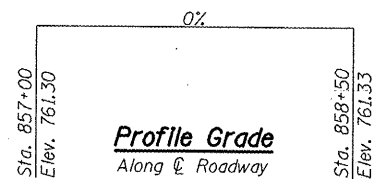
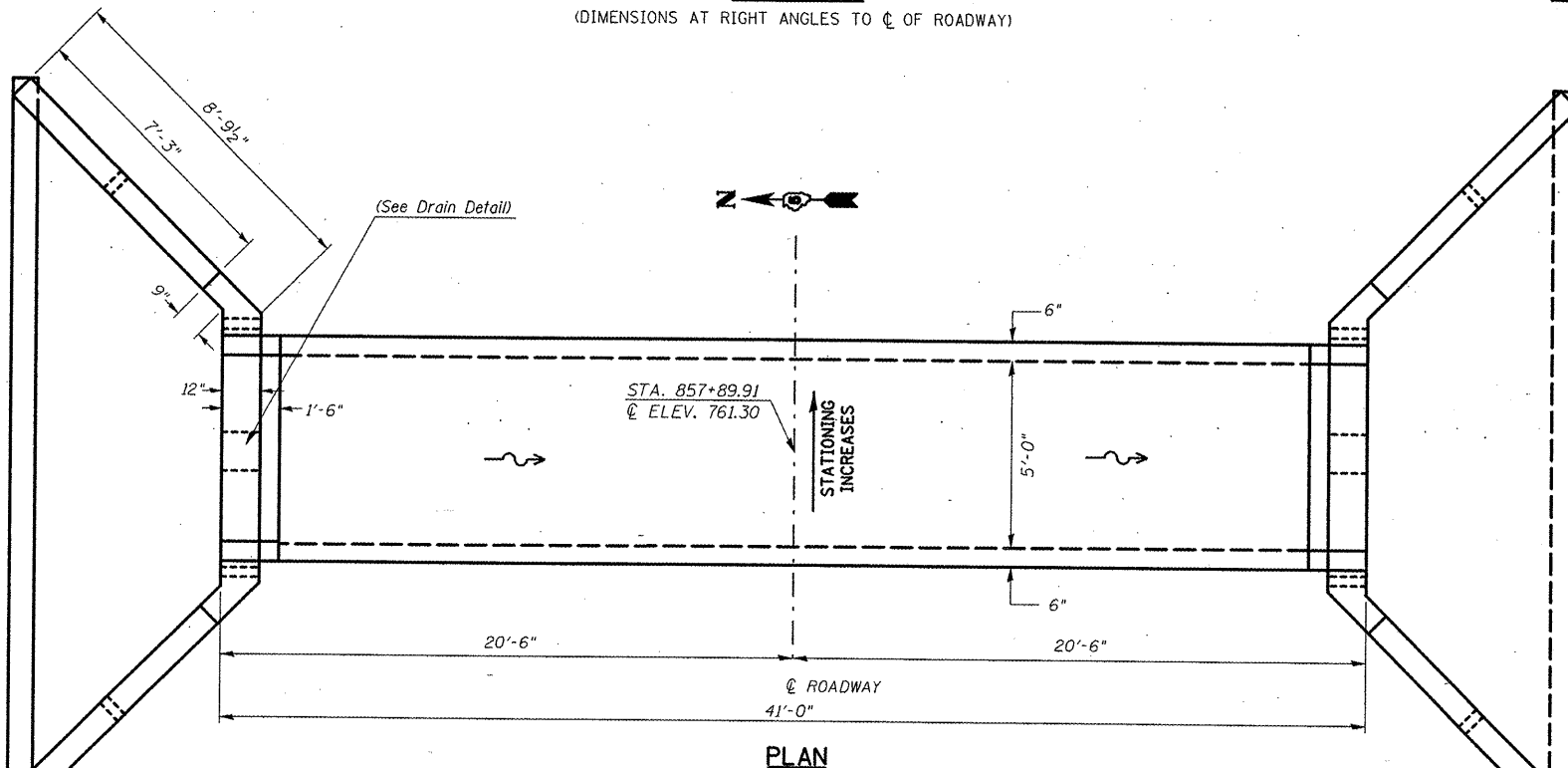
