

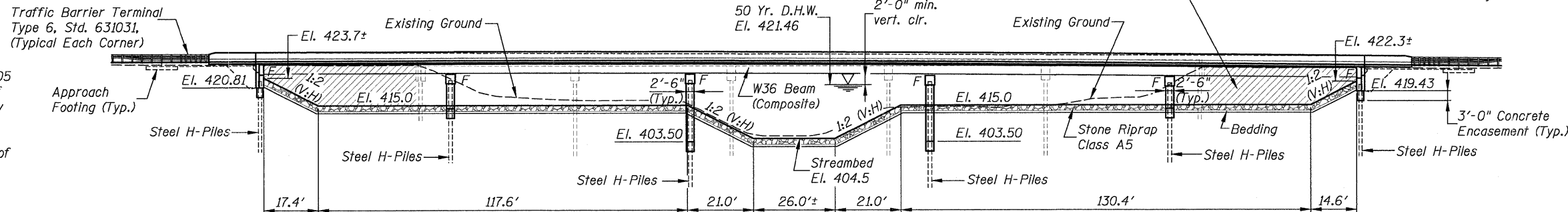
0140078.76976.01.BFEL.DGN DEC. 8, 2008

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**BENCHMARK:** Chiseled "4" on Top of Wingwall at the S.E. Corner of the Existing Structure Sta. 1120+29, 17' Rt. El. 426.56

**EXISTING STRUCTURE** S.N. 014-0007  
Built in 1934 under SBI Rte. 161 (Section 126-B), the structure was reconstructed in 1973 under FAP Rte. 805 (Section 126BR). The structure consists of 5 spans of 21" P.P.C. deck beams with a bituminous concrete overlay on spill-thru pile bent concrete abutments and concrete piers, all with concrete piles.  
The existing structure measures 251'-0" back to back of abutments and 33'-0" out to out of deck.  
Existing structure to be removed and replaced.  
The road shall be kept open to one lane of traffic at all times by utilizing stage construction.

**SALVAGE:** NO SALVAGE



**ELEVATION**

**DESIGN SCOUR ELEVATION TABLE**

Design Scour Elevation (Feet)	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	E. Abut.
	417.81	399.3	398.1	400.1	399.2	416.43

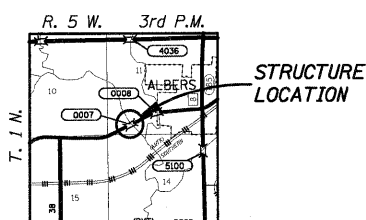
**WATERWAY INFORMATION TABLE**

Drainage Area = 147 Sq. Miles Low Grade El. 424.43 Ft. Station 1129+17											
Flood	Freq. (Yr)	S.N. *	Q		Opening		Natural H.W.E. (Ft)	Created Head		H.W.E.	
			Exst. (CFS)	Prop. (CFS)	Exst. (Sq Ft)	Prop. (Sq Ft)		Exst. (Ft)	Prop. (Ft)	Exst. (Ft)	Prop. (Ft)
Design	50	014-0007	10,543	11,207	1,667	2,438	421.46	1.77	1.46	423.23	422.92
		014-0008	4,915	4,251	622	622					
		<b>Total</b>	<b>15,458</b>	<b>15,458</b>	<b>2,289</b>	<b>3,060</b>					
Base	100	014-0007	13,113	13,681	1,878	2,732	422.35	1.80	1.47	424.15	423.82
		014-0008	5,489	4,921	690	690					
		<b>Total</b>	<b>18,602</b>	<b>18,602</b>	<b>2,568</b>	<b>3,422</b>					
Overtopping Existing	125	014-0007	13,822	--	1,942	--	422.62	1.81	--	424.43	--
		014-0008	5,678	--	711	--					
		<b>Total</b>	<b>19,500</b>	--	<b>2,653</b>	--					
Overtopping Proposed	170	014-0007	--	15,570	--	2,936	422.96	--	1.47	--	424.43
		014-0008	--	5,230	--	737					
		<b>Total</b>	--	<b>20,800</b>	--	<b>3,673</b>					
Scour	10	014-0007	5,951	6,255	1,193	1,759	419.37	1.81	1.57	421.18	420.94
		014-0008	3,697	3,393	478	478					
		<b>Total</b>	<b>9,648</b>	<b>9,648</b>	<b>1,671</b>	<b>2,237</b>					

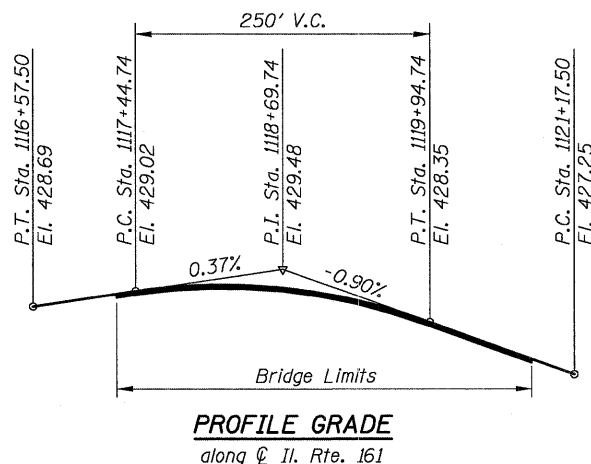
\* Existing S.N. 014-0007 carries Il. Rte. 161 over Sugar Creek.  
Existing S.N. 014-0008 carries Il. Rte. 161 over Lake Branch Creek.

