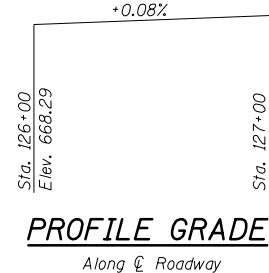


BENCHMARK ELEV. 667.91' Chiseled square on the northwest corner of headwall of S.N. 023-8039 at Station 126+46.60, 20.76' LT.

EXISTING STRUCTURE: S.N. 023-8039 was constructed in 1936 at station 126+54 as a single 8'x4'x41'-4" cast-in-place reinforced concrete box culvert as part of SA Route 7, Section 123NRS in Edgar County. The existing structure is to be completely removed and replaced. Staged construction with 24-hour flaggers will be utilized.

Course aggregate full length of both headwalls. To be placed by Grading Contractor. Cost included with Concrete Box Culverts.



PROFILE GRADE

Along ϕ Roadway

STATION 126+55.00
BUILT 2012 BY
STATE OF ILLINOIS
F.A.P. RT. 749 SEC. 14BR,14CR,123CR
LOADING HS 20
STRUCTURE NO. 023-8064

NAME PLATE

See Std. 515001

INDEX OF SHEETS

1. General Plan and Elevation
2. Box Culvert End Section Details
3. Staging Details
4. Existing Structure Information

DESIGN SPECIFICATIONS

2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

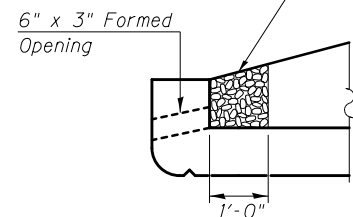
FIELD UNITS

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

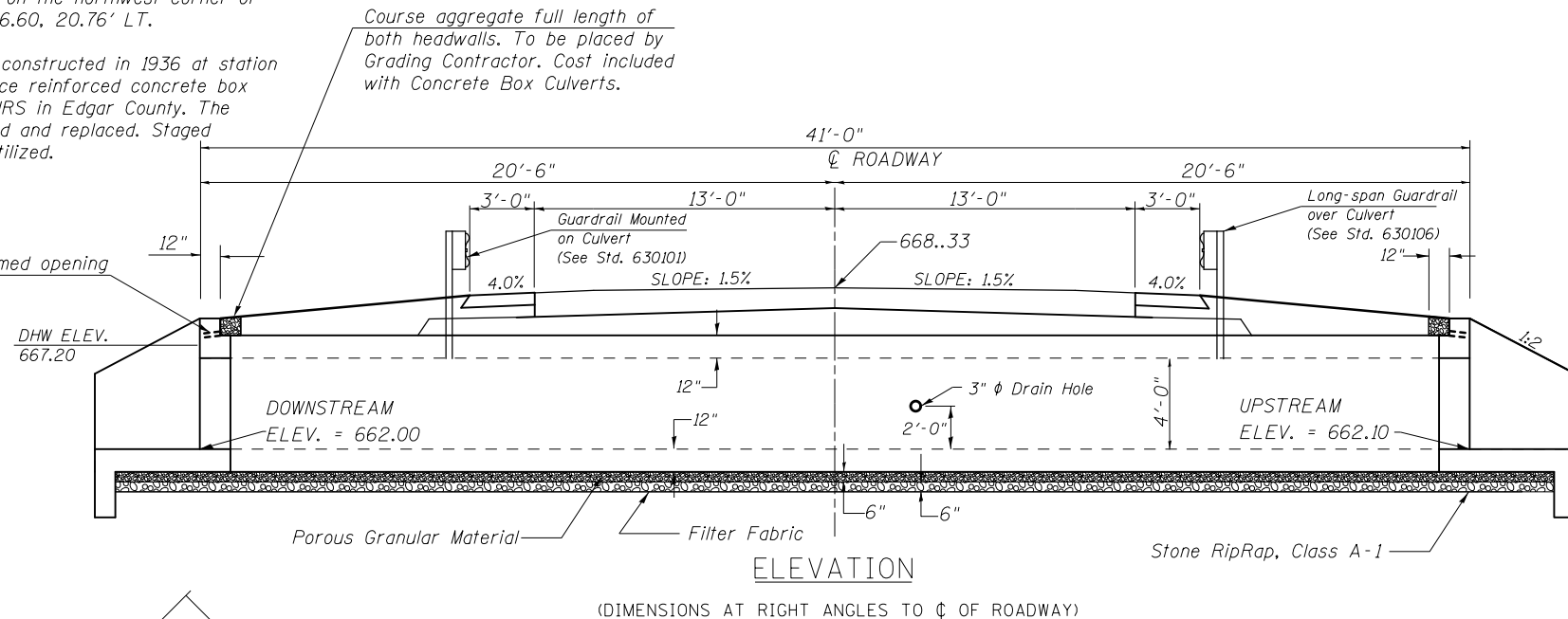
PRECAST UNITS

$f'_c = 5,000$ 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.

