

FLOODPLAIN DEVELOPMENT PERMIT APPLICATION AND NO-ADVERSE IMPACT CERTIFICATION

THE RALEIGH ARCHITECTURE CO.

417 S WEST ST., CARY



FLOODING SOURCE: SWIFT CREEK, TRIBUTARY 7

WAKE COUNTY, NORTH CAROLINA

June 25, 2025

PREPARED FOR:



The Raleigh Architecture Company
716 S. Saunders St.
Raleigh, NC 27603
919.831.2955



PREPARED BY:



Timmons Group
5410 Trinity Rd, Unit 102
Raleigh, NC 27607
919.866.4951

Table of Contents

1.0	BACKGROUND	2
2.0	AVAILABLE DATA	2
3.0	FLOOD STUDY MODELING	2
3.1	Corrected Existing Model	2
3.2	Proposed Conditions Model.....	3
4.0	SUMMARY.....	4
5.0	REFERENCES.....	4

LIST OF TABLES

Table A - Existing Conditions and Corrected Existing Floodplain and FW WSEL Comparison	3
Table B – Corrected Existing and Proposed Conditions 100-year Floodplain and FW WSEL Comparison ...	4

1.0 BACKGROUND

The Raleigh Architecture Company is working with a resident on house improvements at 417 S West Street in the Town of Cary, NC. The proposed development includes housing and site adjustments within a non-FEMA-regulated, Town of Cary floodplain. The Town indicated the need for a no adverse impact analysis, as required by the Town of Cary Floodplain Ordinance 14.7.3¹.

A flood study was performed to document the effects of the housing modifications on the 1-percent annual chance (100-year) floodplain and floodway.

2.0 AVAILABLE DATA

The Existing Conditions – Multiple Profile Detailed Study HEC-RAS model was received from Lisa Booze of the Town of Cary on 05/01/2025. The Town of Cary model ties into the Swift Creek, Tributary 7 FEMA HEC-RAS model approximately 900 feet downstream of the Glendale Drive crossing at cross section 19586.43. The models were received with the disclaimer that use of Town of Cary data must be approved by the local community and that the information provided is draft and is subject to change based on appeals/and or comments received during review. The TCAP linework shown on the Flood Study Work Map is the visual approximation provided by the Town of Cary. The analysis utilized the model provided by the Town and OneMap LiDAR which was supplemented with design survey.

3.0 FLOOD STUDY MODELING

3.1 Corrected Existing Model

The models were run in HEC-RAS version 6.6. A Corrected Existing plan was generated by copying the Existing Conditions – Multiple Profiles plan and making updates to the geometry. Cross section geometry was revised from the existing cross sections at river stations 23922.13 and 23852.7 using November 2024 topographic survey received from Angle Right Land Surveying, PLLC and supplemented with 2014 OneMap LiDAR data. All cross sections upstream of station 23922.13 and downstream of station 23852.7 do not include proposed improvements that intersect the Town of Cary 1-percent annual chance (100-year) special flood hazard area and therefore maintained their station-elevation data from the Existing Conditions – Multiple Profiles plan.

Updates to the Corrected Existing Model for Swift Creek, Tributary 7 are outlined below:

- Updated Cross Section 23922.13 with the composite surface of OneMap LiDAR and topographic survey.
 - Contraction and Expansion coefficients were changed to be 0.1 and 0.3 respectively.
 - Downstream lengths were updated to reflect the addition of cross section at station 23906.6. Left overbank (LOB), Channel, and Right overbank (ROB) were input as 4.7, 15.52, and 13.1 respectively.
- Added cross section 23906.6 to more accurately model the development in the proposed conditions
 - Mannings “n” values were input to match Existing Conditions model with a channel n value of 0.045 and overbank values at 0.06.
 - Contraction and Expansion coefficients were changed to be 0.1 and 0.3 respectively.
 - Downstream lengths were updated to reflect the addition of cross section at station 23868.72. LOB, Channel, and ROB were input as 4.1, 37.9, and 60.25 respectively.
 - Floodway encroachments were set to establish surcharge values within the allowable range of 0.00 to 1.00.
 - An obstruction was input for the Existing house with a starting station of 274.18 and ending station of 311.44 at an elevation of 465.6.

- Added cross section 23868.72 to more accurately model the development in the proposed conditions
 - Mannings “n” values were input to match Existing Conditions model with a channel n value of 0.045 and overbank values at 0.06.
 - Contraction and Expansion coefficients were changed to be 0.3 and 0.5 respectively.
 - Downstream lengths were updated to reflect location in relation to existing downstream section at station 23852.7. LOB, Channel, and ROB were input as 6.6, 16, and 49.2 respectively.
 - Floodway encroachments were set to establish surcharge values within the allowable range of 0.00 to 1.00.
 - An obstruction was input for the Existing house with a starting station of 336.08 and ending station of 407.5 at an elevation of 465.5.
- Updated Cross Section 23852.7 with the composite surface of OneMap LiDAR and topographic survey.

The model was run, and the results were compared with the Existing Conditions – Multiple Run model as shown in Table A.

Table A - Existing Conditions and Corrected Existing Floodplain and FW WSEL Comparison

Cross Section	Existing Conditions (ft NAVD88)		Corrected Existing (ft NAVD88)		Difference (Corrected Existing – Existing Conditions) WSEL (ft)	
	100-YR	FW	100-YR	FW	100-YR	FW
24184.86	463.44	463.81	463.44	463.81	0.00	0.00
24053.17	460.55	460.76	460.55	460.76	0.00	0.00
23922.13	459.68	460.49	459.64	460.5	-0.04	0.01
23906.6			459.64	460.47		
23868.72			459.67	460.53		
23852.7	459.64	460.48	459.64	460.51	0.00	0.03
23737.62						
23625.82	455.41	456.26	455.41	456.45	0.00	0.19
23519.63	453.01	453.38	453.01	453.38	0.00	0.00
23363.91	452.00	452.83	452.00	452.83	0.00	0.00

3.2 Proposed Conditions Model

The Proposed Conditions Model was created by copying the Corrected Existing Model and making updates to the geometry that reflect the house improvements. Proposed grading resulted in updated station-elevation data at two cross section, detailed below.

Updates to the Proposed Conditions model for Town-regulated stream are outlined below:

- Cross section 23922.13:
 - An obstruction was input for the proposed house expansion with the same starting station of 252.13 as the Town-Existing geometry and ending at station of 319.8 at an elevation of 465.586 to reflect the structure expansion.
- Cross section 23906.6:
 - Geometry was updated to show small amount of fill that will be required on the Northwest corner of the house. This grading was done to reduce garage inundation.
 - An obstruction was input for the proposed house expansion with a starting station of 262.14 and ending at the same station of 311.44 at an elevation of 465.6.

The model was run, and the results were compared with the Corrected Existing model as shown in Table B.

Table B – Corrected Existing and Proposed Conditions 100-year Floodplain and FW WSEL Comparison

Cross Section	Corrected Existing (ft NAVD88)		Proposed Conditions (ft NAVD88)		Difference (Proposed Conditions – Corrected Existing) WSEL (ft)	
	100-YR	FW	100-YR	FW	100-YR	FW
24184.86	463.44	463.81	463.44	463.81	0.00	0.00
24053.17	460.55	460.76	460.55	460.76	0.00	0.00
23922.13	459.64	460.5	459.64	460.5	0.00	0.00
23906.6	459.64	460.47	459.62	460.47	-0.02	0.00
23868.72	459.67	460.53	459.67	460.53	0.00	0.00
23852.7	459.64	460.51	459.64	460.51	0.00	0.00
23737.62						
23625.82	455.41	456.45	455.41	456.45	0.00	0.00
23519.63	453.01	453.38	453.01	453.38	0.00	0.00
23363.91	452	452.83	452	452.83	0.00	0.00

4.0 SUMMARY

Town of Cary Floodplain ordinance 14.7.3B states that a residential property owner may not extend, convert, alter, or develop within the Special Flood Hazard Area (SFHA) unless authorized by a special use permit and a no adverse impact certification. When compared to the Corrected Existing model the proposed conditions model does not result in an increase, or significant decrease in the 100-year floodplain, both with and without the floodway which satisfies the requirements of No-Adverse Impact. A floodplain development permit and no No-Adverse Impact certification will be submitted to satisfy the Town of Cary permitting requirements for a floodplain development permit.

5.0 REFERENCES

ⁱ Development Restrictions and Related Standards In and Near Flood Hazard Areas and Future Conditions Flood Hazard Areas, 14.7.3. (2025). Town of Cary Floodplain Ordinance, Chapter 14, Section 7, Note 3. https://codelibrary.amlegal.com/codes/cary/latest/cary_nc/0-0-0-75926

