

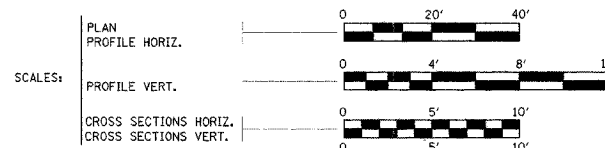
ROUTE NO.	SECTION	COUNTY	DATE SHEETS	SHEET
TR 373	*	VERMILION	19	1
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

*02-04130-00-BR

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION PLANS FOR PROPOSED BRIDGE REPLACEMENT

INDEX OF SHEETS

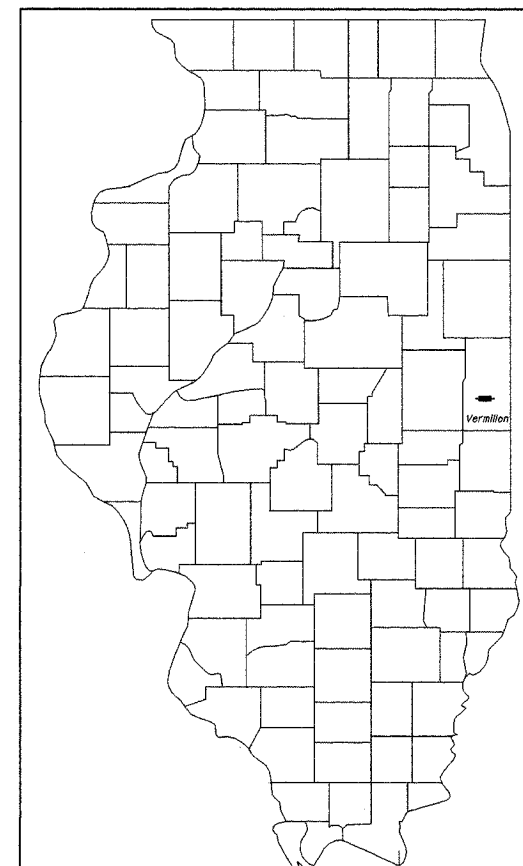
SHEET NO.	DESCRIPTION
1	COVER SHEET
2	SUMMARY OF QUANTITIES, GENERAL NOTES & TYPICAL CROSS SECTIONS
3	SCHEDULE OF QUANTITIES
4	PLAN & PROFILE
5	ROADWAY ALIGNMENT & TIE POINTS
6	EROSION CONTROL PLAN
7-17	BRIDGE PLANS
18-19	CROSS SECTIONS



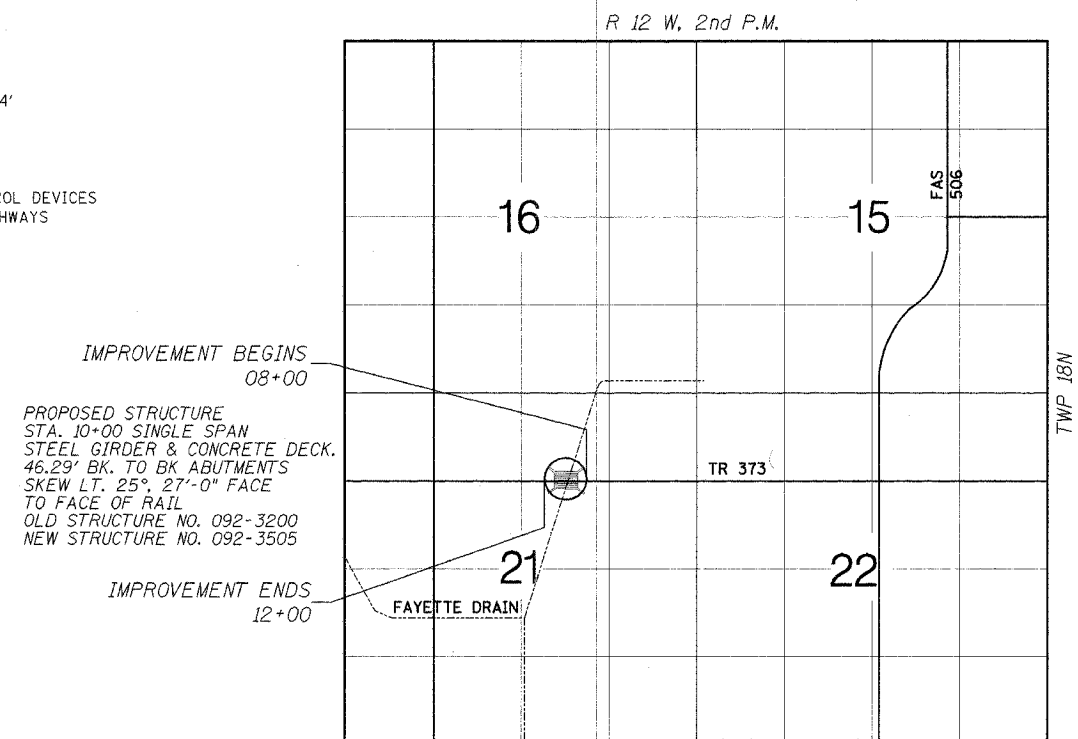
VERMILION COUNTY SECTION 02-04130-00-BR TR 373 SOUTH OF 1150 E BRIDGE REPLACEMENT AND REHABILITATION PROGRAM PROJECT NO. BROS-183(90) JOB NO. C-95-334-05

ILLINOIS DEPT. OF TRANSPORTATION STANDARD DRAWINGS

STANDARD NO.	DESCRIPTION
000001-04	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
280001-02	TEMPORARY EROSION CONTROL SYSTEMS
515001-02	NAME PLATE FOR BRIDGES
701006-02	OFF ROAD OPERATIONS, 2L, 2W, 15' TO 24' FROM PAVEMENT EDGE
702001-06	TRAFFIC CONTROL DEVICES
BLR 21-6	TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES FOR CONSTRUCTION OF RURAL LOCAL HIGHWAYS



LOCATION OF SECTION INDICATED THUS:



LOCATION MAP

ADT = 200 (CURRENT), 250 (DESIGN)
FUNCTIONAL CLASS = MINOR COLLECTOR

NET LENGTH OF SECTION = 400.00 FEET = 0.075 MILES

APPROVED MARCH 2 2006
Robert B Andrews P.E.
COUNTY ENGINEER

APPROVED MARCH 2 2006
Donald Richardson
ROAD COMMISSIONER

PASSED 3/6 2006
David H. ...
DISTRICT FOUR ENGINEER OF
LOCAL ROADS & STREETS

Releasing For
Bld Based on
Limited Review MARCH 7 2006
Joseph E. Crowe
REGIONAL ENGINEER
THREE
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



Keith E. Brandau ea/01/06
KEITH E. BRANDAU
Illinois Licensed Professional Engineer Number 44096
License Expires 11/30/07

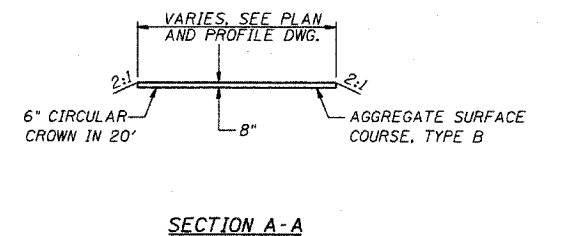
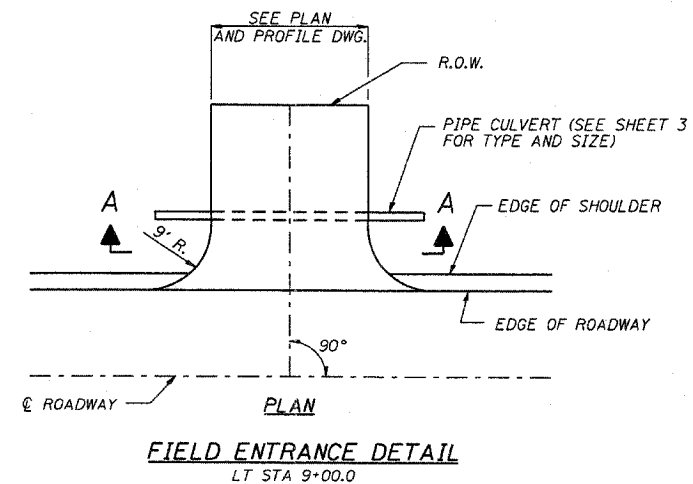
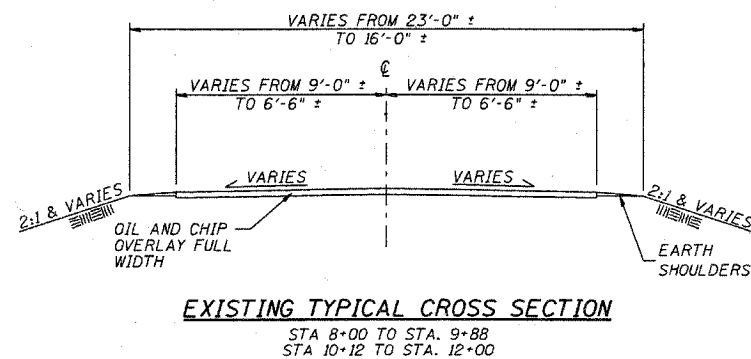
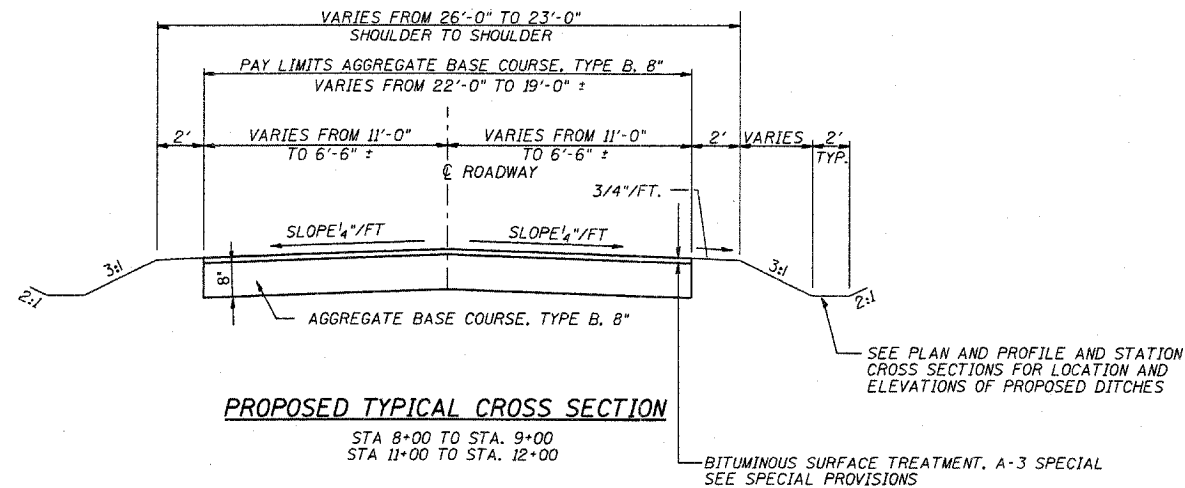
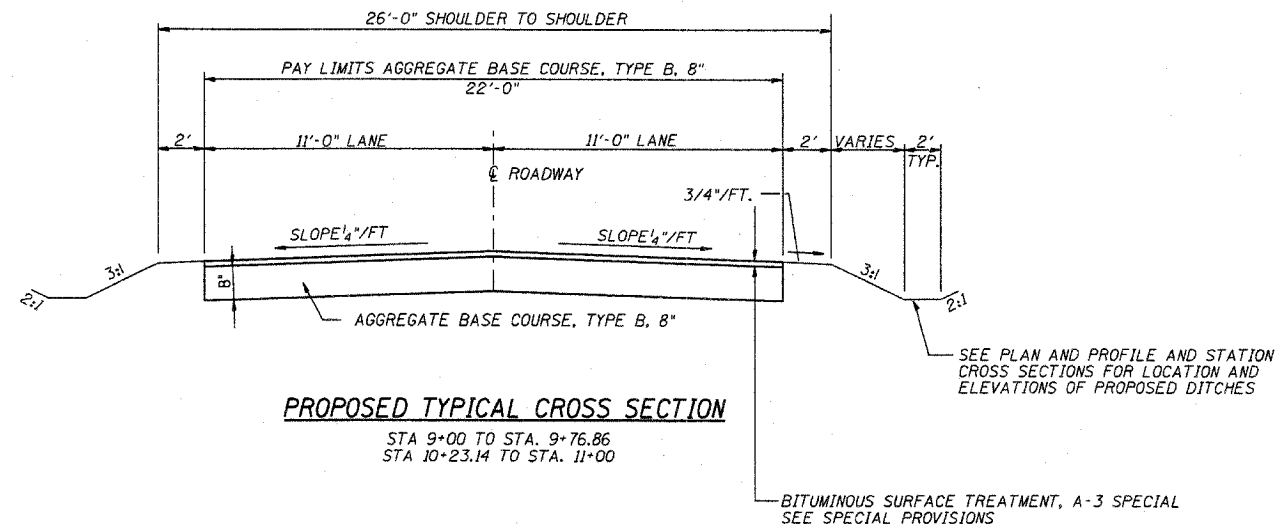
FRAUENHÖFFER
Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, Il. 61822 217-351-6268

SUMMARY OF QUANTITIES

X071-2A
TOTAL QUANTITIES

CODE NO.	ITEM	UNIT	QUANTITIES
*20200100	EARTH EXCAVATION	CU. YD.	407
25000200	SEEDING, CLASS 2	ACRE	.31
25100115	MULCH, METHOD 2	ACRE	.31
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	375
28000300	TEMPORARY DITCH CHECKS	EACH	9
28000400	PERIMETER EROSION BARRIER	FOOT	770
35102000	AGGREGATE BASE COURSE, TYPE B, 8"	SQ. YD.	831
*40200800	AGGREGATE SURFACE COURSE, TYPE B	TON	17
*50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	22
50200100	STRUCTURE EXCAVATION	CU. YD.	108
50300225	CONCRETE STRUCTURES	CU. YD.	18.8
50300255	CONCRETE SUPERSTRUCTURE	CU. YD.	48.4
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L. SUM	1
50500505	STUD SHEAR CONNECTORS	EACH	612
50800105	REINFORCEMENT BARS	POUND	2,360
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	10,120
50900205	STEEL RAILING, TYPE S-1	FOOT	90
51201400	FURNISHING STEEL PILES, HP 10 X 42	FOOT	280
51202700	DRIVING STEEL PILES	FOOT	280
51203400	TEST PILE, STEEL HP 10 X 42	EACH	2
51204600	METAL SHOES	EACH	8
51500100	NAME PLATE	EACH	1
54201483	PIPE CULVERTS, TYPE 2, CORRUGATED STEEL OR ALUMINUM, CULVERT PIPE 18"	FOOT	32
67100100	MOBILIZATION	L.SUM	1
*XX004565	GROUTED RIPRAP	SQ. YD.	283
*XX004566	CONCRETE CUT-OFF WALL	CU. YD.	5.7
*XX005699	BITUMINOUS SURFACE TREATMENT, A-3 SPECIAL	SQ. YD.	831
XX005977	CONTROLLED LOW-STRENGTH MATERIAL (CLSM)	CU. YD.	50
Z0013798	CONSTRUCTION LAYOUT	L. SUM	1

*SEE SPECIAL PROVISIONS



GENERAL NOTES

- Fasteners shall be high strength bolts (AASHTO M 164, Type 3 in unpainted areas and mechanically galvanized AASHTO M 164, Type 1 or 2 in painted areas.) Bolts shall be 3/4" φ with 3/16" φ open holes, unless otherwise noted.
- Calculated weight of Structural Steel = 20,894 lbs.
- 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 tension flanges in the webs.
- All structural steel shall meet the requirements of AASHTO M270, Grade 50W, ASTM A588, excluding fasteners and welds.
- All welds shall be E70XX.
- Reinforcement bars shall conform to the requirements of AASHTO M31 or M322 Grade 60.
- Layout of slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.
- The Contractor shall drive 1 test pile in a permanent location at each abutment as directed by the Engineer before ordering the remainder of piles.
- AASHTO M 270 Grade 50W structural steel shall only be painted, at the ends of the beams, for a distance equal to the depth of embedment in the concrete cap plus 3 inches. Those areas shall be primed in the shop with an inorganic zinc rich primer per AASHTO M 300, Type 1. No field painting shall be required. All structural steel shall be cleaned as specified in the special provision for "Surface Preparation and Painting Requirements for Weathering Steel".
- The locations of existing utilities as shown on the plan are for information only, and are not guaranteed. It shall be the Contractor's responsibility to ascertain their exact location from the utility companies and by field inspection.
- See plan and profile sheet 4, for pavement and shoulder tapers.

