HY-8 Culvert Analysis Report

Table 1 - Summary of Culvert Flows at Crossing: Low Flow Pipe

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
2160.25	0.00	0.00	0.00	1
2163.68	35.00	11.59	23.39	7
2164.52	70.00	13.56	56.42	3
2165.21	105.00	14.94	90.03	3
2165.83	140.00	16.11	123.86	3
2166.39	175.00	17.14	157.84	3
2166.91	210.00	18.04	191.94	3
2167.40	245.00	18.85	226.12	3
2167.47	250.00	18.96	231.03	3
2168.33	315.00	20.28	294.71	3
2168.76	350.00	20.83	329.17	3

Rating Curve Plot for Crossing: Low Flow Pipe

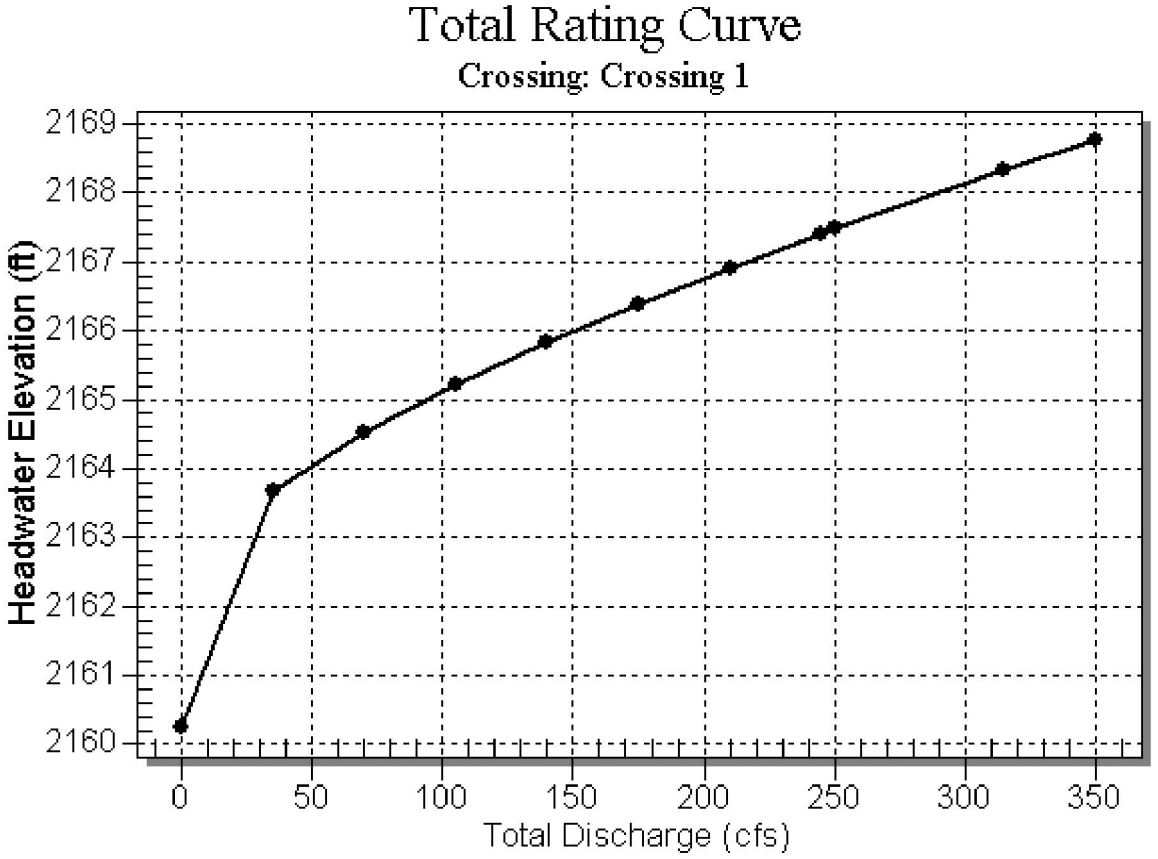

Table 2 - Culvert Summary Table: Culvert 1

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)
0.00	0.00	2160.25	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000	0.000
35.00	11.59	2163.68	2.700	3.431	7-M2c	1.500	1.288	1.288	0.939	7.206	4.299
70.00	13.56	2164.52	3.333	4.271	7-M2c	1.500	1.377	1.377	1.479	7.960	5.458
105.00	14.94	2165.21	3.838	4.963	7-M2c	1.500	1.439	1.439	1.946	8.635	6.223
