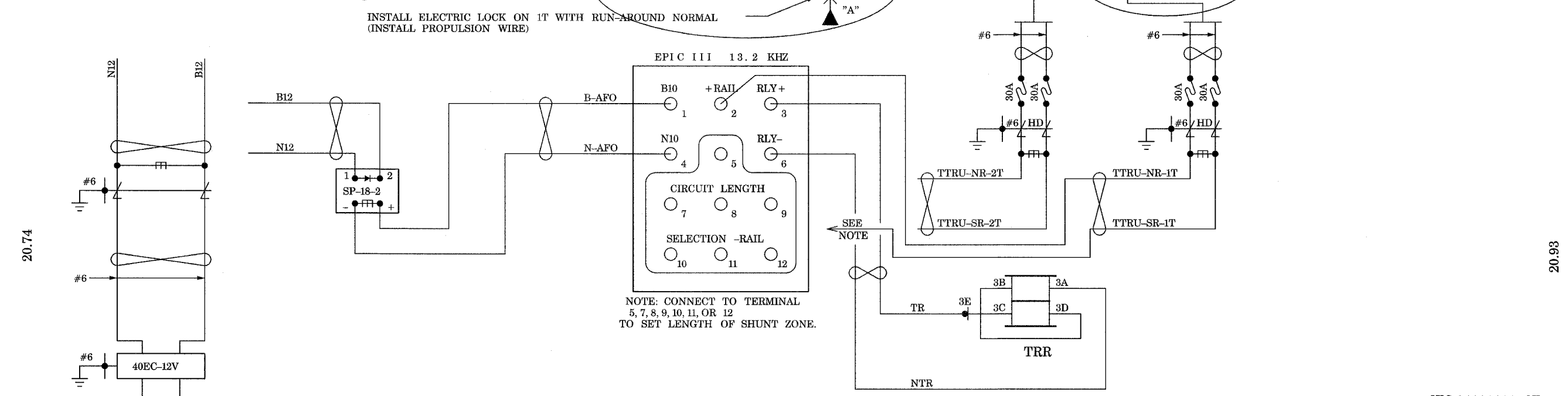
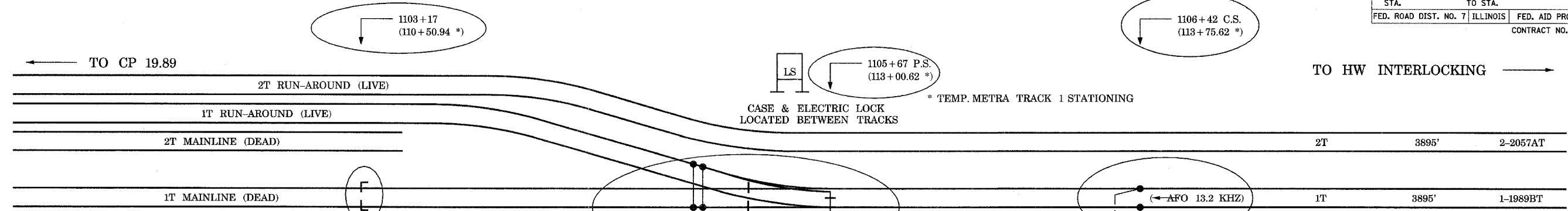


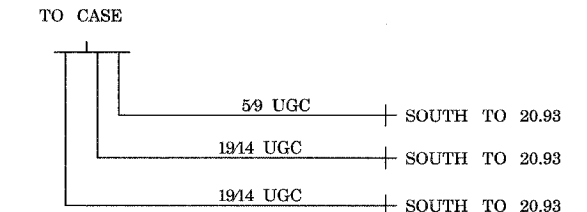
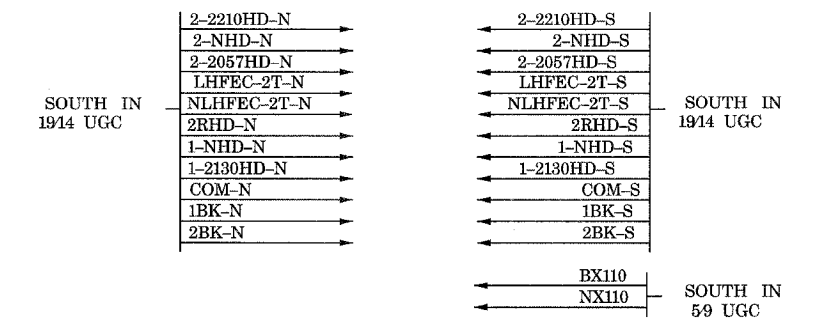
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F.A.P. 351	2008-001VB	COOK	579	301
STA.	TO STA.		FED. AID PROJECT	
			CONTRACT NO. 60E10	

4/14/2008 11:44:05 AM



20.74

20.93



URS 04/11/08 OK

**YELLOW** - IN  
**RED** - OUT

CREW  
03/28/10

PHASE 9

FOR REFERENCE ONLY  
(METRA WORK USING  
CONTRACTOR-SUPPLIED MATERIALS)

REVISIONS	
NAME	DATE

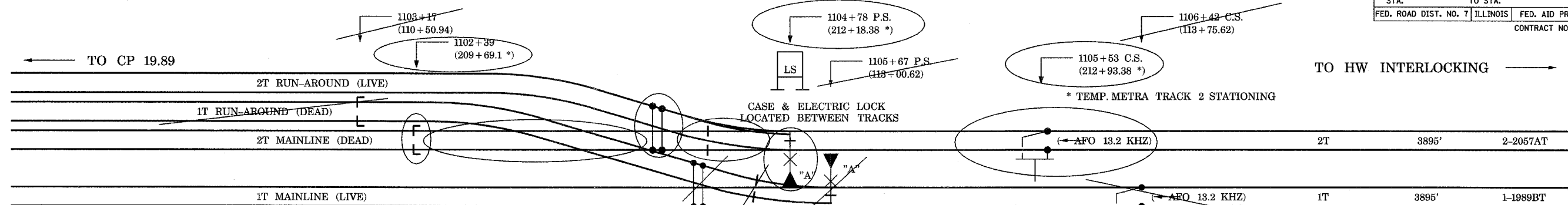
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

METRA SIGNALS  
PHASE 9 (STAGE 6) CASE 20.91  
SHT. SG-34 OF SG-36  
DATE 4/11/2008  
DRAWN BY AB  
CHECKED BY MAD

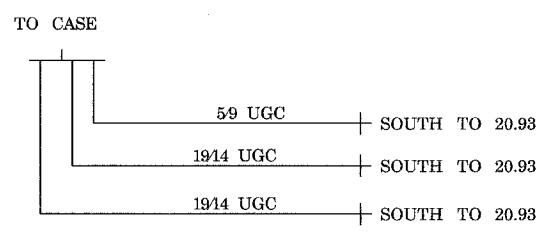
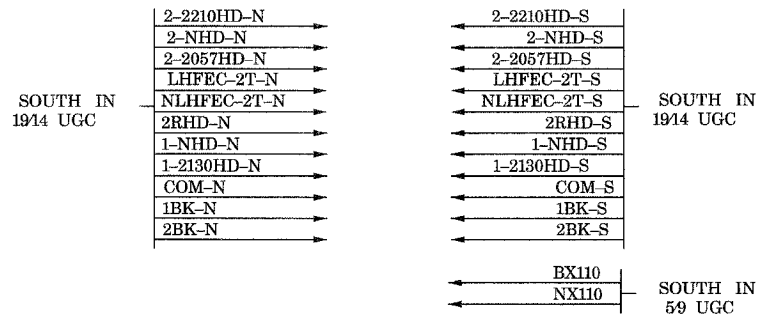
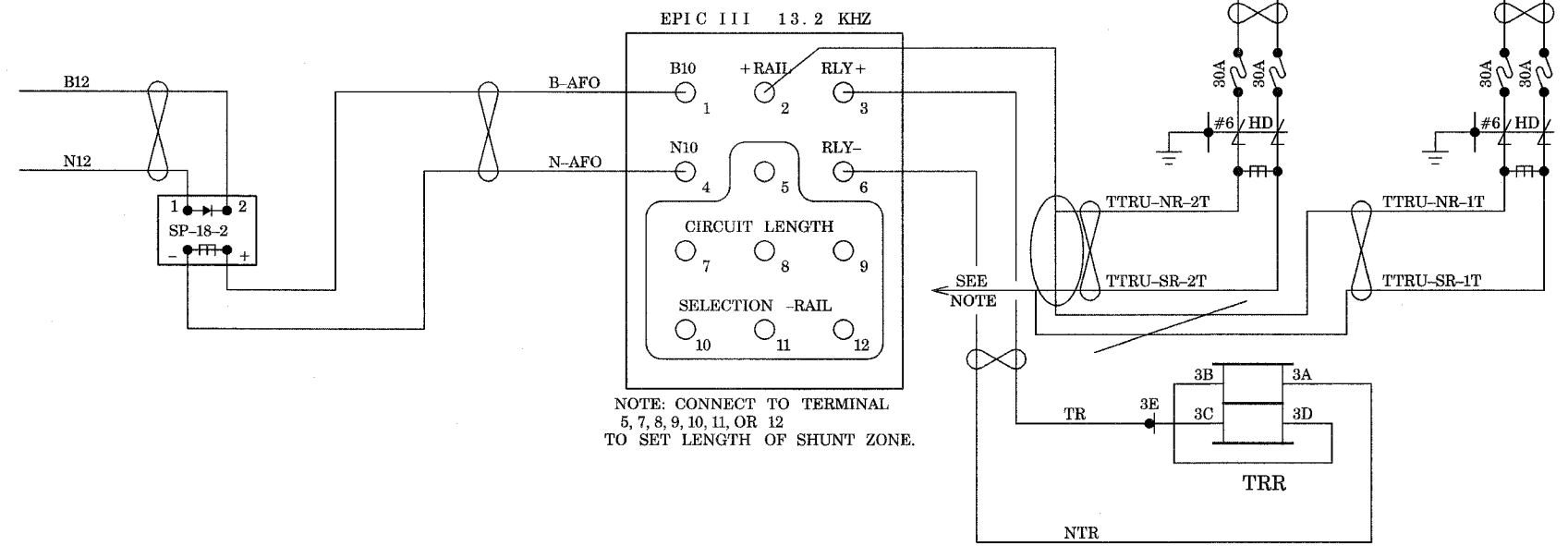
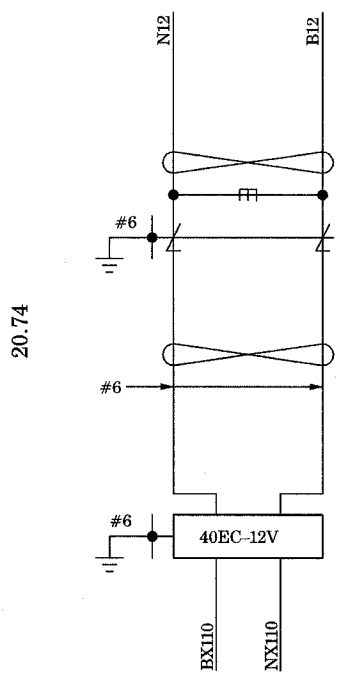
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	303
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



MOVE ELECTRIC LOCK TO 2T WITH RUN-AROUND NORMAL (INSTALL PROPULSION WIRE).



URS 04/11/08 OK

YELLOW - IN  
RED - OUT

CREW  
05/26/10

PHASE II

FOR REFERENCE ONLY  
(METRA WORK USING  
CONTRACTOR-SUPPLIED MATERIALS)

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

METRA SIGNALS  
PHASE 11 (STAGE 7) CASE 20.91

SHT. 5G-36 OF 5G-36 DRAWN BY AB  
DATE 4/11/2008 CHECKED BY MAD

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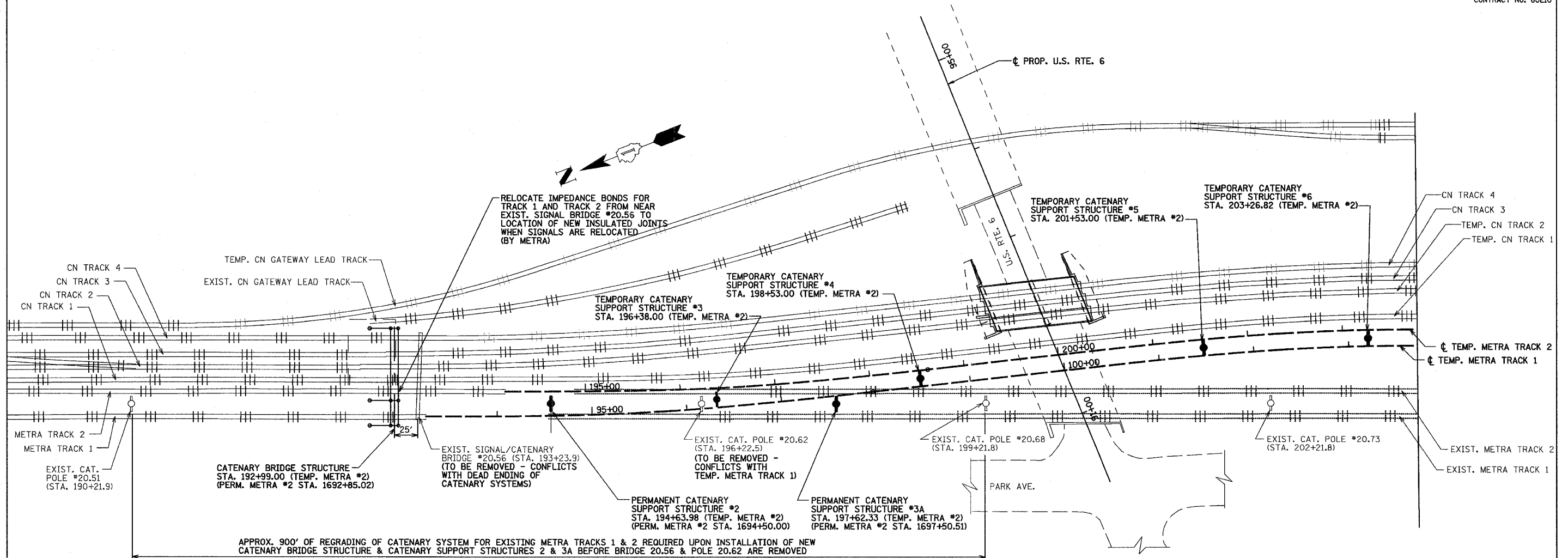
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STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				



SUMMARY OF QUANTITIES FOR CATENARY STRUCTURES

PAY ITEM	UNIT	TOTAL
CATENARY SUPPORT STRUCTURE TEMPORARY	EACH	8
CATENARY SUPPORT STRUCTURE PERMANENT	EACH	4
CATENARY DEAD END STRUCTURE	EACH	1
CATENARY BRIDGE STRUCTURE	EACH	1
REMOVE EXISTING SIGNAL BRIDGE	EACH	1
REMOVE EXISTING CATENARY POLE	EACH	2
PERMANENT STEEL SHEET PILING	SQ. FT.	420
CONCRETE STRUCTURES	CU. YD.	195.0
REINFORCEMENT BARS	POUND	18,990
REINFORCEMENT BARS, EPOXY COATED	POUND	19,130
BRACED EXCAVATION	CU. YD.	516.0
DRILLED SHAFT IN SOIL	CU. YD.	222
DRILLED SHAFT IN ROCK	CU. YD.	13
PERMANENT ACCESS STAIRWAY	L. SUM	1

NOTE:  
SEE TRACK CONSTRUCTION STAGING PLANS FOR SEQUENCING OF CATENARY STRUCTURE CONSTRUCTION.

INDEX OF DRAWINGS FOR CATENARY STRUCTURES

SHT. NO.	SHEET TITLE
CS-01	LAYOUT PLAN 1 OF 2
CS-02	LAYOUT PLAN 2 OF 2
CS-03	SUPPORT STRUCTURES #2 & #11
CS-04	SUPPORT STRUCTURES #3 & #10
CS-05	SUPPORT STRUCTURES #4 THROUGH #9, #3A & #9A
CS-06	SUPPORT STRUCTURES FOOTING DETAILS
CS-07	SUPPORT STRUCTURES TABLE OF DIMENSIONS
CS-08	DEAD END STRUCTURE PLAN & ELEVATION
CS-09	DEAD END STRUCTURE TOWER ELEVATIONS
CS-10	BRIDGE STRUCTURE SOUTH ELEVATION
CS-11	BRIDGE STRUCTURE NORTH ELEVATION
CS-12	BRIDGE STRUCTURE TOWER ELEVATIONS
CS-13	BRIDGE STRUCTURE LADDER DETAILS
CS-14	BRIDGE STRUCTURE DETAILS
CS-15	BRIDGE STRUCTURE & DEAD-END STRUCTURES DETAILS
CS-16	BRIDGE STRUCTURE & DEAD-END STRUCTURES FOOTING DETAILS
CS-17	BRIDGE STRUCTURE & DEAD-END STRUCTURES DRILLED SHAFT DETAILS

NOTE:  
REFER TO RELEVANT CATENARY STRUCTURE DETAIL DRAWINGS FOR DIMENSIONS FROM CATENARY STRUCTURES TO CENTERLINE OF TRACKS.

REVISIONS	
NAME	DATE

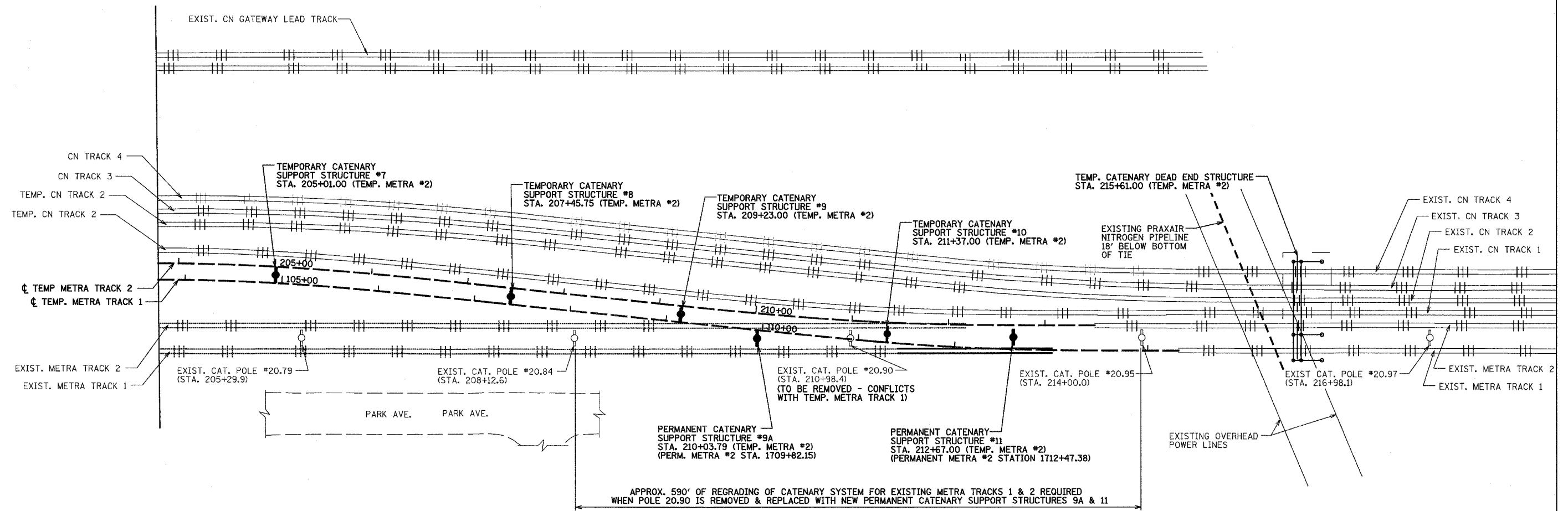
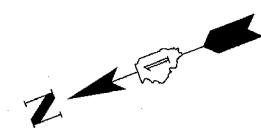
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST  
CATENARY STRUCTURES  
LAYOUT PLAN 1 OF 2

SHT. CS-01 OF CS-17  
DATE 2/21/2008  
DRAWN BY MAD  
CHECKED BY DEY

3/13/2008 2:39:15 PM

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STA.	TO STA.			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 60E10				



NOTE:  
REFER TO RELEVANT CATENARY STRUCTURE DRAWINGS FOR DIMENSIONS FROM CATENARY STRUCTURES TO CENTERLINE OF TRACKS.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST  
  
CATENARY STRUCTURES  
LAYOUT PLAN 2 OF 2

SHT. CS-02 OF CS-17  
DATE 2/21/2008  
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CHECKED BY DEY

3/13/2008 2:39:16 PM

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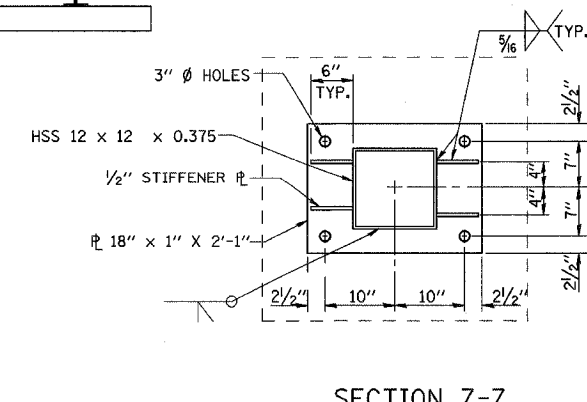
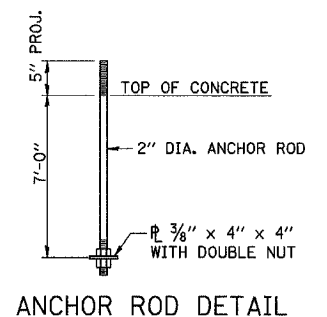
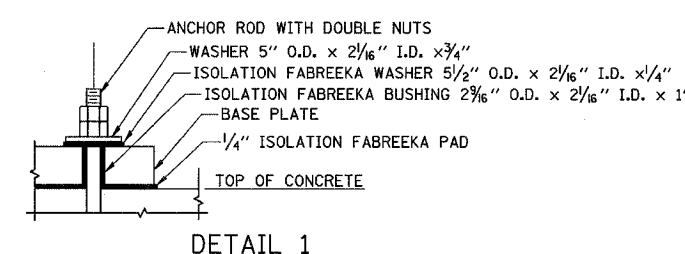
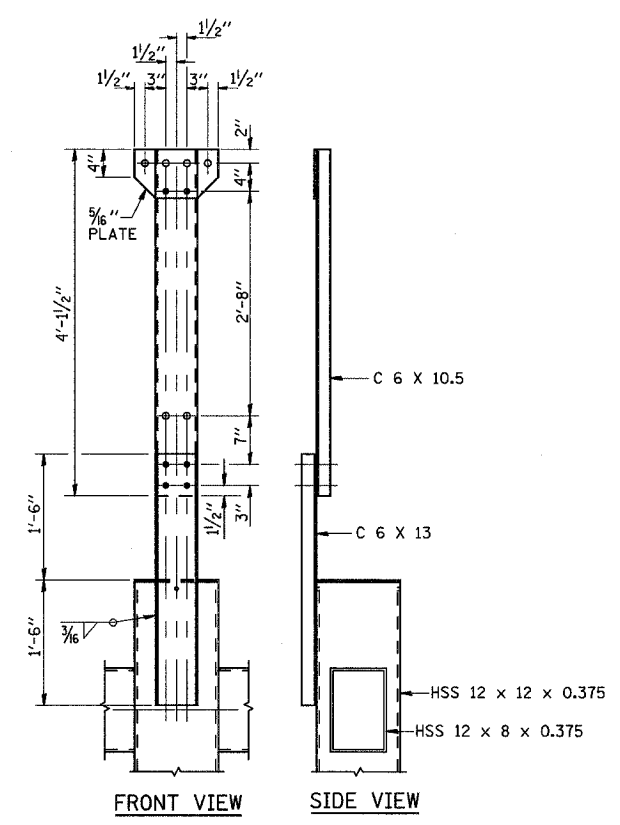
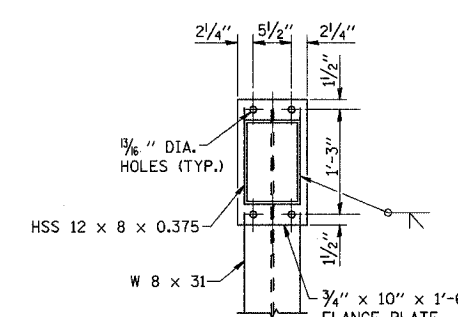
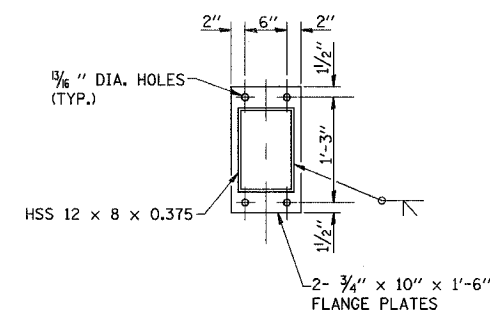
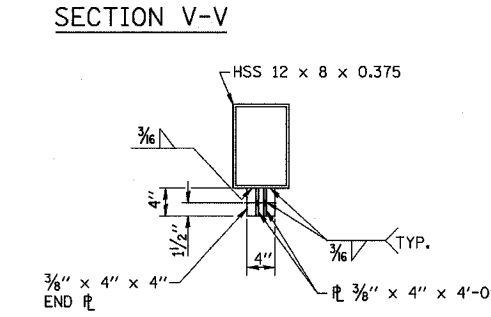
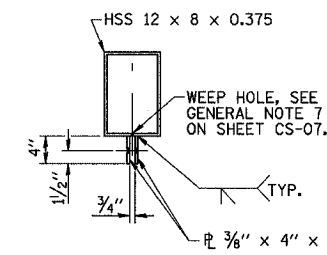
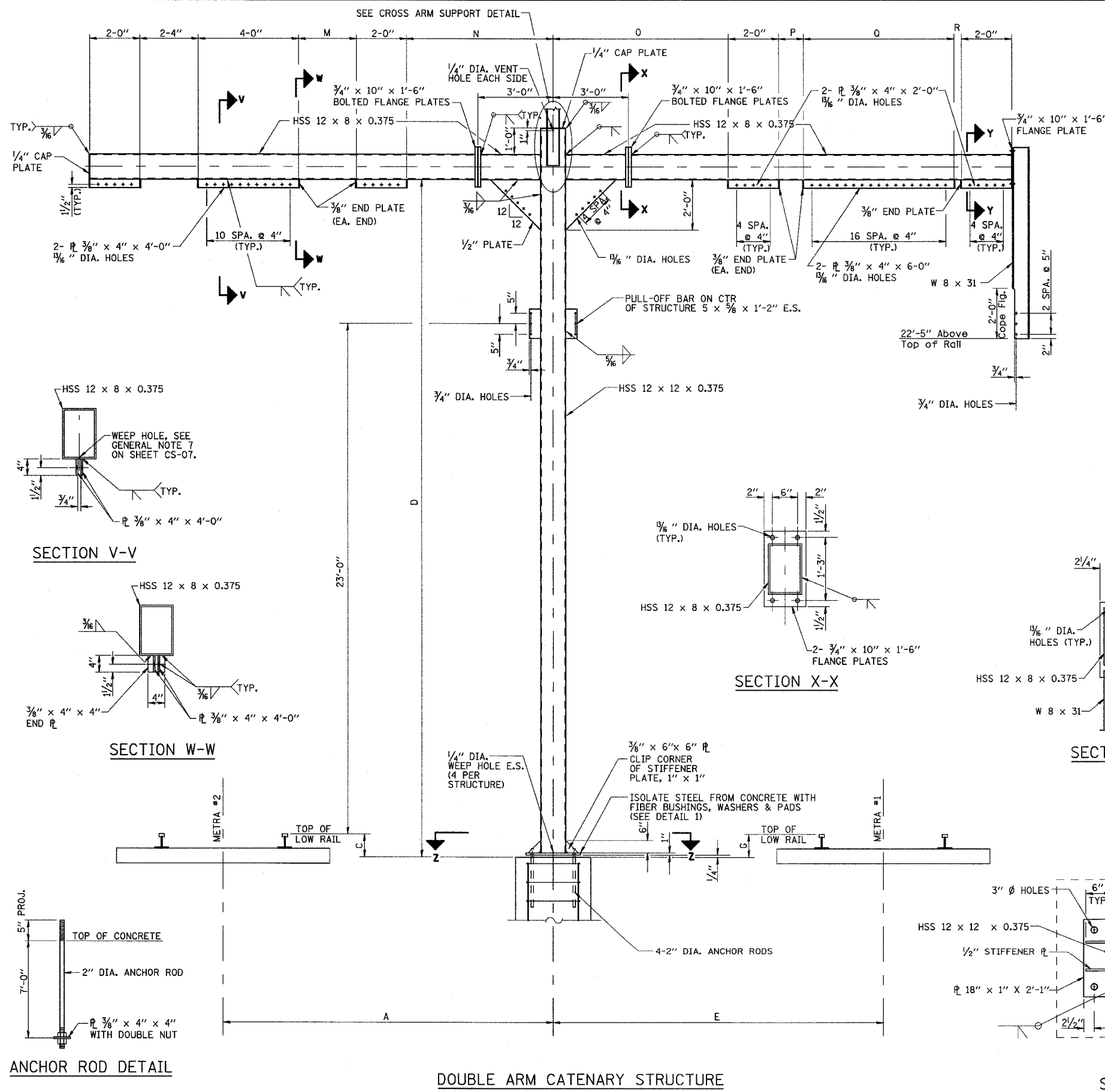
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STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		
		FED. AID PROJECT		
CONTRACT NO. 60E10				

**NOTE:**

1. FOR GENERAL NOTES, STRUCTURE LOCATIONS AND DIMENSIONS A THRU G, SEE SHEET 5 OF 5.

STRUCTURE NUMBER	M	N	O	P	Q	R
2 **	3'-5 1/2"	5'-4 1/8"	6'-6 1/2"	3'-0"	4'-0"	2'-2 3/8"
11 **	2'-3 5/8"	5'-10 1/4"	6'-11 7/8"	1'-0"	6'-0"	0'-3 5/8"

\*\* DENOTES PERMANENT STRUCTURE



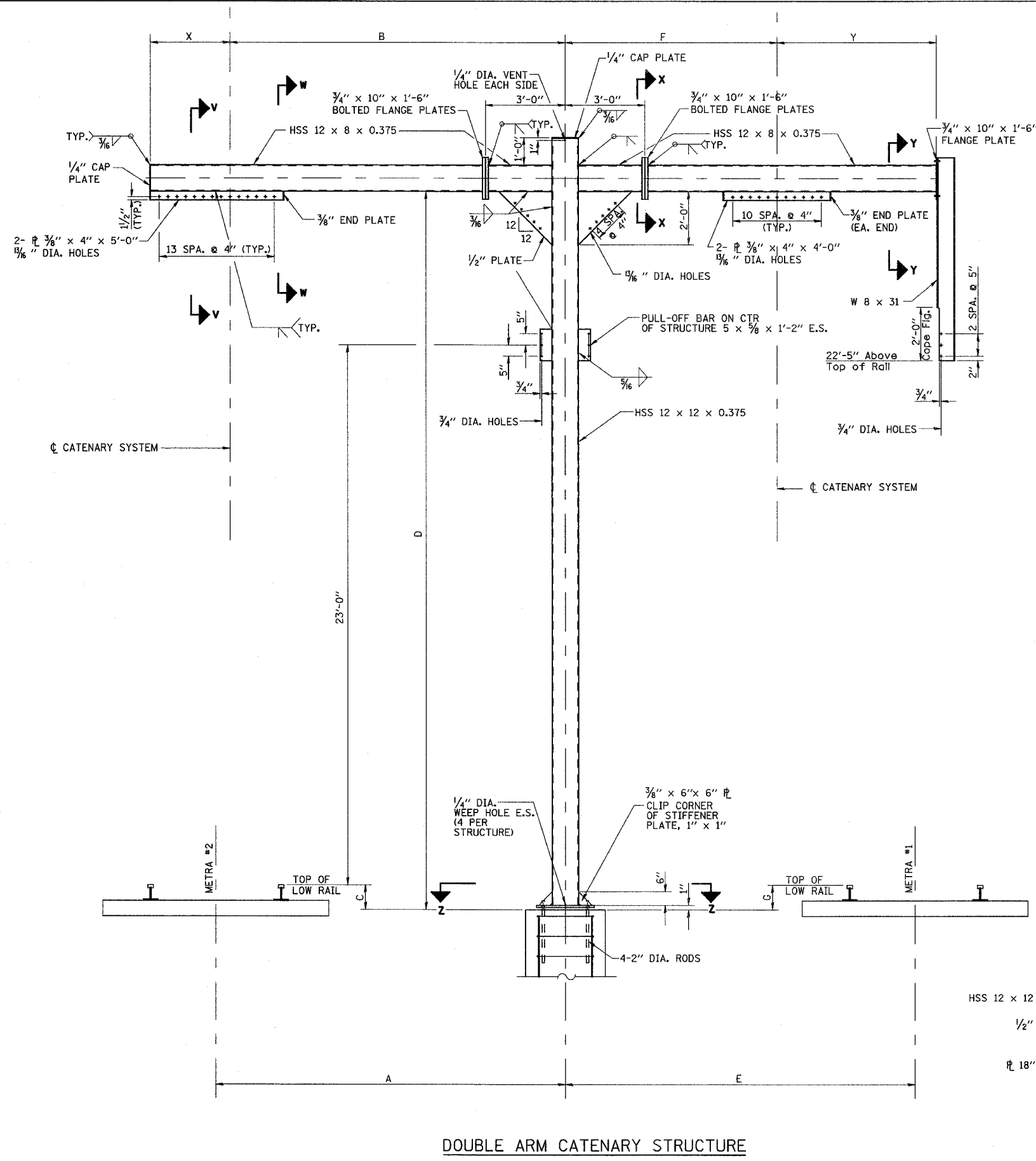
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NAME	DATE	
		SHT. CS-03 OF CS-17 DATE 2/21/2008 DRAWN BY BKN CHECKED BY GAC

DOUBLE ARM CATENARY STRUCTURE

SECTION Z-Z

3/13/2008 2:39:16 PM

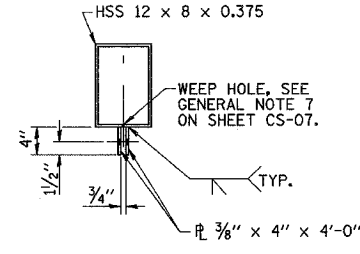
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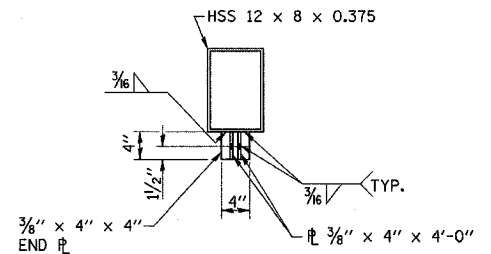
DOUBLE ARM CATENARY STRUCTURE

**NOTE:**  
1. FOR GENERAL NOTES, STRUCTURE LOCATIONS AND DIMENSIONS A THRU G & X & Y, SEE SHEET 5 OF 5.

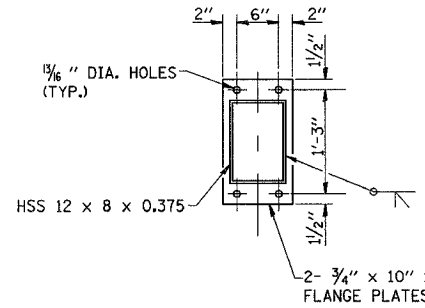
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F.A.P. 351	2008-001VB	COOK	579	307
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60E10				



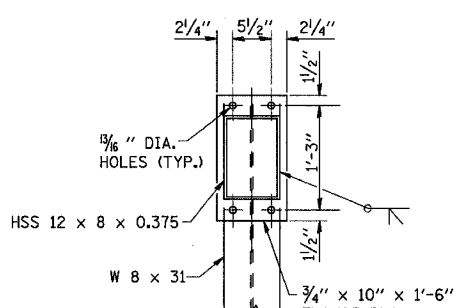
SECTION V-V



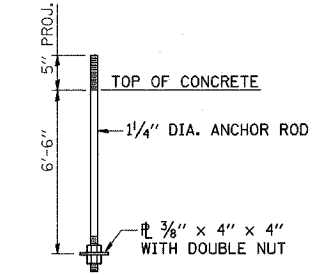
SECTION W-W



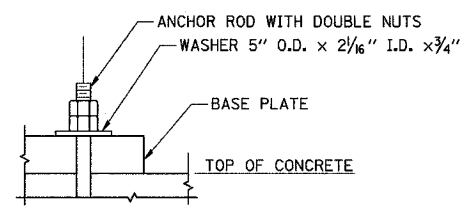
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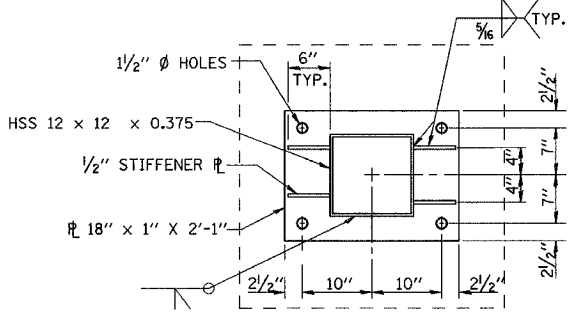
SECTION Y-Y



ANCHOR ROD DETAIL



DETAIL AT BASE PLATE



SECTION Z-Z

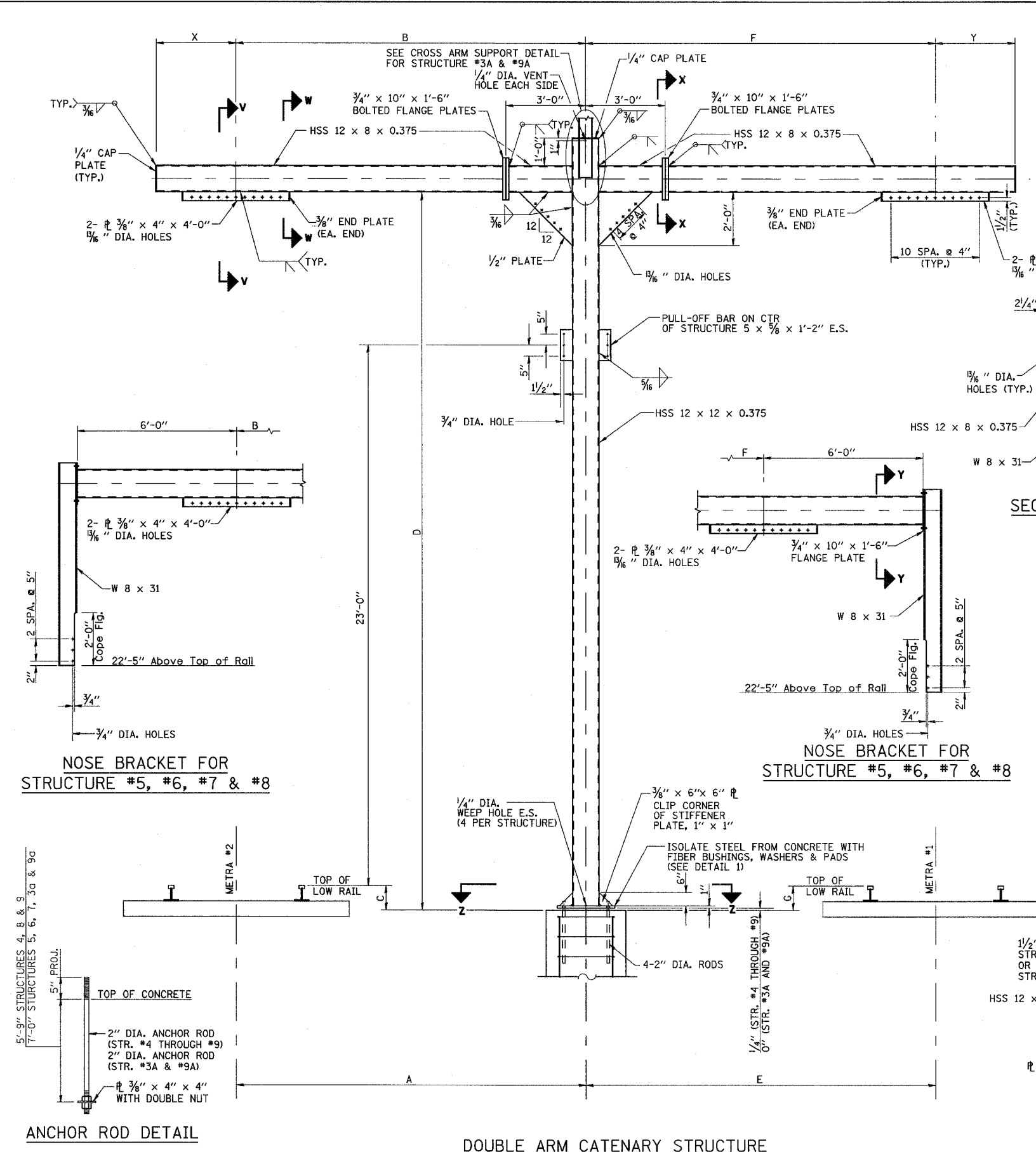
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST  
**CATENARY STRUCTURES  
SUPPORT STRUCTURES  
#3 & #10**

SHT. CS-04 OF CS-17  
DATE 2/21/2008  
DRAWN BY BKN  
CHECKED BY GAC

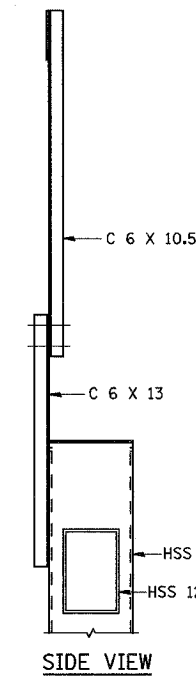
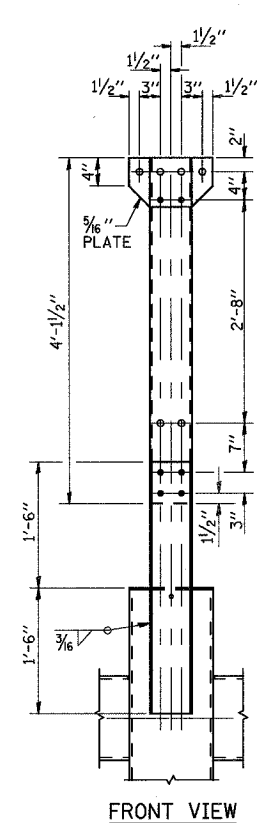
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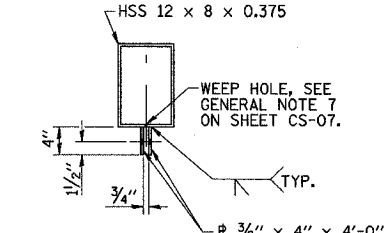


**NOTE:**  
1. FOR GENERAL NOTES, STRUCTURE LOCATIONS AND DIMENSIONS A THRU G & X & Y, SEE SHEET 5 OF 5.

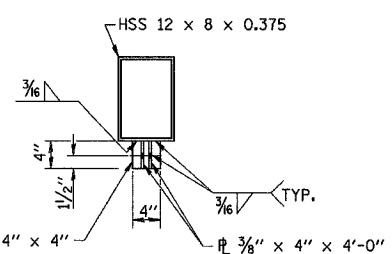
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STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				



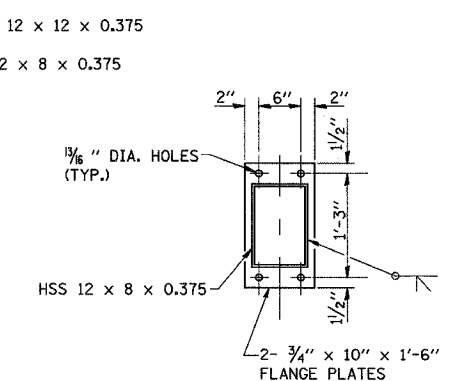
**CROSS ARM SUPPORT DETAIL FOR STRUCTURE #3A & 9A**



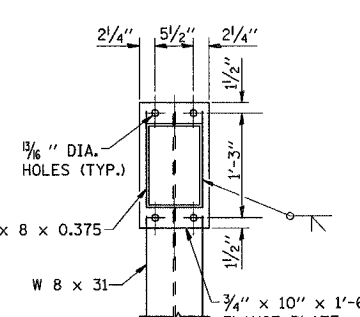
**SECTION V-V**



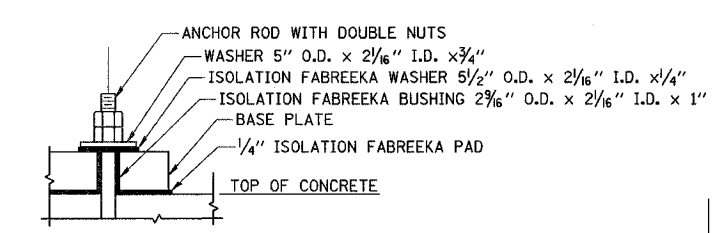
**SECTION W-W**



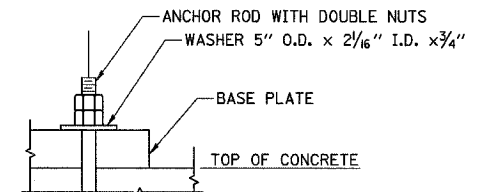
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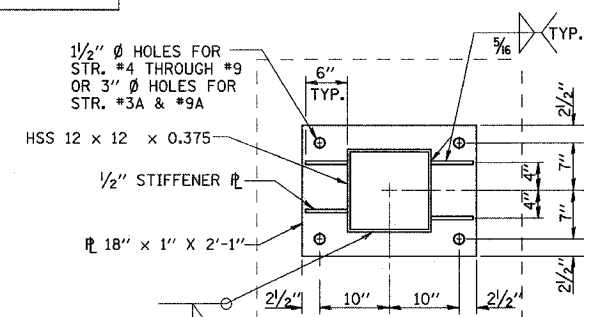
**SECTION Y-Y**



**DETAIL 1 (STRUCTURES #4 THROUGH #9)**



**DETAIL 1 (STRUCTURES #3A AND #9A)**



**SECTION Z-Z**

**NOSE BRACKET FOR STRUCTURE #5, #6, #7 & #8**

**NOSE BRACKET FOR STRUCTURE #5, #6, #7 & #8**

**ANCHOR ROD DETAIL**

**DOUBLE ARM CATENARY STRUCTURE**

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST  
**CATENARY STRUCTURES SUPPORT STRUCTURES #4 THROUGH #9, #3A & #9A**  
SHT. CS-05 OF CS-17  
DATE 2/21/2008  
DRAWN BY BKN  
CHECKED BY GAC

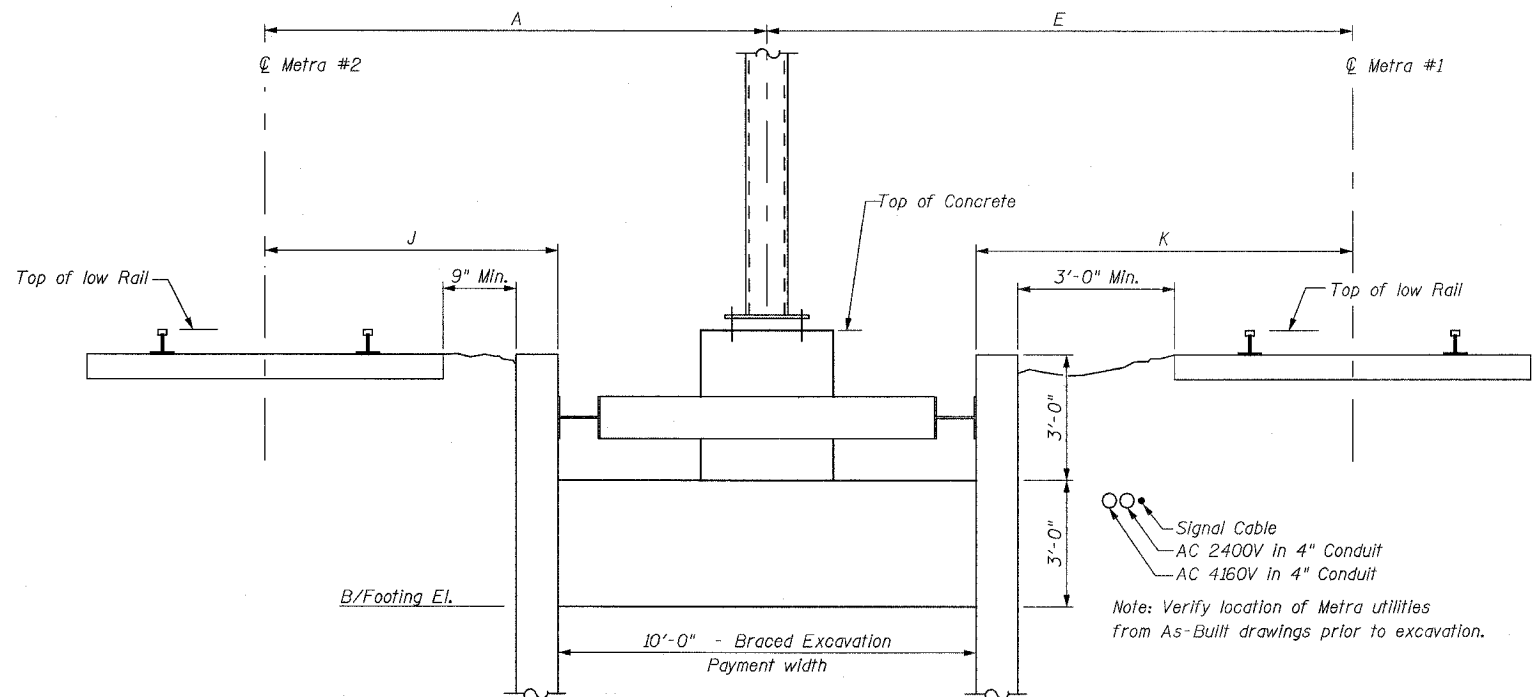


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F.A.P. 351	2008-001VB	COOK	579	309
STA.	TO STA.			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

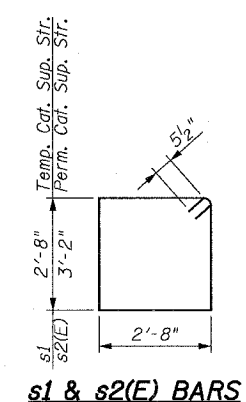
CONTRACT NO. 60E10

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
n1(E)	12	#7	8'-2"	┌
n2	12	#7	7'-7"	┌
n3(E)	12	#7	8'-4"	┌
n4	12	#7	6'-10"	┌
n5	12	#7	8'-1"	┌
n6	12	#7	8'-7"	┌
n7	24	#7	8'-5"	┌
n8	12	#7	7'-2"	┌
n9	12	#7	7'-4"	┌
n10	12	#7	8'-0"	┌
n11(E)	12	#7	8'-3"	┌
n12(E)	12	#7	8'-5"	┌
s1	40	#5	11'-7"	┐
s2(E)	20	#5	12'-7"	┐
t1	176	#5	8'-6"	—
t2(E)	88	#5	8'-6"	—
w1	160	#7	9'-6"	—
w2(E)	80	#7	9'-6"	—
Item	Unit	Qty.		
Concrete Structures	Cu Yd	141.9		
Reinforcement Bars	Pound	6670		
Reinforcement Bars, Epoxy Coated	Pound	3410		
Braced Excavation	Cu Yd	346.7		

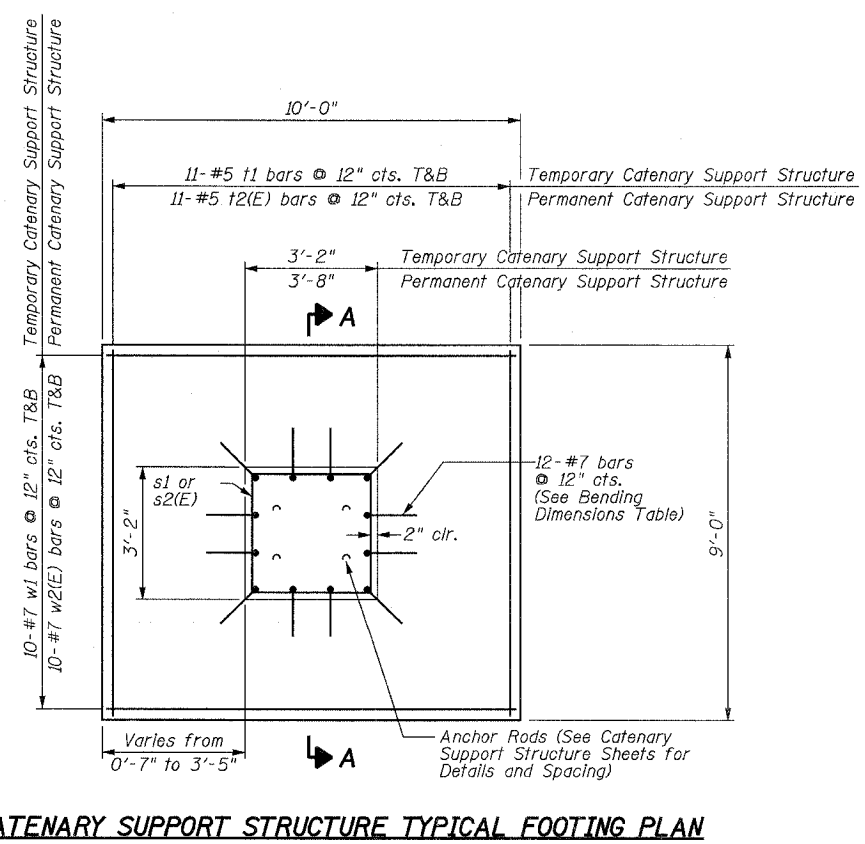
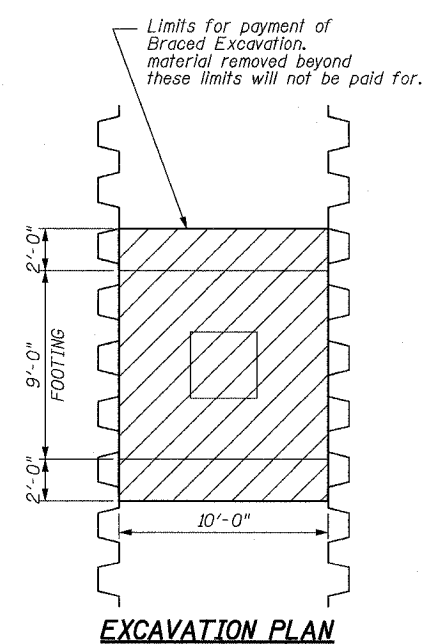
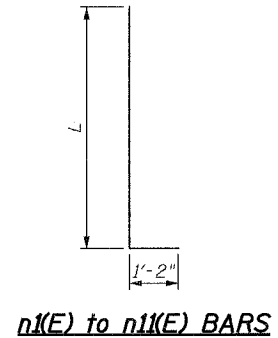


**CATENARY SUPPORT STRUCTURE TYPICAL FOOTING ELEVATION**  
LOOKING SOUTH

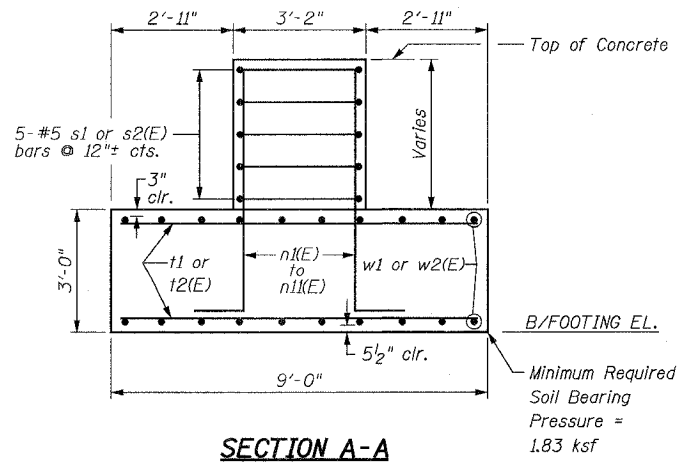


**BENDING DIMENSIONS**

Str. #	Bar	"L"
2	n1(E)	7'-0"
3	n2	6'-5"
3A	n3(E)	7'-2"
4	n4	5'-8"
5	n5	6'-11"
6	n6	7'-5"
7	n7	7'-3"
8	n8	6'-0"
9	n9	6'-2"
9A	n12(E)	7'-3"
10	n10	6'-10"
11	n11(E)	7'-1"



**CATENARY SUPPORT STRUCTURE TYPICAL FOOTING PLAN**



**SECTION A-A**

**NOTES:**  
1. See Sheet "Support Structures Table of Dimensions" for "A," "E," "J," & "K" dimensions, top of concrete elevation, top of rail elevations, and bottom of footing elevation.

REVISIONS	NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST  
**CATENARY STRUCTURES  
SUPPORT STRUCTURES  
FOOTING DETAILS**  
SHT. CS-06 OF CS-17  
DATE 2/21/2008  
DRAWN BY PMV  
CHECKED BY MAD

3/13/2008 5:11:38 PM

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**TABLE OF DIMENSIONS  
PROPOSED CATENARY SERVICE**

**DIMENSIONS RELATIVE TO TEMPORARY RELOCATED TRACKS**

SUPP. NUMBER	TEMPORARY Metra #2 Station	Metra #2							Metra #1							D	B + F	A + E	AC Ext.	Metra # 2 T/R Elev	Metra # 1 T/R Elev	Top of Concrete Elev	Bottom of Footing Elev
		A	B	C	X	J	Nose Brkt	Temp Sprt	E	F	G	Y	K	Nose Brkt	Temp Sprt								
2 **	194+63.98	12.80'	N/A	0.02'	N/A	7.80'	No	Yes	12.80'	N/A	0.00'	N/A	7.80'	Yes	Yes	29.25'	N/A	25.61'	Yes	622.66	622.64	622.64	614.75
3	196+38.00	12.05'	12.63'	0.00'	3.00'	7.05'	No	Yes	8.65'	7.98'	0.00'	6.00'	3.65'	Yes	No	27.25'	20.61'	20.69'	No	622.06	622.06	622.06	614.75
4	198+53.00	8.51'	7.97'	0.00'	3.00'	3.51'	No	No	8.51'	9.09'	0.01'	6.00'	3.51'	Yes	No	29.25'	17.06'	17.01'	No	621.55	621.56	621.55	615.05
5	201+53.00	8.52'	8.42'	0.00'	6.00'	3.52'	Yes	No	8.52'	8.63'	0.00'	3.00'	3.52'	No	No	29.25'	17.04'	17.03'	No	621.49	621.49	621.49	613.75
6	203+27.00	8.55'	8.01'	0.02'	6.00'	3.55'	Yes	No	8.55'	9.09'	0.08'	3.00'	3.55'	No	No	27.25'	17.10'	17.10'	No	621.27	621.33	621.25	612.95
7	205+01.00	8.54'	7.99'	0.00'	6.00'	3.54'	Yes	No	8.54'	9.08'	0.17'	3.00'	3.54'	No	No	28.25'	17.07'	17.07'	No	620.79	620.96	620.79	612.65
8	207+45.75	8.50'	9.29'	0.00'	6.00'	3.50'	Yes	No	8.50'	7.71'	0.15'	3.00'	3.50'	No	No	28.25'	17.00'	17.00'	No	619.93	620.08	619.93	613.05
9	209+23.00	8.51'	7.90'	0.00'	6.00'	3.51'	No	No	8.51'	9.30'	0.01'	6.00'	3.51'	Yes	No	27.25'	17.20'	17.01'	No	619.32	619.33	619.32	612.25
10	211+37.00	11.76'	12.27'	0.15'	3.00'	6.76'	No	Yes	8.84'	8.67'	0.00'	6.00'	3.84'	Yes	No	27.25'	20.94'	20.59'	No	618.59	618.44	618.44	610.75
11 **	212+67.00	12.34'	N/A	0.36'	N/A	7.34'	No	Yes	12.34'	N/A	0.24'	N/A	7.34'	Yes	Yes	28.25'	N/A	24.68'	Yes	618.16	618.04	617.80	609.85

**DIMENSIONS RELATIVE TO PERMANENT TRACKS**

SUPP. NUMBER	PERMANENT Metra # 2 Station	Metra #2							Metra #1							D	B + F	A + E	AC Ext.	Metra # 2 T/R Elev	Metra # 1 T/R Elev	Top of Concrete Elev	Bottom of Footing Elev
		A	B	C	X	J	Nose Brkt	Temp Sprt	E	F	G	Y	K	Nose Brkt	Temp Sprt								
2 **	1694+50.00	12.87'	N/A	0.72'	N/A	7.87'	No	Yes	13.54'	N/A	0.71'	N/A	8.54'	Yes	Yes	29.25'	26.42'	26.42'	Yes	622.78	622.77	622.64	614.75
3A **	1697+50.51	12.87'	12.87'	0.00'	3.00'	7.87'	No	No	13.54'	13.54'	0.02'	3.00'	8.54'	No	Yes	28.25'	26.42'	26.42'	Yes	622.46	622.48	622.46	614.45
3	N/A	8.50'	N/A	N/A	N/A	6.00'	N/A	N/A	18.02	N/A	N/A	N/A	10.52'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9A **	1709+82.15	13.25'	13.25'	0.06'	3.00'	8.25'	No	No	13.25'	13.25'	0.00'	3.00'	8.25'	No	No	28.25	26.50'	26.50'	Yes	618.91	618.85	618.85	610.75
10	N/A	8.50'	N/A	N/A	N/A	6.00'	N/A	N/A	17.69	N/A	N/A	N/A	10.19'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11 **	1712+47.38	12.15'	N/A	0.31'	N/A	7.15'	No	Yes	13.99'	N/A	0.00'	N/A	8.99'	Yes	Yes	28.25'	26.13'	26.13'	Yes	618.11	617.80	617.80	609.85

\*\* DENOTES PERMANENT STRUCTURE

NOTE: NOSE BRACKET FOR SUPPORT NUMBERS 2 & 11 TO BE REMOVED WHEN ADJUSTED FOR PERMANENT TRACKS - COST INCLUDED IN UNIT PRICE EACH OF CATENARY SUPPORT STRUCTURE

**GENERAL NOTES FOR CATENARY SUPPORT STRUCTURES:**

- HOLLOW STRUCTURAL SHAPES (HSS) SHALL CONFORM TO ASTM A500, GRADE B.
- ALL OTHER STRUCTURAL SHAPES AND PLATES SHALL CONFORM TO ASTM A709, GRADE 50
- BOLTS SHALL BE 3/4" GALVANIZED HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 WITH MATCHING LOCK NUTS. LOCK NUTS SHALL HAVE NYLON OR STEEL INSERTS.
- ANCHOR RODS, NUTS & WASHERS FOR PERMANENT STRUCTURES SHALL BE HOT-DIPPED GALVANIZED STEEL CONFORMING TO ASTM F1554, GRADE 55.
- ANCHOR RODS, NUTS & WASHERS FOR TEMPORARY STRUCTURES SHALL CONFORM TO ASTM F1554, GRADE 55.
- CONCRETE COMPRESSIVE STRENGTH, F'c = 4,000 PSI.
- VENT HOLES OF ADEQUATE SIZE SHALL BE PROVIDED ON UNDERSIDE AT EACH END OF ALL TUBULAR MEMBERS. ALL VENT HOLES SHALL BE DRILLED AND DE-BURRED.
- STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60
- ALL WELDING TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING TO BE PERFORMED IN ACCORDANCE WITH CURRENT AWS D1.1 STRUCTURAL WELDING CODE AND THE STANDARD SPECIFICATIONS.
- CAP ALL ENDS OF TUBE SECTIONS WITH WELDED PLATES.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST

**CATENARY STRUCTURES  
SUPPORT STRUCTURES  
TABLE OF DIMENSIONS**

SHT. CS-07 OF CS-17      DRAWN BY BKN  
DATE 2/21/2008      CHECKED BY GAC

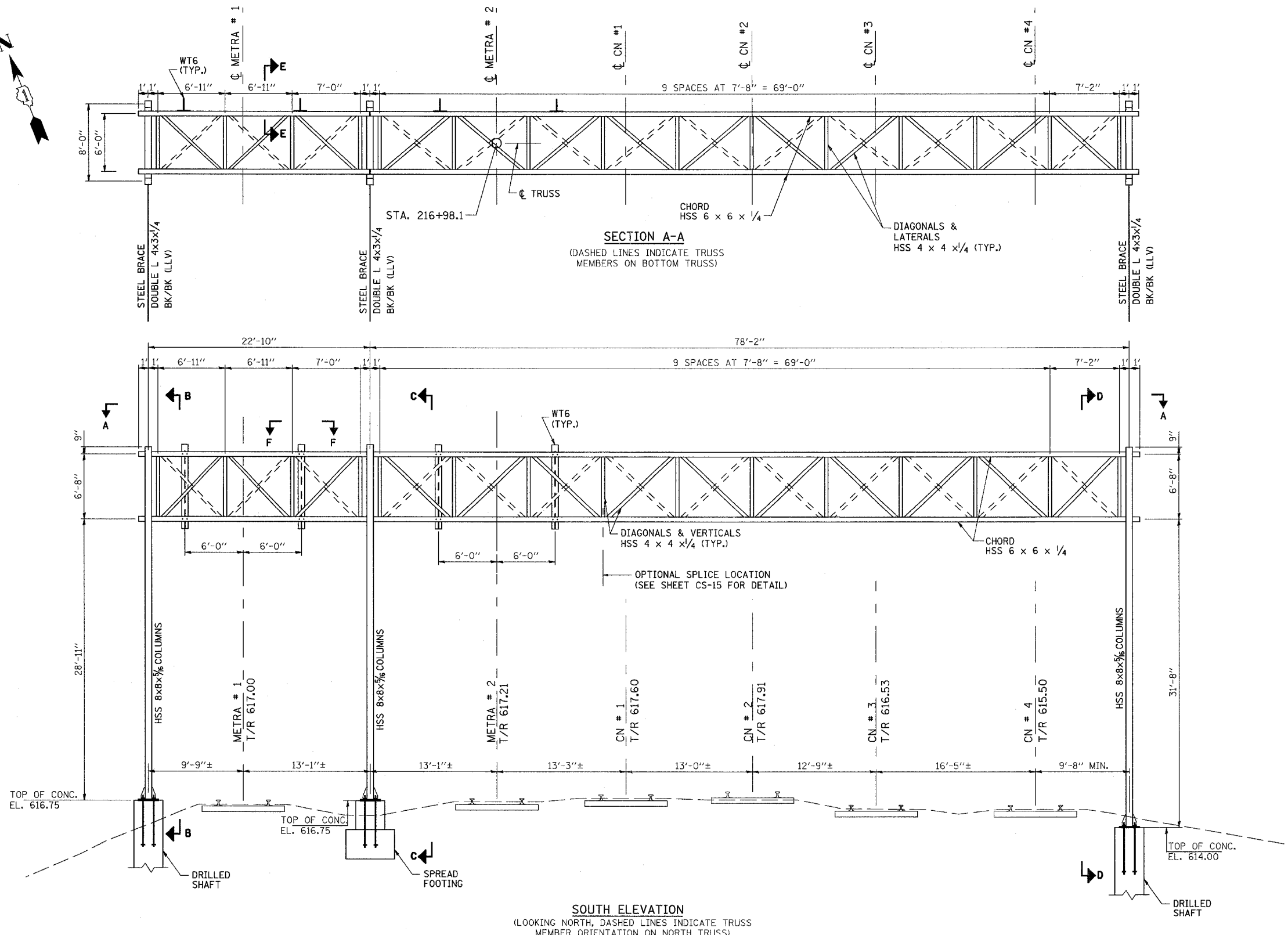
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
F.A.P. 351	2008-001VB	COOK	579	311
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**SOUTH ELEVATION**  
(LOOKING NORTH, DASHED LINES INDICATE TRUSS MEMBER ORIENTATION ON NORTH TRUSS)

**NOTES:**  
SEE SHT. CS-09 FOR SECTIONS B-B, C-C, D-D  
SEE SHT. CS-15 FOR SECTIONS E-E, F-F

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST

**CATENARY STRUCTURES  
DEAD-END STRUCTURE  
PLAN & ELEVATION**

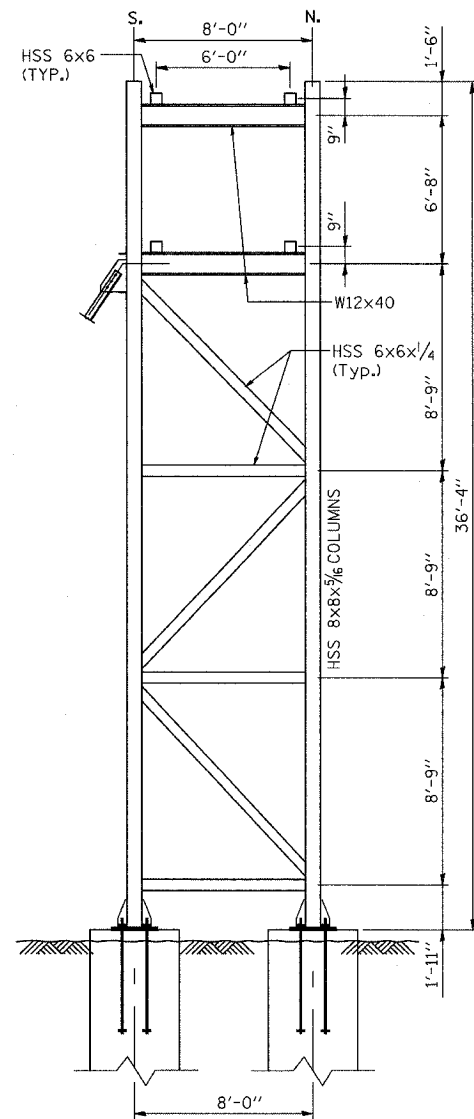
SHT. CS-08 OF CS-17  
DATE 2/21/2008

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CHECKED BY DEM

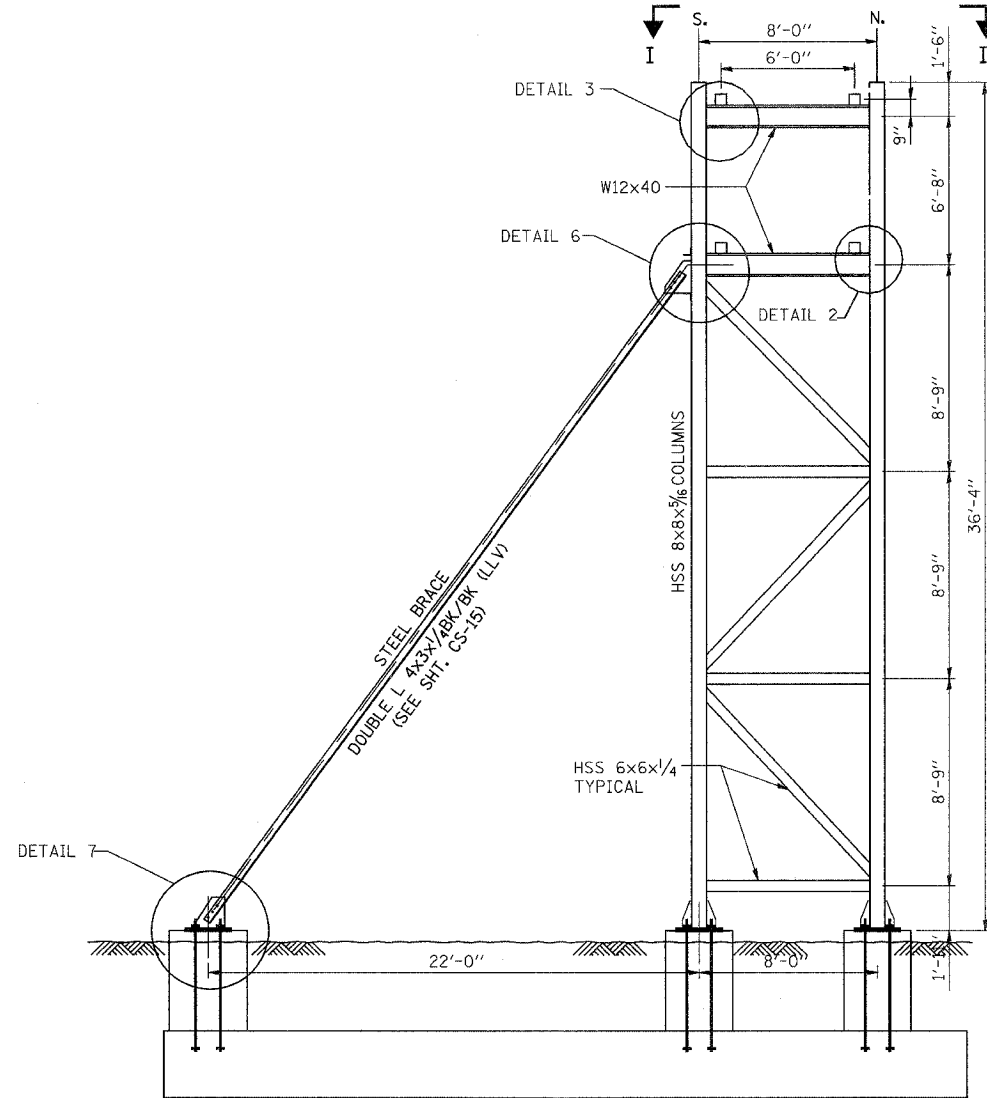
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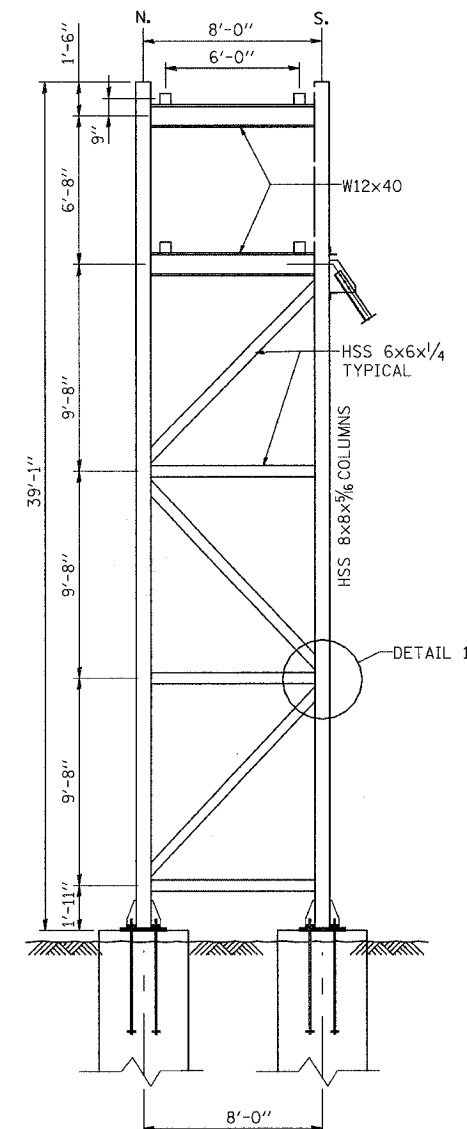
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F.A.P. 351	2008-001VB	COOK	579	312
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



SECTION B-B  
(WEST TOWER)

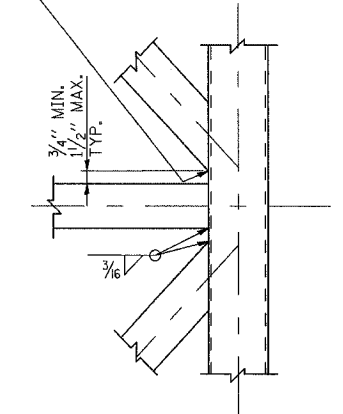


SECTION C-C  
(CENTER TOWER)

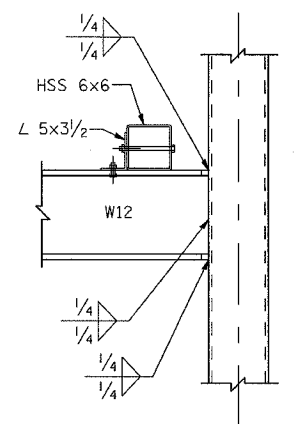


SECTION D-D  
(EAST TOWER)

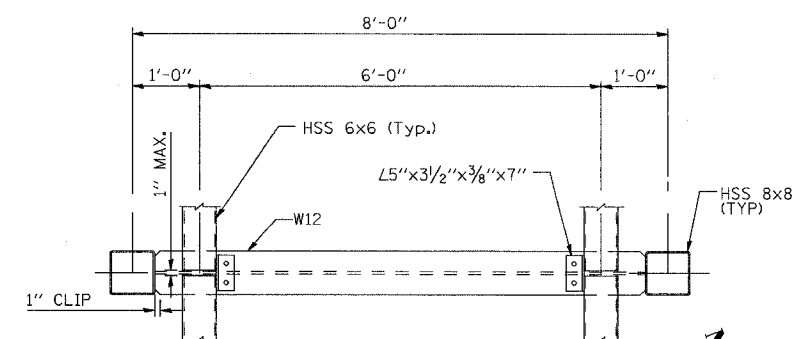
TOE EDGE OF DIAGONAL MEMBER SHALL BE CUT BACK TO FACILITATE THROAT THICKNESS PER AWS D1.1



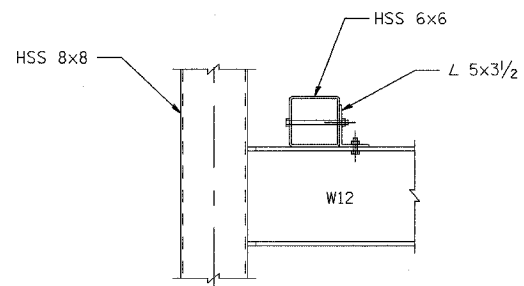
DETAIL 1



DETAIL 2  
(TYP. W12 TO COLUMN CONNECTION)



SECTION I-I  
(CENTER TOWER)



DETAIL 3

NOTES:  
SEE SHT. CS-08 FOR LOCATIONS OF SECTIONS B-B, C-C, D-D  
SEE SHT. CS-15 FOR ANCHOR DETAIL AND DETAILS 6 & 7

REVISIONS	
NAME	DATE

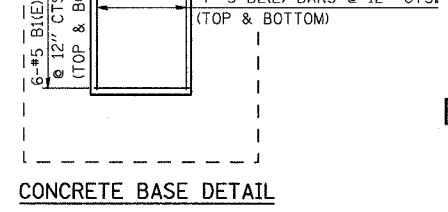
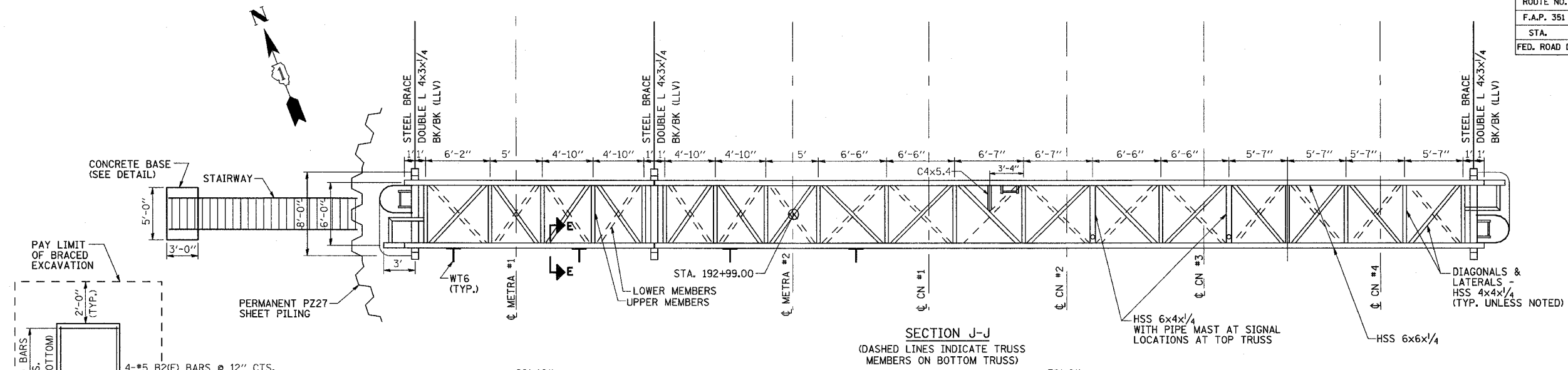
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST  
CATENARY STRUCTURES  
DEAD-END STRUCTURE  
TOWER ELEVATIONS

SHT. CS-09 OF CS-17  
DATE 2/21/2008  
DRAWN BY SOI  
CHECKED BY MAD

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	313
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				

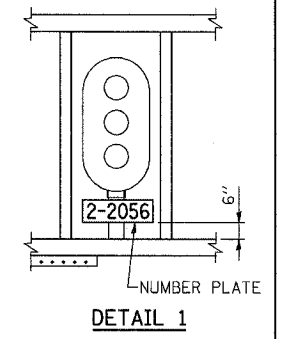
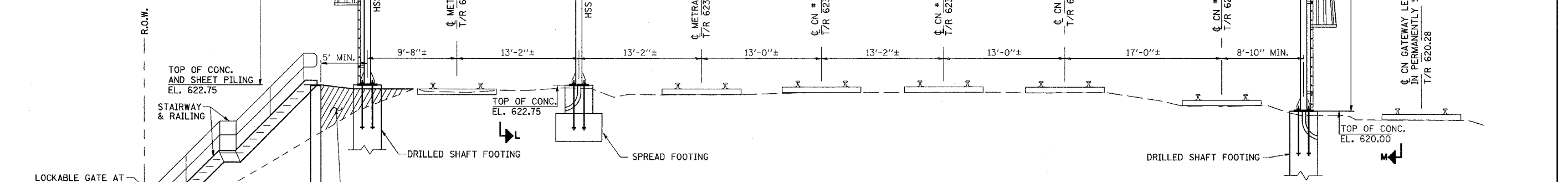


**BILL OF MATERIAL**

BAR NO.	SIZE	LENGTH	SHAPE
B1(E)	#5	4'-8"	—
B2(E)	#5	2'-8"	—

ITEM	UNIT	QTY
CONCRETE STRUCTURES	CU YD	2.2
REINFORCEMENT BARS, EPOXY COATED	POUND	80
BRACED EXCAVATION	CU YD	9.3
PERMANENT ACCESS STAIRWAY	LUMP SUM	1



**SOUTH ELEVATION**  
(LOOKING NORTH, FOR CLARITY ONLY NEAR TRUSS SHOWN)

- NOTES:**
- SEE SHT. CS-12 FOR SECTIONS H-H, K-K, L-L, M-M
  - SEE SHT. CS-13 FOR SECTION G-G
  - SEE SHT. CS-15 FOR SECTIONS E-E, F-F
  - SEE SHT. CH-06 FOR CATENARY HARDWARE ATTACHED TO THIS STRUCTURE

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST

**CATENARY STRUCTURES  
BRIDGE STRUCTURE  
SOUTH ELEVATION**

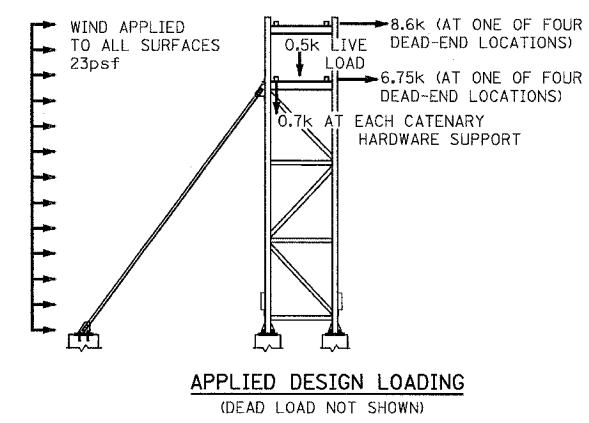
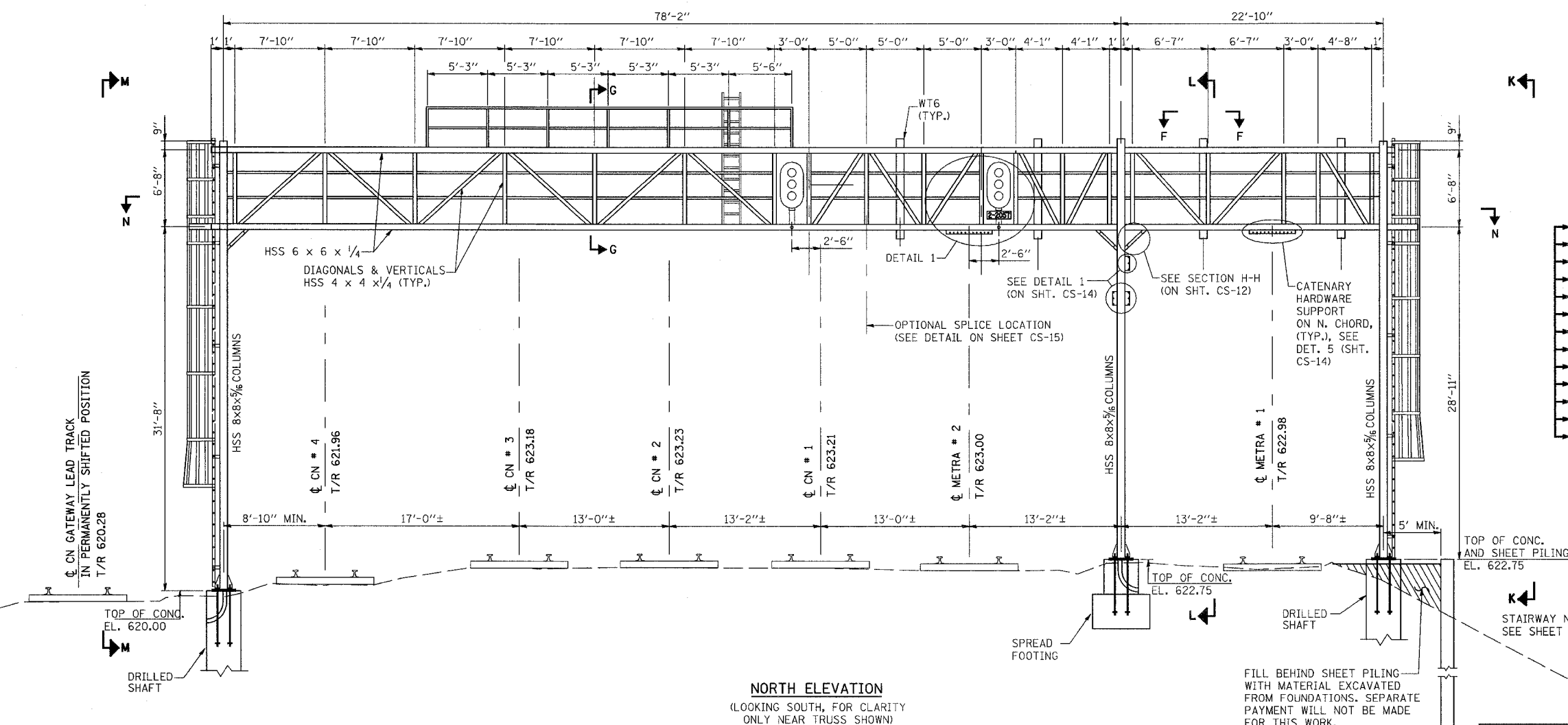
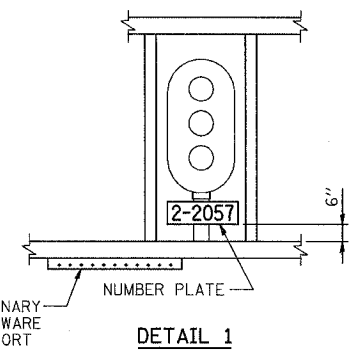
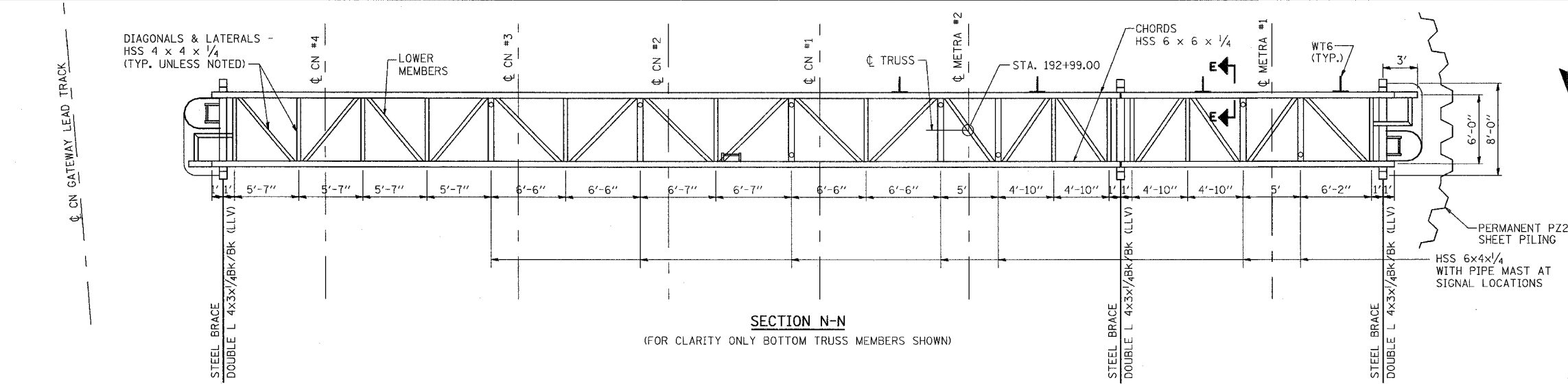
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DATE 2/21/2008

