

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 287	05-00039 03-BR	GRUNDY	33	1
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

Contract #87376

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED
HIGHWAY BRIDGE PROGRAM/
AMERICAN RECOVERY AND REINVESTMENT ACT

SECTION 05-00039-03-BR
COUNTY HIGHWAY C29
GRUNDY COUNTY
PROJ.ARA-BRS-0287(106)

C-93-016-09

INDEX OF SHEETS

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2	Summary of Quantities & Schedules & Notes
3	Typical Cross Sections
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Standards	
280001-05	
420401-08	
515001-03	
601101-01	
630001-08	
630301-05	
631032-05	
701321-10	
701901-01	
780001-02	

SCALES

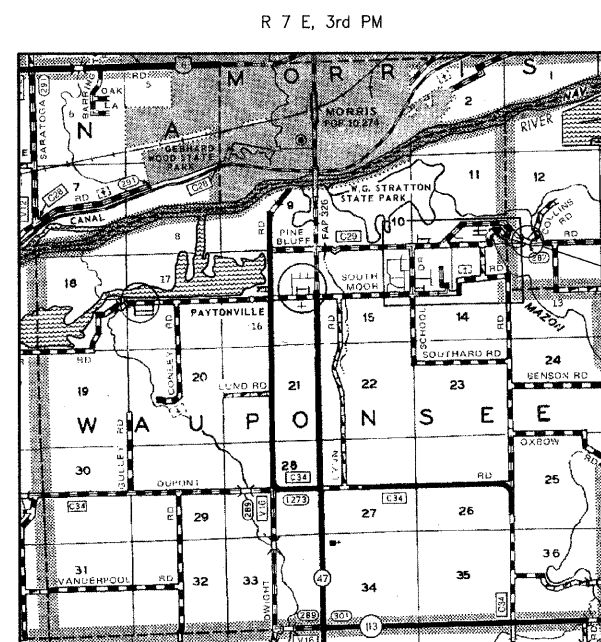
Plan & Profile
Hor. 1" = 50'
Vert. 1" = 5'
Cross Sections
Hor. 1" = 10'
Vert. 1" = 5'

UTILITIES

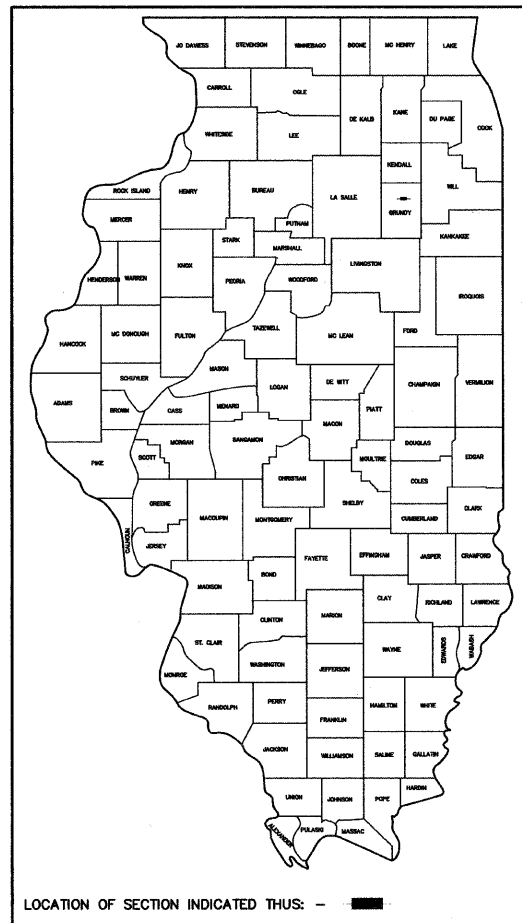
J.U.L.I.E. System - Toll free telephone number for Joint Utility Location Information for Excavators is: 1-800-892-0123.

DESIGN FUNCTIONAL CLASSIFICATION
MAJOR COLLECTOR OVER 2000 ADT
DESIGN TRAFFIC: 5100 (2018)
DESIGN SPEED: 3R GUIDELINES

CONTRACT NO. 87376



R 7 E, 3rd PM
LOCATION MAP
NET LENGTH OF SECTION = 575 FEET = 0.109 MILES

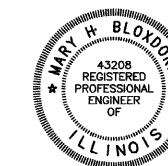


EXISTING STRUCTURE - THREE SPANS @ 64'-0", 82'-0" & 64'-0" (C-C BEARINGS) STEEL BEAM WITH CONCRETE DECK, 214'-0" BK-BK ABUTMENTS, 31'-8" O-O DECK, SOLID CONCRETE PIERS, SPILL-THRU WEST ABUTMENT ON TIMBER PILES, SPILL-THRU EAST ABUTMENT KEYED INTO ROCK, 0' SKEW @ C.L. STA 126+34.00

PROPOSED STRUCTURE - THREE SPANS @ 68'-0", 82'-0" & 68'-0" (C-C BEARINGS) STEEL BEAM WITH CONCRETE DECK, 222'-4" BK-BK ABUTMENTS, 36'-0" CL ROADWAY ON PROPOSED SOLID CONCRETE WALL ENCASED H-PILE PIERS, PROPOSED SEMI-INTEGRAL WEST ABUTMENT ON PILES, PROPOSED SEMI-INTEGRAL EAST ABUTMENT KEYED INTO ROCK 0' SKEW @ C.L. STA 126+42.00
PROPOSED STRUCTURE NUMBER 032-3101

Improvement Begins Sta. 123+25

Improvement Ends Sta. 129+00



Mary H. Bloxdorf
Illinois Professional No. 43208
(expires 11-30-2009)
Date: 10/22/09

STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS	
APPROVED	<i>Oct 23</i> , 20 <i>09</i>
LOCAL AGENCY OFFICIAL	<i>Craig Cassan</i>
PASSED	<i>Nov. 3</i> , 20 <i>09</i>
DISTRICT THREE ENGINEER OF LOCAL ROADS & STREETS	<i>Henrich L. Fry</i>
Releasing for Bid Based on Limited Review	<i>Nov. 3</i> , 20 <i>09</i>
REGIONAL ENGINEER	<i>George F. Ryan</i>

COOMBE-BLOXDORF P.C.
Consulting Engineers • Land Surveyors • Planners
755 South Grand Avenue West
Springfield, Illinois 62704
Phone: 217/544-8477
Design Firm License No. 184-002703

**SUMMARY OF QUANTITIES
CONSTRUCTION TYPE CODE X071-2A**

CODE NO.	ITEM	UNIT	QUANTITY
20100500	TREE REMOVAL, ACRES	ACRE	0.2
20200100	EARTH EXCAVATION	CU. YD.	1,090
20400800	FURNISHED EXCAVATION	CU. YD.	850
20700400*	POROUS GRANULAR EMBANKMENT, SPECIAL	CU. YD.	116
25001000*	SEEDING, CLASS 2 (SPECIAL)	ACRE	0.5
28000305*	TEMPORARY DITCH CHECKS	FOOT	100
28100109	STONE RIPRAP, CLASS A5	SQ. YD.	425
28102600*	STONE RIPRAP DITCH	TON	73
28200200	FILTER FABRIC	SQ. YD.	425
35501316	HOT MIX ASPHALT BASE COURSE, 8"	SQ. YD.	189
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	132
40600982	HOT MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ. YD.	391
40603080	HOT MIX ASPHALT BINDER COURSE, IL-19.0, N50	TON	87
40603335	HOT MIX ASPHALT SURFACE COURSE, MIX "D", N50	TON	78
42001165	BRIDGE APPROACH PAVEMENT	SQ. YD.	147
42001430	BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)	SQ. YD.	29
48203100	HOT MIX ASPHALT SHOULDERS	TON	205
50100100*	REMOVAL OF EXISTING STRUCTURES	EACH	1
50104650	SLOPE WALL REMOVAL	SQ. YD.	260
50200100	STRUCTURE EXCAVATION	CU. YD.	139
50200400	ROCK EXCAVATION FOR STRUCTURES	CU. YD.	10.2
50300225*	CONCRETE STRUCTURES	CU. YD.	237.9
50300255	CONCRETE SUPERSTRUCTURE	CU. YD.	238.1
50300260	BRIDGE DECK GROOVING	SQ. YD.	889
50300265	SEAL COAT CONCRETE	CU. YD.	2.9
50300280	CONCRETE ENCASEMENT	CU. YD.	2.5
50300300	PROTECTIVE COAT	SQ. YD.	923
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	LSUM	1
50500505	STUD SHEAR CONNECTORS	EACH	4,784
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	74,850
50800515	BAR SPLICERS	EACH	968
Δ 50901050	STEEL RAILING, TYPE SM	FOOT	445
51201600	FURNISHING STEEL PILES HP 12x53	FOOT	210
51201710	FURNISHING STEEL PILES HP 12x84	FOOT	468
51202305	DRIVING PILES	FOOT	210

* SEE SPECIAL PROVISIONS

**SUMMARY OF QUANTITIES
CONSTRUCTION TYPE CODE X071-2A**

CODE NO.	ITEM	UNIT	QUANTITY
51205200	TEMPORARY SHEET PILING	SQ. FT.	126
51500100	NAME PLATES	EACH	1
52100010	ELASTOMERIC BEARING ASSEMBLY, TYPE 1	EACH	12
52100530	ANCHOR BOLTS, 1 1/4"	EACH	48
59100100	GEOCOMPOSITE WALL DRAIN	SQ. YD.	77
60109580	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	136
60617900*	PAVED FLUME	SQ. YD.	13
Δ 63000001	STEEL PLATE BEAM GUARDRAIL, TYPE A, 6' FOOT POSTS	FOOT	75
Δ 63100087*	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
Δ 63100167*	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	381
67100100	MOBILIZATION	LSUM	1
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1
Δ 70106500*	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1
70400100	TEMPORARY CONCRETE BARRIER	FOOT	746
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	746
Δ 78005110	EPOXY PAVEMENT MARKING - LINE 4"	FOOT	2,300
X0323988*	TEMPORARY SOIL RETENTION SYSTEM	SQ. FT.	154
X0326301*	SETTING AND DRIVING PILES IN ROCK	EACH	12
X5020501*	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 1	EACH	1
X5020502*	UNDERWATER STRUCTURE EXCAVATION PROTECTION - LOCATION 2	EACH	1
Z0013798*	CONSTRUCTION LAYOUT	LSUM	1
Z0030250*	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2
Z0030350*	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2

* SEE SPECIAL PROVISIONS
Δ SPECIALTY ITEMS

GUARDRAIL SCHEDULE

TRAFFIC BARRIER TERMINAL, TY. 6A
 LT. STA. 124+87.08 TO 125+33.66 = 1 EACH
 RT. STA. 124+87.08 TO 125+33.66 = 1 EACH
 LT. STA. 127+50.33 TO 127+96.91 = 1 EACH
 RT. STA. 127+50.33 TO 127+96.91 = 1 EACH
 TOTAL = 4 EACH

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT
 LT. STA. 124+37.08 TO 124+87.08 = 1 EACH
 RT. STA. 123+62.08 TO 124+12.08 = 1 EACH
 LT. STA. 127+96.91 TO 128+46.91 = 1 EACH
 RT. STA. 127+96.91 TO 128+46.91 = 1 EACH
 TOTAL = 4 EACH

STEEL PLATE BEAM GUARDRAIL, TYPE A, 6' FOOT POSTS
 RT. STA. 124+12.08 TO 124+87.08 = 75 FOOT
 TOTAL = 75 FOOT

GUARDRAIL REMOVAL
 LT. STA. 124+39.2 TO 125+27.9 = 89 FOOT
 RT. STA. 124+13.9 TO 125+27.7 = 114 FOOT
 LT. STA. 127+39.8 TO 128+53.7 = 114 FOOT
 RT. STA. 127+39.9 TO 128+04.0 = 64 FOOT
 TOTAL = 381 FOOT

TREE REMOVAL

TREES WITHIN THE R.O.W. THAT INTERFERE WITH CONSTRUCTION SHALL BE REMOVED ONLY AT THE DIRECTION OF THE ENGINEER.
 LT. STA. 123+73 TO 125+28 = 0.02 ACRE
 RT. STA. 123+73 TO 125+18 = 0.13 ACRE
 RT. STA. 127+83 TO 128+27 = 0.01 ACRE
 LT. STA. 127+41 TO 127+77 = 0.01 ACRE
 TOTAL = 0.17 ACRE

TREE REMOVAL, ACRES = 0.20 ACRE

PAVEMENT MARKING SCHEDULE

EPOXY PAVEMENT MARKING LINE 4"

STA. 123+25 TO 129+00

WHITE EDGE LINES (SOLID) = 1,150 FOOT
 YELLOW CENTER LINES (SOLID) = 1,150 FOOT
 TOTAL = 2,300 FOOT

GENERAL NOTES

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

THE AREA TO BE SEEDED SHALL CONSIST OF ALL DISTURBED EARTH SURFACES WITHIN THE RIGHT OF WAY AND EASEMENTS AS DIRECTED BY THE ENGINEER.

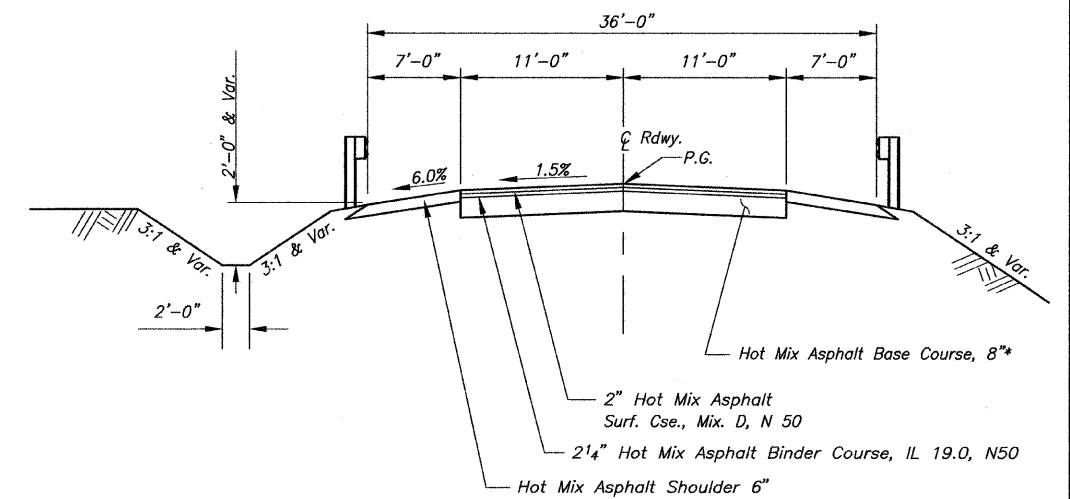
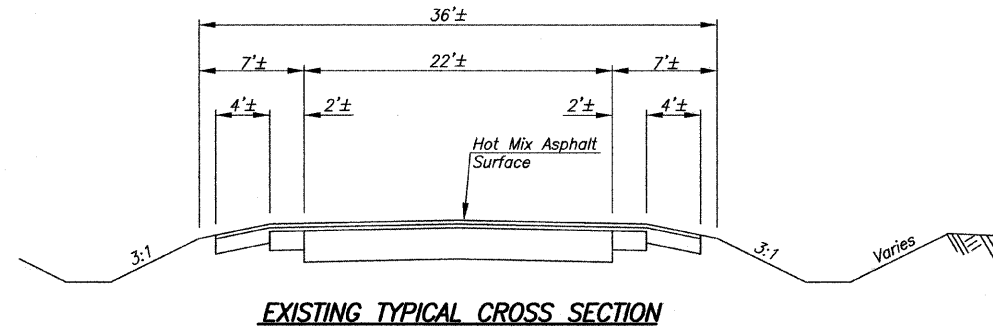
SEEDING, CLASS 2 (SPECIAL) = 0.5 ACRES

ALL TREES THAT INTERFERE WITH CONSTRUCTION WITHIN THE R.O.W. AND EASEMENTS SHALL BE REMOVED ONLY AT THE DIRECTION OF THE ENGINEER.

THE COST OF REMOVAL OF ANY OBSTRUCTIONS OR CULVERTS NOT OTHERWISE INCLUDED IN REMOVAL OF EXISTING STRUCTURES WHICH INTERFERE WITH CONSTRUCTION WILL BE CONSIDERED INCIDENTAL TO THE COST OF EARTH EXCAVATION.

ALL PLAN ELEVATIONS REPRESENT U.S.G.S. DATUM.

SHEET TITLE		PROJECT NO.	
SUMMARY OF QUANTITIES & GENERAL NOTES		05042	
PROJECT		SECTION	DATE
SECTION 05-00039-03-BR		05-00039-03-BR	8/27/09
COUNTY HIGHWAY C29		DRAWN BY	MRL
GRUNDY COUNTY		CHECKED BY	MCB
STATION 126+42		DRAWING NO.	
COOMBE-BLOXDORF P.C.		2	
Engineers / Land Surveyors		OF 33 SHTS	
Springfield, Illinois			
Design Firm License No. 184-002703			



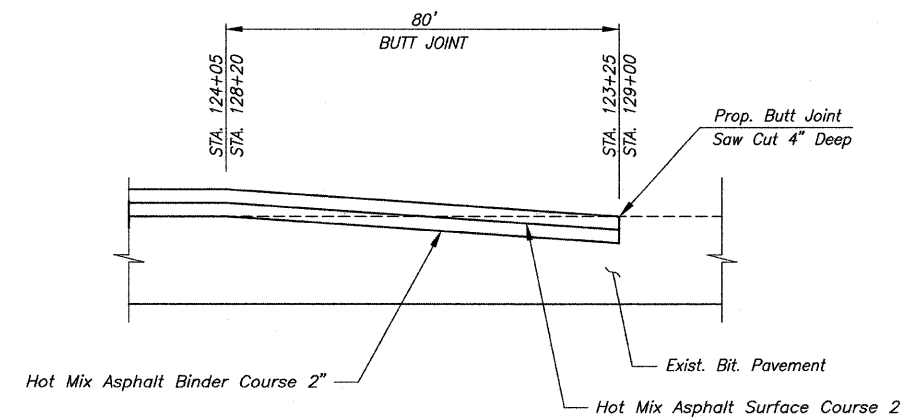
Road Classification: Collector ADT over 2000 ADT
Current ADT 4200

PROPOSED TYPICAL CROSS SECTION

Sta. 123+25 to Sta. 125+01.66 and
Sta. 127+82.33 to Sta. 129+00

*Sta. 124+50 to Sta. 125+01.66 and
Sta. 127+82.33 to Sta. 128+20

Transition from the proposed roadway to the existing roadway to be constructed from Sta. 123+25 to 123+75 and from Sta. 128+50 to 129+00. See sheet 6 for transition at the bridge.



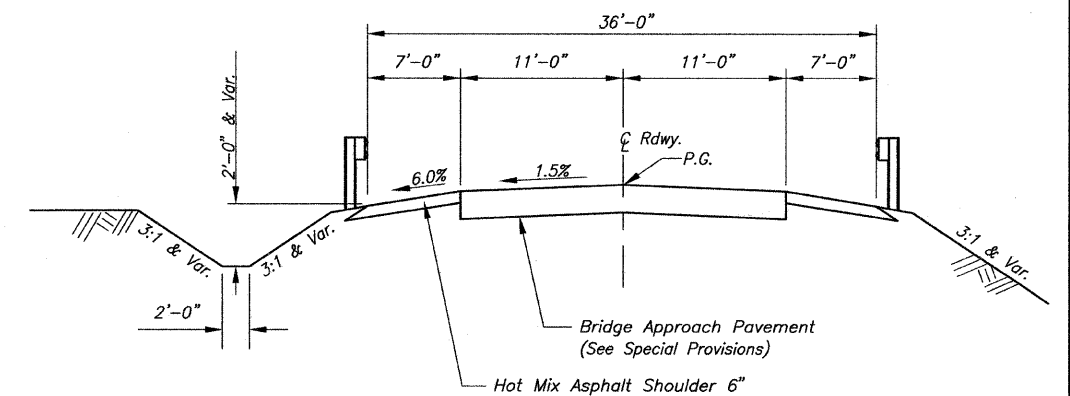
TYPICAL TAPER AT BUTT JOINT

APPLICATION RATES USED IN QUANTITY CALCULATIONS

GRANULAR MATERIALS 2.05 TON/CU. YD.
BITUMINOUS MATERIALS (PRIME COAT) 0.10 GALLON/SQ. YD.
HOT MIX ASPHALT (BINDER, SURFACE COURSE AND SHOULDERS) 112 LBS./SQ. YD./INCH

BITUMINOUS CONCRETE MIXTURE REQUIREMENTS				
ITEM	ASPHALT GRADE	COMPOSITION	VOIDS	DENSITY
HOT MIX ASPHALT BASE CSE.	PG 64-22	IL 19.0	4.0% @ N50	CORES
HOT MIX ASPHALT BINDER CSE. IL 19.0, N50	PG 64-22	IL 19.0	4.0% @ N50	CORES
HOT MIX ASPHALT SURF. CSE. MIX "C", N50	PG 64-22	IL 9.5 or IL 12.5 MIX "C"	4.0% @ N50	CORES
HOT MIX ASPHALT SHOULDERS	PG 58-22	IL 19.0	2.0% @ N30	CORES

Material shall be compacted to 93.0 - 97.4 percent of the maximum theoretical density, except that when placed as first lift on an unimproved subgrade the minimum percent compaction shall be 92.0 percent. The maximum theoretical density shall be determined from the moving average as specified in the QC/QA Specification.



Road Classification: Collector ADT over 2000 ADT
Current ADT 4200

PROPOSED TYPICAL CROSS SECTION

Sta. 125+01.66 to Sta. 125+31.66 and
Sta. 127+52.33 to Sta. 127+82.33

See sheet 6 for transition at the bridge.

Notes:
Shoulder work shall be done from Rt. Sta. 122+00 to Rt. Sta. 123+25 and from Rt. Sta. 129+00 to Rt. Sta. 130+00 during Stage I Construction. See Staging Plan and Cross Sections for details.