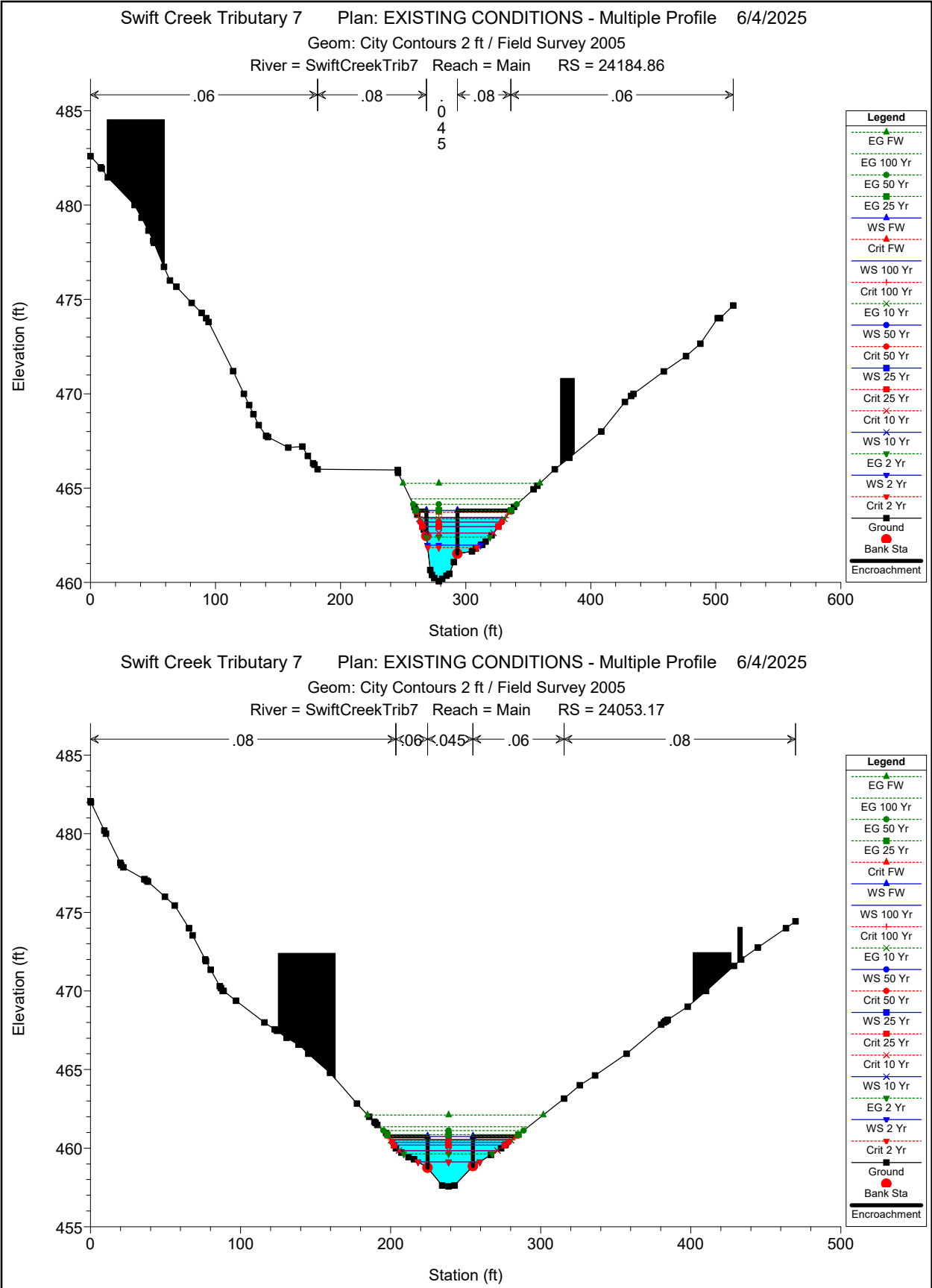
Appendix A

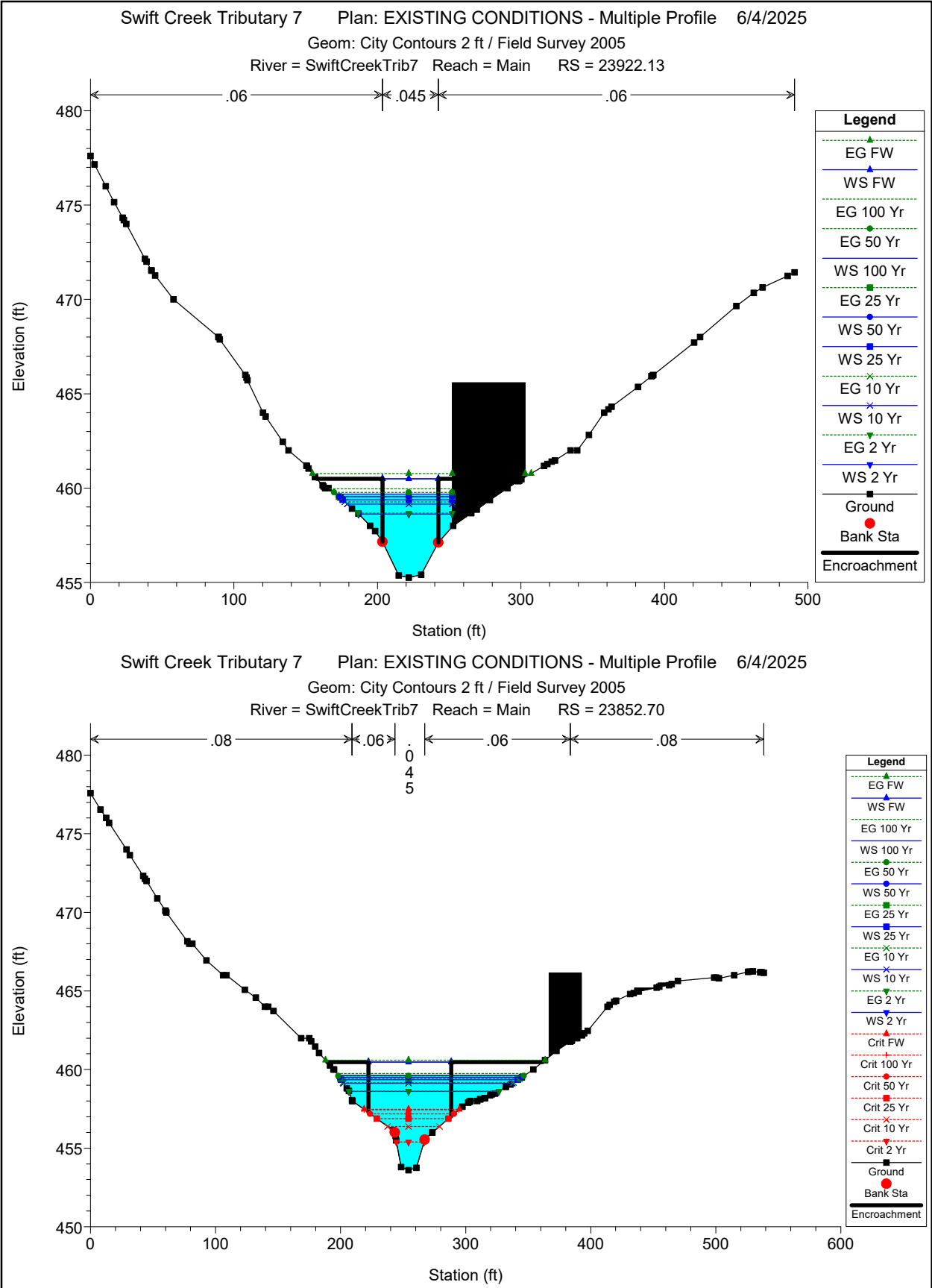
Flood Study Workmap

Appendix B

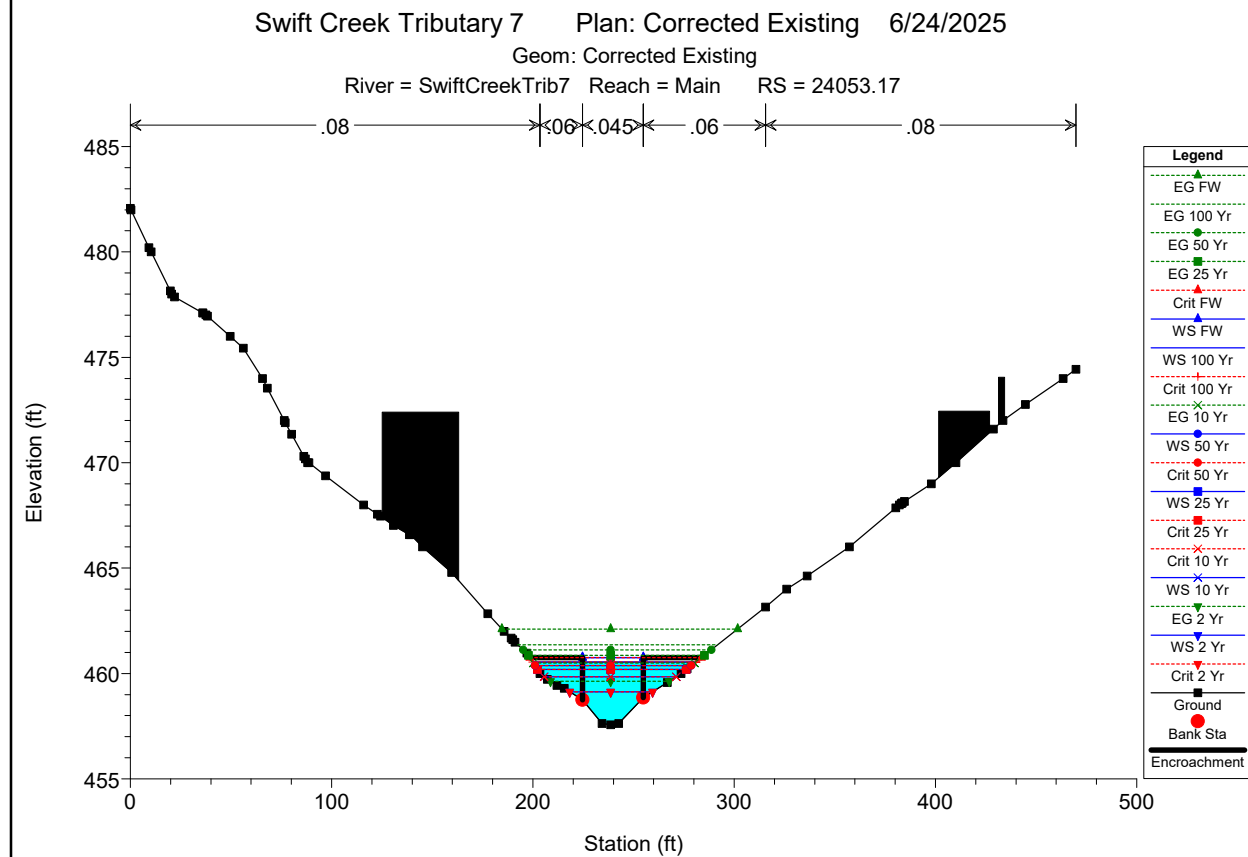
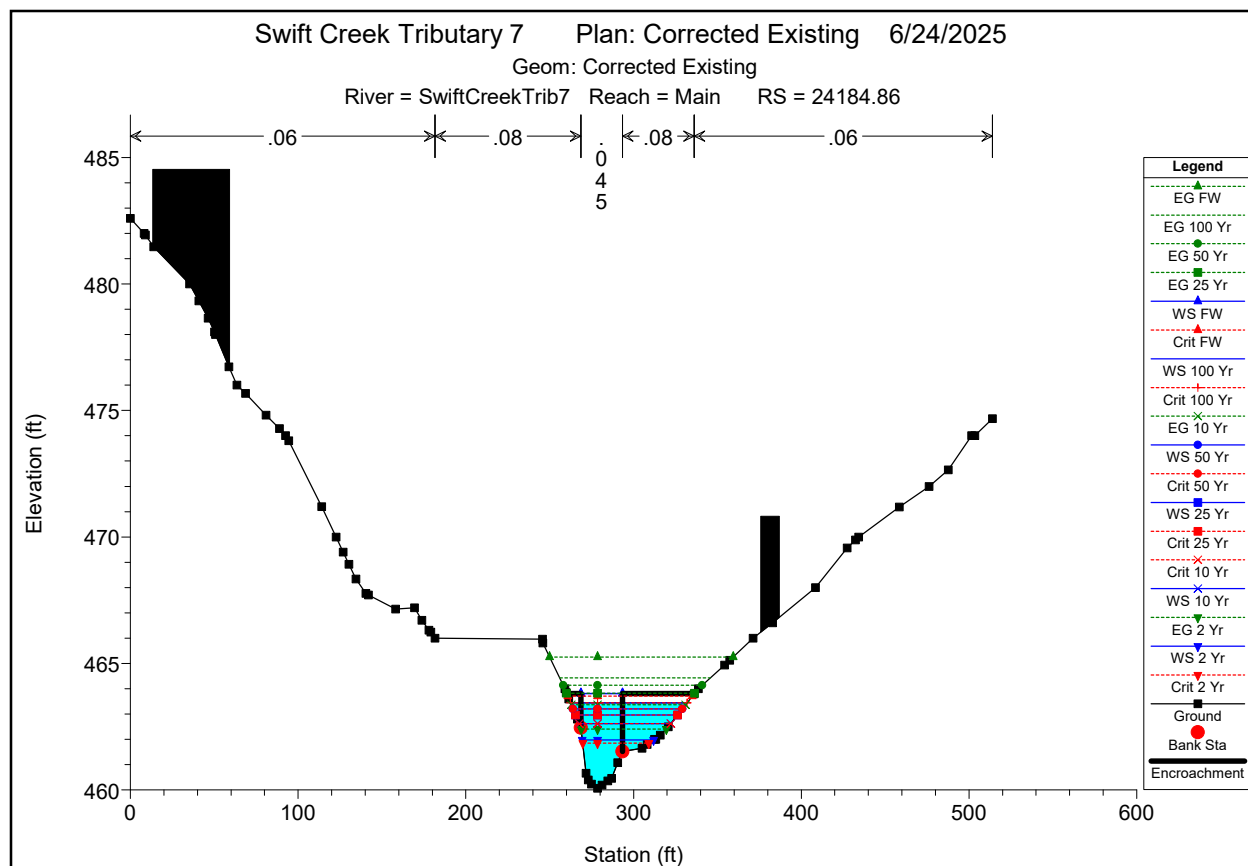
Existing Conditions Cross Sections
Corrected Existing Cross Sections
Proposed Conditions Cross Sections

