

HY-8 Culvert Analysis Report

Crossing Discharge Data

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

Minimum Flow: 0 cfs

Design Flow: 8.27 cfs

Maximum Flow: 9.28 cfs

Table 1 - Summary of Culvert Flows at Crossing: Crossing 16

Headwater Elevation (ft)	Total Discharge (cfs)	Rt. Sta. 256+98 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
264.56	0.00	0.00	0.00	1
264.95	0.93	0.93	0.00	1
265.13	1.86	1.86	0.00	1
265.26	2.78	2.78	0.00	1
265.38	3.71	3.71	0.00	1
265.48	4.64	4.64	0.00	1
265.57	5.57	5.57	0.00	1
265.66	6.50	6.50	0.00	1
265.74	7.42	7.42	0.00	1
265.82	8.27	8.27	0.00	1
265.91	9.28	9.28	0.00	1
269.00	46.07	46.07	0.00	Overtopping

Rating Curve Plot for Crossing: Crossing 16

Total Rating Curve

Crossing: Crossing 16

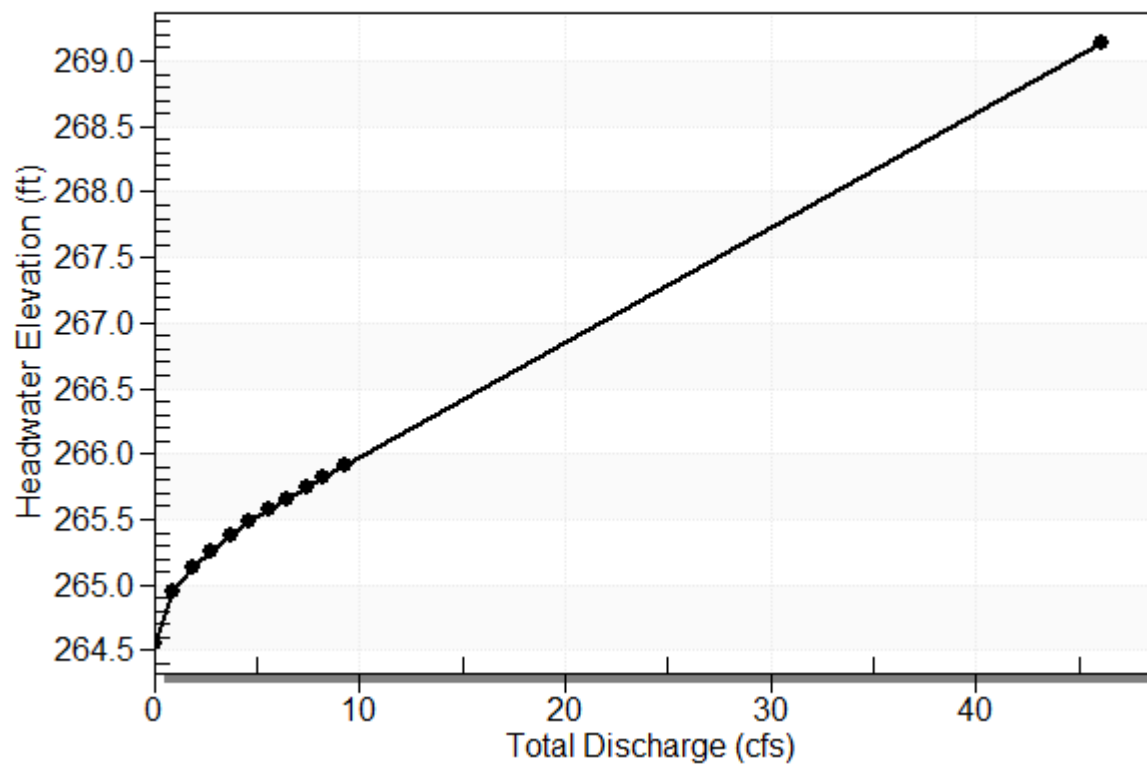


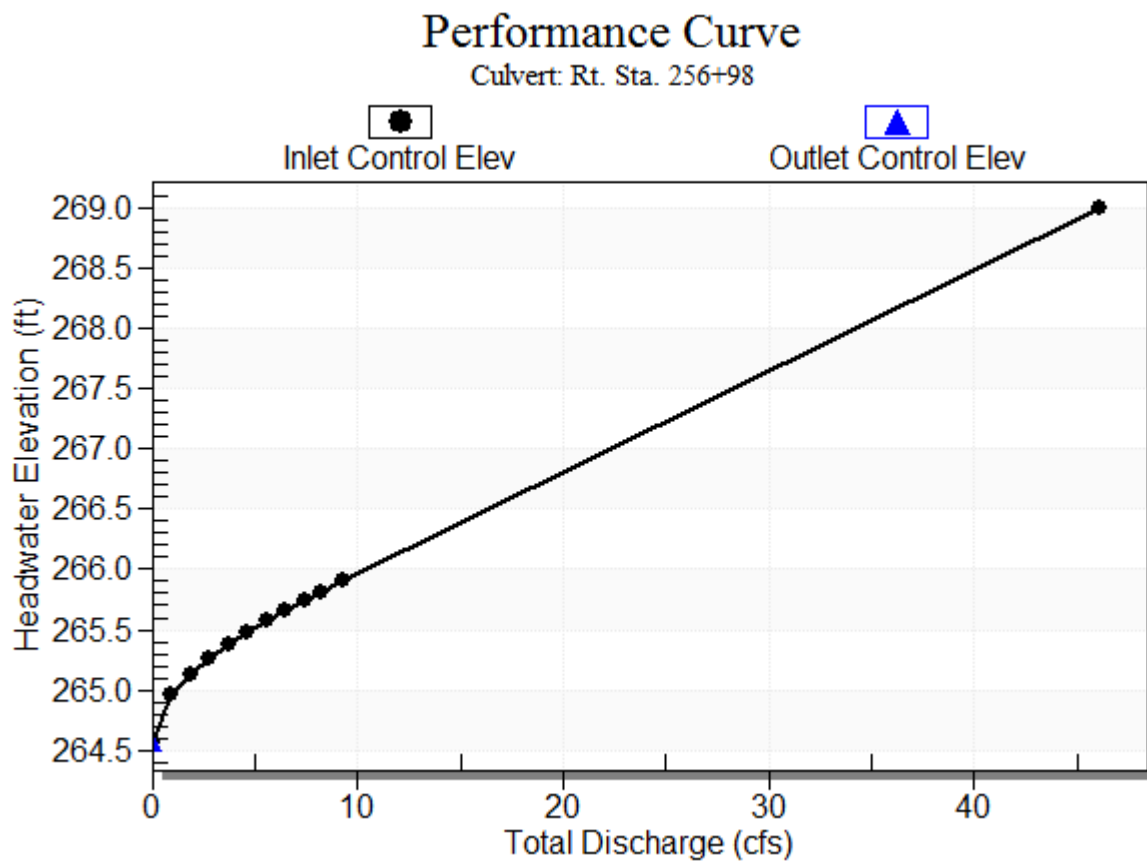
Table 2 - Culvert Summary Table: Rt. Sta. 256+98

