

Benchmark: B.M. 7008, Found cut "*" north end of easterly headwall on box culvert 1385' south of Lisbon Center Road, Elevation 635.44.

Existing Structure: None. Traffic to be detoured during construction.

INDEX OF SHEETS

1. General Plan & Elevation
2. Culvert Details
3. Soil Borings

DESIGN SPECIFICATIONS
2012 AASHTO LRFD Bridge Design Specifications, 6th Edition

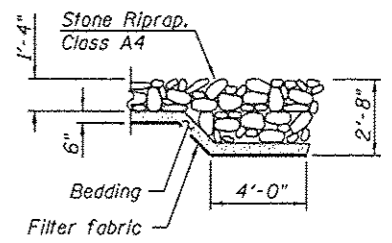
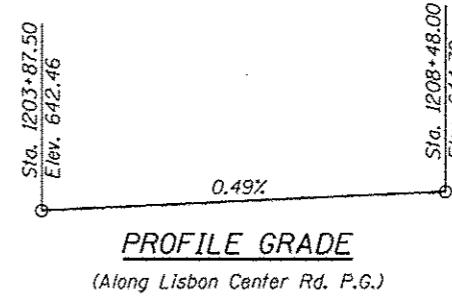
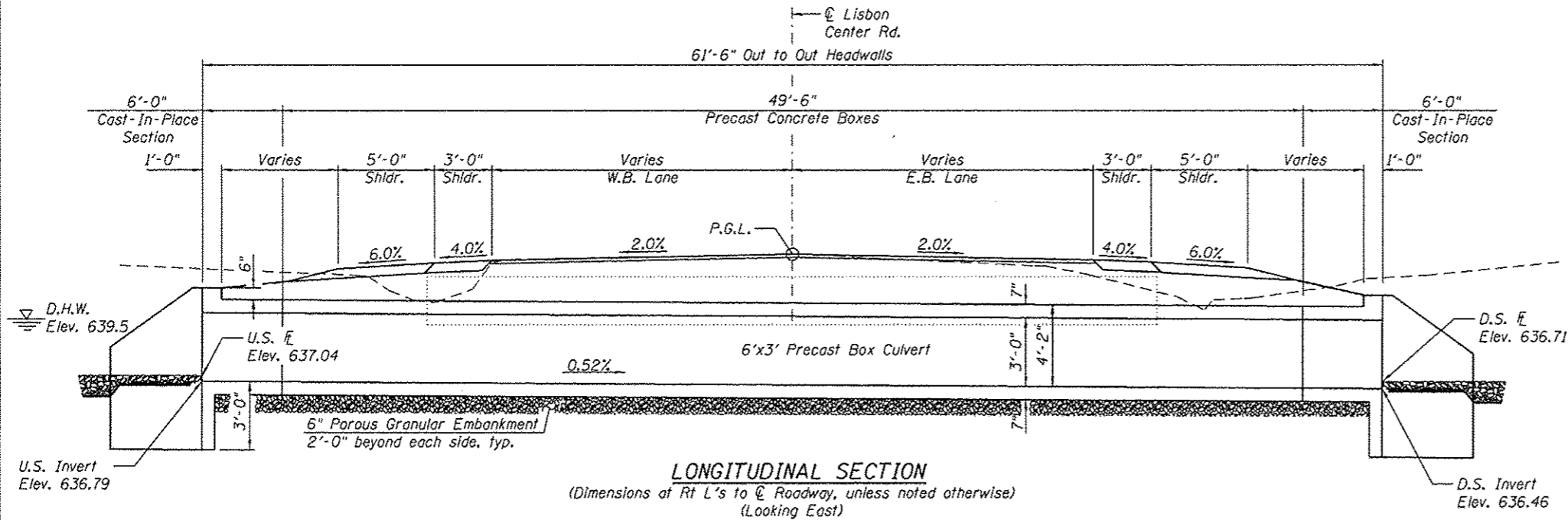
LOADING HL-93
Allow 50#/sq. ft. for future wearing surface.