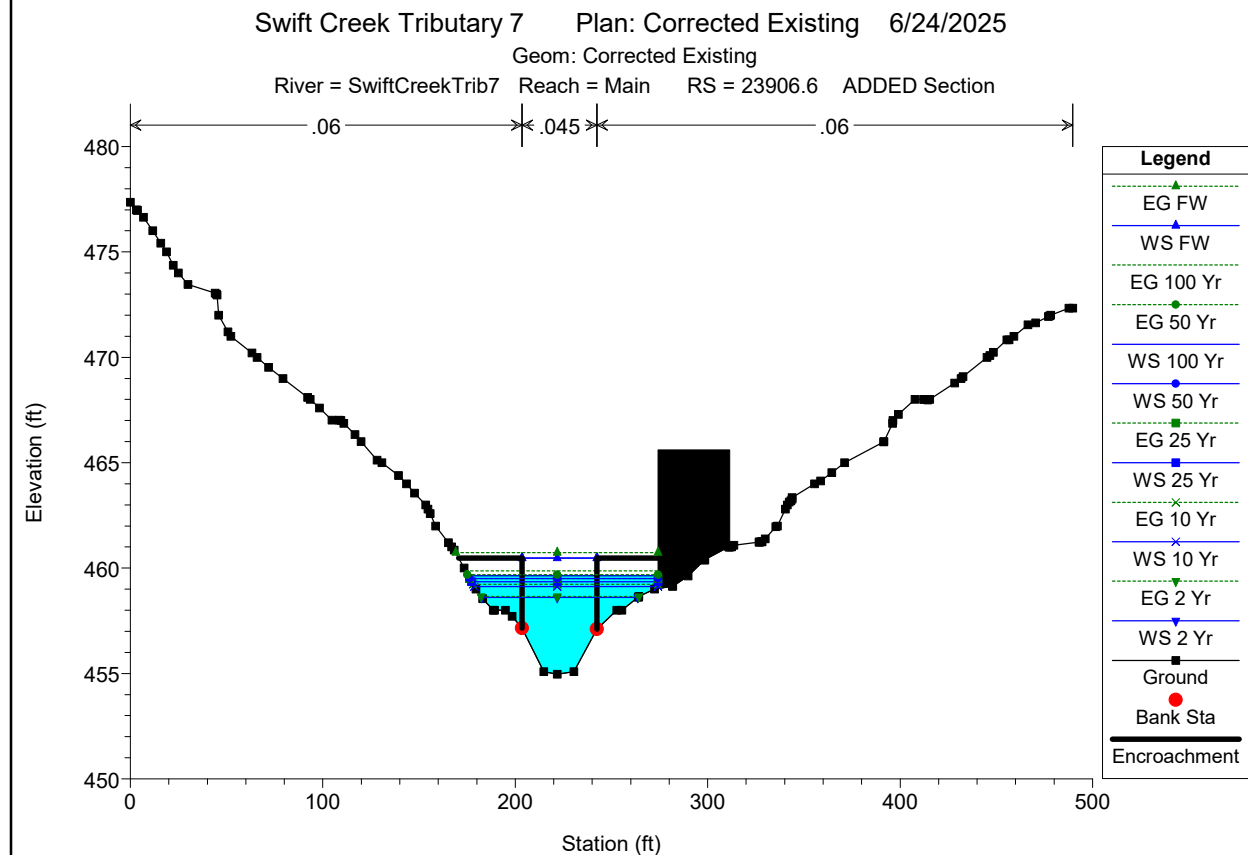
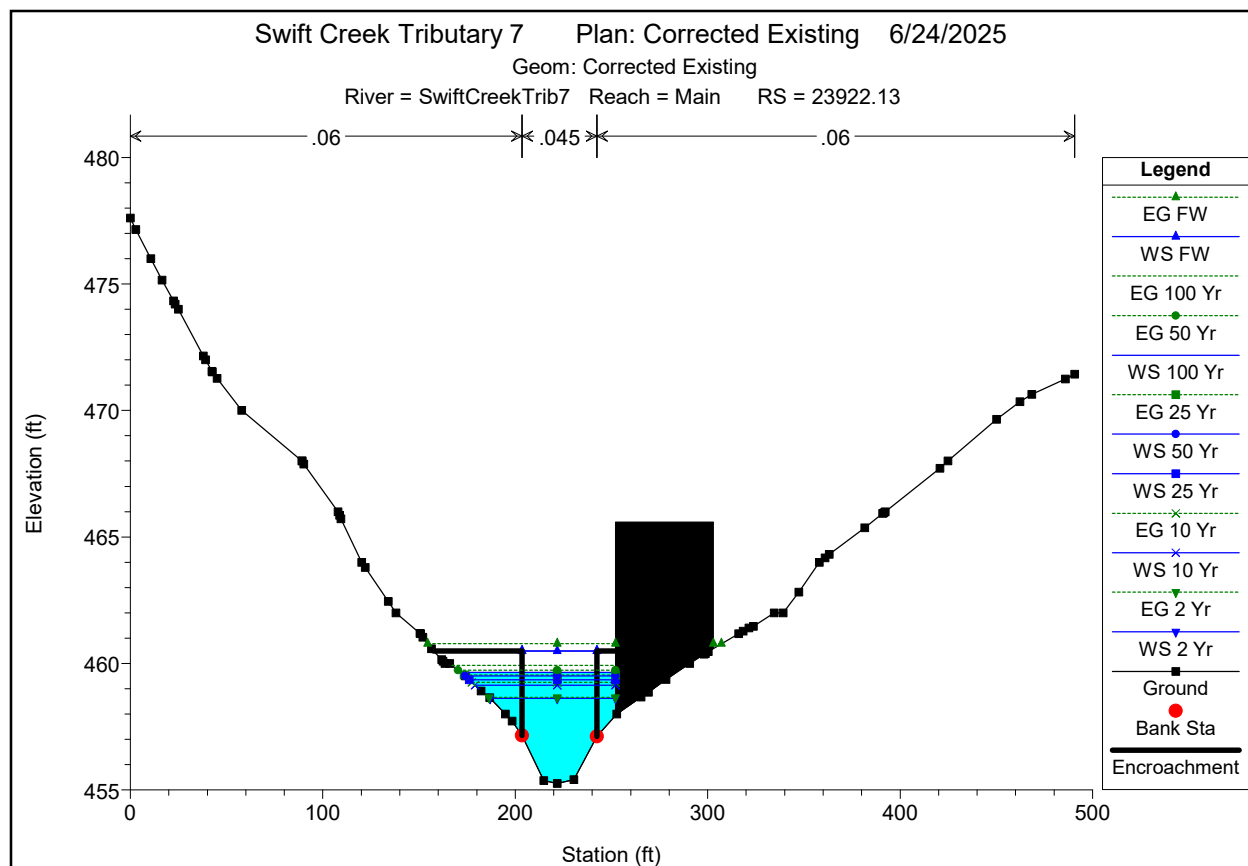
Existing Conditions Cross Sections