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
F.A.P. 351	2008-001VB	COOK	579	314
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



NOTES:  
 SEE SHT. CS-12 FOR SECTIONS H-H, K-K, L-L, M-M  
 SEE SHT. CS-13 FOR SECTION G-G  
 SEE SHT. CS-15 FOR SECTIONS E-E, F-F

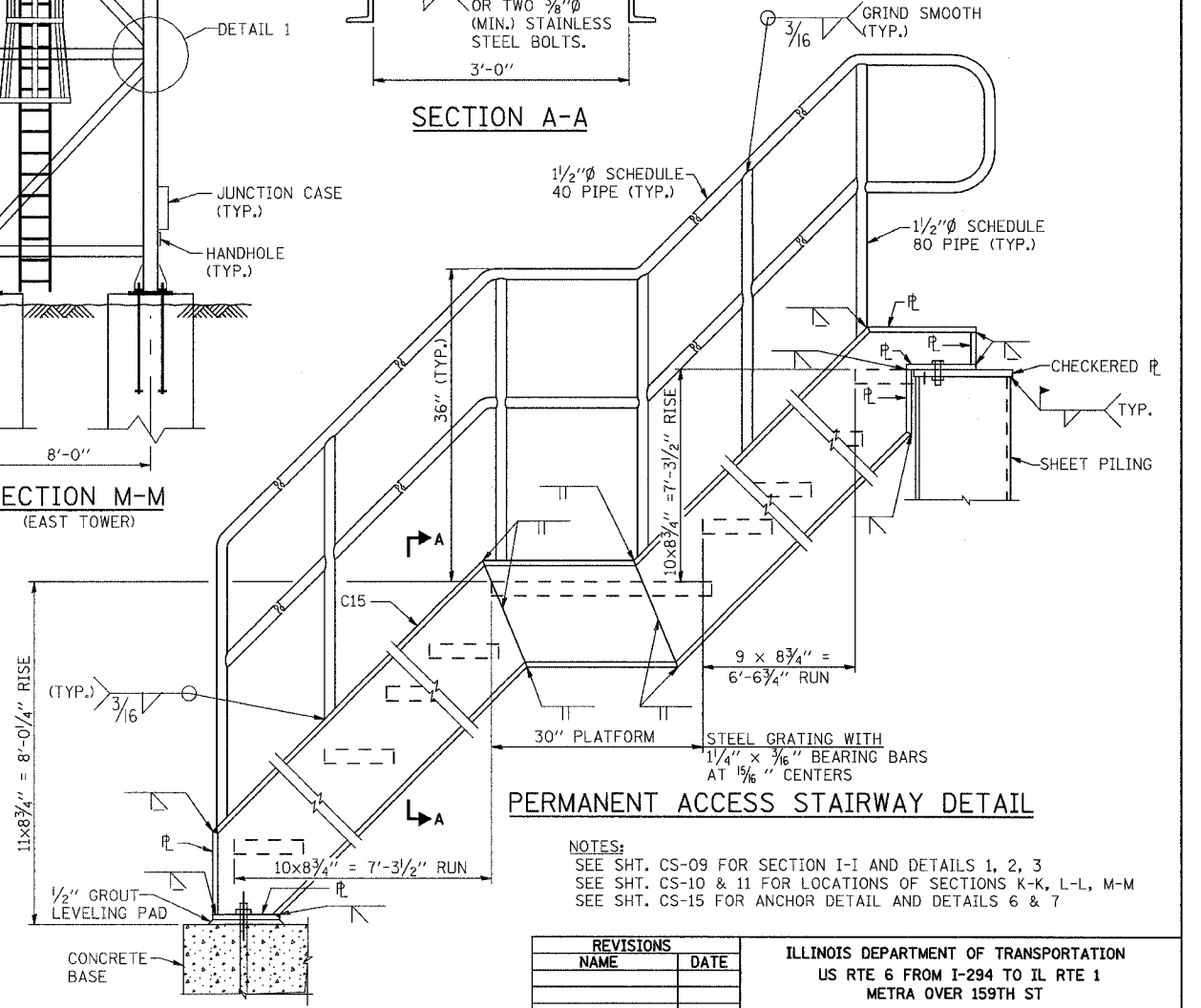
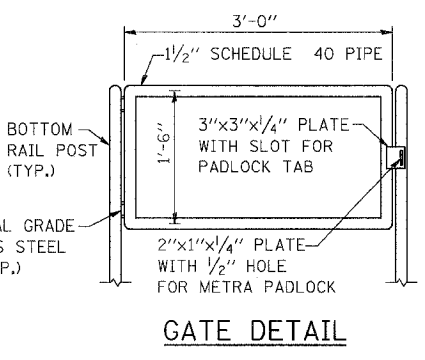
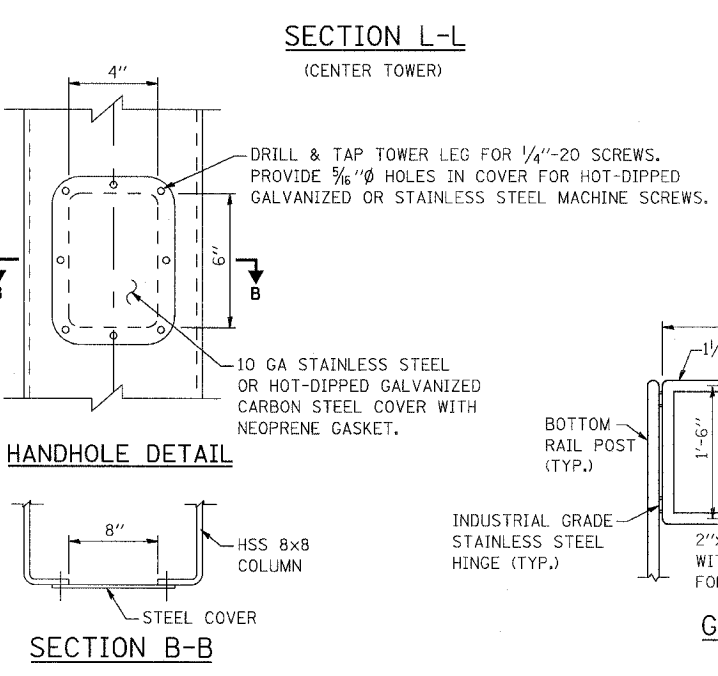
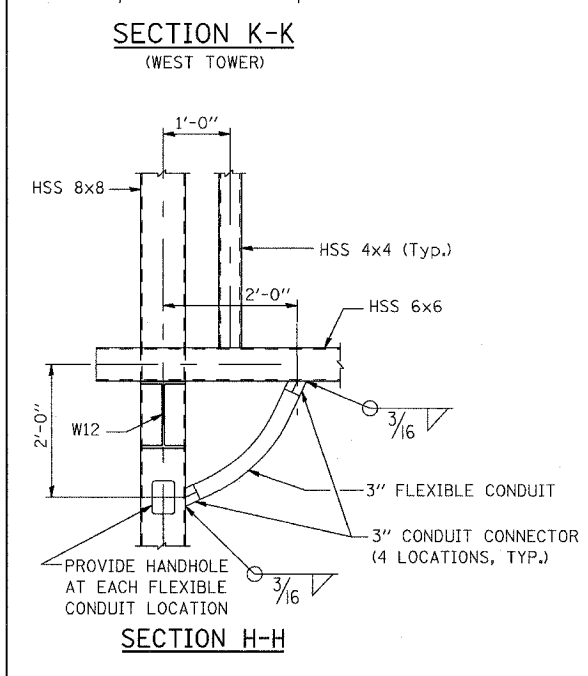
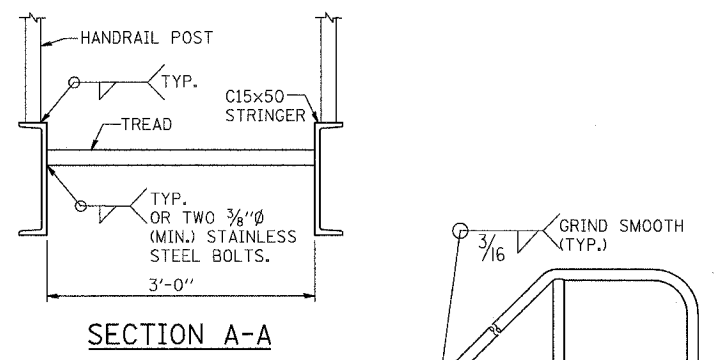
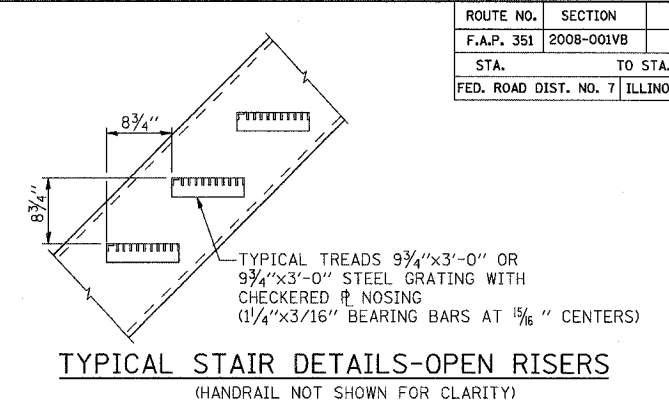
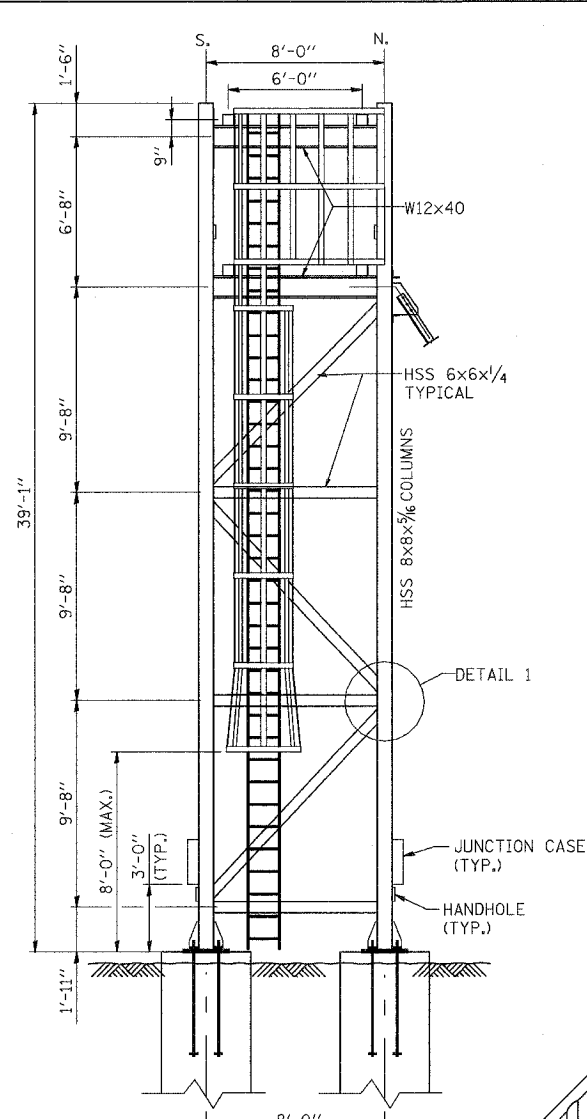
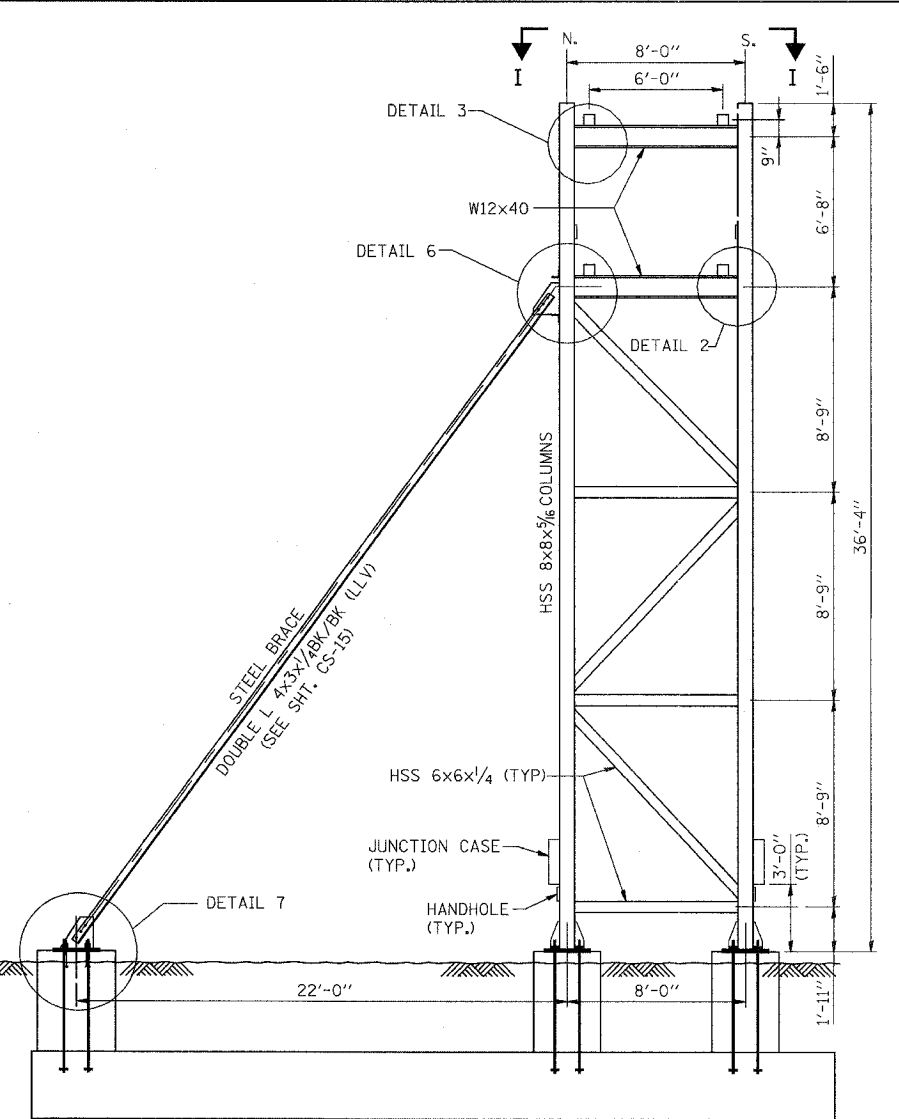
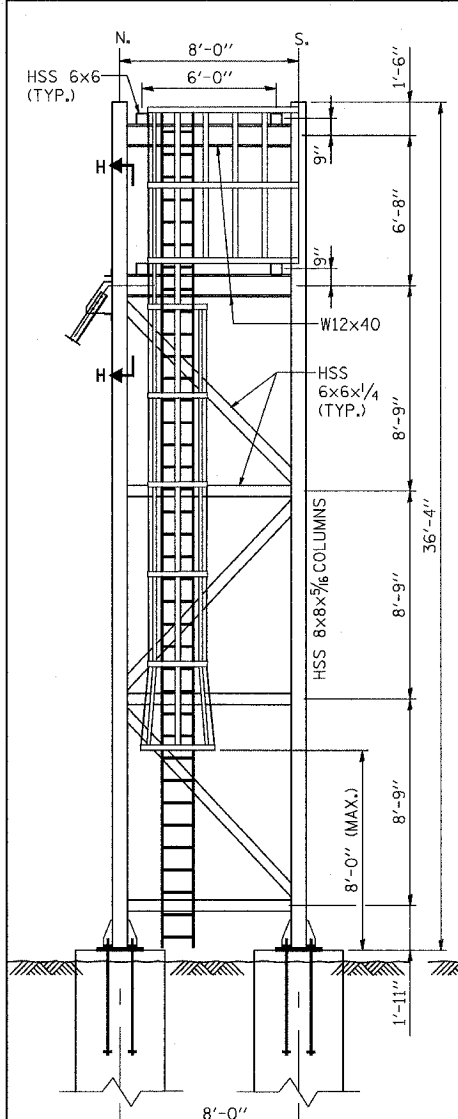
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH ST  
**CATENARY STRUCTURES  
 BRIDGE STRUCTURE  
 NORTH ELEVATION**  
 SHT. CS-11 OF CS-17  
 DATE 2/21/2008  
 DRAWN BY AL  
 CHECKED BY MAD

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	315
STA.	TO STA.			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 60E10				



NOTES:  
SEE SHT. CS-09 FOR SECTION I-I AND DETAILS 1, 2, 3  
SEE SHT. CS-10 & 11 FOR LOCATIONS OF SECTIONS K-K, L-L, M-M  
SEE SHT. CS-15 FOR ANCHOR DETAIL AND DETAILS 6 & 7

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST

CATENARY STRUCTURES  
BRIDGE STRUCTURE  
TOWER ELEVATIONS

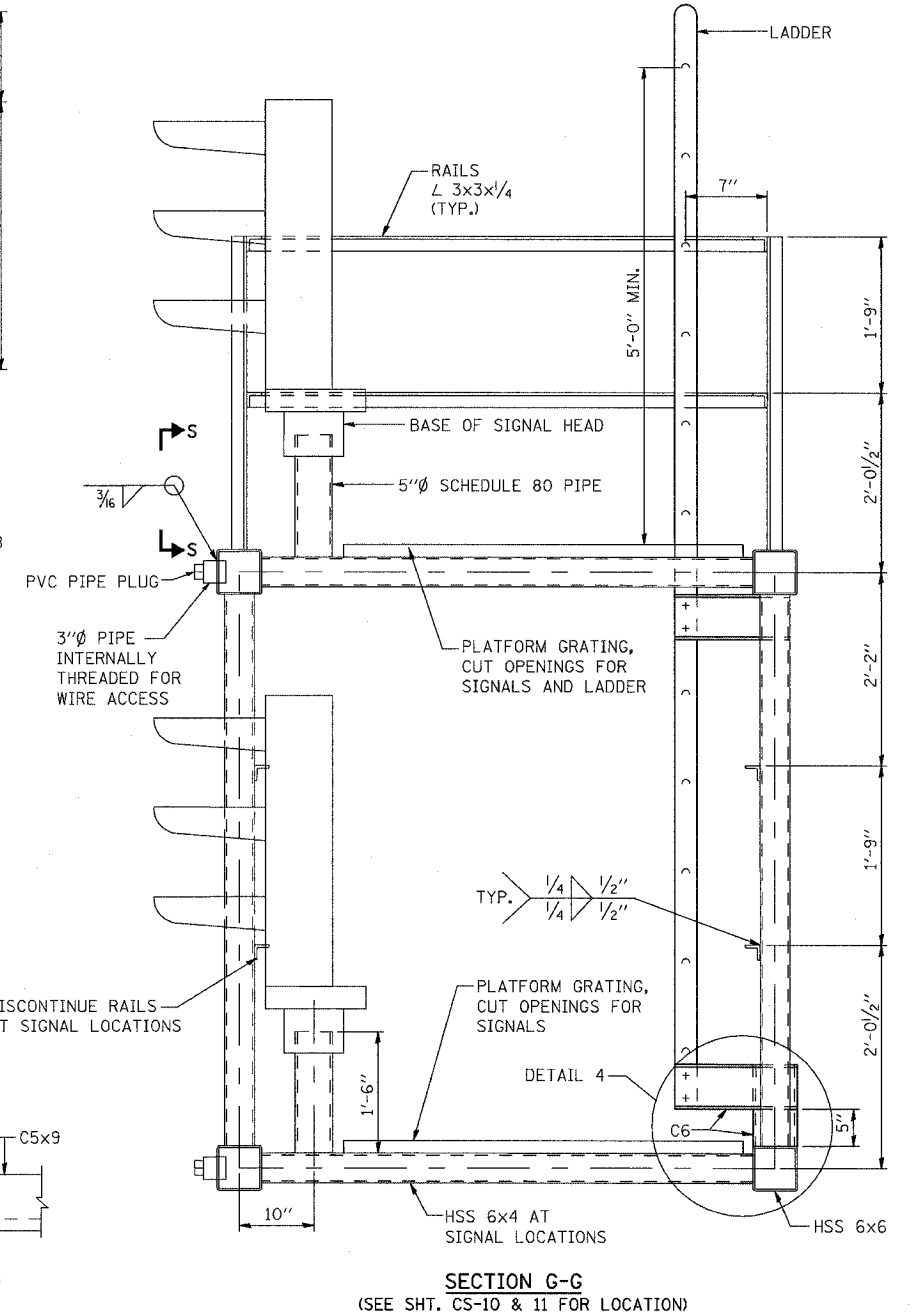
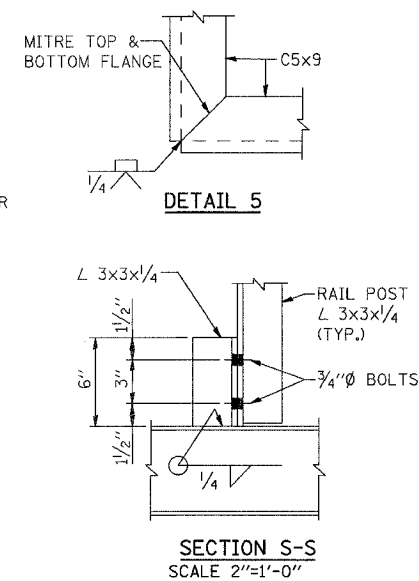
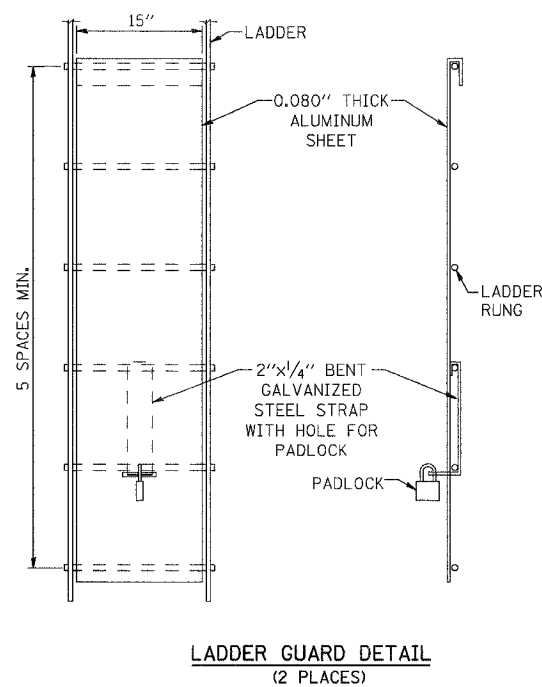
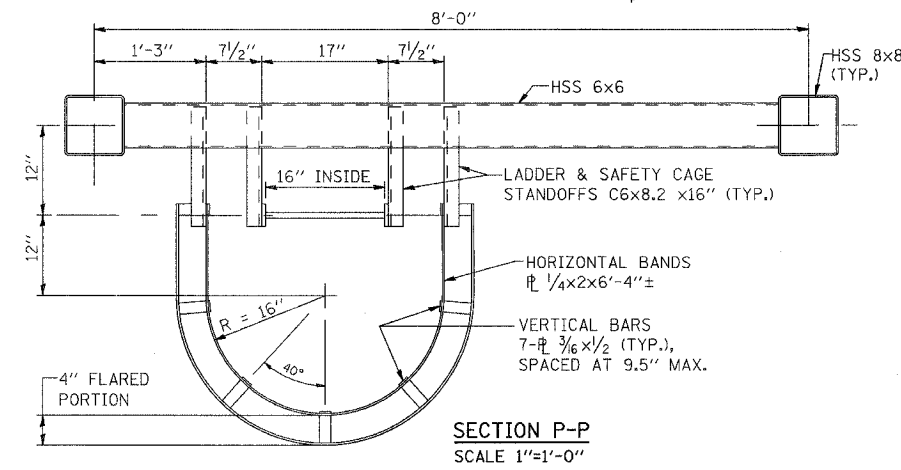
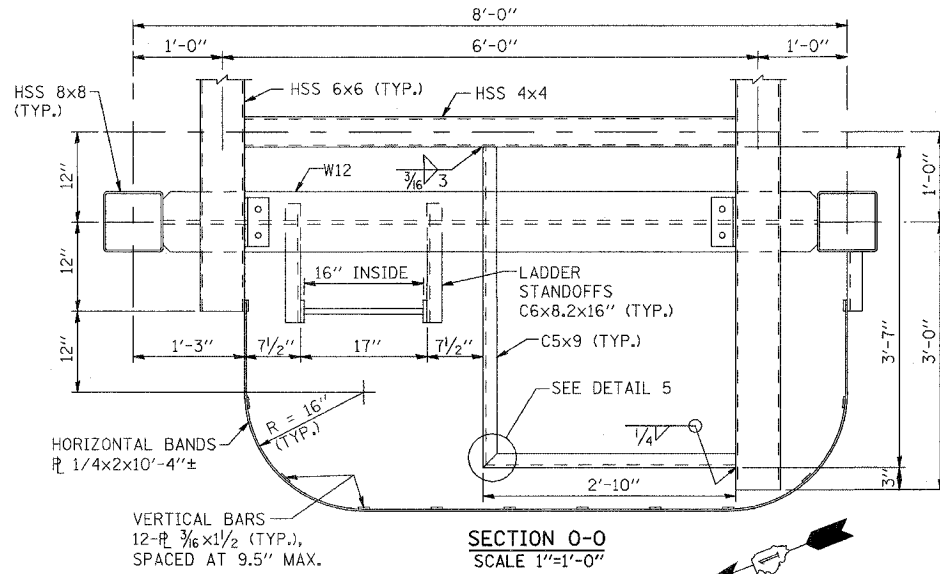
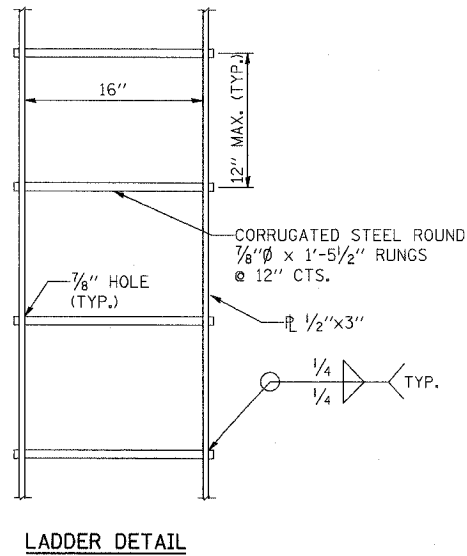
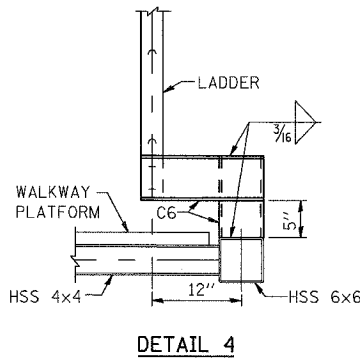
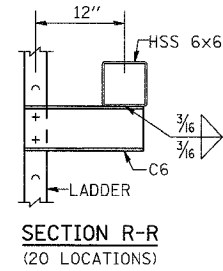
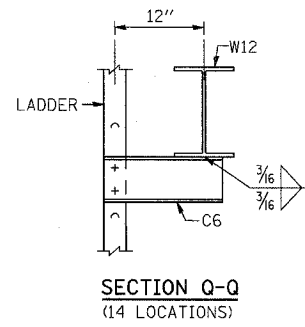
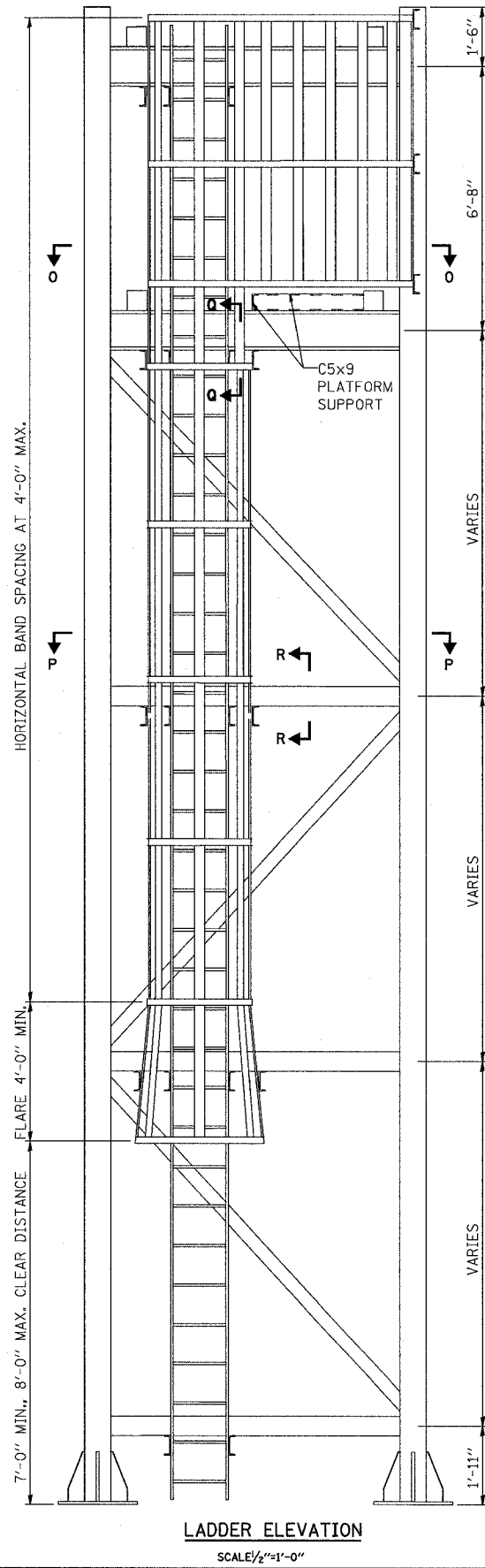
SHT. CS-12 OF CS-17  
DATE 2/21/2008

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	316
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST

**CATENARY STRUCTURES  
BRIDGE STRUCTURE  
LADDER DETAILS**

SHT. CS-13 OF CS-17  
DATE 2/21/2008

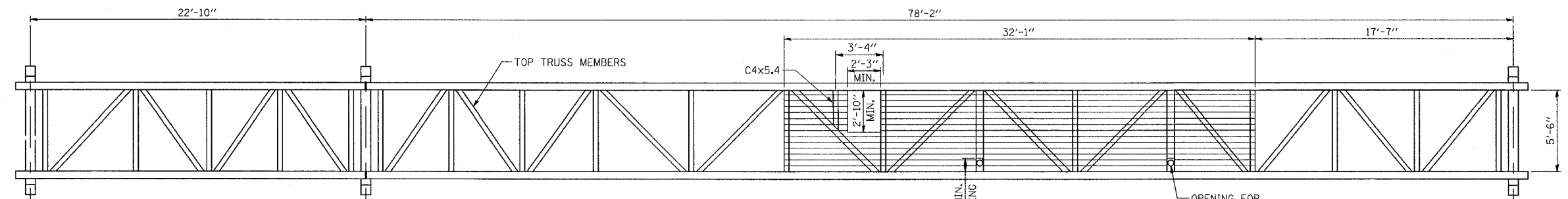
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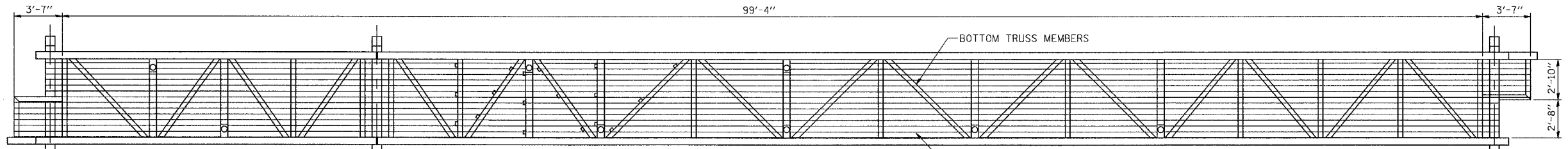
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				

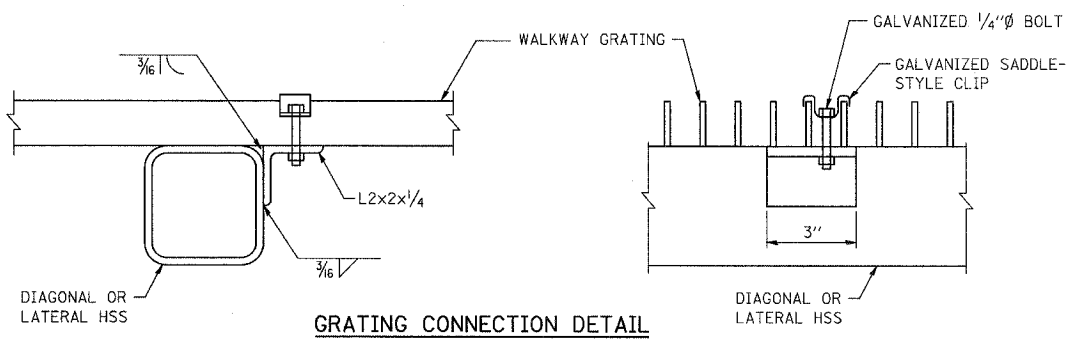


**TOP WALKWAY PLAN**  
SCALE 1/4" = 1'-0"

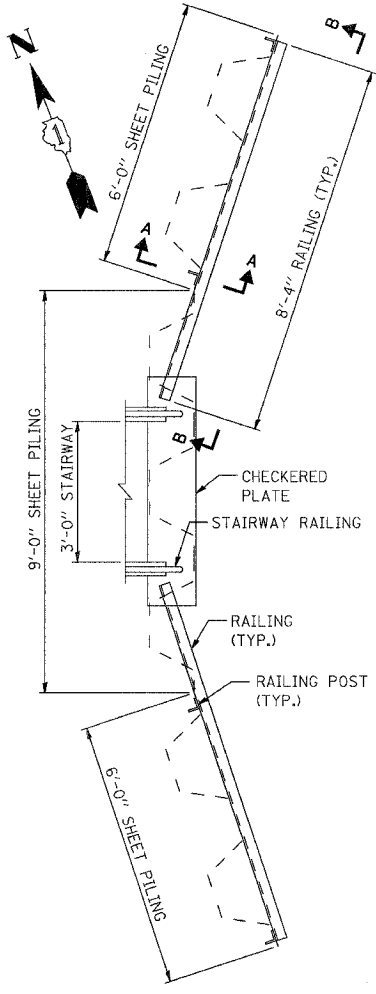


**BOTTOM WALKWAY PLAN**  
SCALE 1/4" = 1'-0"

1/2" HOT-DIPPED GALVANIZED WELDED STEEL GRATING  
1/2"x3/8" SERRATED MAIN BEARING BARS AT 1 3/8" CENTERS  
TWISTED SQUARE CROSS BARS SHALL BE AT 4" CENTERS  
GRATING TO BE ASTM A1011. ALL EDGES SHALL BE FULLY BANDED.  
PROVIDE OPENINGS IN GRATING TO ACCOMMODATE THE SIGNAL  
PIPE MASTS AND LADDER TO UPPER PLATFORM.

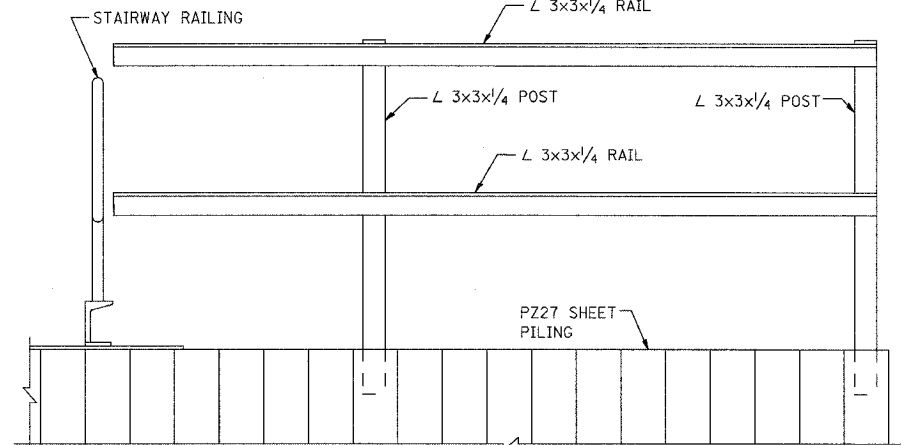


**GRATING CONNECTION DETAIL**  
(MIN. 3 REQUIRED PER DIAGONAL OR LATERAL)  
(SEE TYPICAL GRATING CONNECTION PATTERN ABOVE)

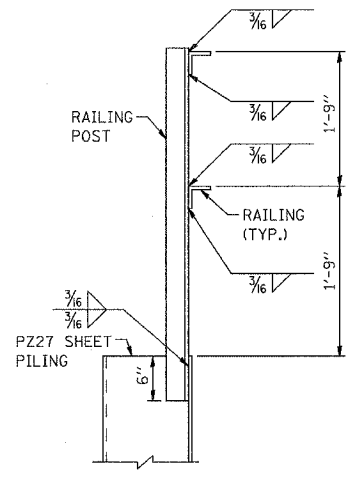


**RAILING PLAN**

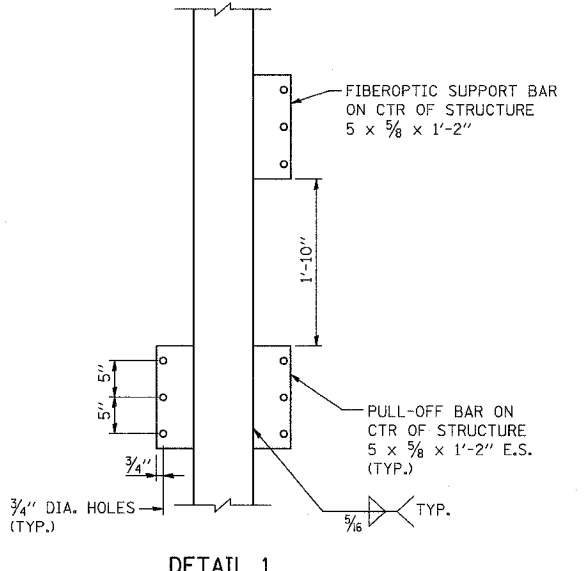
(SEE SHT. CS-10 FOR SHEETING LOCATION)



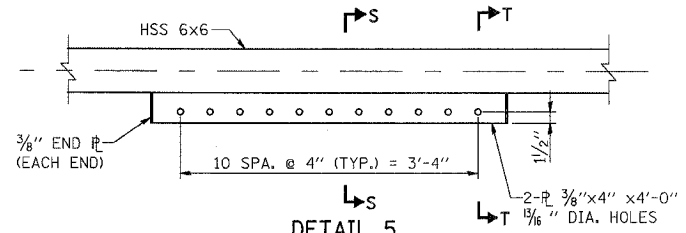
**SECTION B-B**



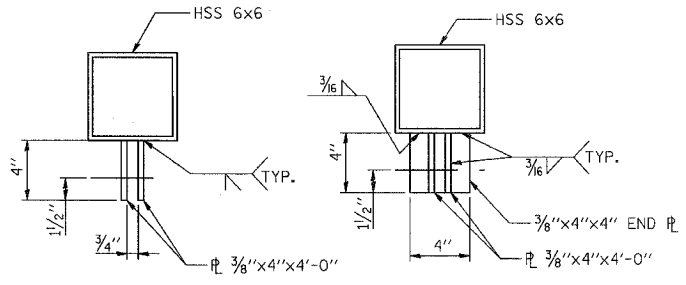
**SECTION A-A**



**DETAIL 1**  
(SEE SHT. CS-10 & CS-11 FOR LOCATION)  
(LOOKING SOUTH) SCALE 1" = 1'-0"



**DETAIL 5**  
(CATENARY HARDWARE SUPPORT)  
(SEE SHT. CS-10 & CS-11 FOR LOCATION)



**SECTION S-S**

**SECTION T-T**

REVISIONS	
NAME	DATE

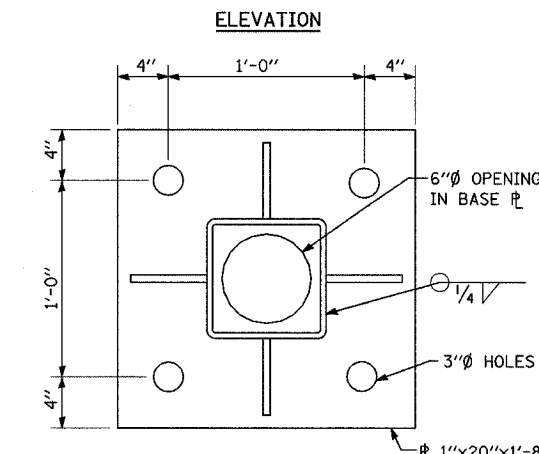
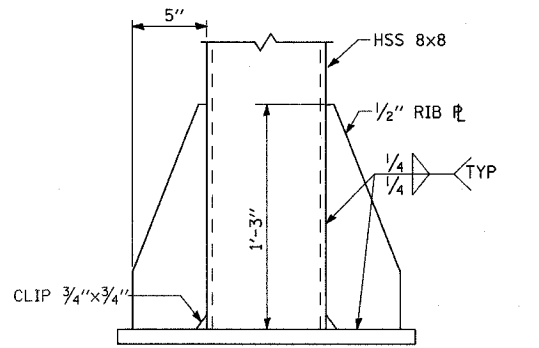
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST  
**CATENARY STRUCTURES  
BRIDGE STRUCTURE  
DETAILS**

SHT. CS-14 OF CS-17  
DATE 2/21/2008  
DRAWN BY SOI  
CHECKED BY MAD

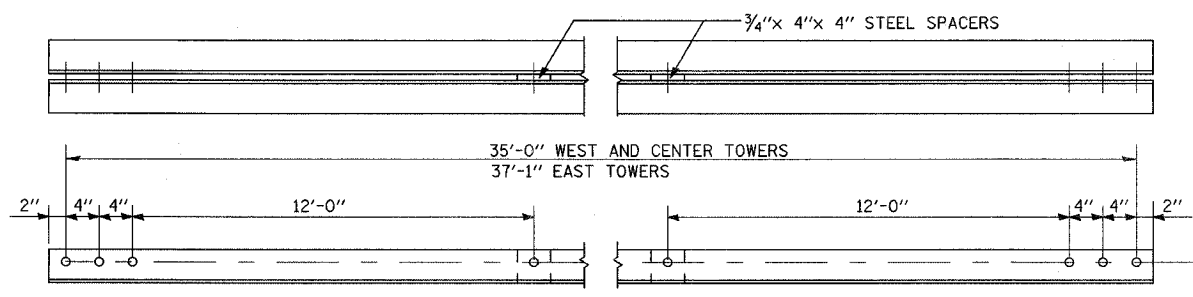
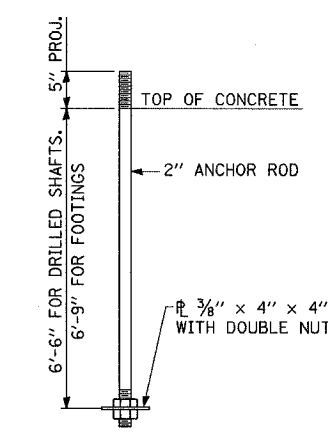
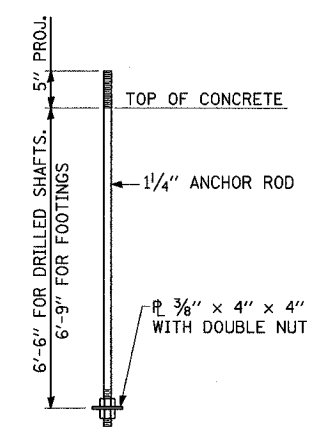
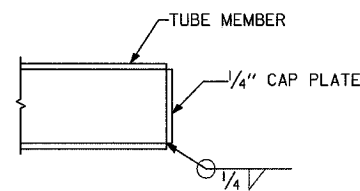
3/13/2008 2:39:21 PM

q:\17049\catenary\plans-catstructures\15.bridge&dead end details.dgn

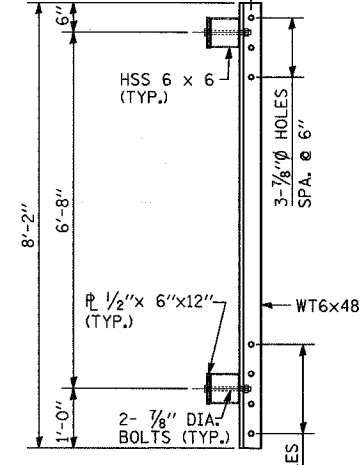
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	318
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60E10				



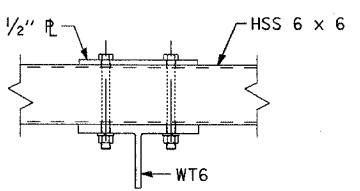
**BASE PLATE DETAILS**



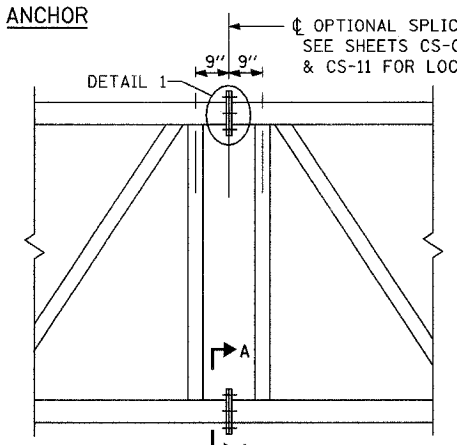
**ANCHOR**



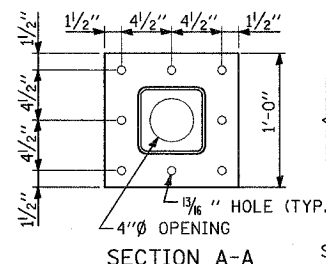
**SECTION E-E**



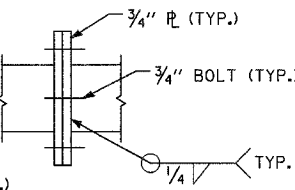
**SECTION F-F**



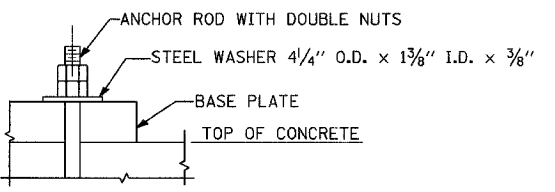
**OPTIONAL SPLICE DETAIL**



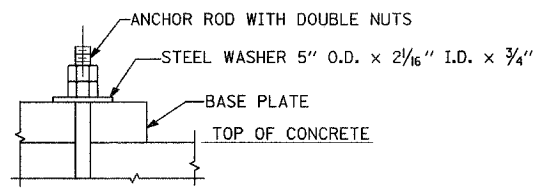
**SECTION A-A**



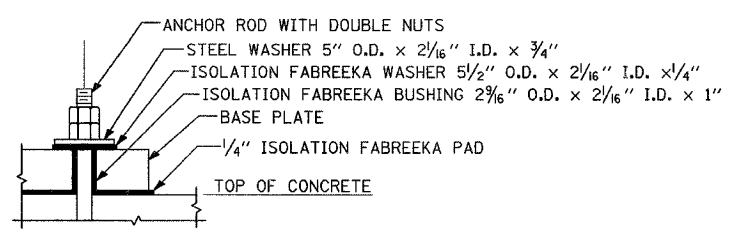
**DETAIL 1**



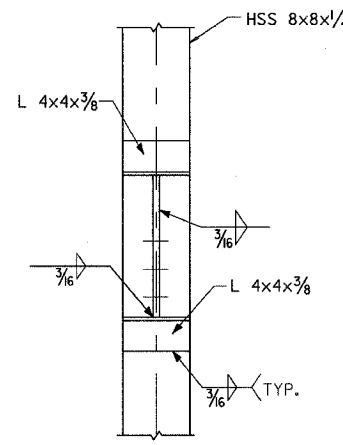
**DETAIL AT GUY ANCHOR**



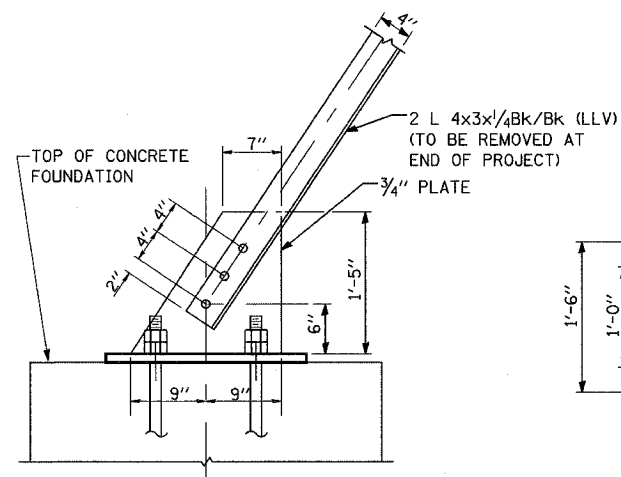
**DETAIL AT DEAD-END TOWER LEG**



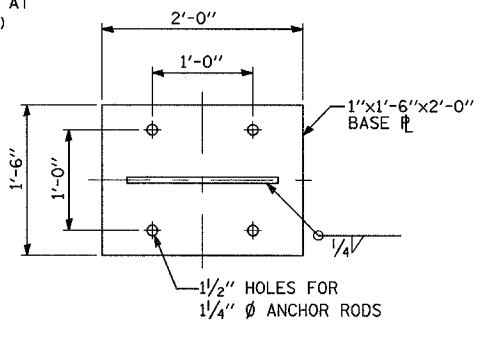
**DETAIL AT BRIDGE TOWER LEG**



**DETAIL 6**



**ELEVATION**



**PLAN**

**DETAIL 7 (STEEL BRACE ANCHORAGE)**

**GENERAL NOTES FOR CATENARY DEAD-END & BRIDGE STRUCTURES**

- HOLLOW STRUCTURAL SHAPES (HSS) SHALL CONFORM TO ASTM A500, GRADE B.
- ALL OTHER STRUCTURAL SHAPES AND PLATES SHALL CONFORM TO ASTM A709, GRADE 50
- BOLTS SHALL BE GALVANIZED HIGH STRENGTH BOLTS CONFORMING TO ASTM A325 WITH MATCHING LOCK NUTS. LOCK NUTS SHALL HAVE NYLON OR STEEL INSERTS.
- ANCHOR RODS, NUTS & WASHERS FOR PERMANENT STRUCTURES SHALL BE HOT-DIPPED GALVANIZED STEEL CONFORMING TO ASTM F1554, GRADE 55.
- ANCHOR RODS, NUTS & WASHERS FOR TEMPORARY STRUCTURES SHALL CONFORM TO ASTM F1554, GRADE 55.
- CONCRETE COMPRESSIVE STRENGTH, F<sub>c</sub> = 4,000 PSI.
- STEEL REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60
- VENT HOLES OF ADEQUATE SIZE SHALL BE PROVIDED ON UNDERSIDE AT EACH END OF ALL TUBULAR TRUSS MEMBERS EXCEPT CHORDS. ALL VENT HOLES SHALL BE DRILLED AND DE-BURRED.
- SEE SHEET CS-11 FOR SECTION E-E.
- SEE SHEET CS-10 & CS-11 FOR SECTION F-F.
- ALL WELDING TO BE CONTINUOUS UNLESS OTHERWISE SHOWN.
- ALL WELDING TO BE PERFORMED IN ACCORDANCE WITH CURRENT AWS D1.1 STRUCTURAL WELDING CODE AND THE STANDARD SPECIFICATIONS.
- CAP ALL ENDS OF TUBE SECTIONS WITH WELDED PLATES.
- STAIRS, LADDERS, AND RAILINGS SHALL CONFORM TO OSHA GUIDELINES.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH ST

**CATENARY STRUCTURES  
 BRIDGE & DEAD-END STRUCTURES  
 DETAILS**

SHT. CS-15 OF CS-17  
 DATE 2/21/2008

DRAWN BY SOI  
 CHECKED BY DEM

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	319
STA.	TO STA.			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 60E10				

**BILL OF MATERIAL**

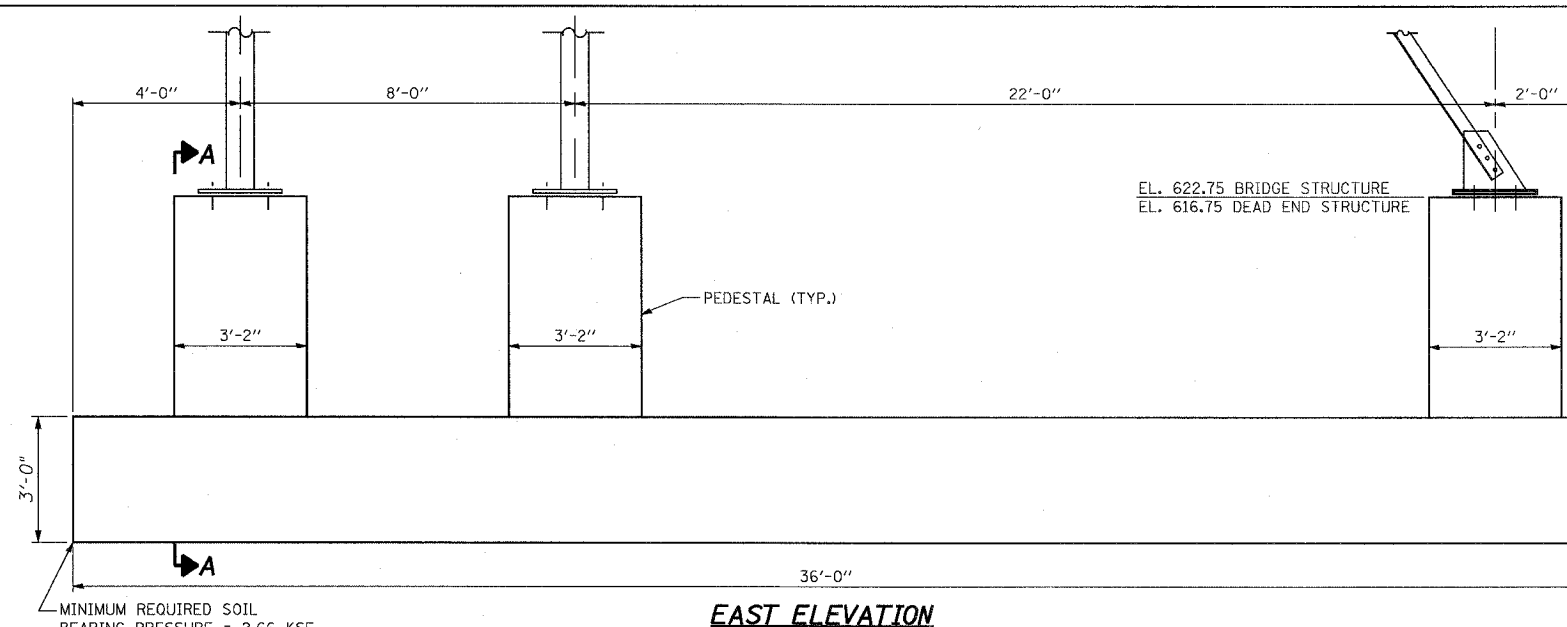
BAR	NO.	SIZE	LENGTH	SHAPE
n12(E)	36	#7	8'-6"	
n13	36	#7	7'-9"	
s1	18	#5	11'-7"	
s3(E)	18	#5	11'-7"	
t3(E)	74	#5	4'-6"	
t4	74	#5	4'-6"	
w3(E)	12	#8	35'-6"	
w4	12	#8	35'-6"	
ITEM	UNIT	QTY.		
CONCRETE STRUCTURE	CU YD	50.9		
REINFORCEMENT BARS,	POUND	2270		
REINFORCEMENT BARS,	POUND	2330		
EPOXY COATED				
BRACED EXCAVATION	CU YD	160.0		

**BENDING DIMENSIONS**

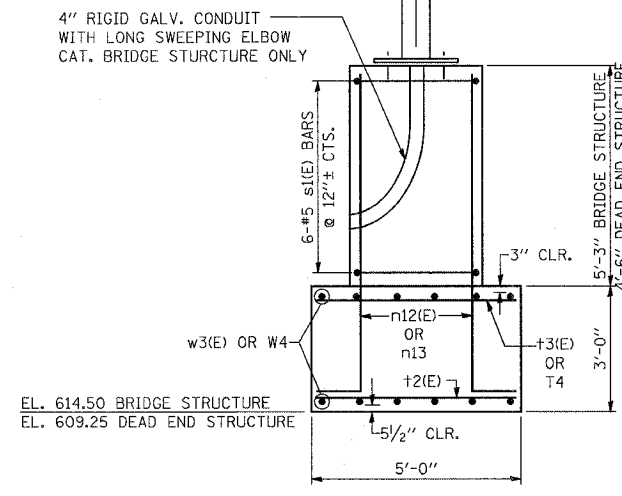
STRUCTURE	BAR	"A"
BRIDGE	n12(E)	7'-4"
DEAD END	n13	6'-7"

3/13/2008 5:11:38 PM

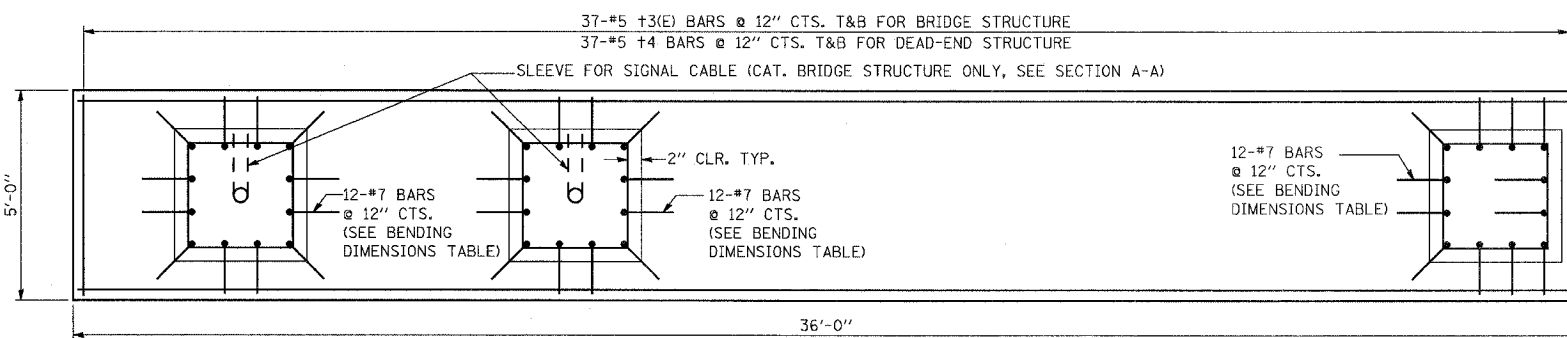
q:\17049\catenary\plans-catstructures\16\_bridges & dead end footing details.dgn



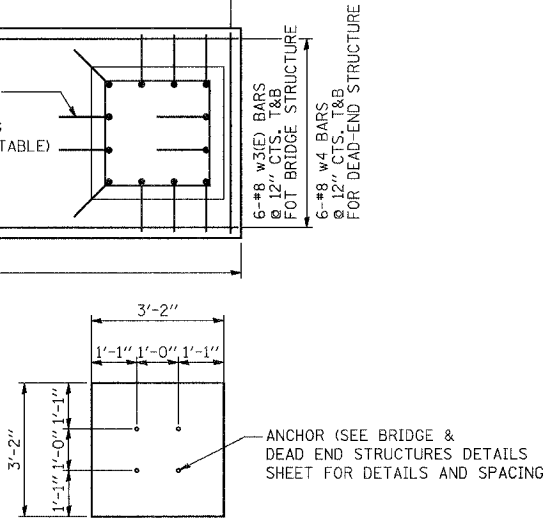
**EAST ELEVATION**



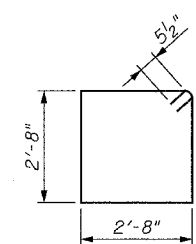
**SECTION A-A**



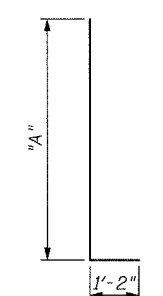
**PLAN**



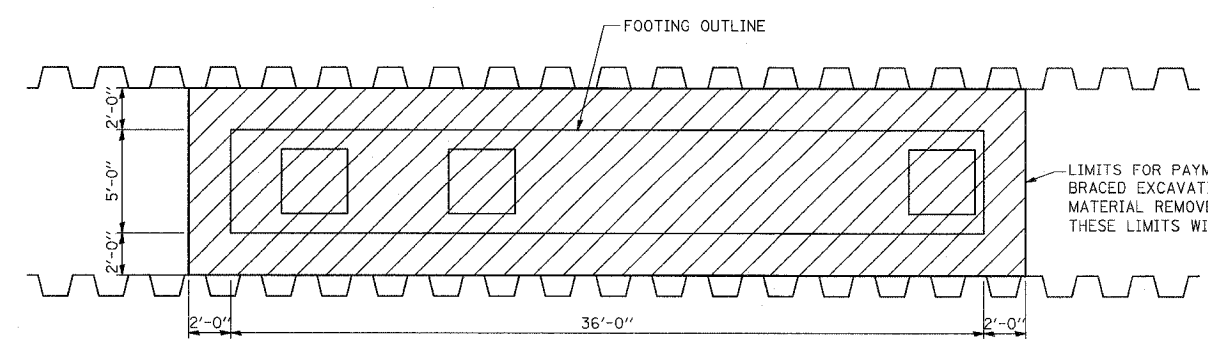
**PEDESTAL PLAN**



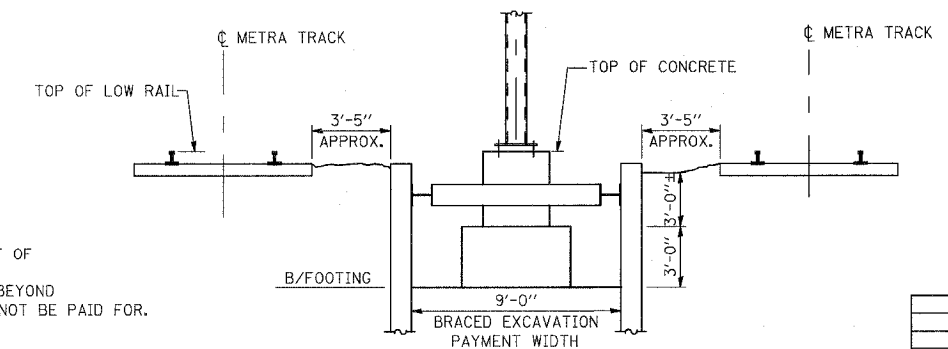
**s1 & S3(E) BARS**



**n12(E) & n13 BARS**



**EXCAVATION PLAN**



**SECTION THROUGH EXCAVATION**

NOTE:  
THE FOUNDATIONS FOR ALL TEMPORARY STRUCTURES SHALL BE REMOVED TO AN ELEVATION TWO FEET BELOW THE BOTTOM OF TIE ELEVATION FOR ANY PERMANENT OR TEMPORARY TRACKS TO BE LOCATED WITHIN 20 FEET OF THE FOUNDATION.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST

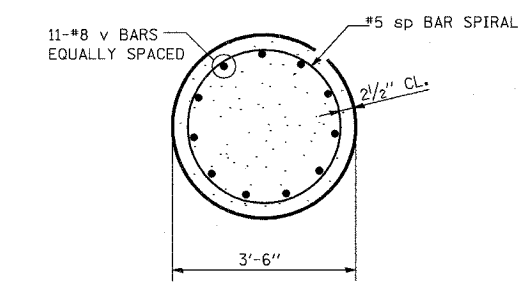
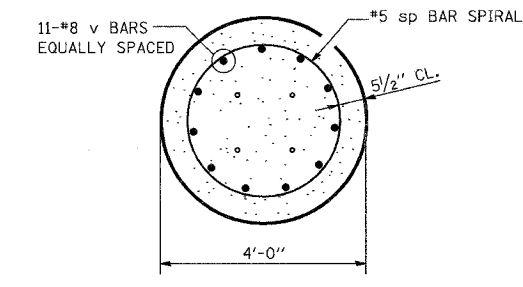
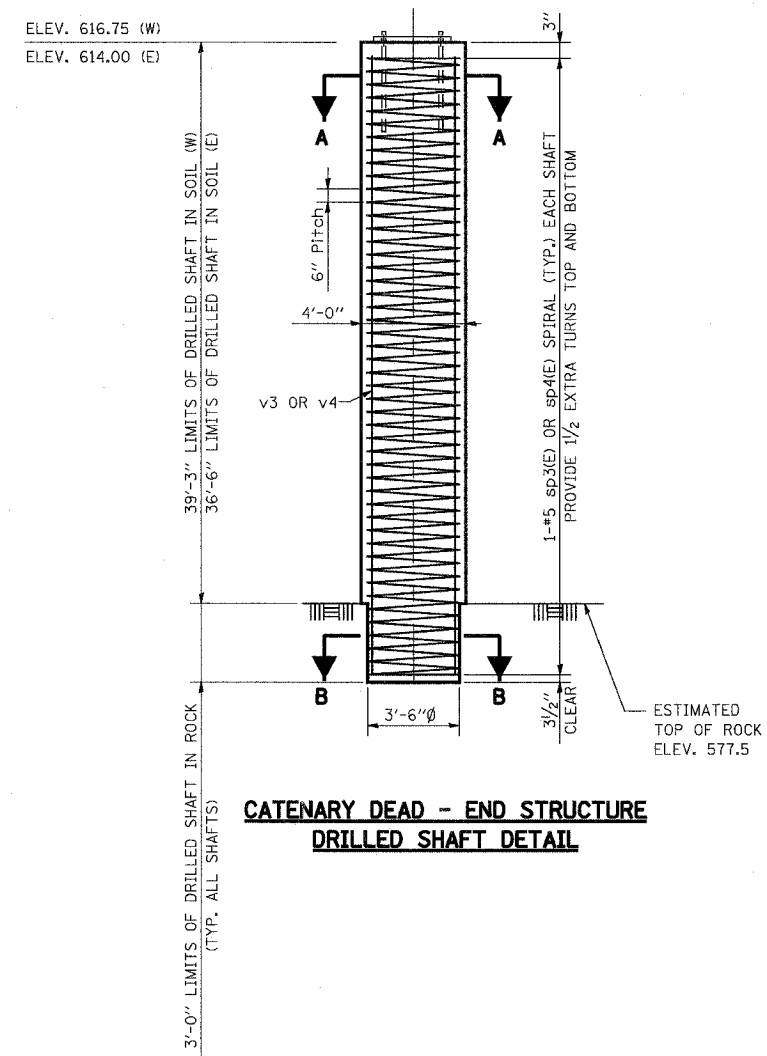
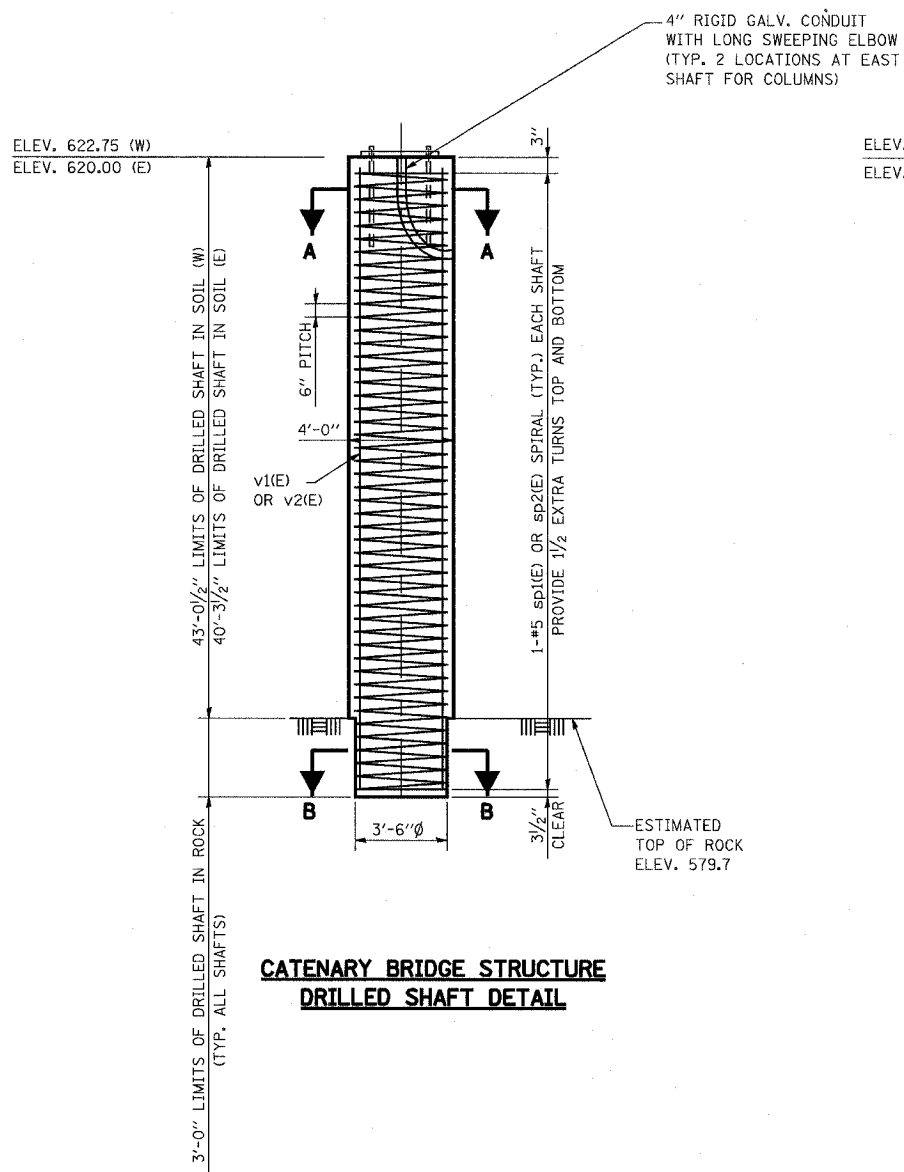
**CATENARY STRUCTURES  
BRIDGE & DEAD-END STRUCTURES  
FOOTING DETAILS**

SHT. CS-16 OF CS-17      DRAWN BY PMV  
DATE 2/21/2008      CHECKED BY MAD

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
F.A.P. 351	2008-001VB	COOK	579	320
STA.	TO STA.			
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 60E10				

3/13/2008 5:49:03 PM

Q:\17049\069\catenary\Plans-CatStructures\17 Drilled Shafts.dgn



**BILL OF MATERIAL**

BAR	NO.	SIZE	LENGTH	SHAPE
sp1(E)	3	#5	45'-6"	WWW
sp2(E)	3	#5	42'-9"	WWW
sp3	3	#5	41'-8"	WWW
sp4	3	#5	39'-11"	WWW
v1(E)	33	#8	45'-6"	---
v2(E)	33	#8	42'-9"	---
v3	33	#8	41'-8"	---
v4	33	#8	39'-11"	---
<b>ITEM</b>		<b>UNIT</b>	<b>QUANTITY</b>	
DRILLED SHAFT IN SOIL		Cu. Yd.	222	
DRILLED SHAFT IN ROCK		Cu. Yd.	13	
REINFORCEMENT BARS		Pound	12,320	
REINFORCEMENT BARS, EPOXY COATED		Pound	13,310	

**NOTES:**

- TOPS OF THE DRILLED SHAFTS SHALL BE FLAT AND LEVEL.
- LENGTH OF SPIRAL GIVEN IS HEIGHT OF SPIRAL. WEIGHT INCLUDES WEIGHT OF SPACERS FOR SPIRAL.
- DRILLED SHAFTS SHALL BE DRILLED TO ELEVATION SHOWN. QUANTITIES AND DETAILING ARE FOR THE ESTIMATED ELEVATIONS SHOWN ON THE PLANS THE ACTUAL CONDITIONS ENCOUNTERED IN EACH SHAFT MAY DIFFER AND THE DRILLED SHAFT AND REINFORCEMENT QUANTITIES SHALL BE ADJUSTED ACCORDINGLY AS DIRECTED BY THE ENGINEER AND PAID FOR AT THE CORRESPONDING UNIT BID PRICE.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH ST

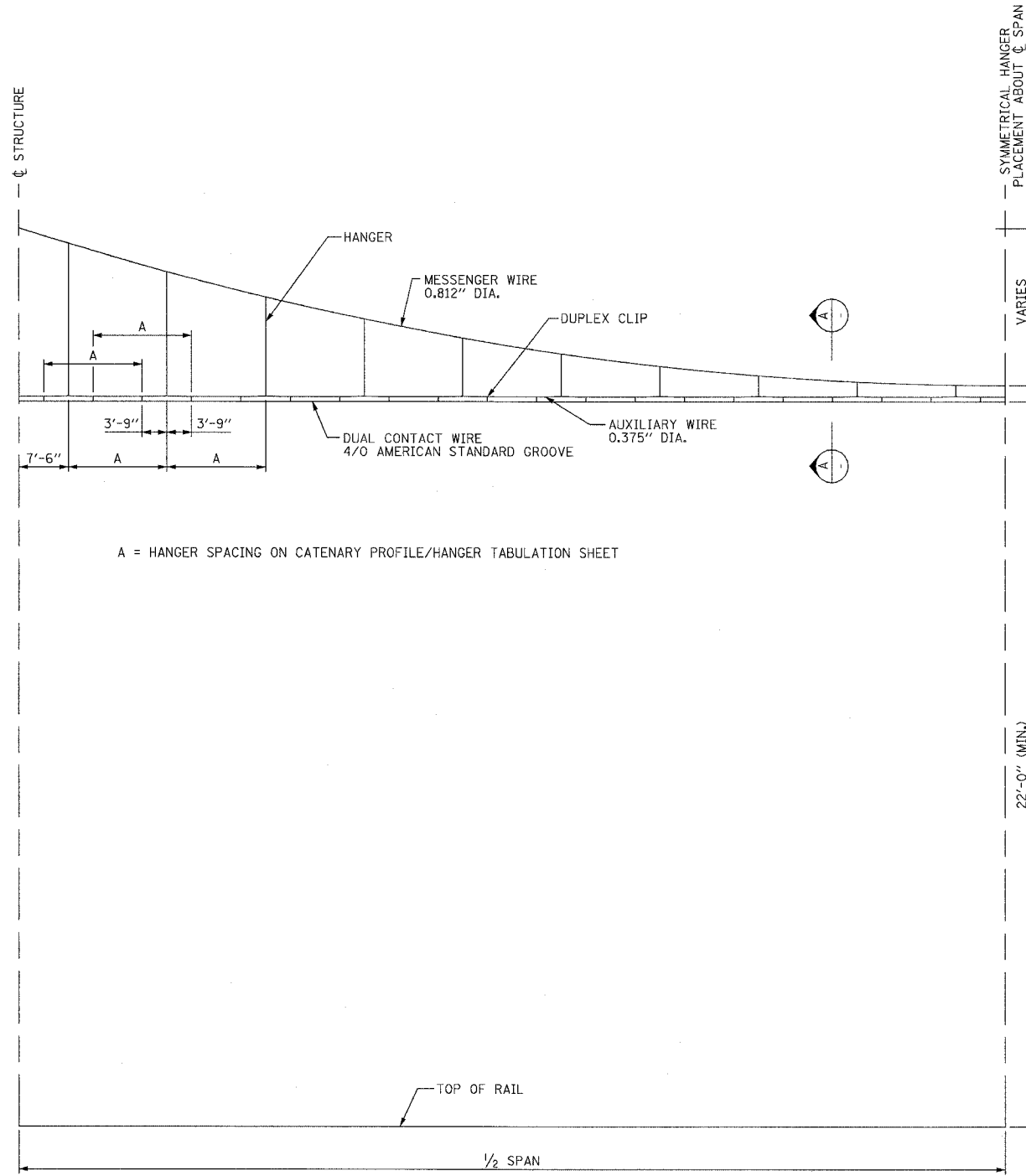
**CATENARY STRUCTURES  
BRIDGE & DEAD-END STRUCTURES  
DRILLED SHAFT DETAILS**

SHT. CS-17 OF CS-17      DRAWN BY DRS  
DATE 2/21/2008      CHECKED BY MAD

3/13/2008 2:39:23 PM

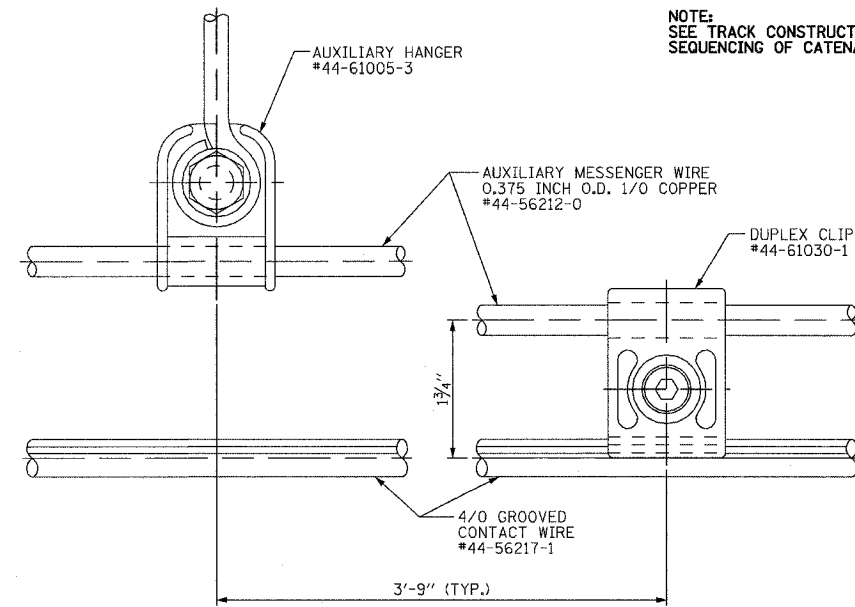
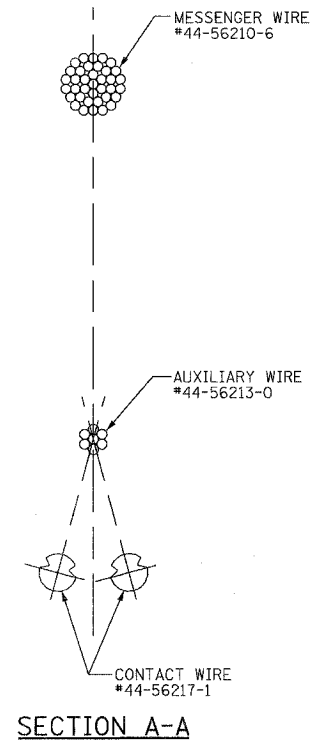
q:\17049\catenary\plans-cathardware\01 typical catenary span.dgn

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	321
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



A = HANGER SPACING ON CATENARY PROFILE/HANGER TABULATION SHEET

**TYPICAL CATENARY SPAN  
HEAVY CONSTRUCTION  
TYPICAL SPAN WITH HANGER SPACING LESS THAN 15 FEET**



**TYPICAL HANGER ARRANGEMENT**

**INDEX OF DRAWINGS FOR  
CATENARY HARDWARE**

SHT. NO.	SHEET TITLE
CH-01	TYPICAL CATENARY SPAN
CH-02	PROFILE/HANGER TABULATION
CH-03	DETAILS SHEET 1
CH-04	DETAILS SHEET 2
CH-05	DETAILS SHEET 3
CH-06	CATENARY & SIGNAL SUPP. STR. #1
CH-07	CATENARY SUPP. STR. #2 - TEMP. CONFIG.
CH-08	CATENARY SUPP. STR. #2 - PERM. CONFIG.
CH-09	TEMP. CATENARY SUPP. STR. #3
CH-10	PERM. CATENARY SUPP. STR. #3A
CH-11	TEMP. CATENARY SUPP. STR. #4
CH-12	TEMP. CATENARY SUPP. STR. #5
CH-13	TEMP. CATENARY SUPP. STR. #6
CH-14	TEMP. CATENARY SUPP. STR. #7
CH-15	TEMP. CATENARY SUPP. STR. #8
CH-16	TEMP. CATENARY SUPP. STR. #9
CH-17	PERM. CATENARY SUPP. STR. #9A
CH-18	TEMP. CATENARY SUPP. STR. #10
CH-19	CATENARY SUPP. STR. #11 - TEMP. CONFIG.
CH-20	CATENARY SUPP. STR. #11 - PERM. CONFIG.

NOTE:  
SEE TRACK CONSTRUCTION STAGING PLANS FOR  
SEQUENCING OF CATENARY HARDWARE CONSTRUCTION.

NOTE:  
PART NUMBERS SHOWN AS #44-XXXXX-X  
ARE METRA PART NUMBERS.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

**CATENARY HARDWARE  
TYPICAL CATENARY SPAN**

SHT. CH-01 OF CH-20  
DATE 2/21/2008  
DRAWN BY PMV  
CHECKED BY DEY

3/13/2008 2:39:23 PM

q:\17049\catenary\plans-cathardware\02\_profile-hanger\_tab.dgn

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	322
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				

**TEMPORARY RUN-AROUND - TRACKS 1 & 2**

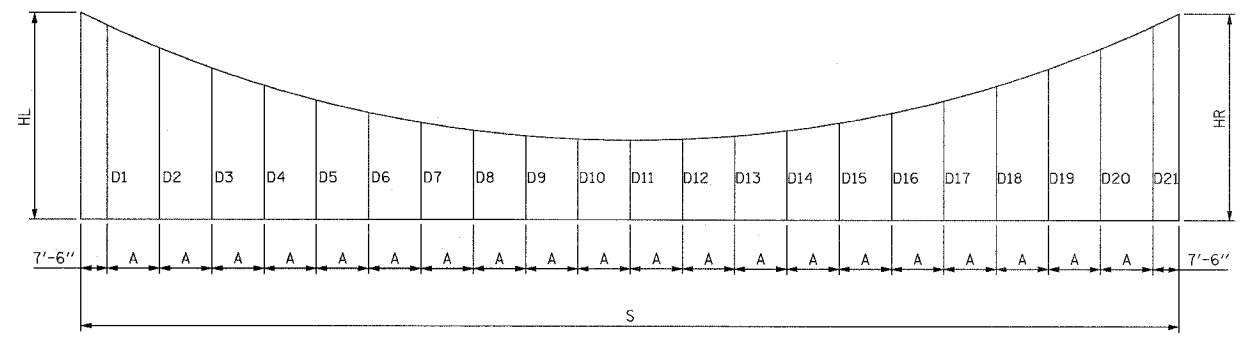
STRUCTURE	NUMBER OF HANGERS	A	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	HL	S	HR
Ex. 20.51 & 1	16	14'-4.75"	4'-11"	4'-2"	3'-5.75"	2'-10.75"	2'-4.75"	1'-11.5"	1'-7.5"	1'-4.5"	1'-2.5"	1'-1.5"	1'-1.5"	1'-2.5"	1'-4.75"	1'-7.75"	1'-11.75"	2'-5"	2'-11.25"	3'-6.25"	4'-2.5"	-	-	5'-4.25"	274'-1.25"	4'-7"
1 & 2	15	13'-11"	4'-1.75"	3'-6.75"	3'-0.5"	2'-7.5"	2'-3.25"	2'-0"	1'-9.75"	1'-8.5"	1'-8"	1'-8.5"	1'-10"	2'-0.5"	-	-	-	-	-	-	-	-	-	4'-7"	167'-11.75"	2'-3.5"
2 & 3	12	14'-5.5"	2'-1"	1'-8.5"	1'-5.25"	1'-3"	1'-1.75"	1'-1.5"	1'-2.5"	1'-4.25"	1'-7.25"	1'-11"	2'-4"	2'-10"	-	-	-	-	-	-	-	-	-	2'-3.5"	174'-0.25"	3'-1.25"
3 & 4	15	14'-3.5"	2'-10.5"	2'-5.75"	2'-2"	1'-11.25"	1'-9.5"	1'-8.75"	1'-9.25"	1'-10.5"	2'-0.75"	2'-4"	2'-8.25"	3'-1.5"	3'-8"	4'-3.25"	4'-11.5"	-	-	-	-	-	-	3'-1.25"	215'-0"	5'-4.25"
4 & 5	20	15'-0"	4'-10.75"	4'-1"	3'-4"	2'-8.25"	2'-1.75"	1'-8.25"	1'-3.75"	1'-0.5"	0'-10.25"	0'-9.25"	0'-9.25"	0'-10.25"	1'-0.5"	1'-3.75"	1'-8.25"	2'-1.75"	2'-8.25"	3'-4"	4'-1"	4'-10.75"	-	5'-4.25"	300'-0"	5'-4.25"
5 & 6	12	14'-5.25"	4'-11.5"	4'-3.25"	3'-8.25"	3'-2"	2'-9"	2'-5"	2'-2"	1'-12"	1'-11"	1'-11"	1'-12"	2'-2"	-	-	-	-	-	-	-	-	-	5'-4.25"	173'-9.75"	2'-3.5"
6 & 7	12	14'-5.75"	2'-1.25"	1'-9.75"	1'-7"	1'-5.5"	1'-5"	1'-5.5"	1'-7"	1'-1"	1'-1"	1'-1"	2'-5.75"	2'-11.25"	3'-6"	-	-	-	-	-	-	-	-	2'-3.5"	174'-2.25"	3'-9.75"
7 & 8	17	14'-4.25"	3'-5.5"	2'-9.75"	2'-3.25"	1'-9.75"	1'-5"	1'-5"	0'-11"	0'-9.5"	0'-9"	0'-9.5"	0'-11"	1'-1.5"	1'-5"	1'-9.75"	2'-3.25"	2'-9.75"	3'-5.5"	-	-	-	-	3'-9.75"	244'-9"	3'-9.75"
8 & 9	12	14'-9"	2'-9.5"	2'-3.5"	1'-10.5"	1'-6.5"	1'-3.5"	1'-1.75"	1'-1"	1'-1.5"	1'-2.75"	1'-5.25"	1'-9"	2'-1.5"	-	-	-	-	-	-	-	-	-	3'-9.75"	177'-3"	3'-1"
9 & 10	15	14'-2.5"	2'-9.25"	2'-2.75"	1'-9.5"	1'-5"	1'-1.5"	0'-11"	0'-9.5"	0'-9"	0'-9.5"	0'-11"	1'-1.5"	1'-5"	1'-9.5"	2'-2.75"	2'-9.25"	-	-	-	-	-	-	3'-1"	214'-0"	3'-1"
10 & 11	9	14'-4.5"	2'-9.25"	2'-4"	1'-11.5"	1'-8"	1'-5.75"	1'-4.25"	1'-3.75"	1'-4.5"	1'-6"	-	-	-	-	-	-	-	-	-	-	-	-	3'-1"	130'-0"	1'-7.75"
11 & Ex. 20.95	9	14'-9"	1'-8"	1'-9"	1'-11.25"	2'-2.25"	2'-6.5"	2'-12"	3'-6.25"	4'-1.75"	4'-10.25"	-	-	-	-	-	-	-	-	-	-	-	-	1'-7.75"	133'-0"	5'-3"

**FINAL ALIGNMENT TRACK 1**

STRUCTURE	NUMBER OF HANGERS	A	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	HL	S	HR	
20.51 & 1	16	14'-0.75"	4'-11.5"	4'-3.25"	3'-7.75"	3'-1.5"	2'-8"	2'-3.75"	2'-0.25"	1'-9.75"	1'-8.25"	1'-7.75"	1'-8.25"	1'-9.75"	2'-0"	2'-3.5"	2'-7.75"	3'-1"	-	-	-	-	-	-	5'-4.25"	225'-11"	3'-4.25"
1 & 2	15	14'-4.25"	2'-10.75"	2'-5.75"	2'-1.75"	1'-10.75"	1'-8.75"	1'-7.75"	1'-8"	1'-9"	1'-11.25"	2'-2.25"	2'-6.5"	2'-11.5"	3'-5.75"	4'-1"	4'-9"	-	-	-	-	-	-	-	3'-4.25"	216'-0.5"	5'-4.5"
2 & 3A	21	14'-3.25"	4'-11"	4'-1.5"	3'-5"	2'-9.5"	2'-3"	1'-9.5"	1'-5"	1'-1.5"	0'-11"	0'-9.5"	0'-9"	0'-9.5"	0'-11"	1'-1.5"	1'-5"	1'-9.5"	2'-3"	2'-9.5"	3'-5"	4'-1.5"	4'-11"	5'-4.5"	300'-6"	5'-4.5"	
3A & 20.68	11	14'-3"	1'-9.75"	1'-5.25"	1'-1.75"	0'-11.25"	0'-9.75"	0'-9.25"	0'-9.75"	0'-11.25"	1'-1.5"	1'-5"	1'-9.5"	-	-	-	-	-	-	-	-	-	-	-	5'-4.5"	157'-5"	5'-4"
20.68 & 20.73	20	14'-12"	5'-0.25"	4'-2.25"	3'-5.25"	2'-9.5"	2'-2.75"	1'-9.25"	1'-4.75"	1'-1.5"	0'-11"	0'-10"	0'-9.75"	0'-11"	1'-1"	1'-4.25"	1'-8.5"	2'-2"	2'-8.5"	3'-4.25"	4'-1"	4'-10.75"	-	5'-4"	299'-11.5"	5'-2.5"	
20.73 & 20.79	21	14'-4.5"	5'-1.25"	4'-3.5"	3'-6.75"	2'-11"	2'-4.5"	1'-10.75"	1'-6.25"	1'-2.5"	0'-12"	0'-10.25"	0'-9.75"	0'-10.25"	0'-11.75"	1'-2"	1'-5.5"	1'-10"	2'-3.5"	2'-10"	3'-5.75"	4'-2.25"	4'-11.75"	5'-2.5"	302'-5"	5'-1"	
20.79 & 20.84	19	14'-10.5"	5'-1.25"	4'-3.5"	3'-7"	2'-11.5"	2'-5"	1'-11.75"	1'-7.5"	1'-4.25"	1'-2.25"	1'-1.25"	1'-1.25"	1'-2.5"	1'-4.75"	1'-8.25"	2'-0.5"	2'-6"	3'-0.75"	3'-8.5"	4'-5.25"	-	-	5'-1"	282'-8"	4'-4.5"	
20.84 & 9A	13	14'-6.25"	2'-4"	1'-10.25"	1'-5.5"	1'-2"	0'-11.25"	0'-9.75"	0'-9.25"	0'-9.75"	0'-11.25"	1'-1.75"	1'-5.25"	1'-10"	2'-3.75"	-	-	-	-	-	-	-	-	-	4'-4.5"	189'-2.25"	4'-4.25"
9A & 11	18	14'-8.75"	3'-11.5"	3'-3"	2'-7.5"	2'-1"	1'-7.75"	1'-3.5"	1'-0.25"	0'-10.25"	0'-9.25"	0'-9.25"	0'-10.25"	1'-0.25"	1'-3.5"	1'-7.75"	2'-1"	2'-7.5"	3'-3"	3'-11.5"	-	-	-	4'-4.25"	265'-2.75"	4'-4.25"	
11 & 20.95	9	14'-9"	1'-6.25"	1'-3.5"	1'-2.25"	1'-1.75"	1'-2.5"	1'-4.25"	1'-7"	1'-10.75"	2'-3.75"	-	-	-	-	-	-	-	-	-	-	-	-	4'-4.25"	133'-0"	5'-3"	

**FINAL ALIGNMENT TRACK 2**

STRUCTURE	NUMBER OF HANGERS	A	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18	D19	D20	D21	HL	S	HR	
20.51 & 1	16	14'-0.75"	4'-11.75"	4'-3.5"	3'-8"	3'-1.75"	2'-8.25"	2'-4"	2'-0.5"	1'-10"	1'-8.5"	1'-8"	1'-8.25"	1'-9.75"	2'-0.25"	2'-3.5"	2'-7.75"	3'-1"	-	-	-	-	-	-	5'-4.5"	225'-11"	3'-4.25"
1 & 2	15	14'-4.25"	2'-10.75"	2'-5.75"	2'-1.75"	1'-10.75"	1'-8.75"	1'-7.75"	1'-8"	1'-9"	1'-11.25"	2'-2.25"	2'-6.5"	2'-11.5"	3'-5.75"	4'-1"	4'-9"	-	-	-	-	-	-	-	3'-4.25"	216'-0.5"	5'-4.5"
2 & 3A	21	14'-3.25"	4'-11"	4'-1.5"	3'-5"	2'-9.5"	2'-3"	1'-9.5"	1'-5"	1'-1.5"	0'-11"	0'-9.5"	0'-9"	0'-9.5"	0'-11"	1'-1.5"	1'-5"	1'-9.5"	2'-3"	2'-9.5"	3'-5"	4'-1.5"	4'-11"	5'-4.5"	300'-6"	5'-4.5"	
3A & 20.68	11	14'-3"	1'-9.5"	1'-5"	1'-1.5"	0'-11"	0'-9.5"	0'-9"	0'-9.5"	0'-11"	1'-1.5"	1'-5"	1'-9.5"	-	-	-	-	-	-	-	-	-	-	-	5'-4.5"	157'-5"	5'-4.5"
20.68 & 20.73	20	14'-12"	4'-11.25"	4'-1.25"	3'-4.5"	2'-8.75"	2'-2"	1'-8.5"	1'-4"	1'-0.75"	0'-10.5"	0'-9.5"	0'-9.5"	0'-10.5"	1'-0.75"	1'-4"	1'-8.25"	2'-1.75"	2'-8.5"	3'-4"	4'-1"	4'-10.75"	-	5'-4.5"	299'-11.5"	5'-4"	
20.73 & 20.79	21	14'-4.5"	4'-11.75"	4'-2"	3'-5.5"	2'-9.75"	2'-3.25"	1'-9.75"	1'-5"	1'-1.5"	0'-11"	0'-9.5"	0'-9"	0'-9.5"	0'-11"	1'-1.5"	1'-5"	1'-9.75"	2'-3.25"	2'-9.75"	3'-5.5"	4'-2"	4'-11.75"	5'-4"	302'-5"	5'-4"	
20.79 & 20.84	19	14'-10.5"	5'-4.25"	4'-6.25"	3'-9.5"	3'-2"	2'-7.25"	2'-1.75"	1'-9.5"	1'-6.25"	1'-4"	1'-2.75"	1'-2.75"	1'-3.75"	1'-5.75"	1'-9"	2'-1.25"	2'-6.75"	3'-1"	3'-8.75"	4'-5.25"	-	-	5'-4"	282'-8.25"	4'-4.5"	
20.84 & 9A	13	14'-6.25"	2'-4"	1'-10.25"	1'-5.5"	1'-2"	0'-11.25"	0'-9.75"	0'-9.25"	0'-9.75"	0'-11.25"	1'-1.75"	1'-5.25"	1'-10"	2'-3.75"	-	-	-	-	-	-	-	-	-	4'-4.5"	189'-2.25"	4'-4.25"
9A & 11	18	14'-8.75"	3'-11.5"	3'-3"	2'-7.5"	2'-1"	1'-7.75"	1'-3.5"	1'-0.25"	0'-10.25"	0'-9.25"	0'-9.25"	0'-10.25"	1'-0.25"	1'-3.5"	1'-7.75"	2'-1"	2'-7.5"	3'-3"	3'-11.5"	-	-	-	4'-4.25"	265'-2.75"	4'-4.25"	
11 & 20.95	9	14'-9"	1'-6.25"	1'-3.75"	1'-2.25"	1'-2"	1'-2.75"	1'-4.5"	1'-7.25"	1'-11.25"	2'-4.25"	-	-	-	-	-	-	-	-	-	-	-	-	4'-4.25"	133'-0"	5'-3.5"	



**TYPICAL CATENARY SPAN PROFILE**

**NOTES:**

1. THE DIMENSION "D" IN THE ABOVE TABLE REPRESENTS THE DISTANCE BETWEEN THE CENTERLINE OF MESSENGER TO THE BOTTOM OF CONTACT WIRE.
2. FOR DETAILS OF HANGER ASSEMBLIES, SEE DRAWING CH-03.
3. WIRE ROPE HANGERS ARE USED FOR CROSSOVERS TO ALLOW FOR FINAL ADJUSTMENT OF CONTACT WIRE AT CROSSING POINTS.
4. HANGER LENGTHS SHOWN ARE APPROXIMATE. ACTUAL LENGTHS ARE TO BE DETERMINED USING FIELD MEASUREMENTS.
5. DIMENSION "A" MUST NOT EXCEED 15'-0".

