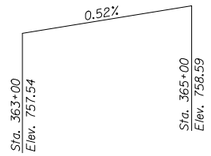
EXISTING STRUCTURE: S.N. 057-8001 was constructed in 1930 at STA. 363+70 as a 12'x4'x50' cast-in-place box culvert with concrete headwalls as S.B.I. 48, Sec. 121 in Mclean County. The existing structure is to be completely removed and replaced. Road closure will be utilized.

BENCHMARK ELEV. = 754.03 Chiseled square on south corner of east headwall of str. 057-8001 at approx. STA. 363+50, 25' RT.



Profile Grade
Along ℄ Roadway

STATION 363+70
BUILT 201_ BY
STATE OF ILLINOIS
F.A.P. RT. 71 SEC. 121R
LOADING HS 20
STRUCTURE NO. 057-2047

NAME PLATE
See Std. 515001

INDEX OF SHEETS

DESIGN SPECIFICATIONS

2002 AASHTO

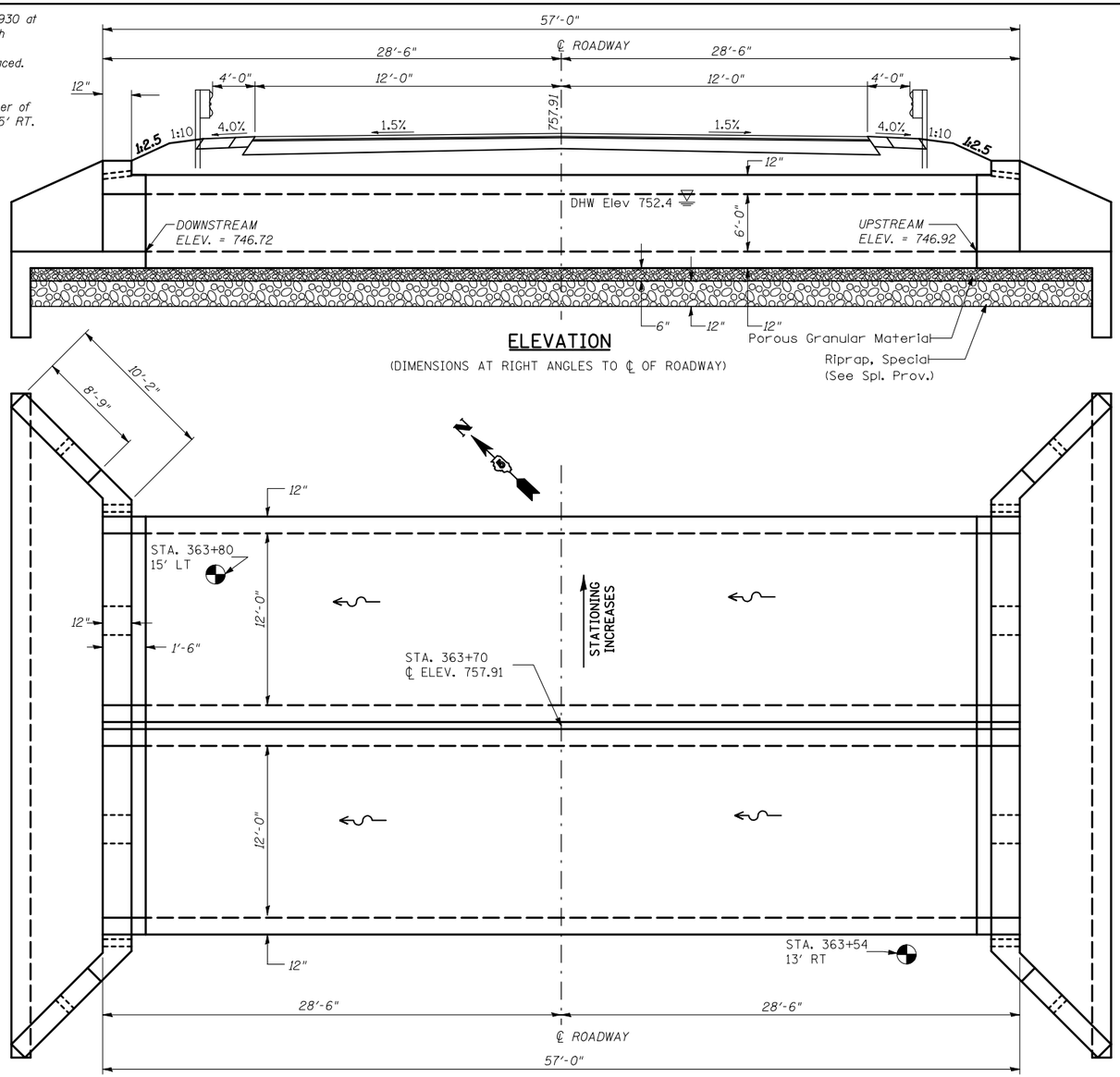
LOADING HS20-44

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

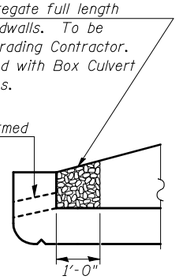
DESIGN STRESSES

FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (reinforcement)
fy = 65,000 psi (welded wire fabric)