DESIGN STRESSES

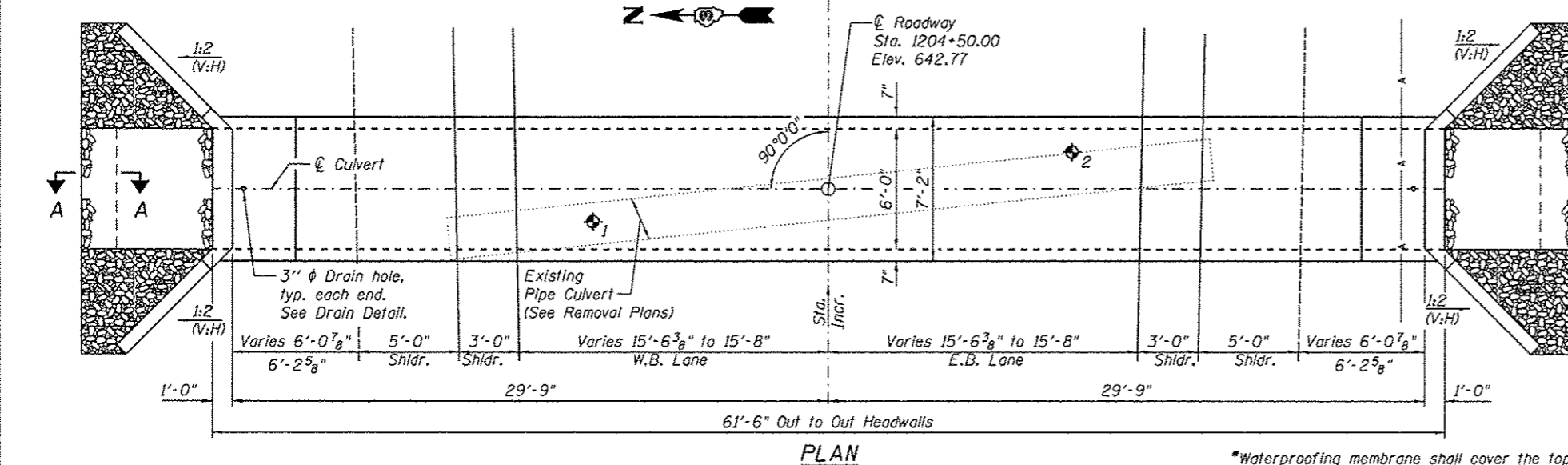
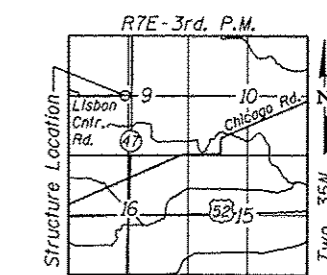
- FIELD UNITS**
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
- PRECAST UNITS**
f'c = 5,000 psi
fy = 60,000 psi (Reinforcement)
fy = 65,000 psi (Welded Wire Fabric)

GENERAL NOTES

Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer. The last section of precast culvert on each end shall have reinforcing bars extending from the precast culvert to be incorporated into the cast-in-place end sections as shown on sheet 2 of 3. Precast concrete box culverts shall conform to the design requirements of ASTM C1577.



SECTION A-A



*Waterproofing membrane shall cover the top surface of the culvert, including the top and inside face of edge beams at stage lines, and extend 6 inches up the inside face of the headwall. For precast box culverts, the waterproofing membrane shall cover the top 1 foot of the outside face of the sidewalls. For cast in place box culverts, the waterproofing membrane shall extend to 6 inches below the construction joint between the culvert sidewall and the top slab on the outside face of the sidewalls.

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	13
Stone Riprap, Class A4	Sq. Yd.	20
Filter Fabric	Sq. Yd.	20
Reinforcement Bars	Pound	1590
Concrete Box Culverts	Cu. Yd.	9.9
Precast Concrete Box Culvert 6'x3'	Foot	49.5
*Membrane Waterproofing for Culverts	Sq. Yd.	62

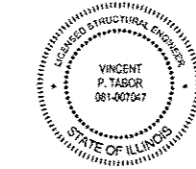
DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	U.S. Invert	D.S. Invert
	633.79	633.46

WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		NAT. H.W.E.		Rev. NAT. H.W.E.		Head - Ft.		Headwater E.I.	
			Exist.	Prop.	H.W.E.	H.W.E.	Exist.	Prop.	Exist.	Prop.		
Drainage Area = 0.136 sq mi												
Exist. Low Grade Elev. 641.52												
Prop. Low Grade Elev. 642.05												
Design	50	92	4.9	14.1	642.2	639.5	0.3	1.0	642.5	640.5		
Base	100	121	4.9	16.1	642.3	639.8	0.3	1.9	642.6	641.7		
Overtopping	-	132	4.9	17.0	642.4	640.1	-	2.0	-	642.1		
Max. Calc.	500	206	4.9	20.5	642.5	640.6	0.5	2.2	643.0	642.8		

10 year velocity through Existing Structure = 9.4 fps
10 year velocity through Proposed Structure = 4.5 fps



Vincent P. Tabor 7/14/2014
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Expires 11/30/2014

GENERAL PLAN & ELEVATION
LISBON CENTER RD. OVER
DRAINAGE DITCH
F.A.P. RTE. 326
SEC-(109, 110)R-1
KENDALL COUNTY
STATION 1204+50.00
WATER CROSSING 149A