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

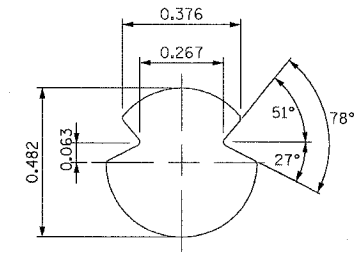
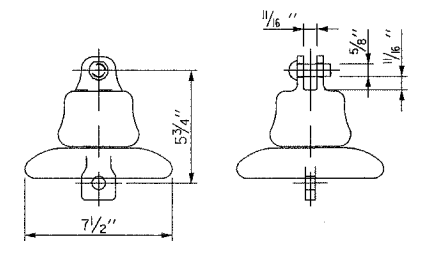
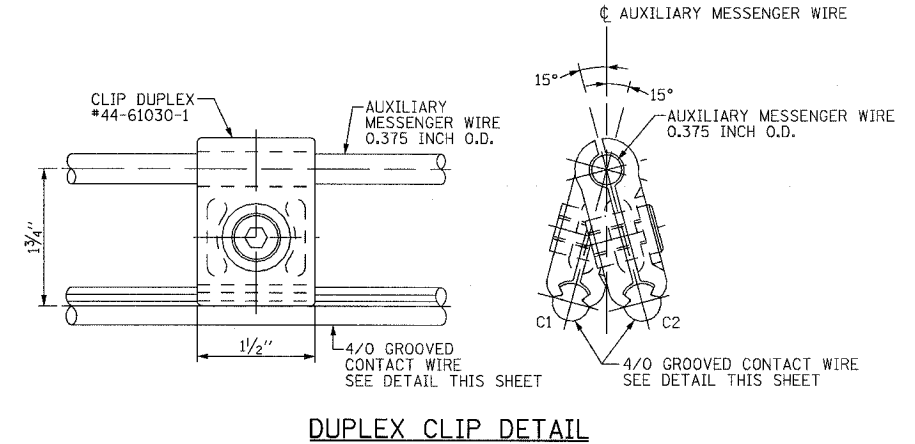
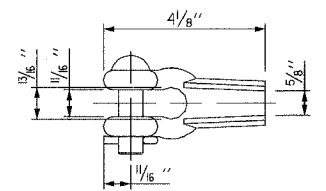
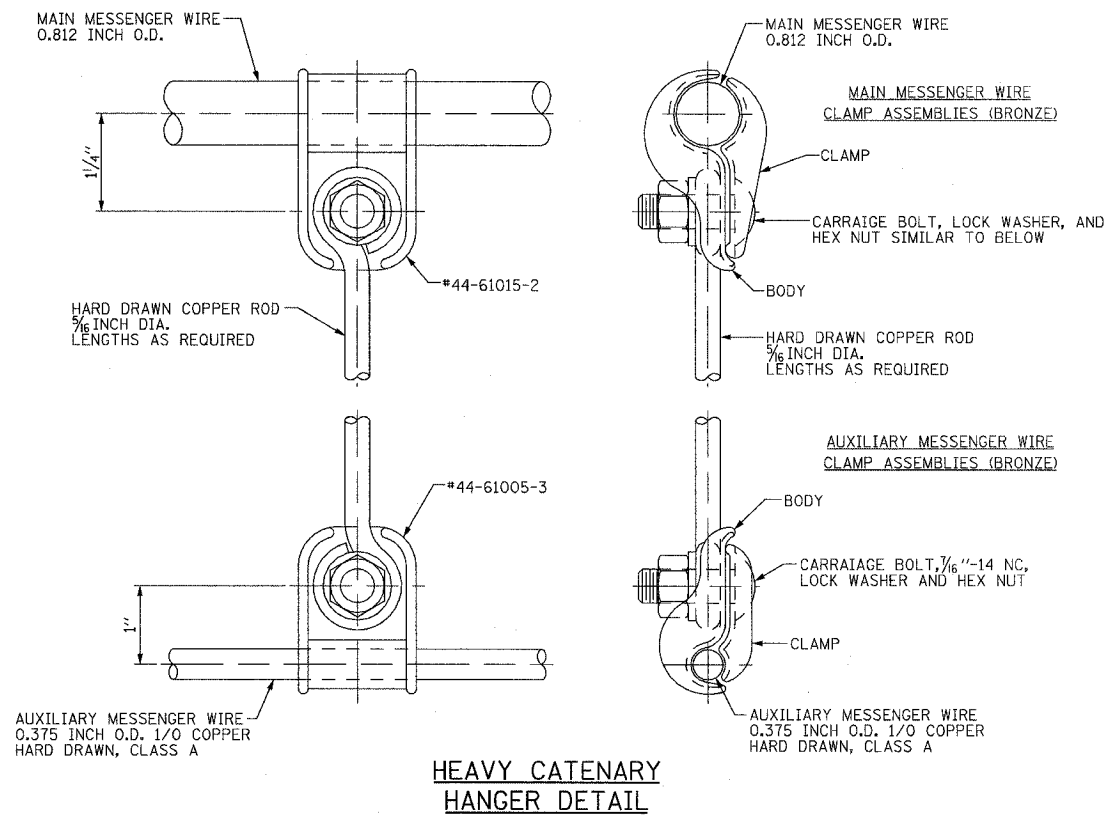
**CATENARY HARDWARE  
PROFILE/HANGER TABULATION**

SHT. CH-02 OF CH-20      DRAWN BY PMV  
DATE 2/21/2008      CHECKED BY DEY

3/13/2008 2:39:24 PM

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	323
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



NOTE:  
PART NUMBERS SHOWN AS #44-XXXX-X  
ARE METRA PART NUMBERS.

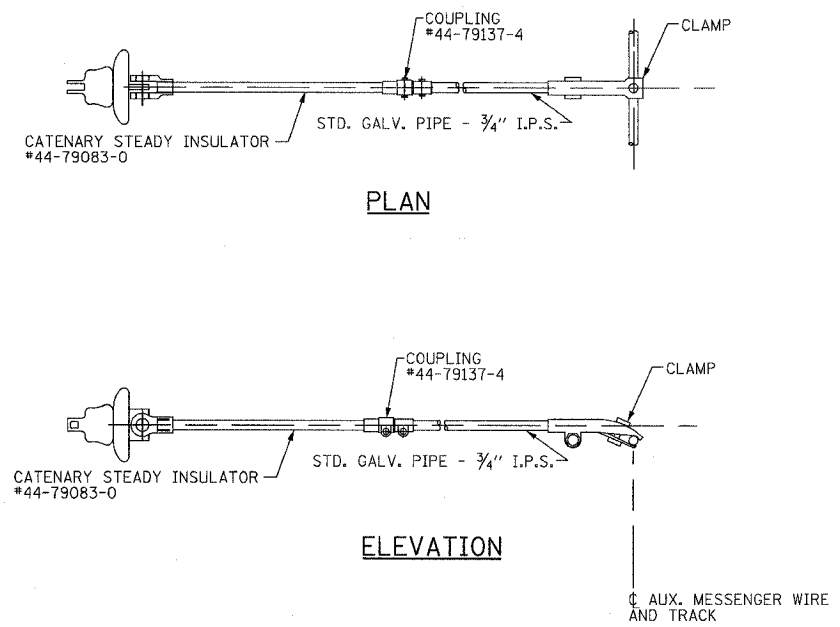
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

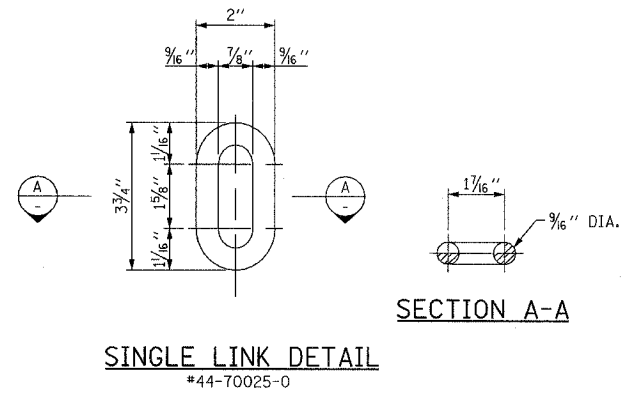
CATENARY HARDWARE  
DETAILS SHEET 1

SHT. CH-03 OF CH-20  
DATE 2/21/2008  
DRAWN BY PMV  
CHECKED BY DEY

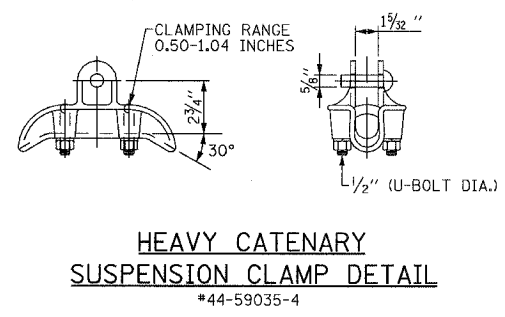
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F.A.P. 351	2008-001VB	COOK	579	324
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



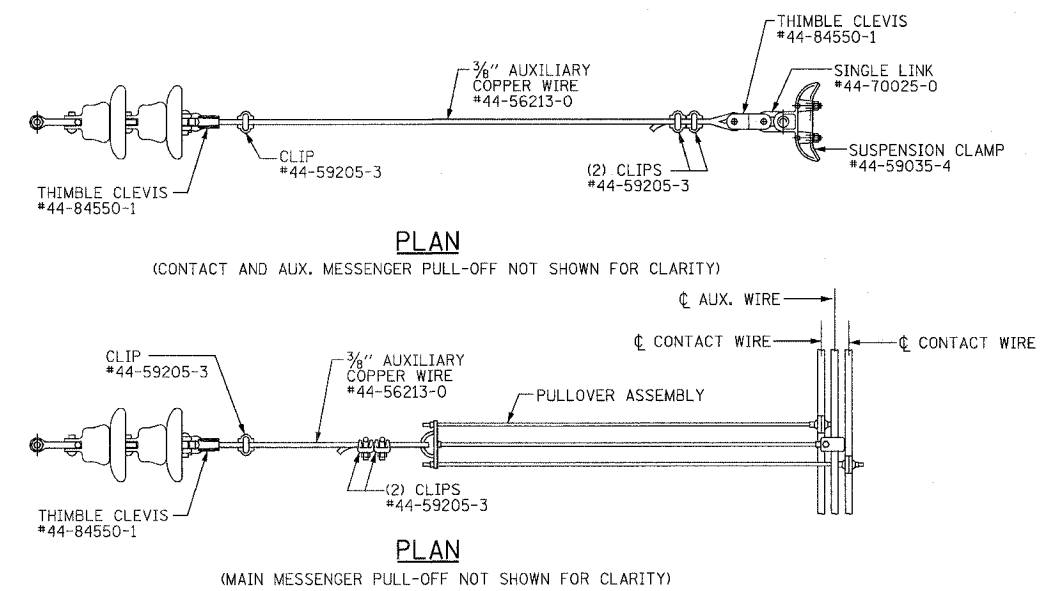
**STEADY ARM ASSEMBLY SA-1**



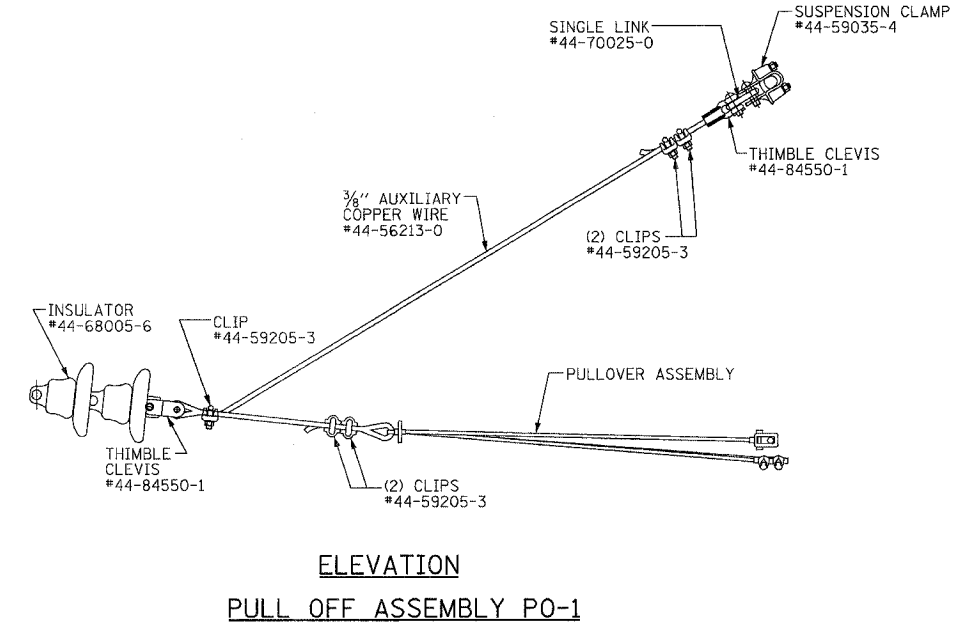
**SINGLE LINK DETAIL**  
#44-70025-0



**HEAVY CATENARY SUSPENSION CLAMP DETAIL**  
#44-59035-4



**PULL OFF ASSEMBLY PO-1**



**ELEVATION**  
**PULL OFF ASSEMBLY PO-1**

NOTE:  
PART NUMBERS SHOWN AS #44-XXXX-X  
ARE METRA PART NUMBERS.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

**CATENARY HARDWARE  
DETAILS SHEET 2**

SHT. CH-04 OF CH-20  
DATE 2/21/2008  
DRAWN BY PMV  
CHECKED BY DEY

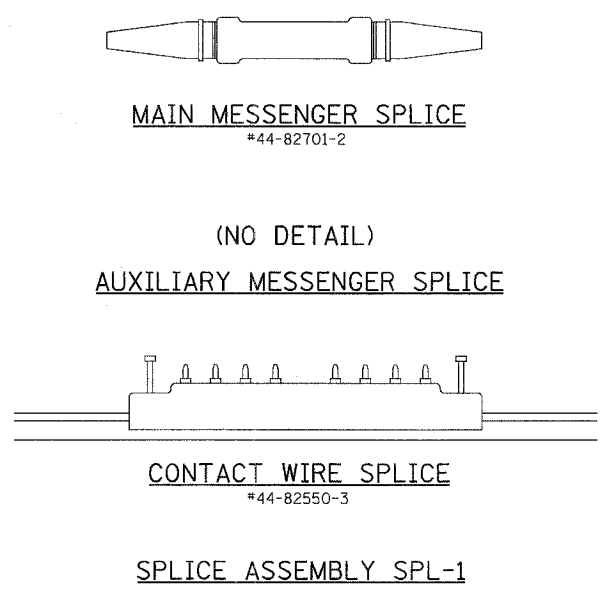
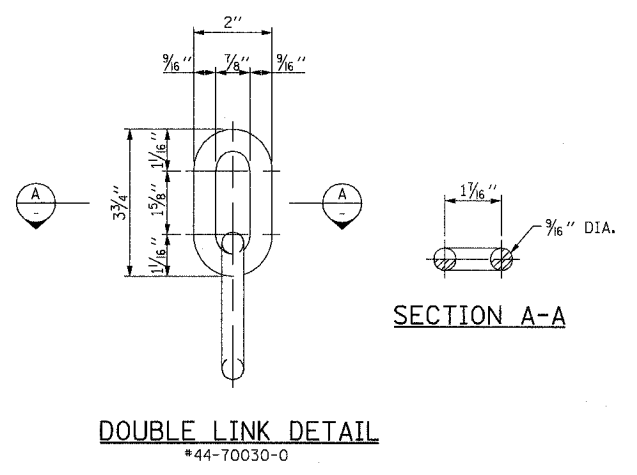
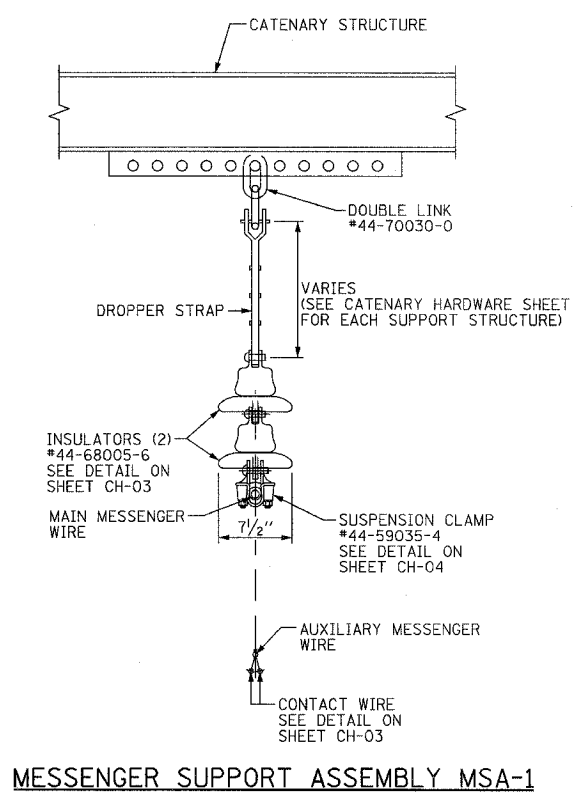
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	325
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				

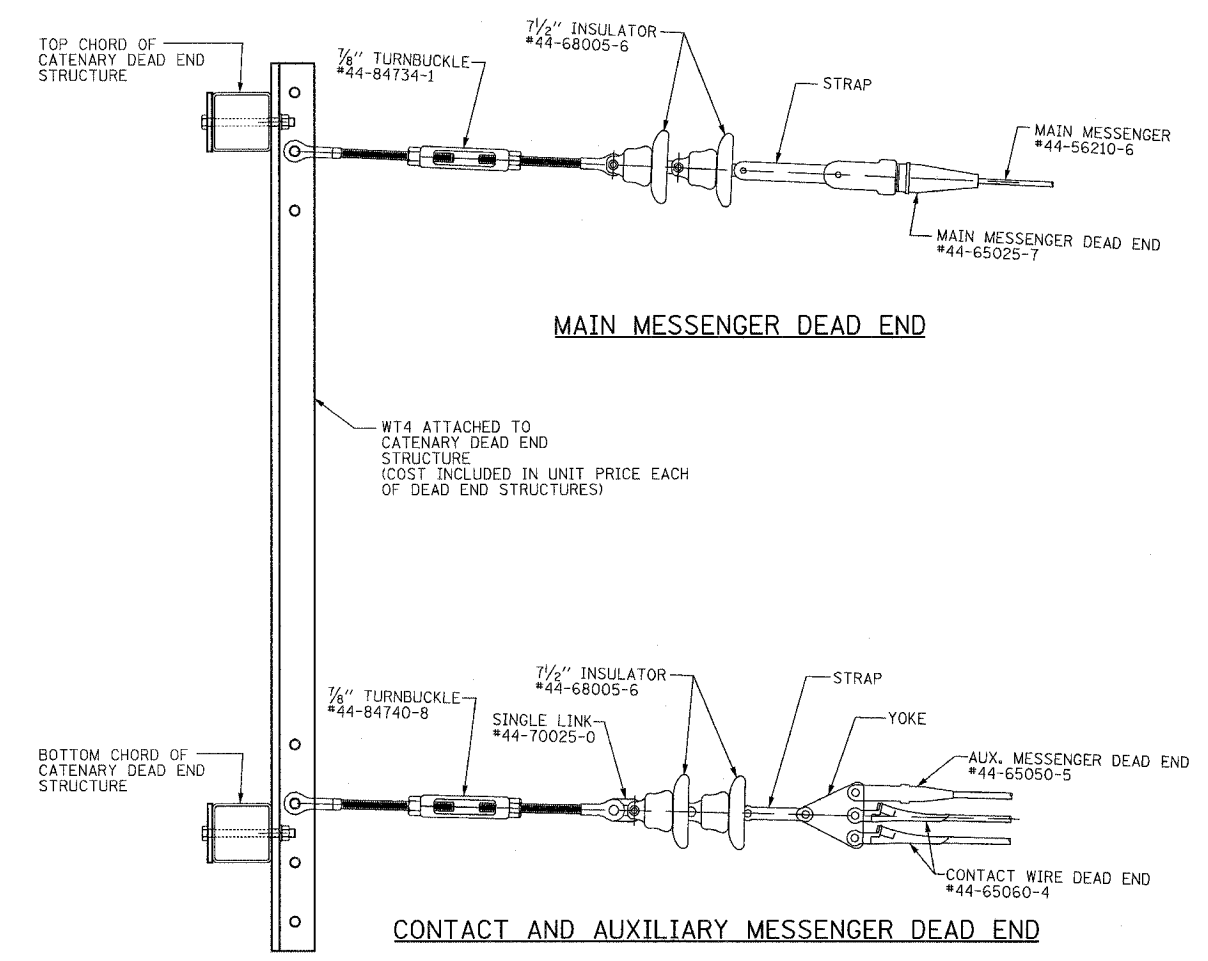
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ONE SPLICE ASSEMBLY INCLUDES:  
ONE MAIN MESSENGER SPLICE, ONE AUXILIARY MESSENGER SPLICE,  
AND TWO CONTACT WIRE SPLICES REQUIRED AT EACH LOCATION  
WHERE CATENARY SYSTEM IS TO BE SPLICED.

ONE ASSEMBLY REQUIRED AT EACH END OF THE TEMPORARY CATENARY  
SYSTEMS FOR TEMPORARY DIVERSION TRACKS 1 & 2 (FOUR LOCATIONS)  
ONE ASSEMBLY REQUIRED AT EACH END OF THE PERMANENT CATENARY  
SYSTEMS FOR PERMANENT TRACKS 1 & 2 (FOUR LOCATIONS)

TOTAL NUMBER OF LOCATIONS = 8



**DEAD END ASSEMBLY DEA-1**

TWO OF ABOVE ASSEMBLIES REQUIRED (ONE AT EACH END THE CATENARY  
SYSTEM TO BE TENSIONED AND SPLICED).  
ASSEMBLIES SHOULD BE SAVED AND REUSED IN SUBSEQUENT STAGES.

**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION
2	EACH	DEA-1	DEAD END ASSEMBLY
8	EACH	SPL-1	SPLICE ASSEMBLY

NOTE:  
PART NUMBERS SHOWN AS #44-XXXXX-X  
ARE METRA PART NUMBERS.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

**CATENARY HARDWARE  
DETAILS SHEET 3**

SHT. CH-05 OF CH-20  
DATE 2/21/2008

DRAWN BY PMV  
CHECKED BY DEY

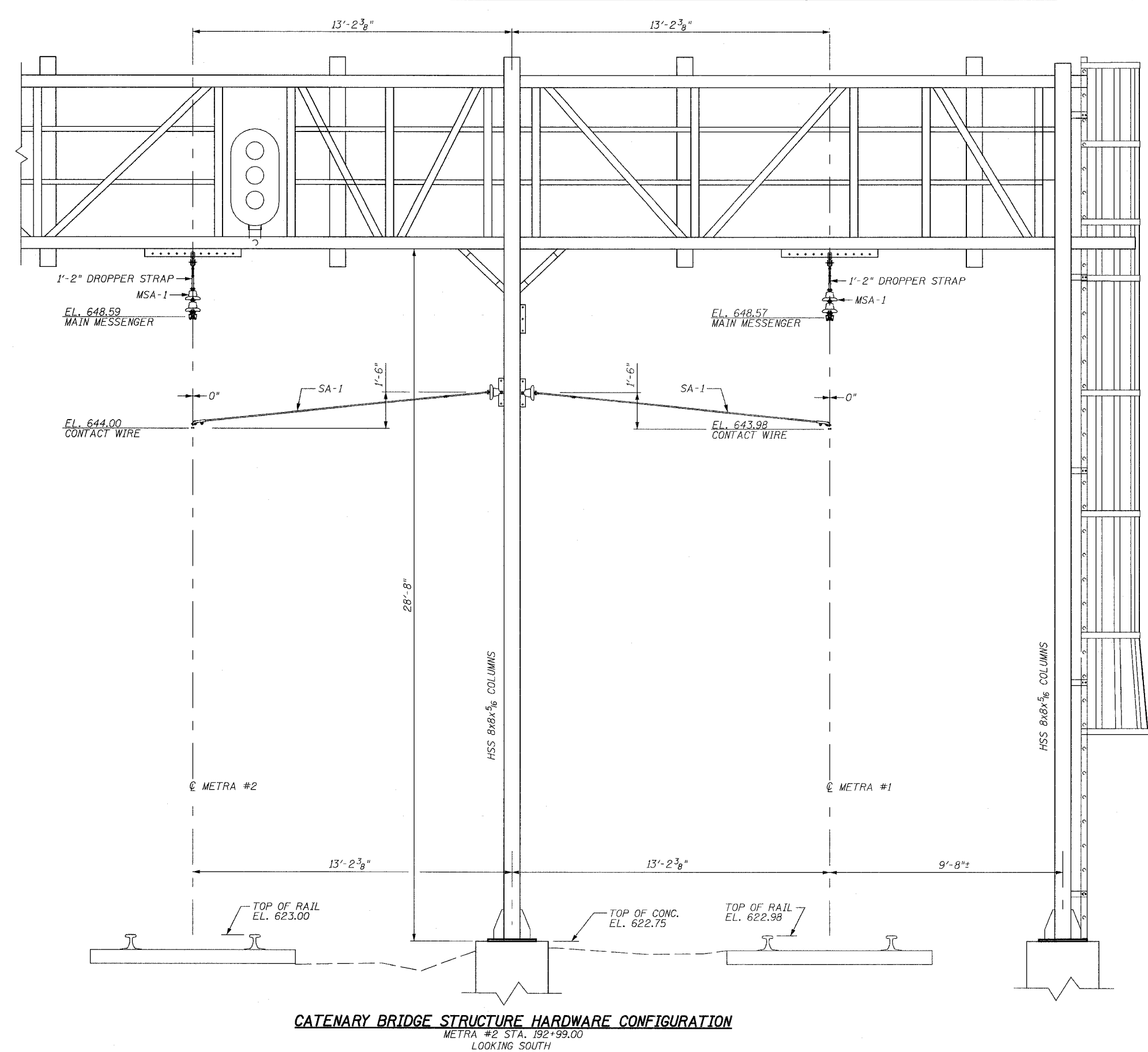
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO
F.A.P. 351	2008-001VB	COOK	579	326
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				

**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	SA-1	STEADY ARM ASSEMBLY	CH-04



**CATENARY BRIDGE STRUCTURE HARDWARE CONFIGURATION**  
 METRA #2 STA. 192+99.00  
 LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH STREET

CATENARY HARDWARE  
 CATENARY BRIDGE STRUCTURE

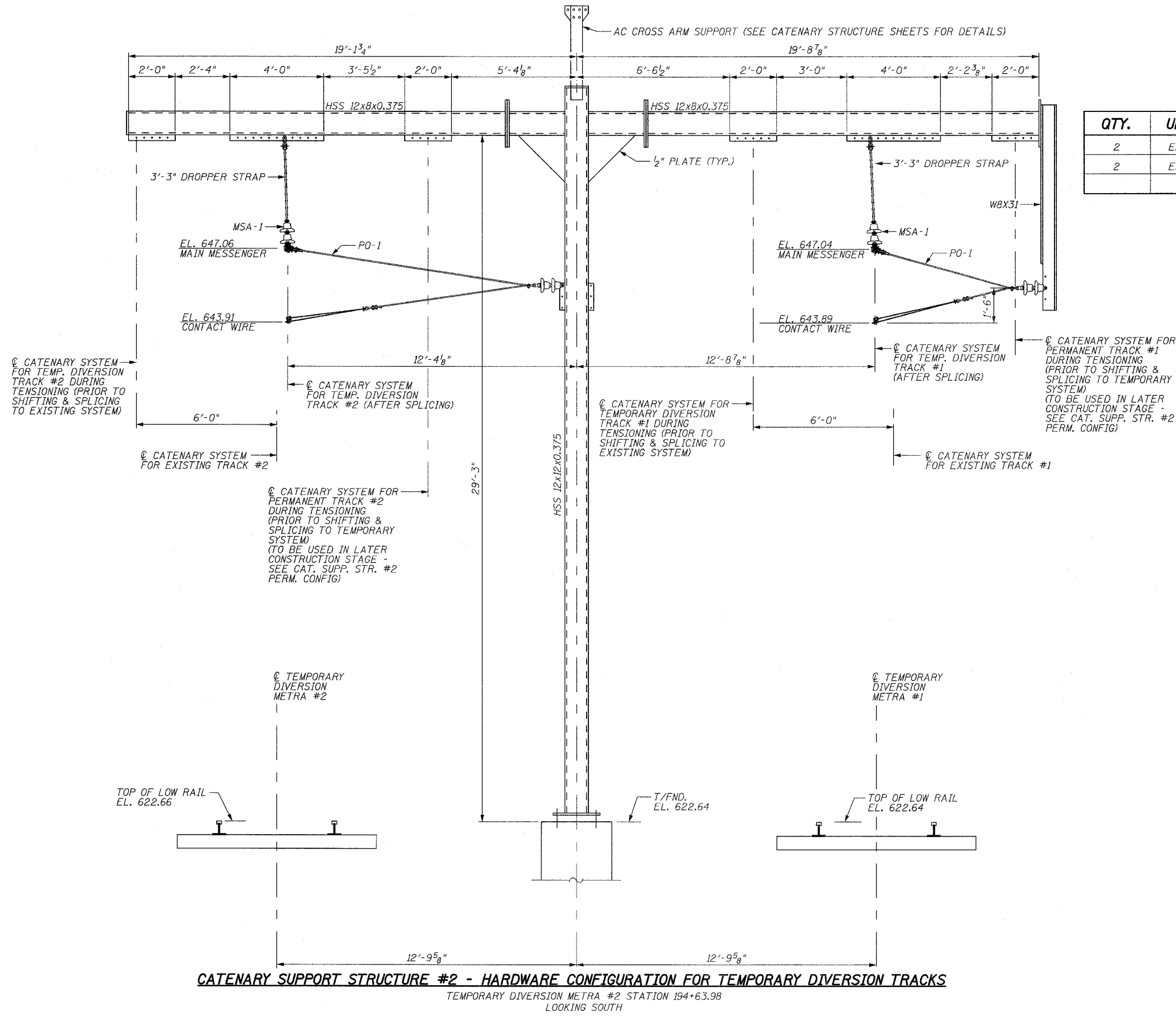
SHT. CH-06 OF CH-20  
 DATE 2/21/2008

DRAWN BY PMV  
 CHECKED BY MAD

3/13/2008 2:39:29 PM

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	327
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

**CATENARY HARDWARE**  
CAT. SUPP. STR. #2 - TEMP. CONFIG.

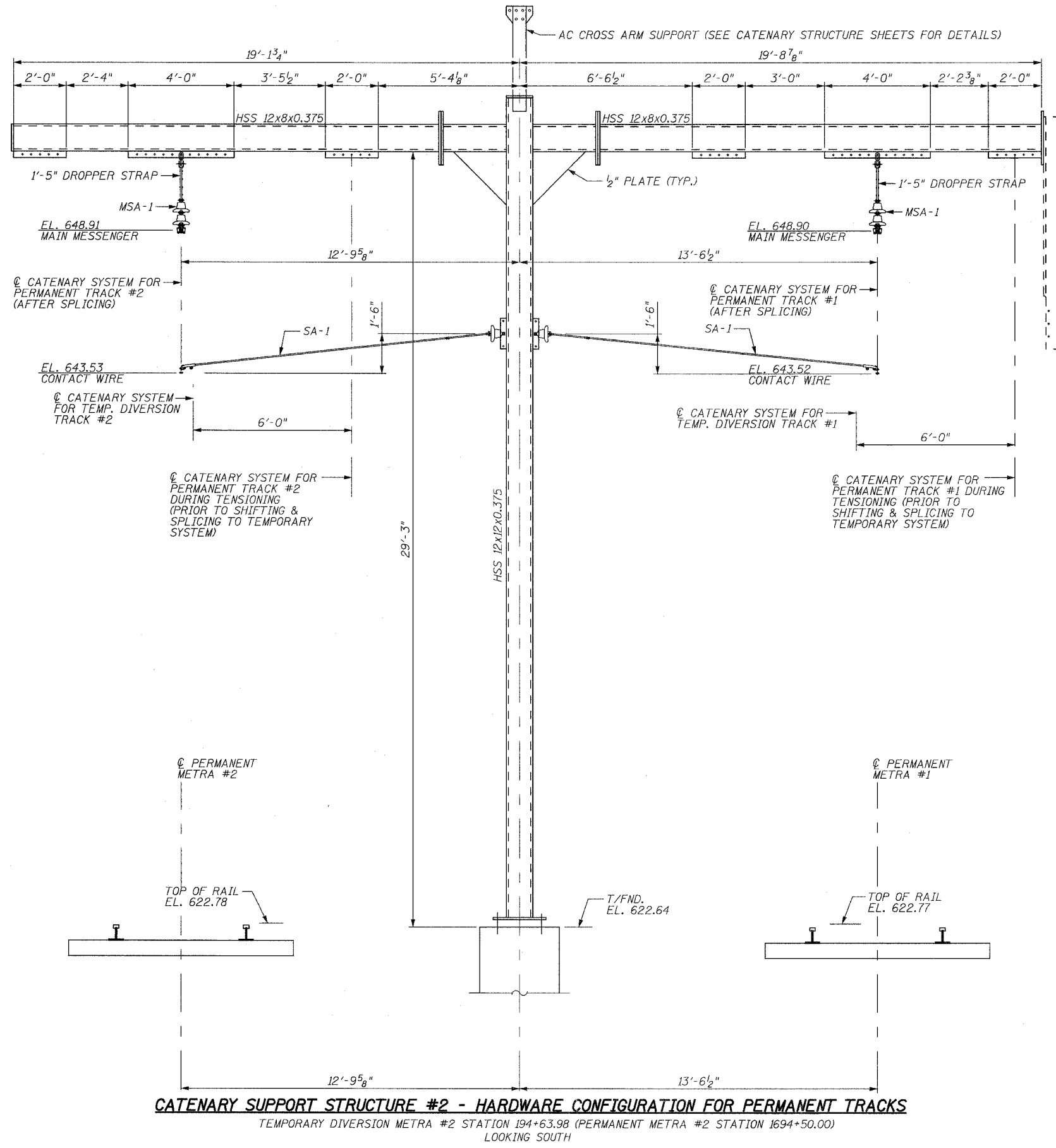
SHT. CH-07 OF CH-20  
DATE 2/21/2008

DRAWN BY PMV  
CHECKED BY MAD

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	328
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	SA-1	STEADY ARM ASSEMBLY	CH-04

**CATENARY SUPPORT STRUCTURE #2 - HARDWARE CONFIGURATION FOR PERMANENT TRACKS**

TEMPORARY DIVERSION METRA #2 STATION 194+63.98 (PERMANENT METRA #2 STATION 1694+50.00)  
LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

**CATENARY HARDWARE**  
CAT. SUPP. STR. #2 - PERM. CONFIG.

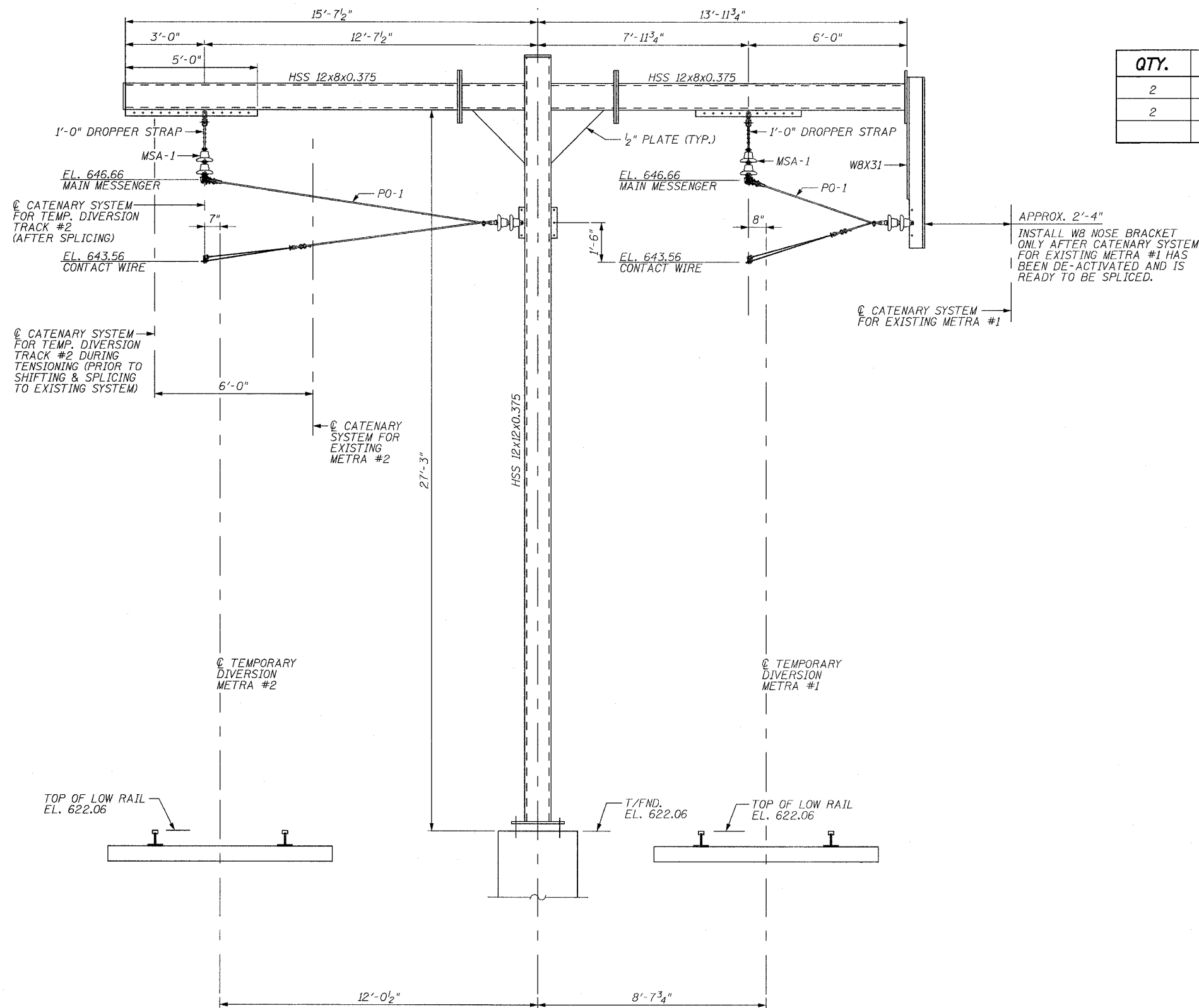
SHT. CH-08 OF CH-20  
DATE 2/21/2008

DRAWN BY PMV  
CHECKED BY MAD

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	329
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				

**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04



**TEMPORARY CATENARY SUPPORT STRUCTURE #3 - HARDWARE CONFIGURATION**

TEMPORARY DIVERSION METRA #2 STATION 196+38.00  
LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

CATENARY HARDWARE  
TEMP. CATENARY SUPP. STR. #3

SHT. CH-09 OF CH-20  
DATE 2/21/2008

DRAWN BY PMV  
CHECKED BY MAD

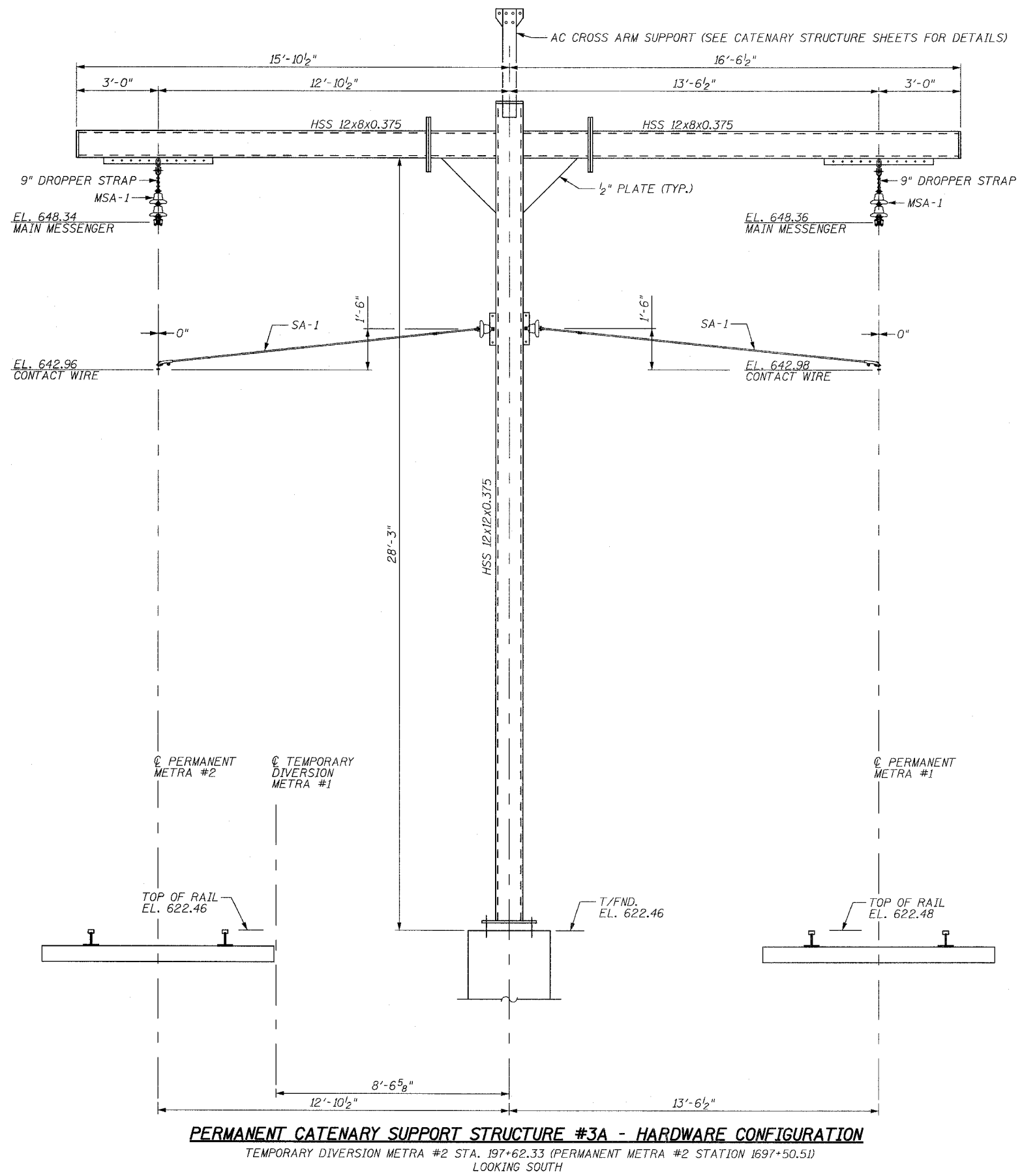
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3/13/2008 2:39:31 PM

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	330
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	SA-1	STEADY ARM ASSEMBLY	CH-04

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH STREET

CATENARY HARDWARE  
 CATENARY SUPP. STR. #3A

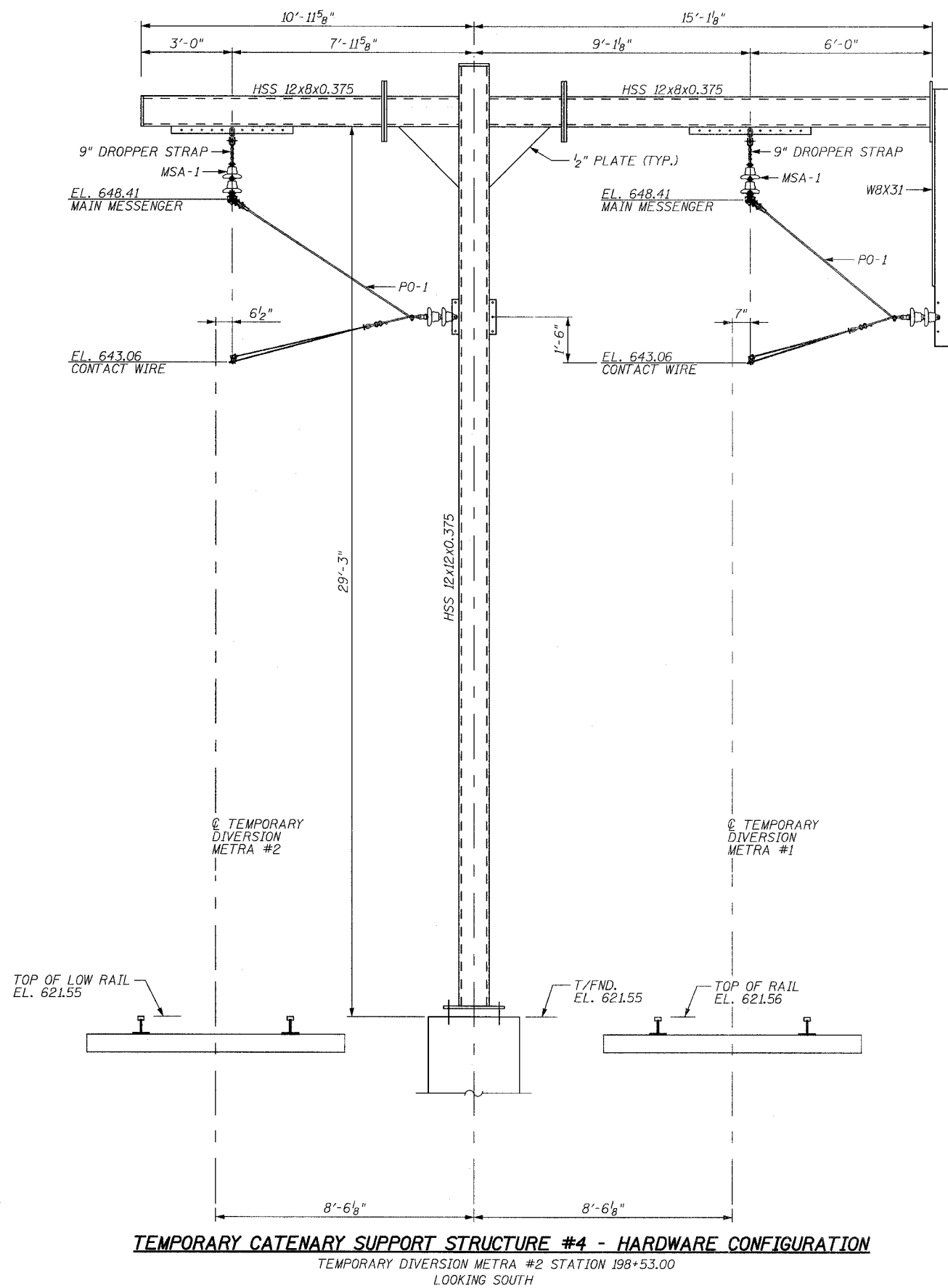
SHT. CH-10 OF CH-20  
 DATE 2/21/2008

DRAWN BY FMV  
 CHECKED BY MAD

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	331
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

**TEMPORARY CATENARY SUPPORT STRUCTURE #4 - HARDWARE CONFIGURATION**

TEMPORARY DIVERSION METRA #2 STATION 198+53.00  
LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

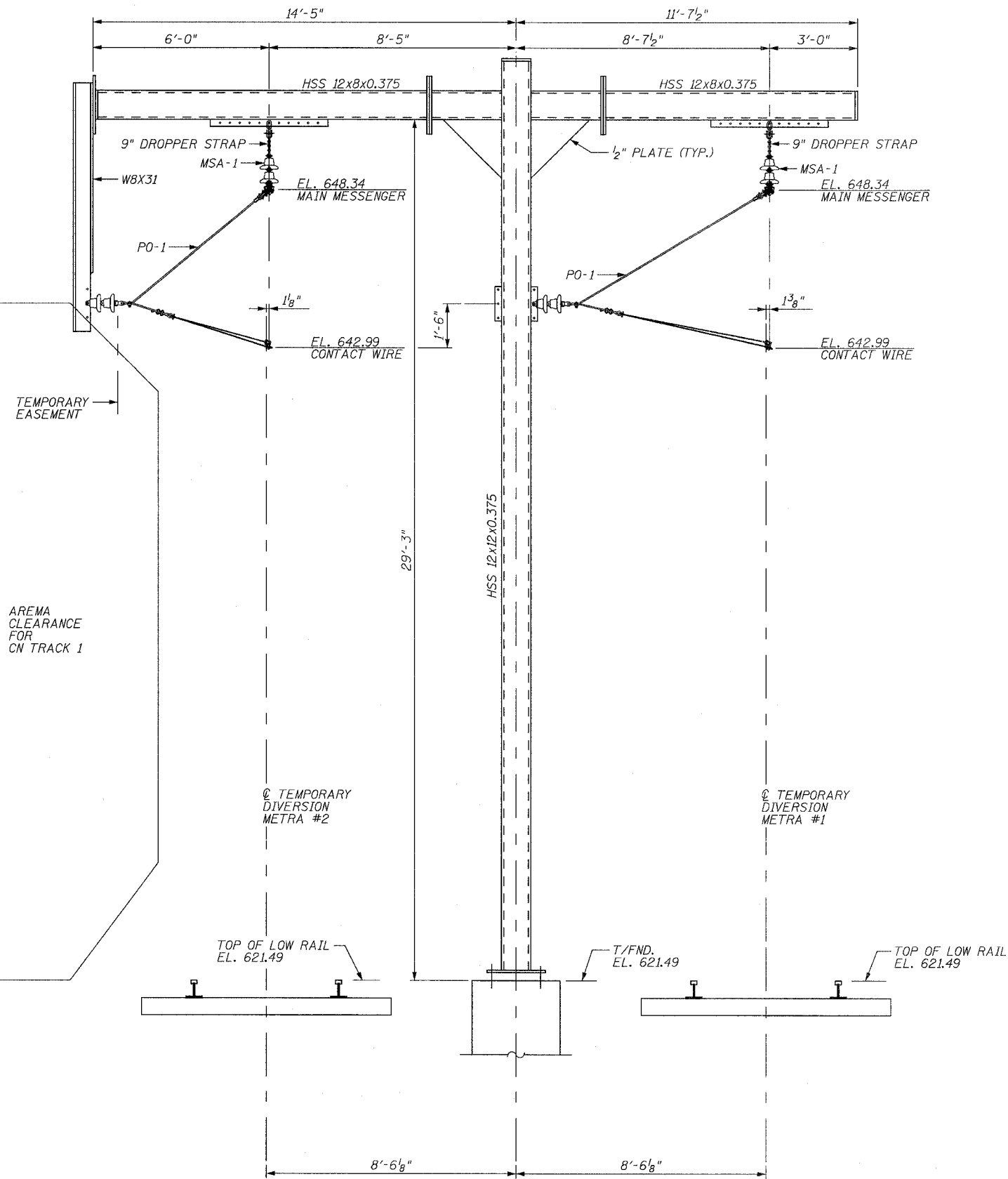
CATENARY HARDWARE  
TEMP. CATENARY SUPP. STR. #4

SHT. CH-11 OF CH-20  
DATE 2/21/2008  
DRAWN BY PMV  
CHECKED BY MAD

3/13/2008 2:39:32 PM

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	332
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH STREET

CATENARY HARDWARE  
 TEMP. CATENARY SUPP. STR. #5

SHT. CH-12 OF CH-20  
 DATE 2/21/2008

DRAWN BY PMV  
 CHECKED BY MAD

**TEMPORARY CATENARY SUPPORT STRUCTURE #5 - HARDWARE CONFIGURATION**  
 TEMPORARY DIVERSION METRA #2 STATION 201+53.00  
 LOOKING SOUTH



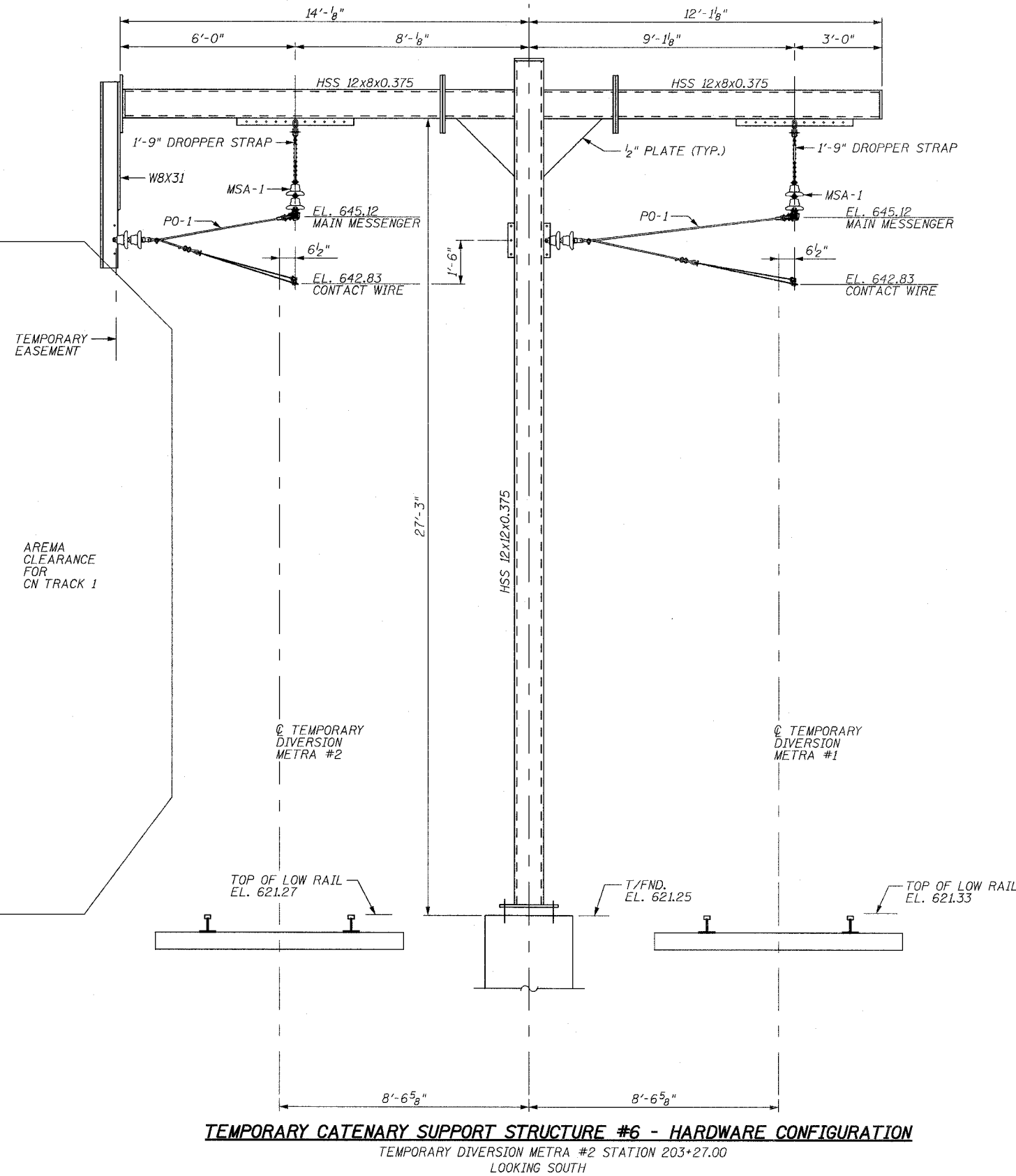
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	333
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				

**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH STREET

CATENARY HARDWARE  
 TEMP. CATENARY SUPP. STR. #6

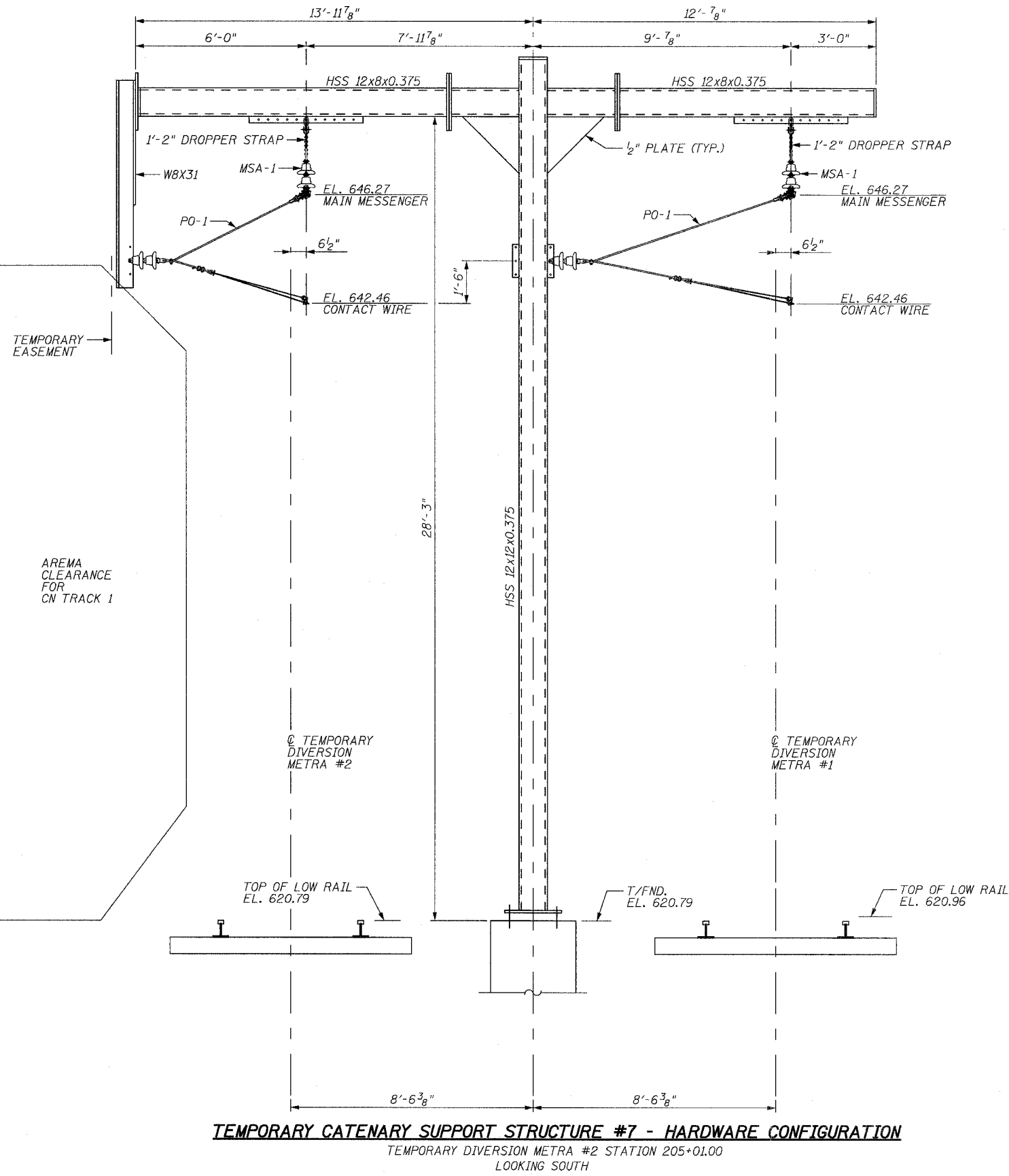
SHT. CH-13 OF CH-20  
 DATE 2/21/2008

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 CHECKED BY MAD

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	334
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH STREET

CATENARY HARDWARE  
 TEMP. CATENARY SUPP. STR. #7

SHT. CH-14 OF CH-20  
 DATE 2/21/2008

DRAWN BY PMV  
 CHECKED BY MAD

**TEMPORARY CATENARY SUPPORT STRUCTURE #7 - HARDWARE CONFIGURATION**  
 TEMPORARY DIVERSION METRA #2 STATION 205+01.00  
 LOOKING SOUTH

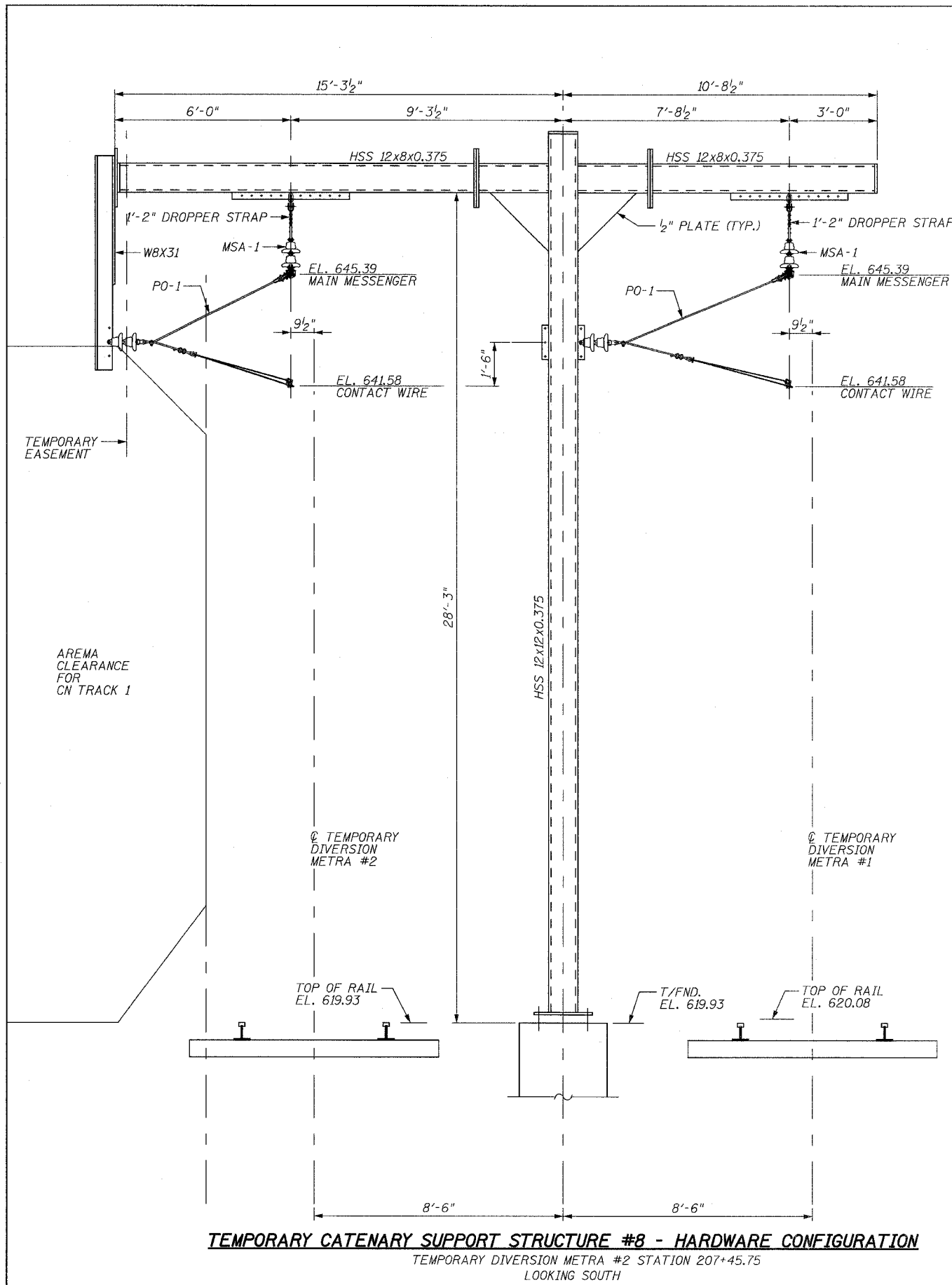
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	335
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				

**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

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**TEMPORARY CATENARY SUPPORT STRUCTURE #8 - HARDWARE CONFIGURATION**

TEMPORARY DIVERSION METRA #2 STATION 207+45.75  
LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

CATENARY HARDWARE  
TEMP. CATENARY SUPP. STR. #8

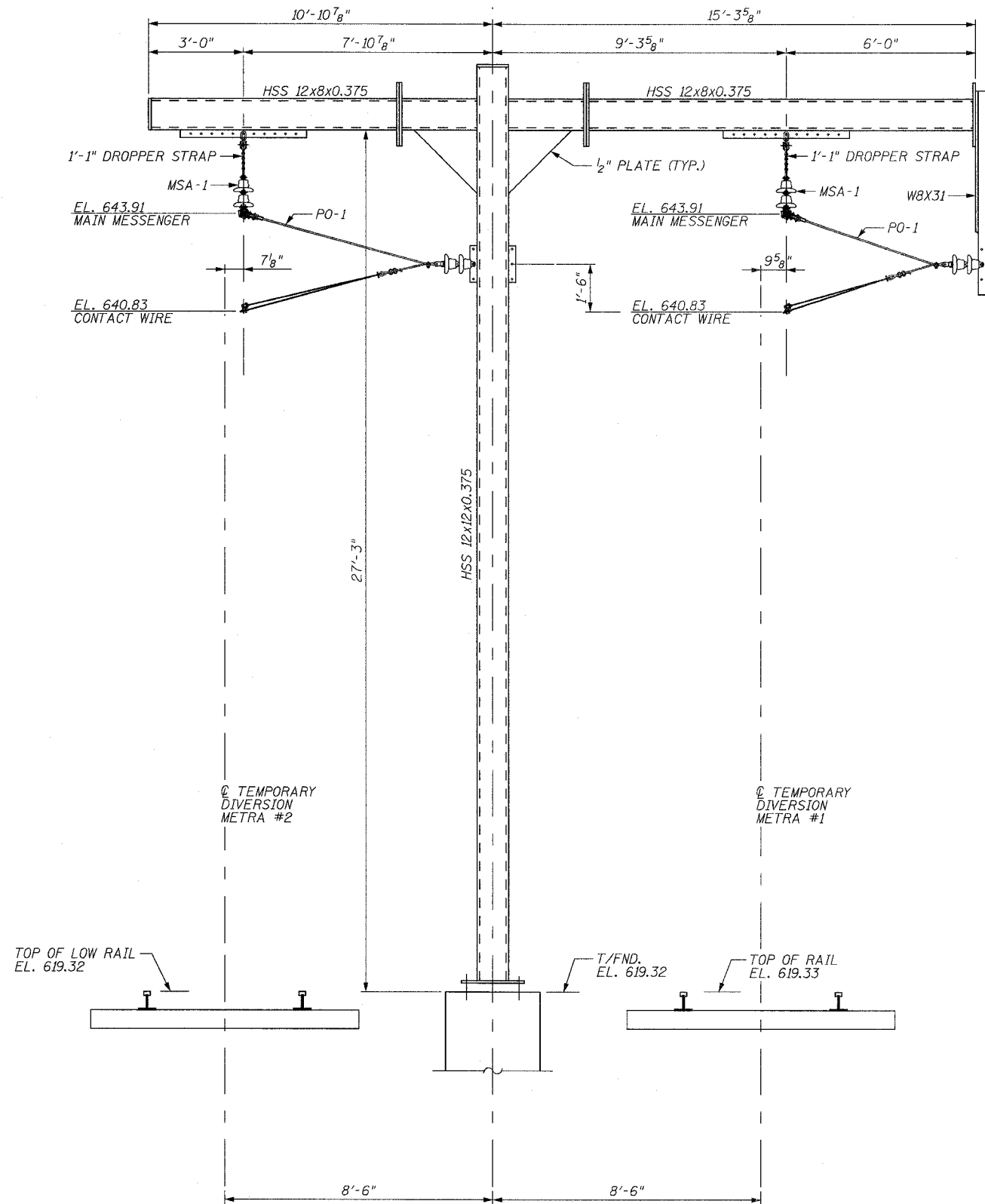
SHT. CH-15 OF CH-20  
DATE 2/21/2008

DRAWN BY PMV  
CHECKED BY MAD

3/13/2008 2:39:35 PM

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	336
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

**TEMPORARY CATENARY SUPPORT STRUCTURE #9 - HARDWARE CONFIGURATION**

TEMPORARY DIVERSION METRA #2 STATION 209+23.00  
LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

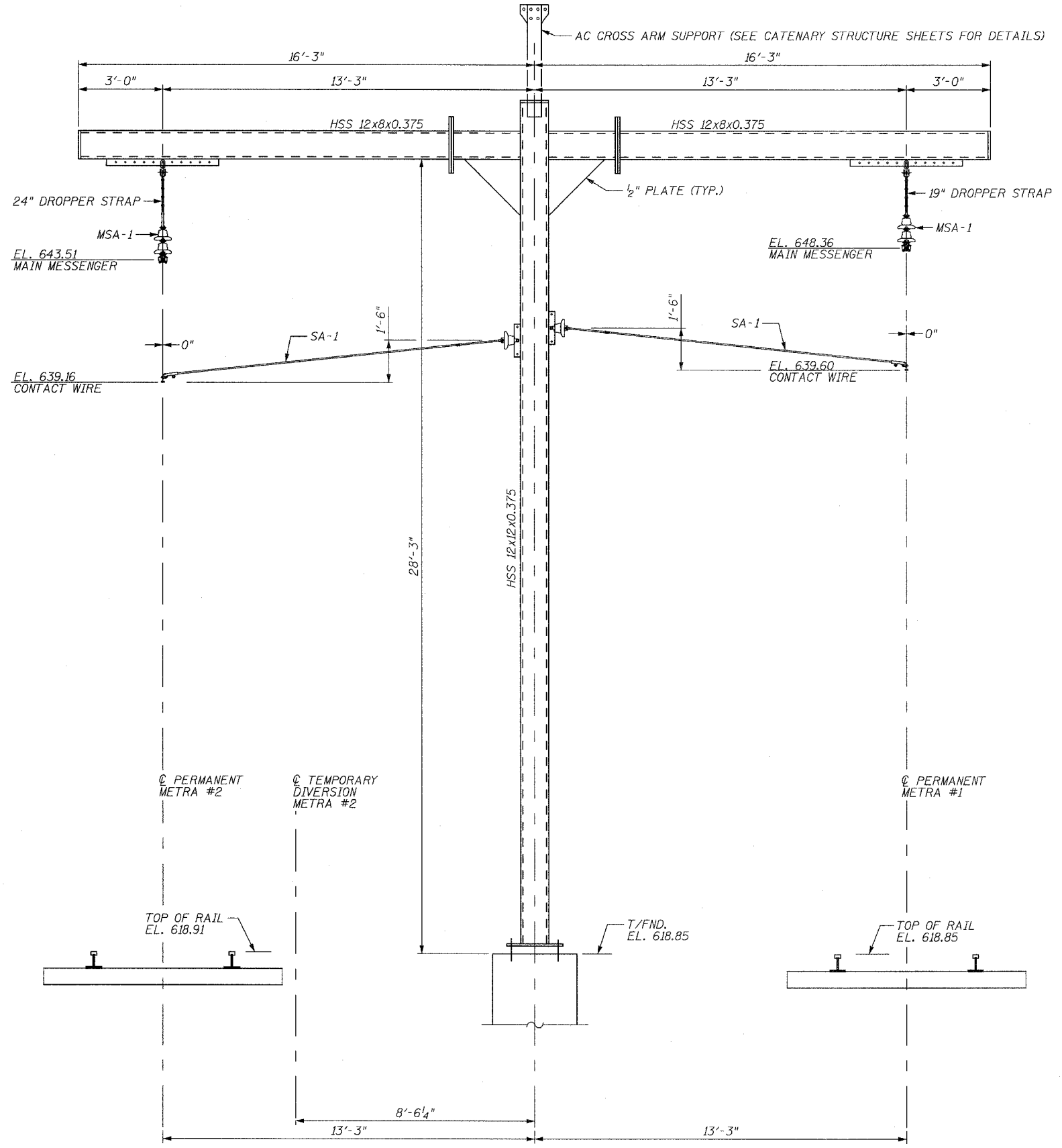
CATENARY HARDWARE  
TEMP. CATENARY SUPP. STR. #9

SHT. CH-16 OF CH-20  
DATE 2/21/2008  
DRAWN BY PMV  
CHECKED BY MAD

3/13/2008 2:39:35 PM

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	337
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	SA-1	STEADY ARM ASSEMBLY	CH-04

**PERMANENT CATENARY SUPPORT STRUCTURE #9A - HARDWARE CONFIGURATION**  
 TEMPORARY DIVERSION METRA #2 STATION 210+03.79 (PERMANENT METRA #2 STATION 1709+82.15)  
 LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH STREET

**CATENARY HARDWARE**  
 PERM. CATENARY SUPP. STR. #9A

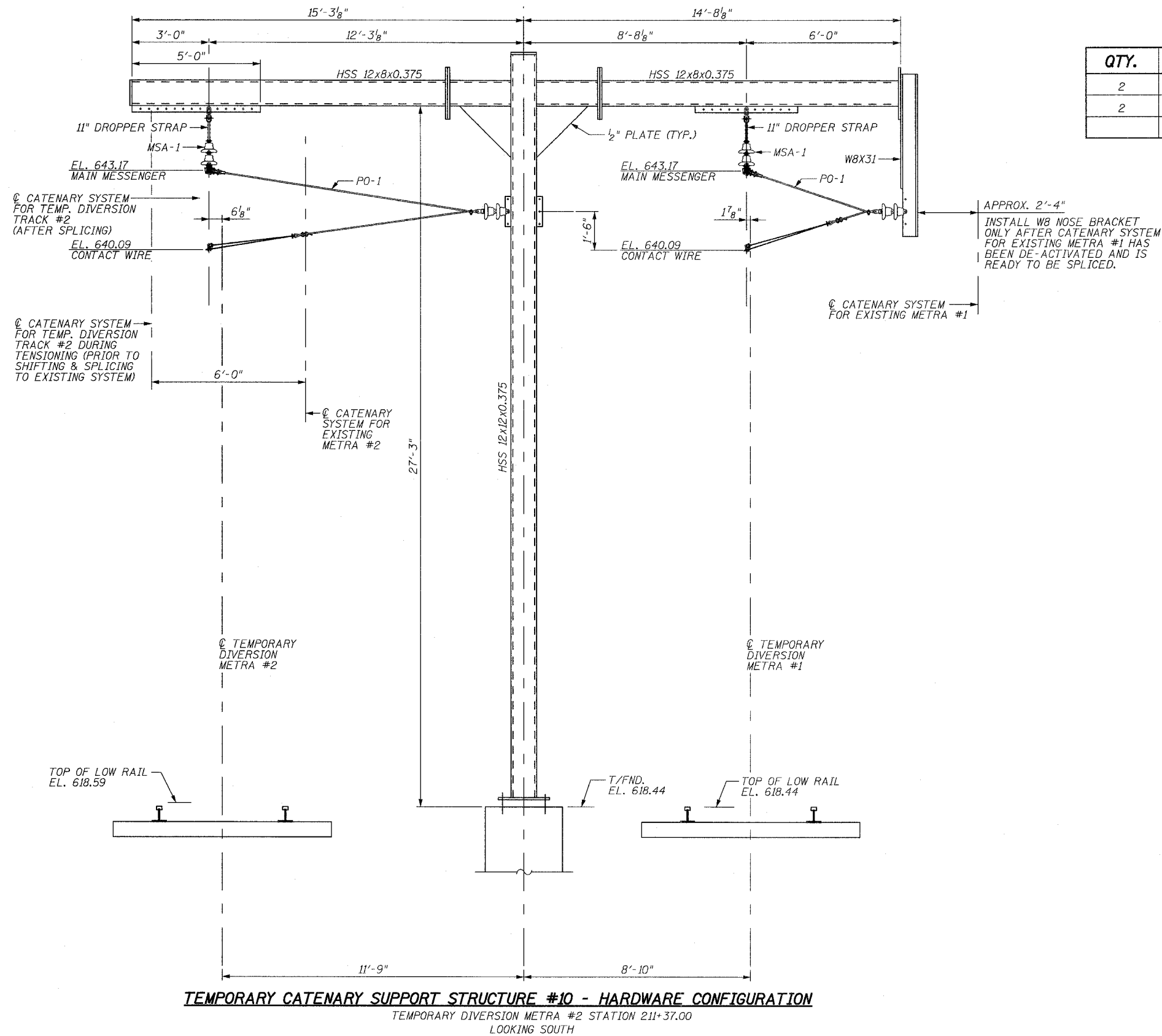
SHT. CH-17 OF CH-20  
 DATE 2/21/2008

DRAWN BY PMV  
 CHECKED BY MAD

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	338
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				

**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	P0-1	PULL-OFF ASSEMBLY	CH-04



APPROX. 2'-4"  
 INSTALL W8 NOSE BRACKET  
 ONLY AFTER CATENARY SYSTEM  
 FOR EXISTING METRA #1 HAS  
 BEEN DE-ACTIVATED AND IS  
 READY TO BE SPLICED.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
 METRA OVER 159TH STREET

CATENARY HARDWARE  
 TEMP. CATENARY SUPP. STR. #10

SHT. CH-18 OF CH-20  
 DATE 2/21/2008

DRAWN BY PMV  
 CHECKED BY MAD

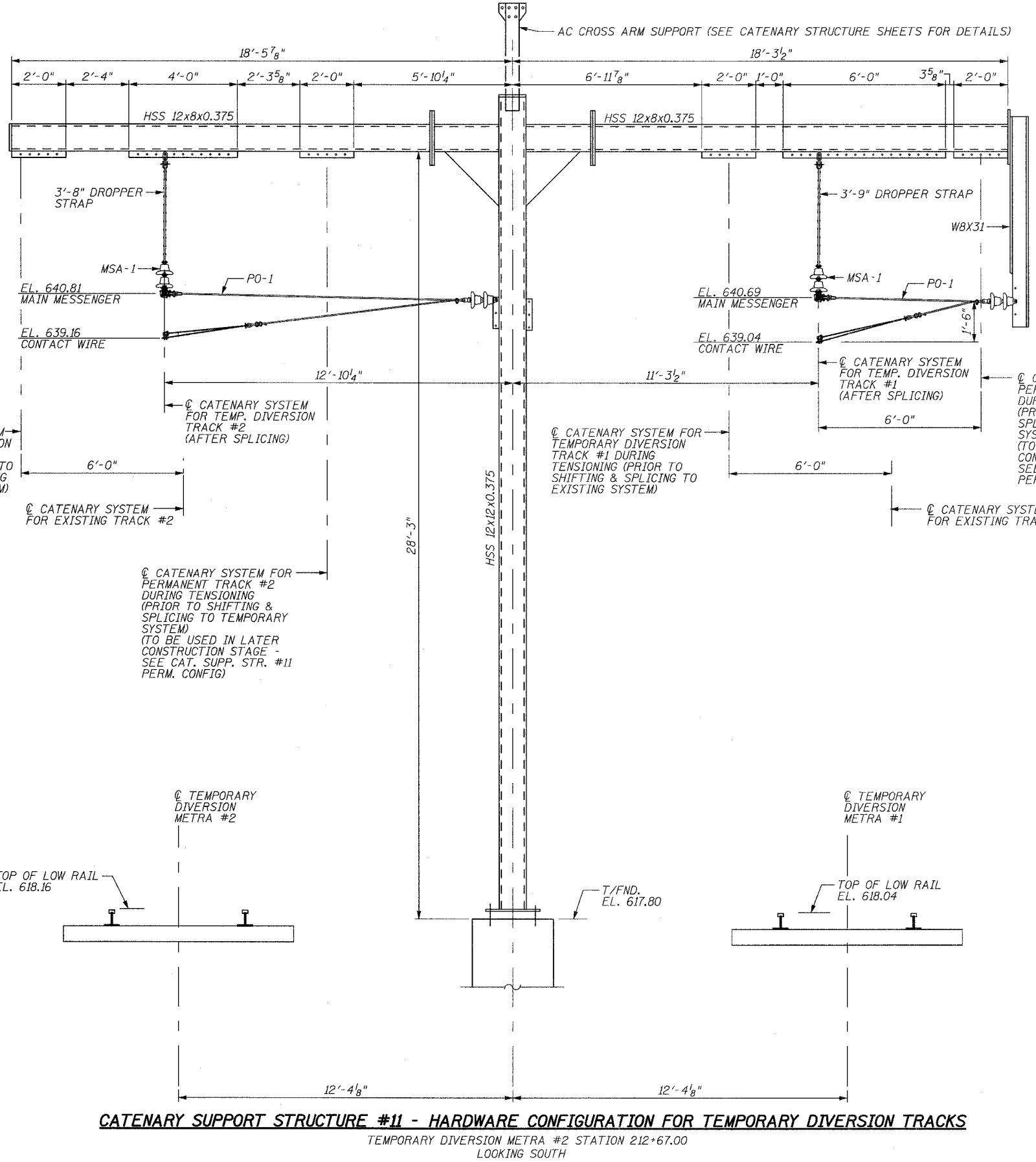
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	339
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	PO-1	PULL-OFF ASSEMBLY	CH-04

**CATENARY SUPPORT STRUCTURE #11 - HARDWARE CONFIGURATION FOR TEMPORARY DIVERSION TRACKS**

TEMPORARY DIVERSION METRA #2 STATION 212+67.00  
LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

CATENARY HARDWARE  
CAT. SUPP. STR. #11 - TEMP. CONFIG.

