

Appendix G

Supplemental Environmental Projects (SEP)

Supplemental Environmental Projects

1. Rocky Point Pool Area

The City will remove existing concrete in the vicinity of the former saltwater pool. The area will be reestablished with grass, native vegetation, and other pervious elements to manage runoff prior to it entering the adjacent wetland system and Narragansett Bay. The work will be completed by the City of Warwick and be coordinated between the City of Warwick and the RIDEM. This work will be completed by September 2017. The estimate for this project is \$100,000.

NOTE: This was revised. The project was changed from the area around the former saltwater pool to the large asphalt parking area on the northeast portion of the property.

2. Oakland Beach – Trash Receptacles

The City will remove the existing traditional trash receptacles and replace them with automated, solar, compacting receptacles. This project will minimize the amount of windblown trash. Also, having closed receptacles will minimize the food waste available to sea gulls and other scavengers. This should hopefully reduce the population of those types of animals, thereby improving the water quality and overall aesthetic of the beach area. This project should be implemented within the calendar year. The estimate for this project is \$70,000 for a 5-year agreement.

This was approved by City Council in October 2016 with a bid value of \$77,568. \$7,568 more than the originally estimated value.

3. Buckeye Brook – Waterway Study

The City will take the lead in hiring a consultant to conduct a study for the purpose of obtaining a permit to remove phragmites and sediment from Buckeye Brook in the areas south of Warwick Pond. This project will require coordination with the City of Warwick, the RIDEM, RIAC, the Buckeye Brook Coalition, the Friends of Warwick Ponds, and a consultant to assist with the fieldwork, sampling, and historical documentation. This project should be completed within one-year of this agreement. The estimated cost of this project is approximately \$40,000. (Note: RIDEM needs to provide information pertaining to the requirements of the permit application)

The City went beyond the original scope of work. After the original report was completed the City moved forward with permitting and design. Subsequently, The City was able to go out to bid for construction. Unfortunately, the bids came in higher than the available funding. The City continues to work with our consultant and RIDEM on ways to implement the design recommendations. To date the City has spent over \$120,000 on this SEP, three times the original estimate.

4. Edgewater Drive – Roadway Abandonment

The City will restrict vehicular access to a section of this roadway. Save The Bay has recently conducted assessments of low lying, vulnerable infrastructure in Narragansett Bay's coastal communities including the shoreline of Greenwich Bay. Through this assessment process, Save The Bay identified Edgewater Drive and Midgely Avenue as being subject to coastal flooding during either daily high tides or moon tides. The regular flooding of these roads presents a threat to public safety, a maintenance challenge for the City of Warwick and an impact to the salt marsh habitat that borders Apponaug Cove and Mary's Creek. The City will work with Save the Bay on the proper restoration techniques once vehicular access is limited. The project should be completed with the calendar year. The estimated cost of this project is approximately \$8,000.

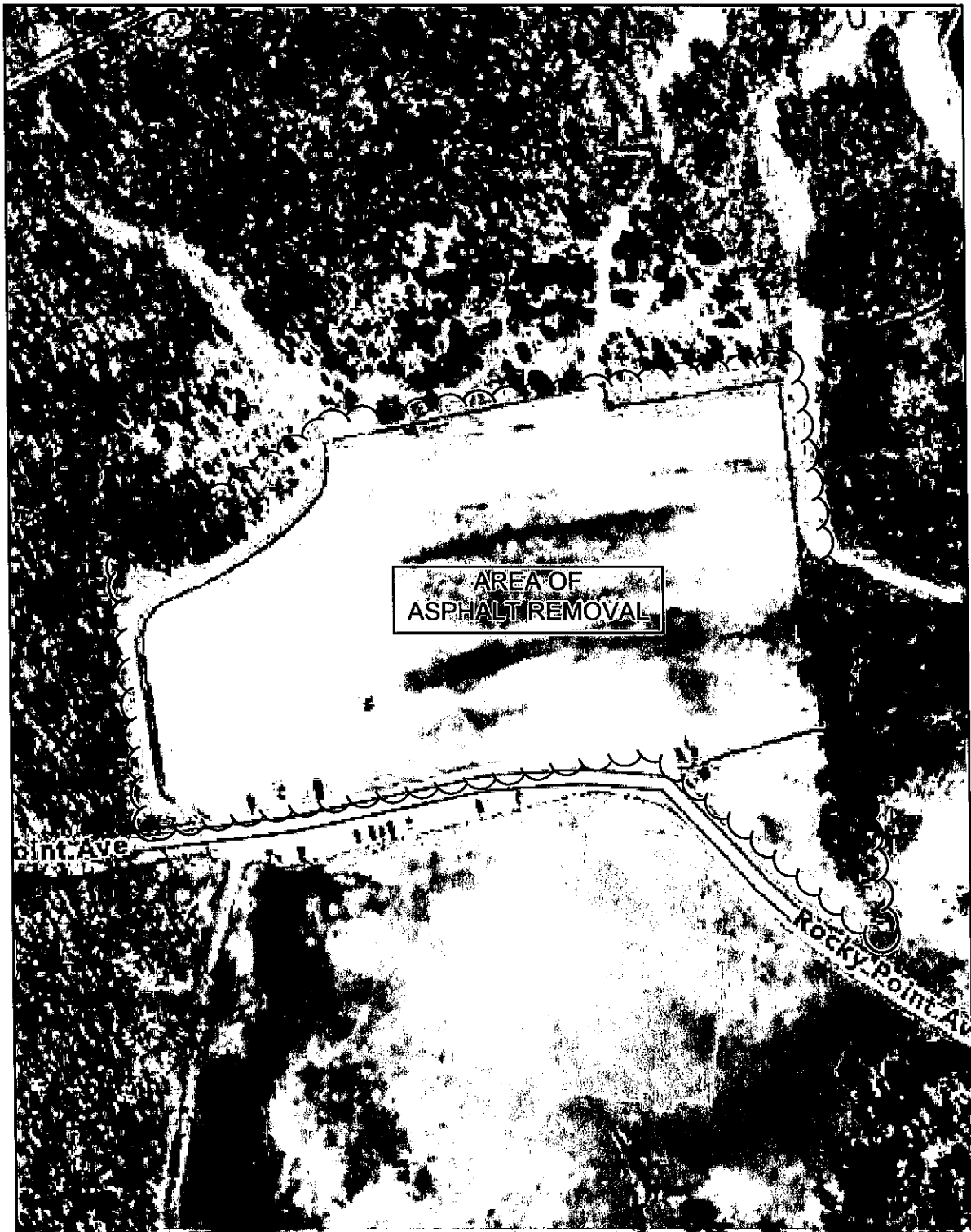
5. Midgely Avenue – Roadway Abandonment

The City will restrict vehicular access to a section of this roadway. Save The Bay has recently conducted assessments of low lying, vulnerable infrastructure in Narragansett Bay's coastal communities including the shoreline of Greenwich Bay. Through this assessment process, Save the Bay identified Edgewater Drive and Midgely Avenue as being subject to coastal flooding during either daily high tides or moon tides. The regular flooding of these roads presents a threat to public safety, a maintenance challenge for the City of Warwick and an impact to the salt marsh habitat that borders Apponaug Cove and Mary's Creek. The City will work with Save the Bay on the proper restoration techniques once vehicular access is limited. The project should be completed with the calendar year. The estimated cost of this project is approximately \$8,000.

6. Lippitt School – Demonstration Project

The City will install a rain garden to infiltrate roof runoff and install educational signs. The rain garden will be installed where surface grades and groundwater elevation allow. This project must be coordinated with Warwick School Department. The estimate for this project is approximately \$5,000.

Supplemental Environmental Project 1
Rocky Point Pool Area



DEPT. OF PUBLIC WORKS

925 SANDY LANE - WARWICK

Phone: (401) 738-2003

PREPARED FOR:

RI DEM

**SUPPLEMENTAL
ENVIRONMENTAL
PROJECT**

Rocky Pt. Parking - SEP #1
WARWICK, RHODE ISLAND

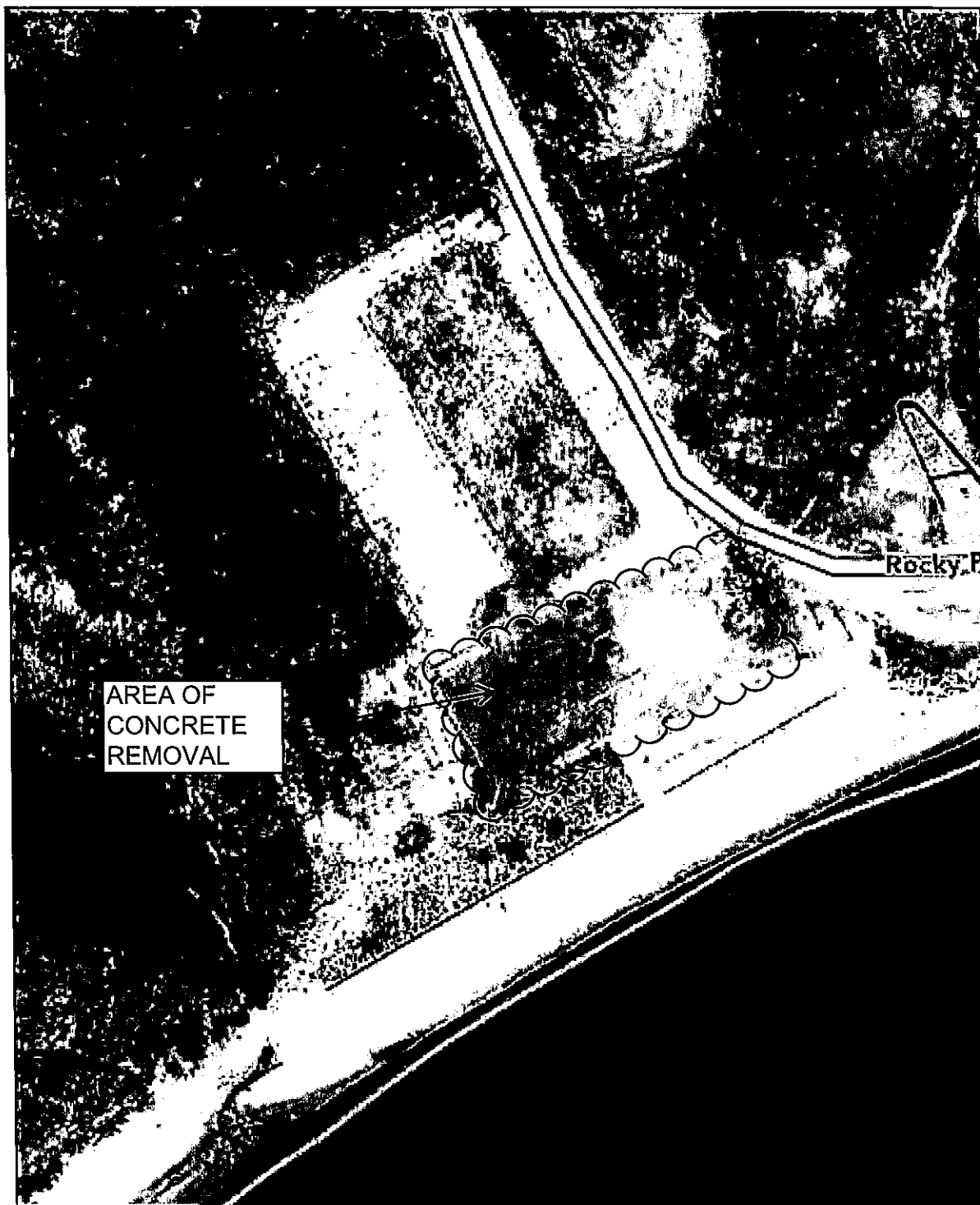
DATE: 2021

DRAWN BY: EJE

SCALE:

