ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	1
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT BRS-575(306)		

*00-00063-00-BR CONTRACT # 93515

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1.	COVER SHEET
2.	GENERAL NOTES, DETAILS, TYPICAL SECTIONS, SUMMARY OF QUANTITIES AND SCHEDULES
3.	TRAFFIC CONTROL PLAN
4.	EROSION CONTROL PLAN
5.	PLAN AND PROFILE
6. -13.	STRUCTURAL PLANS
14. -15.	CROSS SECTIONS

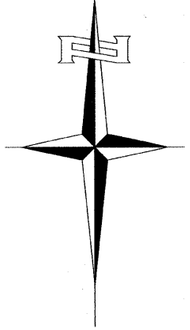
REQUIRED HIGHWAY STANDARDS

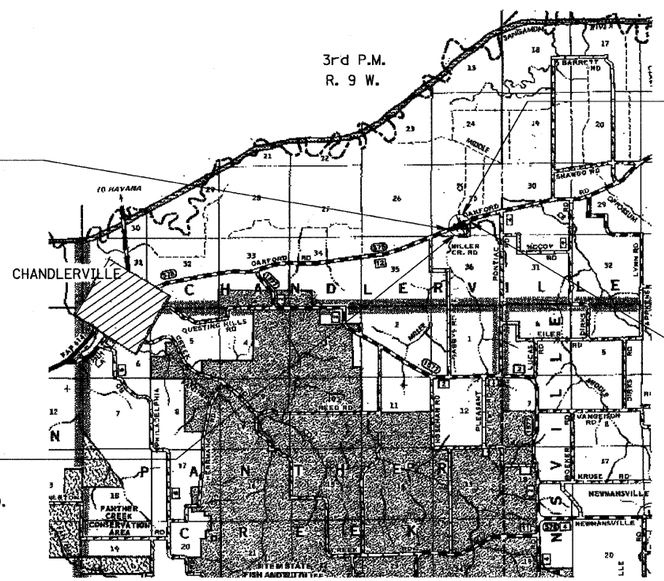
000001-05
280001-05
515001-03
635006-03
701901-01
BLR 21-8
BLR 23-3
BLR 26-2
BLR 27-1

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM
CASS COUNTY
SECTION 00-00063-00-BR
CH 12 (FAS 575) OVER MILLER CREEK
PROJECT NUMBER BRS-575(306)
JOB NUMBER C-96-200-03

SCALES
- PLAN / PROFILE HORIZ. — 50′ 0 50′
- PROFILE VERT. — 5′ 0 5′
- CROSS SECTIONS HORIZ. / CROSS SECTIONS VERT. — 5′ 0 5′

LOCATION OF SECTION INDICATED THUS: –■–





LOCATION MAP

1 MI 0 1 MI

APPROXIMATE SCALE

NET LENGTH OF PROJECT = 425.00 FEET = 0.081 MILES

DESIGN CLASSIFICATION: MAJOR COLLECTOR (NON-URBAN)
DESIGN SPEED = 50 mph ADT = 1,125 (29)

UTILITY COMPANIES

CASS TELEPHONE CO., VIRGINIA, ILLINOIS
MENARD ELECTRIC COOPERATIVE, PETERSBURG, ILLINOIS

CALL J.U.L.I.E.
BEFORE YOU DIG
1-800-892-0123 OR 811

2165E001

CONTRACT NO. 93515

COUNTY: CASS SECTION: 00-00063-00-BR ROUTE: C.H. 12

Hutchison Engineering, Inc.
JACKSONVILLE ILLINOIS

2003/2008/2009 JOB#2165

JOSEPH PHILLIP HUTCHISON 58335 REGISTERED PROFESSIONAL ENGINEER ILLINOIS 11/30/2011

License Expires 11/30/2011
SIGNATURE

ENGINEERS SEAL

APPROVED Nov 24 2009
Timothy F. Langer
CASS COUNTY ENGINEER

PASSED Nov 30 2009
Jerry Fuhr
DISTRICT SIX ENGINEER OF LOCAL ROADS & STREETS

PASSED November 30, 2009
Ron Buchanan
DISTRICT SIX ENGINEER OF CONSTRUCTION

Released For Bid Based on Limited Review Nov 30 2009
Roger L. Duskell
DEPUTY DIRECTOR OF HIGHWAYS, REGION FOUR ENGINEER

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	2
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT BRS-575(306)		
*00-00063-00-BR		CONTRACT 93515		

BITUMINOUS SCHEDULE

STATION TO STATION		WIDTH	LENGTH	PRIME COAT* GALLON .500 GAL/SQ YD	HMA BINDER CSE TON 112#/SQ YD/IN	HMA SURF CSE TON 112#/SQ YD/IN
254+75.00	256+42.38	24.63	167.38'	229		
257+41.63	259+00.00	24.63	158.37'	217		
254+75.00	256+42.38	22.44	167.38'		53	
257+41.63	259+00.00	22.44	158.37'		50	
254+75.00	256+42.38	22.13	167.38'			35
257+41.63	259+00.00	22.13	158.37'			33
			TOTAL	446	103	68

* PRIME COAT APPLIED TO AGGREGATE BASE

EARTHWORK SUMMARY

LOCATION		EXCAVATION	CHANNEL EXCAVATION	STRUCTURE EXCAVATION	FILL	WASTE (SHORTAGE)
		CU YD	CU YD	CU YD	CU YD	CU YD
RDWY 254+75.00 - 256+42.38		143			179	(72)
RDWY 257+41.63 - 259+00.00		113			47	38
CHANNEL			741			
STRUCTURE				95		
	TOTAL	256	741	95	226	(34)*
	USE	255	740	95	-	(34)*

* To be obtained from suitable Channel Excavation (@ 25% SHRINKAGE)

AGGREGATE SHOULDERS

STATION TO STATION		SIDE	WIDTH FT	AREA SQ YD	WEIGHT TON
254+75.00	256+42.38	LT	VAR.	132.1	27.2
254+75.00	256+42.38	RT	VAR.	132.1	27.2
257+41.63	259+00.00	LT	VAR.	127.9	26.4
257+41.63	259+00.00	RT	VAR.	127.9	26.4
				TOTAL	107.2
				USE	107

INLET AND PIPE PROTECTION

STATION	SIDE	EACH
256+40	RT	1
256+45	LT	1
	TOTAL	2

TRAFFIC BARRIER TERMINAL, TYPE 1

SIDE	STATION TO STATION	EACH
RT. & LT.	256+04.13 - 256+29.13	2
RT. & LT.	257+54.88 - 257+79.88	2
TOTAL		4

TRAFFIC BARRIER TERMINAL, TYPE 5A

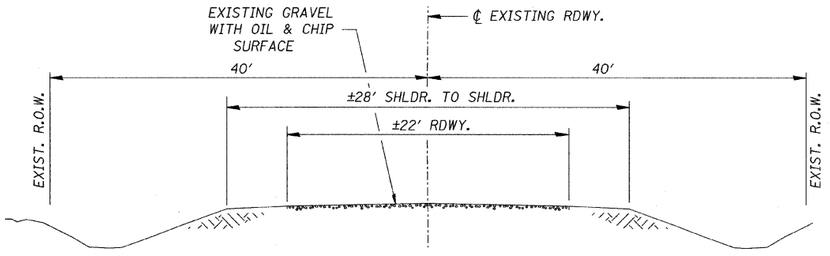
SIDE	STATION TO STATION	EACH
RT. & LT.	256+29.13 - 256+42.38	2
RT. & LT.	257+41.63 - 256+54.88	2
TOTAL		4

PERIMETER EROSION BARRIER

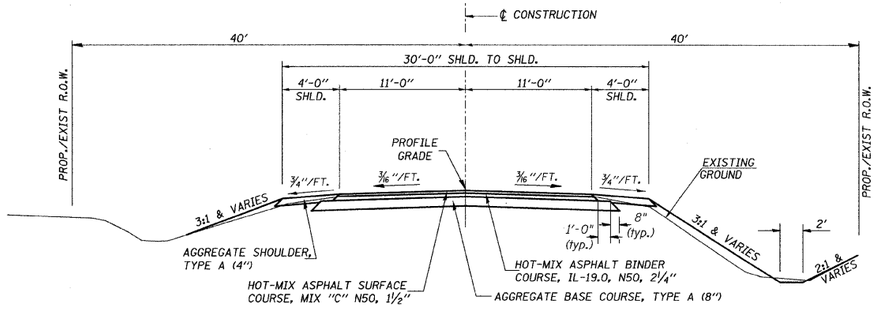
STATION	SIDE	FOOT
254+75 - 256+45	LT	185
254+75 - 255+00	RT	30
257+40 - 259+00	RT	170
257+40 - 259+00	LT	170
	TOTAL	555

AGGREGATE BASE COURSE, TYPE A

STATION - STATION		WIDTH (AVG.)	AREA (SQ YD)	WEIGHT (TON)
254+75.00	256+42.38	25.29	470	198
257+41.63	259+00.00	25.29	445	187
			TOTAL	385



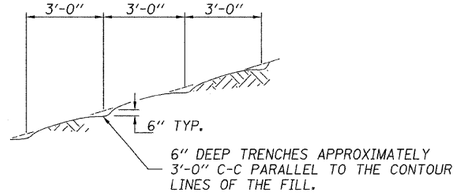
EXISTING TYPICAL SECTION



• CONSTRUCT GUARDRAIL SHOULDER WIDENING IN ACCORDANCE WITH STD BLR 23

PROPOSED TYPICAL SECTION
STA. 254+75.00 TO STA. 256+42.38
STA. 257+41.63 TO STA. 259+00.00
EXCEPT TRANSITIONS

BRIDGE OMISSION
STA. 256+42.38 TO STA. 257+41.63



NOTE: ALL SLOPES 3:1 OR STEEPER AND GREATER THAN 5' IN HEIGHT SHALL BE CONTOUR PLOWED AS SHOWN IN DETAIL, COST SHALL BE INCLUDED WITH SEEDING, CLASS 2 (SPECIAL).