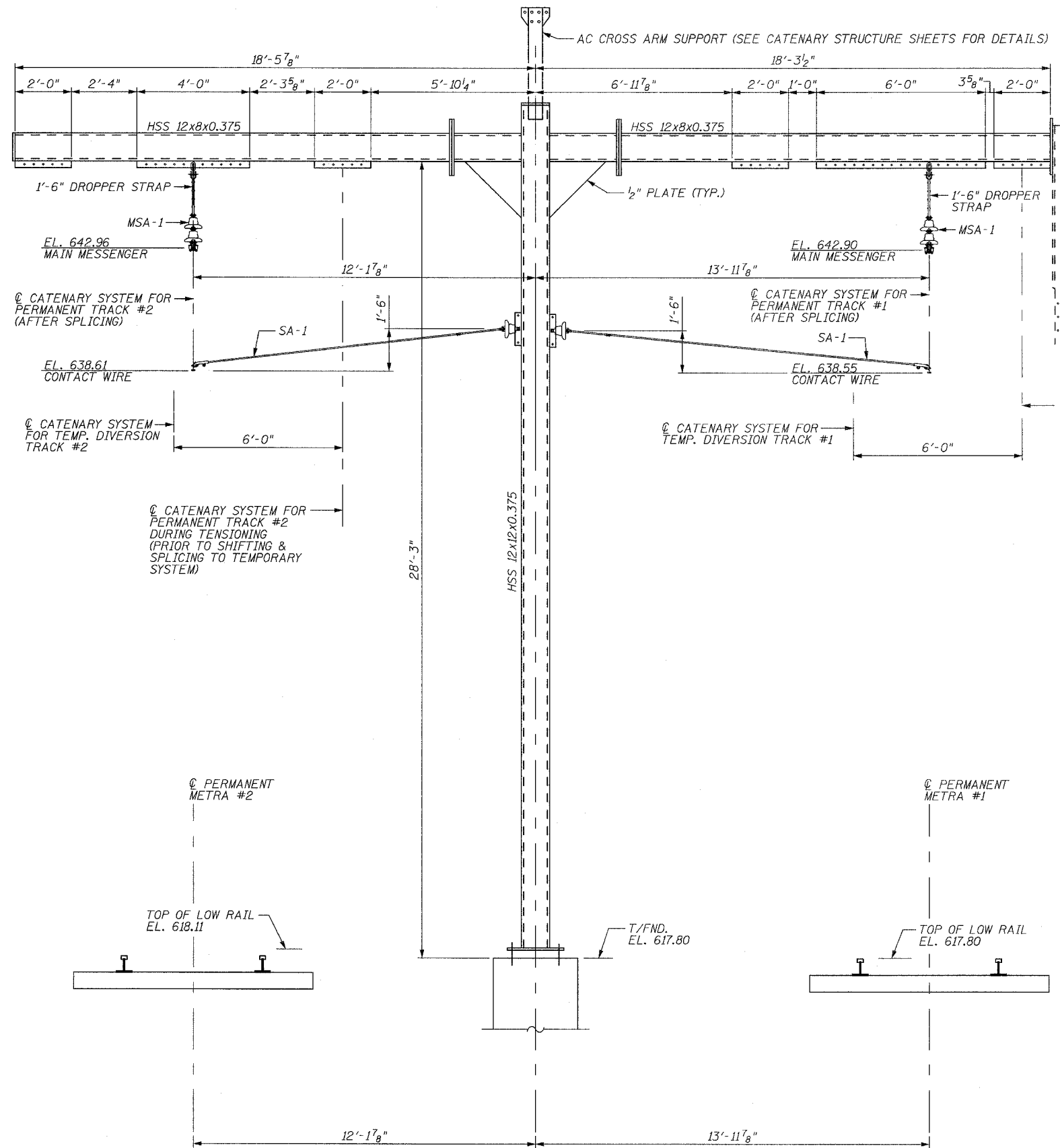
SHT. CH-19 OF CH-20  
DATE 2/21/2008

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CHECKED BY MAD

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	340
STA.		TO STA.		
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

QTY.	UNIT	MARK	DESCRIPTION	REF. DWG.
2	EACH	MSA-1	MESSENGER SUPPORT ASSEMBLY	CH-05
2	EACH	SA-1	STEADY ARM ASSEMBLY	CH-04

**CATENARY SUPPORT STRUCTURE #11 - HARDWARE CONFIGURATION FOR PERMANENT TRACKS**

TEMPORARY DIVERSION METRA #2 STATION 212+67.00 (PERMANENT METRA #2 STATION 1712+47.38)  
LOOKING SOUTH

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
METRA OVER 159TH STREET

CATENARY HARDWARE  
CAT. SUPP. STR. #11 - PERM. CONFIG.

SHT. CH-20 OF CH-20  
DATE 2/21/2008

DRAWN BY PMV  
CHECKED BY MAD

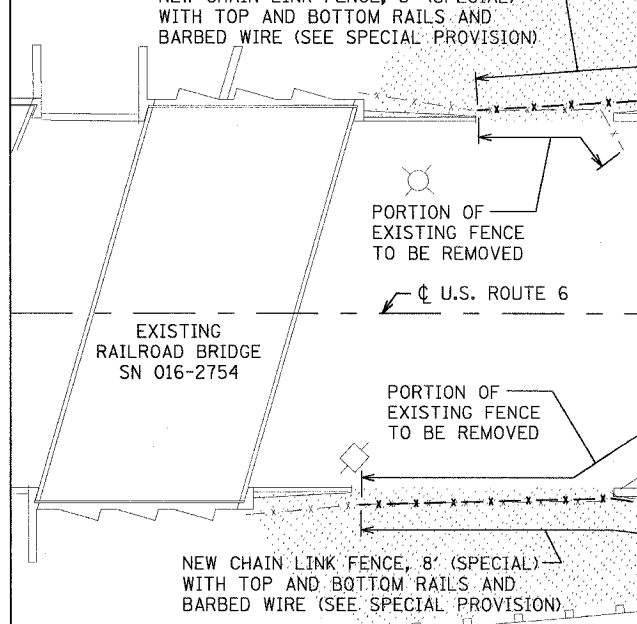


NO.	STA. (FT)	OFFSET (FT)	STRUCTURE TYPE/SIZE				FRAME & GRATE	INVERT (FT)				RIM EL. (FT)
			MH	CB	INL	OTHER		N	S	E	W	
I1	93+94.4	55.1 LT	A3				T-1-OL			617.86		618.9
I2	95+08.8	55.1 LT	A3				T-1-OL	617.92				618.9
I3	96+09.8	55.1 LT	A3				T-1-OL	617.00				620.0
I4	95+15.6	87.8 LT	A4				T-1-CL		617.62	617.62	617.62	620.0
I5	96+09.8	86.2 LT	A4				T-1-CL	616.72	616.72		616.72	620.6
I6	96+24.4	203.1 LT	A4				T-1-OL	615.58	615.58			620.4
I7	93+94.4	50.7 RT	A3				T-1-OL		614.88			618.8
I8	95+08.8	50.7 RT	A3				T-1-OL		615.03			618.8
I9	93+77.2	152.0 RT	A4				T-1-OL	613.89	613.89	613.89		618.0
TOTALS			4	5								

**PIPE TABLE - CN INTERMODAL FACILITY**

PIPE NO.	PIPE LOCATION		DESCRIPTION	DIA. (IN)	L (FT)	S (%)	TRENCH BACKFILL VOLUME (CU YD)
	FROM STR. #	TO STR. #					
SI1	I1	I4	SS T1, RCP CL IV	12	122	0.20	7.0
SI2	I2	I4	SS T1, RCP CL IV	12	30	1.00	1.6
SI3	I3	I5	SS T1, RCP CL IV	12	28	1.00	6.7
SI4	I4	I5	SS T1, RCP CL IV	12	90	1.00	18.6
SI5	I5	I6	SS T1, RCP CL IV	12	114	1.00	38.2
SI6	I7	I9	SS T1, RCP CL IV	12	99	1.00	29.7
SI7	I8	I9	SS T1, RCP CL IV	12	162	1.00	47.3
TOTALS				645			149.1

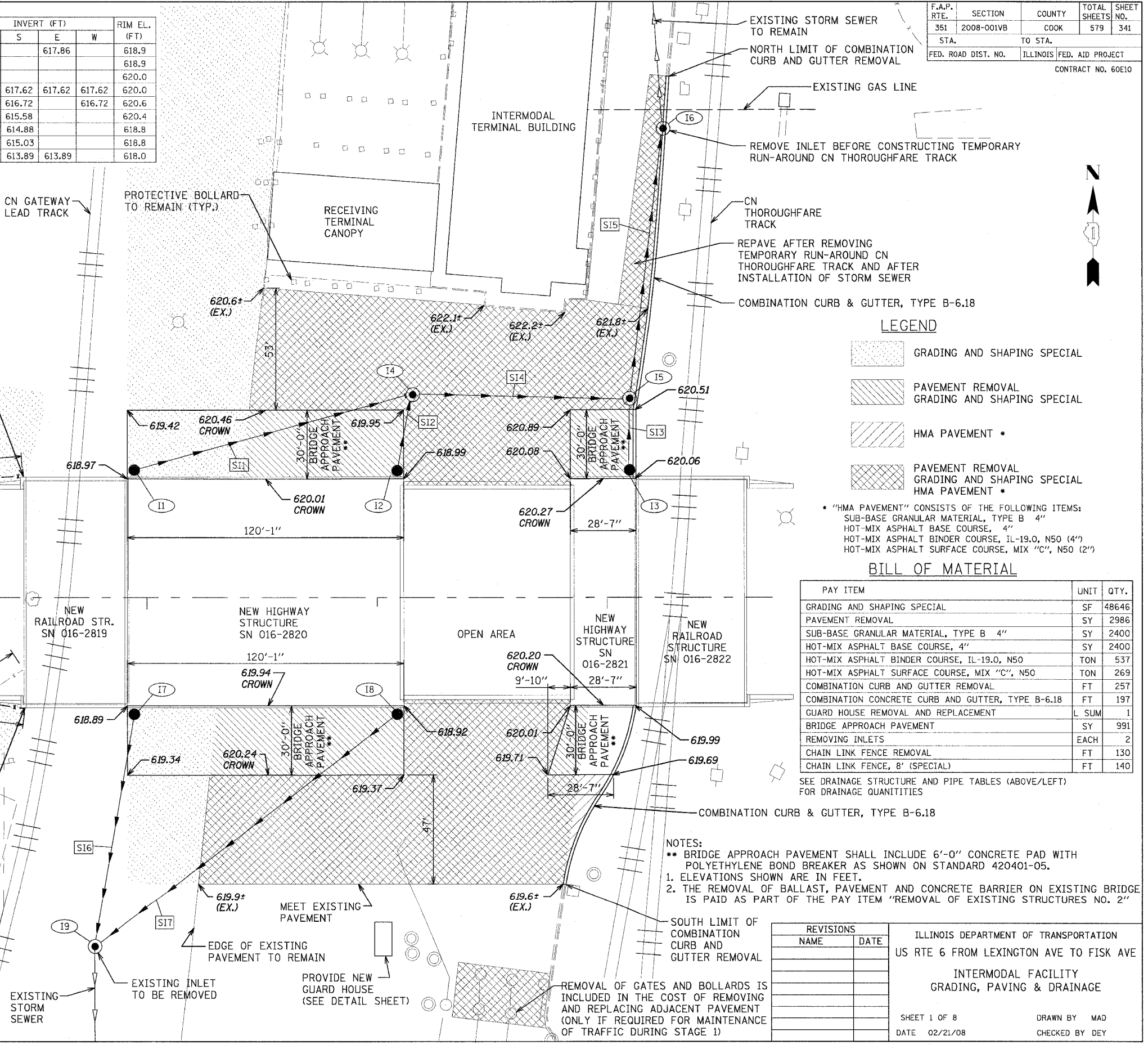
**DRAINAGE TABLE LEGEND**  
A3 = TYPE C, 2 FT. DIAMETER  
A4 = TYPE A, 4 FT. DIAMETER



NOTE: SEE GRADING DETAILS SHEET FOR GRADING AND LANDSCAPING OF AREA BETWEEN WINGWALLS OF SN 016-2754 AND SN 016-2819

NOTE: SEE TRACK CONSTRUCTION SHEETS FOR LOCATION OF ADDITIONAL PAVEMENT REMOVAL AND NEW HMA PAVEMENT ADJACENT TO AND BETWEEN THE TIMBER ROAD CROSSINGS AT THE SOUTH END OF CN GATEWAY LEAD TRACK SHIFT. THE QUANTITIES FOR THIS WORK ARE INCLUDED IN THE BILL OF MATERIALS ON THIS SHEET.

**URS** 100 S. WACKER DR., SUITE 500  
CHICAGO, ILLINOIS 60606  
TEL. (312) 939-1000  
FAX (312) 939-4198



F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2008-001VB	COOK	579	341
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60E10				

**LEGEND**

- Grading and Shaping Special
- Pavement Removal Grading and Shaping Special
- HMA Pavement
- Pavement Removal Grading and Shaping Special HMA Pavement

\* "HMA PAVEMENT" CONSISTS OF THE FOLLOWING ITEMS:  
SUB-BASE GRANULAR MATERIAL, TYPE B 4"  
HOT-MIX ASPHALT BASE COURSE, 4"  
HOT-MIX ASPHALT BINDER COURSE, 1L-19.0, N50 (4")  
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50 (2")

**BILL OF MATERIAL**

PAY ITEM	UNIT	QTY.
GRADING AND SHAPING SPECIAL	SF	48646
PAVEMENT REMOVAL	SY	2986
SUB-BASE GRANULAR MATERIAL, TYPE B 4"	SY	2400
HOT-MIX ASPHALT BASE COURSE, 4"	SY	2400
HOT-MIX ASPHALT BINDER COURSE, 1L-19.0, N50	TON	537
HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	269
COMBINATION CURB AND GUTTER REMOVAL	FT	257
COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.18	FT	197
GUARD HOUSE REMOVAL AND REPLACEMENT	L SUM	1
BRIDGE APPROACH PAVEMENT	SY	991
REMOVING INLETS	EACH	2
CHAIN LINK FENCE REMOVAL	FT	130
CHAIN LINK FENCE, 8' (SPECIAL)	FT	140

SEE DRAINAGE STRUCTURE AND PIPE TABLES (ABOVE/LEFT) FOR DRAINAGE QUANTITIES

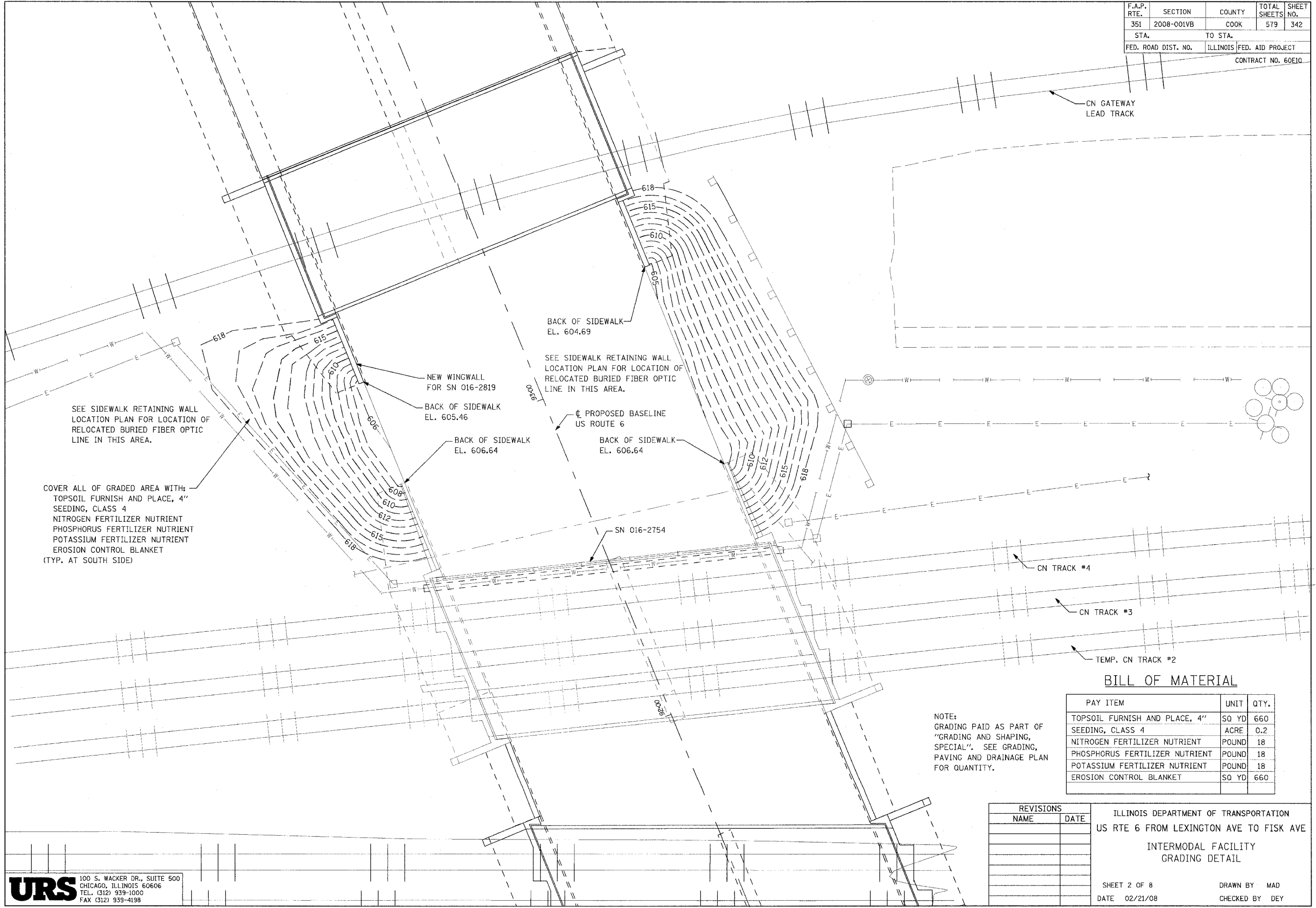
NOTES:  
\*\* BRIDGE APPROACH PAVEMENT SHALL INCLUDE 6'-0" CONCRETE PAD WITH POLYETHYLENE BOND BREAKER AS SHOWN ON STANDARD 420401-05.  
1. ELEVATIONS SHOWN ARE IN FEET.  
2. THE REMOVAL OF BALLAST, PAVEMENT AND CONCRETE BARRIER ON EXISTING BRIDGE IS PAID AS PART OF THE PAY ITEM "REMOVAL OF EXISTING STRUCTURES NO. 2"

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
INTERMODAL FACILITY  
GRADING, PAVING & DRAINAGE

SHEET 1 OF 8  
DATE 02/21/08  
DRAWN BY MAD  
CHECKED BY DEY

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2008-001VB	COOK	579	342
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 60E10				



SEE SIDEWALK RETAINING WALL LOCATION PLAN FOR LOCATION OF RELOCATED BURIED FIBER OPTIC LINE IN THIS AREA.

COVER ALL OF GRADED AREA WITH:  
 TOPSOIL FURNISH AND PLACE, 4"  
 SEEDING, CLASS 4  
 NITROGEN FERTILIZER NUTRIENT  
 PHOSPHORUS FERTILIZER NUTRIENT  
 POTASSIUM FERTILIZER NUTRIENT  
 EROSION CONTROL BLANKET  
 (TYP. AT SOUTH SIDE)

BACK OF SIDEWALK  
 EL. 604.69

SEE SIDEWALK RETAINING WALL LOCATION PLAN FOR LOCATION OF RELOCATED BURIED FIBER OPTIC LINE IN THIS AREA.

NEW WINGWALL FOR SN 016-2819

BACK OF SIDEWALK EL. 605.46

BACK OF SIDEWALK EL. 606.64

PROPOSED BASELINE US ROUTE 6

BACK OF SIDEWALK EL. 606.64

NOTE:  
 GRADING PAID AS PART OF "GRADING AND SHAPING, SPECIAL". SEE GRADING, PAVING AND DRAINAGE PLAN FOR QUANTITY.

**BILL OF MATERIAL**

PAY ITEM	UNIT	QTY.
TOPSOIL FURNISH AND PLACE, 4"	SQ YD	660
SEEDING, CLASS 4	ACRE	0.2
NITROGEN FERTILIZER NUTRIENT	POUND	18
PHOSPHORUS FERTILIZER NUTRIENT	POUND	18
POTASSIUM FERTILIZER NUTRIENT	POUND	18
EROSION CONTROL BLANKET	SQ YD	660

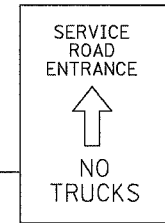
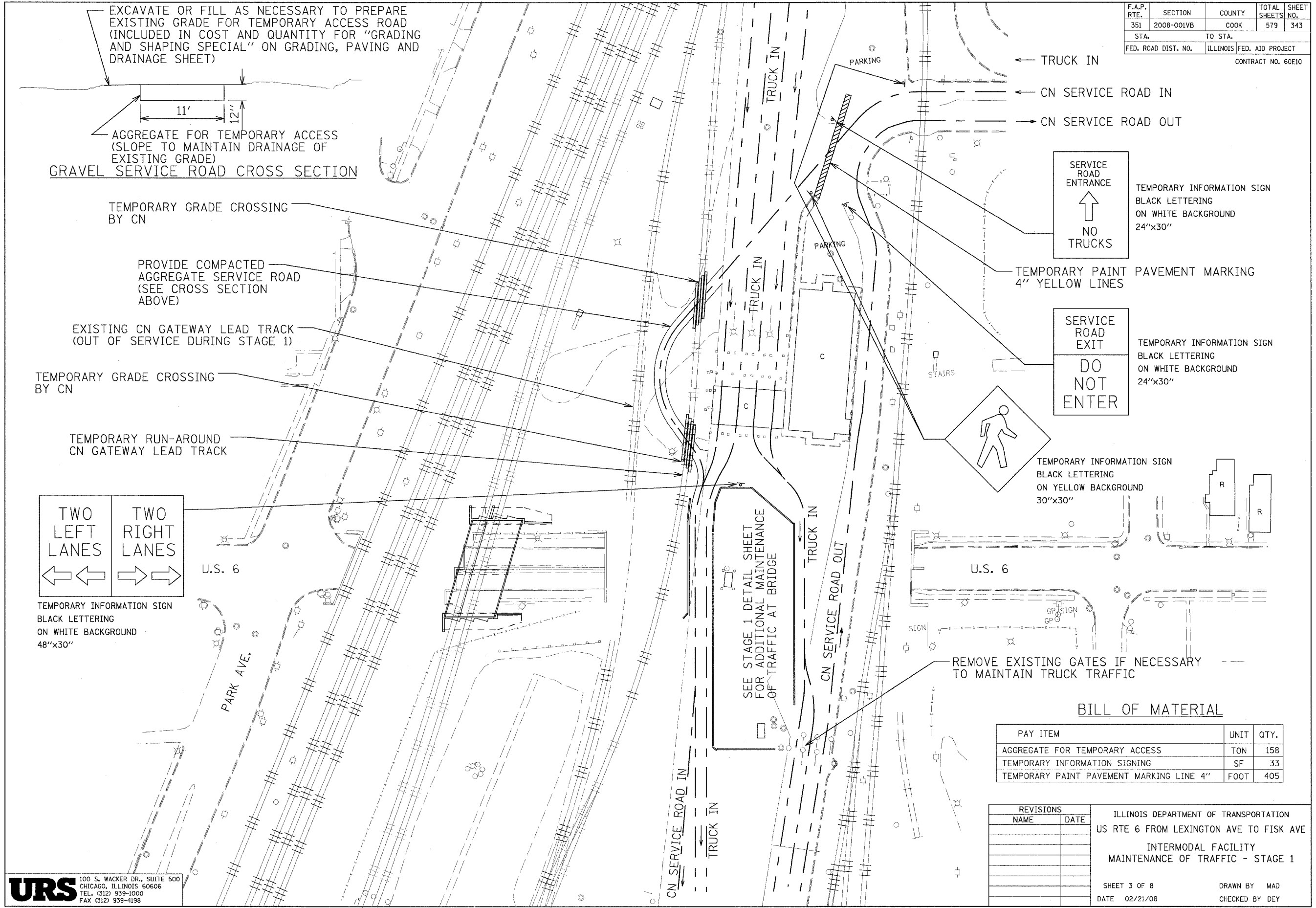
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
 INTERMODAL FACILITY  
 GRADING DETAIL

SHEET 2 OF 8  
 DATE 02/21/08

DRAWN BY MAD  
 CHECKED BY DEY

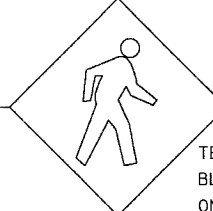
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2008-001VB	COOK	579	343
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60E10				



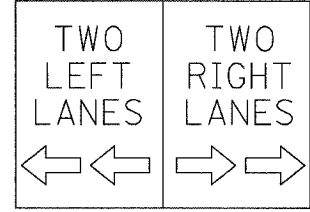
TEMPORARY INFORMATION SIGN  
BLACK LETTERING  
ON WHITE BACKGROUND  
24"x30"



TEMPORARY INFORMATION SIGN  
BLACK LETTERING  
ON WHITE BACKGROUND  
24"x30"



TEMPORARY INFORMATION SIGN  
BLACK LETTERING  
ON YELLOW BACKGROUND  
30"x30"



TEMPORARY INFORMATION SIGN  
BLACK LETTERING  
ON WHITE BACKGROUND  
48"x30"

**BILL OF MATERIAL**

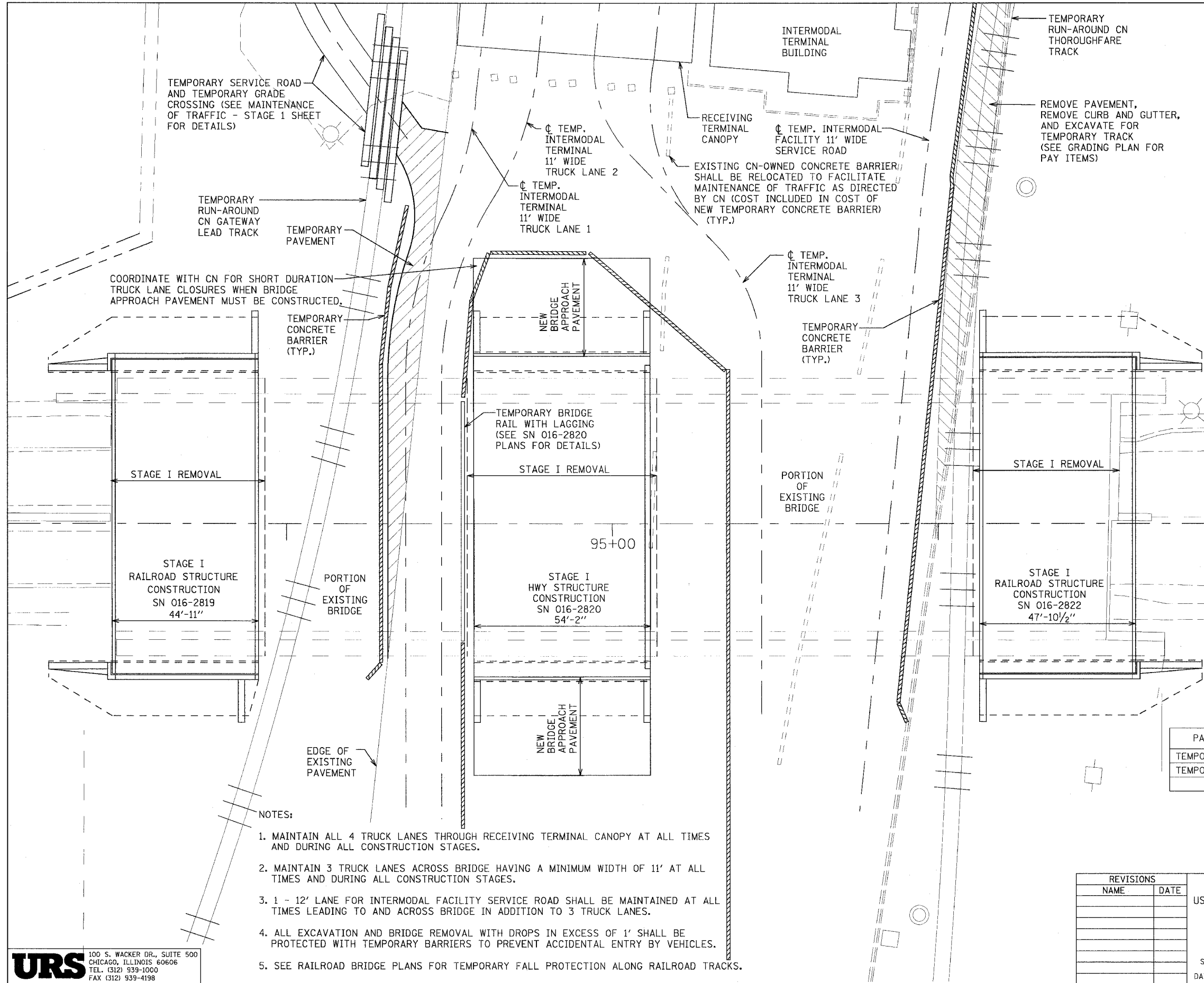
PAY ITEM	UNIT	QTY.
AGGREGATE FOR TEMPORARY ACCESS	TON	158
TEMPORARY INFORMATION SIGNING	SF	33
TEMPORARY PAINT PAVEMENT MARKING LINE 4"	FOOT	405

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
INTERMODAL FACILITY  
MAINTENANCE OF TRAFFIC - STAGE 1

SHEET 3 OF 8  
DATE 02/21/08  
DRAWN BY MAD  
CHECKED BY DEY

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2008-001VB	COOK	579	344
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60E10				



COORDINATE WITH CN FOR SHORT DURATION TRUCK LANE CLOSURES WHEN BRIDGE APPROACH PAVEMENT MUST BE CONSTRUCTED.

TEMPORARY SERVICE ROAD AND TEMPORARY GRADE CROSSING (SEE MAINTENANCE OF TRAFFIC - STAGE 1 SHEET FOR DETAILS)

TEMPORARY RUN-AROUND CN GATEWAY LEAD TRACK

TEMPORARY PAVEMENT

TEMPORARY CONCRETE BARRIER (TYP.)

TEMP. INTERMODAL TERMINAL 11' WIDE TRUCK LANE 2

TEMP. INTERMODAL TERMINAL 11' WIDE TRUCK LANE 1

TEMP. INTERMODAL TERMINAL 11' WIDE TRUCK LANE 3

RECEIVING TERMINAL CANOPY  
EXISTING CN-OWNED CONCRETE BARRIER SHALL BE RELOCATED TO FACILITATE MAINTENANCE OF TRAFFIC AS DIRECTED BY CN (COST INCLUDED IN COST OF NEW TEMPORARY CONCRETE BARRIER) (TYP.)

TEMPORARY RUN-AROUND CN THOROUGHFARE TRACK

REMOVE PAVEMENT, REMOVE CURB AND GUTTER, AND EXCAVATE FOR TEMPORARY TRACK (SEE GRADING PLAN FOR PAY ITEMS)

STAGE I REMOVAL

STAGE I RAILROAD STRUCTURE CONSTRUCTION SN 016-2819 44'-11"

STAGE I REMOVAL

STAGE I HWY STRUCTURE CONSTRUCTION SN 016-2820 54'-2"

STAGE I REMOVAL

STAGE I RAILROAD STRUCTURE CONSTRUCTION SN 016-2822 47'-10 1/2"

PORTION OF EXISTING BRIDGE

EDGE OF EXISTING PAVEMENT

NEW BRIDGE APPROACH PAVEMENT

TEMPORARY BRIDGE RAIL WITH LAGGING (SEE SN 016-2820 PLANS FOR DETAILS)

PORTION OF EXISTING BRIDGE

95+00

NEW BRIDGE APPROACH PAVEMENT

**BILL OF MATERIAL**

PAY ITEM	UNIT	QTY.
TEMPORARY CONCRETE BARRIER	FT	831
TEMPORARY PAVEMENT	SY	125.9

**NOTES:**

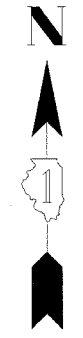
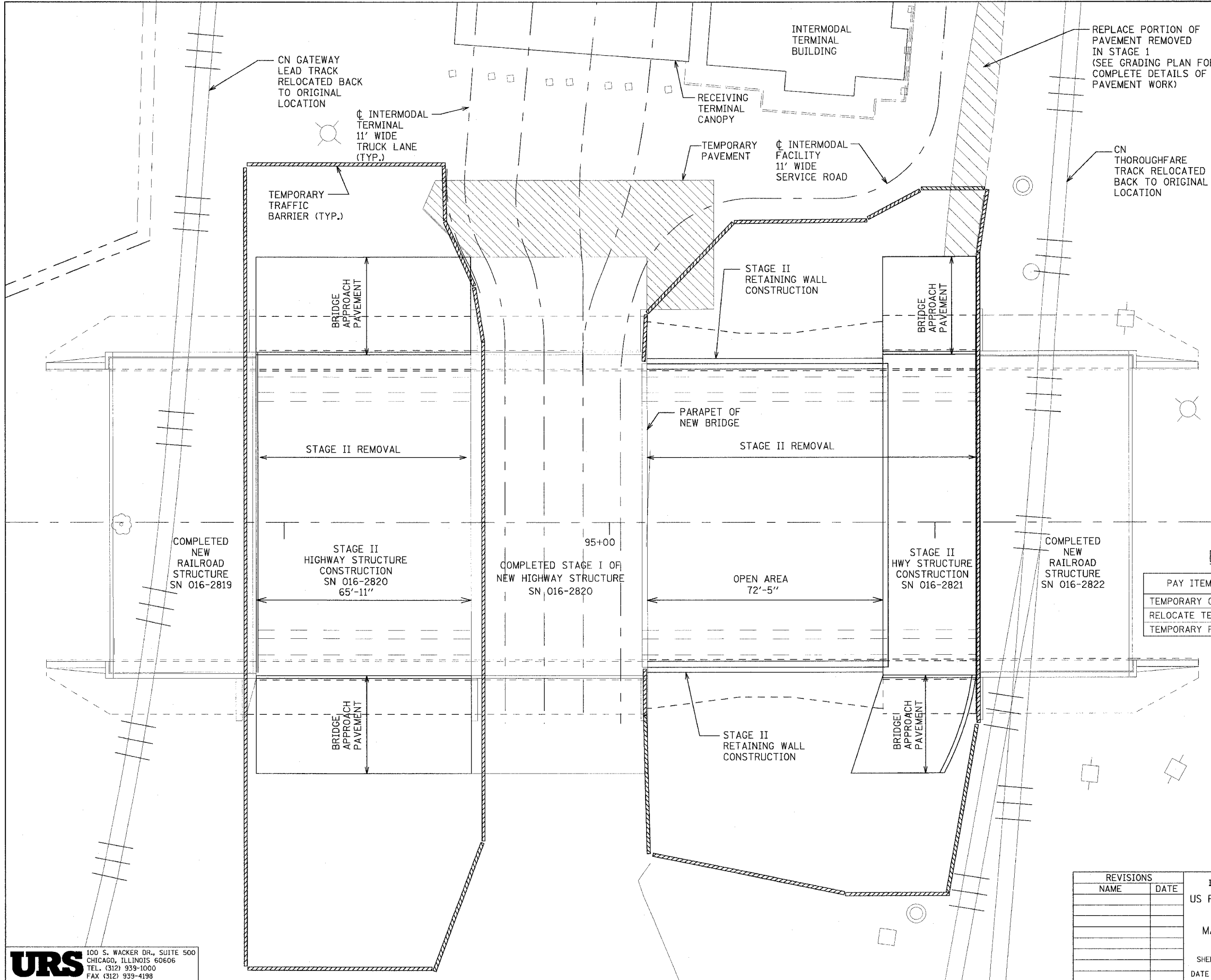
1. MAINTAIN ALL 4 TRUCK LANES THROUGH RECEIVING TERMINAL CANOPY AT ALL TIMES AND DURING ALL CONSTRUCTION STAGES.
2. MAINTAIN 3 TRUCK LANES ACROSS BRIDGE HAVING A MINIMUM WIDTH OF 11' AT ALL TIMES AND DURING ALL CONSTRUCTION STAGES.
3. 1 - 12' LANE FOR INTERMODAL FACILITY SERVICE ROAD SHALL BE MAINTAINED AT ALL TIMES LEADING TO AND ACROSS BRIDGE IN ADDITION TO 3 TRUCK LANES.
4. ALL EXCAVATION AND BRIDGE REMOVAL WITH DROPS IN EXCESS OF 1' SHALL BE PROTECTED WITH TEMPORARY BARRIERS TO PREVENT ACCIDENTAL ENTRY BY VEHICLES.
5. SEE RAILROAD BRIDGE PLANS FOR TEMPORARY FALL PROTECTION ALONG RAILROAD TRACKS.

**URS**  
100 S. WACKER DR., SUITE 500  
CHICAGO, ILLINOIS 60606  
TEL. (312) 939-1000  
FAX (312) 939-4198

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
INTERMODAL FACILITY  
MAINTENANCE OF TRAFFIC - STAGE 1  
SHEET 4 OF 8  
DATE 02/21/08  
DRAWN BY MAD  
CHECKED BY DEY

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2008-001VB	COOK	579	345
STA.		TO STA.		
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		
CONTRACT NO. 60E10				



**BILL OF MATERIAL**

PAY ITEM	UNIT	QTY.
TEMPORARY CONCRETE BARRIER	FT	49
RELOCATE TEMPORARY CONCRETE BARRIER	FT	831
TEMPORARY PAVEMENT	SY	256.6

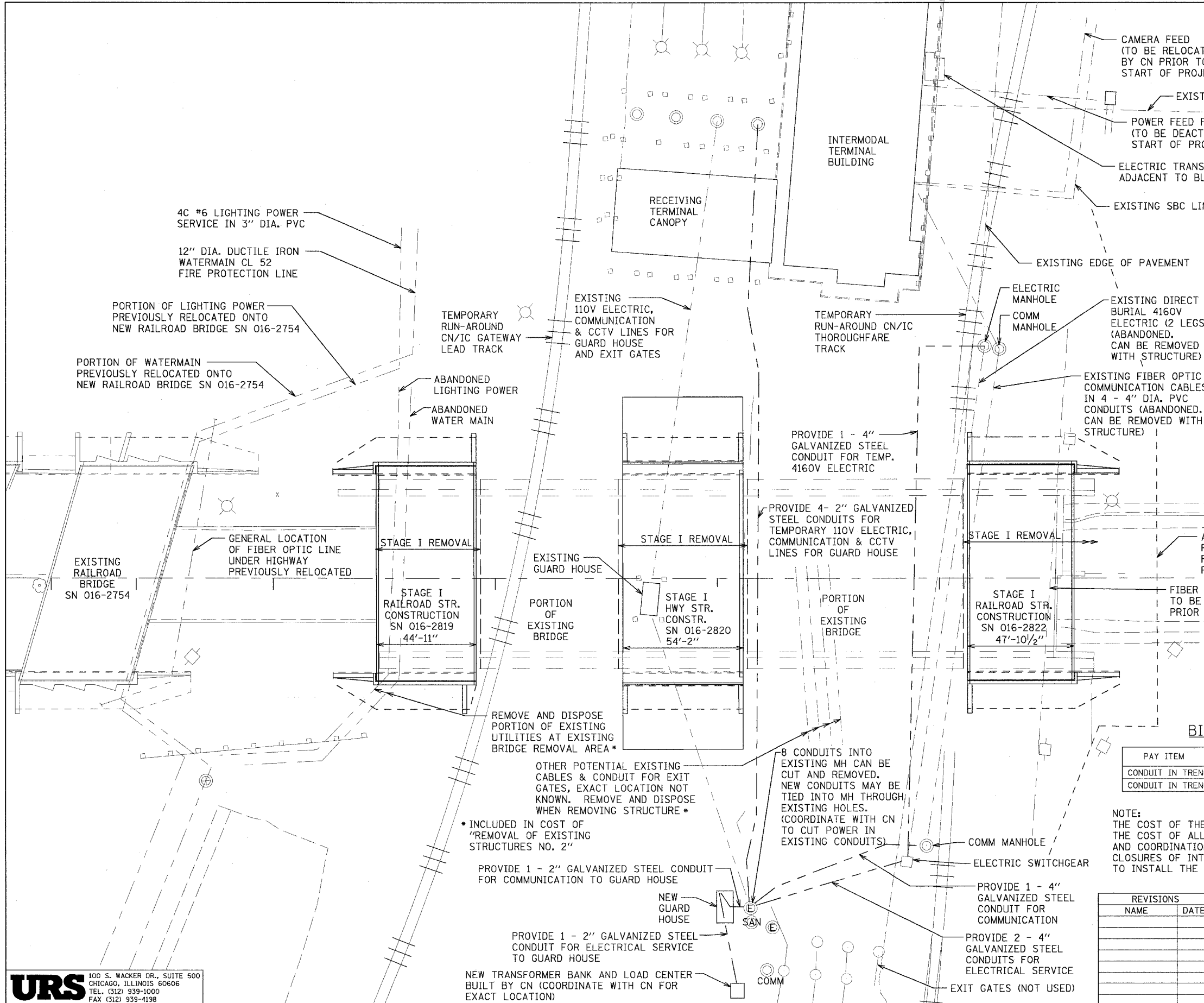
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
 INTERMODAL FACILITY  
 MAINTENANCE OF TRAFFIC - STAGE 2

SHEET 5 OF 8  
 DATE 02/21/08

DRAWN BY MAD  
 CHECKED BY DEY

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2008-001VB	COOK	579	346
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 60E10				



- NOTES:
1. LOCATIONS AND ROUTINGS SHOWN FOR ALL UTILITIES ARE APPROXIMATE OR ASSUMED. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ACTUAL LOCATIONS AND ROUTINGS.
  2. COST OF CORING HOLES INTO EXISTING MANHOLES OR JUNCTION BOXES FOR NEW CONDUITS IS INCLUDED IN THE UNIT PRICE FOR THE APPLICABLE CONDUIT IN TRENCH.
  3. PROVIDE TEMPORARY BITUMINOUS PATCHING FOR AREAS OF PAVEMENT REMOVED FOR CONDUIT PLACEMENT. COST INCLUDED IN UNIT PRICE OF APPLICABLE CONDUIT IN TRENCH.
  4. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS FOR UTILITY RELOCATION.

**BILL OF MATERIAL**

PAY ITEM	UNIT	QTY.
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	1461
CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FT	491

NOTE:  
THE COST OF THE CONDUIT IN TRENCH ITEMS ABOVE INCLUDES THE COST OF ALL EXCAVATION, BACKFILL, REPLACEMENT PAVING, AND COORDINATION WITH CN TO OBTAIN SHORT-TERM CLOSURES OF INTERMODAL TRUCK TRAFFIC LANES REQUIRED TO INSTALL THE CONDUIT.

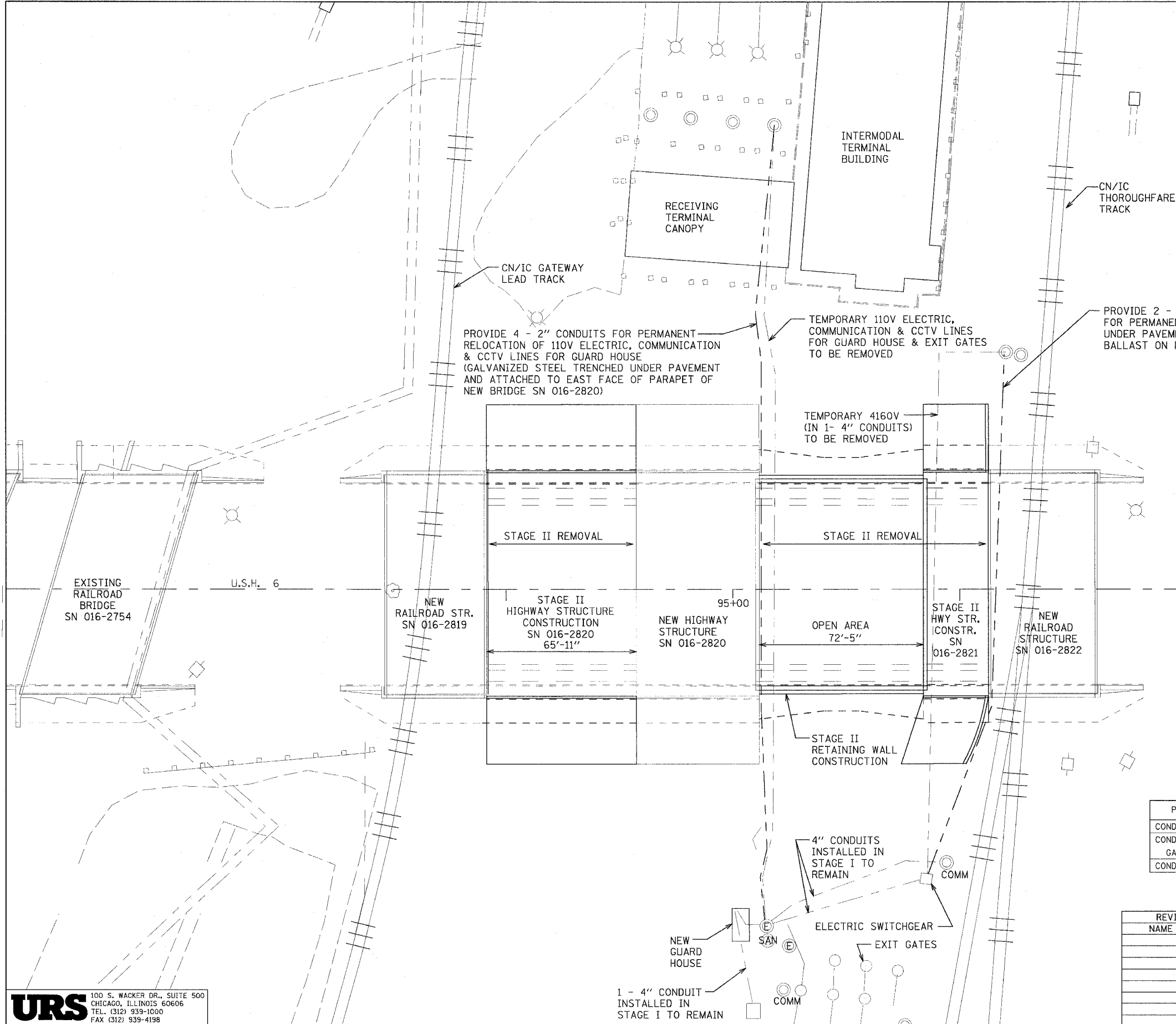
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
 INTERMODAL FACILITY  
 UTILITY ADJUSTMENTS - STAGE 1

SHEET 6 OF 8  
 DATE 02/21/08

DRAWN BY MAD  
 CHECKED BY DEY

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS NO.	SHEET NO.
351	2008-001VB	COOK	579	347
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		
CONTRACT NO. 60E10				



**NOTES:**

1. LOCATIONS AND ROUTINGS SHOWN FOR ALL UTILITIES ARE APPROXIMATE OR ASSUMED. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ACTUAL LOCATIONS AND ROUTINGS.
2. COST OF CORING HOLES INTO EXISTING MANHOLES OR JUNCTION BOXES FOR NEW CONDUITS IS INCLUDED IN THE UNIT PRICE FOR THE APPLICABLE CONDUIT IN TRENCH.
3. PROVIDE TEMPORARY BITUMINOUS PATCHING FOR AREAS OF PAVEMENT REMOVED FOR CONDUIT PLACEMENT. COST INCLUDED IN UNIT PRICE OF APPLICABLE CONDUIT IN TRENCH.
4. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS FOR UTILITY RELOCATION.

**BILL OF MATERIAL**

PAY ITEM	UNIT	QTY.
CONDUIT IN TRENCH, 2" DIA., GALVANIZED STEEL	FT	996
CONDUIT ATTACHED TO STRUCTURE, 2" DIA., GALVANIZED STEEL	FT	392
CONDUIT IN TRENCH, 4" DIA., GALVANIZED STEEL	FT	468

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
 INTERMODAL FACILITY  
 UTILITY ADJUSTMENTS - STAGE 2

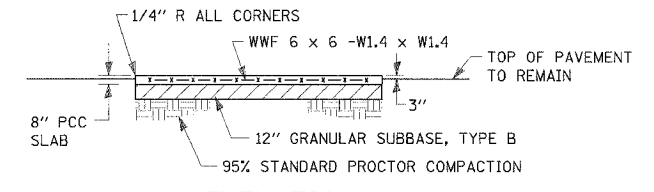
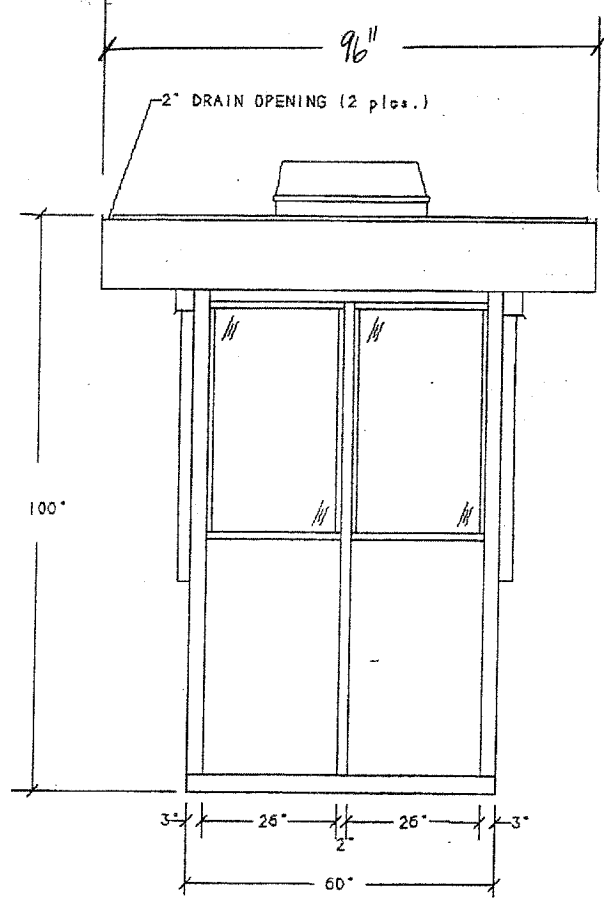
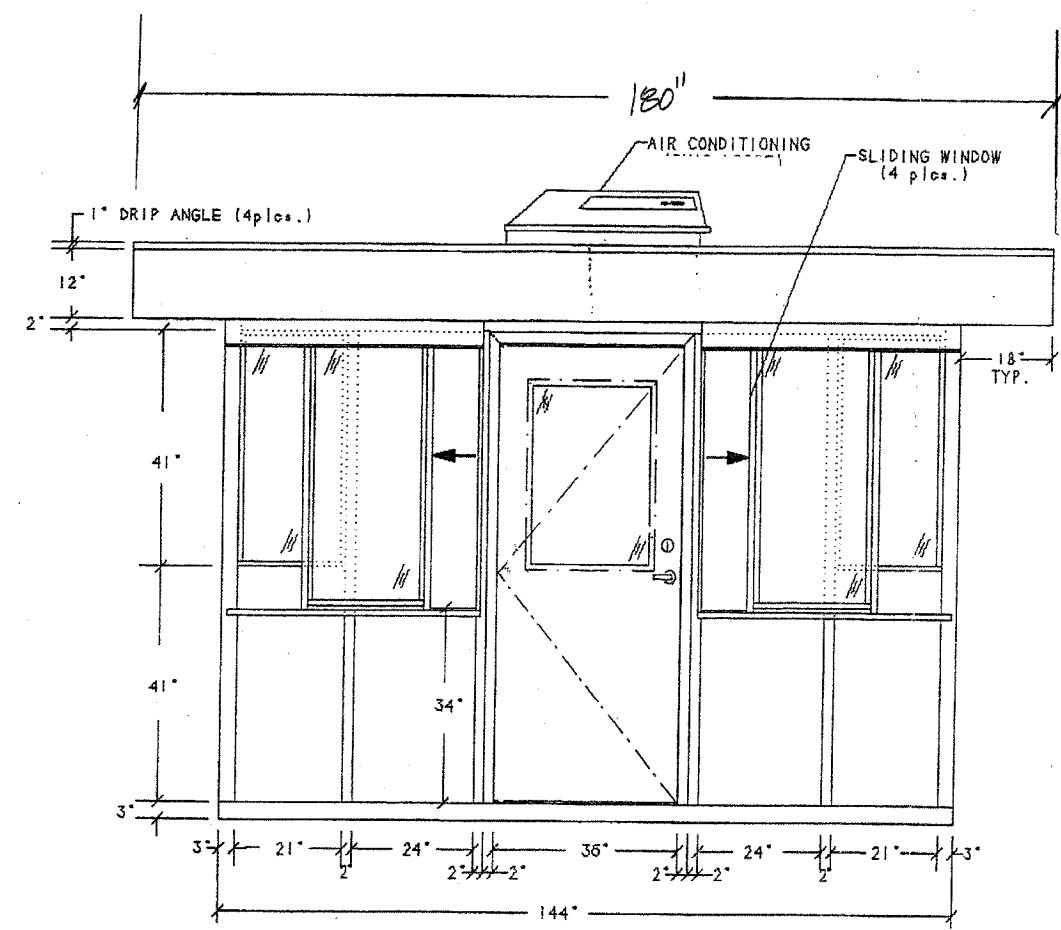
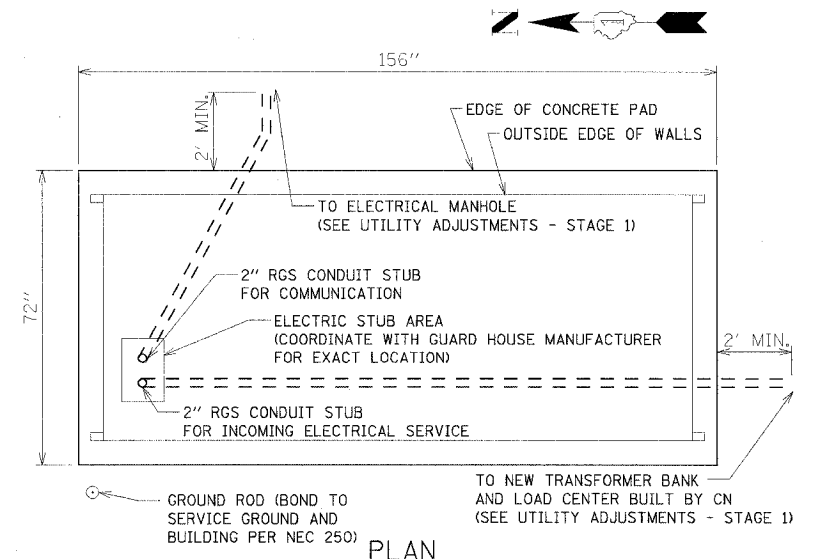
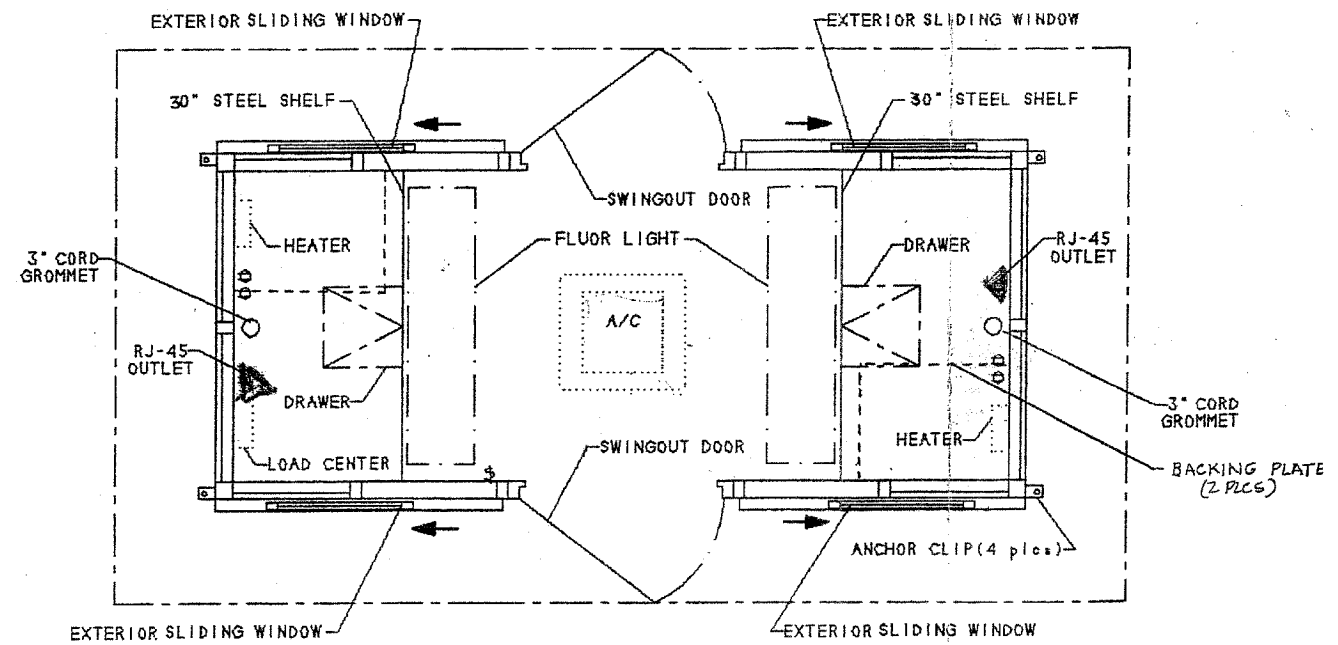
SHEET 7 OF 8  
 DATE 02/21/08

DRAWN BY MAD  
 CHECKED BY DEY

**URS**  
 100 S. WACKER DR., SUITE 500  
 CHICAGO, ILLINOIS 60606  
 TEL. (312) 939-1000  
 FAX (312) 939-4198

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
351	2008-001VB	COOK	579	348
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

CONTRACT NO. 60E10



CONCRETE PAD FOR GUARD HOUSE

NOTE:  
SEE SPECIAL PROVISION "GUARD HOUSE RELOCATION" FOR SPECIFIC REQUIREMENTS FOR THE NEW GUARD HOUSE.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM LEXINGTON AVE TO FISK AVE  
INTERMODAL FACILITY  
GUARD HOUSE DETAILS

SHEET 8 OF 8  
DATE 02/21/08  
DRAWN BY MAD  
CHECKED BY DEY





**BRIDGE GENERAL NOTES**

Fasteners shall be high strength bolts. Bolts 7/8"φ, open holes 1 1/16"φ, unless otherwise noted.

Calculated weight of M270 Gr. 36 (ASTM A709 Gr. 36) Structural Steel = 203,176 Pounds.

Calculated weight of M270 Gr. 50 (ASTM A709 Gr. 50) Structural Steel = 787,482 Pounds.

Field welding of construction accessories will not be permitted to beams. Field welding in other areas will be permitted only when approved by the Engineer.

Anchor bolts shall be set before bolting diaphragms over supports.

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams.

Reinforcement bars shall conform to the requirements of AASHTO M-31 or M-322 Grade 60.

The back face of closed abutments and their wingwalls shall be waterproofed according to Article 503.18 of the Standard Specifications.

Concrete Sealer shall be applied to the seat area of the abutments and pier.

Reinforcement bars designated (E) shall be epoxy coated.

The inorganic zinc rich primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be reddish brown, Munsell No. 2.5 YR 3/4. See Special Provision for "Cleaning and Painting New Metal Structures".

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Deck elevations are constant along lines parallel to U.S. Rte. 6

All construction joints shall be bonded.

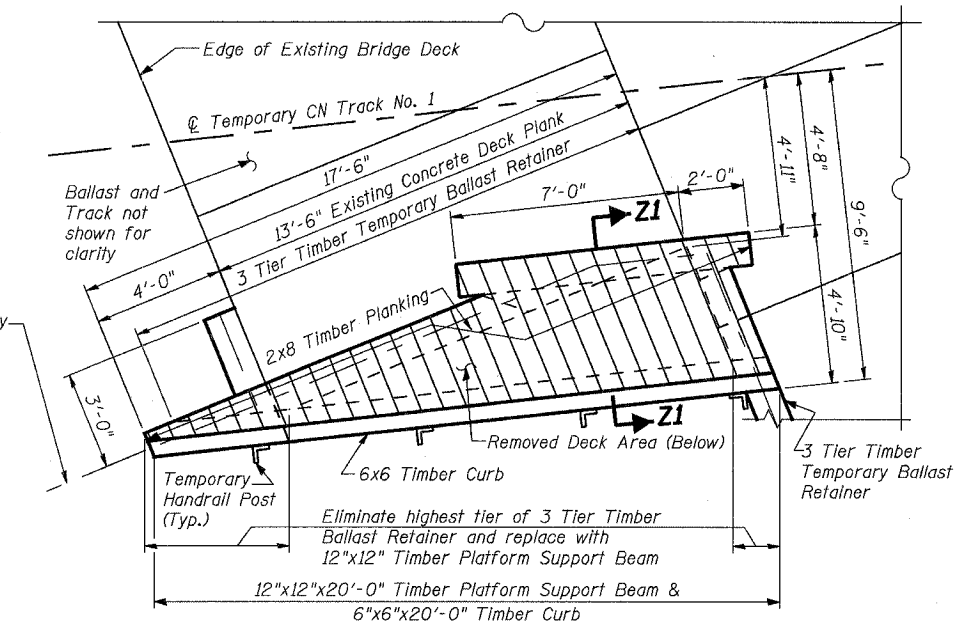
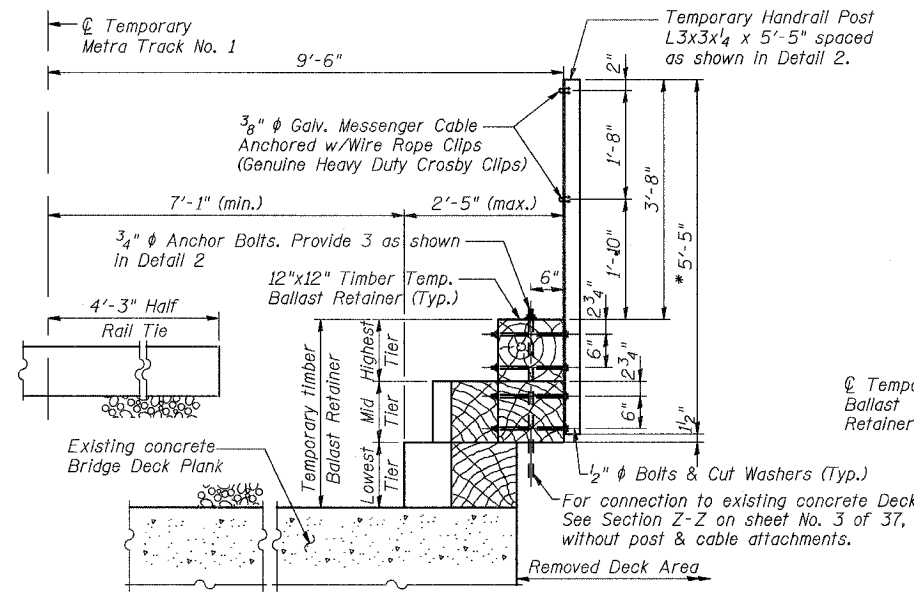
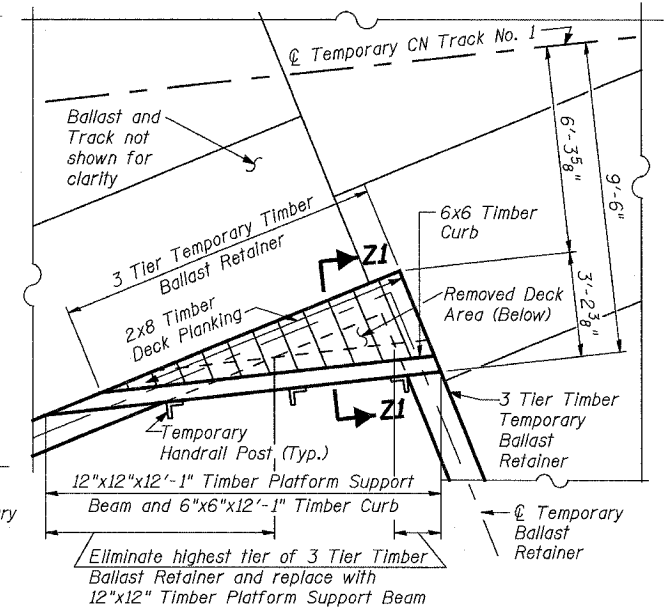
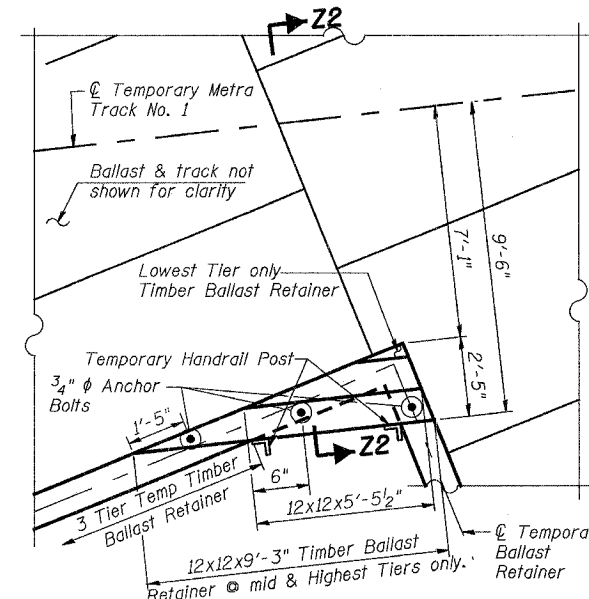
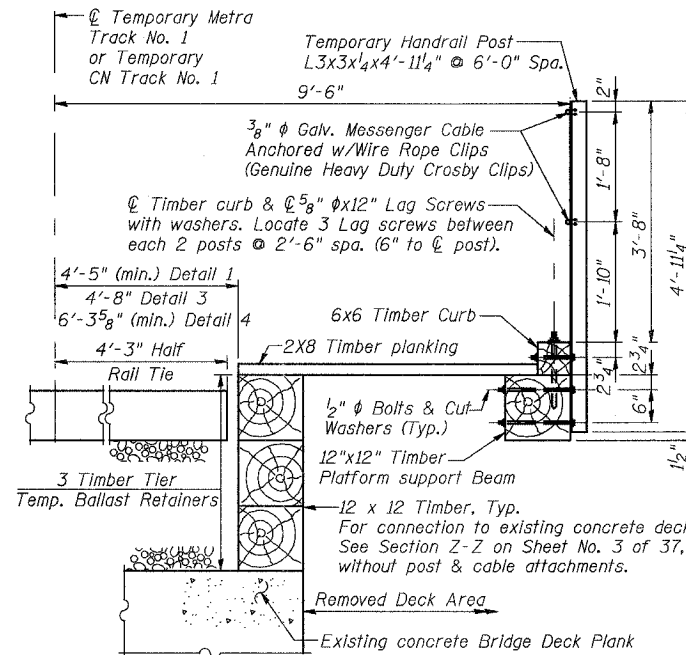
The cost of Expansion Joint Construction is included with Concrete Structures. Water Seal and PJF in Expansion Joint shall extend from top of footing to 3" from top of wall.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	350
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

CONTRACT NO. 60E10

SHEET NO. 2  
37 SHEETS



**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu. Yd.		2,183	2,183
Removal of Existing Structures No. 1	Each	1		1
Structure Excavation	Cu. Yd.		2,243	2,243
Non-Special Waste Disposal	Cu. Yd.		3,997.4	3,997.4
Concrete Structures	Cu. Yd.		1,689.1	1,689.1
Concrete Superstructure	Cu. Yd.	242.7		242.7
Furnishing and Erecting Structural Steel	L Sum	0.46		0.46
Reinforcement Bars	Pound		12,230	12,230
Reinforcement Bars, Epoxy Coated	Pound		362,380	399,130
Pipe Handrail, Special	Foot	216	138	354
Name Plates	Each		1	1
Anchor Bolts, 1 1/4"	Each		208	208
Membrane Waterproofing (Special)	Sq. Ft.	9,221.5		9,221.5
Concrete Sealer	Sq. Ft.		978	978
Geocomposite Wall Drain	Sq. Yd.		775	775
Braced Excavation	Cu. Yd.		3238.3	3238.3
Permanent Steel Sheet Piling	Sq. Ft.		2,567	2,567
Drilled Shaft in Soil	Cu. Yd.		508	508
Drilled Shaft in Rock	Cu. Yd.		84	84
Bar Splicers	Each	208	200	408
Temporary Ballast Retainer System	Foot		349	349
Temporary Removable Walkway System for SN 016-2755 Construction	L Sum	1		1
Conduit Attached to Structure, 4" Dia. Galvanized Steel	Foot		256	256

METRA AND C.N.  
BUILT 2009 BY  
STATE OF ILLINOIS  
F.A.P. RT. 351 SEC. 3277R  
STA. 92+24.25 LOADING COOPER E-90  
STR. NO. 016-2755

NAME PLATE  
(See Std. 515001)

**Notes:**

- For Location of Details 2, 3, and 4, see Sheet No. 13 of 37.
- Increase dimension 5'-5" if timber ballast retainers are larger than 11 1/4" square.

**URS**  
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**GENERAL NOTES & TOTAL BILL OF MATERIAL**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

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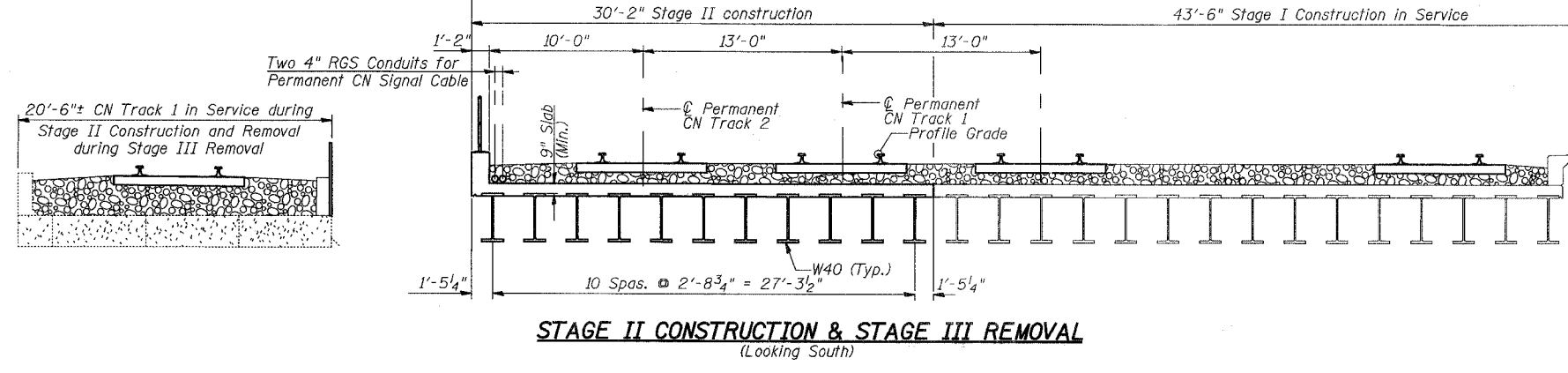
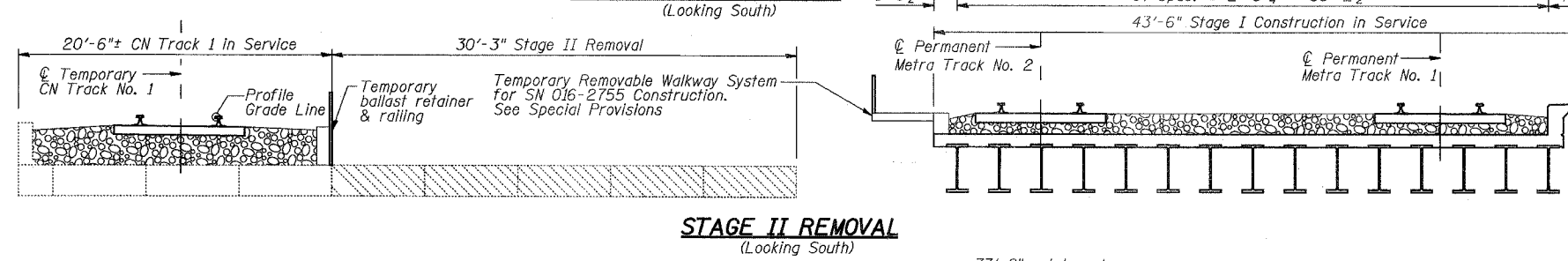
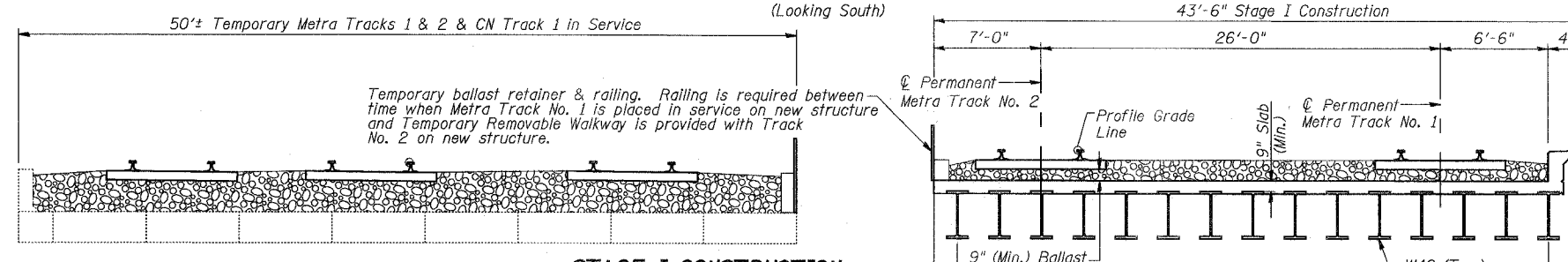
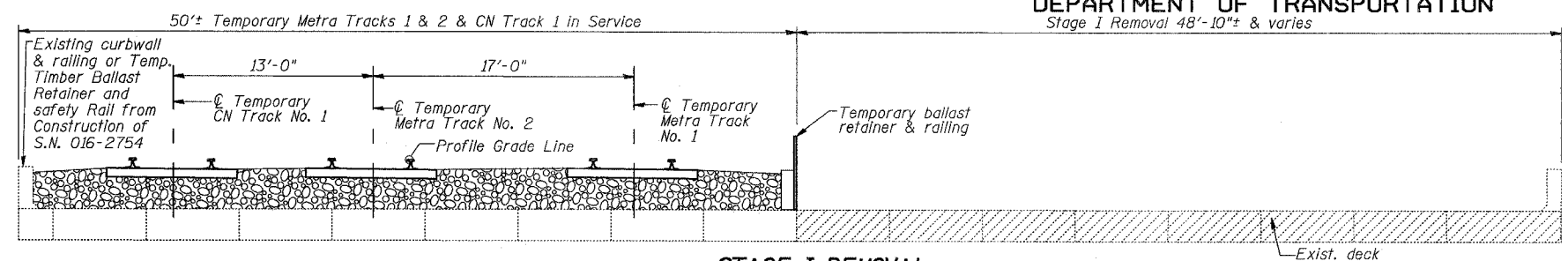
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
Stage I Removal 48'-10"± & varies

ROUTE NO. F.A.P. 351	SECTION 2008- 001VB	COUNTY COOK	TOTAL SHEETS 579	SHEET NO. 351
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT-		CONTRACT NO. 60E10

SHEET NO. 3  
37 SHEETS

STAGE CONSTRUCTION NOTES:

- Stage I**
1. Install braced sheeting required for Stage I abutment construction.
  2. Remove Stage I portion of existing deck and 3 piers.
  3. Excavate behind existing abutments and install walers and struts to brace sheet piling.
  4. Construct Stage I portion of Pier and Abutments.
  5. Remove Stage I portion of North Abutment and South Abutment (partial).
  6. Erect Stage I beams and construct Stage I deck.
- Stage II**
7. Remove Stage II portion of existing deck and substructures.
  8. Install additional braced sheeting required for Stage II abutment construction.
  9. Construct Stage II substructures, erect Stage II beams, construct Stage II deck.
- Stage III**
10. Remove remainder of existing deck and substructures.
  11. Install additional braced sheeting required for Stage III wingwall construction.
  12. Construct Stage III wingwalls.

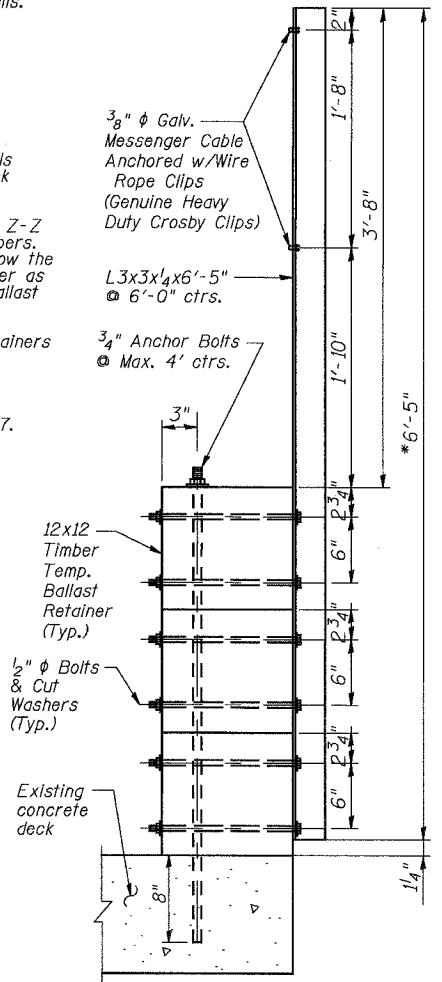


Notes:

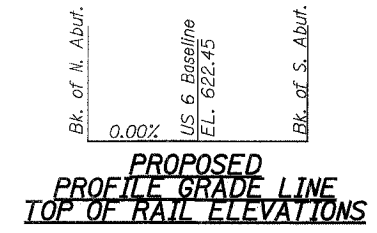
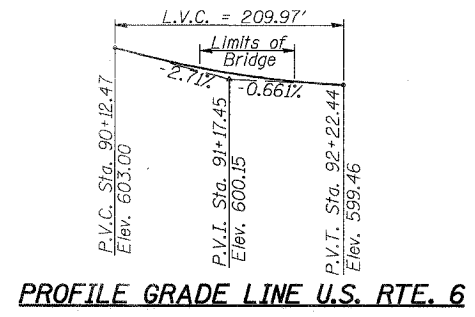
1. Metra tracks 1 & 2 and CN tracks 1 & 2 are to be at constant elevation across the length of the proposed bridge.
2. For Temporary rerouting of Metra and CN Signals in conduit across existing bridge deck, see track staging plan.
3. Temporary Ballast Retainer as shown in Section Z-Z may be provided with less than three 12x12 timbers. Contractor shall provide working drawings to show the specific design of the Temporary Ballast Retainer as indicated in the Special Provision "Temporary Ballast Retainer System".
4. \* Increase dimension 6'-5" if timber ballast retainers are larger than 11 1/4" square.
5. Work this sheet with Sheets 13, 14 & 15 of 37.
6. For location of Section Z-Z, see Sheet 13 of 37.