JOB #:

DWG #:



DEPT. OF PUBLIC WORKS

925 SANDY LANE - WARWICK

Phone: (401) 738-2003

PREPARED FOR:

RI DEM

**SUPPLEMENTAL
ENVIRONMENTAL
PROJECT**

Rocky Pt. Parking - SEP #1
WARWICK, RHODE ISLAND

DATE: 2021

DRAWN BY: EJE

SCALE:

JOB #:

DWG #:

Supplemental Environmental Project 2
BigBelly Trash Receptacles

CITY OF WARWICK

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

RESOLUTION OF THE CITY COUNCIL

NO: R-16-111

APPROVED:  MAYORDATE: 10/19/16

RESOLVED, That The City Council of the City of Warwick as required by the provisions of Sections 6-11 and 6-12 of the City Charter and the Ordinance relative to competitive bidding on purchase enacted there under hereby and herewith approves the acceptance of the following bid(s):

Bid #	Name	Vendor(s) Name/Address	Contract Award	Contract Period	Note	Code
		<i>Airwick Professional Products of RI, Inc. 133 Ocean Rd. Narragansett, RI 02882</i>				
2013 - 215	State of RI Janitorial Supplies	<i>Banner Systems of MA, Inc. 135 Elliot St. Brockton, MA 02302 Casey Engineered Maint., Inc. Eight Panas Rd. Foxboro, MA 02035 Eastern Bag & Paper Co. 200 Research Dr. Milford, CT 06460</i>	<i>Fire Only \$4,000.00</i>	10/1/16 - 12/31/16	1	6 - 12

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PCR-134-16 - Sub A

Bid #	Name	Vendor(s) Name/Address	Contract Award	Contract Period	Note	Code
2015 - 246	Fire Department Dress Uniforms, Badges, Insignias & Name Plates	Mark Melanson d/b/a Stillman Uniforms 33 High St. <u>Westerly, RI 02891</u> Ga-Rel Mfg. Co. 564 Manton Ave. Providence, RI 02909	\$2,000.00		4	6 - 12
2015 - 248	Consulting Services for Stormwater Mapping	Beta Group, Inc. Six Blackstone Valley Pl. Lincoln, RI 02865	\$50,000.00		5	6 - 12
2016 - 341	Automated Solar Compacting Trash Receptacles	Big Belly Solar, Inc. 150 A St., Ste. 103 Needham, MA 02494	\$77,568.00	5 years from date of award		
2017 - 111	Purchase & Repair Dive Equipment	Giant Stride Dive Shop 1935 Warwick Ave. <u>Warwick, RI 02889</u> React Supply Service 1330 Azalea Garden Rd. Norfolk, VA 23502	\$14,000.00	2 years from date of award	6	
2017 - 122	Gutter & Tube-Type Brooms	United Rotary Brush Corp. 15604 W. 100 th Terr. Lenexa, KS 66219	\$10,000.00	1 year from date of award		
2017 - 124	Police Breast/Hat Badges & Insignias	Lawmen's & Shooters' Supply, Inc. 7750 9th St. SW Vero Beach, FL 32968	\$4,000.00	10/25/16 - 10/24/17		

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Supplemental Environmental Project 3
Buckeye Brook – Waterway Study



EA Engineering, Science, and Technology, Inc., PBC

301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
Telephone: 401-736-3440
www.eaest.com

7 November 2017

TECHNICAL MEMORANDUM

TO: Eric Earls, PE, City of Warwick **LOCATION:** Warwick, Rhode Island
FROM: Amy Hunt, PE, Project Manager **LOCATION:** EA Engineering, Science,
and Technology, Inc., PBC
SUBJECT: HEC-RAS Model for Buckeye Brook
Warwick, Rhode Island
EA Project No. 63172.01

1. INTRODUCTION

This memorandum has been prepared by EA Engineering, Science, and Technology, Inc., PBC (EA) on behalf of the City of Warwick to summarize the model inputs and outputs that have been developed for Buckeye Brook between Warwick Pond and the Warwick Avenue crossing. An existing conditions model was setup to approximate the current conditions of the brook, and two proposed conditions models were built to simulate proposed modifications to the brook.

Background

Buckeye Brook originates at Spring Green Pond in Warwick, Rhode Island, flows through Warwick Pond, and outlets at the Narragansett Bay via Apponaug Cove and Mill Cove Beach. The proposed project extends approximately 7,200 linear feet (ft), from Warwick Pond to Warwick Avenue, where the Brook flows under the roadway via a concrete box culvert. Channel widths vary, with the greatest width at the outlet of Warwick Pond and the least widths in places constricted by *Phragmites australis*. Judging from a comparison of 1997 aerial photography to 2016 aerial photography, channel widths have decreased. The significant expansion of stands of *Phragmites australis* was also noted in the August 2014 aerial photographs. Between 1997 and 2013, the horizontal location of Buckeye Brook did not appear to vary noticeably; however, historic aerial photographs, dating back to 1939, do make it apparent that sometime in the past a substantial meandering bend was cut off by a chute channel at the upstream end of the Brook.

Substantial development has occurred since this 1939 photographic benchmark, most notably the expansion of T.F. Green Airport and the increased density of residential structures. Both these intensifications in land use have likely increased stormwater runoff to Buckeye Brook, suggesting that an improvement in flow capacity might be necessary to prevent upstream flooding.

Geometric Data

EA collected cross section data from thirteen locations along Buckeye Brook, including five cross sections near the outlet of Warwick Pond (Figure 1 – attached). Other cross sections were collected in areas that were accessible, and provided representative cross sections of certain

reaches of the brook. Conditions immediately upstream and downstream of the Warwick Avenue culvert were also collected. Field staff observed the brook in the field between these locations, and determined that the thirteen cross could be collected. Additional data such as water depth, sediment depth, sediment composition, and prevalent vegetation was also collected at intervals across the width of the brook at each cross section location. Relevant data was input into the Hydraulic Engineering Center-River Analysis System (HEC-RAS) modeling software. Supplementary cross sections were interpolated between the measured cross sections to allow the program to calculate the water surface elevation and other parameters at additional locations along the brook. Manning's n values are input for each cross section on the right bank, left bank, and channel area. Manning's n values were selected to represent the existing surface features at the brook under current conditions. The Manning's n values used for the Buckeye Brook model include:

- 0.03 for compacted soil areas, no vegetation or rocks
- 0.048 for winding areas with ineffective slopes, pools, and weeds
- 0.08 for banks where large trees or brush obstructed flow
- 0.12 for thick mats of *Phragmites australis*.

Some areas, such as thick *Phragmites australis* vegetation, are obstructed sufficiently enough to create ineffective flow areas. These banks will store water, but the flow only occurs in a narrow area near the center of the channel where *Phragmites australis* is not present. Ineffective flow areas were entered in those cross sections. Figure 2 provides an example of the ineffective flow area at Cross Section G-G' from the existing conditions model.

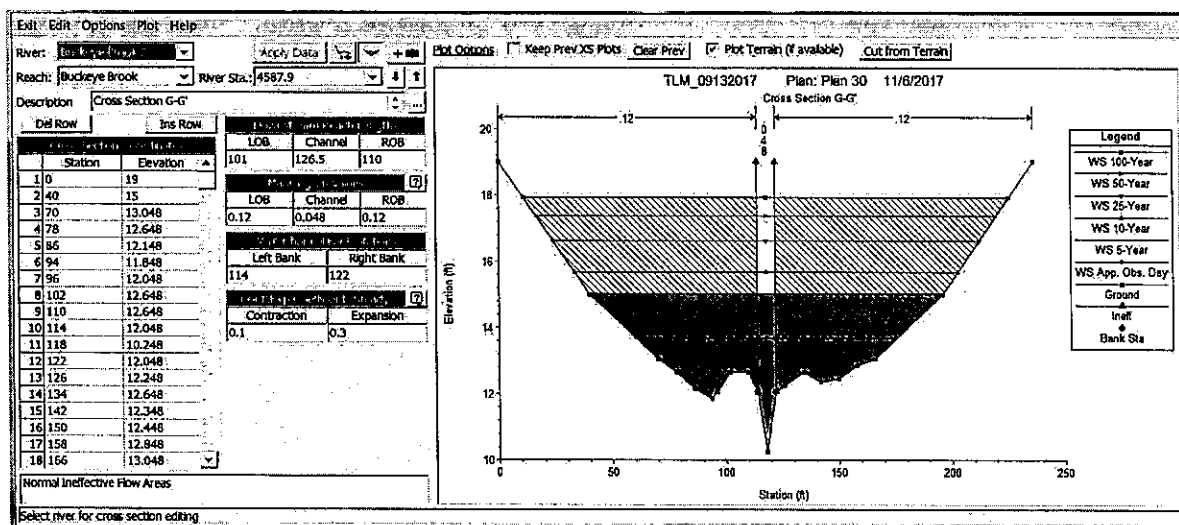


Figure 2 Cross Section G-G' Input Data and Diagram



The flow inputs used in the model were developed from available information from the United States Geographic Survey StreamStats program (2017). Four locations spaced throughout the length of Buckeye Brook were selected within StreamStats, and the output flow values for the 100-Year, 50-Year, 25-Year, 10-Year, and 5-Year flow were used. In addition, the water surface elevation from the field event was used to approximate the flows observed on that day to represent an observed average-high flow. This is represented by the approximate observed day flow (App. Obs. Day). Figure 3 depicts the flow data used in the model and the input location along the brook.

Flow Change Location			Profile Names and Flow Rates					
River	Reach	RS	5-Year	10-Year	25-Year	50-Year	100-Year	App. Obs. Day
1 Buckeye Brook 2	Buckeye Brook	6930.45	50	64.2	88.5	109	132	23.16
2 Buckeye Brook 2	Buckeye Brook	5253.65	60.7	78	107	131	150	29.88
3 Buckeye Brook 2	Buckeye Brook	2256.38	73.6	94.9	131	160	193	34.08
4 Buckeye Brook 2	Buckeye Brook	64.28	82.7	107	147	181	218	36.48

Figure 3 Flow Input Data

Proposed Conditions

Two scenarios were considered for the proposed condition based on feedback from stakeholders.

Scenario 1

The first scenario includes the elimination of *Phragmites australis* from within the brook and banks, approximately 470 feet upstream and 450 feet downstream of Cross Section G-G' (Conceptual *Phragmites australis* Removal, attached). This was accomplished within the model by removing the ineffective flow area and revising the Manning's n values to 0.048 (as opposed to 0.12). It has been conservatively assumed that mechanical removal of *Phragmites australis* will result in a 2-foot reduction in channel bottom elevation due to the mean depth of plant rhizomes and roots (i.e. root mat). The total volume of material removed (plant material and sediment within the root mat) is approximately 4,900 CY. Figure 4 depicts Cross Section G-G' under scenario 1 with *Phragmites australis* removal. Results from this alternative are discussed below.

