Wohnrade Civil Engineers, Inc.

April 22, 2022

Mr. Ben Beall
City Engineer
City of Steamboat Springs
Engineering Division
137 10th Street
Steamboat Springs, Colorado 80487

Subject: Final Summary of Findings
Hampton Inn & Holiday Inn Express
Walton Creek HEC-RAS Split Flow Analysis
Steamboat Springs, Colorado

Dear Mr. Beall:

Wohnrade Civil Engineers, Inc. (WCE) has completed a Final HEC-RAS analysis that reflects Existing and Proposed Project conditions along Walton Creek as it relates to the subject land development project and its impact on the Walton Creek base flood elevations.

This final hydraulic analysis is intended to model a split flow along Walton Creek, the location of which is located roughly 0.28 miles south of the subject site. The model also includes a proposed inline structure (overflow weir) located at the southwest corner of the Homewood Suites property. The weir is intended to limit the 100-yr peak discharge along the east side of Highway 40 and alleviate current downstream flooding issues.

The WCE HEC-RAS analysis includes the reach along Walton Creek between the bridge crossing at E. U.S. Highway 40 at the downstream end, and the Duplicate Effective HEC-RAS Cross-Section 7176.41 at the upstream end for a total length of approximately 0.70 miles. The subject project is located between Cross-Sections 4178.71 and 3742 at the upstream and downstream locations respectively. The Proposed Project analysis also models a future bridge crossing at Stone Lane that was originally designed by Owen Consulting in May 2015. See attached plan and profile sheet prepared by Owen Consulting in Appendix D.

HEC-RAS models have been prepared for both Existing Conditions and Proposed Project conditions using the improved topographic information. All hydraulic modeling has been performed using HEC-RAS analysis engine 5.0.7. and is referenced to the NGVD 29 vertical datum. A full and complete floodway analysis has not been performed and is beyond the scope of this project.

The peak discharge in the Existing Conditions and Proposed Project models varies from 1,883 cfs at the upstream end of the model to 1,984 cfs at the downstream end of the model adjacent to Highway 40.

Wohnrade Civil Engineers, Inc.
11582 Colony Row, Broomfield, Colorado 80021
Phone: 720-259-0965
Fax: 720-259-1519

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A Split Flow analysis was performed due to conditions approximately 0.28-miles upstream of the project site. There are historic storm events, as well as topographic evidence to suggest that the flood flow departs the Walton Creek main channel and meanders to the northwest towards E. U.S. Highway 40. Flow to the northwest is facilitated by a myriad of braided wetlands channels. Once this split flow occurs (at river Station 6335) it is difficult for flows to return to the main channel which is located roughly 750-feet to the east. The split flow channel along the east side of Highway 40 is 3.12-feet higher than the thalweg of the Walton Creek main channel at Cross-Section 4571.82, which is located along the south property line of the Homewood Suites site.

Flood flows are conveyed from south to north in the east roadside ditch along Highway 40 beginning at the southwest corner of the Homewood Suites property and ending at the upstream side (east side) of the bridge crossing at Highway 40 and Walton Creek.

A 3,430-foot-long lateral weir was incorporated into the HEC-RAS model beginning at the upstream main channel Cross-Section 5893 (to the south), and ending at the downstream main channel Cross-Section 1789, which is located roughly 170' upstream of the Highway 40 bridge structure.

An inline structure was also incorporated into the Proposed Project model and is located just north of split flow Cross-Section 998.7 at the southwest corner of the Homewood Suites property. This structure is intended to limit the flow along the Highway 40 roadside ditch to a maximum peak discharge of 359 cfs. This maximum discharge is based on the capacity of the existing downstream culvert at the Holiday Inn drive entrance off Highway 40 (Cross-Section 996.45) and is based on a HW/D ratio of 1.5 for the 100-year event. See attached HY-8 output located in Appendix C.

Project Reference Documents

1) Homewood Suites Stone Lane Plan and Profile (.dwg format), received on May 23, 2015, from Owen Consulting Group, Inc.
2) Hampton Inn & Holiday Inn Express Final Grading Plan (.dwg format), received on February 8, 2022, from Four Points Surveying and Engineering, Inc.
3) HEC-RAS regulatory model for Walton Creek, received on June 19, 2015, from Michael Baker International.
4) Aerial topographic mapping and supplemental ground survey (.dwg format) received on February 7, 2022, from Four Points Surveying and Engineering.

HEC-RAS Effective Model

The Effective HEC-RAS project file entitled EYAMPA.prj was used as a basis for the HEC-RAS analysis, which was obtained from Michael Baker International on June 19, 2015. The HEC-RAS Plan entitled EYAMPA.p05 includes the 100-yr floodway run and was the only storm frequency analyzed.

FEMA's National Flood Hazard Layer (NFHL) Viewer was referenced on January 12, 2022, in order to verify that the effective FIRM mapping had not changed since obtaining the HEC-RAS model from

Michael Baker in 2015. The date of the effective FIRM is February 4, 2005, therefore the regulatory model obtained in 2015 could still be used as a basis for the Proposed Project hydraulic analysis. See Exhibit 1.

HEC-RAS Duplicate Effective Model

The Effective HEC-RAS project file entitled EYAMPA.prj was used as a basis for the Duplicate Effective model. The HEC-RAS Plan entitled WC 100-yr DE.p05 includes the 100-yr floodway run and was the only storm frequency analyzed. The river cross-sections and peak discharges in the Duplicate Effective model remained unchanged from the Effective model.

Output from the Duplicate Effective model can be found in Appendix A of this report.

HEC-RAS Existing Conditions Model

An Existing Conditions HEC-RAS model has been prepared as part of this final hydraulic analysis and includes improved topographic information along the study reach. The Duplicate Effective model has been used as a basis for the Existing Conditions model and improved topographic information has been applied to Cross-Sections 1578 through 7176.41.

The Existing Conditions model includes: a future bridge crossing at Stone Lane; a proposed inline overflow weir at the southwest corner of the Homewood Suites property; a lateral weir defined by the existing topography beginning at the Highway 40 bridge crossing and ending at the upstream split flow junction, and a new split flow channel that commences at a junction roughly 0.28 miles upstream of the subject site.

Although the inline weir and new 48" diameter culvert at Stone Lane are proposed improvements, they are included in the Existing Conditions model to reflect the modifications necessary to alleviate flooding of properties along the east side of Highway 40, which was a concern raised by staff at the City of Steamboat Springs.

Output from the Existing Conditions model can be found in Appendix B of this report.

HEC-RAS Proposed Project Model

The Existing Conditions HEC-RAS model was used as a basis for the Proposed Project model, which is entitled WaltonCreek-PP.prj. The Proposed Project model includes all the elements described in the Existing Conditions model and the placement of fill on the proposed Hampton Inn & Holiday Inn Express site.

Results from the final Proposed Project analysis show that roughly 74% of the flood flow remains in the Walton Creek main channel and overbanks, and the remaining 26% (138.97 cfs) will be conveyed in the east roadside ditch along Highway 40.

Prelim. Floodplain Analysis. The over-topping of Stone Lane needs further study and discussion. What is the overflow path?

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Roughly 138.97 cfs passes over the inline structure located at the southwest corner of the Homewood Suites property, which has an overtopping elevation of 6762.0. See detail in Appendix E.

The 100-yr high water elevation at the upstream end of the two culverts (1-48" existing and 1-48" proposed) at Stone Lane is estimated to be 6760.77 with a road overtopping elevation of 6761.05. As per the Elevation Certificate dated November 2, 2018, the finished floor elevation of the Homewood Suites building is 6762.53. Without the additional 48" diameter culvert, Stone Lane will overtop during the 100-yr flood.

Output from the Proposed Project model can be found in Appendix C of this report.

CONCLUSIONS

Results of the Final HEC-RAS modeling indicate that an overflow weir at the southwest corner of the Homewood Suites property can effectively limit the discharge at the existing roadside ditch along the east side of Highway 40. The notch elevation of the weir would be set at 6762.00 (NGVD29) and is 1-foot high for a top elevation of 6763.00. The notch elevation is roughly 3.6-feet above the thalweg in the split flow channel-roadside ditch.

The dramatic difference in the water surface elevations beginning at Cross-Section 4667 can be attributed to the inline weir and berm that was constructed in 2020 along the south property line of the Homewood Suites site, which serves to back up the flood flows until it either overtops the weir or returns to the main channel. The dramatic decreases in the water surface elevations from Cross Section 5209 to 7577 can be attributed to the split flow which diverts roughly 500 cfs from the main channel to the split flow channel. Improved topographic mapping is also a factor.

When comparing the results of the Duplicate Effective versus Existing Conditions models, the net change in the 100-yr WSEL between Cross-Sections 3609 and 9027 is as follows.

Comparison of Duplicate Effective vs. Existing Conditions Models
100-yr Water Surface Elevations

River	River Station	Duplicate Effective Model WSEL (ft)	Existing Conditions Model WSEL (ft)	Difference in Elevation (ft)
Walton Creek	3609	6758.85	6758.67	-0.18
Walton Creek	3639	6759.08	6758.82	-0.26
Walton Creek	4667	6760.03	6761.92	+1.89
Walton Creek	5209	6764.84	6763.03	-1.81
Walton Creek	5550.12	6766.51	6763.91	-2.60
Walton Creek	5892	6766.74	6764.73	-2.01
Walton Creek	6375	6770.22	6767.46	-2.76
Walton Creek	7577	6771.11	6768.57	-2.54
Walton Creek	8070	6775.39	6775.39	0.0

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Walton Creek	8402	6776.76	6776.76	0.0
Walton Creek	9027	6777.23	6777.23	0.0

When comparing the results of the Existing Conditions versus Proposed Project models, the net change in the 100-yr WSEL between Cross-Sections 3742 and 4178.71 is as follows.

Comparison of Existing Conditions vs. Proposed Project Models
100-yr Water Surface Elevations

River	River Station	Existing Conditions Model WSEL (ft)	Proposed Project Model WSEL (ft)	Difference in Elevation (ft)
Walton Creek	3742	6759.25	6759.26	+0.10
Walton Creek	3887.57	6759.32	6759.32	0.0
Walton Creek	4033.14	6759.70	6759.62	-0.08
Walton Creek	4178.71	6759.98	6759.95	-0.03

Cross Section 3742 is located along the north (downstream) side of the proposed Hampton Inn & Holiday Inn Express project and Cross-Section 4178.71 is located along the north right-of-way line of Stone Lane.

Results of both the Existing Conditions and Proposed Project models indicate that flood flows in the east roadside ditch along Highway 40 appear to stay contained within the channel with no road overtopping. This is a result of the proposed inline weir and additional 48" diameter culvert at Stone Lane.

Recommendations include:

1. Installation of an additional 48" diameter culvert at Stone Lane.
2. Installation of an overflow weir in the east roadside ditch along Highway 40 near the southwest corner of the Homewood Suites site.
3. Raise the top of berm along the south property line of the Homewood Suites property 2-feet to prevent overtopping of the 100-yr flood flow.