140.00	16.11	2165.83	4.307	5.576	7-M2c	1.500	1.493	1.493	2.374	9.141	6.801
175.00	17.14	2166.39	4.756	6.136	6-FFc	1.500	1.500	1.500	2.780	9.697	7.262
210.00	18.04	2166.91	5.189	6.660	6-FFc	1.500	1.500	1.500	3.167	10.208	7.649
245.00	18.85	2167.40	5.599	7.154	6-FFc	1.500	1.500	1.500	3.543	10.669	7.976
250.00	18.96	2167.47	5.656	7.223	6-FFc	1.500	1.500	1.500	3.595	10.731	8.021
315.00	20.28	2168.33	6.362	8.076	6-FFc	1.500	1.500	1.500	4.265	11.478	8.518
350.00	20.83	2168.76	6.668	8.512	4-FFf	1.500	1.500	1.500	4.618	11.786	8.743

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Inlet Elevation (invert): 2160.25 ft, Outlet Elevation (invert): 2160.05 ft

Culvert Length: 100.00 ft, Culvert Slope: 0.0020

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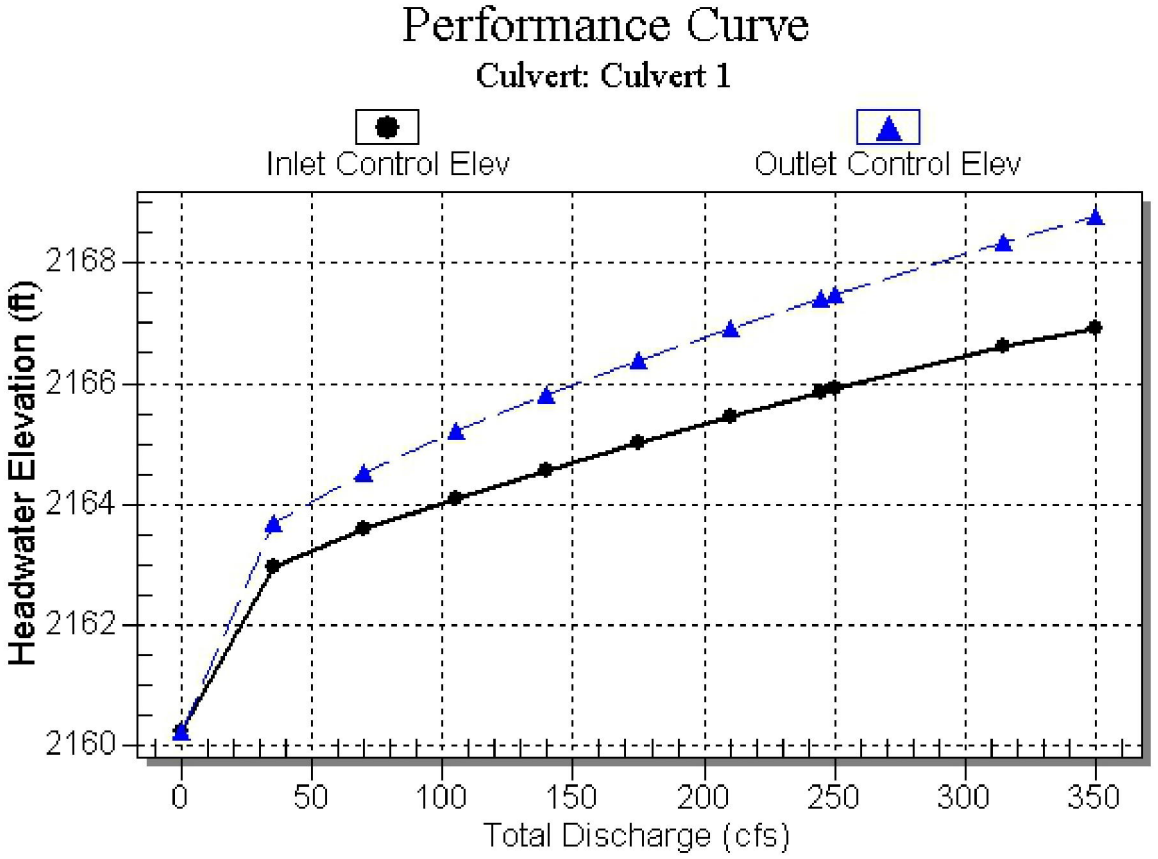
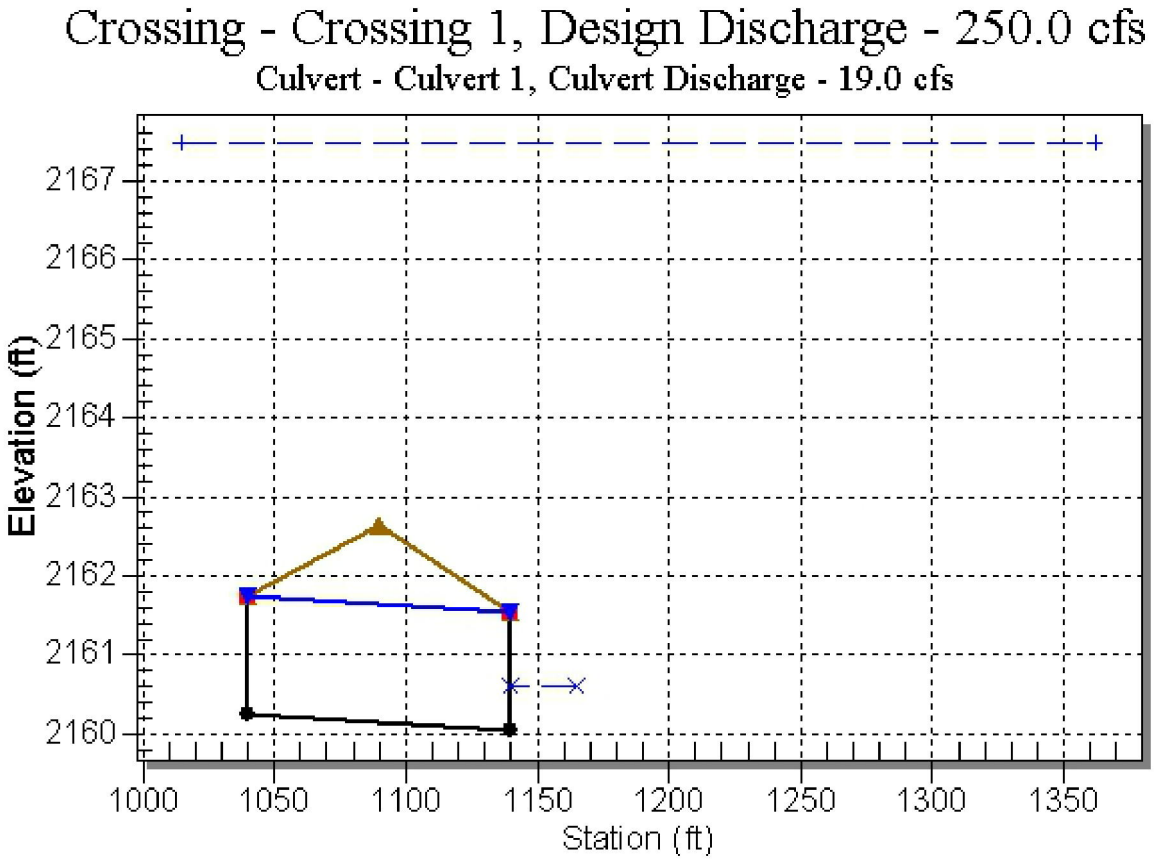
Culvert Performance Curve Plot: Culvert 1