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

FRAUENHÖFFER

Frauenhoffer and Associates, P.C. Consulting Engineers
3002 Crossing Court Champaign, IL 61822 217-351-6268

SUMMARY OF QUANTITIES, GENERAL NOTES, & TYP. SECTIONS

CATLIN ROAD DISTRICT
SECTION 02-04130-00-BR
VERMILION COUNTY

SHEET	2
DWG NO.	5068-sum.dgn
DATE	FEB 2006
PROJ NO.	5068

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET
TR 373	*	Vermilion	19	3
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT		

*02-04130-00-BR

SEEDING, CLASS 2	
LOCATION	ACRE
STA. 8+00 TO STA. 9+76.86	0.17
STA. 10+23.14 TO STA. 12+00	0.14
TOTAL	0.31

MULCH, METHOD 2	
LOCATION	ACRE
STA. 8+00 TO STA. 9+76.86	0.17
STA. 10+23.14 TO STA. 12+00	0.14
TOTAL	0.31

PIPE CULVERTS, TYPE 1 ALUMINIZED CORRUGATED STEEL PIPE, 18" DIA	
LOCATION	FOOT
LT. STA 8+84 TO STA 9+16	32
TOTAL	32

PIPE CULVERT REMOVAL	
LOCATION	FOOT
LT. STA 9+60 TO STA 9+82	22
TOTAL	22

AGGREGATE SURFACE COURSE, TYPE B	
LOCATION	TON
LT. STA 8+90 TO STA 9+10	17
TOTAL	17

CONSTRUCTION LAYOUT	
LOCATION	L SUM
SEC. 02-04130-00-BR	1
TOTAL	1

BITUMINOUS SURFACE TREATMENT, A-3 SPECIAL	
LOCATION	SQ YD
STA. 8+00 TO STA. 9+76.86	417
STA. 10+23.14 TO STA. 12+00	414
TOTAL	831

AGGREGATE BASE COURSE, TYPE A, 8"	
LOCATION	SQ YD
STA. 8+00 TO STA. 9+76.86	417
STA. 10+23.14 TO STA. 12+00	414
TOTAL	831

DSGN	K.J. Hoffmann					
DR	R.T. Mumm					
CHK	K.E. Brandau					
APVD	K.E. Brandau	NO.	DATE	REVISION	BY	APVD

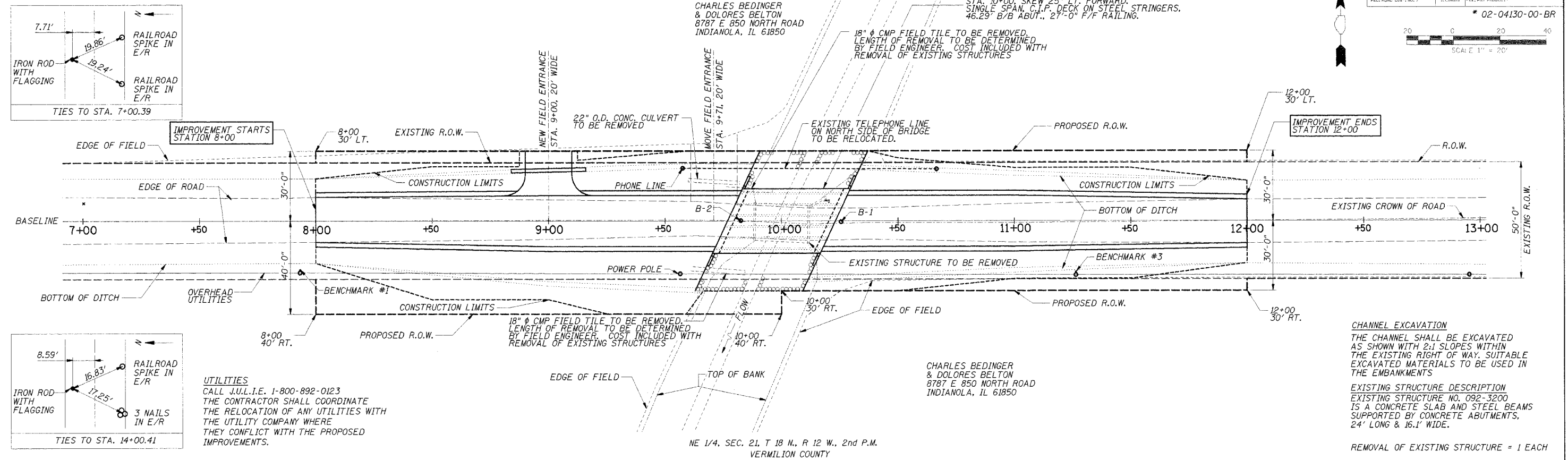
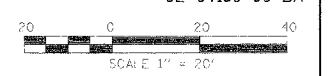
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 Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, IL 61822 217-351-6268

SCHEDULE OF QUANTITIES		SHEET 3
CATLIN ROAD DISTRICT SECTION 02-04130-00-BR VERMILION COUNTY		DWG NO. 5068-sch.dgn DATE FEB 2006 PROJ NO. 5068

BM #1 - R.R. SPIKE IN TIMBER POST STA 7+98.5, 22.5' RT., ELEV. 100.55
 BM #2 - CHISELED \square IN SOUTHWEST CORNER OF BRIDGE - ELEV. 100.02
 BM #3 - R.R. SPIKE IN TIMBER POST STA 11+26.5, 23.5' RT., ELEV. 101.11

NE 1/4, SEC. 21, T 18 N., R 12 W., 2nd P.M.
 VERMILION COUNTY

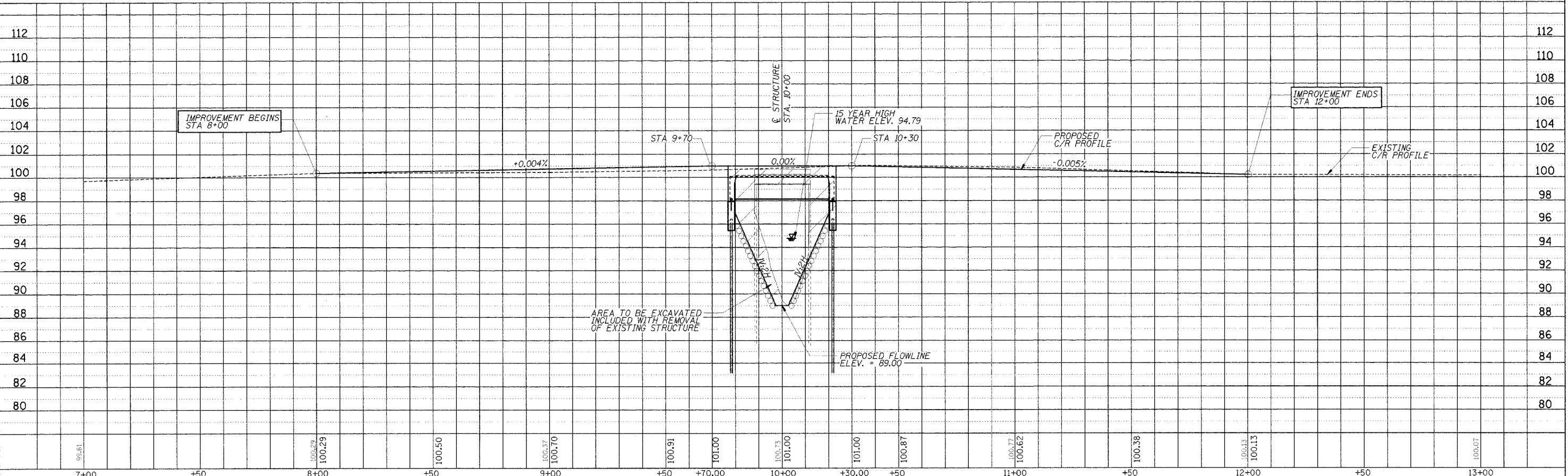
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	VERMILION	19	4



CHANNEL EXCAVATION
 THE CHANNEL SHALL BE EXCAVATED AS SHOWN WITH 2:1 SLOPES WITHIN THE EXISTING RIGHT OF WAY. SUITABLE EXCAVATED MATERIALS TO BE USED IN THE EMBANKMENTS

EXISTING STRUCTURE DESCRIPTION
 EXISTING STRUCTURE NO. 092-3200 IS A CONCRETE SLAB AND STEEL BEAMS SUPPORTED BY CONCRETE ABUTMENTS, 24' LONG & 16.1' WIDE.

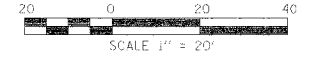
REMOVAL OF EXISTING STRUCTURE = 1 EACH



PLAN & PROFILE STA. 7+00 TO STA. 13+00

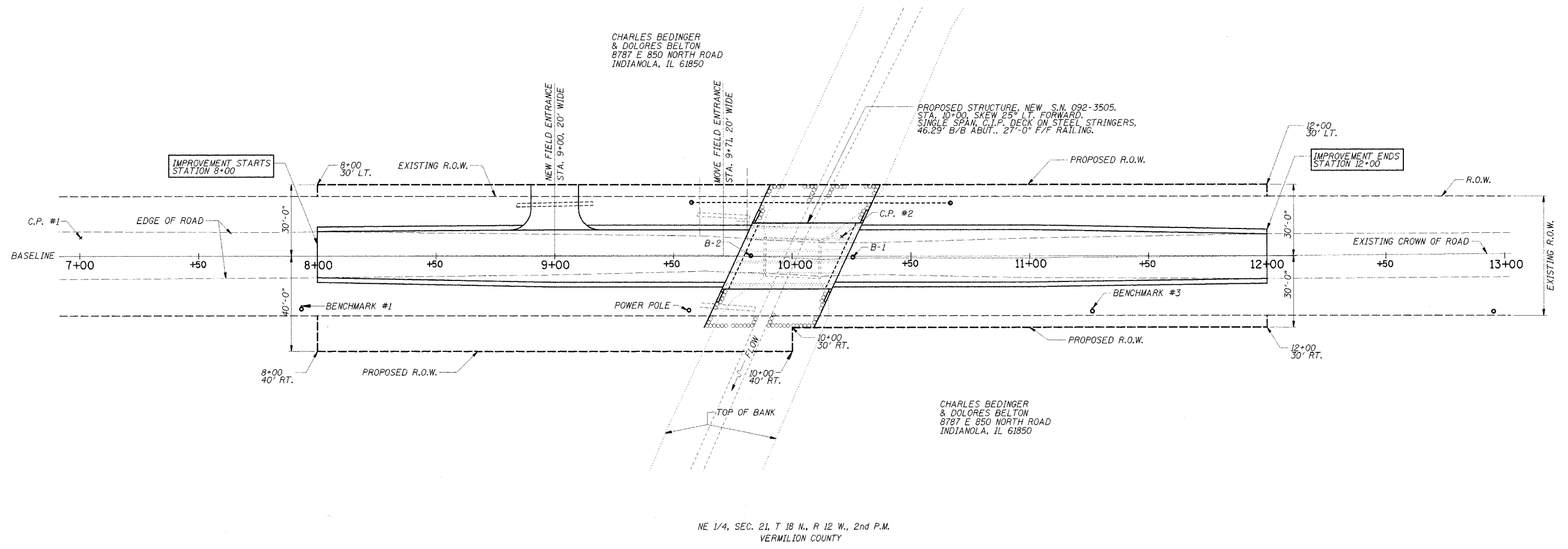
ROUTE NO.	SECTION	COUNTY	TOWNSHIP	RANGE
TR 373	*	VERMILION	19	5
FED. ROAD CONST. NO. 7	ILL. ROAD	FED. AID PROJECT		

* 02-04130-00-BR



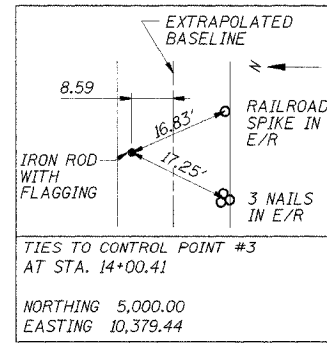
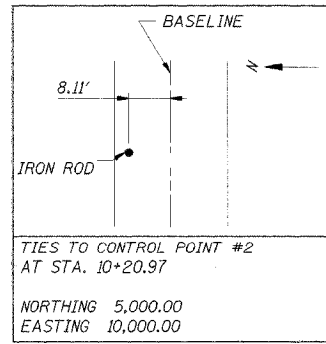
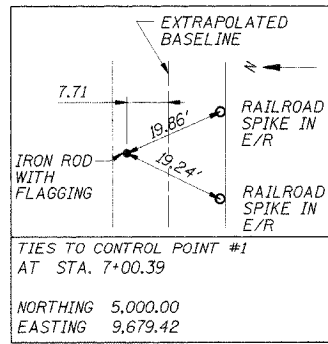
CHARLES BEDINGER
& DOLORES BELTON
8787 E 850 NORTH ROAD
INDIANOLA, IL 61850

PROPOSED STRUCTURE, NEW S.N. 092-3505.
STA. 10+00, SKEW 25° LT. FORWARD.
SINGLE SPAN, C.I.P. DECK ON STEEL STRINGERS,
46.29' B/B ABUT., 27'-0" F/F RAILING.



CHARLES BEDINGER
& DOLORES BELTON
8787 E 850 NORTH ROAD
INDIANOLA, IL 61850

NE 1/4, SEC. 21, T 18 N., R 12 W., 2nd P.M.
VERMILION COUNTY



C COORDINATES		
STA	NORTHING	EASTING
8+00	4,992.16	9,779.03
9+00	4,992.03	9,879.03
9+76.86 (BACK W. ABUT.)	4,991.94	9,955.89
9+78.24 (C. W. ABUT.)	4,991.94	9,957.27
10+00 (C. STRUCTURE)	4,991.91	9,979.03
10+21.76 (C. E. ABUT.)	4,991.88	10,000.79
10+23.14 (BACK E. ABUT.)	4,991.88	10,002.17
11+00	4,991.79	10,079.03
12+00	4,991.66	10,179.03

BM #1 - R.R. SPIKE IN TIMBER POST STA 7+98.5, 22.5' RT., ELEV. 100.55
BM #1 - CHISELED 'v' IN SOUTHWEST CORNER OF BRIDGE - ELEV. 100.02
BM #3 - R.R. SPIKE IN TIMBER POST STA 11+26.5, 23.5' RT., ELEV. 101.11

ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
TR 373	*	VERMILION	19	6
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT	* 02-04130-00-BR	

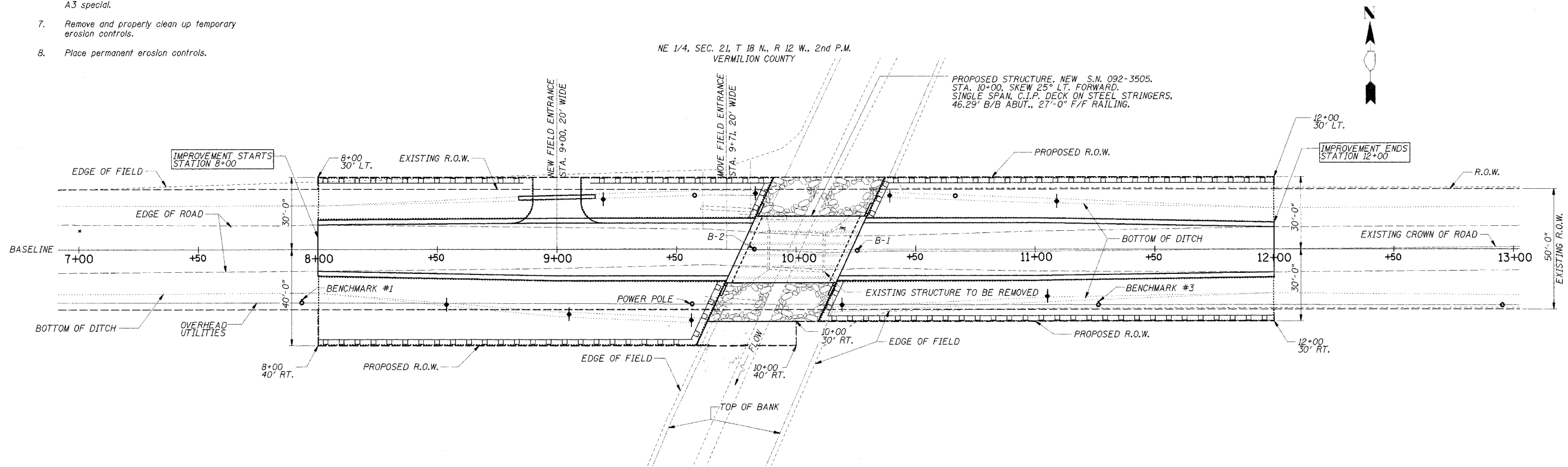


INTENDED SEQUENCE

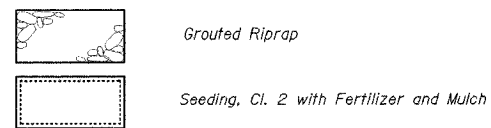
1. Place of the perimeter erosion control barrier prior to the commencement of any work. See Standard 280001.
2. Remove the existing structure.
3. Construct new substructure.
4. Construct new superstructure.
5. Place and maintain temporary erosion controls.
6. Grade and shape, including the placing aggregate base course and bituminous surface course, A3 special.
7. Remove and properly clean up temporary erosion controls.
8. Place permanent erosion controls.