Sincerely,
WOHNRADE CIVIL ENGINEERS, INC.

M. Wohnrade

Mary B. Wohnrade, P.E. - Principal
Registered Engineer - CO

Wohnrade Civil Engineers, Inc.
11582 Colony Row, Broomfield, Colorado 80021
Phone: 720-259-0965
Fax: 720-259-1519

National Flood Hazard Layer FIRMette

FEMA

106°49'11"W 40°26'55"N

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

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

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

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

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

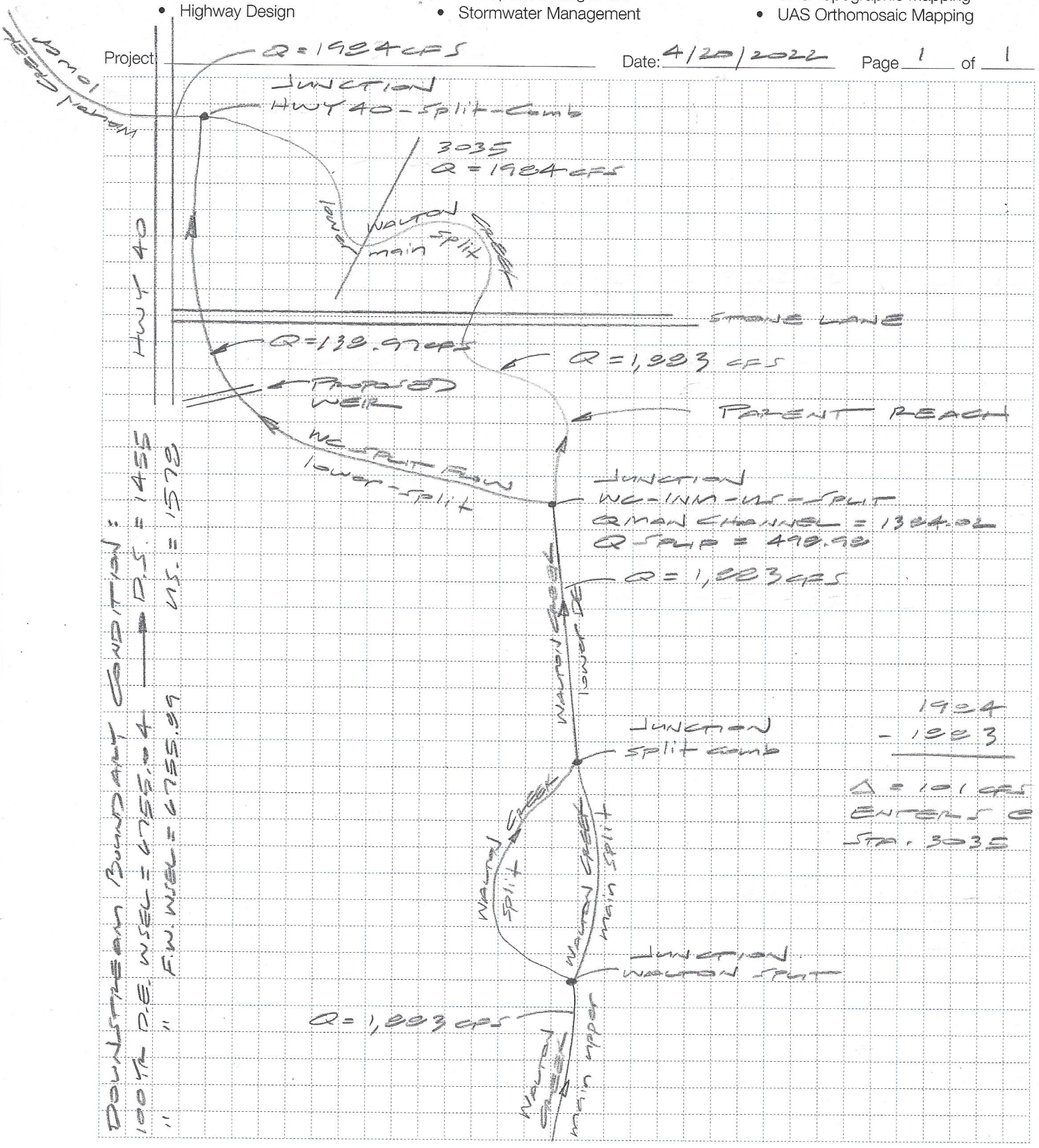
The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/2/2021 at 11:18 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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

Wohnrade Civil Engineers

- Land Development
- Highway Design
- Floodplain Management
- Stormwater Management
- UAS Topographic Mapping
- UAS Orthomosaic Mapping

Project _____ Date: 4/20/2022 Page 1 of 1



11582 Colony Row, Broomfield, CO 80021 P (720) 259-0965 F (720) 259-1519

"Applying Principals and Practices"

Wohnrade
Civil Engineers

Appendix A

Duplicate Effective Model Output

HEC-RAS HEC-RAS 5.0.7 March 2019
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: WC 100-yr DE
Project File : WaltonCreek-DE.prj
Run Date and Time: 2/12/2022 10:35:54 AM

Project in English units

Project Description:
WaltonCreekDE.prj HEC-RAS version 5.0.7 model for Duplicate Effective Conditions

Includes the Yampa River and Tributaries Near Steamboat Springs,
CO

The Duplicate Effective Model Plan includes:

Plan 05: 100-yr Floodway
Run

PLAN DATA

Plan Title: WC 100-yr DE
Plan File : s:\2111_00_INM\04_DOCUMENTS\HEC-RAS\HOMEWOOD SUITES MODELS\DUPLICATE EFFECTIVE\WaltonCreek-DE.p05

Geometry Title: WC 100-yr DE
Geometry File : s:\2111_00_INM\04_DOCUMENTS\HEC-RAS\HOMEWOOD SUITES MODELS\DUPLICATE EFFECTIVE\WaltonCreek-DE.g04

Flow Title : WC 100-yr DE FW
Flow File : s:\2111_00_INM\04_DOCUMENTS\HEC-RAS\HOMEWOOD SUITES MODELS\DUPLICATE EFFECTIVE\WaltonCreek-DE.f01

Plan Description:
This plan is the Duplicate Effective model for the 100-year event. The model extends from the confluence with the Yampa River (Cross Section 813, Lower Reach) to just upstream of County Road 24 (Cross Section 13645, Main Upper Reach).

The plan includes:

Geometry: WaltonCreek-DE.g04
Steady Flow:
WaltonCreek-DE.f01

Plan Summary Information:

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
main upper	13645	100-yr	1883.00	6817.46	6824.21		6824.31	0.000941	3.06	1128.83	612.02	0.26
main upper	13145	100-yr	1883.00	6817.46	6822.35	6822.35	6823.10	0.011733	7.53	340.66	238.76	0.83
split	12570	100-yr	654.56	6807.40	6810.36		6810.55	0.008165	4.16	223.87	221.13	0.56
split	12514.2*	100-yr	654.56	6806.66	6809.64		6809.89	0.008173	4.46	203.65	207.00	0.59
split	12458.4*	100-yr	654.56	6805.92	6808.87		6809.19	0.008641	4.82	176.44	186.31	0.62
split	12402.6*	100-yr	654.56	6805.18	6808.46		6808.67	0.004214	3.86	222.58	205.11	0.46
split	12346.8*	100-yr	654.56	6804.44	6808.37		6808.46	0.001305	2.63	339.86	223.29	0.27
split	12291	100-yr	654.56	6803.70	6808.27	6805.86	6808.37	0.000826	2.52	259.59	226.78	0.23
split	12250		Bridge									
split	12202	100-yr	654.56	6803.70	6805.85	6805.85	6806.61	0.020076	6.98	93.72	60.95	0.99
split	12112	100-yr	654.56	6801.09	6806.04		6806.06	0.000287	1.13	576.89	236.68	0.13
main split	12570.	100-yr	1228.44	6807.23	6809.84	6809.77	6810.55	0.018247	6.78	181.53	116.58	0.95
main split	12291	100-yr	1228.44	6801.38	6807.81	6806.11	6808.40	0.004270	6.19	203.87	199.64	0.53
main split	12250		Bridge									
main split	12202	100-yr	1228.44	6801.65	6806.64	6805.69	6807.32	0.005683	6.71	191.69	167.21	0.61
main split	12112	100-yr	1228.44	6800.95	6806.63	6804.70	6806.85	0.001638	3.93	390.73	139.57	0.34
lower-DE	11692	100-yr	1883.00	6799.38	6804.48	6804.48	6805.22	0.008492	7.52	380.77	310.65	0.73
lower-DE	11280	100-yr	1883.00	6791.13	6795.21	6794.38	6795.65	0.010546	6.21	426.35	309.53	0.76
lower-DE	10714	100-yr	1883.00	6783.81	6790.43	6789.96	6790.75	0.007455	4.53	415.78	244.92	0.61
lower-DE	9997	100-yr	1883.00	6781.76	6785.56	6785.12	6785.95	0.008868	6.90	528.67	503.47	0.73
lower-DE	9471	100-yr	1883.00	6775.50	6780.79	6780.45	6781.44	0.006749	6.88	360.55	201.80	0.64
lower-DE	9027	100-yr	1883.00	6773.68	6777.23	6776.70	6778.03	0.009136	7.18	268.20	996.85	0.74
lower-DE	8734	100-yr	1883.00	6771.83	6777.12	6775.11	6777.21	0.000891	2.47	890.94	1784.04	0.24
lower-DE	8402	100-yr	1883.00	6772.45	6776.76	6775.66	6776.85	0.001415	2.79	953.02	1642.82	0.29
lower-DE	8070	100-yr	1883.00	6773.07	6775.39	6775.39	6775.75	0.018372	6.05	494.78	1391.90	0.93
lower-DE	7577	100-yr	1883.00	6765.79	6768.57	6767.68	6768.63	0.003756	2.91	1018.87	1277.80	0.43
lower-DE	7176.41	100-yr	1883.00	6764.97	6768.32	6766.75	6768.39	0.001070	2.26	955.69	821.63	0.25
lower-DE	6775.68	100-yr	1883.00	6765.16	6768.29	6768.29	6768.30	0.000259	1.14	2513.64	1128.41	0.12
lower-DE	6375	100-yr	1883.00	6764.27	6767.46	6767.11	6767.48	0.000487	1.44	2046.24	1063.99	0.17
lower-split	1001	100-yr	498.97	6763.00	6766.39	6766.39	6767.01	0.012218	6.69	97.83	693.65	0.81
lower-split	1000	100-yr	138.97	6763.04	6763.37		6763.37	0.000067	0.06	327.53	211.89	0.04
lower-split	999.6	100-yr	138.97	6761.26	6762.82	6762.77	6763.19	0.020959	5.14	29.75	36.31	0.93
lower-split	999	100-yr	138.97	6757.51	6763.02		6763.02	0.000051	0.51	474.67	368.24	0.05
lower-split	998.8	100-yr	138.97	6756.96	6763.01		6763.01	0.000008	0.27	731.30	246.74	0.02
lower-split	998.7	100-yr	138.97	6758.40	6762.98	6760.59	6763.01	0.000325	1.15	128.68	122.74	0.13
lower-split	998.6		Inl Struct									
lower-split	998.56	100-yr	138.97	6757.62	6760.78		6760.81	0.000761	1.29	107.96	75.68	0.19
lower-split	998.5	100-yr	138.97	6757.02	6760.77	6759.29	6760.78	0.000076	0.06	187.48	111.58	0.01
lower-split	998.46		Culvert									
lower-split	998.4	100-yr	138.97	6756.42	6759.29		6759.34	0.001387	1.62	86.83	71.10	0.25
lower-split	998.3	100-yr	138.97	6755.91	6759.24		6759.27	0.000897	1.26	110.33	89.09	0.20
lower-split	998.2	100-yr	138.97	6754.38	6759.19		6759.20	0.000216	0.84	164.93	83.38	0.11
lower-split	998	100-yr	138.97	6754.86	6759.16		6759.17	0.000159	0.81	172.03	77.53	0.09
lower-split	997.8	100-yr	138.97	6753.98	6759.16		6759.16	0.000052	0.53	262.40	89.92	0.05
lower-split	997	100-yr	138.97	6753.95	6759.00	6756.51	6759.09	0.001002	2.43	57.28	20.74	0.26
lower-split	996.45		Culvert									
lower-split	996	100-yr	138.97	6752.86	6758.14		6758.20	0.000725	1.94	71.78	24.14	0.20
lower-split	995.7	100-yr	138.97	6754.13	6757.87		6757.95	0.002220	2.29	60.77	39.37	0.32
lower-split	995.5	100-yr	138.97	6752.66	6757.68	6755.42	6757.75	0.000786	2.24	68.93	33.71	0.23
lower-split	995.45		Culvert									
lower-split	995.4	100-yr	138.97	6751.50	6756.56	6753.98	6756.62	0.000822	2.08	66.75	29.24	0.22
lower-split	995.2	100-yr	138.97	6752.33	6755.30	6755.30	6756.09	0.021464	7.13	19.49	12.65	1.01
lower-split	995	100-yr	138.97	6751.22	6755.42		6755.47	0.000544	1.82	91.27	41.77	0.19
lower-main split	5893	100-yr	1384.03	6764.64	6766.85		6767.01	0.003828	3.30	439.44	283.72	0.44
lower-main split	5892.9		Lat Struct									
lower-main split	5892.0	100-yr	1384.19	6761.21	6764.73	6764.73	6765.42	0.009892	7.30	258.00	201.32	0.77
lower-main split	5550.12	100-yr	1384.77	6761.21	6763.91		6764.07	0.006110	4.44	515.02	503.74	0.57
lower-main split	5209	100-yr	1391.43	6759.71	6763.03	6762.03	6763.16	0.003783	2.97	510.83	442.21	0.43
lower-main split	4667	100-yr	1430.43	6757.16	6761.92	6760.23	6761.95	0.000620	2.27	1142.16	647.82	0.20
lower-main split	4571.82	100-yr	1450.18	6757.22	6761.65	6760.34	6761.82	0.002055	4.24	511.15	239.12	0.37
lower-main split	4262.82	100-yr	1504.93	6754.54	6760.70	6760.03	6761.06	0.002927	5.59	411.61	555.76	0.45
lower-main split	4220.82		Bridge									
lower-main split	4178.71	100-yr	1504.93	6753.81	6759.95	6758.42	6760.07	0.001171	3.70	676.66	284.82	0.29
lower-main split	4033.14	100-yr	1509.71	6753.43	6759.62		6759.83	0.001617	4.30	520.30	252.76	0.34
lower-main split	3887.57	100-yr	1519.52	6752.84	6759.32		6759.57	0.001912	4.66	472.82	205.33	0.37