SHEET TITLE TYPICAL CROSS SECTIONS		
PROJECT SECTION 05-00039-03-BR COUNTY HIGHWAY C29 GRUNDY COUNTY STATION 126+42	PROJECT NO. 05042	SCALE
	DATE 8/27/09	DRAWN BY MRL
	CHECKED BY MCB	DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703		3 OF 33 SHTS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.S. 287	05-00039-03-BR	GRUNDY	33	4
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

Contract #87376

CURVE DATA
 Δ = 21'-02'
 D = 4'-12"
 R = 1364.69'
 T = 253.30'
 L = 500.79'
 E = 23.32'
 P.C. STA. 128+75.30
 P.I. STA. 131+28.60
 P.T. STA. 133+76.09
 S.E. = 0.038 FT./FT. ATTAINED IN 150'
 STA. 127+75 TO STA. 129+25
 AND STA. 133+01 TO STA. 134+51



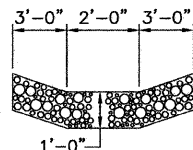
SCALE IN FEET

LEGEND

- SET IRON PIN
- △ SET MAG NAIL
- MANHOLE
- ⊠ ROW MARKER
- ⊙ FENCE POST
- ⊕ POWER POLE
- ⊥ SIGN
- GUY WIRE
- STREAM
- GUARD RAIL
- FENCE
- EDGE OF TIMBER
- 4" GAS MAIN
- BURIED TELEPHONE LINE

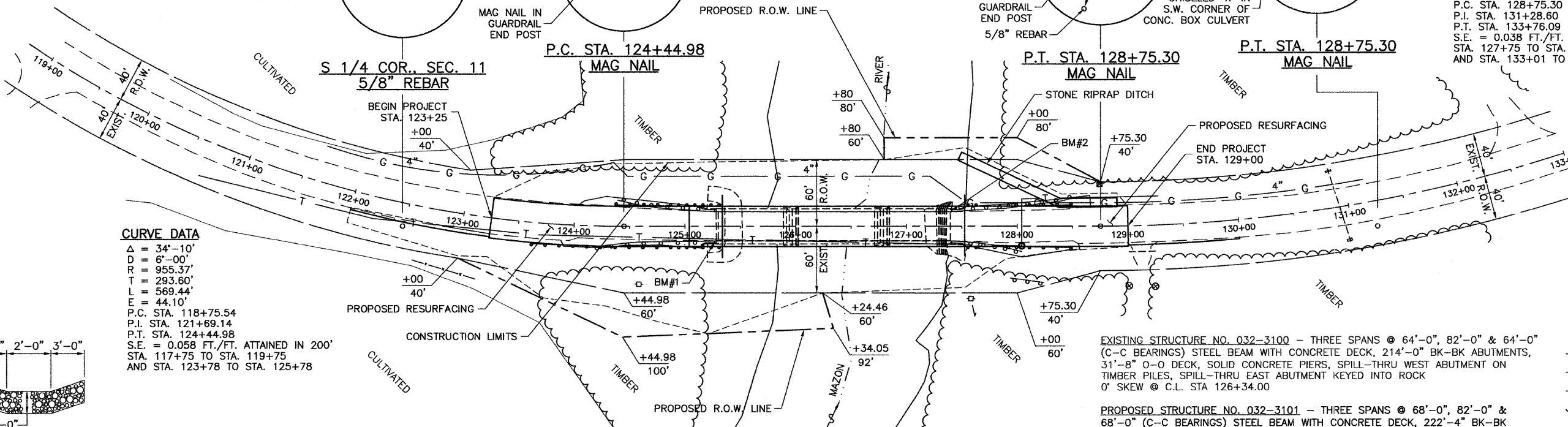
CURVE DATA

Δ = 34'-10'
 D = 6'-00"
 R = 955.37'
 T = 293.60'
 L = 569.44'
 E = 44.10'
 P.C. STA. 118+75.54
 P.I. STA. 121+69.14
 P.T. STA. 124+44.98
 S.E. = 0.058 FT./FT. ATTAINED IN 200'
 STA. 117+75 TO STA. 119+75
 AND STA. 123+78 TO STA. 125+78



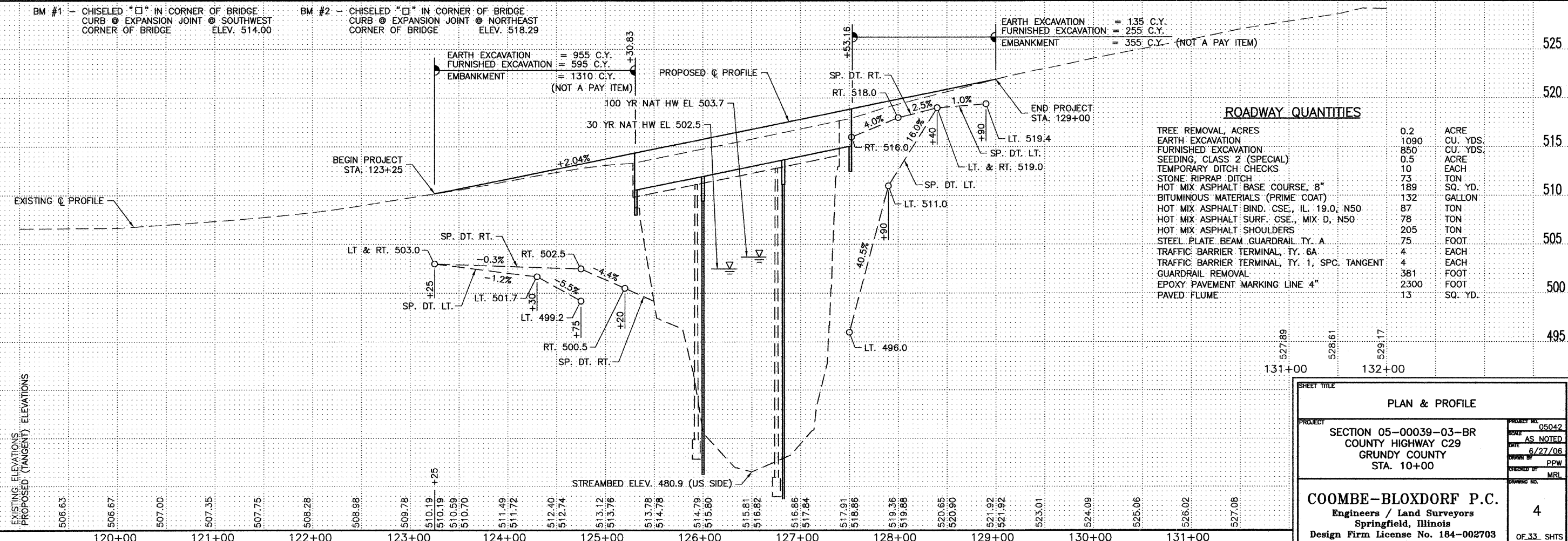
STONE RIPRAP DITCH

LT. STA. 127+50 TO 128+90
 ESTIMATED QUANTITY = 73 TON



EXISTING STRUCTURE NO. 032-3100 - THREE SPANS @ 64'-0", 82'-0" & 64'-0" (C-C BEARINGS) STEEL BEAM WITH CONCRETE DECK, 214'-0" BK-BK ABUTMENTS, 31'-8" O-O DECK, SOLID CONCRETE PIERS, SPILL-THRU WEST ABUTMENT ON TIMBER PILES, SPILL-THRU EAST ABUTMENT KEYED INTO ROCK 0' SKEW @ C.L. STA 126+34.00

PROPOSED STRUCTURE NO. 032-3101 - THREE SPANS @ 68'-0", 82'-0" & 68'-0" (C-C BEARINGS) STEEL BEAM WITH CONCRETE DECK, 222'-4" BK-BK ABUTMENTS, 36'-0" CL ROADWAY ON PROPOSED SOLID CONCRETE WALL ENCASED H-PILE PIERS, PROPOSED SEMI-INTEGRAL WEST ABUTMENT ON PILES, PROPOSED SEMI-INTEGRAL EAST ABUTMENT KEYED INTO ROCK 0' SKEW @ C.L. STA 126+42.00



ROADWAY QUANTITIES

TREE REMOVAL, ACRES	0.2	ACRE
EARTH EXCAVATION	1090	CU. YDS.
FURNISHED EXCAVATION	850	CU. YDS.
SEEDING, CLASS 2 (SPECIAL)	0.5	ACRE
TEMPORARY DITCH CHECKS	10	EACH
STONE RIPRAP DITCH	73	TON
HOT MIX ASPHALT BASE COURSE, 8"	189	SQ. YD.
BITUMINOUS MATERIALS (PRIME COAT)	132	GALLON
HOT MIX ASPHALT BIND. CSE., IL. 19.0, N50	87	TON
HOT MIX ASPHALT SURF. CSE., MIX D, N50	78	TON
HOT MIX ASPHALT SHOULDERS	205	TON
STEEL PLATE BEAM GUARDRAIL TY. A	75	FOOT
TRAFFIC BARRIER TERMINAL, TY. 6A	4	EACH
TRAFFIC BARRIER TERMINAL, TY. 1, SPC. TANGENT	4	EACH
GUARDRAIL REMOVAL	381	FOOT
EPOXY PAVEMENT MARKING LINE 4"	2300	FOOT
PAVED FLUME	13	SQ. YD.

SHEET TITLE

PLAN & PROFILE

PROJECT: SECTION 05-00039-03-BR
 COUNTY HIGHWAY C29
 GRUNDY COUNTY
 STA. 10+00

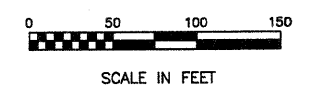
PROJECT NO. 05042
 SCALE AS NOTED
 DATE 6/27/06
 DRAWN BY PFW
 CHECKED BY MRL
 DRAWING NO. 4

COOMBE-BLOXDORF P.C.
 Engineers / Land Surveyors
 Springfield, Illinois
 Design Firm License No. 184-002703

OF 33 SHTS

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET TOTAL
F.A.S. 287	05-00039-03-BR	GRUNDY	33	5
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
Contract #87376				

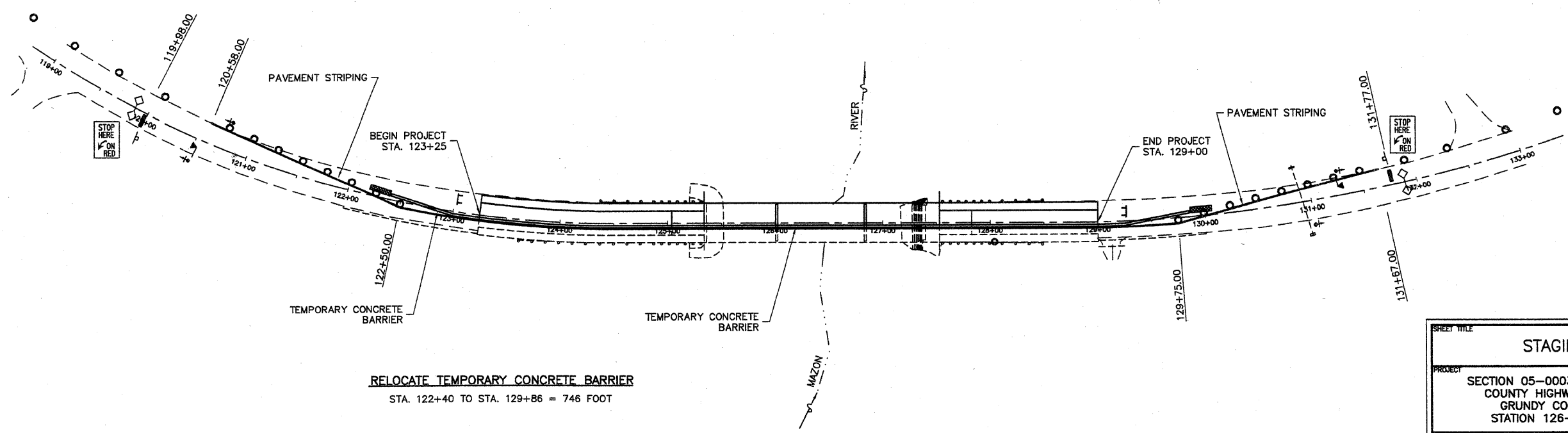
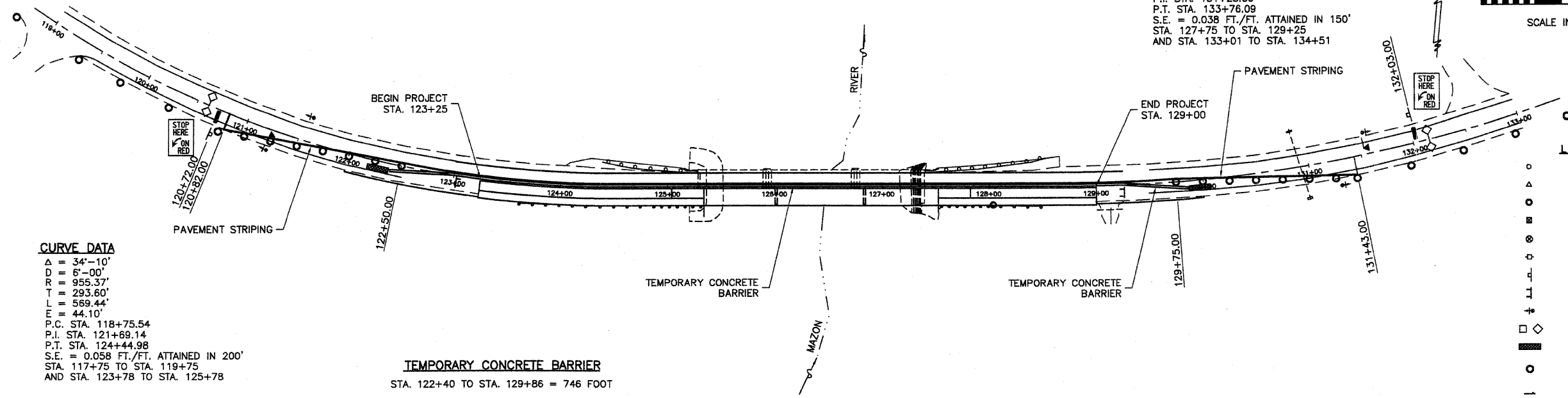
CURVE DATA
 $\Delta = 21^{\circ}-02'$
 $D = 4'-12"$
 $R = 1364.69'$
 $T = 253.30'$
 $L = 500.79'$
 $E = 23.32'$
P.C. STA. 128+75.30
P.I. STA. 131+28.80
P.T. STA. 133+76.09
S.E. = 0.038 FT./FT. ATTAINED IN 150'
STA. 127+75 TO STA. 129+25
AND STA. 133+01 TO STA. 134+51



- LEGEND**
- SET IRON PIN
 - △ SET MAG NAIL
 - MANHOLE
 - ROW MARKER
 - ⊕ FENCE POST
 - ⊖ POWER POLE
 - ⊥ SIGN
 - ⊥ TYPE III BARRICADE
 - ⊥ TRAFFIC SIGNAL W/ BACKPLATE
 - DETECTOR LOOPS
 - ▬ IMPACT ATTENUATOR
 - IMPACT ATTENUATOR WITH STEADY BURNING LIGHT
 - GUY WIRE
 - STREAM
 - GUARD RAIL
 - FENCE
 - EDGE OF TIMBER
 - ▲ MICROWAVE

NOTES
SEE HIGHWAY STANDARD 701321-09 FOR DETAILS

STAGE I TRAFFIC CONTROL



STAGE II TRAFFIC CONTROL

SHEET TITLE		STAGING PLAN	
PROJECT		PROJECT NO.	05042
SECTION 05-00039-03-BR		SCALE	1" = 50'-0"
COUNTY HIGHWAY C29		DATE	8/27/09
GRUNDY COUNTY		DESIGNED BY	MRL
STATION 126+42.00		CHECKED BY	MRL
DRAWING NO.		DATE	
COOMBE-BLOXDORF P.C.		5	
Engineers / Land Surveyors		OF 33 SHTS	
Springfield, Illinois			
Design Firm License No. 184-002703			

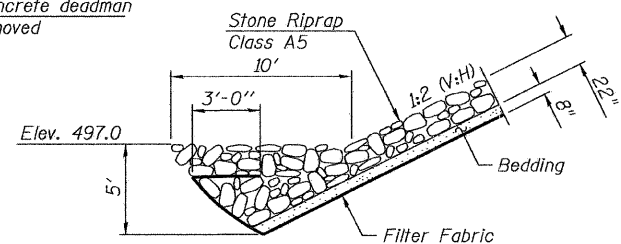
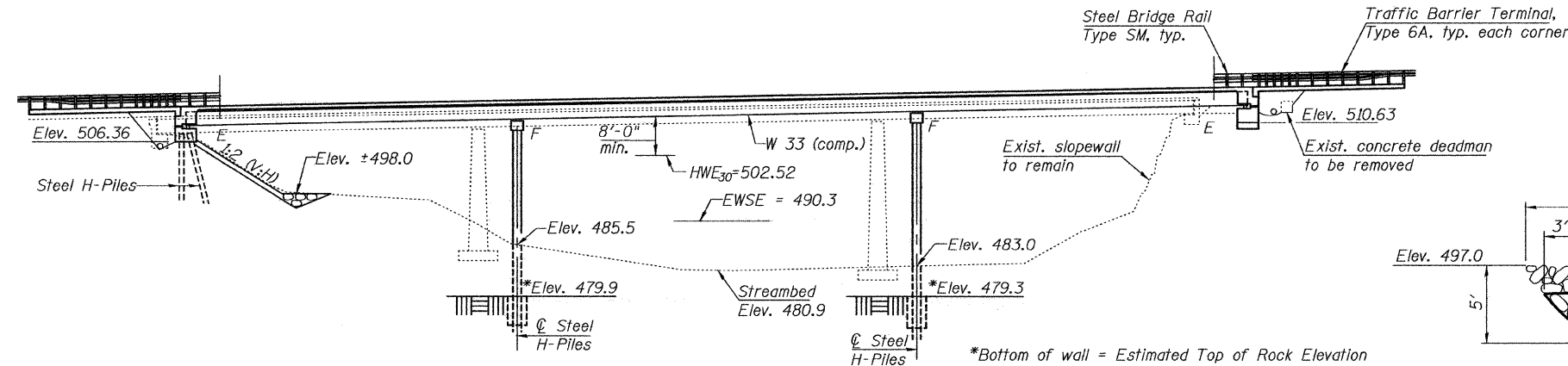
Benchmark: Chiseled "□" in corner of bridge curb at expansion joint, SW corner SN 032-3100, Elev. 514.00

Existing Structure: The existing structure, SN 032-3100, was built in 1958 as part of F.A.S. Rte. 287, Section 39-B. The existing superstructure consists of 5-noncomposite wide flange beams supporting a 6 1/2" deck. The existing W. abutment is supported by piles while the existing solid wall piers with footings and existing E. abutment are keyed into rock. The existing structure is 214' back to back of abutments and 31'-8" out to out of deck. The existing structure is to be removed and replaced using staged construction to maintain one lane of traffic at all times.

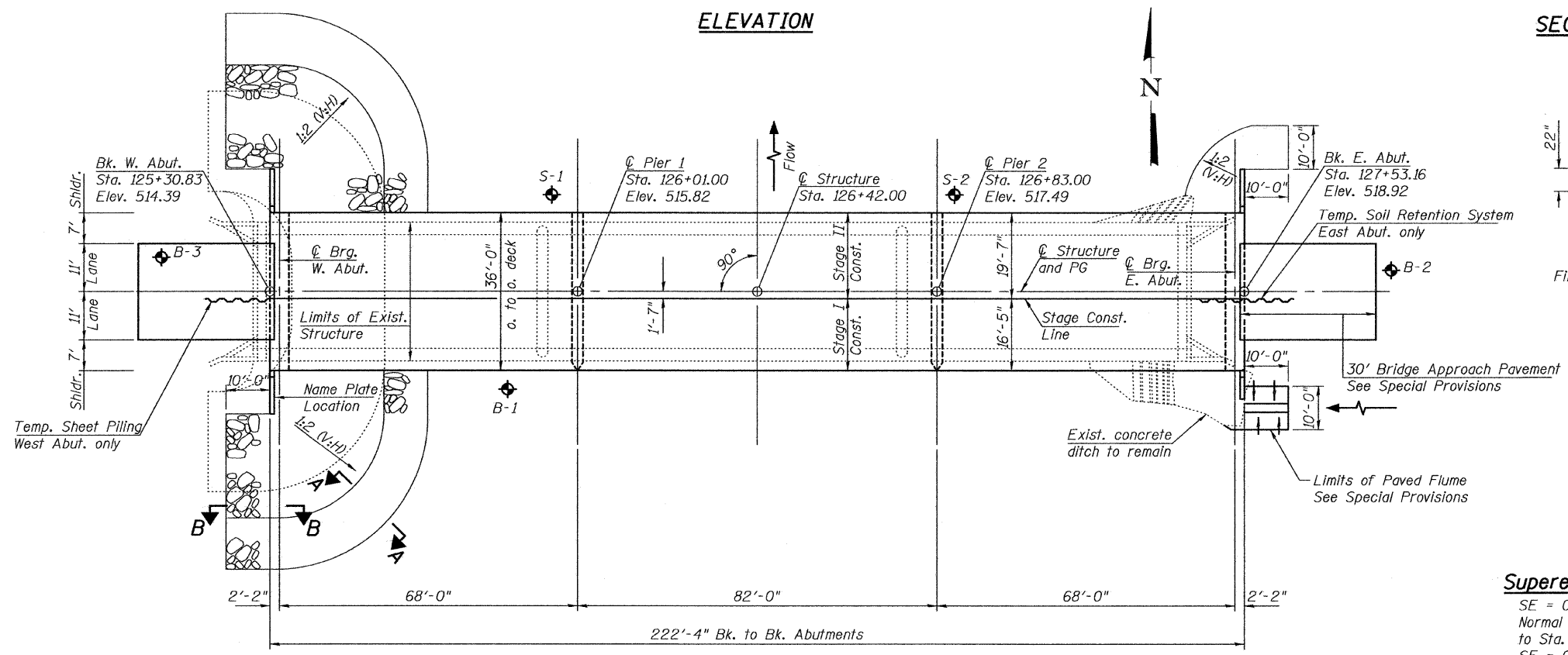
No salvage

ROUTE NO.	SECTION	COUNTY	DATE	SHEET	SHEET NO. 1
F.A.S. 287	#	GRUNDY	33	6	25 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-			

Contract #87376 *05-00039-03-BR

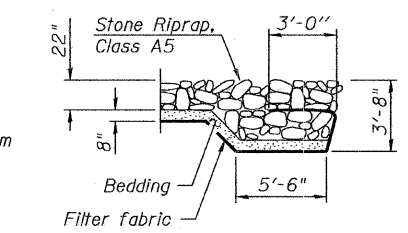


SECTION A-A



ELEVATION

PLAN



SECTION B-B

DESIGN SPECIFICATIONS

2002 AASHTO
DESIGN STRESSES
 FIELD UNITS
 f'c = 3,500 psi
 fy = 60,000 psi (Reinforcement)
 fy = 50,000 psi (M270 Grade 50) for primary structural members
 fy = 36,000 psi (M270 Grade 36)

LOADING HS 25
 Allow 50#/sq. ft. for future wearing surface.

SEISMIC DATA
 Seismic Performance Category (SPC) = A
 Bedrock Acceleration Coefficient (A) = 0.04
 Site Coefficient (S) = 1.0

INDEX OF SHEETS

- 1 General Plan and Elevation
- 2 General Notes and Total Bill of Material
- 3 Stage Construction Details
- 4 Temporary Construction Works
- 5 Temporary Concrete Barrier
- 6-9 Top of Slab Elevations
- 10 Top of Approach Slab Elevations West Approach
- 11 Top of Approach Slab Elevations East Approach
- 12 Superstructure
- 13 Superstructure Details
- 14 Steel Railing, Type SM
- 15 Structural Steel Details
- 16 Bearing Details
- 17 West Abutment
- 18 East Abutment
- 19 Pier 1
- 20 Pier 2
- 21 Pile Details
- 22 Bar Splicer Assembly Details
- 23-25 Boring Logs

Superelevation Transitions
 SE = 0.058 ft/ft at Sta. 123+78
 Normal Crown at Sta. 125+78
 to Sta. 127+75
 SE = 0.058 ft/ft at Sta. 129+25

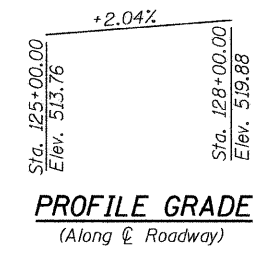
Mazon River
 BUILT 20__ BY
 GRUNDY COUNTY
 SECTION 05-00039-03-BR
 F.A.S. RT. 287 STA. 126+42.00
 SN 032-3101 LOADING HS25

NAME PLATE
 See Std. 515001

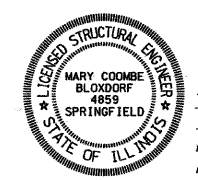
WATERWAY INFORMATION

Drainage Area = 486.0 Sq. Mi. Low Grade Elev. 506.6 @ Sta. 119+50

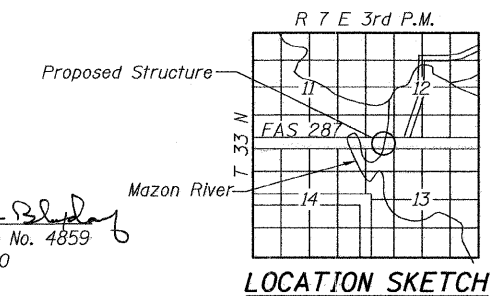
Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Prop.	Nat. H.W.E. Exist.	Prop.	Head - Ft. Exist.	Prop.	Headwater El. Exist.	Prop.
Design	30	17,776	2684	2726	502.52	503.71	0.34	0.31	502.86	502.83
	100	22,334	2902	2947	503.71	504.98	0.60	0.54	504.31	504.25
Max. Calc.	500	27,886	3139	3186	504.98	506.13	1.15	0.99	506.13	505.97



PROFILE GRADE
 (Along Roadway)



Mary Coombe Bloxdorf
 Illinois Structure No. 4859
 Expires: 11/30/10
 Date: 10/22/09



LOCATION SKETCH

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: GENERAL PLAN & ELEVATION

PROJECT: F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101

PROJECT NO. 05042
 SCALE: 1" = 40'-0"
 DATE: 10/21/09
 DRAWN BY: IFG
 CHECKED BY: CME/MCB
 DRAWING NO. 1

COOMBE-BLOXDORF P.C.
 Engineers / Land Surveyors
 Springfield, Illinois
 Design Firm License No. 184-002703

OF 25 SHTS

PLOT DATE = 10/22/09
 FILE NAME = \\bridge-planning-01\plott\p05042.dgn
 PLOT SCALE = 1" = 40'-0"
 USER NAME = CFC

GENERAL NOTES

Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts (in painted areas and M164 Type 3 in unpainted areas). Bolts 7/8 in. ϕ , holes 15/16 in. ϕ , unless otherwise noted.

Calculated weight of Structural Steel (M223, Grade 36) = 11862 lbs.
 Calculated weight of Structural Steel (M223, Grade 50) = 211697 lbs.

No field welding is permitted except as specified in the contract documents. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60. See Special Provisions.

Reinforcement bars designated (E) shall be epoxy coated.

Bearing seat surfaces shall be constructed or adjusted to their designated elevations within a tolerance of 1/8 inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.