LEGEND:

- Stage I deck removal
- Stage II deck removal
- Stage III deck removal



CURVE DATA TEMPORARY METRA TRACK NO. 1	CURVE DATA TEMPORARY METRA TRACK NO. 2	CURVE DATA TEMPORARY CN TRACK NO. 1
(DESIGN SPEED 55 MPH)	(DESIGN SPEED 55 MPH)	(DESIGN SPEED 55 MPH)
P.I. STA. 103+61.59	P.I. STA. 203+68.24	P.I. STA. 303+73.53
Δ = 6° 46' 50" (RT)	Δ = 6° 46' 50" (RT)	Δ = 6° 46' 50" (RT)
D = 2° 30' 00"	D = 2° 30' 00"	D = 2° 30' 00"
T = 135.79'	T = 135.78'	T = 135.78'
R = 2,292.01'	R = 2,292.01'	R = 2,292.01'
L = 271.22'	L = 271.22'	L = 271.22'
E = 4.02'	E = 4.02'	E = 4.02'
S.E. = 3 1/2"	S.E. = 3 1/2"	S.E. = 3 1/2"
S.L. = 220.00'	S.L. = 220.00'	S.L. = 220.00'
T.S. STA. 100+05.81	T.S. STA. 200+12.47	T.S. STA. 300+17.75
S.C. STA. 102+25.81	S.C. STA. 202+32.47	S.C. STA. 302+37.75
C.S. STA. 104+97.03	C.S. STA. 205+03.68	C.S. STA. 305+08.97
S.T. STA. 107+17.03	S.T. STA. 207+23.68	S.T. STA. 307+28.97



URS  
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**STAGE CONSTRUCTION SEQUENCE**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

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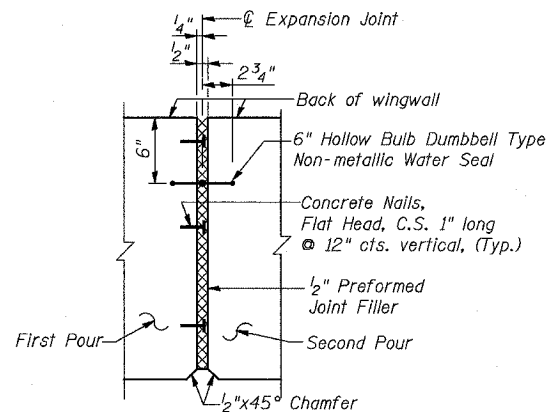
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	352
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

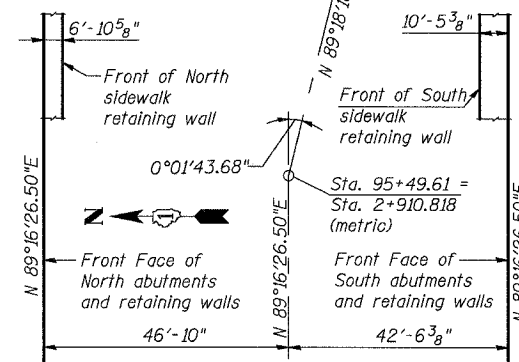
CONTRACT NO. 60E10

SHEET NO. 4  
37 SHEETS

159th St. Baseline referenced on Structure plans = Proposed centerline of Construction on Alignment & Tie Plans

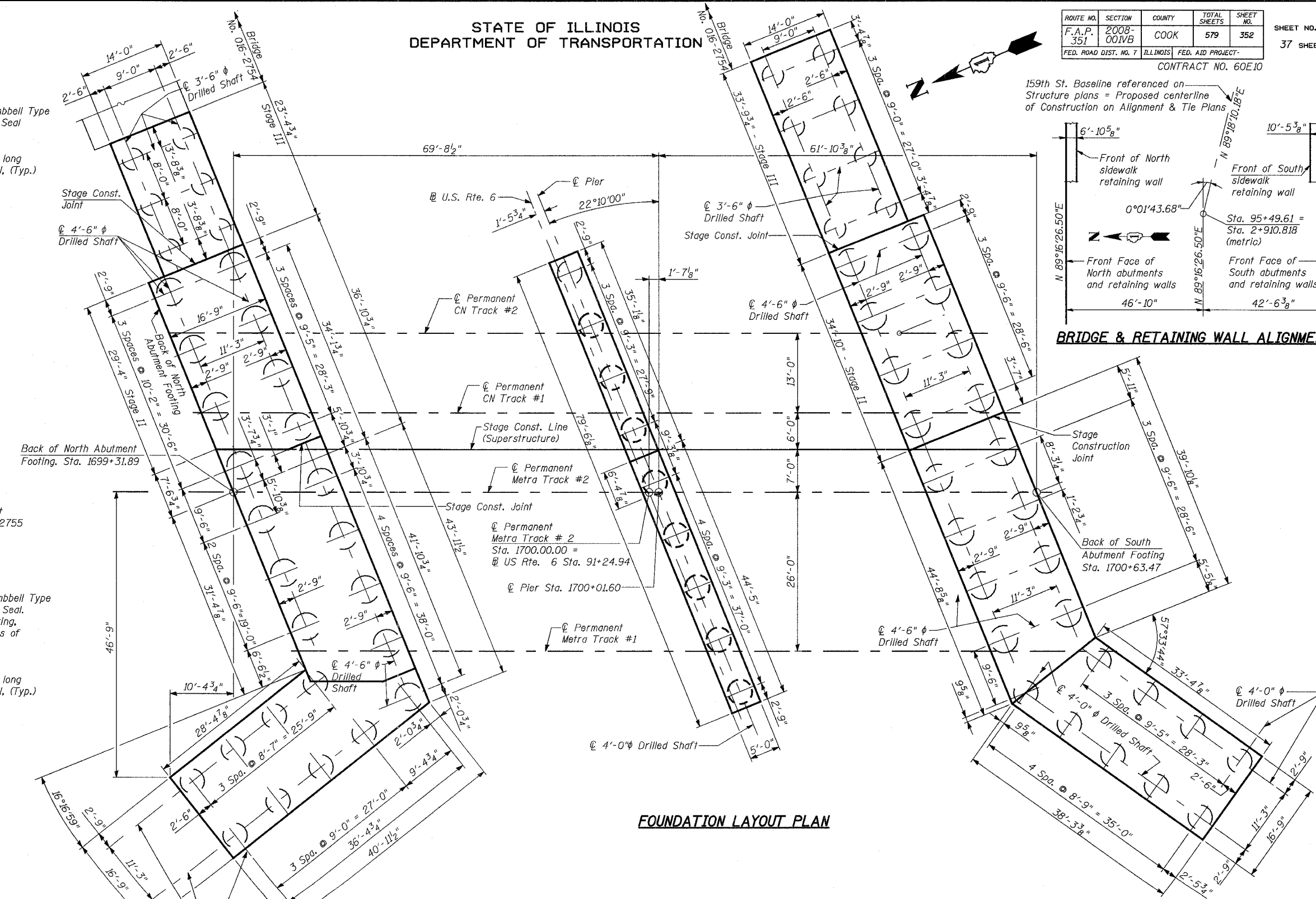


**SECTIONAL PLAN VIEW OF EXPANSION JOINT IN WEST WINGWALLS**

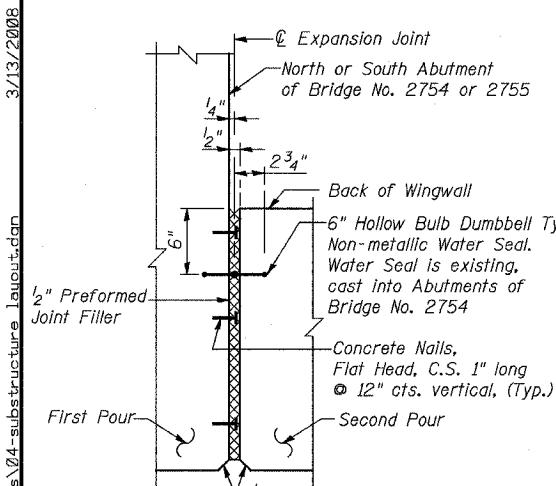


**BRIDGE & RETAINING WALL ALIGNMENT**

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**FOUNDATION LAYOUT PLAN**



**SECTIONAL PLAN VIEW OR REVERSED PLAN VIEW OF EXPANSION JOINT IN EAST WINGWALLS**

**NOTES:**  
1. For extent of Permanent Steel Sheet Piling, See Sheet Nos. 17, 20, 23 and 26 of 37.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SUBSTRUCTURE LAYOUT**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

**URS**  
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

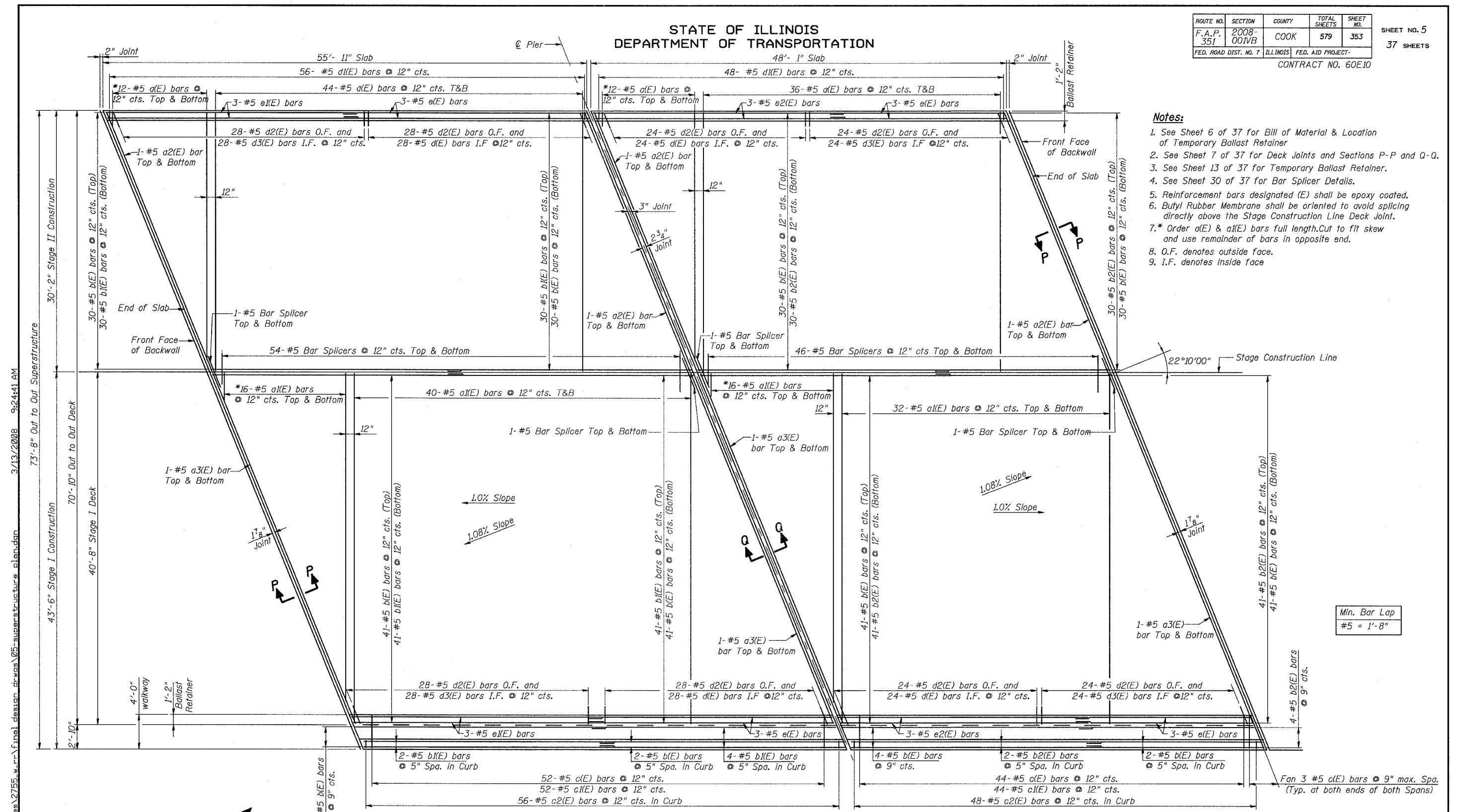
DESIGNED DRS  
CHECKED JIG  
DRAWN DRS/SOI  
CHECKED JIG

SCALE: 1" = 1'-0"

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	353
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT-		
CONTRACT NO. 60E10				

SHEET NO. 5  
37 SHEETS



- Notes:**
1. See Sheet 6 of 37 for Bill of Material & Location of Temporary Ballast Retainer
  2. See Sheet 7 of 37 for Deck Joints and Sections P-P and Q-Q.
  3. See Sheet 13 of 37 for Temporary Ballast Retainer.
  4. See Sheet 30 of 37 for Bar Splicer Details.
  5. Reinforcement bars designated (E) shall be epoxy coated.
  6. Butyl Rubber Membrane shall be oriented to avoid splicing directly above the Stage Construction Line Deck Joint.
  - 7.\* Order a(E) & a1(E) bars full length. Cut to fit skew and use remainder of bars in opposite end.
  8. O.F. denotes outside face.
  9. I.F. denotes inside face

Min. Bar Lap  
#5 = 1'-8"

PLAN

DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

REVISIONS	
NAME	DATE

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ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SUPERSTRUCTURE PLAN**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94      STRUCTURE NO. 016-2755  
SCALE:      DATE: 2/21/2008

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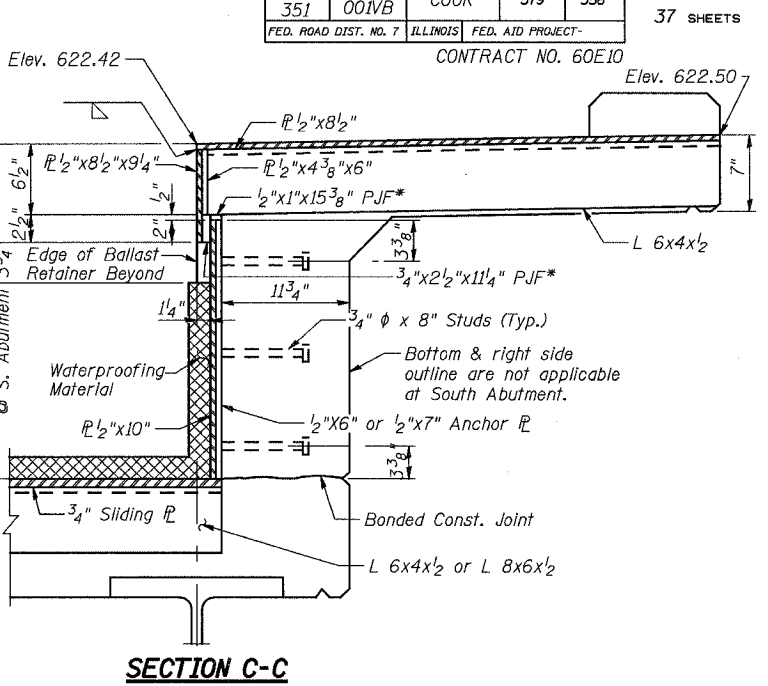
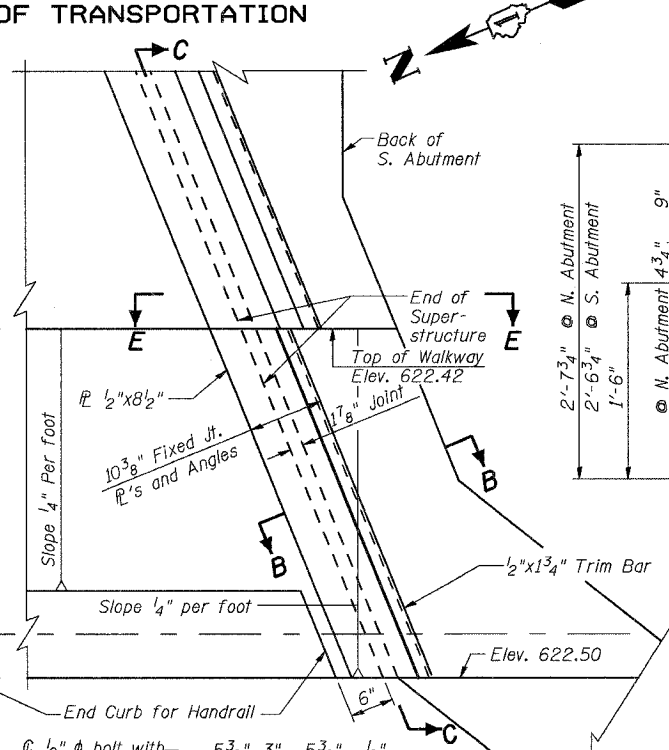
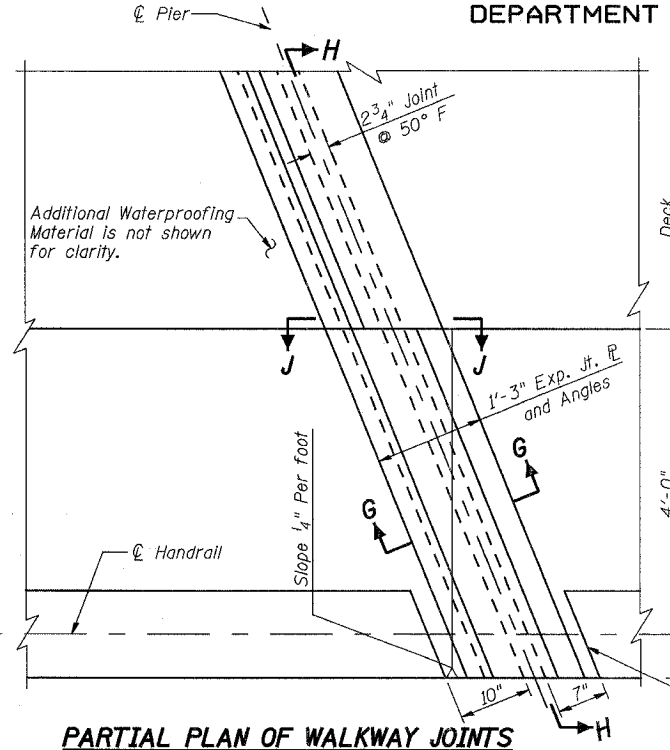
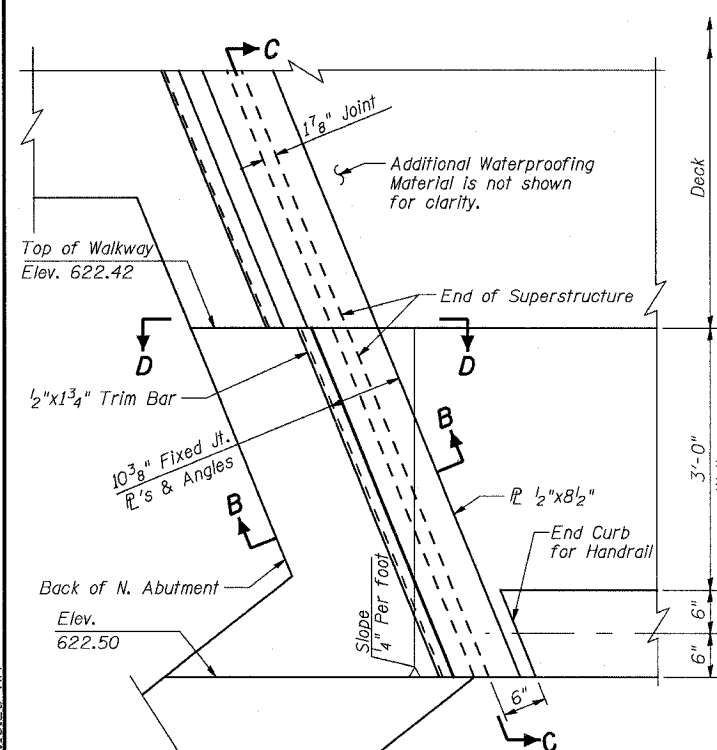




STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

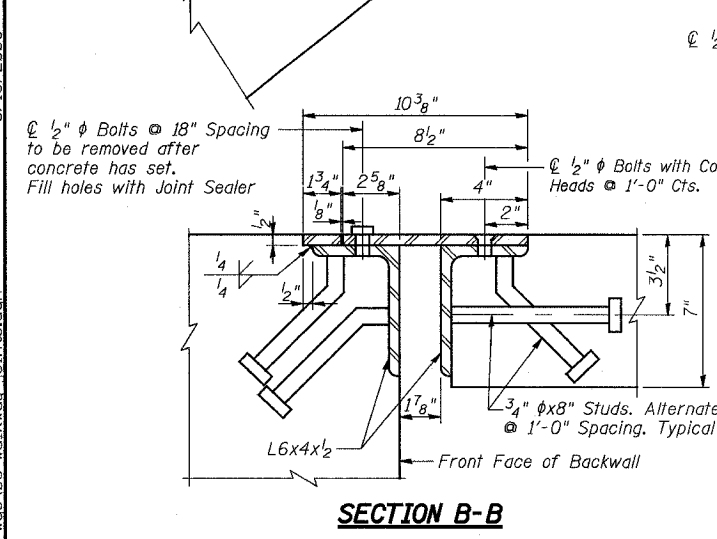
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F.A.P. 351	200B-001VB	COOK	579	356
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 8  
37 SHEETS

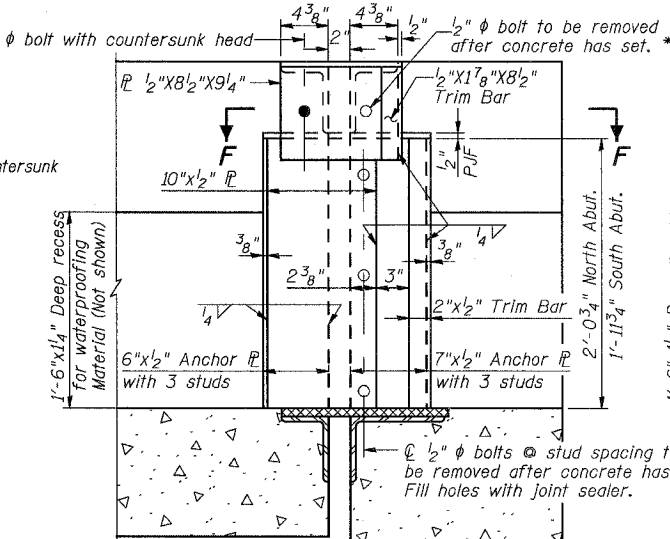


PARTIAL PLAN OF WALKWAY JOINTS

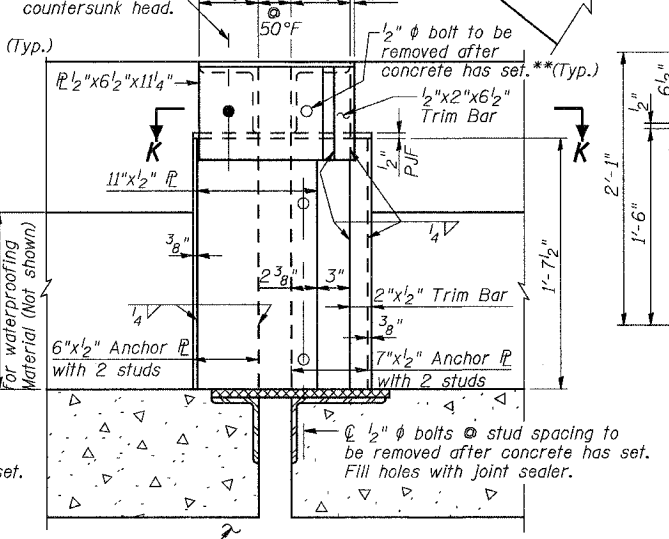
SECTION C-C



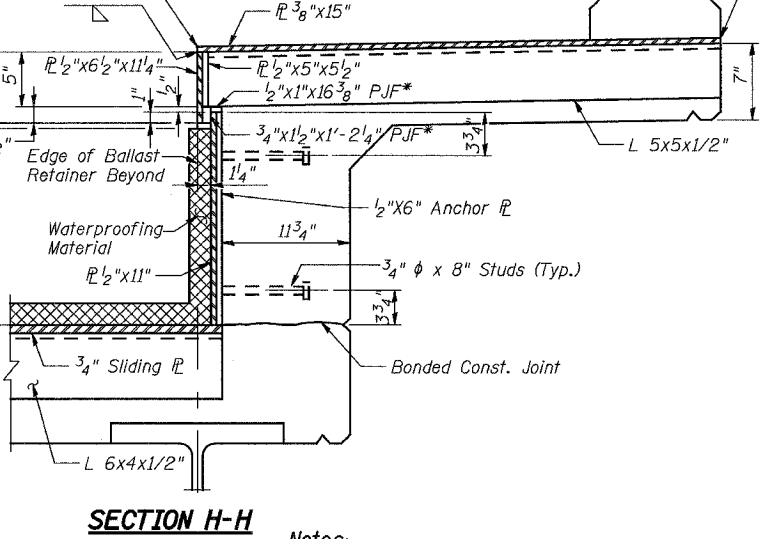
SECTION B-B



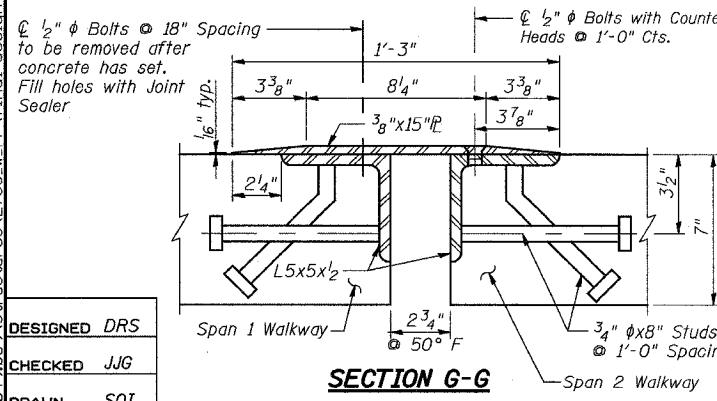
SECTION D-D  
(SECTION E-E MIRROR IMAGE)



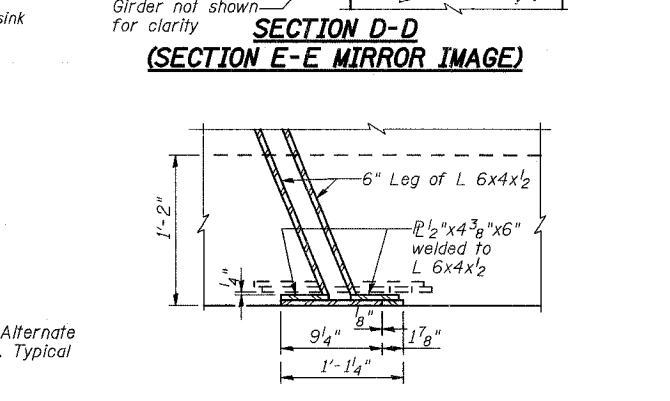
SECTION J-J



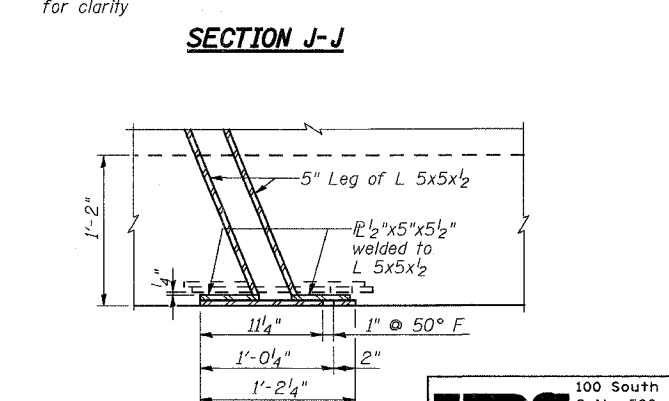
SECTION H-H



SECTION G-G



SECTION F-F



SECTION K-K

- Notes:
- \*Remove & discard P.J.F after forms are removed.
  - For details of waterproofing material against ballast retainer, see Sheet 7 of 37.
  - 3/4 inch x 8 inch studs are granular or solid flux filled headed studs automatically end welded conforming to Article 1006.32 of the Std. Specifications.
  - \*\* Fill open holes (O) with joint sealer.
  - (●) Denotes 1/2 inch bolt with countersunk head.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**WALKWAY JOINTS**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

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Chicago, IL 60606  
(312) 939-1000



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DESIGNED DRS  
CHECKED JJG  
DRAWN SOI  
CHECKED JJG

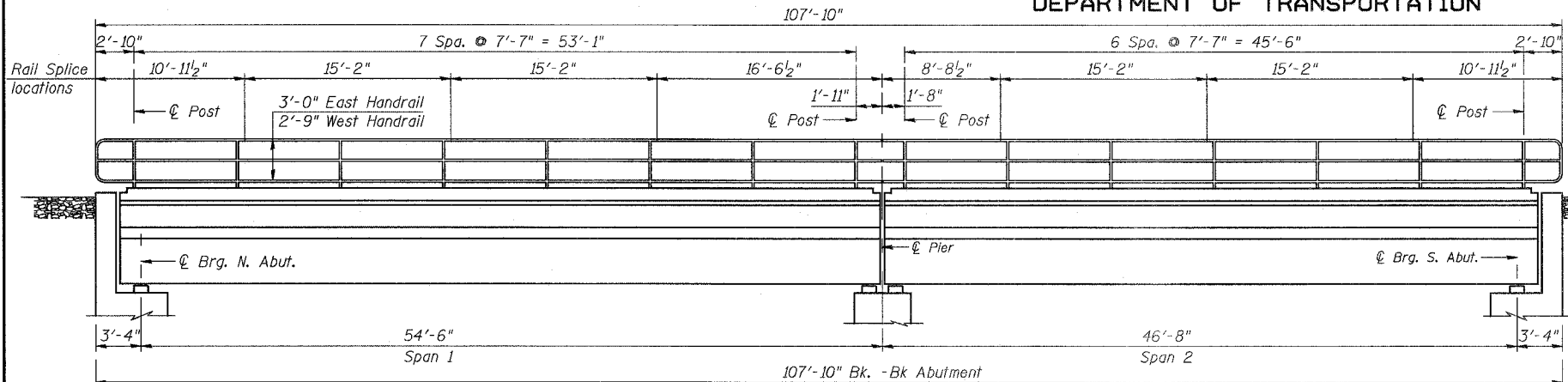


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	357
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

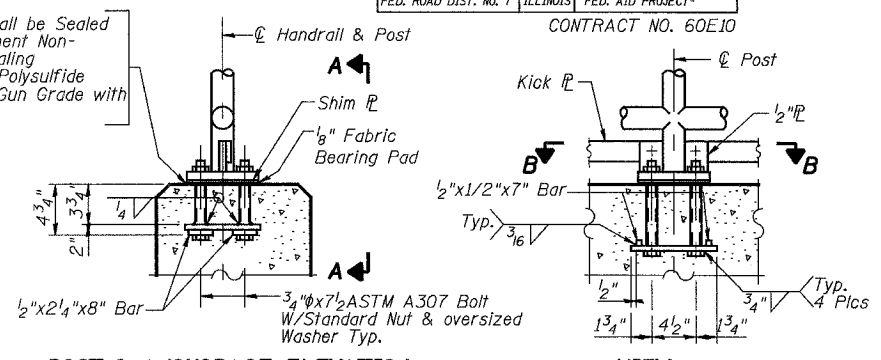
CONTRACT NO. 60E10

SHEET NO. 9  
37 SHEETS



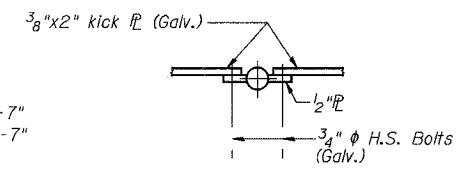
ELEVATION OF EAST OR WEST HANDRAIL LOOKING EAST

Base of Post Shall be Sealed with Two Component Non-Staining Gray Sealing Compounds with Polysulfide Liquid Polymers-Gun Grade with Primer.

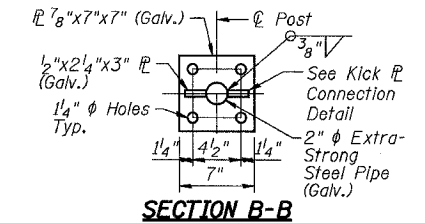


POST & ANCHORAGE ELEVATION

VIEW A-A

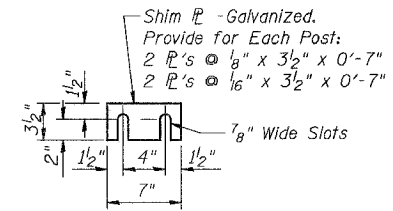


KICK PLATE CONNECTION DETAIL

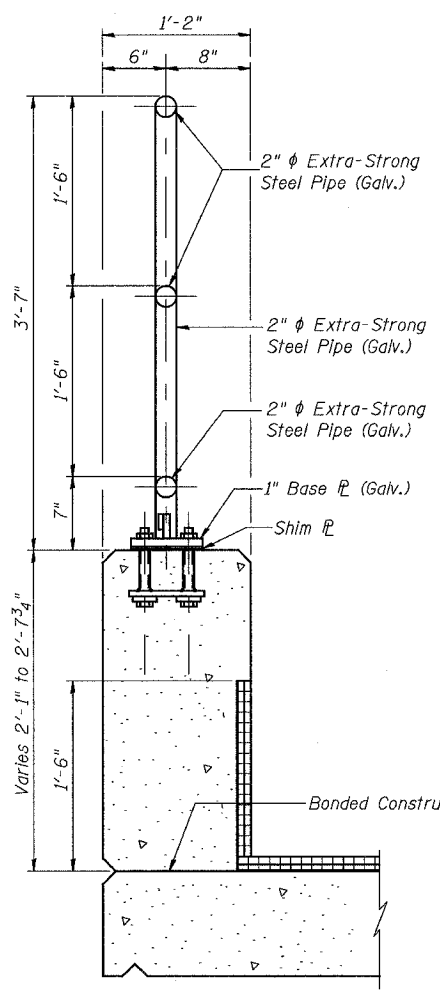


SECTION B-B

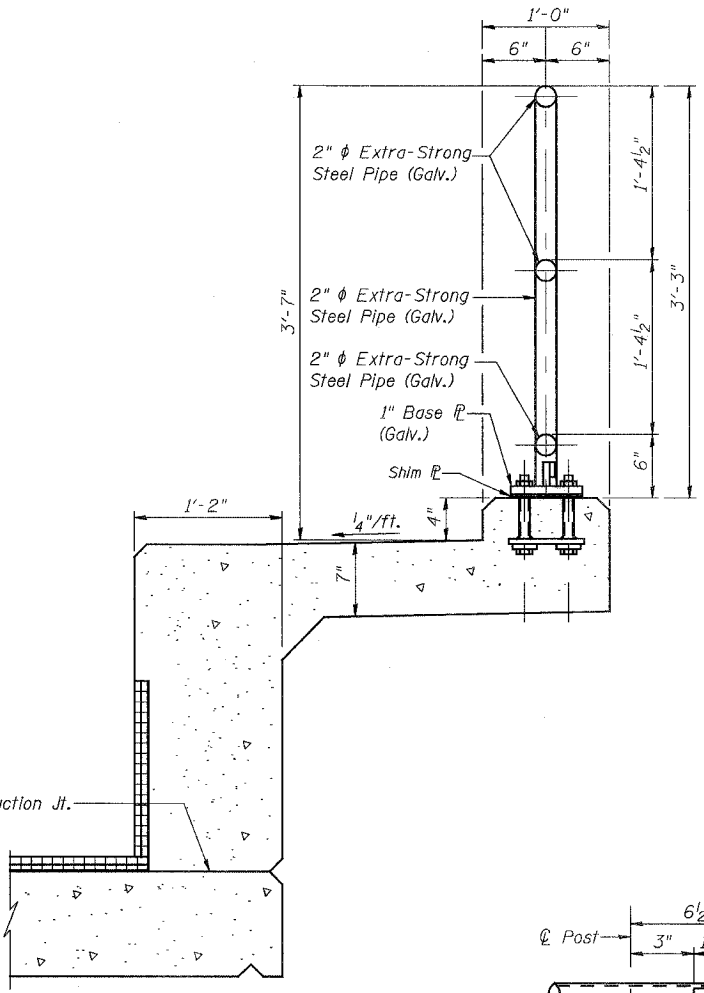
ANCHOR BOLT DETAILS



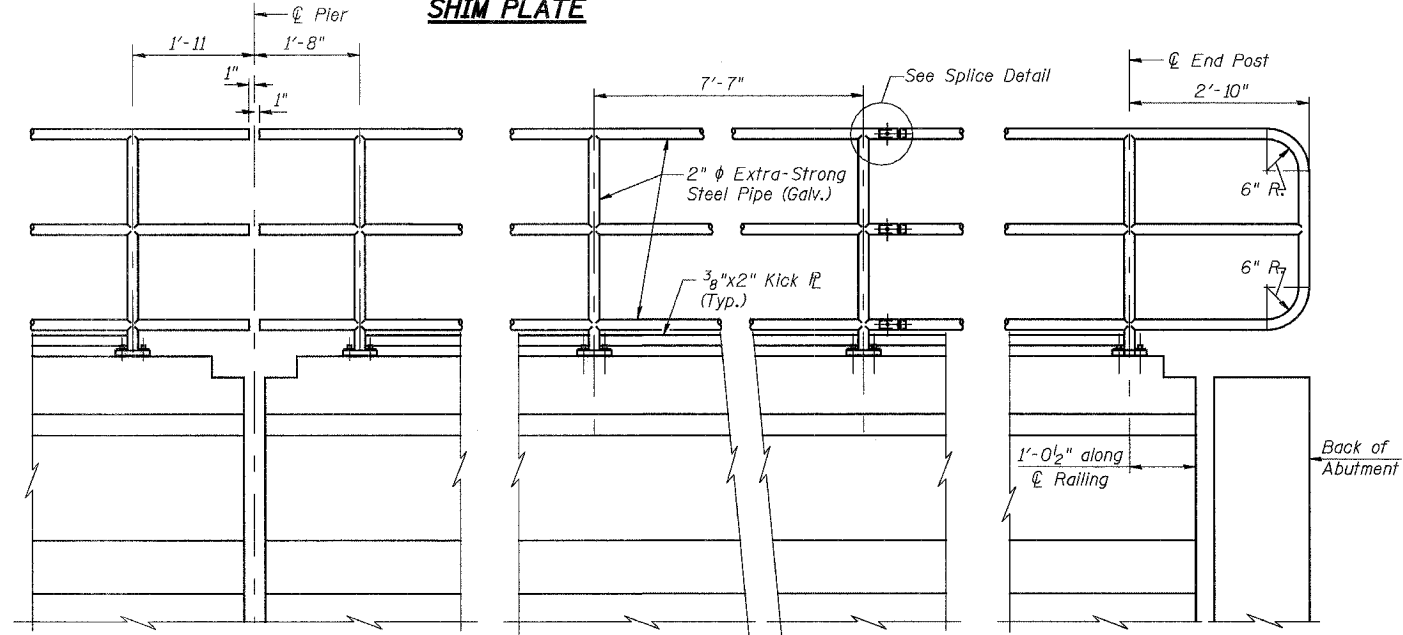
SHIM PLATE



TYPICAL SECTION EAST SIDE LOOKING SOUTH



TYPICAL SECTION WEST SIDE LOOKING SOUTH



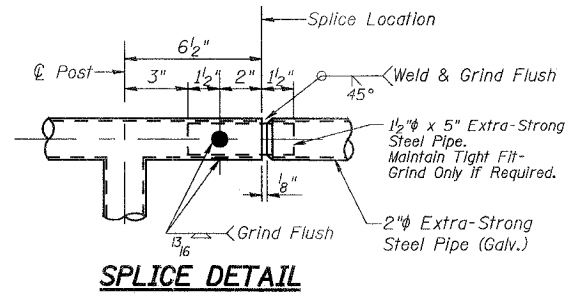
RAILING ELEVATIONS

Notes:

- All bolts, Nuts & Washers shall be galvanized according to AASHTO M 232.
- All posts, pipe, pipe splices, base plates, and shim plates shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized pipe shall not be painted.
- Horizontal dimensions in elevation views are along  $\bar{C}$  Railing.

BILL OF MATERIAL

Item	Unit	Quantity
Pipe Handrail, Special	Foot	216



SPlice DETAIL

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DESIGNED	DRS
CHECKED	JJG
DRAWN	DRS/SOI
CHECKED	JJG

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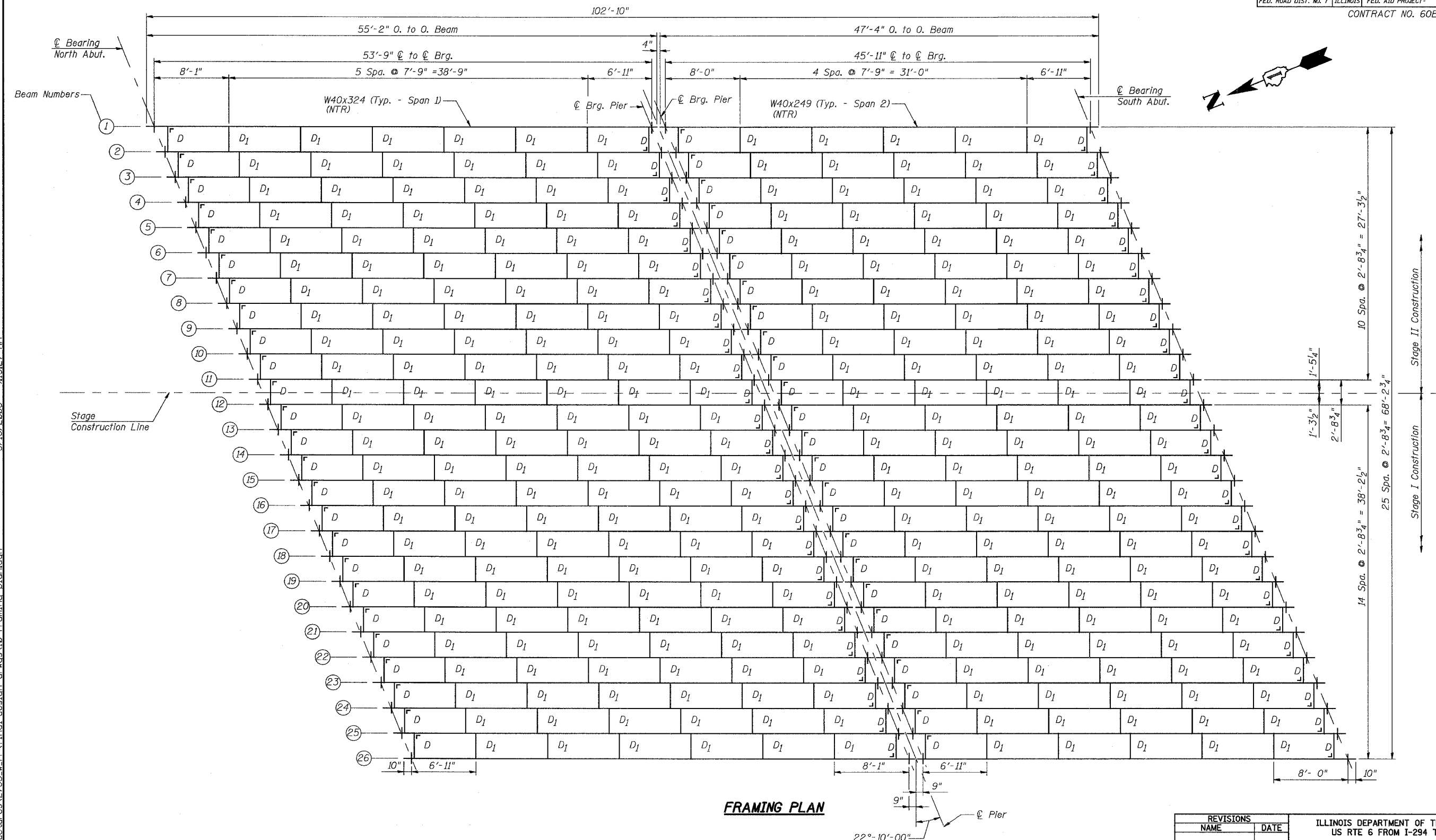
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SUPERSTRUCTURE RAILINGS**  
  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	358
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	CONTRACT NO. 60E10	

SHEET NO. 10  
37 SHEETS



**FRAMING PLAN**

DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

Note: Diaphragms Intersecting Stage Construction Line Shall Be Installed During Stage II Construction.

**URS**  
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(312) 939-1000

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**FRAMING PLAN**  
  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94      STRUCTURE NO. 016-2755  
SCALE:      DATE: 2/21/2008

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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	359
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

**\*TOP OF BEAM ELEVATIONS**

Location	Beams 1 Thru 26
℄ Brg. N. Abut.	619.04
℄ N. Brg. Pier	619.58
℄ S. Brg. Pier	619.58
℄ Brg. S. Abut.	619.12

**INTERIOR BEAM MOMENT TABLE**

	0.5 Span 1	0.5 Span 2
I (in <sup>4</sup> )	25600	19600
S (in <sup>3</sup> )	1280	993
℄ (k/ft.)	1.75	1.65
M℄ (k)	633.41	434.06
M℄ (k)	865.83	702.26
M <sub>impact</sub> (k)	479.67	398.88
M <sub>ecc</sub> (k)	585.56	479.22
M <sub>walkway</sub> (k)	3.54	2.59
M <sub>Total</sub> (k)	2568.01	2017.01
F <sub>b</sub> (k.s.i.)	24.08	24.37
F <sub>b</sub> (k.s.i.)	27.50	27.50
(℄ + 1) Deflection (in.)	0.942	0.735
Allowable (℄ + 1) Deflection (in.)	1.008	0.861

**NOTES FOR BEAM TABLE**

I and S are the moment of inertia and section modulus of the steel section used in computing bending stress,  $f_b$ .

$M_{\ell}$  is the live load moment due to the Cooper E80 loading or the Alternate loading.

$M_{\text{impact}}$  is the impact moment due to equipment with hammer blow.

$M_{\text{ecc}}$  is the moment due to the eccentricity of the track relative to the beam group.

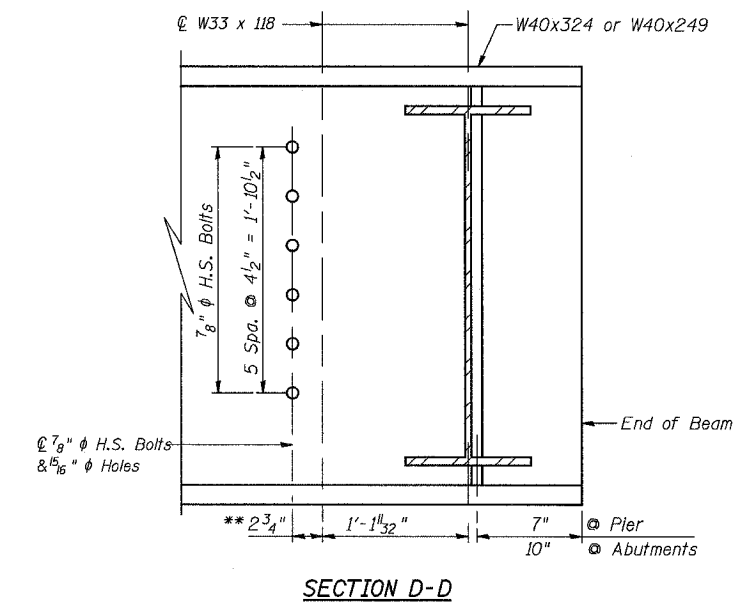
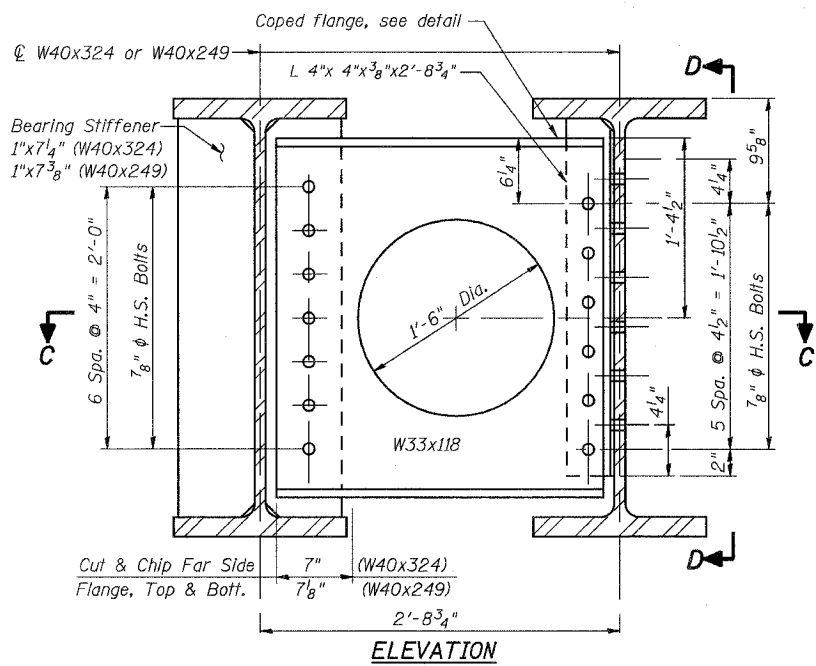
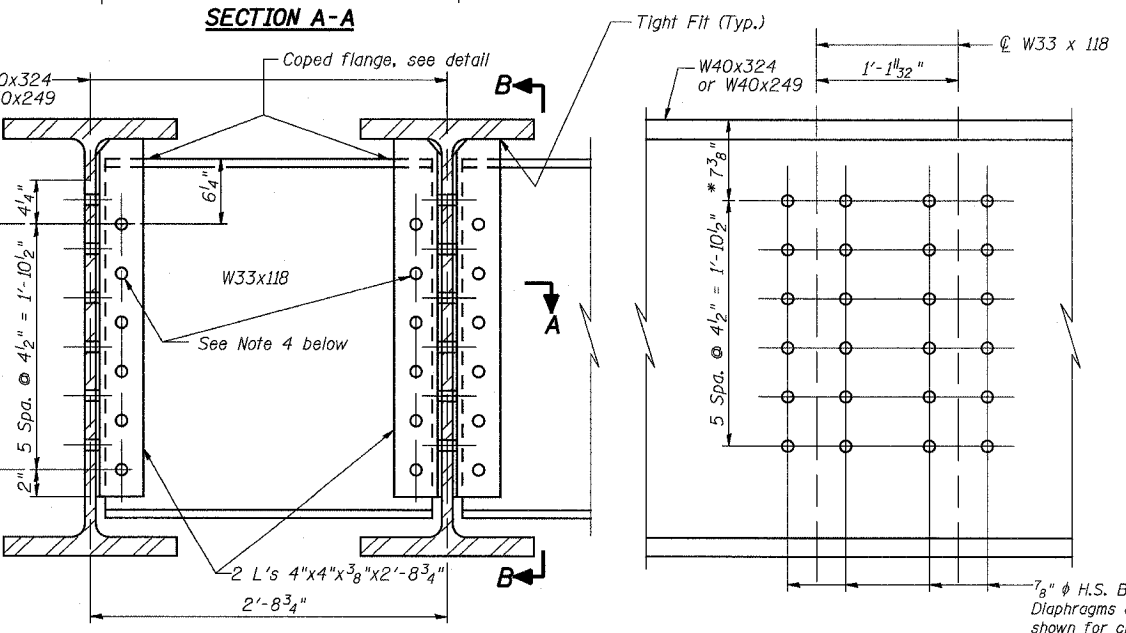
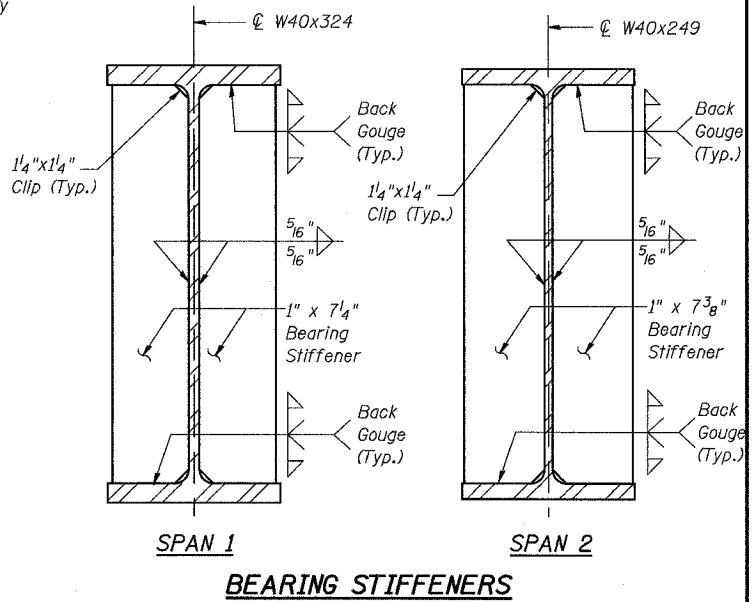
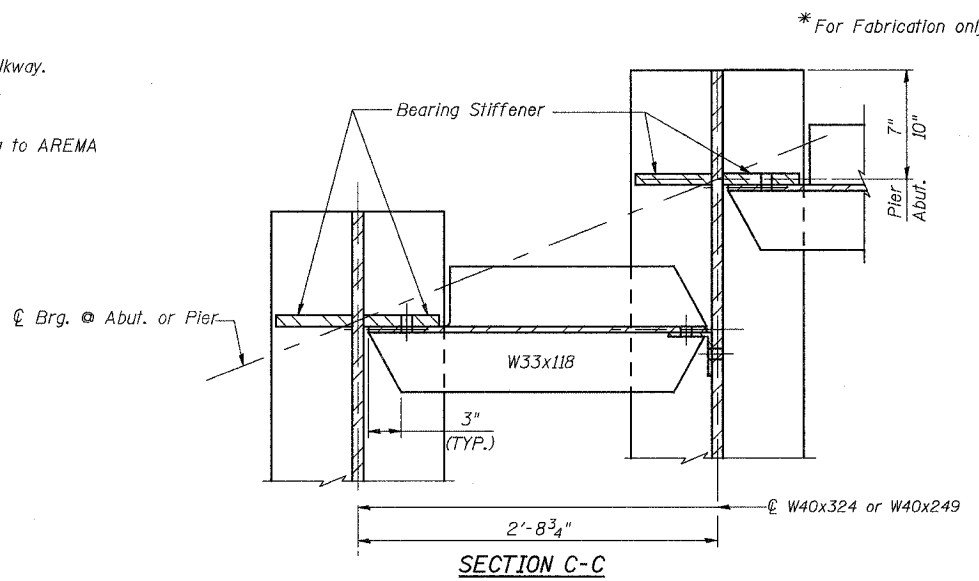
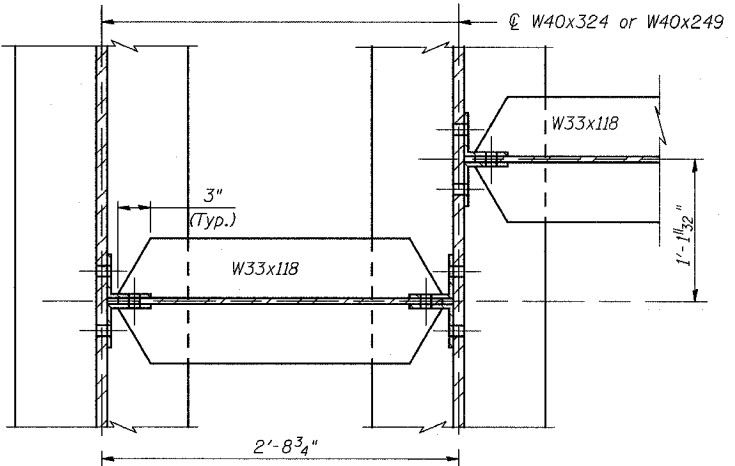
$M_{\text{walkway}}$  is the moment due to the live load on the one side walkway.

$f_b$  is the total bending stress due to  $M_{\text{Total}}$

$F_b$  is the maximum allowable bending stress computed according to AREMA

**REACTION TABLE**

	Span 1	Span 2
R℄ (k)	47.14	37.81
R℄ (k)	73.03	66.51
R <sub>impact</sub> (k)	40.46	37.78
R <sub>ecc</sub> (k)	49.39	45.39
R <sub>walkway</sub> (k)	0.26	0.23
R <sub>Total</sub> (k)	210.28	187.72



**DIAPHRAGM D**  
100 Required  
(Diaphragms: M270 Gr. 36)

- Notes:**
- Beams W40x324 and W40x249 are M270 Gr. 50.
  - \*\* Fabricator to verify dimension.
  - Bolts shall be 7/8" placed in 1 5/16" holes.
  - For the 11 diaphragms D1 between Beam Lines 12 & 13 under stage construction line only, provide 1 1/8" diameter holes in both ends of the W33 with two hardened washers for each bolt (one under the bolt head and one under the washer). Provide standard size holes within the transverse stiffeners attached to the beams to which this row of diaphragms will connect. The bolts for these diaphragms shall be final-tightened before the Stage II concrete deck pour is made. All other D1 diaphragms shall have 1 5/16" holes.

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DESIGNED DRS  
CHECKED JGG  
DRAWN SOI  
CHECKED JGG

**ELEVATION**  
\* At High Beam of Pair

**DIAPHRAGM D1**  
275 Required  
(Diaphragms: M270 Gr. 36)

**SECTION B-B**

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Suite 500  
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**REVISIONS**

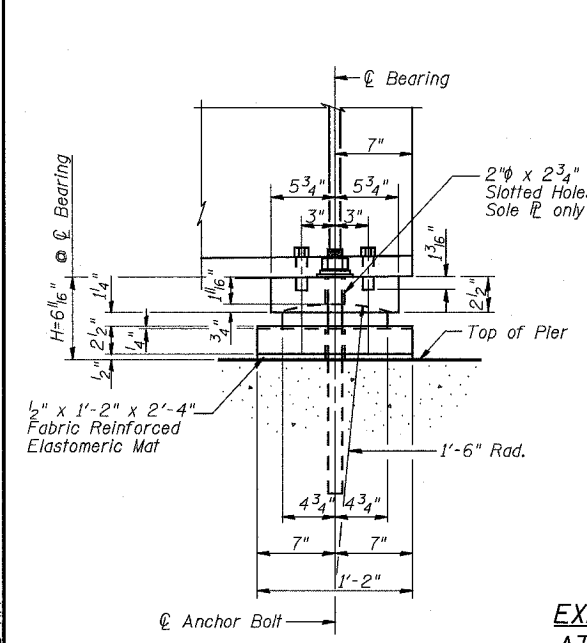
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**BEAM DETAILS**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

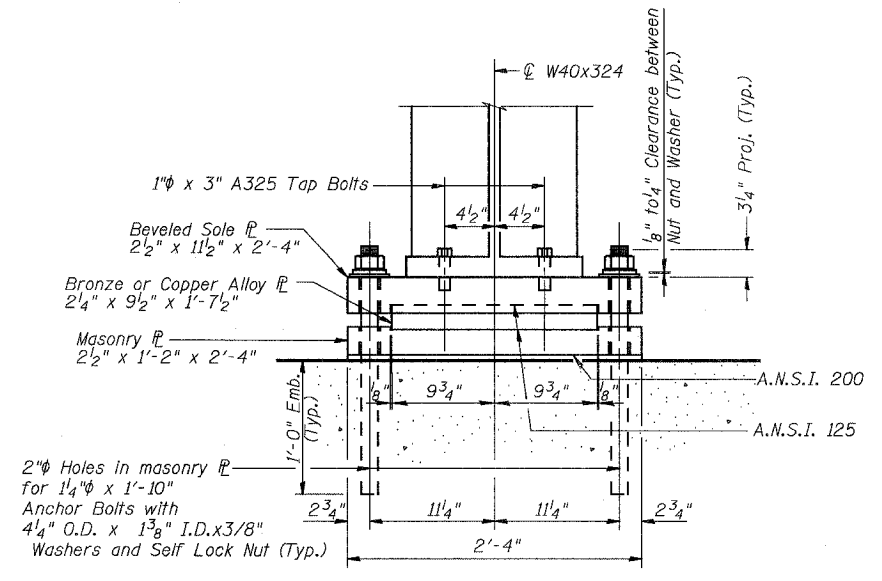
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	360
ILLINOIS FED. AID PROJECT-				
CONTRACT NO. 60E10				

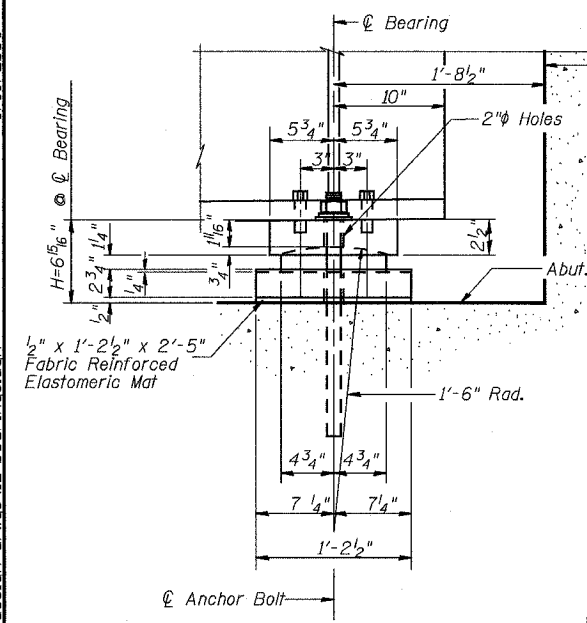
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37 SHEETS



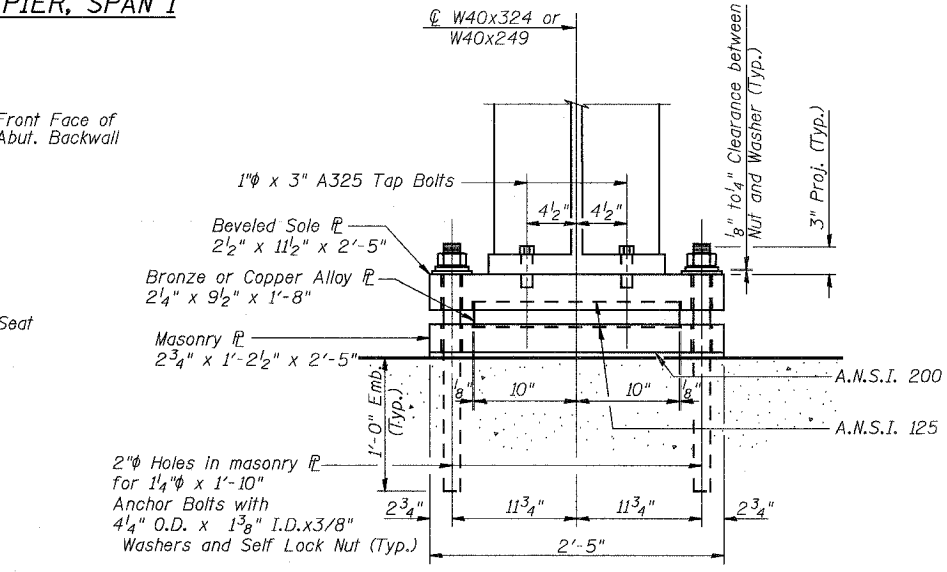
**EXPANSION BEARING  
AT PIER, SPAN 1**



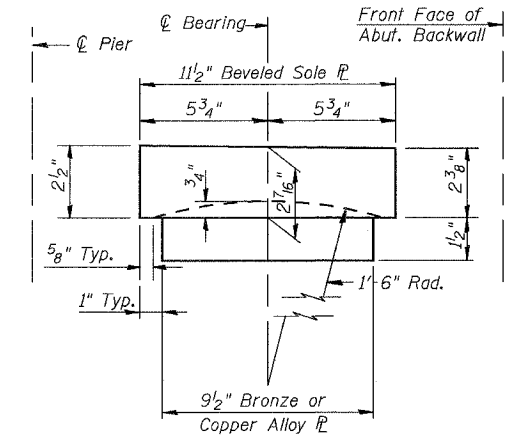
**EXPANSION BEARING  
AT PIER, SPAN 2**



**FIXED BEARING  
(AT ABUTMENTS)**



**CROSS SECTION THRU ANCHOR  
BOLT, SOLE & MASONRY PLATES**



**BRONZE OR COPPER ALLOY PLATE  
AND BEVELED SOLE PLATE**

**Notes:**

- All material for Sole Plates and Masonry Plates shall conform to A.S.T.M. Specification A36 Steel.
- Bronze Bearing and Expansion plates shall conform to A.S.T.M. B22, Alloy C91300 or C91100. Solid lubricant shall be in accordance with A.R.E.M.A. Chapter 15. Section 10.4.2.3. Cost is included in Furnishing and Erecting Structural Steel.
- All Structural Steel Bearing Plates shall be Flat Rolled Steel Plates with all surfaces smooth and free from warp and all edges smooth, & straight.
- All Plate cuts shall be Machine or Machine Flame Cuts.
- See Section 1028 of the Standard Specifications for material requirements for fabric reinforced elastomeric mats, washers and bushings. Cost included in Concrete Structures.
- Anchor Bolts shall be galvanized high-strength carbon steel conforming to the requirements of ASTM F1554, Grade 105 with zinc plated (ASTM B633). Nuts meeting the requirements ASTM A563, Grade DH and washers meeting the requirements of ASTM F436, Type 1, hot dip galvanized.
- Holes in the concrete seats for anchor bolts shall be drilled through the masonry plates to the diameter and depth shown or according to the anchor bolt manufacturer's recommendation after beams or girders have been erected and adjusted.
- Prior to setting the anchor bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming. Anchor bolts shall not be disturbed until cure time has elapsed.

**BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Anchor Bolts, 1 1/4"	Each		208	208

DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

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Suite 500  
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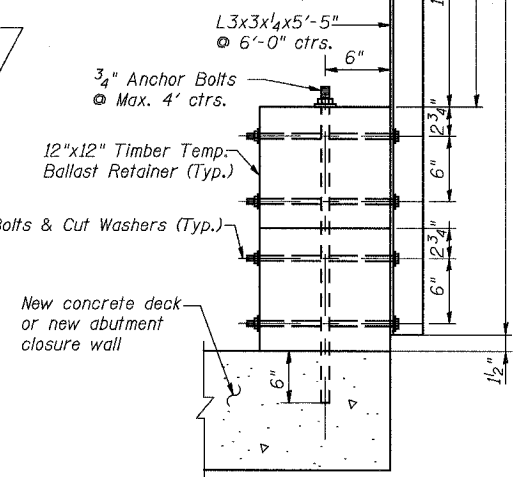
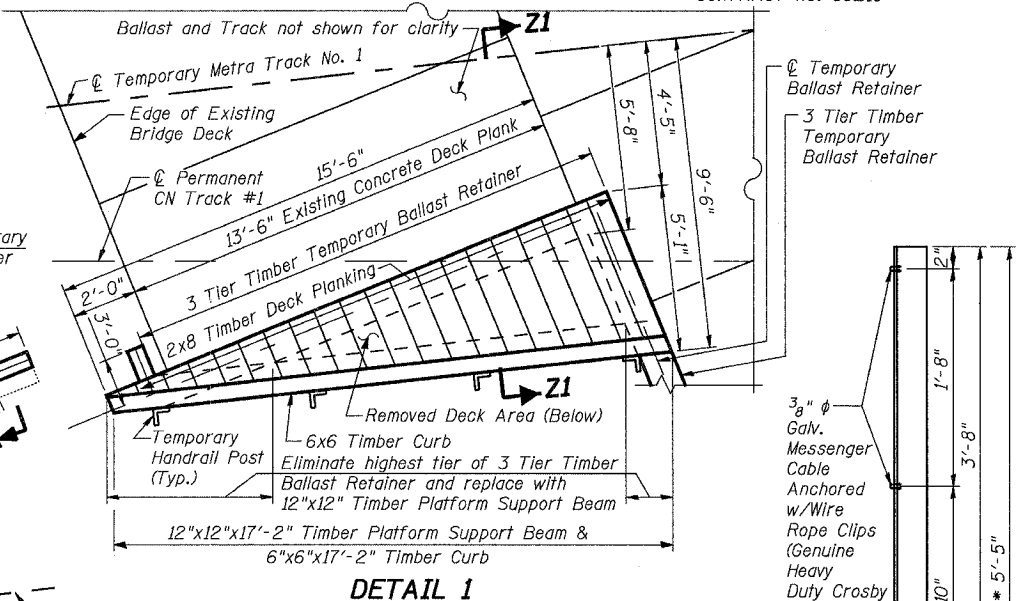
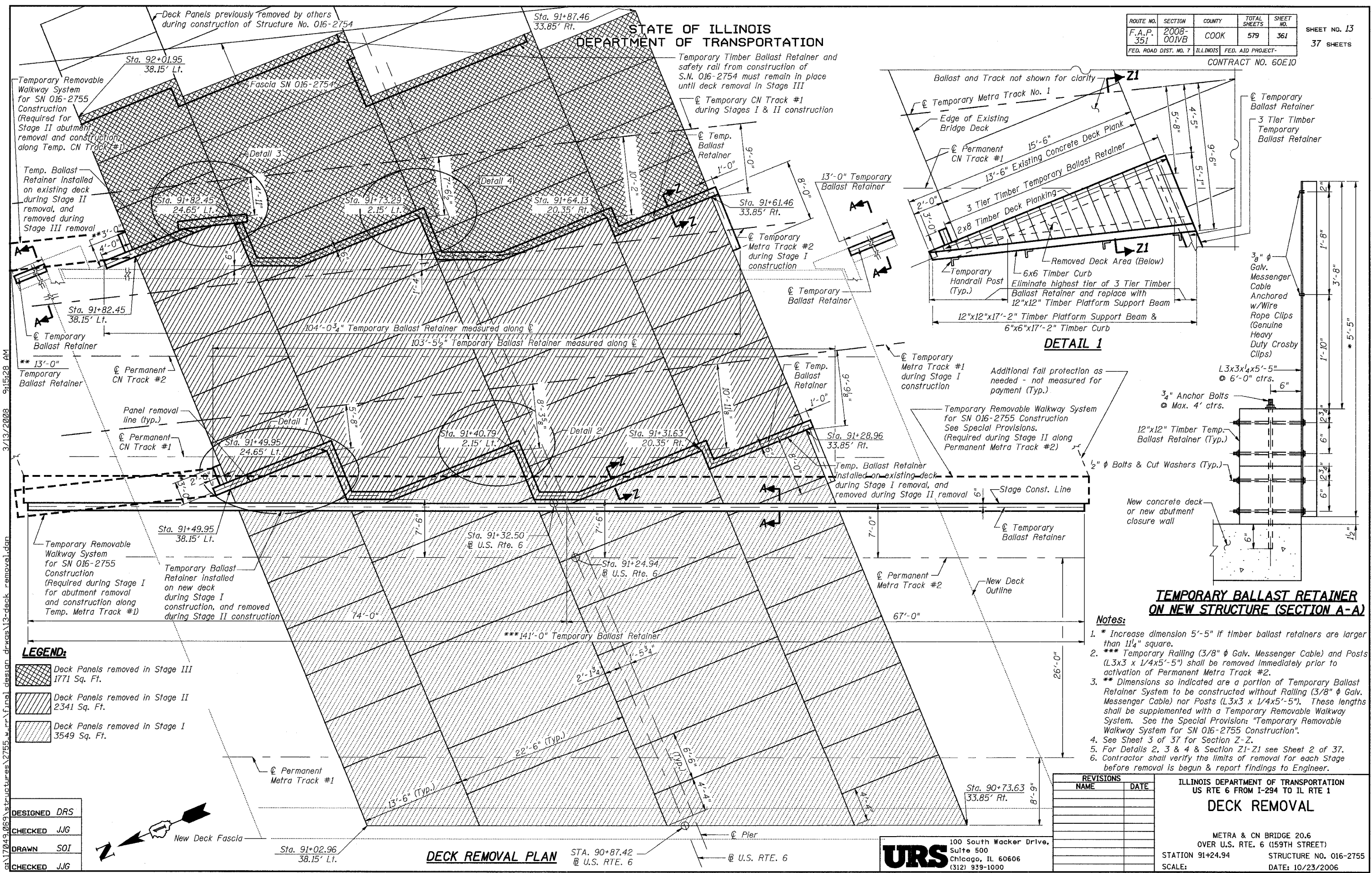
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**BEARINGS**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

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DEPARTMENT OF TRANSPORTATION

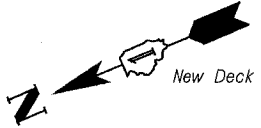


**TEMPORARY BALLAST RETAINER ON NEW STRUCTURE (SECTION A-A)**

- Notes:**
- \* Increase dimension 5'-5" if timber ballast retainers are larger than 11 1/4" square.
  - \*\*\* Temporary Railing (3/8" φ Galv. Messenger Cable) and Posts (L3x3 x 1/4x5'-5") shall be removed immediately prior to activation of Permanent Metra Track #2.
  - \*\* Dimensions so indicated are a portion of Temporary Ballast Retainer System to be constructed without Railing (3/8" φ Galv. Messenger Cable) nor Posts (L3x3 x 1/4x5'-5"). These lengths shall be supplemented with a Temporary Removable Walkway System. See the Special Provision: "Temporary Removable Walkway System for SN 016-2755 Construction".
  - See Sheet 3 of 37 for Section Z-Z.
  - For Details 2, 3 & 4 & Section Z1-Z1 see Sheet 2 of 37.
  - Contractor shall verify the limits of removal for each Stage before removal is begun & report findings to Engineer.

- LEGEND:**
- Deck Panels removed in Stage III 1771 Sq. Ft.
  - Deck Panels removed in Stage II 2341 Sq. Ft.
  - Deck Panels removed in Stage I 3549 Sq. Ft.

DESIGNED DRS  
CHECKED JIG  
DRAWN SOI  
CHECKED JIG



**DECK REMOVAL PLAN**  
STA. 90+87.42 @ U.S. RTE. 6

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Suite 500  
Chicago, IL 60606  
(312) 939-1000

REVISIONS	
NAME	DATE

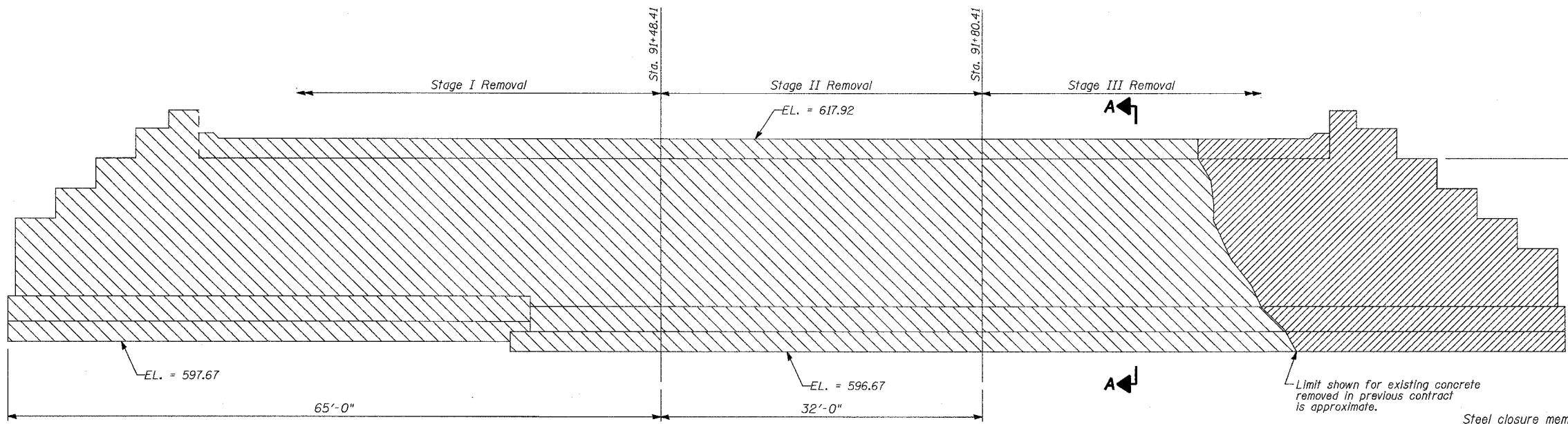
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**DECK REMOVAL**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 10/23/2006

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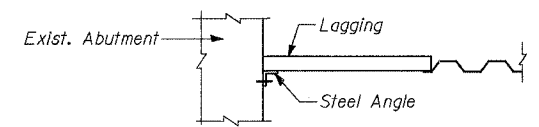
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	362
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	CONTRACT NO. 60E10	

SHEET NO. 14  
37 SHEETS

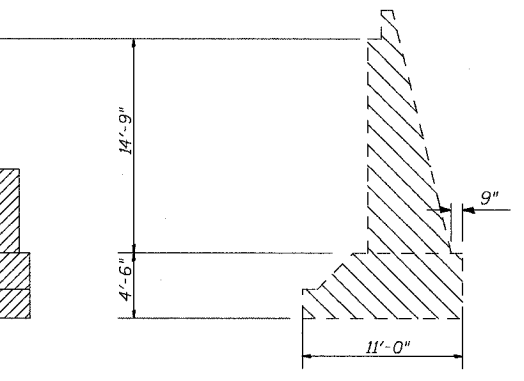


**ELEVATION - NORTH ABUTMENT**  
(Looking North)

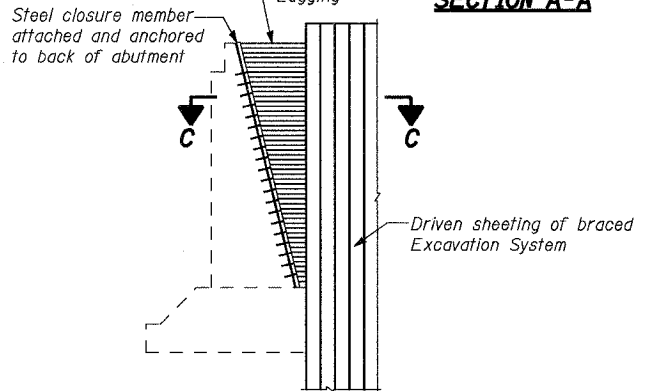


**SECTION C-C**

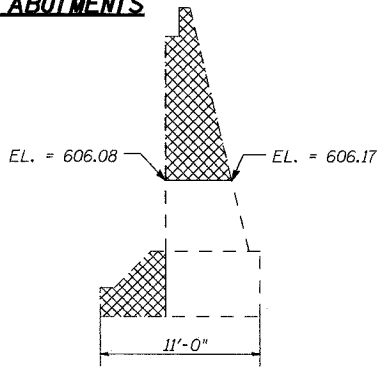
**Note:**  
Temporary sheeting for stage I and stage II braced excavation systems, shall include all materials hardware, labor & equipment necessary for its connection to the back of the existing abutments. All associated costs for this work will be considered included in the unit price for the Pay Item "Braced Excavation".



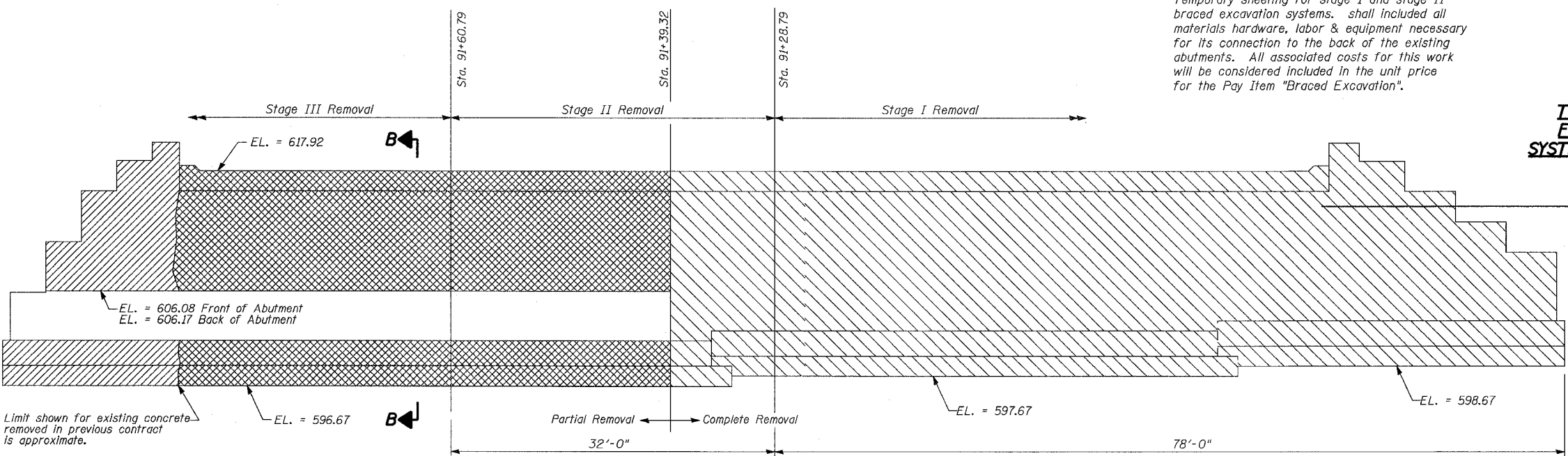
**SECTION A-A**



**TYPICAL CLOSURE DETAIL FOR BRACED EXCAVATION SYSTEM AT BACK OF ABUTMENTS**  
(See Note)



**SECTION B-B**



**ELEVATION - SOUTH ABUTMENT**  
(Looking South)

**LEGEND:**

- Indicates existing concrete removed in previous contract.
- Indicates existing concrete to be removed. Quantity included in Removal of Existing Structures No. 1.
- Indicates partial removal of the existing abutment cross section. Quantity included in Removal of Existing Structures No. 1.

**NOTES:**

1. The existing abutment is S.N. 016-0384.
2. Dimensions shown based on original plans. Field verify all dimensions and elevations. Contractor shall verify the limits of removal for each Stage before removal is begun & report findings to Engineer.

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
 US RTE 6 FROM I-294 TO IL RTE 1  
**ABUTMENT REMOVAL DETAILS**  
 METRA & CN BRIDGE 20.6  
 OVER U.S. RTE. 6 (159TH STREET)  
 STATION 91+24.94 STRUCTURE NO. 016-2755  
 SCALE: DATE: 2/21/2008

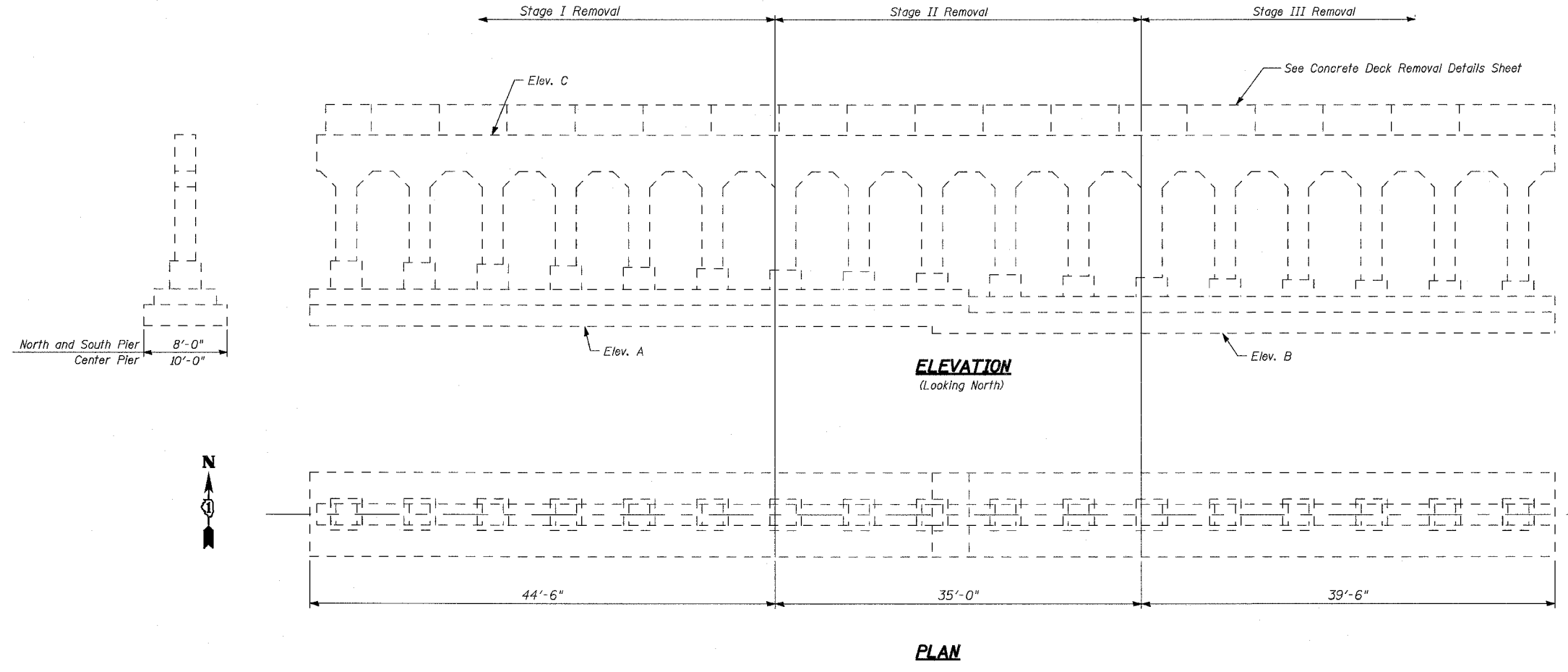
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DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	363
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

SHEET NO. 15  
37 SHEETS



	N. Pier	C. Pier	S. Pier
Elev. A	596.92	597.67	596.92
Elev. B	595.92	597.00	595.92
Elev. C	615.92	615.92	615.92

**NOTES:**

1. Dimensions shown based on original plans. Field verify all dimensions and elevations. Contractor shall verify the limits of removal for each Stage before removal is begun & report findings to Engineer.

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ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**PIER REMOVAL DETAILS**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94      STRUCTURE NO. 016-2755  
SCALE:      DATE: 2/21/2008

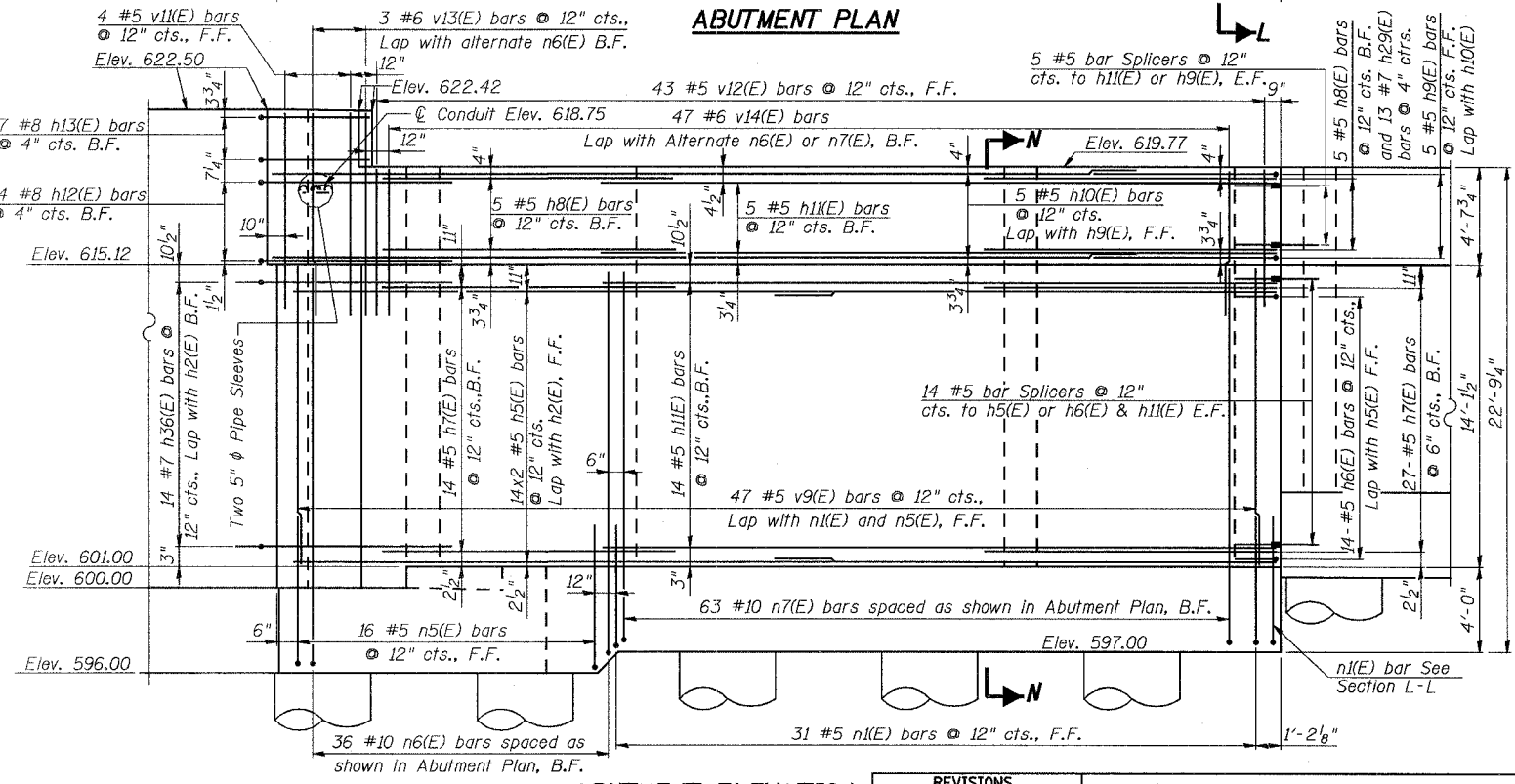
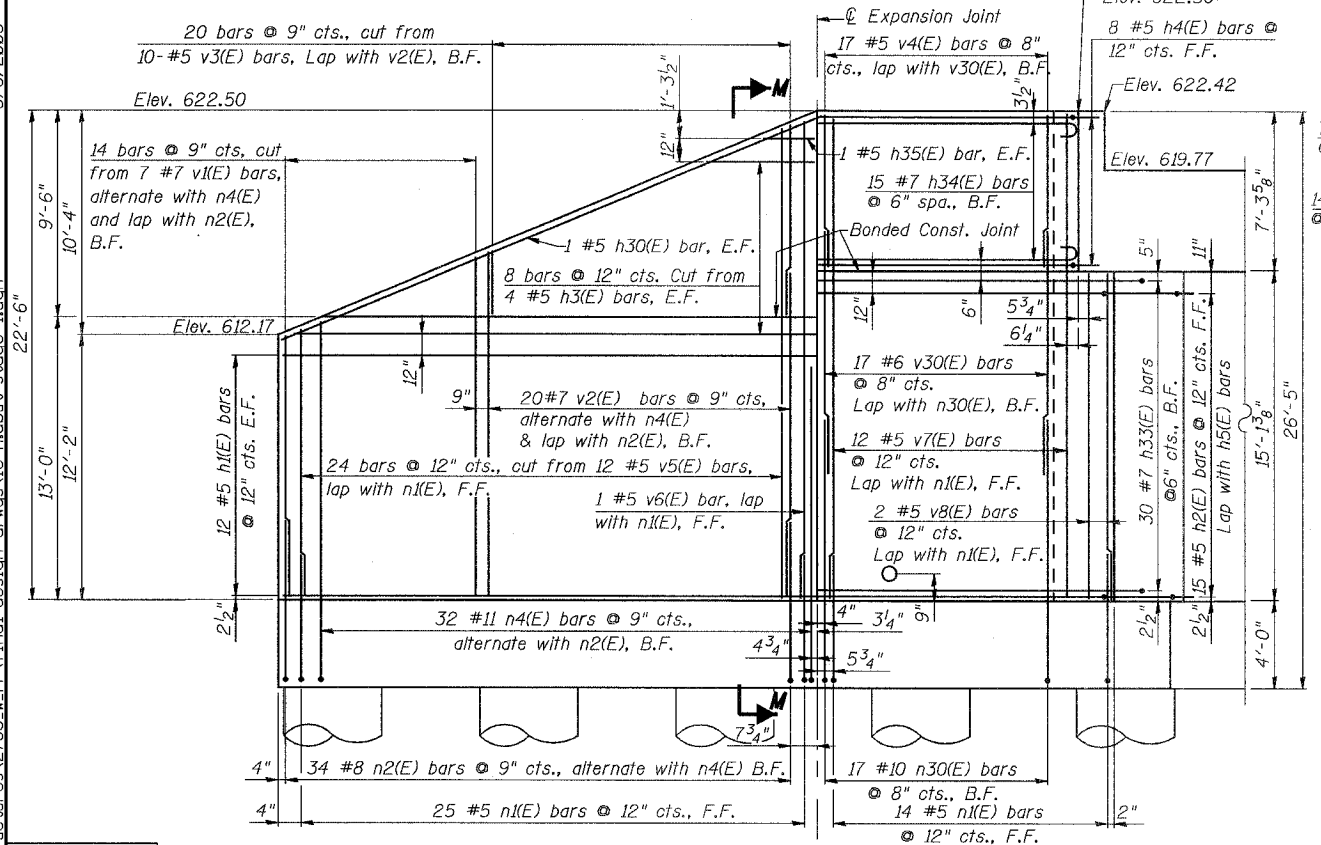
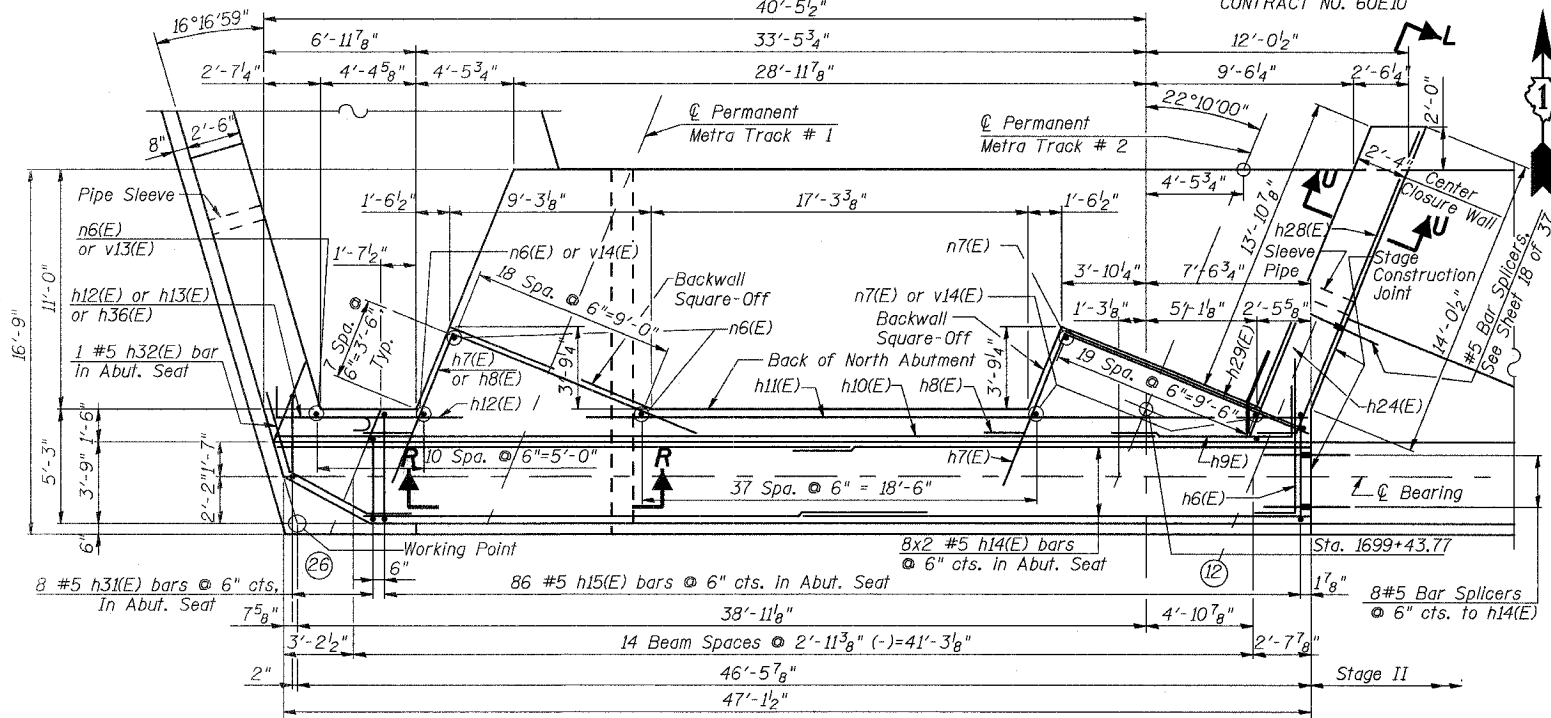
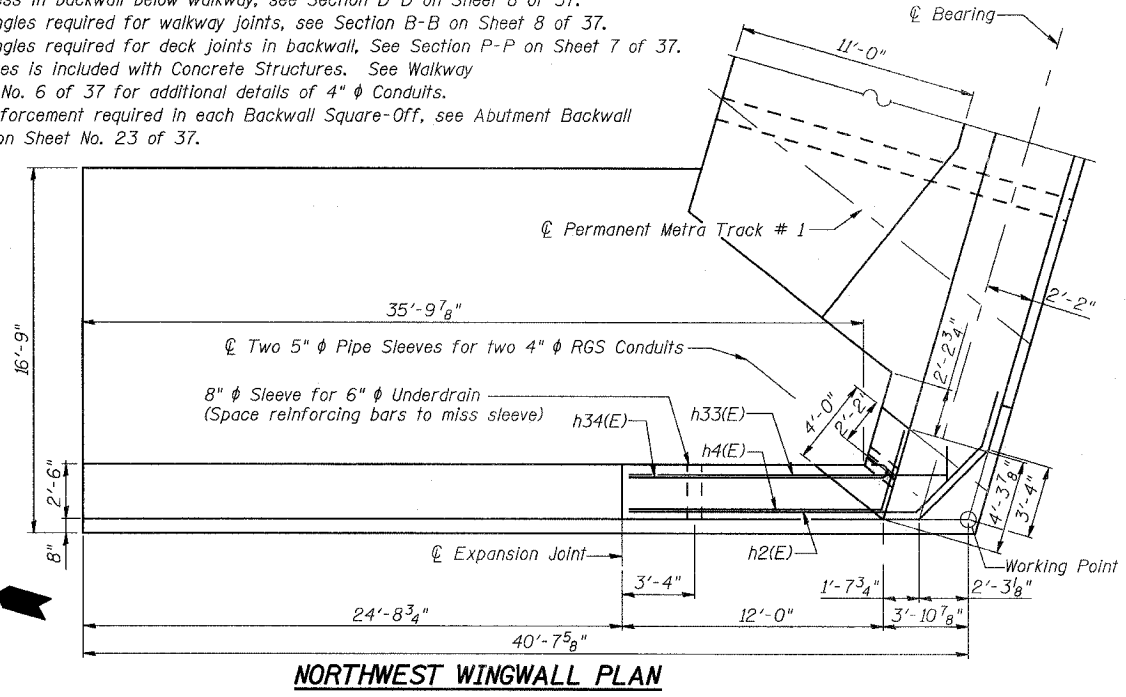
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	364
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT-		CONTRACT NO. 60E10

SHEET NO. 16  
37 SHEETS

Notes:

- ② Denotes Beam Number
- For Sections L-L, U-U & R-R See Sheet No. 18 of 37.
- For Sections M-M & N-N and Permanent Steel  $\bar{L}$  & Sheet Piling see Sheet Nos. 17 & 18 of 37.
- For  $1\frac{1}{4}$ " deep recess in backwall below walkway, see Section D-D on Sheet 8 of 37.
- For Plates and Angles required for walkway joints, see Section B-B on Sheet 8 of 37.
- For Plates and Angles required for deck joints in backwall, See Section P-P on Sheet 7 of 37.
- Cost of pipe sleeves is included with Concrete Structures. See Walkway Section on Sheet No. 6 of 37 for additional details of 4"  $\phi$  Conduits.
- For additional reinforcement required in each Backwall Square-Off, see Abutment Backwall Square Off Plan on Sheet No. 23 of 37.