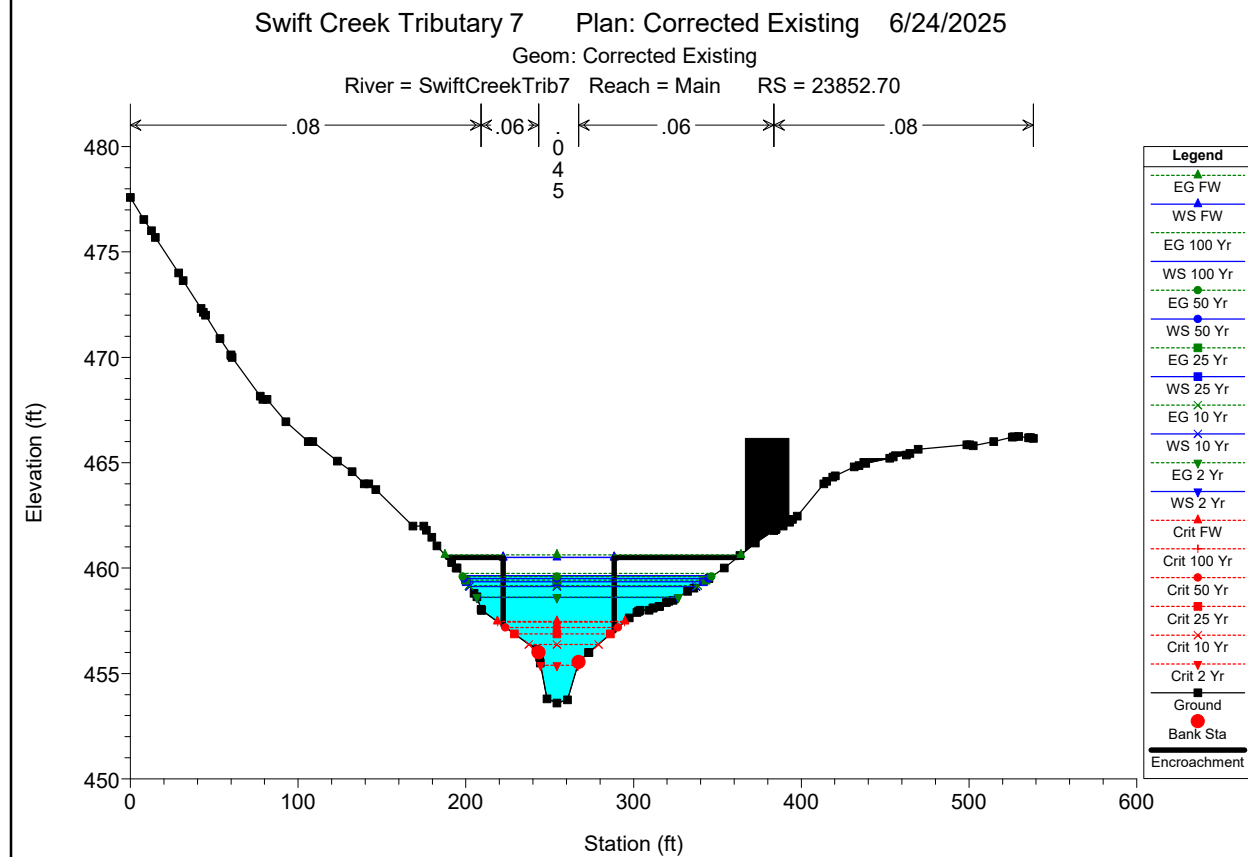
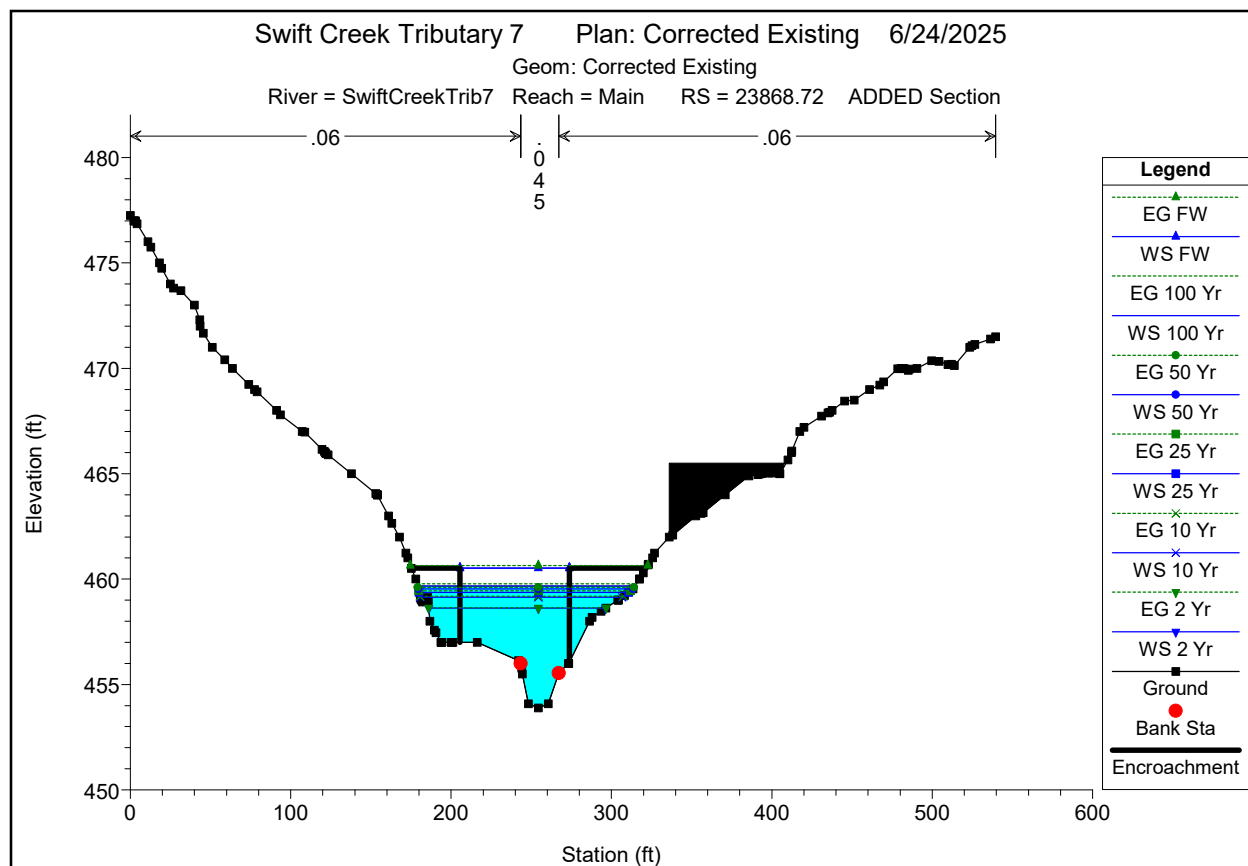




