

Bench Mark:

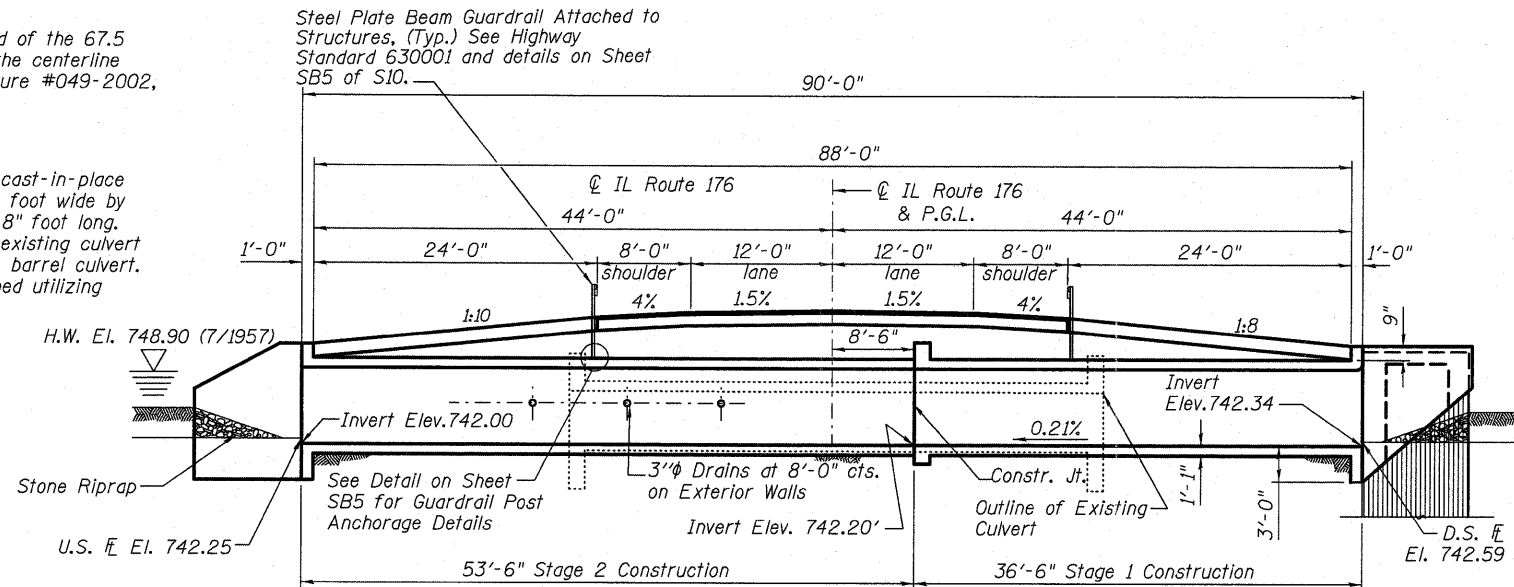
"□" Cut in the East end of the 67.5 foot headwall North of the centerline of IL. Route 176 Structure #049-2002, Elev. 749.16.

Existing Structure:

SN 049-2002 Two-cell cast-in-place concrete box culvert, 12 foot wide by 4'-6" foot high, by 45'-8" foot long. Contractor shall remove existing culvert and construct new three barrel culvert. Traffic shall be maintained utilizing stage construction.

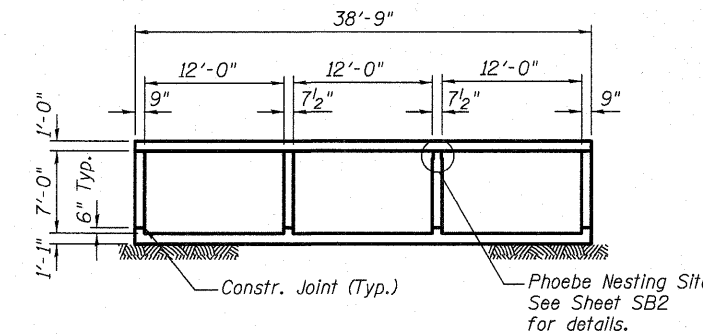
Salvage: None

Steel Plate Beam Guardrail Attached to Structures, (Typ.) See Highway Standard 630001 and details on Sheet SB5 of S10.