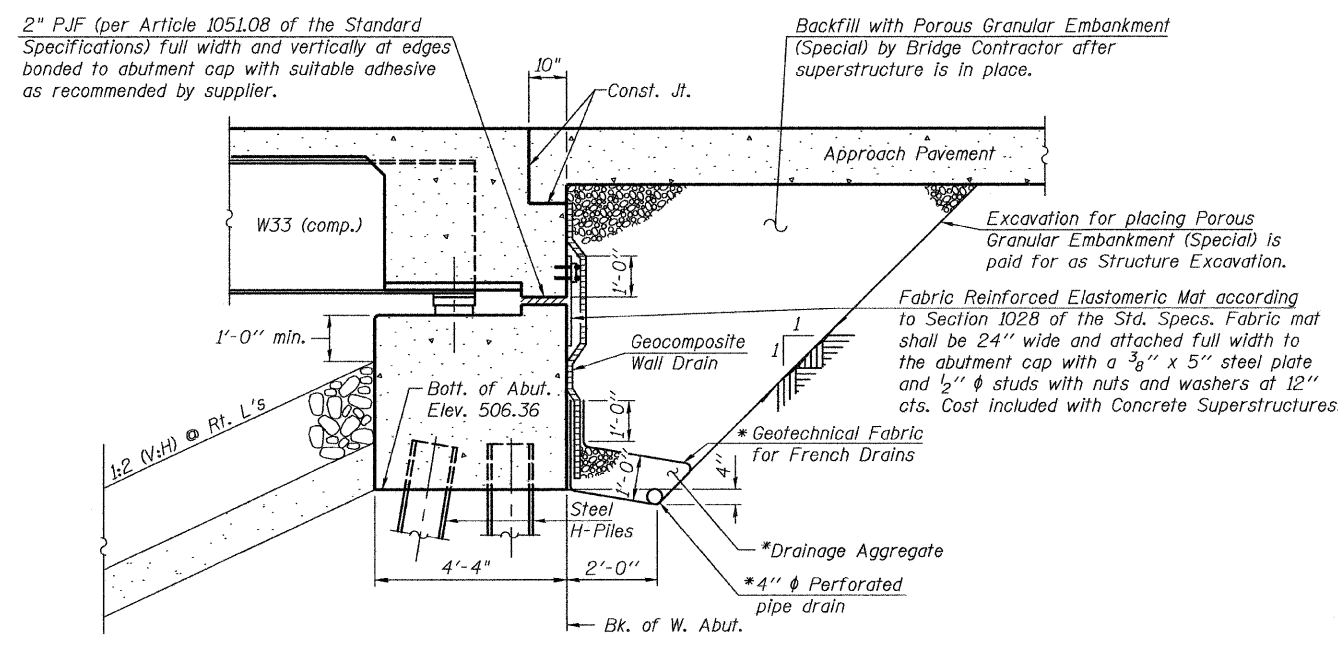
The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

The Inorganic Zinc Rich Primer / Acrylic / Acrylic Paint System shall be used for shop and field painting of new structural steel except where otherwise noted. The color of the final finish coat for all interior steel surfaces shall be gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Reddish Brown, Munsell No. 7.5 G 4/8. See Special Provision for "Cleaning and Painting New Metal Structures".

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

The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutments.

Layout of the paved flume may be varied in the field to conform and connect to existing paved ditch to drain as directed by the Engineer.



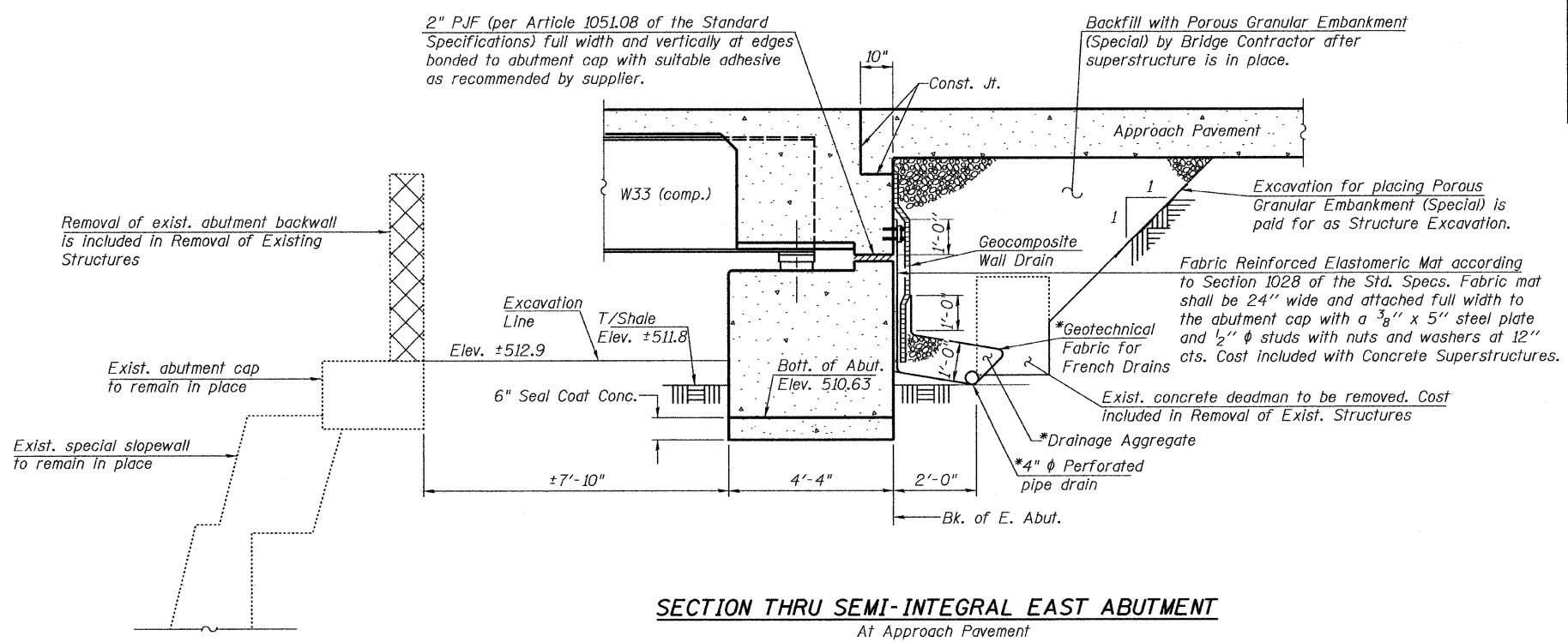
SECTION THRU SEMI-INTEGRAL WEST ABUTMENT
At Approach Pavement

* Included in the cost of Pipe Underdrains for Structures.

Notes:
 All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).
 See Diaphragm Elevation on Sheet 13 of 25 for limits of Fabric Reinforced Elastomeric Mat.

TOTAL BILL OF MATERIAL

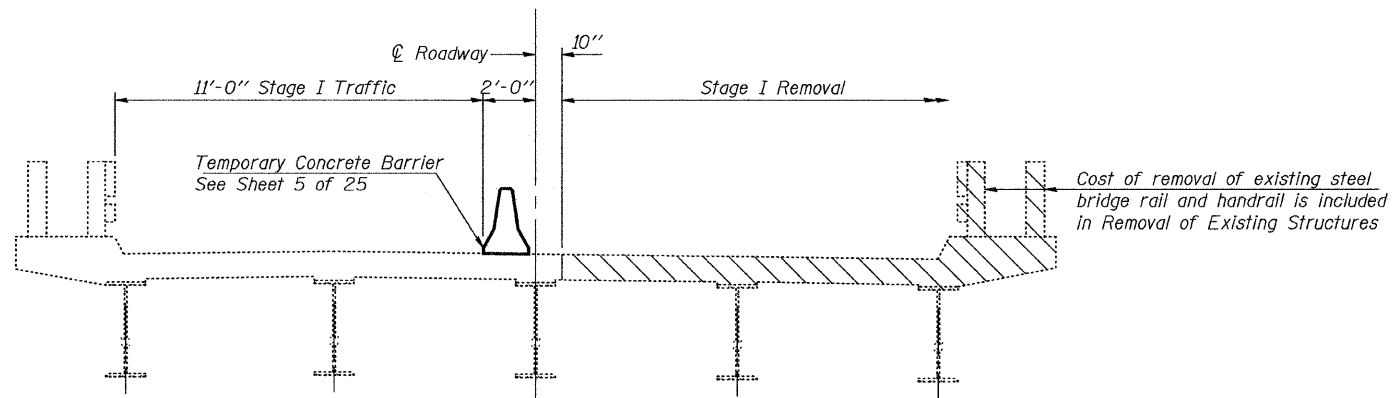
ITEM	UNIT	SUPER	SUB	TOTAL
Porous Granular Embankment, Special	Cu. Yd.		116	116
Stone Riprap Class A5	Sq. Yd.			425
Filter Fabric	Sq. Yd.			425
Removal of Existing Structures	Each			1
Slope Wall Removal	Sq. Yd.			260
Structure Excavation	Cu. Yd.		139	139
Rock Excavation for Structures	Cu. Yd.		10.2	10.2
Underwater Structure Excavation Protection-Location 1	Each		1	1
Underwater Structure Excavation Protection-Location 2	Each		1	1
Concrete Structures	Cu. Yd.		237.9	237.9
Concrete Superstructure	Cu. Yd.	238.1		238.1
Bridge Deck Grooving	Sq. Yd.	889		889
Seal Coat Concrete	Cu. Yd.		2.9	2.9
Concrete Encasement	Cu. Yd.		2.5	2.5
Protective Coat	Sq. Yd.	923		923
Furnishing and Erecting Structural Steel	L. Sum	1		1
Stud Shear Connectors	Each	4716	68	4784
Reinforcement Bars, Epoxy Coated	Pound	58880	15970	74850
Bar Splicers	Each	808	160	968
Steel Bridge Rail, Type SM	Foot	445		445
Furnishing Steel Piles HP 12x53	Foot		210	210
Furnishing Steel Piles HP 12x84	Foot		468	468
Driving Piles	Foot		210	210
Temporary Sheet Piling	Sq. Ft.			126
Temporary Soil Retention System	Sq. Ft.			154
Name Plates	Each		1	1
Elastomeric Bearing Assembly, Type 1	Each	12		12
Anchor Bolts 1/4"	Each		48	48
Geocomposite Wall Drain	Sq. Yd.			77
Pipe Underdrains for Structures 4"	Foot			136
Setting and Driving Piles in Rock	Each		12	12



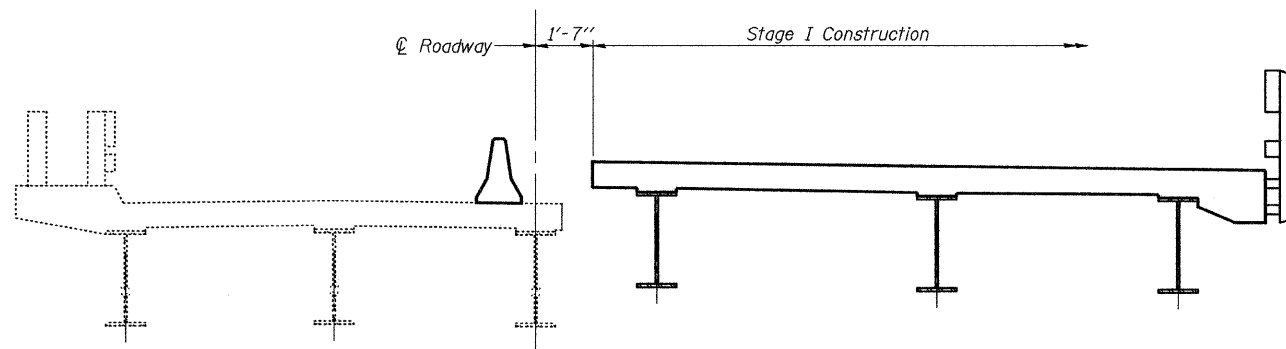
SECTION THRU SEMI-INTEGRAL EAST ABUTMENT
At Approach Pavement

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE GENERAL NOTES AND TOTAL BILL OF MATERIAL	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 10/21/09 DRAWN BY TFG CHECKED BY CME/MCB DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	2 OF 25 SHTS

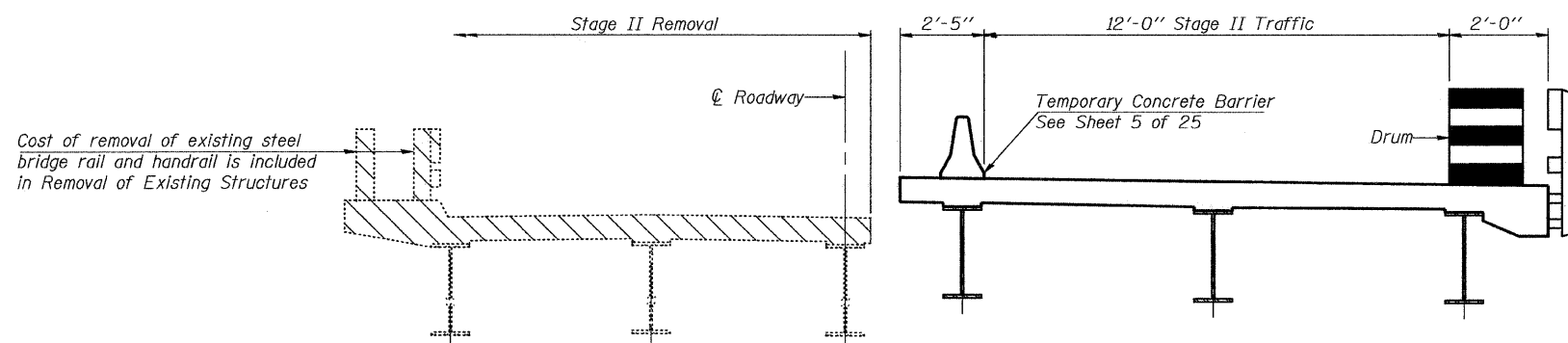
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 USER NAME = CFC



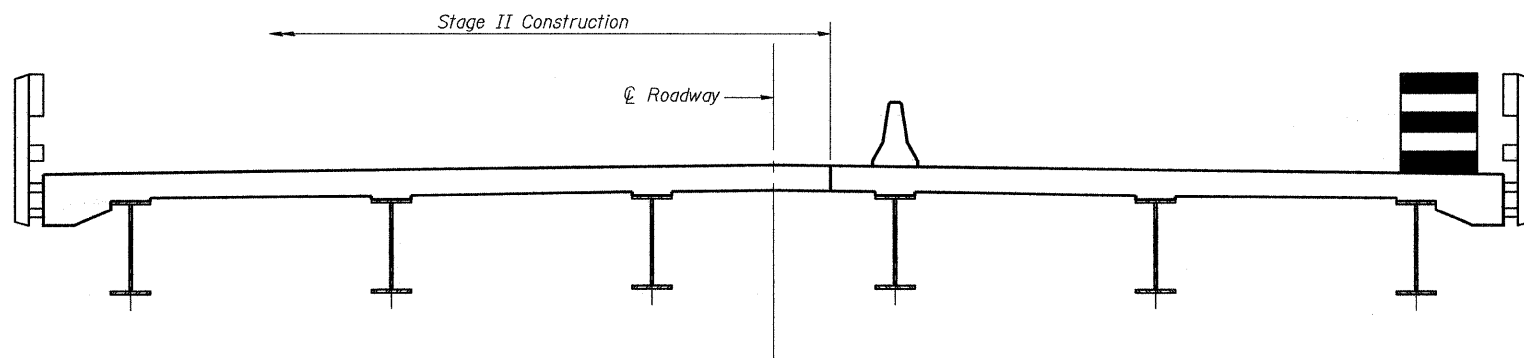
STAGE I REMOVAL



STAGE I CONSTRUCTION



STAGE II REMOVAL



STAGE II CONSTRUCTION

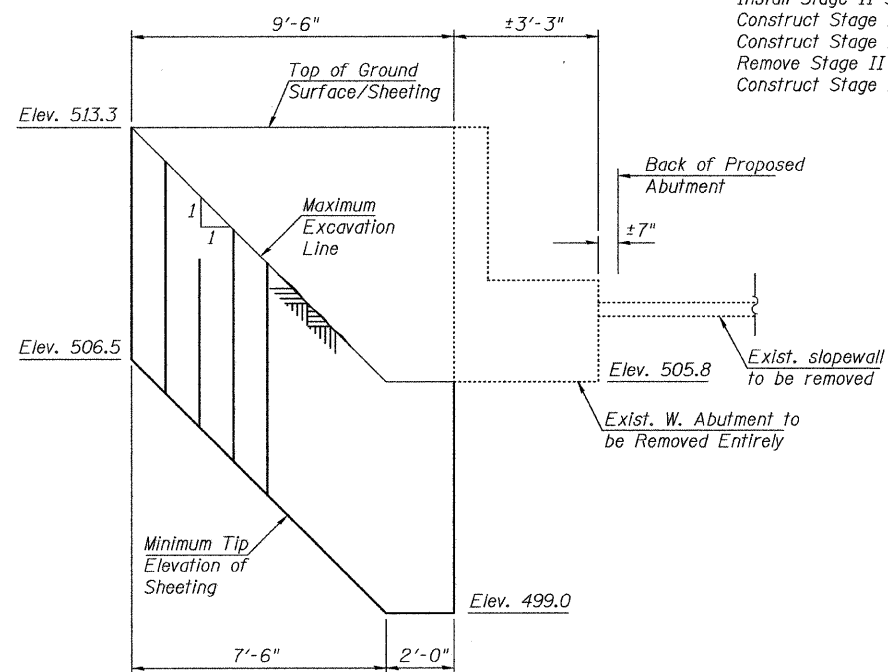
NOTES

All staging cross sections are looking East.
Hatched areas indicate Removal of Existing Structures.
For quantity of Temporary Concrete Barrier and Drums,
see roadway plans.

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE STAGE CONSTRUCTION DETAILS	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 8/27/09 DRAWN BY TFG CHECKED BY MCB/CME DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	3 OF 25 SHTS

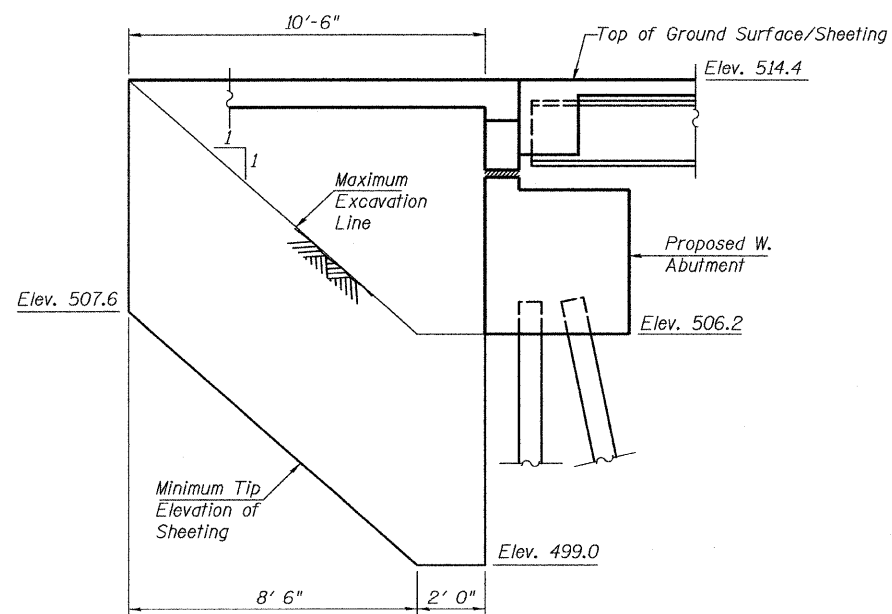
W. Abutment Removal and Construction Sequence

Remove existing Stage I Superstructure
 Sawcut existing abutment at Stage Removal Line
 Install Stage I Sheeting
 Excavate behind Stage I Abutment Removal
 Remove existing abutment to Stage Removal Line
 Install Stage II Sheeting as required
 Construct Stage I Abutment
 Construct Stage I Superstructure
 Remove Stage II Superstructure and Abutment
 Construct Stage II Abutment and Superstructure



STAGE I SHEETING

Min. Section Modulus = 4.8 in³/ft.

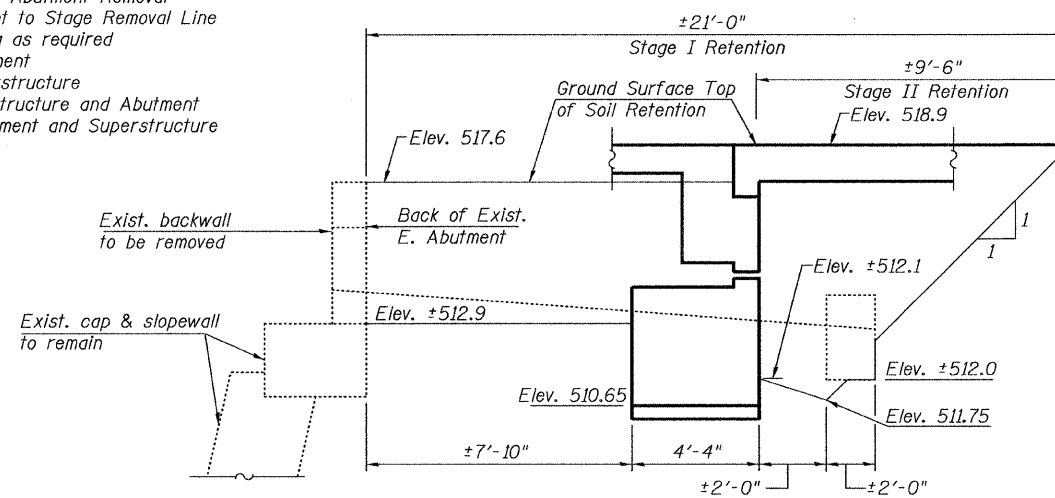


STAGE II SHEETING

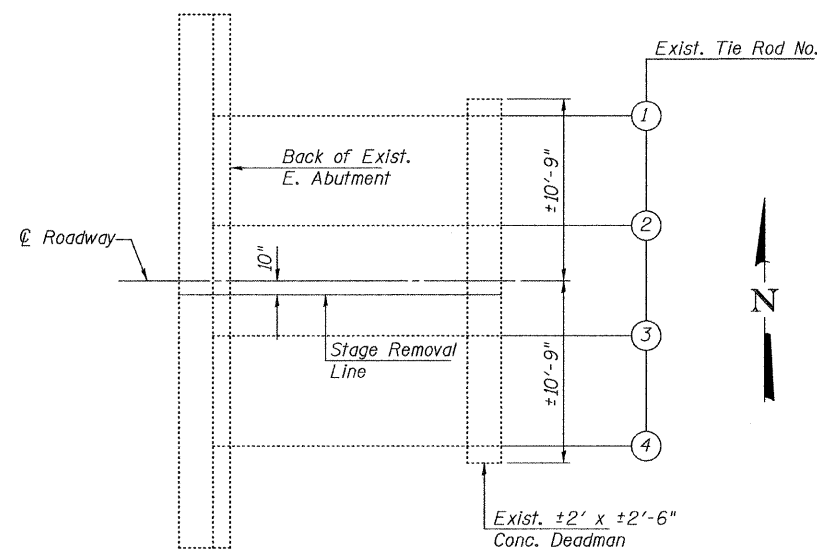
Min. Section Modulus = 4.8 in³/ft.

