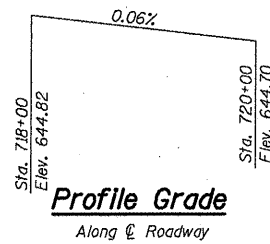


EXISTING STRUCTURE: S.N. 021-8024 was constructed in 1927 at STA. 719+50 as a 10'x4'x42' cast-in-place box culvert with concrete headwalls as S.B.I. 121, Sec. 146 in Douglas County. In 2000 the box was extended with precast box culverts and cast-in-place end sections, under Section (145,146)RS-2 & 147. The existing structure is to be completely removed and replaced. There will be no salvage of any materials. Road closure will be utilized.

BENCHMARK ELEV. = 640.34 Chiseled square on top of center of south headwall of S.N. 021-8024 at STA. 719+50, 31.34' RT.



Profile Grade
Along ϕ Roadway

STATION 719+50.00
BUILT 201 BY
STATE OF ILLINOIS
F.A.P. RT. 323 SEC. (145,146)CR
LOADING HS 20
STRUCTURE NO. 021-8054

NAME PLATE
See Std. 515001

INDEX OF SHEETS

1. Plan & Profile
2. Existing As-Built
3. Porous Granular Embankment Details
4. General Plan And Elevation
5. Box Culvert End Section Detail

