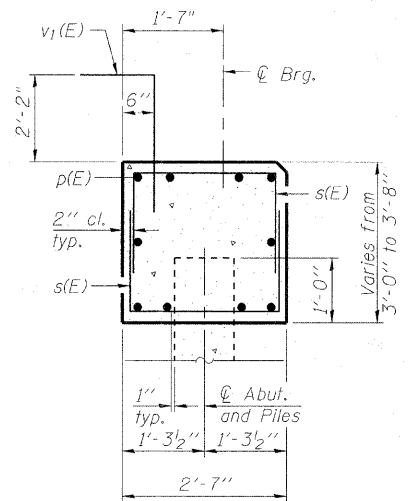
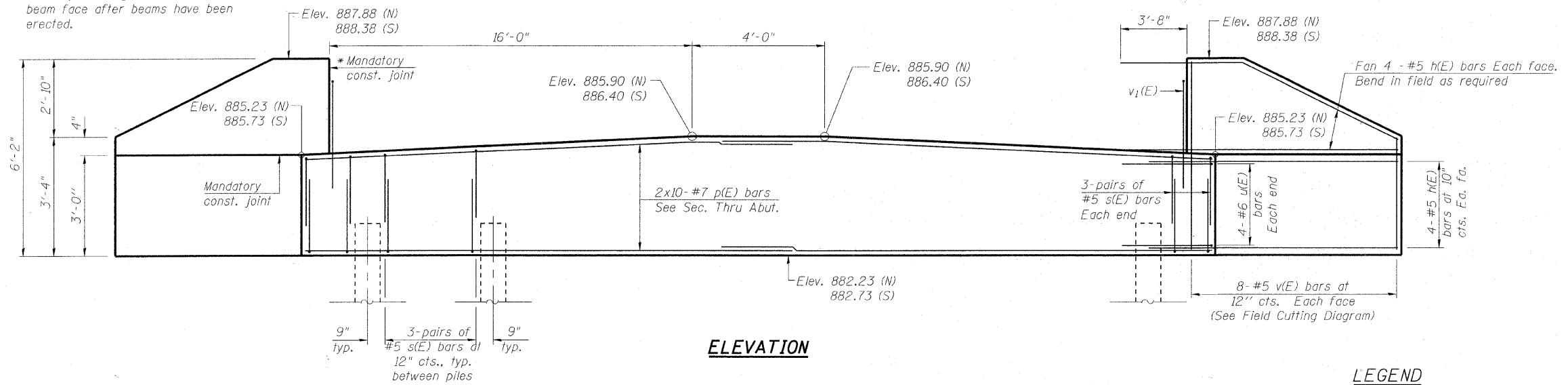
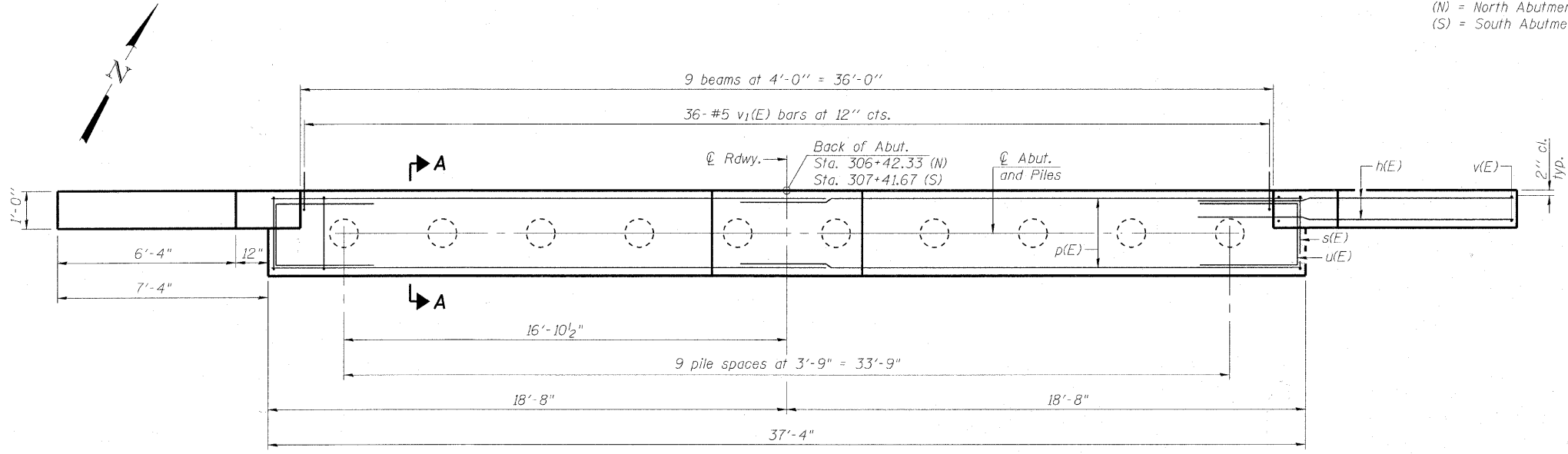