lower-main split	3742	100-yr	1529.98	6752.95	6759.26		6759.34	0.000837	3.26	792.42	284.55	0.25
lower-main split	3640	100-yr	1541.16	6752.89	6758.92	6757.50	6759.24	0.002439	4.90	407.70	187.57	0.41
lower-main split	3639	100-yr	1555.00	6752.65	6758.82	6756.42	6759.11	0.002014	4.36	359.23	88.30	0.37
lower-main split	3622		Bridge									
lower-main split	3609	100-yr	1555.00	6753.33	6758.67		6759.02	0.002916	4.77	330.93	133.33	0.44
lower-main split	3379	100-yr	1562.86	6752.32	6758.16	6756.23	6758.45	0.002080	4.66	440.62	542.36	0.38
lower-main split	3035	100-yr	1664.49	6751.55	6757.89	6755.57	6757.98	0.000774	2.85	788.91	671.95	0.23
lower-main split	2665	100-yr	1675.36	6747.30	6757.88		6757.89	0.000078	1.43	2087.69	538.07	0.08
lower-main split	2539	100-yr	1693.63	6747.21	6757.86	6750.84	6757.88	0.000093	1.23	1682.28	471.62	0.09
lower-main split	2528		Bridge									
lower-main split	2517	100-yr	1693.63	6747.41	6757.80		6757.85	0.000228	1.73	985.33	206.14	0.13
lower-main split	2294	100-yr	1730.72	6751.03	6757.53		6757.71	0.001190	3.71	583.36	174.54	0.29
lower-main split	2103	100-yr	1755.50	6750.42	6757.17		6757.42	0.001818	5.11	516.60	154.96	0.37
lower-main split	1790	100-yr	1782.93	6750.40	6757.03	6754.58	6757.27	0.001346	4.59	539.69	155.80	0.32
lower-main split	1789	100-yr	1845.03	6750.35	6756.86		6757.02	0.000824	3.44	631.49	164.48	0.25
lower-main split	1640.	100-yr	1845.03	6750.41	6754.71	6754.71	6756.55	0.014493	10.93	172.47	63.04	0.98
lower	1578	100-yr	1984.00	6744.57	6755.26	6749.30	6755.46	0.000551	3.55	559.48	385.01	0.21
lower	1516		Bridge									
lower	1455	100-yr	1984.00	6744.90	6755.04	6748.88	6755.22	0.000549	3.40	583.77	650.62	0.20

Profile Output Table - Standard Table 2

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Vel Head (ft)	Frctn Loss (ft)	C & E Loss (ft)	Q Left (cfs)	Q Channel (cfs)	Q Right (cfs)	Top Width (ft)
main upper	13645	100-yr	6824.31	6824.21	0.09	1.14	0.07	549.52	1097.81	235.67	612.02
main upper	13145	100-yr	6823.10	6822.35	0.75	7.95	0.01	316.24	1566.76		238.76
split	12570	100-yr	6810.55	6810.36	0.20	0.66	0.01		434.34	220.22	221.13
split	12514.2*	100-yr	6809.89	6809.64	0.25	0.69	0.01		507.12	147.44	207.00
split	12458.4*	100-yr	6809.19	6808.87	0.32	0.49	0.03		575.52	79.05	186.31
split	12402.6*	100-yr	6808.67	6808.46	0.21	0.18	0.03		578.05	76.51	205.11
split	12346.8*	100-yr	6808.46	6808.37	0.09	0.09	0.00	2.24	536.90	115.42	223.29
split	12291	100-yr	6808.37	6808.27	0.10	0.04	0.12		654.56		226.78
split	12250		Bridge								
split	12202	100-yr	6806.61	6805.85	0.76	0.08	0.37		654.56		60.95
split	12112	100-yr	6806.06	6806.04	0.02	0.76	0.07		654.56		236.68
main split	12570.	100-yr	6810.55	6809.84	0.71	2.09	0.06		1228.04	0.40	116.58
main split	12291	100-yr	6808.40	6807.81	0.59	0.14	0.12	10.60	1217.84		199.64
main split	12250		Bridge								
main split	12202	100-yr	6807.32	6806.64	0.68	0.24	0.24	13.64	1191.82	22.98	167.21
main split	12112	100-yr	6806.85	6806.63	0.21	1.57	0.05	157.42	1053.74	17.27	139.57
lower-DE	11692	100-yr	6805.22	6804.48	0.74	3.85	0.09	306.82	1575.97	0.21	310.65
lower-DE	11280	100-yr	6795.65	6795.21	0.43	4.86	0.03	2.11	1193.55	687.35	309.53
lower-DE	10714	100-yr	6790.75	6790.43	0.32	4.79	0.01		1883.00		244.92
lower-DE	9997	100-yr	6785.95	6785.56	0.39	4.48	0.03	1.20	856.95	1024.85	503.47
lower-DE	9471	100-yr	6781.44	6780.79	0.65	3.40	0.01	226.55	1656.45		201.80
lower-DE	9027	100-yr	6778.03	6777.23	0.80	0.61	0.21		1877.16	5.84	996.85
lower-DE	8734	100-yr	6777.21	6777.12	0.09	0.36	0.00	178.95	1702.00	2.05	1784.04
lower-DE	8402	100-yr	6776.85	6776.76	0.09	1.08	0.03	536.35	1341.43	5.22	1642.82
lower-DE	8070	100-yr	6775.75	6775.39	0.36	2.80	0.09	854.15	1028.85		1391.90
lower-DE	7577	100-yr	6768.63	6768.57	0.06	0.24	0.00	1539.37	343.63		1277.80
lower-DE	7176.41	100-yr	6768.39	6768.32	0.07	0.08	0.02	147.66	1729.88	5.46	821.63
lower-DE	6775.68	100-yr	6768.30	6768.29	0.01	0.05	0.00	1616.53	132.90	133.57	1128.41
lower-DE	6375	100-yr	6767.48	6767.46	0.01	0.45	0.01	1544.56	220.65	117.79	1063.99
lower-split	1001	100-yr	6767.01	6766.39	0.62	0.20	0.19	57.32	441.58	0.07	693.65
lower-split	1000	100-yr	6763.37	6763.37	0.00	0.14	0.04	137.66	0.06	1.25	211.89
lower-split	999.6	100-yr	6763.19	6762.82	0.38	0.06	0.11	16.81	122.16		36.31
lower-split	999	100-yr	6763.02	6763.02	0.00	0.01	0.00	68.19	42.99	27.79	368.24
lower-split	998.8	100-yr	6763.01	6763.01	0.00	0.00	0.00	37.99	29.64	71.34	246.74
lower-split	998.7	100-yr	6763.01	6762.98	0.02				137.76	1.21	122.74
lower-split	998.6		Inl Struct								
lower-split	998.56	100-yr	6760.81	6760.78	0.03	0.02	0.00		138.97		75.68
lower-split	998.5	100-yr	6760.78	6760.77	0.01			0.55	2.67	135.75	111.58
lower-split	998.46		Culvert								
lower-split	998.4	100-yr	6759.34	6759.29	0.04	0.07	0.00	2.46	136.51		71.10
lower-split	998.3	100-yr	6759.27	6759.24	0.02	0.06	0.00		138.97		89.09
lower-split	998.2	100-yr	6759.20	6759.19	0.01	0.03	0.00		138.97		83.38
lower-split	998	100-yr	6759.17	6759.16	0.01	0.01	0.00	0.66	137.77	0.54	77.53
lower-split	997.8	100-yr	6759.16	6759.16	0.00	0.06	0.01		138.97		89.92
lower-split	997	100-yr	6759.09	6759.00	0.09				138.97		20.74
lower-split	996.45		Culvert								
lower-split	996	100-yr	6758.20	6758.14	0.06	0.24	0.00		138.97		24.14
lower-split	995.7	100-yr	6757.95	6757.87	0.08	0.20	0.00		138.97		39.37
lower-split	995.5	100-yr	6757.75	6757.68	0.07				131.35	7.62	33.71
lower-split	995.45		Culvert								
lower-split	995.4	100-yr	6756.62	6756.56	0.07	0.45	0.07		138.97		29.24
lower-split	995.2	100-yr	6756.09	6755.30	0.79	0.21	0.22		138.97		12.65
lower-split	995	100-yr	6755.47	6755.42	0.04	0.00	0.02	4.67	113.17	21.13	41.77
lower-main split	5893	100-yr	6767.01	6766.85	0.16	1.53	0.05	53.29	1330.74		283.72
lower-main split	5892.9		Lat Struct								
lower-main split	5892.0	100-yr	6765.42	6764.73	0.69	1.09	0.16	216.98	1124.88	42.33	201.32
lower-main split	5550.12	100-yr	6764.07	6763.91	0.16	0.90	0.01	866.96	506.58	11.22	503.74
lower-main split	5209	100-yr	6763.16	6763.03	0.13	1.18	0.03	112.74	1278.69		442.21
lower-main split	4667	100-yr	6761.95	6761.92	0.04	0.12	0.01	915.56	463.15	51.72	647.82
lower-main split	4571.82	100-yr	6761.82	6761.65	0.17	0.75	0.02	768.22	655.63	26.33	239.12
lower-main split	4262.82	100-yr	6761.06	6760.70	0.35	0.09	0.15	14.39	1023.80	466.75	555.76
lower-main split	4220.82		Bridge								
lower-main split	4178.71	100-yr	6760.07	6759.95	0.12	0.21	0.03	383.24	699.39	422.31	284.82
lower-main split	4033.14	100-yr	6759.83	6759.62	0.21	0.26	0.00	288.06	1041.52	180.12	252.76
lower-main split	3887.57	100-yr	6759.57	6759.32	0.25	0.18	0.05	469.82	1038.14	11.56	205.33