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CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT, STAGE I**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

**URS**  
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Suite 500  
Chicago, IL 60606  
(312) 939-1000

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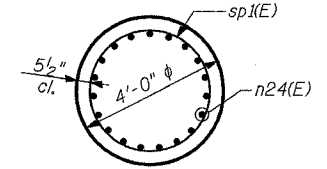


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

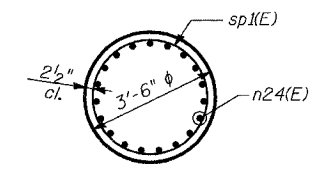
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F.A.P. 351	2008-001VB	COOK	579	365
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 17  
37 SHEETS

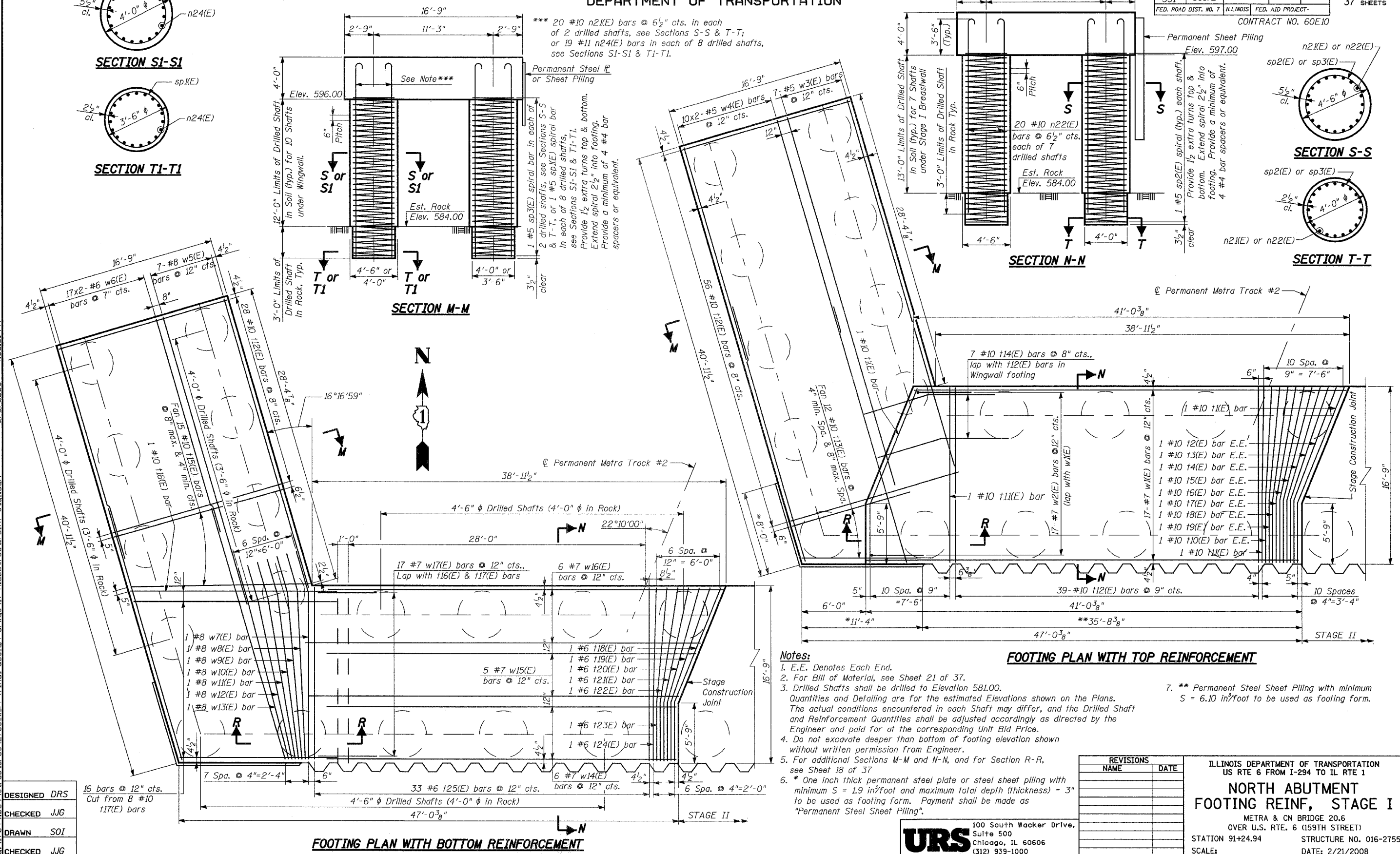
CONTRACT NO. 60E10



SECTION S1-S1



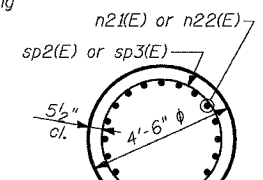
SECTION T1-T1



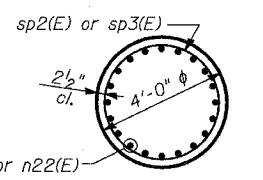
\*\*\* 20 #10 n2(E) bars @ 6 1/2" cts. in each of 2 drilled shafts, see Sections S-S & T-T; or 19 #11 n24(E) bars in each of 8 drilled shafts, see Sections S1-S1 & T1-T1.

Permanent Steel P or Sheet Piling  
Elev. 596.00  
See Note\*\*\*  
Elev. 584.00  
Est. Rock  
Elev. 584.00  
1 #5 sp3(E) spiral bar in each of 2 drilled shafts, see Sections S-S & T-T, or 1 #5 sp(E) spiral bar in each of 8 drilled shafts, see Sections S1-S1 & T1-T1. Provide 1/2 extra turns top & bottom. Extend spiral 2 1/2" into footing. Provide a minimum of 4 #4 bar spacers or equivalent.

Permanent Sheet Piling  
Elev. 597.00  
13'-0" Limits of Drilled Shaft in Soil (typ.) for 7 Shafts under Stage I Breastwall  
3'-0" Limits of Drilled Shaft in Rock Typ.  
20 #10 n22(E) bars @ 6 1/2" cts. each of 7 drilled shafts  
Est. Rock Elev. 584.00  
7 #5 w3(E) bars @ 12" cts.  
10x2 #5 w4(E) bars @ 12" cts.  
1 #5 sp2(E) spiral (typ.) each shaft. Provide 1/2 extra turns top & bottom. Extend spiral 2 1/2" into footing. Provide a minimum of 4 #4 bar spacers or equivalent.



SECTION S-S



SECTION T-T

SECTION N-N

SECTION M-M

FOOTING PLAN WITH TOP REINFORCEMENT

FOOTING PLAN WITH BOTTOM REINFORCEMENT

- Notes:
1. E.E. Denotes Each End.
  2. For Bill of Material, see Sheet 21 of 37.
  3. Drilled Shafts shall be drilled to Elevation 581.00. Quantities and Detailing are for the estimated Elevations shown on the Plans. The actual conditions encountered in each Shaft may differ, and the Drilled Shaft and Reinforcement Quantities shall be adjusted accordingly as directed by the Engineer and paid for at the corresponding Unit Bid Price.
  4. Do not excavate deeper than bottom of footing elevation shown without written permission from Engineer.
  5. For additional Sections M-M and N-N, and for Section R-R, see Sheet 18 of 37.
  6. \* One inch thick permanent steel plate or steel sheet piling with minimum S = 1.9 in/foot and maximum total depth (thickness) = 3" to be used as footing form. Payment shall be made as "Permanent Steel Sheet Piling".
  7. \*\* Permanent Steel Sheet Piling with minimum S = 6.10 in/foot to be used as footing form.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT  
FOOTING REIN, STAGE I**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

**URS**  
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
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5/17/04 9:09 AM structures\2755\_w\_r\_r\final\_design\_drwas\17-nabutfootrein-stal.dgn 4:33:51 PM 5/16/2008

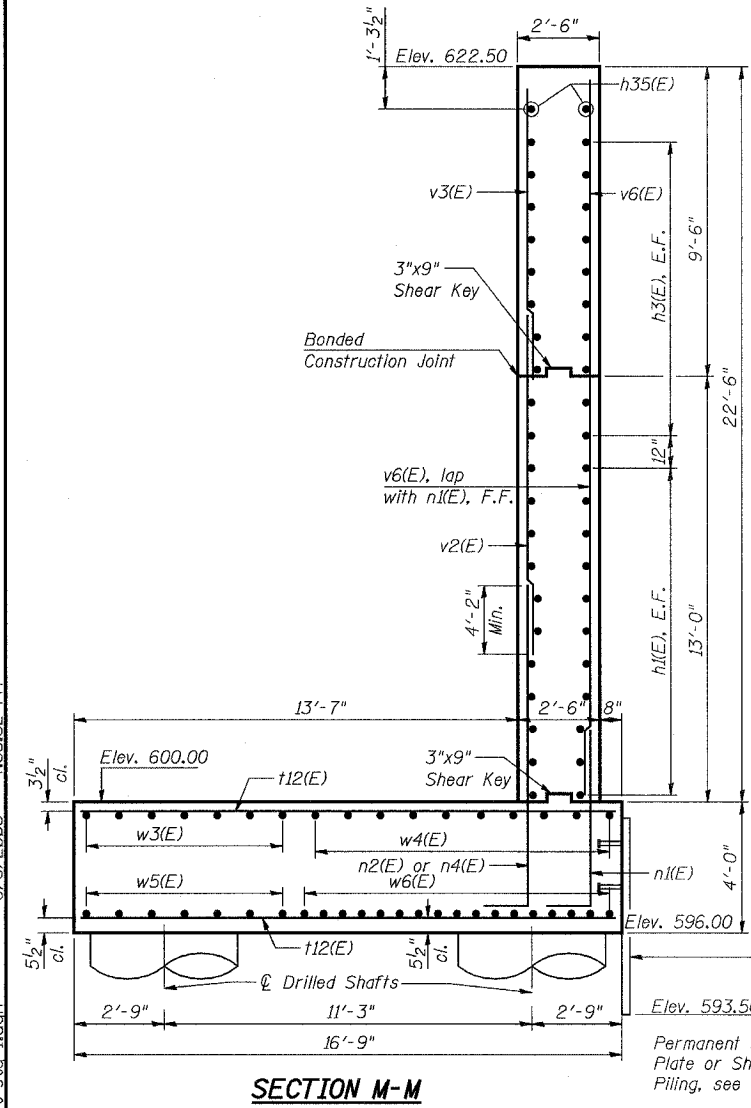
DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

16 bars @ 12" cts.  
Cut from 8 #10  
t17(E) bars

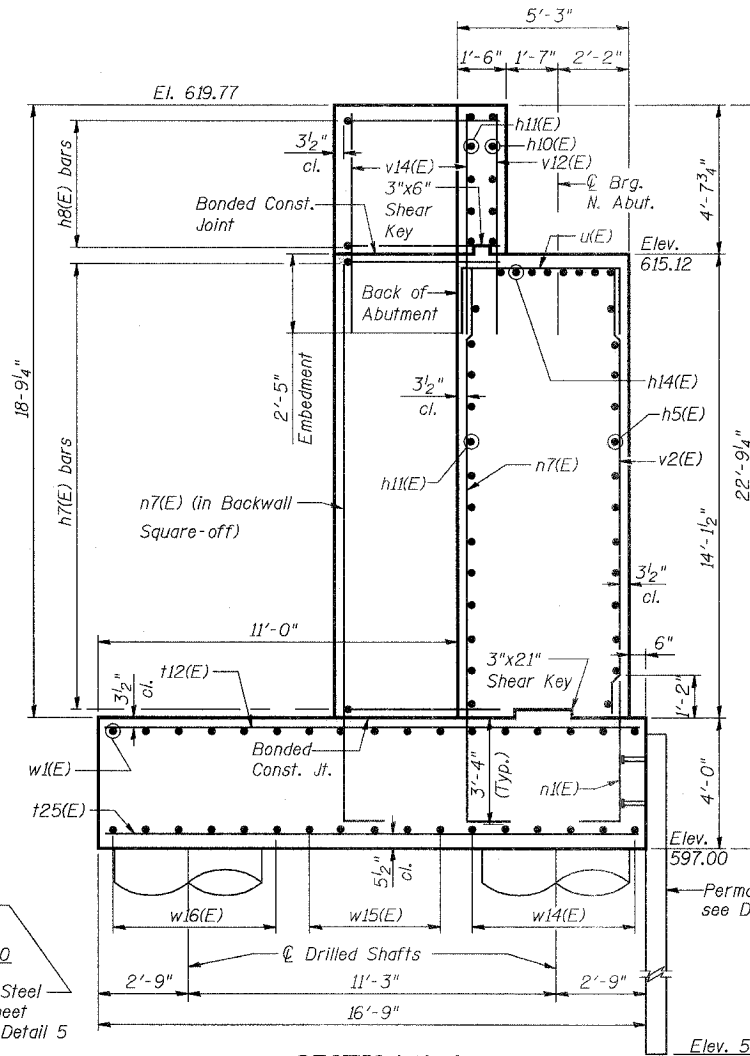
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	366
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

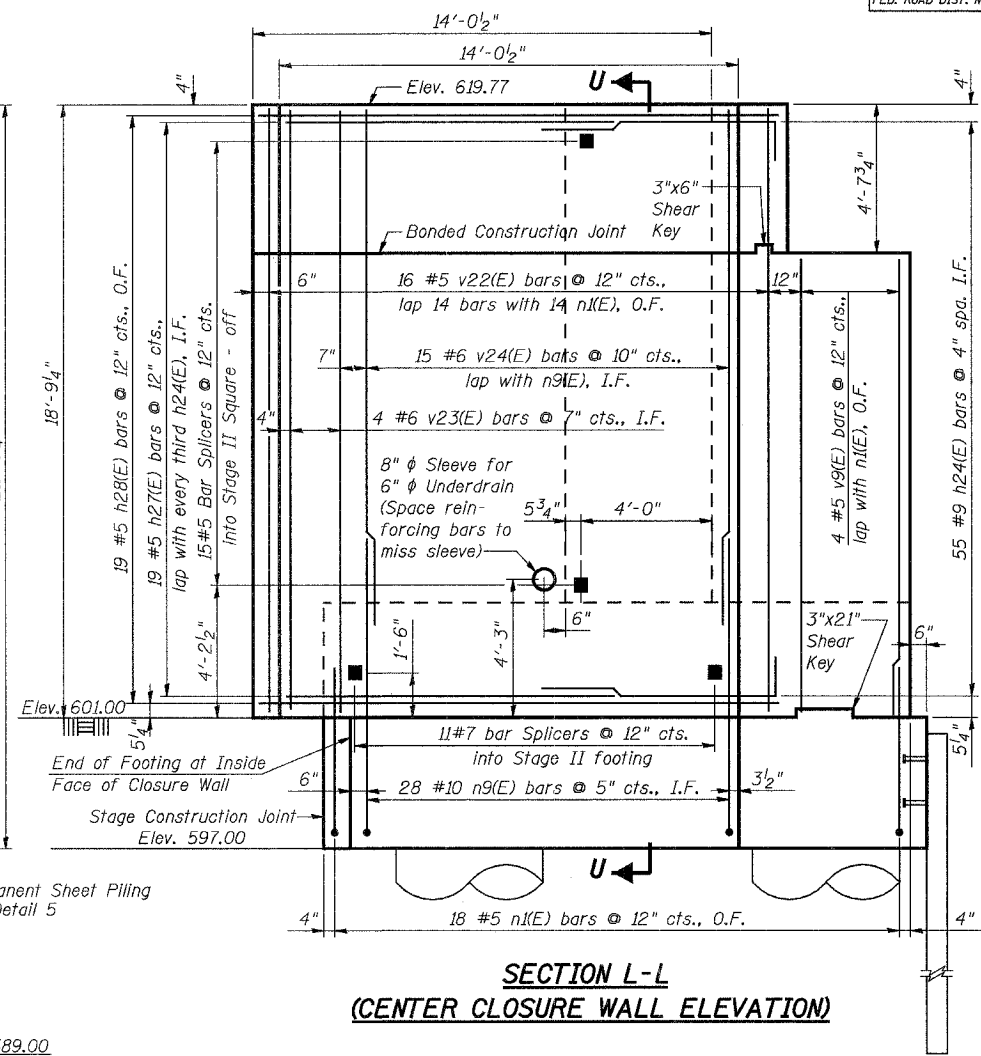
SHEET NO. 18  
37 SHEETS



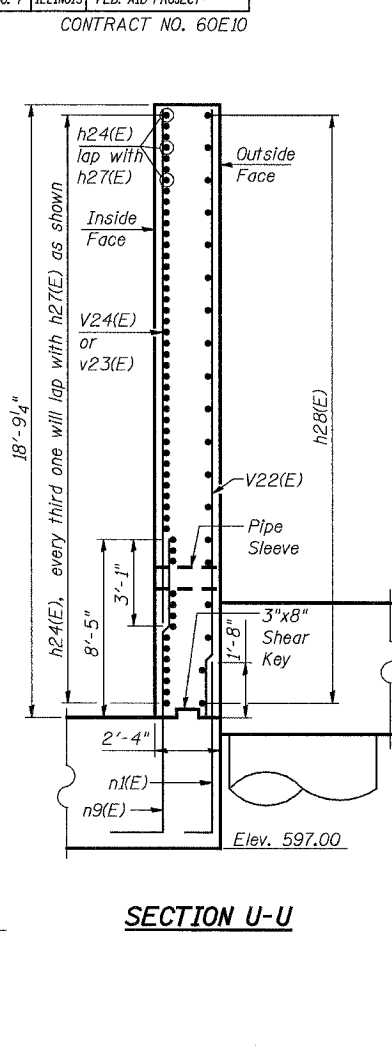
SECTION M-M



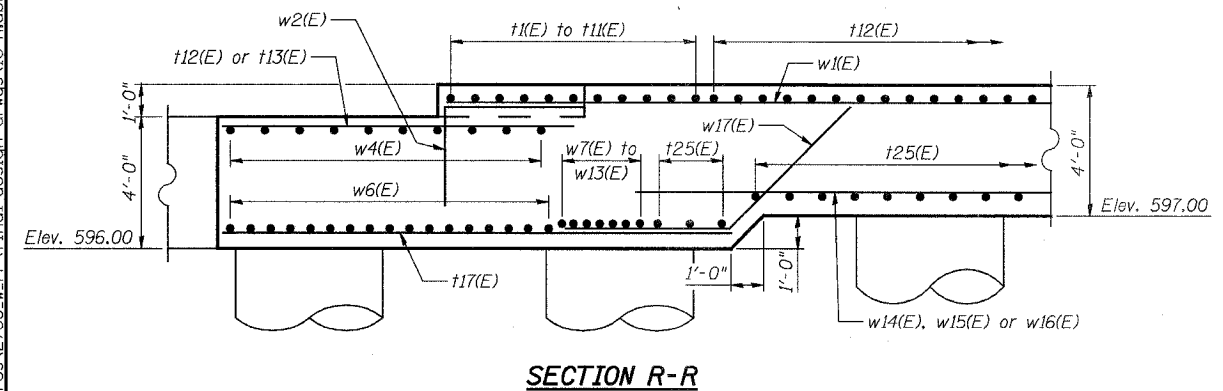
SECTION N-N



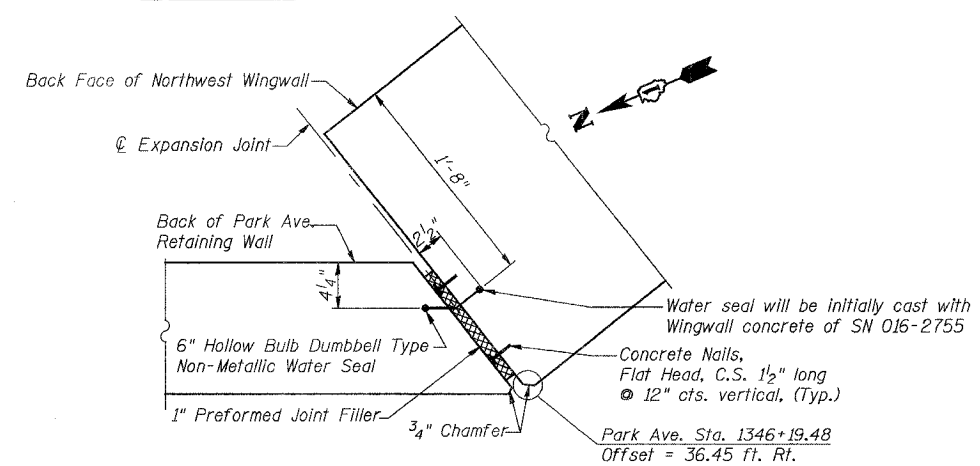
SECTION L-L  
(CENTER CLOSURE WALL ELEVATION)



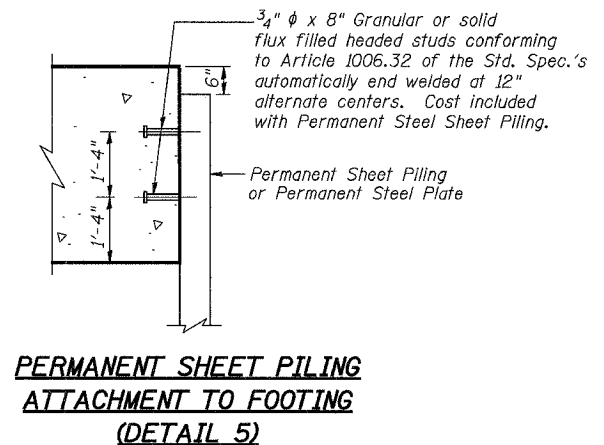
SECTION U-U



SECTION R-R



SECTIONAL PLAN VIEW OF EXPANSION JOINT  
AT NORTH END OF NORTHWEST WINGWALL



PERMANENT SHEET PILING  
ATTACHMENT TO FOOTING  
(DETAIL 5)

- Notes:**
1. For locations of Sections M-M, N-N and R-R see Sheet Nos. 16 and 17 of 37.
  2. For location of Section L-L and additional location of Section U-U, see Sheet 16 of 37.
  3. Cost of pipe sleeve is included with Concrete Structures.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT DETAILS  
STAGE I**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94      STRUCTURE NO. 016-2755  
SCALE:      DATE: 2/21/2008

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Chicago, IL 60606  
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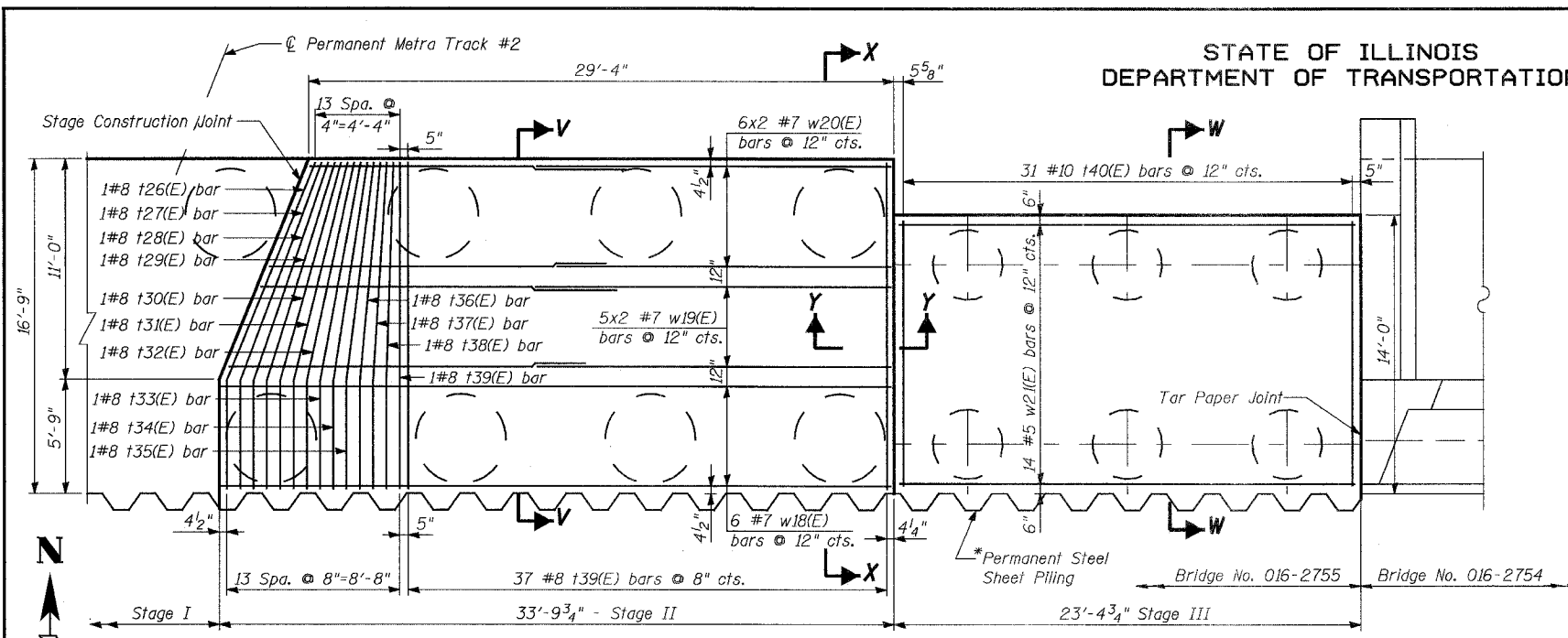
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CHECKED	JJG



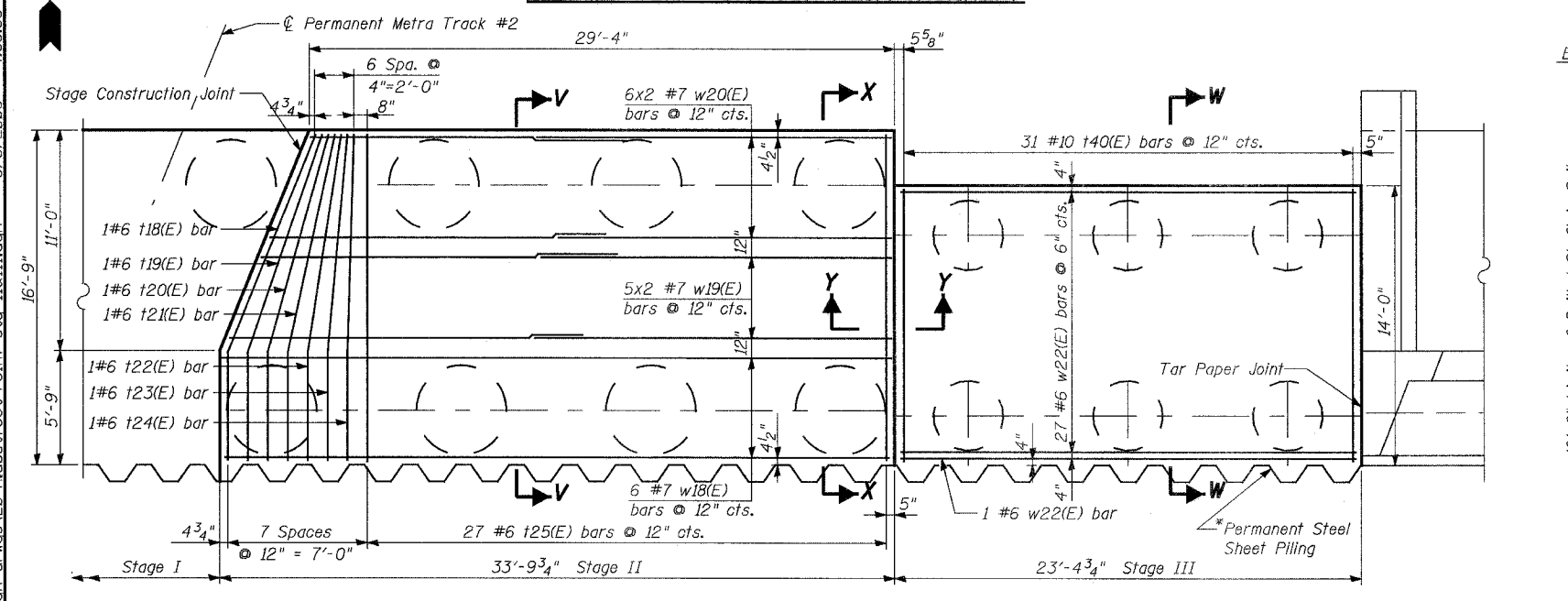
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	368
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

SHEET NO. 20  
37 SHEETS



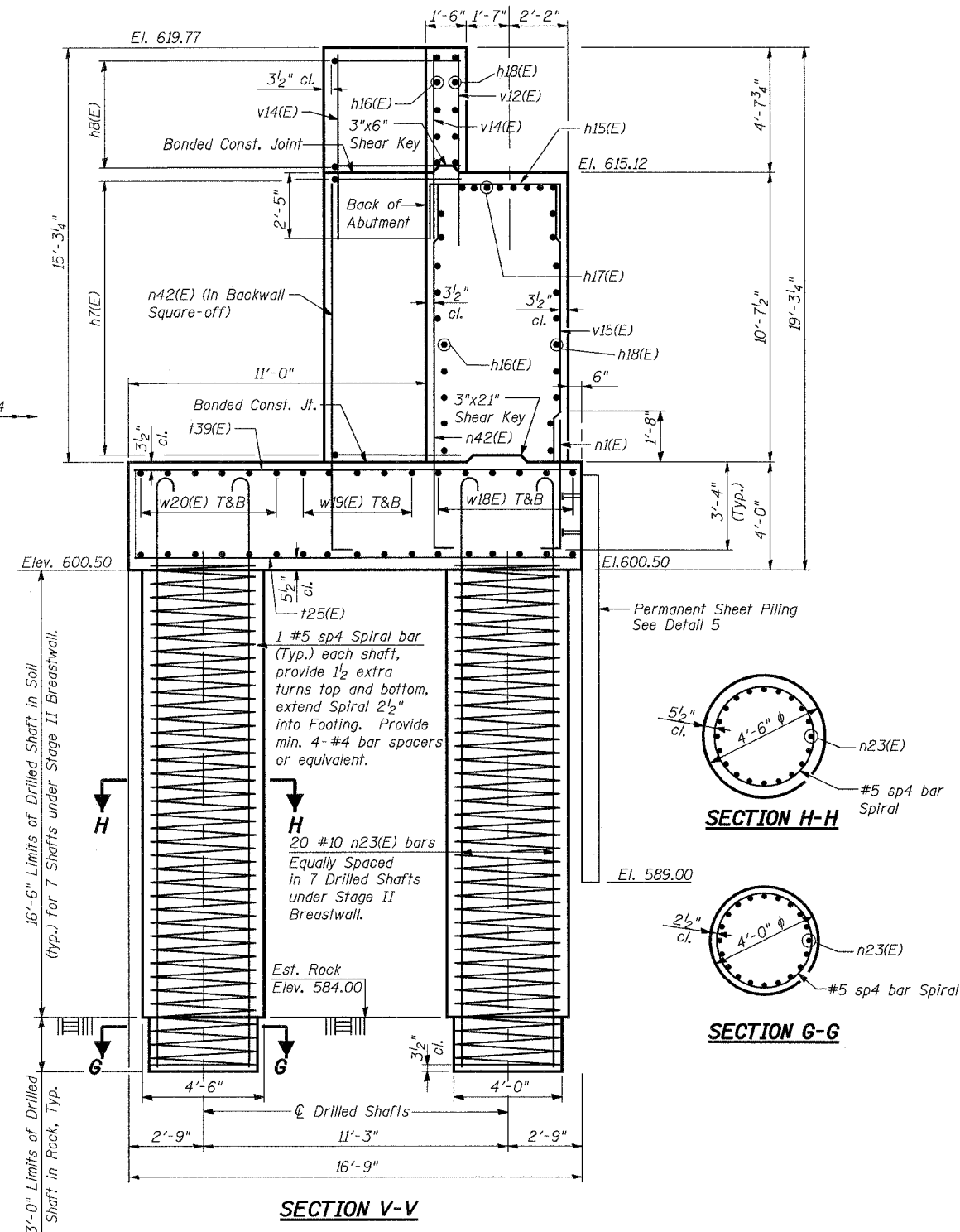
FOOTING PLAN WITH TOP REINFORCEMENT



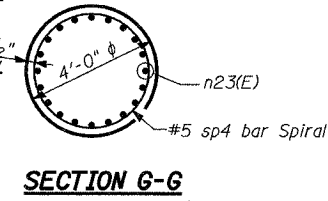
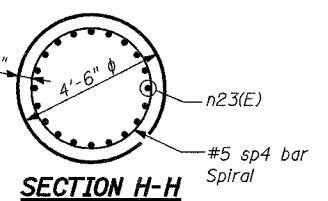
FOOTING PLAN WITH BOTTOM REINFORCEMENT

Notes:

- For Bill of Materials and Sections X-X and Y-Y, see Sheet No. 21 of 37.
- Drilled Shafts shall be drilled to Elevation 581.00. Quantities and Detailing are for the estimated Elevations shown on the Plans. The actual conditions encountered in each Shaft may differ and the Drilled Shaft and Reinforcement Quantities shall be adjusted accordingly as directed by the Engineer and paid for at the corresponding Unit Bid Price.
- Do not excavate deeper than bottom of footing elevation shown without written permission from Engineer.
- For Section W-W See Sht. 19 of 37.
- For Detail 5, see Sheet No. 18 of 37.
- \* Permanent Steel Sheet Piling with minimum S = 6.10 in<sup>3</sup>/foot to be used as footing form.



SECTION V-V



REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT FOOTING REINF, STAGES II & III**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

**URS**  
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Chicago, IL 60606  
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DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

**BENDING DIMENSIONS**

BAR	A	B	C	D
h4(E)	11'-5"	3'-9"	1'-0 5/8"	3'-7 1/4"
h6(E)	1'-10"	7'-0"		
h7(E)	7'-0"	11'-10"		
h9(E)	2'-6"	8'-9"		
h12(E)	1'-4"	8'-8"		
h16(E)	10"	12'-0"		
h24(E)	1'-2"	7'-4"		
h28(E)	15'-2"	2'-0"	0'-9"	1'-10 1/4"
h29(E)	1'-2"	11'-10"		
h33(E)	1'-2"	14'-6"		
h34(E)	11'-10"	10"	0'-7"	
h36(E)	8'-8"	2'-5"	0'-8 1/2"	2'-3 3/8"
n1(E)	0'-10"	5'-2"		
n2(E)	1'-2"	8'-9"		
n4(E)	1'-10"	14'-8"		
n5(E)	0'-10"	6'-2"		
n6(E)	1'-10"	18'-2"		
n7(E)	1'-10"	17'-2"		
n8(E)	1'-10"	12'-3"		
n9(E)	1'-7"	12'-3"		
n21(E)	18'-3"	1'-5"	1'-1 1/4"	
n22(E)	19'-3"	1'-5"	1'-1 1/4"	
n23(E)	22'-9"	1'-5"	1'-1 1/4"	
n24(E)	18'-3"	1'-7"	1'-2 3/4"	
n30(E)	1'-7"	8'-9"		
n42(E)	1'-10"	13'-8"		
h1(E)	5'-5"	11'-6"	10'-7 3/4"	4'-4 1/2"
h2(E)	5'-5"	11'-4"	10'-7 5/8"	3'-11"
h3(E)	5'-5"	11'-3"	10'-8 1/4"	3'-6"
h4(E)	5'-5"	11'-1"	10'-7 3/4"	3'-1"
h5(E)	5'-5"	11'-0"	10'-8"	2'-8"
h6(E)	5'-5"	10'-11"	10'-8 1/4"	2'-3"
h7(E)	5'-5"	10'-10"	10'-8 1/2"	1'-10"
h8(E)	5'-5"	10'-9"	10'-7 7/8"	1'-5"
h9(E)	5'-5"	10'-9"	10'-8 1/2"	1'-0"
h10(E)	5'-5"	10'-8"	10'-7 3/4"	0'-7"
h11(E)	5'-5"	10'-8"	10'-8"	0'-2"
h14(E)	6'-3"	6'-3"	6'-0"	1'-9"
h18(E)	5'-5"	11'-6"	10'-7 3/4"	4'-4 1/2"
h19(E)	5'-5"	11'-3"	10'-7 5/8"	3'-8"
h20(E)	5'-5"	11'-1"	10'-8"	3'-0"
h21(E)	5'-5"	10'-11"	10'-8"	2'-4"
h22(E)	5'-5"	10'-9"	10'-7 1/2"	1'-8"
h23(E)	5'-5"	10'-9"	10'-8 3/4"	1'-0"
h24(E)	5'-5"	10'-8"	10'-7 7/8"	0'-4"
h26(E)	5'-5"	11'-6"	10'-7 3/4"	4'-4 1/2"
h27(E)	5'-5"	11'-5"	10'-8 3/4"	4'-0"
h28(E)	5'-5"	11'-3"	10'-7 5/8"	3'-8"
h29(E)	5'-5"	11'-2"	10'-7 7/8"	3'-4"
h30(E)	5'-5"	11'-1"	10'-8"	3'-0"
h31(E)	5'-5"	11'-0"	10'-8"	2'-8"
h32(E)	5'-5"	10'-11"	10'-8"	2'-4"
h33(E)	5'-5"	10'-10"	10'-7 3/4"	2'-0"
h34(E)	5'-5"	10'-10"	10'-8 1/2"	1'-8"
h35(E)	5'-5"	10'-9"	10'-8"	1'-4"
h36(E)	5'-5"	10'-9"	10'-8 3/4"	1'-0"
h37(E)	5'-5"	10'-8"	10'-7 3/4"	0'-8"
h38(E)	5'-5"	10'-8"	10'-8"	0'-4"
w2(E)	3'-0"	5'-6"		
w7(E)	3'-8"	16'-3"	15'-7 3/4"	4'-4 7/8"
w8(E)	3'-8"	16'-0"	15'-6 3/4"	3'-8 3/4"
w9(E)	3'-8"	15'-9"	15'-5 1/2"	3'-0 1/2"
w10(E)	3'-8"	15'-6"	15'-3 1/2"	2'-4 1/4"
w11(E)	3'-8"	15'-4"	15'-2 1/2"	1'-8 1/2"
w12(E)	3'-8"	15'-2"	15'-1 1/2"	1'-0"
w13(E)	3'-8"	15'-1"	15'-1"	0'-7"
w17(E)	4'-0"	4'-0"	2'-10"	2'-10"

DESIGNED DRS  
CHECKED JGG  
DRAWN SOI  
CHECKED JGG

**NORTH ABUTMENT BILL OF MATERIAL**

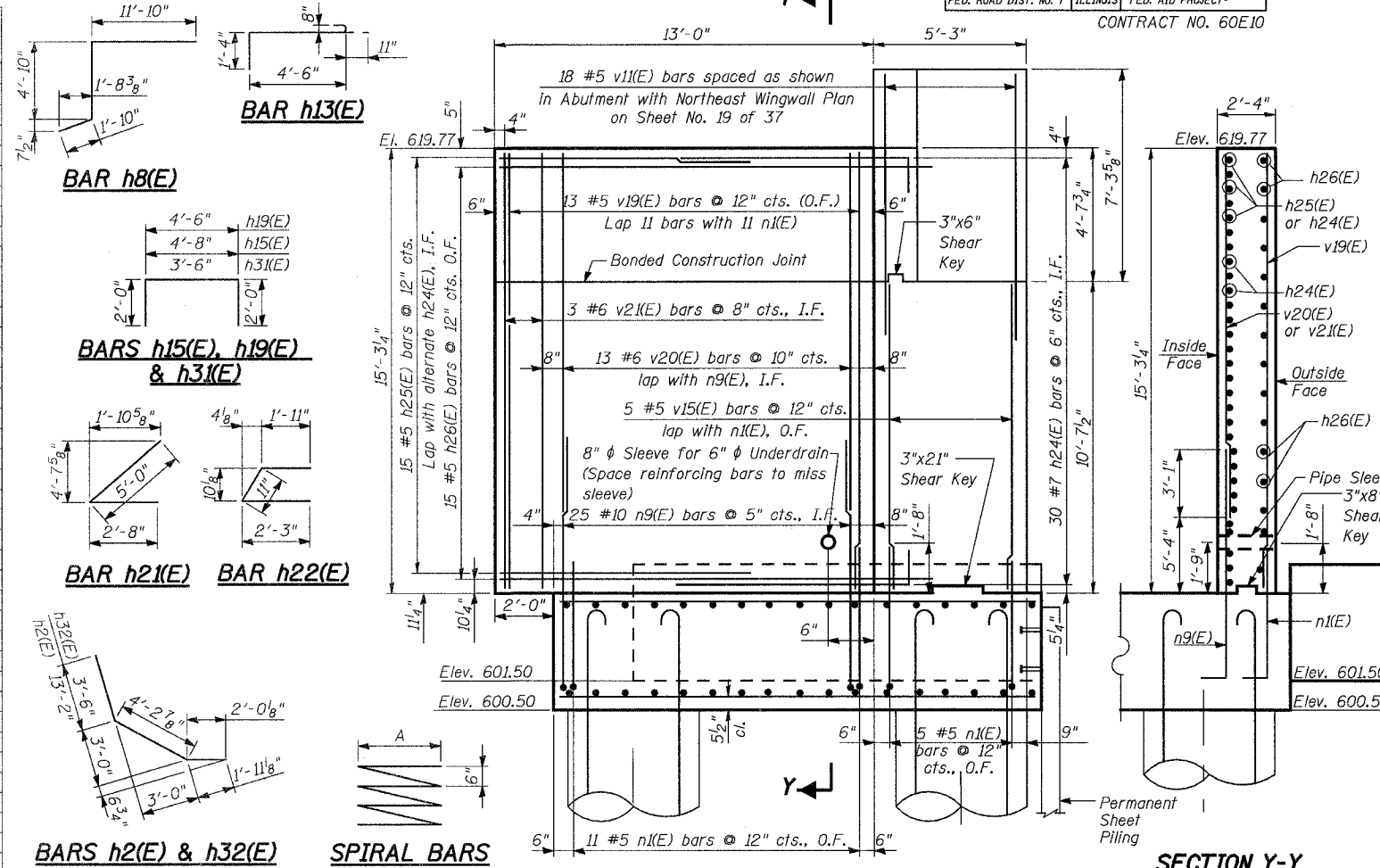
BAR	NO.	NO. STAGES II & III	SIZE	LENGTH	SHAPE
h1(E)	24		#5	24'-3"	
h2(E)	15		#5	19'-5"	
h3(E)	8		#5	28'-6"	
h4(E)	8		#5	15'-2"	
h5(E)	28		#5	24'-4"	
h6(E)	14		#5	8'-10"	
h7(E)	41	10	#5	18'-10"	
h8(E)	10	5	#5	18'-6"	
h9(E)	5		#5	11'-3"	
h10(E)	5		#5	40'-0"	
h11(E)	19		#5	32'-5"	
h12(E)	14		#8	10'-0"	
h13(E)	7		#8	6'-9"	
h14(E)	16		#5	24'-6"	
h15(E)	86	63	#5	8'-8"	
h16(E)	15		#5	12'-10"	
h17(E)	8		#5	32'-0"	
h18(E)	15		#5	33'-6"	
h19(E)	18		#5	8'-6"	
h20(E)	19		#7	24'-0"	
h21(E)	8		#5	7'-8"	
h22(E)	3		#5	5'-1"	
h23(E)	34		#5	22'-10"	
h24(E)	55	30	#9	8'-6"	
h25(E)	15		#5	9'-3"	
h26(E)	15		#5	14'-9"	
h27(E)	19		#5	10'-0"	
h28(E)	19		#5	17'-2"	
h29(E)	13		#7	13'-0"	
h30(E)	2		#5	26'-8"	
h31(E)	8		#5	7'-6"	
h32(E)	1		#5	9'-9"	
h33(E)	30		#7	15'-8"	
h34(E)	15		#7	12'-8"	
h35(E)	2		#5	2'-3"	
h36(E)	14		#7	11'-1"	
n1(E)	88	74	#5	6'-0"	
n2(E)	34		#8	9'-11"	
n4(E)	32		#11	16'-6"	
n5(E)	16		#5	7'-0"	
n6(E)	36		#10	20'-0"	
n7(E)	63		#10	19'-0"	
n8(E)		31	#10	14'-1"	
n9(E)	28	25	#10	13'-10"	
n21(E)	40		#10	19'-8"	
n22(E)	140		#10	20'-8"	
n23(E)		248	#10	24'-2"	
n24(E)	152		#11	19'-10"	
n30(E)	17		#10	10'-4"	
n42(E)		66	#10	15'-6"	
h1(E)	2		#10	16'-11"	
h2(E)	2		#10	16'-9"	
h3(E)	2		#10	16'-8"	
h4(E)	2		#10	16'-6"	
h5(E)	2		#10	16'-5"	
h6(E)	2		#10	16'-4"	
h7(E)	2		#10	16'-3"	
h8(E)	2		#10	16'-2"	
h9(E)	2		#10	16'-2"	
h10(E)	2		#10	16'-1"	
h11(E)	2		#10	16'-1"	
h12(E)	151		#10	16'-1"	
h13(E)	12		#10	13'-0"	
h14(E)	7		#10	12'-6"	
h15(E)	30		#10	16'-3"	
h16(E)	1		#10	20'-0"	
h17(E)	8		#10	33'-3"	
h18(E)	1	1	#6	16'-11"	
h19(E)	1	1	#6	16'-8"	
h20(E)	1	1	#6	16'-6"	
h21(E)	1	1	#6	16'-4"	
h22(E)	1	1	#6	16'-2"	
h23(E)	1	1	#6	16'-2"	
v1(E)	7		#7	27'-8"	
v2(E)	20		#7	16'-0"	
v3(E)	10		#5	11'-11"	
v4(E)	17		#5	7'-1"	
v5(E)	12		#5	33'-7"	
v6(E)	1		#5	22'-0"	
v7(E)	12		#5	22'-3"	
v8(E)	2		#5	14'-10"	
v9(E)	51		#5	13'-10"	
v11(E)	4	18	#5	9'-2"	
v12(E)	43	31	#5	6'-5"	
v13(E)	3		#6	9'-7"	
v14(E)	47	33	#6	6'-10"	
v15(E)		39	#5	10'-4"	
v17(E)	24		#5	16'-7"	
v18(E)	31		#6	11'-3"	
v19(E)	13		#5	14'-11"	
v20(E)	13		#6	9'-4"	
v21(E)	3		#6	14'-11"	
v22(E)	16		#5	18'-5"	
v23(E)	4		#6	18'-5"	
v24(E)	15		#6	15'-10"	
v30(E)	17		#6	14'-3"	
w1(E)	17		#7	40'-0"	
w2(E)	17		#7	8'-6"	
w3(E)	7		#5	36'-0"	
w4(E)	20		#5	22'-9"	
w5(E)	7		#8	28'-1"	
w6(E)	34		#6	22'-6"	
w7(E)	1		#8	19'-11"	
w8(E)	1		#8	19'-8"	
w9(W)	1		#8	19'-5"	
w10(E)	1		#8	19'-2"	
w11(E)	1		#8	19'-0"	
w12(E)	1		#8	18'-10"	
w13(E)	1		#8	18'-9"	
w16(E)	6		#7	32'-6"	
w15(E)	5		#7	34'-6"	
w16(E)	6		#7	37'-0"	
w17(E)	17		#7	8'-0"	
w18(E)	12		#7	33'-2"	
w19(E)	20		#7	18'-6"	
w20(E)	24		#7	17'-4"	
w21(E)	14		#5	22'-9"	
w22(E)	28		#6	22'-9"	
sp1(E)	8		#5	14'-11"	WWW
sp2(E)	7		#5	15'-11"	WWW
sp3(E)	2		#5	14'-11"	WWW
sp4		7	#5	19'-5"	WWW
sp5		6	#5	19'-5"	WWW

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	369
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

CONTRACT NO. 60E10

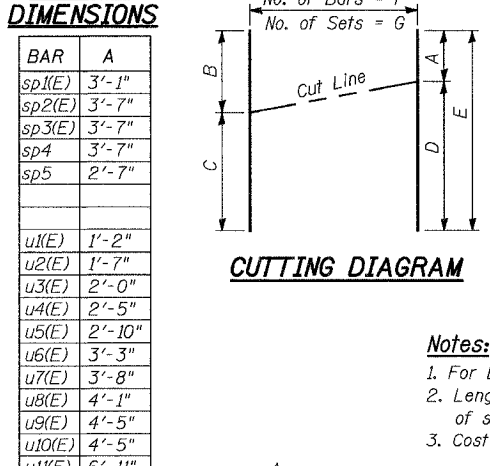
SHEET NO. 21  
37 SHEETS



**NORTH ABUTMENT BILL OF MATERIAL (CONTINUED)**

BAR	NO.	NO. STAGES II & III	SIZE	LENGTH	SHAPE
u1(E)	4	4	#5	4'-6"	
u2(E)	4	4	#5	4'-11"	
u3(E)	4	4	#5	5'-4"	
u4(E)	4	4	#5	5'-9"	
u5(E)	4	4	#5	6'-2"	
u6(E)	4	4	#5	6'-7"	
u7(E)	4	4	#5	7'-0"	
u8(E)	4	4	#5	7'-5"	
u9(E)	4	4	#5	7'-9"	
u10(E)	4	4	#5	7'-9"	
u11(E)	4	4	#5	10'-3"	
u12(E)	4	4	#5	12'-8"	
Porous Granular Embankment			Cu. Yd.	1075.0	
Structure Excavation			Cu. Yd.	1077	
Non-Special Waste Disposal			Cu. Yd.	2764.5	
Concrete Structures			Cu. Yd.	733.1	
Reinforcement Bars			Lbs.	5160	
Reinforcement Bars, Epoxy coated			Lbs.	143470	
Concrete Sealer			Sq. Ft.	290	
Geocomposite Wall Drain			Sq. Ft.	384	
Braced Excavation			Cu. Yd.	1472	
Drilled Shaft in Soil			Cu. Yd.	215.7	
Drilled Shaft in Rock			Cu. Yd.	35.6	
Permanent Steel Sheet Piling			Sq. Ft.	1414	
Bar Splicers			Each	72	

**BENDING DIMENSIONS**

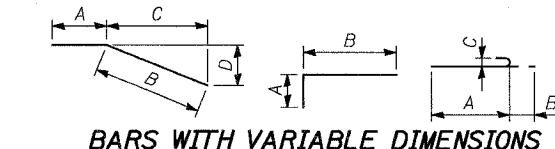


**CUTTING DIAGRAM**



**CUTTING DIAGRAM DIMENSIONS**

BAR	A	B	C	D	E	F	G
h3(E)	4'-8"	12'-3"	16'-3"	23'-10"	28'-6"	4	2
h17(E)	14'-6"	16'-3"	17'-0"	18'-9"	33'-3"	8	1
v1(E)	12'-0"	13'-7"	14'-1"	15'-8"	27'-8"	7	1
v3(E)	3'-0"	5'-9 5/8"	6'-1 3/8"	8'-11"	11'-11"	10	1
v5(E)	12'-0"	16'-4"	17'-3"	21'-7"	33'-7"	12	1



**BARS WITH VARIABLE DIMENSIONS**

**Notes:**  
1. For Locations of Sections X-X & Y-Y, see Sheet Nos. 19 & 20 of 37.  
2. Length of spiral given is height of spiral. Weight includes weight of spaces for spiral.  
3. Cost of pipe sleeve is included with Concrete Structures.

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1

**NORTH ABUTMENT DETAILS AND BILL OF MATERIAL**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)

STATION 91+24.94      STRUCTURE NO. 016-2755  
SCALE:      DATE: 2/21/2008

REVISIONS	
NAME	DATE

100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

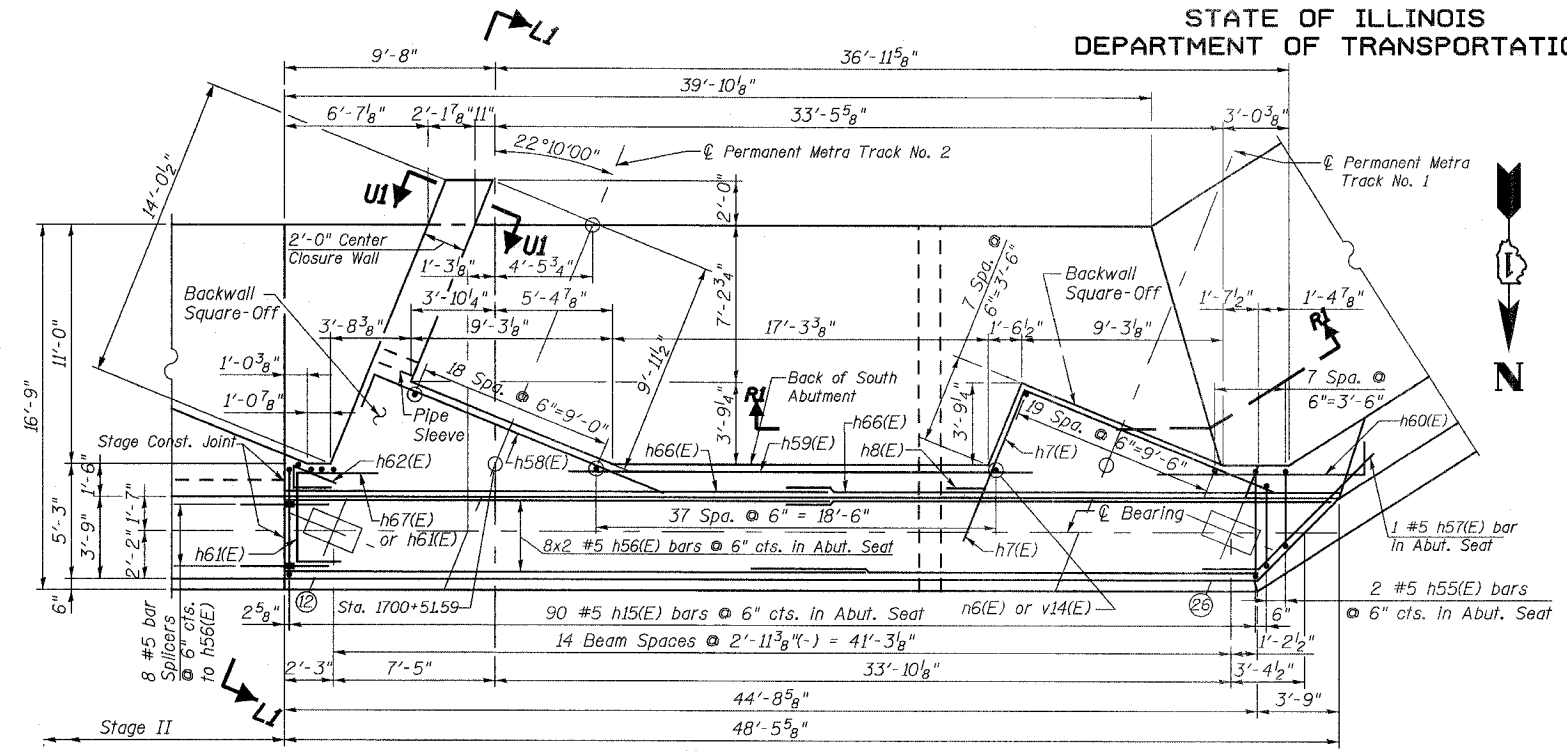


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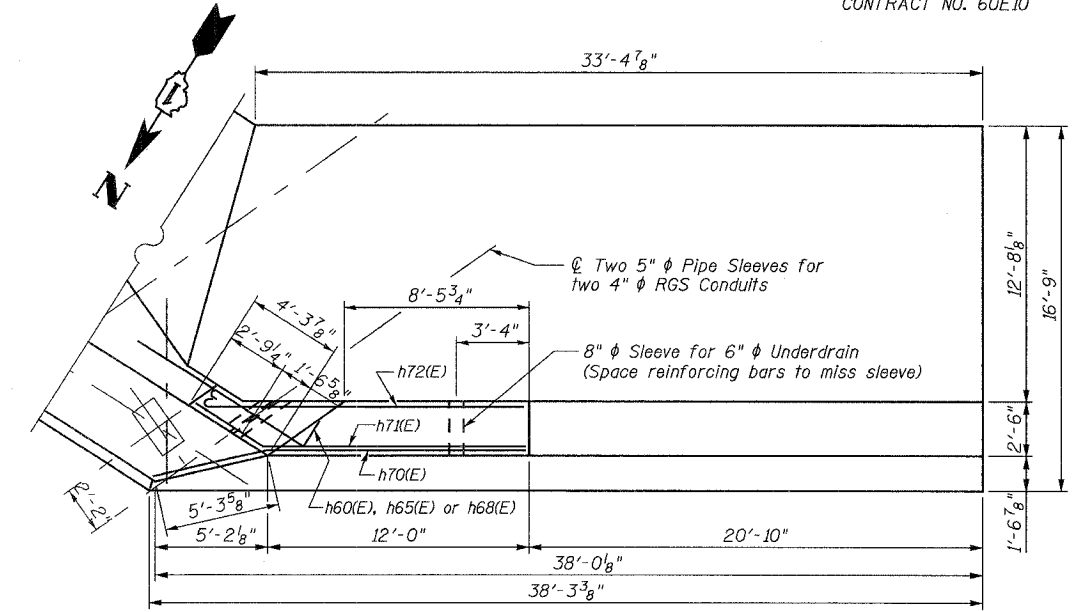
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	370
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

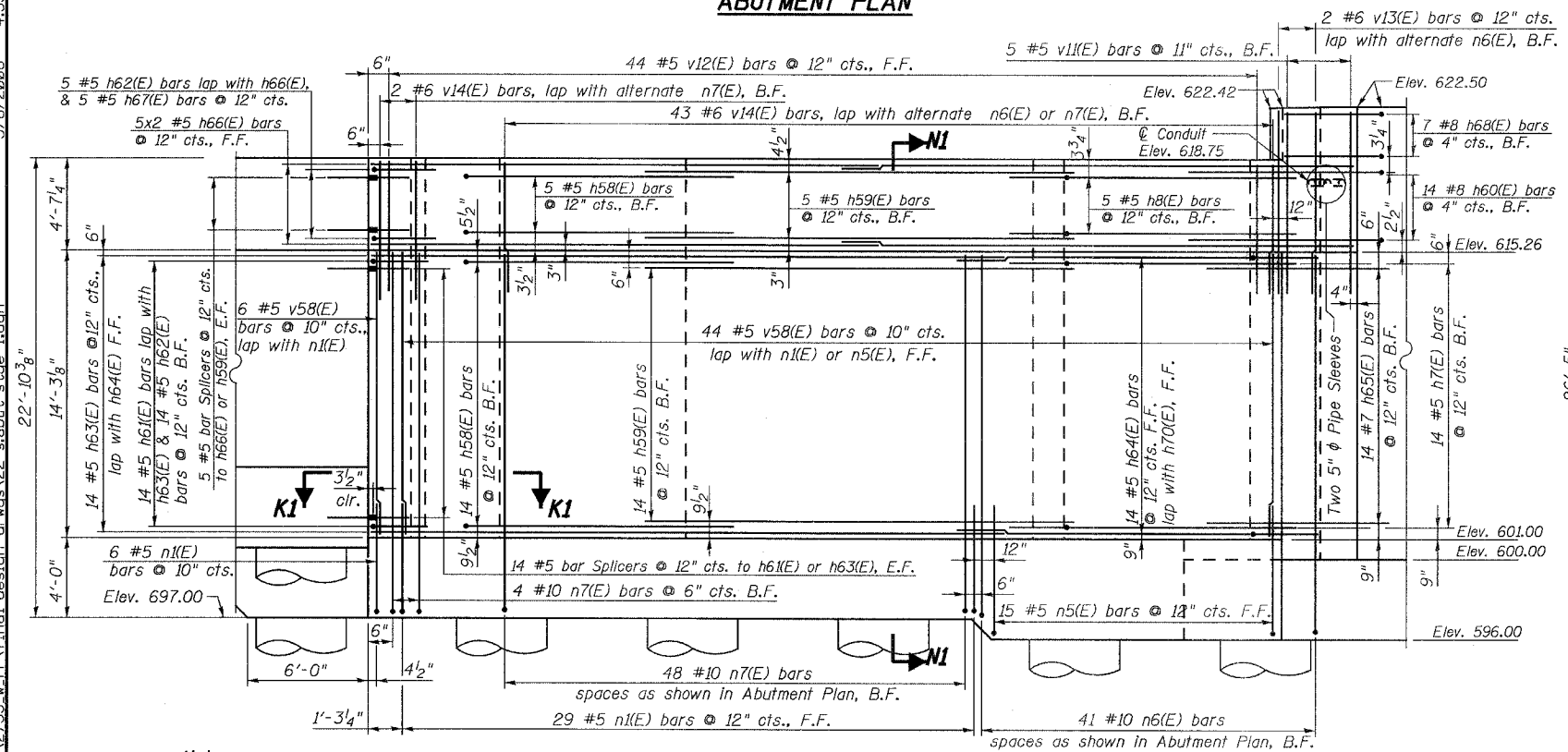
SHEET NO. 22  
37 SHEETS



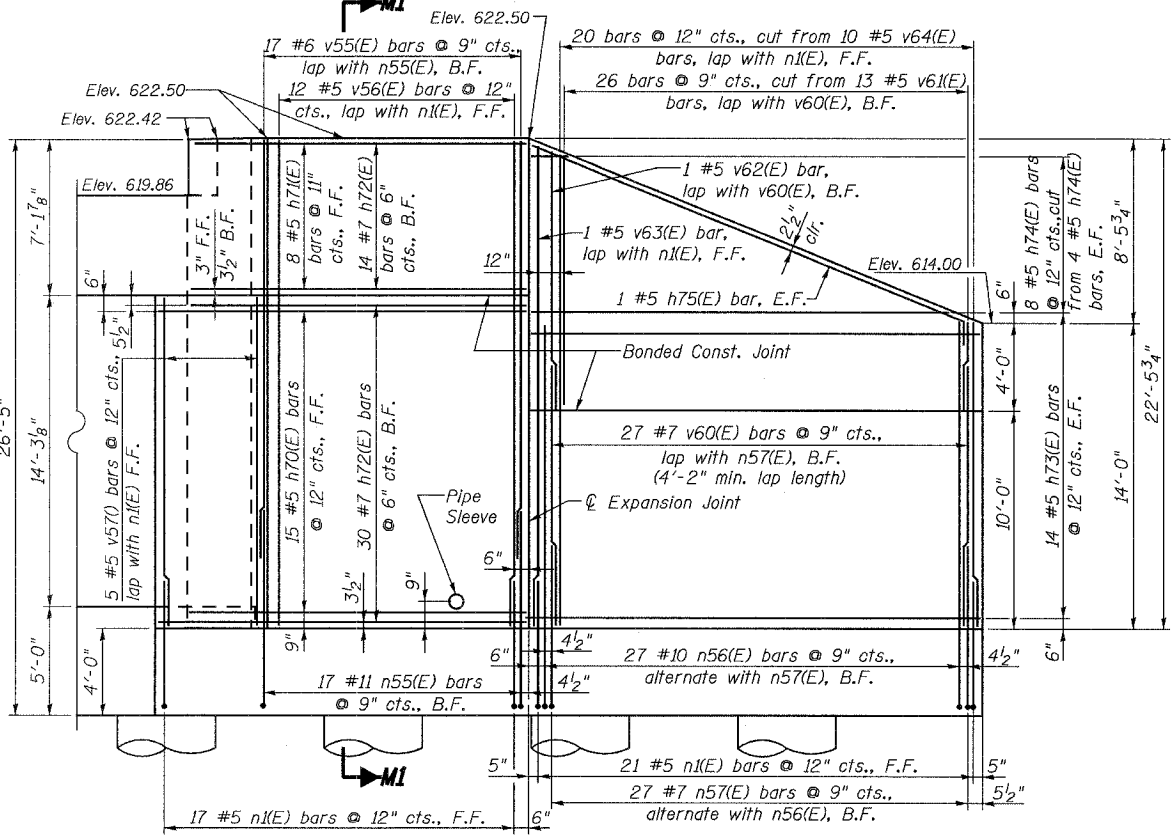
**ABUTMENT PLAN**



**SOUTHWEST WINGWALL PLAN**



**ABUTMENT ELEVATION**



**SOUTHWEST WINGWALL ELEVATION**

- Notes:**
- Ⓢ Denotes Beam Number.
  - For Sections L1-L1, M1-M1, N1-N1, R1-R1, and U1-U1, see Sheet 24 of 37. For Section K1-K1 see Sheet 23 of 37.
  - For additional locations of Sections M1-M1, N1-N1, and R1-R1, see Sheet 23 of 37.
  - Cost of pipe sleeves is included with Concrete Structures. See Walkway Section on Sheet No. 6 of 37 for additional details of 4" φ Conduits.
  - For Permanent Steel Sheet Piling see Sheets 23 and 24 of 37.
  - For 1 1/4" deep recess in backwall below walkway, see Section E-E on Sheet 8 of 37.
  - For plates and angles required for walkway joints, see Section B-B on Sheet 8 of 37.
  - For plates and angles required for deck joints in backwall, see Section P-P on Sheet 7 of 37.
  - For additional reinforcement required in each Backwall Square Off, see Abutment Backwall Square Off Plan on Sheet No. 26 of 37.

DESIGNED	DRS
CHECKED	JJG
DRAWN	DRS/SOI
CHECKED	JJG

**URS**  
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SOUTH ABUTMENT  
STAGE I**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

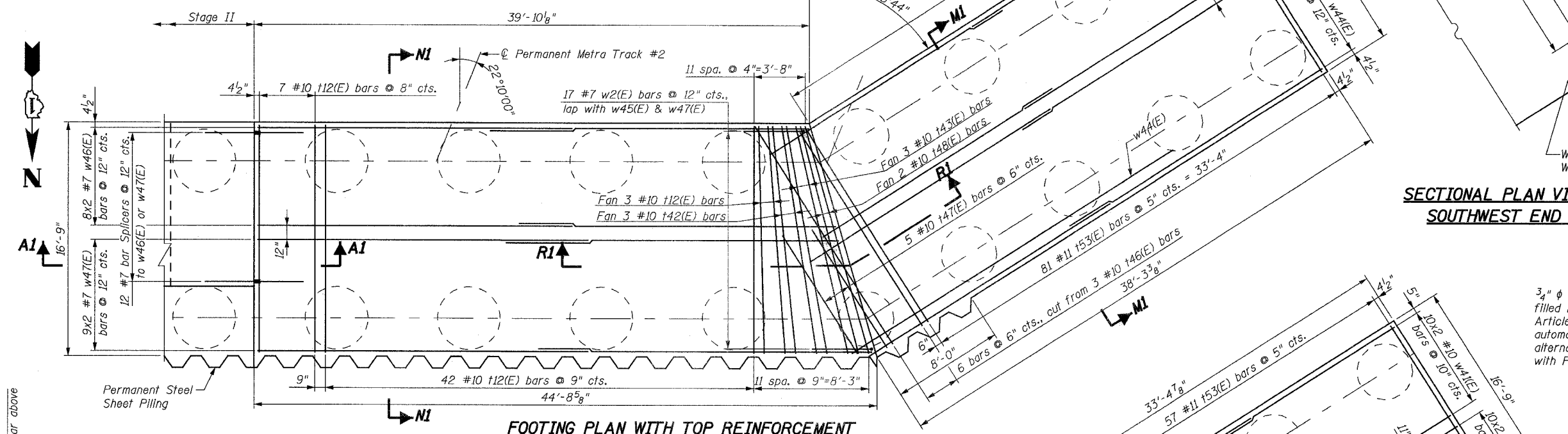
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F.A.P. 351	2008-001VB	COOK	579	371
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

CONTRACT NO. 60E10

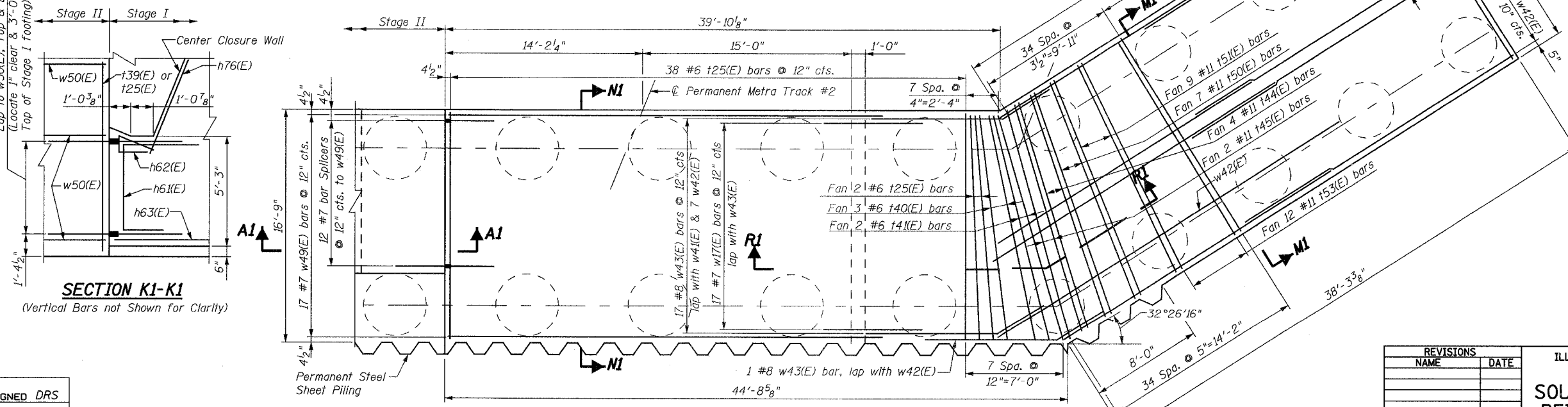
SHEET NO. 23  
37 SHEETS

Notes:

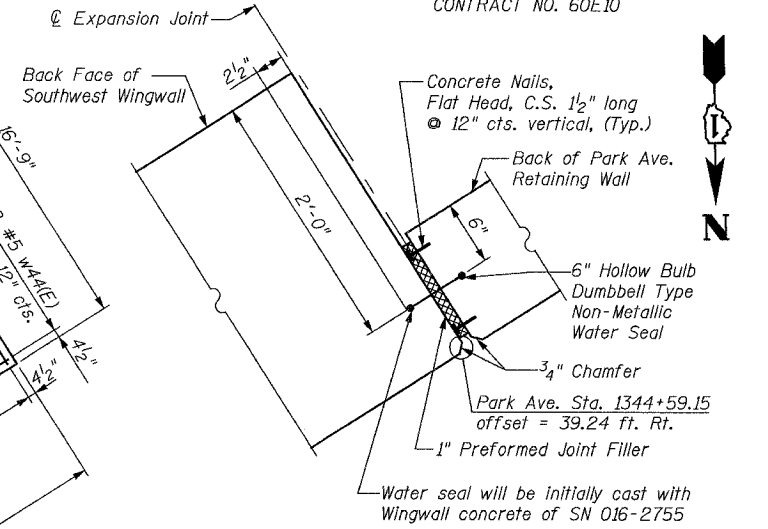
- For Bill of Materials, see Sheet No. 27 of 37.
- For Sections M1-M1, NI-NI, and R1-R1, see Sheet No. 24 of 37.
- For additional locations of Sections M1-M1, NI-NI, and R1-R1, see Sheet No. 22 of 37.
- Nine Drilled Shafts shall be drilled to Elevation 579.00 as shown in Section M1-M1 and eight Drilled Shafts shall be drilled to Elevation 582.50 as shown in Section NI-NI. Quantities and Detailing are for the estimated Elevations shown on the Plans. The actual conditions encountered in each Shaft may differ, and the Drilled Shaft and Reinforcement Quantities shall be adjusted accordingly as directed by the Engineer and paid for at the corresponding Unit Bid Price.
- Do not excavate deeper than bottom of footing elevation shown without written permission from Engineer.
- For location of section K1-K1, see Sheet No. 22 of 37.
- For location of Detail 6, see Sheet Nos. 24 & 26 of 37.
- For Section A1-A1, see Sheet No. 26 of 37.



FOOTING PLAN WITH TOP REINFORCEMENT

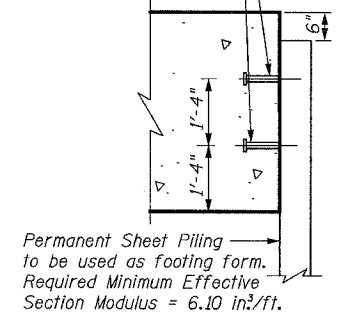


FOOTING PLAN WITH BOTTOM REINFORCEMENT

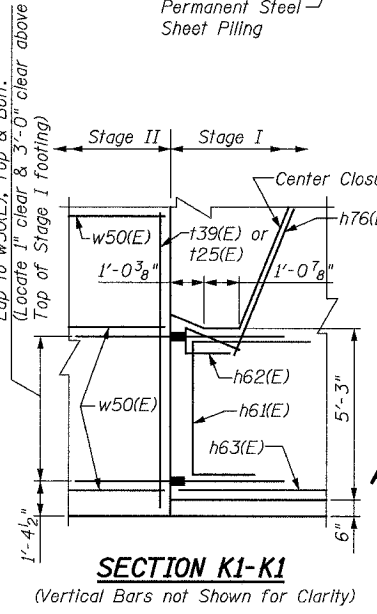


SECTIONAL PLAN VIEW OF EXPANSION JOINT AT SOUTHWEST END OF SOUTHWEST WINGWALL

3/4" φ x 8" Granular or solid flux filled headed studs conforming to Article 1006.32 of the Std. Spec.'s automatically end welded at 12" alternate centers. Cost included with Permanent Steel Sheet Piling.



PERMANENT SHEET PILING ATTACHMENT TO FOOTING (DETAIL 6)



SECTION K1-K1  
(Vertical Bars not Shown for Clarity)

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DESIGNED	DRS
CHECKED	JJG
DRAWN	DRS/SOI
CHECKED	JJG

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100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

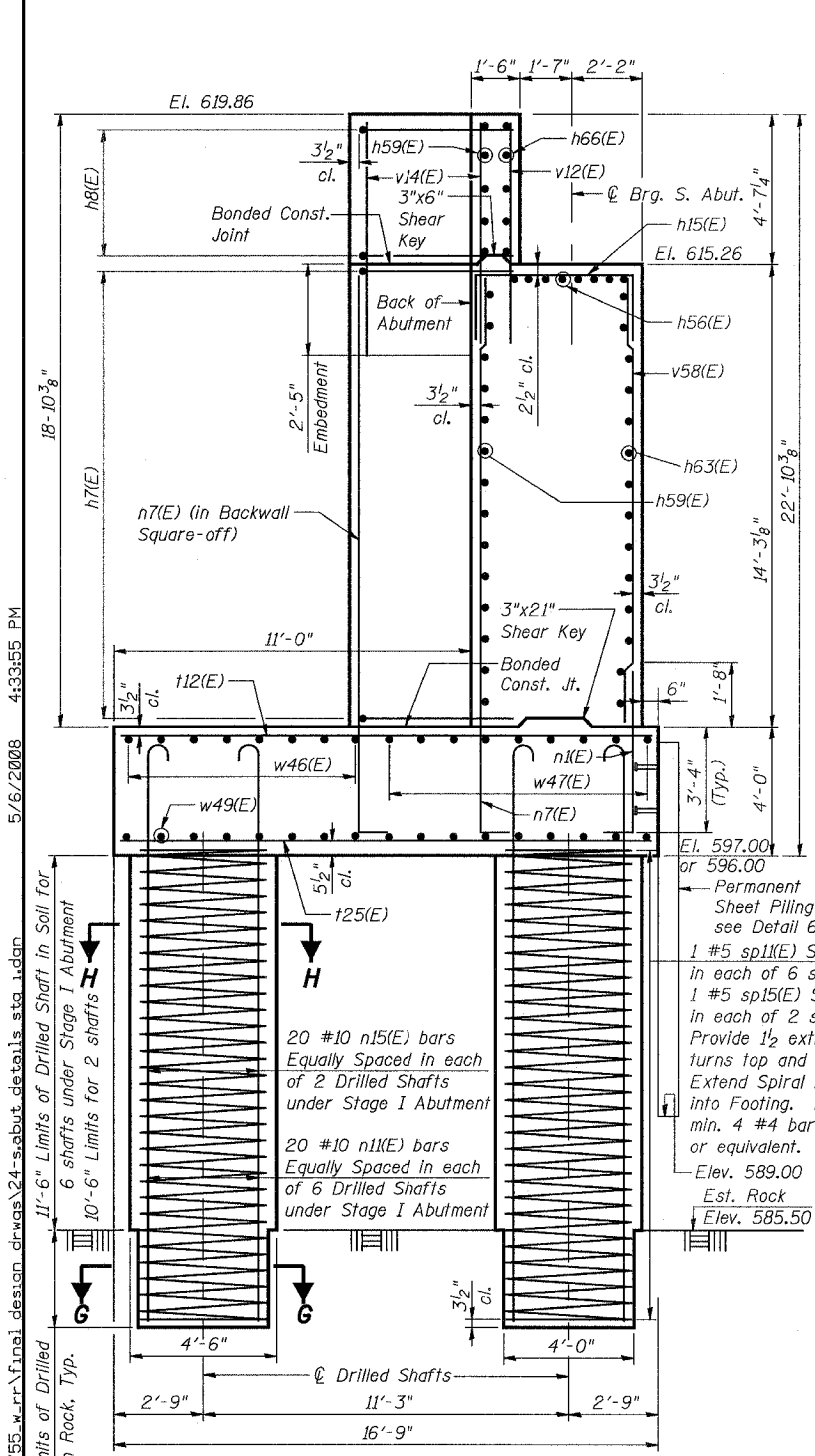
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SOUTH ABUTMENT FOOTING REINFORCEMENT, STAGE I**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

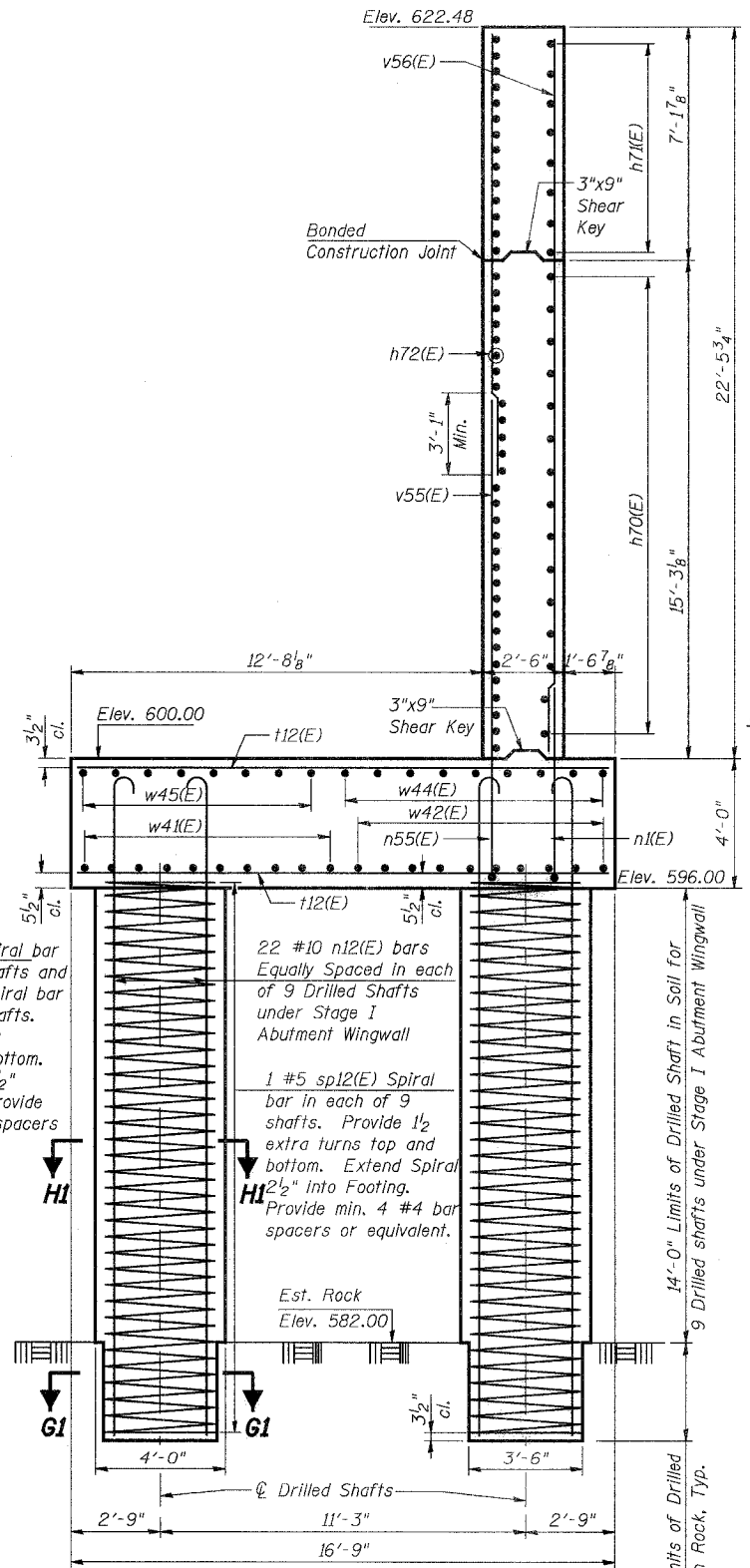
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	372
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT-		
CONTRACT NO. 60E10				

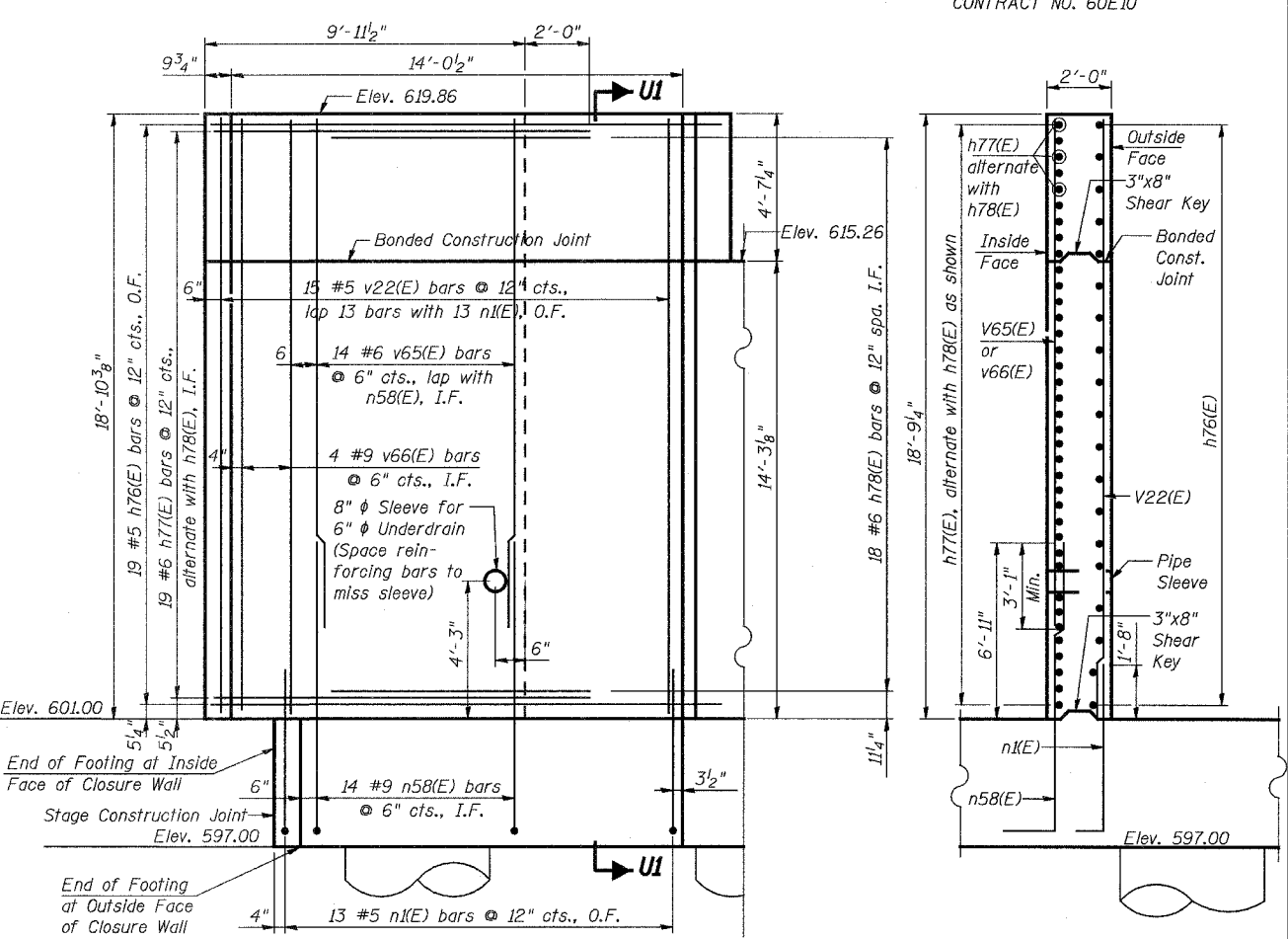
SHEET NO. 24  
37 SHEETS



SECTION NI-NI

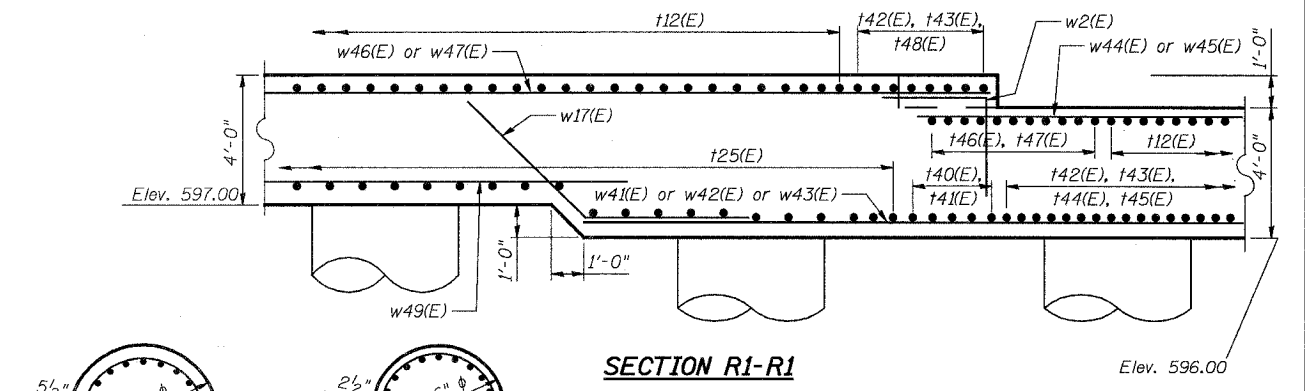


SECTION MI-MI



SECTION L1-L1  
(CENTER CLOSURE WALL ELEVATION)

SECTION U1-U1



SECTION HI-HI

SECTION GI-GI

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 C:\17049\069\structures\2755\_w\_r\final\_design\_dwg\24-s.abut.details\_sta.dwg  
 3'-0" Limits of Drilled Shaft in Rock, Typ.  
 11'-6" Limits of Drilled Shaft in Soil for Stage I Abutment  
 10'-6" Limits for 2 shafts  
 6 shafts under Stage I Abutment  
 20 #10 n15(E) bars Equally Spaced in each of 2 Drilled Shafts under Stage I Abutment  
 20 #10 n1(E) bars Equally Spaced in each of 6 Drilled Shafts under Stage I Abutment  
 1 #5 sp11(E) Spiral bar in each of 6 shafts and 1 #5 sp15(E) Spiral bar in each of 2 shafts. Provide 1/2 extra turns top and bottom. Extend Spiral 2 1/2" into Footing. Provide min. 4 #4 bar spacers or equivalent. Est. Rock Elev. 589.00  
 1 #5 sp12(E) Spiral bar in each of 9 shafts. Provide 1/2 extra turns top and bottom. Extend Spiral 2 1/2" into Footing. Provide min. 4 #4 bar spacers or equivalent. Est. Rock Elev. 582.00  
 22 #10 n12(E) bars Equally Spaced in each of 9 Drilled Shafts under Stage I Abutment Wingwall  
 1 #5 sp12(E) Spiral bar in each of 9 shafts. Provide 1/2 extra turns top and bottom. Extend Spiral 2 1/2" into Footing. Provide min. 4 #4 bar spacers or equivalent. Est. Rock Elev. 582.00  
 14'-0" Limits of Drilled Shaft in Soil for Stage I Abutment Wingwall  
 9 Drilled shafts under Stage I Abutment Wingwall  
 3'-0" Limits of Drilled Shaft in Rock, Typ.