TEMPORARY SHEET PILING DETAILS

West Abutment



SECTION AT EAST ABUTMENT



PLAN

Showing existing tie rod locations

TEMPORARY SOIL RETENTION DETAILS

East Abutment

E. Abutment Removal and Construction Sequence

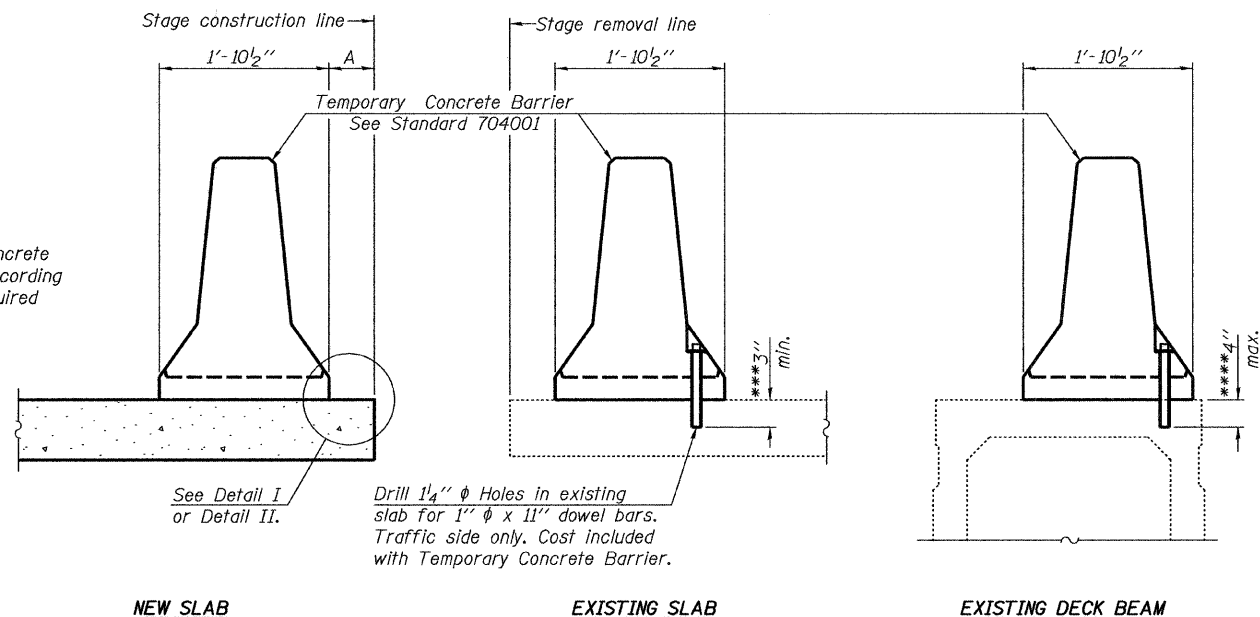
Remove existing Stage I Superstructure
 Sawcut existing abutment backwall at Stage Removal Line
 Install Stage I Temporary Soil Retention System
 Cut Deadman Tie Rods 3 and 4 (See Plan View)
 Excavate behind abutment as required for Stage I backwall removal and Stage I Abutment Construction
 Remove backwall and Deadman to Stage Removal Line
 Install Stage II Temporary Soil Retention System as required
 Construct Stage I Abutment
 Construct Stage I Superstructure
 Remove Stage II Superstructure
 Cut Deadman Tie Rods 1 and 2 (See Plan View)
 Remove Stage II Abutment
 Construct Stage II Abutment and Superstructure

Note:
 A cantilevered sheet piling design does not appear feasible at the East Abutment and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE	
TEMPORARY CONSTRUCTION WORKS	
PROJECT	PROJECT NO.
F.A.S. RT. 287 (C.H. 29)	05042
SECTION 05-00039-03-BR	SCALE
GRUNDY COUNTY	DATE
STATION 126+42.00	8/27/09
STRUCTURE NO. 032-3101	DRAWN BY
	TFG
	CHECKED BY
	MCB/CME
DRAWING NO.	
4	
OF 25 SHTS	

PLOT DATE = 08/27/2009
 FILE NAME = \\br1dgs-planning\04-piling.dgn
 PLOT SCALE = 250.0000 1/4" / 1"
 USER NAME = CFC

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



SECTIONS THRU SLAB OR DECK BEAM

NOTES

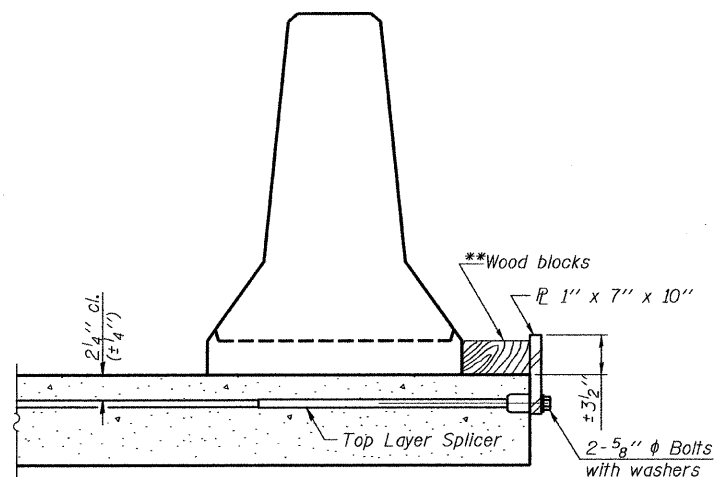
Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x7"x10" steel PL to the top layer of couplers with 2-5/8" φ bolts screwed to coupler at approximate C of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x10" steel PL to the concrete slab or concrete wearing surface with 2-5/8" φ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate C of each barrier panel.

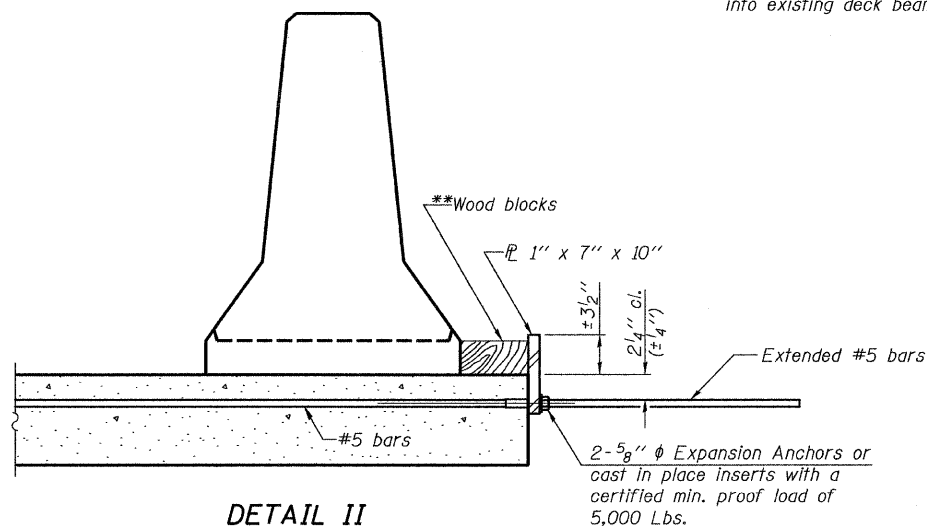
Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x 10" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

***Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

****If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.

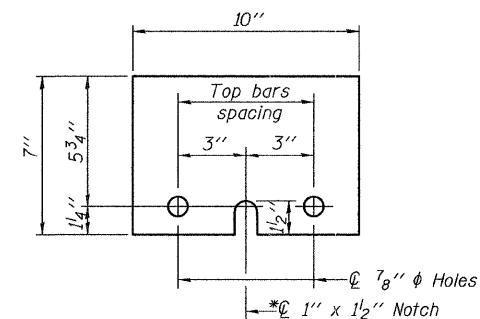


DETAIL I



DETAIL II

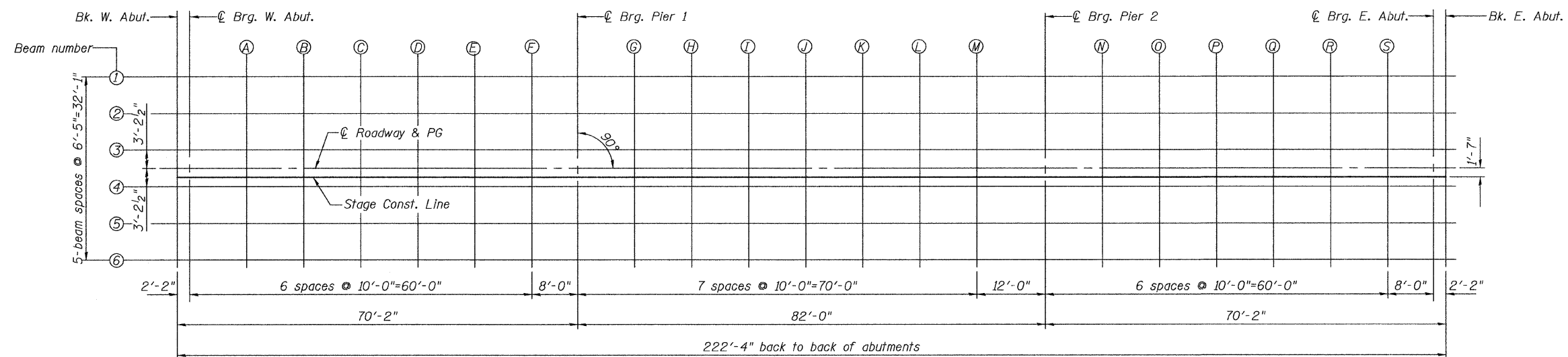
**Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.



STEEL RETAINER PL 1' x 7' x 10'

* Required only with Detail II

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE	
TEMPORARY CONCRETE BARRIER	
PROJECT	PROJECT NO.
F.A.S. RT. 287 (C.H. 29)	05042
SECTION 05-00039-03-BR	SCALE
GRUNDY COUNTY	DATE 8/27/09
STATION 126+42.00	DRAWN BY TFG
STRUCTURE NO. 032-3101	CHECKED BY CME/MCB
DRAWING NO.	
5	
COOMBE-BLOXDORF P.C.	
Engineers / Land Surveyors	
Springfield, Illinois	
Design Firm License No. 184-002703	
OF 25 SHTS	

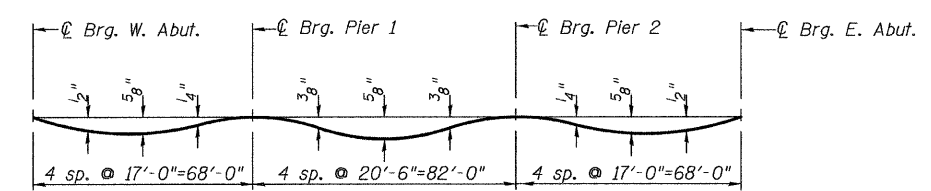


PLAN

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 USER NAME = DFC

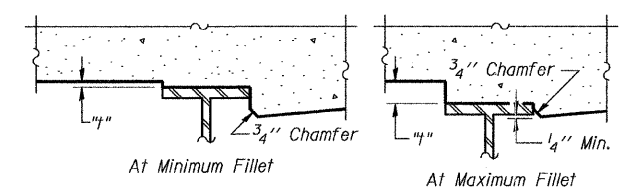
E-S 11-1-06

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE TOP OF SLAB ELEVATIONS	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 8/27/09 DRAWN BY TFG CHECKED BY MCB/CME DRAWING NO. 6
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	
OF 25 SHTS	



DEAD LOAD DEFLECTION DIAGRAM
(Includes weight of 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 sheets 7 thru 9 of 25.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheets 7 thru 9 of 25, minus slab thickness, equals the fillet heights "t" above top flange of beams.

FILLET HEIGHTS

BEAM 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	-16.041	514.151	514.151
CL Brg W Abut	12533.000	-16.041	514.193	514.193
A	12543.000	-16.041	514.402	514.423
B	12553.000	-16.041	514.604	514.642
C	12563.000	-16.041	514.800	514.850
D	12573.000	-16.041	515.012	515.051
E	12583.000	-16.041	515.212	515.235
F	12593.000	-16.041	515.416	515.419
CL Pier 1	12601.000	-16.041	515.579	515.579
G	12611.000	-16.041	515.783	515.795
H	12621.000	-16.041	515.987	516.018
I	12631.000	-16.041	516.191	516.237
J	12641.000	-16.041	516.395	516.447
K	12651.000	-16.041	516.599	516.647
L	12661.000	-16.041	516.803	516.837
M	12671.000	-16.041	517.007	517.023
CL Pier 2	12683.000	-16.041	517.252	517.252
N	12693.000	-16.041	517.456	517.462
O	12703.000	-16.041	517.660	517.688
P	12713.000	-16.041	517.864	517.912
Q	12723.000	-16.041	518.068	518.122
R	12733.000	-16.041	518.272	518.316
S	12743.000	-16.041	518.476	518.496
CL Brg E Abut	12751.000	-16.041	518.639	518.639
Bk E Abut	12753.160	-16.041	518.683	518.683

BEAM 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	-9.625	514.242	514.242
CL Brg W Abut	12533.000	-9.625	514.291	514.291
A	12543.000	-9.625	514.490	514.522
B	12553.000	-9.625	514.703	514.740
C	12563.000	-9.625	514.902	514.953
D	12573.000	-9.625	515.102	515.152
E	12583.000	-9.625	515.308	515.332
F	12593.000	-9.625	515.512	515.515
CL Pier 1	12601.000	-9.625	515.676	515.676
G	12611.000	-9.625	515.880	515.892
H	12621.000	-9.625	516.084	516.114
I	12631.000	-9.625	516.288	516.333
J	12641.000	-9.625	516.492	516.544
K	12651.000	-9.625	516.696	516.743
L	12661.000	-9.625	516.900	516.933
M	12671.000	-9.625	517.104	517.119
CL Pier 2	12683.000	-9.625	517.348	517.348
N	12693.000	-9.625	517.552	517.558
O	12703.000	-9.625	517.756	517.784
P	12713.000	-9.625	517.960	518.008
Q	12723.000	-9.625	518.164	518.218
R	12733.000	-9.625	518.368	518.412
S	12743.000	-9.625	518.572	518.593
CL Brg E Abut	12751.000	-9.625	518.735	518.735
Bk E Abut	12753.160	-9.625	518.780	518.780

BEAM 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	-3.207	514.341	514.341
CL Brg W Abut	12533.000	-3.207	514.393	514.393
A	12543.000	-3.207	514.592	514.611
B	12553.000	-3.207	514.790	514.843
C	12563.000	-3.207	515.003	515.052
D	12573.000	-3.207	515.197	515.241
E	12583.000	-3.207	515.405	515.428
F	12593.000	-3.207	515.609	515.611
CL Pier 1	12601.000	-3.207	515.772	515.772
G	12611.000	-3.207	515.976	515.988
H	12621.000	-3.207	516.180	516.210
I	12631.000	-3.207	516.384	516.429
J	12641.000	-3.207	516.588	516.640
K	12651.000	-3.207	516.792	516.839
L	12661.000	-3.207	516.996	517.030
M	12671.000	-3.207	517.200	517.215
CL Pier 2	12683.000	-3.207	517.445	517.445
N	12693.000	-3.207	517.649	517.654
O	12703.000	-3.207	517.853	517.880
P	12713.000	-3.207	518.057	518.104
Q	12723.000	-3.207	518.260	518.314
R	12733.000	-3.207	518.465	518.508
S	12743.000	-3.207	518.669	518.689
CL Brg E Abut	12751.000	-3.207	518.832	518.832
Bk E Abut	12753.160	-3.207	518.876	518.876

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USER NAME = CFC.

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE TOP OF SLAB ELEVATIONS	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 8/27/09 DRAWN BY TFG CHECKED BY MCB/CME DRAWING NO. 7
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	
OF 25 SHTS	

PG & CL ROADWAY

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	0.000	514.389	514.389
CL Brg W Abut	12533.000	0.000	514.433	514.433
A	12543.000	0.000	514.637	514.662
B	12553.000	0.000	514.841	514.888
C	12563.000	0.000	515.045	515.099
D	12573.000	0.000	515.249	515.293
E	12583.000	0.000	515.453	515.476
F	12593.000	0.000	515.657	515.659
CL Pier 1	12601.000	0.000	515.820	515.820
G	12611.000	0.000	516.024	516.036
H	12621.000	0.000	516.228	516.258
I	12631.000	0.000	516.432	516.477
J	12641.000	0.000	516.636	516.688
K	12651.000	0.000	516.840	516.888
L	12661.000	0.000	517.044	517.078
M	12671.000	0.000	517.248	517.263
CL Pier 2	12683.000	0.000	517.493	517.493
N	12693.000	0.000	517.697	517.703
O	12703.000	0.000	517.901	517.929
P	12713.000	0.000	518.105	518.152
Q	12723.000	0.000	518.309	518.363
R	12733.000	0.000	518.513	518.556
S	12743.000	0.000	518.717	518.737
CL Brg E Abut	12751.000	0.000	518.880	518.880
Bk E Abut	12753.160	0.000	518.924	518.924

STAGE CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	1.582	514.392	514.392
CL Brg W Abut	12533.000	1.582	514.435	514.435
A	12543.000	1.582	514.633	514.659
B	12553.000	1.582	514.832	514.879
C	12563.000	1.582	515.030	515.084
D	12573.000	1.582	515.228	515.273
E	12583.000	1.582	515.429	515.452
F	12593.000	1.582	515.633	515.636
CL Pier 1	12601.000	1.582	515.796	515.796
G	12611.000	1.582	516.000	516.012
H	12621.000	1.582	516.204	516.234
I	12631.000	1.582	516.408	516.454
J	12641.000	1.582	516.612	516.664
K	12651.000	1.582	516.816	516.864
L	12661.000	1.582	517.020	517.054
M	12671.000	1.582	517.224	517.240
CL Pier 2	12683.000	1.582	517.469	517.469
N	12693.000	1.582	517.673	517.679
O	12703.000	1.582	517.877	517.905
P	12713.000	1.582	518.081	518.128
Q	12723.000	1.582	518.285	518.339
R	12733.000	1.582	518.489	518.532
S	12743.000	1.582	518.693	518.713
CL Brg E Abut	12751.000	1.582	518.856	518.856
Bk E Abut	12753.160	1.582	518.900	518.900

BEAM 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	3.207	514.396	514.396
CL Brg W Abut	12533.000	3.207	514.438	514.438
A	12543.000	3.207	514.630	514.656
B	12553.000	3.207	514.822	514.822
C	12563.000	3.207	515.015	515.069
D	12573.000	3.207	515.207	515.251
E	12583.000	3.207	515.405	515.428
F	12593.000	3.207	515.609	515.611
CL Pier 1	12601.000	3.207	515.772	515.772
G	12611.000	3.207	515.976	515.988
H	12621.000	3.207	516.180	516.210
I	12631.000	3.207	516.384	516.429
J	12641.000	3.207	516.588	516.640
K	12651.000	3.207	516.792	516.839
L	12661.000	3.207	516.996	517.030
M	12671.000	3.207	517.200	517.215
CL Pier 2	12683.000	3.207	517.445	517.445
N	12693.000	3.207	517.649	517.654
O	12703.000	3.207	517.853	517.880
P	12713.000	3.207	518.057	518.104
Q	12723.000	3.207	518.260	518.314
R	12733.000	3.207	518.465	518.508
S	12743.000	3.207	518.669	518.689
CL Brg E Abut	12751.000	3.207	518.832	518.832
Bk E Abut	12753.160	3.207	518.876	518.876

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ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE	
TOP OF SLAB ELEVATIONS	
PROJECT	PROJECT NO.
F.A.S. RT. 287 (C.H. 29)	05042
SECTION 05-00039-03-BR	SCALE
GRUNDY COUNTY	DATE 8/27/09
STATION 126+42.00	DRAWN BY TFC
STRUCTURE NO. 032-3101	CHECKED BY MCB/CME
DRAWING NO.	
COOMBE-BLOXDORF P.C.	
Engineers / Land Surveyors	
Springfield, Illinois	
Design Firm License No. 184-002703	8
OF 25 SHTS	

BEAM 5

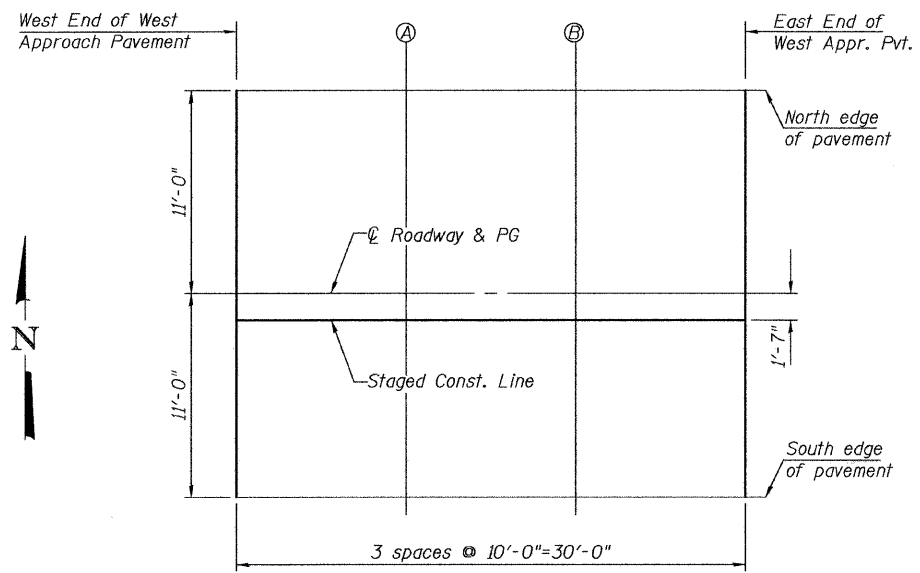
Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	9.625	514.411	514.411
CL Brg W Abut	12533.000	9.625	514.448	514.448
A	12543.000	9.625	514.616	514.616
B	12553.000	9.625	514.785	514.832
C	12563.000	9.625	514.954	515.008
D	12573.000	9.625	515.123	515.167
E	12583.000	9.625	515.308	515.332
F	12593.000	9.625	515.512	515.515
CL Pier 1	12601.000	9.625	515.676	515.676
G	12611.000	9.625	515.880	515.892
H	12621.000	9.625	516.084	516.114
I	12631.000	9.625	516.288	516.333
J	12641.000	9.625	516.492	516.544
K	12651.000	9.625	516.696	516.743
L	12661.000	9.625	516.900	516.933
M	12671.000	9.625	517.104	517.119
CL Pier 2	12683.000	9.625	517.348	517.348
N	12693.000	9.625	517.552	517.558
O	12703.000	9.625	517.756	517.784
P	12713.000	9.625	517.960	518.008
Q	12723.000	9.625	518.164	518.218
R	12733.000	9.625	518.368	518.412
S	12743.000	9.625	518.572	518.593
CL Brg E Abut	12751.000	9.625	518.735	518.735
Bk E Abut	12753.160	9.625	518.780	518.780

BEAM 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk W Abut	12530.830	16.041	514.426	514.426
CL Brg W Abut	12533.000	16.041	514.457	514.457
A	12543.000	16.041	514.603	514.628
B	12553.000	16.041	514.748	514.795
C	12563.000	16.041	514.894	514.948
D	12573.000	16.041	515.039	515.084
E	12583.000	16.041	515.212	515.235
F	12593.000	16.041	515.416	515.419
CL Pier 1	12601.000	16.041	515.579	515.579
G	12611.000	16.041	515.783	515.795
H	12621.000	16.041	515.987	516.018
I	12631.000	16.041	516.191	516.237
J	12641.000	16.041	516.395	516.447
K	12651.000	16.041	516.599	516.647
L	12661.000	16.041	516.803	516.837
M	12671.000	16.041	517.007	517.023
CL Pier 2	12683.000	16.041	517.252	517.252
N	12693.000	16.041	517.456	517.462
O	12703.000	16.041	517.660	517.688
P	12713.000	16.041	517.864	517.912
Q	12723.000	16.041	518.068	518.122
R	12733.000	16.041	518.272	518.316
S	12743.000	16.041	518.476	518.496
CL Brg E Abut	12751.000	16.041	518.639	518.639
Bk E Abut	12753.160	16.041	518.683	518.683

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ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE TOP OF SLAB ELEVATIONS	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 8/27/09 DRAWN BY TFG CHECKED BY MCB/CME DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	9 OF 25 SHTS



PLAN

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W End of West Appr	12501.663	-11.000	513.627
A	12511.663	-11.000	513.839
B	12521.663	-11.000	514.038
E End of West Appr	12531.663	-11.000	514.239

ROADWAY & PG

Location	Station	Offset	Theoretical Grade Elevations
W End of West Appr	12501.663	0.000	513.794
A	12511.663	0.000	513.998
B	12521.663	0.000	514.202
E End of West Appr	12531.663	0.000	514.406

STAGE CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations
W End of West Appr	12501.663	1.582	513.815
A	12511.663	1.582	514.013
B	12521.663	1.582	514.211
E End of West Appr	12531.663	1.582	514.409

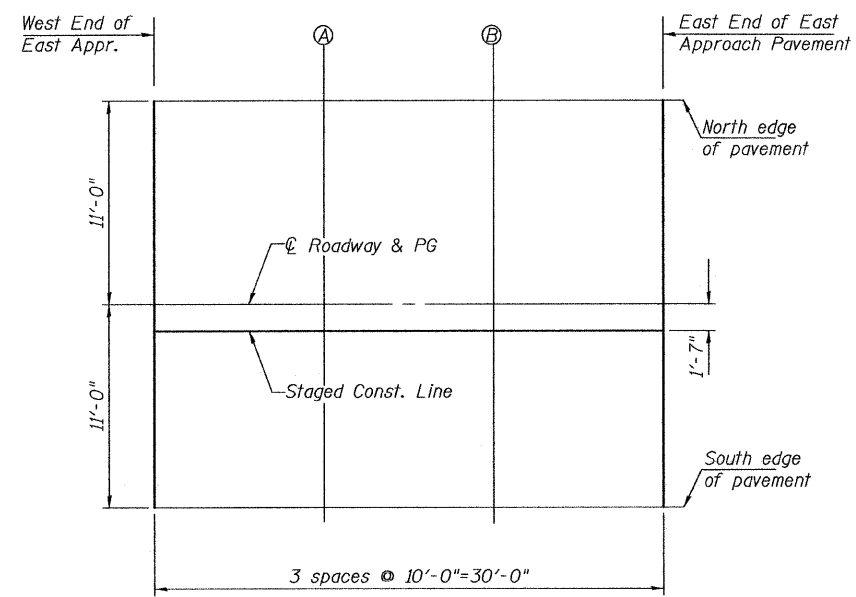
SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W End of West Appr	12501.663	11.000	513.940
A	12511.663	11.000	514.104
B	12521.663	11.000	514.267
E End of West Appr	12531.663	11.000	514.431

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E-AS 9-3-07

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE TOP OF APPROACH SLAB ELEVATIONS WEST APPROACH	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 10/21/09 DRAWN BY TFG CHECKED BY CME/MCB DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	10 OF 25 SHTS



PLAN

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W End of East Appr	12752.327	-11.000	518.742
A	12762.327	-11.000	518.946
B	12772.327	-11.000	519.150
E End of East Appr	12782.327	-11.000	519.340