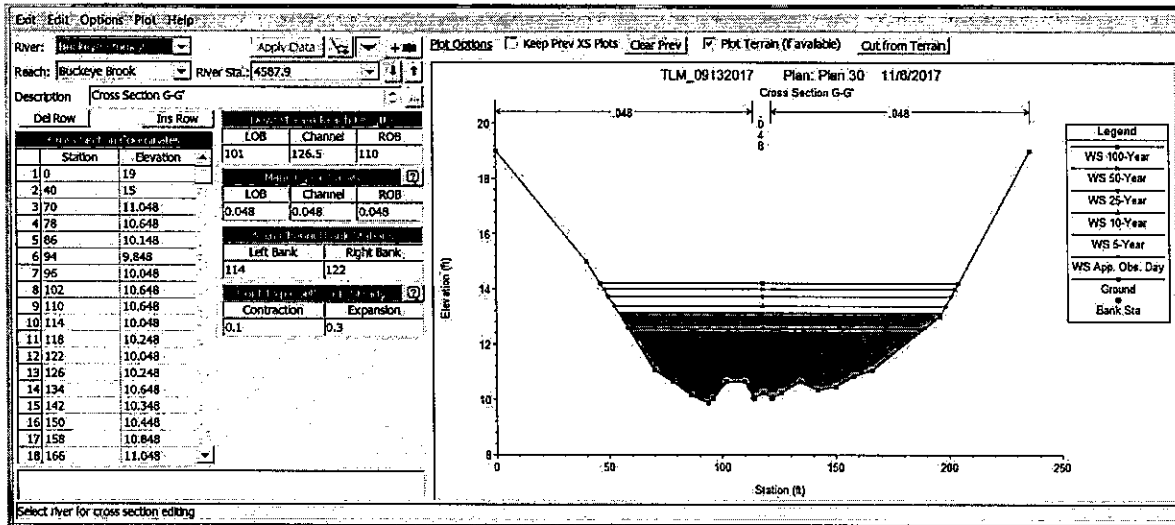


Figure 4 *Phragmites australis* Removal Scenario Cross Section G-G'

Scenario 2

The second scenario considered removal of the *Phragmites australis*, inclusive of the removal of the associated root mat identical to scenario 1, and additional excavation of sediment within the channel. The total volume of material removed (root mat, sediment within the root mat and sediment from the center of the channel) is 5,270 CY. The new elevation of the channel would be equivalent to the elevation of the adjacent banks where *Phragmites australis* has been removed to allow flow through the system in a greater volume than under previous conditions. Figure 5 depicts Cross Section G-G' under scenario 2, with *Phragmites australis* removal and channel modification.

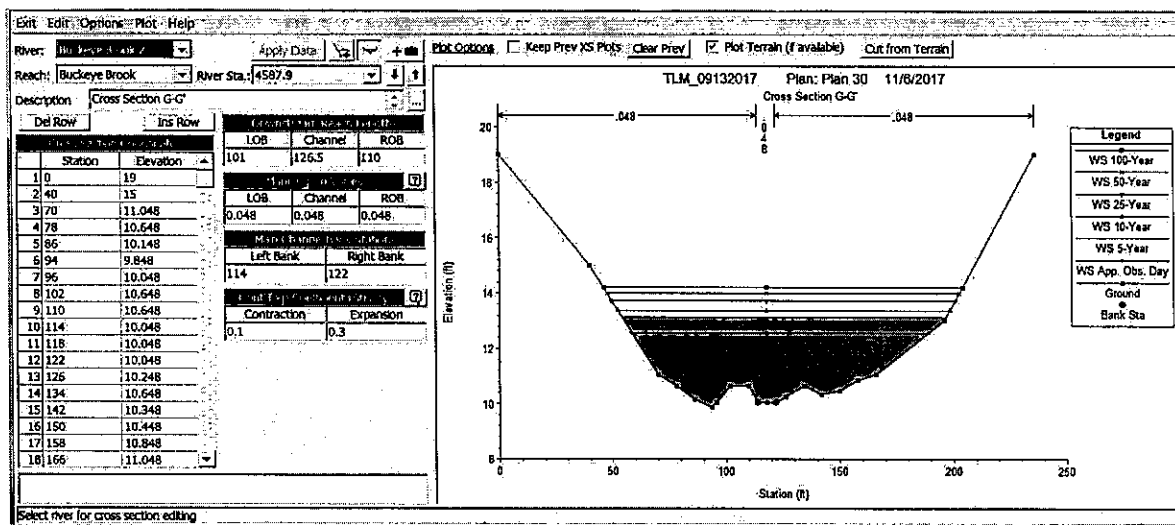


Figure 5 *Phragmites australis* Removal and Channel Modification Scenario Cross Section G-G'



Results

Under both scenarios, the water surface elevation is reduced at the Warwick Pond outlet. The model indicates that the scenario 2 channel modification does not significantly reduce water levels beyond the scenario 1 removal of *Phragmites australis*. Table 1 presents the data from Cross Section A-A' (located at the Warwick Pond outlet).

Table 1 Results for Cross Section A-A'

Flow Event	Existing Conditions (Water Surface El.)	Phragmites australis Removal (Water Surface El.)	Phragmites australis Removal/ Channel Modification (Water Surface El.)
Approximate Observed Day	13.81	12.73	12.73
5-Year	15.21	13.40	13.40
10-Year	15.86	13.69	13.69
25-Year	16.85	14.12	14.11
50-Year	17.61	14.43	14.42
100-Year	18.17	14.69	14.69

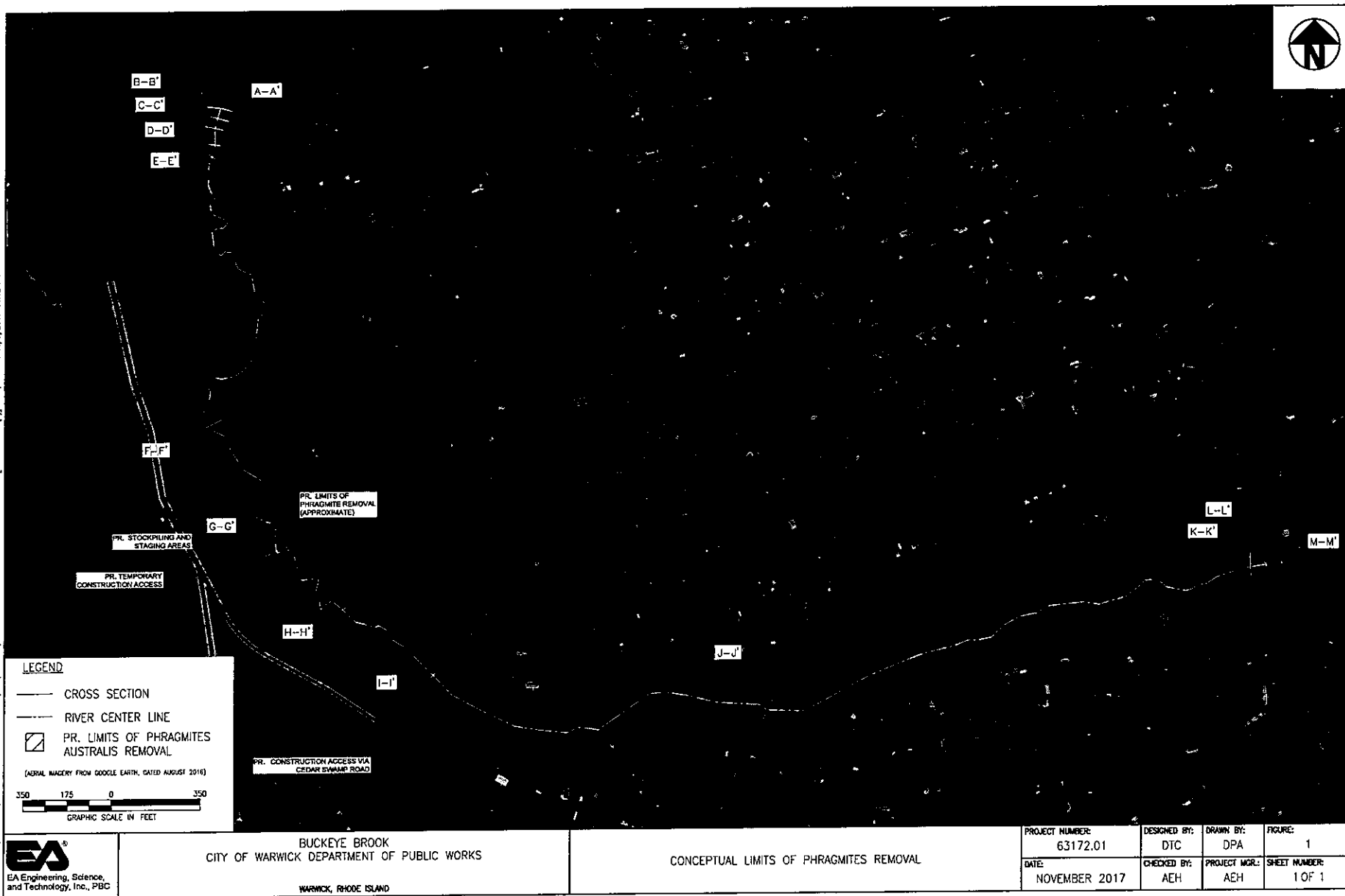
Profiles of the brook under all three model runs are included as Attachment A. The full data table of outputs are included as Attachment B.

If you have any questions or require additional information, please do not hesitate to contact me at 401-287-0365.

AH/tlm
Attachments

Figure 1

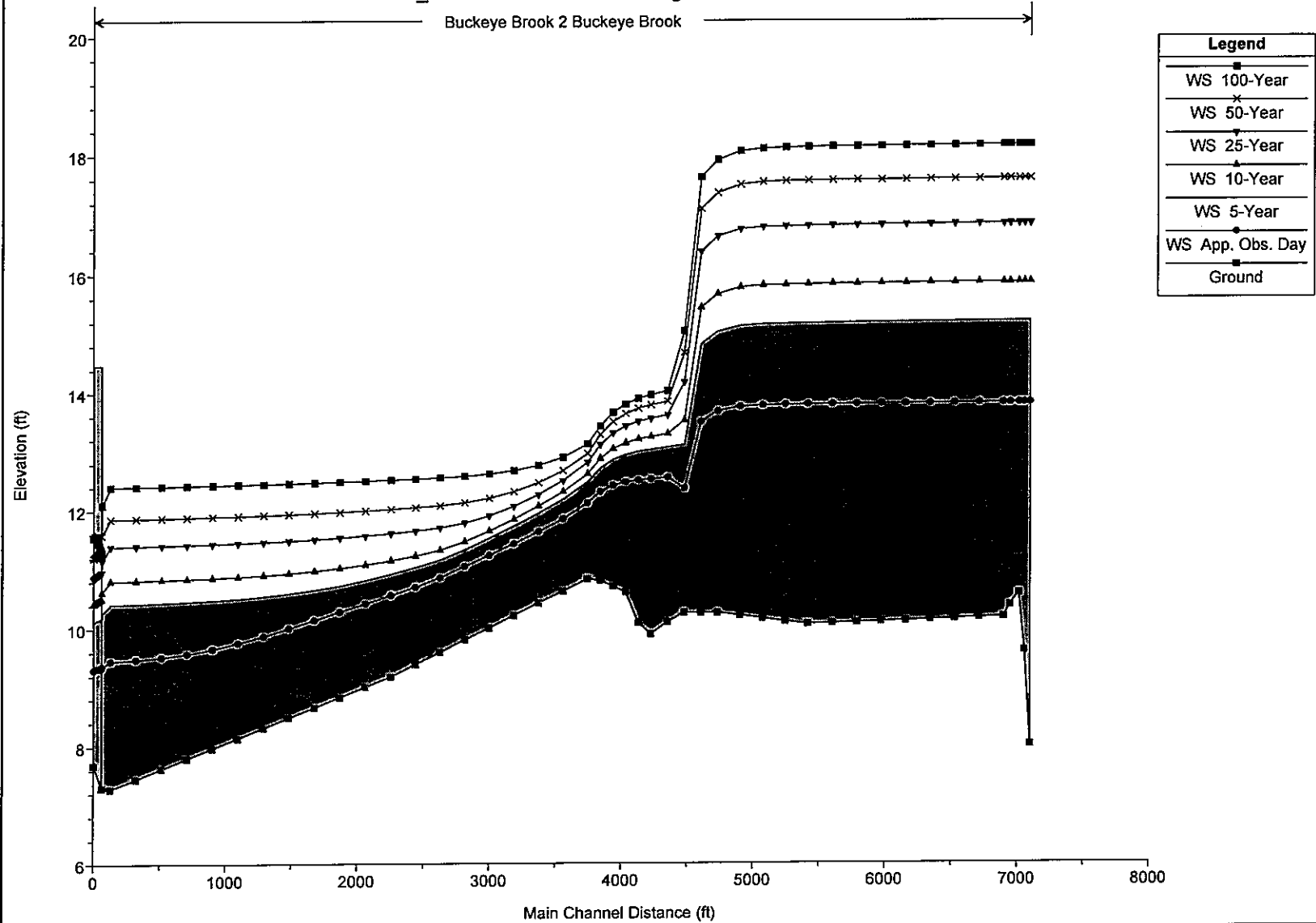
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Attachment A
Exhibits