NE 1/4, SEC. 21, T 18 N., R 12 W., 2nd P.M.
VERMILION COUNTY

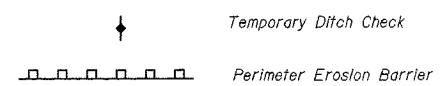
PROPOSED STRUCTURE, NEW S.N. 092-3505.
STA. 10+00, SKEW 25° LT. FORWARD.
SINGLE SPAN, C.I.P. DECK ON STEEL STRINGERS,
46.29' B/B ABUT., 27'-0" F/F RAILING.



PERMANENT EROSION CONTROL



TEMPORARY EROSION CONTROL



PERIMETER EROSION BARRIER

STA	OFFSET	TO	STA	OFFSET	LENGTH
8+00	30' LT		8+86	30' LT	86 FT
9+14	30' LT		9+91	30' LT	77 FT
9+83	13' LT		9+91	30' LT	20 FT
8+00	40' RT		9+59	40' RT	158 FT
9+58	40' RT		9+71	13' RT	30 FT
10+29	13' LT		10+31	30' LT	19 FT
10+30	30' LT		12+00	30' LT	170 FT
10+09	30' RT		10+17	13' RT	19 FT
10+09	30' RT		12+00	30' RT	191 FT
TOTAL					770 FT

TEMPORARY DITCH CHECKS

STA	OFFSET	QUANTITY
8+50	RT	1 EACH
9+05	RT	1 EACH
9+20	LT	1 EACH
9+50	RT	1 EACH
9+80	LT	1 EACH
10+20	RT	1 EACH
10+40	LT	1 EACH
11+05	RT	1 EACH
11+10	LT	1 EACH
TOTAL		9 EACH

TEMPORARY EROSION CONTROL		
Bill of Materials		
Item	Unit	Quantity
Temporary Erosion Control Seeding	Pound	375
Temporary Ditch Checks	Each	9
Perimeter Erosion Barrier	Foot	770

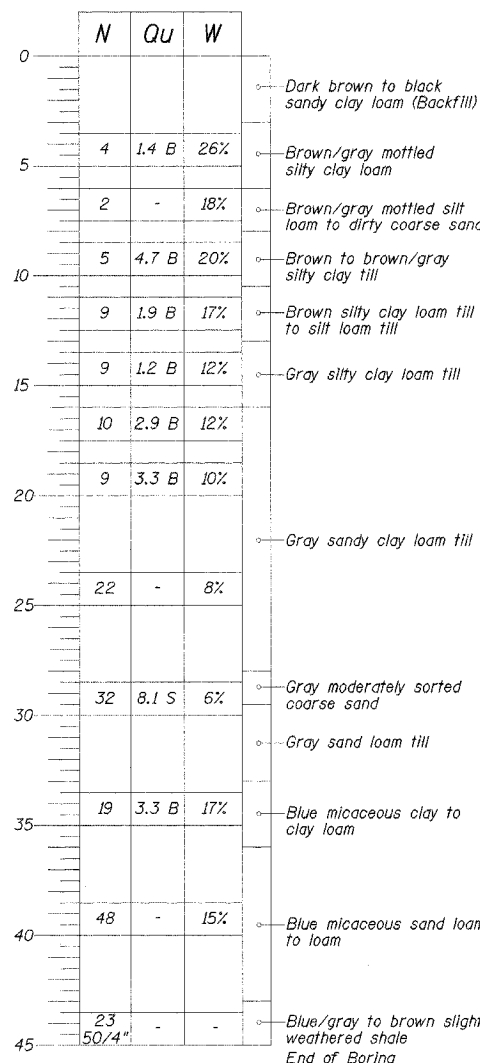
Existing Structure: Single span of steel girders supporting a concrete deck. Abutments are steel H-piles with a concrete curtain wall. 24' Long and 16.1' Wide.

BM #1 - Spike in power pole at Sta 7+93.1, 21.4' R.T., Elev. 100.55
 BM #2 - "□" in southwest corner of bridge at 100.02
 BM #3 - Spike in power pole at Sta 11+26.3, 22.4' R.T., Elev. 101.11

BORING B-1

Location: STA 10+26.5, C of roadway, Elev. 100.00

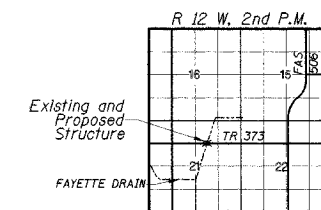
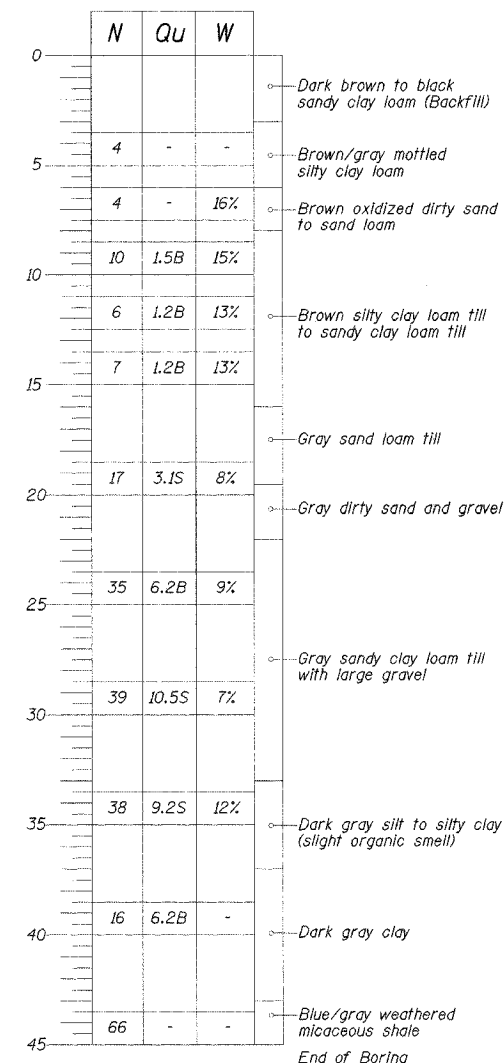
Water Levels
 While Drilling: 28'
 At Completion: -



BORING B-2

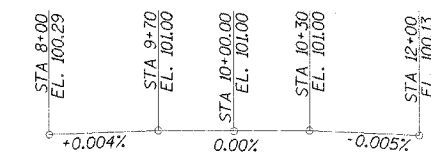
Location: STA 9+82, C of roadway, Elev. 100.00

Water Levels
 While Drilling: -
 At Completion: -



LOCATION SKETCH

Drainage Area	2.49 Sq. Mi.
Existing Opening (15 Yr.)	67.2 Sq. Ft.
Required Opening (15 Yr.)	89.5 Sq. Ft.
Proposed Opening (15 Yr.)	94.55 Sq. Ft.
Design Discharge (15 Yr.)	451.8 C.F.S.
Computed Discharge (100 Yr.)	706.6 C.F.S.
15 Yr. Head	0.00 Ft.
100 Yr. Head	0.00 Ft.



PROFILE GRADE

DESIGN SPECIFICATIONS

AASHTO (2002)

DESIGN LOADING

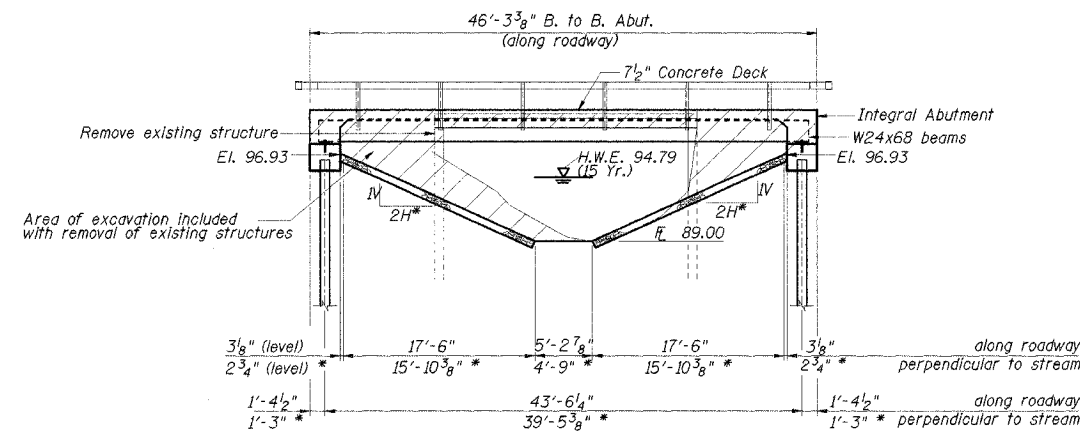
HS 20-44
 25 P.S.F Future Wearing Surface

DESIGN STRESSES

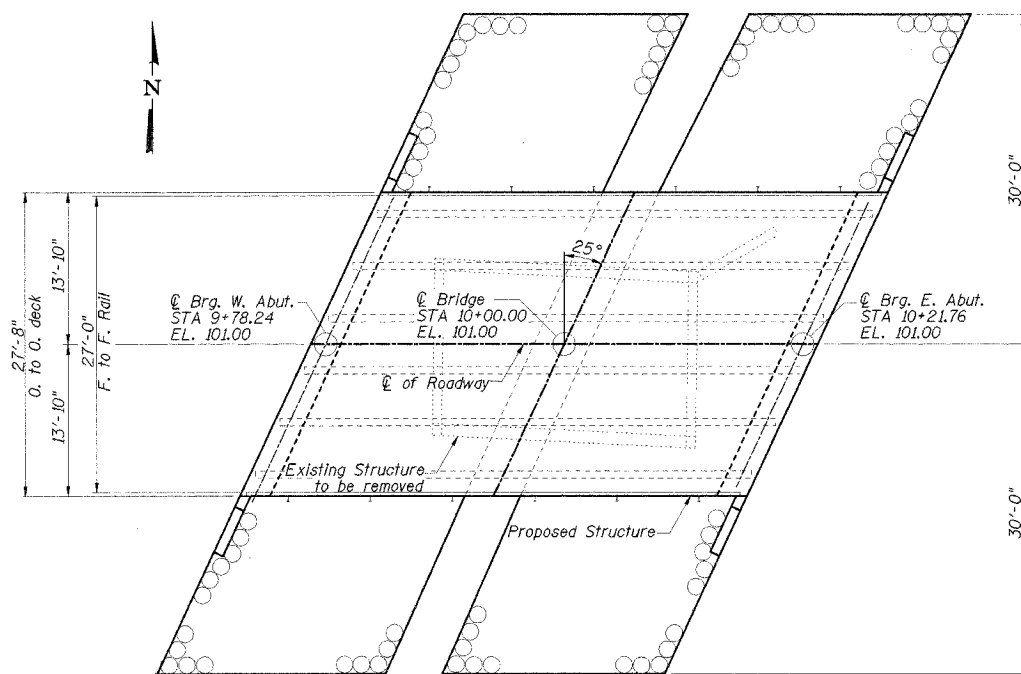
$f'_c = 3,500$ psi (Cast In Place Concrete)
 $f_y = 60,000$ psi (Reinforcement)
 $f_y = 50,000$ psi (Structural Steel)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Removal of Existing Structures	Each	1		1
Structure Excavation	Cu. Yds.		108	108
Concrete Structures	Cu. Yds.		18.8	18.8
Concrete Superstructures	Cu. Yds.	48.4		48.4
Furnishing & Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	612		612
Reinforcement Bars	Pounds		2,360	2,360
Reinforcing Bars, Epoxy Coated	Pounds	10,120		10,120
Steel Railing, Type S-1	Foot	90		90
Furnishing Steel Piles, HP10x42	Foot		280	280
Driving Steel Piles	Foot		280	280
Test Piles, Steel HP10x42	Each	2		2
Metal Shoes	Each	8		8
Name Plate	Each	1		1
Grouted Riprap	Sq. Yds.		283	283
Conc. Cut-off Wall	Cu. Yds.		5.7	5.7
Controlled Low-Strength Material	Cu. Yds.		50	50



ELEVATION



PLAN

BORING DATA

N - Standard Penetration Test - Blows per foot to drive 2" O.D. split spoon sampler 12" with 140 lb. hammer falling 30".
 Qu - Unconfined Compressive Strength - Tons/Sq. Ft.
 W - Water Content - Percentage of oven dry weight - %
 B - Bulge Failure, V - Shear Failure, S - Splitting Failure
 E - Estimated Value

GENERAL NOTES

- The Contractor shall drive 1 steel test pile in a permanent location at each abutment and pier as directed by the Engineer before ordering the remainder of piles.
- Boring Data is shown only as a guide to bidders in estimating soil conditions which may be encountered during construction.
- Class BD concrete shall be used for the bridge deck.
- Class SI concrete shall be used in the abutments.
- Structural steel shall be M270 Grade 50W, ASTM 588.
- Welds shall use a E70XX electrode.

STRUCTURE NO. 092-3505
 SEC. 02-04130-00-BR
 TR 373
 VERMILION COUNTY
 LOADING HS-20-44

NAME PLATE
 See Standard 515001

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with the requirements of the current "AASHTO Standard Specifications for Highway Bridges."