Water Surface Profile Plot for Culvert: Culvert 1



Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 1040.00 ft

Inlet Elevation: 2160.25 ft

Outlet Station: 1140.00 ft

Outlet Elevation: 2160.05 ft

Number of Barrels: 1

Culvert Data Summary - Culvert 1

Barrel Shape: Circular

Barrel Diameter: 1.50 ft

Barrel Material: Concrete

Barrel Manning's n: 0.0130

Inlet Type: Conventional

Inlet Edge Condition: Square Edge with Headwall

Inlet Depression: None

Table 3 - Downstream Channel Rating Curve (Crossing: Low Flow Pipe)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
0.00	2157.00	0.00	0.00	0.00	0.00
35.00	2157.94	0.94	4.30	0.12	0.78
70.00	2158.48	1.48	5.46	0.18	0.79
105.00	2158.95	1.95	6.22	0.24	0.79
140.00	2159.37	2.37	6.80	0.30	0.78
175.00	2159.78	2.78	7.26	0.35	0.77
210.00	2160.17	3.17	7.65	0.40	0.76
245.00	2160.54	3.54	7.98	0.44	0.75
250.00	2160.59	3.59	8.02	0.45	0.75
315.00	2161.27	4.27	8.52	0.53	0.73
350.00	2161.62	4.62	8.74	0.58	0.72

Tailwater Channel Data - Low Flow Pipe

Tailwater Channel Option: Rectangular Channel

Bottom Width: 8.67 ft

Channel Slope: 0.0020

Channel Manning's n: 0.0130

Channel Invert Elevation: 2157.00 ft

Roadway Data for Crossing: Low Flow Pipe

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 8.67 ft

Crest Elevation: 2162.63 ft

Coefficient of Discharge: 2.5000

Roadway Top Width: 1.00 ft