lower-main split	3742	100-yr	6759.34	6759.26	0.08	0.07	0.02	724.63	437.16	368.18	284.55
lower-main split	3640	100-yr	6759.24	6758.92	0.32	0.12	0.01	219.40	1264.45	57.31	187.57
lower-main split	3639	100-yr	6759.11	6758.82	0.29	0.02	0.00	3.82	1551.18		88.30
lower-main split	3622		Bridge								
lower-main split	3609	100-yr	6759.02	6758.67	0.35	0.54	0.03	2.08	1552.91		133.33
lower-main split	3379	100-yr	6758.45	6758.16	0.28	0.40	0.06	279.42	1283.44		542.36
lower-main split	3035	100-yr	6757.98	6757.89	0.09	0.07	0.02	675.63	908.59	80.27	671.95
lower-main split	2665	100-yr	6757.89	6757.88	0.02	0.01	0.00	755.58	707.19	212.59	538.07
lower-main split	2539	100-yr	6757.88	6757.86	0.02	0.00	0.00	53.04	1484.78	155.81	471.62
lower-main split	2528		Bridge								
lower-main split	2517	100-yr	6757.85	6757.80	0.05	0.10	0.04	4.09	1689.54		206.14
lower-main split	2294	100-yr	6757.71	6757.53	0.18	0.28	0.01	45.76	1360.04	324.91	174.54
lower-main split	2103	100-yr	6757.42	6757.17	0.26	0.15	0.01	91.77	913.39	750.34	154.96
lower-main split	1790	100-yr	6757.27	6757.03	0.24	0.22	0.02	269.97	1157.78	355.19	155.80
lower-main split	1789	100-yr	6757.02	6756.86	0.17	0.31	0.17	165.07	1652.32	27.65	164.48
lower-main split	1640.	100-yr	6756.55	6754.71	1.84	0.00	0.82	0.20	1827.00	17.83	63.04
lower	1578	100-yr	6755.46	6755.26	0.20			1.30	1982.70		385.01
lower	1516		Bridge								
lower	1455	100-yr	6755.22	6755.04	0.18				1984.00		650.62

Profile Output Table - Culvert Only

Reach	River Sta		Profile	E.G. US. (ft)	W.S. US. (ft)	E.G. IC (ft)	E.G. OC (ft)	Min El Weir Flow (ft)	Q Culv Group (cfs)	Q Weir (cfs)	Delta WS (ft)	Culv Vel US (ft/s)	Culv Vel DS (ft/s)
lower-split	998.46	Culvert #1	100-yr	6760.78	6760.77	6760.46	6760.78	6761.13	63.71		1.47	5.34	5.77
lower-split	998.46	Culvert #2	100-yr	6760.78	6760.77	6760.43	6760.79	6761.13	75.26		1.47	7.73	6.80
lower-split	996.45	Culvert #1	100-yr	6759.09	6759.00	6758.68	6759.09	6759.99	138.97		0.86	6.33	5.18
lower-split	995.45	Culvert #1	100-yr	6757.75	6757.68	6757.20	6757.75	6758.94	138.97		1.12	6.11	6.01

Profile Output Table - Bridge Only

Reach	River Sta	Profile	E.G. US. (ft)	Min El Prs (ft)	BR Open Area (sq ft)	Prs O WS (ft)	Q Total (cfs)	Min El Weir Flow (ft)	Q Weir (cfs)	Delta EG (ft)	BR Sluice Coef
split	12250	100-yr	6808.37	6808.10	124.14		654.56	6809.51		1.75	
main split	12250	100-yr	6808.40	6810.72	272.88		1228.44	6811.29		1.08	
lower-main split	4220.82	100-yr	6761.06	6760.92	422.75		1504.93	6762.01		0.99	
lower-main split	3622	100-yr	6759.11	6761.55	514.49		1555.00	6759.51		0.09	
lower-main split	2528	100-yr	6757.88	6756.83	720.66		1693.63	6756.30		0.03	
lower	1516	100-yr	6755.46	6754.78	479.89	6755.26	1984.00	6757.54		0.24	

Profile Output Table - Inline Structure

Reach	River Sta	Profile	E.G. Elev (ft)	W.S. Elev (ft)	Q Total (cfs)	Q Weir (cfs)	Q Gates (cfs)	Q Culv (cfs)	Q Inline RC (cfs)	Q Outlet TS (cfs)	Q Breach (cfs)
lower-split	998.6	100-yr	6763.01	6762.98	138.97	138.97					

Profile Output Table - Lateral Structures

Reach	River Sta	Profile	Q US (cfs)	Q Leaving Total (cfs)	Q DS (cfs)	Q Weir (cfs)	Q Gates (cfs)	Wr Top Wdth (ft)	Weir Max Depth (ft)	Weir Avg Depth (ft)	Min El Weir Flow (ft)	E.G. US. (ft)	W.S. US. (ft)	E.G. DS (ft)	W.S. DS (ft)
lower-main split	5892.9	100-yr	1384.03	-57996.44	1845.03	-57996.44		2905.36	11.16	3.90	6753.72	6766.89	6766.68	6757.11	6756.92

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Appendix D

HY-8 Output

HY-8 Culvert Analysis Report

Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

Minimum Flow: 100.00 cfs

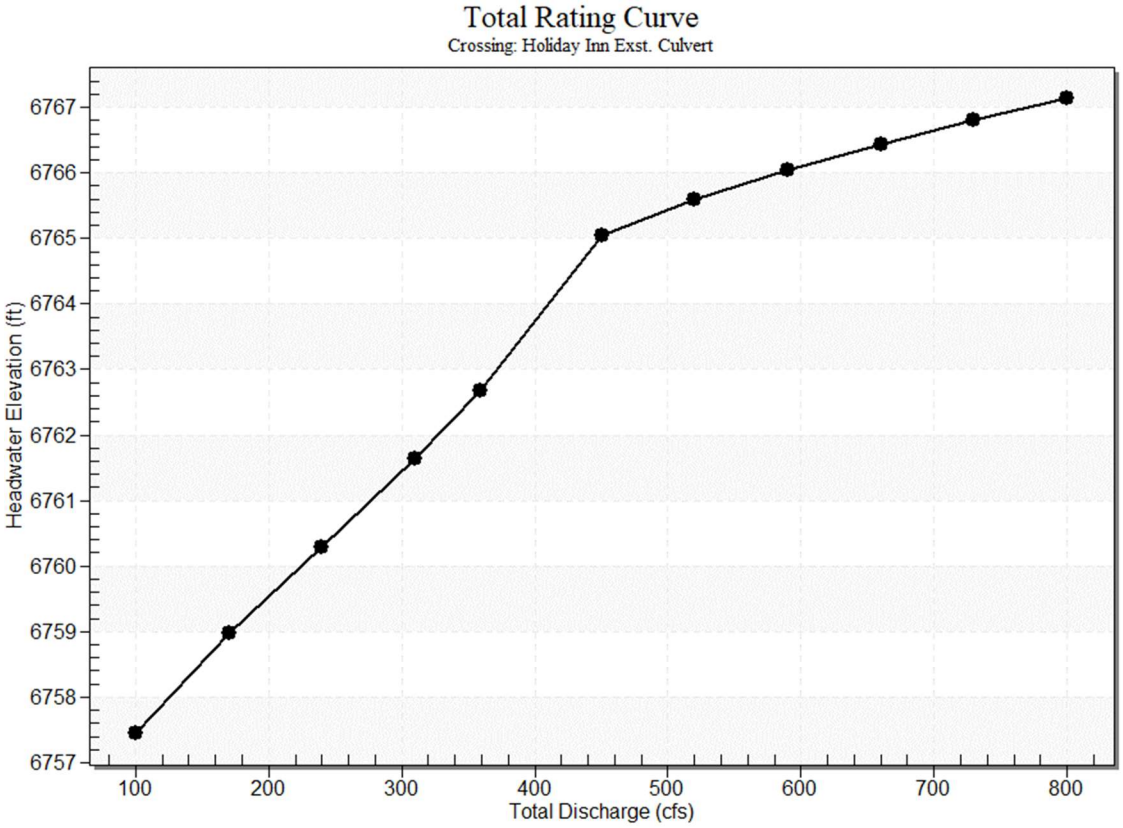
Design Flow: 359.00 cfs= HW/D= 1.48

Maximum Flow: 800.00 cfs

Table 1 - Summary of Culvert Flows at Crossing: Holiday Inn Exst. Culvert

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
6757.45	100.00	100.00	0.00	1
6758.97	170.00	170.00	0.00	1
6760.29	240.00	240.00	0.00	1
6761.64	310.00	310.00	0.00	1
6762.68	359.00	359.00	0.00	1
6765.04	450.00	433.90	15.97	8
6765.59	520.00	451.16	68.81	4
6766.04	590.00	464.43	125.53	4
6766.44	660.00	476.50	183.48	4
6766.80	730.00	486.93	243.04	3
6767.14	800.00	496.30	303.66	4
6764.61	421.05	421.05	0.00	Overtopping