Keith E. Brandau 03/01/06
 KEITH E. BRANDAU
 Illinois Licensed Structural Engineer Number 4905
 License Expires 11/30/06



NO.	DATE	REVISION	BY	APVD

FRAUENHOFFER
 Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, Il. 61822 217-351-6268

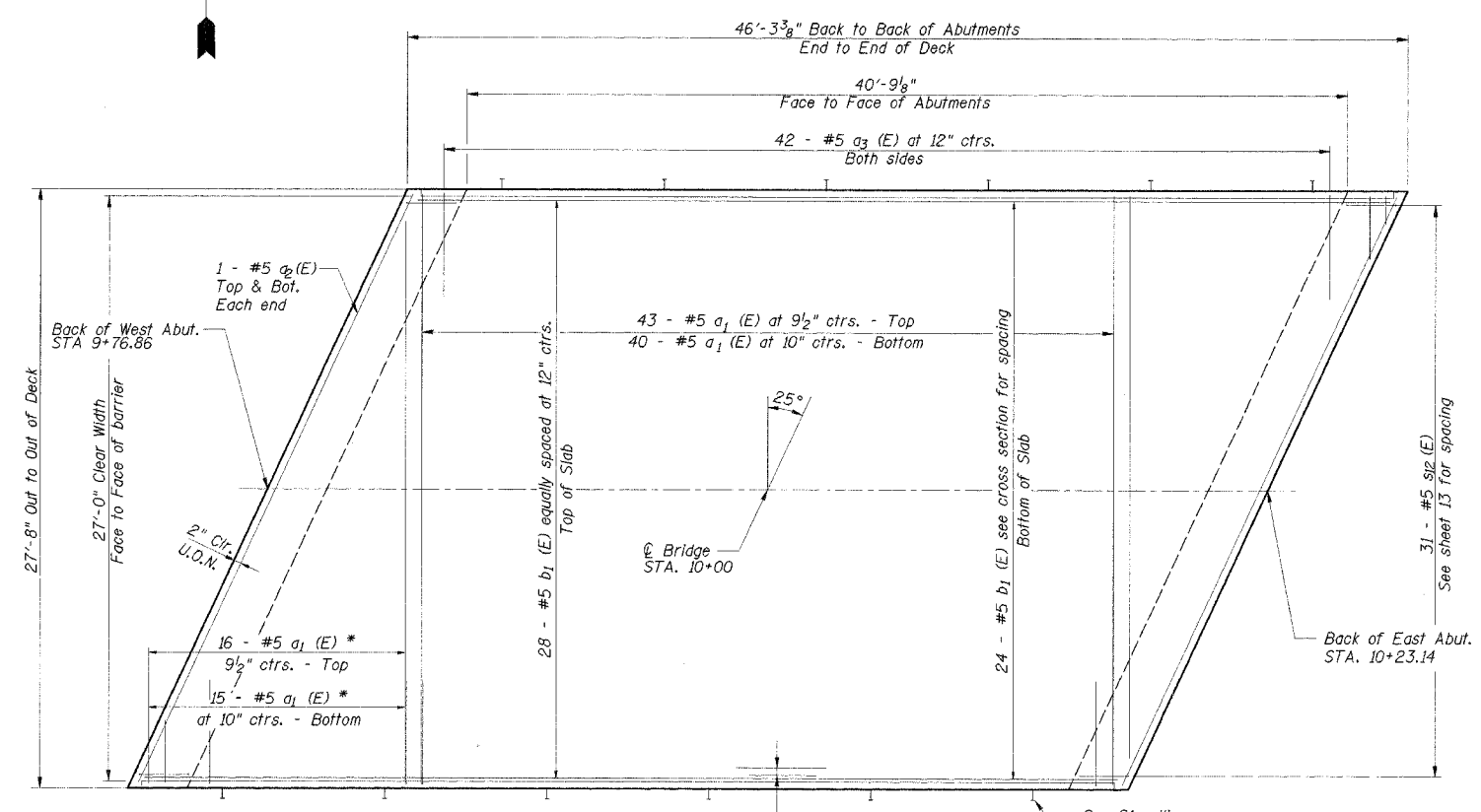
GENERAL PLAN AND ELEVATION
 CATLIN ROAD DISTRICT
 SECTION 02-04130-00-BR
 VERMILION COUNTY

SHEET 7
 DWG NO. 5068-gpe.dgn
 DATE FEB 2006
 PROJ NO. 5068

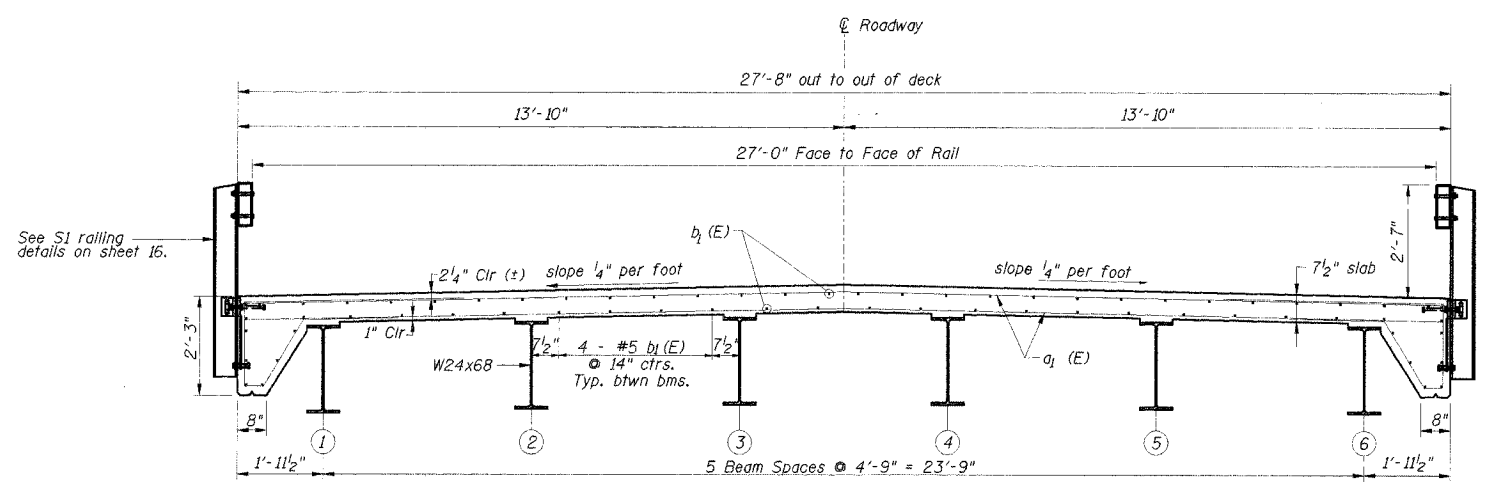
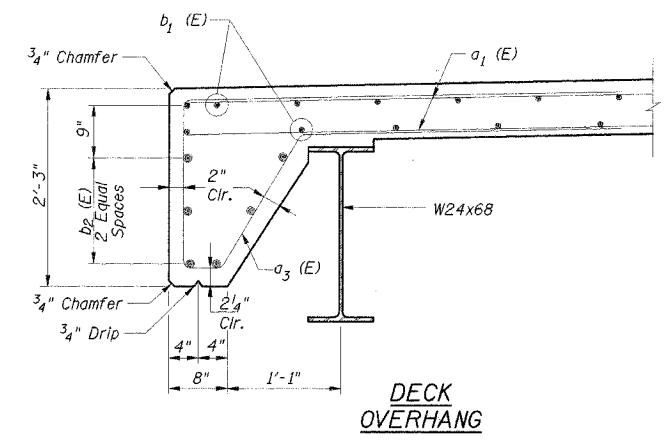
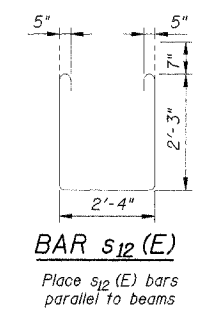
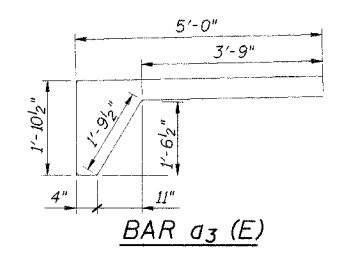
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	Vermilion	19	8
PROJ. FILE NO.	SUBPROJECT	PROJ. AND PROJECT		

*02-04130-00-BR

BILL OF MATERIAL SUPERSTRUCTURE				
Bar	No.	Size	Length	Shape
a ₁ (E)	114	#5	27'-4"	—
a ₂ (E)	4	#5	30'-2"	—
a ₃ (E)	84	#5	12'-9"	⌋
b ₁ (E)	52	#5	45'-11"	—
b ₂ (E)	12	#8	45'-11"	—
s ₁₂ (E)	62	#5	8'-0"	⌋
m ₁ (E)	66	#5	5'-2"	—
m ₂ (E)	6	#5	30'-2"	—
v ₁₀ (E)	120	#5	4'-10"	—
Reinforcement Bars, Epoxy Coated			Lbs.	10,120
Concrete Superstructure			Cu. Yds.	48.4



PLAN
Symmetrical about $\text{\textcircled{C}}$



CROSS SECTION
Looking West
Symmetrical about $\text{\textcircled{C}}$

Work sheets 8 & 14 together.

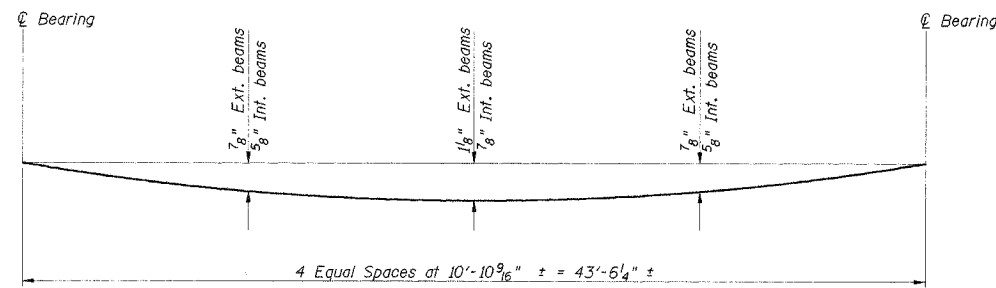
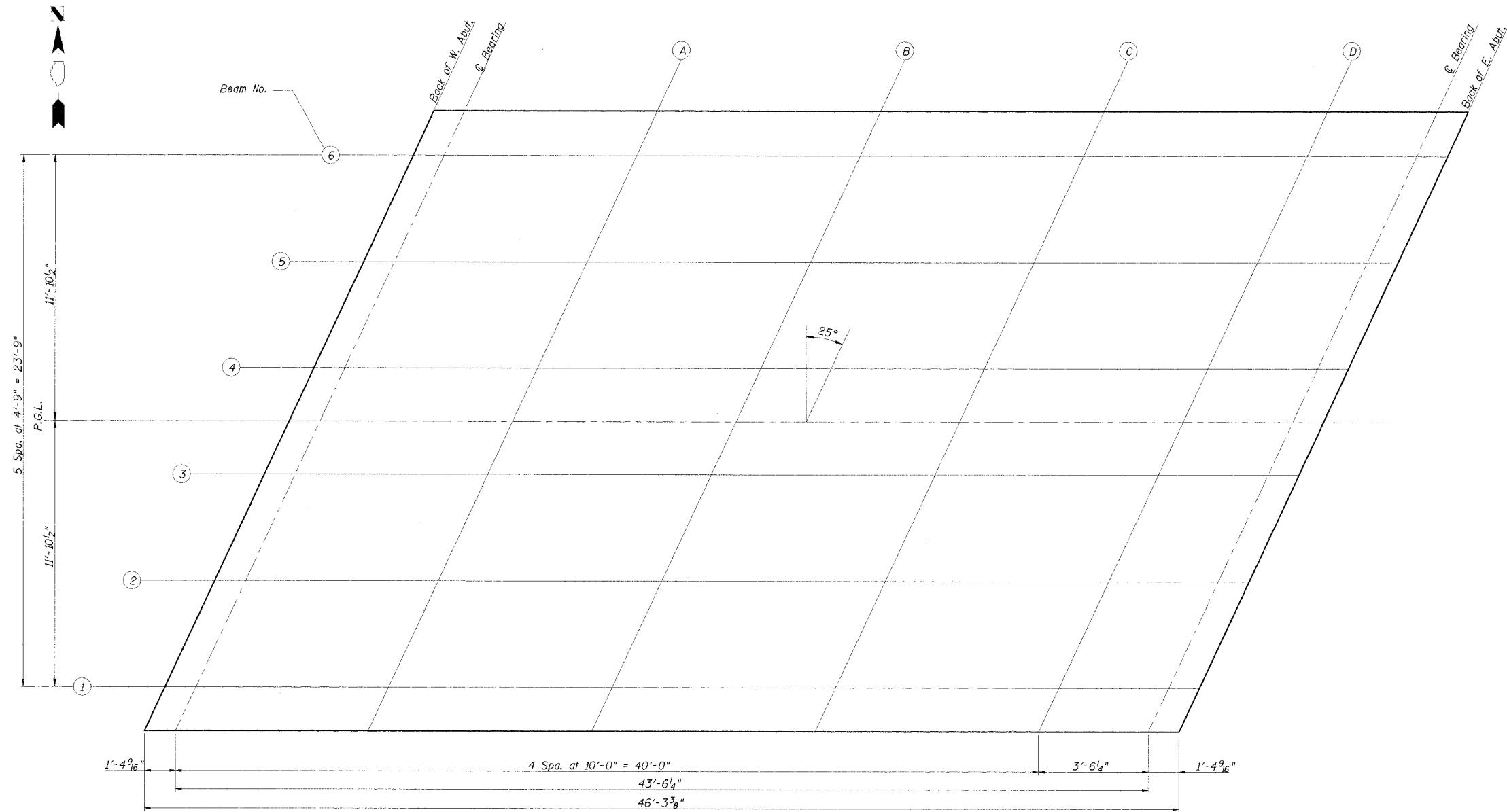
DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

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DECK REINFORCING		SHEET	8
CATLIN ROAD DISTRICT		DWG NO.	5068-SUP1.dgn
SECTION 02-04130-00-BR		DATE	FEB 2006
VERMILION COUNTY		PROJ NO.	5068

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	Vermilion	19	9
FED. HIGHWAY DIST. NO.	FILE NO.	FED. HIGHWAY PROJECT		

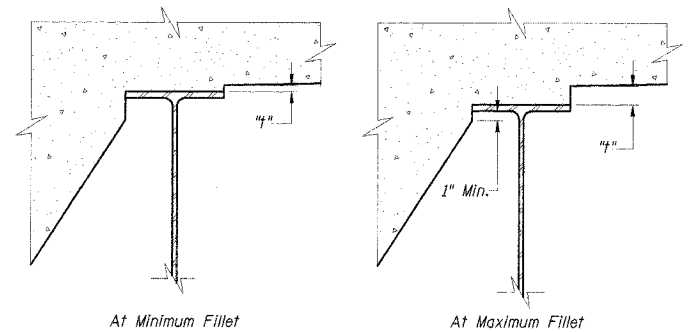
*02-04130-00-BR



DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of Steel beams & concrete only)

Note: The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for Dead Load deflections as shown on sheet 10 of 19.



FILLET HEIGHTS

To determine "f": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown on this sheet. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown below, minus slab thickness, equals the fillet heights "f" above top flange of beams.

DSGN	K.J. Hoffmann					
DR	K.J. Hoffmann					
CHK	K.E. Brandau					
APVD	K.E. Brandau	NO.	DATE	REVISION	BY	APVD

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TOP OF SLAB ELEVATIONS - SHEET 1 OF 2

CATLIN ROAD DISTRICT
SECTION 02-04130-00-BR
VERMILION COUNTY

SHEET	9
DWG NO.	5068-tos1.dgn
DATE	FEB 2006
PROJ NO.	5068

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. OF W. ABUT.	9+71.84	11.875' Rt.	100.753	100.753
☉ BRG. W. ABUT.	9+73.22	11.875' Rt.	100.753	100.753
A	9+83.22	11.875' Rt.	100.753	100.817
B	9+93.22	11.875' Rt.	100.753	100.849
C	10+03.22	11.875' Rt.	100.753	100.833
D	10+13.22	11.875' Rt.	100.753	100.777
☉ BRG. E. ABUT.	10+16.75	11.875' Rt.	100.753	100.753
BK. OF E. ABUT.	10+18.12	11.875' Rt.	100.753	100.753

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. OF W. ABUT.	9+73.85	7.125' Lt.	100.852	100.852
☉ BRG. W. ABUT.	9+75.22	7.125' Lt.	100.852	100.852
A	9+85.22	7.125' Lt.	100.852	100.900
B	9+95.22	7.125' Lt.	100.852	100.923
C	10+05.22	7.125' Lt.	100.852	100.912
D	10+15.22	7.125' Lt.	100.852	100.870
☉ BRG. E. ABUT.	10+18.75	7.125' Lt.	100.852	100.852
BK. OF E. ABUT.	10+20.13	7.125' Lt.	100.852	100.852

BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. OF W. ABUT.	9+75.85	2.375 Rt.	100.951	100.951
☉ BRG. W. ABUT.	9+77.23	2.375 Rt.	100.951	100.951
A	9+87.23	2.375 Rt.	100.951	100.999
B	9+97.23	2.375 Rt.	100.951	101.022
C	10+07.23	2.375 Rt.	100.951	101.011
D	10+17.23	2.375 Rt.	100.951	100.969
☉ BRG. E. ABUT.	10+20.76	2.375 Rt.	100.951	100.951
BK. OF E. ABUT.	10+22.14	2.375 Rt.	100.951	100.951

P.G.L.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. OF W. ABUT.	9+76.86	0.00	101.000	101.000
☉ BRG. W. ABUT.	9+78.24	0.00	101.000	101.000
A	9+88.24	0.00	101.000	101.048
B	9+98.24	0.00	101.000	101.072
C	10+08.24	0.00	101.000	101.060
D	10+18.24	0.00	101.000	101.019
☉ BRG. E. ABUT.	10+21.76	0.00	101.000	101.000
BK. OF E. ABUT.	10+23.14	0.00	101.000	101.000

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. OF W. ABUT.	9+77.86	2.375 Lt.	100.951	100.951
☉ BRG. W. ABUT.	9+79.24	2.375 Lt.	100.951	100.951
A	9+89.24	2.375 Lt.	100.951	100.999
B	9+99.24	2.375 Lt.	100.951	101.022
C	10+09.24	2.375 Lt.	100.951	101.011
D	10+19.24	2.375 Lt.	100.951	100.969
☉ BRG. E. ABUT.	10+22.77	2.375 Lt.	100.951	100.951
BK. OF E. ABUT.	10+24.15	2.375 Lt.	100.951	100.951

