HY-8 Culvert Analysis Report

Crossing Discharge Data

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

Minimum Flow: 19.39 cfs

Design Flow: 206.81 cfs (100 yr Basin Outflow)

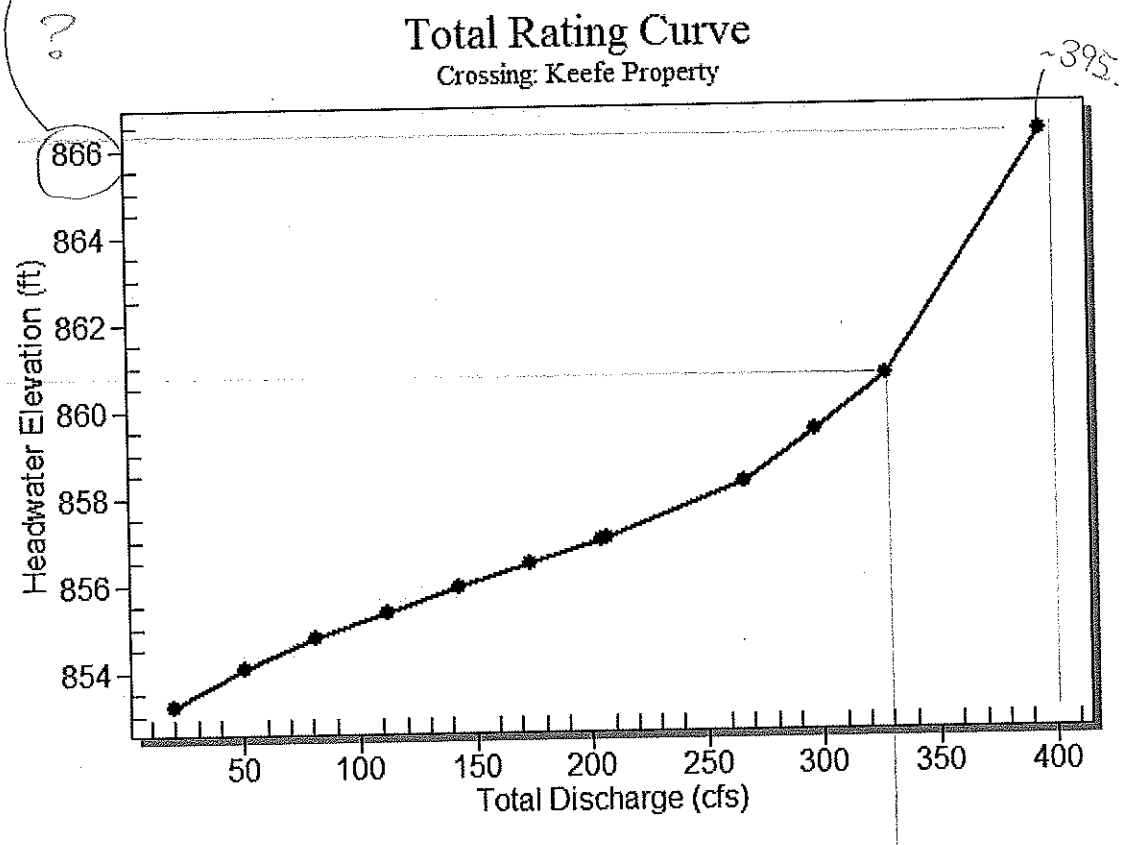
Maximum Flow: 328.17 cfs (100 yr Basin Inflow)

Table 1 - Summary of Culvert Flows at Crossing: Keefe Property

Headwater Elevation (ft)	Total Discharge (cfs)	4'x8' Box Discharge (cfs)	Roadway Discharge (cfs)	Iterations
853.22	19.39	19.39	0.00	1
854.08	50.27	50.27	0.00	1
854.75	81.15	81.15	0.00	1
855.34	112.02	112.02	0.00	1
855.88	142.90	142.90	0.00	1
856.41	173.78	173.78	0.00	1
856.95	204.66	204.66	0.00	1
856.99	206.81	206.81	0.00	1
858.25	266.41	266.41	0.00	1
859.43	297.29	297.29	0.00	1
860.68	328.17	328.17	0.00	1
863.70	395.73	395.73	0.00	Overtopping

listed flood route

Rating Curve Plot for Crossing: Keefe Property



~395.73 discharge = 866.4 in elevation

Top of outlet structure 862.5

Table 2 - Culvert Summary Table: 4'x8' Box

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)
19.39	19.39	853.22	0.971	0.0*	1-JS1t	0.552	0.567	0.636	0.636	3.810	7.620
50.27	50.27	854.08	1.833	0.0*	1-JS1t	1.043	1.070	1.221	1.221	5.147	10.295
81.15	81.15	854.75	2.504	0.571	1-JS1t	1.437	1.473	1.724	1.724	5.882	11.764
112.02	112.02	855.34	3.088	1.300	1-JS1t	1.788	1.826	2.194	2.194	6.381	12.763
142.90	142.90	855.88	3.629	2.093	1-S2n	2.115	2.148	2.115	2.645	8.447	13.505
173.78	173.78	856.41	4.158	2.957	5-S2n	2.426	2.447	2.426	3.084	8.955	14.087
204.66	204.66	856.95	4.699	3.895	5-S2n	2.725	2.729	2.725	3.515	9.387	14.558
206.81	206.81	856.99	4.738	3.963	5-S2n	2.746	2.748	2.746	3.544	9.414	14.587
266.41	266.41	858.25	5.900	6.003	4-FFf	3.301	3.254	4.000	4.358	8.325	15.282
297.29	297.29	859.43	6.588	7.175	4-FFf	3.578	3.500	4.000	4.774	9.290	15.567
328.17	328.17	860.68	7.347	8.427	4-FFf	4.000	3.739	4.000	5.187	10.255	15.816

* Full Flow Headwater elevation is below inlet invert.