Notes:

1. For locations of Sections MI-MI, NI-NI and R1-R1 see Sheet Nos. 22 and 23 of 37.
2. For location of Section L1-L1 and additional location of Section U1-U1 see Sheet 22 of 37.
3. For Sections H-H and G-G see Sheet 26 of 37.
4. Cost of pipe sleeve is included with Concrete Structures.
5. For Detail 6, see Sheet No. 23 of 37.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SOUTH ABUTMENT DETAILS**  
STAGE I  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

**URS**  
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000



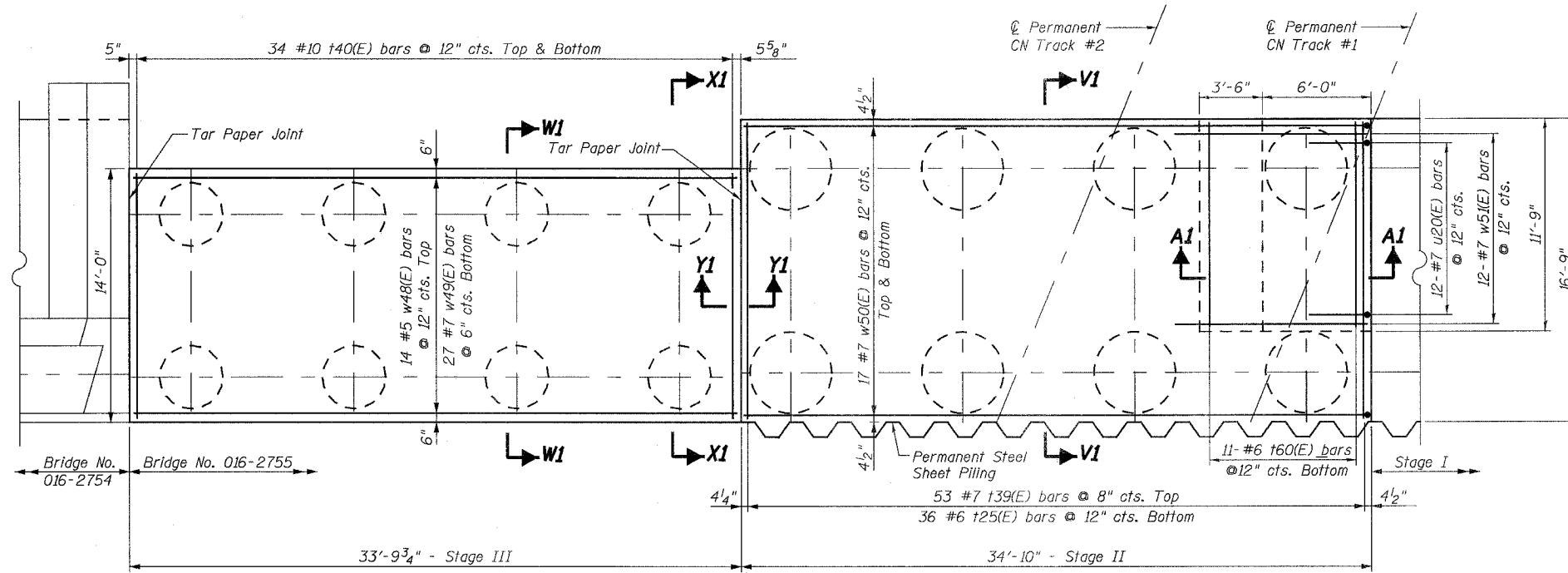


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

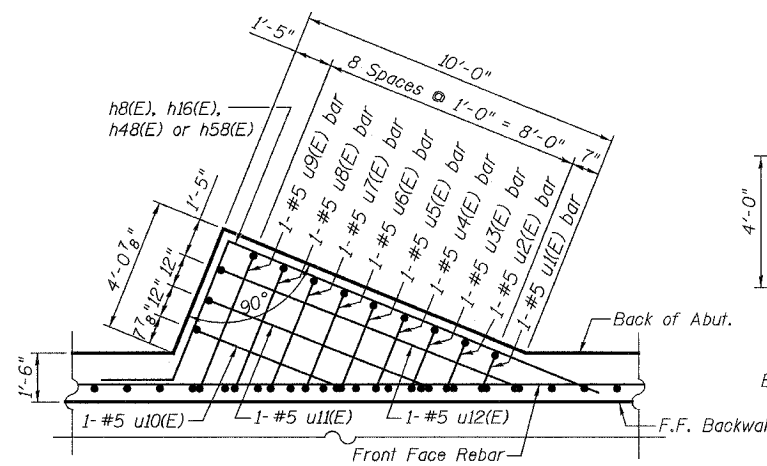
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	374
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT-		

SHEET NO. 26  
37 SHEETS

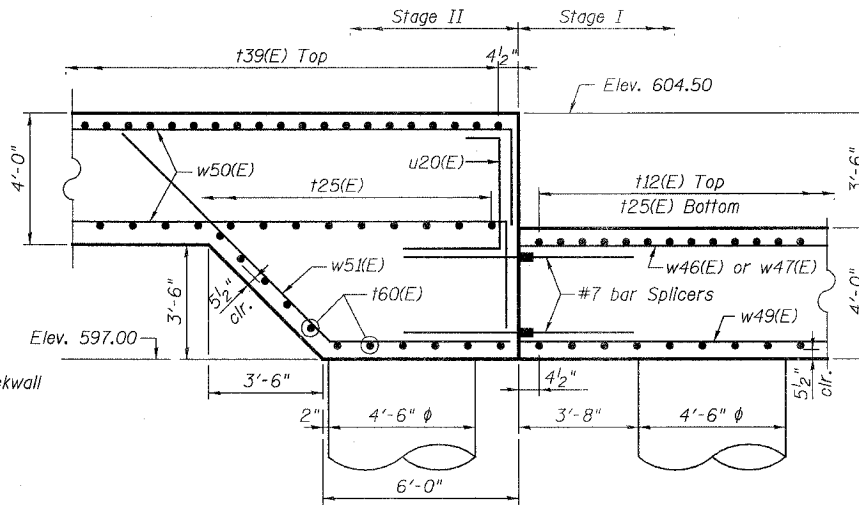
CONTRACT NO. 60E10



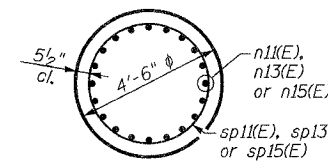
FOOTING REINFORCEMENT PLAN



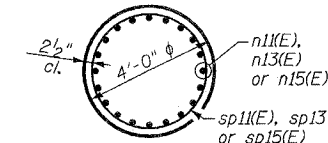
ABUTMENT BACKWALL SQUARE-OFF PLAN



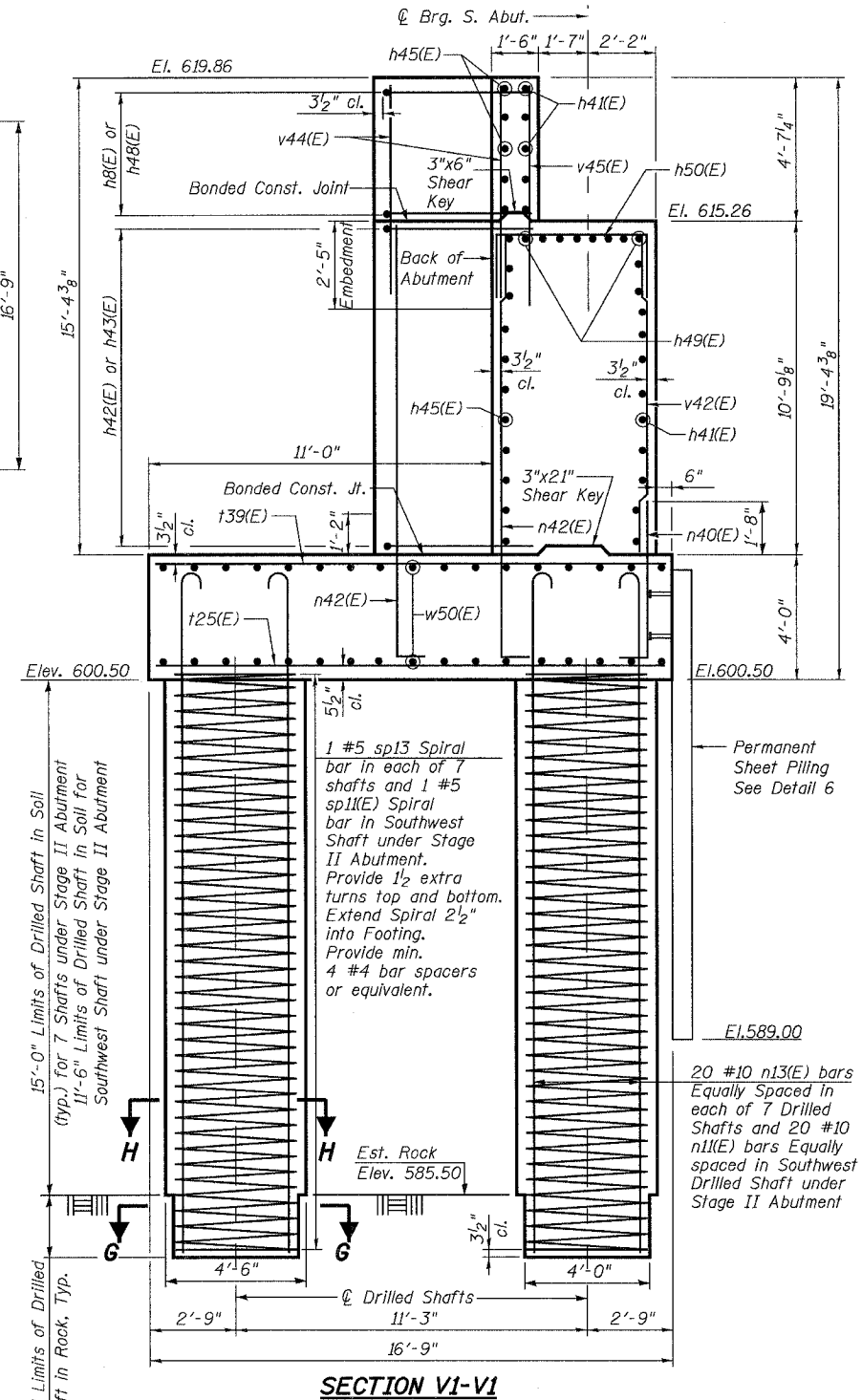
SECTION A1-A1



SECTION H-H



SECTION G-G



SECTION V1-V1

Notes:

- For Bill of Material, see Sheet No. 27 of 37.
- Eight Drilled Shafts shall be drilled to Elevation 581.00 as shown in Section W1-W1, and eight Drilled Shafts shall be drilled to Elev. 582.50 as shown in Section V1-V1. Quantities and detailing are for the estimated elevations shown on the Plans. The actual conditions encountered in each Shaft may differ, and the Drilled Shaft and Reinforcement Quantities shall be adjusted accordingly as directed by the Engineer and paid for at the corresponding Unit Bid Price.
- Do not excavate deeper than bottom of footing elevation shown without written permission from the Engineer.
- For Section W1-W1 and additional locations of Sections X1-X1, Y1-Y1, and V1-V1, see Sheet No. 25 of 37.
- For Sections X1-X1 and Y1-Y1, see Sheet No. 27 of 37.
- For Detail 6, see Sheet No. 23 of 37.
- In Abutment Backwall Square Off Plan, most vertical reinforcement bars are not shown for clarity. Provide 3/2" bar clearance from top concrete surface of backwall square off to bars u1(E) thru u9(E) with bars u10(E), u11(E) & u12(E) under u1(E) thru u9(E). Adjust spacing of bars u1(E) thru u12(E) as necessary to accommodate vertical reinforcement bars. Provide bars u1(E) thru u12(E) to each of 4 locations in each abutment.

DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

URS  
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SOUTH ABUTMENT FOOTING  
REINF. STAGES II & III**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

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**SOUTH ABUTMENT BILL OF MATERIAL**

BAR	NO.	STAGE I	NO.	SIZE	LENGTH	SHAPE
STAGES II & III						
h7(E)	14		#7	18'-10"		
h8(E)	5	5	#5	18'-6"		
h15(E)	90		#5	8'-8"		
h25(E)		15	#5	9'-3"		
h40(E)		17	#5	33'-3"		
h41(E)		16	#5	34'-6"		
h42(E)		11	#5	15'-6"		
h43(E)		11	#5	19'-3"		
h44(E)		19	#5	11'-6"		
h45(E)		20	#7	27'-7"		
h46(E)		8	#5	5'-7"		
h47(E)		8	#5	11'-5"		
h48(E)		5	#5	15'-11"		
h49(E)		8	#5	32'-10"		
h50(E)		65	#5	8'-8"		
h55(E)	2		#5	7'-8"		
h56(E)	16		#5	25'-0"		
h57(E)	1		#5	10'-0"		
h58(E)	19		#5	15'-2"		
h59(E)	19		#5	21'-3"		
h60(E)	14		#8	10'-4"		
h61(E)	14		#5	10'-6"		
h62(E)	19		#5	5'-10"		
h63(E)	14		#5	30'-0"		
h64(E)	14		#5	18'-5"		
h65(E)	14		#7	9'-0"		
h66(E)	10		#5	25'-2"		
h67(E)	5		#5	4'-10"		
h68(E)	7		#8	7'-0"		
h70(E)	15		#5	17'-2"		
h71(E)	8		#5	15'-10"		
h72(E)	44		#7	15'-7"		
h73(E)	28		#5	20'-4"		
h74(E)	4		#5	20'-7"		
h75(E)	2		#5	23'-10"		
h76(E)	19		#5	15'-0"		
h77(E)	19		#6	12'-2"		
h78(E)	18		#6	8'-6"		
h79(E)		30	#7	8'-6"		
n1(E)	86		#5	6'-0"		
n5(E)	15		#5	7'-0"		
n6(E)	41		#10	20'-0"		
n7(E)	52		#10	19'-0"		
n9(E)		16	#10	13'-10"		
n11(E)	140		#10	19'-4"		
n12(E)	198		#10	21'-10"		
n13(E)		140	#10	22'-10"		
n14(E)		144	#10	25'-4"		
n15(E)	40		#10	18'-4"		
n40(E)	94		#5	6'-0"		
n41(E)	45		#10	14'-1"		
n42(E)	68		#10	15'-6"		
n55(E)	17		#11	16'-6"		
n56(E)	27		#10	19'-2"		
n57(E)	27		#7	9'-8"		
n58(E)	14		#9	12'-0"		
u12(E)	52		#10	16'-1"		
u25(E)	40	36	#6	16'-1"		
u39(E)	53	53	#7	16'-1"		
u40(E)	34	34	#10	13'-4"		
u41(E)	2		#6	16'-8"		
u42(E)	3		#10	16'-3"		
u43(E)	3		#10	16'-5"		
u44(E)	4		#11	16'-7"		
u45(E)	2		#11	16'-9"		
u46(E)	3		#11	14'-11"		
u47(E)	5		#10	10'-0"		
u48(E)	2		#10	16'-8"		
u149(E)	3		#6	11'-3"		
u150(E)	7		#11	16'-5"		
u151(E)	9		#11	16'-3"		
u153(E)	150		#11	16'-1"		
u160(E)		11	#6	11'-3"		
u1(E)	4	4	#5	4'-6"		
u2(E)	4	4	#5	4'-11"		
u3(E)	4	4	#5	5'-4"		
u4(E)	4	4	#5	5'-9"		
u5(E)	4	4	#5	6'-2"		
u6(E)	4	4	#5	6'-7"		
u7(E)	4	4	#5	7'-0"		
u8(E)	4	4	#5	7'-5"		
u9(E)	4	4	#5	7'-9"		
u10(E)	4	4	#5	7'-9"		
u11(E)	4	4	#5	10'-3"		
u12(E)	4	4	#5	12'-8"		
u20(E)		12	#7	8'-0"		
v11(E)	5		#5	9'-2"		
v12(E)	44		#5	6'-5"		
v13(E)	2		#6	9'-7"		
v14(E)	46		#6	6'-10"		
v15(E)		5	#5	10'-4"		
v19(E)		13	#5	14'-11"		
v20(E)		16	#6	9'-4"		
v21(E)		3	#6	14'-11"		
v22(E)	15		#5	18'-5"		
v40(E)		35	#5	16'-7"		
v41(E)		45	#6	11'-3"		
v42(E)		43	#5	10'-5"		
v44(E)		36	#6	6'-11"		
v45(E)		31	#5	6'-6"		
v46(E)		18	#5	9'-3"		
v55(E)	17		#6	19'-1"		
v56(E)	12		#5	22'-3"		
v57(E)	5		#5	15'-0"		
v58(E)	50		#5	14'-0"		
v60(E)	27		#7	12'-2"		
v61(E)	13		#5	11'-6"		
v62(E)	1		#5	7'-10"		
v63(E)	1		#5	22'-1"		
v64(E)	10		#5	35'-7"		
v65(E)	14		#6	16'-1"		
v66(E)	4		#9	18'-5"		
w2(E)	17		#7	8'-6"		
w17(E)	17		#7	8'-10"		
w41(E)	20		#10	21'-6"		
w42(E)	20		#10	23'-6"		
w43(E)	18		#8	13'-2"		
w44(E)	18		#5	21'-0"		
w45(E)	16		#5	19'-7"		
w46(E)	16		#7	22'-8"		
w47(E)	18		#7	24'-0"		
w48(E)		14	#5	33'-2"		
w49(E)	17	27	#7	33'-2"		
w50(E)		34	#7	37'-3"		
w51(E)		12	#7	14'-7"		
sp11(E)	7		#5	14'-5"		
sp12(E)	9		#5	16'-11"		
sp13		7	#5	17'-11"		
sp14		8	#5	20'-5"		
sp15(E)	2		#5	13'-5"		
Porous Granular Embankment				Cu. Yd.	1108	
Structure Excavation				Cu. Yd.	1056	
Non-Special Waste Disposal				Cu. Yd.	1130.6	
Concrete Structures				Cu. Yd.	786.4	
Reinforcement Bars				Lbs.	5710	
Reinforcement Bars, Epoxy Coated				Lbs.	154,370	
Concrete Sealer				Sq. Ft.	295	
Geocomposite Wall Drain				Sq. Ft.	391	
Braced Excavation				Cu. Yd.	1766.8	
Drilled Shaft in Soil				Cu. Yd.	234.3	
Drilled Shaft in Rock				Cu. Yd.	38.3	
Bar Splitters				Each	80	

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DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

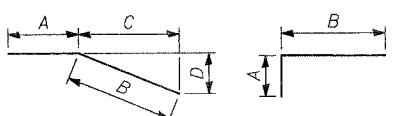
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	375
ILLINOIS FED. AID PROJECT-				
CONTRACT NO. 60E10				

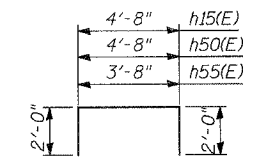
SHEET NO. 27  
37 SHEETS

**BENDING DIMENSIONS**

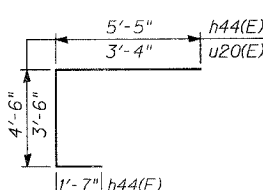
BAR	A	B	C	D
h7(E)	7'-0"	11'-10"		
h42(E)	6'-10"	8'-8"		
h43(E)	6'-10"	12'-5"		
h46(E)	1'-7"	4'-0"	3'-8 5/8"	1'-5 5/8"
h57(E)	8'-0"	2'-0"	1'-5"	1'-5"
h58(E)	10"	14'-4"		
h60(E)	1'-4"	9'-0"		
h64(E)	16'-5"	2'-0"	1'-5"	1'-5"
h67(E)	10"	4'-0"		
h70(E)	11'-10"	5'-4"	5'-2 1/2"	1'-1 1/8"
h71(E)	11'-10"	4'-0"	3'-4 1/2"	2'-1 3/4"
h75(E)	21'-10"	2'-0"	9'-0"	10 1/4"
n1(E)	10"	5'-2"		
n5(E)	10"	6'-2"		
n6(E)	1'-10"	18'-2"		
n7(E)	1'-10"	17'-2"		
n9(E)	1'-7"	12'-3"		
n40(E)	0'-10"	5'-2"		
n41(E)	1'-10"	12'-3"		
n42(E)	1'-10"	13'-8"		
n55(E)	1'-7"	14'-11"		
n56(E)	1'-10"	17'-4"		
n57(E)	1'-2"	8'-6"		
n58(E)	1'-7"	10'-5"		
w2(E)	4'-3"	4'-3"		
w17(E)	4'-5"	4'-5"	3'-1 1/2"	3'-1 1/2"
w43(E)	9'-5"	3'-9"	3'-2"	2'-0 1/2"
w50(E)	3'-0"	34'-3"		
w51(E)	9'-0"	5'-7"	3'-11 3/8"	3'-11 3/8"



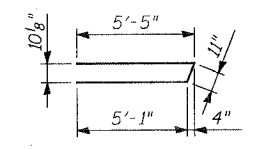
**BARS WITH VARIABLE DIMENSIONS**



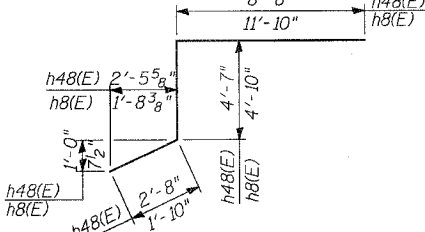
**BARS h15(E), h50(E) & h55(E)**



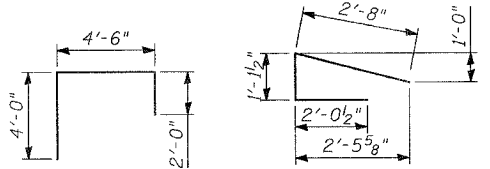
**BAR h44(E) & u20(E)**



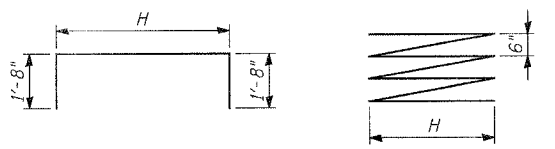
**BAR h47(E)**



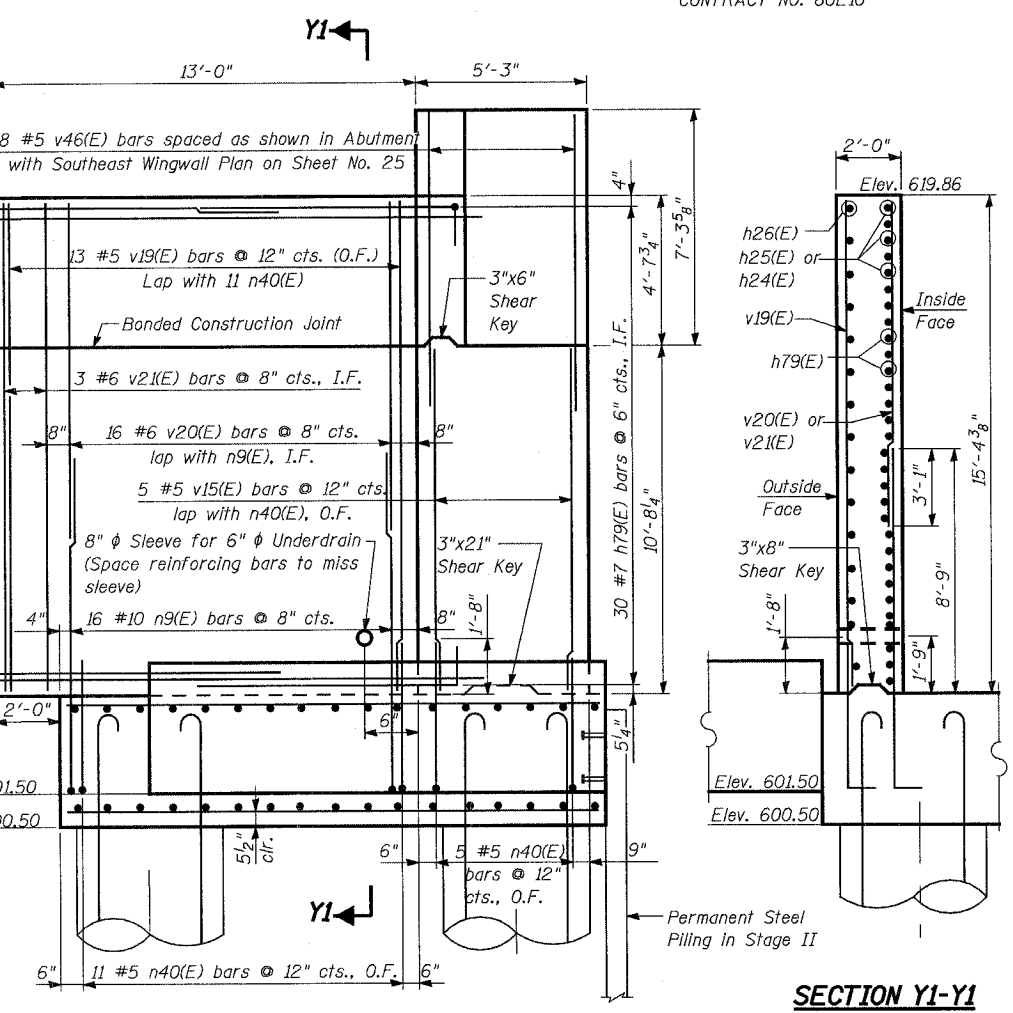
**BARS h8(E) & h48(E)**



**BARS h61(E) & h62(E)**



**BARS u1(E) To u12(E)**

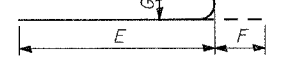


**SECTION X1-X1**

**SECTION Y1-Y1**

**BENDING DIMENSIONS**

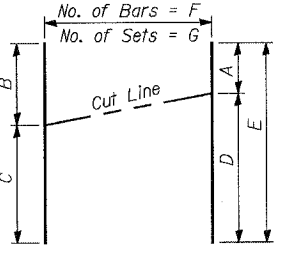
BAR	E	F	G
n11(E)	17'-11"	1'-5"	1'-1 1/4"
n12(E)	20'-5"	1'-5"	1'-1 1/4"
n13(E)	21'-5"	1'-5"	1'-1 1/4"
n14(E)	23'-11"	1'-5"	1'-1 1/4"
n15(E)	16'-11"	1'-5"	1'-1 1/4"
h72(E)	14'-9"	0'-10"	0'-7"



**BENDING DIMENSIONS**

BAR	H
sp11(E)	3'-7"
sp12(E)	3'-1"
sp13	3'-7"
sp14	2'-7"
sp15(E)	3'-7"
u1(E)	1'-2"
u2(E)	1'-7"
u3(E)	2'-0"
u4(E)	2'-5"
u5(E)	2'-10"
u6(E)	3'-3"
u7(E)	3'-8"
u8(E)	4'-1"
u9(E)	4'-5"
u10(E)	4'-5"
u11(E)	6'-11"
u12(E)	9'-4"

**BARS u1(E) To u12(E)**



**CUTTING DIAGRAM**

**CUTTING DIAGRAM DIMENSIONS**

BAR	A	B	C	D	E	F	G
h74(E)	1'-8"	9'-0 3/4"	11'-6 1/4"	18'-11"	20'-7"	4	2
h46(E)	6'-8"	7'-3"	7'-7 3/8"	8'-3"	14'-11"	3	1
v61(E)	3'-11"	5'-7 1/8"	5'-10 1/8"	7'-7"	11'-6"	13	1
v64(E)	13'-11"	17'-7"	18'-0"	21'-8"	35'-7"	10	1

**NOTES:**

- Cost of pipe sleeve is included with Concrete Structures.
- For locations of X1-X1 and Y1-Y1, see Sheet Nos. 25 and 26 of 37.
- Length of spiral given is height of spiral.

REVISIONS	NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SOUTH ABUTMENT DETAILS AND BILL OF MATERIAL**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000

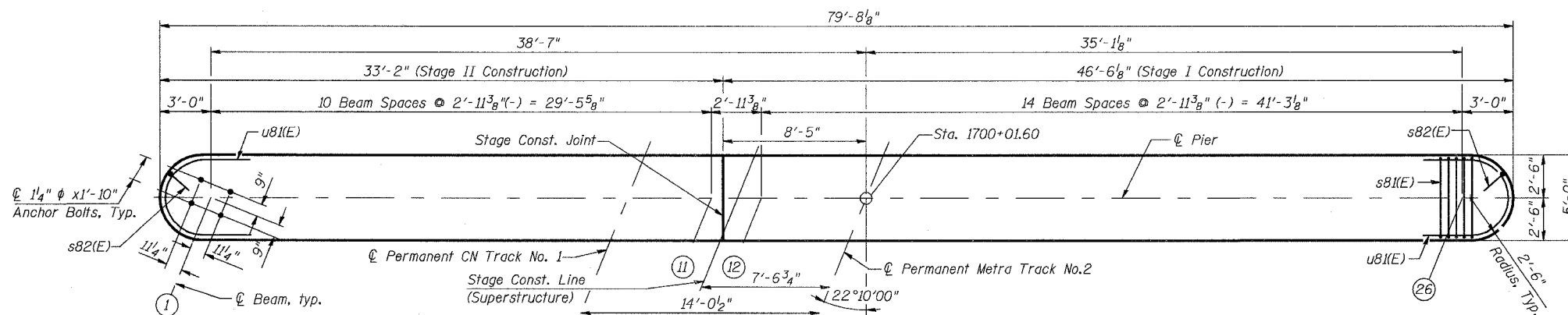


STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

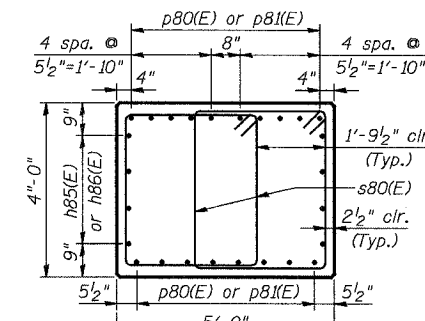
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	376
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 28  
37 SHEETS

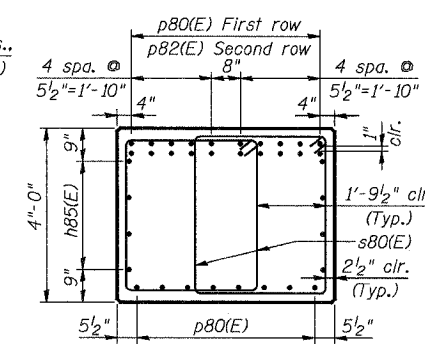
CONTRACT NO. 60E10



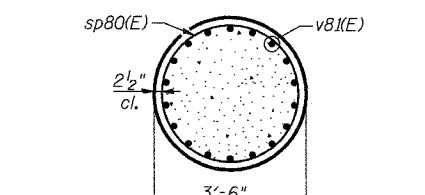
TOP PLAN



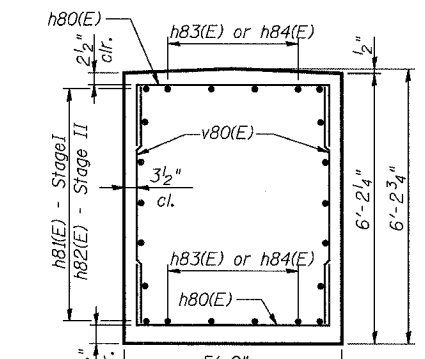
SECTION A-A



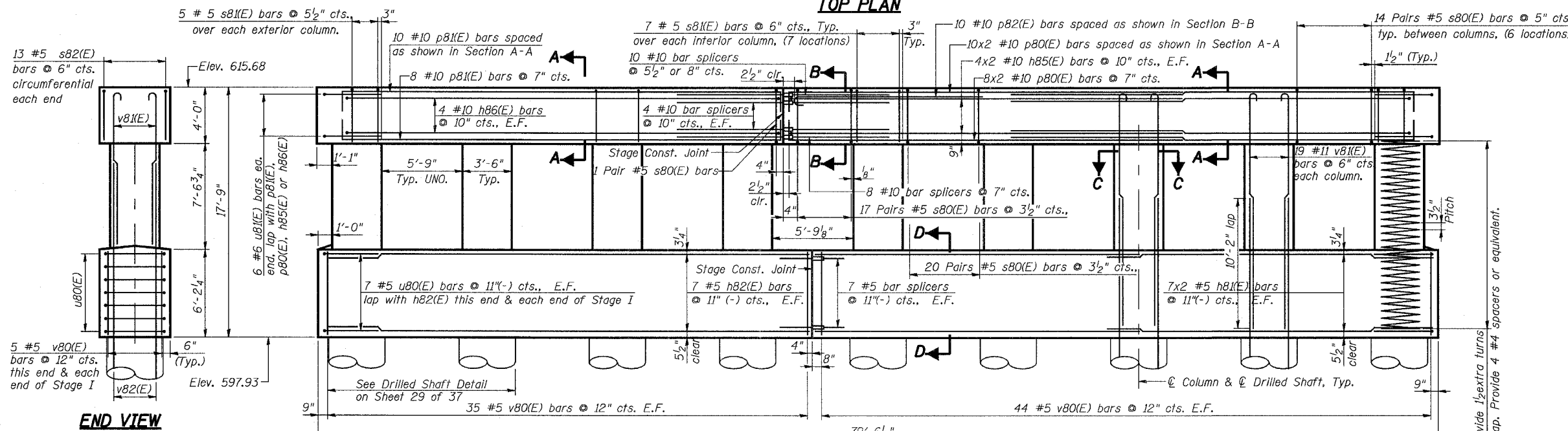
SECTION B-B



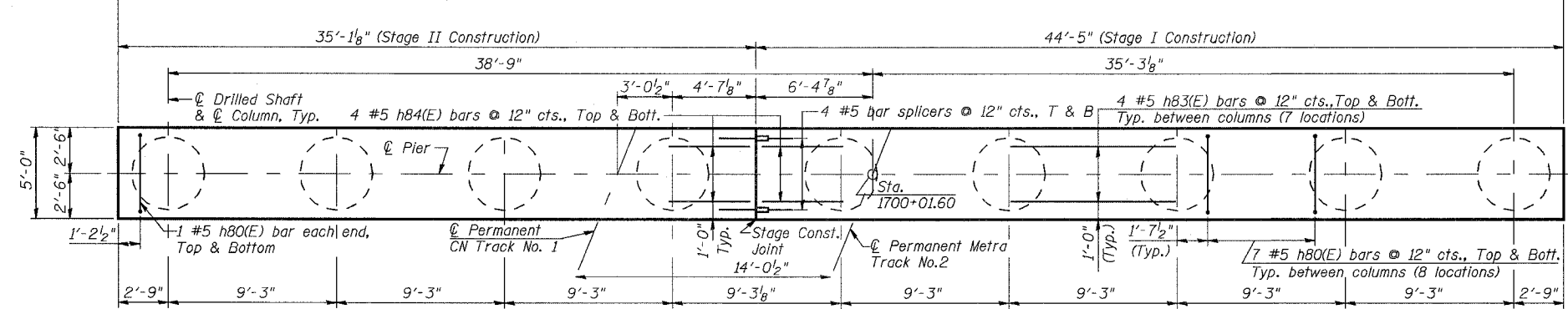
SECTION C-C



SECTION D-D



ELEVATION LOOKING SOUTH



CRASH WALL PLAN

Notes:

- For Bill of Materials and additional details see Sheet 29 of 37.
- Space reinforcement in seat to miss anchor bolts.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**PIER**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000



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DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	377
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

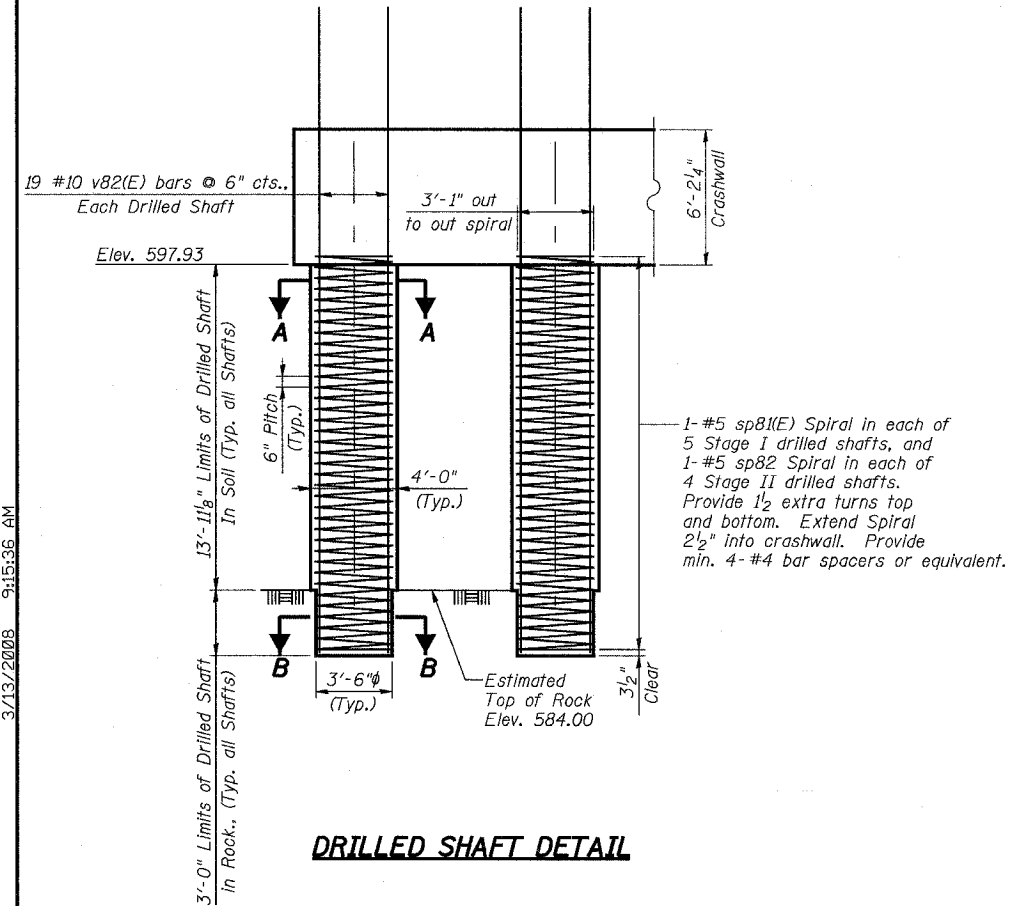
CONTRACT NO. 60E10

SHEET NO. 29  
37 SHEETS

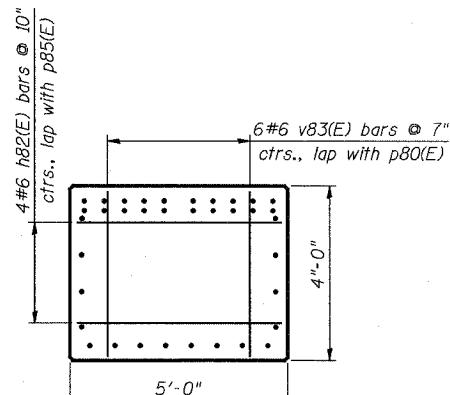
(E) bars @ 7"  
with p80(E)

3/13/2008 9:15:36 AM

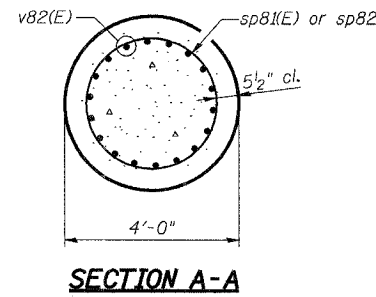
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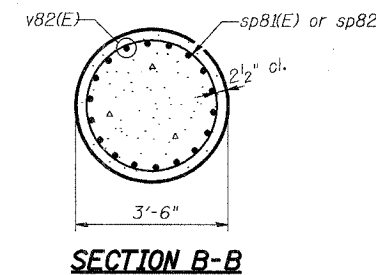
**DRILLED SHAFT DETAIL**



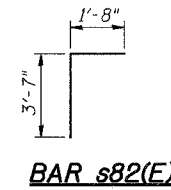
**EAST END VIEW OF STAGE I CAP BEAM**



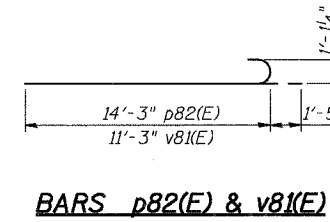
**SECTION A-A**



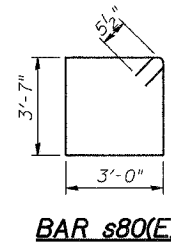
**SECTION B-B**



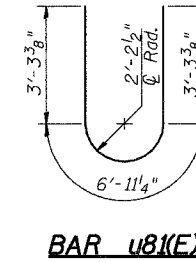
**BAR s82(E)**



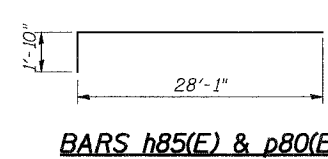
**BARS p82(E) & v81(E)**



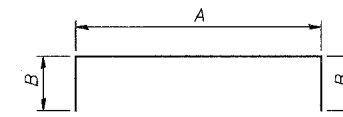
**BAR s80(E)**



**BAR u81(E)**



**BARS h85(E) & p80(E)**



**BARS h80(E), h86(E), p81(E), s81(E) & u80(E)**

**BENDING DIMENSIONS**

BAR	A	B
h80(E)	4'-5"	2'-7"
h86(E)	30'-7"	1'-10"
p81(E)	30'-7"	1'-10"
s81(E)	4'-7"	3'-7"
u80(E)	4'-3"	2'-2"

**PIER BILL OF MATERIAL**

BAR	NO. STAGE I	NO. STAGE II	SIZE	LENGTH	SHAPE
h80(E)	66	50	#5	9'-7"	□
h81(E)	28		#5	23'-3"	—
h82(E)		14	#5	34'-9"	—
h83(E)	32	24	#5	9'-0"	—
h84(E)	8	8	#5	4'-6"	—
h85(E)	16		#10	29'-11"	—
h86(E)		8	#10	34'-3"	□
h87(E)	4		#6	4'-6"	—
p80(E)	36		#10	29'-11"	—
p81(E)		18	#10	34'-3"	□
p82(E)	10		#10	15'-8"	U
s80(E)	160	84	#5	14'-1"	□
s81(E)	33	26	#5	11'-9"	□
s82(E)	13	13	#5	5'-3"	□
sp80(E)	5	4	#5	13'-9"	W
sp81(E)	5		#5	16'-10"	W
sp82		4	#5	16'-10"	W
u80(E)	14	7	#5	8'-7"	□
u81(E)	6	6	#6	13'-6"	U
v80(E)	98	75	#5	5'-6"	—
v81(E)	95	76	#11	15'-9"	—
v82(E)	95	76	#10	27'-0"	—
v83(E)	6		#6	3'-6"	—
<b>ITEM</b>					<b>UNIT QUANTITY</b>
Concrete Structures					Cu. Yd. 175.4
Reinforcement Bars					Lbs 1360
Reinforcement Bars, Epoxy Coated					Lbs. 59830
Concrete Sealer					Sq. Ft. 393
Structure Excavation					Cu. Yd. 111
Non-Special Waste Disposal					Cu. Yd. 102.3
Drilled Shaft in Soil					Cu. Yd. 58
Drilled Shaft in Rock					Cu. Yd. 10
Bar Splicers					Each 48

**Notes:**

- Reinforcement Bars designated (E) shall be epoxy coated.
- Length of Spiral given is height of Spiral. Weight includes weight of spacers for Spiral.
- Drilled Shafts shall be drilled to Elevation 581.00. Quantities and Detailing are for the estimated Elevations shown on the Plans. The actual conditions encountered in each Shaft may differ and the Drilled Shaft and Reinforcement Quantities shall be adjusted accordingly as directed by the Engineer and paid for at the corresponding Unit Bid Price.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**PIER DETAILS**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

**URS**  
100 South Wacker Drive,  
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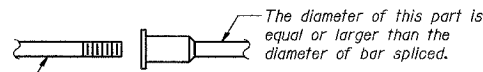
DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	378
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	CONTRACT NO. 60E10	

SHEET NO. 30  
37 SHEETS

The diameter of this part is the same as the diameter of the bar spliced.



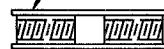
The diameter of this part is equal or larger than the diameter of bar spliced.

**ROLLED THREAD DOWEL BAR**



**\*\* ONE PIECE**

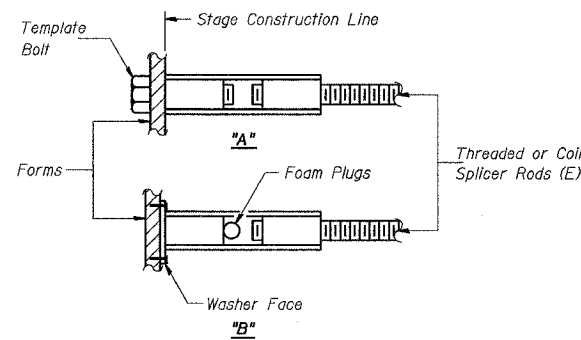
Wire Connector



**WELDED SECTIONS**

**BAR SPLICER ASSEMBLY ALTERNATIVES**

\*\* Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



**INSTALLATION AND SETTING METHODS**

"A": Set bar splicer assembly by means of a template bolt.  
"B": Set bar splicer assembly by nailing to wood forms or cementing to steel forms.  
(E) : Indicates epoxy coating.

Location	Bar Size	No. Req'd
Deck: Stage I-II splice	#5	208
N. Abutment: Stage I-II splice	#5	61
	#7	* 11
S. Abutment: Stage I-II splice	#5	62
	#7	12
Pier: Stage I-II splice	#5	22
	#10	26

**NOTES**

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.  
Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.  
All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.  
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.

Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity (Tension in kips) =  $1.25 \times f_y \times A_t$
- ② Minimum Pull-out Strength @ 28 days (Tension in kips) =  $1.25 \times f_{sallow} \times A_t$

Where  $f_y$  = Yield strength of lapped reinforcement bars in ksi.  
 $f_{sallow}$  = Allowable tensile stress in lapped reinforcement bars in ksi (Service Load)  
 $A_t$  = Tensile stress area of lapped reinforcement bars.

Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#5	2'-0"	23.0	9.2
#6	2'-7"	33.1	13.3
#7	3'-5"	45.1	18.0
#10	7'-3"	95.0	38.0

Bar splicer assemblies shall be according to Section 508 of the Standard Specifications, except as noted. The furnishing and installation of bar splicer assemblies will be measured and paid for at the contract unit price each for "BAR SPLICERS."  
\* Bend Stage I half of bar splicer assemblies 90° that are installed into Stage I Center Closure Wall.  
The unused half of the bar splicers shall be bundled together and clearly labeled with structure number, size, and location within the structure (for example: SN 016-2755 #5 bar splicers for north abutment). They shall be given to IDOT for storage and used in a future stage. The open end of the coated bar splicer shall be plugged with an Insert subject to the approval of the Engineer. The inserts shall allow traffic to travel over without causing vehicular damage and shall be easily removed. Cost is included with Bar Splicers.

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DESIGNED	DRS
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DRAWN	SOI
CHECKED	JJG

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NAME	DATE

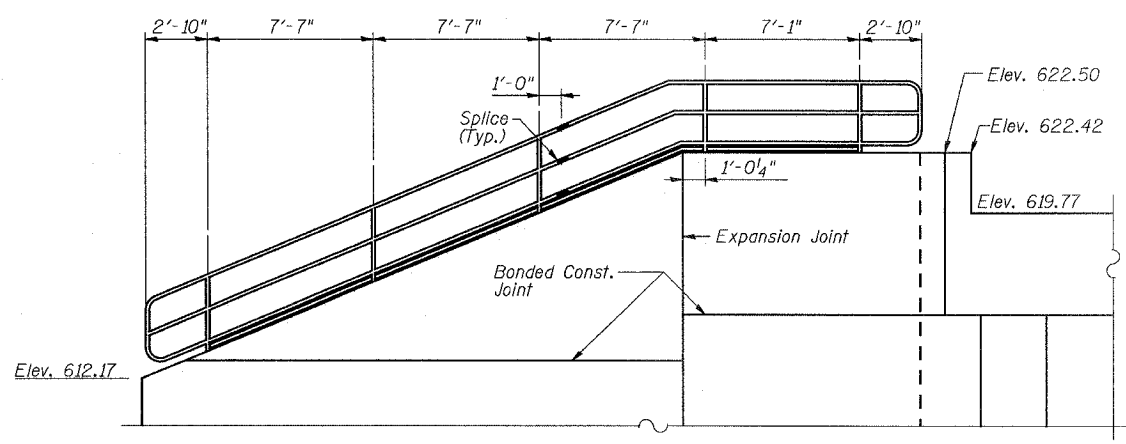
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**BAR SPLICER DETAILS**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

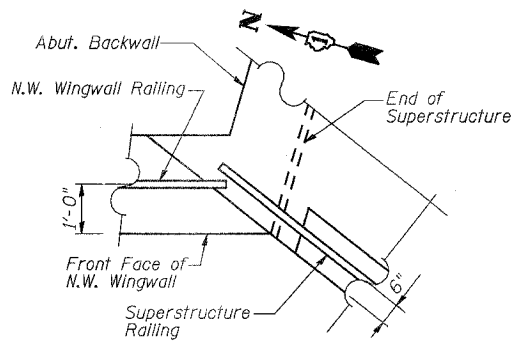
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	379
FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT				

SHEET NO. 31  
37 SHEETS

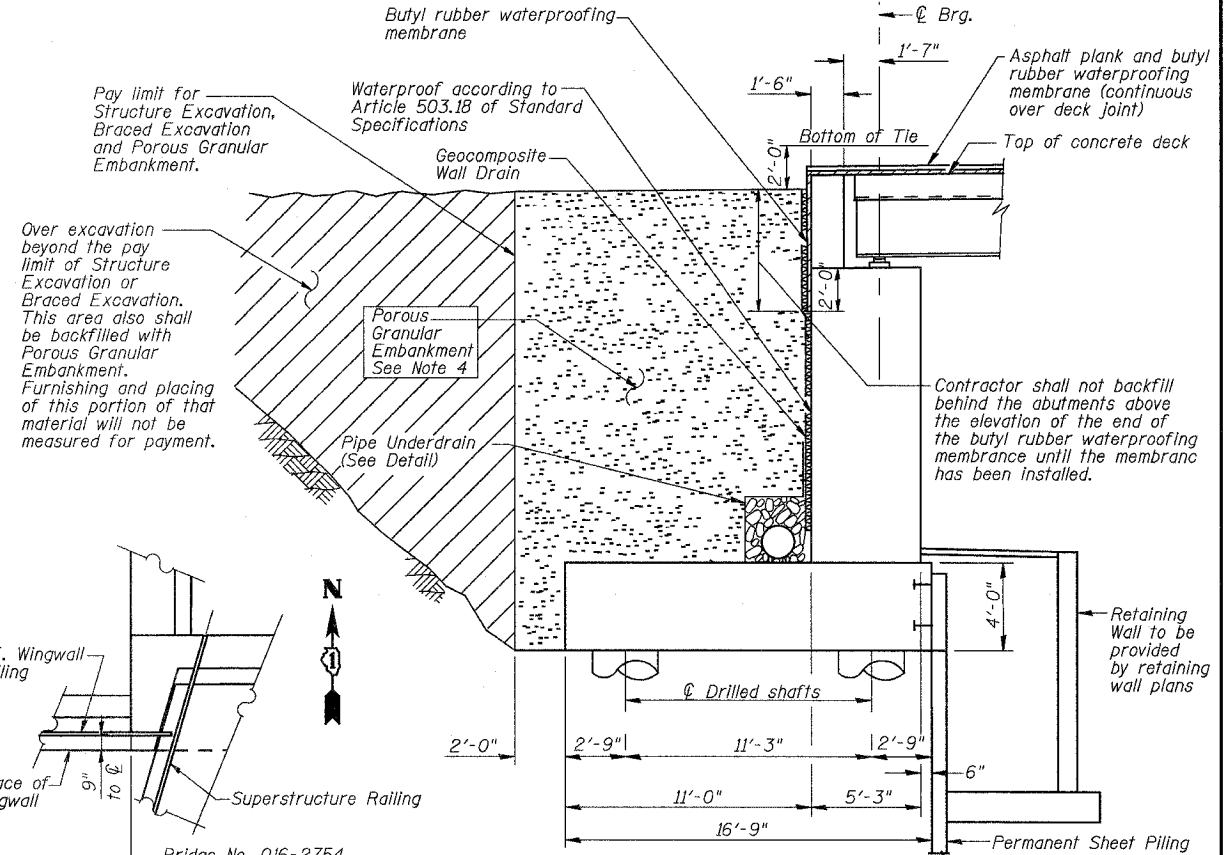
CONTRACT NO. 60E10



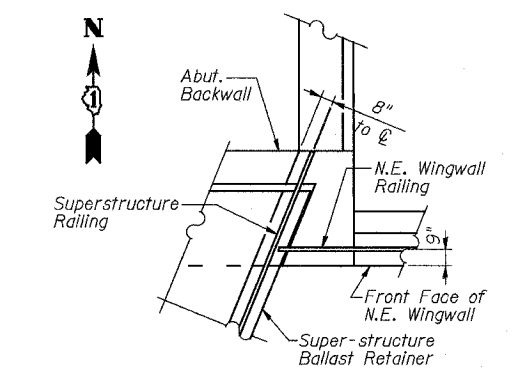
**NORTHWEST WINGWALL ELEVATION**



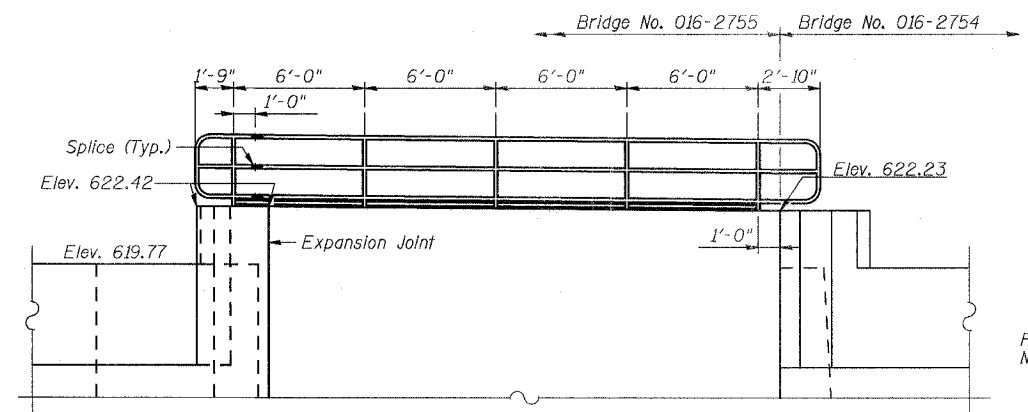
**CORNER PLAN OF N.W. WINGWALL & SUPERSTRUCTURE**



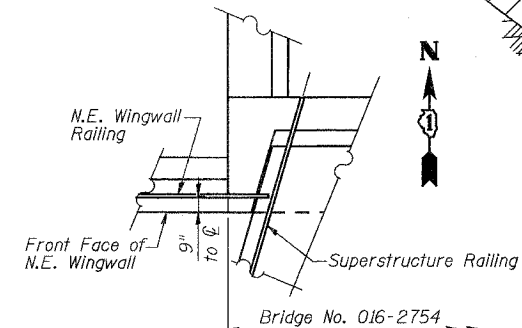
**TYPICAL SECTION THRU ABUTMENT**



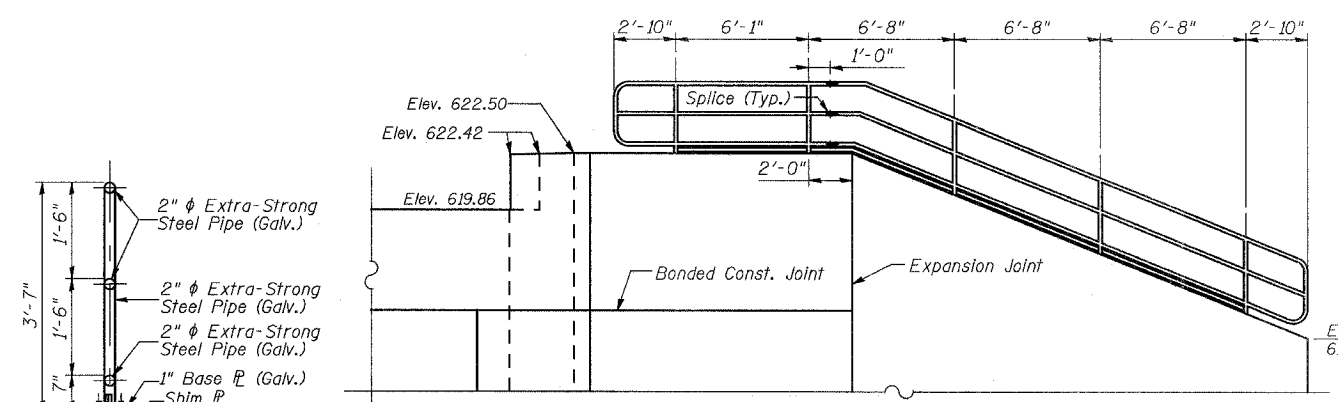
**CORNER PLAN OF N.E. WINGWALL & SUPERSTRUCTURE**



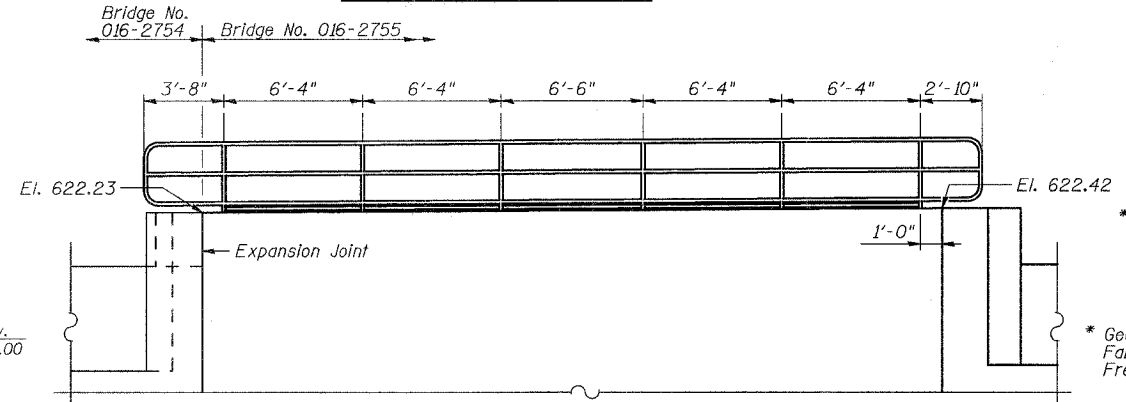
**NORTHEAST WINGWALL ELEVATION**



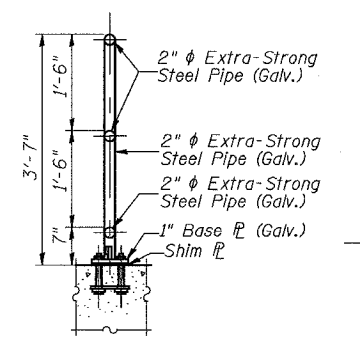
**INTERFACE PLAN OF N.E. WINGWALL & BRIDGE NO. 016-2754**



**SOUTHWEST WINGWALL ELEVATION**



**SOUTHEAST WINGWALL ELEVATION**



**TYPICAL RAILING SECTION**

DESIGNED	DRS
CHECKED	JJG
DRAWN	PMW
CHECKED	JJG

**Notes:**

- See Abutment Bills of Material on Sheets 21 of 37 and 27 of 37 for Quantities of Porous Granular Embankment and Geocomposite Wall Drain.
- See Sheet 24 of U.S. 6 Mainline Retaining Walls Along 159th Street plans for Pipe Underdrain Layout and Quantities.
- See Sheet 9 of 37 for (Railing) Splice Detail, kick plate details and anchorage details.
- Excavation for placing Porous Granular Embankment is Included in cost of Braced Excavation & Structure Excavation
- Porous Granular Embankment shall be compacted to 95% Modified Proctor Density and its coarse aggregate gradation shall be CA 18.

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ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**ABUTMENT BACKFILL & WINGWALL RAILINGS**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	383
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

SHEET NO. 35  
37 SHEETS

**BORING W-5**

Everest Engineering Company  
STRUCTURE BORING LOG

Page 1 of 2  
Date 6/25/01

ROUTE U.S. 6 DESCRIPTION U.S. ROUTE 6, FROM I-294 TO ILLINOIS ROUTE 1  
SECT. \_\_\_\_\_ STRUCT. NO. 016-2754 DRILLED BY PATRICK DRILLING  
COUNTY COOK LOCATION NEAR SW CORNER OF BRIDGE S. 17, TWP. 36 N, RNG. 12 E

Boring No. W-5 Station 90+25.59 Offset 68.00ft RT Surface Elev. 604.00 ft  
D E P T H B L O W S Qu tsf W %  
Surface Water Elev. NA Groundwater Elev. 603.0 when drilling at Completion after \_\_\_\_\_ Hrs. \_\_\_\_\_

ASPHALT	603.83				
CONCRETE	603.33				
Medium Dense to Dense, Brown SAND		8			14
		12			
		11			
		17			14
		23			
		20			
FILL	598.50				
Stiff to Hard, Gray SILTY CLAY LOAM traces - sand and gravel		7	2.5		10
		20	S		
		25			
		9	6.5		11
		19	S		
		21			
		17	1.8		15
		46	S		
		48			
		16	2.3		12
		34	S		
		42			
Extremely Dense, Gray SILTY LOAM traces - sand and gravel	588.50				
		14			12
		45			
		5051mm			
		502"			11
FOR ROCK CORES SEE PAGE 2	582.00				
		505.5"			

SPT (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test Stations, Depths, Offset, and Elevations are in Feet

**BORING W-5**

Everest Engineering Company  
STRUCTURE ROCK CORING LOG

Page 2 of 2  
Date 6/25/01

ROUTE U.S. 6 DESCRIPTION U.S. ROUTE 6, FROM I-294 TO ILLINOIS ROUTE 1  
SECT. \_\_\_\_\_ STRUCT. NO. 016-2754 DRILLED BY PATRICK DRILLING  
COUNTY COOK

Boring No. W-5 Core Type NX Core Diameter 2 in Core Length 20 ft  
Station 90+25.59 Offset 68.00ft RT Surface Elev. 604.00 ft

Top Elev. ft	Coring Notes and Rock Description	Core Run (#)	R (%)	Q (%)	Core (Min/ft)	Comp. (tsf)
582.00	DOLOMITE (RACINE FORMATION): Light gray to gray, massive, hard, fine grained, thin to thick bedded	1	96	95	3.5	1302.8
-25.0						
		2	96	92	4.0	1367.5
-30.0						
		3	96	57	3.5	
-35.0						
		4	92	87	4.0	
-40.0						
582.00	END OF BORING					

Color pictures of the cores YES  
Cores will be stored for examination until DECEMBER, 2001

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DESIGNED	DRS
CHECKED	JJG
DRAWN	SOI
CHECKED	JJG

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ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SOIL BORINGS W-5**  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: \_\_\_\_\_ DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	384
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT-		

CONTRACT NO. 60E10

SHEET NO. 36  
37 SHEETS

**BORING W-6**

Everest Engineering Company  
STRUCTURE BORING LOG

Page 1 of 1  
Date 6/22/01

ROUTE U.S. 6 DESCRIPTION U.S. ROUTE 6, FROM I-294 TO ILLINOIS ROUTE 1

SECT. \_\_\_\_\_ STRUCT. NO. 016-2755 DRILLED BY PATRICK DRILLING

COUNTY COOK LOCATION SE CORNER, BEHIND S. ABUT. S. 17, TWP. 36 N, RNG. 12 E

Boring No. W-6 Station 91+89.63 Offset 44.00ft RT Surface Elev. 619.00 ft

D E P T H	B L O W S	Qu tsf	W %	Surface Water Elev. Groundwater Elev.: when drilling at Completion after _____ Hrs.	D E P T H	B L O W S	Qu tsf	W %
MISCELLANEOUS FILL: Medium Dense, Black, Sand, Gravel, Slag, and Cinders								
	3		16			15	4.36	18
	4					32	S	
	7					505"		
					591.00			
FILL 615.00 Loose, Brown SANDY LOAM traces - gravel, pieces of wood								
	7		4			21		9
	2					23		
	2					47		
	2		4					
	3							
	2							
					585.50			
AUGER REFUSAL								
	20		13			500"		
	6							
	5							
	3							
	7							
	3							
FILL 606.00 Black SILTY CLAY								
FILL 605.00								
	2	1.2	22					
	2	B						
	4							
	3	1.6	17					
	6	B						
	8							
	3	3.0	14					
	7	B						
	11							
					598.50			
Very Dense to Extremely Dense, Gray SILTY LOAM traces - sand and gravel								
	50		10					
	38							
	32							
	16		10					
	25							
	27							

SPT. (N) = Sum of last two blow values in sample. (Qu) B=Bulge S=Shear P=Penetration Test  
Stations, Depths, Offset, and Elevations are in Feet

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DESIGNED	DRS
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DRAWN	SOI
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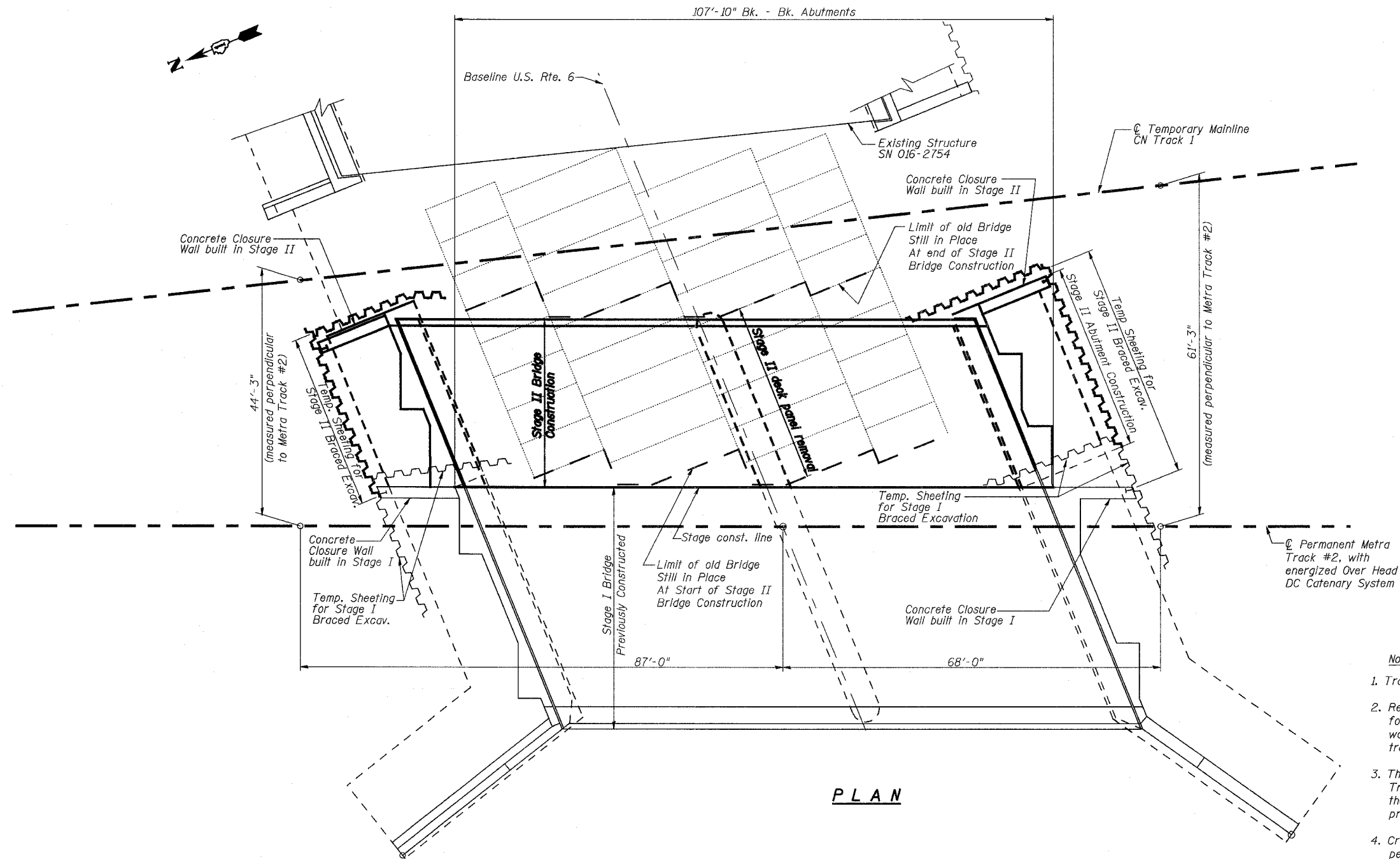
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SOIL BORINGS W-6**  
  
METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)  
STATION 91+24.94 STRUCTURE NO. 016-2755  
SCALE: DATE: 2/21/2008

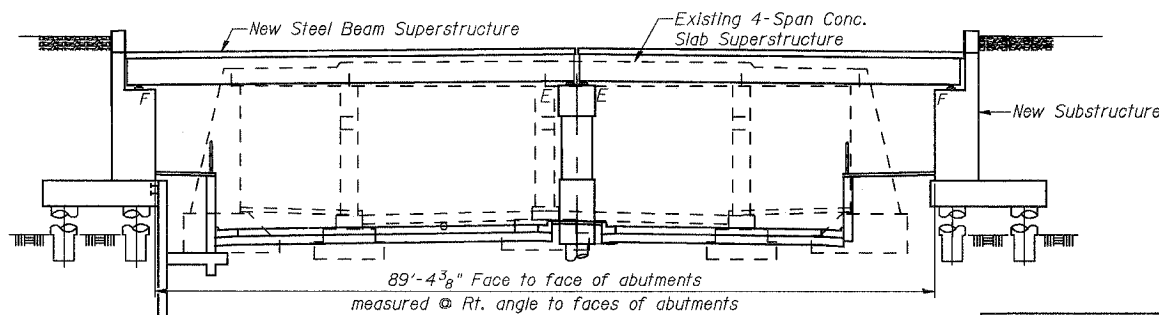
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	385
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

SHEET NO. 37  
37 SHEETS

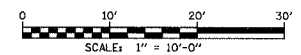


PLAN



ELEVATION

- Note:
- Track distances shown are approximate.
  - Refer to Special Provision "Protection of Railway Interest" for additional information, requirements & limitations regarding working near active CN & Metra tracks, and crossing of these tracks to access construction.
  - The likelihood, frequency, and duration of rail traffic on CN Tracks #1, #2, #3, #4, and the Gateway Lead track preventing the crossing of these tracks is high and not able to be accurately predicted or protected.
  - Crossing of In-Service Metra Tracks #1 & #2 will not be permitted during Stage II Construction.
  - See Track Plan Sheet 42 of 88 "Track Construction Plan of Stage 8 Work (North)" for arrangement of additional adjacent Metra & CN Tracks during Stage II Construction of SN 016-2755.



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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1

**TRACK CLEARANCE PLAN FOR  
STAGE II CONSTRUCTION**

METRA & CN BRIDGE 20.6  
OVER U.S. RTE. 6 (159TH STREET)

STATION 91+24.94      STRUCTURE NO. 016-2755

SCALE:      DATE: 2/21/2008

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**EXISTING STRUCTURE:**

Existing structure is a 306'± wide combination railroad and intermodal yard grade separation structure over 159th Street (U.S. 6). The structure consists of 4 cast-in-place reinforced concrete slab spans supported by gravity abutments, and three reinforced concrete piers. This structure will be replaced by two separate railroad bridges and two bridges for intermodal truck traffic. The existing Structure No. 1s 016-0385 and was built in 1925.

Rail traffic will be temporarily shifted to the east on the existing bridge while the new bridge is constructed. The roadway below will be closed during construction.

Limited portion of existing south abutment will be kept. Remainder of existing structure to be removed. See Structure No. 016-2820 plans for removal detail.

**BENCHMARK:**

B.M. #53 - "X" cut on the Southeastly corner of the Railroad bridge pier in the centerline of 159th Street at the east face of the bridge approximately 98 feet West of Center Street. Elev. 603.25.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

CN  
BUILT 2009 BY  
STATE OF ILLINOIS  
F.A.P. RT. 351 SEC. 3277R  
STA. 93+69.01 LOADING COOPER E-90  
STR. NO. 016-2819

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	386
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT - CONTRACT NO. 60E10		

SHEET NO. 1  
25 SHEETS

**NAME PLATE**  
(See Std. 515001)

**CN RAILROAD**

CLASS: RAILROAD  
CN Gateway Lead Track

**SEISMIC DATA**

Seismic Performance Category (SPC) = A  
Bedrock Acceleration Coeff. (A) = 0.04g  
Site Coefficient (S) = 1.0

**DESIGN SPECIFICATIONS**

American Railway Engineering & Maintenance-of-Way Association (AREMA) Manual for Railway Engineering, 2004. CN Guidelines (June 2003)

**LOADING**

Superstructure-Cooper E80 Live Load plus Impact for equipment with hammer blow.  
Substructure-Cooper E-90 Loading without impact as stipulated by AREMA. Service Load Design

Allow for future addition of 12" ballast.

**DESIGN STRESSES**

FIELD UNITS:  
f'c = 3,500 p.s.i. For Substructure  
f'c = 5,000 p.s.i. For Concrete Deck  
fy = 60,000 p.s.i. (Reinforcement)  
fy = 50,000 p.s.i. (Struct.) (ASTM A709 Grade 50)  
fy = 36,000 p.s.i. (Struct.) (ASTM A709 Grade 36)

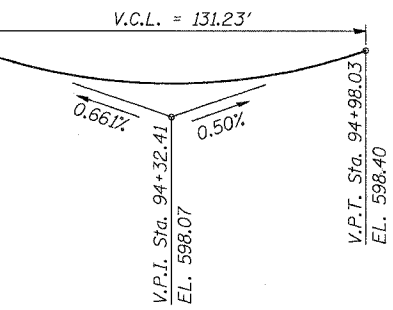
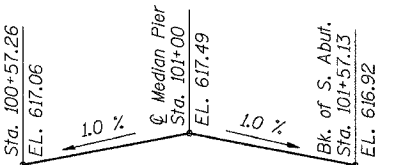
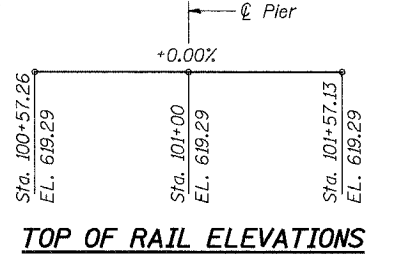
① See Abutment removal details Drawing (Sheet 10 of 24) for General Configuration of sloped back of existing Abutments and Footing.

② Removal of existing concrete retaining wall. Cost included in Removal of existing Structures No.2.

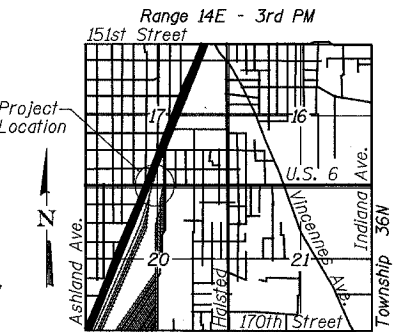


JEFFREY P. BUCHOLTZ, SE  
LICENSE NO. 081-005605  
EXPIRES: 11/30/2008  
DATE: 03-14-2008

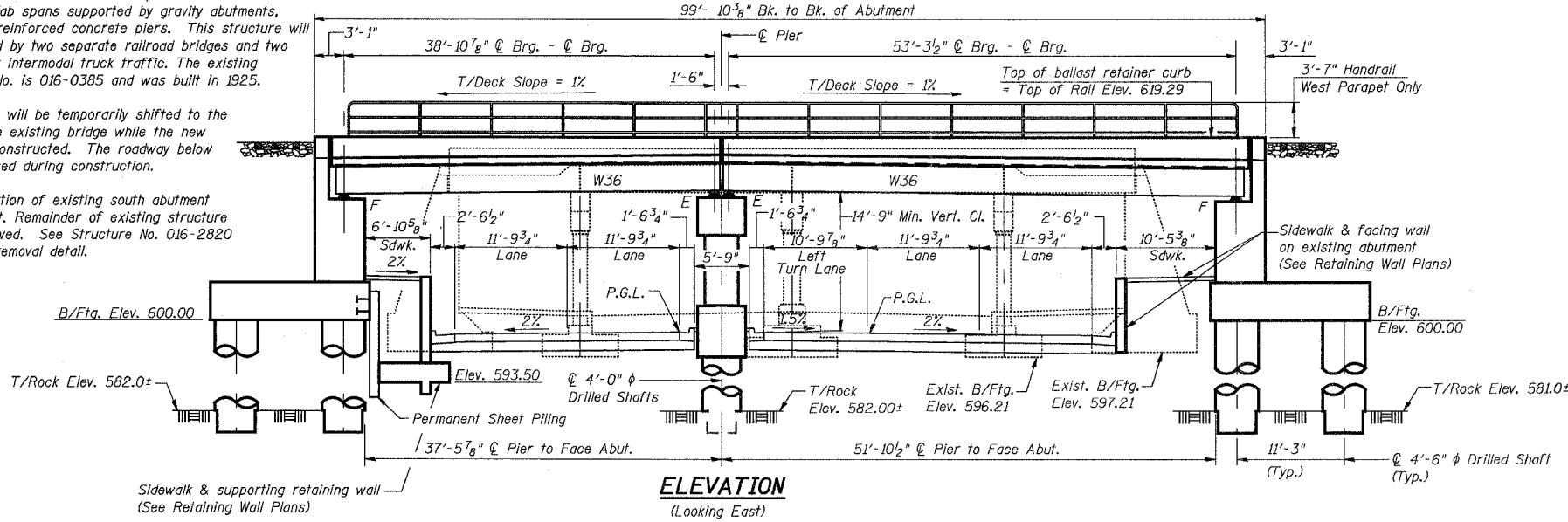
100 South Wacker Drive,  
Suite 500  
Chicago, IL 60606  
(312) 939-1000



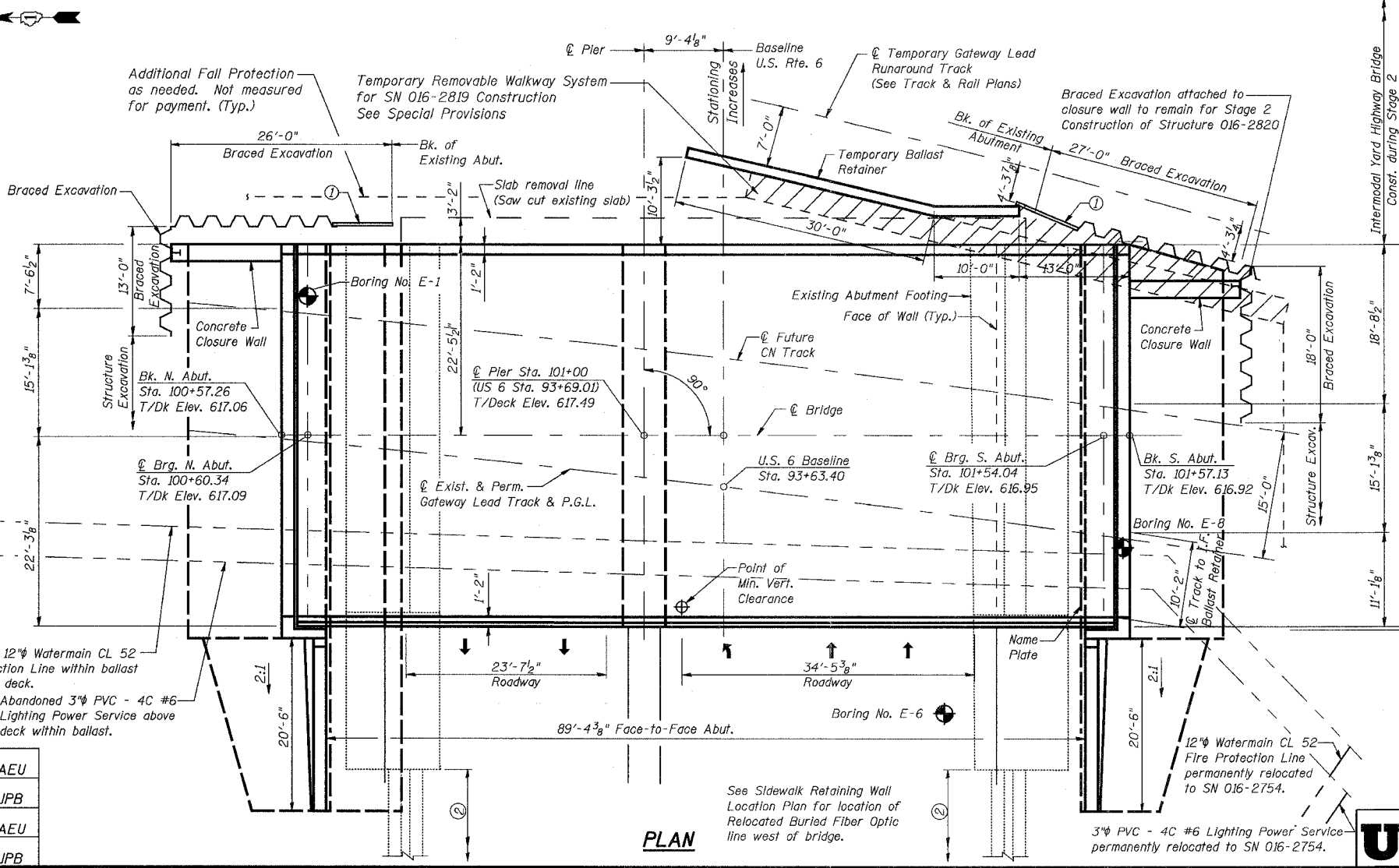
**PROFILE GRADE U.S. RTE. 6**  
(Proposed)



**LOCATION SKETCH**



**ELEVATION**  
(Looking East)



**PLAN**

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DESIGNED	AEU
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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**GENERAL PLAN & ELEVATION**

CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: 1/8" = 1'-0" DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	387
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 2  
25 SHEETS

CONTRACT NO. 60E10

**GENERAL NOTES**

Fasteners shall be high strength bolts. Bolts  $7/8"$   $\phi$ , open holes  $5/16"$   $\phi$ , unless otherwise noted.

Calculated weight of M270 Gr. 36 (ASTM A709 Gr. 36) Structural Steel = 118,770 Pounds.

Calculated weight of M270 Gr. 50 (ASTM A709 Gr. 50) Structural Steel = 457,830 Pounds.

Field welding of construction accessories will not be permitted to beams or girders.

Anchor bolts shall be set before bolting diaphragms over supports.

The main load carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the wide flange beams.

Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.

All Construction joints shall be bonded.

The back face of closed abutments and their wingwalls shall be waterproofed according to Article 503.18 of the Standard Specifications.

Concrete Sealer shall be applied to the seat area of the abutments and pier.

Reinforcement bars designated (E) shall be epoxy coated.

The organic zinc rich primer/epoxy/urethane paint system shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be reddish brown, Munsell No. 2.5YR 3/4. See Special Provision for "Cleaning and Painting New Metal Structures".

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

The Contractor shall provide all calculations required for Braced Excavation. See Special Provision for BRACED EXCAVATION.

**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
1	GENERAL PLAN AND ELEVATION
2	GENERAL NOTES, INDEX OF SHEETS & TOTAL BILL OF MATERIAL
3	WALKWAY, BALLAST RETAINER & SHEETING LIMITS
4	SUBSTRUCTURE LAYOUT
5	SUPERSTRUCTURE
6	JOINT DETAILS
7	HANDRAIL DETAILS
8	FRAMING PLAN
9	BEAM DETAILS
10	BEARING DETAILS
11	CONCRETE DECK REMOVAL DETAILS
12- 16	NORTH ABUTMENT
17- 21	SOUTH ABUTMENT
22	PIER
23-25	SOIL BORINGS

**TOTAL BILL OF MATERIAL**

ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment	Cu. Yd.		682	682
Structure Excavation	Cu. Yd.		1201.6	1201.6
Concrete Structures	Cu. Yd.		612.8	612.8
Concrete Superstructure	Cu. Yd.	149.3		149.3
Furnishing and Erecting Structural Steel	L. Sum	0.27		0.27
Reinforcement Bars	Pound		16,410	16,410
Reinforcement Bars, Epoxy Coated	Pound	22,170	143,820	165,990
Pipe Handrail, Special	Foot	144		144
Name Plates	Each		1	1
Anchor Bolts, 1 1/4"	Each		128	128
Membrane Waterproofing (Special)	Sq. Ft.	5,093		5,093
Concrete Sealer	Sq. Ft.		563	563
Geocomposite Wall Drain	Sq. Yd.		155.2	155.2
Non-Special Waste Disposal	Cu. Yd.		1080.8	1080.8
Braced Excavation	Cu. Yd.		597.4	597.4
Drilled Shaft in Soil	Cu. Yd.		302.0	302.0
Drilled Shaft in Rock	Cu. Yd.		38.7	38.7
Permanent Steel Sheet Piling	Sq. Ft.		1,002	1,002
Temporary Ballast Retainer System	Foot	39		39
Temporary Removable Walkway System for SNO16-2822 Construction	L. Sum	1		1

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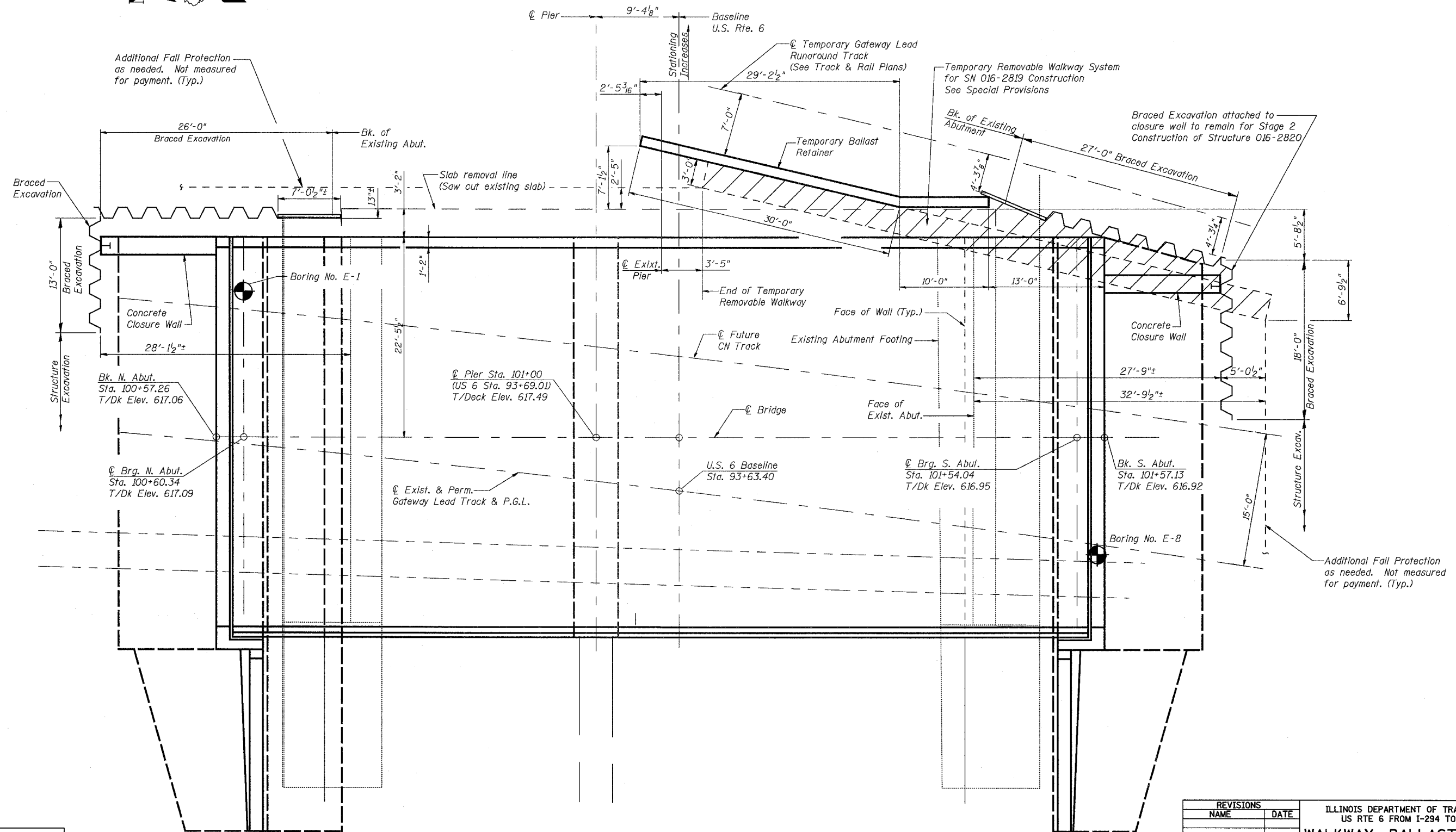
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**GEN. NOTES, INDEX OF SHTS.  
& TOTAL BILL OF MATERIAL**  
CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: N.T.S. DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	388
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

CONTRACT NO. 60E10

SHEET NO. 3  
25 SHEETS



PLAN

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ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**WALKWAY, BALLAST RETAINER  
& SHEETING LIMITS**  
CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: 1/8" = 1'-0" DATE: 2/21/2008

Additional Fall Protection  
as needed. Not measured  
for payment. (Typ.)

Additional Fall Protection  
as needed. Not measured  
for payment. (Typ.)