BEAM 5

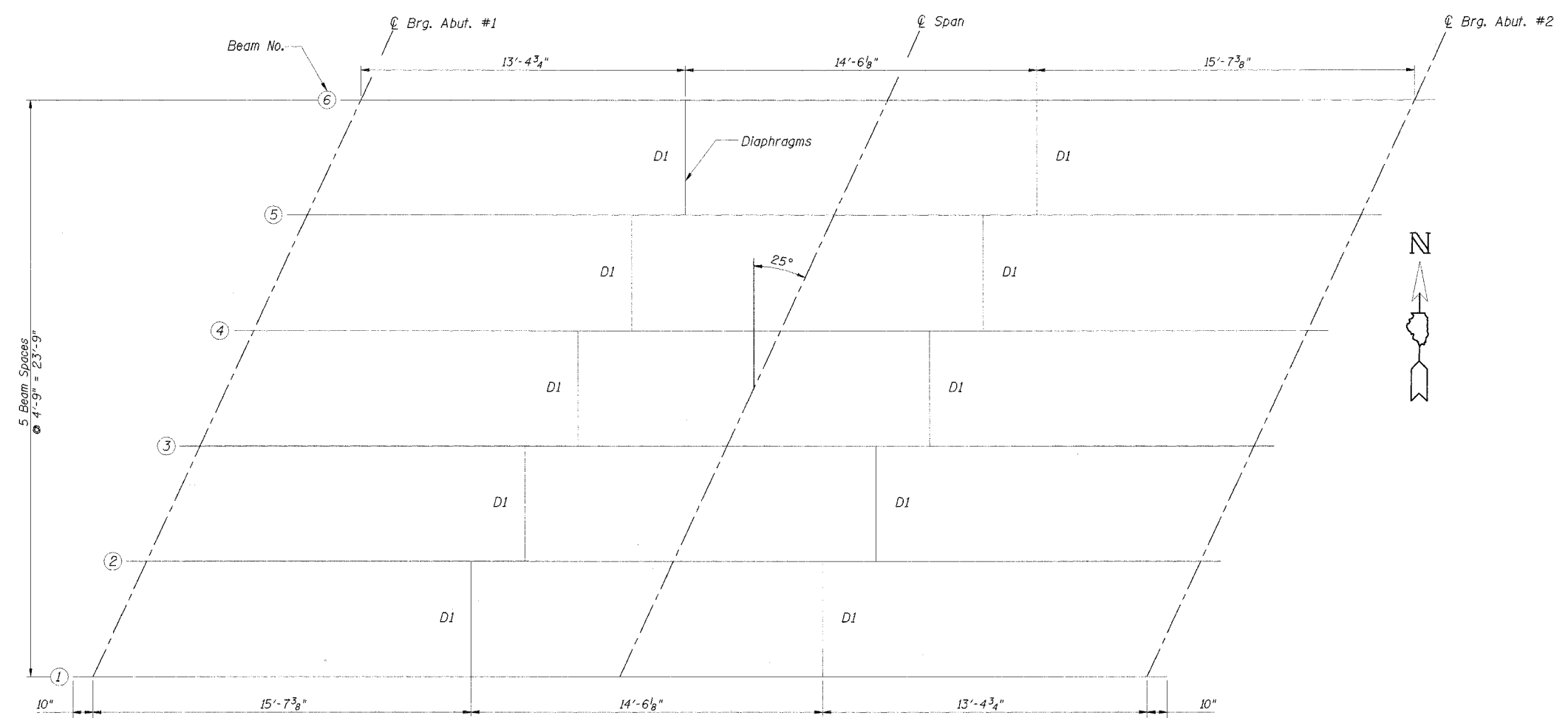
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. OF W. ABUT.	9+79.87	11.875' Lt.	100.852	100.852
☉ BRG. W. ABUT.	9+81.25	11.875' Lt.	100.852	100.852
A	9+91.25	11.875' Lt.	100.852	100.900
B	10+01.25	11.875' Lt.	100.852	100.923
C	10+11.25	11.875' Lt.	100.852	100.912
D	10+21.25	11.875' Lt.	100.852	100.870
☉ BRG. E. ABUT.	10+24.78	11.875' Lt.	100.852	100.852
BK. OF E. ABUT.	10+26.15	11.875' Lt.	100.852	100.852

BEAM 6

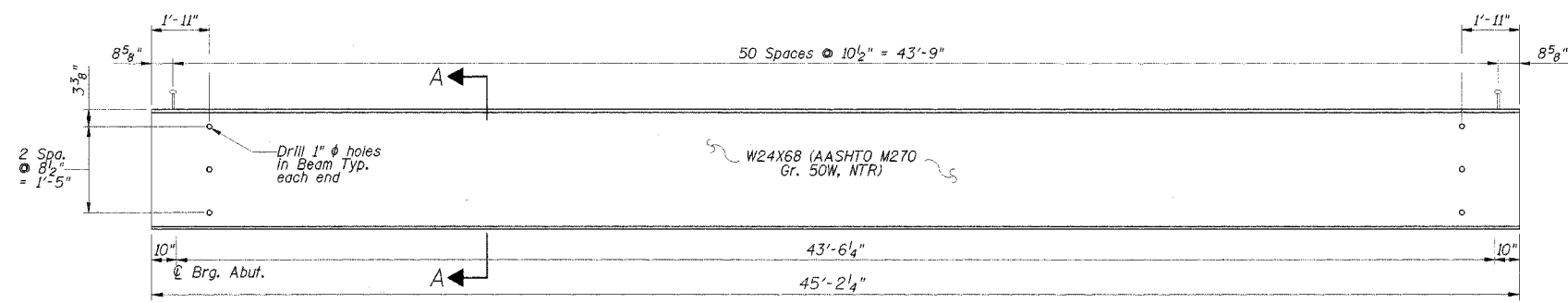
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
BK. OF W. ABUT.	9+81.88	11.875' Lt.	100.753	100.753
☉ BRG. W. ABUT.	9+83.25	11.875' Lt.	100.753	100.753
A	9+93.25	11.875' Lt.	100.753	100.817
B	10+03.25	11.875' Lt.	100.753	100.849
C	10+13.25	11.875' Lt.	100.753	100.833
D	10+23.25	11.875' Lt.	100.753	100.777
☉ BRG. E. ABUT.	10+26.78	11.875' Lt.	100.753	100.753
BK. OF E. ABUT.	10+28.16	11.875' Lt.	100.753	100.753

ROUTE NO.	SPECIFICATION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	Vermilion	19	11
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

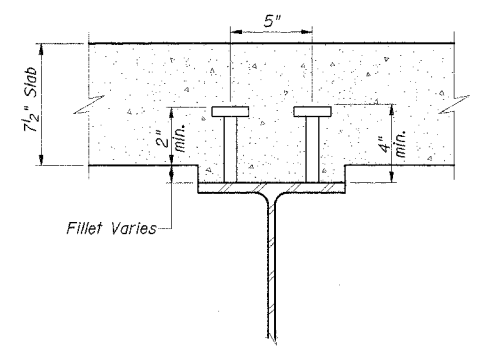
*02-04130-00-BR



FRAMING PLAN



BEAM ELEVATION
(Looking North)



SECTION A-A

TOP OF BEAM ELEVATIONS

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
℄ Bearing, Abutment #1	100.086	100.185	100.284	100.284	100.185	100.086
℄ Span	99.989	100.113	100.212	100.212	100.113	99.989
℄ Bearing, Abutment #2	100.086	100.185	100.284	100.284	100.185	100.086

* For fabrication only

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

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STEEL FRAMING DETAILS - SHEET 1 OF 2
CATLIN ROAD DISTRICT
SECTION 02-04130-00-BR
VERMILION COUNTY

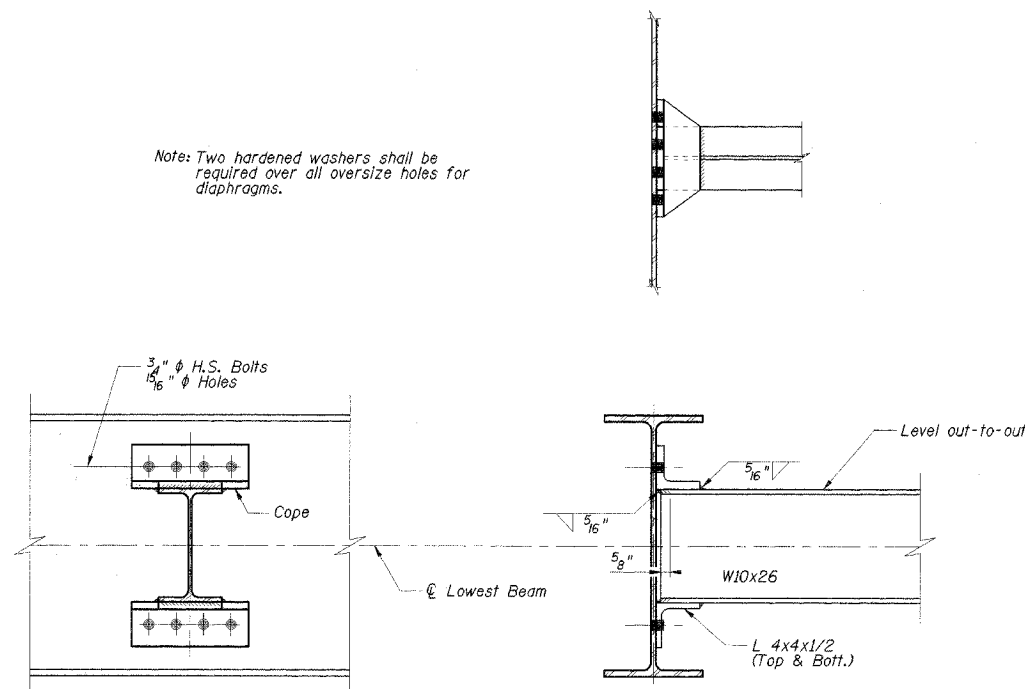
SHEET	11
DWG NO.	et1.dgn
DATE	FEB 2006
PROJ NO.	5068

INTERIOR GIRDER MOMENT TABLE		
0.5 Span		
I_s	(in ⁴)	1830
I_c (n)	(in ⁴)	5952
I_c (3n)	(in ⁴)	4358
S_s	(in ³)	154
S_c (n)	(in ³)	253
S_c (3n)	(in ³)	227
Q	(K/ft.)	0.631
M	(K)	150
$s \cdot Q$	(K/ft.)	.128
$M_s \cdot Q$	(K)	30
$M \cdot I$	(K)	222
M (Imp)	(K)	66
$S_x(M \cdot I)$	(K)	479
M_a	(K)	857
$f_s \cdot Q$ non-comp	(k.s.i.)	11.67
$f_s \cdot Q$ (comp)	(k.s.i.)	1.61
$f_s \cdot S_x(M \cdot I)$	(k.s.i.)	22.75
f_s (Overload)	(k.s.i.)	36.03
f_s (Total)	(k.s.i.)	46.83
VR	(K)	31.63

INTERIOR GIRDER REACTION TABLE			
		℄ Abut. 1	℄ Abut. 2
$R \cdot Q$	(K)	17.56	17.56
$R \cdot I$	(K)	25.94	25.94
Imp.	(K)	7.69	7.69
R (Total)	(K)	51.19	51.19

I_s and S_s are the moment of inertia and section modulus of the steel section used in computing f_s (Total & Overload).
 $I_c(n)$ and $S_c(n)$ are the moment of inertia and section modulus used in computing stresses due to live load.
 $I_c(3n)$ and $S_c(3n)$ are the moment of inertia and section modulus of the composite section due to superimposed dead loads.
 VR is the maximum Live Load + Impact shear range in span.
 Z is the plastic section modulus used to determine the Fully Plastic Moments in the non-composite areas.
 The Plastic Moment Capacity (M_u) is computed according to AASHTO 10.48.1 & 10.50.1.1.
 M - Moment due to dead loads on non-composite section.
 M_s - Moment due to live loads on non-composite section.
 M (Imp) - Moment due to live load impact on non-composite or composite section.
 M_a (Applied Moment) = $1.3M_D + M_{sQ} + S_x(M \cdot I)$.
 f_s (Overload) is the sum of the stresses due to $M_D + M_{sQ} + S_x(M \cdot I)$.

Note: Two hardened washers shall be required over all oversize holes for diaphragms.



DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

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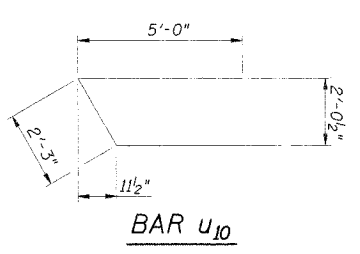
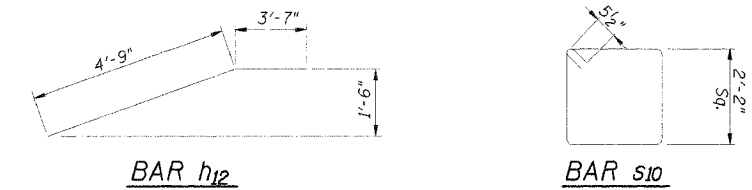
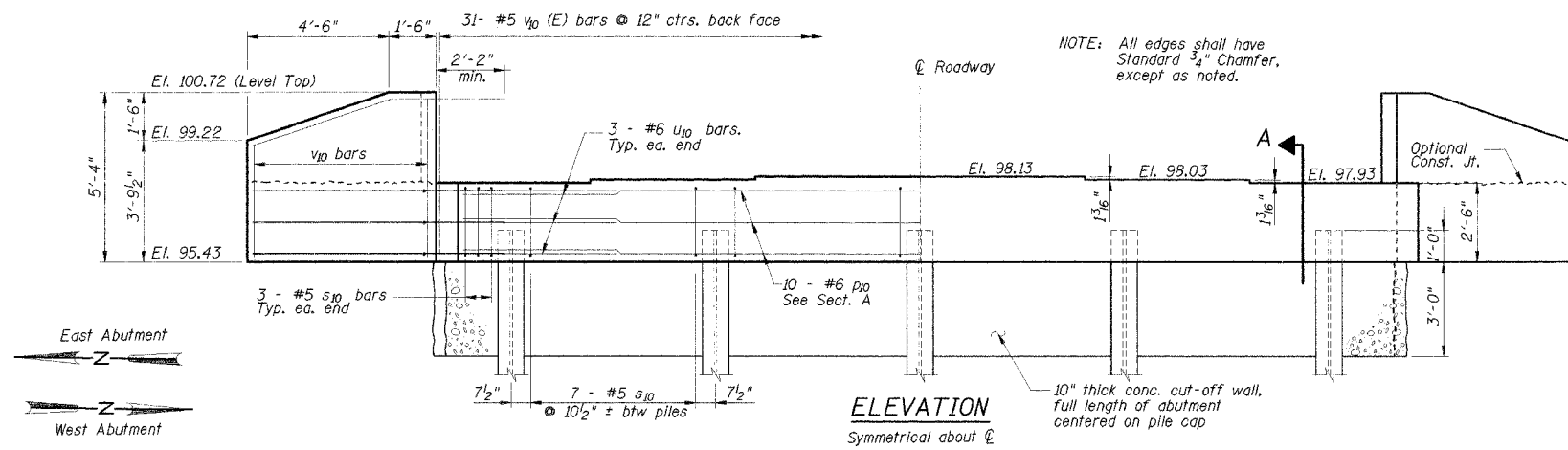
STEEL FRAMING DETAILS - SHEET 2 OF 2

