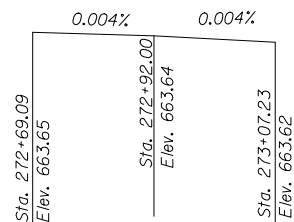


EXISTING STRUCTURE: S.N. 092-8032 was constructed in 1934 at STA. 272+79 as a 5.5' X 6.5' cast-in-place box culvert with a skew = 45° concrete headwalls as S.B.I. 119, Sec. 115 in Vermilion County. The existing structure is to be completely removed and replaced. There will be no salvage of any materials. Stage Construction will be utilized. BENCHMARK ELEV. = 663.22 Chiseled "X" on top of North Headwall of ARBC at STA.274+88.65, 20.61' LT.



PROFILE GRADE

Along ϕ Roadway

STATION 272+92.00
BUILT 201_ BY
STATE OF ILLINOIS
F.A.P. RT. 711 SEC. 115CR
LOADING HS 20
STRUCTURE NO. 092-8087

NAME PLATE

See Std. 515001

INDEX OF SHEETS

1. Plan & Profile
2. As Built Plan
3. Porous Granular Embankment Detail
4. General Plan and Elevation
5. 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

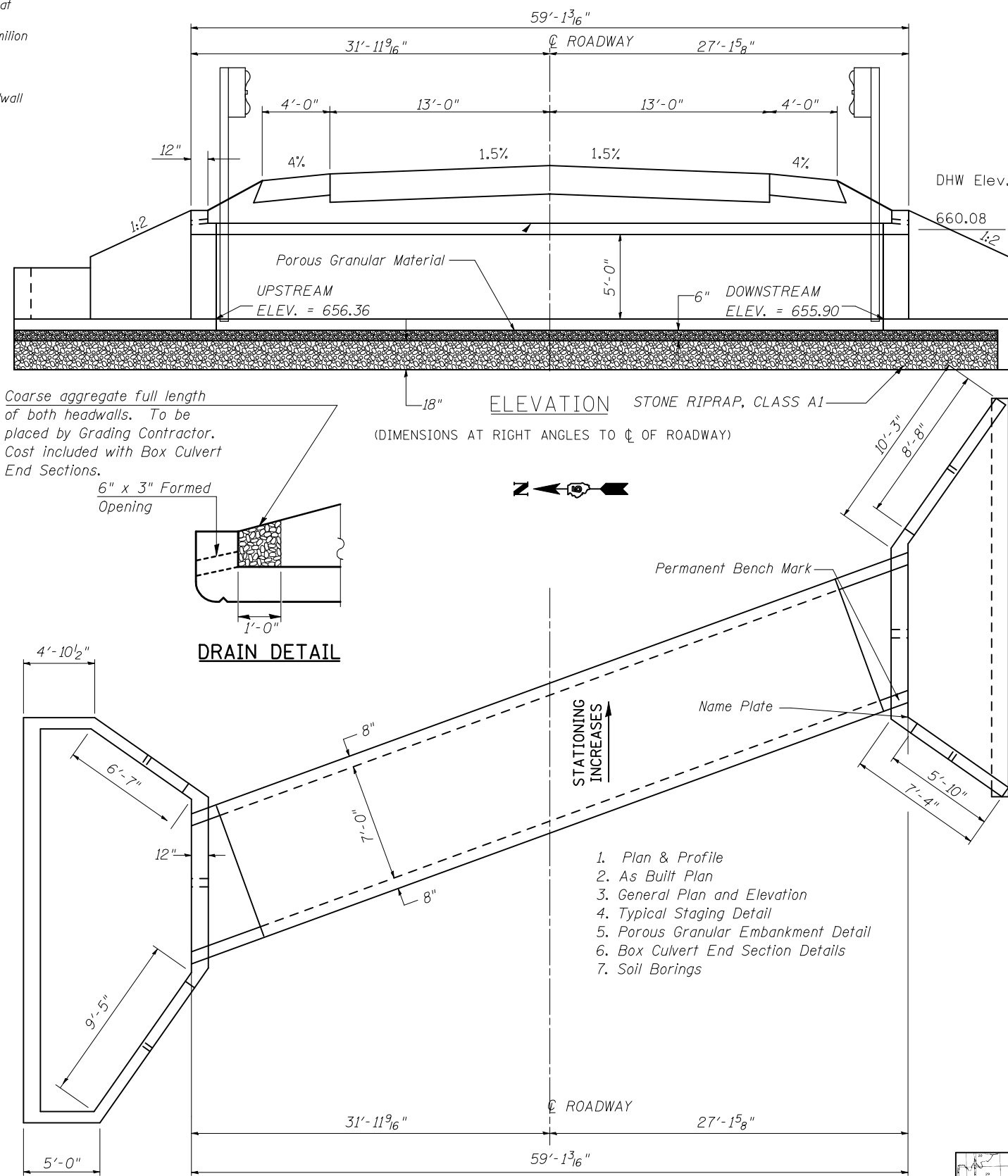
$f'_c = 5,000$ psi
 $f_y = 65,000$ psi (welded wire fabric)

WATERWAY INFORMATION

Drainage Area = 0.110 sq. mi. Low Grade Elev. 663.45 @ Sta. 274+50

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	79	24	25			659.45	659.43	
Base	50	134	33	30			660.18	660.08	
Overtopping	100	159	30	32			660.53	660.40	
Max. Calc.	500	222	35	34			661.40	661.24	

Note: Information provided using the Regression Method.



Design Scour Elevation Table

Design Scour Elevation (ft.)	Upstream	Downstream
	656.36	655.90

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.

All bars should be rounded and conform to the requirements of Article 1006.10 of the Standard Specification.

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 SI 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 precast manufacturer shall design a detail a connection/construction joint between the precast concrete box sections and the cast-in-place apron and wingwall. The minimum area of reinforcement passing through these construction joints shall be 0.20 sq. in./lineal ft. of welded wire fabric. The design shall be detailed in the shop drawings. The cost of the connection is included in the cost of the end section.

The box culvert end section may be built in the field or using precast construction methods. If the contractor elects to use precast construction methods, shop drawings and a proposed construction sequence shall be submitted to the Engineer for approval. See Special Provisions.

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 5.

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 M 273.

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. 2	Each	1.0
Precast Concrete Box Culvert 7'x5'(M273)	Foot	40.0
Box Culvert End Section, Culvert No. 2	Each	2.0
Name Plates	Each	1.0
Permanent Bench Marks	Each	1.0
Porous Granular Embankment	Cu.Yd.	209.0
Stone Riprap, Class A1	Sq.Yd.	122.0

**GENERAL PLAN AND ELEVATION
SINGLE 7'x5' PRECAST BOX CULVERT
F.A.P. ROUTE 711 - SECTION 115CR
VERMILION COUNTY
STATION 272+92.00 S.N. 092-8087
CULVERT NO. 2**

FILE NAME =	USER NAME = shererjm	DESIGNED - JMS	REVISED -
ct:\pw\work\p\dot\shererjm\d0189007\0570617-sht-Details.dgn		DRAWN - JMS	REVISED -
		CHECKED -	REVISED -
		DATE - 062910	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**GENERAL PLAN AND ELEVATION
PROPOSED CULVERT NO. 2, S.N. 092-8087**

SCALE: N/A SHEET NO. 3 OF 9 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
711	115CR	VERMILION	39	21
				CONTRACT NO. 70617

ILLINOIS FED. AID PROJECT