DETAIL OF CONTOUR PLOWING

STRUCTURAL DESIGN INFORMATION COUNTY HIGHWAY 12

ROAD CLASSIFICATION: CLASS III
STRUCTURAL DESIGN TRAFFIC:
PV = 567 SU = 45 MU = 32
PERCENT OF STRUCTURAL DESIGN TRAFFIC IN DESIGN LANE:
P = 50% S = 50% M = 50%
MINIMUM SUBGRADE SUPPORT RATING: FAIR
FLEXIBLE PAVEMENT DESIGN: MINIMUM TF_F = 0.105
BITUMINOUS PAVEMENT THICKNESS: 3¾"
AGGREGATE BASE COURSE, TYPE A: 8"

BITUMINOUS CONCRETE MIXTURE REQUIREMENTS

ITEM	ASPHALT GRADE	VOIDS
BINDER IL-19.0, N50	PG 64-22	4.0%
SURFACE (MIX "C"), N50	PG 64-22	4.0%

GENERAL NOTES

THE REMOVAL OF THE EXISTING OIL & CHIP SURFACE, GRAVEL, OR CRUSHED STONE BASE COURSE WHICH MAY BE NECESSARY FOR THE CONSTRUCTION OF THE NEW BRIDGE SHALL BE REMOVED AS EARTH EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ADDITIONAL LABOR OR EQUIPMENT REQUIRED.

ALL WASTE OR UNDESIRABLE MATERIAL AS IDENTIFIED BY THE ENGINEER SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE RIGHT OF WAY AT THE CONTRACTOR'S EXPENSE.

ALL EXISTING PRIVATELY OWNED UTILITIES REQUIRING ADJUSTMENT WILL BE MADE BY THE UTILITY COMPANY INVOLVED. WHERE NO PROVISIONS HAVE BEEN MADE FOR ADJUSTMENTS ON THE PLANS, NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO DELAYS OR INCONVENIENCES CAUSED BY THE SAID UTILITY ADJUSTMENTS.

ALL EXISTING DRAINAGE STRUCTURES NOT BEING REMOVED BY THE CONTRACTOR THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE PROFILE GRADE ELEVATIONS SHOWN ON THE PLAN AND PROFILE SHEETS AND IN THE STATION CROSS SECTIONS ARE TO THE TOP OF THE FINISHED SURFACE.

ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS SHALL BE INTERPRETED TO BE THE LATEST STANDARDS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION

THE LOCATION OF UNDERGROUND UTILITIES SHOWN ON THE PLANS REPRESENTS THE BEST KNOWLEDGE OF THE COUNTY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF UNDERGROUND INSTALLATIONS BEFORE STARTING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL INDEMNIFY THE COUNTY, ITS OFFICERS AND EMPLOYEES AGAINST ALL CLAIMS DUE TO DAMAGE TO CORPORATE OR PRIVATE PROPERTY RESULTING FROM HIS CONSTRUCTION OPERATIONS AS DESCRIBED IN ARTICLES 107.20 AND 107.26 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY BE REQUIRED TO CONDUCT SOME OF HIS GRADING AND TRENCHING OPERATIONS AROUND TRANSMISSION POLES AND UNDER TRANSMISSION LINES. THE ADDED COST OF SO DOING SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND PRESERVE PROPERTY MARKERS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR, OR AGENT, HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

ALL ELEVATIONS SHOWN REFER TO AN ASSUMED ELEVATION.

SUMMARY OF QUANTITIES

	CODE NO.	ITEM	UNIT	QUANTITY
	20200100	EARTH EXCAVATION	CU YD	255
	20300100	CHANNEL EXCAVATION	CU YD	740
①	25001000	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.4
	28000400	PERIMETER EROSION BARRIER	FOOT	555
	28000500	INLET AND PIPE PROTECTION	EACH	2
	28100209	STONE RIPRAP, CLASS A5	TON	765
①	28200200	FILTER FABRIC	SQ YD	755
	35100100	AGGREGATE BASE COURSE, TYPE A	TON	385
	40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	446
	40603080	HOT-MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	103
	40603310	HOT-MIX ASPHALT SURFACE COURSE, MIX "C", N50	TON	68
	48100100	AGGREGATE SHOULDERS, TYPE A	TON	107
①	50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
①	50104650	SLOPE WALL REMOVAL	SQ YD	660
	50200100	STRUCTURE EXCAVATION	CU YD	95
	50300225	CONCRETE STRUCTURES	CU YD	116.5
	50300280	CONCRETE ENCASEMENT	CU YD	8.1
①	50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	2,918
①	50800105	REINFORCEMENT BARS	POUND	10,170
*	50900205	STEEL RAILING, TYPE S-1	FOOT	199
	51200957	FURNISHING METAL SHELL PILES 12"x0.25"	FOOT	1,281
①	51202305	DRIVING PILES	FOOT	1,281
①	51203200	TEST PILE METAL SHELLS	EACH	2
	51500100	NAME PLATES	EACH	1
①	59300100	CONTROLLED LOW-STRENGTH MATERIAL	CU YD	14.2
*	63100075	TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	4
	67100100	MOBILIZATION	L SUM	1
①	70103700	TRAFFIC CONTROL COMPLETE	L SUM	1
* ①	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
*	LR631020	TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	4
①	X5020501	UNDERWATER STRUCTURE EXCAVATION PROTECTION, LOCATION 1	EACH	1
①	X5020502	UNDERWATER STRUCTURE EXCAVATION PROTECTION, LOCATION 2	EACH	1

① SEE SPECIAL PROVISIONS * SPECIALTY ITEMS

CONSTRUCTION CODE TYPE: X080-2A

NOTE: PAVEMENT MARKING BY OTHERS.

2165T001

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	3
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	
*00-00063-00-BR		CONTRACT #	93515	

T 18 N

T 19 N

SECTION 2

SECTION 35

SECTION 26

COUNTY HIGHWAY 12

SECTION 1

SECTION 36

SECTION 25

R 9 W, 3rd PM

R 8 W, 3rd PM

SECTION 30

SECTION 6

SECTION 31

T 18 N

T 19 N

1/4 MI 0 1/4 MI

GRAPHIC SCALE IN MILES

1 ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY
R11-3

ROAD CLOSED
1/2 MILES AHEAD
LOCAL TRAFFIC ONLY

2 ROAD CLOSED AHEAD
W20-3

ROAD CLOSED
AHEAD

3 ROAD CLOSED 500 FT
W20-3

ROAD CLOSED
500 FT

4 TYPE III BARRICADES WITH 2 TYPE A WARNING LIGHTS

SEE STANDARD BLR 21
AND SPECIAL PROVISIONS

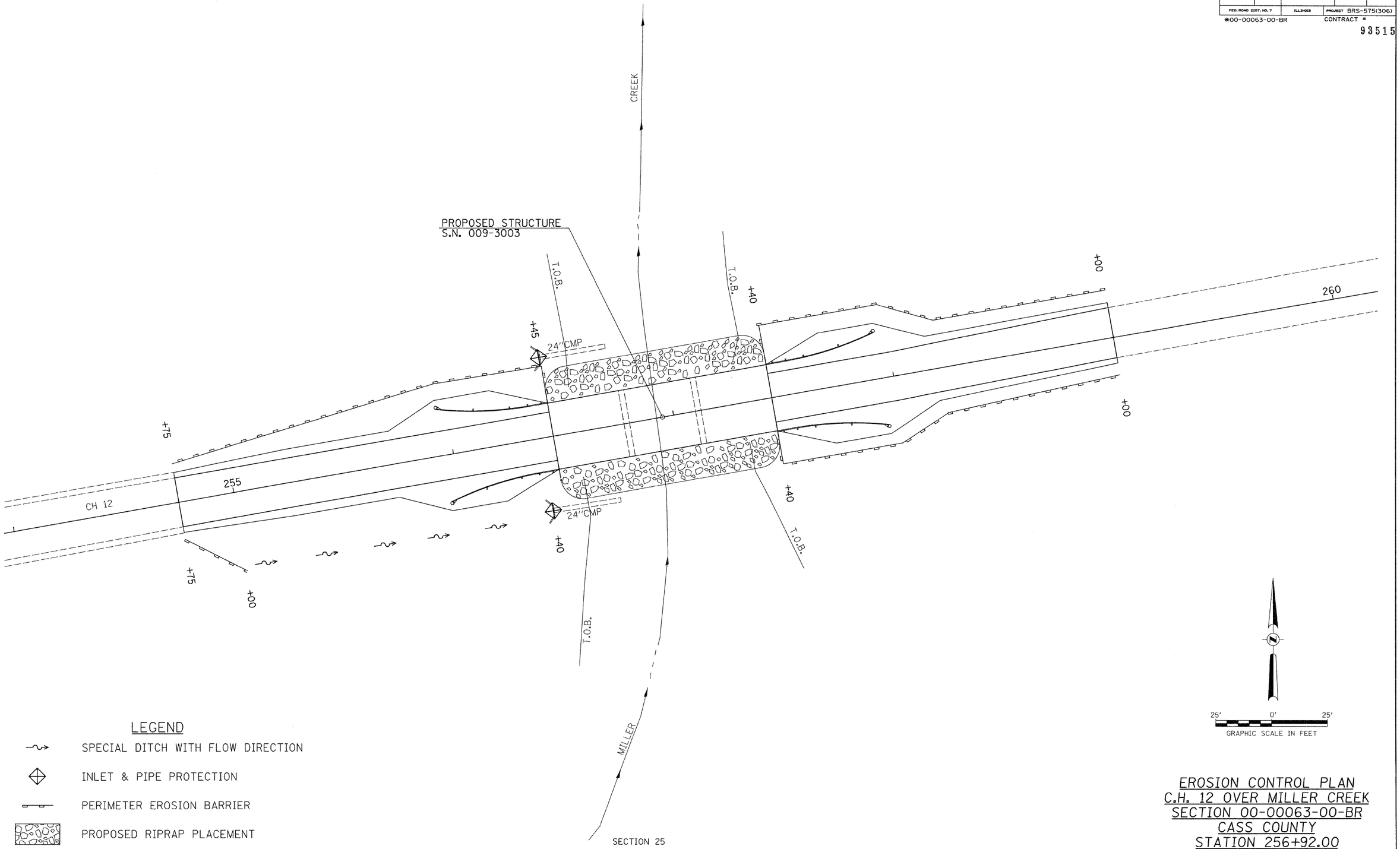
TRAFFIC CONTROL PLAN
C.H. 12 OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

2165H001

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	4
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT BRS-575(306)		
*00-00063-00-BR		CONTRACT *		

93515

T 19 N, R 9 W, 3rd PM
SECTION 25



LEGEND

- SPECIAL DITCH WITH FLOW DIRECTION
- INLET & PIPE PROTECTION
- PERIMETER EROSION BARRIER
- PROPOSED RIPRAP PLACEMENT

SECTION 25
T 19 N, R 9 W, 3rd PM

EROSION CONTROL PLAN
C.H. 12 OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

2165S001

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	5
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	

*00-00063-00-BR CONTRACT * 93515

T 19 N, R 9 W, 3rd PM
SECTION 25

N&BC 1.0' IN FROM E.O.P.
N&BC IN POWER POLE
POT STA 249+89.08
MAG-NAIL

ROBERT P. WILDT

CREEK

PROPOSED STRUCTURE SN 009-3003
STATION 256+92.00
SEE SH.#6 THRU 13 FOR DETAILS
SEE SH.#6 FOR HYDRAULICS

PROPOSED LIMITS OF CONSTRUCTION (TYP.)