CATLIN ROAD DISTRICT
 SECTION 02-04130-00-BR
 VERMILION COUNTY

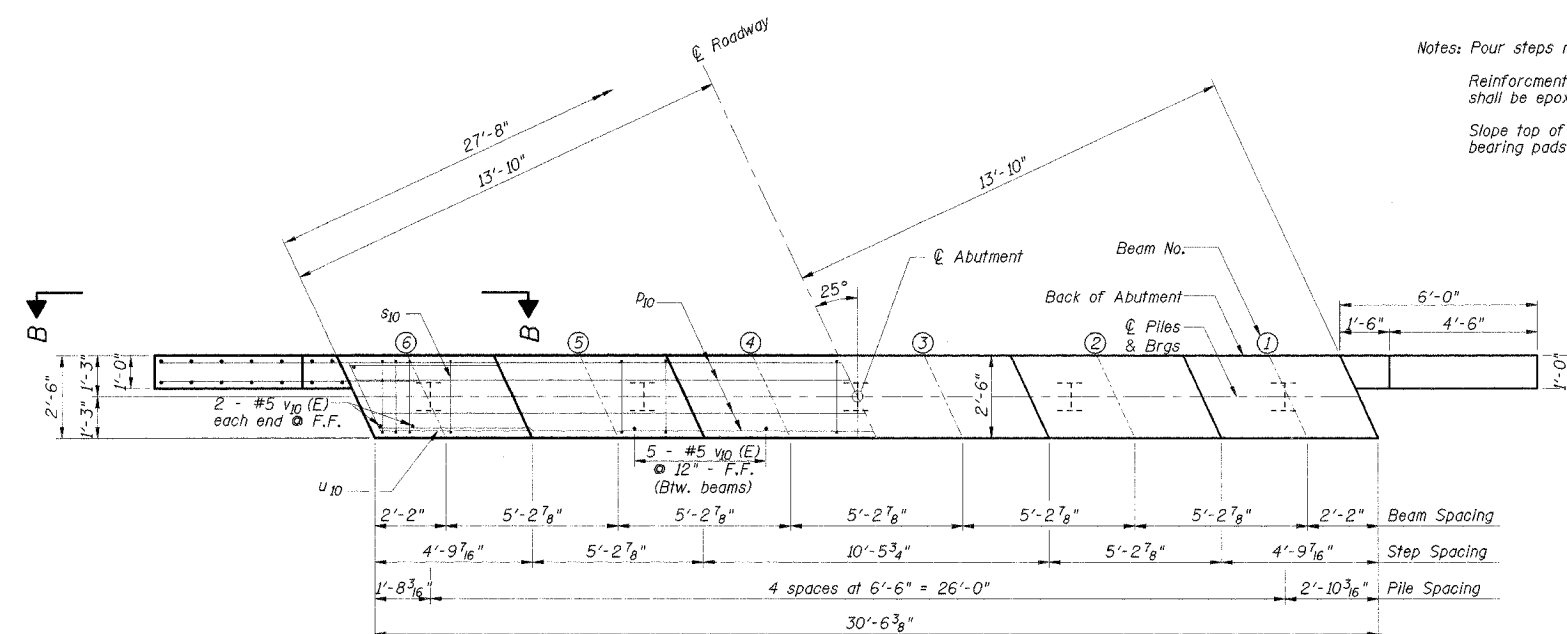
SHEET	12
DWG NO.	stl2.dgn
DATE	FEB 2006
PROJ NO.	5068

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	Vermilion	19	13
FED. ROAD DIST. NO. /	ILLINOIS	FED. AID PROJECT		

*02-04130-00-BR

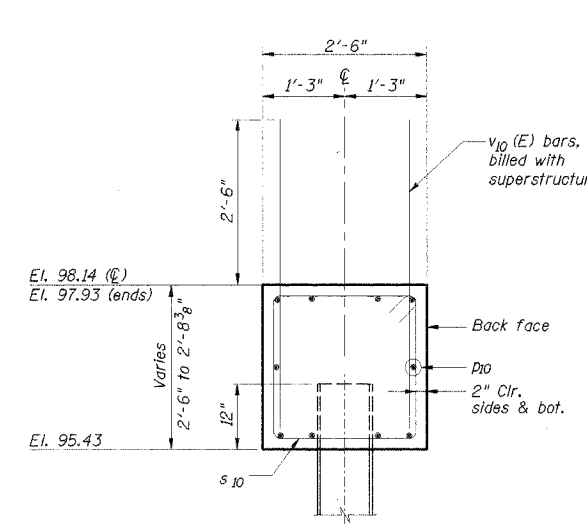


Notes: Four steps monolithically with cap.
Reinforcement bars designated (E) shall be epoxy coated.
Slope top of Abutment to drain between bearing pads

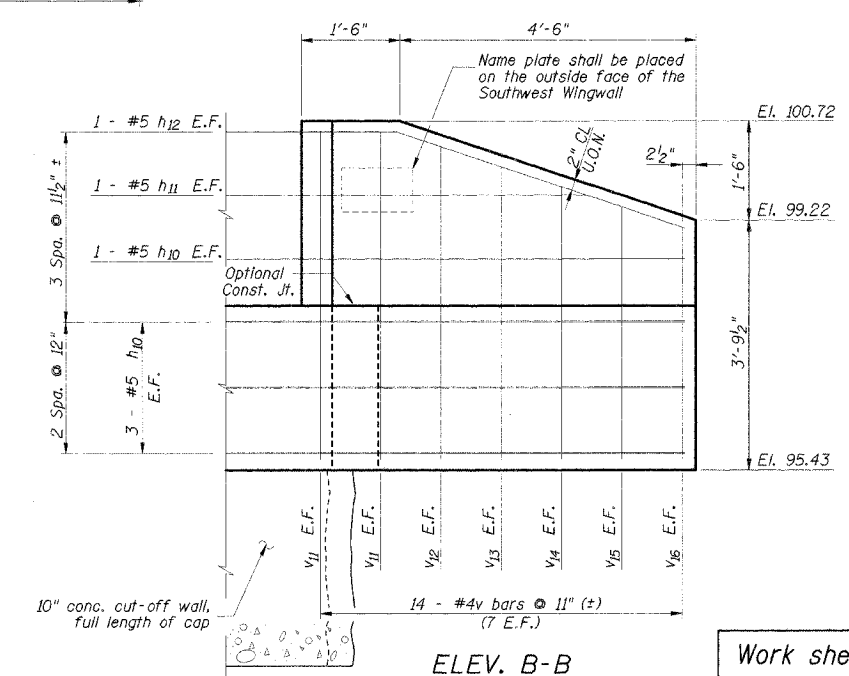


PILE DATA

Type: Steel HP10x42
No. Required: 4 West Abutment, 4 East Abutment
Capacity: 32 T/Pile @ both abutments
Est. Length: 35 Ft. N. Abutment, 35 Ft. S. Abutment
Test Piles: 1 West Abutment, 1 East Abutment



F.F. - Front Face
B.F. - Back Face
E.F. - Each Face
U.O.N. - Unless otherwise noted



Work sheets 13 & 14 together.

BILL OF MATERIAL-2 ABUTS.

Bar	No.	Size	Length	Shape
h10	32	#5	8'-0"	—
h11	8	#5	6'-6"	—
h12	8	#5	8'-4"	—
P10	20	#6	30'-2"	—
s10	68	#5	9'-7"	□
u10	12	#6	12'-3"	□
v11	16	#4	4'-11"	—
v12	8	#4	4'-8"	—
v13	8	#4	4'-5"	—
v14	8	#4	4'-1"	—
v15	8	#4	3'-10"	—
v16	8	#4	3'-6"	—
Concrete Structures		Cu. Yds.	18.8	
Reinforcement Bars		Lbs.	2,360	
Test Pile, Steel HP10x42		Each	2	
Furnish Steel Pile, HP10x42		Foot	280	
Drive Steel Pile		Foot	280	
Metal Shoes		Each	8	
Name Plate		Each	1	
Concrete Cut-off Wall		Cu. Yds.	5.7	
Structure Excavation		Cu. Yds.	108	

DSGN	K.J. Hoffmann				
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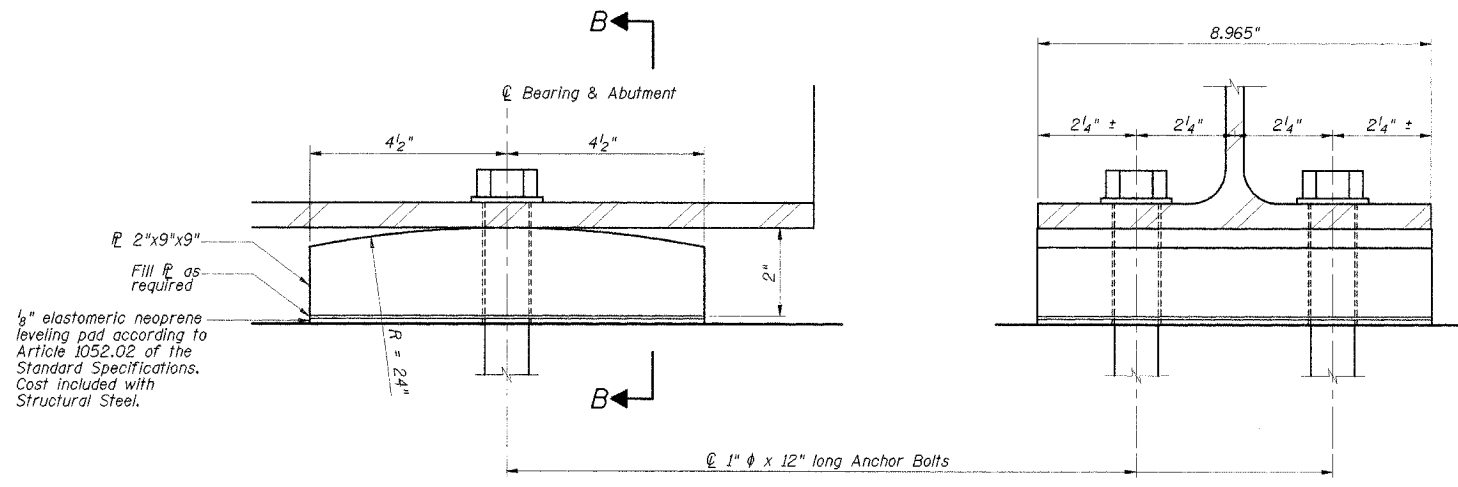
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3002 Crossing Court Champaign, Il. 61822 217-351-6268

ABUTMENTS		SHEET 13
CATLIN ROAD DISTRICT SECTION 05-00154-00-BR VERMILION COUNTY		DWG NO. 5068-abt.dgn
		DATE FEB 2006
		PROJ NO. 506E

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	Vermilion	19	14
FED. ROAD DIST. NO. 7	ILL. PROJ.	FED. AID PROJECT		

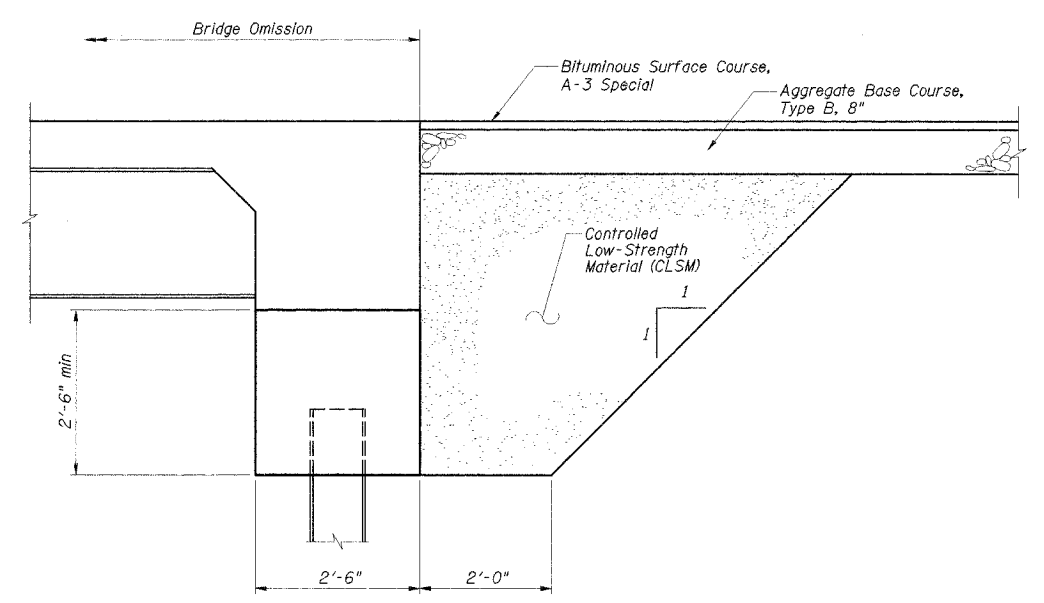
*02-04130-00-BR



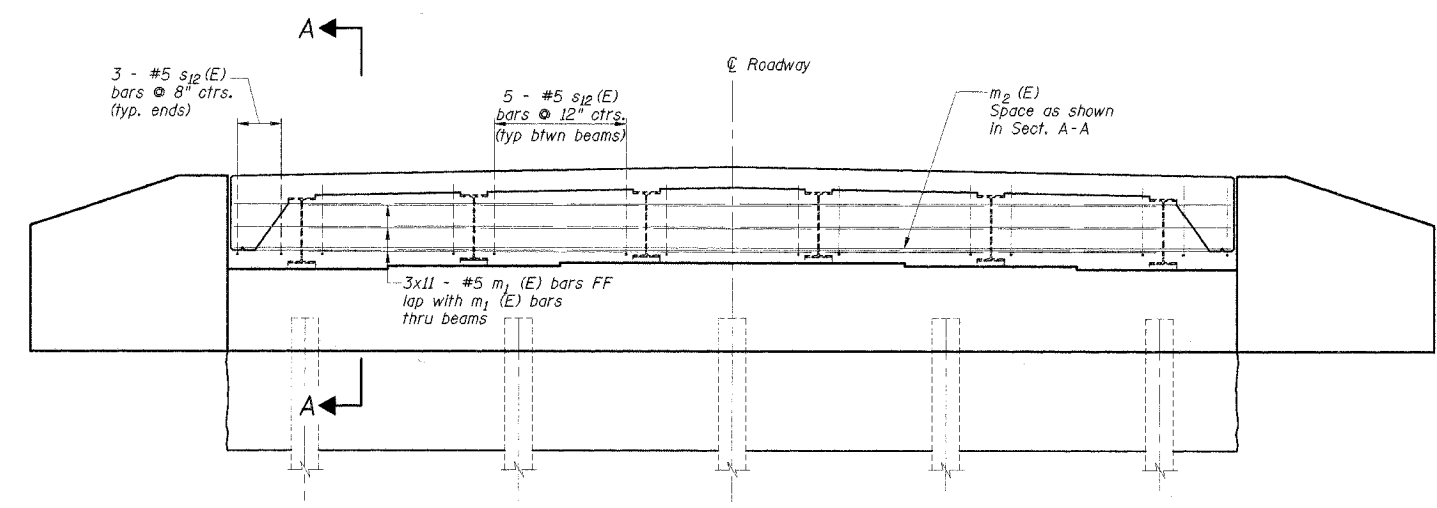
ELEVATION AT ABUTMENT

SECTION B-B

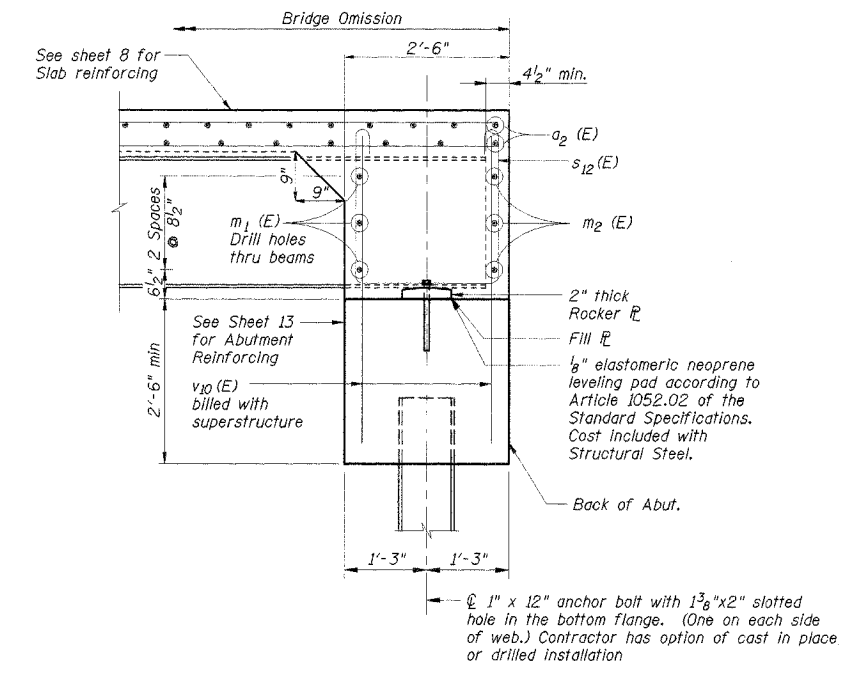
ROCKER PLATE DETAIL
12 Required



END SECTION
(Perpendicular to \bar{C} of Abutment)



ELEVATION
Symmetrical about \bar{C}



SECTION A-A
(Perpendicular to \bar{C} of Abutment)

Work sheets 8, 13 & 14 together.