Rating Curve Plot for Crossing: Holiday Inn Exst. Culvert



Culvert Data: Culvert 1

Table 2 - Culvert Summary Table: Culvert 1

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
100.00 cfs	100.00 cfs	6757.45	3.64	1.957	1-S2n	2.35	2.69	2.36	0.77	9.66	16.34
170.00 cfs	170.00 cfs	6758.97	5.16	3.473	1-S2n	3.18	3.55	3.20	1.03	11.08	19.18
240.00 cfs	240.00 cfs	6760.29	6.48	5.159	5-S2n	3.98	4.24	3.99	1.24	12.01	21.21
310.00 cfs	310.00 cfs	6761.64	7.75	7.829	7-M2c	4.95	4.81	4.81	1.42	12.77	22.82

359.00 cfs	359.00 cfs	6762.68	8.69	8.866	7-M2c	6.00	5.12	5.12	1.53	13.97	23.78
450.00 cfs	433.90 cfs	6765.04	10.28	11.228	7-M2c	6.00	5.48	5.48	1.72	16.03	25.32
520.00 cfs	451.16 cfs	6765.59	10.67	11.784	7-M2c	6.00	5.54	5.54	1.86	16.55	26.35
590.00 cfs	464.43 cfs	6766.04	10.99	12.234	7-M2c	6.00	5.58	5.58	1.98	16.95	27.27
660.00 cfs	476.50 cfs	6766.44	11.28	12.627	7-M2c	6.00	5.61	5.61	2.09	17.33	28.11
730.00 cfs	486.93 cfs	6766.80	11.54	12.988	7-M2c	6.00	5.64	5.64	2.20	17.65	28.89
800.00 cfs	496.30 cfs	6767.14	11.78	13.326	7-M2c	6.00	5.66	5.66	2.30	17.95	29.60

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

Inlet Elevation (invert): 6753.81 ft,

Outlet Elevation (invert): 6752.73 ft

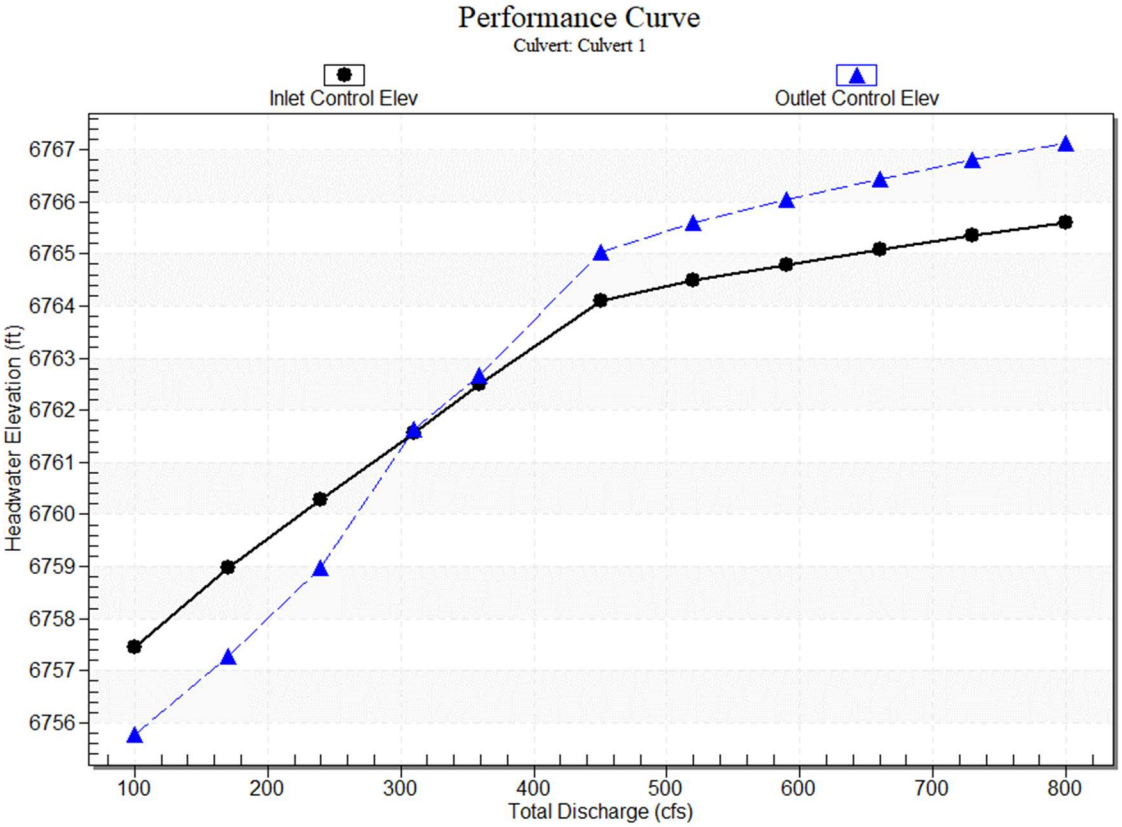
Culvert Length: 60.01 ft,

Culvert Slope: 0.0180

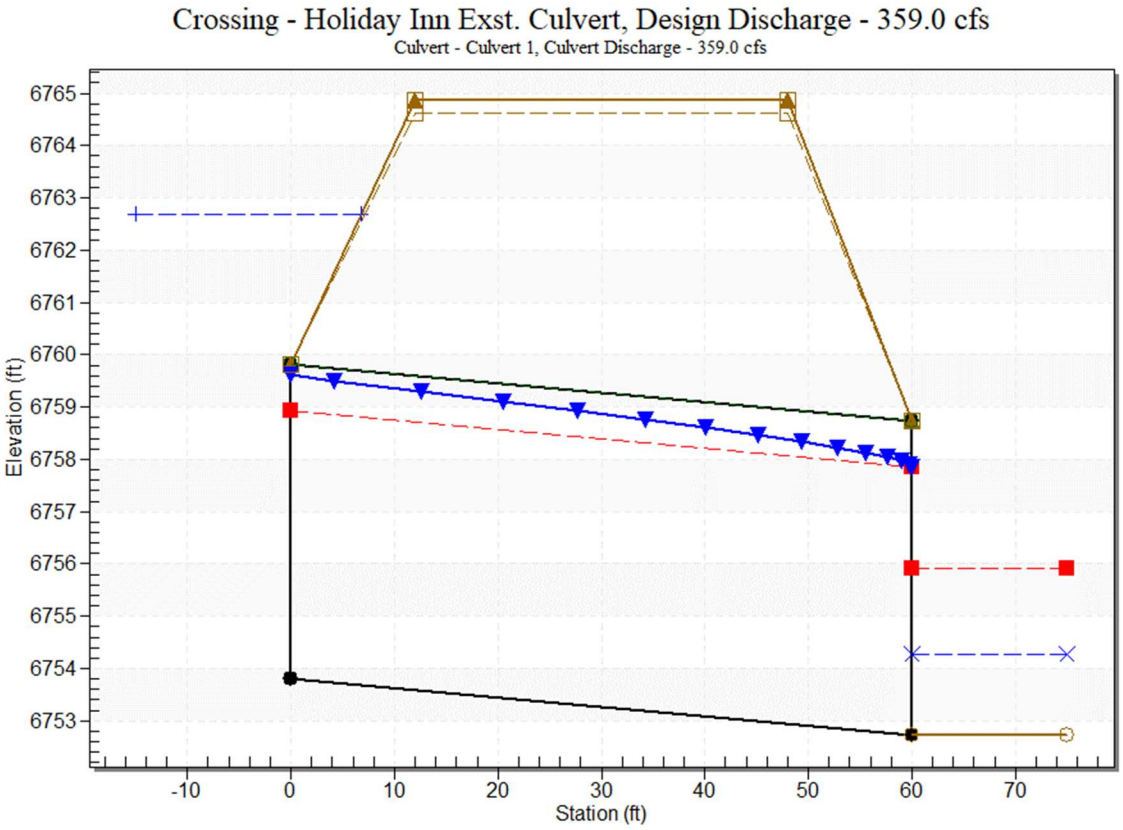
Inlet Throat Elevation: 6753.70 ft,

Inlet Crest Elevation: 0.00 ft

Culvert Performance Curve Plot: Culvert 1



Water Surface Profile Plot for Culvert: Culvert 1



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 6753.81 ft

Outlet Station: 60.00 ft

Outlet Elevation: 6752.73 ft

Number of Barrels: 1

Culvert Data Summary - Culvert 1

Barrel Shape: Circular

Barrel Diameter: 6.00 ft

Barrel Material: Corrugated Steel

Embedment: 0.00 in

Barrel Manning's n: 0.0240

Culvert Type: Side-Tapered, Circular

Inlet Configuration: Beveled Edge Top and Side (45-90º) Wingwall (Ke=0.2)

Inlet Depression: None

Tailwater Data for Crossing: Holiday Inn Exst. Culvert

Table 3 - Downstream Channel Rating Curve (Crossing: Holiday Inn Exst. Culvert)

Flow (cfs)	Water Surface Elev (ft)	Velocity (ft/s)	Depth (ft)	Shear (psf)	Froude Number
100.00	6753.50	0.77	16.34	18.30	3.65
170.00	6753.76	1.03	19.18	24.49	3.79
240.00	6753.97	1.24	21.21	29.46	3.88
310.00	6754.15	1.42	22.82	33.71	3.95
359.00	6754.26	1.53	23.78	36.39	3.99
450.00	6754.45	1.72	25.32	40.87	4.05
520.00	6754.59	1.86	26.35	43.99	4.09
590.00	6754.71	1.98	27.27	46.88	4.12
660.00	6754.82	2.09	28.11	49.58	4.15
730.00	6754.93	2.20	28.89	52.13	4.17
800.00	6755.03	2.30	29.60	54.54	4.20

Tailwater Channel Data - Holiday Inn Exst. Culvert

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 6.00 ft

Side Slope (H:V): 2.50 (_:1)