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Straight Culvert

Inlet Elevation (invert): 852.25 ft, Outlet Elevation (invert): 850.81 ft

Culvert Length: 480.00 ft, Culvert Slope: 0.0030

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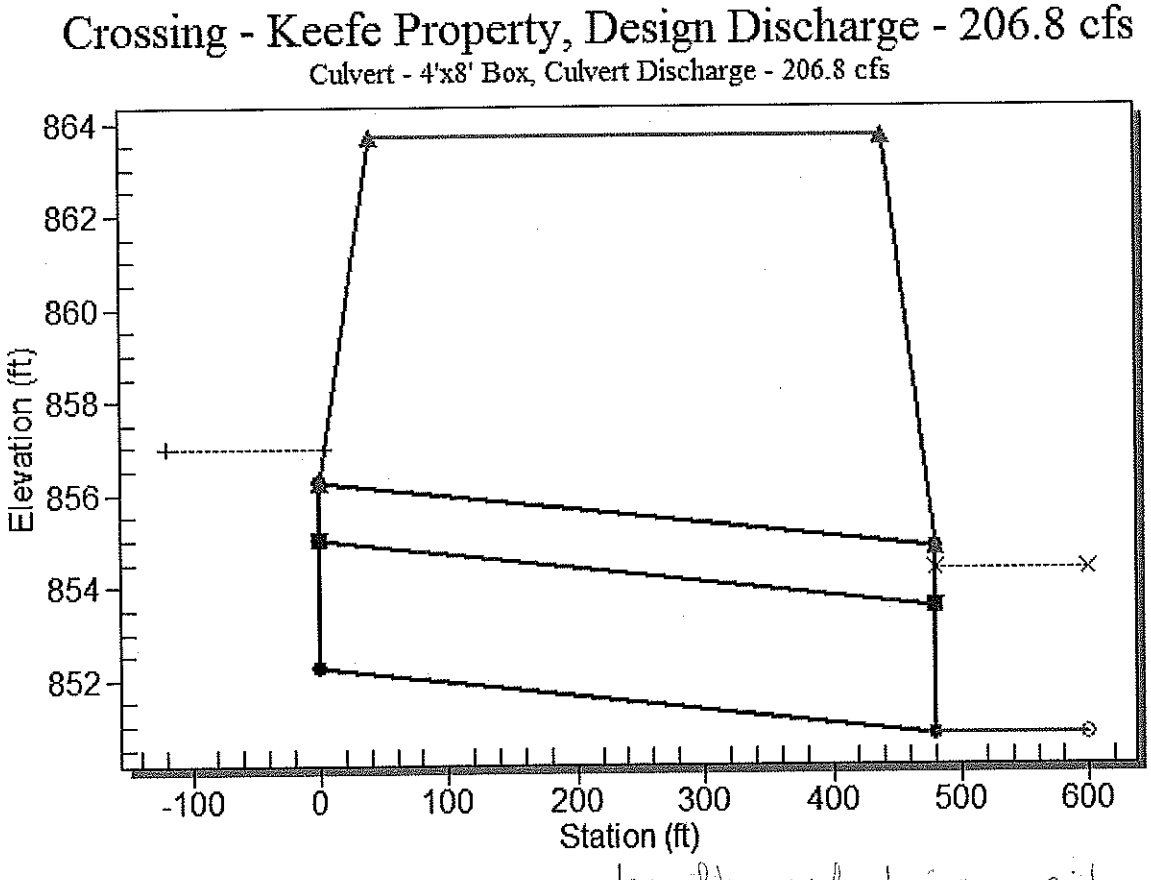
Water Surface Profile Plot for Culvert: 4'x8' Box



length - what "on-site"

Site Data - 4'x8' Box

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 852.25 ft

Outlet Station: 480.00 ft

Outlet Elevation: 850.81 ft

Number of Barrels: 1

Culvert Data Summary - 4'x8' Box

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 4.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (90°) Headwall

Inlet Depression: NONE

Tailwater Channel Data - Keefe Property

Tailwater Channel Option: Rectangular Channel ? connects into existing 4'x8' box

Bottom Width: 4.00 ft

Channel Slope: 0.0100

Channel Manning's n: 0.0120

Channel Invert Elevation: 850.81 ft

Roadway Data for Crossing: Keefe Property

Roadway Profile Shape: Constant Roadway Elevation — not roadway but edge of basin

Crest Length: 60.00 ft

Crest Elevation: 863.70 ft

Roadway Surface: Paved

Roadway Top Width: 400.00 ft