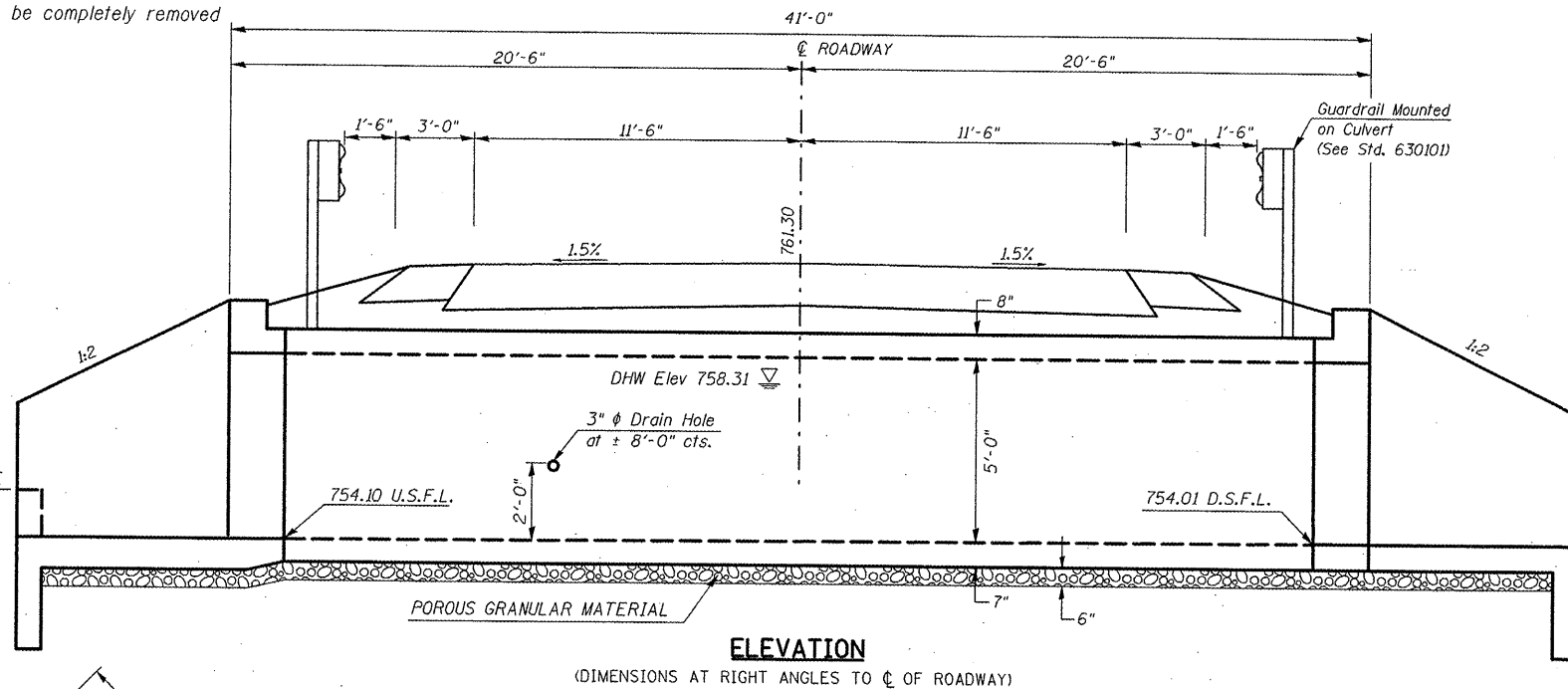


EXISTING STRUCTURE: The existing structure was built in 1929 at station 857+89.91 as a 4'x6' R.C. Box Culvert as SBI 165, Section 127 in McLean County. The existing structure is to be completely removed and replaced. Road Closure will be utilized.



UPSTREAM DROP STRUCTURE  
ELEVATION = 755.26



**INDEX OF SHEETS**

- 1. General Plan and Elevation
- 2.-3. Box Culvert End Section Details

**DESIGN SPECIFICATIONS**

2002 AASHTO

**LOADING HS20-44**

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

**DESIGN STRESSES**

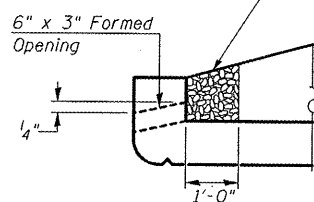
**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (reinforcement)  
 $f_y = 65,000$  psi (welded wire fabric)

**PRECAST UNITS**

$f'_c = 5,000$  psi  
 $f_y = 65,000$  psi (welded wire fabric)

Coarse aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Box Culvert End Sections.



**DRAIN DETAIL**

**Design Scour Elevation Table**

Design Scour Elevation (ft.)	Upstream	Downstream
	751.10	751.01

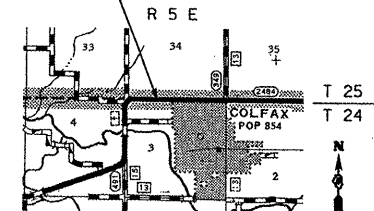
**WATERWAY INFORMATION**

Drainage Area = 0.1 sq. mi. Low Grade Elev. 857+89.91 @ Sta. 761.3

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	72	24	25			757.03	757.34	
Base	50	124	24	25			758.14	758.31	
Overtopping	100	149	24	25			758.68	758.79	
Max. Calc.	500	210	24	25			760.06	760.01	

Note: Information provided using the USGS 2004-5103 Method.

CULVERT NO. 3  
857+89.91



**LOCATION SKETCH**

**General Notes**

Build tops of headwalls parallel to the grade lines.

All construction joints shall be bonded according to Article 503.09 of the Standard Specifications.

Reinforcement bars shall conform to the requirements of ASTM A706 Gr. (IL Modified). See Special Provisions.

The 6" Porous Granular Material required per Art. 540.06 of the Standard Specifications shall also extend beneath the Box Culvert End Sections and shall be considered included in the cost of Precast Concrete Box Culverts and Box Culvert End Sections.

When lapping sheets of welded wire fabric, the overlap measured between the outermost cross wires of each fabric sheet shall not be less than 8"

End Sections will be paid for at the contract unit price per each for BOX CULVERT END SECTIONS, as outlined in Section 540 of the Standard Specifications.

Class S1 Concrete shall be used throughout.

Concrete, Rebar, and Welded Wire Fabric quantities and lengths calculated for the cast-in-place End Sections may vary based on the precast box culverts supplied.

Drain holes shall be provided in accordance with Article 503.11 of the Standard Specifications.

The box culvert end section shall be built in the field and a precast option is not allowed except the cut-off wall may be precast. If the contractor elects to use a precast cut-off wall, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval.

The ends of the precast box sections adjacent to the end section shall be formed without the male and female shapes specified in Article 8.1 of AASHTO M273. See Sections B-B, D-D, E-E, and F-F on Sheet 3.

The design fill height for this box is less than 2 feet. The precast concrete box culvert sections shall conform to the requirements of AASHTO M273. The design reinforcement areas shall conform to those found in Table 1 of the AASHTO M273 specification for a 5' x 5' box section.

The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling process.

All dimensions are in FEET (') - INCHES (") unless otherwise noted.

Drawings not to scale.

**TOTAL BILL OF MATERIAL**

Item	Unit	Total
Removal of Existing Structures No. 3	Each	1
Precast Concrete Box Culverts 5'x5' (M273)	Foot	38
Box Culvert End Section, Culvert No. 3	Each	2
Steel Plate Beam Guardrail, Attached To Str.	Foot	12

**GENERAL PLAN AND ELEVATION**  
**SINGLE 5'x5' PRECAST BOX CULVERT**  
**F.A.S. ROUTE 2484 - SECTION (125,126,127)RS-2**  
**MCLEAN CO.**  
**STATION 857+89.91**  
**CULVERT NO. 3**

Sheet 1 of 3

FILE NAME =	USER NAME = corrollrt	DESIGNED RTC	REVISED -
c:\pwork\puidot\corrollrt\dms87246\78	10-shit-culvert-details.dgn	DRAWN RTC	REVISED -
	PLOT SCALE = 44,0000 / IN.	CHECKED -	REVISED -
	PLOT DATE = 3/3/2018	DATE -	REVISED -

**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND PROFILE**  
**BOX CULVERT REPLACEMENT AT STA. 857+89.91**

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
2484	(125,126,127)RS-2	MCLEAN	122	47

CONTRACT NO. 70510  
ILLINOIS FED. AID PROJECT