Channel Slope: 0.3800

Channel Manning's n: 0.0400

Channel Invert Elevation: 6752.73 ft

Roadway Data for Crossing: Holiday Inn Exst. Culvert

Roadway Profile Shape: Irregular Roadway Shape (coordinates)

Irregular Roadway Cross-Section

Coord No.	Station (ft)	Elevation (ft)
0	0.00	6764.86
1	10.82	6764.65
2	26.01	6764.61

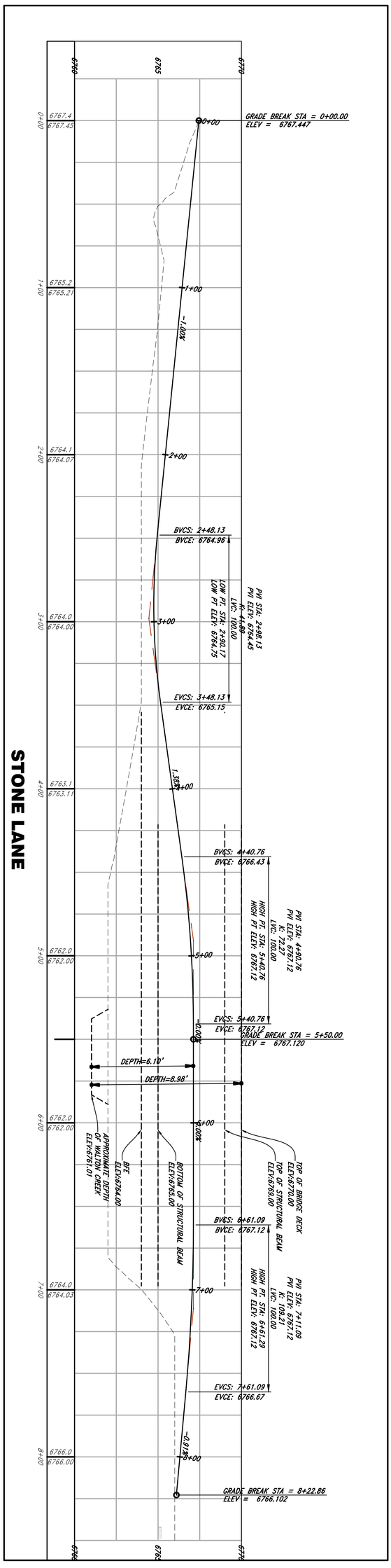
Roadway Surface: Paved

Roadway Top Width: 36.00 ft

Wohnrade
Civil Engineers

Appendix E

Reference Documents



HOMEWOOD SUITES
STEAMBOAT SPRINGS, COLORADO
PUBLIC IMPROVEMENT CONSTRUCTION PLANS

Sheet:
Of:

Date:
Job No:
Drawn:
Design:
Checked:
Scale:

NO	DATE	BY	CHK	DESCRIPTION

REVISIONS

OWEN CONSULTING GROUP, INC.
3715 Shallow Pond Drive
Ft. Collins, CO 80528
Phone: (970) 226-0264
larrycowen@comcast.net

CTB: FPSC-BW.CTB

BY: JOE WIEDEMEIER

PLOT DATE: 4/20/2022 9:07 AM

DRAWING FILE: P:\1448-005 LOT 1 INDIAN MEADOWS F3 HOTELS\FPSE\CONSTRUCTION PLANS\1448-005 EXISTING CONDITIONS.DWG

US HIGHWAY 40
RECEPTION NO. 680280 (115' R.O.W.)

412.61'
S0° 57' 00"W

15.0' UTILITY EASEMENT PER PLAT

EXISTING FIBER OPTIC & ELECTRICAL LINES

50.0' LANDSCAPE BUFFER & PUBLIC UTILITY EASEMENT PER PLAT

EXISTING WETLANDS(TYP.)

VALLEY PAN

HOTEL SIGN

ONLY

12" DIP WATER MAIN

20'x20' SIGN EASEMENT PER PLAT

CONC PEDESTRIAN SIDEWALK

8.0'

35.0' WIDE PUBLIC UTILITY EASEMENT

50.0' WIDE PUBLIC ACCESS, UNDERGROUND UTILITY & EMERGENCY SERVICE VEHICLE ACCESS EASEMENT

20.0' UTILITY EASEMENT DEDICATED TO MWW&S BY FINAL PLAT FILE NO. 14302

ELECTRIC PEDESTAL

FIRE HYDANT ASSEMBLY

HOMEWOOD SUITES MAIN ENTRANCE

CITY BUS STOP

BURIED ELECTRICAL

ACCESS TO STORM PEAK APTS

12" DIP WATER MAIN

24'± ACCESS DRIVE (EDGE OF ASPHALT)

15.0'

CENTERLINE OF ACCESS DRIVE/ EDGE OF PUBLIC UTIL EASEMENT

OUTDOOR LIGHTPOLES (TYP.)

SIGN

24" EX. STORM

6' WIDE STORM INLETS

VALLEY PAN

10' WIDE SNOW REMOVAL & UTILITY EASEMENT BY FINAL PLAT FILE NO. 14302

OIUTDOOR LIGHTPOLES (TYP.)

STONE LANE

L=102.653' R=1525.150'
Δ=3.8564

8.0' WIDE SIDEWALK (TYP.)

80.0' WIDE RIGHT OF WAY FOR STONE LANE

8' WIDE SIDEWALK (TYP.)

38.2'

BFE=6763.75

100-YEAR MODELED BASE FLOOD ELEVATION (TYP) BY WOHNRADE ENGINEERING

LOT 1
INDIAN MEADOWS
FILING NO. 3
3.875 ACRES
168,795 SF

BFE=6763.45

BFE=6763.39

FEMA FLOODPLAIN BOUNDARY

ZONE X

FLOODPLAIN, ZONE AE

15.0' WIDE PUBLIC UTILITY EASEMENT PER PLAT

NWCC TEST PIT

EDGE OF MOWED GRASS

NWCC TEST PIT

N89° 52' 44"W
426.72'

STORM PEAK APTS.
(FORMERLY FAIRFIELD INN)

TEMPORARY ACCESS EASEMENT (FOR TURN AROUND)

BFE=6764.08

BASE FLOOD ELEVATION CROSS SECTIONS BY WOHNRADE ENGINEERING (TYP)

ENCROACHING DUMPSTER ENCLOSURE (PART OF STORM PEAK APTS)

98.4'

TURN AROUND

VALLEY PAN

MAINTENANCE SHED

13.5'

FIRE HYDRANT

12" DIP WATER MAIN

MH 25.5.2A.9
RIM = 6766.68
INV IN = 6759.09
INV OUT = 6759.03

8" PVC SEWER MAIN

30.0' UNDERGROUND UTILITY EASEMENT DEDICATED TO MWW&S BY FINAL PLAT FILE NO. 14302

HOMEWOOD SUITES SECONDARY ACCESS CL

MH 25.5.2A.8
RIM = 6767.08
INV IN = 6758.85
INV OUT = 6758.83

GAS MAIN BY ATMOS (LOCATION APPROXIMATE, LOCATES HAVE BEEN SCHEDULED AT THE TIME OF THIS PLAN). LOCATE TICKET NO. A204500416, REQUESTED ON FEBRUARY 14, 2022.

MH 25.5.2A.7
RIM = 6765.08
INV IN = 6758.16
INV OUT = 6758.08

MH 25.5.2A.6
RIM = 6765.17
INV IN = 6757.42
INV OUT = 6757.37

8" PVC SEWER MAIN

5.0' WIDE UTILTY EASEMENT BY FINAL PLAT FILE NO. 14302

30.0' UTILITY EASEMENT DEDICATED TO MWW&S BY FINAL PLAT FILE NO. 14302

15.0' PUBLIC UTILITY EASEMENT PER PLAT

BLOWOFF HYDRANT

FEMA FLOODWAY BOUNDARY

FLOODPLAIN, ZONE AE

FLOODWAY

PARCEL A
INDIAN MEADOWS
SUBDIVISION

N0° 25' 43"E
80.12'

N0° 25' 43"E
379.71'

EXISTING WETLANDS (TYP.)

EXISTING WETLANDS (TYP.)

EXISTING WETLANDS (TYP.)

NOT FOR CONSTRUCTION

FOUR POINTS SURVEYING ENGINEERING

440 S. Lincoln Ave, Suite 4A
P.O. Box 775966
Steamboat Springs, CO 80487
(970)-871-6772
www.fourpointsse.com

No.	DATE	REVISIONS	INT
1	4/19/22	PER 1ST ORT COMMENTS, 4/22	JLW

LOT 1 INDIAN MEADOWS PHASE 1 DEVELOPMENT PLAN

LOT 1, INDIAN MEADOWS FILING NO. 3 STEAMBOAT SPRINGS, CO 80487

HORIZONTAL SCALE

0 — 20' — 40

SCALE: 1" = 20'

CONTOUR INTERVAL = 2FT

DATE: 11/30/2021
JOB #: 1448-005
DRAWN BY: SDW
DESIGN BY: JLW
REVIEW BY: RL

IF THIS DRAWING IS PRESENTED IN A FORMAT OTHER THAN 24"X 36". THE GRAPHIC SCALE SHOULD BE UTILIZED.

DRAWING:

EXISTING CONDITIONS PLAN

SHEET NO.

C2

NOT FOR CONSTRUCTION

PLOT DATE: 4/20/2022 1:53 PM BY: JOE WIEDEMEIER CTB: FPSE-BW.CTB

DRAWING FILE: P:\1448-005 LOT 1 INDIAN MEADOWS F3 HOTELS\FPSE\CONSTRUCTION PLANS\1448-005 SITE PLAN PH1.DWG

PROPOSING A 35' WIDE PARTIAL EASEMENT VACATION OF THE PUBLIC ACCESS, UG UTILITY, & EMERGENCY VEHICLES ACCESS EASEMENT.

PROPOSING A 20' WIDE PARTIAL EASEMENT VACATION OF THE PUBLIC UTILITY EASEMENT.

MAINTAIN PORTION OF EASEMENT FOR ELECTRICAL SWITCHGEAR AND OTHER UTILITY CONNECTION POINTS IN-BETWEEN FUTURE HOTELS.

HOTEL SIGN

ONLY

NEW 8' SIDEWALK CONNECTION TO NEAREST JOINTS

OPTIONAL RAMP FOR BUS STOP

CITY BUS STOP SIGN

HOMEWOOD SUITES MAIN ENTRANCE

VALLEY PAN

10' WIDE SNOW REMOVAL & UTILITY EASEMENT

STONE LANE

6.0' WIDE SIDEWALK (TYP.)

80.0' WIDE RIGHT OF WAY FOR STONE LANE

8' WIDE SIDEWALK (TYP.)