℄ SURVEY & ℄ CONSTRUCTION

80' EXIST ROW
40'
40'

T.O.B.
24"CMP
T.O.B.
T.O.B.
T.O.B.

SEC 00-00063-00-BR
BEGINS
STATION 254+75.00

EXISTING R.O.W. LINE

CH 12 OIL & CHIP
255
260 CH 12 OIL & CHIP

SEC 00-00063-00-BR
ENDS
STATION 259+00.00

EXISTING STRUCTURE SN 009-3002
TO BE REMOVED

N&BC IN FEN. POST
N&BC IN POWER POLE
N&BC IN FEN. POST
POT STA 263+11.23
MAG-NAIL

LEGEND

- TRANSITION TO OR FROM EXISTING TO PROPOSED TYPICAL SECTION
- PROPOSED RIPRAP PLACEMENT
- SPECIAL DITCH WITH FLOW DIRECTION
- BURIED TELEPHONE CABLE

ROBERT P. WILDT

MILLER

SECTION 25
T 19 N, R 9 W, 3rd PM

50' 0' 50'
GRAPHIC SCALE IN FEET

PLAN
SURVEYED BY
DRAWN BY
ALIGNMENT CHECKED
PLOT PLAN CHECKED
NOTE BOOK
NO.
PLOT FILE NAME
BY
DATE

PROFILE
SURVEYED BY
DRAWN BY
GRADES CHECKED
STAKING NOTES CHKD
NOTE BOOK
NO.
STRUCTURE NOTES CHKD
BY
DATE

BM - RR SPIKE IN POWER POLE
±40' RT, STA 252+87
ELEV. 491.00

BALANCE #1 STA. 254+75.00 TO STA 256+42.38
EARTH EXCAVATION = 143 CU YD
EMBANKMENT = 179 CU YD

* BALANCE #2 STA. 256+42.38 TO STA 257+41.63
CHANNEL EXCAVATION = 740 CU YD

BALANCE #3 STA. 257+41.63 TO STA 259+00.00
EARTH EXCAVATION = 113 CU YD
EMBANKMENT = 47 CU YD

BM - RR SPIKE IN POWER POLE
±40' RT, STA 262+37
ELEV. 487.80

PROPOSED PROFILE GRADE LINE
150' VC
0.33%
0.00%
150' VC
-0.81%
25 YR HWE = 485.55
PROFILE ALONG ℄ EXISTING ROADWAY
SD RT -0.20%
SBE = 471.75

* CHANNEL EXCAVATION
THE CHANNEL SHALL BE EXCAVATED WITH 2:1 SIDE SLOPES AS SHOWN ON SHEET 6. TRANSITION FROM THE PROPOSED CHANNEL TO THE EXISTING UPSTREAM & DOWNSTREAM CHANNEL WITHIN THE LIMITS OF CONSTRUCTION. SUITABLE EXCAVATION MATERIAL SHALL BE USED IN THE EMBANKMENT AS DIRECTED BY THE ENGINEER.
CHANNEL EXCAVATION = 740 CU YD

500 495 490 485 480 475

EXISTING PROFILE GRADE
PROPOSED PROFILE GRADE

493.27 493.05 493.09 493.30 493.33 493.20 493.44 493.26 493.08 493.49 493.25 493.50 492.90 493.50 493.50 493.50 492.86 493.50 492.82 493.22 493.50 493.20 493.25 493.43 493.35 493.01 493.23 492.89 492.89 492.32 490.83 489.43

+75 493.25(493.25)VPC
+00 SP DT RT 487.50
+50 493.50(493.50)VPI
+39 SP DT RT 487.22
+50 493.50(493.50)VPT
+75 492.83
+92 493.50
+00 493.50
+25 492.82
+50 493.50(493.50)VPC
+75 493.20
+25 493.35(493.50)VPI
+50 493.01
+00 492.89(492.89)VPT

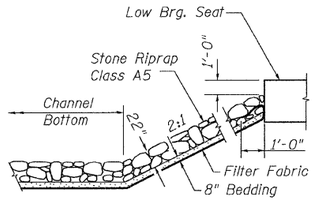
251+00 252+00 253+00 254+00 255+00 256+00 257+00 258+00 259+00 260+00 261+00 262+00

B.M.
R.R. Spike in Power Pole
±40' Rt., Sta. 252+87
Elev. 491.00

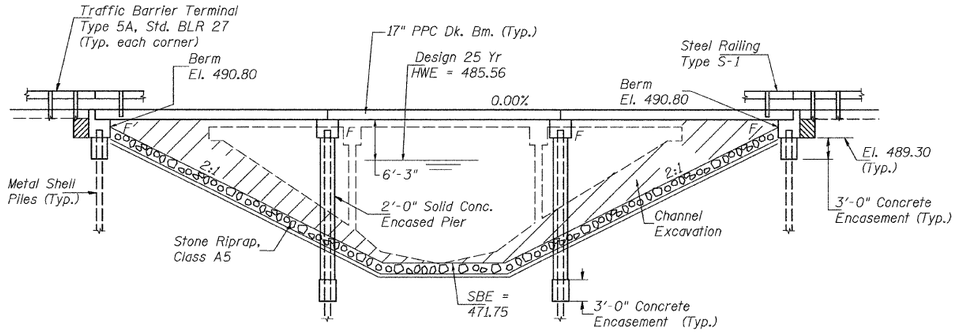
EXISTING STRUCTURE:
Three Span W-Beam Structure with Conc. Deck on Conc. Pier Caps with Timber Piling and Conc. Pile Bent Abutments, ±72'-8" Bk. to Bk., and 27'-10" O. to O. Deck, 0° Skew, with 6" Conc. Slopewall on Embankment Cones, Str. No. 009-3002

Salvage: Steel Wide Flange Beams

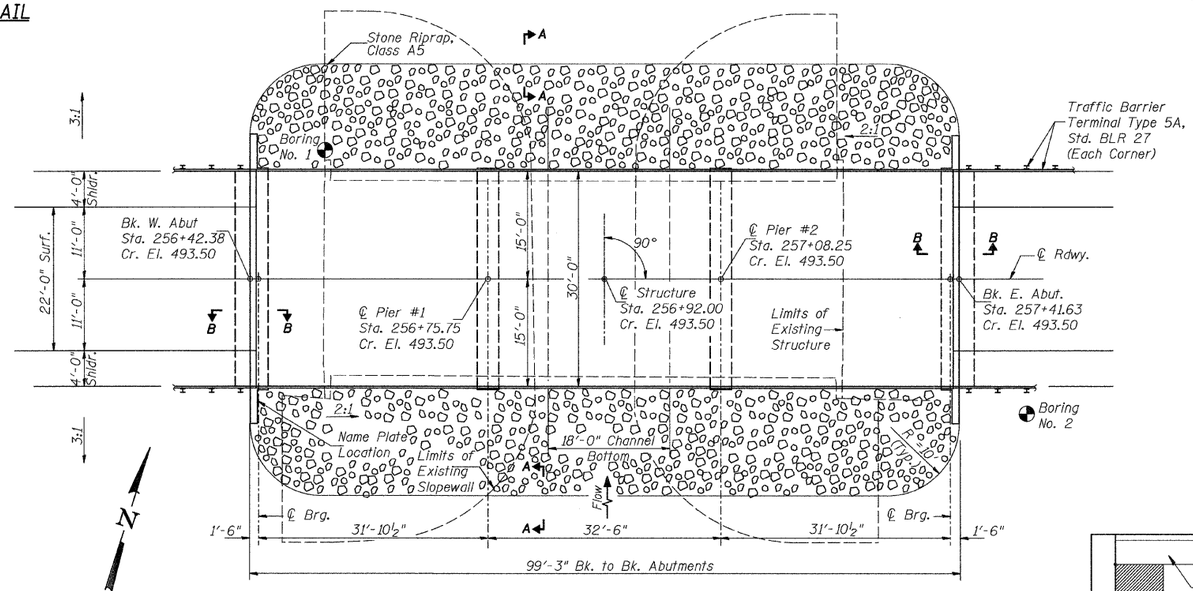
Road to be closed to traffic during construction.



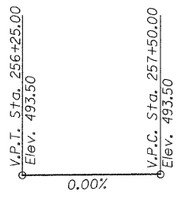
STONE RIPRAP DETAIL



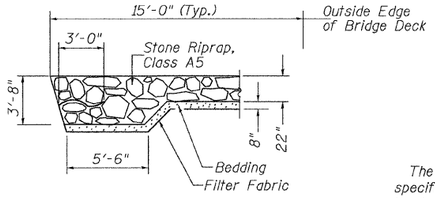
ELEVATION



PLAN



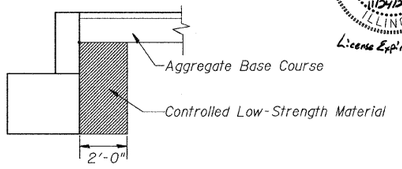
PROFILE GRADE



SECTION A-A

MILLER CREEK
BUILT 201_ BY
CASS COUNTY
SEC. 00-00063-00-BR
CH 12 STATION 256+92.00
F.A. PROJ. BRS-575(306)
STR. NO. 009-3003 LOADING HS20-44

NAME PLATE
Locate Name Plate at S.W. Wingwall Corner of Bridge (See Std. 515001)



SECTION B-B

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	6
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	
*00-00063-00-BR		CONTRACT *	93515	

SHEET NO. 1 OF 8 SHEETS

GENERAL NOTES

The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the substructures specified or approved by the Engineer before ordering the remainder of the piles.