**LONGITUDINAL SECTION**

Dimensions shown are at Rt. angle to C Roadway



**SECTION THRU BARREL**

**DESIGN SPECIFICATIONS**

2002 AASHTO Standard Specifications, 17th Edition

**LOADING HS20-44**

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

**DESIGN STRESSES**

FIELD UNITS

f<sub>b</sub> = 3,500 psi  
f<sub>y</sub> = 60,000 psi (reinforcement)

**WATERWAY INFORMATION**

Drainage Area = 7.15 sq. mi. Low Grade Elev. = 752.07 @ Sta. 43+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft.		Head-Ft.		Headwater El.		
			Exist.	Prop.	Exist.	Prop.	Exist.	Prop.	
Design	10	233	72	218	748.4	0.3	0.0	748.7	748.4
Base	50	341	72	225	748.6	0.7	0.0	749.3	748.6
Overtopping	100	395	72	233	748.8	0.6	0.1	749.4	748.9
Max. Calc.	500	487	72	236	748.9	0.6	0.1	749.5	749.0

**GENERAL NOTES**

1. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr. 60.
2. Reinforcement bars designated (E) shall be epoxy coated.
3. At least 6'-0" of the barrel shall be poured monolithically with the concrete wingwall.
4. Precast alternate is not allowed.
5. For backfilling and embankment, see standard specifications.
6. Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

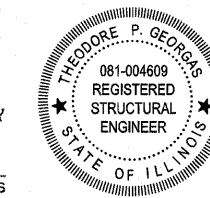
STATION 45+00  
BUILT 20L BY  
STATE OF ILLINOIS  
F.A.P 335 SEC. 145 X-T  
LOADING HS20  
STR. NO. 049-0197

**NAME PLATE**

See Std. 515001

APPROVED FOR STRUCTURAL ADEQUACY ONLY

*Theodore P. Georgas*  
ENGINEER OF BRIDGES AND STRUCTURES



*Theodore P. Georgas* 11-30-11  
Theodore P. Georgas Date  
Licensed Structural Engineer  
State of Illinois 081-4609  
Expires 11/30/2012

**TOTAL BILL OF MATERIAL**

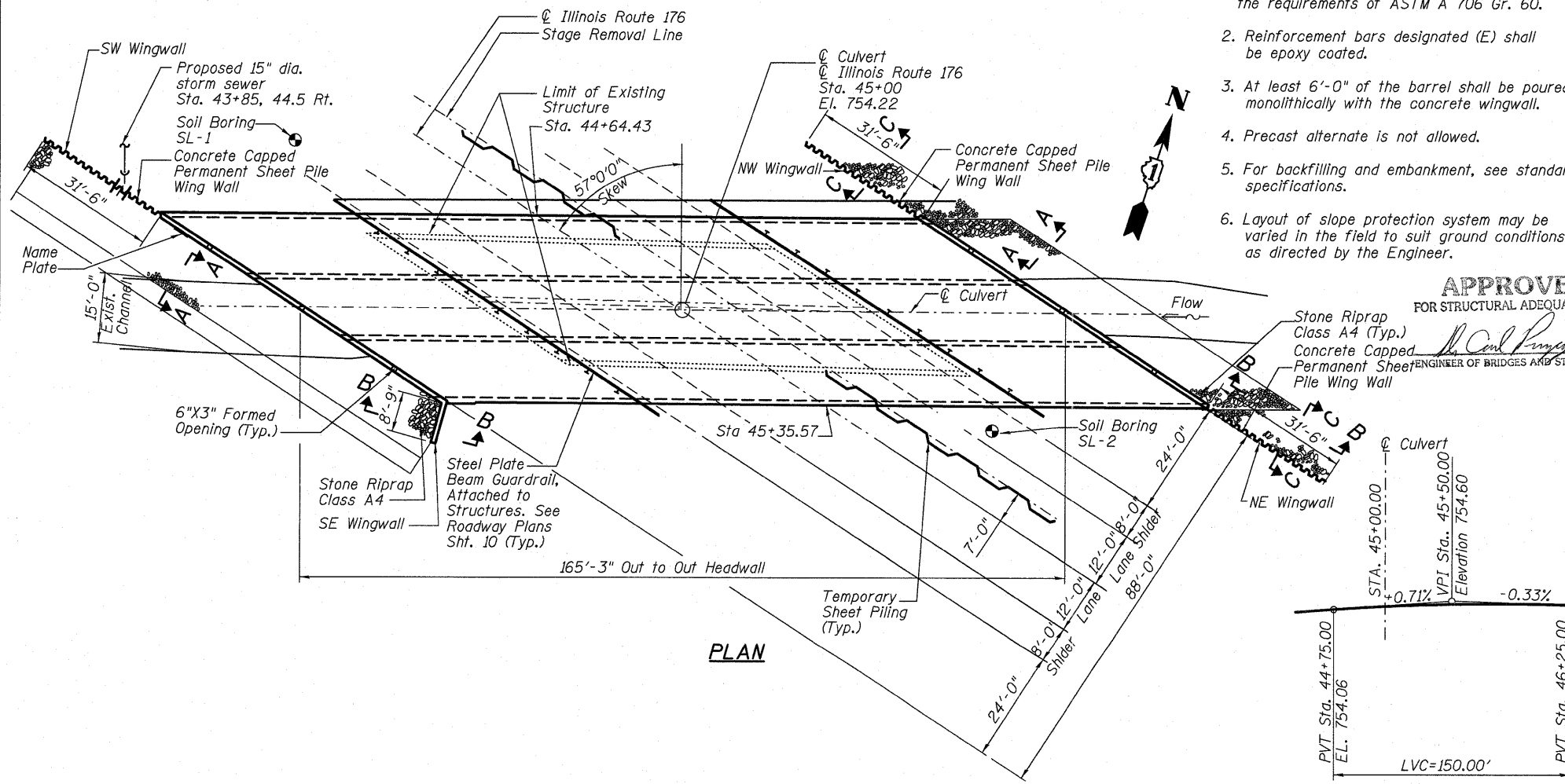
ITEM	UNIT	TOTAL
Stone Riprap, Class A4	Sq. Yd.	272
Filter Fabric	Sq. Yd.	272
Removal of Existing Structures No. 2	Each	1
Stud Shear Connectors	Each	395
Reinforcement Bars	Pound	141,630
Reinforcement Bars, Epoxy Coated	Pound	2,290
Bar Splicers	Each	496
Name Plates	Each	1
Concrete Box Culverts	Cu. Yd.	665.2
Geotextile Retaining Wall	Sq. Ft.	331
Temporary Sheet Piling	Sq. Ft.	1,731
Permanent Steel Sheet Piling	Sq. Ft.	2,484
Temporary Support System, Location 2	Each	1