EX ASPHALT (TYP)

MAINTAIN 45' RADIAL AREA OF EX ASPHALT TURNAROUND UNTIL STONE LANE BRIDGE EXTENSION IS CONSTRUCTED

R45.0'

MAINTAIN EX VALLEY PAN

HOMEWOOD SUITES SECONDARY ACCESS CL

LANDSCAPE ISLAND

PROPOSED 30.0' PUBLIC ACCESS & UTIL EASEMENT

24.0' THRU ACCESS ROAD

MEDIAN

(8) 9'x18' PARALLEL PARKING STALLS

OPEN SPACE EAST OF ACCESS ROAD = 3100 SF

EXISTING WETLANDS (TYP.)

ZONE AE FLOODWAY

FEMA FLOODWAY BOUNDARY

BFE=6764.08

BFE=6763.75

~1,000 SQ FT OF WETLANDS ENCROACHMENT AND RESTORATION (SEE APPROVED CORPS PERMIT)

WETLAND PLANTINGS (TYP)

OPEN SPACE EAST OF ACCESS ROAD = 3700 SF

SWALE

INSTALL STORM SEWER STUB

INLET (TYP)

WQ SWALE & EASEMENT

8" SEWER MAIN

20' SEWER EASEMENT

BFE=6763.45

LANDSCAPE BUFFER & UTILITY EASEMENT PER PLAT

50.0' WIDE PUBLIC ACCESS, UNDERGROUND UTILITY & EMERGENCY SERVICE VEHICLE ACCESS EASEMENT

ELECTRIC PEDESTAL

20.0' UTILITY EASEMENT DEDICATED TO MWW&S BY PLAT

35.0' WIDE PUBLIC UTILITY EASEMENT

EXISTING FIBER OPTIC & ELECTRICAL LINES

OPEN SPACE WEST OF EX TRAIL = 15,400

OUTDOOR LIGHTPOLES (TYP.)

EX ACCESS ROAD REMOVAL

.5.0' WIDE UTILITY EASEMENT

.30.0' UTILITY EASEMENT DEDICATED TO MWW&S BY PLAT

CITY LAND PARCEL A INDIAN MEADOWS SUBDIVISION

EXISTING WETLANDS (TYP.)

STORMWATER OUTFALLS INTO CITY OWNED LAND

TRAIL CULVERT CROSSING & STORMWATER OUTFALL BY BASELINE

CONNECT TO EX 8' SIDEWALK

EX. FIRE HYDRANT ASSEMBLY

EX SIGN TO BE REMOVED

OPEN SPACE FOR TRAIL ADDITION = 1120 SF

10.0' TRAIL EASEMENT

15.0' WIDE UTILITY EASEMENT

PROPERTY LINE

PROPOSED TRAIL EASEMENTS

PROPERTY LINE

STORM PEAK APTS

REMOVE EX TREE

TRAIL CONNECTION TO STORM PEAK APTS

DEMO EX STRUCTURE

OWNER OF THE HOLIDAY INN EXPRESS SHALL BE REQUIRED TO CLEAR AND MAINTAIN THE 8' TRAIL.

FPSE PROPOSED 8' TRAIL EXTENSION AND EASEMENT ON FAIRFIELD INN LOT, SEE OWNER AGREEMENT

DEMO EX STRUCTURE

CONNECTION TO STORM PEAK APTS PARKING LOT

SUGGESTED 30' WIDE PUBLIC ACCESS EASEMENT (NOT PART OF THIS DEVELOPMENT PLAN)

INDIAN MEADOWS TOWNHOMES

CROSS WALK

FPSE PROPOSED 8' TRAIL EXTENSION

END OF TRAIL EXTENSION BY BASELINE

TRAIL EXTENSION ALIGNMENT BY BASELINE

PROPERTY LINE, STEAMBOAT SPRINGS/ INDIAN MEADOWS TOWNHOMES

GENERAL NOTES:

1. EXISTING CONDITIONS AND TOPOGRAPHY WAS SURVEYED AND DRAWN BY FOUR POINTS SURVEYING AND ENGINEERING.
2. EXISTING UTILITIES SHOWN ARE REPRESENTATIVE OF AS-BUILT DATA AND SURVEYED FIELD LOCATES. BURIED UTILITIES HAVE NOT BEEN VERIFIED WITH POT-HOLING.

FOUR POINTS SURVEYING ENGINEERING
440 S. Lincoln Ave, Suite 4A
P.O. Box 775966
Steamboat Springs, CO 80487
(970)-871-6772
www.fourpointsse.com

No.	DATE	REVISIONS	INT
1	4/19/22	PER 1ST DRT COMMENTS, 4/22	JLW

LOT 1 INDIAN MEADOWS FILING NO. 3
PHASE I DEVELOPMENT PLAN

LOT 1, INDIAN MEADOWS FILING NO. 3
STEAMBOAT SPRINGS, CO 80487

HORIZONTAL SCALE
0 20' 40'
SCALE: 1" = 20'

CONTOUR INTERVAL = 1 FT

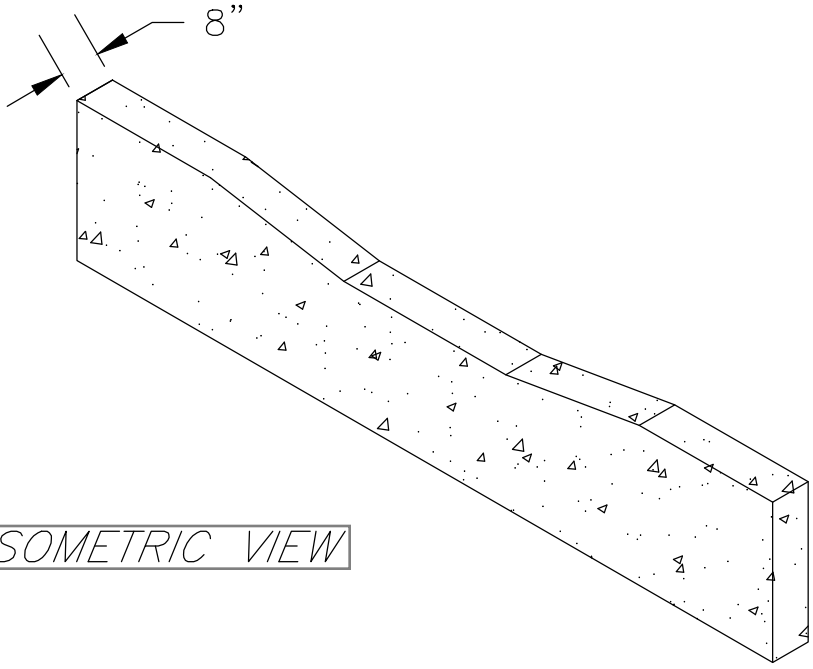
DATE:	11/30/2021
JOB #:	1448-005
DRAWN BY:	SDW
DESIGN BY:	JLW
REVIEW BY:	RL

IF THIS DRAWING IS PRESENTED IN A FORMAT OTHER THAN 24" X 36", THE GRAPHIC SCALE SHOULD BE UTILIZED.

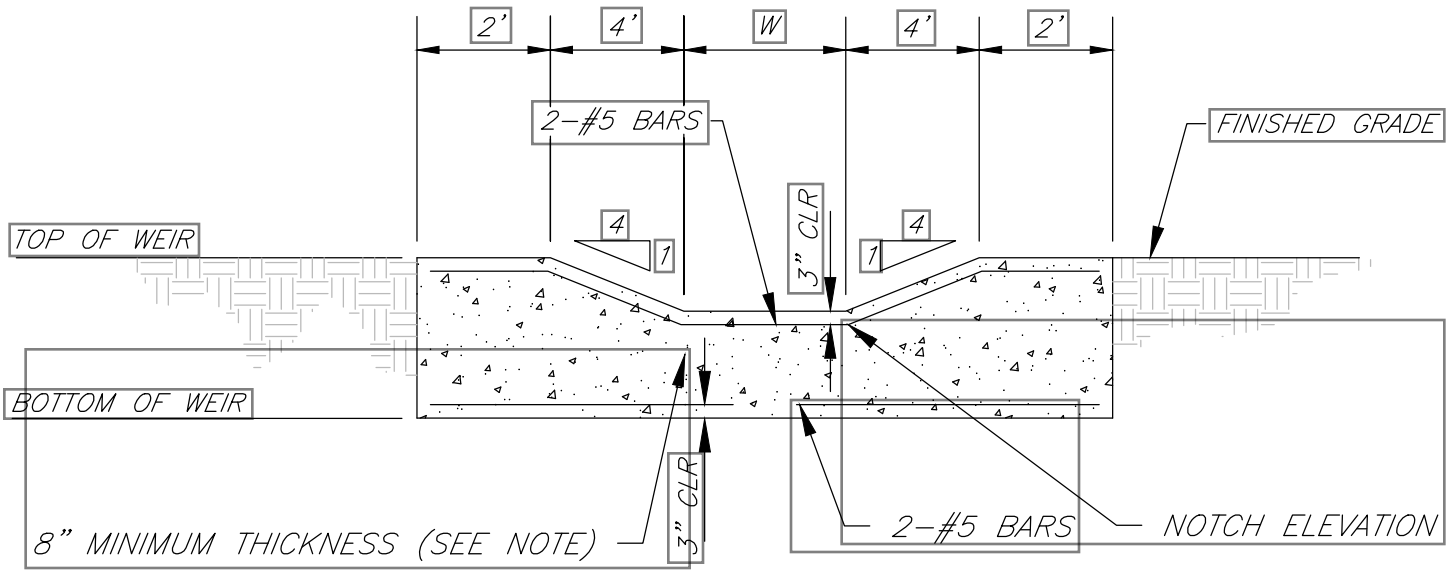
DRAWING: **SITE PLAN**

SHEET NO.