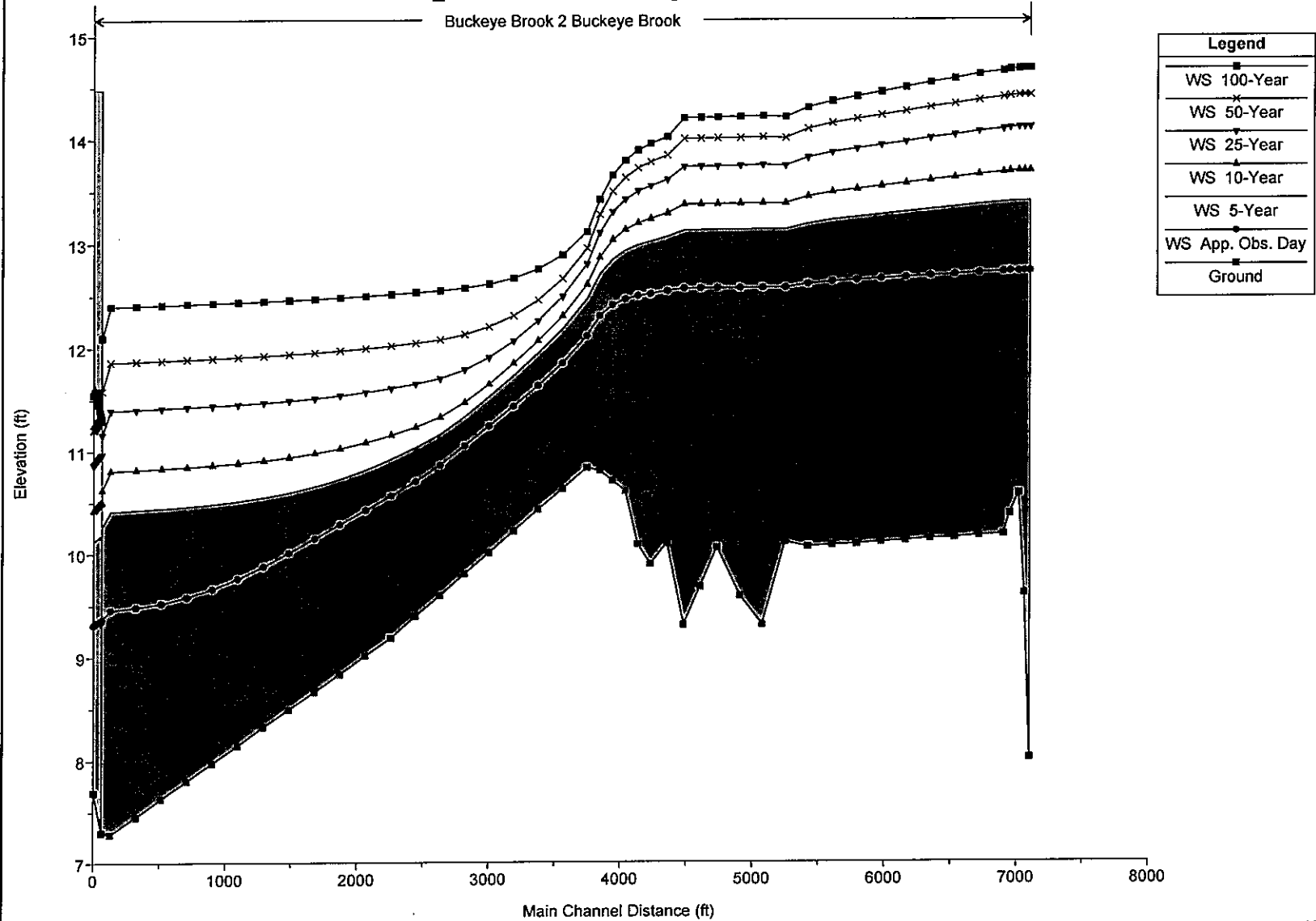
TLM_09132017 Plan: Existing Conditions AMT 11/6/2017

Buckeye Brook 2 Buckeye Brook



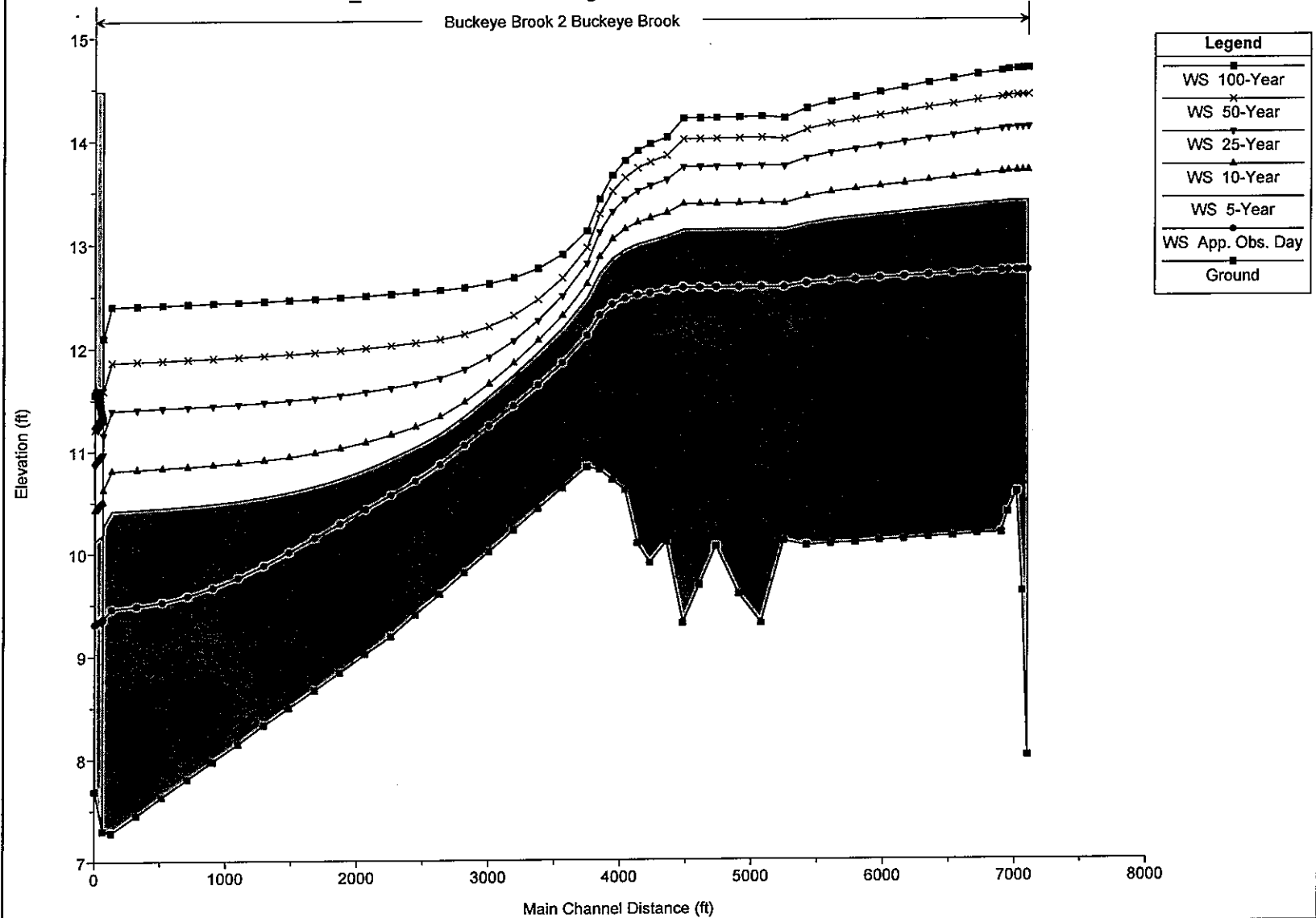
TLM_09132017 Plan: Phrag Removal AMT 11/6/2017