For Soil Boring Logs, See Special Provisions.

A Corrosion Inhibitor shall be used in the concrete for Precast Prestressed Concrete Deck Beams according to Article 1020.05(b)(12) of the Standard Specifications.

Reinforcement Bars shall conform to the requirements of ASTM A706 Grade 60. Reinforcement Bars designated (E) shall be epoxy coated.

Layout of the slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.

The existing structural steel coating may contain lead. The contractor should take appropriate precautions to deal with the presence of lead on this project.

TOTAL BILL OF MATERIAL

	ITEM	UNIT	SUPER	SUB	TOTAL
(1)	Removal of Existing Structures	EACH	——	——	1
	Structure Excavation	CU YD	——	95	95
(1)	Controlled Low-Strength Material	CU YD	——	14.2	14.2
	Concrete Structures	CU YD	——	116.5	116.5
(1)	Reinforcement Bars	POUND	——	10,170	10,170
(1)	Precast Prestressed Concrete Deck Beams (17" Depth)	SQ FT	2,918	——	2,918
	Steel Railing, Type S-1	FOOT	199	——	199
	Name Plates	EACH	——	——	1
	Channel Excavation	CU YD	——	740	740
	Stone Riprap, Class A5	TON	——	765	765
(1)	Filter Fabric	SQ YD	——	755	755
	Furnishing Metal Shell Piles 12"x0.25"	FOOT	——	1,281	1,281
(1)	Driving Piles	FOOT	——	1,281	1,281
(1)	Test Pile Metal Shells	EACH	——	2	2
	Concrete Encasement	CU YD	——	8.1	8.1
(1)	Underwater Structure Excavation Protection, Location 1 (Pier #1)	EACH	——	1	1
(1)	Underwater Structure Excavation Protection, Location 2 (Pier #2)	EACH	——	1	1
(1)	Slopewall Removal	SQ YD	——	660	660

(1) See Special Provisions

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 requirements of the current AASHTO Standard Specification for Highway Bridges.

This design complies with all requirements of the current AASHTO Guide Specifications for Seismic Design of highway bridges.

11/24/2009
Illinois Structural No. 6440
Expires 11/30/2010

DESIGNED	C.T.M.
CHECKED	J.E.H.
DRAWN	C.T.M.
CHECKED	J.E.H.

21658001

DESIGN SPECIFICATIONS
2002 AASHTO & Interims

DESIGN STRESSES

(FIELD UNITS)
f'c = 3,500 p.s.i.
fy = 60,000 p.s.i. (Rein.)

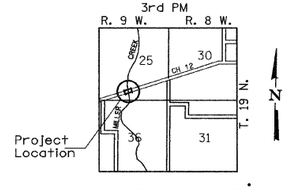
(PRECAST PRESTRESSED UNITS)
f'c = 6,000 p.s.i.
f'ci = 5,000 p.s.i.
f's = 270,000 p.s.i. ('/2"Ø Strands)
f'si = 201,960 p.s.i. ('/2" Ø Strands)

LOADING HS20-44
Allow 75#/sq. ft. future wearing surface.

WATERWAY INFORMATION

Drainage Area = 5.15 Sq. Mi. Low Grade Elev. = 489.43 @ Sta. 262+00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. ft. Exist.	Opening Sq. ft. Prop.	Nat. H.W.E. ft.	Head - ft. Exist.	Head - ft. Prop.	Headwater Elev. - ft. Exist.	Headwater Elev. - ft. Prop.
Design	25	1,775	368	590	485.56	0.17	0.04	485.73	485.60
Base	100	2,510	498	770	488.01	0.18	0.08	488.19	488.09



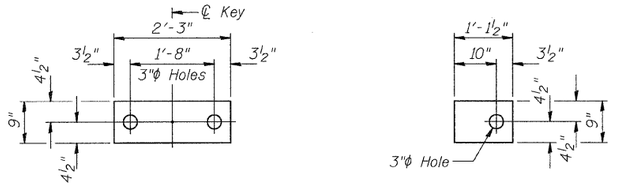
LOCATION SKETCH

GENERAL PLAN & ELEVATION
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00
STR. NO. 009-3003

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	7
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	

SHEET NO. 2 OF 8 SHEETS

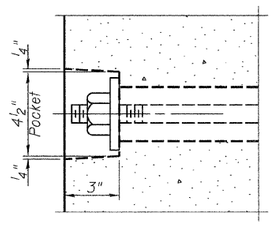
*00-00063-00-BR CONTRACT # 93515



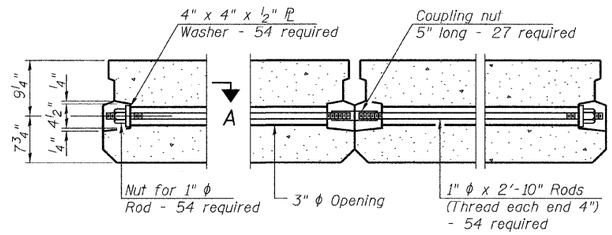
½" FABRIC BEARING PAD
(Interior) 54 required

½" FABRIC BEARING PAD
(Exterior) 12 required

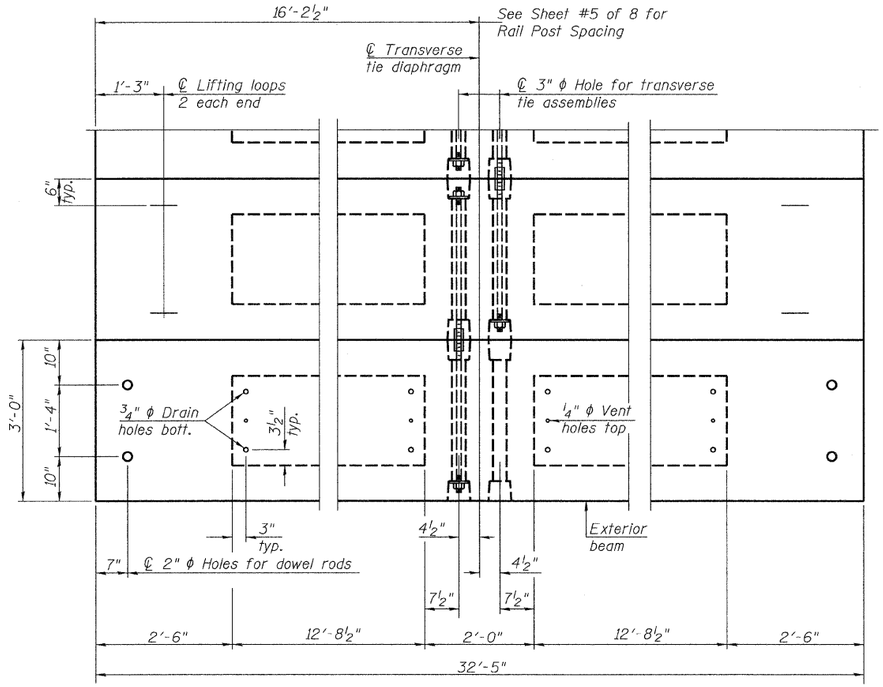
FIXED



SECTION A-A

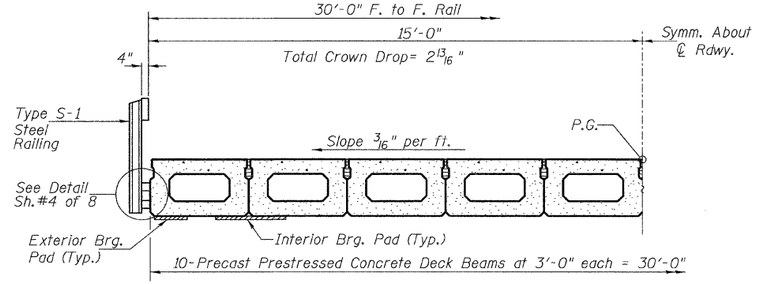


TYPICAL TRANSVERSE TIE ASSEMBLY



PLAN VIEW

Note: Connect beams in pairs with the transverse tie configuration shown.



HALF CROSS SECTION

BILL OF MATERIAL
SPANS 1-3

	ITEM	UNIT	QUANTITY
(1)	Precast Prestressed Concrete Deck Beams (17" Depth)	SQ FT	2,918

(1) See Special Provisions

NOTES

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.

The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

The 1" ϕ rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60.

Two ⅛" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2½" ϕ lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

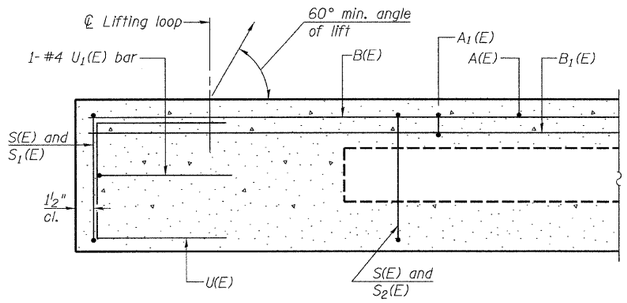
Compressive strength of prestressed concrete, f'c, shall be 6000 psi.

Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

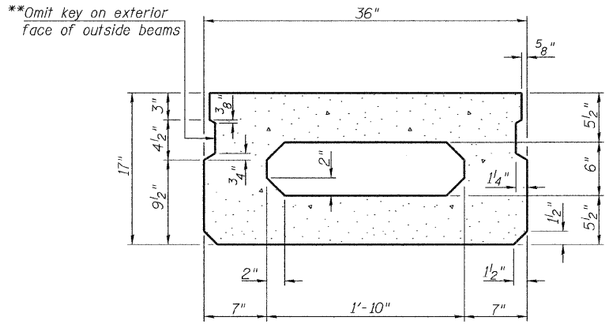
SUPERSTRUCTURE
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

2165B002

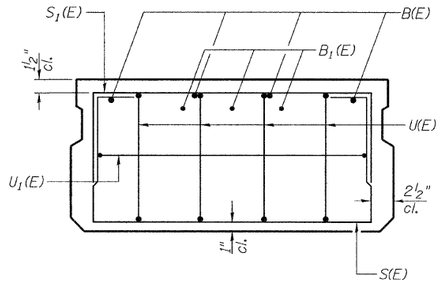
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	8
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	
*00-00063-00-BR		CONTRACT #	93515	



SECTION C-C

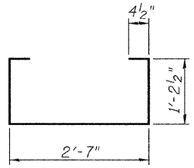


SECTION A-A
(Showing dimensions)

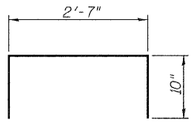


VIEW B-B

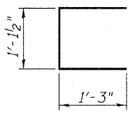
**Rail post anchor devices (Sheet 4 of 8) to be cast into exterior face of outside beams.