\* Cast top of wingwall flush with exterior beam face after beams have been erected.



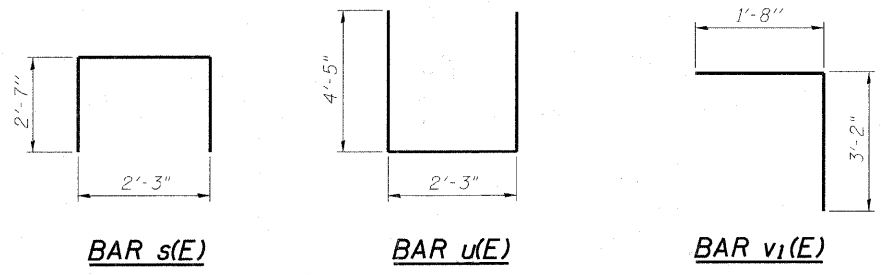
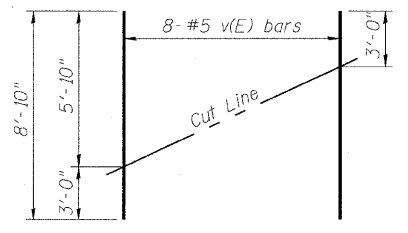
**LEGEND**  
 (N) = North Abutment  
 (S) = South Abutment



**PILE DATA**

**NORTH ABUTMENT**  
 Type: 14"  $\phi$  Metal Shells w/ 0.312" walls with Pile Shoes  
 Nominal Required Bearing: 300 kips  
 Factored Resistance Available: 150 kips  
 Est. Length: 20'  
 No. Production Piles: 9  
 No. Test Piles: 1

**SOUTH ABUTMENT**  
 Type: 14"  $\phi$  Metal Shells w/ 0.312" walls with Pile Shoes  
 Nominal Required Bearing: 300 kips  
 Factored Resistance Available: 150 kips  
 Est. Length: 25'  
 No. Production Piles: 9  
 No. Test Piles: 1



**BILL OF MATERIAL TWO ABUTMENTS**

Bar	No.	Size	Length	Shape
h(E)	64	#5	10'-8"	—
p(E)	40	#7	21'-5"	—
s(E)	132	#5	7'-5"	□
u(E)	16	#6	11'-1"	□
v(E)	32	#5	8'-10"	—
v1(E)	72	#5	4'-10"	┌
Structure Excavation			Cu. Yd.	154
Concrete Structures			Cu. Yd.	27.9
Reinforcement Bars, Epoxy Coated			Pound	4410
Furnishing Metal Shell Piles, 14" x 0.312"			Foot	405
Driving Piles			Foot	405
Test Pile, Metal Shell			Each	2
Pile Shoes			Each	20

For details of piles see sheet 15 of 19.

Lap Length for #7 Bars = 5'-10"

**NOTE:**  
 Contractor shall drive a total of two (2) Test Piles in a permanent location, one at each abutment as directed by the Engineer, before ordering the remainder of piles.

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 2/7/2010

FILE NAME =	USER NAME =	DESIGNED - BLB	REVISED - PER MCDOT 12/31/10	<b>MCHENRY COUNTY DIVISION OF TRANSPORTATION GRAF ROAD BRIDGE OVER LAWRENCE CREEK</b>	<b>ABUTMENTS STRUCTURE NO. 056-3182</b>	TR	SECTION	COUNTY	TOTAL	SHEET
		CHECKED - BAB	REVISED -			0037	06-00322-00-BR	MCHENRY	54	36
		DRAWN - BCD	REVISED -				C-91-358-06			CONTRACT NO. 63569
		CHECKED - BLB	REVISED -					FED. ROAD DIST. NO. 1	ILLINOIS FED. AID PROJECT	BROS-0001(683)
						SHEET NO. 13 OF 19 SHEETS				