

**BENCH MARK:**

Set a RR Spike in the first power pole NE of the box culvert.  
 Elevation NGVD 88: 577.14  
 Northing: 1665597.386;  
 Easting: 1054179.948

**EXISTING STRUCTURE:**

Structure 099-0170 was built in 1929 as a reinforced concrete slab bridge. The superstructure is comprised of precast channel beams with a 5" reinforced concrete wearing surface. The back to back abutment length is 23'-5". The contractor shall remove and replace it with a 16-foot wide by 9-foot high cell flanked by two 9-foot wide by 9-foot high cells utilizing stage construction. Traffic will be detoured during the construction. Stage Construction is utilized to avoid the need for additional ROW or temporary easement to divert water flow during construction.

**SALVAGE:**

No Salvage.

**NOTES:**

Precast option is not allowed.

**HIGHWAY CLASSIFICATION:**

F.A.P Rte. 631 - U.S. Rte. 102  
 Functional Class: Minor Arterial  
 ADT : 2450 (2015) / 1500 (2040)  
 DHV : 245  
 ADTT% : 14 %  
 Design Speed : 60 m.p.h.  
 Posted Speed : 55 m.p.h.

**DESIGN SPECIFICATIONS**

2014 AASHTO LRFD Bridge Design Specifications,  
 7th edition with 2015 & 2016 interims

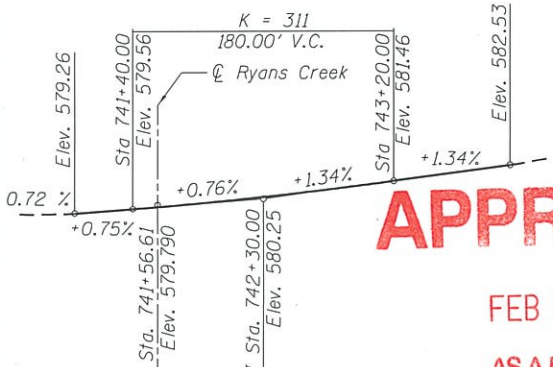
**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (reinforcement)



**APPROVED**

**FEB 28 2018**

**AS A BASIS FOR  
 PREPARATION OF DETAILED PLANS**

**PROFILE GRADE**

**WATERWAY INFORMATION TABLE**

Drainage Area = 6.59 sq.mi. Low Grade Elev. 579.17(E) 579.17(P) @ Sta. 740+68

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	408	96	157	573.8	0.2	0.0	574.0	573.8
Base	100	1250	140	231	576.0	2.7	0.7	578.7	576.7
Scour Design Check	200	1700	152	250	576.6	3.2	1.3	579.8	577.9
Ex. Overtop	130	1375	164	-	576.2	2.9	-	579.1	-
Pr. Overtop	360	2100	-	250	576.2	-	1.9	-	578.1
Max. Calc.	500	2375	164	250	577.4	2.9	2.5	580.3	579.9

10-yr Velocity through Existing Structure = 4 ft/s  
 10-yr Velocity through Proposed Structure = 2 ft/s

2-yr Flow Rate = 242 ft<sup>3</sup>/s

FILE NAME =  
 USER NAME =  
 DESIGNED - AM, AWM  
 CHECKED - MS  
 DRAWN - AM, AWM  
 CHECKED - MS

DESIGNED - AM, AWM  
 CHECKED - MS  
 DRAWN - AM, AWM  
 CHECKED - MS

DESIGNED - AM, AWM  
 CHECKED - MS  
 DRAWN - AM, AWM  
 CHECKED - MS

DESIGNED - AM, AWM  
 CHECKED - MS  
 DRAWN - AM, AWM  
 CHECKED - MS

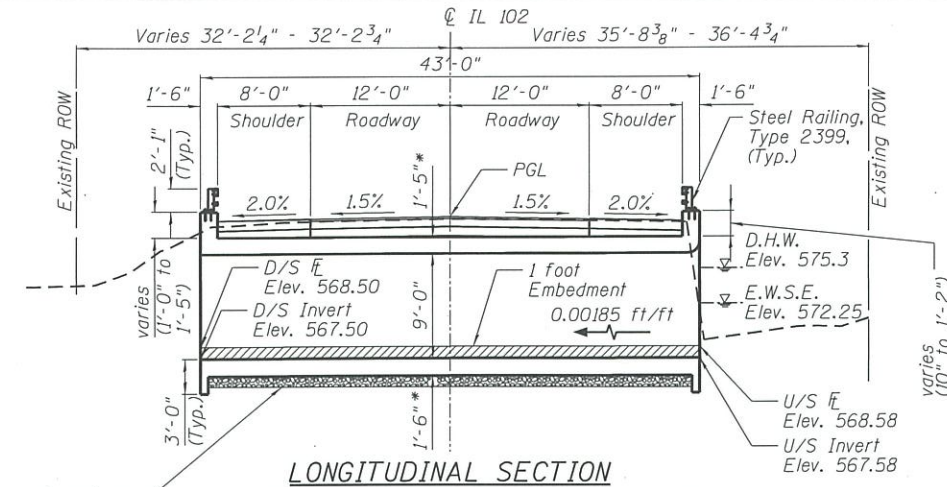
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN & ELEVATION  
 STRUCTURE NO.: 099-0170**

