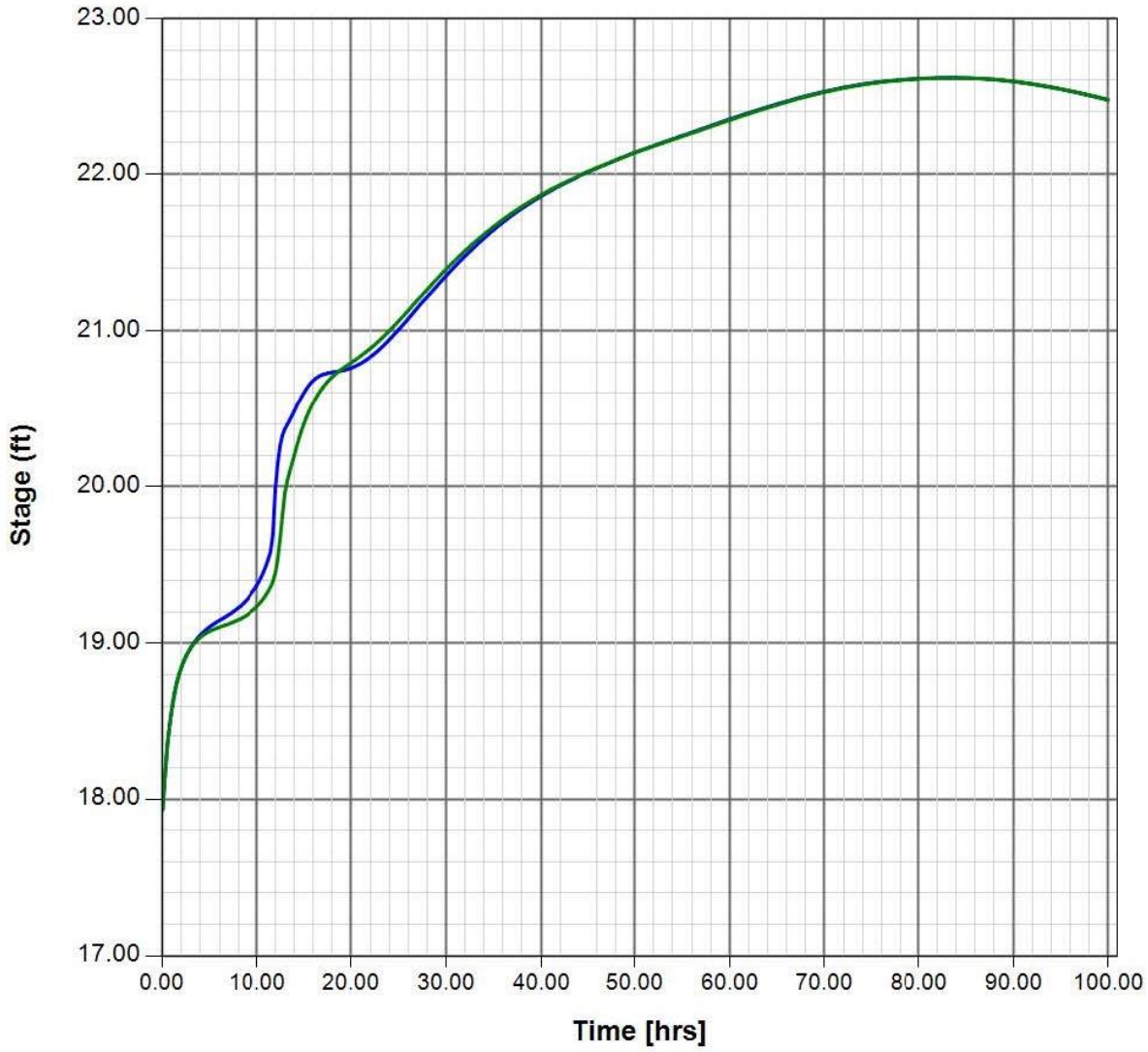


Post-Development
Pre-Development

Storm Event: 25YR / 24 HR

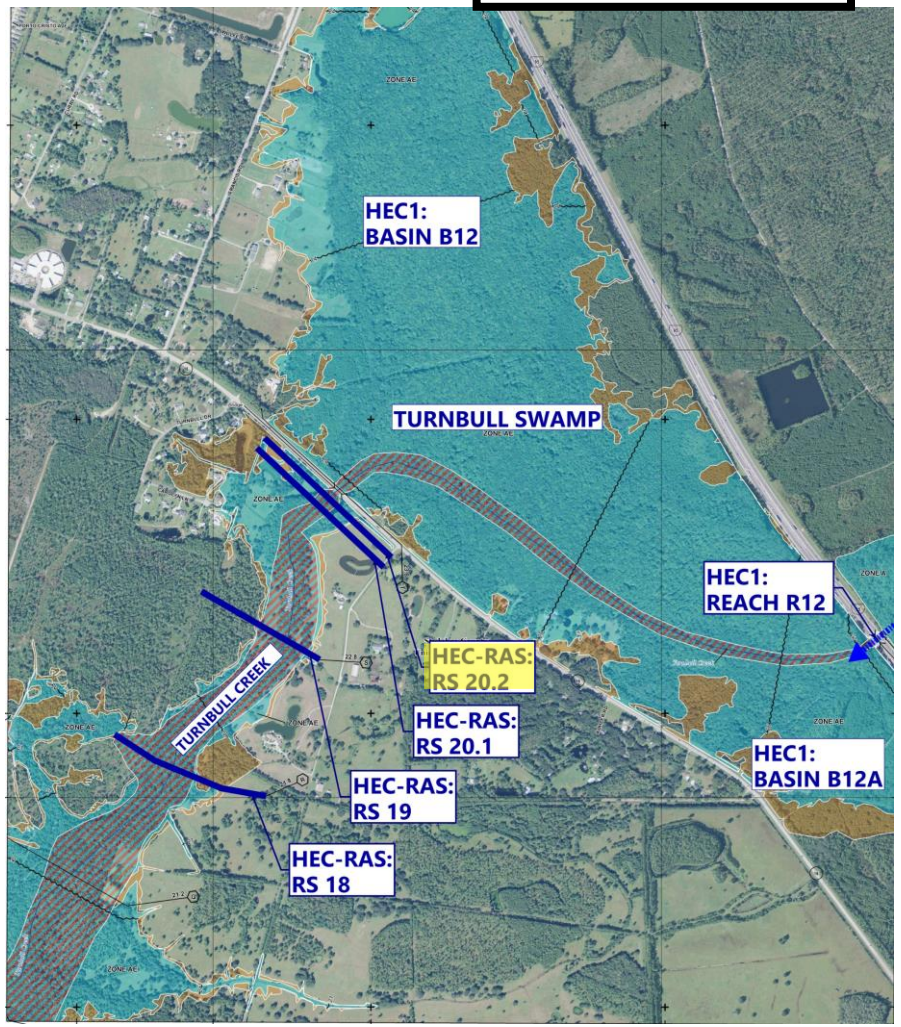


Stage | Multi-Scenario [Node: HEC-RAS RS 20.2] Sim: 25yr24hr

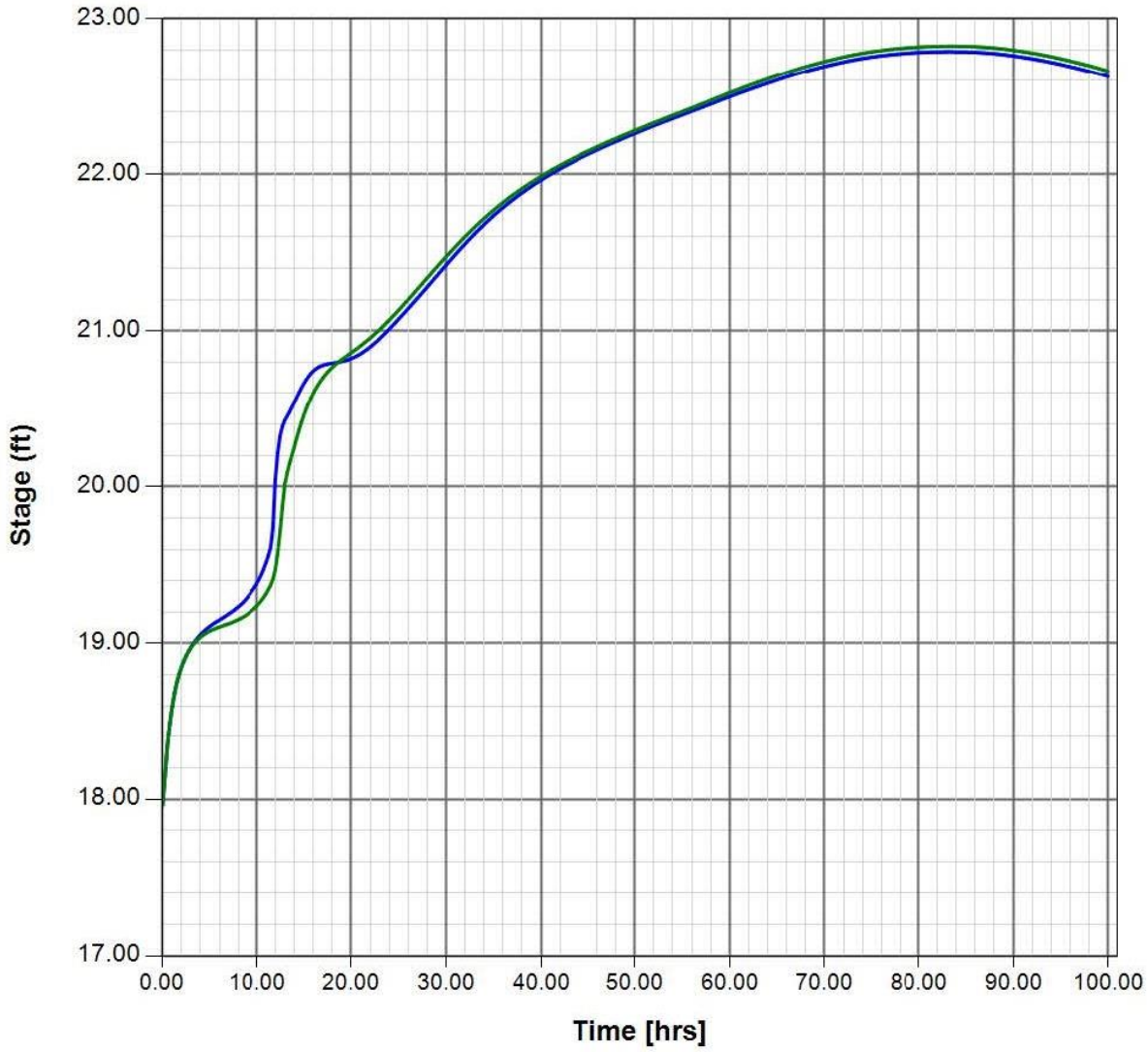


Post-Development
Pre-Development

Storm Event: 25YR / 24 HR

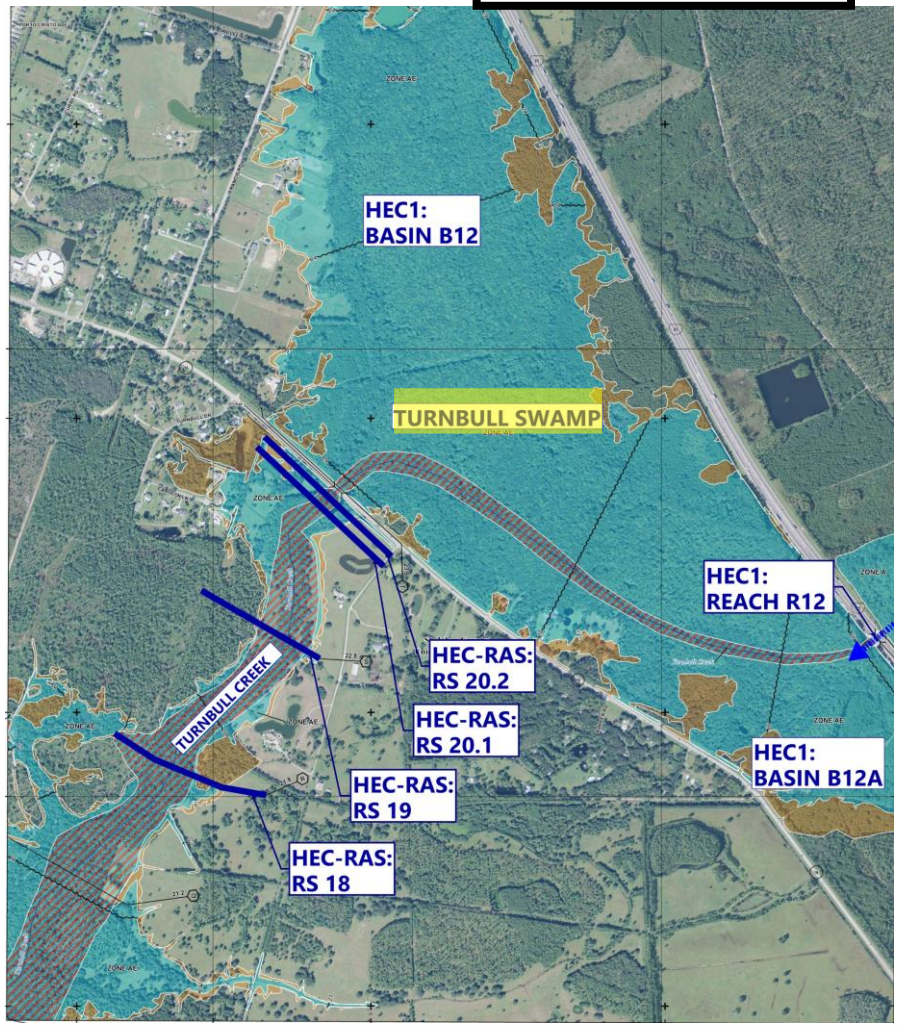


Stage | Multi-Scenario [Node: Turnbull Swamp] Sim: 25yr24hr



Post-Development
Pre-Development

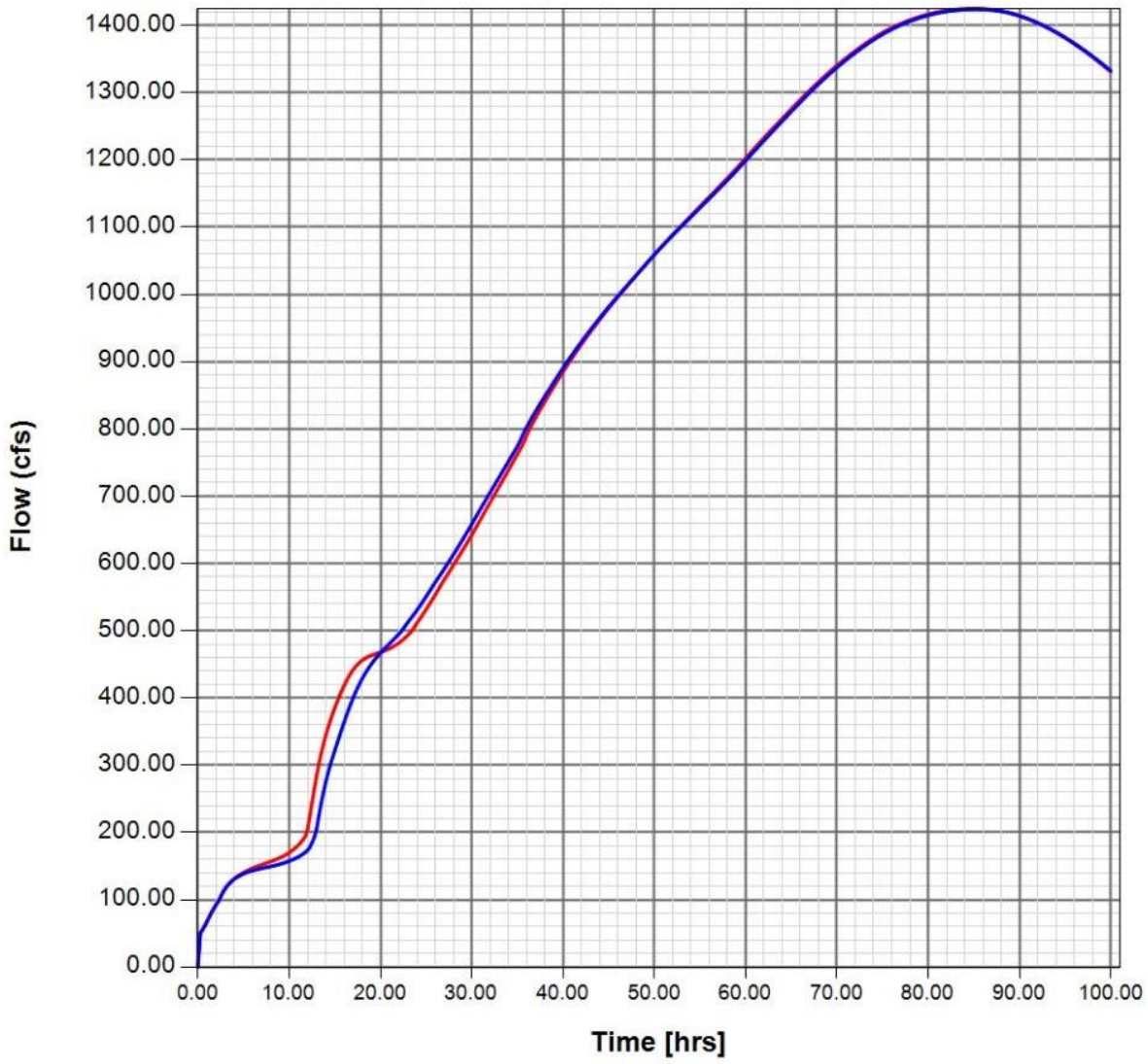
Storm Event: 25YR / 24 HR



25YR / 24HR Results Summary

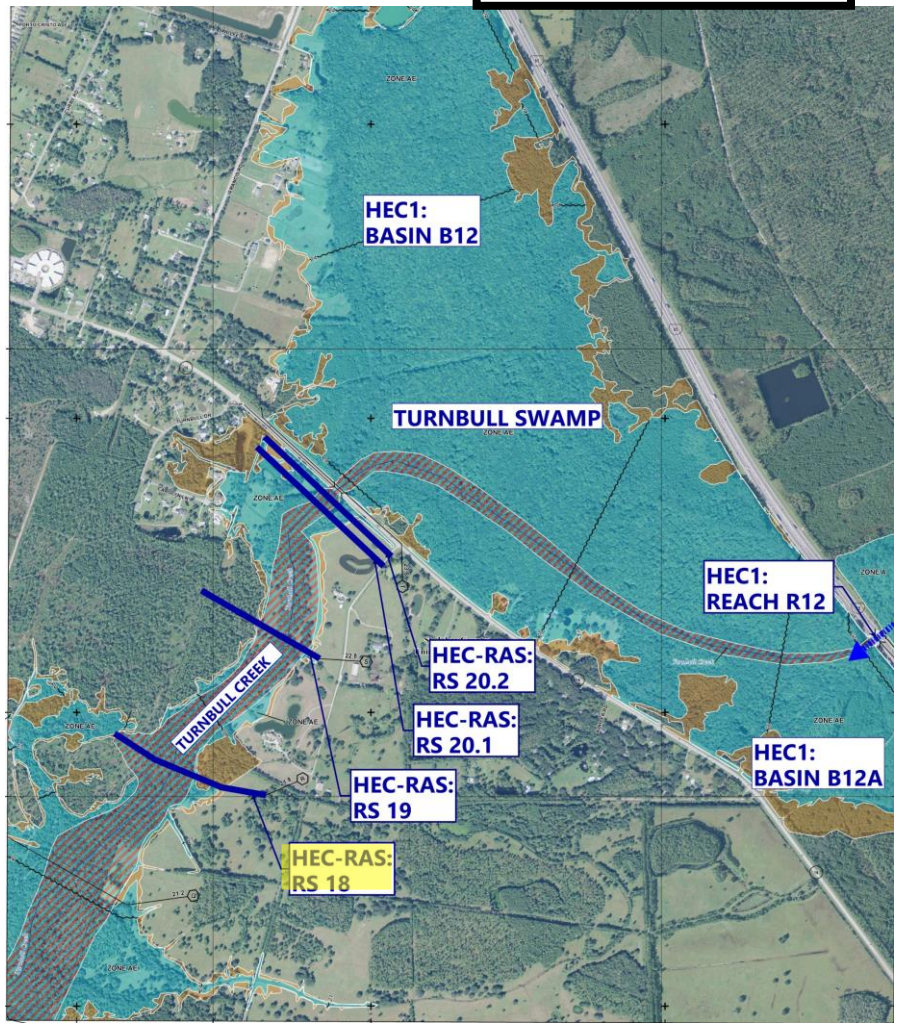
Node	Post-Stage > Pre-Stage by 0.01ft			Peak Stage				
				Pre-Development		Post-Development		Post minus Pre Stage (ft)
	Begin (hr)	End (hr)	Max Delta (ft)	Elevation (ft)	Time (hr)	Elevation (ft)	Time (hr)	
HEC-RAS RS 18	5.00	19.75	0.35	20.76	83.25	20.76	82.50	0.00
HEC-RAS RS 19	4.50	18.75	0.36	21.97	79.75	21.97	79.25	0.00
HEC-RAS RS 20.1	4.25	18.25	0.60	22.59	79.50	22.59	79.00	0.00
HEC-RAS RS 20.2	4.25	18.25	0.61	22.61	79.50	22.61	79.00	0.00
Turnbull Swamp	4.00	18.25	0.64	22.82	80.00	22.79	82.75	-0.03