ROADWAY & PG

Location	Station	Offset	Theoretical Grade Elevations
W End of East Appr	12752.327	0.000	518.907
A	12762.327	0.000	519.111
B	12772.327	0.000	519.315
E End of East Appr	12782.327	0.000	519.519

STAGE CONSTRUCTION LINE

Location	Station	Offset	Theoretical Grade Elevations
W End of East Appr	12752.327	1.582	518.883
A	12762.327	1.582	519.087
B	12772.327	1.582	519.291
E End of East Appr	12782.327	1.582	519.500

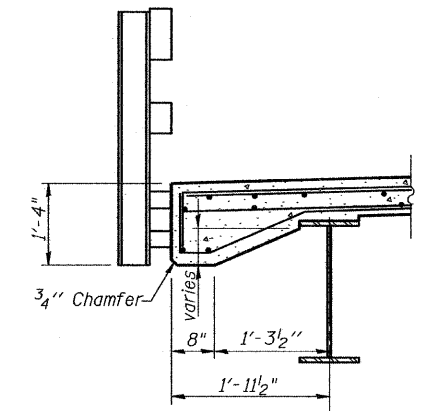
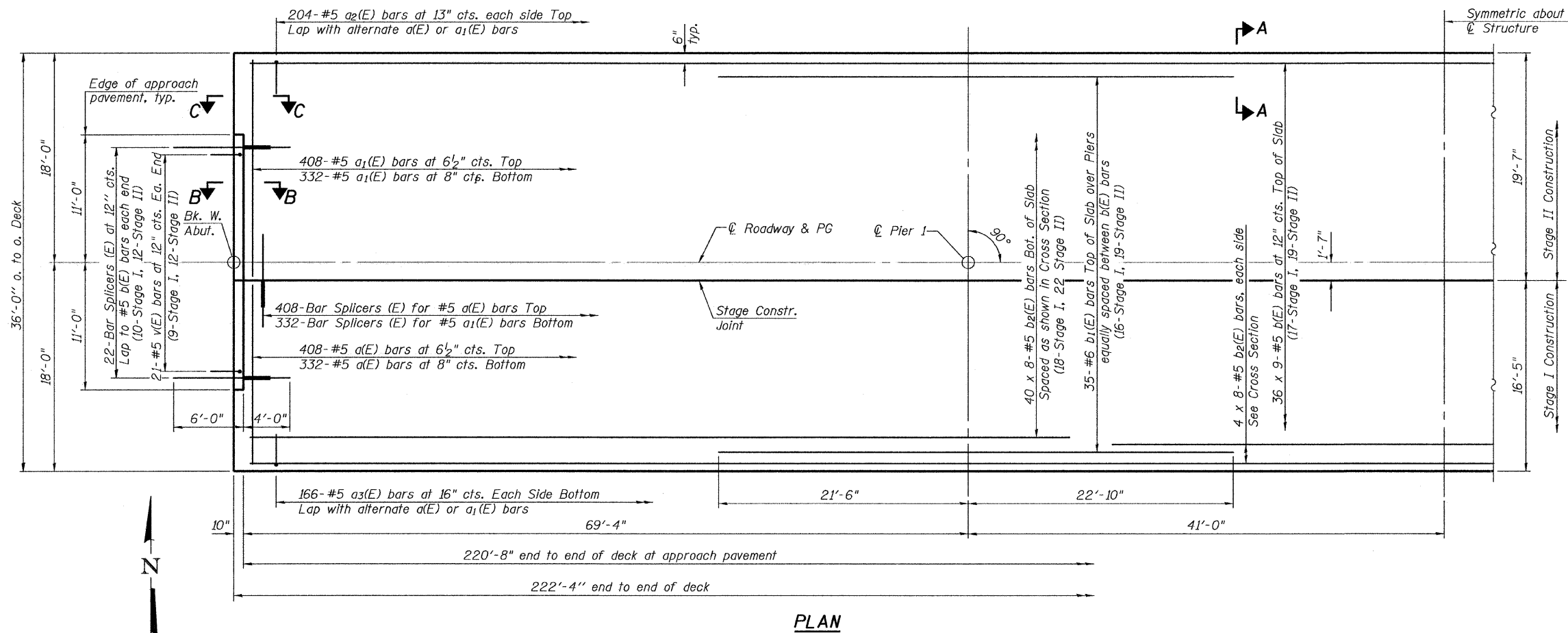
SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W End of East Appr	12752.327	11.000	518.742
A	12762.327	11.000	518.946
B	12772.327	11.000	519.150
E End of East Appr	12782.327	11.000	519.386

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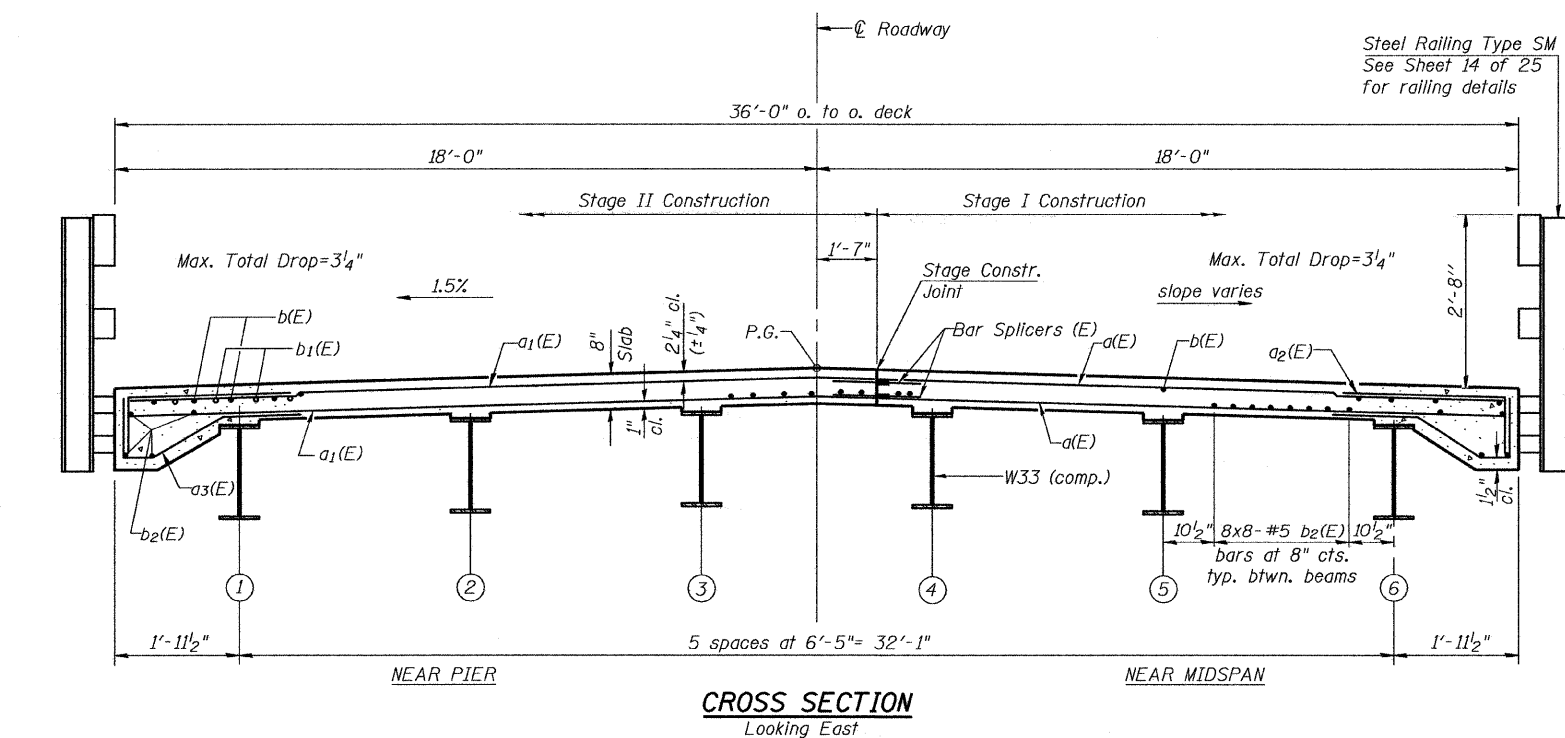
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SHEET TITLE TOP OF APPROACH SLAB ELEVATIONS EAST APPROACH	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 10/21/09 DRAWN BY TFG CHECKED BY CME/MCB DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	11 OF 25 SHTS



SECTION A-A

**SUPERSTRUCTURE
BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
a(E)	740	#5	16'-1"	—
a1(E)	740	#5	19'-3"	—
a2(E)	408	#5	5'-0"	—
a3(E)	332	#5	5'-3"	—
b(E)	324	#5	26'-0"	—
b1(E)	70	#6	44'-4"	—
b2(E)	384	#5	29'-0"	—
m(E)	10	#6	15'-11"	—
m1(E)	10	#6	19'-1"	—
m2(E)	12	#6	7'-2"	—
m3(E)	12	#6	8'-3"	—
m4(E)	8	#6	1'-4"	—
m5(E)	20	#6	6'-1"	—
s(E)	92	#5	6'-7"	—
s1(E)	72	#4	8'-9"	—
u(E)	46	#5	2'-10"	—
u1(E)	32	#5	8'-1"	—
v(E)	42	#5	3'-3"	—
Reinforcement Bars, Epoxy Coated		Pound	58880	
Concrete Superstructure		Cu. Yd.	238.1	
Bar Splicers		Each	808	



NOTES

Reinforcement bars in the top of the deck shall be placed with a 1/2" minimum clearance in the area of the rail post anchor devices. 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.

See Sheet 13 of 25 for Diaphragm Elevation at Abutment, Section B-B, Section C-C and Bar Details.

Bars indicated thus 6 x 15-#5 etc. indicates 6 lines of bars with 15 lengths per line.

Provide utility conduit thru diaphragm and hanger locations similar to existing conditions. Coordinate with utility Engineer.

See sheet 14 of 25 for Rail Post Locations to locate Anchor Device.

MIN. BAR LAP
 #5 bar = 1'-8"
 #6 bar = 2'-0"

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ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: SUPERSTRUCTURE

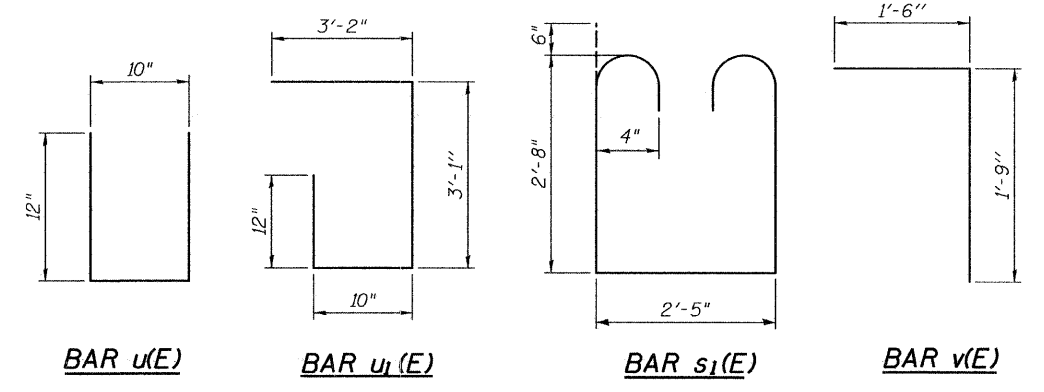
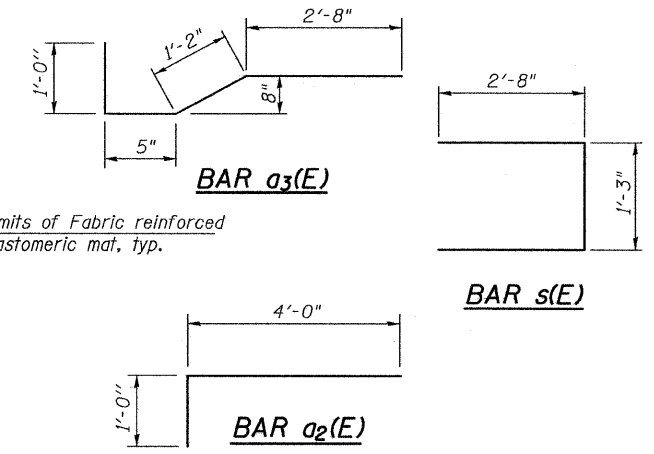
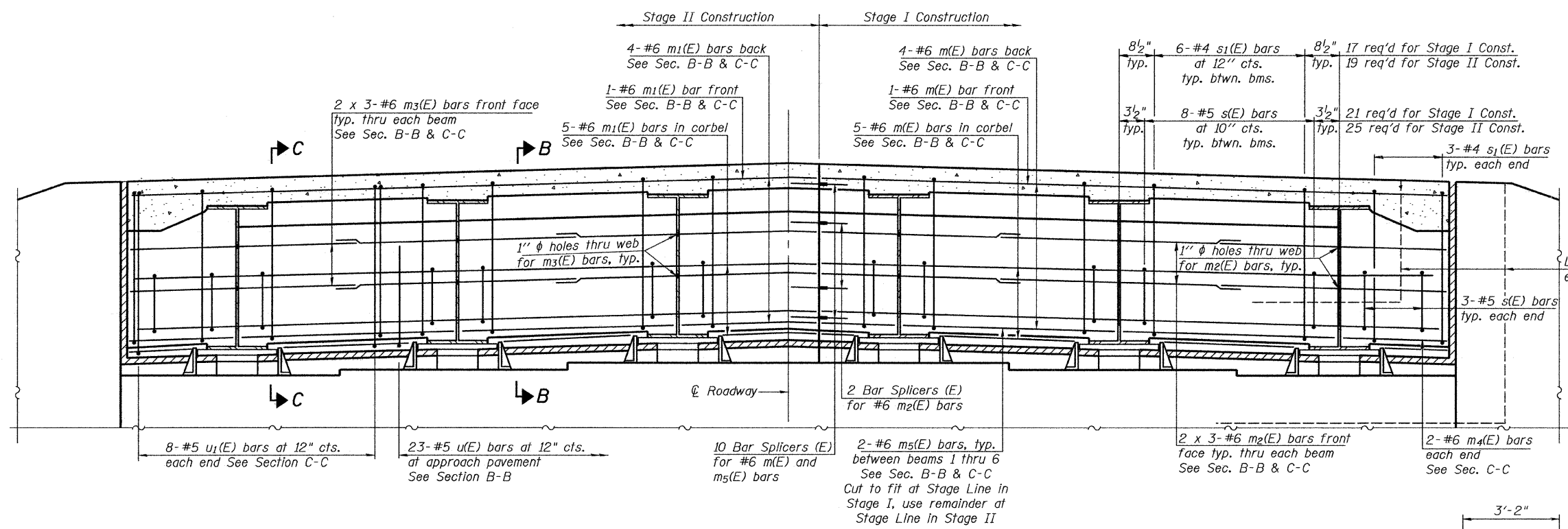
PROJECT: F.A.S. RT. 287 (C.H. 29)
 SECTION 05-00039-03-BR
 GRUNDY COUNTY
 STATION 126+42.00
 STRUCTURE NO. 032-3101

PROJECT NO. 05042
 SCALE: 5/8"=1'-0"
 DATE: 10/21/09
 DRAWN BY: TFG
 CHECKED BY: CME/MCB
 DRAWING NO. 12

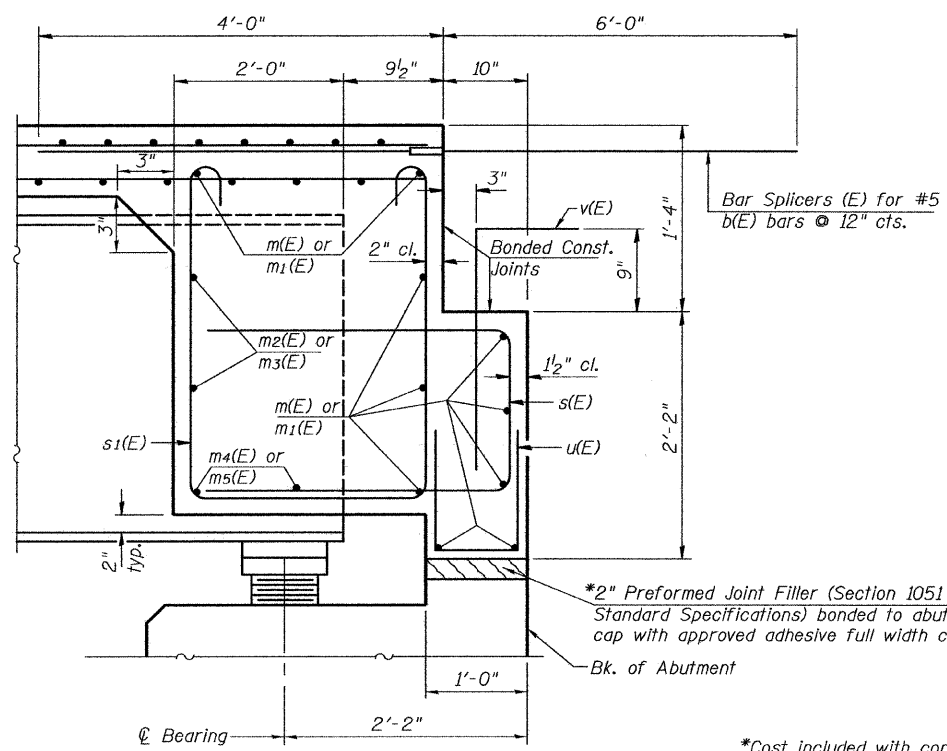
COOMBE-BLOXDORF P.C.
 Engineers / Land Surveyors
 Springfield, Illinois
 Design Firm License No. 184-002703

OF 25 SHTS

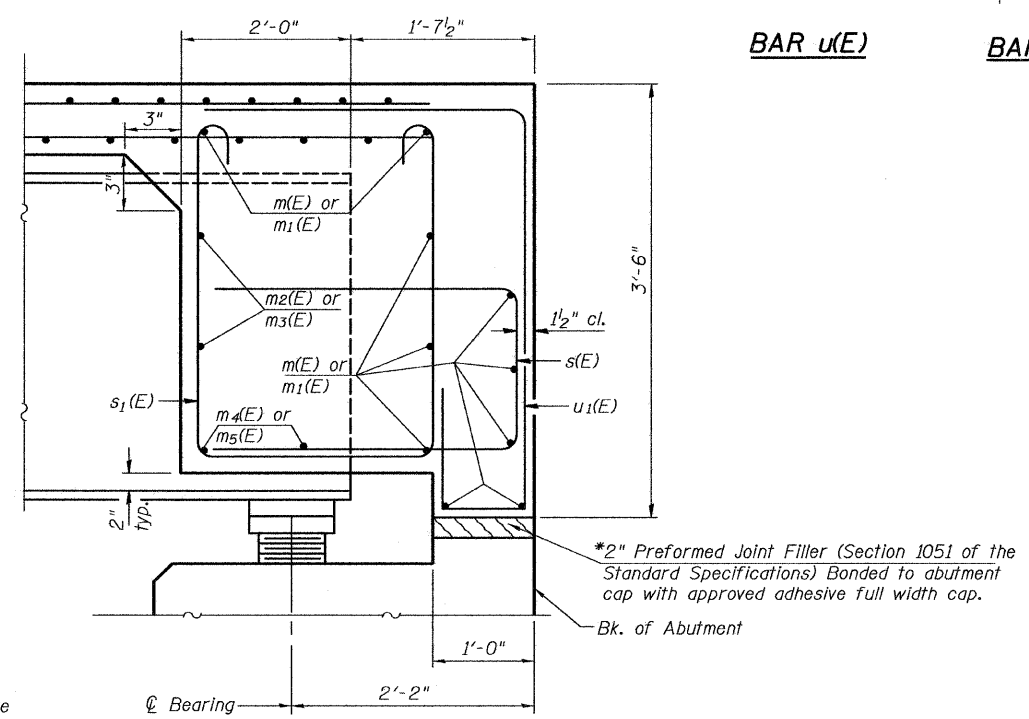
ROUTE NO.	SECTION	COUNTY	STATES	SHEET	SHEET NO. 13 25 SHEETS
F.A.S. 287	#	GRUNDY	33	18	
FED. ROAD DIST. NO. 7		ILLINOIS		FED. AID PROJECT-	
Contract #87376 *05-00039-03-BR					



DIAPHRAGM ELEVATION AT EAST ABUTMENT
Looking East



SECTION B-B
within approach pavement limits



SECTION C-C
beyond approach pavement limits

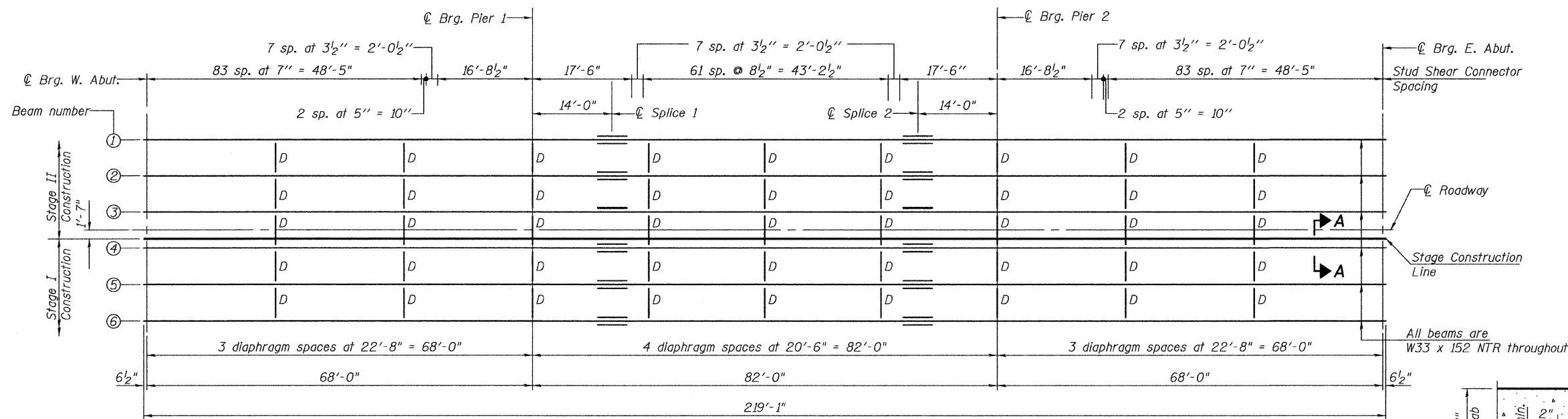
NOTES

- Reinforcement bars in diaphragm are billed with superstructure on sheet 12 of 25.
- Concrete in diaphragms is included with Concrete Superstructure on sheet 12 of 25.
- Bars indicated thus 1 x 2-#5 etc. indicates 1 line of bars with 2 lengths per line.
- See sheet 22 of 25 for bar splicer details.
- Provide utility conduit thru diaphragm and hanger locations similar to existing conditions. Coordinate with utility Engineer.

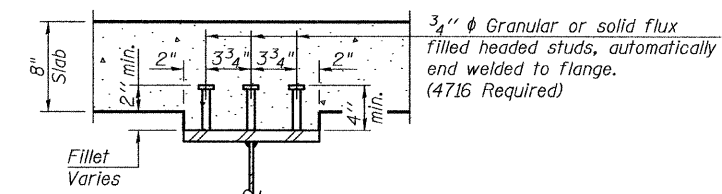
ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE SUPERSTRUCTURE DETAILS	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 10/21/09 DRAWN BY TFG CHECKED BY CME/MCB DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	13 OF 25 SHTS

MIN. BAR LAP
#6 bar = 2'-9"

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PLAN



SECTION A-A

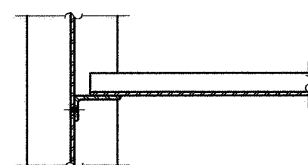
TOP OF BEAM ELEVATIONS

Location	Beam 1	Beam 2	Beam 3	Beam 4	Beam 5	Beam 6
⊕ Brg. W. Abut.	513.48	513.58	513.68	513.73	513.74	513.73
⊕ Pier 1	514.82	514.91	515.01	515.02	514.94	514.84
⊕ Splice 1	515.09	515.19	515.28	515.28	515.19	515.07
⊕ Splice 2	516.19	516.29	516.39	516.39	516.29	516.19
⊕ Pier 2	516.49	516.59	516.68	516.68	516.59	516.49
⊕ Brg. E. Abut.	517.93	518.03	518.12	518.12	518.03	517.93

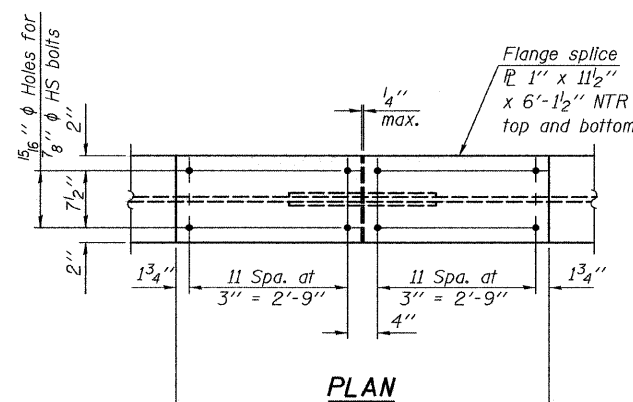
For Fabrication only

NOTES

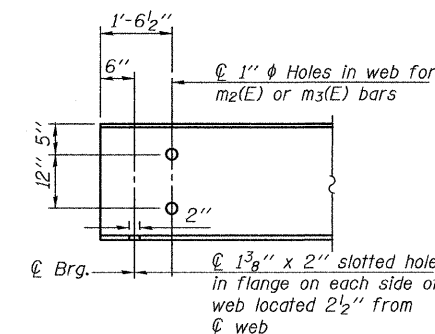
All beams and splice plates shall be M223 Grade 50. Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2. All diaphragms between beams shall be installed with erection pins and bolts in accordance with the erection plan approved by the Engineer. Individual diaphragms at supports may be temporarily disconnected to install bearing anchor rods.