Corrected Existing Cross Sections





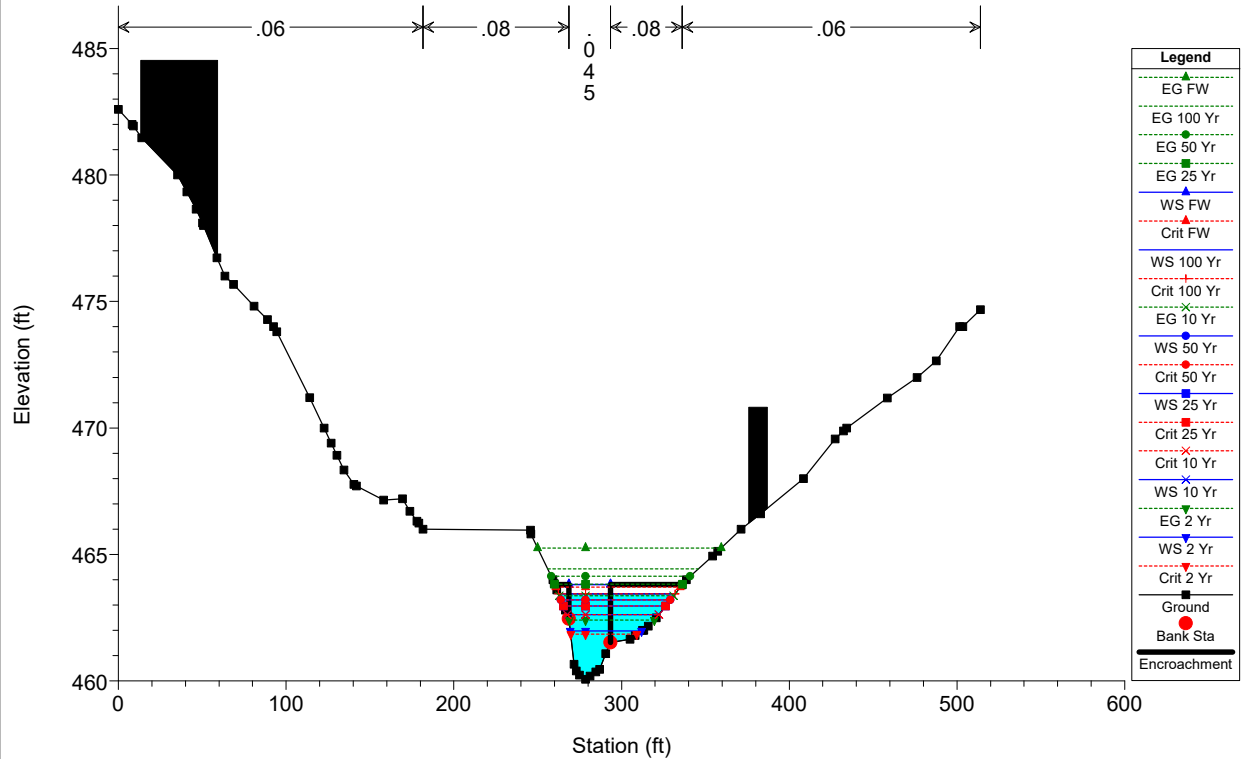


Proposed Conditions Cross Sections

Swift Creek Tributary 7 Plan: Proposed Conditions 6/24/2025

Geom: Proposed Conditions

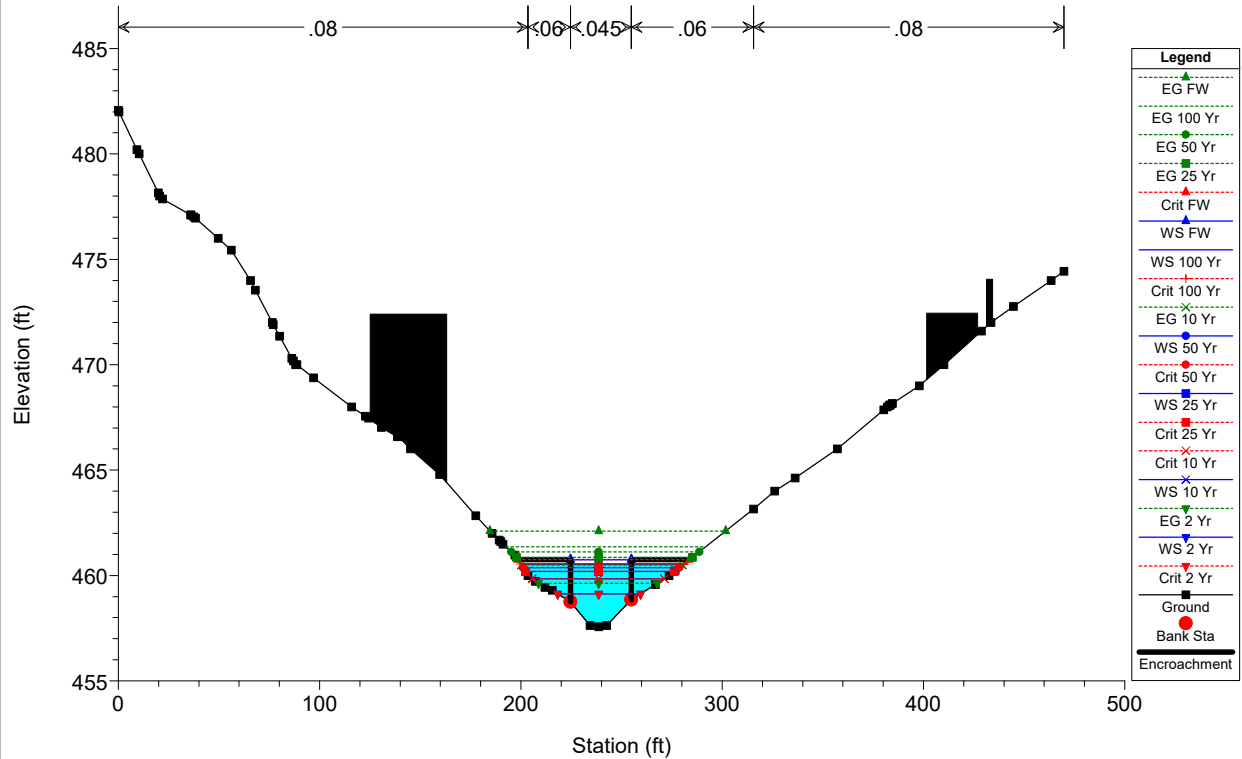
River = SwiftCreekTrib7 Reach = Main RS = 24184.86

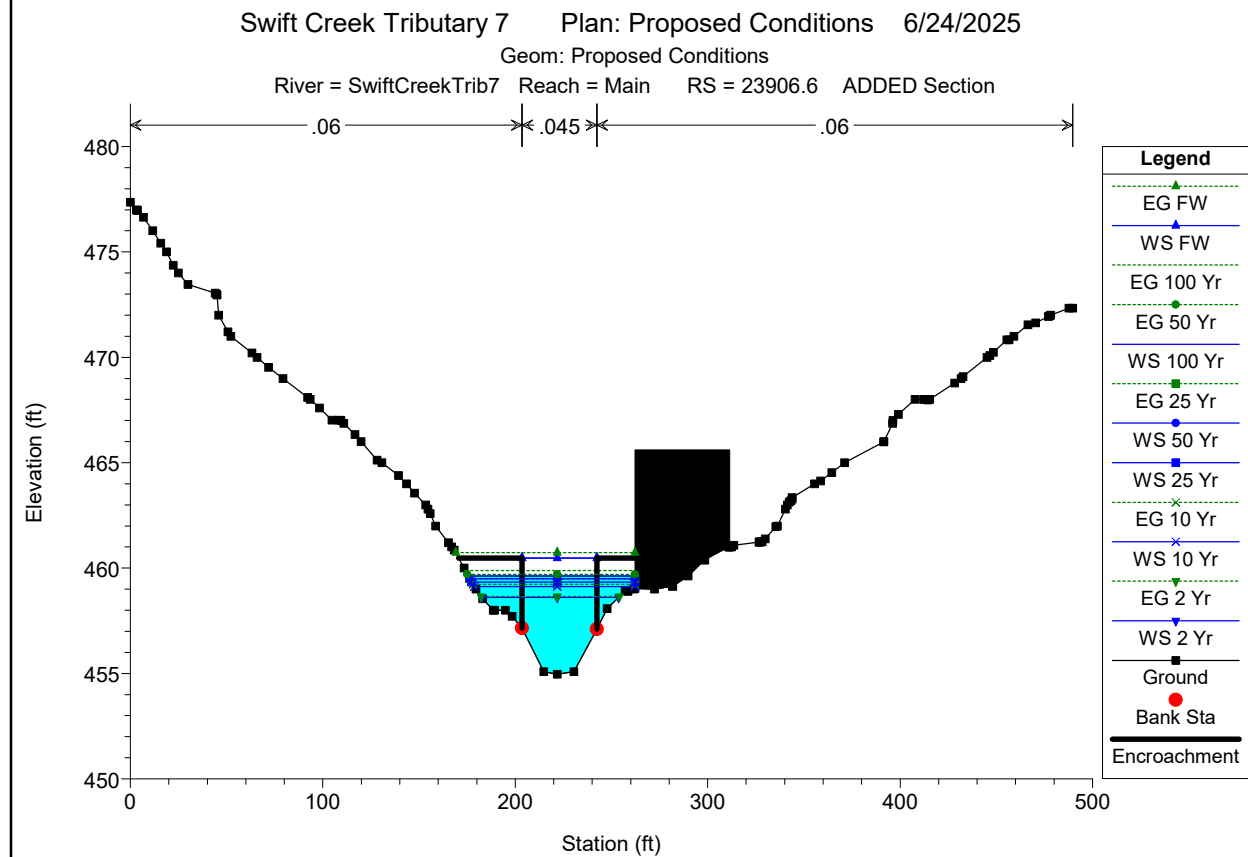
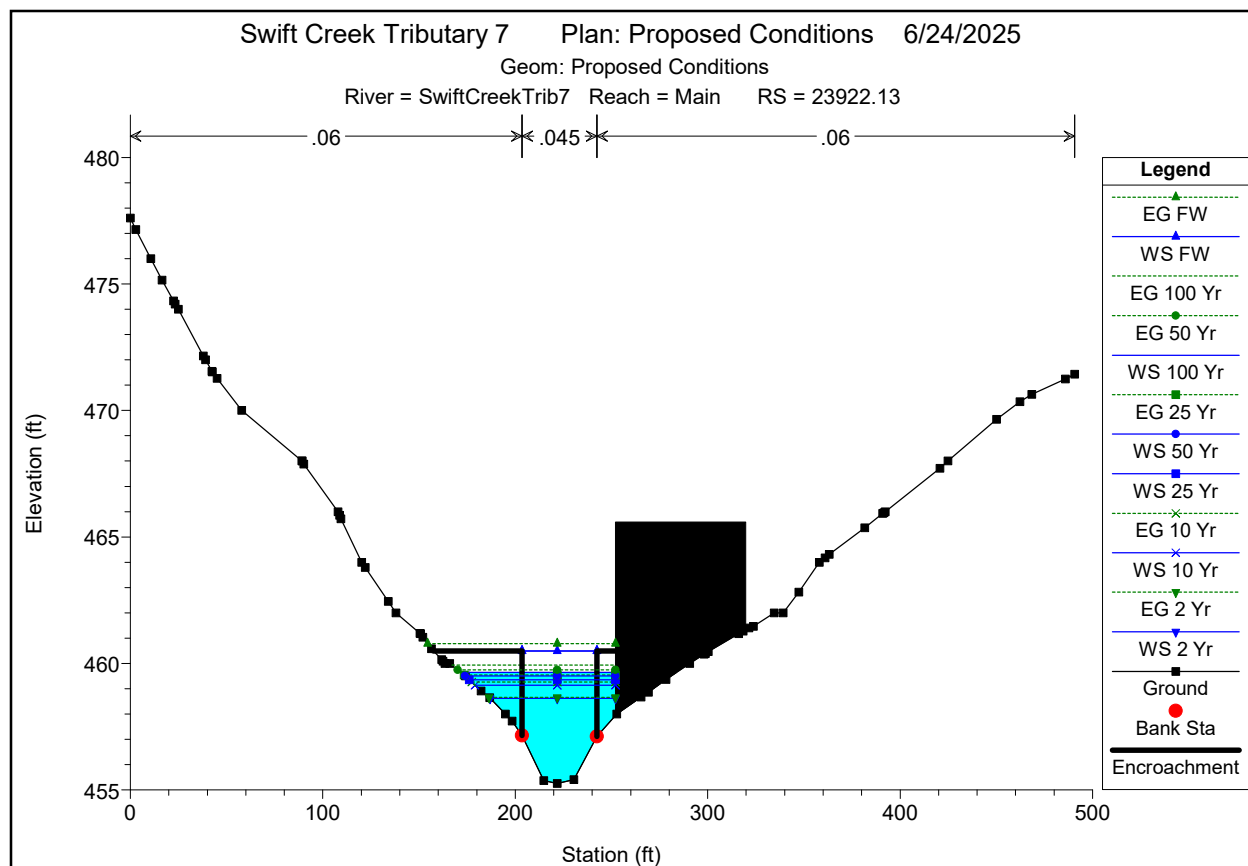


