

Benchmark: B.M. 7010. Found cut "+" north end of westerly headwall on box culvert 830' south of Townhall Road, Elevation 622.03.

Existing Structure: The existing structure consists of a double 11'x7' precast concrete box culvert with concrete wingwalls. The culvert is approximately 61'-10" in length with a 10 degree left ahead 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

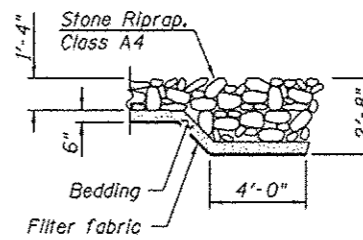
$f'_c = 3,500$ psi
 $f_y = 60,000$ psi (Reinforcement)

PRECAST UNITS

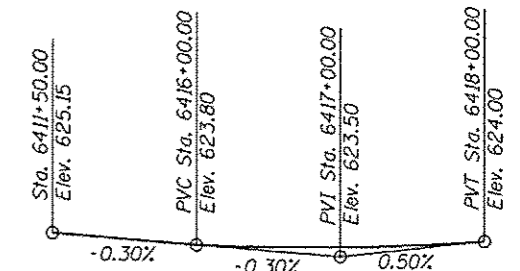
$f'_c = 5,000$ psi
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 65,000$ psi (Welded Wire Fabric)

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.



SECTION A-A



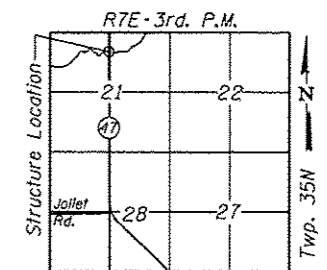
PROFILE GRADE

(Along IL Rte. 47 P.G.)