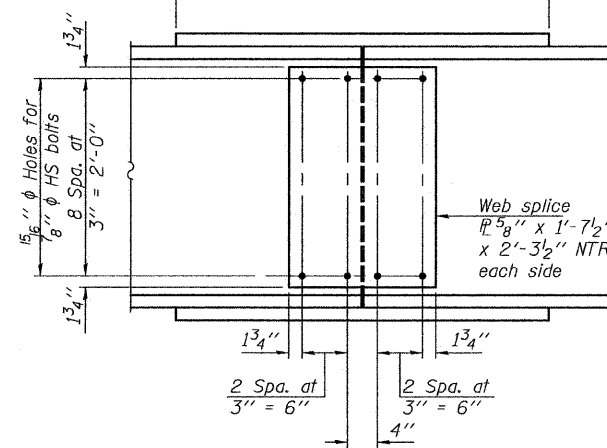
SECTION B-B



PLAN

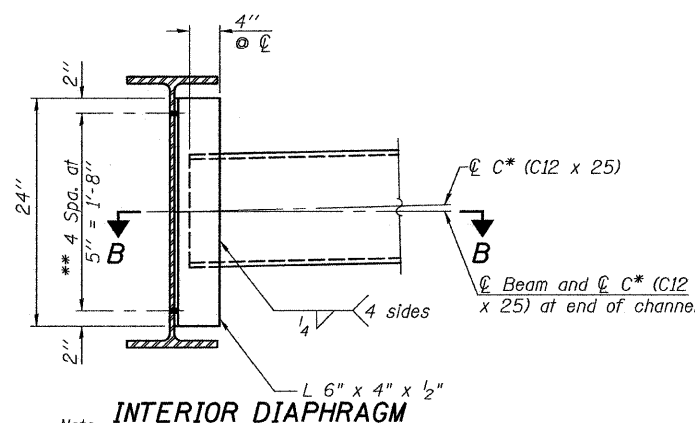


END OF BEAM DETAIL
(Showing Hole Locations)



ELEVATION

TYPICAL SPLICE DETAIL
(12 Required)



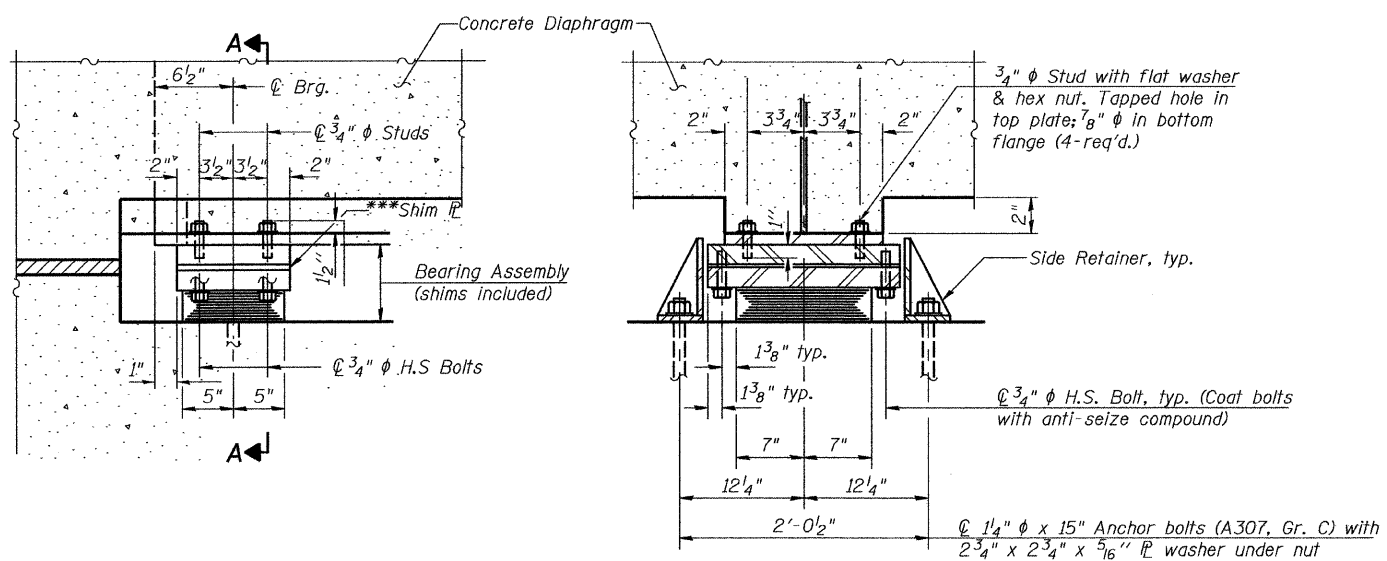
INTERIOR DIAPHRAGM

Note: Two hardened washers required for each set of oversized holes.

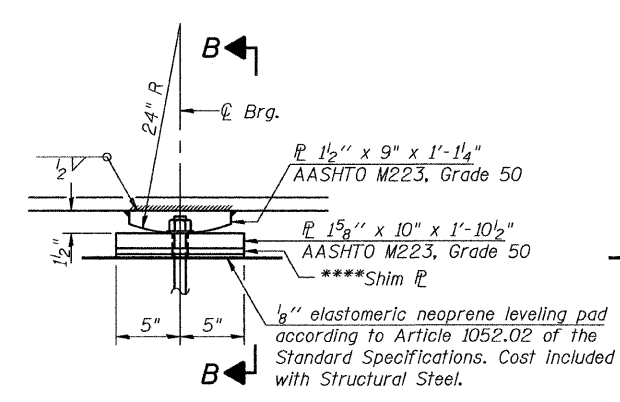
*Alternate channel C12 x 30 is permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. Alternate, if utilized, shall be provided at no extra cost to the Department.
**3/4" ⌀ HS bolts, 1/16" ⌀ holes.

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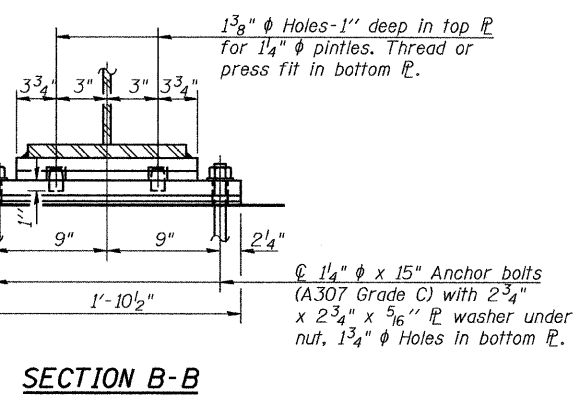
ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE STRUCTURAL STEEL	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 10/21/09 DRAWN BY TFC CHECKED BY GME/MCB DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	15 OF 25 SHTS



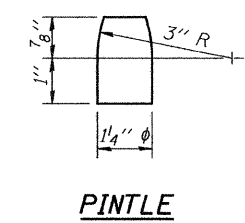
ELEVATION AT ABUTMENTS
TYPE I ELASTOMERIC EXP. BEARING



ELEVATION AT PIER
FIXED BEARING



SECTION B-B
1 3/8" ϕ Holes-1" deep in top \bar{P} for 1 1/4" ϕ pintles. Thread or press fit in bottom \bar{P} .
1/4" ϕ x 15" Anchor bolts (A307 Grade C) with 2 3/4" x 2 3/4" x 5/16" \bar{P} washer under nut, 1 3/4" ϕ Holes in bottom \bar{P} .
****1-1/4" x 10" x 1-10/16" Shim Plate required under Beam No. 4 at Pier 1.



PINTLE

NOTES

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (Fy=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

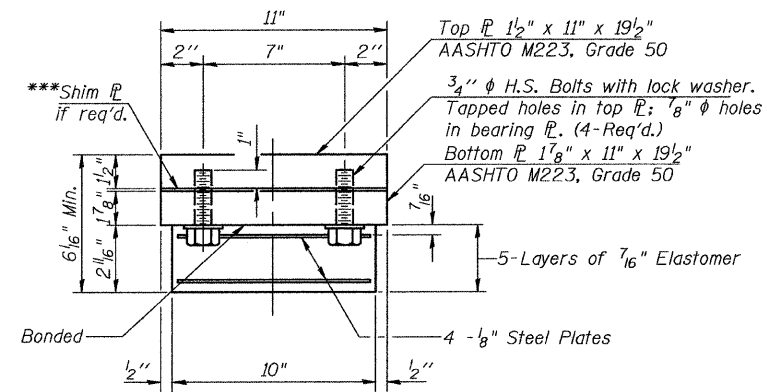
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

Side retainers and other steel members required for the bearing assembly shall be included in the cost of Elastomeric Bearing Assembly, Type I.

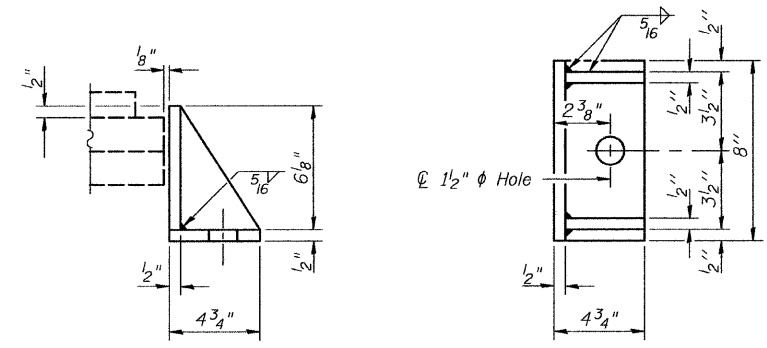
Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.



BEARING ASSEMBLY

See Section A-A for 3/4" ϕ Stud in Top Plate
Note: Shim plates shall not be placed under Bearing Assembly.

****1-1/8" x 11" x 19 1/2" Shim Plate required under Beam No. 5 at the West Abutment.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

		0.4 Sp. 1 or 0.6 Sp. 2	Pier	0.5 Span 2
I_s	(in ⁴)	8160	8160	8160
$I_c(n)$	(in ⁴)	20000	—	20000
$I_c(3n)$	(in ⁴)	14660	—	14660
S_s	(in ³)	487	487	487
$S_c(n)$	(in ³)	682	—	682
$S_c(3n)$	(in ³)	616	—	616
Z	(in ³)	—	—	—
\bar{P}	(k/')	0.86	1.20	0.86
$M\bar{P}$	(k)	288	644	243
$s\bar{P}$	(k/')	0.34	—	0.34
$M_s\bar{P}$	(k)	126	—	130
$M\bar{L}$	(k)	597	371	608
M_{Imp}	(k)	155	93	146
$S_3 [M\bar{L} + M_{Imp}]$	(k)	1253	773	1257
M_a	(k)	2170	1843	2120
M_u	(k)	—	2004	—
$f_s \bar{P}$ non-comp	(ksi)	7.1	—	6.0
$f_s \bar{P}$ (comp)	(ksi)	2.5	—	2.5
$f_s S_3 [M\bar{L} + M_{Imp}]$	(ksi)	22.0	—	22.1
f_s (Overload)	(ksi)	31.6	—	30.6
f_s (Total)	(ksi)	41.1	—	39.8
VR	(k)	46.7	—	48.3

		Abut.	Piers 1 or 2
$R\bar{P}$	(k)	31.6	100.1
$R\bar{L}$	(k)	35.2	46.6
$Imp.$	(k)	9.1	11.7
R_{Total}	(k)	75.9	158.4

* Compact section
** Braced non-compact and partially braced section

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads (in⁴ and in³).

$I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads (in⁴ and in³).

$I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total and Overload) due to long-term composite (superimposed) dead loads (in⁴ and in³).

Z : Plastic Section Modulus of the steel section in non-composite areas (in³).

\bar{P} : Un-factored non-composite dead load (kips/ft.).

$M\bar{P}$: Un-factored moment due to non-composite dead load (kip-ft.).

$s\bar{P}$: Un-factored long-term composite (superimposed) dead load (kips/ft.).

$M_s\bar{P}$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).

$M\bar{L}$: Un-factored live load moment (kip-ft.).

M_{Imp} : Un-factored moment due to impact (kip-ft.).

M_a : Factored design moment (kip-ft.).
 $1.3 [M\bar{P} + M_s\bar{P} + \frac{2}{3} (M\bar{L} + M_{Imp})]$

M_u : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).

f_s (Overload): Sum of stresses as computed from the moments below (ksi).
 $M\bar{P} + M_s\bar{P} + \frac{2}{3} (M\bar{L} + M_{Imp})$

f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M\bar{P} + M_s\bar{P} + \frac{2}{3} (M\bar{L} + M_{Imp})]$

VR : Maximum \bar{L} + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

BILL OF MATERIAL

Item	Unit	Total
Elastomeric Bearing Assembly Type I	Each	12
Anchor Bolts 1 1/4" ϕ	Each	48

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: BEARING DETAILS

PROJECT: F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101

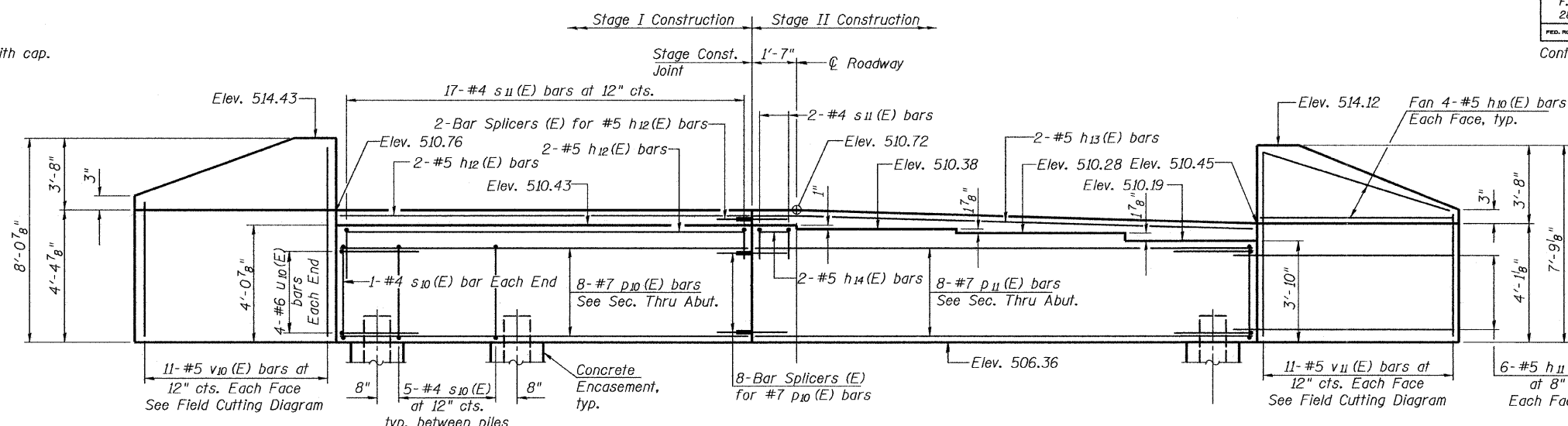
PROJECT NO. 05042
DATE: 8/27/09
DRAWN BY: TFG
CHECKED BY: MCB/CME
DRAWING NO. 16

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

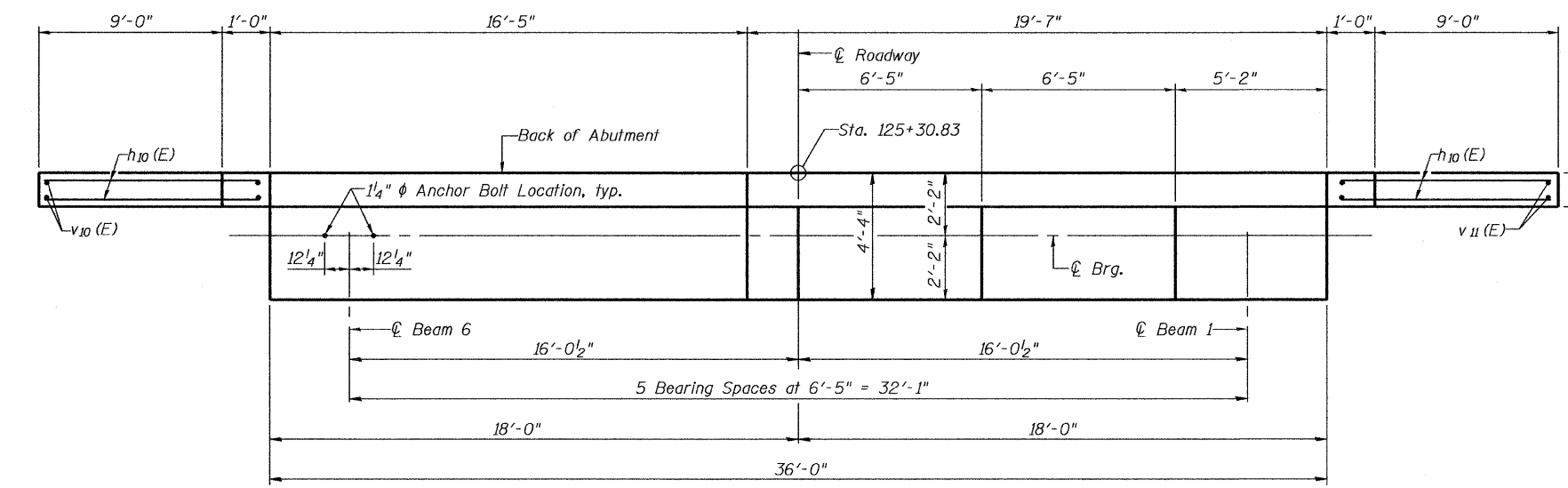
OF 25 SHTS

PLOT DATE = 08/27/2009
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USER NAME = CFC

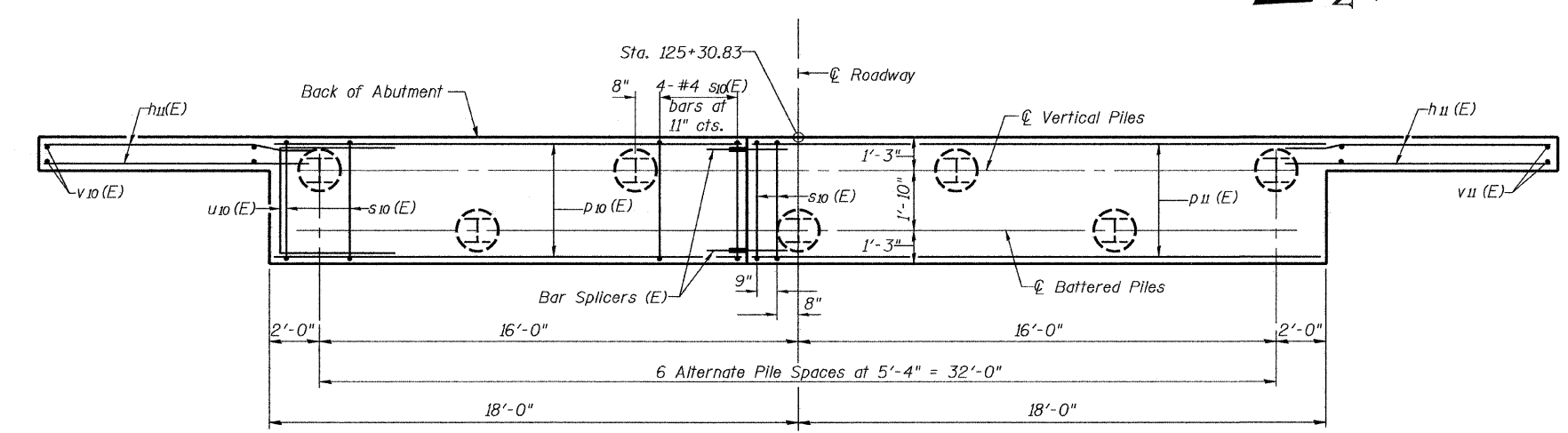
Note: Four steps monolithically with cap.



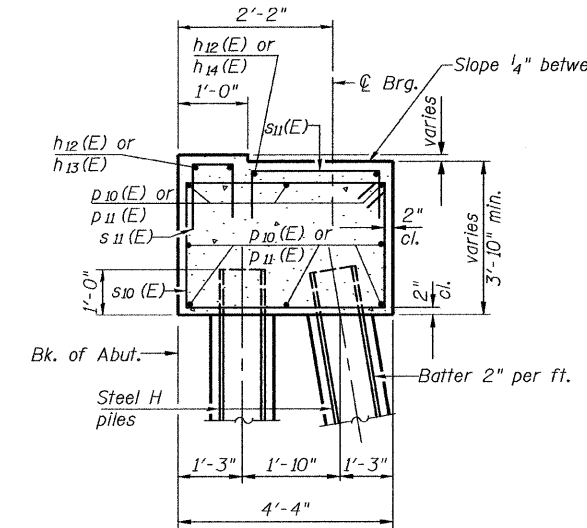
ELEVATION
(Looking West)



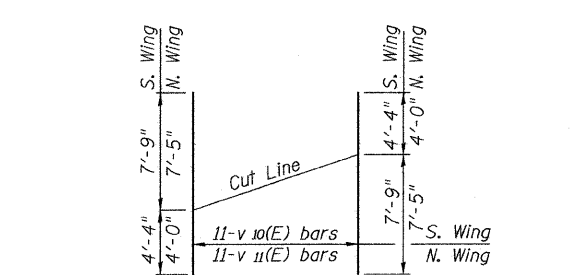
TOP VIEW



PLAN-PILE CAP



SECTION THRU ABUTMENT

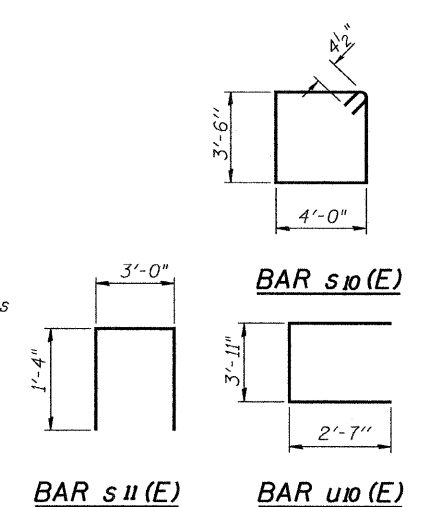


FIELD CUTTING DIAGRAM

Order v₁₀(E) and v₁₁(E) bars full length. Cut as shown and use remainder of bars in opposite face.

PILE DATA

Type: HP12x53
 Nominal Required Bearing: 419 kips
 Allowable Resistance Available: 140 kips
 Est. Length: 30 ft.
 No. Production Piles: 7
 No. Test Piles: none



ABUTMENT BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h10(E)	16	#5	9'-8"	—
h11(E)	24	#5	11'-6"	—
h12(E)	4	#5	16'-1"	—
h13(E)	2	#5	19'-3"	—
h14(E)	2	#5	1'-3"	—
p10(E)	8	#7	16'-1"	—
p11(E)	8	#7	19'-3"	—
s10(E)	33	#4	15'-9"	□
s11(E)	19	#4	5'-8"	□
u10(E)	8	#6	9'-1"	—
v10(E)	11	#5	12'-1"	—
v11(E)	11	#5	11'-5"	—
Structure Excavation		Cu. Yd.	24.1	
Concrete Structures		Cu. Yd.	28.2	
Reinforcement Bars, Epoxy Coated		Pound	1930	
Concrete Encasement		Cu. Yd.	2.5	
Bar Splicers		Each	12	
Furnishing Steel Piles HP 12x53		Foot	210	
Driving Piles		Foot	210	

For details of Bar Splicers, see sheet 22 of 25.
 For details of piles and Concrete Encasement, see sheet 21 of 25.

