

# HY-8 Culvert Analysis Report

## Crossing Discharge Data

Discharge Selection Method: User Defined

## Site Data - Invert Lining

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 0.58 ft

Outlet Station: 139.15 ft

Outlet Elevation: -0.53 ft

Number of Barrels: 1

## Culvert Data Summary - Invert Lining

Barrel Shape: User Defined

Barrel Span: 15.00 ft

Barrel Rise: 14.58 ft

Barrel Material: Corrugated Metal Riveted or Welded

Embedment: 0.00 in

Barrel Manning's n: 0.0240 (top and sides)

Manning's n: 0.0120 (bottom)

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting

Inlet Depression: None

## Tailwater Channel Data - Invert Lining

Tailwater Channel Option: Enter Rating Curve

Channel Invert Elevation: -3.00 ft

## Roadway Data for Crossing: Invert Lining

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 50.00 ft

Crest Elevation: 28.00 ft

Roadway Surface: Paved

Roadway Top Width: 36.00 ft

**Table 1 - Summary of Culvert Flows at Crossing: Invert Lining**

Headwater Elevation (ft)	Discharge Names	Total Discharge (cfs)	Invert Lining Discharge (cfs)	Roadway Discharge (cfs)	Iterations
6.10	Q1.1	78.80	78.80	0.00	1
14.62	Q10	323.20	323.20	0.00	1
17.49	Q25	424.20	424.20	0.00	1
19.49	Q50	494.30	494.30	0.00	1
22.00	Q100	579.00	579.00	0.00	1
28.09	Q500	779.50	775.21	3.75	3
28.00	Overtopping	772.42	772.42	0.00	Overtopping

**Table 2 - Culvert Summary Table: Invert Lining**

Discharge Names	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)
Q1.1	78.80	78.80	6.10	2.408	5.517	1-S1t	1.311	1.846	6.580	9.050	1.037	0.000
Q10	323.20	323.20	14.62	4.878	14.045	1-S1f	2.601	3.789	14.583	17.500	1.927	0.000
Q25	424.20	424.20	17.49	5.625	16.908	4-FFf	2.973	4.342	14.583	20.274	2.530	0.000
Q50	494.30	494.30	19.49	6.102	18.910	4-FFf	3.204	4.693	14.583	22.200	2.948	0.000
Q100	579.00	579.00	22.00	6.645	21.418	4-FFf	3.470	5.098	14.583	24.600	3.453	0.000
Q500	779.50	775.21	28.09	7.955	27.633	4-FFf	4.020	5.952	14.583	30.374	4.623	0.000

\*\*\*\*\*

Straight Culvert

Inlet Elevation (invert): 0.58 ft,    Outlet Elevation (invert): -0.53 ft

Culvert Length: 139.15 ft,    Culvert Slope: 0.0080

\*\*\*\*\*

**Table 3 - Downstream Channel Rating Curve (Crossing: Invert Lining)**

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)
78.80	6.05	6.05	0.00
323.20	14.50	14.50	0.00
494.30	19.20	19.20	0.00
579.00	21.60	21.60	0.00
779.50	27.50	27.50	0.00