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	264.56	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000	0.000
0.93	0.93	264.95	0.394	0.0*	1-S2n	0.116	0.309	0.116	0.121	5.484	1.868
1.86	1.86	265.13	0.570	0.0*	1-S2n	0.229	0.439	0.229	0.183	8.358	2.426
2.78	2.78	265.26	0.702	0.0*	1-S2n	0.265	0.543	0.265	0.233	12.893	2.817
3.71	3.71	265.38	0.818	0.0*	1-S2n	0.301	0.630	0.301	0.277	10.663	3.128
4.64	4.64	265.48	0.923	0.0*	1-S2n	0.337	0.705	0.337	0.317	11.326	3.389
5.57	5.57	265.57	1.013	0.0*	1-S2n	0.373	0.776	0.385	0.354	11.322	3.615
6.50	6.50	265.66	1.100	0.0*	1-S2n	0.410	0.842	0.410	0.388	12.192	3.816
7.42	7.42	265.74	1.182	0.0*	1-S2n	0.446	0.901	0.446	0.420	12.490	3.996
8.27	8.27	265.82	1.256	0.0*	1-S2n	0.469	0.954	0.488	0.448	12.405	4.147
9.28	9.28	265.91	1.350	0.0*	1-S2n	0.493	1.012	0.493	0.480	13.742	4.313

* Full Flow Headwater elevation is below inlet invert.