C3.1



ISOMETRIC VIEW



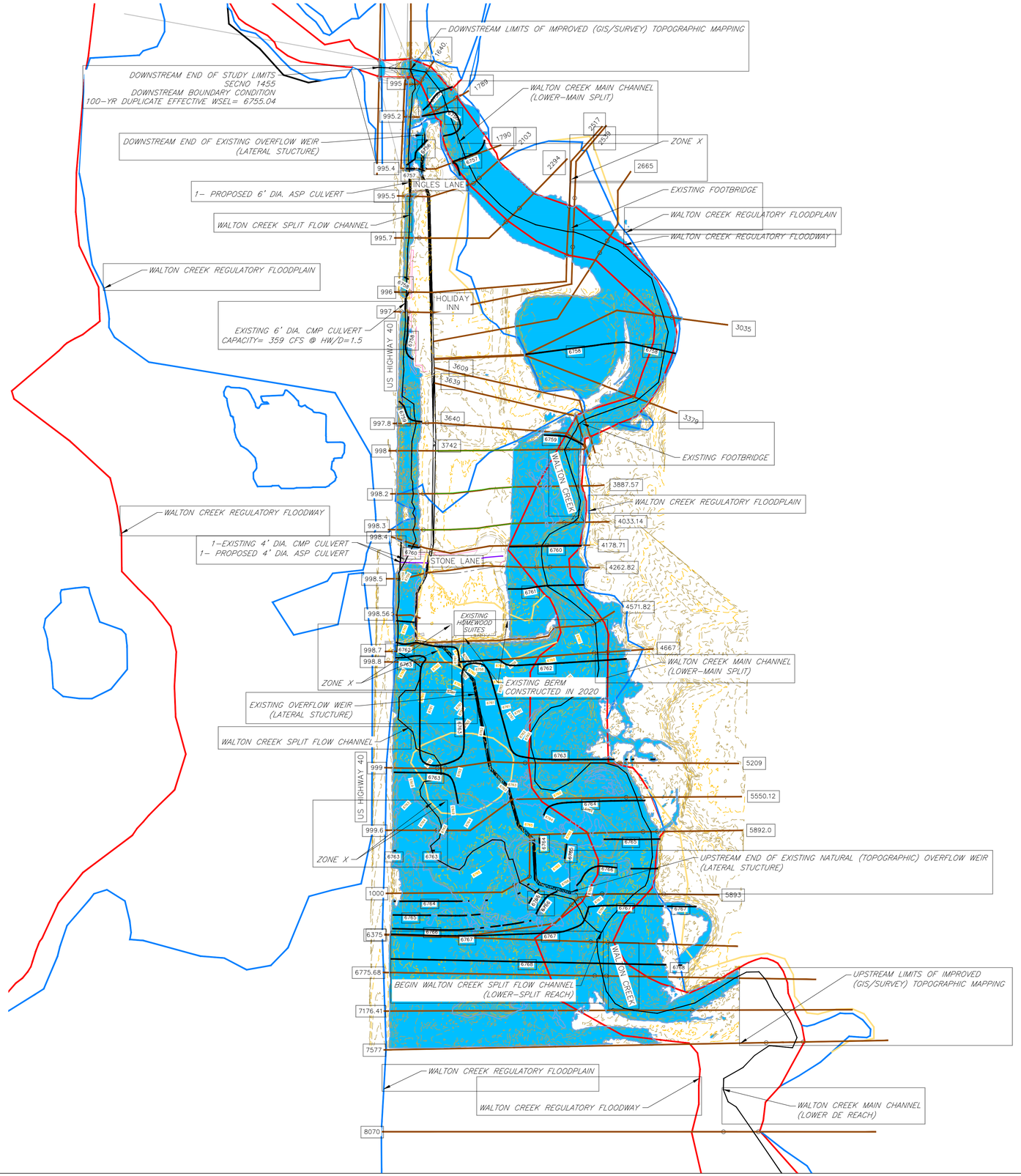
WEIR SCHEDULE				
LOCATION	W (FT)	NOTCH ELEV.	TOP OF WEIR	BOTTOM OF WEIR
HOMEWOOD SUITES	83.5	6766.12	6767.12	6764.12

NOTE:

1. TRENCH FOR WEIR OUTLET STRUCTURE USING NATIVE GROUND AS FORM WORK. CONSTRUCT WEIR 8” MINIMUM THICKNESS. UPON COMPLETION OF TRENCHING, PLACE TEMPERED STEEL AND CONCRETE IMMEDIATELY. FORM TOP 4”.
2. ELEVATIONS BASED ON NAVD88 DATUM.

POND OVERFLOW WEIR

NOT TO SCALE



GENERAL NOTES:

1. VERTICAL DATUM:
LOCAL BENCHMARK AT THE NORTHWEST CORNER OF LOT 1, INDIAN MEADOWS FILING NO. 3 AS MONUMENTED BY A 1-1/2" YELLOW PLASTIC CAP ON #5 REBAR, PLS 13221.
NORTHING 1407987.512, EASTING 2633868.892, NAVD88 ELEVATION 6761.76.

2. HORIZONTAL DATUM:
COLORADO STATE PLANE COORDINATES NAD 83(2011) DATUM. HORIZONTAL CONTROL BASED UPON TRIMBLE VRS NETWORK SOLUTION.

3. FLOOD MAPPING SHOWN ON THIS EXHIBIT IS BASED ON AERIAL LIDAR DATA SUPPLEMENTED WITH GROUND SURVEY FROM DOWNSTREAM SECNO 1578 TO UPSTREAM SECNO 7577. GROUND SURVEY PERFORMED BY FOUR POINTS SURVEYING AND ENGINEERING.

4. VERTICAL CONVERSION FROM NGVD29 TO NAVD88 IS +4.12'

5. THE DUPLICATE EFFECTIVE MAPPING SHOWN ON THIS PLAN IS BASED THE THE EFFECTIVE FLOOD INSURANCE RATE MAP (FIRM) 08107C0883D EFFECTIVE 2/4/2005

LEGEND:

- DUPLICATE EFFECTIVE 100-YEAR FLOOD BOUNDARY (FIRM 08107C0883D)
- DUPLICATE EFFECTIVE 100-YEAR FLOODWAY BOUNDARY (FIRM 08107C0883D)
- 6767 — BASE FLOOD ELEVATION LINE WITH ELEVATION IN FEET
- 500YR EFFECTIVE BOUNDARY (FIRM 08107C0883D)
- 4667 — HEC-RAS CROSS-SECTION
- 6765 — EXISTING MAJOR CONTOUR (NGVD29 DATUM)
- PROPOSED PROJECT 100-YR HIGH RISK FLOODPLAIN (MAIN CHANNEL AND SPLIT FLOW)

200' 0 200' 400' 600'
1" = 200'

No.	Revisions:	By:	Date:

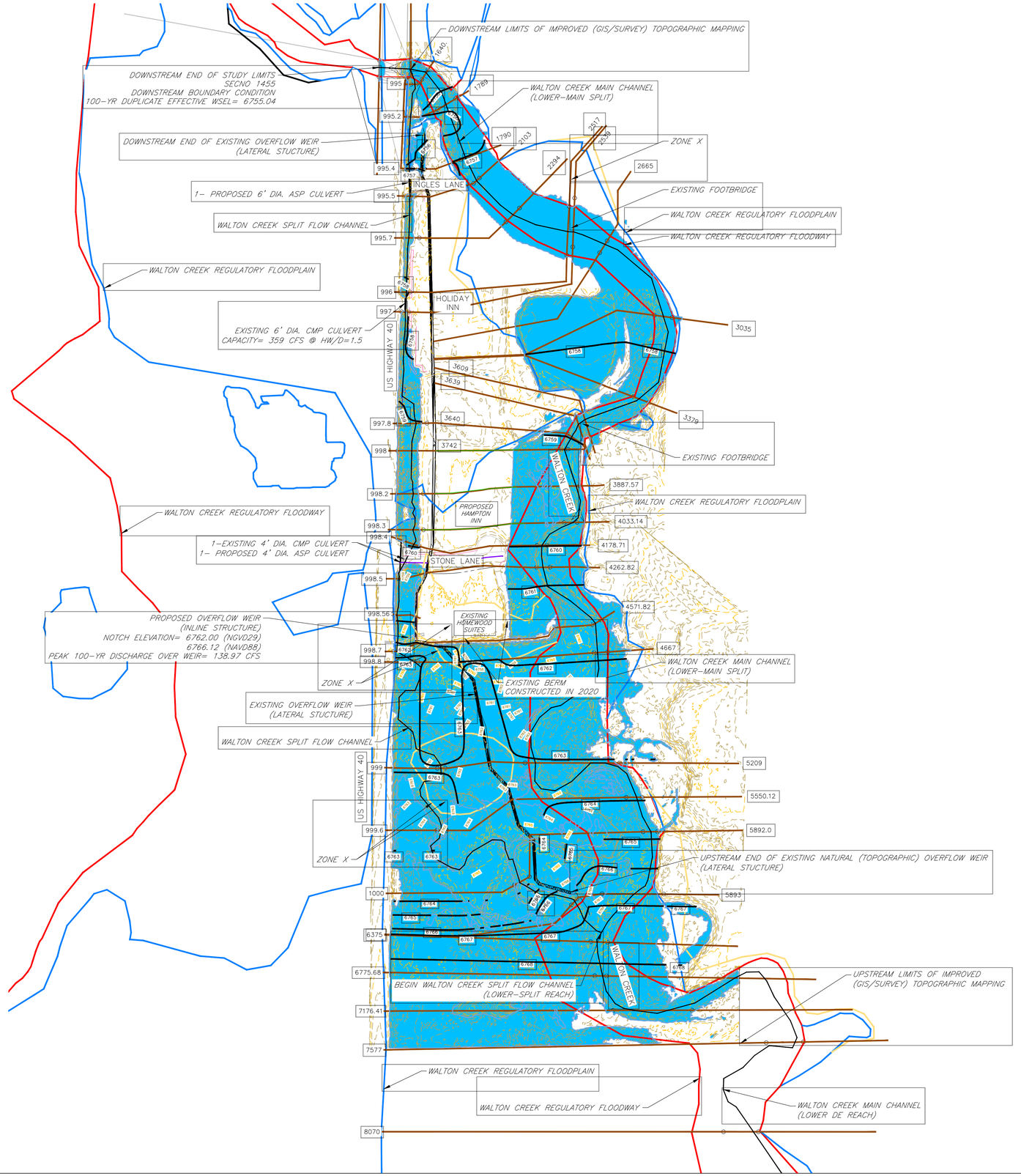
HAMPTON INN & HOLIDAY INN EXPRESS
STEAMBOAT SPRINGS, COLORADO
EXISTING CONDITIONS HEC-RAS MAPPING

WOHNRADE CIVIL ENGINEERS, INC.
11650 Colony Row
Broomfield, Colorado 80021
Phone: (720)259-1519
Fax: (720)259-1519

COLORADO REGISTERED
MATTHEW B. WOHNRADE
30325
PROFESSIONAL ENGINEER

Project: INM 2111.00
Date: 4/22/2022
Scale: 1" = 200'
Designed By: MBW
Reviewed By: MBW

1 Sheet
Sheet 2 Sheets



GENERAL NOTES:

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NORTHING 1407987.512, EASTING 2633868.892, NAVD88 ELEVATION 6761.76.

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200' 0 200' 400' 600'
1" = 200'

No.	Revisions:	By:	Date:

HAMPTON INN & HOLIDAY INN EXPRESS
STEAMBOAT SPRINGS, COLORADO
PROPOSED PROHECR
HEC-RAS MAPPING

WOHNRADE CIVIL ENGINEERS, INC.
11652 Colony Row
Broomfield, Colorado 80021
Phone: (720)259-1519
Fax: (720)259-1519

COLORADO REGISTERED MATTHEW B. WOHNRADE 30325 PROFESSIONAL ENGINEER

Project: INM 2111.00
Date: 4/22/2022
Scale: 1" = 200'
Designed By: MBW
Reviewed By: MBW

2 Sheet Sheet / 2 Sheets