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: WEST ABUTMENT

PROJECT: F.A.S. RT. 287 (C.H. 29)
 SECTION 05-00039-03-BR
 GRUNDY COUNTY
 STATION 126+42.00
 STRUCTURE NO. 032-3101

PROJECT NO. 05042
 SCALE: 1/4" = 1'-0"
 DATE: 10/21/09
 DRAWN BY: TFG
 CHECKED BY: MCB/CME
 DRAWING NO. 17

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 Engineers / Land Surveyors
 Springfield, Illinois
 Design Firm License No. 184-002703

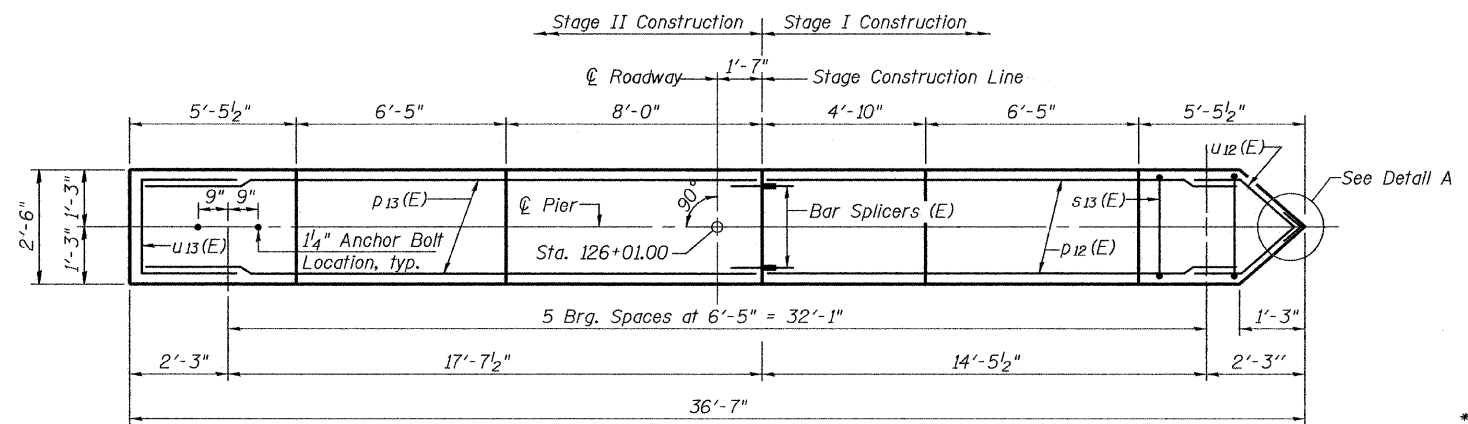
OF 25 SHTS

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 USER NAME = CFC

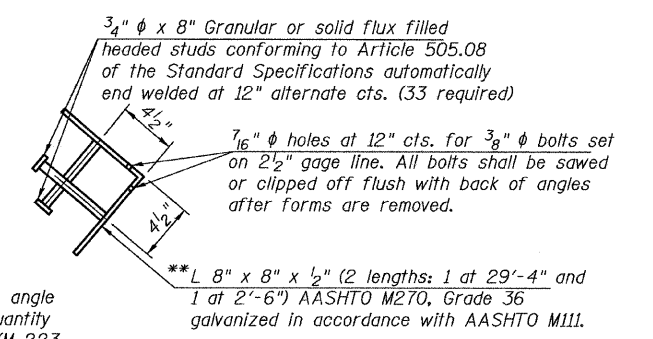
Notes:
 Space reinforcement in cap to miss anchor bolts.
 Pour steps monolithically with cap.
 For details of piles, see sheet 21 of 25.

ROUTE NO.	SECTION	COUNTY	SHEET	SHEET NO.
F.A.S. 287	#	GRUNDY	33	24
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

Contract #87376 *05-00039-03-BR

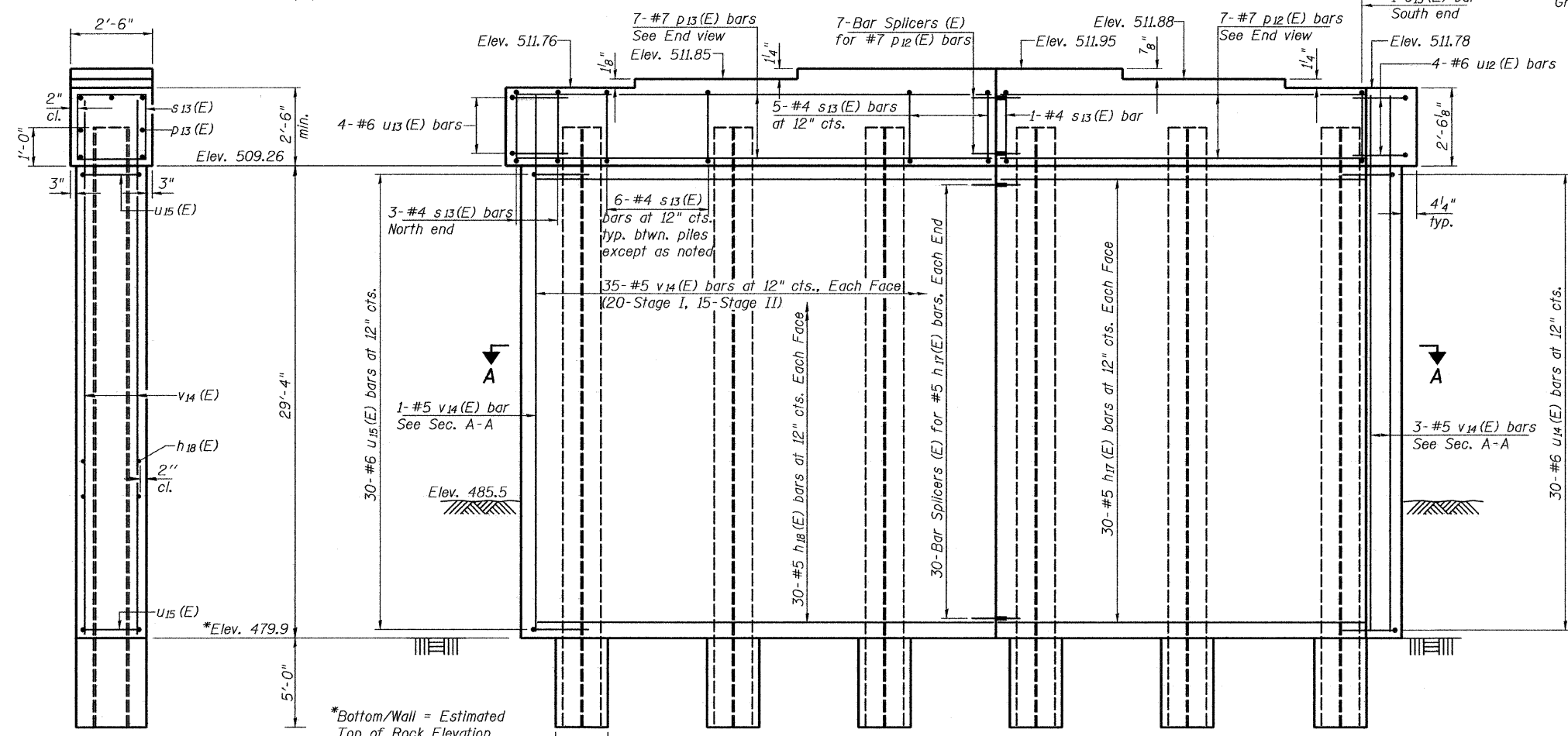


TOP PLAN



DETAIL A

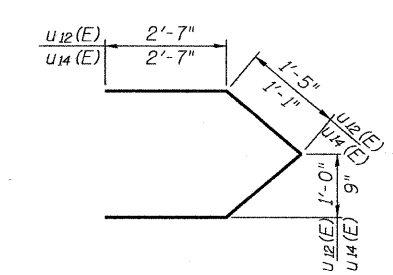
**The quantity for the angle is included in the quantity of Structural Steel (M 223, Grade 36).
 *L 8" x 8" x 1/2" (2 lengths: 1 at 29'-4" and 1 at 2'-6") AASHTO M270, Grade 36 galvanized in accordance with AASHTO M111.



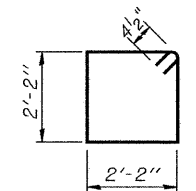
ELEVATION
(Looking East)

NORTH END VIEW

BARS u13(E) and u15(E)



BARS u12(E) and u14(E)



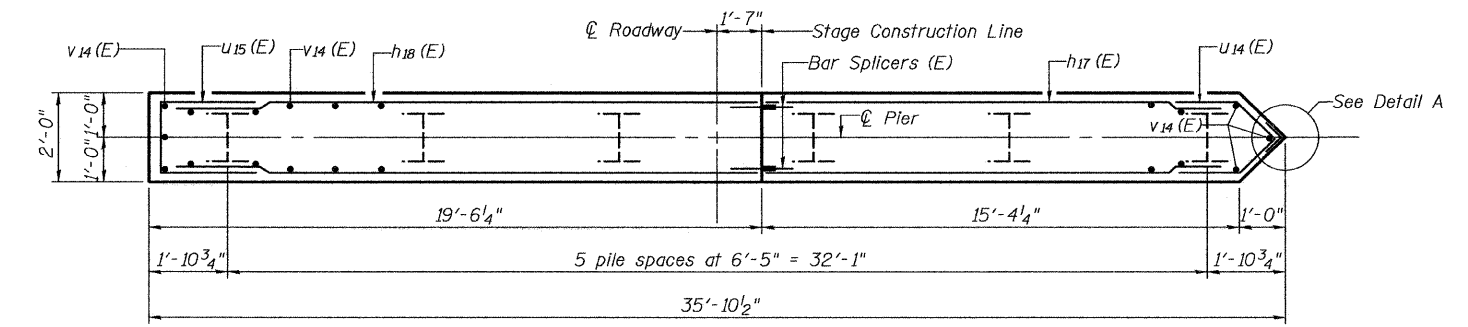
BAR s13(E)

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h17(E)	60	#5	15'-1"	—
h18(E)	60	#5	19'-2"	—
p12(E)	7	#7	15'-2"	—
p13(E)	7	#7	19'-6"	—
s13(E)	33	#4	9'-5"	—
u12(E)	4	#6	8'-0"	⤵
u13(E)	4	#6	7'-3"	⤵
u14(E)	30	#6	7'-4"	⤵
u15(E)	30	#6	6'-10"	⤵
v14(E)	74	#5	31'-2"	—
Structure Excavation		Cu. Yd.	49.6	
Concrete Structures		Cu. Yd.	87.8	
Reinforcement Bars, Epoxy Coated		Pound	5980	
Bar Splicers		Each	67	
Furnishing Steel Piles HP12x84		Foot	234	
Setting and Driving Piles in Rock		Each	6	
Underwater Structure Excavation Protection - Location 1		Each	1	
Stud Shear Connector		Each	33	

PILE DATA

Type: HP12x84
 Nominal Required Bearing: 664 k
 Allowable Resistance Available: 221 k
 Est. Length: 39'
 No. Production Piles: 6
 No. Test Piles: 0



SECTION A-A

PLOT DATE = 10/21/2009
 FILE NAME = \\sbs\p10g-plans\p10g-19.dgn
 PLOT SCALE = 0.01000 1/10
 USER NAME = CFC

P-1 5-16-08

ILLINOIS DEPARTMENT OF TRANSPORTATION

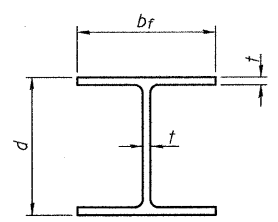
SHEET TITLE: PIER 1

PROJECT: F.A.S. RT. 287 (C.H. 29)
 SECTION 05-00039-03-BR
 GRUNDY COUNTY
 STATION 126+42.00
 STRUCTURE NO. 032-3101

PROJECT NO. 05042
 SCALE: AS SHOWN
 DATE: 10/21/09
 DRAWN BY: TFG
 CHECKED BY: MCB/CME
 DRAWING NO. 19

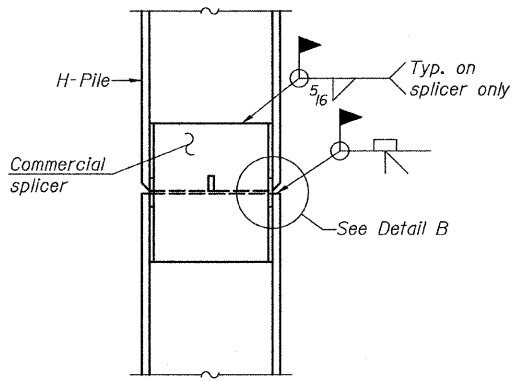
COOMBE-BLOXDORF P.C.
 Engineers / Land Surveyors
 Springfield, Illinois
 Design Firm License No. 184-002703

OF 25 SHTS

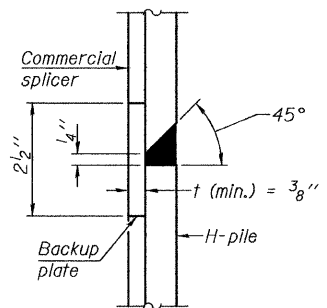


STEEL PILE TABLE

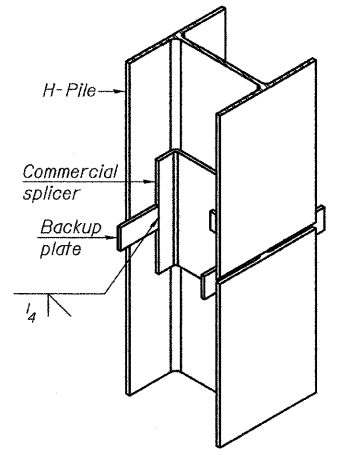
Designation	Depth d	Flange width b _f	Web and Flange thickness t	Encasement diameter A
HP 14x117	14 1/4"	14 7/8"	13/16"	30"
x102	14"	14 3/4"	1/16"	30"
x89	13 7/8"	14 3/4"	5/8"	30"
x73	13 5/8"	14 5/8"	1/2"	30"
HP 12x84	12 1/4"	12 1/4"	1/16"	24"
x74	12 1/8"	12 1/4"	5/8"	24"
x63	12"	12 1/8"	1/2"	24"
x53	11 3/4"	12"	7/16"	24"
HP 10x57	10"	10 1/4"	9/16"	24"
x42	9 3/4"	10 1/8"	7/16"	24"
HP 8x36	8"	8 1/8"	7/16"	18"



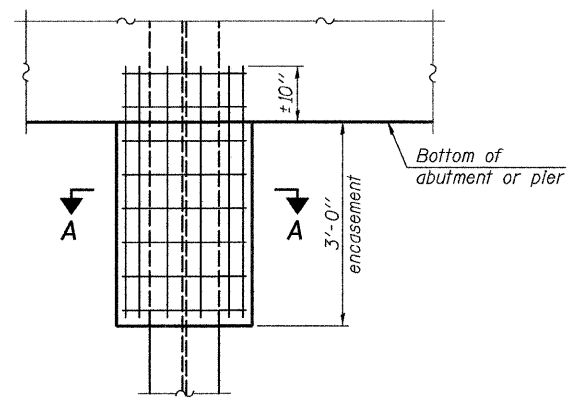
ELEVATION



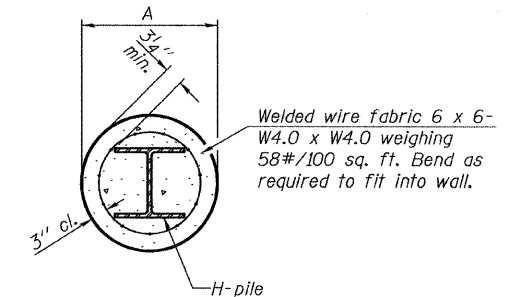
DETAIL "B"



ISOMETRIC VIEW



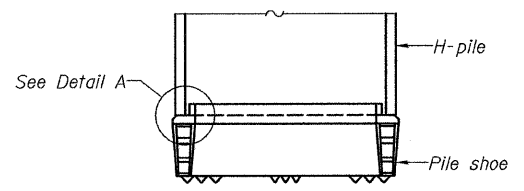
ELEVATION



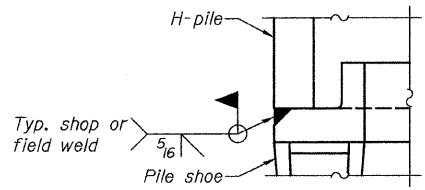
SECTION A-A

PILE ENCASEMENT

Note:
Forms for encasement may be omitted when soil conditions permit.

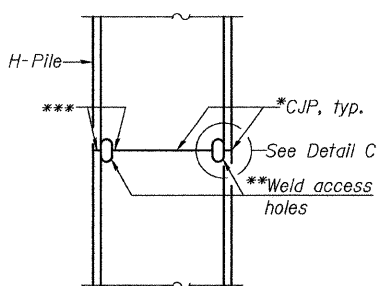


ELEVATION

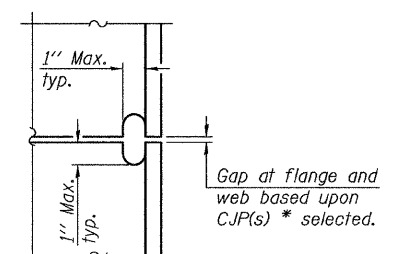


DETAIL A

H-PILE SHOE ATTACHMENT



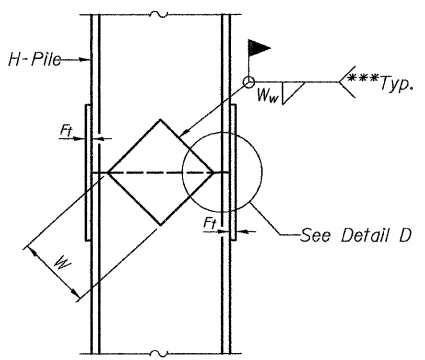
ELEVATION



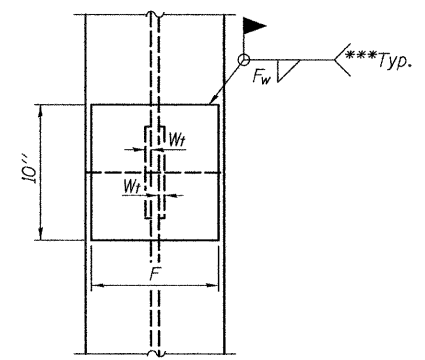
DETAIL C

COMPLETE PENETRATION WELD SPLICE

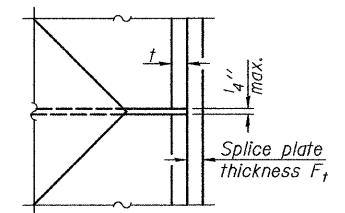
* Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.
 ** Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.
 *** Interrupt welds 1/4" from end of each pile.



ELEVATION



END VIEW



DETAIL D

WELDED PLATE FIELD SPLICE

Designation	F	F _t	F _w	W	W _t	W _w
HP 14x117	12 1/2"	1"	7/8"	7 3/4"	5 1/2"	1/2"
x102	12 1/2"	7/8"	3/4"	7 3/4"	5 1/2"	1/2"
x89	12 1/2"	3/4"	1/16"	7 3/4"	5 1/2"	1/2"
x73	12 1/2"	5/8"	9/16"	7 3/4"	5 1/2"	1/2"
HP 12x84	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x74	10"	7/8"	1/16"	6 1/2"	5 1/2"	1/2"
x63	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
x53	10"	5/8"	1/2"	6 1/2"	1/2"	3/8"
HP 10x57	8"	3/4"	9/16"	5 1/4"	1/2"	3/8"
x42	8"	5/8"	9/16"	5 1/4"	1/2"	3/8"
HP 8x36	7"	5/8"	7/16"	4 1/4"	1/2"	3/8"

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

PLOT DATE = 8/27/2009
 FILE NAME = ...
 PLOT SCALE = 0.1000 1/4" / 1"
 USER NAME = PFW

ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE	
PILE DETAILS	
PROJECT	PROJECT NO.
F.A.S. RT. 287 (C.H. 29)	05042
SECTION 05-00039-03-BR	SCALE
GRUNDY COUNTY	DATE 8/27/09
STATION 126+42.00	DRAWN BY TFG
STRUCTURE NO. 032-3101	CHECKED BY MCB/CME
DRAWING NO.	
COOMBE-BLOXDORF P.C.	
Engineers / Land Surveyors	
Springfield, Illinois	
Design Firm License No. 184-002703	
21	OF 25 SHTS

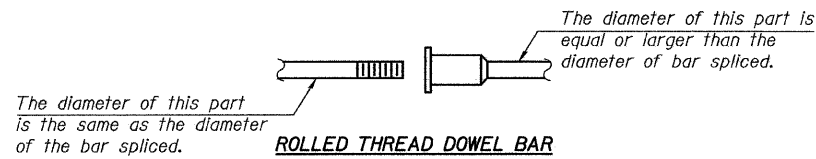
NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.
Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.
All reinforcement bars shall be lapped and tied to the splicer rods or dowel bars.
Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.
Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

- ① Minimum Capacity (Tension in kips) = $1.25 \times f_y \times A_t$
- ② Minimum *Pull-out Strength (Tension in kips) = $0.66 \times f_y \times A_t$

Where f_y = Yield strength of lapped reinforcement bars in ksi.
 A_t = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	7.9
#5	2'-2"	23.0	12.3
#6	2'-7"	33.1	17.4
#7	3'-5"	45.1	23.8
#8	4'-6"	58.9	31.3
#9	5'-9"	75.0	39.6
#10	7'-3"	95.0	50.3
#11	9'-0"	117.4	61.8

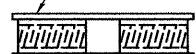


ROLLED THREAD DOWEL BAR



**** ONE PIECE**

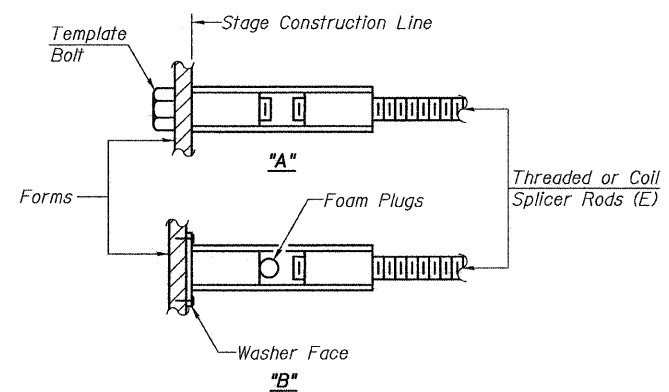
Wire Connector



WELDED SECTIONS

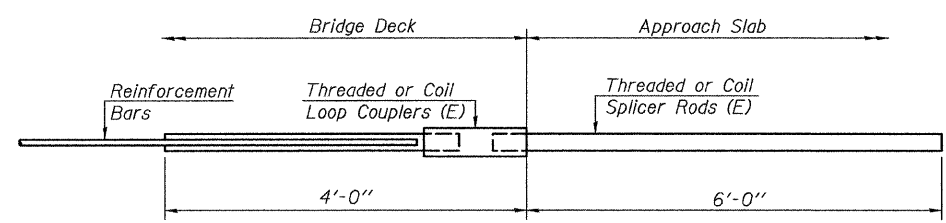
BAR SPLICER ASSEMBLY ALTERNATIVES

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



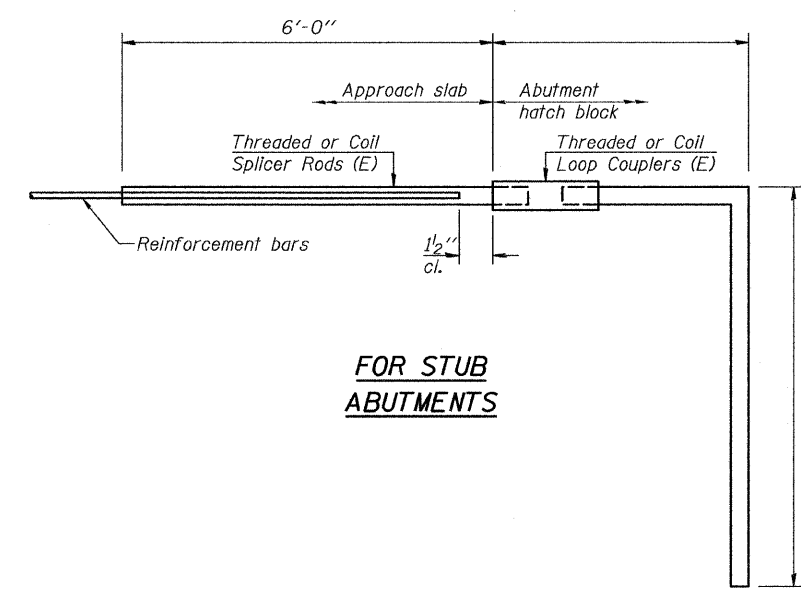
INSTALLATION AND SETTING METHODS

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



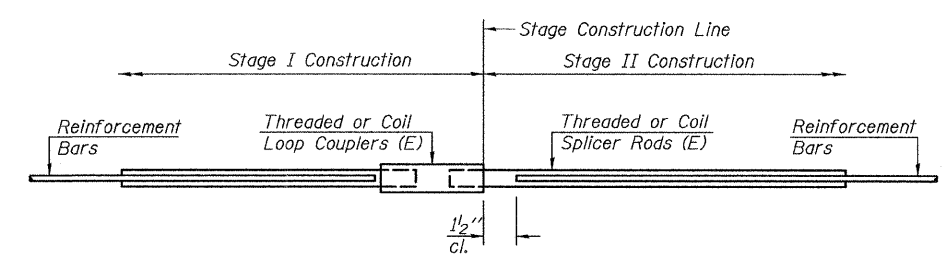
FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 12.3 kips - tension
No. Required = 44



FOR STUB ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 12.3 kips - tension
No. Required =



STANDARD

Bar Size	No. Assemblies Required	Location
#5	740	Slab
#6	24	Diaphragms
#7	16	Abutments
#5	6	Abutments
#7	14	Piers
#5	124	Piers

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE
BAR SPLICER ASSEMBLY DETAILS

PROJECT
F.A.S. RT. 287 (C.H. 29)
SECTION 05-00039-03-BR
GRUNDY COUNTY
STATION 126+42.00
STRUCTURE NO. 032-3101

PROJECT NO. 05042
SCALE
DATE 10/21/09
DRAWN BY TFG
CHECKED BY MCB/CME
DRAWING NO.