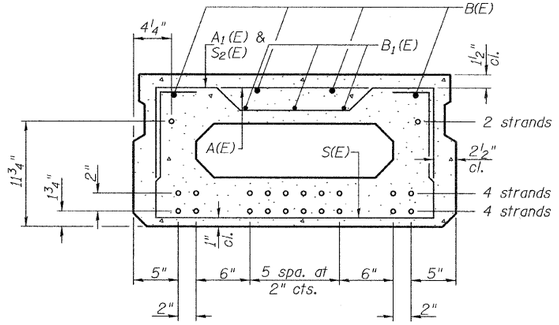
BAR S(E)



BAR S1(E)



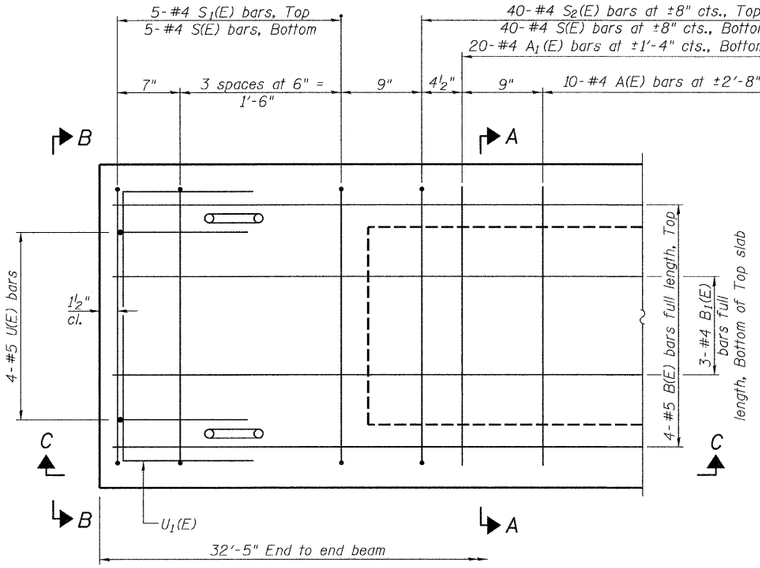
BAR U(E)



SECTION A-A

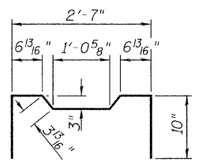
10-½"ϕ Strands Each Strand Stressed to 30,900 Lbs.
4-Strands 1¾" up, 4-Strands 3¾" up, 2-Strands 11¾" up

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

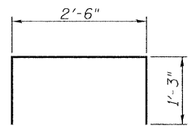


PLAN VIEW

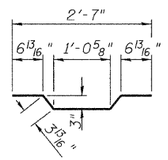
Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.



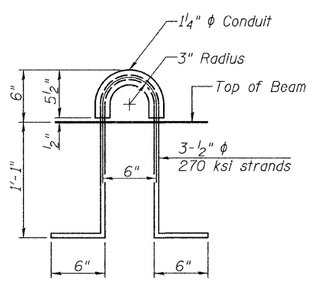
BAR S2(E)



BAR U1(E)



BAR A1(E)



LIFTING LOOP DETAIL

BAR LIST-ONE BEAM ONLY
(For information only)

Bar	No.	Size	Length	Shape
A(E)	10	#4	2'-7"	—
A1(E)	20	#4	2'-10"	~
B(E)	4	#5	*32'-2"	—
B1(E)	3	#4	*32'-2"	—
S(E)	50	#4	5'-9"	⌐¬
S1(E)	10	#4	4'-3"	⌐¬
S2(E)	40	#4	4'-6"	⌐¬
U(E)	8	#5	3'-8"	⌐
U1(E)	2	#4	5'-0"	⌐¬

* Total Length, Lap as necessary

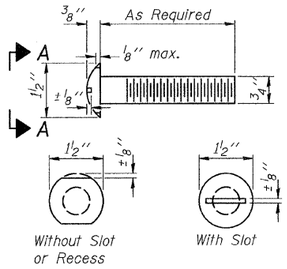
Note: See sheet 2 of 8 for additional details and Bill of Material.

SUPERSTRUCTURE DETAILS
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

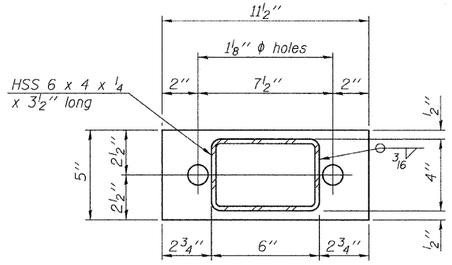
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	9
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	
*00-00063-00-BR		CONTRACT # 93515		

SHEET NO. 4 OF 8 SHEETS

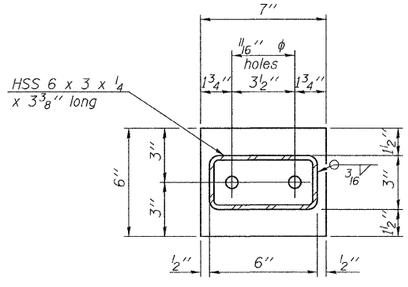
FOR RAIL POST SPACING SEE SH.#5 OF 8



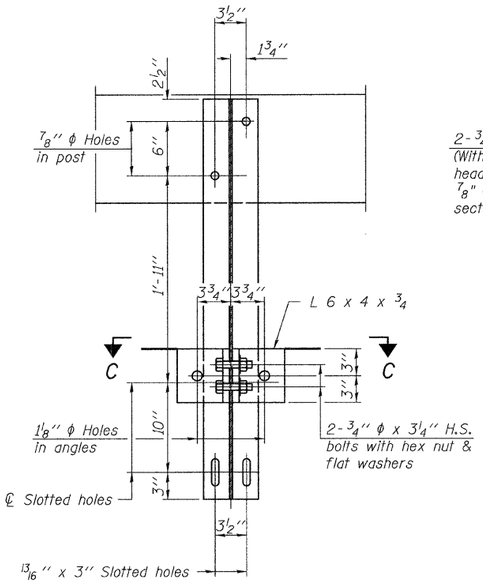
VIEW A-A
ROUND HEAD BOLT



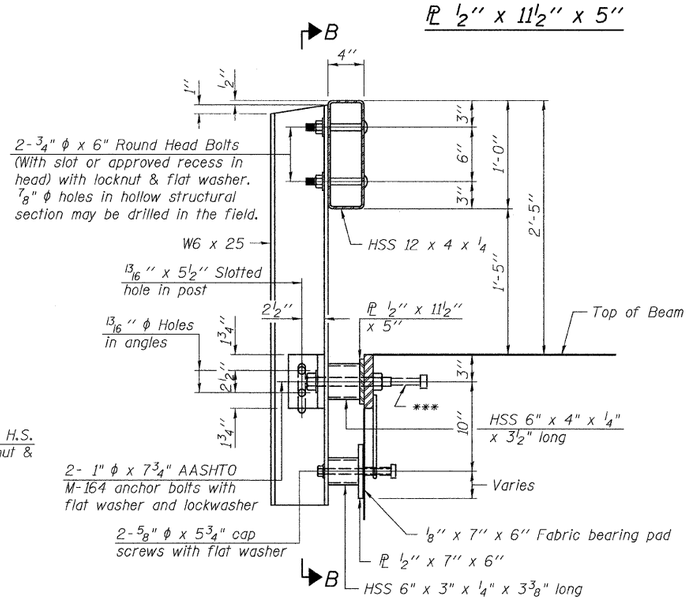
PL 1/2" x 11 1/2" x 5"



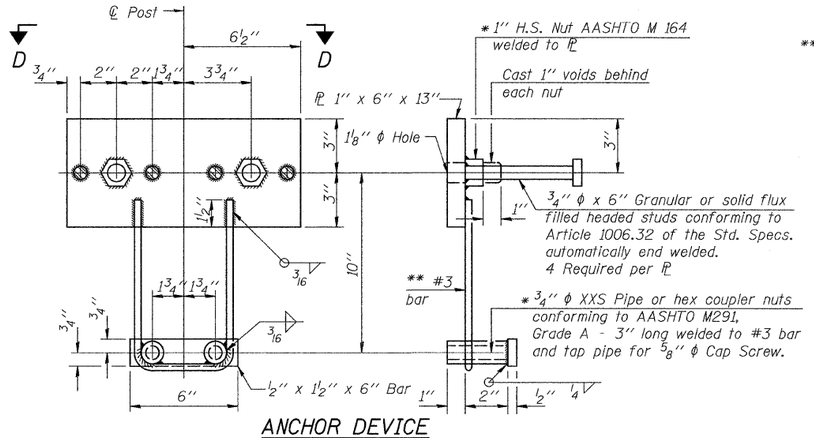
PL 1/2" x 7" x 6"



SECTION B-B



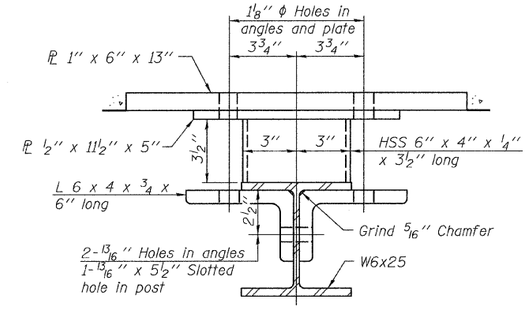
SECTION AT RAILING POST



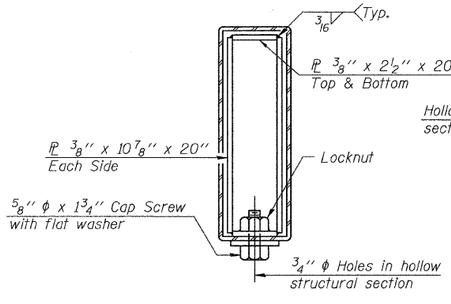
ANCHOR DEVICE

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

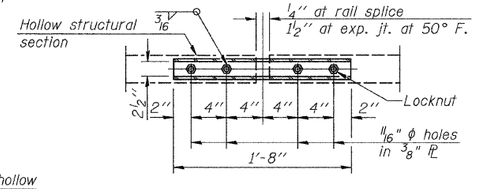
** Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