Buckeye Brook 2 Buckeye Brook



TLM_09132017 Plan: Phrag Removal and Channel Mod AMT 11/6/2017

Buckeye Brook 2 Buckeye Brook



Attachment B
Output Data Tables

Buckeye Brook Output Tables

XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
A-A'	6930.45	5-Year	50	8.01	15.21	50	8.01	13.4	-1.81	50	8.01	13.4	-1.81
	6930.45	10-Year	64.2	8.01	15.86	64.2	8.01	13.69	-2.17	64.2	8.01	13.69	-2.17
	6930.45	25-Year	88.5	8.01	16.85	88.5	8.01	14.12	-2.73	88.5	8.01	14.11	-2.74
	6930.45	50-Year	109	8.01	17.61	109	8.01	14.43	-3.18	109	8.01	14.42	-3.19
	6930.45	100-Year	132	8.01	18.17	132	8.01	14.69	-3.48	132	8.01	14.69	-3.48
	6930.45	App. Obs. Day	23.16	8.01	13.81	23.16	8.01	12.73	-1.08	23.16	8.01	12.73	-1.08
B-B'	6883.36	5-Year	50	9.6	15.2	50	9.6	13.4	-1.8	50	9.6	13.4	-1.8
	6883.36	10-Year	64.2	9.6	15.86	64.2	9.6	13.69	-2.17	64.2	9.6	13.69	-2.17
	6883.36	25-Year	88.5	9.6	16.85	88.5	9.6	14.11	-2.74	88.5	9.6	14.11	-2.74
	6883.36	50-Year	109	9.6	17.61	109	9.6	14.43	-3.18	109	9.6	14.42	-3.19
	6883.36	100-Year	132	9.6	18.17	132	9.6	14.69	-3.48	132	9.6	14.68	-3.49
	6883.36	App. Obs. Day	23.16	9.6	13.81	23.16	9.6	12.73	-1.08	23.16	9.6	12.73	-1.08
C-C'	6844.89	5-Year	50	10.57	15.2	50	10.57	13.4	-1.8	50	10.57	13.4	-1.8
	6844.89	10-Year	64.2	10.57	15.86	64.2	10.57	13.69	-2.17	64.2	10.57	13.69	-2.17
	6844.89	25-Year	88.5	10.57	16.85	88.5	10.57	14.11	-2.74	88.5	10.57	14.11	-2.74
	6844.89	50-Year	109	10.57	17.61	109	10.57	14.42	-3.19	109	10.57	14.42	-3.19
	6844.89	100-Year	132	10.57	18.17	132	10.57	14.68	-3.49	132	10.57	14.68	-3.49
	6844.89	App. Obs. Day	23.16	10.57	13.81	23.16	10.57	12.73	-1.08	23.16	10.57	12.73	-1.08
D-D'	6776.36	5-Year	50	10.37	15.2	50	10.37	13.4	-1.8	50	10.37	13.39	-1.81
	6776.36	10-Year	64.2	10.37	15.86	64.2	10.37	13.69	-2.17	64.2	10.37	13.68	-2.18
	6776.36	25-Year	88.5	10.37	16.85	88.5	10.37	14.11	-2.74	88.5	10.37	14.1	-2.75
	6776.36	50-Year	109	10.37	17.61	109	10.37	14.42	-3.19	109	10.37	14.41	-3.2
	6776.36	100-Year	132	10.37	18.17	132	10.37	14.68	-3.49	132	10.37	14.67	-3.5
	6776.36	App. Obs. Day	23.16	10.37	13.81	23.16	10.37	12.73	-1.08	23.16	10.37	12.73	-1.08
E-E'	6719.31	5-Year	50	10.17	15.2	50	10.17	13.39	-1.81	50	10.17	13.39	-1.81
	6719.31	10-Year	64.2	10.17	15.86	64.2	10.17	13.68	-2.18	64.2	10.17	13.67	-2.19
	6719.31	25-Year	88.5	10.17	16.85	88.5	10.17	14.1	-2.75	88.5	10.17	14.09	-2.76
	6719.31	50-Year	109	10.17	17.6	109	10.17	14.4	-3.2	109	10.17	14.4	-3.2
	6719.31	100-Year	132	10.17	18.17	132	10.17	14.66	-3.51	132	10.17	14.66	-3.51
	6719.31	App. Obs. Day	23.16	10.17	13.81	23.16	10.17	12.72	-1.09	23.16	10.17	12.72	-1.09
F-F'	6536.10*	5-Year	50	10.16	15.2	50	10.16	13.37	-1.83	50	10.16	13.37	-1.83
	6536.10*	10-Year	64.2	10.16	15.86	64.2	10.16	13.65	-2.21	64.2	10.16	13.65	-2.21
	6536.10*	25-Year	88.5	10.16	16.85	88.5	10.16	14.07	-2.78	88.5	10.16	14.07	-2.78
	6536.10*	50-Year	109	10.16	17.6	109	10.16	14.38	-3.22	109	10.16	14.37	-3.23
	6536.10*	100-Year	132	10.16	18.16	132	10.16	14.63	-3.53	132	10.16	14.63	-3.53
	6536.10*	App. Obs. Day	23.16	10.16	13.81	23.16	10.16	12.71	-1.1	23.16	10.16	12.71	-1.1

Buckeye Brook Output Tables

XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
G-G'	6352.90*	5-Year	50	10.14	15.2	50	10.14	13.34	-1.86	50	10.14	13.34	-1.86
	6352.90*	10-Year	64.2	10.14	15.85	64.2	10.14	13.63	-2.22	64.2	10.14	13.62	-2.23
	6352.90*	25-Year	88.5	10.14	16.84	88.5	10.14	14.04	-2.8	88.5	10.14	14.03	-2.81
	6352.90*	50-Year	109	10.14	17.6	109	10.14	14.34	-3.26	109	10.14	14.34	-3.26
	6352.90*	100-Year	132	10.14	18.16	132	10.14	14.59	-3.57	132	10.14	14.58	-3.58
	6352.90*	App. Obs. Day	23.16	10.14	13.8	23.16	10.14	12.7	-1.1	23.16	10.14	12.7	-1.1
H-H'	6169.69*	5-Year	50	10.13	15.19	50	10.13	13.32	-1.87	50	10.13	13.32	-1.87
	6169.69*	10-Year	64.2	10.13	15.85	64.2	10.13	13.6	-2.25	64.2	10.13	13.6	-2.25
	6169.69*	25-Year	88.5	10.13	16.84	88.5	10.13	14.01	-2.83	88.5	10.13	14	-2.84
	6169.69*	50-Year	109	10.13	17.59	109	10.13	14.31	-3.28	109	10.13	14.3	-3.29
	6169.69*	100-Year	132	10.13	18.16	132	10.13	14.55	-3.61	132	10.13	14.54	-3.62
	6169.69*	App. Obs. Day	23.16	10.13	13.8	23.16	10.13	12.68	-1.12	23.16	10.13	12.68	-1.12
I-I'	5986.48*	5-Year	50	10.11	15.19	50	10.11	13.3	-1.89	50	10.11	13.29	-1.9
	5986.48*	10-Year	64.2	10.11	15.84	64.2	10.11	13.57	-2.27	64.2	10.11	13.57	-2.27
	5986.48*	25-Year	88.5	10.11	16.84	88.5	10.11	13.97	-2.87	88.5	10.11	13.97	-2.87
	5986.48*	50-Year	109	10.11	17.59	109	10.11	14.27	-3.32	109	10.11	14.26	-3.33
	5986.48*	100-Year	132	10.11	18.15	132	10.11	14.5	-3.65	132	10.11	14.5	-3.65
	5986.48*	App. Obs. Day	23.16	10.11	13.8	23.16	10.11	12.67	-1.13	23.16	10.11	12.67	-1.13
	5803.27*	5-Year	50	10.1	15.19	50	10.1	13.27	-1.92	50	10.1	13.27	-1.92
	5803.27*	10-Year	64.2	10.1	15.84	64.2	10.1	13.54	-2.3	64.2	10.1	13.54	-2.3
	5803.27*	25-Year	88.5	10.1	16.83	88.5	10.1	13.94	-2.89	88.5	10.1	13.93	-2.9
	5803.27*	50-Year	109	10.1	17.58	109	10.1	14.23	-3.35	109	10.1	14.22	-3.36
	5803.27*	100-Year	132	10.1	18.15	132	10.1	14.45	-3.7	132	10.1	14.45	-3.7
	5803.27*	App. Obs. Day	23.16	10.1	13.8	23.16	10.1	12.66	-1.14	23.16	10.1	12.65	-1.15
	5620.07*	5-Year	50	10.08	15.18	50	10.08	13.25	-1.93	50	10.08	13.25	-1.93
	5620.07*	10-Year	64.2	10.08	15.84	64.2	10.08	13.51	-2.33	64.2	10.08	13.51	-2.33
	5620.07*	25-Year	88.5	10.08	16.83	88.5	10.08	13.9	-2.93	88.5	10.08	13.9	-2.93
	5620.07*	50-Year	109	10.08	17.58	109	10.08	14.19	-3.39	109	10.08	14.19	-3.39
	5620.07*	100-Year	132	10.08	18.14	132	10.08	14.41	-3.73	132	10.08	14.41	-3.73
	5620.07*	App. Obs. Day	23.16	10.08	13.79	23.16	10.08	12.64	-1.15	23.16	10.08	12.64	-1.15
	5436.86*	5-Year	50	10.07	15.18	50	10.07	13.22	-1.96	50	10.07	13.22	-1.96
	5436.86*	10-Year	64.2	10.07	15.83	64.2	10.07	13.49	-2.34	64.2	10.07	13.48	-2.35
	5436.86*	25-Year	88.5	10.07	16.83	88.5	10.07	13.87	-2.96	88.5	10.07	13.87	-2.96
	5436.86*	50-Year	109	10.07	17.58	109	10.07	14.15	-3.43	109	10.07	14.15	-3.43
	5436.86*	100-Year	132	10.07	18.14	132	10.07	14.36	-3.78	132	10.07	14.36	-3.78
	5436.86*	App. Obs. Day	23.16	10.07	13.79	23.16	10.07	12.63	-1.16	23.16	10.07	12.63	-1.16

Buckeye Brook Output Tables													
XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
F-F'	5253.65	5-Year	60.7	10.06	15.17	60.7	10.06	13.19	-1.98	60.7	10.06	13.19	-1.98
	5253.65	10-Year	78	10.06	15.83	78	10.06	13.44	-2.39	78	10.06	13.44	-2.39
	5253.65	25-Year	107	10.06	16.82	107	10.06	13.82	-3	107	10.06	13.82	-3
	5253.65	50-Year	131	10.06	17.57	131	10.06	14.09	-3.48	131	10.06	14.09	-3.48
	5253.65	100-Year	150	10.06	18.13	150	10.06	14.3	-3.83	150	10.06	14.3	-3.83
	5253.65	App. Obs. Day	29.88	10.06	13.79	29.88	10.06	12.61	-1.18	29.88	10.06	12.61	-1.18
	5087.21*	5-Year	60.7	10.1	15.17	60.7	10.1	13.13	-2.04	60.7	10.1	13.13	-2.04
	5087.21*	10-Year	78	10.1	15.82	78	10.1	13.38	-2.44	78	10.1	13.38	-2.44
	5087.21*	25-Year	107	10.1	16.81	107	10.1	13.74	-3.07	107	10.1	13.74	-3.07
	5087.21*	50-Year	131	10.1	17.56	131	10.1	14.01	-3.55	131	10.1	14	-3.56
	5087.21*	100-Year	150	10.1	18.12	150	10.1	14.21	-3.91	150	10.1	14.21	-3.91
	5087.21*	App. Obs. Day	29.88	10.1	13.78	29.88	10.1	12.57	-1.21	29.88	10.1	12.57	-1.21
	4920.78*	5-Year	60.7	10.15	15.15	60.7	9.3	13.14	-2.01	60.7	9.3	13.13	-2.02
	4920.78*	10-Year	78	10.15	15.81	78	9.3	13.38	-2.43	78	9.3	13.38	-2.43
	4920.78*	25-Year	107	10.15	16.8	107	9.3	13.75	-3.05	107	9.3	13.75	-3.05
	4920.78*	50-Year	131	10.15	17.55	131	9.3	14.02	-3.53	131	9.3	14.01	-3.54
	4920.78*	100-Year	150	10.15	18.11	150	9.3	14.22	-3.89	150	9.3	14.22	-3.89
	4920.78*	App. Obs. Day	29.88	10.15	13.77	29.88	9.3	12.57	-1.2	29.88	9.3	12.57	-1.2
	4754.34*	5-Year	60.7	10.2	15.12	60.7	9.58	13.13	-1.99	60.7	9.58	13.13	-1.99
	4754.34*	10-Year	78	10.2	15.77	78	9.58	13.38	-2.39	78	9.58	13.38	-2.39
	4754.34*	25-Year	107	10.2	16.76	107	9.58	13.74	-3.02	107	9.58	13.74	-3.02
	4754.34*	50-Year	131	10.2	17.51	131	9.58	14.01	-3.5	131	9.58	14.01	-3.5
	4754.34*	100-Year	150	10.2	18.06	150	9.58	14.21	-3.85	150	9.58	14.21	-3.85
	4754.34*	App. Obs. Day	29.88	10.2	13.75	29.88	9.58	12.57	-1.18	29.88	9.58	12.57	-1.18
G-G'	4587.9	5-Year	60.7	10.25	15.02	60.7	10.05	13.13	-1.89	60.7	10.05	13.13	-1.89
	4587.9	10-Year	78	10.25	15.66	78	10.05	13.38	-2.28	78	10.05	13.37	-2.29
	4587.9	25-Year	107	10.25	16.63	107	10.05	13.74	-2.89	107	10.05	13.74	-2.89
	4587.9	50-Year	131	10.25	17.37	131	10.05	14	-3.37	131	10.05	14	-3.37
	4587.9	100-Year	150	10.25	17.92	150	10.05	14.21	-3.71	150	10.05	14.21	-3.71
	4587.9	App. Obs. Day	29.88	10.25	13.67	29.88	10.05	12.57	-1.1	29.88	10.05	12.57	-1.1
	4493.95*	5-Year	60.7	10.25	14.81	60.7	9.67	13.13	-1.68	60.7	9.67	13.13	-1.68
	4493.95*	10-Year	78	10.25	15.44	78	9.67	13.37	-2.07	78	9.67	13.37	-2.07
	4493.95*	25-Year	107	10.25	16.38	107	9.67	13.73	-2.65	107	9.67	13.73	-2.65
	4493.95*	50-Year	131	10.25	17.1	131	9.67	14	-3.1	131	9.67	14	-3.1
	4493.95*	100-Year	150	10.25	17.63	150	9.67	14.21	-3.42	150	9.67	14.21	-3.42
	4493.95*	App. Obs. Day	29.88	10.25	13.49	29.88	9.67	12.57	-0.92	29.88	9.67	12.57	-0.92

XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
G1-G1'	4400	5-Year	60.7	10.25	13.1	60.7	9.3	13.12	0.02	60.7	9.3	13.12	0.02
	4400	10-Year	78	10.25	13.52	78	9.3	13.37	-0.15	78	9.3	13.37	-0.15
	4400	25-Year	107	10.25	14.17	107	9.3	13.73	-0.44	107	9.3	13.73	-0.44
	4400	50-Year	131	10.25	14.67	131	9.3	14	-0.67	131	9.3	14	-0.67
	4400	100-Year	150	10.25	15.04	150	9.3	14.2	-0.84	150	9.3	14.2	-0.84
	4400	App. Obs. Day	29.88	10.25	12.36	29.88	9.3	12.57	0.21	29.88	9.3	12.57	0.21
	4307.95*	5-Year	60.7	10.09	13.06	60.7	10.09	13.06	0	60.7	10.09	13.06	0
	4307.95*	10-Year	78	10.09	13.29	78	10.09	13.29	0	78	10.09	13.29	0
	4307.95*	25-Year	107	10.09	13.61	107	10.09	13.61	0	107	10.09	13.61	0
	4307.95*	50-Year	131	10.09	13.84	131	10.09	13.84	0	131	10.09	13.84	0
	4307.95*	100-Year	150	10.09	14.02	150	10.09	14.02	0	150	10.09	14.02	0
	4307.95*	App. Obs. Day	29.88	10.09	12.54	29.88	10.09	12.54	0	29.88	10.09	12.54	0
H-H'	4215.9	5-Year	60.7	9.89	13.02	60.7	9.89	13.02	0	60.7	9.89	13.02	0
	4215.9	10-Year	78	9.89	13.24	78	9.89	13.24	0	78	9.89	13.24	0
	4215.9	25-Year	107	9.89	13.55	107	9.89	13.55	0	107	9.89	13.55	0
	4215.9	50-Year	131	9.89	13.78	131	9.89	13.78	0	131	9.89	13.78	0
	4215.9	100-Year	150	9.89	13.95	150	9.89	13.95	0	150	9.89	13.95	0
	4215.9	App. Obs. Day	29.88	9.89	12.52	29.88	9.89	12.52	0	29.88	9.89	12.52	0
	4122.83*	5-Year	60.7	10.08	12.99	60.7	10.08	12.99	0	60.7	10.08	12.99	0
	4122.83*	10-Year	78	10.08	13.2	78	10.08	13.2	0	78	10.08	13.2	0
	4122.83*	25-Year	107	10.08	13.5	107	10.08	13.5	0	107	10.08	13.5	0
	4122.83*	50-Year	131	10.08	13.72	131	10.08	13.72	0	131	10.08	13.72	0
	4122.83*	100-Year	150	10.08	13.89	150	10.08	13.89	0	150	10.08	13.89	0
	4122.83*	App. Obs. Day	29.88	10.08	12.5	29.88	10.08	12.5	0	29.88	10.08	12.5	0
	4029.76*	5-Year	60.7	10.6	12.93	60.7	10.6	12.93	0	60.7	10.6	12.93	0
	4029.76*	10-Year	78	10.6	13.13	78	10.6	13.13	0	78	10.6	13.13	0
	4029.76*	25-Year	107	10.6	13.42	107	10.6	13.42	0	107	10.6	13.42	0
	4029.76*	50-Year	131	10.6	13.63	131	10.6	13.63	0	131	10.6	13.63	0
	4029.76*	100-Year	150	10.6	13.79	150	10.6	13.79	0	150	10.6	13.79	0
	4029.76*	App. Obs. Day	29.88	10.6	12.46	29.88	10.6	12.46	0	29.88	10.6	12.46	0
	3936.69*	5-Year	60.7	10.7	12.85	60.7	10.7	12.85	0	60.7	10.7	12.85	0
	3936.69*	10-Year	78	10.7	13.03	78	10.7	13.03	0	78	10.7	13.03	0
	3936.69*</												

XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
G1-G1'	4400	5-Year	60.7	10.25	13.1	60.7	9.3	13.12	0.02	60.7	9.3	13.12	0.02
	4400	10-Year	78	10.25	13.52	78	9.3	13.37	-0.15	78	9.3	13.37	-0.15
	4400	25-Year	107	10.25	14.17	107	9.3	13.73	-0.44	107	9.3	13.73	-0.44
	4400	50-Year	131	10.25	14.67	131	9.3	14	-0.67	131	9.3	14	-0.67
	4400	100-Year	150	10.25	15.04	150	9.3	14.2	-0.84	150	9.3	14.2	-0.84
	4400	App. Obs. Day	29.88	10.25	12.36	29.88	9.3	12.57	0.21	29.88	9.3	12.57	0.21
	4307.95*	5-Year	60.7	10.09	13.06	60.7	10.09	13.06	0	60.7	10.09	13.06	0
	4307.95*	10-Year	78	10.09	13.29	78	10.09	13.29	0	78	10.09	13.29	0
	4307.95*	25-Year	107	10.09	13.61	107	10.09	13.61	0	107	10.09	13.61	0
	4307.95*	50-Year	131	10.09	13.84	131	10.09	13.84	0	131	10.09	13.84	0
	4307.95*	100-Year	150	10.09	14.02	150	10.09	14.02	0	150	10.09	14.02	0
	4307.95*	App. Obs. Day	29.88	10.09	12.54	29.88	10.09	12.54	0	29.88	10.09	12.54	0
H-H'	4215.9	5-Year	60.7	9.89	13.02	60.7	9.89	13.02	0	60.7	9.89	13.02	0
	4215.9	10-Year	78	9.89	13.24	78	9.89	13.24	0	78	9.89	13.24	0
	4215.9	25-Year	107	9.89	13.55	107	9.89	13.55	0	107	9.89	13.55	0
	4215.9	50-Year	131	9.89	13.78	131	9.89	13.78	0	131	9.89	13.78	0
	4215.9	100-Year	150	9.89	13.95	150	9.89	13.95	0	150	9.89	13.95	0
	4215.9	App. Obs. Day	29.88	9.89	12.52	29.88	9.89	12.52	0	29.88	9.89	12.52	0
	4122.83*	5-Year	60.7	10.08	12.99	60.7	10.08	12.99	0	60.7	10.08	12.99	0
	4122.83*	10-Year	78	10.08	13.2	78	10.08	13.2	0	78	10.08	13.2	0
	4122.83*	25-Year	107	10.08	13.5	107	10.08	13.5	0	107	10.08	13.5	0
	4122.83*	50-Year	131	10.08	13.72	131	10.08	13.72	0	131	10.08	13.72	0
	4122.83*	100-Year	150	10.08	13.89	150	10.08	13.89	0	150	10.08	13.89	0
	4122.83*	App. Obs. Day	29.88	10.08	12.5	29.88	10.08	12.5	0	29.88	10.08	12.5	0
	4029.76*	5-Year	60.7	10.6	12.93	60.7	10.6	12.93	0	60.7	10.6	12.93	0
	4029.76*	10-Year	78	10.6	13.13	78	10.6	13.13	0	78	10.6	13.13	0
	4029.76*	25-Year	107	10.6	13.42	107	10.6	13.42	0	107	10.6	13.42	0
	4029.76*	50-Year	131	10.6	13.63	131	10.6	13.63	0	131	10.6	13.63	0
	4029.76*	100-Year	150	10.6	13.79	150	10.6	13.79	0	150	10.6	13.79	0
	4029.76*	App. Obs. Day	29.88	10.6	12.46	29.88	10.6	12.46	0	29.88	10.6	12.46	0
	3936.69*	5-Year	60.7	10.7	12.85	60.7	10.7	12.85	0	60.7	10.7	12.85	0
	3936.69*	10-Year	78	10.7	13.03	78	10.7	13.03	0	78	10.7	13.03	0
	3936.69*	25-Year	107	10.7	13.3	107	10.7	13.3	0	107	10.7	13.3	0
	3936.69*	50-Year	131	10.7	13.5	131	10.7	13.5	0	131	10.7	13.5	0
	3936.69*	100-Year	150	10.7	13.65	150	10.7	13.65	0	150	10.7	13.65	0
	3936.69*	App. Obs. Day	29.88	10.7	12.41	29.88	10.7	12.41	0	29.88	10.7	12.41	0

Buckeye Brook Output Tables													
XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
I-I'	3843.62*	5-Year	60.7	10.8	12.7	60.7	10.8	12.7	0	60.7	10.8	12.7	0
	3843.62*	10-Year	78	10.8	12.87	78	10.8	12.87	0	78	10.8	12.87	0
	3843.62*	25-Year	107	10.8	13.1	107	10.8	13.1	0	107	10.8	13.1	0
	3843.62*	50-Year	131	10.8	13.28	131	10.8	13.28	0	131	10.8	13.28	0
	3843.62*	100-Year	150	10.8	13.42	150	10.8	13.42	0	150	10.8	13.42	0
	3843.62*	App. Obs. Day	29.88	10.8	12.3	29.88	10.8	12.3	0	29.88	10.8	12.3	0
	3750.55	5-Year	60.7	10.83	12.47	60.7	10.83	12.47	0	60.7	10.83	12.47	0
	3750.55	10-Year	78	10.83	12.61	78	10.83	12.61	0	78	10.83	12.61	0
	3750.55	25-Year	107	10.83	12.8	107	10.83	12.8	0	107	10.83	12.8	0
	3750.55	50-Year	131	10.83	12.95	131	10.83	12.95	0	131	10.83	12.95	0
	3750.55	100-Year	150	10.83	13.11	150	10.83	13.11	0	150	10.83	13.11	0
	3750.55	App. Obs. Day	29.88	10.83	12.11	29.88	10.83	12.11	0	29.88	10.83	12.11	0
	3563.78*	5-Year	60.7	10.62	12.18	60.7	10.62	12.18	0	60.7	10.62	12.18	0
	3563.78*	10-Year	78	10.62	12.3	78	10.62	12.3	0	78	10.62	12.3	0
	3563.78*	25-Year	107	10.62	12.49	107	10.62	12.49	0	107	10.62	12.49	0
	3563.78*	50-Year	131	10.62	12.66	131	10.62	12.66	0	131	10.62	12.66	0
	3563.78*	100-Year	150	10.62	12.89	150	10.62	12.89	0	150	10.62	12.89	0
	3563.78*	App. Obs. Day	29.88	10.62	11.85	29.88	10.62	11.85	0	29.88	10.62	11.85	0
	3377.01*	5-Year	60.7	10.42	11.94	60.7	10.42	11.94	0	60.7	10.42	11.94	0
	3377.01*	10-Year	78	10.42	12.06	78	10.42	12.06	0	78	10.42	12.06	0
	3377.01*	25-Year	107	10.42	12.26	107	10.42	12.26	0	107	10.42	12.26	0
	3377.01*	50-Year	131	10.42	12.46	131	10.42	12.46	0	131	10.42	12.46	0
	3377.01*	100-Year	150	10.42	12.76	150	10.42	12.76	0	150	10.42	12.76	0
	3377.01*	App. Obs. Day	29.88	10.42	11.63	29.88	10.42	11.63	0	29.88	10.42	11.63	0
	3190.24*	5-Year	60.7	10.21	11.73	60.7	10.21	11.73	0	60.7	10.21	11.73	0
	3190.24*	10-Year	78	10.21	11.84	78	10.21	11.84	0	78	10.21	11.84	0
	3190.24*	25-Year	107	10.21	12.06	107	10.21	12.06	0	107	10.21	12.06	0
	3190.24*	50-Year	131	10.21	12.31	131	10.21	12.31	0	131	10.21	12.31	0
	3190.24*	100-Year	150	10.21	12.67	150	10.21	12.67	0	150	10.21	12.67	0
	3190.24*	App. Obs. Day	29.88	10.21	11.43	29.88	10.21	11.43	0	29.88	10.21	11.43	0
	3003.47*	5-Year	60.7	10	11.52	60.7	10	11.52	0	60.7	10	11.52	0
	3003.47*	10-Year	78	10	11.64	78	10	11.64	0	78	10	11.64	0
	3003.47*	25-Year	107	10	11.9	107	10	11.9	0	107	10	11.9	0
	3003.47*	50-Year	131	10	12.2	131	10	12.2	0	131	10	12.2	0
	3003.47*	100-Year	150	10	12.61	150	10	12.61	0	150	10	12.61	0
	3003.47*	App. Obs. Day	29.88	10	11.24	29.88	10	11.24	0	29.88	10	11.24	0