Straight Culvert
Inlet Elevation (invert): 264.56 ft, Outlet Elevation (invert): 253.67 ft
Culvert Length: 192.18 ft, Culvert Slope: 0.0568

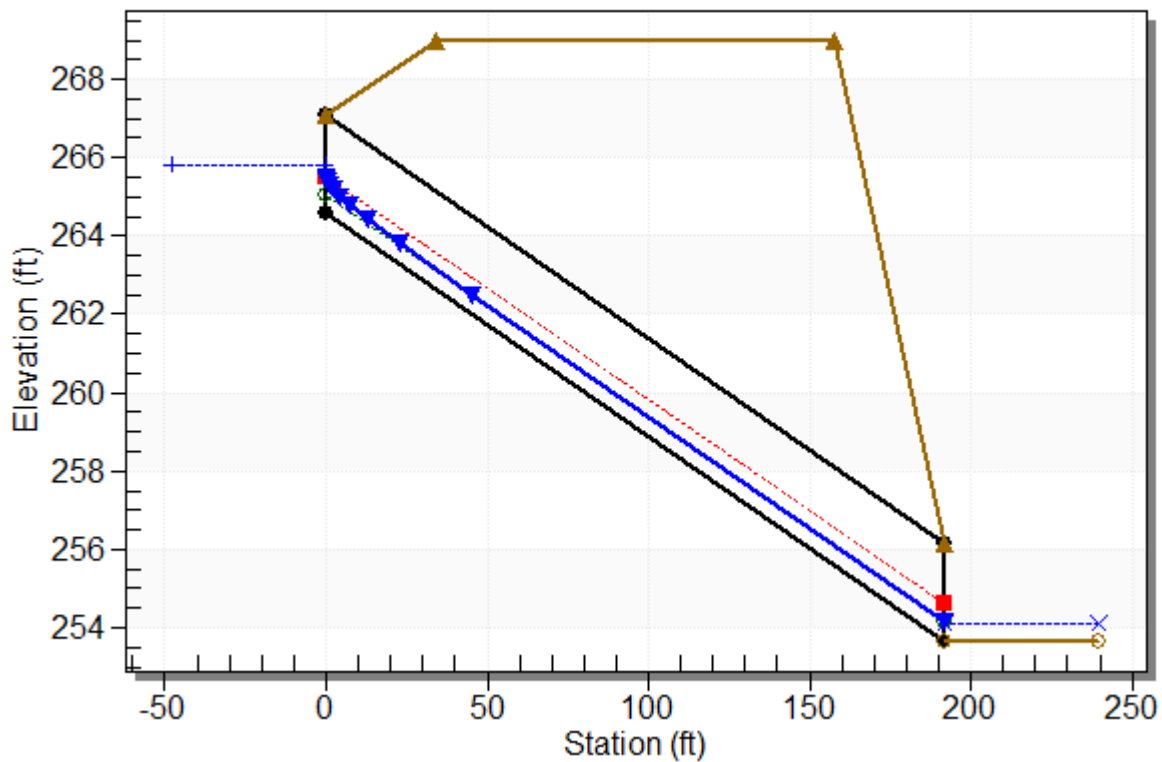
Culvert Performance Curve Plot: Rt. Sta. 256+98



Water Surface Profile Plot for Culvert: Rt. Sta. 256+98

Crossing - Crossing 16, Design Discharge - 8.3 cfs

Culvert - Rt. Sta. 256+98, Culvert Discharge - 8.3 cfs



Site Data - Rt. Sta. 256+98

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 264.56 ft

Outlet Station: 191.87 ft

Outlet Elevation: 253.67 ft

Number of Barrels: 1

Culvert Data Summary - Rt. Sta. 256+98

Barrel Shape: Circular

Barrel Diameter: 2.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Grooved End Projecting

Inlet Depression: NONE

Table 3 - Downstream Channel Rating Curve (Crossing: Crossing 16)

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
0.00	253.67	0.00	0.00	0.00	0.00
0.93	253.79	0.12	1.87	0.30	0.96
1.86	253.85	0.18	2.43	0.46	1.02
2.78	253.90	0.23	2.82	0.58	1.06
3.71	253.95	0.28	3.13	0.69	1.08
4.64	253.99	0.32	3.39	0.79	1.10
5.57	254.02	0.35	3.62	0.88	1.11
6.50	254.06	0.39	3.82	0.97	1.13
7.42	254.09	0.42	4.00	1.05	1.14
8.27	254.12	0.45	4.15	1.12	1.15
9.28	254.15	0.48	4.31	1.20	1.15

Tailwater Channel Data - Crossing 16

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 4.00 ft

Side Slope (H:V): 1.00 (1:1)

Channel Slope: 0.0400

Channel Manning's n: 0.0375

Channel Invert Elevation: 253.67 ft

Roadway Data for Crossing: Crossing 16

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 269.00 ft

Roadway Surface: Paved

Roadway Top Width: 124.00 ft