

Benchmark: B.M. 7009. Found cut "+" north end of westerly headwall on box culvert 290' north of US Route 52, Elevation 624.56.

Existing Structure: The existing structure consists of a double 9'x7' concrete box culvert with concrete wingwalls. The culvert is approximately 84'-7" in length with no skew. Existing structure to be removed and replaced. Traffic will be maintained utilizing stage construction.

No Salvage.

INDEX OF SHEETS

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

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

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

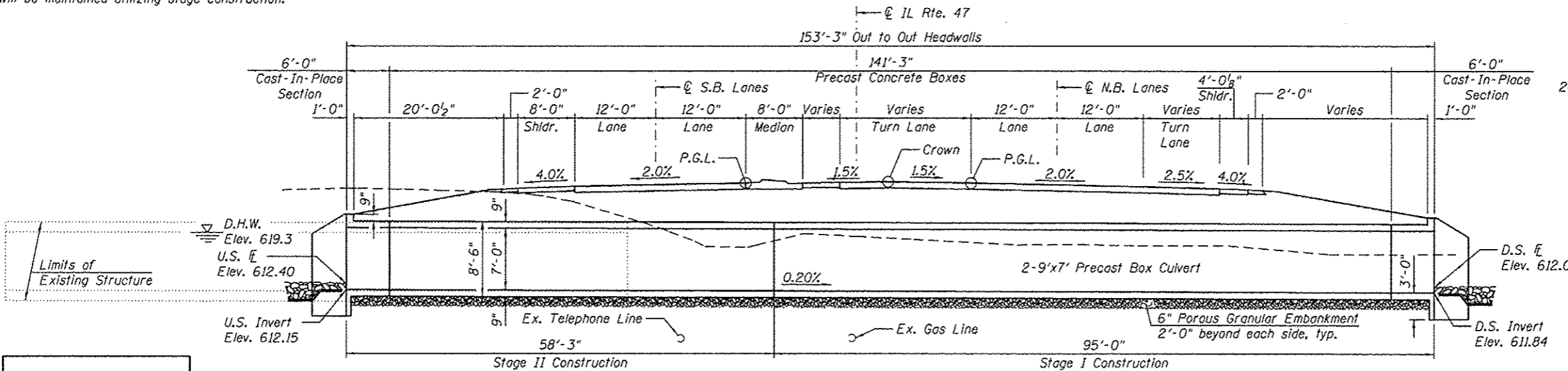
DESIGN STRESSES

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)

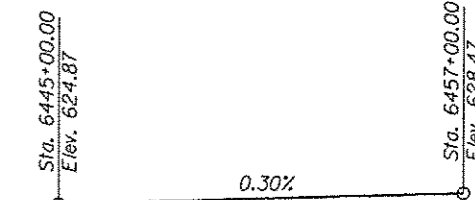
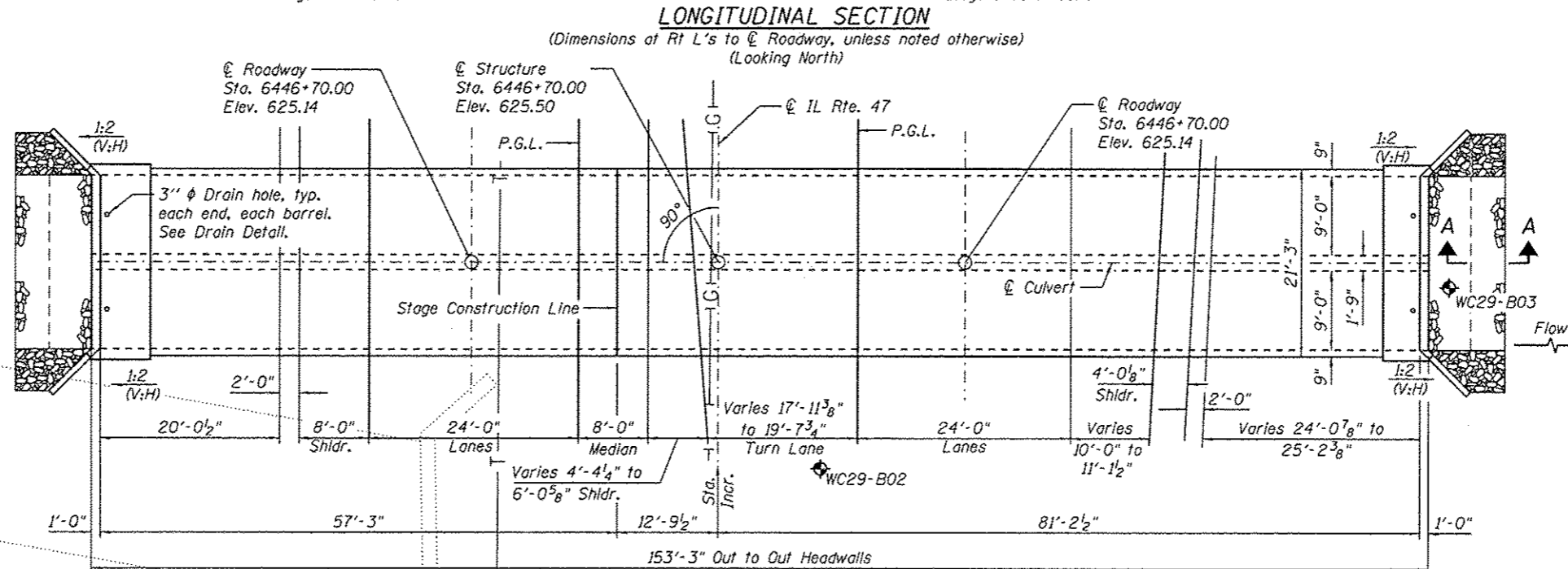
GENERAL NOTES