STATION 6415+96.00
BUILT 20 BY
STATE OF ILLINOIS
LOADING HL-93
STRUCTURE NO. 047-2033

NAME PLATE

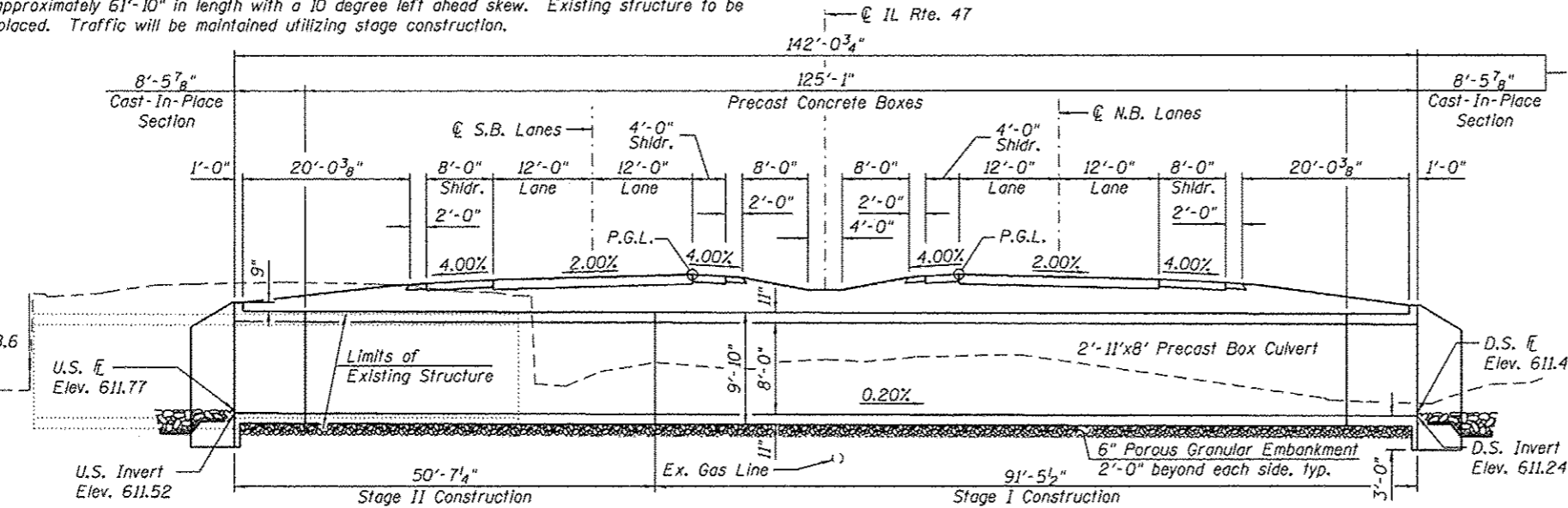
See Std. 515001



LOCATION SKETCH

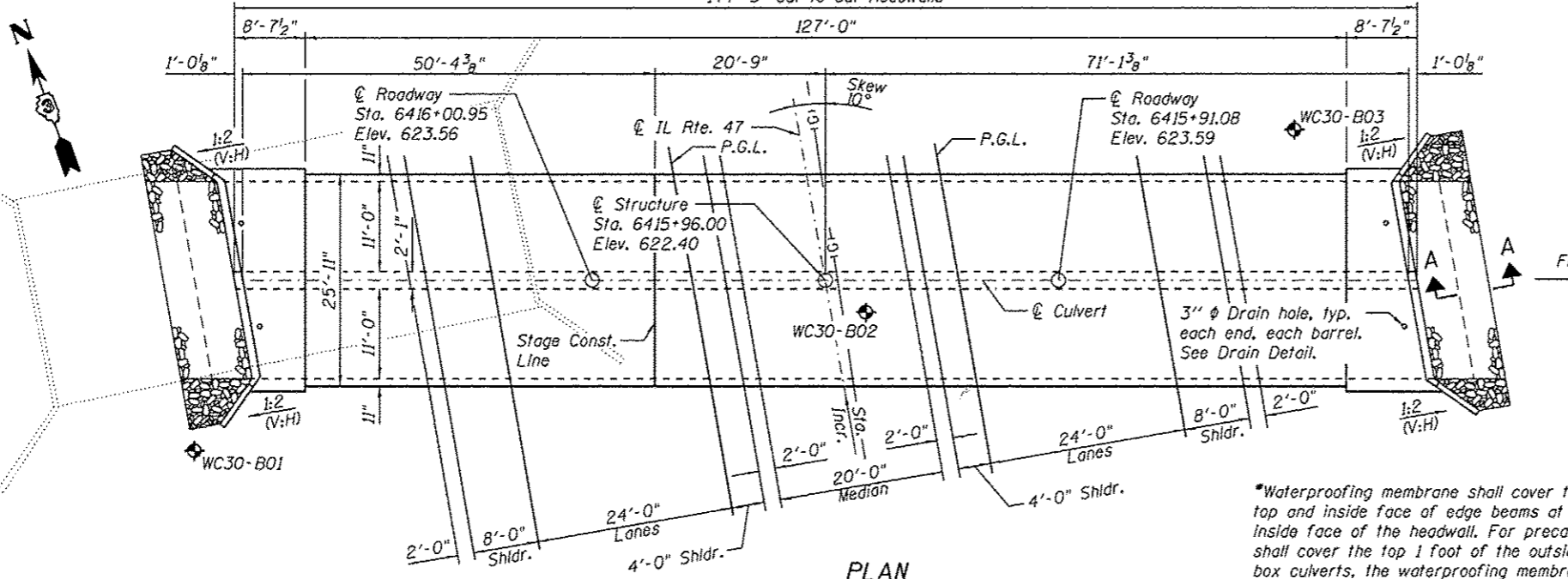
GENERAL PLAN & ELEVATION

IL. RTE. 47 OVER
WEST AUX. SABLE CREEK
F.A.P. RTE. 326
SEC-(109, 110)R-1
KENDALL COUNTY
STATION 6415+96.00
STRUCTURE NO. 047-2033



LONGITUDINAL SECTION

(Dimensions at Rt L's to @ Roadway, unless noted otherwise) (Looking North)



PLAN

*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.	80
Stone Riprap, Class A4	Sq. Yd.	108
Filter Fabric	Sq. Yd.	108
Removal of Existing Structures No. 3	Each	1
Reinforcement Bars	Pound	16120
Name Plates	Each	1
Concrete Box Culverts	Cu. Yd.	91.4
Precast Concrete Box Culvert 11'x8'	Foot	254.0
*Membrane Waterproofing for Culverts	Sq. Yd.	446

CURVE DATA

Prop. Curve IL47P12-J3
P.I. Sta. = 6415+45.53
 $\Delta = 4^{\circ}43'23''$ (Lt.)
 $D = 0^{\circ}34'23''$
 $T = 412.39'$
 $L = 824.31'$
 $R = 10,000.00'$
 $E = 8.50'$
 $e = N.C.$
P.C. Sta. = 6411+33.14
P.T. Sta. = 6419+57.45

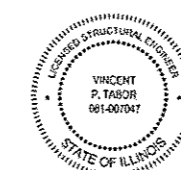
DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	U.S. Invert	D.S. Invert
	608.52	608.24

WATERWAY INFORMATION

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Nat. H.W.E.	Head - Ft.		Headwater El.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	10	510	112	139	618.1	0.3	0.1	618.4	618.2
Base	50	765	123	150	618.6	0.8	0.6	619.4	619.2
Overtopping	100	868	127	154	618.8	1.0	0.8	619.8	619.6
Max. Calc.	500	1113	134	154	619.1	1.7	1.5	620.8	620.6

10 year velocity through Existing Structure = 4.6 fps
10 year velocity through Proposed Structure = 3.7 fps



Vincent P. Tabor 7/14/2014
Date

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

REVISION	USER NAME	DESIGNED	CHECKED
REVISION -	FILE NAME -	DESIGNED - PSS	CHECKED - VPT
REVISION -	PLOT SCALE -	DRAWN - AJF	CHECKED - VPT
REVISION -	PLOT DATE -		



STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN & ELEVATION
STRUCTURE NO. 047-2033
SHEET NO. 1 OF 4 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
326	(109, 110)R-1	KENDALL	619	372
CONTRACT NO. 66B84				
ILLINOIS FED. AID PROJECT				