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

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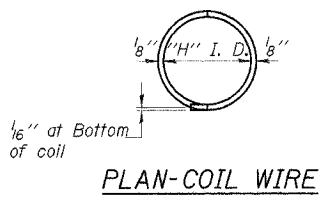
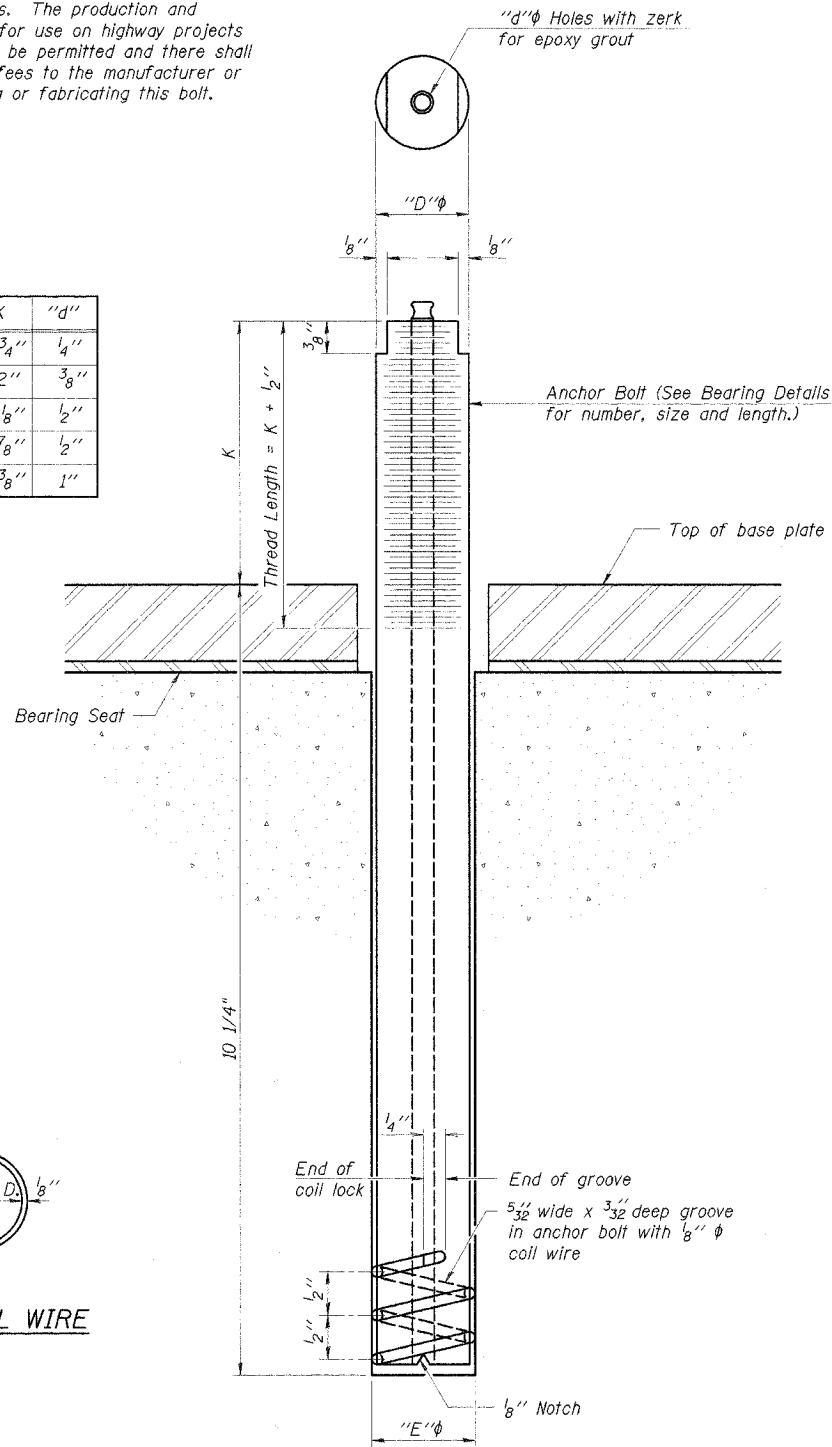
ABUTMENT & BEARING DETAILS	SHEET 14
CATLIN ROAD DISTRICT SECTION 02-04130-00-BR VERMILION COUNTY	DATE FEB 2006
	PROJ NO. 5068

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET
TR 373	*	Vermilion	19	15
FED. AID DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

*02-04130-00-BR

The Illinois Coil-Lock Anchor Bolt is a proprietary item which is the property of the Illinois Department of Transportation. Use, reproduction or disclosure without express written permission is prohibited and protected under Federal copyright laws. The production and the fabrication of this bolt for use on highway projects in the State of Illinois shall be permitted and there shall be no incurred charges or fees to the manufacturer or the fabricator for producing or fabricating this bolt.

D	E	H	K	"d"
1"	1 1/8"	1 3/16"	1 3/4"	1/4"
1 1/4"	1 3/8"	1 1/2"	2"	3/8"
1 1/2"	1 5/8"	1 5/16"	2 1/8"	1/2"
2"	2 1/8"	1 3/16"	2 7/8"	1/2"
2 1/2"	2 5/8"	2 5/16"	3 3/8"	1"



ILLINOIS COIL-LOCK ANCHOR BOLT

MATERIALS FOR ILLINOIS COIL-LOCK ANCHOR BOLT

The anchor bolt shall be fabricated from cold drawn or hot finished seamless carbon steel mechanical tubing conforming to ASTM A 519, Grade 1026, CW and supplied with hexagonal nuts and cut washers.
 The coil wire shall be made of any suitable soft steel wire.
 The finished anchor bolt shall be cleaned of rust and other foreign materials and wrapped or packaged to prevent contamination until they are installed.
 The epoxy grout shall be a two-component, epoxy resin bonding system conforming to ASTM C 881, Type I, Grade 1 and of a Class suitable for the temperature at installation.

INSTALLATION PROCEDURE for the ILLINOIS COIL-LOCK ANCHOR BOLT

1. With the coil wire in place, the bolt shall be inserted into the hole and turned clockwise to a snug fit in the hole. Nut and washer shall be placed on the bolt. The nut shall be tensioned until the steel base plates are held securely to the concrete bearing seat.
2. Epoxy grout shall be pumped through the zerk fitting with a pressure gun. Pumping shall continue until the epoxy overflows the hole around the bolt shank. After pumping is discontinued, excess epoxy shall be immediately wiped off.

ALTERNATE ANCHOR BOLTS

The Contractor may use, at his option, the capsule or the adhesive cartridge type anchor rods that have been previously tested and given a prior approval by the Department. The Contractor shall install these anchor rods in pre-drilled holes according to the manufacturer's recommendations and procedures.
 The capsule or the adhesive cartridge type anchor rods shall be a two part system composed of:
 1. A threaded rod stud with nut and washer of the type specified.
 2. A sealed glass capsule or a sealed glass adhesive cartridge containing premeasured amounts of the adhesive chemical.

Location	Type
Abutts.	A307

ASTM F 1554 Grade 105, ASTM A 449 and AASHTO M 314 Grade 105 anchor bolts may be substituted for the anchor bolts shown above.

GENERAL NOTES

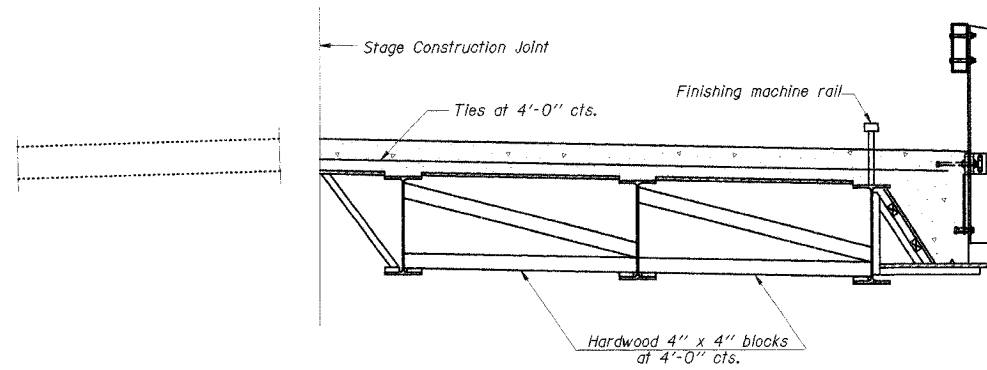
Holes in the masonry for anchor bolts shall be drilled through the base plates to the diameter and depth shown or according to the manufacturer's recommendation after beams or girders have been erected and adjusted.
 Prior to setting the bolts, the holes shall be dry and all dust and loose particles shall be removed by the use of compressed air or vacuuming.
 The anchor bolts, furnished and installed and including the epoxy grout or capsules shall not be paid for separately but shall be included in the unit bid price for Furnishing and Erecting Structural Steel.

DSGN	K.J. Hoffmann					FRAUENHOFFER Frauenhoffer and Associates, P.C. Consulting Engineers 3002 Crossing Court Champaign, IL 61822 217-351-6268
DR	K.J. Hoffmann					
CHK	K.E. Brandau					
APVD	K.E. Brandau					
		NO.	DATE	REVISION	BY	

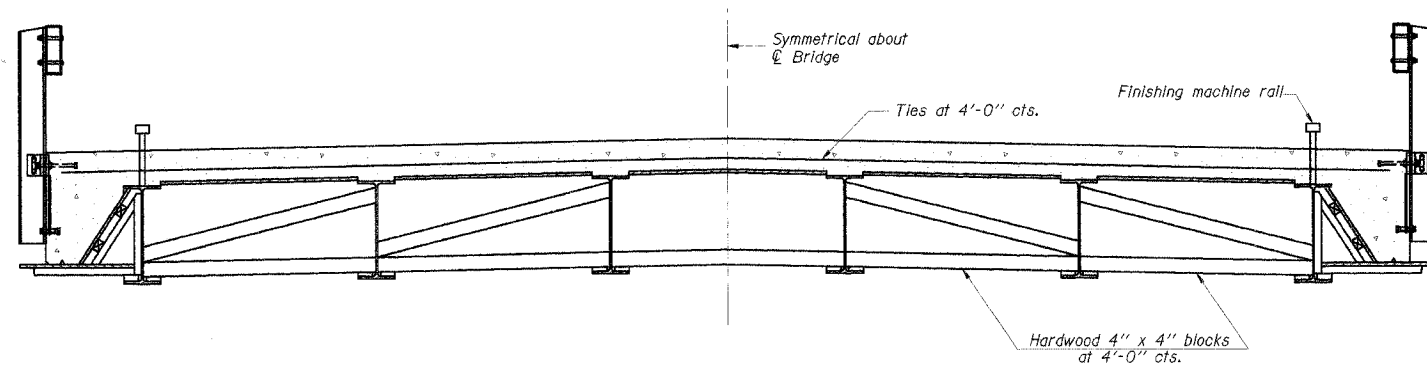
ANCHOR DETAIL CATLIN ROAD DISTRICT SECTION 02-04130-00-BR VERMILION COUNTY		SHEET 15 DWG NO. anchor.cen DATE FEB 2006 PROJ NO. 5066
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ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	Vermillion	19	16
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	

*02-04130-00-BR



FORM BRACES FOR
STAGE CONSTRUCTION



FORM BRACES FOR
STANDARD CONSTRUCTION

When cantilever forming brackets are used, the work shall be done according to Article 503.06, except as in the details shown on this sheet.
 The finishing machine rails shall be placed on the top flange of the exterior beams.
 The beams or girders, supporting cantilever forming brackets, shall be tied together at 4 foot intervals.
 For Standard construction, or Stage Construction the Hardwood bracing materials shall be placed as shown between webs of beams in each bay.

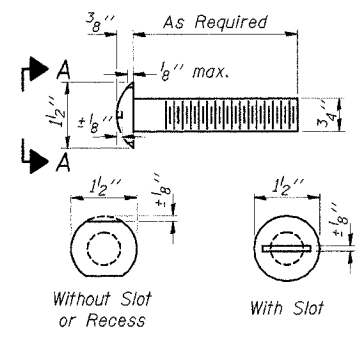
DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY APVD

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 Frauenhoffer and Associates, P.C. Consulting Engineers
 3002 Crossing Court Champaign, Il. 61822 217-351-6268

CANTILEVER FORMING BRACKETS
 CATLIN ROAD DISTRICT
 SECTION 02-04130-00-BR
 VERMILION COUNTY

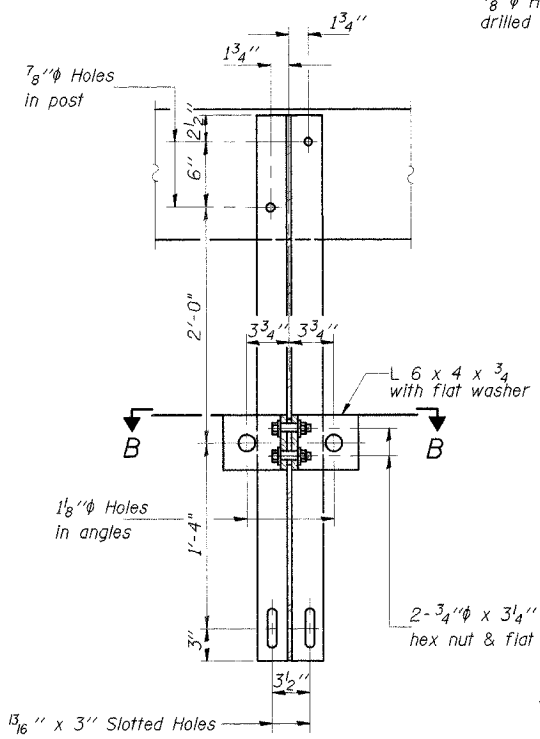
SHEET	16
DWG NO.	5068-brkl.dgn
DATE	FEB 2006
PROJ NO.	506E

ROUTE NO.	SECTION	COUNTY	SHEET	TOTAL
TR 373	*	Vermilion	19	17
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT
				*02-04130-00-BR

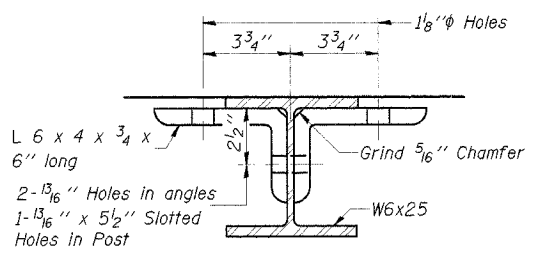


VIEW A-A
ROUND HEAD BOLT

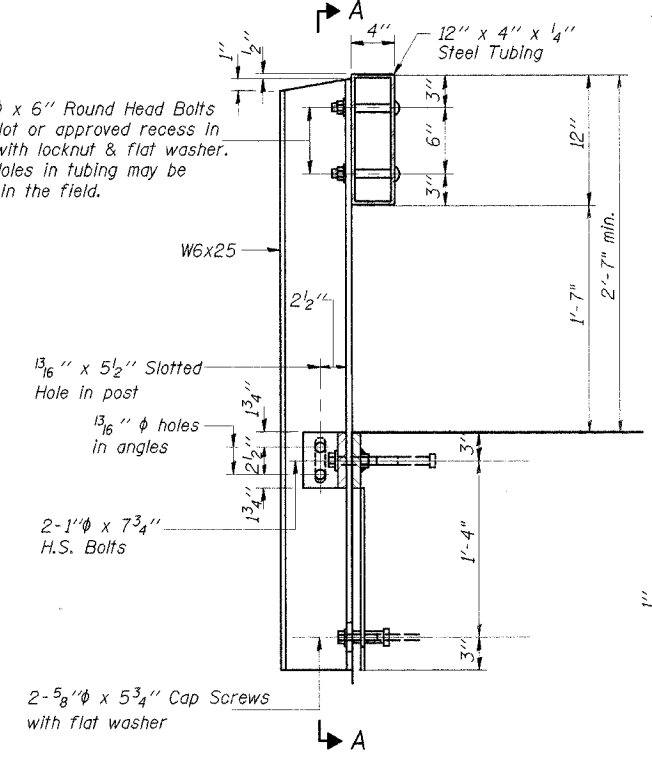
2-3/4" φ x 6" Round Head Bolts (With slot or approved recess in head) with locknut & flat washer. 7/8" φ Holes in tubing may be drilled in the field.