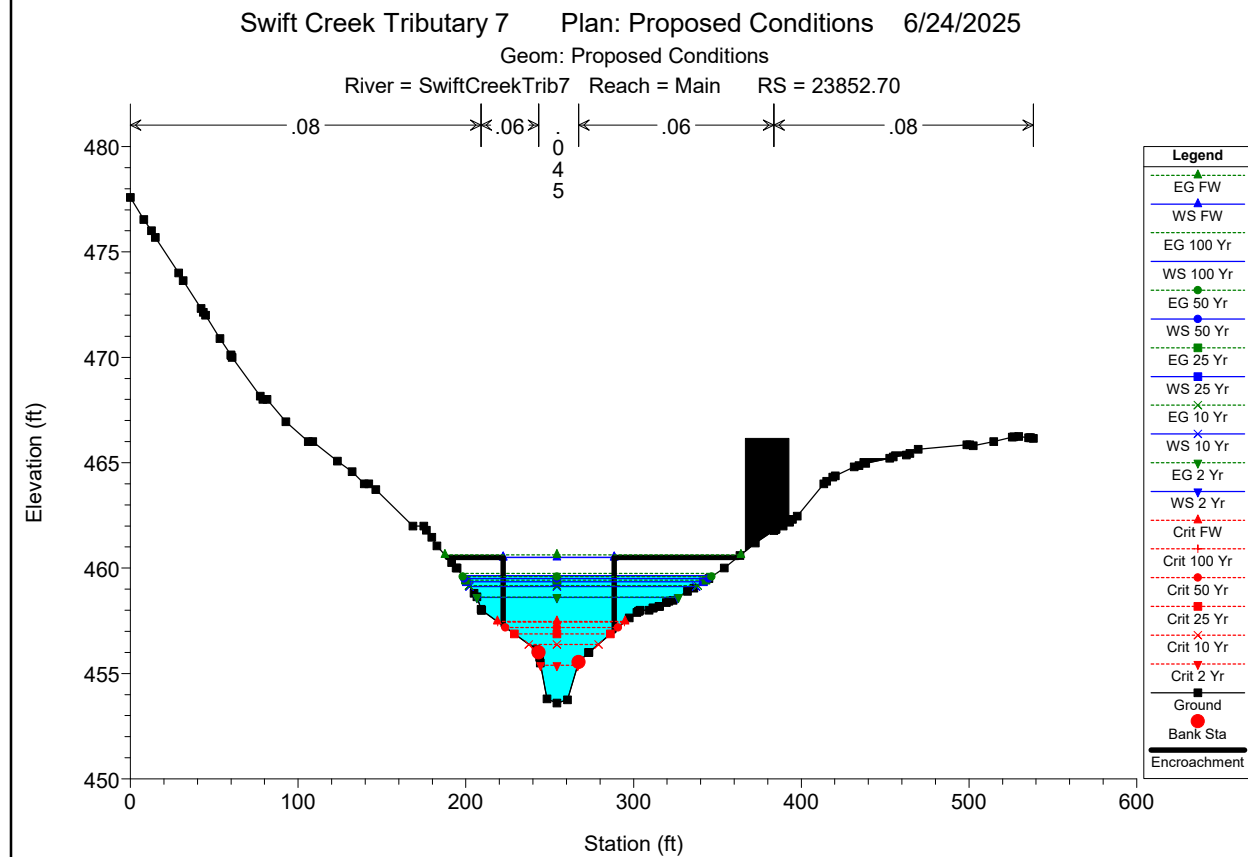
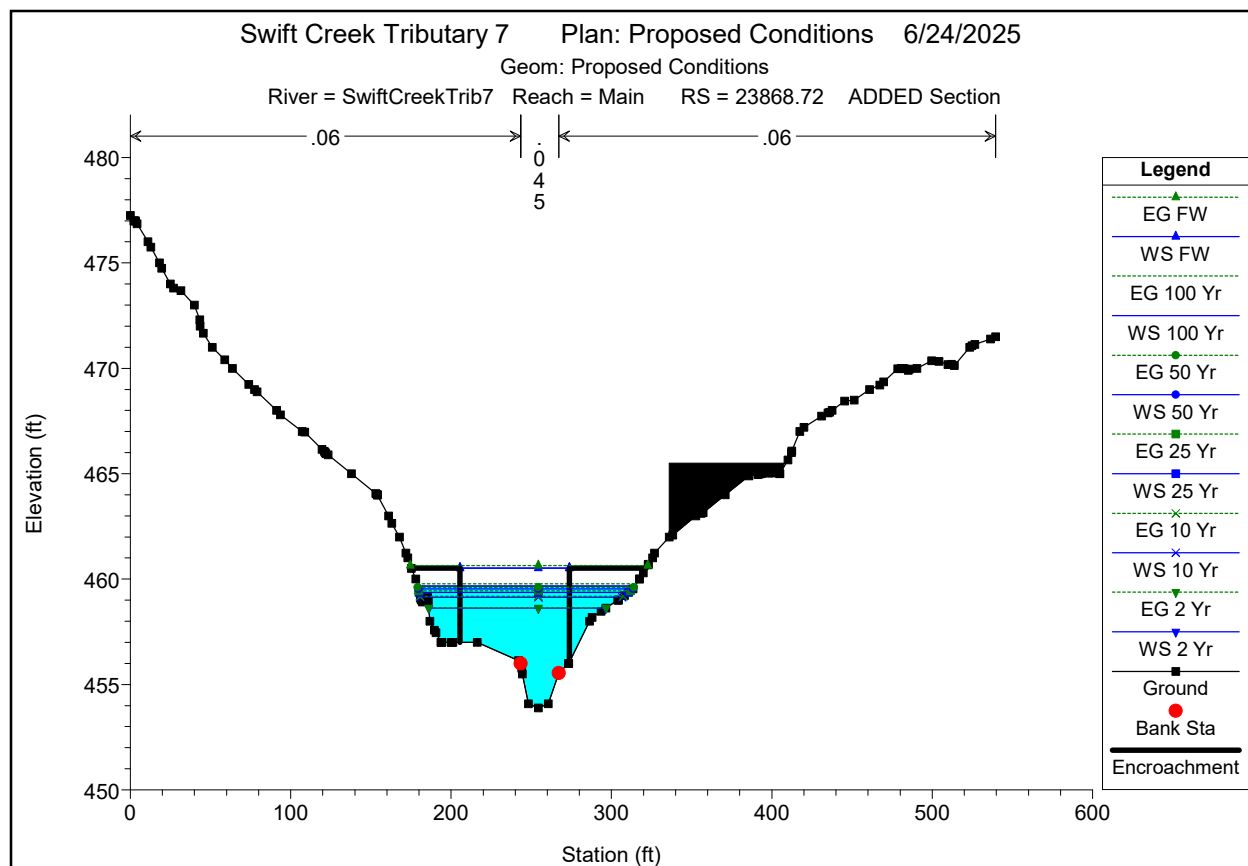
Swift Creek Tributary 7 Plan: Proposed Conditions 6/24/2025

Geom: Proposed Conditions

River = SwiftCreekTrib7 Reach = Main RS = 24053.17







Appendix C

Existing Conditions Output Table
Corrected Existing Output Table
Proposed Conditions Output Table

Existing Conditions Output Table

HEC-RAS Plan: Existing River: SwiftCreekTrib7 Reach: Main

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	24184.86	100 Yr	762.00	460.06	463.44	463.44	464.43	0.018102	8.74	122.36	69.57	0.92
Main	24184.86	FW	762.00	460.06	463.81	463.71	465.25	0.022345	9.63	79.13	24.77	0.95
Main	24184.86	2 Yr	188.00	460.06	461.97	461.85	462.41	0.017149	5.37	39.45	42.43	0.80
Main	24184.86	10 Yr	410.00	460.06	462.62	462.62	463.37	0.020091	7.32	71.17	54.69	0.91
Main	24184.86	25 Yr	546.00	460.06	462.97	462.97	463.82	0.019266	7.97	91.09	60.91	0.92
Main	24184.86	50 Yr	654.00	460.06	463.21	463.21	464.14	0.018852	8.42	106.32	65.27	0.92
Main	24053.17	100 Yr	762.00	457.56	460.55	460.55	461.36	0.017192	7.95	124.84	81.16	0.89
Main	24053.17	FW	762.00	457.56	460.76	460.76	462.11	0.024973	9.32	81.72	30.18	1.00
Main	24053.17	2 Yr	188.00	457.56	459.14	459.14	459.63	0.026503	5.66	34.65	41.18	0.96
Main	24053.17	10 Yr	410.00	457.56	459.85	459.85	460.50	0.019429	6.78	72.94	65.59	0.89
Main	24053.17	25 Yr	546.00	457.56	460.19	460.19	460.87	0.016984	7.12	96.81	73.90	0.86
Main	24053.17	50 Yr	654.00	457.56	460.37	460.37	461.12	0.017307	7.59	110.61	77.56	0.88
Main	23922.13	100 Yr	762.00	455.25	459.68		459.96	0.003124	4.47	206.10	80.98	0.40
Main	23922.13	FW	762.00	455.25	460.49		460.77	0.002675	4.24	179.72	38.96	0.35
Main	23922.13	2 Yr	188.00	455.25	458.62		458.66	0.000651	1.64	128.77	65.20	0.17
Main	23922.13	10 Yr	410.00	455.25	459.15		459.27	0.001605	2.90	165.26	73.17	0.28
Main	23922.13	25 Yr	546.00	455.25	459.38		459.56	0.002199	3.55	182.42	76.38	0.33
Main	23922.13	50 Yr	654.00	455.25	459.54		459.76	0.002664	4.03	194.71	78.68	0.37
Main	23852.70	100 Yr	762.00	453.60	459.64	457.44	459.75	0.001124	3.36	373.40	149.59	0.25
Main	23852.70	FW	762.00	453.60	460.48	457.46	460.59	0.000852	3.22	319.25	66.21	0.23
Main	23852.70	2 Yr	188.00	453.60	458.61	455.39	458.63	0.000205	1.25	234.49	119.71	0.10
Main	23852.70	10 Yr	410.00	453.60	459.12	456.38	459.17	0.000550	2.20	299.75	135.12	0.17
Main	23852.70	25 Yr	546.00	453.60	459.35	456.87	459.42	0.000773	2.68	330.58	141.42	0.21
Main	23852.70	50 Yr	654.00	453.60	459.50	457.18	459.59	0.000950	3.03	352.76	145.78	0.23
Main	23737.62		Culvert									
Main	23625.82	100 Yr	762.00	450.55	455.41	455.41	456.15	0.014928	7.52	139.97	110.35	0.80
Main	23625.82	FW	762.00	450.55	456.26	455.36	457.03	0.010124	7.02	108.54	30.21	0.65
Main	23625.82	2 Yr	188.00	450.55	452.95	452.94	453.83	0.027949	7.50	25.06	14.23	1.00
Main	23625.82	10 Yr	410.00	450.55	454.61	454.61	455.31	0.017831	6.77	67.24	71.32	0.83
Main	23625.82	25 Yr	546.00	450.55	455.02	455.02	455.69	0.014938	6.90	100.66	91.18	0.78
Main	23625.82	50 Yr	654.00	450.55	455.24	455.24	455.94	0.014637	7.18	121.90	101.81	0.79
Main	23519.63	100 Yr	762.00	449.09	453.01	453.01	454.05	0.015173	9.44	117.58	61.31	0.88
Main	23519.63	FW	762.00	449.09	453.38	453.38	455.32	0.024849	11.44	71.21	18.60	1.01
Main	23519.63	2 Yr	188.00	449.09	451.35		451.79	0.011767	5.52	40.62	33.33	0.70
Main	23519.63	10 Yr	410.00	449.09	452.06	452.01	452.88	0.016017	7.92	67.99	43.86	0.86