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

22
OF 25 SHTS

PLOT DATE = 10/21/2009
FILE NAME = \\sbs\p1\top-plans\gnt-22.dgn
PLOT SCALE = 0x,0000, '0" / 1".
USER NAME = CFC.

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 1 of 2

Client: Coombe-Bloxdorf, P.C.
Project Name: Pine Bluff Rd. CH-29 Over Mazon River
Project Site: Section 05-00039-03-BR
Grundy County, Illinois
Boring No. B-1
Surface Elev. 497.41
Auger Depth 30' Rotary Depth NA
Start Date 05/29/08 Finish Date 05/29/08

Location: 20' Rt. Of Centerline
Station 125+86

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES					DRILLED BY	REMARKS		
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear			Moisture (%)	Dry Density (PCF)
497.41			0									
496.41			1									
495.41			2									
494.41			3	1	SS	---	8	---	13			
493.41	Loose Brown Sandy Loam (Alluvium)		4									
492.41			5	2	SS	---	7	---	15			
491.41			6									
490.41			7									
489.41			8	3	SS	---	7	---	15			
488.41			9									
487.41			10	4	SS	---	9	---	---			
486.41			11									
485.41			12									
484.41	Loose Brown And Brownish Black Sand And Sandy Loam (Alluvium)		13	5	SS	---	8	---	---			
483.41			14									
482.41			15	6	SS	---	6	---	---			
481.41			16									
480.41			17									
479.41			18	7	SS	---	63	---	12			
478.41			19									
477.41	Very Dense Gray Sandy Shale		20	8	SS	---	100 3"	---	10			

Groundwater Data: Static water level at time of subsurface investigation elevation - 489.60.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: midwest.07@insightbb.com

BORING LOG
Sheet 2 of 2

Client: Coombe-Bloxdorf, P.C.
Project Name: Pine Bluff Rd. CH-29 Over Mazon River
Project Site: Section 05-00039-03-BR
Grundy County, Illinois
Boring No. B-1
Surface Elev. 497.41
Auger Depth 30' Rotary Depth NA
Start Date 05/29/08 Finish Date 05/29/08

Location: 20' Rt. Of Centerline
Station 125+86

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES					DRILLED BY	REMARKS		
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear			Moisture (%)	Dry Density (PCF)
476.41			0									
475.41			1									
474.41			2									
473.41			3									
472.41	Very Dense Gray Sandy Shale (Penetrated With Rock Bit To 30' Depth.)		4									
471.41			5									
470.41			6									
469.41			7									
468.41			8									
467.41			9									
466.41			10									
465.41			11									
464.41			12									
463.41			13									
462.41			14									
461.41			15									
460.41			16									
459.41			17									
458.41			18									
457.41			19									
456.41			20									

Groundwater Data: Static water level at time of subsurface investigation elevation - 489.60.
Comments:

Midwest Testing Services, Inc.
3705 Progress Blvd.
Peru, IL 61354
Phone: 815-223-6696
Fax: 815-223-6659
e-mail: mts37@comcast.net

BORING LOG
Sheet 1 of 1

Client: Coombe-Bloxdorf, P.C.
Project Name: Pine Bluff Rd. CH-29 Over Mazon River
Project Site: Section 05-00039-03-BR
Grundy County, Illinois
Boring No. B-2
Surface Elev. 517.75
Auger Depth 15' Rotary Depth NA
Start Date 05/29/08 Finish Date 05/29/08

Location: 7' Lt. of Centerline
Station 127+83

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES					DRILLED BY	REMARKS		
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear			Moisture (%)	Dry Density (PCF)
517.75			0									
516.75	4" Bituminous Over 10" Stone		1									
515.75			2									
514.75	Very Stiff Brownish Gray Clay		3	1	SS	3.5	36	B	14			
513.75			4									
512.75	Very Dense Yellowish Brown Sandstone		5	2	SS	---	100 3"	---	---			
511.75			6									
510.75			7									
509.75			8									
508.75			9									
507.75	Very Dense Gray Sandy Shale (Penetrated With Rock Bit To 16' Depth.)		10									
506.75			11									
505.75			12									
504.75			13									
503.75			14									
502.75			15									
501.75			16									
500.75			17									
499.75			18									
498.75			19									
497.75			20									

Groundwater Data: No groundwater encountered at time of subsurface investigation.
Comments:

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USER NAME = PFW

ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: BORING LOGS

PROJECT: F.A.S. RT. 287 (C.H. 29)
SECTION 05-00039-03-BR
GRUNDY COUNTY
STATION 126+42.00
STRUCTURE NO. 032-3101

PROJECT NO. 05042
SCALE: 1" = 10'
DATE: 8/27/09
DRAWN BY: CFC
CHECKED BY: CME/MCB
DRAWING NO. 23

COOMBE-BLOXDORF P.C.
Engineers / Land Surveyors
Springfield, Illinois
Design Firm License No. 184-002703

OF 25 SHTS

Midwest Testing Services, Inc.
 3705 Progress Blvd.
 Peru, IL 61354

BORING LOG
 Phone: 815-223-6696
 Fax: 815-223-6659
 e-mail: mts37@comcast.net

Client: Coombe-Bloxdorf, P.C.
 Project Name: Pine Bluff Rd. CH-29 Over Mazon River
 Project Site: Section 05-00039-03-BR
 Grundy County, Illinois

Boring No. B-3
 Surface Elev. 513.05
 Auger Depth 41' Rotary Depth NA
 Start Date 06/07/08 Finish Date 06/07/08

Location: 7 Lt. of Centerline
 Station 125+05

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES				DRILLED BY		REMARKS
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	
513.05	4" Bituminous Over 10" Stone		1							
511.05	Stiff Brown Clay Fill		2							
510.05			3	1	SS	1.7	13	S	12	
509.05	Very Stiff Brownish Gray Clay (Fill)		4							
508.05			5	2	SS	2.3	18	S	14	
507.05			6							
506.05			7							
505.05	Stiff Brownish Gray - Black Gray Sandy Clay (Fill)		8	3	SS	1.2	12	B	18	
504.05			9							
503.05			10	4	SS	1.9	14	B	16	
502.05			11							
501.05			12							
500.05			13	5	SS	1.5	14	B	18	
499.05			14							
498.05			15	6	SS	1.4	12	B	20	
497.05			16							
496.05			17							
495.05	Medium Brown Fine Sand And Sandy Loam		18	7	SS	--	11	--	13	
494.05			19							
493.05			20	8	SS	--	17	--	10	

Groundwater Data: Static water level at time of subsurface investigation elevation - 490.76
 Comments:

Midwest Testing Services, Inc.
 3705 Progress Blvd.
 Peru, IL 61354

BORING LOG
 Phone: 815-223-6696
 Fax: 815-223-6659
 e-mail: midwest.07@insightbb.com

Client: Coombe-Bloxdorf, P.C.
 Project Name: Pine Bluff Rd. CH-29 Over Mazon River
 Project Site: Section 05-00039-03-BR
 Grundy County, Illinois

Boring No. B-3
 Surface Elev. 513.05
 Auger Depth 41' Rotary Depth NA
 Start Date 06/07/08 Finish Date 06/07/08

Location: _____

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES				DRILLED BY		REMARKS
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	
492.05			22							
491.05			23	9	SS	--	21	--	--	
489.05	Medium Brown Fine Sand And Sandy Loam		24							
488.05			25	10	SS	--	18	--	--	
487.05			26							
486.05			27							
485.05			28	11	SS	--	27	--	--	
484.05	Very Dense Gray Sandy Shale		29							
483.05			30	12	SS	--	100 2"	--	--	
482.05			31							
481.05			32							
480.05			33							
479.05			34							
478.05	Very Dense Gray Sandy Shale (Penetrated With Rock Bit To 41' Depth.)		35							
477.05			36							
476.05			37							
475.05			38							
474.05			39							
473.05			40							
472.05			41							

Groundwater Data: Static water level at time of subsurface investigation elevation - 490.76
 Comments:

Midwest Testing Services, Inc.
 3705 Progress Blvd.
 Peru, IL 61354

BORING LOG
 Phone: 815-223-6696
 Fax: 815-223-6659
 e-mail: mts37@comcast.net

Client: Coombe-Bloxdorf, P.C.
 Project Name: Pine Bluff Rd. CH-29 Over Mazon River
 Project Site: Section 05-00039-03-BR
 Grundy County, Illinois

Boring No. S-1
 Surface of Mazon River 490.76
 Auger Depth --- Rotary Depth NA
 Start Date 06/07/08 Finish Date 06/07/08

Location: 16' Lt. of Centerline
 Station 126+00

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES				DRILLED BY		REMARKS
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear	Moisture (%)	
489.76			1							
488.76	Water In River Channel		2							
487.76			3	1	SS	--	--	--	--	
486.76			4							
485.76			5	2	SS	--	--	--	--	
484.76	Loose Brown Fine Sand And Sandy Loam Sediment		6							
483.76			7							
482.76			8	3	SS	--	--	--	--	
481.76			9							
480.76			10	4	SS	--	100 1"	--	--	
479.76			11							
478.76			12							
477.76			13	5	SS	--	--	--	--	
476.76	Auger Refusal With Dynamic Cone Penetrometer Very Dense Gray Sandy Shale		14							
475.76			15	6	SS	--	--	--	--	
474.76			16							
473.76			17							
472.76			18	7	SS	--	--	--	--	
471.76			19							
470.76			20	8	SS	--	--	--	--	

Groundwater Data: River Elevation at time of investigation - elevation 490.76
 Comments:

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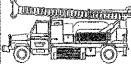
ILLINOIS DEPARTMENT OF TRANSPORTATION

SHEET TITLE: BORING LOGS

PROJECT	F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO.	05042
SCALE		DATE	8/27/09
DRAWN BY	CFC	CHECKED BY	CME/MCB
DRAWING NO.			

COOMBE-BLOXDORF P.C.
 Engineers / Land Surveyors
 Springfield, Illinois
 Design Firm License No. 184-002703

24 OF 25 SHTS

 Midwest Testing Services, Inc. 3705 Progress Blvd. Peru, IL 61354	BORING LOG		Phone: 815-223-6696
	Client: Coombe-Bloxdorf, P.C.	Sheet 1 of 1	Fax: 815-223-6659
Project Name: Pine Bluff Rd. CH-29 Over Mazon River	Boring No. S-2	e-mail: mts37@comcast.net	
Project Site: Section 05-00039-03-BR Grundy County, Illinois	Surface of Mazon River: 490.76	Auger Depth: ---	Rotary Depth: NA
	Start Date: 06/07/08	Finish Date: 06/07/08	

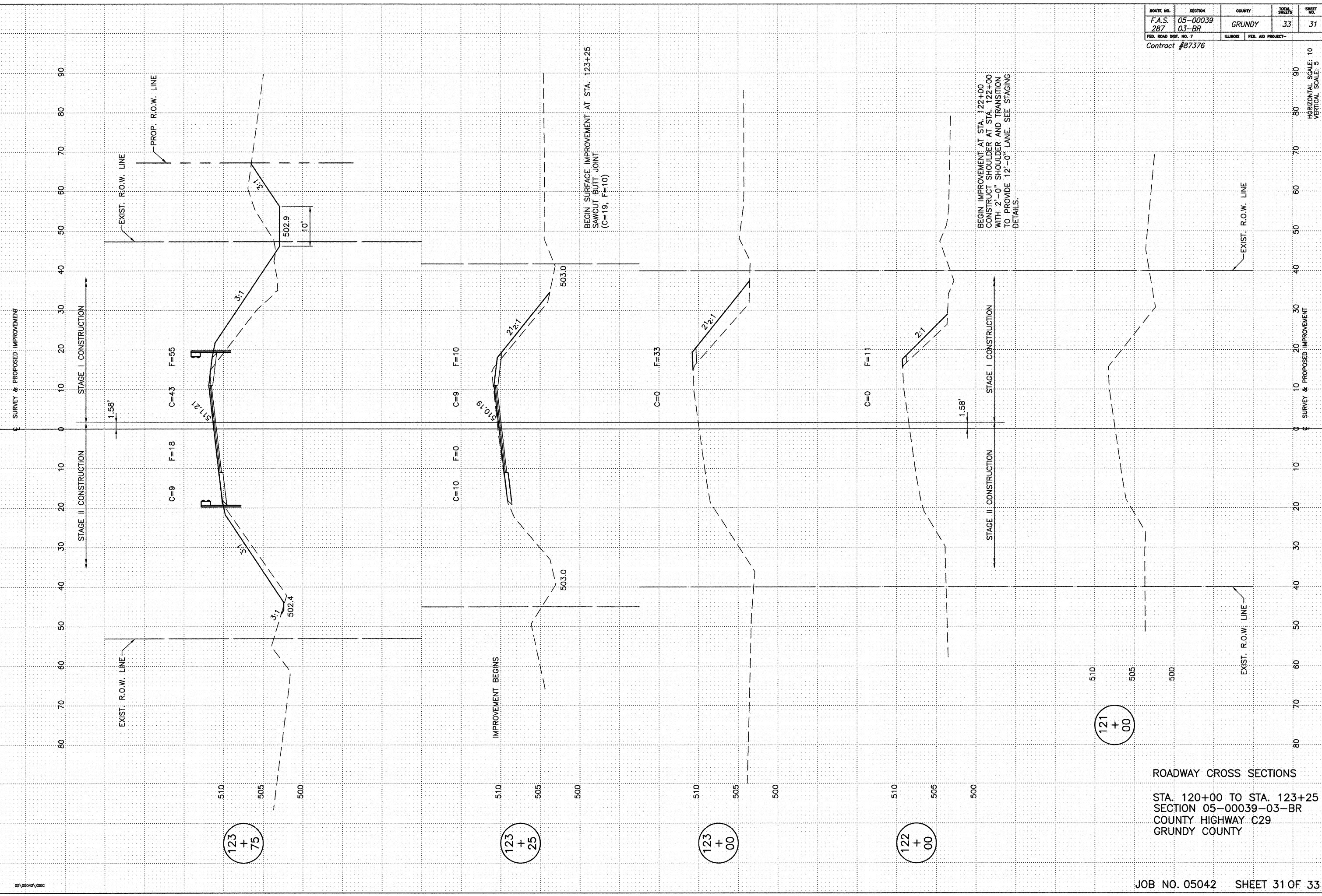
Location: 16' Lt. of Centerline
Station 126+83

(DEPTH) ELEV.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES					DRILLED BY	REMARKS
				Sample No.	Sample Type	Qu (TSF)	N Value (Blows)	Bulge / Shear		
490.76										
489.76			1							
488.76			2							
487.76	Water In River Channel		3	1	SS					
486.76			4							
485.76			5							
484.76			6	2	SS					
483.76			7							
482.76			8	3	SS					
481.76	Loose Brown Fine Sand		9							
480.76			10	4	SS					
479.76			11							
478.76	Auger Refusal With Dynamic Cone Penetrometer Very Dense Gray Sandy Shale		12	5	SS					
477.76			13							
476.76			14							
475.76			15	6	SS					
474.76			16							
473.76			17							
472.76			18	7	SS					
471.76			19							
470.76			20	8	SS					

Groundwater Data: River Elevation at time of investigation- elevation 490.76
Comments:

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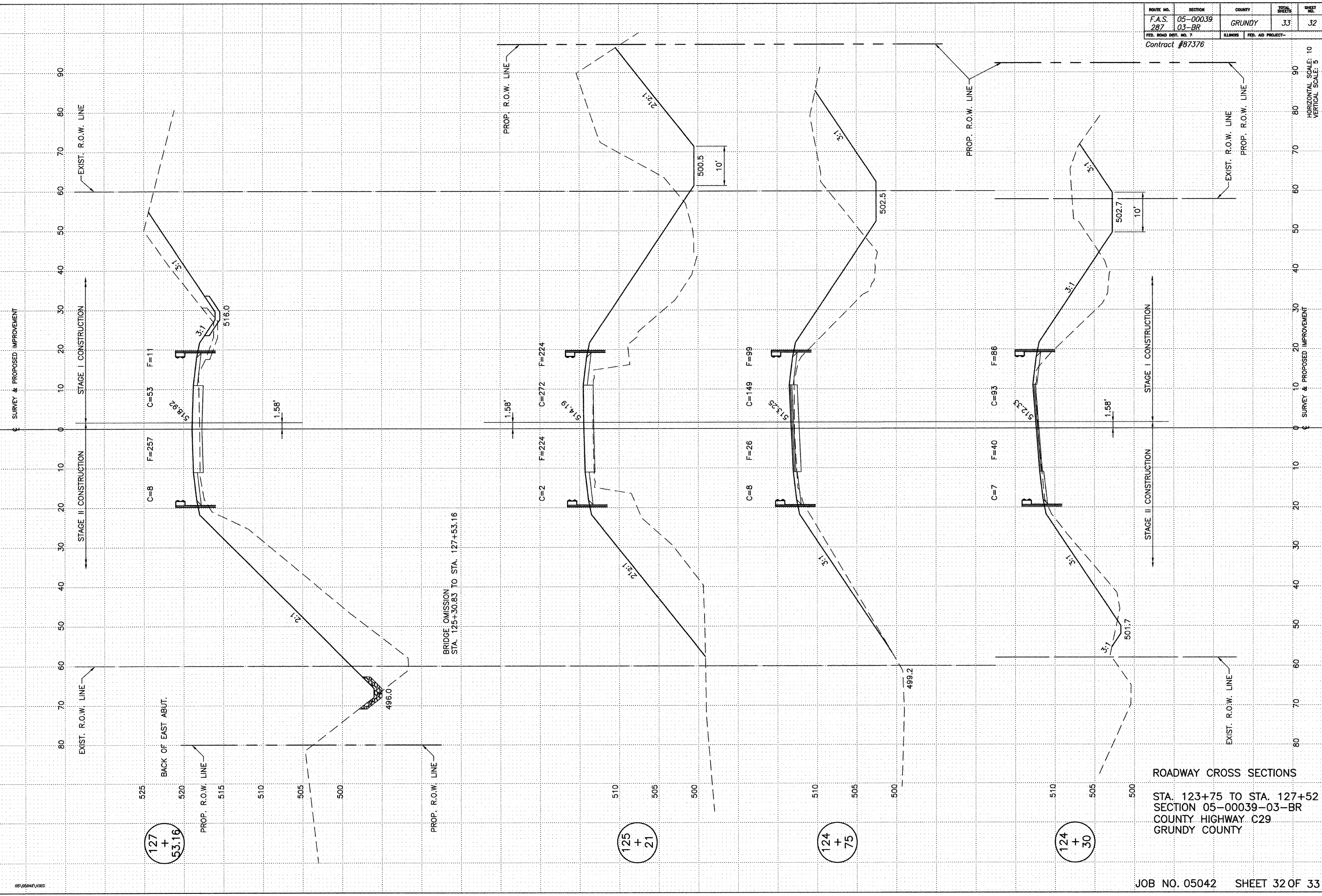
ILLINOIS DEPARTMENT OF TRANSPORTATION	
SHEET TITLE BORING LOGS	
PROJECT F.A.S. RT. 287 (C.H. 29) SECTION 05-00039-03-BR GRUNDY COUNTY STATION 126+42.00 STRUCTURE NO. 032-3101	PROJECT NO. 05042 SCALE DATE 8/27/09 DRAWN BY CFC CHECKED BY CME/MCB DRAWING NO.
COOMBE-BLOXDORF P.C. Engineers / Land Surveyors Springfield, Illinois Design Firm License No. 184-002703	25 OF 25 SHTS



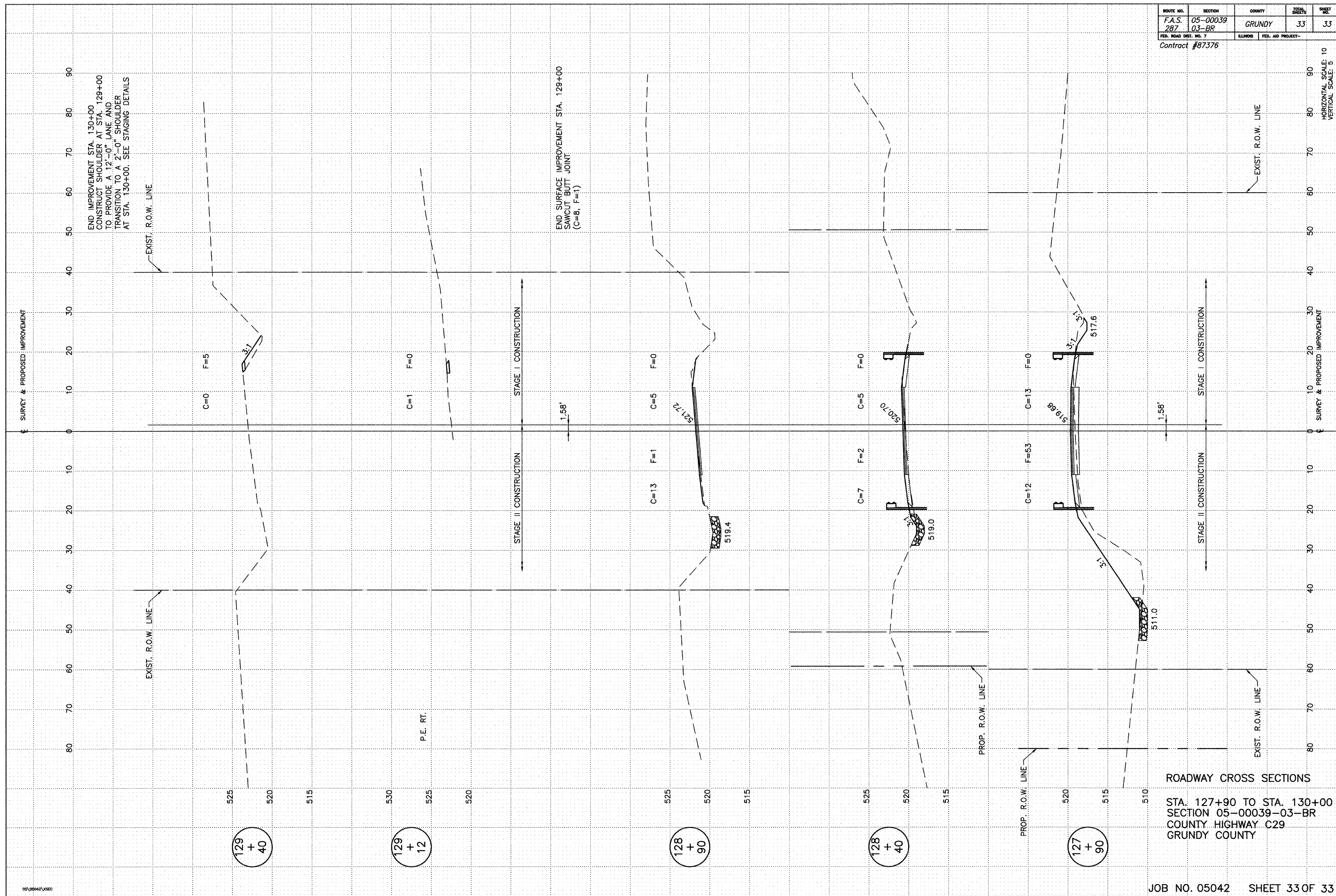
ROADWAY CROSS SECTIONS
 STA. 120+00 TO STA. 123+25
 SECTION 05-00039-03-BR
 COUNTY HIGHWAY C29
 GRUNDY COUNTY

05/06042/VS2C

ROUTE NO. 287	SECTION 05-00039 03-BR	COUNTY GRUNDY	TOTAL SHEETS 33	SHEET NO. 32
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	
Contract #87376				



ROADWAY CROSS SECTIONS
 STA. 123+75 TO STA. 127+52
 SECTION 05-00039-03-BR
 COUNTY HIGHWAY C29
 GRUNDY COUNTY



ROADWAY CROSS SECTIONS
 STA. 127+90 TO STA. 130+00
 SECTION 05-00039-03-BR
 COUNTY HIGHWAY C29
 GRUNDY COUNTY

09/09/04/13/SEC