SECTION C-C

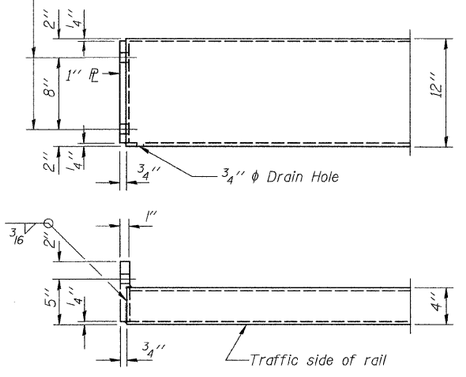


SECTIONS AT RAIL SPLICE

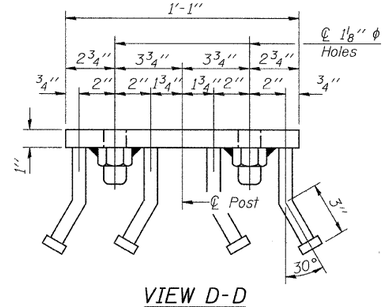


PLAN-BOTT. SPLICE PL
TYPICAL

1 1/8"ϕ Holes for 1"ϕ x 4" Round Head Bolts. Provide 2 flat washers & locknuts for connection shown on Standard BLR 27.



END OF RAIL DETAILS



VIEW D-D

NOTES

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient 1/4 " x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type S-1.

All steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

*** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type S-1	FOOT	199

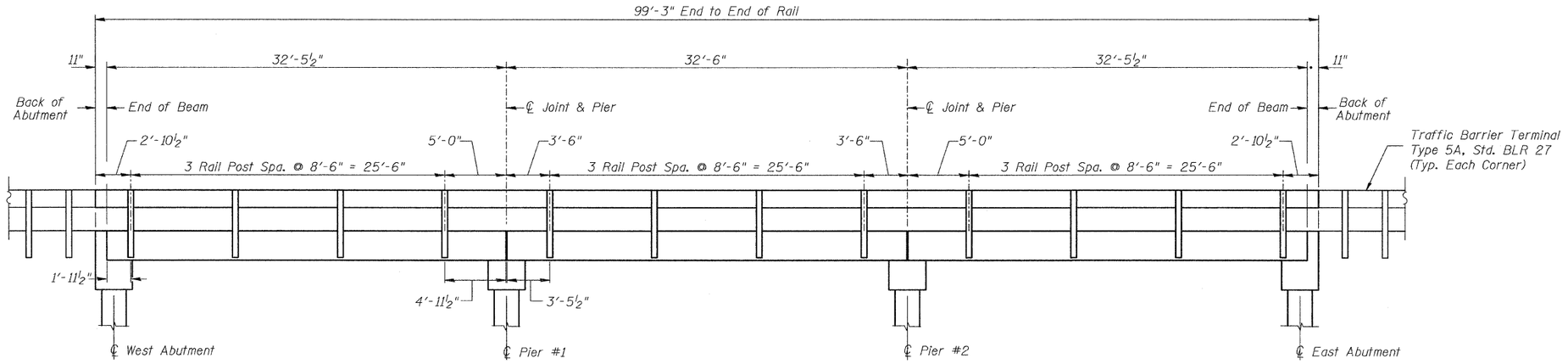
STEEL RAILING, TYPE S-1
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

2165B004

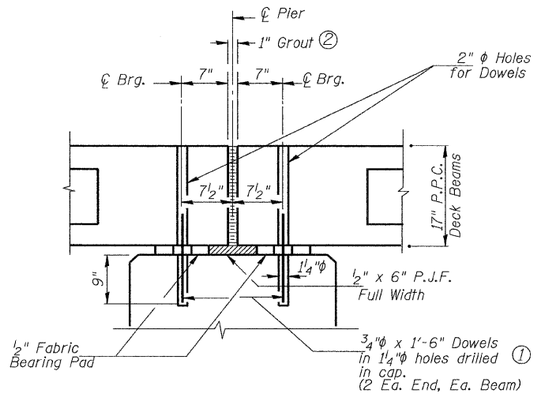
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	10
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	

SHEET NO. 5 OF 8 SHEETS

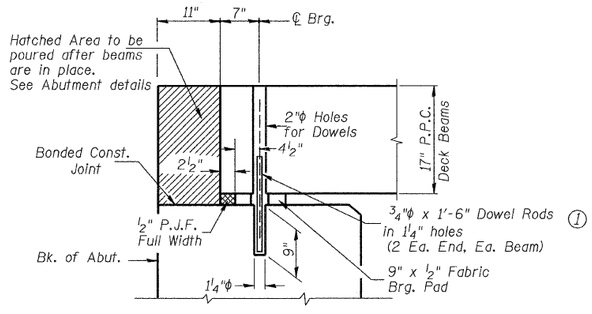
*00-00063-00-BR CONTRACT * 93515



RAIL POST SPACING



SECTION THRU PIERS



SECTION THRU ABUTMENTS

① Dowel Rods to be grouted after beams are in place and allowed to cure (Min. 24 hr.) prior to grouting the shear keys.

② 1" Joint shall be packed with a very dry mix of 2:1 sand and P.C. mortar 1" Dimension may vary plus or minus to accommodate tolerance in beam lengths.

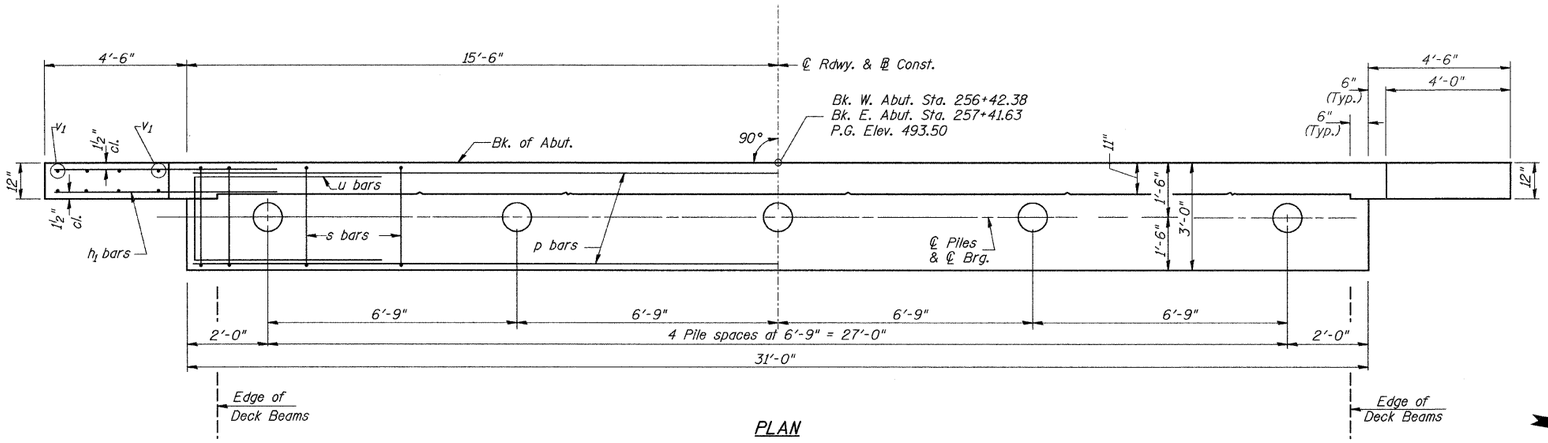
SUPERSTRUCTURE DETAILS
AND RAIL POST SPACING
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

2165B005

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	11
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	

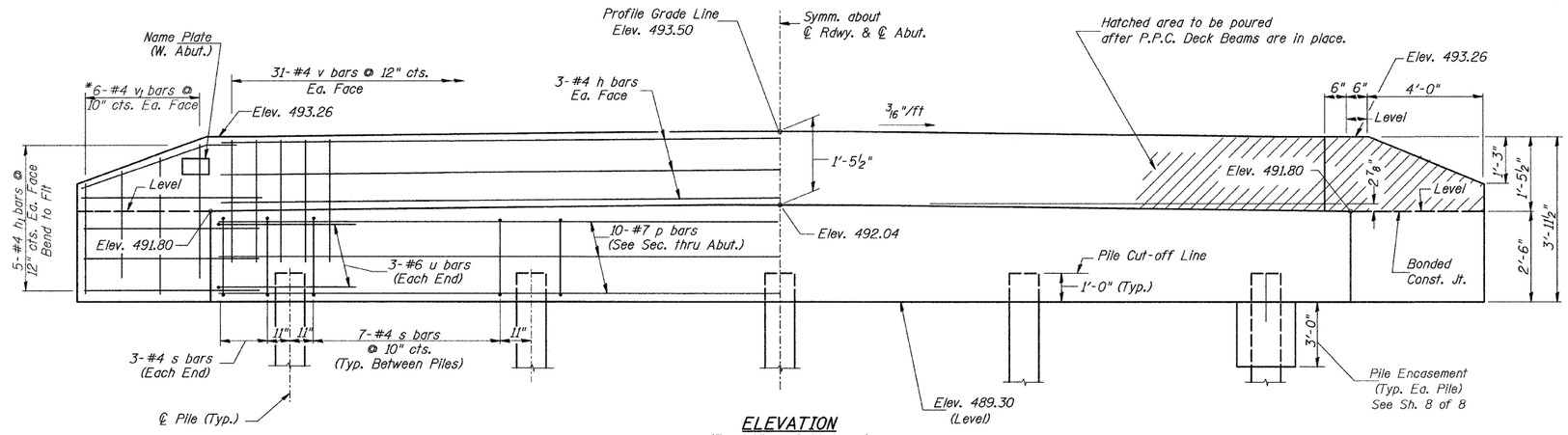
SHEET NO. 6 OF 8 SHEETS

*00-00063-00-BR CONTRACT # 93515



PLAN

SECTION THRU ABUTMENT

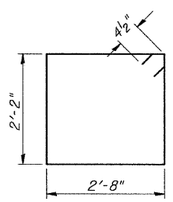


ELEVATION
(Front View of Abutment)

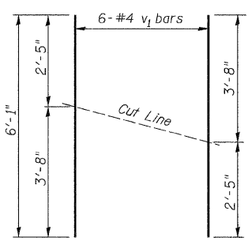
TWO ABUTMENTS BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h	12	#4	30'-9"	——
h_1	40	#4	6'-6"	——
p	20	#7	30'-9"	——
s	68	#4	10'-5"	□
u	12	#6	11'-7"	⊏
v	124	#4	3'-2"	——
v_1	24	#4	6'-1"	——
Concrete Structures			CU YD	23.2
① Reinforcement Bars			POUND	2,720
Structure Excavation			CU YD	65
Name Plates			EACH	1
Furnishing Metal Shell Piles 12"x0.25"			FOOT	434
① Driving Piles			FOOT	434
① Test Pile Metal Shells			EACH	1
Concrete Encasement			CU YD	2.6

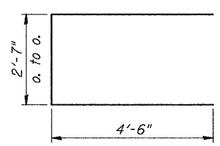
① See Special Provisions



BAR s



BAR CUTTING DIAGRAM
*Order v_1 bars full length. Cut as shown and use remainder of bars in opposite face.