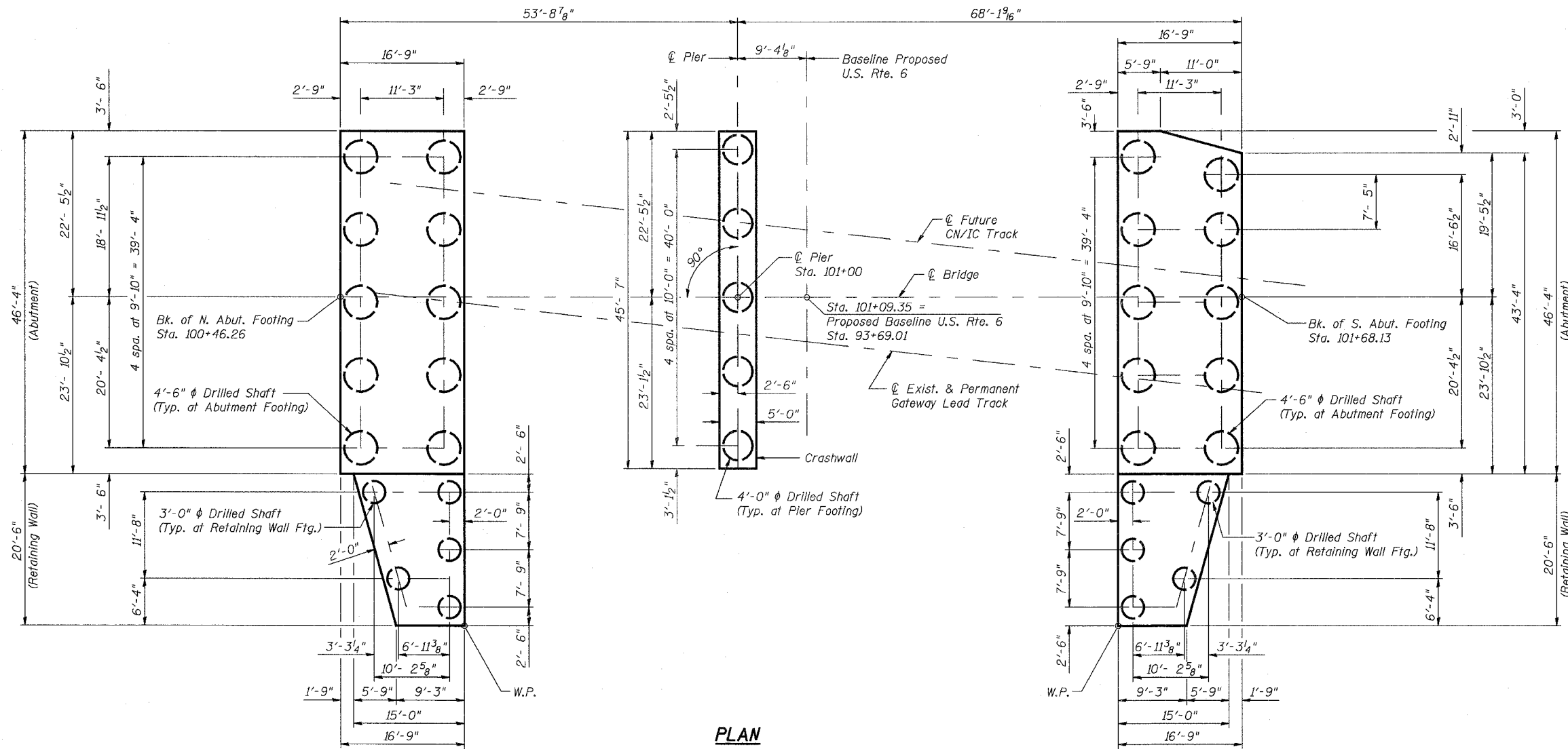


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DEPARTMENT OF TRANSPORTATION

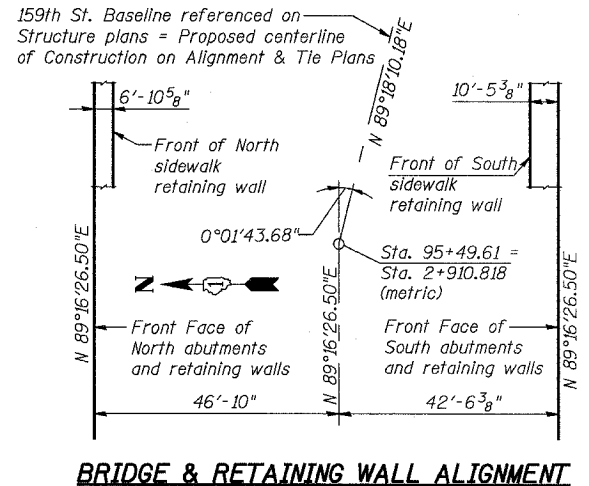
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F.A.P. 351	2008-001VB	COOK	579	389
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

CONTRACT NO. 60E10

SHEET NO. 4  
25 SHEETS



PLAN



BRIDGE & RETAINING WALL ALIGNMENT

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REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**SUBSTRUCTURE LAYOUT**

CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: 1/8" = 1'-0" DATE: 2/21/2008

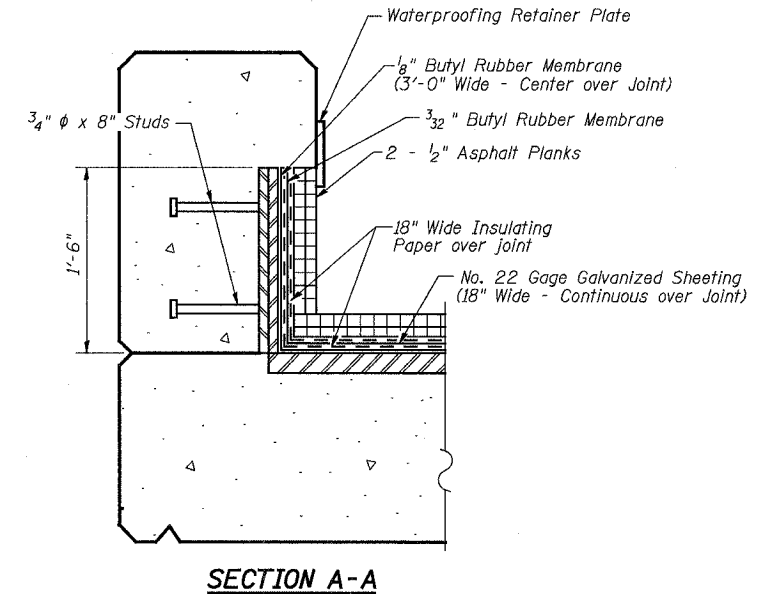
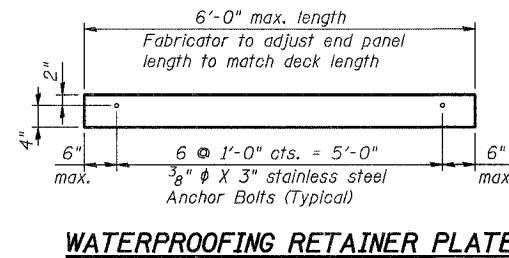
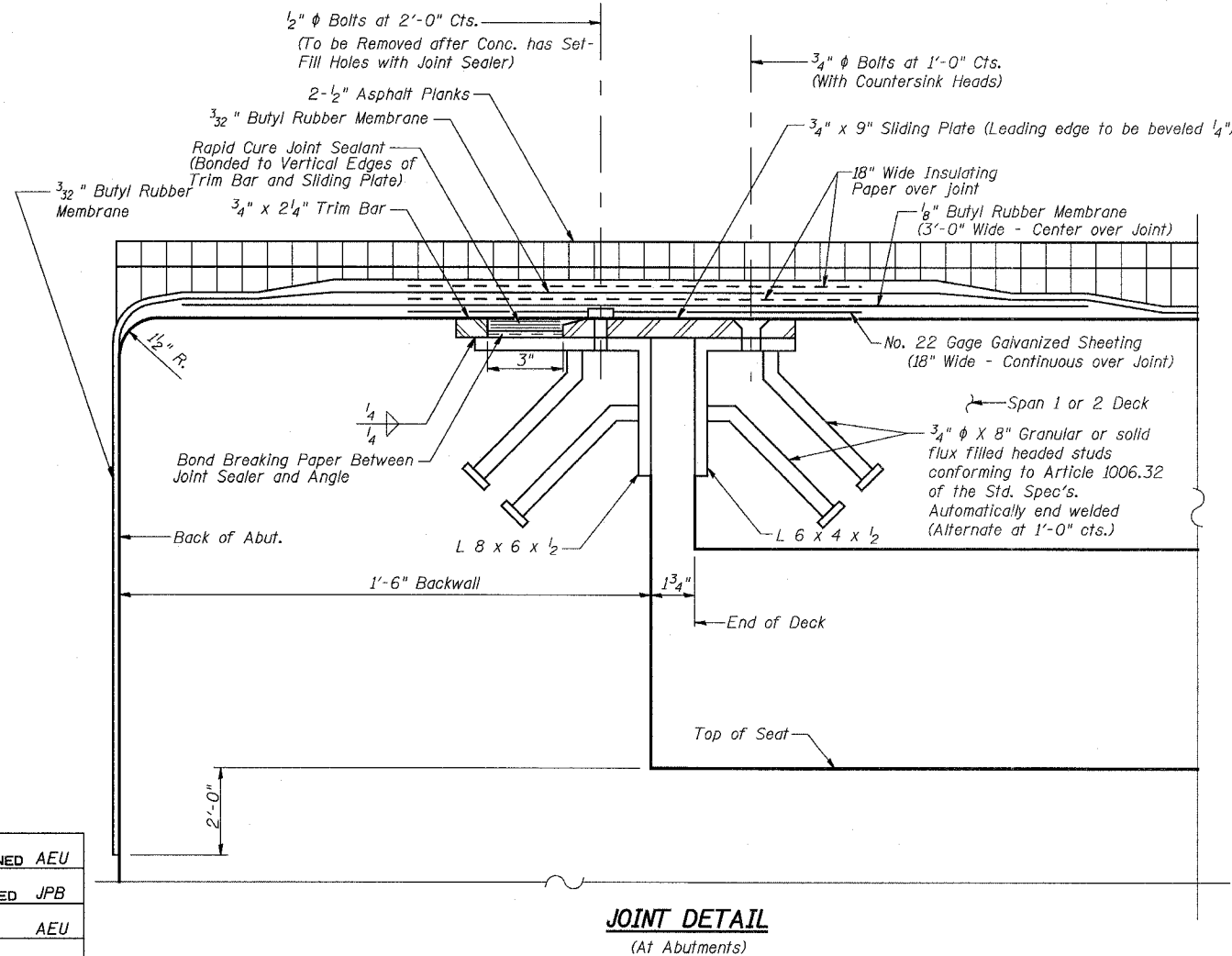
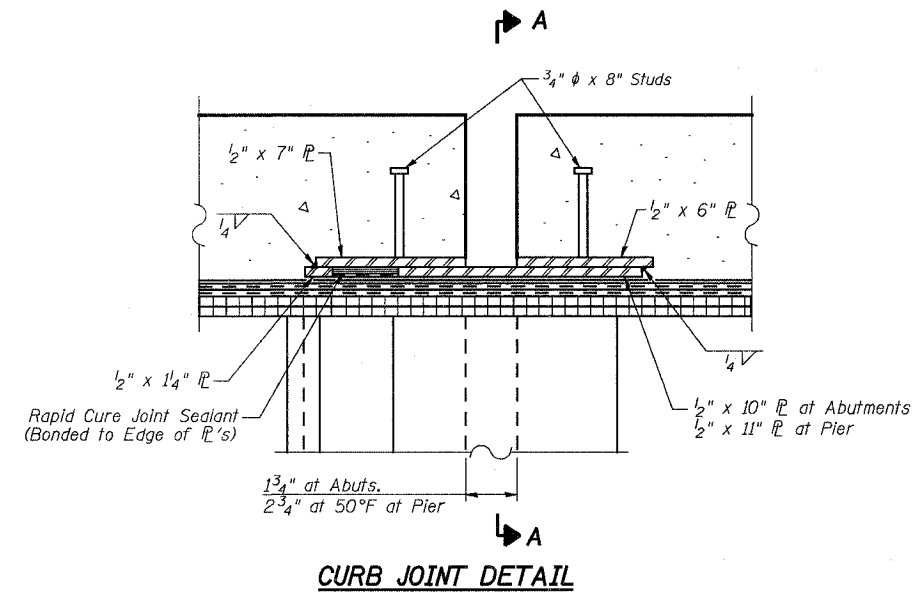
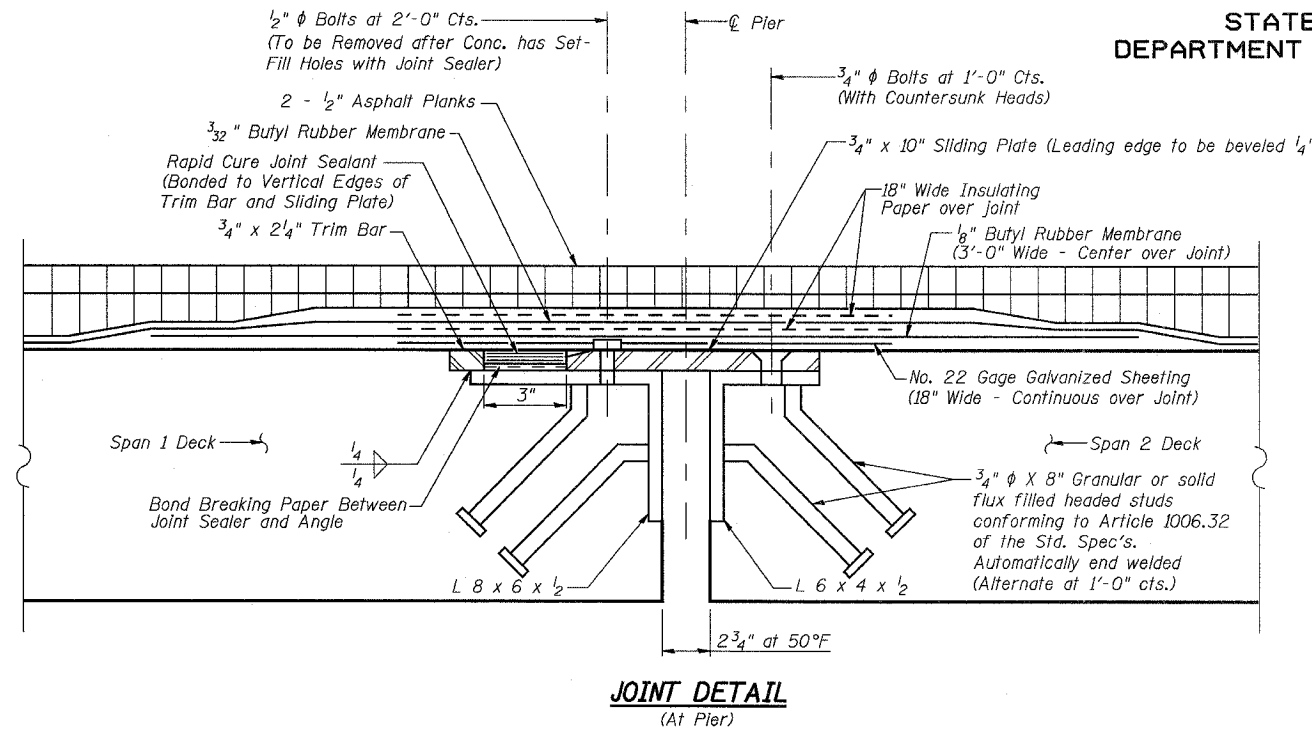
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	391
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

SHEET NO. 6  
25 SHEETS



Notes:

- The Waterproofing material at the joints at the Abutments and Pier shall be applied in the following order:
  - Bond-Breaker Paper
  - Rapid Cure Joint Sealant
  - Galvanized Sheet
  - $\frac{1}{8}$ " Thick Butyl Rubber Membrane
  - Insulating Paper
  - $\frac{3}{32}$ " Thick Butyl Rubber Membrane
  - Insulating Paper
  - Asphalt Plank
  - Mop Coat of Hot Asphalt
- Material shall be included in cost of Membrane Waterproofing (Special)
- Plates, angles & studs included in cost of Furnishing & Erecting Structural Steel.
- Steel Angles, Trim Bar, Studs and Sliding Plates shall be Hot Dip Galvanized after Fabrication per ASTM A123 (AASHTO M111). Countersunk Head Bolts shall be Galvanized per ASTM A153 (AASHTO M232).

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**JOINT DETAILS**

CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: N.T.S. DATE: 2/21/2008

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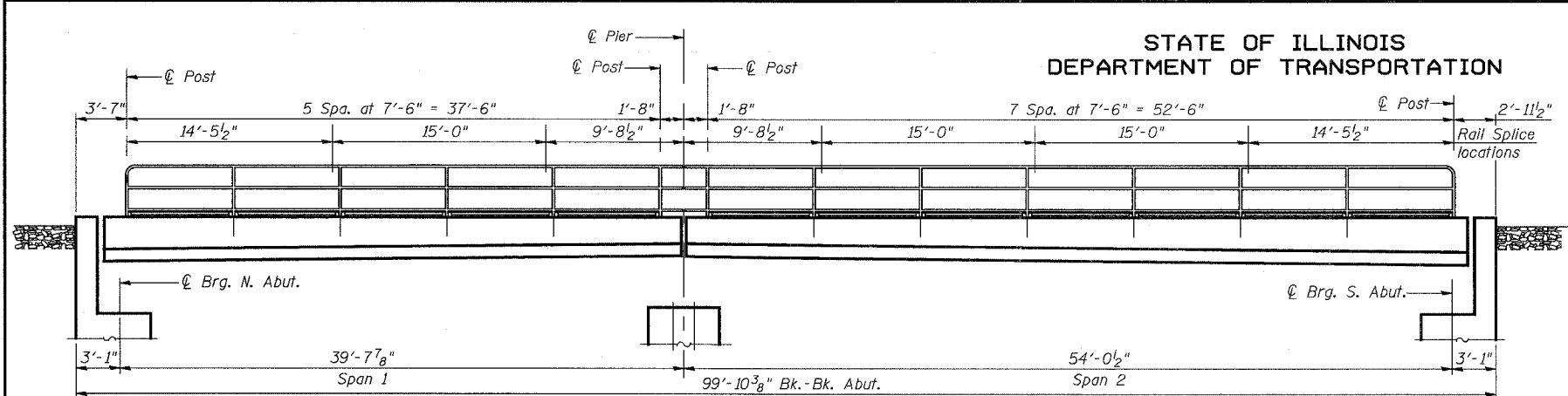
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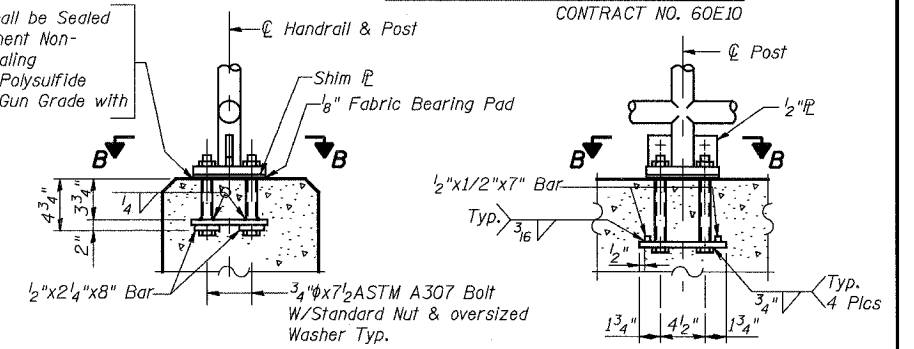
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FED. ROAD DIST. NO. 7 ILLINOIS FED. AID PROJECT-				
CONTRACT NO. 60E10				

SHEET NO. 7  
25 SHEETS



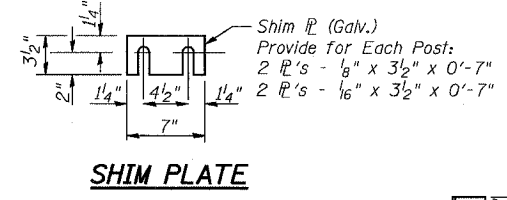
**ELEVATION OF HANDRAIL ALONG BRIDGE**  
(Looking East)  
(West Parapet Only)

Base of Post Shall be Sealed with Two Component Non-Staining Gray Sealing Compounds with Polysulfide Liquid Polymers-Gun Grade with Primer.

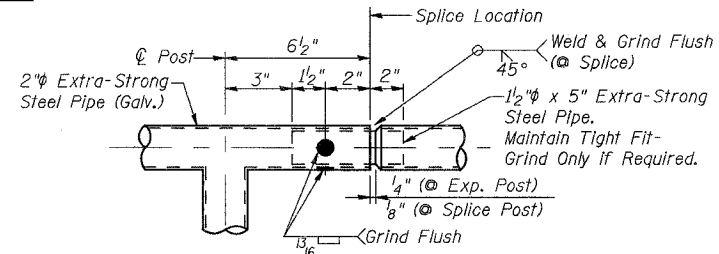


**BASE PLATE DETAIL**

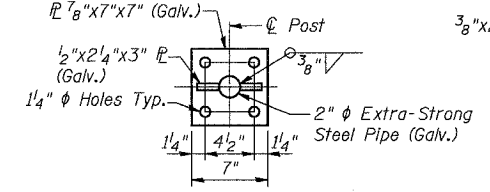
**SECTION B-B**



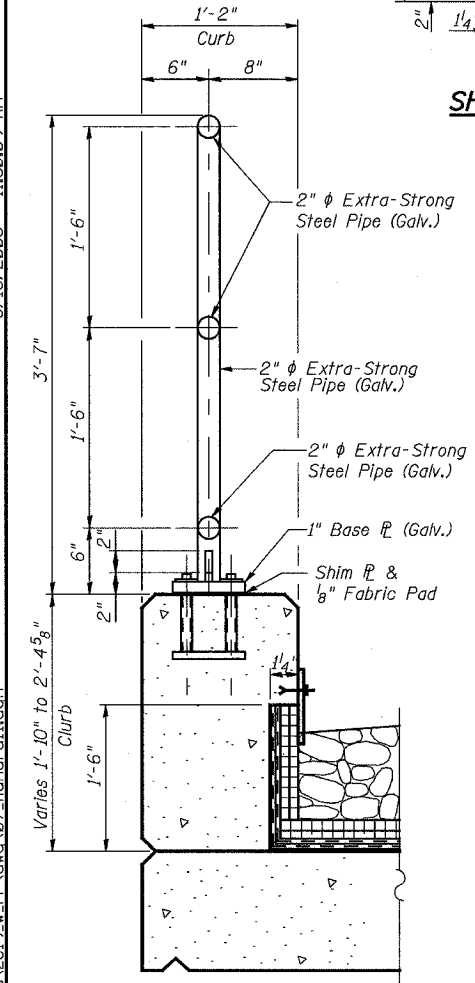
**SHIM PLATE**



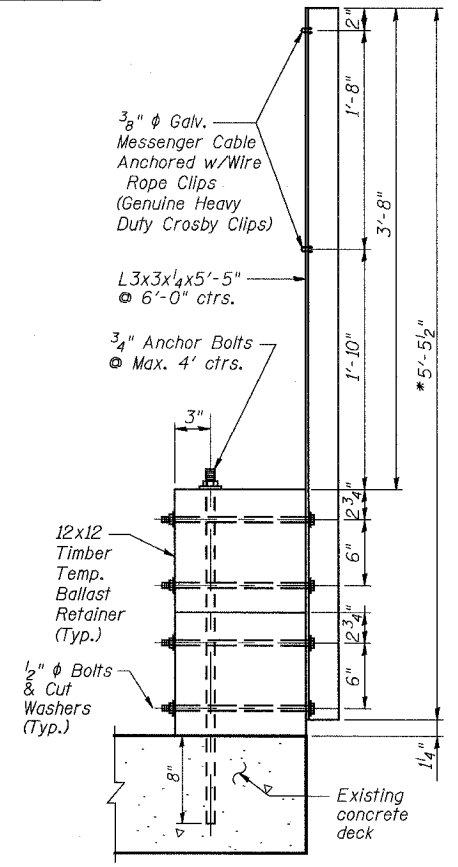
**SPLICE DETAIL**



**ANCHOR BOLT DETAILS**

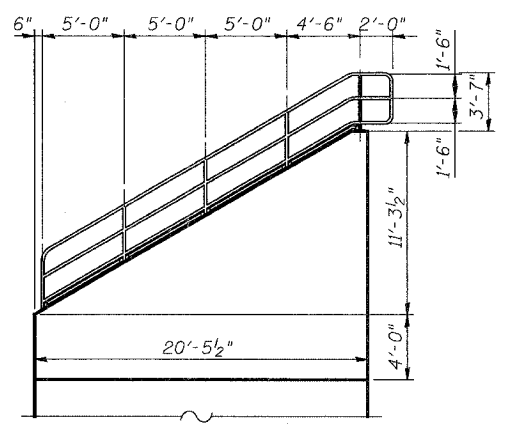


**TYPICAL CURB SECTION ON DECK**

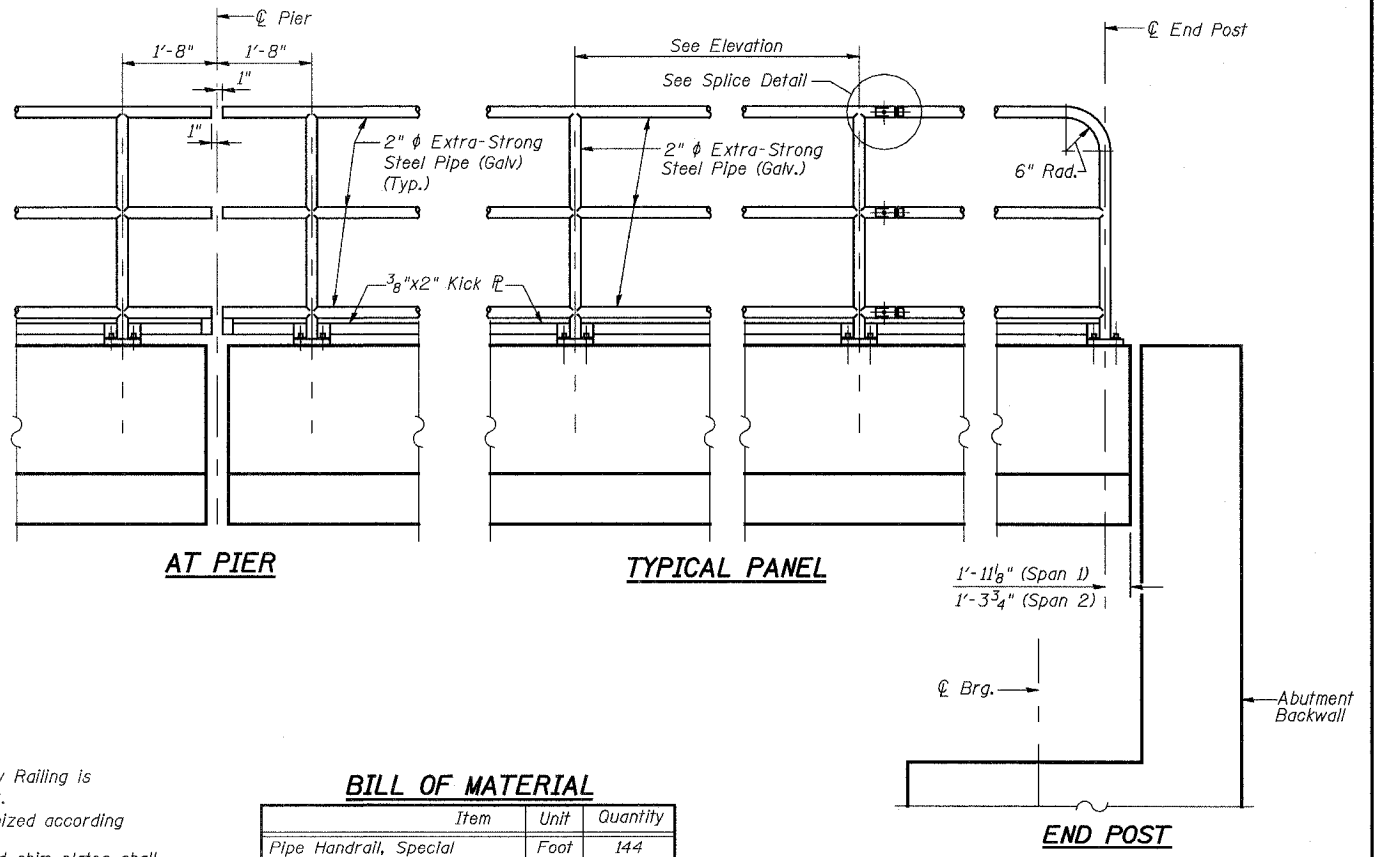


**TYPICAL SECTION TEMP. BALLAST RETAINER SYSTEM**

For location and length of Temporary Ballast Retainer System, See Sheets 1 & 11.



**N. ABUT. WINGWALL RAILING  
S. ABUT. WINGWALL MIRROR IMAGE**



**BILL OF MATERIAL**

Item	Unit	Quantity
Pipe Handrail, Special	Foot	144
Temporary Ballast Retainer	Foot	39

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**HANDRAIL DETAILS**

CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: N.T.S. DATE: 2/21/2008

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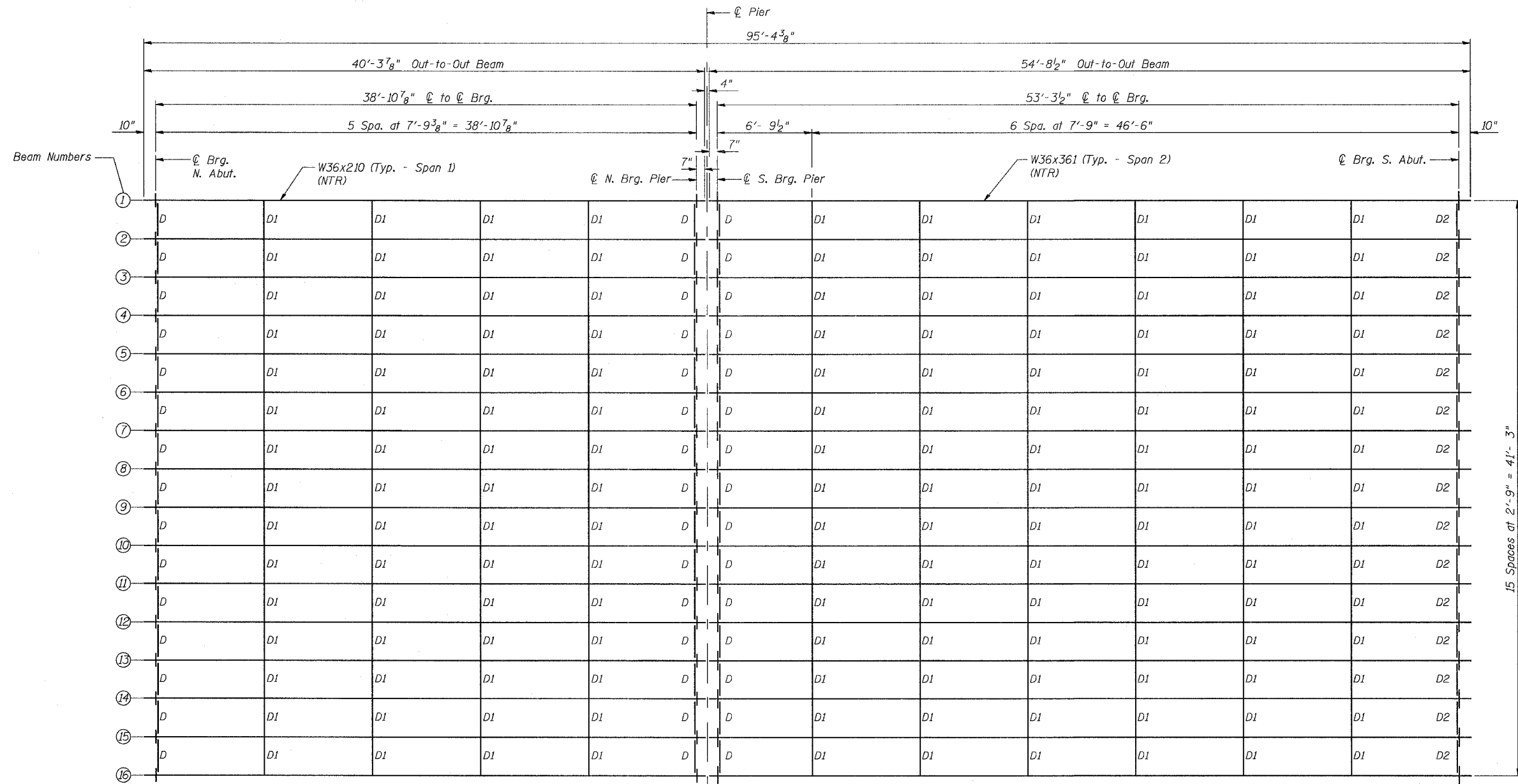
Notes:  
The Temporary Ballast Retainer & Safety Railing is to be removed at the completion of work.  
All bolts, nuts & washers shall be galvanized according to AASHTO M 232  
All post, pipe, pipe splices and base and shim plates shall be galvanized after shop fabrication according to AASHTO M 111 and ASTM A 385. Galvanized pipe shall not be painted.  
Contractor shall provide working drawings to show the specific design of the Temporary Ballast Retainer as indicated in the Special Provision "Temporary Ballast Retainer System".  
\* Increase dimension 6'-5" if timber ballast retainers are larger than 11 1/4" square.

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	393
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

CONTRACT NO. 60E10

SHEET NO. 8  
25 SHEETS



FRAMING PLAN

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NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**FRAMING PLAN**  
CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: 1/4"=1'-0" DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	394
FED. ROAD DIST. NO. 7 ILLINOIS		FED. AID PROJECT-		
CONTRACT NO. 60E10				

SHEET NO. 9  
25 SHEETS

	0.5 Span	1.0 Span	2.0 Span
I (in <sup>4</sup> )	13,200	25,700	
S (in <sup>3</sup> )	719	1,350	
W (k/ft.)	1.45	1.68	
M <sub>D</sub> (k)	273.5	595.3	
M <sub>L</sub> (k)	633.2	962.8	
M <sub>Impact</sub> (k)	315.4	458	
M <sub>Total</sub> (k)	1222	2016.1	
f <sub>b</sub> (k.s.i.)	20.4	17.9	
F <sub>b</sub> (k.s.i.)	27.5	27.5	
( $\pm$ ) Deflection (in.)	0.68	0.97	
Allowable ( $\pm$ ) Deflection (in.)	0.73	1.00	

	Span 1	Span 2
R <sub>P</sub> (k)	28.1	44.7
R <sub>L</sub> (k)	66.7	81.7
R <sub>Impact</sub> (k)	33.2	38.9
R <sub>Total</sub> (k)	128.0	165.3

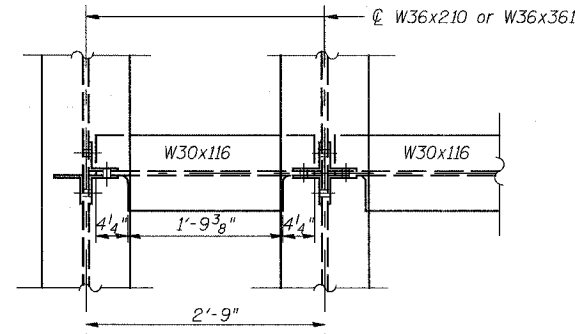
I and S are the moment of inertia and section modulus of the steel section used in computing bending stress, f<sub>b</sub>.

M<sub>L</sub> is the live load moment due to the Cooper E90 loading or the Alternate loading.

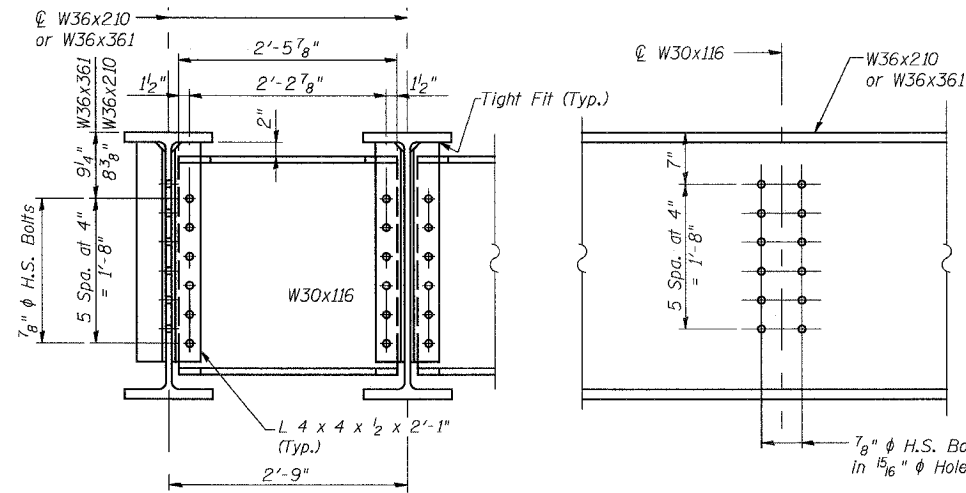
M<sub>Impact</sub> is the impact moment due to equipment without hammer blow.

f<sub>b</sub> is the total bending stress due to M<sub>Total</sub>.

F<sub>b</sub> is the maximum allowable bending stress computed according to AREMA.



PLAN

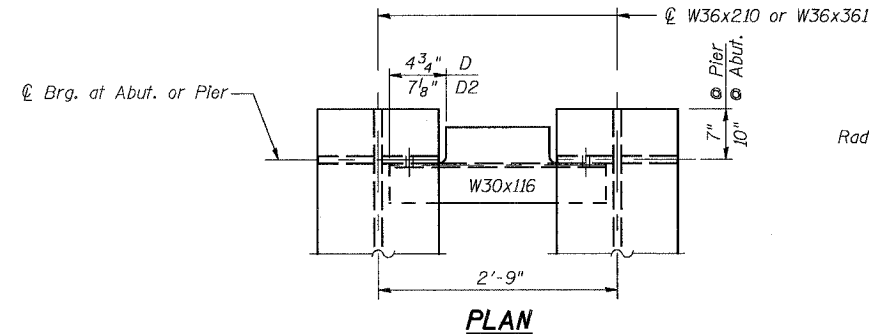


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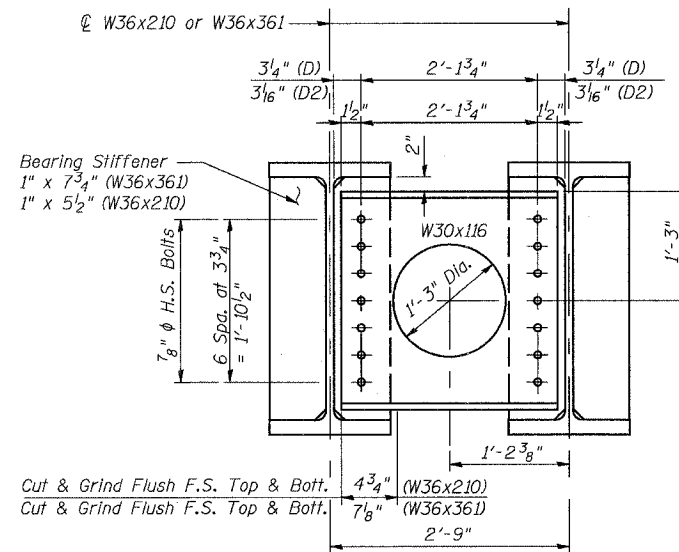
ELEVATION

DIAPHRAGM D1

150 Required  
(Diaphragms: ASTM A709 Gr. 36)



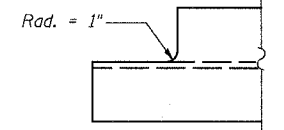
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SECTION

DIAPHRAGMS D & D2

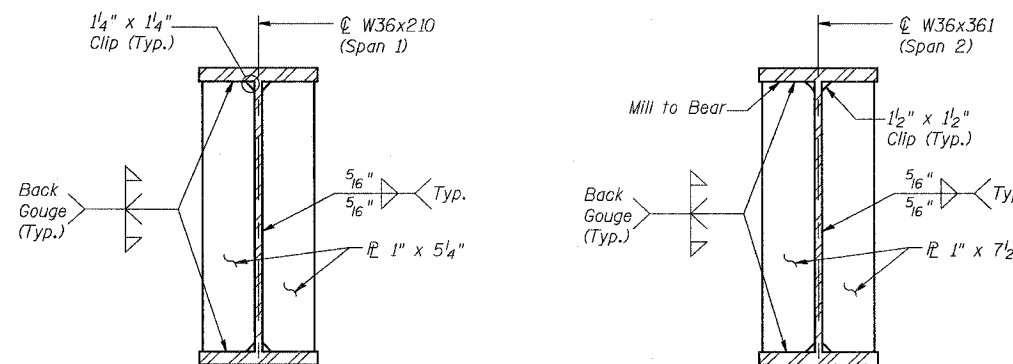
30 Ea. Required  
(Diaphragms: ASTM A709 Gr. 36)



COPE DETAIL

Location	Beams 1 Thru 16
⊕ Brg. N. Abut.	616.26
⊕ N. Brg. Pier	616.74
⊕ S. Brg. Pier	616.74
⊕ Brg. S. Abut.	616.19

\* For Fabrication only



BEARING STIFFENER DETAILS

Notes:

Work this Sheet with Sheet 8  
Beams W36x210 or W36x361 are ASTM A709 Gr. 50.  
F.S. = Far Side

REVISIONS	NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
BEAM DETAILS

CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: 1"=1'-0" DATE: 2/21/2008

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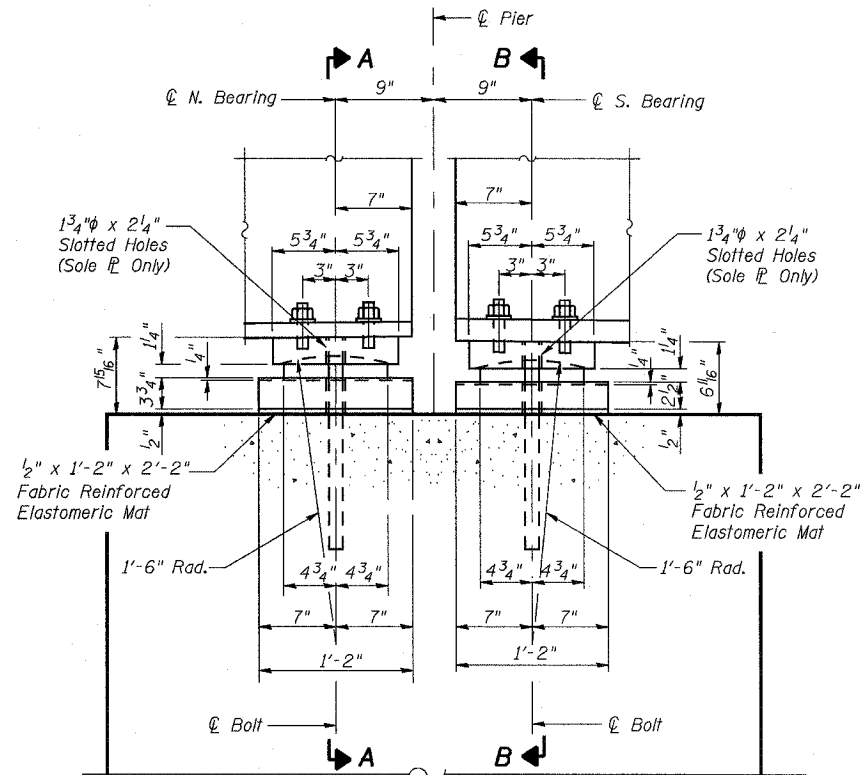
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	395
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

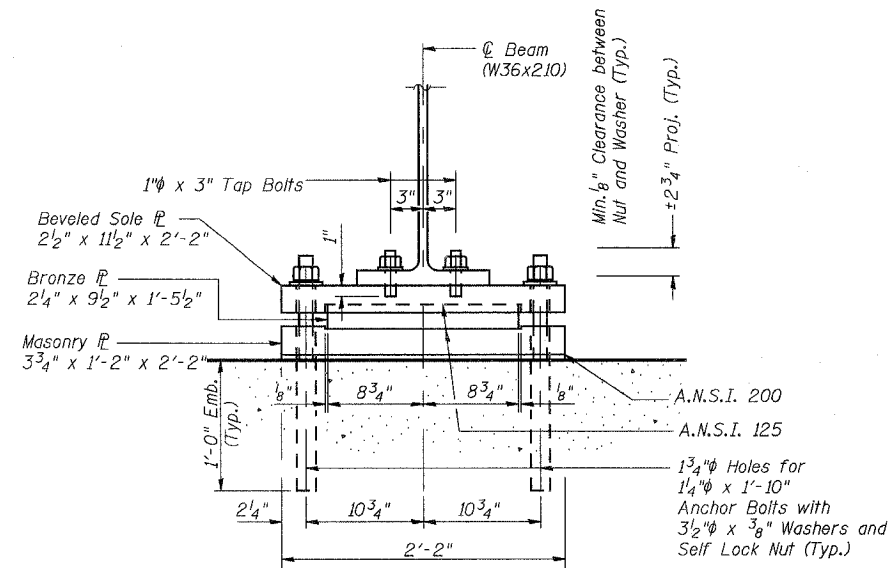
CONTRACT NO. 60E10

SHEET NO. 10  
25 SHEETS

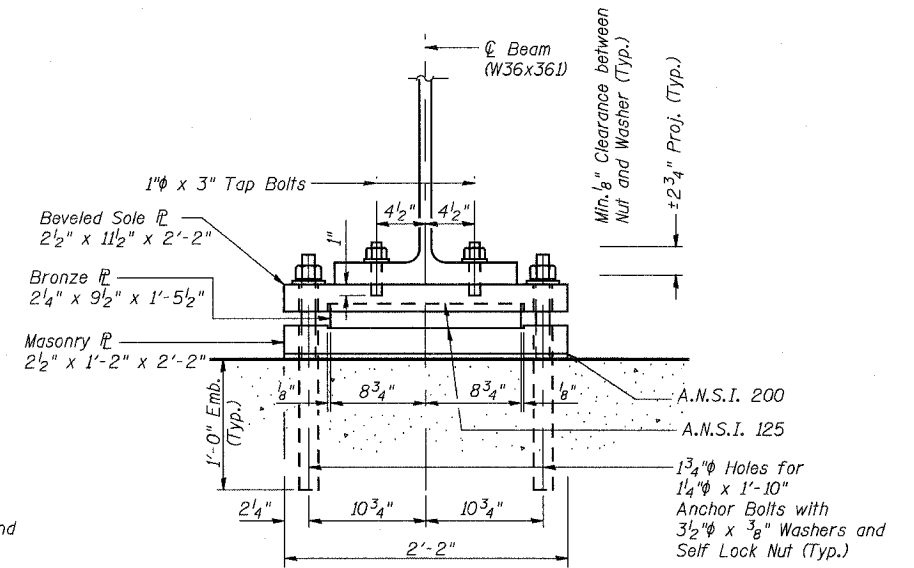


**ELEVATION AT PIER - EXPANSION BEARINGS**

(N. Bearing - 16 Required)  
(S. Bearing - 16 Required)



**SECTION A-A**



**SECTION B-B**

**Notes:**

All material for Sole Plates and Masonry Plates shall conform to A.S.T.M. specification A36 Steel.

Bronze Bearing and Expansion Plates shall conform to A.S.T.M. B22, Alloy C91300 or C91100. Solid lubricant shall be in accordance with A.R.E.M.A. Chapter 15, Section 10.4.2.3. Cost included in Furnishing and Erecting Structural Steel.

All Structural Steel Bearing Plates shall be Flat Rolled Steel Plates with all surfaces smooth and free from warp and all edges smooth, straight and vertical.

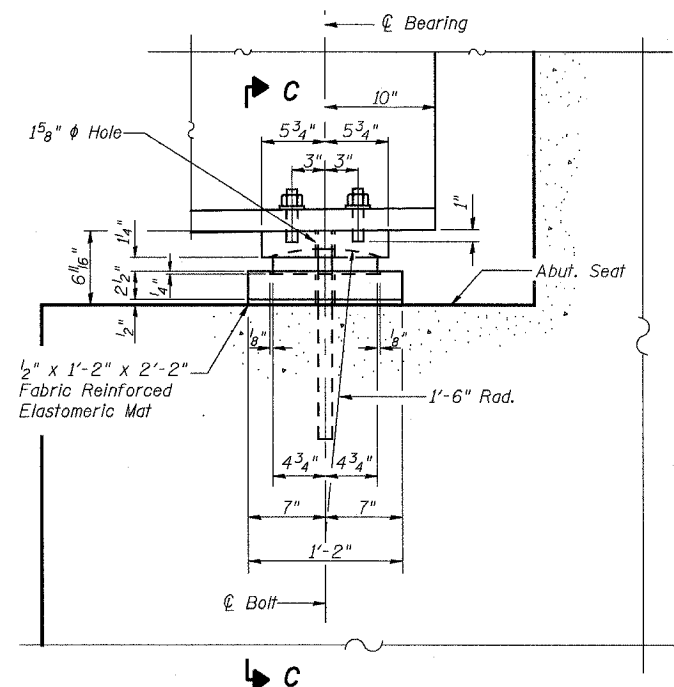
All Plate cuts shall be Machine or Machine Flame Cuts.

Anchor Bolts shall be high-strength carbon steel conforming to the requirements of ASTM F1554, Grade 105 and zinc plated (ASTM B633). Nuts shall meet the requirements of ASTM A563, Grade DH and washers shall meet the requirements of ASTM F436.

See Section 1028 for material requirements of Fabric Reinforced Elastomeric Pad. Cost of pad included in concrete structures.

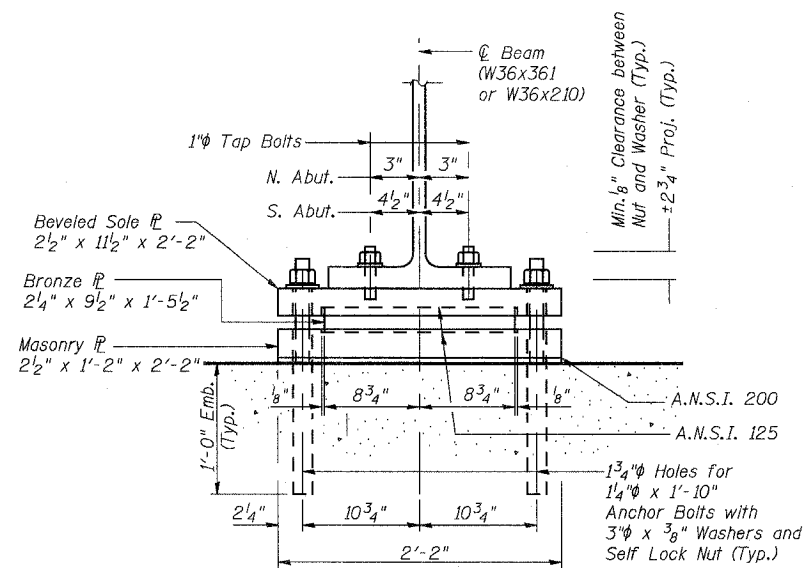
Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.

Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming. Anchors shall not be disturbed until cure time has elapsed.

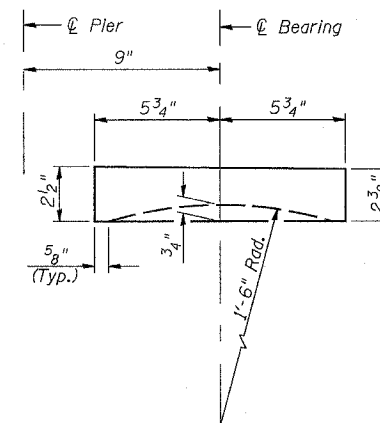


**ELEVATION AT ABUTMENT - FIXED BEARINGS**

(16 - Required N. Abutment)  
(16 - Required S. Abutment)



**SECTION C-C**



**BEVELED SOLE PLATE**

**BILL OF MATERIAL**

ITEM	UNIT	TOTAL
Anchor Bolts, 1 1/4"	Each	128

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**BEARING DETAILS**

CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: N.T.S. DATE: 2/21/2008

**URS**  
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Suite 500  
Chicago, IL 60606  
(312) 939-1000

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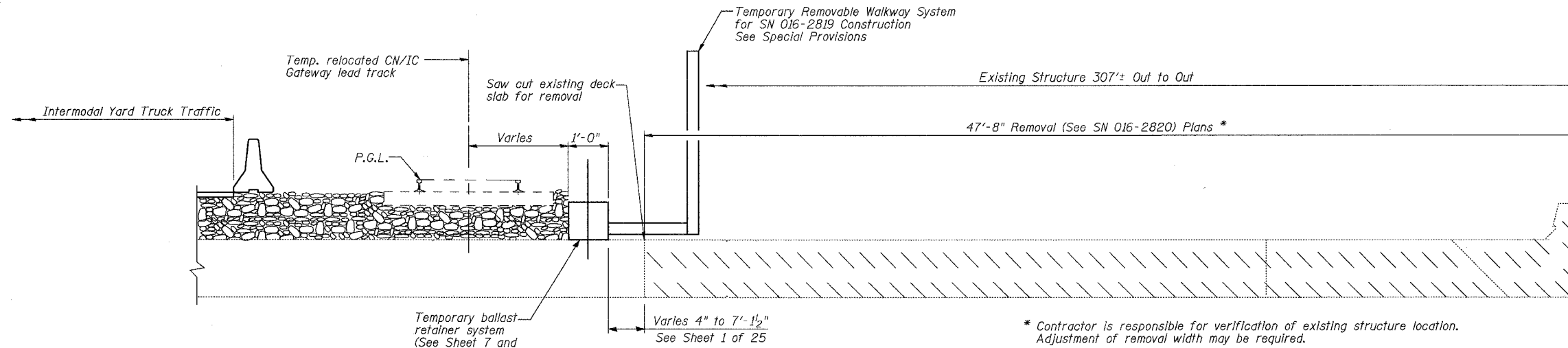
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DRAWN AEU  
CHECKED JPB

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	396
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

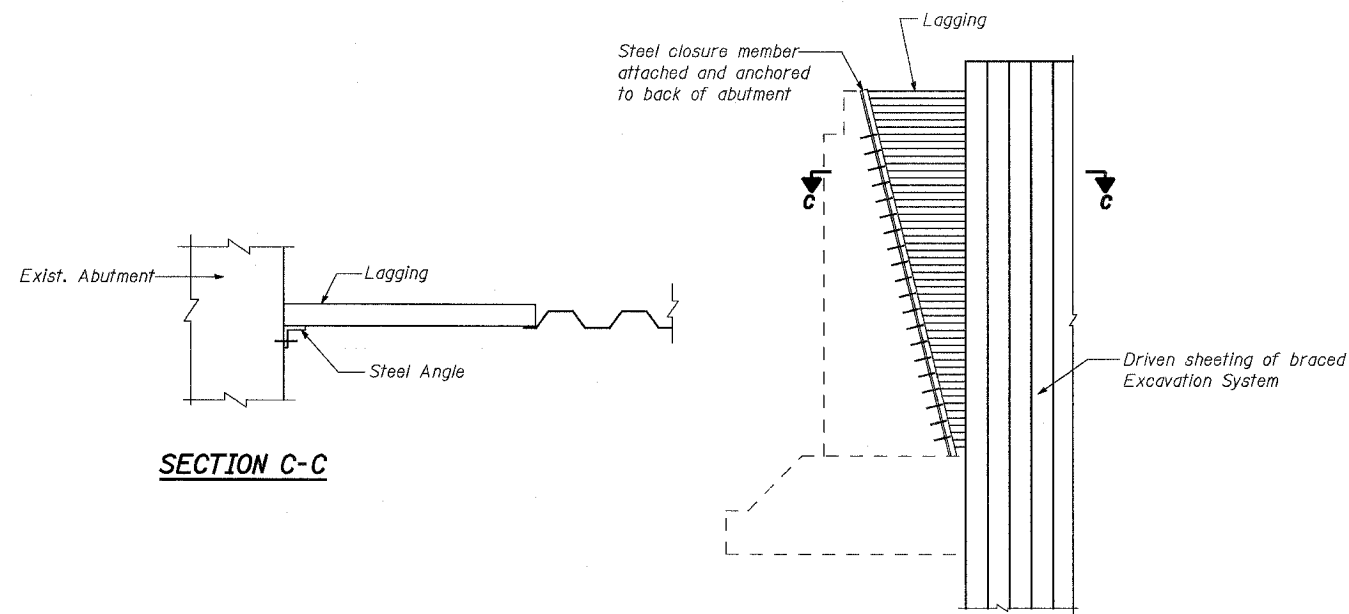
CONTRACT NO. 60E10

SHEET NO. 11  
25 SHEETS



\* Contractor is responsible for verification of existing structure location. Adjustment of removal width may be required.

**TYPICAL SECTION**  
(Looking South)



**TYPICAL CLOSURE DETAIL  
FOR BRACED EXCAVATION  
SYSTEM AT BACK OF ABUTMENTS**

(See Note)

Note:  
Temporary sheeting for stage I and stage II braced excavation systems, shall include all materials hardware, labor & equipment necessary for its connection to the back of the existing abutments. All associated costs for this work will be considered included in the unit price for the Pay Item "Braced Excavation".

- Notes:
- For removal pay items and quantities see SN 016-2820 plans.
  - For removal of existing substructure see Substructure Removal Details drawing in SN 016-2820 plans.

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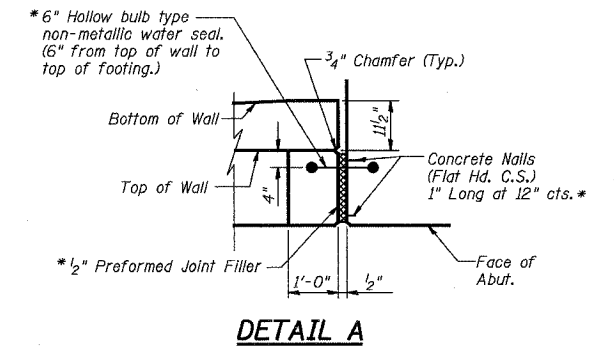
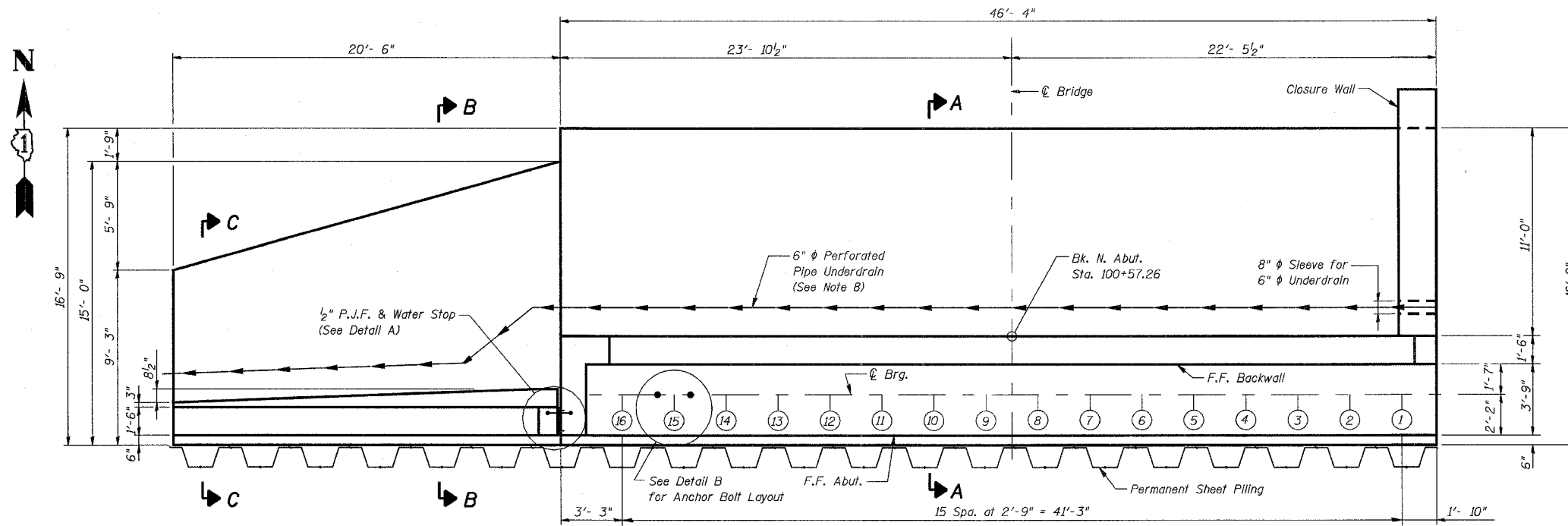
ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**CONCRETE DECK  
REMOVAL DETAILS**  
CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: N.T.S. DATE: 2/21/2008



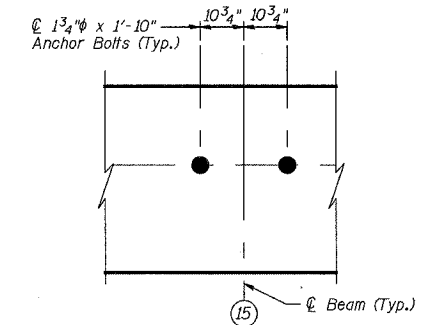
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	200B-001VB	COOK	579	397
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	CONTRACT NO. 60E10	

SHEET NO. 12  
25 SHEETS



\* Cost included with Concrete Structures.

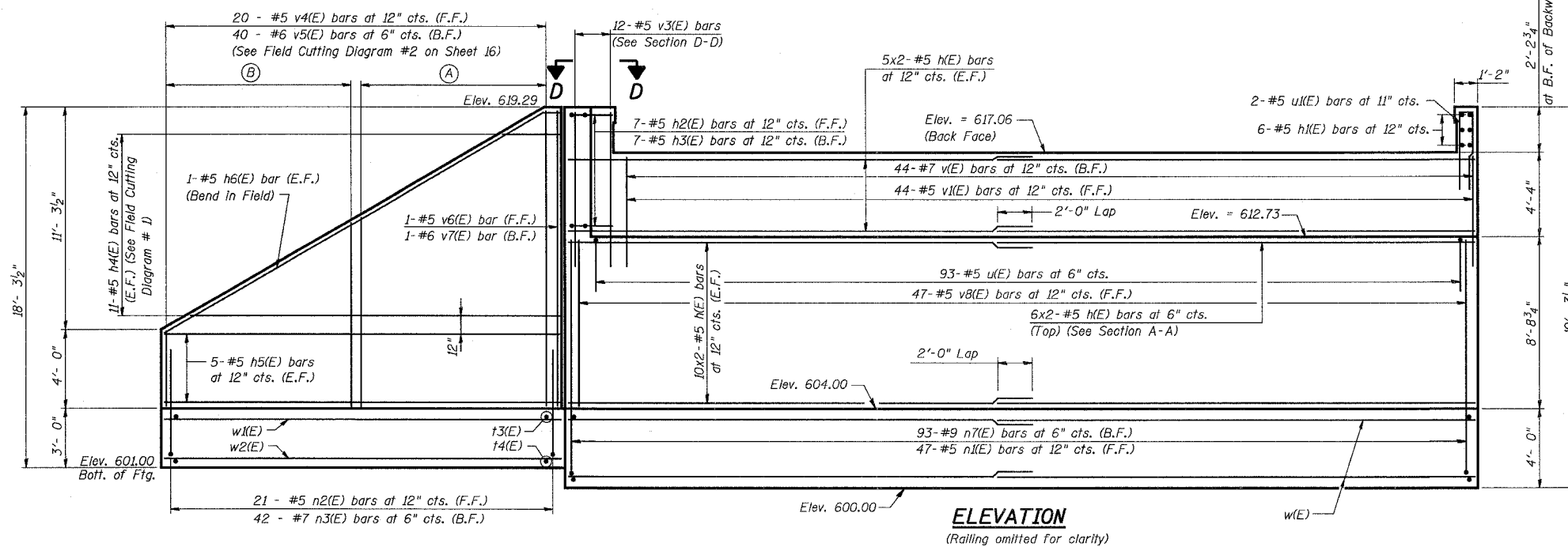


DETAIL B

LEGEND

F.F. - Front Face  
B.F. - Back Face  
E.F. - Each Face

- NOTES:
1. Reinforcement bars designated (E) shall be epoxy coated.
  2. Work this sheet with Sheets 13 through 16.
  3. See Sheet 13 for Sections.
  4. Space reinforcement in seat to miss anchor bolts.
  5. See Sheet 16 for Bill of Materials.
  6. Cost of pipe sleeves is included with Concrete Structures.
  7. See Sheet 13 for Permanent Sheet Piling Detail.
  8. See Sheet 24 of U.S. 6 Mainline Retaining Walls Along 159th Street plans for Pipe Underdrain Layout and Quantities.
  9. For Wingwall Railing Details See Sheet 7.



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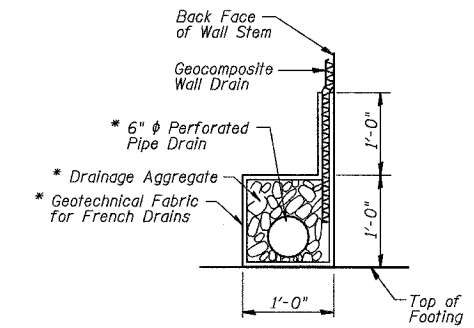
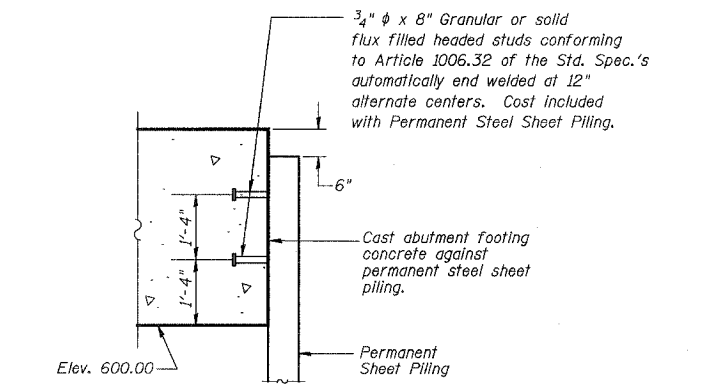
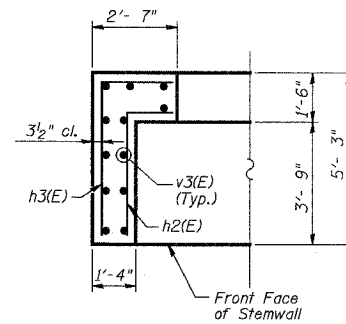
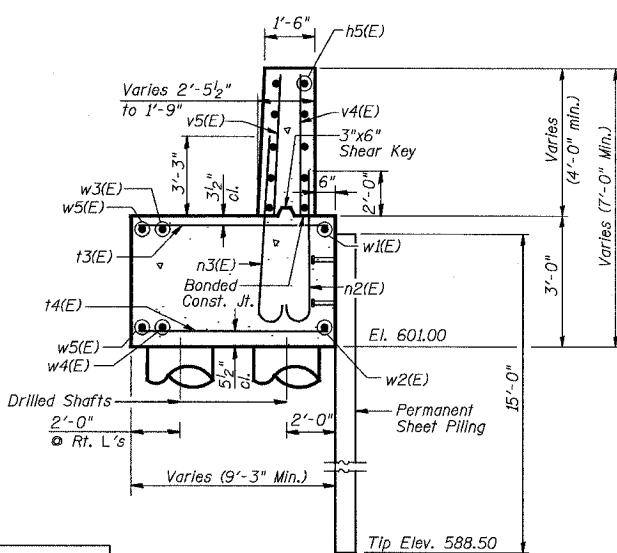
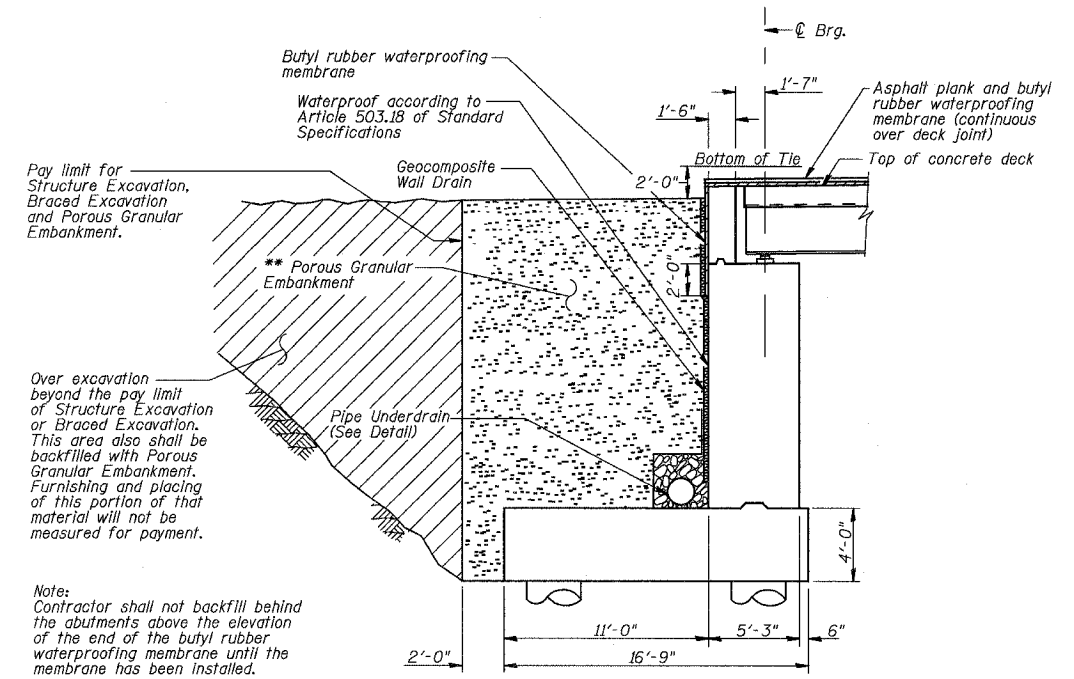
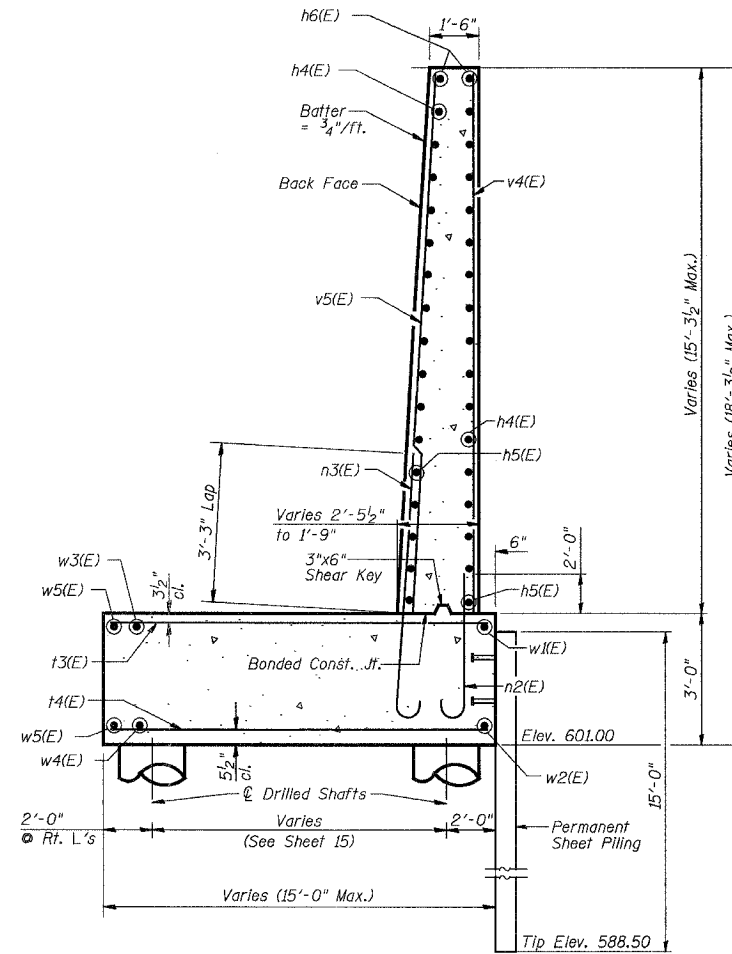
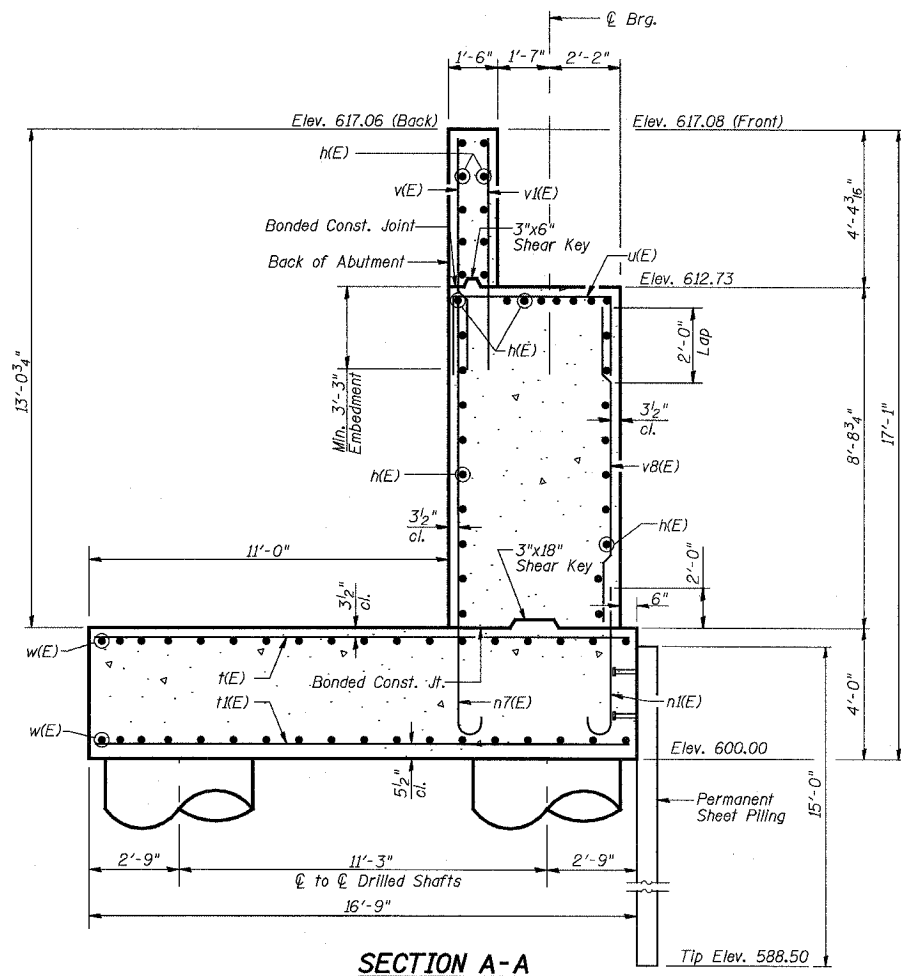
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT  
PLAN & ELEVATION**  
CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: 1/4"=1'-0" DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	398
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
CONTRACT NO. 60E10				

SHEET NO. 13  
25 SHEETS



NOTES:

1. Reinforcement bars designated (E) shall be epoxy coated.
2. Work this sheet with Sheets 12 through 16.
3. Space reinforcement in seat to miss anchor bolts.
4. See Sheet 16 for Bill of Materials.
5. See Sheet 24 of U.S. 6 Mainline Retaining Walls Along 159th Street plans for Pipe Underdrain Layout and Quantities.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT-DETAILS I**

CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: AS NOTED DATE: 2/21/2008

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Suite 500  
Chicago, IL 60606  
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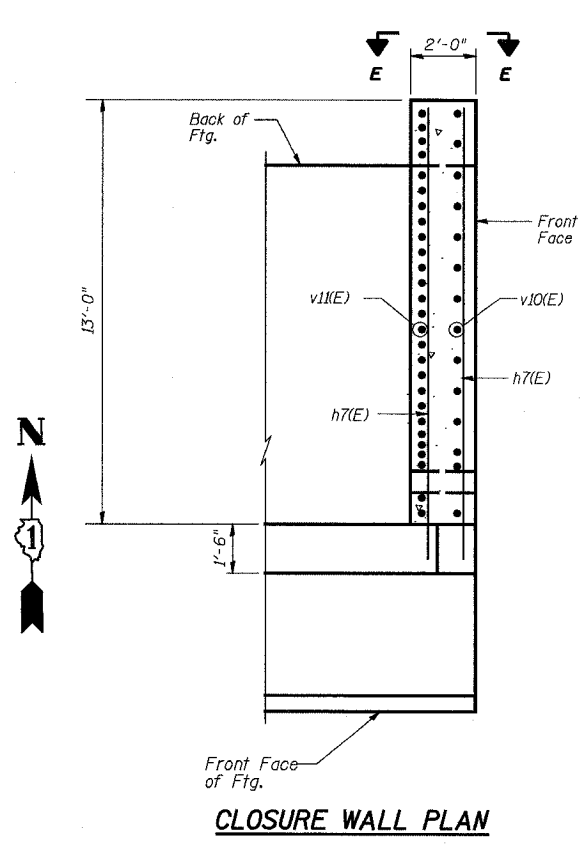
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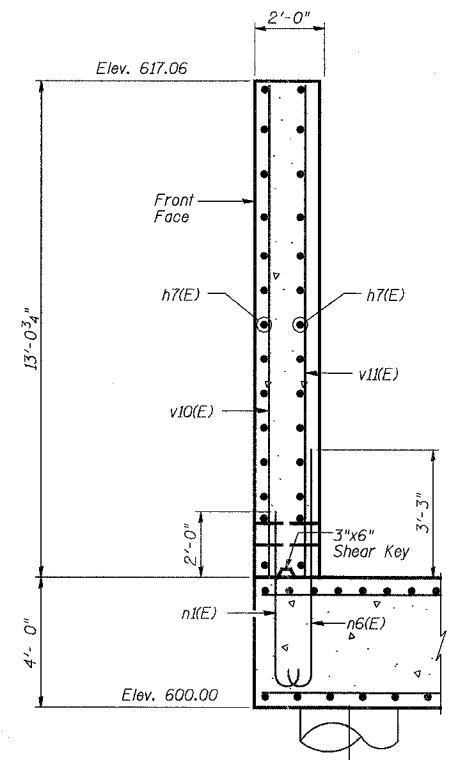
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	CONTRACT NO. 60E10	

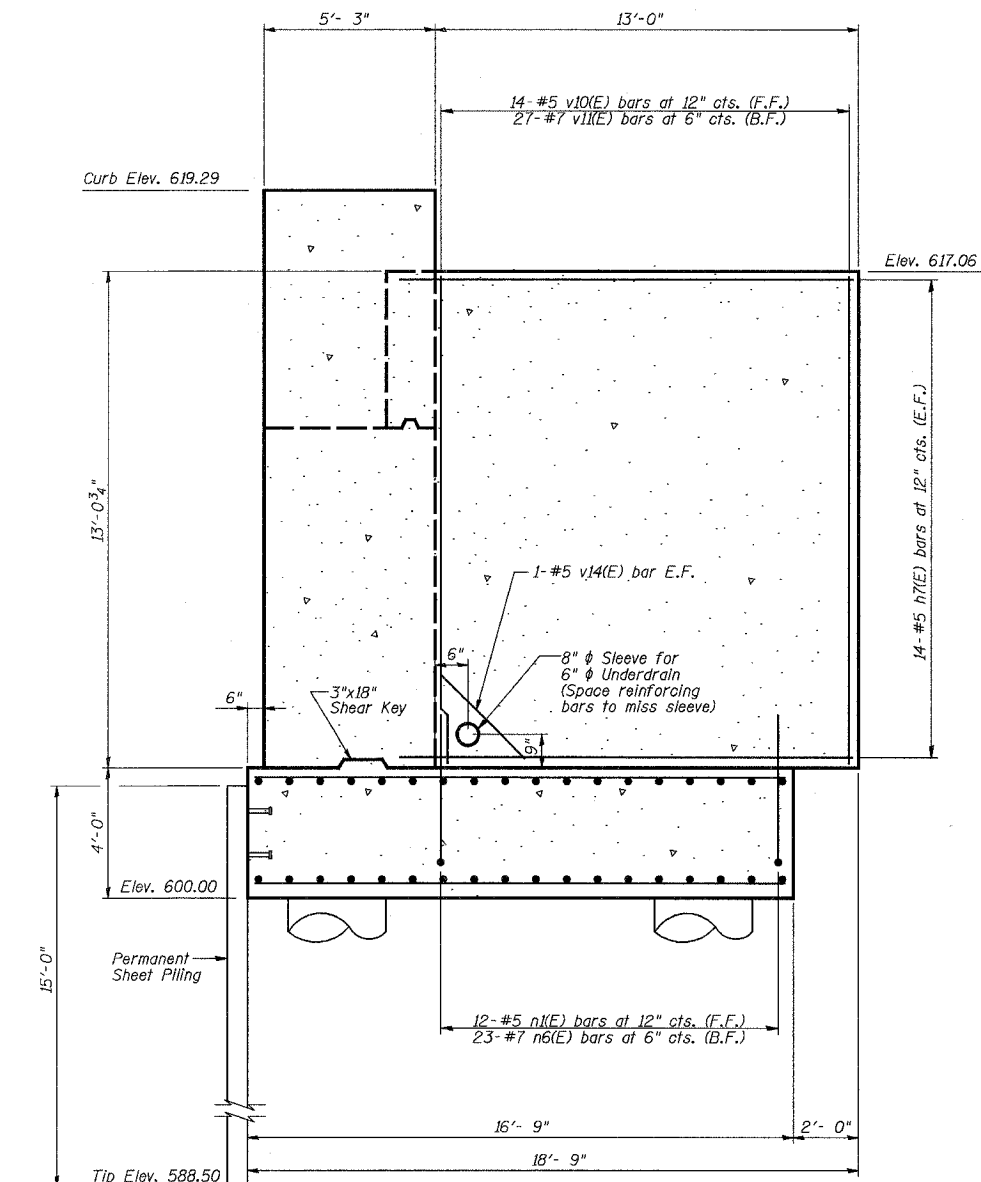
SHEET NO. 14  
25 SHEETS



**CLOSURE WALL PLAN**



**SECTION E-E**  
(Looking South)



**CLOSURE WALL ELEVATION**  
(Looking West)

**LEGEND**  
F.F. - Front Face  
B.F. - Back Face  
E.F. - Each Face

- NOTES:
1. Reinforcement bars designated (E) shall be epoxy coated.
  2. Work this sheet with Sheets 12 through 15.
  3. See Sheet 16 for Bill of Materials.
  4. Cost of pipe sleeve is included with Concrete Structures.

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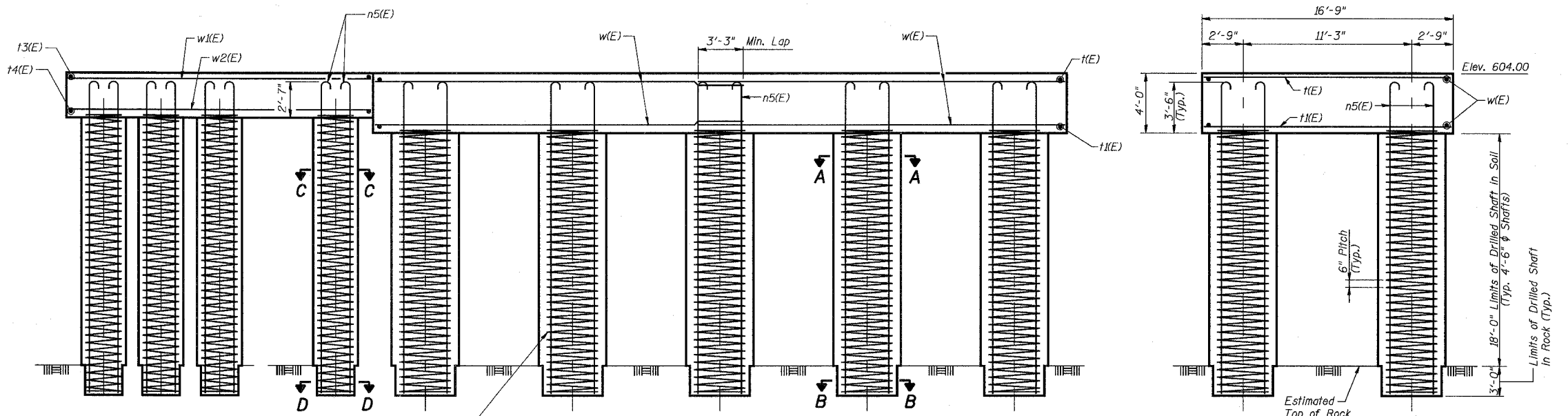
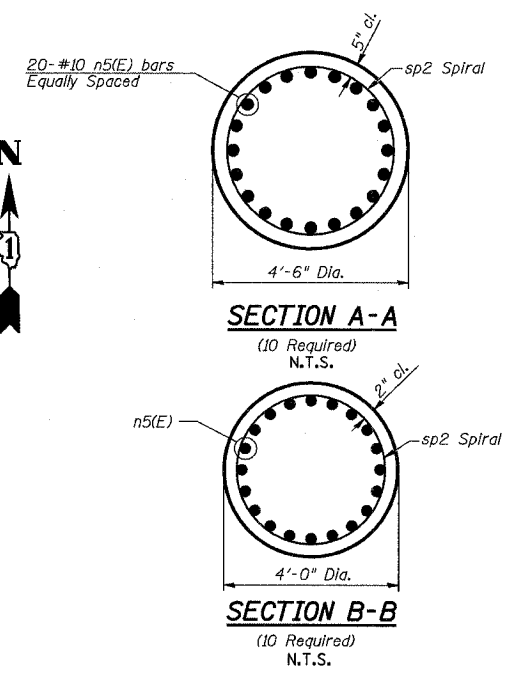
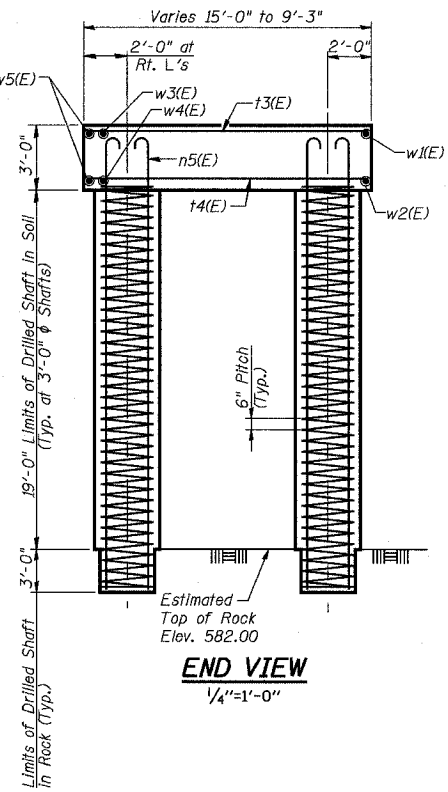
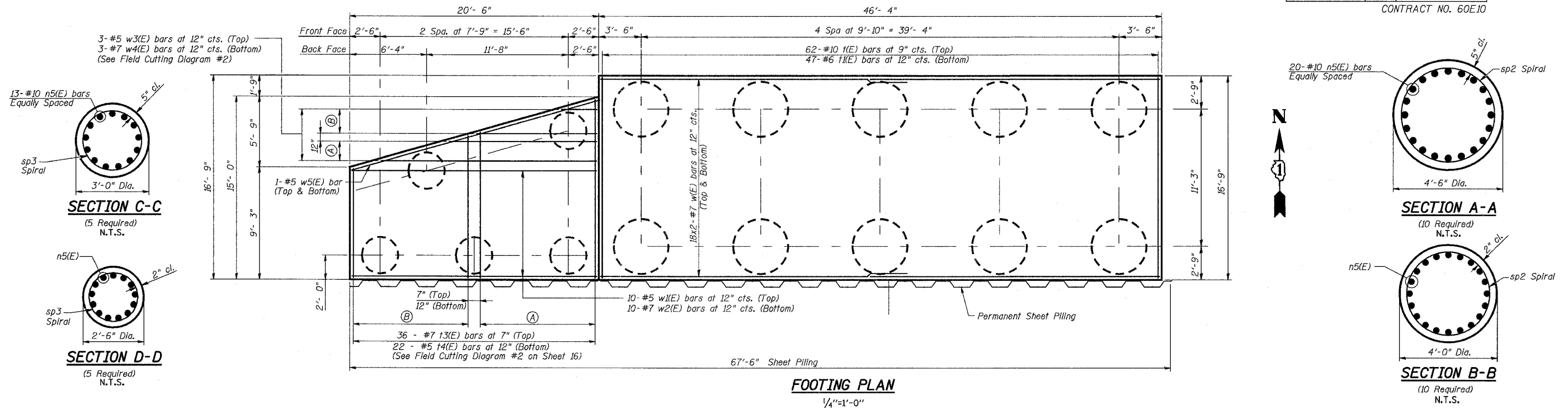
REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT  
DETAILS II**  
CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: 3/8"=1'-0"  
DATE: 2/21/2008

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 351	2008-001VB	COOK	579	400
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-	CONTRACT NO. 60E10	

SHEET NO. 15  
25 SHEETS



- NOTES:
1. Reinforcement designated (E) shall be epoxy coated.
  2. Work this sheet with Sheets 12 through 16.
  3. For Field Cutting Diagram #1 and #2 see Sheet 16.
  4. Drilled Shafts shall be drilled to Elevation 579.00. Quantities and Detailing are for the estimated Elevations shown on the Plans. The actual conditions encountered in each Shaft may differ and the Drilled Shaft and Reinforcement Quantities shall be adjusted accordingly as directed by the Engineer and paid for at the corresponding Unit Bid Price.
  5. See Sheet 13 for Permanent Sheet Piling Detail.
  6. Spiral sp2 outer diameter = 3'-8". Spiral sp3 outer diameter = 2'-2".

Min. Lap Splice for Spiral = 2'-0"

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ILLINOIS DEPARTMENT OF TRANSPORTATION  
US RTE 6 FROM I-294 TO IL RTE 1  
**NORTH ABUTMENT  
FOOTING & DRILLED SHAFTS**  
CN GATEWAY LEAD TRACK  
BRIDGE 20.6E OVER U.S. RTE. 6 (159TH STREET)  
STATION 93+69.01 STRUCTURE NO. 016-2819  
SCALE: AS NOTED DATE: 2/21/2008