Flow | Multi-Scenario [Link: RC-RS 18] Sim: 25yr24hr

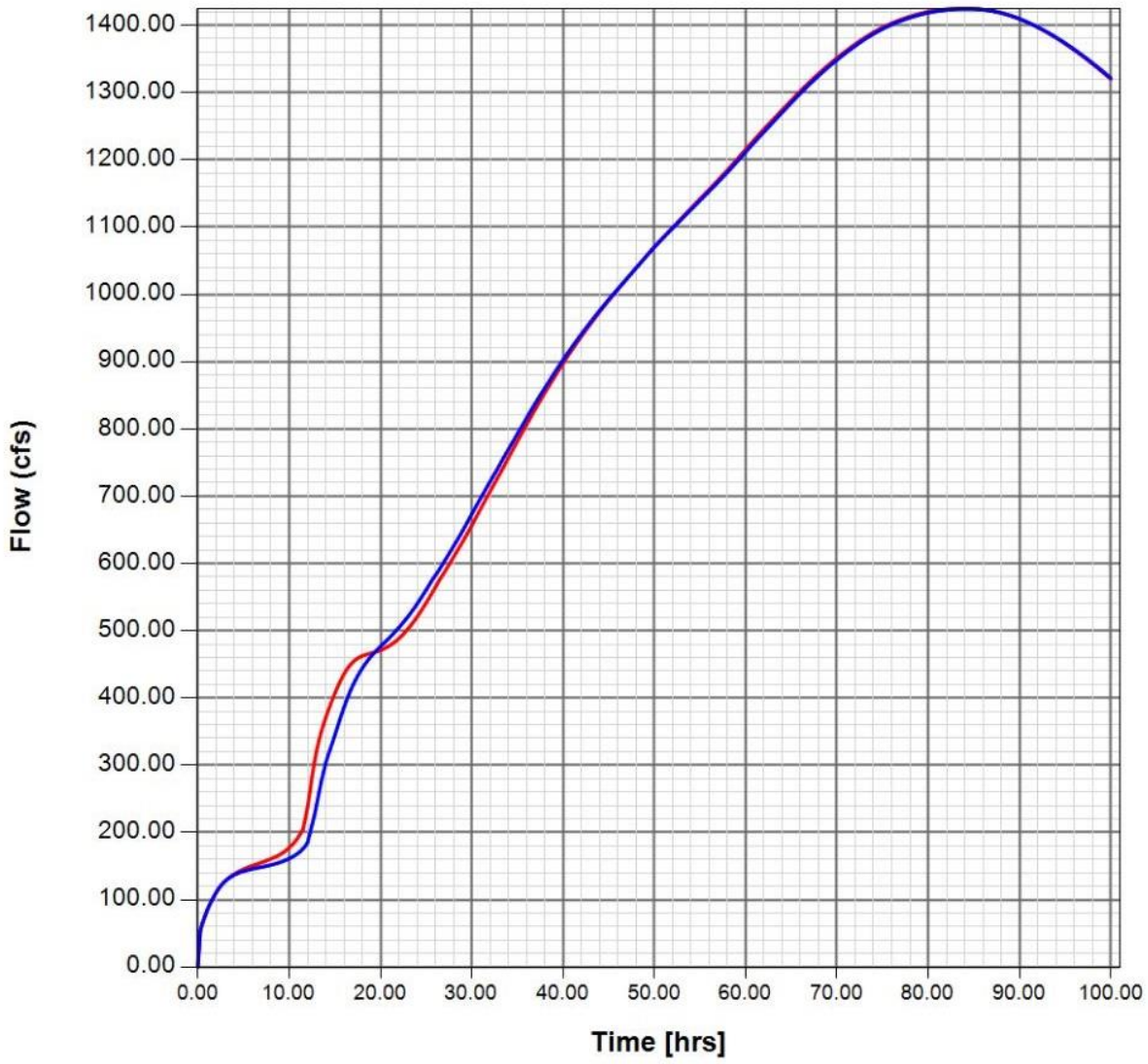


Post-Development
Pre-Development

Storm Event: 25YR / 24 HR

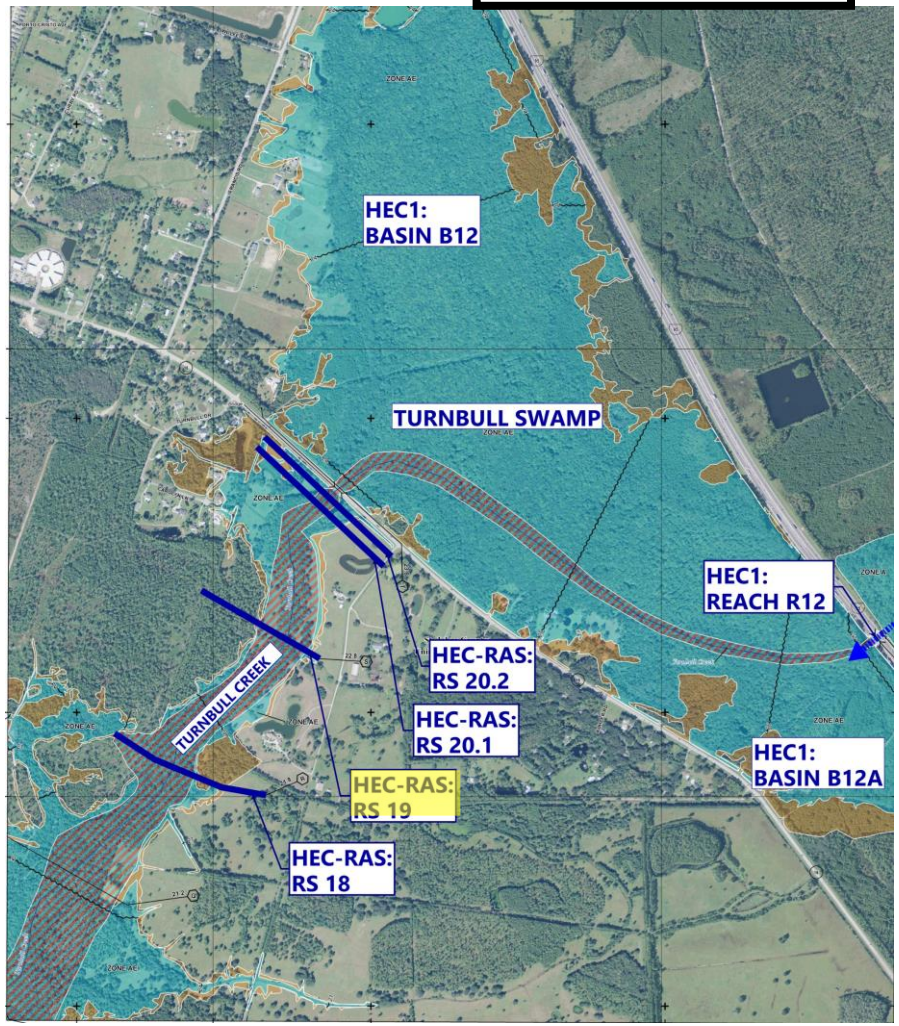


Flow | Multi-Scenario [Link: C-RS 19] Sim: 25yr24hr

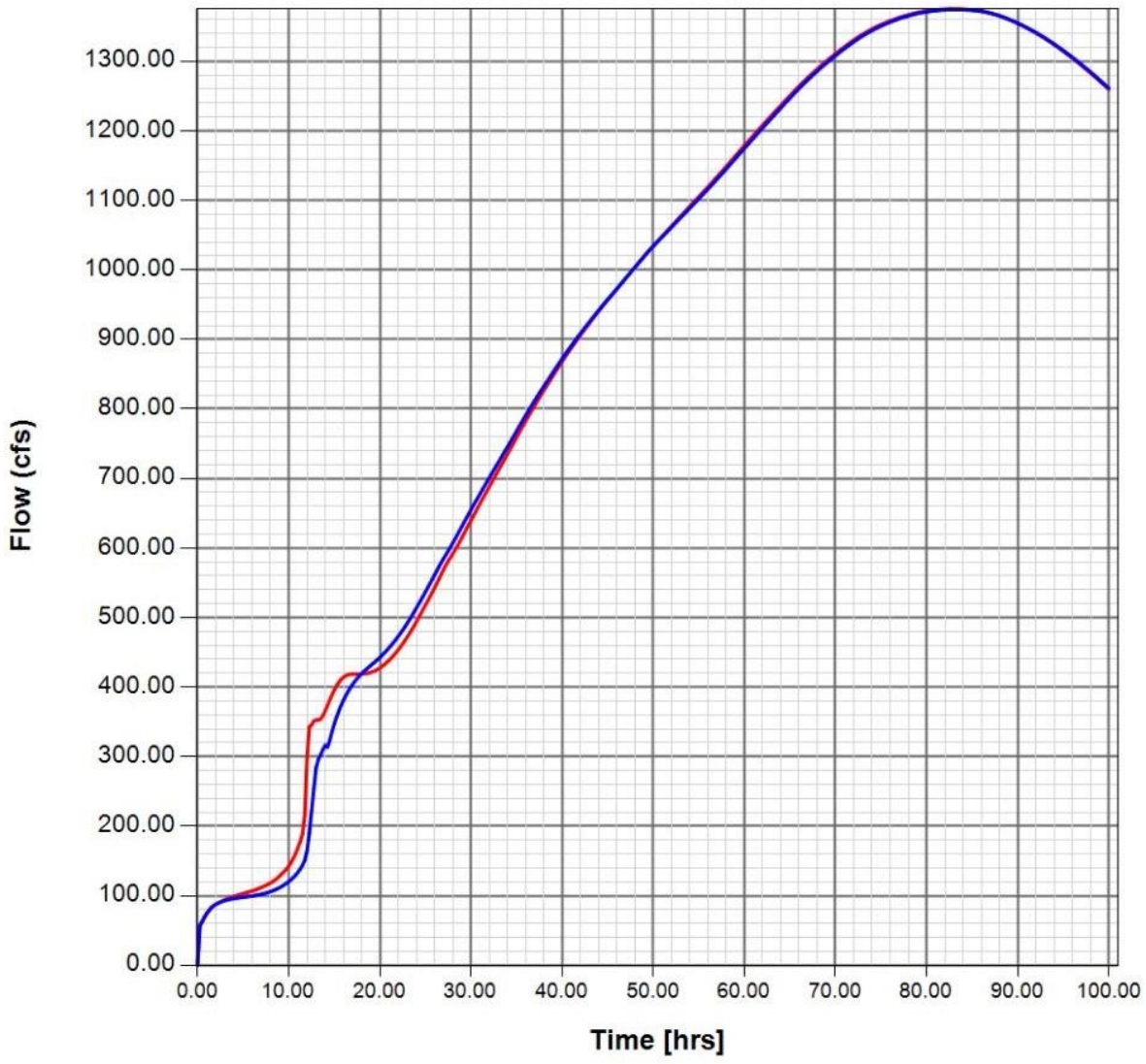


Post-Development
Pre-Development

Storm Event: 25YR / 24 HR

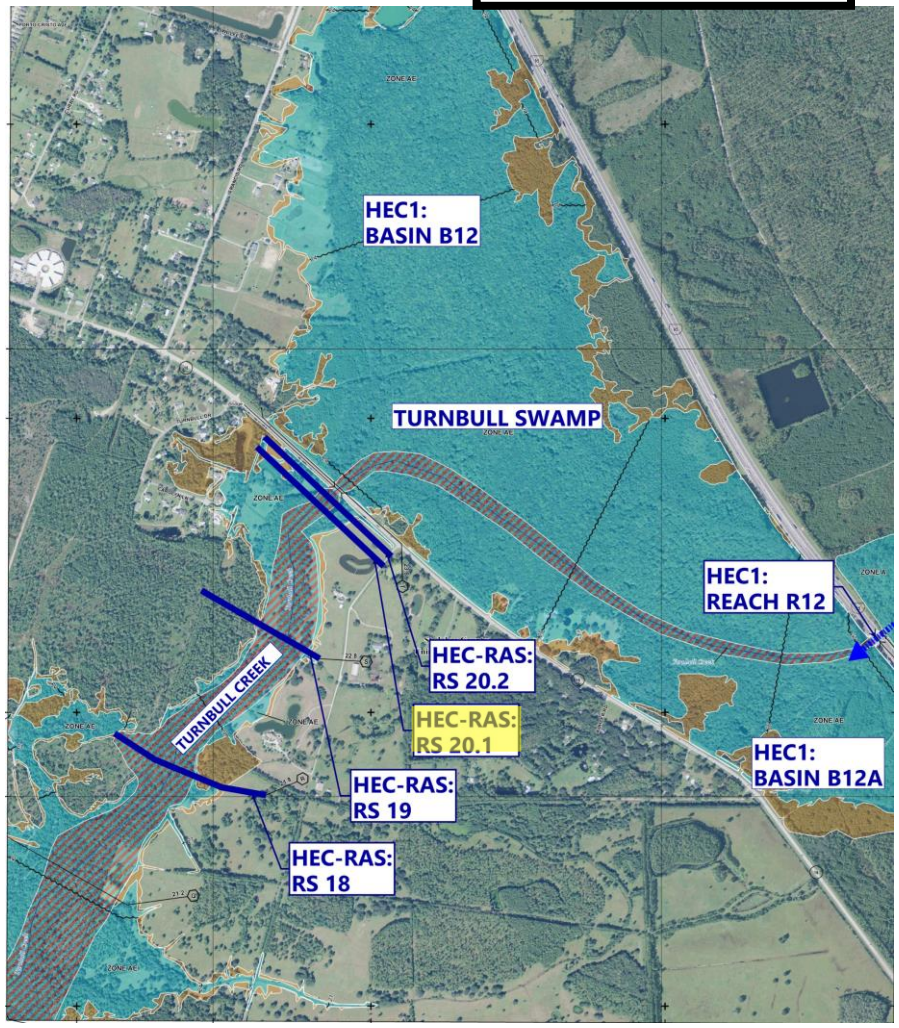


Flow | Multi-Scenario [Link: C-RS 20.1] Sim: 25yr24hr

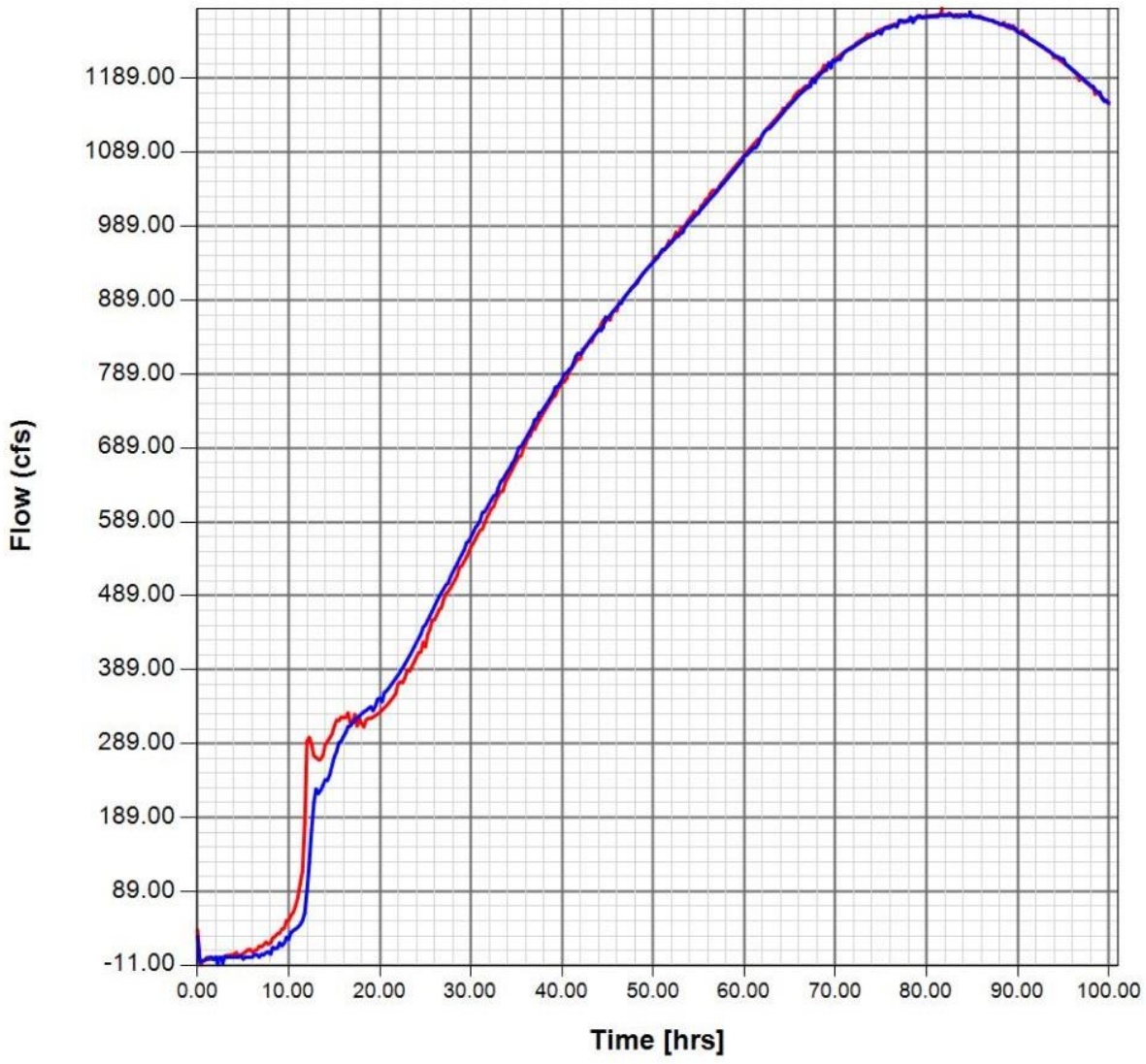


Post-Development
Pre-Development

Storm Event: 25YR / 24 HR