**INDEX OF SHEETS**

1. General Plan & Elevation
2. General Data
3. Stage Construction Details
4. Temporary Concrete Barrier for Stage Construction
- 5-8. Top of Slab Elevations
9. Top of West Approach Pavement Elevations
10. Top of East Approach Pavement Elevations
11. Superstructure
12. Superstructure Details
- 13-14. Composite Bridge Approach Slab Details
15. Integral Abutment Diaphragm Details
16. Drainage Scupper, DS-11
17. Structural Steel
18. Steel Details
19. Bearing Details
20. West Abutment
21. East Abutment
22. Pier 1
23. Pier 2
24. Pier 3
25. Pier 4
26. Bar Splicer Assembly Details
27. HP Pile Details
- 28-34. Soil Boring Logs



**LOCATION SKETCH**



**PROFILE GRADE**  
along I.R. Rte. 161

**DESIGN SPECIFICATIONS**

2007 AASHTO LRFD Bridge Design Specifications with 2008 Interims

**DESIGN STRESSES**

**FIELD UNITS**

$f'_c = 3,500$  psi  
 $f_y = 60,000$  psi (Reinforcement)  
 $f_y = 36,000$  psi (M270 Grade 36)  
 $f_y = 50,000$  psi (M270 Grade 50)

**LOADING HL-93**

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

**SEISMIC DATA**

Seismic Performance Zone (SPZ) = 2  
Design Spectral Acceleration at 1.0 sec. ( $S_{D1}$ ) = 0.262g  
Design Spectral Acceleration at 0.2 sec. ( $S_{D5}$ ) = 0.610g  
Soil Site Class = D

STATION 1119+05  
BUILT 20 BY  
STATE OF ILLINOIS  
F.A.P. RT. 805 SEC. 126-BR-1  
LOADING HL93  
STRUCTURE NO. 014-0078

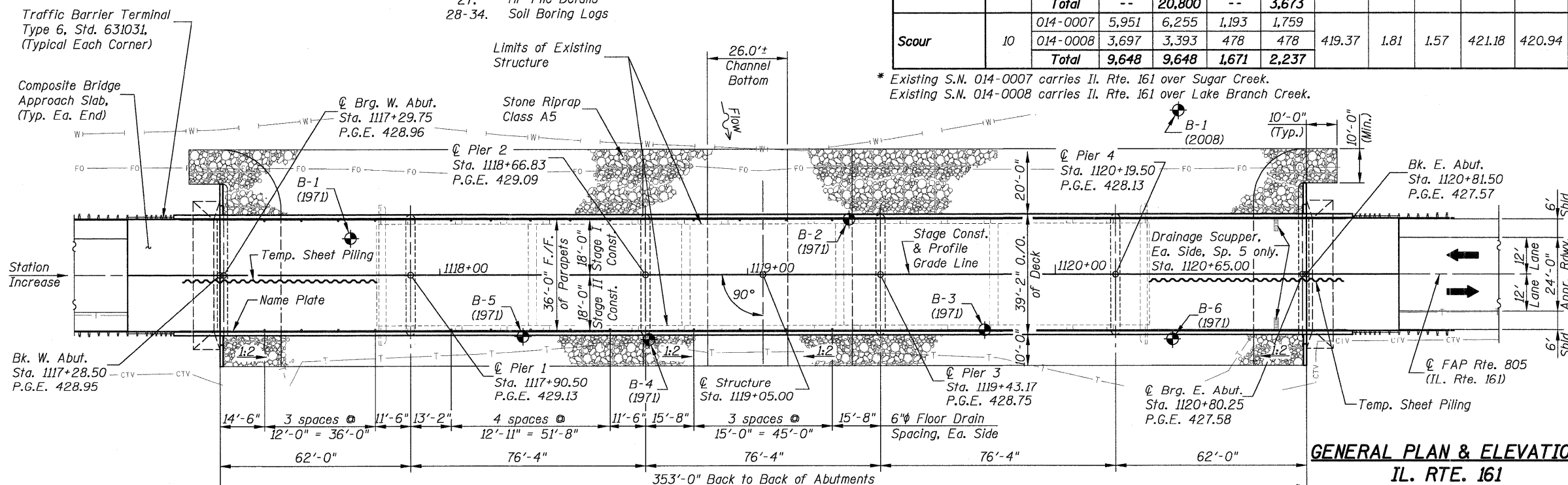
**NAME PLATE**  
See Std. 515001

DESIGNED	B.G.H.
CHECKED	L.D.G.
DRAWN	K.H.L.
CHECKED	B.G.H.

*Bradley G. Hummert* Date: 12/9/08  
Bradley G. Hummert  
Licensed Structural Engineer  
in Carlyle, Illinois  
No. 081-005428 Expires 11/30/2010



**APPROVED**  
FOR STRUCTURAL ADEQUACY ONLY  
*Ralph E. Anderson (TSO)*  
ENGINEER OF BRIDGES AND STRUCTURES



**GENERAL PLAN & ELEVATION**  
**IL. RTE. 161  
OVER SUGAR CREEK  
STATION 1119+05**

SHEET NO. 1 34 SHEETS	F.A.P. RTE. 805	SECTION 126-BR-1	COUNTY CLINTON	TOTAL SHEETS 85	SHEET NO. 32
	S.N. 014-0078		CONTRACT NO. 76976		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT			

H.M. & G. NO. 6020.131