DESIGN SPECIFICATIONS
2002 AASHTO

LOADING HS20-44

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

DESIGN STRESSES

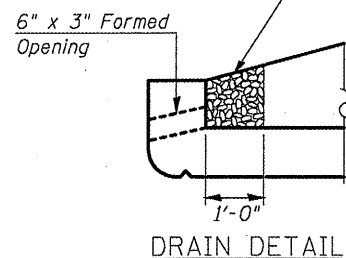
FIELD UNITS

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

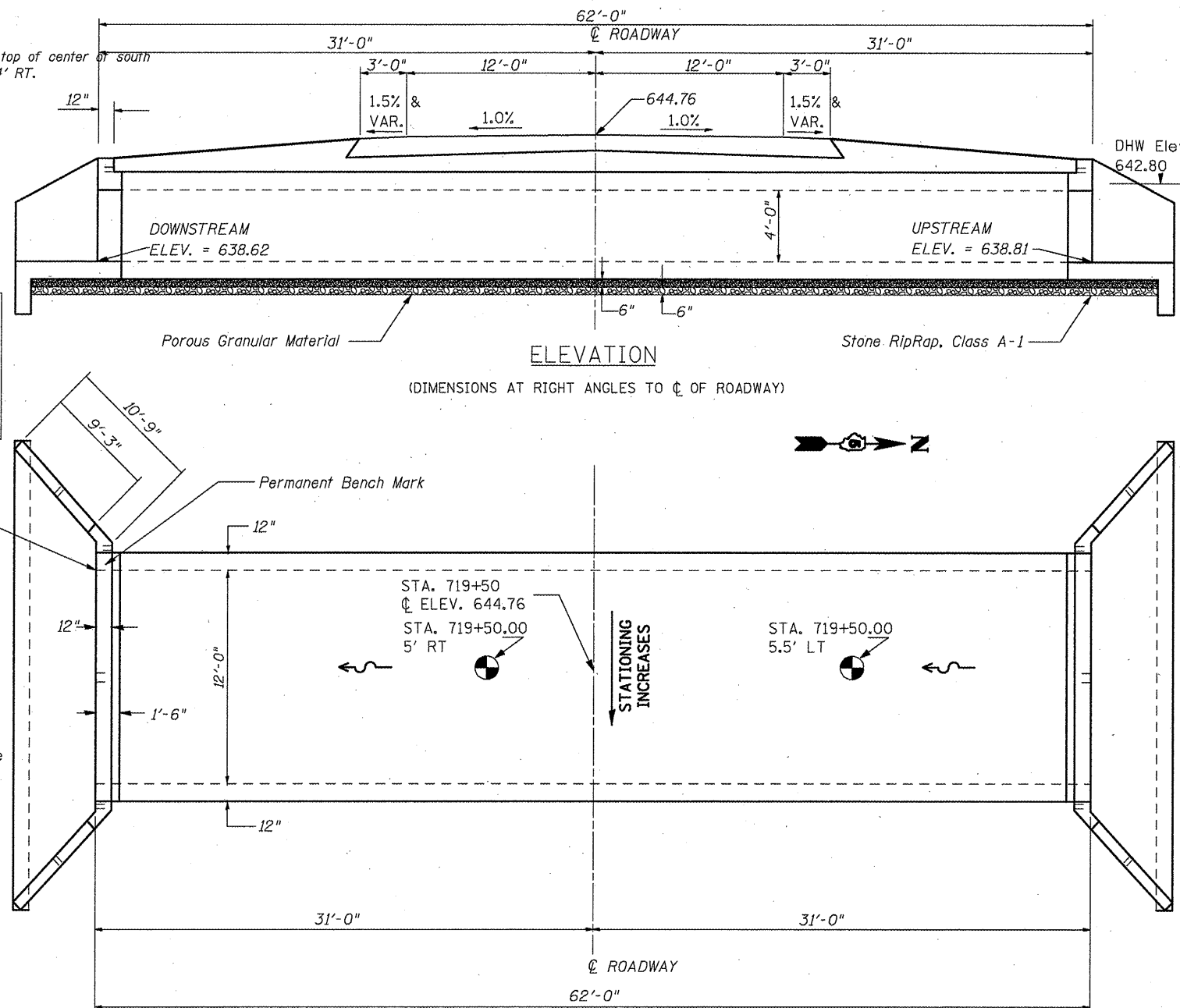
PRECAST UNITS

$f'_c = 5,000$ 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

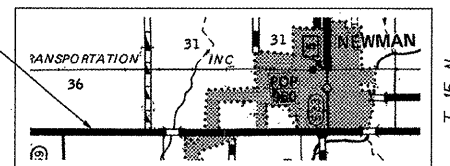
WATERWAY INFORMATION

Drainage Area = 1.1 sq. mi. Low Grade Elev. 644.67 @ Sta. 720+20.00

Flood Yr.	Freq.	Q C.F.S.	Opening Exist.	Opening Prop. Sq. Ft.	Nat. H.W.E.	Head - Ft. Exist.	Headwater El. Prop.
10	136	32	32				642.0/642.0
Design	50	210	40	40			642.8/642.8
Base	100	242	40	40			643.2/643.2
Overtopping							
Max. Calc.	500	318	40	40			644.0/644.0

Note: Information provided using the Regression Method.

PROP. S.N. 021-8054
STA. 719+50.00



Design Scour Elevation Table

Design Scour Elevation (ft.)	Upstream	Downstream
	635.81	635.62

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 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. 3	Each	1
Precast Concrete Box Culvert 12'x4' (M273)	Foot	59
Box Culvert End Section, Culvert No. 3	Each	2
Name Plates	Each	1
Porous Granular Embankment	Cu.Yd.	90
Stone RipRap, Class A1	Ton	35
Permanent Bench Marks	Each	1

GENERAL PLAN AND ELEVATION
SINGLE 12'x4' PRECAST BOX CULVERT
F.A.P. ROUTE 323 - SECTION (145,146)CR
DOUGLAS COUNTY
STATION 719+50.00 S.N. 021-8054
CULVERT NO. 3

FILE NAME	USER NAME	DESIGNED	REVISED
ct:\pwwork\p\p\DOT\BUCKLESJJD\0134382\021-8054-sht-detail.dgn	bucklesj	RLA	-
PLOT SCALE = 40,0000' / IN.		DRAWN - RLA	REVISED -
PLOT DATE = 3/22/2010		CHECKED - JMS	REVISED -
		DATE - 11/3/09	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION	
PROPOSED CULVERT NO. 3 - S.N. 021-8054	
SCALE:	SHEET NO. 4 OF 5 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
323	(145,146)CR	DOUGLAS	36	23
CONTRACT NO. 70696				
ILLINOIS FED. AID PROJECT				