SHEET NO. OF SHEETS

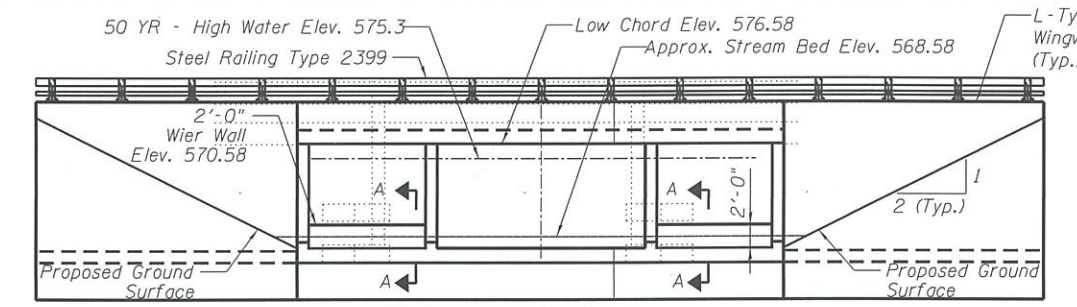
F.A.P. RTE. 631 SECTION (111N-B)B-R COUNTY WILL TOTAL SHEETS 37 SHEET NO. 21 CONTRACT NO. 60V28

ILLINOIS FED. AID PROJECT



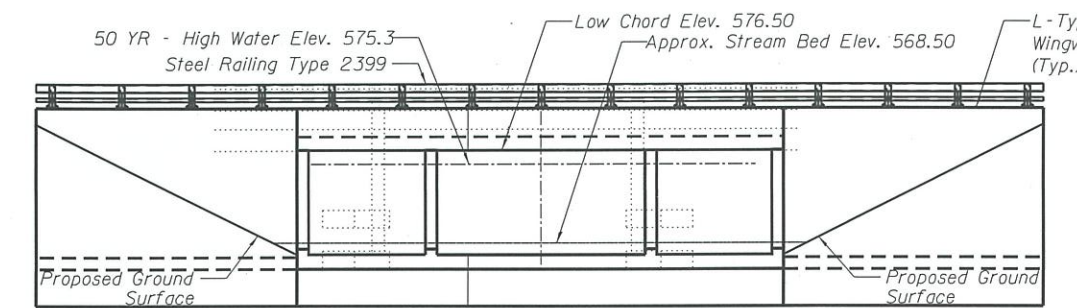
**LONGITUDINAL SECTION**

Dimensions measured perpendicular to  $\odot$  IL Rte. 102



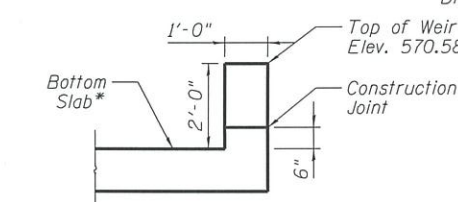
**PROPOSED STRUCTURE ELEVATION U/S**

Dimensions measured along  $\odot$  IL Rte. 102

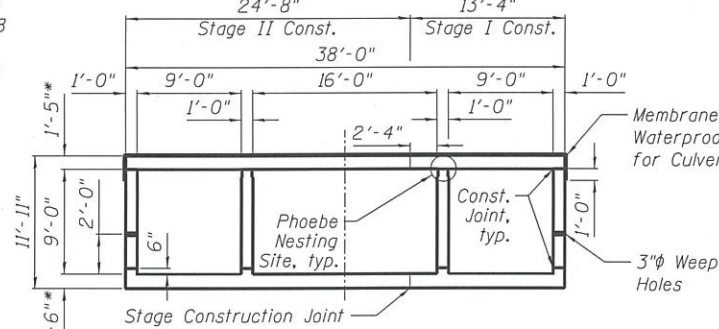


**PROPOSED STRUCTURE ELEVATION D/S**

Dimensions measured along  $\odot$  IL Rte. 102

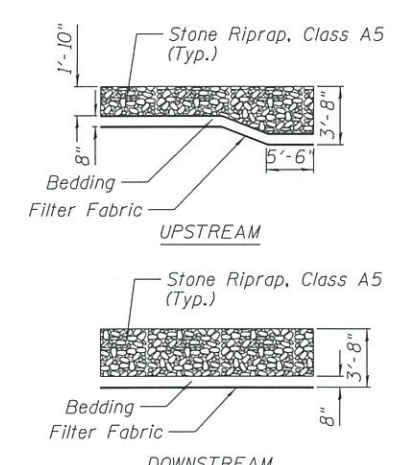


**SECTION A-A**

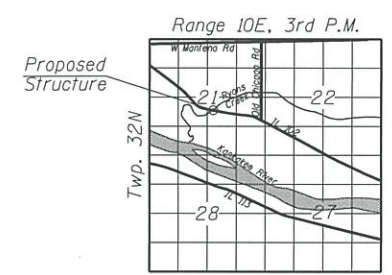


**SECTION THRU BARREL - LOOKING D/S**

(Dimensions at Rt. L's to  $\odot$  Culvert)  
 (\*slab thickness may be refined in final design)



**RIPRAP DETAIL**



**LOCATION SKETCH**

**GENERAL PLAN AND ELEVATION  
 US ROUTE 102 OVER RYANS CREEK  
 F.A.P. ROUTE 631  
 SECTION (111N-B)B-R  
 WILL COUNTY  
 STATION 741+56.61  
 STRUCTURE NO. 099-0918**