Buckeye Brook Output Tables

XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
J-J'	2816.69*	5-Year	60.7	9.8	11.33	60.7	9.8	11.33	0	60.7	9.8	11.33	0
	2816.69*	10-Year	78	9.8	11.47	78	9.8	11.47	0	78	9.8	11.47	0
	2816.69*	25-Year	107	9.8	11.78	107	9.8	11.78	0	107	9.8	11.78	0
	2816.69*	50-Year	131	9.8	12.13	131	9.8	12.13	0	131	9.8	12.13	0
	2816.69*	100-Year	150	9.8	12.57	150	9.8	12.57	0	150	9.8	12.57	0
	2816.69*	App. Obs. Day	29.88	9.8	11.05	29.88	9.8	11.05	0	29.88	9.8	11.05	0
	2629.92*	5-Year	60.7	9.59	11.16	60.7	9.59	11.16	0	60.7	9.59	11.16	0
	2629.92*	10-Year	78	9.59	11.33	78	9.59	11.33	0	78	9.59	11.33	0
	2629.92*	25-Year	107	9.59	11.7	107	9.59	11.7	0	107	9.59	11.7	0
	2629.92*	50-Year	131	9.59	12.08	131	9.59	12.08	0	131	9.59	12.08	0
	2629.92*	100-Year	150	9.59	12.55	150	9.59	12.55	0	150	9.59	12.55	0
	2629.92*	App. Obs. Day	29.88	9.59	10.86	29.88	9.59	10.86	0	29.88	9.59	10.86	0
	2443.15*	5-Year	60.7	9.39	11.03	60.7	9.39	11.03	0	60.7	9.39	11.03	0
	2443.15*	10-Year	78	9.39	11.23	78	9.39	11.23	0	78	9.39	11.23	0
	2443.15*	25-Year	107	9.39	11.65	107	9.39	11.65	0	107	9.39	11.65	0
	2443.15*	50-Year	131	9.39	12.04	131	9.39	12.04	0	131	9.39	12.04	0
	2443.15*	100-Year	150	9.39	12.53	150	9.39	12.53	0	150	9.39	12.53	0
	2443.15*	App. Obs. Day	29.88	9.39	10.7	29.88	9.39	10.7	0	29.88	9.39	10.7	0
	2256.38	5-Year	73.6	9.18	10.92	73.6	9.18	10.92	0	73.6	9.18	10.92	0
	2256.38	10-Year	94.9	9.18	11.15	94.9	9.18	11.15	0	94.9	9.18	11.15	0
	2256.38	25-Year	131	9.18	11.61	131	9.18	11.61	0	131	9.18	11.61	0
	2256.38	50-Year	160	9.18	12.02	160	9.18	12.02	0	160	9.18	12.02	0
	2256.38	100-Year	193	9.18	12.52	193	9.18	12.52	0	193	9.18	12.52	0
	2256.38	App. Obs. Day	34.08	9.18	10.56	34.08	9.18	10.56	0	34.08	9.18	10.56	0
	2064.50*	5-Year	73.6	9.01	10.81	73.6	9.01	10.81	0	73.6	9.01	10.81	0
	2064.50*	10-Year	94.9	9.01	11.08	94.9	9.01	11.08	0	94.9	9.01	11.08	0
	2064.50*	25-Year	131	9.01	11.57	131	9.01	11.57	0	131	9.01	11.57	0
	2064.50*	50-Year	160	9.01	11.99	160	9.01	11.99	0	160	9.01	11.99	0
	2064.50*	100-Year	193	9.01	12.5	193	9.01	12.5	0	193	9.01	12.5	0
	2064.50*	App. Obs. Day	34.08	9.01	10.42	34.08	9.01	10.42	0	34.08	9.01	10.42	0
	1872.62*	5-Year	73.6	8.83	10.73	73.6	8.83	10.73	0	73.6	8.83	10.73	0
	1872.62*	10-Year	94.9	8.83	11.02	94.9	8.83	11.02	0	94.9	8.83	11.02	0
	1872.62*	25-Year	131	8.83	11.54	131	8.83	11.54	0	131	8.83	11.54	0
	1872.62*	50-Year	160	8.83	11.97	160	8.83	11.97	0	160	8.83	11.97	0
	1872.62*	100-Year	193	8.83	12.48	193	8.83	12.48	0	193	8.83	12.48	0
	1872.62*	App. Obs. Day	34.08	8.83	10.28	34.08	8.83	10.28	0	34.08	8.83	10.28	0