Corrected Existing Output Table

HEC-RAS Plan: CorrEx River: SwiftCreekTrib7 Reach: Main

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	24184.86	100 Yr	762.00	460.06	463.44	463.44	464.43	0.018102	8.74	122.36	69.57	0.92
Main	24184.86	FW	762.00	460.06	463.81	463.71	465.25	0.022345	9.63	79.13	24.77	0.95
Main	24184.86	2 Yr	188.00	460.06	461.97	461.85	462.41	0.017149	5.37	39.45	42.43	0.80
Main	24184.86	10 Yr	410.00	460.06	462.62	462.62	463.37	0.020091	7.32	71.17	54.69	0.91
Main	24184.86	25 Yr	546.00	460.06	462.97	462.97	463.82	0.019266	7.97	91.09	60.91	0.92
Main	24184.86	50 Yr	654.00	460.06	463.21	463.21	464.14	0.018852	8.42	106.32	65.27	0.92
Main	24053.17	100 Yr	762.00	457.56	460.55	460.55	461.36	0.017192	7.95	124.84	81.16	0.89
Main	24053.17	FW	762.00	457.56	460.76	460.76	462.11	0.024973	9.32	81.72	30.18	1.00
Main	24053.17	2 Yr	188.00	457.56	459.14	459.14	459.63	0.026503	5.66	34.65	41.18	0.96
Main	24053.17	10 Yr	410.00	457.56	459.85	459.85	460.50	0.019429	6.78	72.94	65.59	0.89
Main	24053.17	25 Yr	546.00	457.56	460.19	460.19	460.87	0.016984	7.12	96.81	73.90	0.86
Main	24053.17	50 Yr	654.00	457.56	460.37	460.37	461.12	0.017307	7.59	110.61	77.56	0.88
Main	23922.13	100 Yr	762.00	455.25	459.64		459.93	0.003253	4.53	202.88	80.34	0.41
Main	23922.13	FW	762.00	455.25	460.50		460.78	0.002667	4.24	179.91	38.96	0.35
Main	23922.13	2 Yr	188.00	455.25	458.62		458.66	0.000654	1.65	128.54	65.16	0.18
Main	23922.13	10 Yr	410.00	455.25	459.14		459.26	0.001630	2.92	164.27	72.98	0.28
Main	23922.13	25 Yr	546.00	455.25	459.36		459.54	0.002253	3.58	180.74	76.07	0.34
Main	23922.13	50 Yr	654.00	455.25	459.51		459.74	0.002751	4.07	192.29	78.18	0.38
Main	23906.6	100 Yr	762.00	454.97	459.64		459.87	0.002455	4.08	239.99	98.80	0.36
Main	23906.6	FW	762.00	454.97	460.47		460.73	0.002351	4.08	186.92	38.96	0.33
Main	23906.6	2 Yr	188.00	454.97	458.62		458.65	0.000514	1.53	144.16	81.23	0.16
Main	23906.6	10 Yr	410.00	454.97	459.13		459.23	0.001284	2.69	189.88	95.45	0.25
Main	23906.6	25 Yr	546.00	454.97	459.35		459.50	0.001745	3.27	211.39	96.97	0.30
Main	23906.6	50 Yr	654.00	454.97	459.51		459.69	0.002104	3.69	226.34	98.01	0.33
Main	23868.72	100 Yr	762.00	453.89	459.67		459.78	0.001107	3.27	373.16	135.62	0.25
Main	23868.72	FW	762.00	453.89	460.53		460.64	0.000875	3.21	322.97	68.32	0.23
Main	23868.72	2 Yr	188.00	453.89	458.62		458.63	0.000197	1.19	242.15	110.30	0.10
Main	23868.72	10 Yr	410.00	453.89	459.14		459.19	0.000548	2.14	303.11	125.97	0.17
Main	23868.72	25 Yr	546.00	453.89	459.37		459.44	0.000767	2.62	332.52	130.64	0.21
Main	23868.72	50 Yr	654.00	453.89	459.53		459.61	0.000941	2.96	353.61	133.89	0.23
Main	23852.70	100 Yr	762.00	453.60	459.64	457.44	459.75	0.001124	3.36	373.40	149.59	0.25
Main	23852.70	FW	762.00	453.60	460.51	457.46	460.63	0.000834	3.19	321.61	66.21	0.22
Main	23852.70	2 Yr	188.00	453.60	458.61	455.39	458.63	0.000205	1.25	234.49	119.71	0.10
Main	23852.70	10 Yr	410.00	453.60	459.12	456.38	459.17	0.000550	2.20	299.75	135.12	0.17
Main	23852.70	25 Yr	546.00	453.60	459.35	456.87	459.42	0.000773	2.68	330.58	141.42	0.21
Main	23852.70	50 Yr	654.00	453.60	459.50	457.18	459.59	0.000950	3.03	352.76	145.78	0.23

HEC-RAS Plan: CorrEx River: SwiftCreekTrib7 Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	23737.62		Culvert									
Main	23625.82	100 Yr	762.00	450.55	455.41	455.41	456.15	0.014928	7.52	139.97	110.35	0.80
Main	23625.82	FW	762.00	450.55	456.45	455.36	457.14	0.008672	6.67	114.18	30.21	0.61
Main	23625.82	2 Yr	188.00	450.55	452.95	452.94	453.83	0.027949	7.50	25.06	14.23	1.00
Main	23625.82	10 Yr	410.00	450.55	454.61	454.61	455.31	0.017831	6.77	67.24	71.32	0.83
Main	23625.82	25 Yr	546.00	450.55	455.02	455.02	455.69	0.014938	6.90	100.66	91.18	0.78
Main	23625.82	50 Yr	654.00	450.55	455.24	455.24	455.94	0.014637	7.18	121.90	101.81	0.79
Main	23519.63	100 Yr	762.00	449.09	453.01	453.01	454.05	0.015173	9.44	117.58	61.31	0.88
Main	23519.63	FW	762.00	449.09	453.38	453.38	455.32	0.024849	11.44	71.21	18.60	1.01
Main	23519.63	2 Yr	188.00	449.09	451.35		451.79	0.011767	5.52	40.62	33.33	0.70
Main	23519.63	10 Yr	410.00	449.09	452.06	452.01	452.88	0.016017	7.92	67.99	43.86	0.86
Main	23519.63	25 Yr	546.00	449.09	452.45	452.45	453.40	0.016211	8.72	86.14	50.83	0.88
Main	23519.63	50 Yr	654.00	449.09	452.74	452.74	453.74	0.015611	9.10	102.03	56.37	0.88
Main	23363.91	100 Yr	762.00	448.46	452.00		452.26	0.005300	5.12	223.01	112.92	0.51
Main	23363.91	FW	762.00	448.46	452.83		453.21	0.005298	5.48	162.70	44.94	0.49
Main	23363.91	2 Yr	188.00	448.46	450.65		450.74	0.003668	2.91	90.90	82.47	0.39
Main	23363.91	10 Yr	410.00	448.46	451.27		451.44	0.004794	4.07	146.25	96.11	0.46
Main	23363.91	25 Yr	546.00	448.46	451.57		451.78	0.005168	4.57	175.75	102.79	0.49
Main	23363.91	50 Yr	654.00	448.46	451.81		452.04	0.005107	4.81	201.79	108.40	0.50
Main	23182.22	100 Yr	762.00	446.78	451.93		451.97	0.000536	2.16	525.12	178.03	0.17
Main	23182.22	FW	762.00	446.78	452.86		452.92	0.000463	2.26	416.01	80.71	0.17
Main	23182.22	2 Yr	188.00	446.78	450.64		450.65	0.000126	0.85	315.14	148.19	0.08
Main	23182.22	10 Yr	410.00	446.78	451.23		451.25	0.000307	1.47	406.61	163.11	0.13
Main	23182.22	25 Yr	546.00	446.78	451.51		451.54	0.000409	1.77	452.84	169.34	0.15
Main	23182.22	50 Yr	654.00	446.78	451.75		451.78	0.000467	1.96	493.40	174.27	0.16
Main	23130.12	100 Yr	762.00	444.58	451.88	448.88	451.94	0.000577	2.51	489.50	169.99	0.18
Main	23130.12	FW	762.00	444.58	452.80	448.87	452.89	0.000544	2.68	367.04	69.45	0.18
Main	23130.12	2 Yr	188.00	444.58	450.63	446.57	450.65	0.000122	0.98	290.86	150.31	0.08
Main	23130.12	10 Yr	410.00	444.58	451.20	447.73	451.24	0.000314	1.71	378.92	158.82	0.13
Main	23130.12	25 Yr	546.00	444.58	451.47	448.31	451.52	0.000428	2.06	422.15	163.28	0.16
Main	23130.12	50 Yr	654.00	444.58	451.70	448.67	451.76	0.000496	2.28	460.27	167.11	0.17
Main	23088.69		Culvert									
Main	23042.75	100 Yr	762.00	442.84	446.90	446.90	447.88	0.015138	8.49	124.06	73.80	0.85