PRECAST UNITS
f'c = 5,000 psi
fy = 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

WATERWAY INFORMATION TABLE

Route:	**FAP 71 (IL-54)**	**Existing S.N.:**	**057-8001**
Section:	**121R**	**Proposed S.N.:**	**057-2047**
County:	**McLean**	**Waterway:**	**Unnamed Tributary of Salt Creek**
Date:	**4/30/2009**	**By:**	**GMS**

Existing Low Grade Elev. = **757.04 ft.** *@ Sta.* **361+00**

Drainage Area = **0.97 (Exist.) 1.4 (Prop.)** *mi.²* *Proposed Low Grade Elev. =* **757.04 ft.** *@ Sta.* **361+00**

Flood	*Freq.*	*Q (Exist.)*	*Q (Prop.)*	*Opening Sq. Ft.*		*Natural*	*Head - Ft.*		*Headwater Elevation*	
	Yr.	*C.F.S.*	*C.F.S.*	*Existing*	*Proposed*	*H.W.E.*	*Existing*	*Proposed*	*Existing*	*Proposed*
	10	**343**	**455**	**48**	**105**				**752.6**	**751.3**
Design	50	**572**	**758**	**48**	**131**				**756.3**	**752.4**
Base	100	**676**	**896**	**48**	**143**				**Over**	**752.9**
Overtopping										
Max. Calc.	500	**933**	**1235**	**48**	**144**				**Over**	**754.2**

10 YEAR VELOCITIY THROUGH EXISTING BRIDGE = **11.4 ft/s** ***10 YEAR VELOCITIY THROUGH PROPOSED BRIDGE =*** **4.6 ft/s**

ALL-TIME H.W.E. & DATE: ~ 757.4 ft. - High Water Report dated 06/20/1990 states that flood water observed 4" deep over pavement.
- All-time H.W.E. is estimated at 0.33 ft. higher than existing low-grade elevation.

Design Scour Elevation Table

Design Scour Elevation (ft.)	*Upstream*	*Downstream*
	743.92	*743.72*

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 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 M259. See Sections B-B, D-D, E-E, and F-F on Sheet 2.

The design fill height for this box is greater than 2 feet. The Precast Concrete Box Culvert Sections shall conform to the requirements of AASHTO M 259.

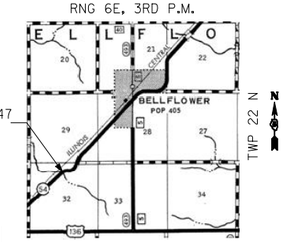
The joints between precast box sections shall be sealed, all voids filled with a mastic joint sealer. In addition, the joints shall be externally sealed on all four sides with a 13 inch wide external sealing band. The seal shall be centered over the joint, secured in place and protected during the backfilling 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. 1	*Each*	*1*
Precast Concrete Box Culverts 12'x6'	*Foot*	*108*
Box Culvert End Sections	*Each*	*2*
Name Plates	*Each*	*1*
Permanent Benchmark	*Each*	*1*



SHEET 1 OF 4

GENERAL PLAN AND ELEVATION
DOUBLE 12'x6' PRECAST BOX CULVERT
F.A.P. ROUTE 71 - SECTION 121R
MCLEAN COUNTY
STATION 363+70.00 S.N. 057-2047
CULVERT NO. 1

FILE NAME = c:\pw_work\pwidot\keysrb\d0101441\D70592sht-BoxCulverts.dgn	USER NAME = keysrb	DESIGNED -	REVISED -	**STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION**	**GENERAL PLAN AND ELEVATION PROPOSED CULVERT NO. 1 – STR. NO. 057-2047**				
	PLOT SCALE = 44.0000 ' / IN.	CHECKED -	REVISED -		SCALE:	SHEET NO. OF SHEETS	STA.	TO STA.	
	PLOT DATE = 10/16/2009	DATE -	REVISED -						

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
71	121R	MCLEAN	87	28
		CONTRACT NO. 70592		
	ILLINOIS	FED. AID PROJECT		