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 3 of 4. Precast concrete box culverts shall conform to the design requirements of ASTM C1577.

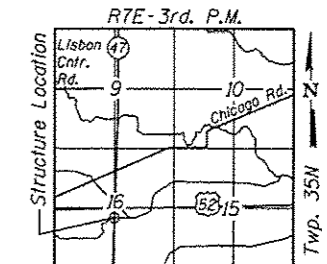


STATION 6446+70.00
BUILT 20 BY
STATE OF ILLINOIS
LOADING HL-93
STRUCTURE NO. 047-2022

NAME PLATE
See Std. 515001



PROFILE GRADE
(Along IL Rte 47 P.G.)



LOCATION SKETCH

GENERAL PLAN & ELEVATION

IL. RTE. 47 OVER

LISBON CREEK

F.A.P. RTE. 326

SEC-(109, 110)R-1

KENDALL COUNTY

STATION 6446+70.00

STRUCTURE NO. 047-2022

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	U.S. Invert	D.S. Invert
	609.15	608.84

WATERWAY INFORMATION

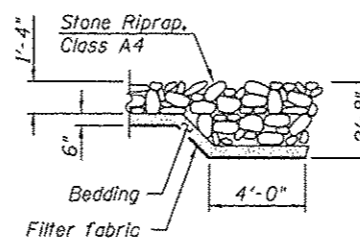
Flood		Q		Opening Sq. Ft.		Nat. Head - Ft.		Headwater El.	
Freq. Yr.	C.F.S.	Exist.	Prop.	H.W.E.	Exist.	Prop.	Exist.	Prop.	
10	501	116	115	618.8	0.3	0.3	619.1	619.1	
Design	50	751	122	124	619.3	0.9	0.9	620.2	
Base	100	852	122	126	619.5	1.2	1.2	620.7	
Overtopping	-	-	-	-	-	-	-	-	
Max. Calc.	500	1092	122	126	619.8	2.1	2.0	621.9	

10 year velocity through Existing Structure = 4.3 fps
10 year velocity through Proposed Structure = 4.4 fps

TOTAL BILL OF MATERIAL

ITEM	UNIT	TOTAL
Porous Granular Embankment	Cu. Yd.	72
Stone Riprap, Class A4	Sq. Yd.	83
Filter Fabric	Sq. Yd.	83
Removal of Existing Structures No. 4	Each	1
Reinforcement Bars	Pound	9510
Name Plates	Each	1
Concrete Box Culverts	Cu. Yd.	54.2
Precast Concrete Box Culvert 9'x7'	Foot	282.5
Membrane Waterproofing for Culverts	Sq. Yd.	395

*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.



SECTION A-A



Vincent P. Tabor 7/14/2014
Date

Vincent P. Tabor
Licensed Structural Engineer
State of Illinois No. 081-007047
Expires 11/30/2014