Proposed Conditions Output Table

HEC-RAS Plan: Proposed River: SwiftCreekTrib7 Reach: Main

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	24184.86	100 Yr	762.00	460.06	463.44	463.44	464.43	0.018102	8.74	122.36	69.57	0.92
Main	24184.86	FW	762.00	460.06	463.81	463.71	465.25	0.022345	9.63	79.13	24.77	0.95
Main	24184.86	2 Yr	188.00	460.06	461.97	461.85	462.41	0.017149	5.37	39.45	42.43	0.80
Main	24184.86	10 Yr	410.00	460.06	462.62	462.62	463.37	0.020091	7.32	71.17	54.69	0.91
Main	24184.86	25 Yr	546.00	460.06	462.97	462.97	463.82	0.019266	7.97	91.09	60.91	0.92
Main	24184.86	50 Yr	654.00	460.06	463.21	463.21	464.14	0.018852	8.42	106.32	65.27	0.92
Main	24053.17	100 Yr	762.00	457.56	460.55	460.55	461.36	0.017192	7.95	124.84	81.16	0.89
Main	24053.17	FW	762.00	457.56	460.76	460.76	462.11	0.024973	9.32	81.72	30.18	1.00
Main	24053.17	2 Yr	188.00	457.56	459.14	459.14	459.63	0.026503	5.66	34.65	41.18	0.96
Main	24053.17	10 Yr	410.00	457.56	459.85	459.85	460.50	0.019429	6.78	72.94	65.59	0.89
Main	24053.17	25 Yr	546.00	457.56	460.19	460.19	460.87	0.016984	7.12	96.81	73.90	0.86
Main	24053.17	50 Yr	654.00	457.56	460.37	460.37	461.12	0.017307	7.59	110.61	77.56	0.88
Main	23922.13	100 Yr	762.00	455.25	459.64		459.93	0.003239	4.53	203.22	80.41	0.41
Main	23922.13	FW	762.00	455.25	460.50		460.78	0.002667	4.24	179.91	38.96	0.35
Main	23922.13	2 Yr	188.00	455.25	458.62		458.66	0.000654	1.65	128.56	65.16	0.18
Main	23922.13	10 Yr	410.00	455.25	459.14		459.26	0.001628	2.91	164.37	73.00	0.28
Main	23922.13	25 Yr	546.00	455.25	459.36		459.54	0.002249	3.58	180.85	76.09	0.34
Main	23922.13	50 Yr	654.00	455.25	459.51		459.74	0.002742	4.07	192.53	78.23	0.38
Main	23906.6	100 Yr	762.00	454.97	459.62		459.88	0.002754	4.30	217.84	86.63	0.38
Main	23906.6	FW	762.00	454.97	460.47		460.73	0.002351	4.08	186.92	38.96	0.33
Main	23906.6	2 Yr	188.00	454.97	458.61		458.65	0.000537	1.56	136.05	71.22	0.16
Main	23906.6	10 Yr	410.00	454.97	459.12		459.23	0.001381	2.78	175.33	83.36	0.26
Main	23906.6	25 Yr	546.00	454.97	459.34		459.50	0.001912	3.41	193.63	84.84	0.31
Main	23906.6	50 Yr	654.00	454.97	459.49		459.70	0.002333	3.87	206.35	85.86	0.35
Main	23868.72	100 Yr	762.00	453.89	459.67		459.78	0.001107	3.27	373.16	135.62	0.25
Main	23868.72	FW	762.00	453.89	460.53		460.64	0.000875	3.21	322.97	68.32	0.23
Main	23868.72	2 Yr	188.00	453.89	458.62		458.63	0.000197	1.19	242.15	110.30	0.10
Main	23868.72	10 Yr	410.00	453.89	459.14		459.19	0.000548	2.14	303.11	125.97	0.17
Main	23868.72	25 Yr	546.00	453.89	459.37		459.44	0.000767	2.62	332.52	130.64	0.21
Main	23868.72	50 Yr	654.00	453.89	459.53		459.61	0.000941	2.96	353.61	133.89	0.23
Main	23852.70	100 Yr	762.00	453.60	459.64	457.44	459.75	0.001124	3.36	373.40	149.59	0.25
Main	23852.70	FW	762.00	453.60	460.51	457.46	460.63	0.000834	3.19	321.61	66.21	0.22
Main	23852.70	2 Yr	188.00	453.60	458.61	455.39	458.63	0.000205	1.25	234.49	119.71	0.10
Main	23852.70	10 Yr	410.00	453.60	459.12	456.38	459.17	0.000550	2.20	299.75	135.12	0.17
Main	23852.70	25 Yr	546.00	453.60	459.35	456.87	459.42	0.000773	2.68	330.58	141.42	0.21
Main	23852.70	50 Yr	654.00	453.60	459.50	457.18	459.59	0.000950	3.03	352.76	145.78	0.23

HEC-RAS Plan: Proposed River: SwiftCreekTrib7 Reach: Main (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Main	23737.62		Culvert									
Main	23625.82	100 Yr	762.00	450.55	455.41	455.41	456.15	0.014928	7.52	139.97	110.35	0.80
Main	23625.82	FW	762.00	450.55	456.45	455.36	457.14	0.008672	6.67	114.18	30.21	0.61
Main	23625.82	2 Yr	188.00	450.55	452.95	452.94	453.83	0.027949	7.50	25.06	14.23	1.00
Main	23625.82	10 Yr	410.00	450.55	454.61	454.61	455.31	0.017831	6.77	67.24	71.32	0.83
Main	23625.82	25 Yr	546.00	450.55	455.02	455.02	455.69	0.014938	6.90	100.66	91.18	0.78
Main	23625.82	50 Yr	654.00	450.55	455.24	455.24	455.94	0.014637	7.18	121.90	101.81	0.79
Main	23519.63	100 Yr	762.00	449.09	453.01	453.01	454.05	0.015173	9.44	117.58	61.31	0.88
Main	23519.63	FW	762.00	449.09	453.38	453.38	455.32	0.024849	11.44	71.21	18.60	1.01
Main	23519.63	2 Yr	188.00	449.09	451.35		451.79	0.011767	5.52	40.62	33.33	0.70
Main	23519.63	10 Yr	410.00	449.09	452.06	452.01	452.88	0.016017	7.92	67.99	43.86	0.86
Main	23519.63	25 Yr	546.00	449.09	452.45	452.45	453.40	0.016211	8.72	86.14	50.83	0.88
Main	23519.63	50 Yr	654.00	449.09	452.74	452.74	453.74	0.015611	9.10	102.03	56.37	0.88
Main	23363.91	100 Yr	762.00	448.46	452.00		452.26	0.005300	5.12	223.01	112.92	0.51
Main	23363.91	FW	762.00	448.46	452.83		453.21	0.005298	5.48	162.70	44.94	0.49
Main	23363.91	2 Yr	188.00	448.46	450.65		450.74	0.003668	2.91	90.90	82.47	0.39
Main	23363.91	10 Yr	410.00	448.46	451.27		451.44	0.004794	4.07	146.25	96.11	0.46
Main	23363.91	25 Yr	546.00	448.46	451.57		451.78	0.005168	4.57	175.75	102.79	0.49
Main	23363.91	50 Yr	654.00	448.46	451.81		452.04	0.005107	4.81	201.79	108.40	0.50
Main	23182.22	100 Yr	762.00	446.78	451.93		451.97	0.000536	2.16	525.12	178.03	0.17
Main	23182.22	FW	762.00	446.78	452.86		452.92	0.000463	2.26	416.01	80.71	0.17
Main	23182.22	2 Yr	188.00	446.78	450.64		450.65	0.000126	0.85	315.14	148.19	0.08
Main	23182.22	10 Yr	410.00	446.78	451.23		451.25	0.000307	1.47	406.61	163.11	0.13
Main	23182.22	25 Yr	546.00	446.78	451.51		451.54	0.000409	1.77	452.84	169.34	0.15
Main	23182.22	50 Yr	654.00	446.78	451.75		451.78	0.000467	1.96	493.40	174.27	0.16
Main	23130.12	100 Yr	762.00	444.58	451.88	448.88	451.94	0.000577	2.51	489.50	169.99	0.18
Main	23130.12	FW	762.00	444.58	452.80	448.87	452.89	0.000544	2.68	367.04	69.45	0.18
Main	23130.12	2 Yr	188.00	444.58	450.63	446.57	450.65	0.000122	0.98	290.86	150.31	0.08
Main	23130.12	10 Yr	410.00	444.58	451.20	447.73	451.24	0.000314	1.71	378.92	158.82	0.13
Main	23130.12	25 Yr	546.00	444.58	451.47	448.31	451.52	0.000428	2.06	422.15	163.28	0.16
Main	23130.12	50 Yr	654.00	444.58	451.70	448.67	451.76	0.000496	2.28	460.27	167.11	0.17
Main	23088.69		Culvert									
Main	23042.75	100 Yr	762.00	442.84	446.90	446.90	447.88	0.015138	8.49	124.06	73.80	0.85