Note: See Roadway Plans for the quantity of "Steel Plate Beam Guardrail, Attached to Structures".

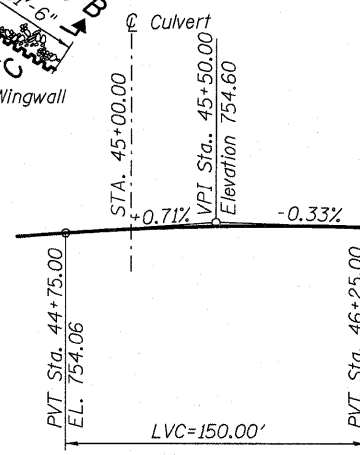
**INDEX OF SHEETS**

- SB1 - General Plan
- SB2 - Stage Construction Details
- SB3 - Geotextile Retaining Wall
- SB4 - Culvert Plan and Details
- SB5 - Sections and Details
- SB6 - Sheet Piling Wingwall Details
- SB7 - Temporary Concrete Barrier
- SB8 - Bar Splicer Assembly Details
- SB9 - Boring Logs
- SB10 - Boring Logs

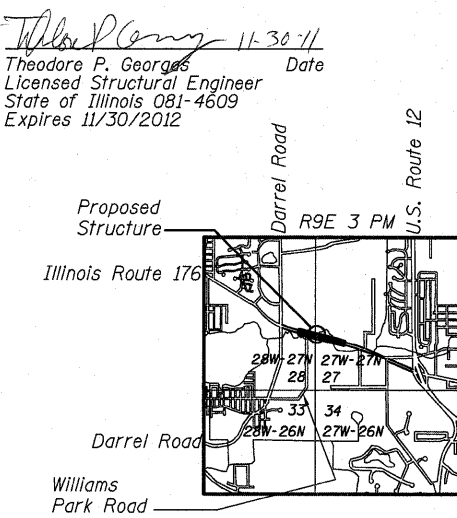
**GENERAL PLAN ILLINOIS ROUTE 176 OVER BANGS LAKE DRAIN LAKE COUNTY STA. 45+00**



**PLAN**



**PROFILE GRADE LINE**  
Along C IL Route 176



**LOCATION SKETCH**



USER NAME =	DESIGNED - JSG	REVISED -
PLOT SCALE =	CHECKED - LRG	REVISED -
PLOT DATE =	DRAWN - MPS	REVISED -
	CHECKED - JXH	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN  
STRUCTURE No. 049-0197 STA. 45+00.00

SHEET NO. SB1 OF SB10 SHEETS

F.A.P. RTE. 335	SECTION 145 X-T	COUNTY LAKE	TOTAL SHEETS 80	SHEET NO. 35
DATE: 11-30-2011			ILLINOIS FED. AID PROJECT	

CONTRACT NO. 62187