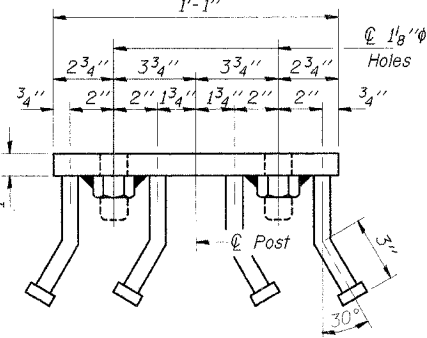
SECTION A-A



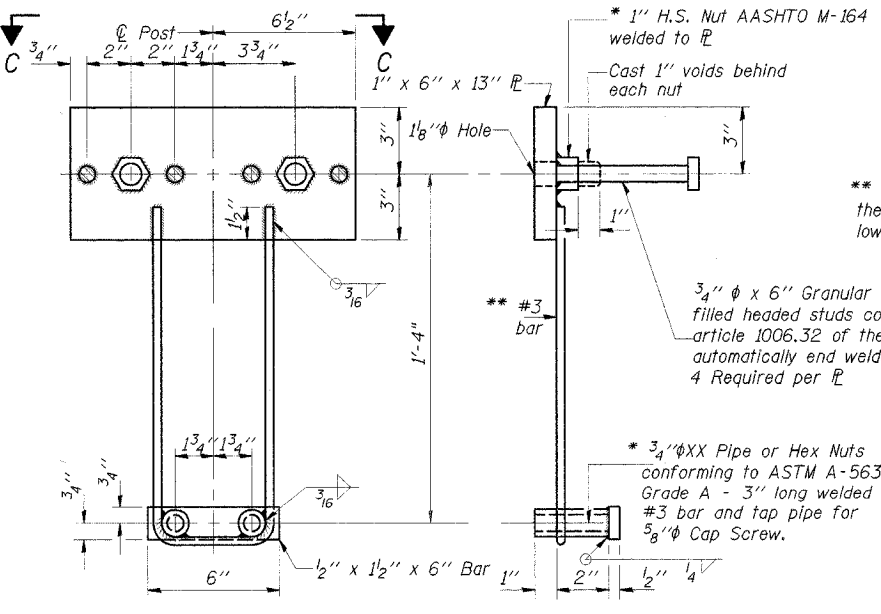
SECTION B-B



SECTION AT RAIL POST

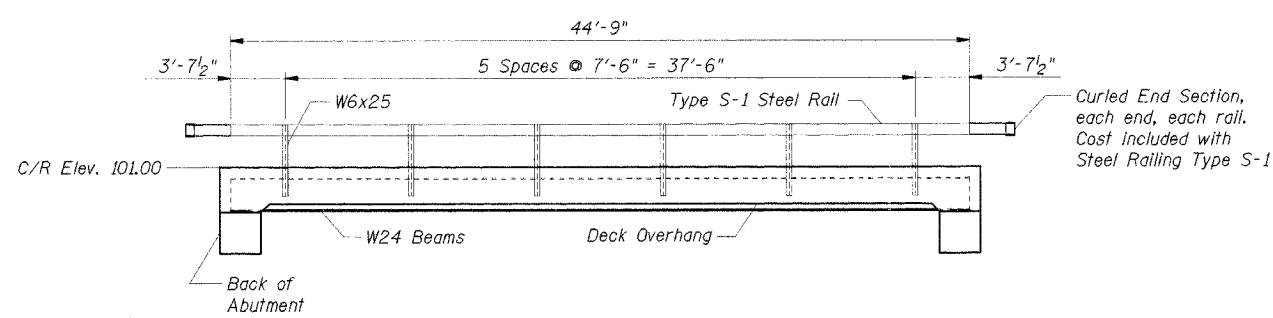


VIEW C-C

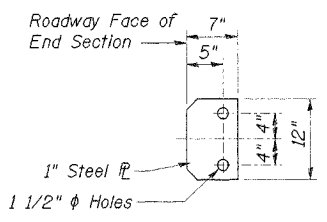


ANCHOR DEVICE * Threaded areas shall be plugged or blocked off during casting of beam.

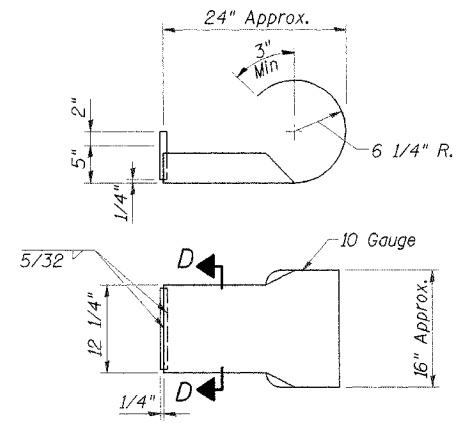
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2 inch.



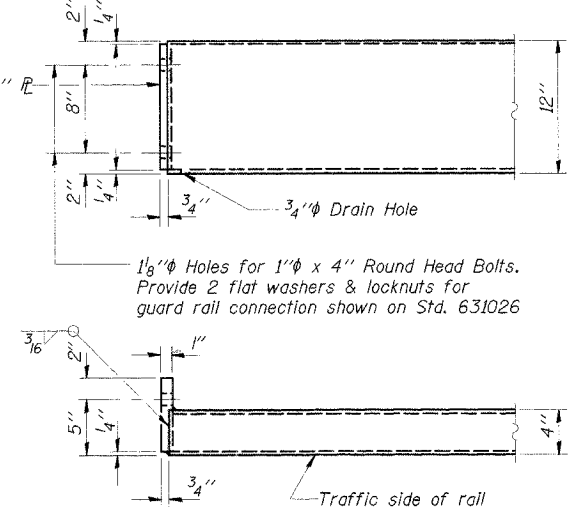
STEEL RAILING ELEVATION



SECTION D-D



CURLED END SECTION DETAIL



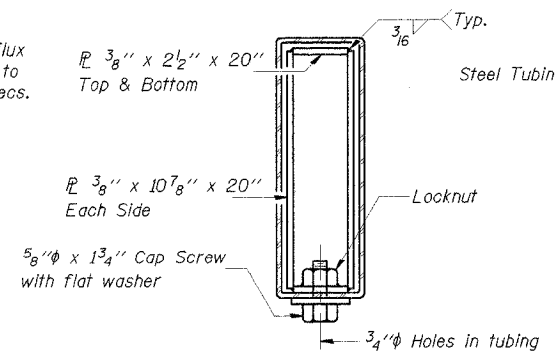
END OF RAIL DETAILS

NOTES

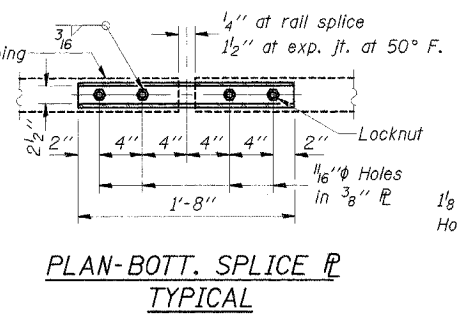
Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 15 ft-lbs at 0° F. All other steel shapes and plates shall conform to the requirements of AASHTO M-270 Grade 36 except posts and angles shall conform to AASHTO M-270, Grade 50. Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A-307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M-164. All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M-232. All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with AASHTO M-111 and ASTM A-385. Galvanized rail shall not be painted. Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for STEEL RAILING, TYPE S-1. All field drilled holes shall be coated with an approved zinc rich paint before erection. The lower portion of the post flange in contact with concrete shall receive two coats of asphalt paint conforming to Section 1060.07 Type II or place 1/8 inch fabric bearing pad between the post and concrete. The 3/4 inch high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened in accordance with Article 505.04(f)(3) of the Standard Specifications. The 1 inch high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 5/8 inch cap screws in bottom of posts shall be tightened to a snug fit only.

BILL OF MATERIAL

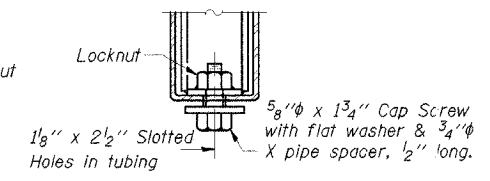
Item	Unit	Quantity
Steel Railing Type S-1	Foot	90



SECTIONS AT RAIL SPLICE



PLAN-BOTT. SPLICE TYPICAL



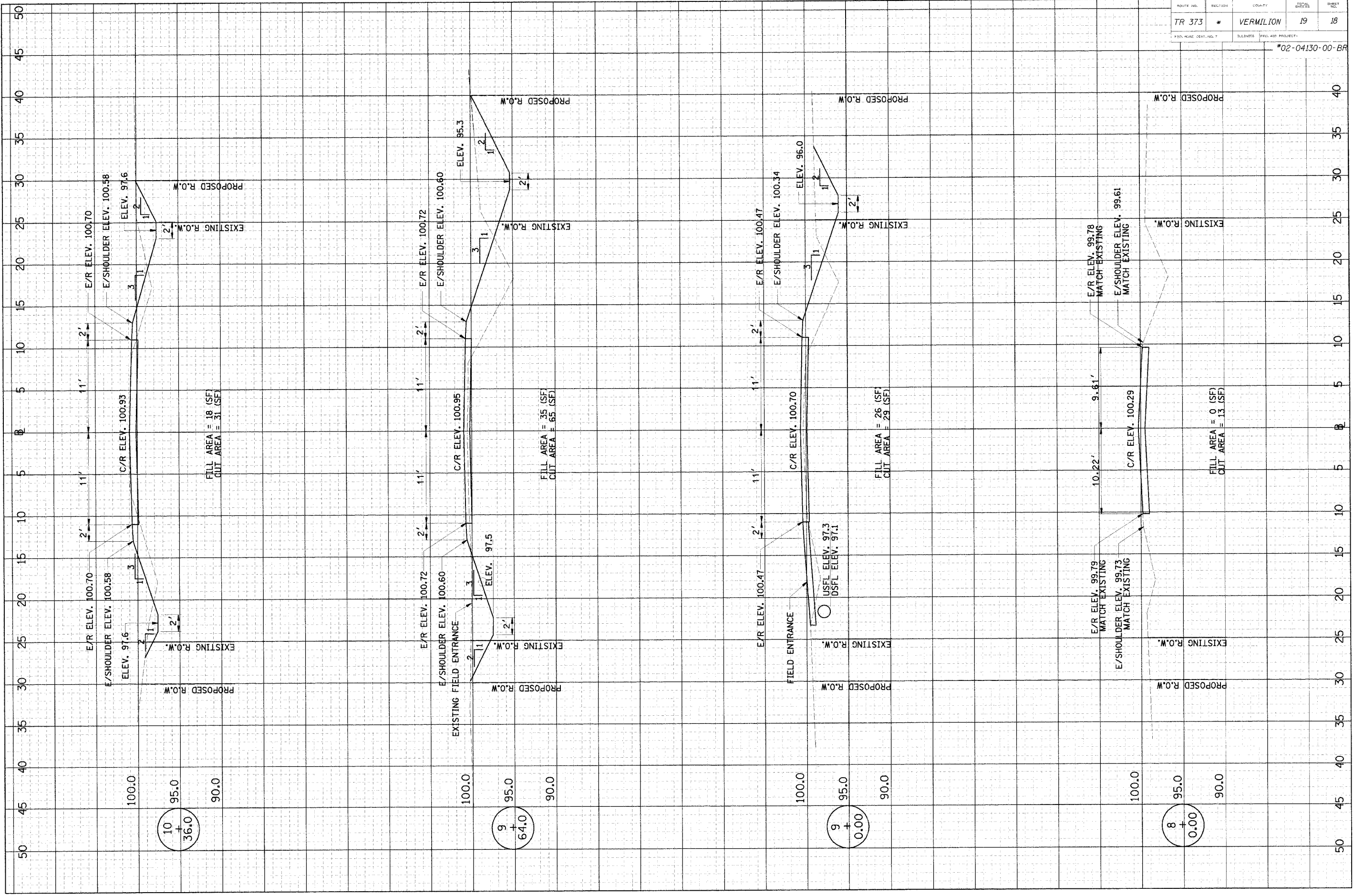
RAIL SPLICE CONNECTION AT EXPANSION JT.

DSGN	K.J. Hoffmann				
DR	K.J. Hoffmann				
CHK	K.E. Brandau				
APVD	K.E. Brandau	NO.	DATE	REVISION	BY

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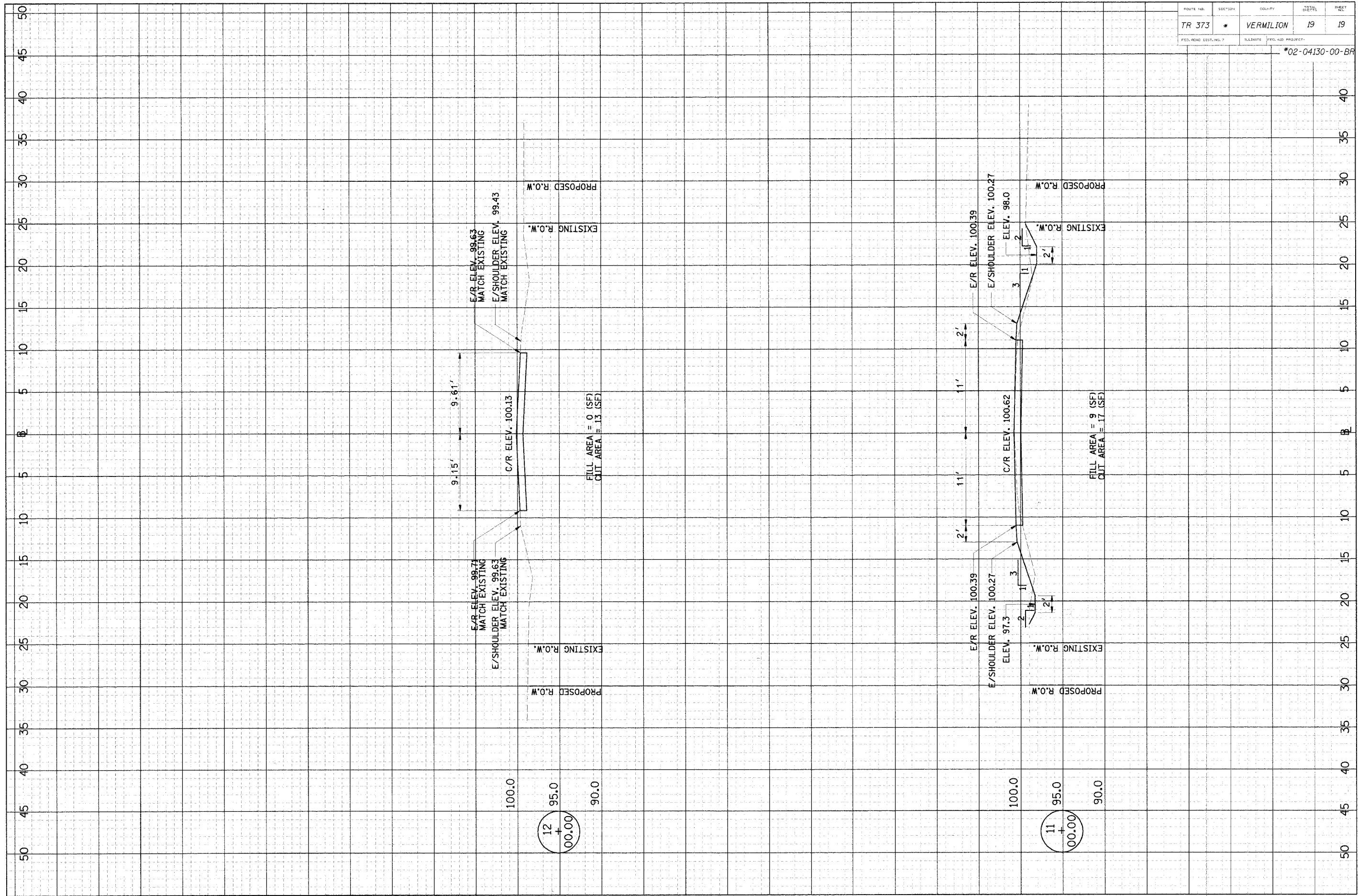
STEEL RAILING TYPE S-1		SHEET 17
CATLIN ROAD DISTRICT SECTION 02-04130-00-BR VERMILION COUNTY		DWG NO. 6068-31.0gn DATE FEB 2006 PROJ NO. 5C68

ROUTE NO.	SECTION	COUNTY	SHEET NO.
TR 373	*	VERMILION	18
PROJECT NAME		PROJECT NO.	
*02-04130-00-BR			



ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
TR 373	*	VERMILION	19	19
FED. ROAD EST. NO. 7		ILLINOIS FID. AID PROJECT		

*02-04130-00-BR



12 + 00.00
95.0

11 + 00.00
95.0