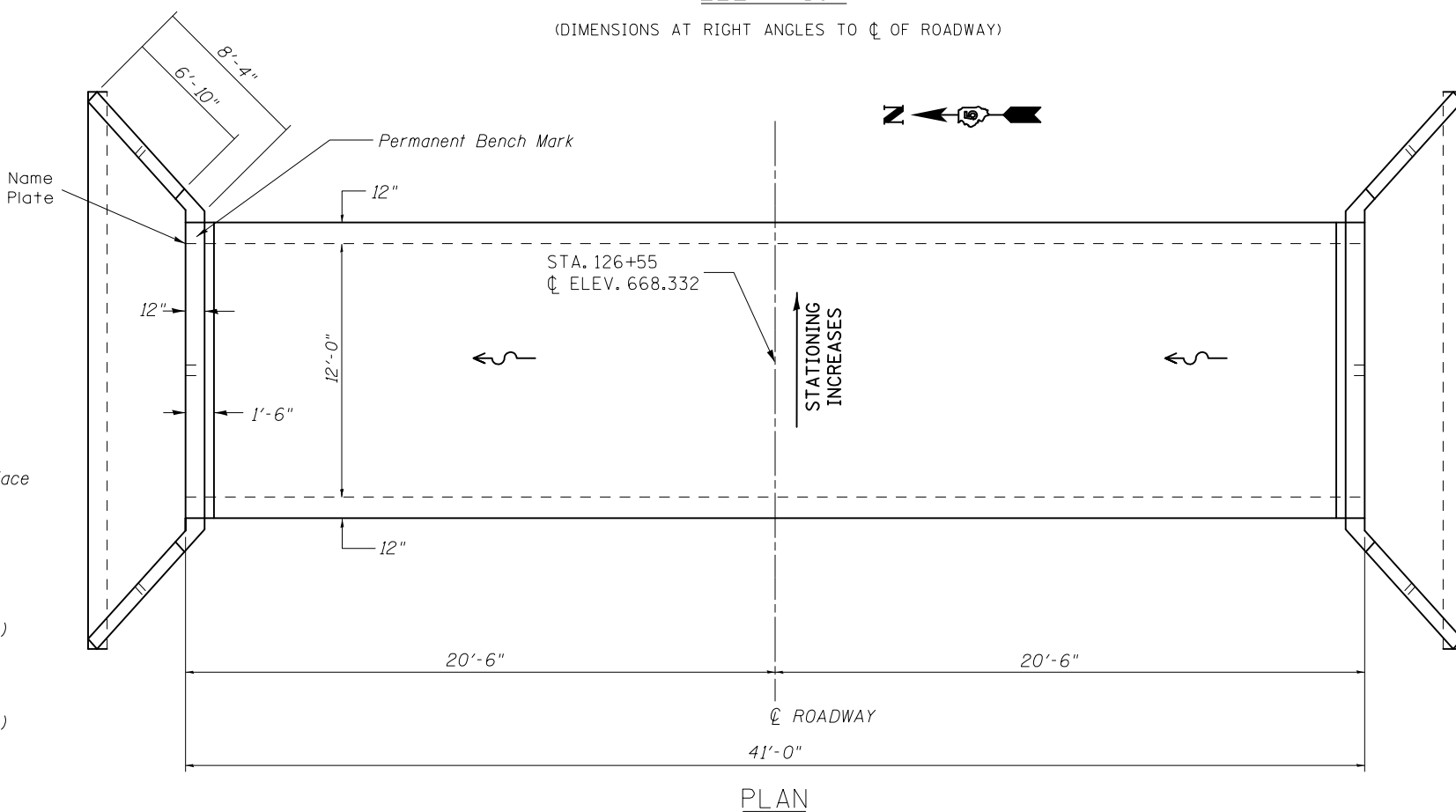


DRAIN DETAIL



ELEVATION

(DIMENSIONS AT RIGHT ANGLES TO ϕ OF ROADWAY)



PLAN

WATERWAY INFORMATION

Drainage Area = 1.00 sq. mi. Low Grade Elev. 668.33 @ Sta. 126+55

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
	10	225	32	46			667.2	665.9	
Design	50	367	32	48			Over	667.2	
Base	100	430	32	48			Over	668.0	
Overtopping									
Max. Calc.	500	585	32	48			Over	Over	

10 year velocity through existing bridge = 8.12 fps 10 year velocity through proposed bridge = 6.02 fps

Note: Information provided utilizing USGS Streamstats Method

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	Upstream	Downstream
	659.10	659.00

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 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 design reinforcement areas shall conform to those found in Table 1 of AASHTO M273 for a 12'x4' box section except the extension of the As1 bars into the top slab shall be equal to (23 inches + 2 longitudinal wire spaces).

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 and E-E on Sheet 2.

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 and 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.

The Contractor is advised that a Temporary Soil Retention System (TSRS) may be necessary dependent upon their construction sequence. If required, the Contractor shall be responsible for all aspects (design, furnishing, installing, removal). As a TSRS is not specified in the Contract, the cost of a TSRS shall be considered as included in the contract unit price of the work specified.

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. 1	Each	1
Precast Concrete Box Culvert 12'x4' (M273)	Foot	38.0
Box Culvert End Sections, Culvert No. 1	Each	2
Name Plates	Each	1
Permanent Bench Marks	Each	1
Porous Granular Embankment	Cu.Yd.	55
Stone Riprap, Class A1	Ton	26

**GENERAL PLAN AND ELEVATION
SINGLE 12'x4' PRECAST BOX CULVERT
F.A.P. ROUTE 749 - SECTION 14BR,14CR,123CR
STATION 126+55.00 S.N. 023-8064
CULVERT NO. 1**

FILE NAME =	USER NAME = keysrb	DESIGNED -	REVISIED -	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	GENERAL PLAN AND ELEVATION PROPOSED CULVERT NO. 1 - S.N. 023-8064			F.A.P. RTE. 749	SECTION 14BR,14CR,123CR	COUNTY EDGAR	TOTAL SHEETS 115	SHEET NO. 19
ei:\pwork\p1dot\keysrb\104347\057068-sht-details.dgn		DRAWN -	REVISIED -		SCALE:	SHEET NO. 1 OF 4 SHEETS	STA. TO STA.	CONTRACT NO. 70618				
		CHECKED -	REVISIED -		ILLINOIS FED. AID PROJECT							
		DATE -	REVISIED -									