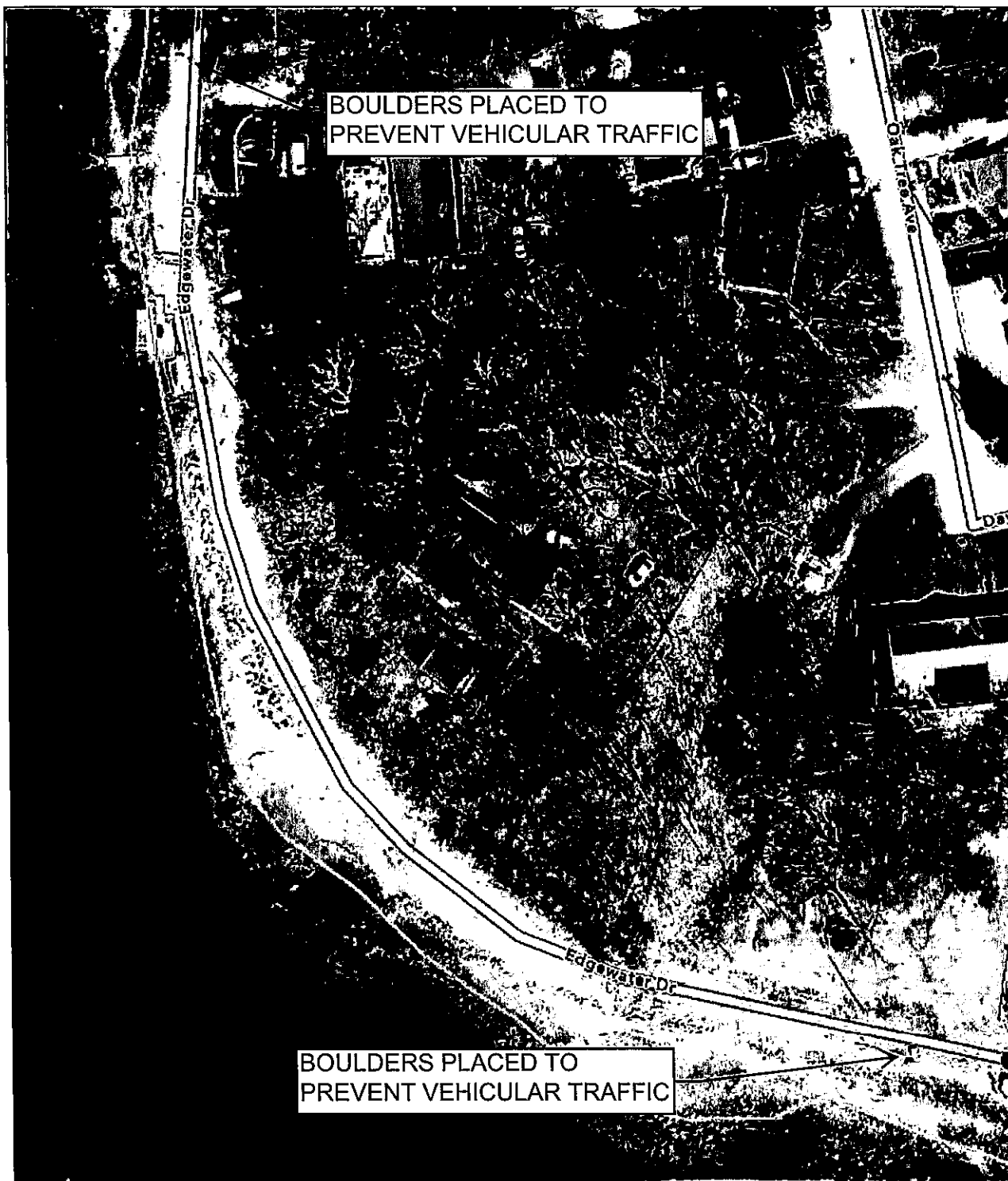
Buckeye Brook Output Tables

XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
	1680.74*	5-Year	73.6	8.66	10.65	73.6	8.66	10.65	0	73.6	8.66	10.65	0
	1680.74*	10-Year	94.9	8.66	10.98	94.9	8.66	10.98	0	94.9	8.66	10.98	0
	1680.74*	25-Year	131	8.66	11.51	131	8.66	11.51	0	131	8.66	11.51	0
	1680.74*	50-Year	160	8.66	11.95	160	8.66	11.95	0	160	8.66	11.95	0
	1680.74*	100-Year	193	8.66	12.47	193	8.66	12.47	0	193	8.66	12.47	0
	1680.74*	App. Obs. Day	34.08	8.66	10.15	34.08	8.66	10.15	0	34.08	8.66	10.15	0
	1488.86*	5-Year	73.6	8.49	10.59	73.6	8.49	10.59	0	73.6	8.49	10.59	0
	1488.86*	10-Year	94.9	8.49	10.94	94.9	8.49	10.94	0	94.9	8.49	10.94	0
	1488.86*	25-Year	131	8.49	11.49	131	8.49	11.49	0	131	8.49	11.49	0
	1488.86*	50-Year	160	8.49	11.94	160	8.49	11.94	0	160	8.49	11.94	0
	1488.86*	100-Year	193	8.49	12.46	193	8.49	12.46	0	193	8.49	12.46	0
	1488.86*	App. Obs. Day	34.08	8.49	10.01	34.08	8.49	10.01	0	34.08	8.49	10.01	0
	1296.98*	5-Year	73.6	8.32	10.55	73.6	8.32	10.55	0	73.6	8.32	10.55	0
	1296.98*	10-Year	94.9	8.32	10.91	94.9	8.32	10.91	0	94.9	8.32	10.91	0
	1296.98*	25-Year	131	8.32	11.47	131	8.32	11.47	0	131	8.32	11.47	0
	1296.98*	50-Year	160	8.32	11.92	160	8.32	11.92	0	160	8.32	11.92	0
	1296.98*	100-Year	193	8.32	12.45	193	8.32	12.45	0	193	8.32	12.45	0
	1296.98*	App. Obs. Day	34.08	8.32	9.88	34.08	8.32	9.88	0	34.08	8.32	9.88	0
	1105.10*	5-Year	73.6	8.14	10.51	73.6	8.14	10.51	0	73.6	8.14	10.51	0
	1105.10*	10-Year	94.9	8.14	10.88	94.9	8.14	10.88	0	94.9	8.14	10.88	0
	1105.10*	25-Year	131	8.14	11.45	131	8.14	11.45	0	131	8.14	11.45	0
	1105.10*	50-Year	160	8.14	11.91	160	8.14	11.91	0	160	8.14	11.91	0
	1105.10*	100-Year	193	8.14	12.44	193	8.14	12.44	0	193	8.14	12.44	0
	1105.10*	App. Obs. Day	34.08	8.14	9.76	34.08	8.14	9.76	0	34.08	8.14	9.76	0
	913.21*	5-Year	73.6	7.97	10.48	73.6	7.97	10.48	0	73.6	7.97	10.48	0
	913.21*	10-Year	94.9	7.97	10.86	94.9	7.97	10.86	0	94.9	7.97	10.86	0
	913.21*	25-Year	131	7.97	11.44	131	7.97	11.44	0	131	7.97	11.44	0
	913.21*	50-Year	160	7.97	11.9	160	7.97	11.9	0	160	7.97	11.9	0
	913.21*	100-Year	193	7.97	12.43	193	7.97	12.43	0	193	7.97	12.43	0
	913.21*	App. Obs. Day	34.08	7.97	9.66	34.08	7.97	9.66	0	34.08	7.97	9.66	0
	721.33*	5-Year	73.6	7.8	10.46	73.6	7.8	10.46	0	73.6	7.8	10.46	0
	721.33*	10-Year	94.9	7.8	10.84	94.9	7.8	10.84	0	94.9	7.8	10.84	0
	721.33*	25-Year	131	7.8	11.43	131	7.8	11.43	0	131	7.8	11.43	0
	721.33*	50-Year	160	7.8	11.89	160	7.8	11.89	0	160	7.8	11.89	0
	721.33*	100-Year	193	7.8	12.42	193	7.8	12.42	0	193	7.8	12.42	0
	721.33*	App. Obs. Day	34.08	7.8	9.58	34.08	7.8	9.58	0	34.08	7.8	9.58	0

Buckeye Brook Output Tables

XS	River Sta	Profile	Existing Conditions (G_17 F_08)			Phrag Removal (G_21 F_08)				Phrag Removal and Channel Mod.(G_22 F_08)			
			Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	WS Δ (ft)
K-K'	529.45*	5-Year	73.6	7.63	10.44	73.6	7.63	10.44	0	73.6	7.63	10.44	0
	529.45*	10-Year	94.9	7.63	10.83	94.9	7.63	10.83	0	94.9	7.63	10.83	0
	529.45*	25-Year	131	7.63	11.42	131	7.63	11.42	0	131	7.63	11.42	0
	529.45*	50-Year	160	7.63	11.88	160	7.63	11.88	0	160	7.63	11.88	0
	529.45*	100-Year	193	7.63	12.42	193	7.63	12.42	0	193	7.63	12.42	0
	529.45*	App. Obs. Day	34.08	7.63	9.52	34.08	7.63	9.52	0	34.08	7.63	9.52	0
	337.57*	5-Year	73.6	7.45	10.43	73.6	7.45	10.43	0	73.6	7.45	10.43	0
	337.57*	10-Year	94.9	7.45	10.82	94.9	7.45	10.82	0	94.9	7.45	10.82	0
	337.57*	25-Year	131	7.45	11.41	131	7.45	11.41	0	131	7.45	11.41	0
	337.57*	50-Year	160	7.45	11.87	160	7.45	11.87	0	160	7.45	11.87	0
	337.57*	100-Year	193	7.45	12.41	193	7.45	12.41	0	193	7.45	12.41	0
	337.57*	App. Obs. Day	34.08	7.45	9.48	34.08	7.45	9.48	0	34.08	7.45	9.48	0
K-K'	145.69	5-Year	73.6	7.28	10.42	73.6	7.28	10.42	0	73.6	7.28	10.42	0
	145.69	10-Year	94.9	7.28	10.81	94.9	7.28	10.81	0	94.9	7.28	10.81	0
	145.69	25-Year	131	7.28	11.4	131	7.28	11.4	0	131	7.28	11.4	0
	145.69	50-Year	160	7.28	11.86	160	7.28	11.86	0	160	7.28	11.86	0
	145.69	100-Year	193	7.28	12.4	193	7.28	12.4	0	193	7.28	12.4	0
	145.69	App. Obs. Day	34.08	7.28	9.46	34.08	7.28	9.46	0	34.08	7.28	9.46	0
L-L'	64.28	5-Year	82.7	7.3	10.26	82.7	7.3	10.26	0	82.7	7.3	10.26	0
	64.28	10-Year	107	7.3	10.62	107	7.3	10.62	0	107	7.3	10.62	0
	64.28	25-Year	147	7.3	11.16	147	7.3	11.16	0	147	7.3	11.16	0
	64.28	50-Year	181	7.3	11.59	181	7.3	11.59	0	181	7.3	11.59	0
	64.28	100-Year	218	7.3	12.1	218	7.3	12.1	0	218	7.3	12.1	0
	64.28	App. Obs. Day	36.48	7.3	9.37	36.48	7.3	9.37	0	36.48	7.3	9.37	0
M-M'	64	Culvert				Culvert				Culvert			
	0	5-Year	82.7	7.69	10.12	82.7	7.69	10.12	0	82.7	7.69	10.12	0
	0	10-Year	107	7.69	10.42	107	7.69	10.42	0	107	7.69	10.42	0
	0	25-Year	147	7.69	10.87	147	7.69	10.87	0	147	7.69	10.87	0
	0	50-Year	181	7.69	11.21	181	7.69	11.21	0	181	7.69	11.21	0
	0	100-Year	218	7.69	11.55	218	7.69	11.55	0	218	7.69	11.55	0
	0	App. Obs. Day	36.48	7.69	9.31	36.48	7.69	9.31	0	36.48	7.69	9.31	0

Supplemental Environmental Project 4
Edgewater Drive – Roadway Abandonment



DEPT. OF PUBLIC WORKS

925 SANDY LANE - WARWICK

Phone: (401) 738-2003

PREPARED FOR:

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**SUPPLEMENTAL
ENVIRONMENTAL
PROJECT**

Edgewater Drive - SEP #4
WARWICK, RHODE ISLAND

DATE: 2021

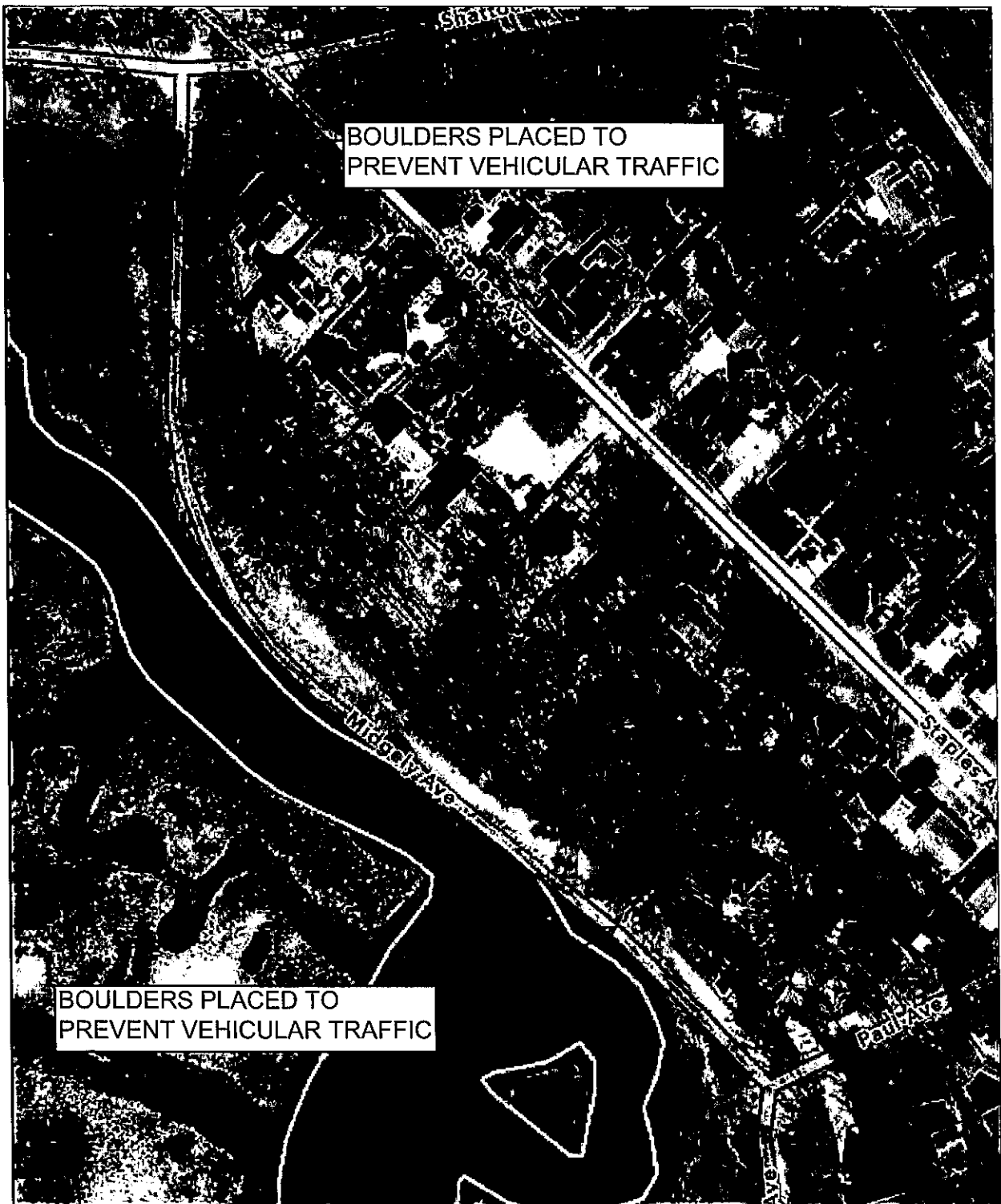
DRAWN BY: EJE

SCALE:

JOB #:

DWG #:

Supplemental Environmental Project 5
Midgely Avenue – Roadway Abandonment



DEPT. OF PUBLIC WORKS

925 SANDY LANE - WARWICK

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PREPARED FOR:

RI DEM

**SUPPLEMENTAL
ENVIRONMENTAL
PROJECT**

Midgley Avenue - SEP #5
WARWICK, RHODE ISLAND

DATE: 2021

DRAWN BY: EJE

SCALE:

JOB #:

DWG #:

Supplemental Environmental Project 6
Lippitt School – Demonstration Project