BAR u

DESIGN STRESSES

f'c = 3,500 p.s.i.
fy = 60,000 p.s.i.

NOTES

1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.
2. Reinforcement bars shall conform to ASTM A706 Grade 60.

PILE DATA

Type & Size: Metal Shell-12"ϕ x 0.25" walls
Nominal Required Bearing: 180 kips
Allowable Resistance Available: 60 kips
Est. Length: 51' West Abutment
46' East Abutment
No. Req'd.: 10 (Includes 1 Test Pile at West Abut.)

ABUTMENTS
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

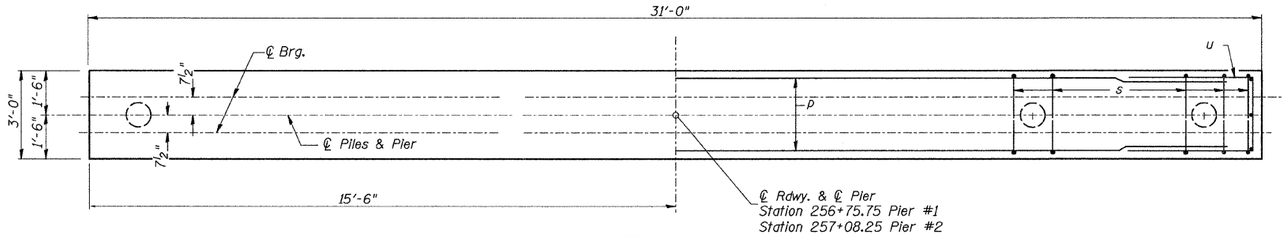
2165B006

NOTES:
All edges shall have standard $\frac{3}{4}$" chamfer.

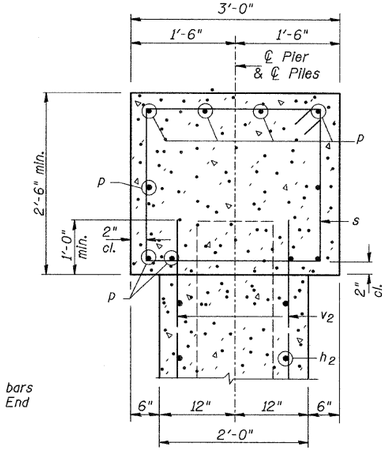
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	12
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	

*00-00063-00-BR CONTRACT * 93515

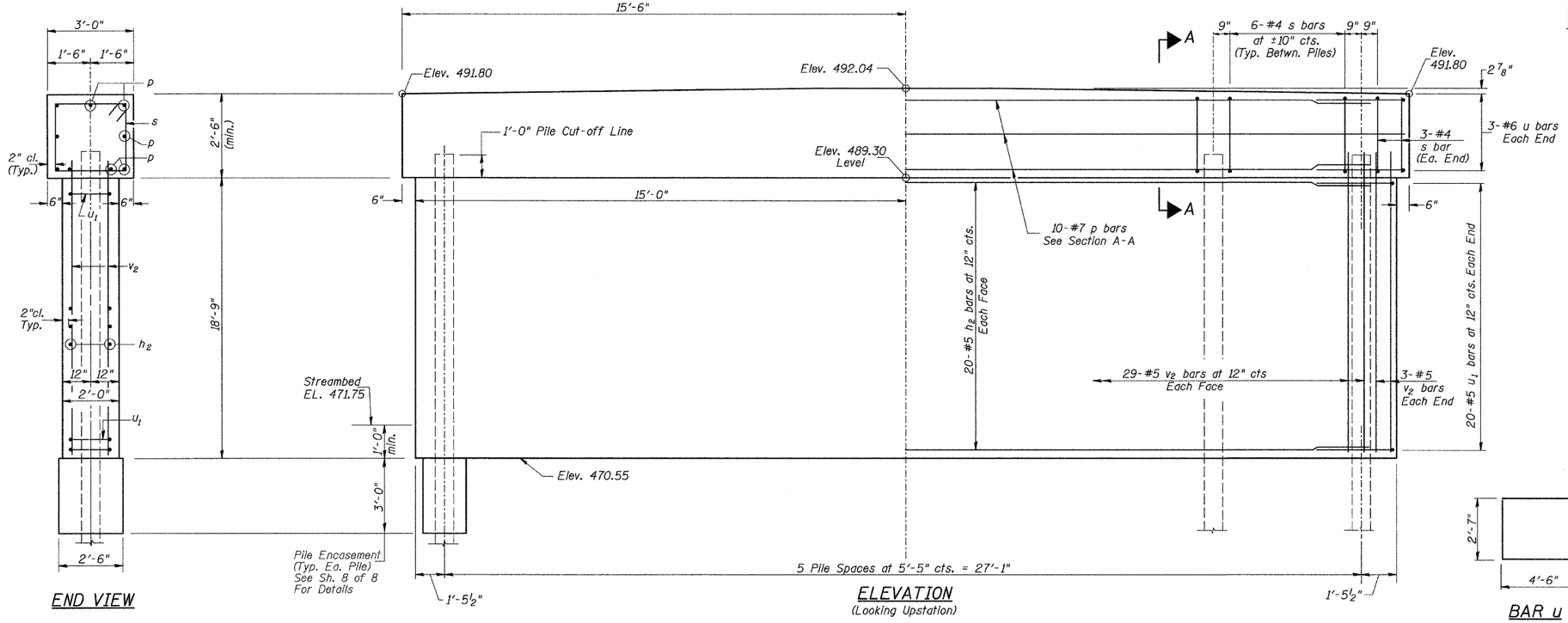
SHEET NO. 7 OF 8 SHEETS



TOP PLAN

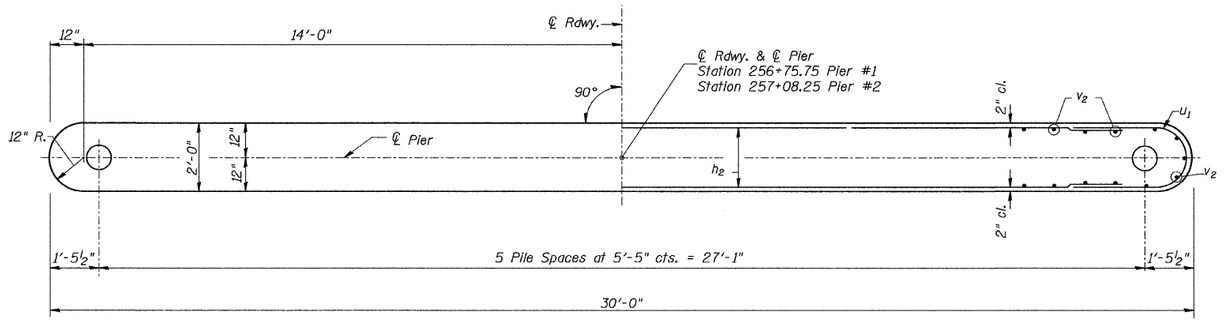


SECTION A-A



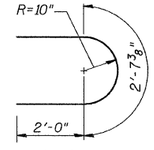
END VIEW

ELEVATION
(Looking Upstation)

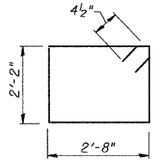


FOOTING PLAN

BAR u



BAR u_1



BAR s

PILE DATA

Type & Size: Metal Shell-12"ϕ x 0.25" walls
Nominal Required Bearing: 330 kips
Allowable Resistance Available: 110 kips
Est. Length: 77' Each Pier
No. Req'd.: 12 (Includes 1 Test Pile at Pier #2)

TWO PIERS BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h_2	80	#5	27'-8"	———
p	20	#7	30'-9"	———
s	72	#4	10'-5"	□
u	12	#6	11'-7"	⊏
u_1	80	#5	6'-8"	⊂
v_2	128	#5	19'-7"	———
Concrete Structures			CU YD	93.3
① Reinforcement Bars			POUND	7,450
Structure Excavation			CU YD	30
Furnishing Metal Shell Piles 12"x0.25"			FOOT	847
① Driving Piles			FOOT	847
① Test Pile Metal Shells			EACH	1
Concrete Encasement			CU YD	5.5
① Underwater Structure Excavation Protection, Location 1			EACH	1
① Underwater Structure Excavation Protection, Location 2			EACH	1

① See Special Provisions

PIERS
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

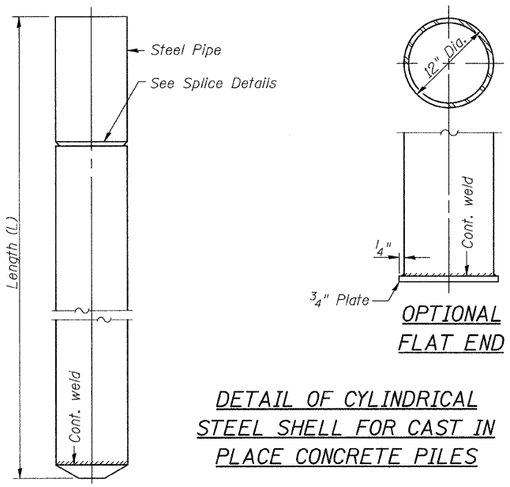
21658007

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	*	CASS	15	13
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT	BRS-575(306)	

SHEET NO. 8 OF 8 SHEETS

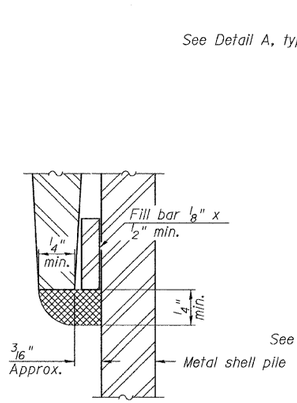
*00-00063-00-BR CONTRACT # 93515

Notes: Driving and bearing ends of pipe shall be cut square. The thickness of the shell shall be 0.25 inches with a tolerance of 5%. The shell shall be according to Article 1006.05(a) of the Standard Specifications, and shall be ASTM A252 Grade 3.