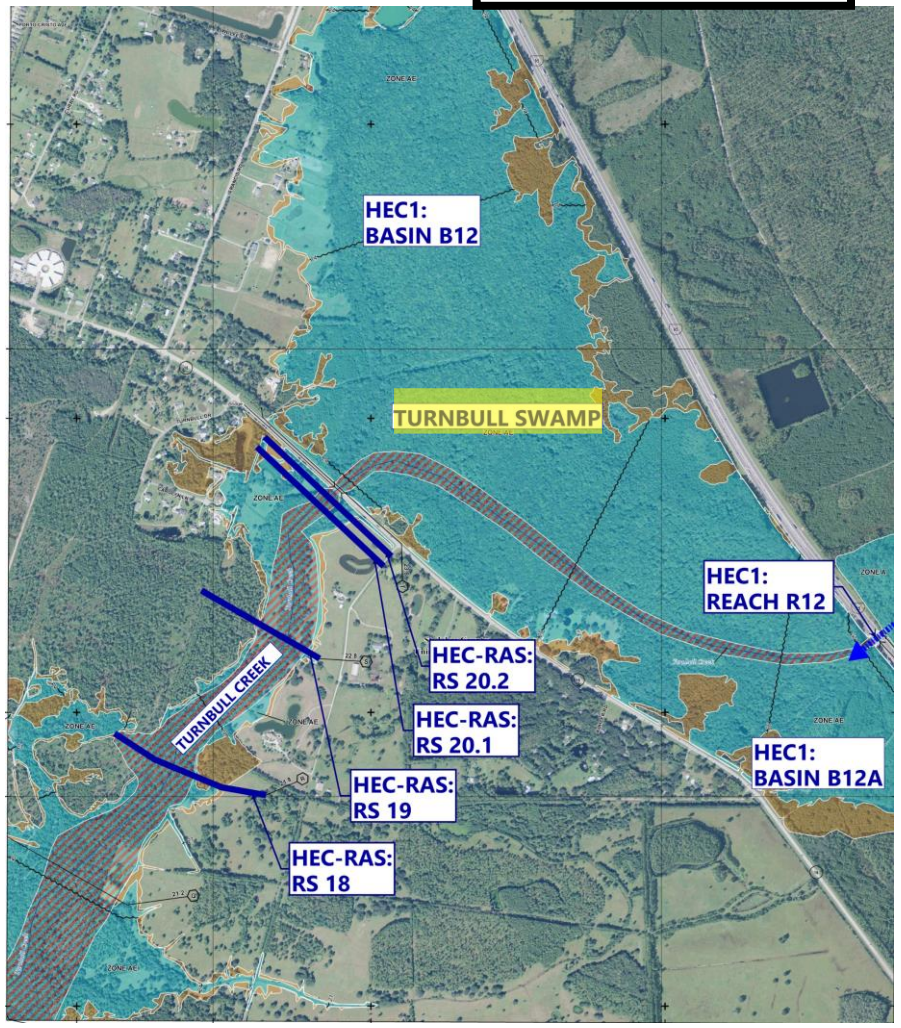


Flow | Multi-Scenario [Link: RC-RS 20. 35 SR16 BR] Sim: 25yr24hr



Post-Development
Pre-Development

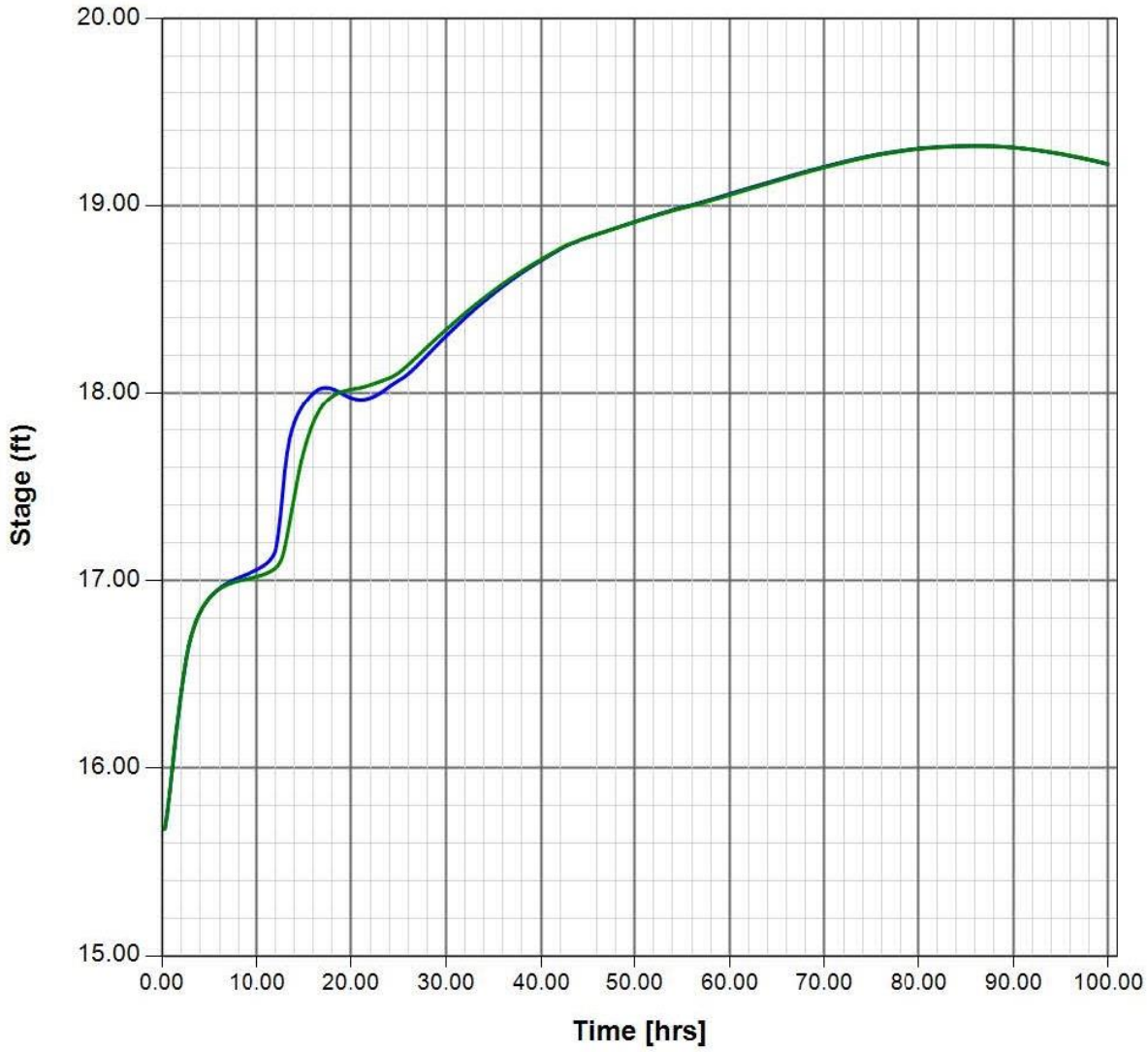
Storm Event: 25YR / 24 HR



25YR / 24HR Results Summary

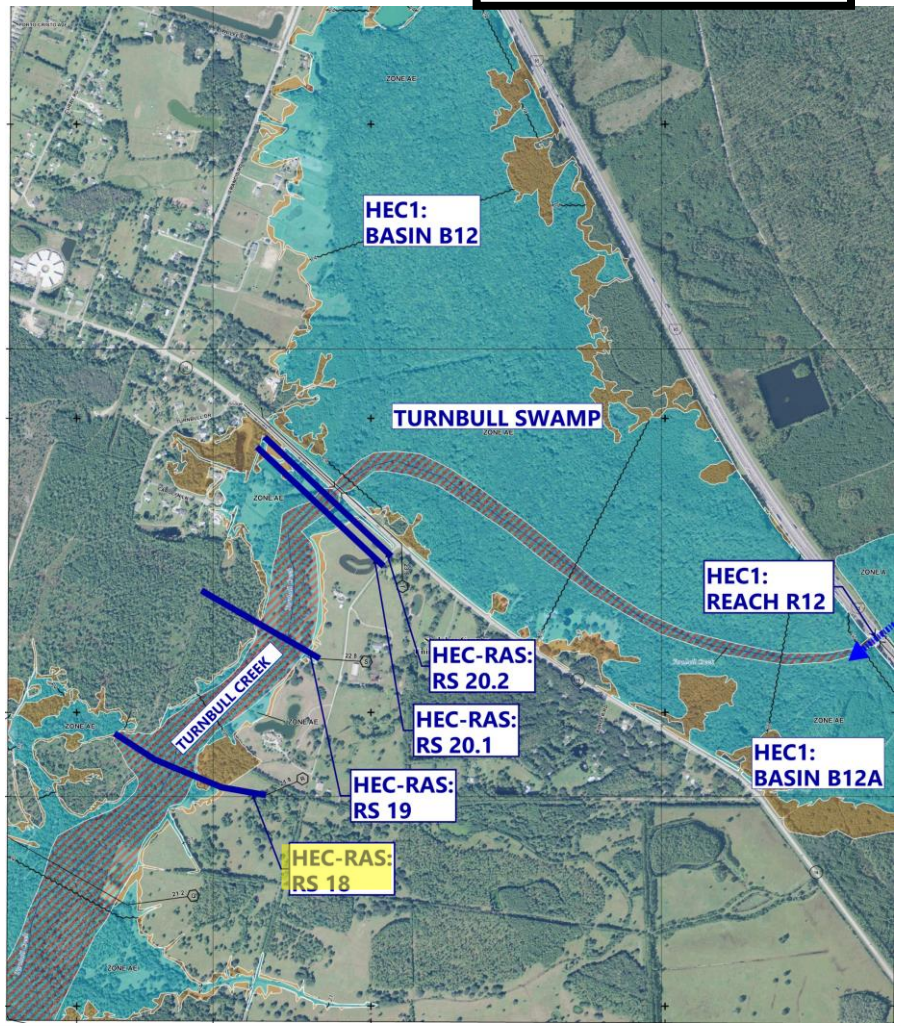
Link	Peak Flow				
	Pre-Development		Post-Development		Post minus Pre Flow (cfs)
	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	
C-RS 18	1423.75	85.21	1424.60	84.96	0.85
C-RS 19	1424.06	84.14	1424.90	83.98	0.84
C-RS 20.1	1374.37	83.43	1375.32	82.51	0.95
C-RS Turnbull	1279.34	84.81	1283.74	81.68	4.40

Stage | Multi-Scenario [Node: HEC-RAS RS 18] Sim: Mean Annual

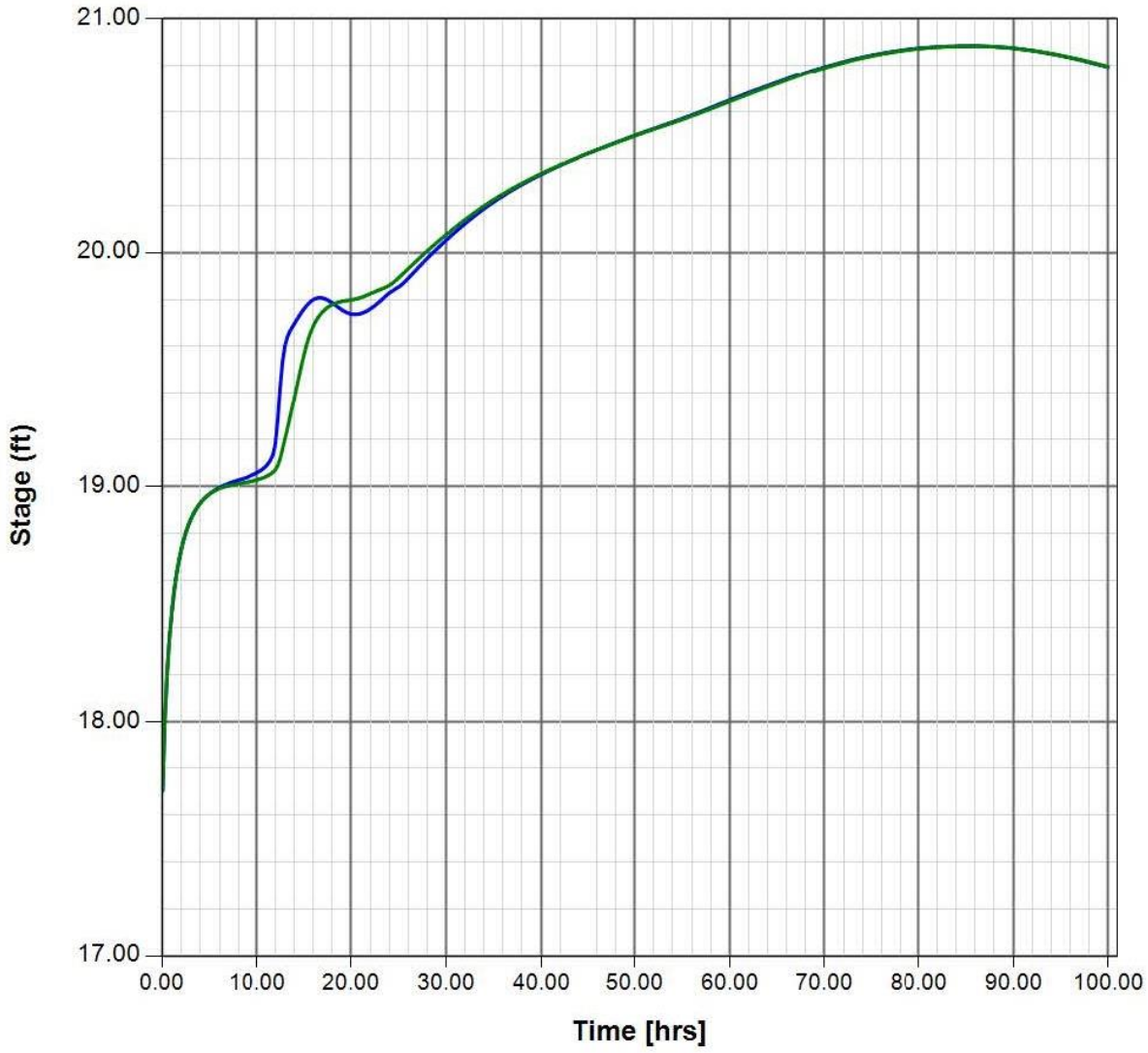


Post-Development
Pre-Development

Storm Event: Mean Annual

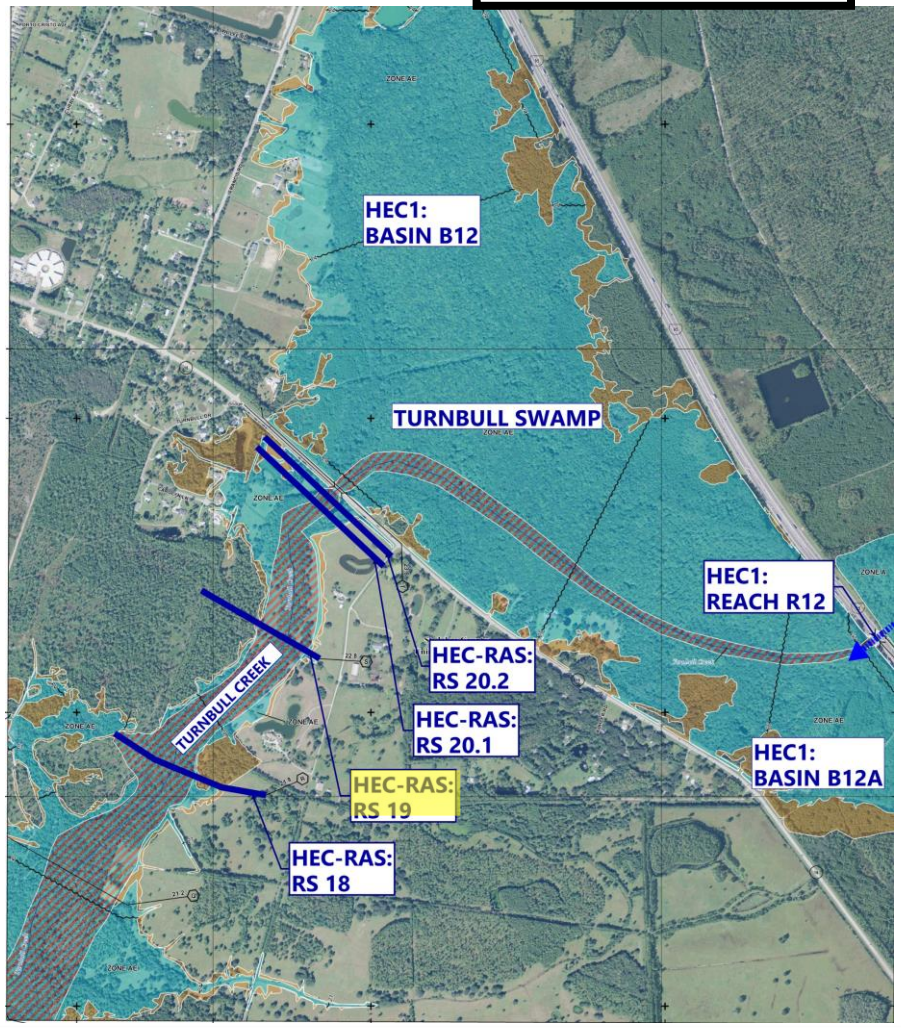


Stage | Multi-Scenario [Node: HEC-RAS RS 19] Sim: Mean Annual

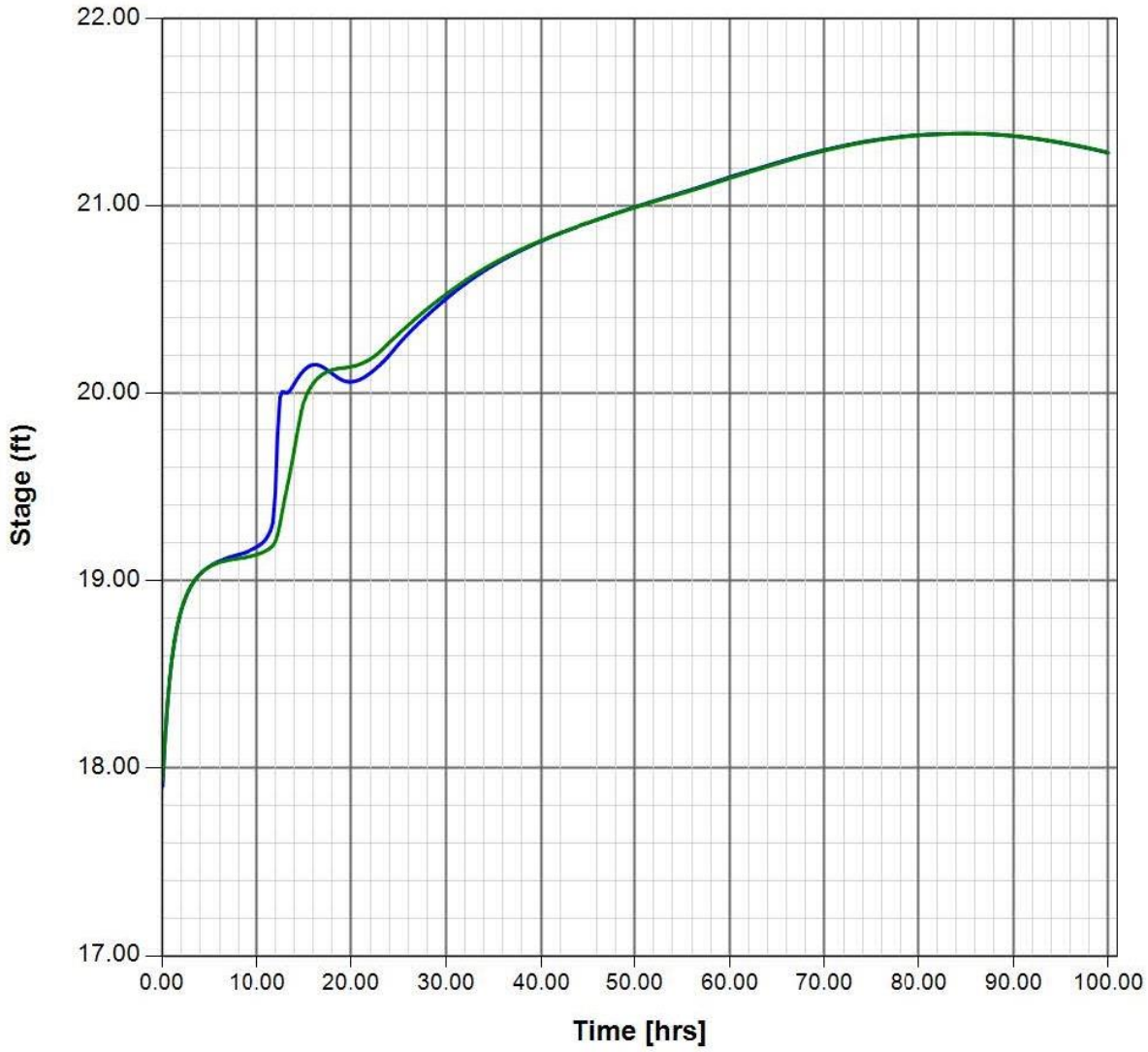


Post-Development
Pre-Development

Storm Event: Mean Annual

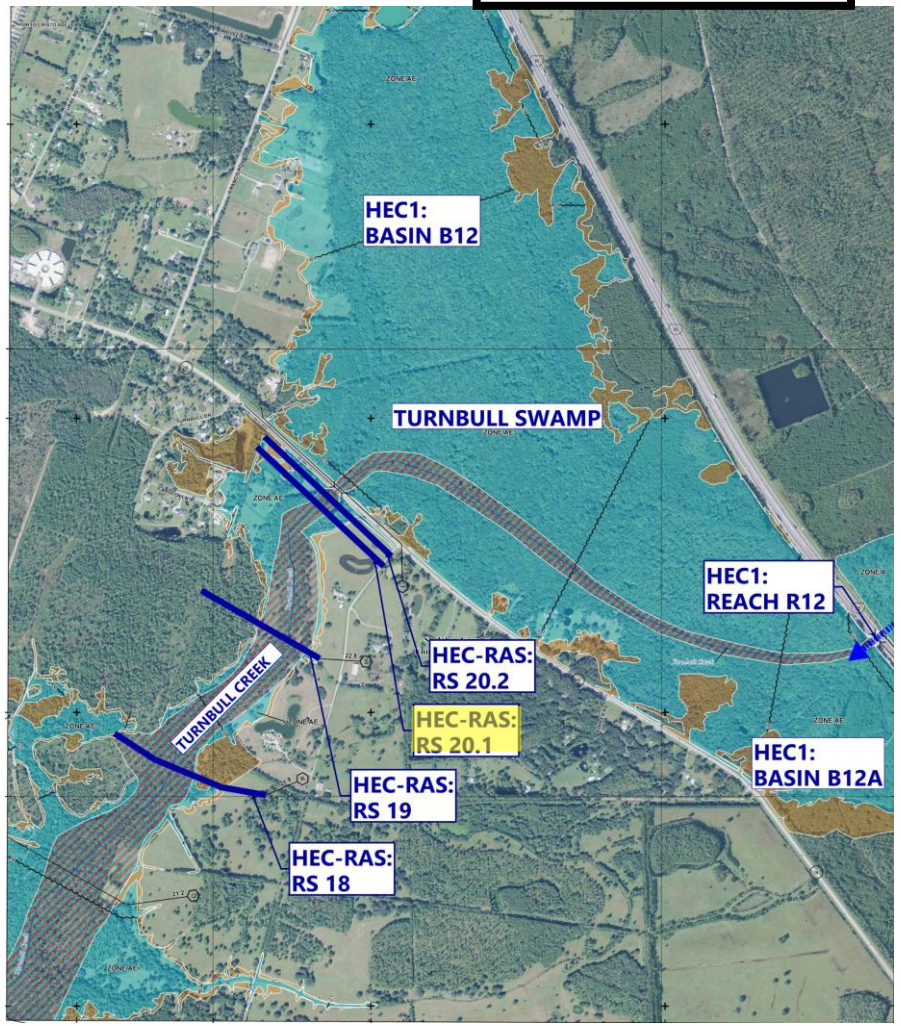


Stage | Multi-Scenario [Node: HEC-RAS RS 20.1] Sim: Mean Annual

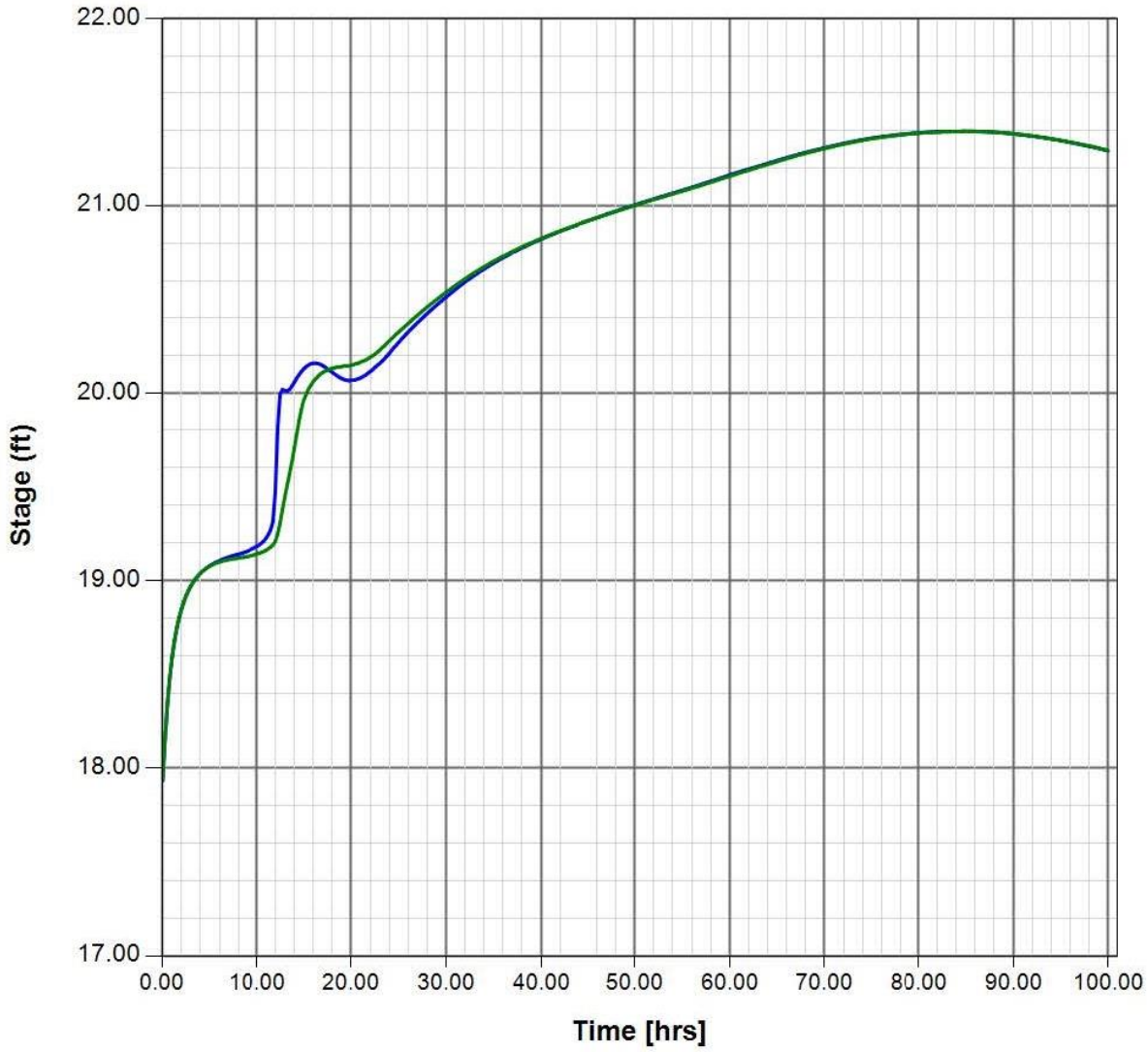


Post-Development
Pre-Development

Storm Event: Mean Annual

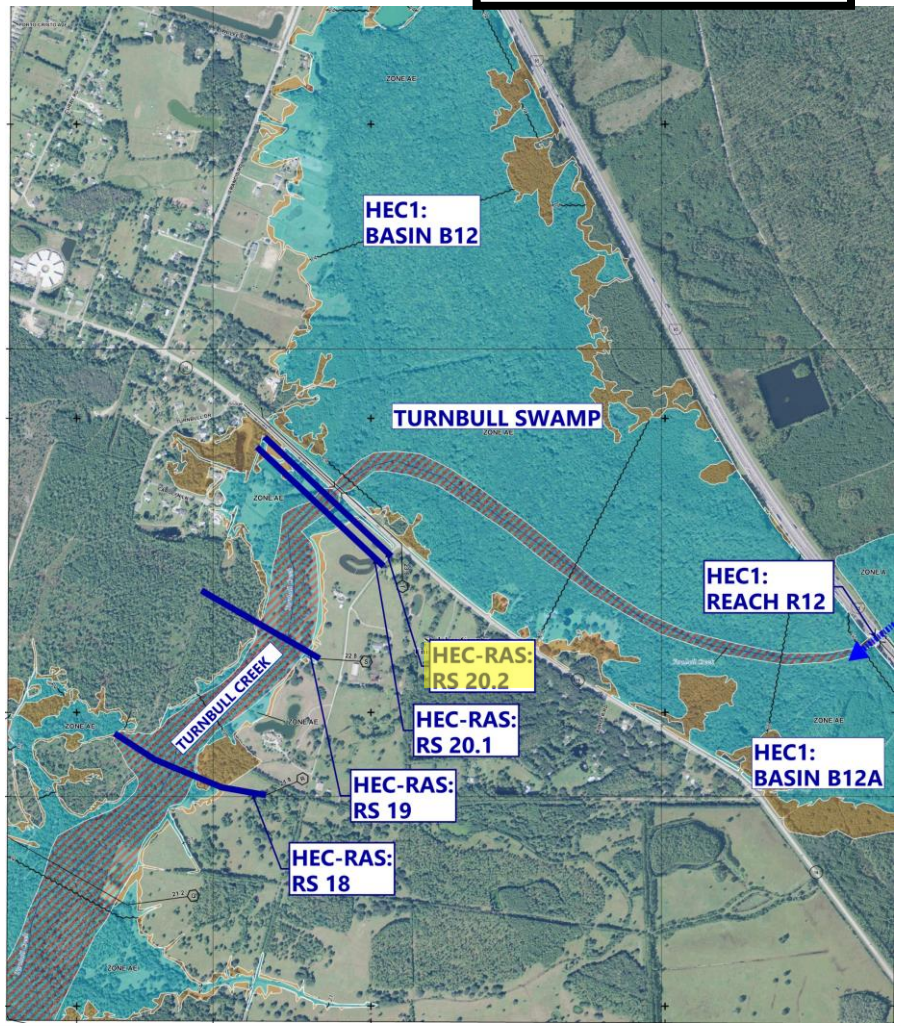


Stage | Multi-Scenario [Node: HEC-RAS RS 20.2] Sim: Mean Annual

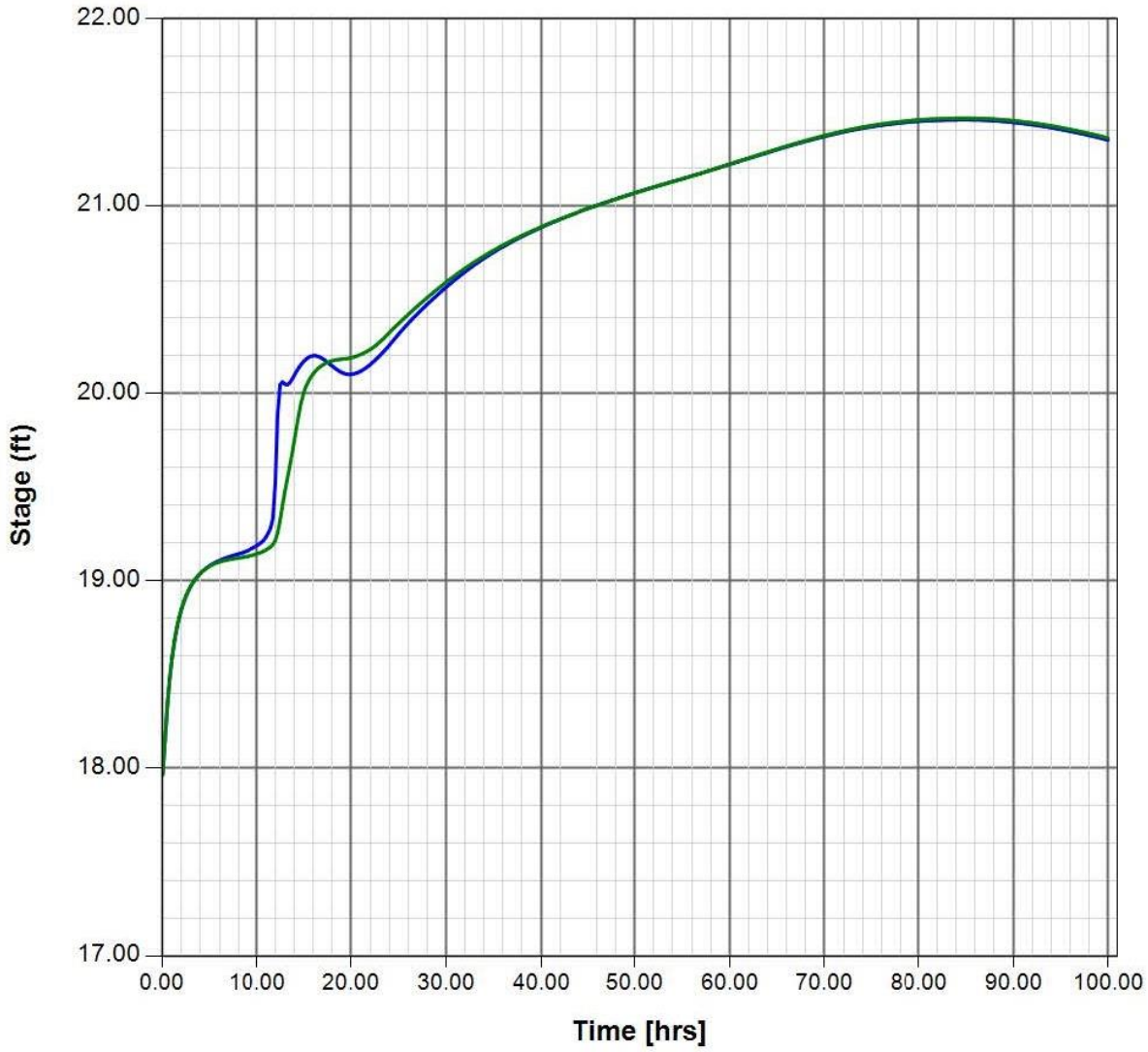


Post-Development
Pre-Development

Storm Event: Mean Annual

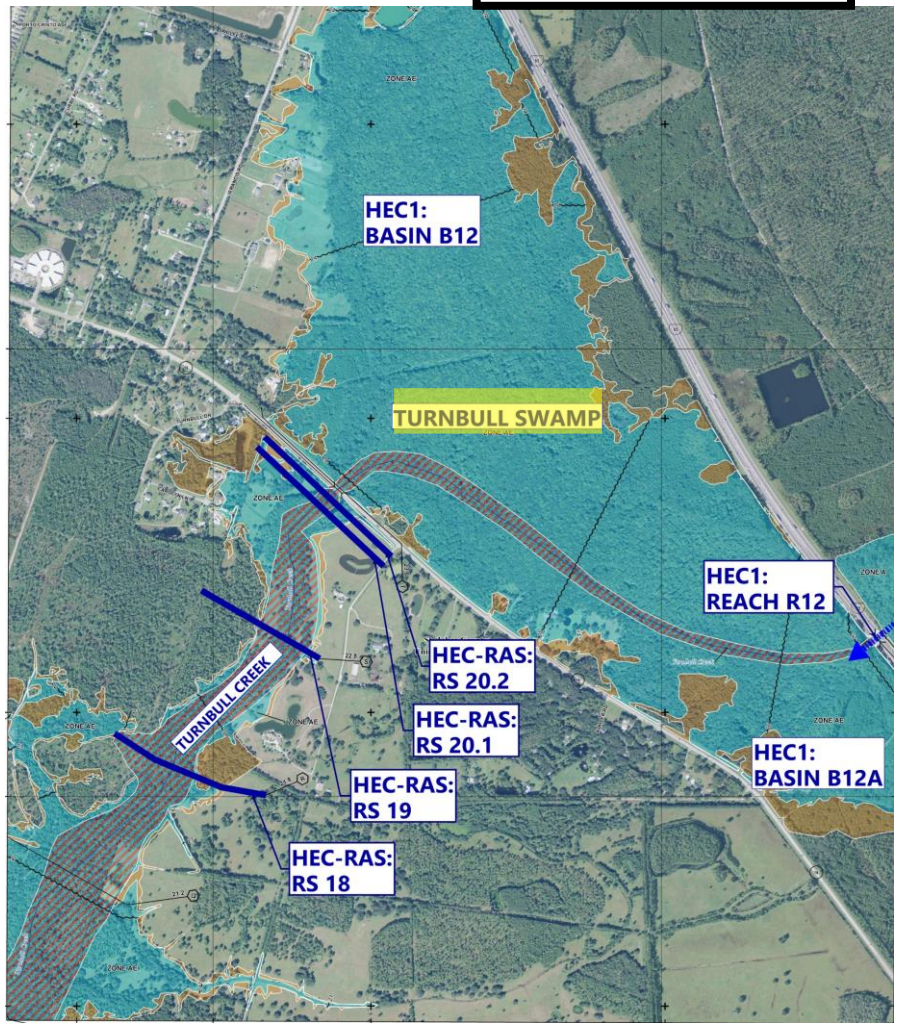


Stage | Multi-Scenario [Node: Turnbull Swamp] Sim: Mean Annual



Post-Development
Pre-Development

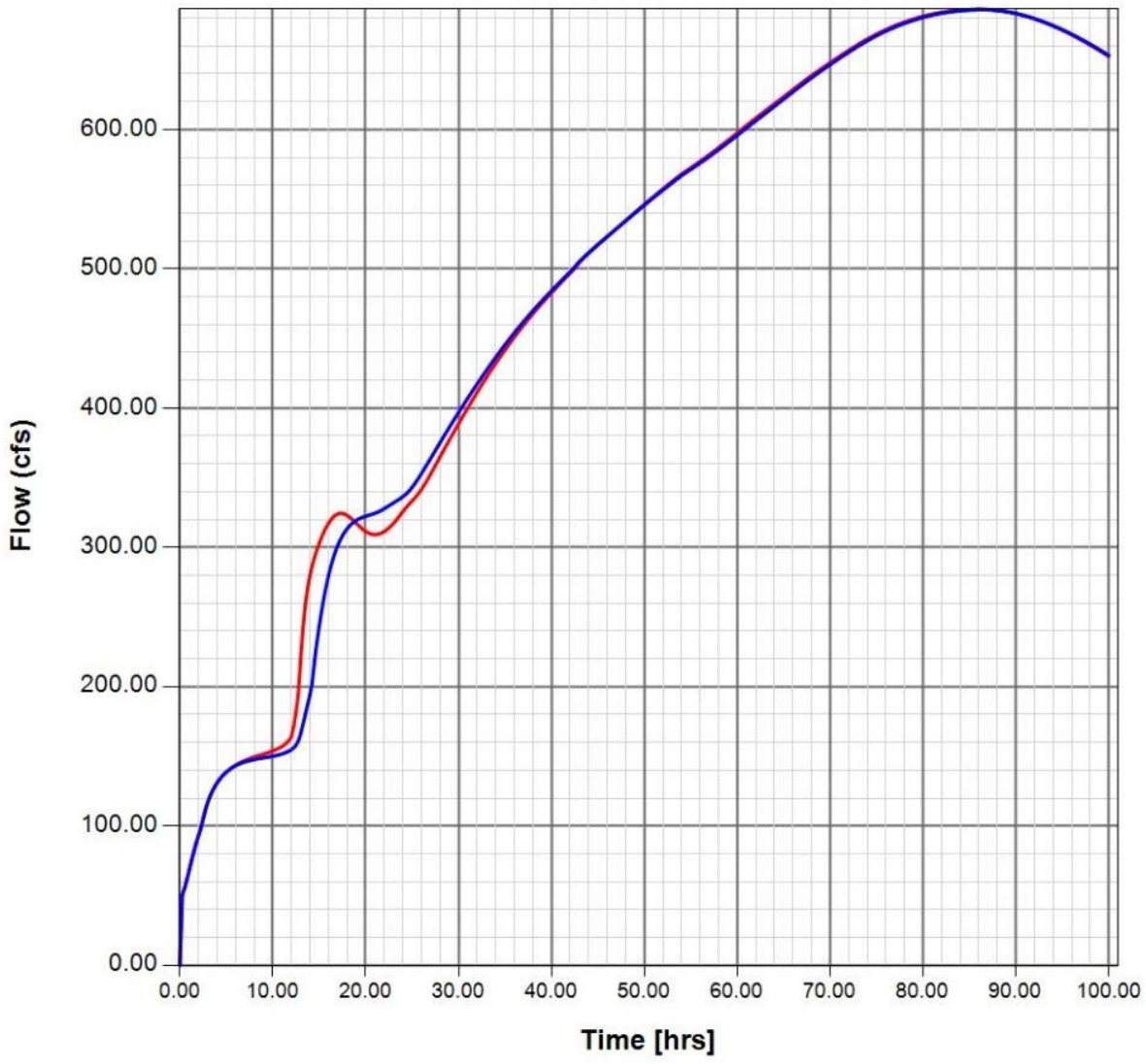
Storm Event: Mean Annual



Mean Annual Results Summary

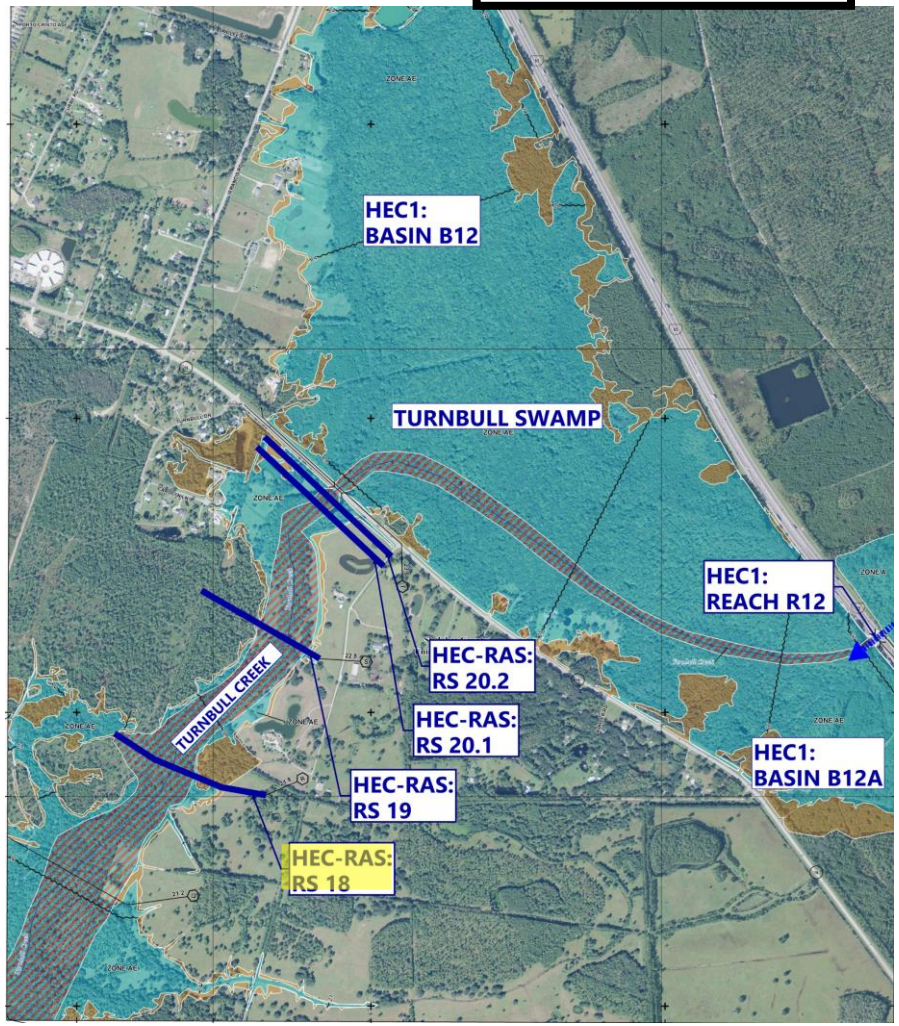
Node	Post-Stage > Pre-Stage by 0.01ft			Peak Stage				
				Pre-Development		Post-Development		Post minus Pre Stage (ft)
	Begin (hr)	End (hr)	Max Delta (ft)	Elevation (ft)	Time (hr)	Elevation (ft)	Time (hr)	
HEC-RAS RS 18	8.00	18.25	0.44	19.32	85.50	19.32	84.25	0.00
HEC-RAS RS 19	8.00	17.75	0.40	20.88	81.25	20.88	80.75	0.00
HEC-RAS RS 20.1	7.25	17.25	0.68	21.38	81.00	21.38	80.50	0.00
HEC-RAS RS 20.2	7.00	17.25	0.69	21.39	80.50	21.39	79.75	0.00
Turnbull Swamp	7.00	17.25	0.73	21.46	80.25	21.45	79.50	-0.01

Flow | Multi-Scenario [Link: RC-RS 18] Sim: Mean Annual

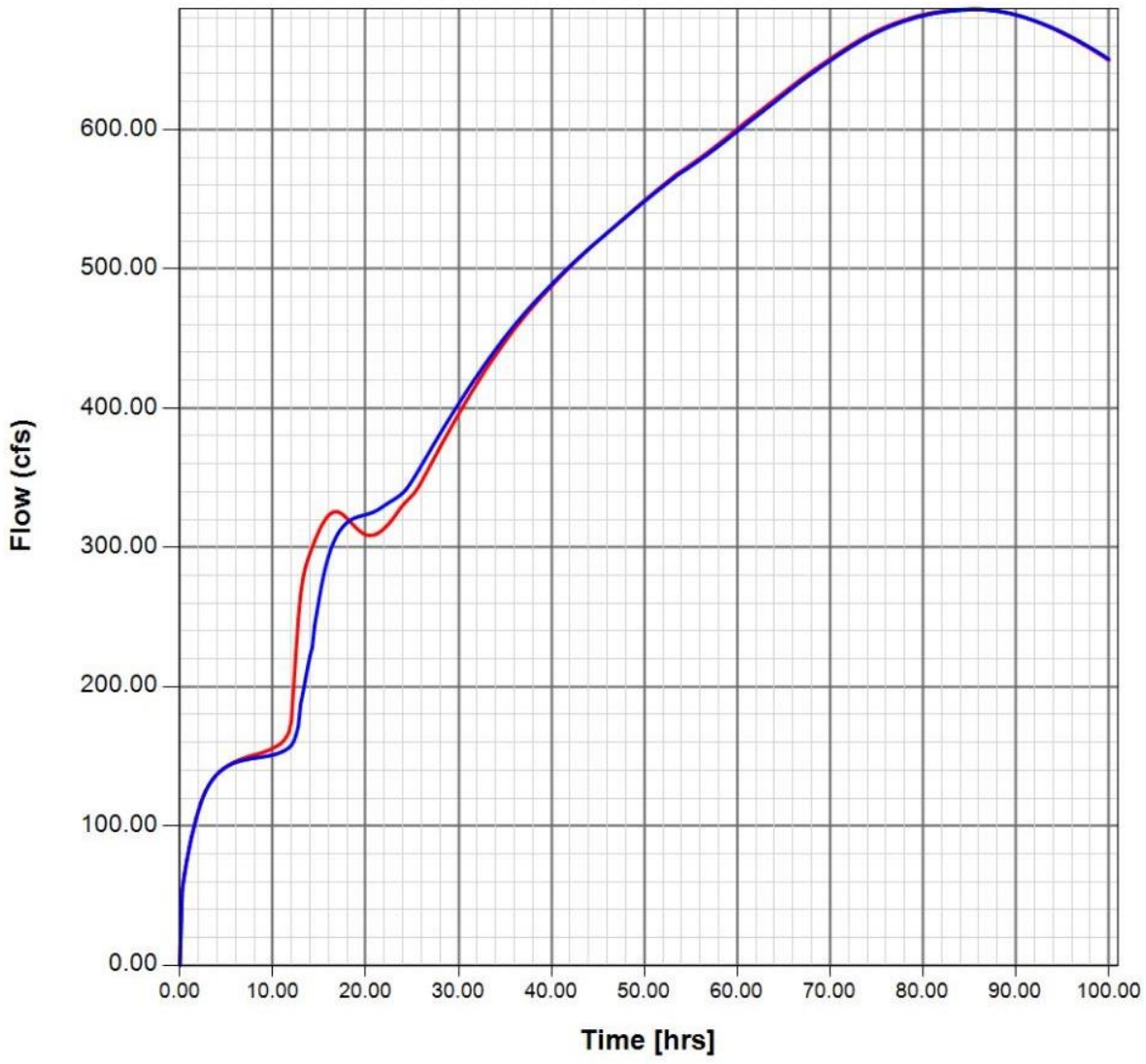


Post-Development
Pre-Development

Storm Event: Mean Annual

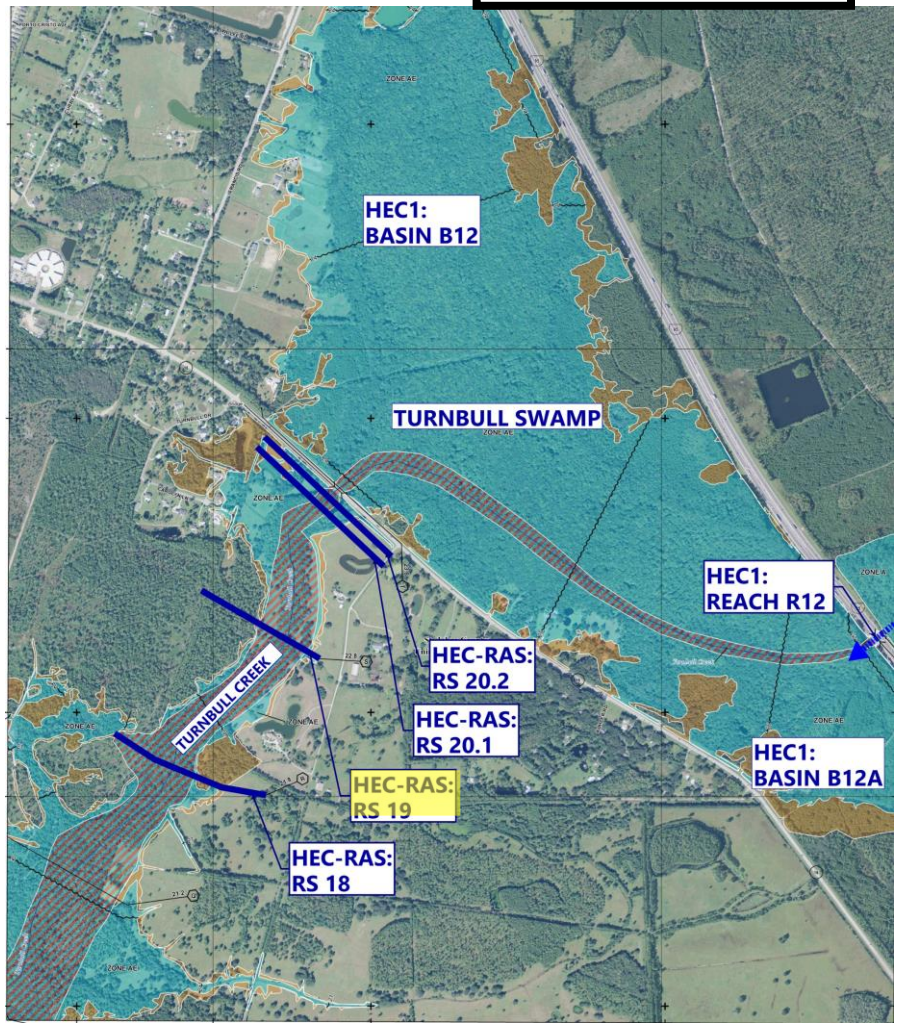


Flow | Multi-Scenario [Link: C-RS 19] Sim: Mean Annual

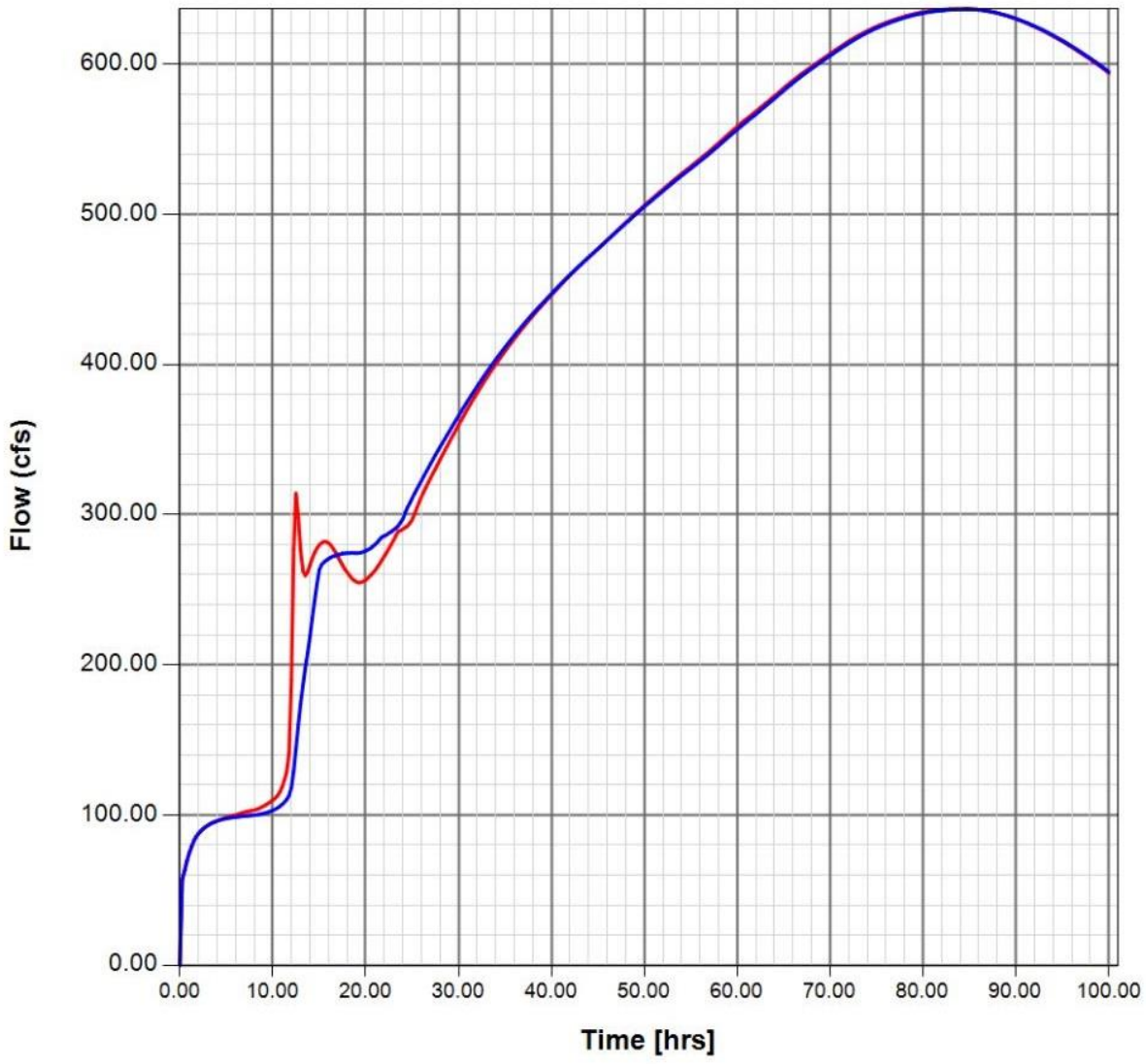


Post-Development
Pre-Development

Storm Event: Mean Annual

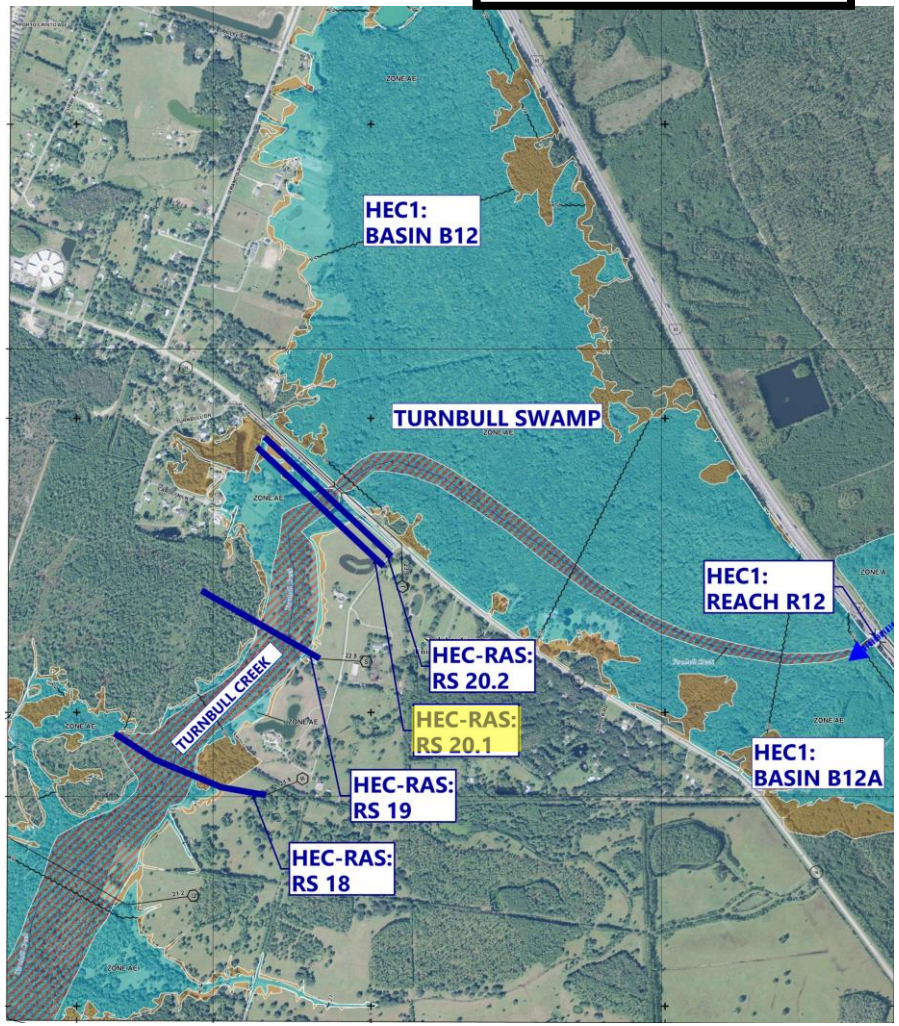


Flow | Multi-Scenario [Link: C-RS 20.1] Sim: Mean Annual

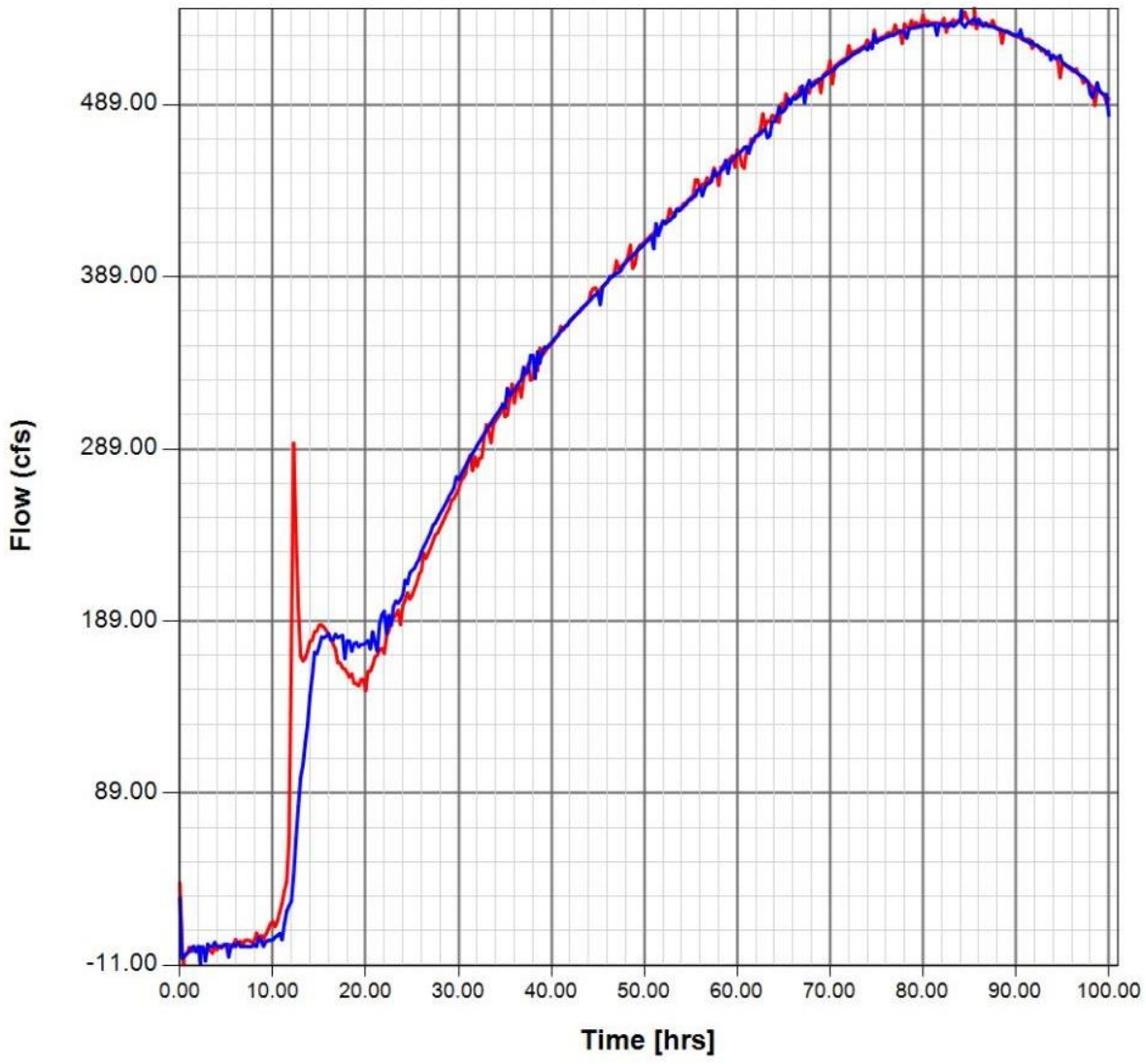


Post-Development
Pre-Development

Storm Event: Mean Annual

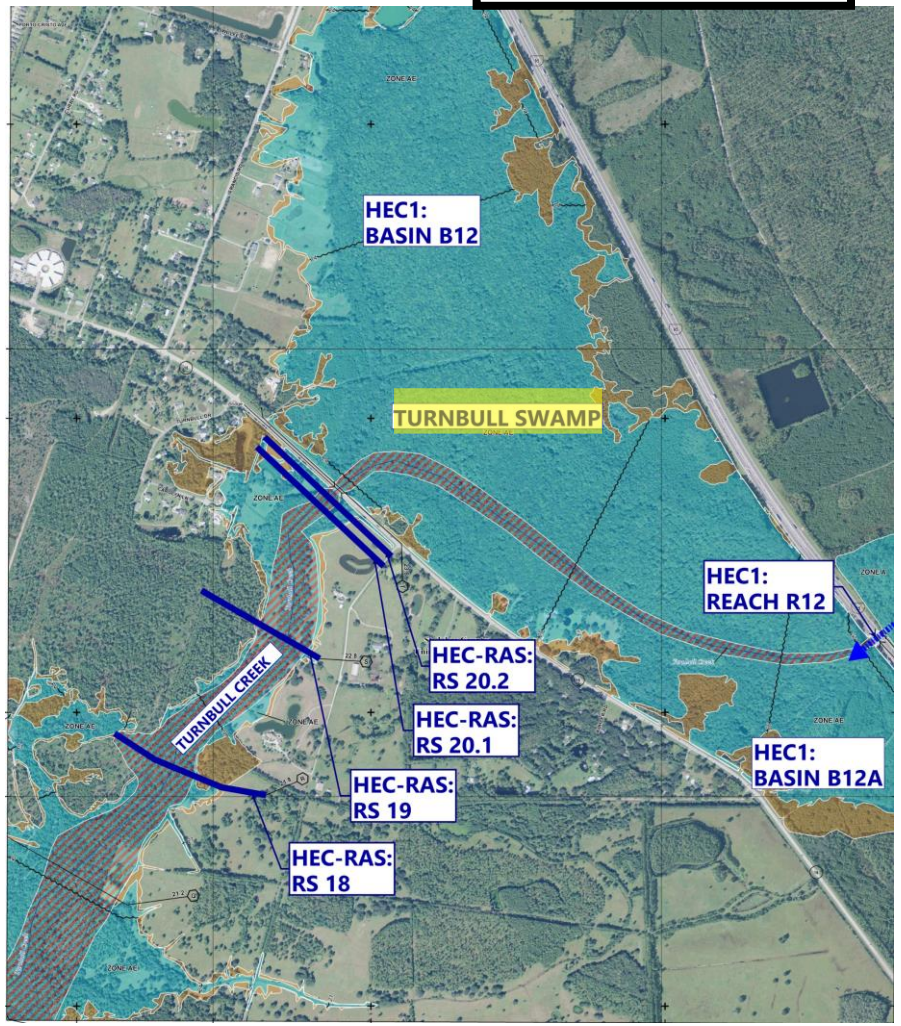


Flow | Multi-Scenario [Link: RC-RS 20. 35 SR16 BR] Sim: Mean Annual



Post-Development
Pre-Development

Storm Event: Mean Annual

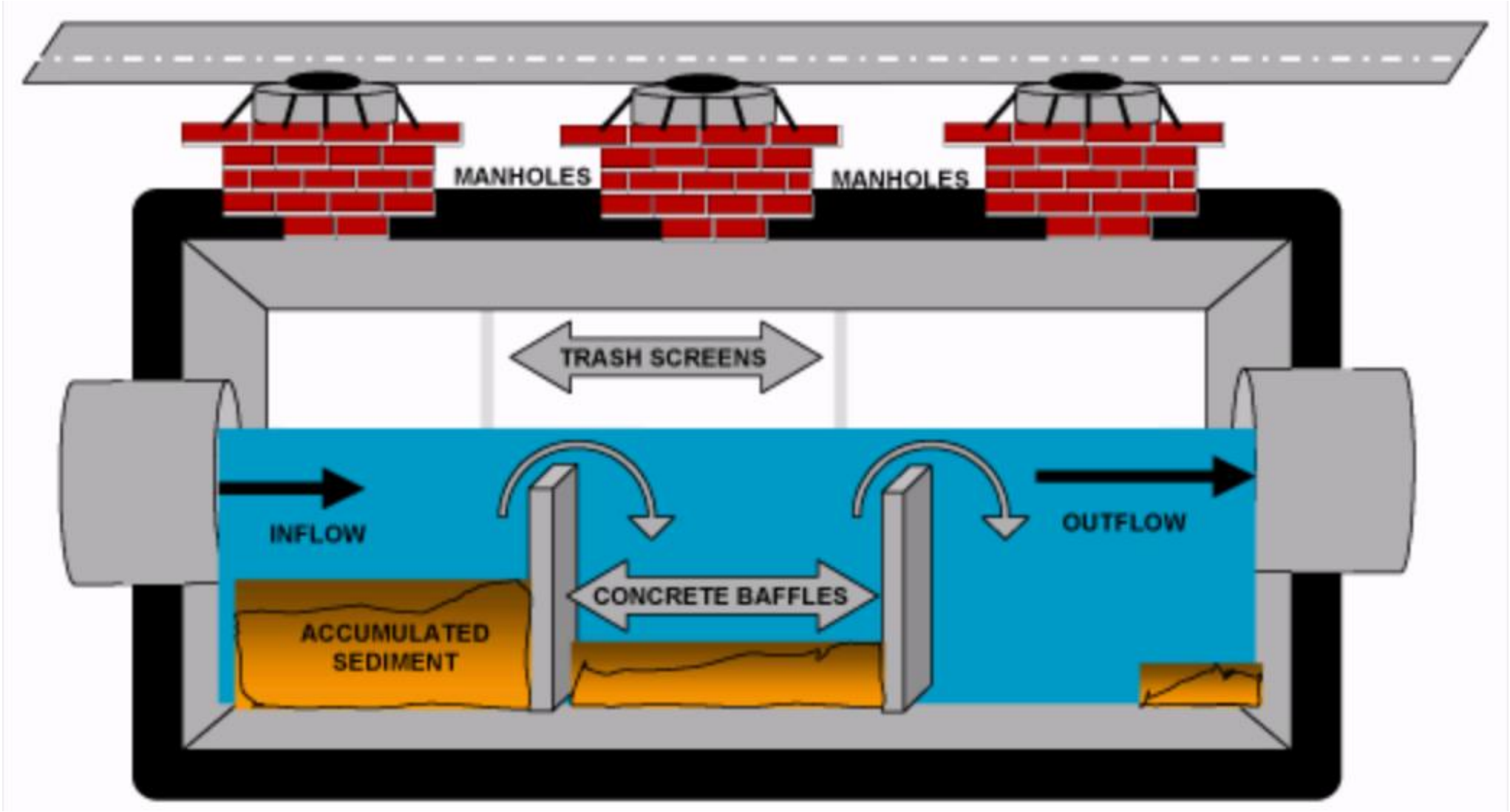


Mean Annual Results Summary

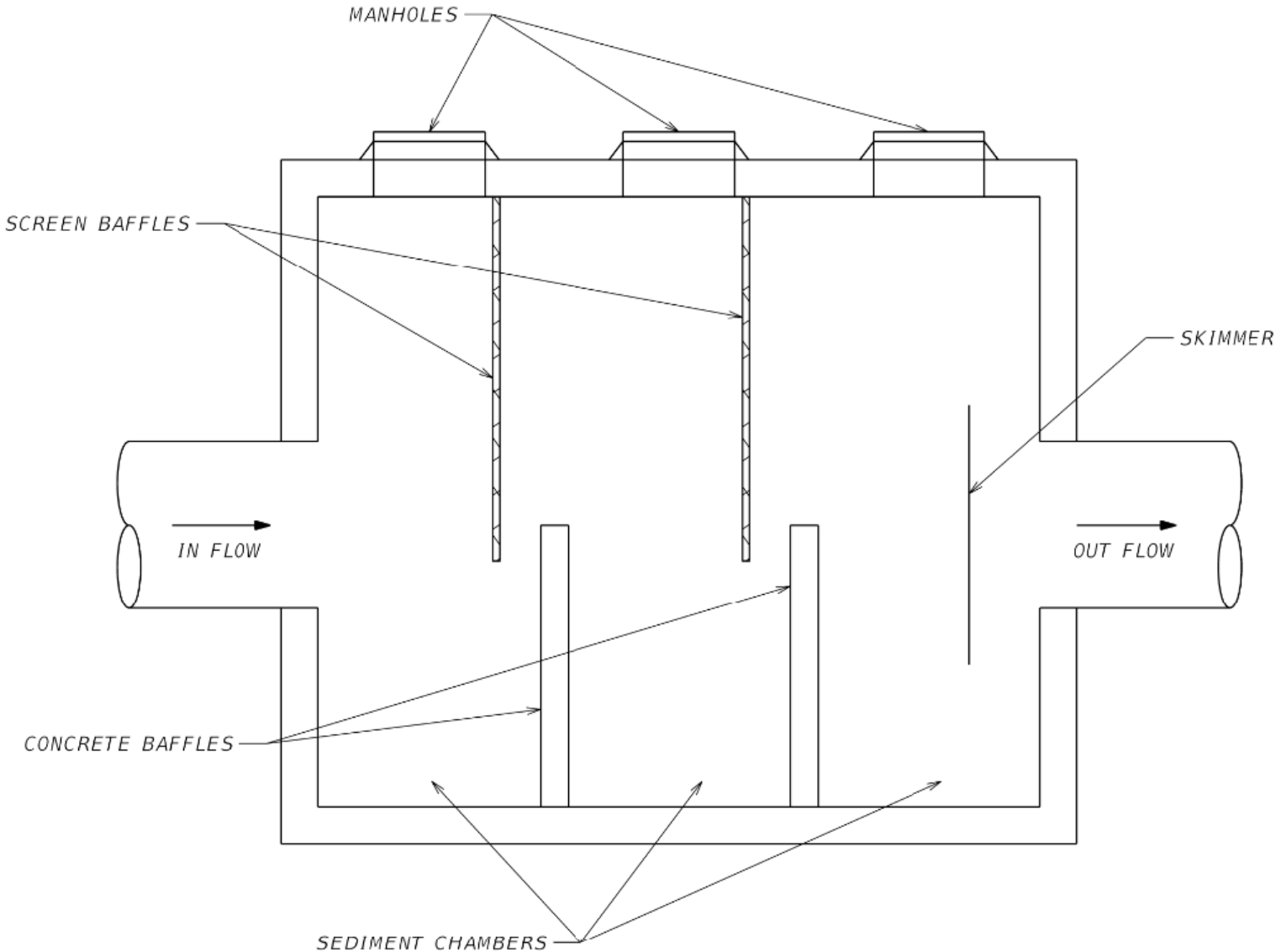
Link	Peak Flow				
	Pre-Development		Post-Development		Post minus Pre Flow (cfs)
	Flow (cfs)	Time (hr)	Flow (cfs)	Time (hr)	
C-RS 18	686.07	86.36	686.42	86.11	0.35
C-RS 19	686.12	85.60	686.49	85.52	0.37
C-RS 20.1	636.43	84.78	636.84	84.86	0.41
C-RS Turnbull	544.14	84.14	544.87	85.56	0.73

Pre-Treatment

Pre-Treatment : Baffle Box



Pre-Treatment : Baffle Box

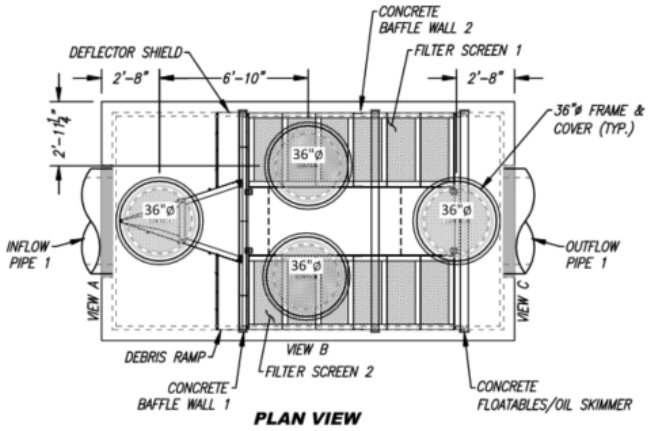


Pre-Treatment : Baffle Box

SITE SPECIFIC DATA*			
PROJECT NUMBER	–		
PROJECT NAME	–		
PROJECT LOCATION	–		
STRUCTURE ID	–		
WATER QUALITY FLOW RATE (CFS)			15.84
PEAK FLOW RATE (CFS)			97.40
PEAK STORM DURATION (YEARS)			100.00
PIPE DATA	I.E.	MATERIAL	DIAMETER
INFLOW PIPE 1	–	TBD	36
OUTFLOW PIPE 1	–	TBD	36
RIM ELEVATION	–		
SURFACE LOADING REQUIREMENT			HS20
FRAME AND COVER		(4) 36"ø	
CORROSIVE SOIL CONDITIONS			NA
KNOWN GROUNDWATER ELEVATION			NA
NOTES: CONCEPT ONLY, NOT FOR CONSTRUCTION.			
*PER ENGINEER OF RECORD			

DSBB PERFORMANCE DATA	
TREATMENT FLOW RATE (CFS)	15.84
SETTLING AREA (SF)	180.00
LOADING RATE (GPM/SF)	39.49
SCREEN SYSTEM STORAGE CAPACITY (CF)	144.88
SEDIMENT STORAGE CAPACITY (CF)	520.00
100% CALIFORNIA FULL CAPTURE REMOVAL	

DSBB STORAGE CAPACITIES				
CAGE SCREEN CAPACITY				
	LENGTH (FT)	WIDTH (FT)	HEIGHT (FT)	TOTAL (CF)
SCREEN 1	10.17	3.17	2.25	72.44
SCREEN 2	10.17	3.17	2.25	72.44
SEDIMENT CHAMBER CAPACITY				
CHAMBER 1	5.83	10.00	3.00	175.00
CHAMBER 2	5.75	10.00	3.00	172.50
CHAMBER 3	5.75	10.00	3.00	172.50



PLAN VIEW

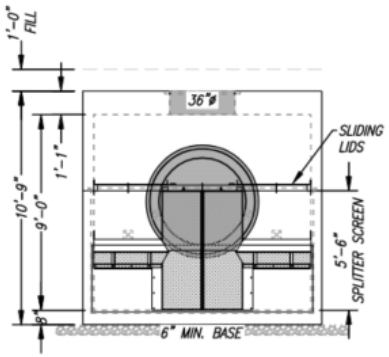
GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS, AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS, AND ACCESSORIES PLEASE CONTACT CONTECH.

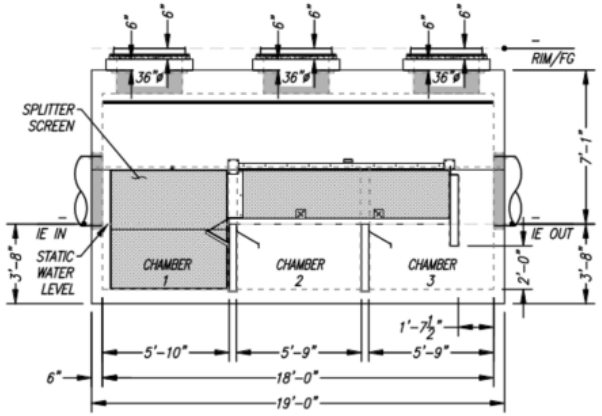
INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE DEBRIS SEPARATING BAFFLE BOX AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
2. MANUFACTURER RECOMMENDS A 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
3. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE (PIPES CANNOT INTRUDE BEYOND FLUSH).
4. ALL GAPS AROUND PIPES SHALL BE SEALED WATERTIGHT WITH A NON-SHRINK GROUT PER MANUFACTURER'S STANDARD CONNECTION DETAIL AND SHALL MEET OR EXCEED REGIONAL PIPE CONNECTION STANDARDS.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL PIPES, RISERS AND COVERS. ALL COVERS SHALL BE SHIPPED LOOSE. CONTRACTOR TO USE GROUT AND/OR BRICKS TO MATCH COVERS WITH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.

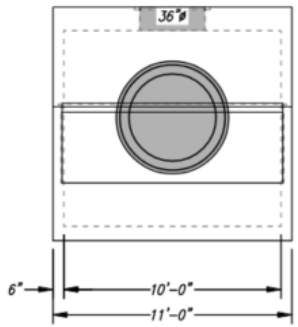
1:60 SCALE



INLET ELEVATION VIEW A



ELEVATION VIEW B



OUTLET ELEVATION VIEW C

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DSBB-10-18-108
DUAL STAGE HYDRODYNAMIC SEPARATOR
STANDARD DETAIL

7/20/23SCOTT.SERTICH

Water Quality

Use of the Wetland Applications Rule to Establish Wetland Assimilative Capacity

- Natural and man-made wetlands have historically been used for treatment of stormwater runoff:

  Section 10.0, SJRWMD AHII

  62-611 F.A.C., Wetlands Application

- The Wetlands Application rule, 62-611 F.A.C., sets forth procedures for determining the assimilative capacity of receiving (not treatment) wetlands:

  Hydraulic Loading Rates of 2 in/wk annual average

  Detention Time > 14 days average annual

  Loading (assimilative capacity) of:

  TN < 25 $g/m^2/yr$

  TP <3.0 $g/m^2/yr$

  Discharge Limits to receiving Wetlands:

CBOD5:	5 mg/l annual average
TSS:	5 mg/l annual average
TN:	3 mg/l annual average
TP	1 mg/l annual average

- Roadway EMCs are less than or equal to the discharge requirements:

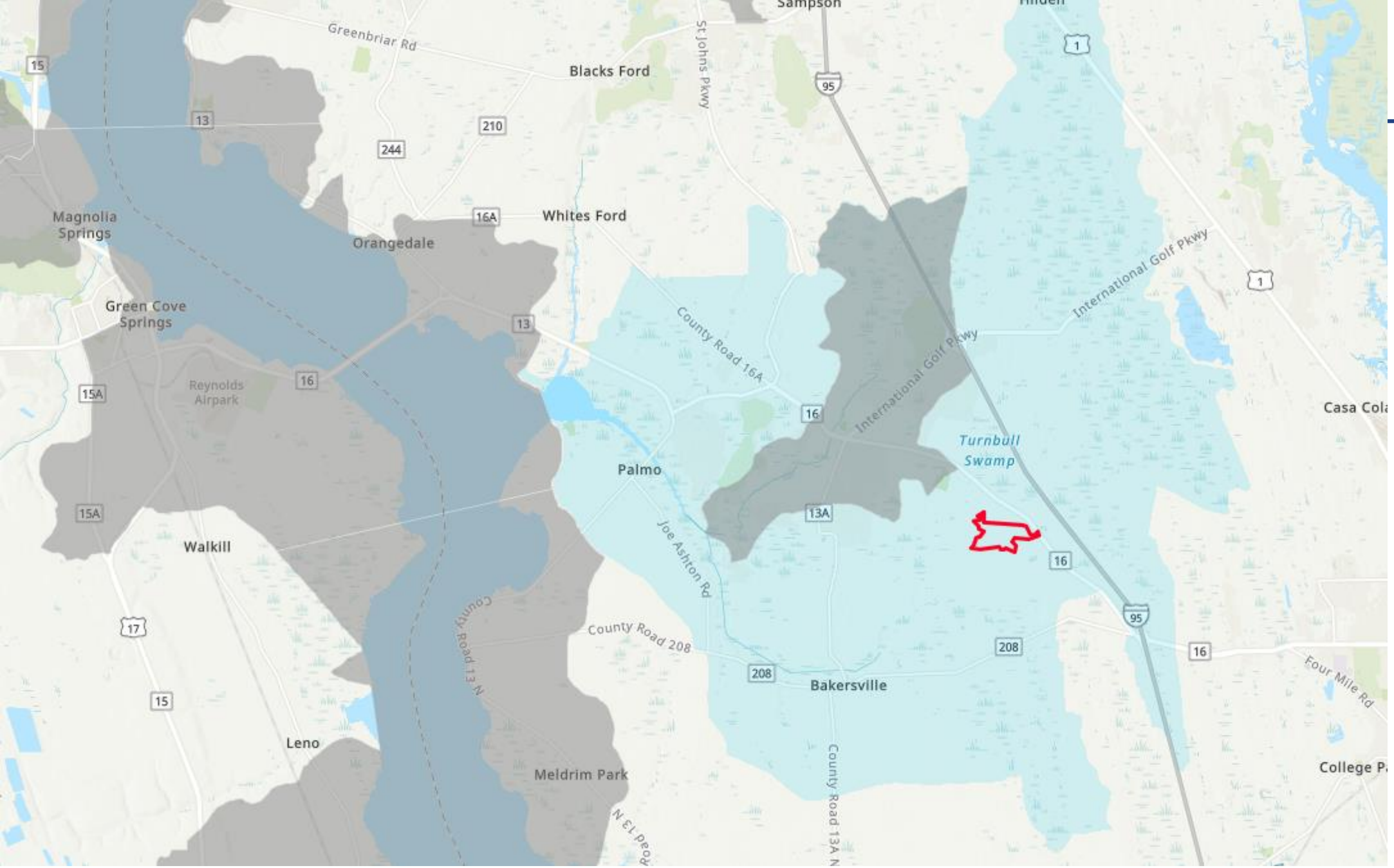
TN:	1.520 mg/l, and
TP:	0.200 mg/l

Determining Wetland Assimilative Capacity for Stormwater Using 62-611

Given:					
	Wetland Area:	211.88	acres =	857,463	m2 mean annual area
	TN Loading Capacity:	25	g/m2/yr	from 62-611.400(2)	
	TP Loading Capacity:	3	g/m2/yr	from 62-611.400(2)	
	Basin:	Area (ac):	CN:	DCIA:	
	Project 1,2	34.97	80	55.91%	
	Project 3	16.50	80	55.91%	
	Project 4,5,6	53.32	80	55.91%	
	Total Contributing:	**104.79**	**80.00**		
	Zone:	2			
	Conversion	1.231372	kg/ac-ft per mg/l		

Determining Wetland Assimilative Capacity for Stormwater Using 62-611

Find:									
	1. Annual Pollutant Load Using Harper Method:								
						Mean Annual Rainfall (in)[2]:	49.0		
	Land Use:	Area (acres)	TN EMC[2] (mg/l)	TP EMC[2] (mg/l)	Description from Harper 2007	Mean Annual Runoff Coefficient:[1]	Annual Runoff Volume (ac-ft/yr)	Annual TN Pollutant Load (kg/yr)	Annual TP Pollutant Load (kg/yr)
	Project 1,2	34.97	1.520	0.200	Highway	0.501	71.59	134.00	17.63
	Project 3	16.50	1.520	0.200	Highway	0.501	33.78	63.23	8.32
	Project 4,5,6	53.32	1.520	0.200	Highway	0.501	109.16	204.31	26.88
	Weighted EMC:	104.79	1.520	0.200	Area Weighted C:	0.501	214.53	401.54	52.83
	2. Receiving Wetland Assimilative Capacity								
	TN Assimilative Capacity = 857,463 m2 X 25 g/m2/yr =				21,436.57	= 53.39x runoff load			OK
	TP Assimilative Capacity = 857,463 m2 X 3 g/m2/yr =				2,572.39	= 48.69x runoff load			OK
	3. Mean Annual Residence Time:								
	Wetland Volume for Mean Annual Storm:			171.21	ac-ft	from ICPR model			
	Mean Annual Detention Time:			291.29	days	> 14 days			OK
	4. Mean Annual Hydraulic Loading Rate								
	Mean Annual Hydraulic Loading Rate = 214.53 ac-ft/yr / 211.88 acres / 52 wks/yr * 12 in/ft =						0.23	in/wk	OK



SR 16 from IGP to I-95

SJRWMD Pre Application Meeting

How to Transfer "SNCs" Under New Rule

• APPLICANT (SNC buyer)

1. Determine SNCs needed:
    a. E.g., lbs or kgs-TN/year
    b. Required Treatment or Net Improvement
    c. BMPTrains
2. "Appropriateness requirements"
    a. Credits within the same HUC 12 subwatershed
    b. Demonstrate that using nutrient credits will not cause localized adverse impacts to receiving waters
3. Reservation Letter to demonstrate availability
4. SNCs purchased and transferred prior to impact

• RSMS Permittee (SNC seller)

1. Permit in good standing
2. Sufficient nutrient credits in ledger
3. Issues reservation letter to buyer
4. NST files minor mod to RSMS permit
    a. Allocates SNCs to project
    b. Update to ledger
5. Perpetual O&M responsibility

Discussion