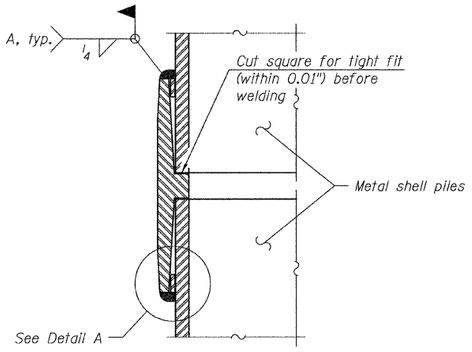


OPTIONAL FLAT END

DETAIL OF CYLINDRICAL STEEL SHELL FOR CAST IN PLACE CONCRETE PILES

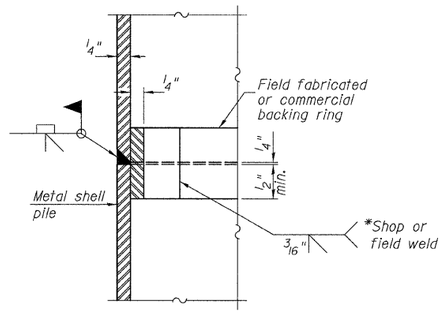


DETAIL A



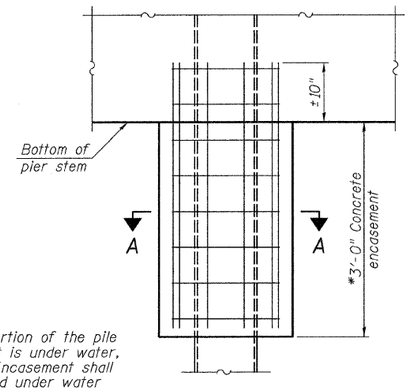
Notes:
The 1/8" x 1/2" min. fill bar may be constructed of 2 bars with a 1/8" max. gap between them.
Pile segments shall be driven to solid contact with splicer before welding.

WELDED COMMERCIAL SPLICE



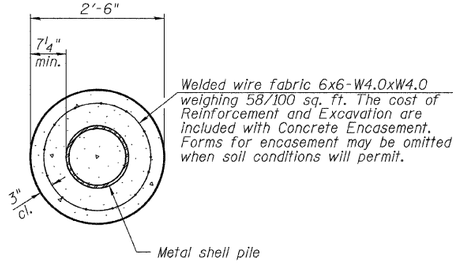
COMPLETE PENETRATION WELD SPLICE

* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



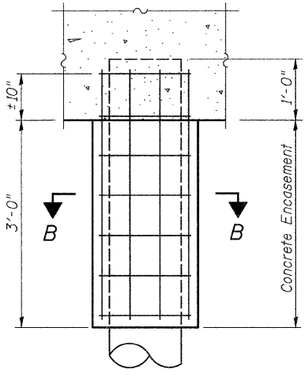
* If a portion of the pile encasement is under water, Concrete Encasement shall be tremmied under water into forms as necessary.

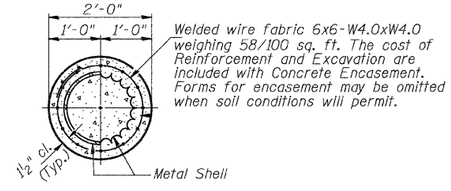
ELEVATION



SECTION A-A

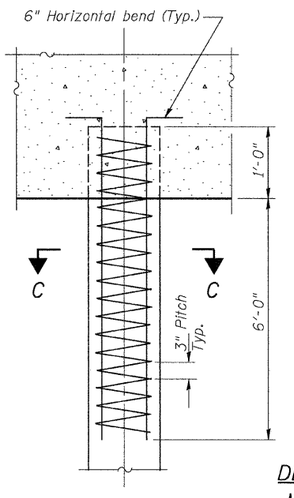
DETAIL OF PROTECTION FOR METAL SHELLS AT PIERS

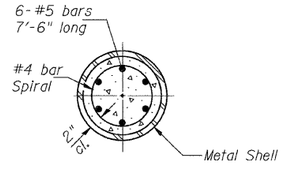




SECTION B-B

DETAIL OF METAL SHELL PILE ENCASEMENT AT ABUTMENTS





SECTION C-C

The cost of Reinforcement is included with Furnishing Metal Shell Piles 12"x0.25".

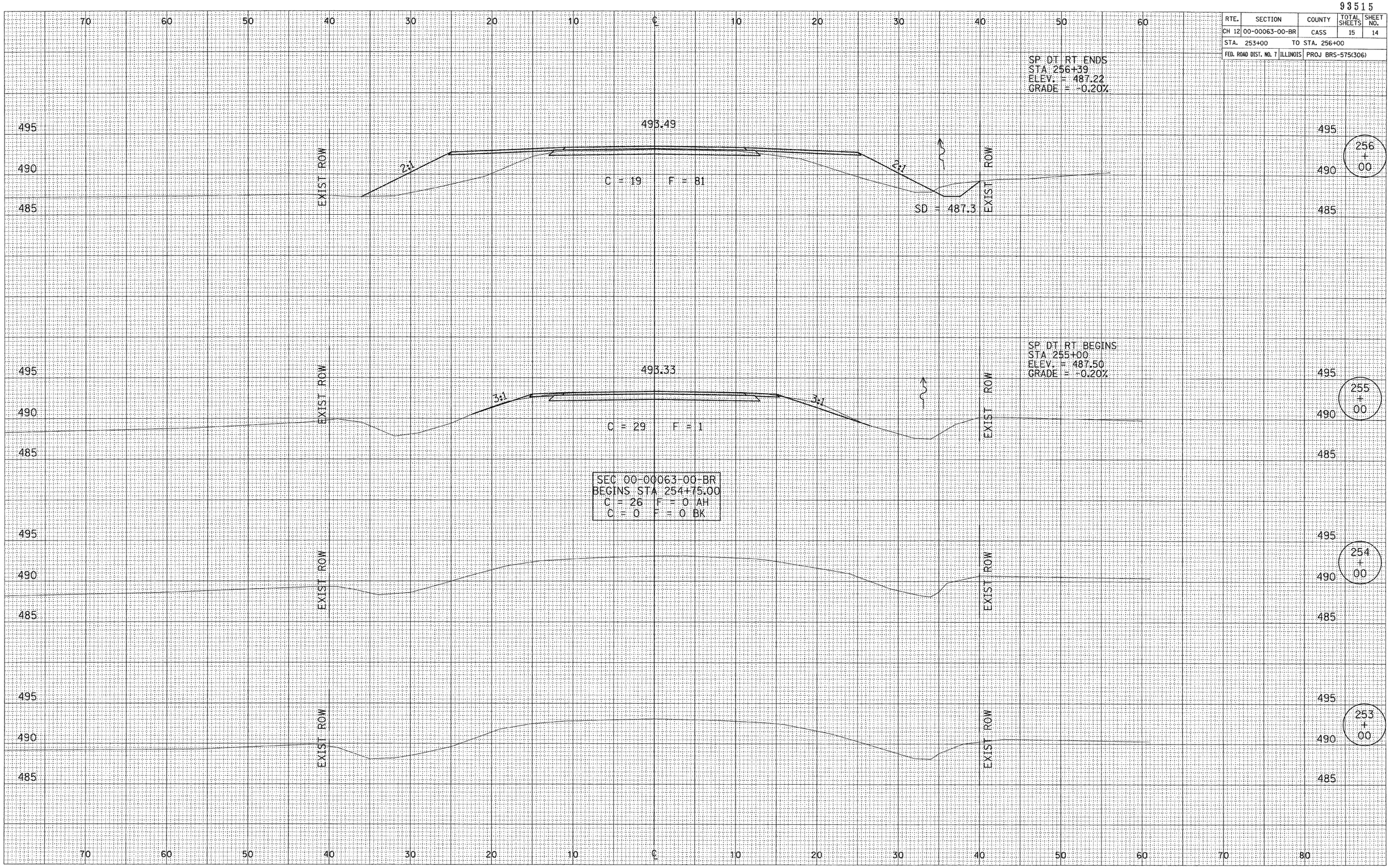
DETAIL OF REINFORCEMENT FOR METAL SHELLS AT ABUTMENTS

METAL SHELL PILE DETAILS
COUNTY HIGHWAY 12
OVER MILLER CREEK
SECTION 00-00063-00-BR
CASS COUNTY
STATION 256+92.00

21658008

93515

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	00-00063-00-BR	CASS	15	14
STA. 253+00	TO STA. 256+00			
FED. ROAD DIST. NO. 7	ILLINOIS	PROJ BRS-575(306)		



FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

93515

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
CH 12	00-00063-00-BR	CASS	15	15
STA. 257+50	TO STA. 260+00			
FED. ROAD DIST. NO. 7	ILLINOIS	PROJ BRS-575(306)		

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60

495 490 485

EXIST ROW

SEC 00-00063-00-BR
ENDS STA 259+00.00
C = 0 F = 0 AH
C = 26 F = 0 BK

492.89

493.43

3:1 3:1

C = 20 F = 9

493.50

3:1 3:1

C = 13 F = 14

STA 257+41.63
C = 11 F = 6 AH
C = 0 F = 0 BK

BRIDGE OMISSION

STA 256+42.38
C = 0 F = 0 AH
C = 9 F = 10 BK

260 + 00

259 + 00

258 + 00

257 + 50

70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE