

SA&I 1-4040 (2000)

Canadian _____ County, Oklahoma
COUNTY PURCHASING OFFICE
Canadian _____ County Court House
El Reno _____, Oklahoma
Phone: (405) 295-6125

INVITATION TO BID

DATE ISSUED
April 11 2016
Page 1 of 2

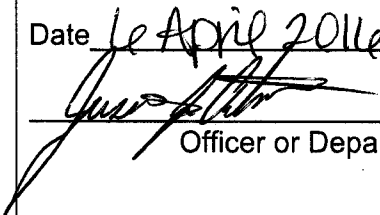
PLEASE REVIEW TERMS AND CONDITIONS ON REVERSE
SIDE RELATING TO SUBMISSION OF THIS BID.
Notarized Affidavit completions and signature required on reverse side.

BID NUMBER Bridge Material /
#2016-#18 Canadian County District #1
BID CLOSING DATE AND HOUR
May 6, 2016 at 4:00 pm
REQUIRED DELIVERY DATE
SEE SPECIFICATIONS
____ Days after award of Purchase Order

TERMS
Net, FOB this bid will open May 9, 2016 at 9:30am
DATE OF DELIVERY:
SEE SPECIFICATIONS

ITEM	QUANTITY	UNIT OF ISSUE	DESCRIPTION	UNIT PRICE	TOTAL
1 or more			<p>Canadian County District #1 is seeking bids for Bridge Material for the Bridge Project for CN 24 09E0090N285005</p> <p>Specifications attached.</p> <p>The Board of Canadian County Commissioners reserves the right to reject any and all bids or to award all or any portion of the items bid. All data will be considered in the awarding of the bid including the delivery time.</p> <p><u>The reverse of this sheet must be completed and returned or the bid will be rejected.</u></p> <p>Contact person: Justin Atkinson, District #1 Foreman 1103 N Shepard Avenue El Reno, OK 73036 (405) 262-4673</p>		\$ _____ Total Bid Price

APPROVED

Date 11 April 2016


Officer or Department Head

STATE OF OKLAHOMA
CANADIAN COUNTY
FILED OR RECORDED
APR 11 2016
SHELLEY DICKERSON
COUNTY CLERK
160188

TERMS AND CONDITIONS

1. Sealed bids will be opened in the Commissioner's Conference Room, Canadian
County Courthouse, 201 N. Choctaw Avenue, El Reno, Oklahoma, at the time and date shown on the invitation to bid form.
2. Late bids will not be considered. Bids must be received in sealed envelopes (one to an envelope) with bid number and closing date written on the outside of the envelope.
3. Unit prices will be guaranteed correct by the bidder.
4. Firm prices will be F.O.B. destination.
5. Purchases by Canadian County, Oklahoma, are not subject to state or federal taxes.
6. This bid is submitted as a legal offer and any bid when accepted by the County constitutes a firm contract.
7. Oklahoma laws require each bidder submitting a bid to a county for goods or services to furnish a notarized sworn statement of non-collusion. A form is supplied below.
8. Bids will be firm until 06/09/2016
(DATE)

AFFIDAVIT: I, the undersigned, of lawful age, being first duly sworn on oath say that he (she) is the agent authorized by the bidder to submit the above bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any state official or employee as to quantity; quality or price in the prospective contract or any other terms of said prospective contract; or in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract; that the bidder/contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma (or other entity) any money or other thing of value, either directly or indirectly in the procuring of the award of a contract pursuant to this bid.

Subscribed and sworn before this _____ day

of _____, 20 _____

(SEAL)

Firm: _____

My commission expires _____

Signed by: _____ Title: _____
(Manual Signature of Undersigned)

NOTARY PUBLIC (CLERK OR JUDGE)

Address: _____ Phone: _____

City: _____ State: _____

Zip: _____

Please mail sealed bids to:
Canadian County Clerk's Office
Attn: Purchasing
PO Box 458
El Reno, OK 73036

Street Address:
201 N Choctaw Avenue
El Reno, OK 73036



**Canadian County
Purchasing**

Bid Specifications

Date Issued: April 11, 2016
Bid Number: **2016-#18**
Closing Date: May 6, 2016 at 4:00pm
 PO Box 458, 201 N. Choctaw Ave., El Reno, OK 73036
Opening Date: May 9, 2016 at 9:30am
 Commissioner's Meeting Room, 201 N. Choctaw Ave., El Reno, OK 73036

~ SPECIFICATIONS ~

Bridge Material / Canadian County District #1

Canadian County District #1 is seeking bids for bridge materials for the Bridge Project for CN 24 09E0090N2850005.

Labor Not Included

SEE SPECIFICATIONS ATTACHED.

For Information Contact:

Justin Atkinson, District #1 Foreman

Phone: (405) 262-4673

Hours: Monday – Friday 7:00am to 3:00pm

Address: 1103 N Shepard Avenue, El Reno, OK 73036

If you have any questions or need additional information, please contact:
Sherry Murray, Purchasing Agent, 405.295.6125 or 405.422.2441
smurray@okcana.cogov.net

Canadian County
 District #1
 Bridge #024 Material List
 Invitation to Bid

Bridge #024 (Labor Not Included)

Qty	Description	Bid Price for Material Over Planned Quantity
1040	HP 10" X 42# (26-40' PCS), Piles	L.F.
68	HP 12" X 53# (2-34' PCS), Bent Caps	L.F.
480	HP 12" X 53# (12-40' PCS), Piles	L.F.
66	HP 14" X 73# (2-33' PCS), Pier Cap	L.F.
40	6 1/2" X 1/2" FLAT, Bent Cap Stiffener	L.F.
40	8 1/2" X 1/2" FLAT, Pier Cap Stiffener	L.F.
640	C8" X 11.5# CHANNEL, Backwall Bracing & Deck Sides	L.F.
80	C10" X 15 1/3# CHANNEL, Deck Ends	L.F.
220	C12" X 25# CHANNEL, Wing Cap & Pier	L.F.
1880	3" X 3" X 1/4" ANGLE	L.F.
160	5" X 3" X 1/4" ANGLE	L.F.
3640	REBAR, #4	L.F.
15980	REBAR, #5	L.F.
540	REBAR, #7	L.F.
155	SLAB BOLSTERS, 1"	E.A.
217	STEEL REBAR CHAIRS, 4"	E.A.
2	REBAR TIES, 6"	ROLL
302	WELD STUDS, 5/8" X 6"	E.A.
250	TUBULAR RAIL	L.F.
4	W-BEAM END SECTION (FLARED)	E.A.
5037	BACKWALL SHEETING, INTERLOCKING GALV. 10 GA	S.F.
2952	GALV. DECK FORM	S.F.
250	GUARDRAIL POST, W 6" X 20#	L.F.
	Total	



**Canadian County
Purchasing**

Affidavit / Proof of Mailing

Date Issued: April 11, 2016
Bid Number: **2016-#18**
Closing Date: May 6, 2016 at 4:00pm
 PO Box 458, 201 N. Choctaw Ave., El Reno, OK 73036
Opening Date: May 9, 2016 at 9:30am
 Commissioner's Meeting Room, 201 N. Choctaw Ave., El Reno, OK 73036

~ AFFIDAVIT~

Bridge Material / Canadian County District #1

State of Oklahoma)
County of Canadian) §

I, Sherry Murray, Purchasing Agent, in and for said County and State, do hereby certify that "Invitations to Bid" were sent to the following:

BidClerk
projects@bidclerk.com

Bid News
projects@isqft.com

ePlan
4115 South Providence, Suite 105
Columbia, MO 65203

Francis Tuttle Vo-Tech Center
Attn: Bid Assistant – Judy Robbins
12777 N Rockwell
Oklahoma City, OK 73142

K&O Construction
PO Box 1845
Enid, OK 73702

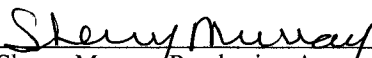
Online Data Services
3295 River Exchange Drive, Suite 213
Norcross, GA 30092

Railroad Yard
PO Box 2283
Stillwater, OK 74076

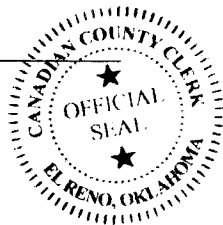
Reed Construction Data
30 Technology Pkwy South, Suite 100
Norcross, GA 30092

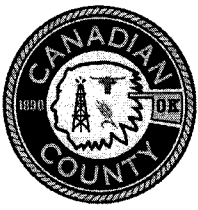
Sunbelt Equipment Supply
103147 S Hwy 18
Meeker, OK 74855

Witness my hand and seal this 11th day of April, 2016.


Sherry Murray, Purchasing Agent

(SEAL)





**Canadian County
Purchasing**

BID CHECKLIST

Date Issued: April 11, 2016
Bid Number: **2016-#18**
Closing Date: May 6, 2016 at 4:00pm
 PO Box 458, 201 N. Choctaw Ave., El Reno, OK 73036
Opening Date: May 9, 2016 at 9:30am
 Commissioner's Meeting Room, 201 N. Choctaw Ave., El Reno, OK 73036

**TO HELP PREVENT BIDS FROM BEING REJECTED FOR LACK OF COMPLETION
PLEASE CHECK FOR THE FOLLOWING:**

- Is the Invitation to Bid Signed and Notarized? _____
- Are all applicable spaces filled in? _____
- Are all necessary papers enclosed? _____
- Is the Bid # and Opening Date on outside of return envelope? _____

Thank You,

Sherry Murray, Purchasing Agent

PLAN OF PROPOSED COUNTY BRIDGE FOR CANADIAN COUNTY BRIDGE PLANS

BRIDGE STRUCTURE NO. 09E0090N2850005
LOCAL NO. 024 NBI NO. 01222

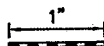
SHEET NO.	TITLE	DESCRIPTION
1	TITLE	
2	SUMMARY OF PAY QUANTITIES & GENERAL NOTES	
3	ABUTMENT	
4	I-BEAM SUPERSTRUCTURE	
5	PIER DETAIL	
	TR2-2-00E	

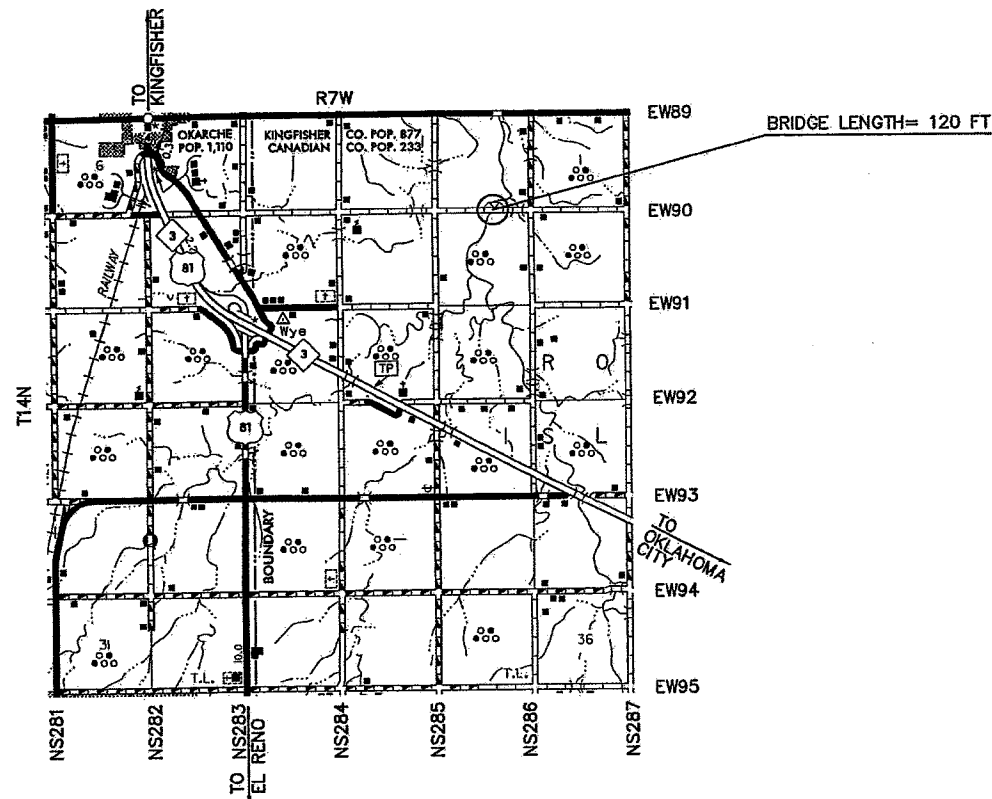
STATE OF OKLAHOMA
CANADIAN COUNTY
FILED OR RECORDED

APR 11 2016

SHELLEY DICKERSON
COUNTY CLERK

160186

SCALES 
PLAN 1"=50'
PROFILE HOR. 1"=50'
VER. 1"=5'
LAYOUT MAP 1"=5,280'



CANADIAN COUNTY COMMISSIONERS	
DATE	April 11, 2016
DIST. 1	Man A. Hester
DIST. 2	David Anderson
DIST. 3	Jack Stewart



















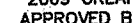
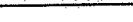




Shelley Dickerson
COUNTY CLERK



Tyler D. Schroder
TYLER D. SCHRODER
REGISTERED PROFESSIONAL ENGINEER NO. 25837


CONVENTIONAL SIGNS

	PROPOSED ROAD
	RAILROADS
	RANGE & TOWNSHIP
	SECTION LINES
	QUARTER SECTION LINES
	FENCES
	GROUND LINE
	EXISTING ROADS
	BASE LINE
	GRADE LINES
	TELEPHONE & TELEGRAPH
	POWER LINES
	OIL WELLS
	BUILDINGS
	DRAINAGE STRUCTURES-IN PLACE
	DRAINAGE STRUCTURES-NEW
	RIGHT-OF-WAY LINES-EXISTING
	RIGHT-OF-WAY LINES-NEW
	RIGHT-OF-WAY MARKERS-IN PLACE
	RIGHT-OF-WAY MARKERS-REMOVE & RESET
	RIGHT-OF-WAY MARKERS-NEW
	CONTROLLED ACCESS
	RIGHT-OF-WAY FENCE

PROJECT LENGTHS BASED ON CRL

BRIDGE LENGTH _____ 120.00 FT.
PROJECT LENGTH _____ 120.00 FT.

EXCEPTIONS _____ NONE
EQUATIONS _____ NONE



CIRCUIT ENGINEERING DIST. 8

2901 N. VAN BUREN
ENID, OK 73703
(580) 237-4810

GENERAL NOTES

The road will be closed to traffic during construction of the bridge. Type III barricade and advance warning signs will be required at each end of the bridge construction zone and at road intersections each side of Bridge site. The county shall be responsible for placement and maintenance of all construction signs, barricade, lights, etc. according to the standards set forth in the Manual on Uniform Traffic Control Devices, 2009 Edition. All cost of necessary items for construction signing will be included in other items of work.

All construction and materials shall be in accordance with the 2009 Oklahoma Standards Specifications for Highway Construction.

Equipment for driving piles shall meet the requirements of Section 514.03 of the Standard Specifications. Length of piling shown is estimated. Piling under bridge seat shall have a capacity of 30 tons. Piling buldups, if required, will be paid for at the unit price bid for steel piling.

Bidders shall be responsible for the construction of the bridge using materials provided by the county.

The bid is good until the completion of the project.

The Top of Deck elevation should be approximately 30 feet above the Flowline elevation of the creek.

All material shall be new and delivered to the project site.

The new bridge alignment is to be approved by the County Commissioner or the Engineer.

Upon the completion of the abutments and prior to hanging the bridge beams, the contractor shall notify the county and allow them a minimum of 3 working days to place riprap around the abutments.

RESPONSIBILITIES OF COUNTY FORCES

Moving and replacing fence if required.
 Providing for relocation of utilities, if necessary.
 Obtaining right-of-way if required.
 Placing guardrail beyond bridge ends.
 Placing approach embankments and surface.
 Providing 10-33"x130# x60' long Beams to the project site.
 Placing riprap along channel and under bridge.

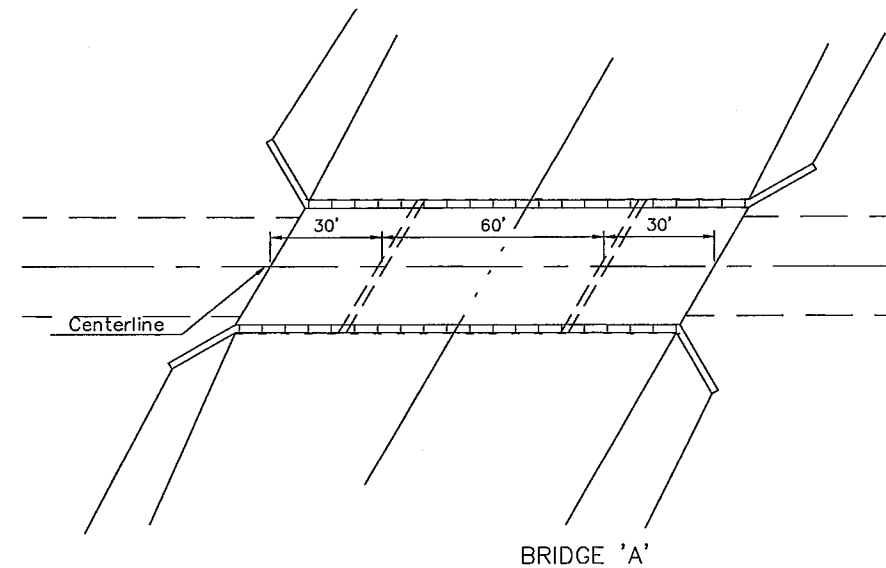
Contractor to call Okie 1-800-522-6543 for utility location before construction begins.

DESIGN DATA

CONCRETE: CLASS 'AA' f'c=4,000 psi
 REINFORCING STEEL: (GR. 60) fy=60,000 psi
 STRUCTURAL STEEL: (A 36) fy=36,000 psi
 STRUCTURAL STEEL: (BEAMS) fy=36,000 psi
 LOADING: HS-20-44
 DESIGN-AASHTO Standard Specifications for Highway Bridges 1999
 and American Welding Society Specifications

CONSTRUCTION NOTES

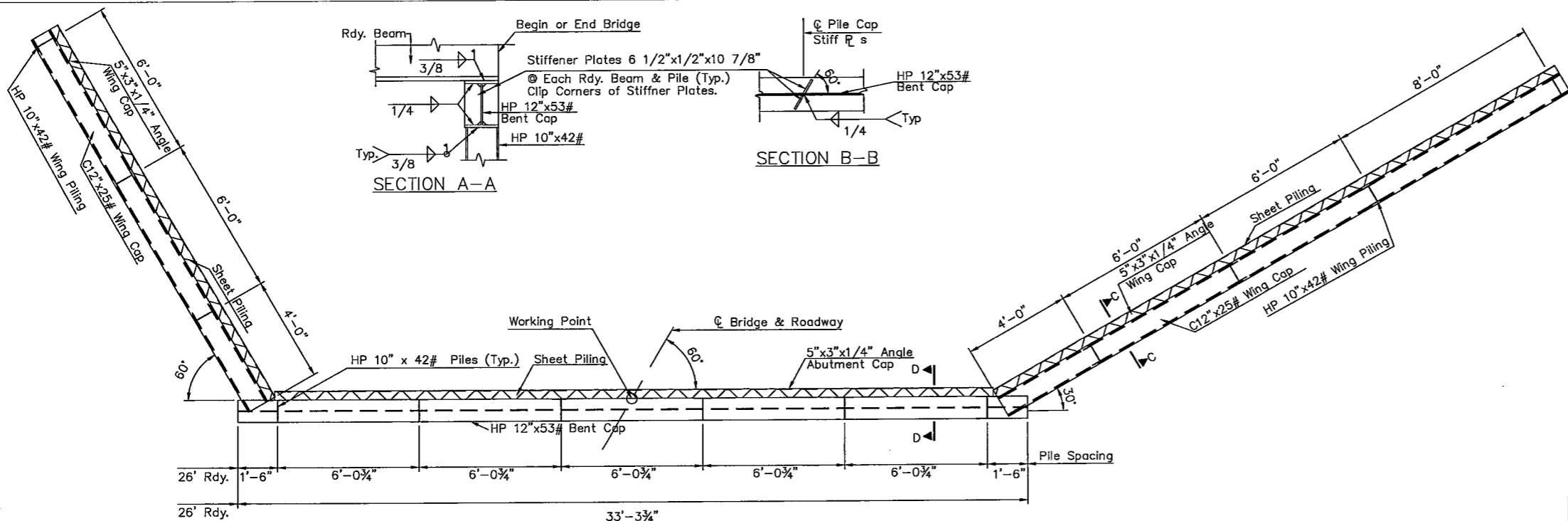
- (1) THIS PAY ITEM IS TO BE BID FOR EACH ADDITIONAL FOOT OF PILING NEEDED OVER PLAN QUANTITY. QUANTITY ESTIMATED AT 40' ASSUMING A 40' PIECE.
- (2) QUANTITY CALCULATED AT 40' ASSUMING 20' PIECES, INCLUDES 7' FOR WASTE.
- (3) QUANTITY CALCULATED AT 40' ASSUMING 20' PIECES, INCLUDES 2' FOR WASTE.
- (4) QUANTITY CALCULATED AT 640' ASSUMING 20' PIECES, INCLUDES 28' FOR WASTE.
- (5) QUANTITY CALCULATED AT 80' ASSUMING 20' PIECES, INCLUDES 17' FOR WASTE.
- (6) QUANTITY CALCULATED AT 220' ASSUMING 20' PIECES, INCLUDES 16' FOR WASTE.
- (7) QUANTITY CALCULATED AT 1880' ASSUMING 20' PIECES, INCLUDES 270' FOR WASTE.
- (8) QUANTITY CALCULATED AT 160' ASSUMING 20' PIECES, INCLUDES 18' FOR WASTE.
- (9) QUANTITY CALCULATED AT 3640' ASSUMING 20' PIECES, INCLUDES 49' FOR WASTE.
- (10) QUANTITY CALCULATED AT 15,980' ASSUMING 20' PIECES, INCLUDES 438' FOR WASTE.
- (11) QUANTITY CALCULATED AT 540' ASSUMING 20' PIECES, INCLUDES 0' FOR WASTE.
- (12) 155 - 2" CONTINUOUS SLAB BOLSTERS MAY BE SUBSTITUTED FOR 4" REBAR CHAIRS. BOLSTERS ASSUMED TO BE 5' LONG.
- (13) THE PAY ITEM "TUBULAR RAIL" IS TO INCLUDE ALL HARDWARE REQUIRED TO ATTACH THE TWO 12 GA. W BEAM MEMBERS WELDED AS SHOWN IN STANDARD TR2-2.
- (14) QUANTITY IS ESTIMATED AS 88 SHEETS OF 1'-7 5/8" WIDE X 35' LONG.
- (15) THE PAY ITEM "DECK FORM" IS TO BE PRIME MATERIAL MEETING PLAN SPECIFICATIONS. QUANTITY IS ESTIMATED AS 41 SHEETS OF 24' LONG X 3' WIDE.
- (16) QUANTITY CALCULATED AT 250' ASSUMING 25' PIECES, INCLUDES 23' FOR WASTE.
- (17) QUANTITY CALCULATED AT 95 C.Y., INCLUDES 6 C.Y. FOR WASTE. CLASS AA CONCRETE SHALL INCLUDE THE COST OF BOTH PURCHASING AND PLACING THE CONCRETE.
- (18) THIS PAY ITEM IS TO BE BID FOR EACH ADDITIONAL FOOT OF PILING DRIVEN OVER PLAN QUANTITY.
- (19) THIS PAY ITEM CONSISTS OF REMOVAL AND DISPOSAL OF THE 196' LONG X 16' WIDE STRUCTURE. ALL MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR.



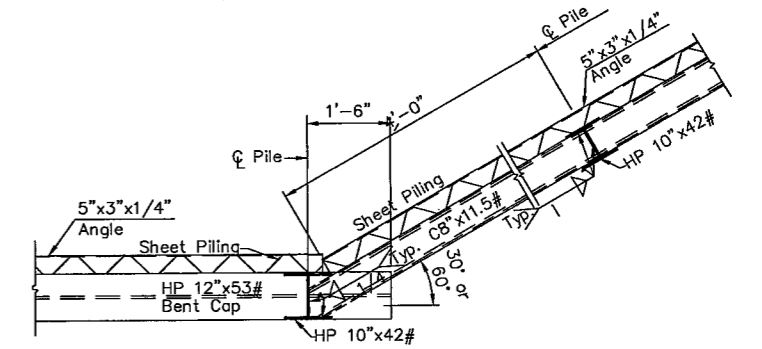
MATERIAL PAY QUANTITIES		
BRIDGE (A): 30'-60'-30' LONG X 27' 1" OUT TO OUT' SKEW 60' LT. FWD.		
ITEM	UNIT	QUANTITY
HP 10" X 42# (26-40' PCS), Piles	L.F.	1040.00
HP 10" X 42#, Additional Pile	(1) EA. L.F.	40.00
HP 12" X 53# (2-34' PCS), Bent Caps	L.F.	68.00
HP 12" X 53# (12-40' PCS), Piles	L.F.	480.00
HP 12" X 53#, Additional Pile	(1) EA. L.F.	40.00
HP 14" X 73# (2-33' PCS), Pier Cap	L.F.	66.00
6 1/2" X 1 1/2" FLAT, Bent Cap Stiffener	(2) L.F.	40.00
8 1/2" X 1 1/2" FLAT, Pier Cap Stiffener	(3) L.F.	40.00
C8" X 11.5# CHANNEL, Backwall Bracing & Deck Sides	(4) L.F.	640.00
C10" X 15 1/3# CHANNEL, Deck Ends	(5) L.F.	80.00
C12" X 25# CHANNEL, Wing Cap & Pier	(6) L.F.	220.00
3" X 3" X 1/4" ANGLE	(7) L.F.	1,880.00
5" X 3" X 1/4" ANGLE	(8) L.F.	160.00
REBAR, #4	(9) L.F.	3,640.00
REBAR, #5	(10) L.F.	15,980.00
REBAR, #7	(11) L.F.	540.00
SLAB BOLSTERS, 1"	EA.	155.00
STEEL REBAR CHAIRS, 4"	(12) EA.	217.00
REBAR TIES, 6"	ROLL	2.00
WELD STUDS, 5/8" X 6"	EA.	302.00
TUBULAR RAIL	(13) L.F.	250.00
W-BEAM END SECTION (FLARED)	E.A.	4.00
BACKWALL SHEETING, INTERLOCKING GALV. 10 GA.	(14) S.F.	5037.00
GALV. DECK FORM	(15) S.F.	2,952.00
GUARDRAIL POST, W 6" X 20#	(16) L.F.	250.00

CONSTRUCTION PAY QUANTITIES		
BRIDGE (A): 30'-60'-30' LONG X 27' 1" OUT TO OUT' SKEW 60' LT. FWD.		
ITEM	UNIT	QUANTITY
BRIDGE CONSTRUCTION LABOR	L. SUM	1.00
CLASS AA CONCRETE & FINISHING	(17) C.Y.	95.00
PILE DRIVING BEYOND PLAN QUANTITY	(18) L.F.	40.00
REMOVAL OF EXISTING BRIDGE STRUCTURE	(19) L. SUM	1.00

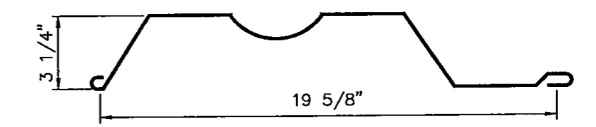
GENERAL NOTES



MIDDLE, INTERMEDIATE AND LOWER HORIZONTAL BRACE CONNECTION



UPPER HORIZONTAL BRACE CONNECTION



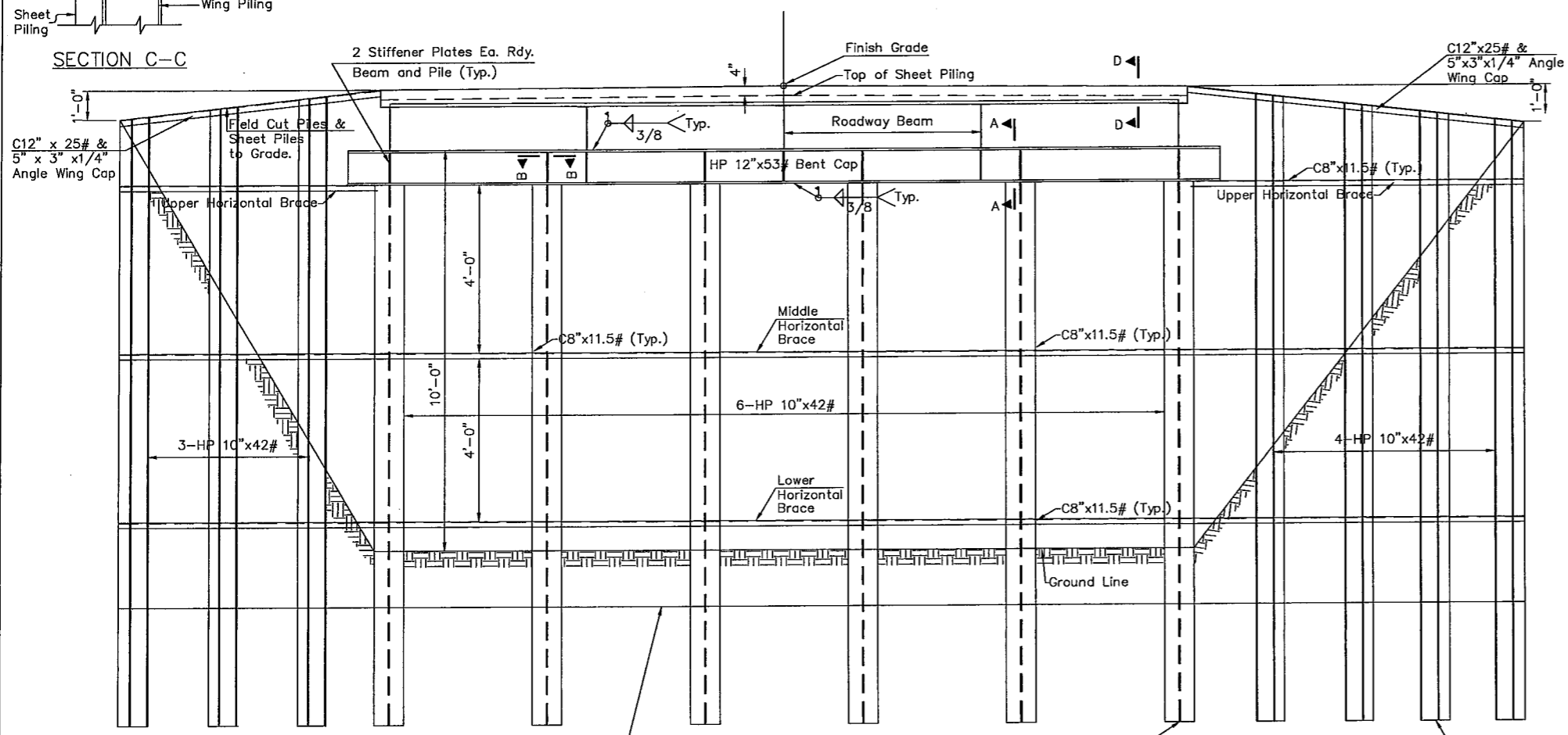
SHEET PILE SECTION

SHEET PILING:
 Steel Sheet Piling shall be made from steel conforming to ASTM A569 or A526 and shall be 10 gage, 0.1345 inches thick, weight 12.2 lbs. per linear foot of pile or 7.6 lbs. per square foot of wall, shall have section modulus of 3.79 in³ per section and moment of inertia of 6.44 inches⁴ per section and shall have a minimum yield strength of 36,000 psi. All cost for Steel Sheet Piling shall be paid for at the unit price bid per square foot for Steel Sheet Piling in place. The sheeting supplier shall furnish to the purchaser a manufacturers certificate of compliance stating that the sheeting furnished meets the above minimum requirements. Alternate Steel Sheet Piling may be used upon approval of the Engineer. Load capacity shall be no less than that provided by section specified above. All Sheet Piling shall be galvanized in accordance with ASTM A653.

STEEL PILING:
 Steel piles shall be driven to a minimum bearing of 30 tons and so that the bottom of the piles are a minimum of 10' below the creek flow line elevation. Bearing value to be determined in accordance with Section 514 of the 2009 Edition of the Oklahoma Standard Specification for Highway Construction. All HP Piles shall be Grade 50.

NOTE: 60° Rt. Fwd. Skew shown.
 60° Lt. Fwd. Skew by opposite hand.

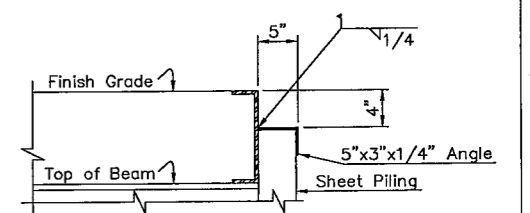
PLAN



Place Bottom of sheet Piling min. 5'-0" below streambed or to rock.

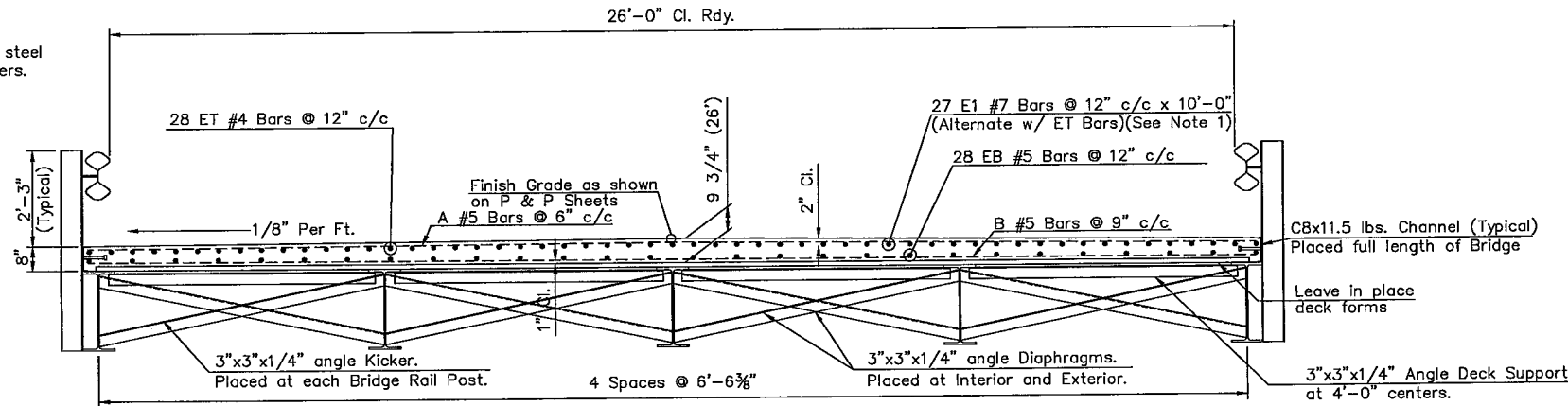
Piling under bridge seat to be driven to refusal or to 30 tons bearing.

Wing Piling to be driven to a minimum depth of 15' below streambed or to rock, whichever is less.



**ABUTMENT SKEW 60°
 STEEL PILING & BRIDGE SEAT
 SHEET PILING BACKWALL & WINGS
 26' ROADWAY**

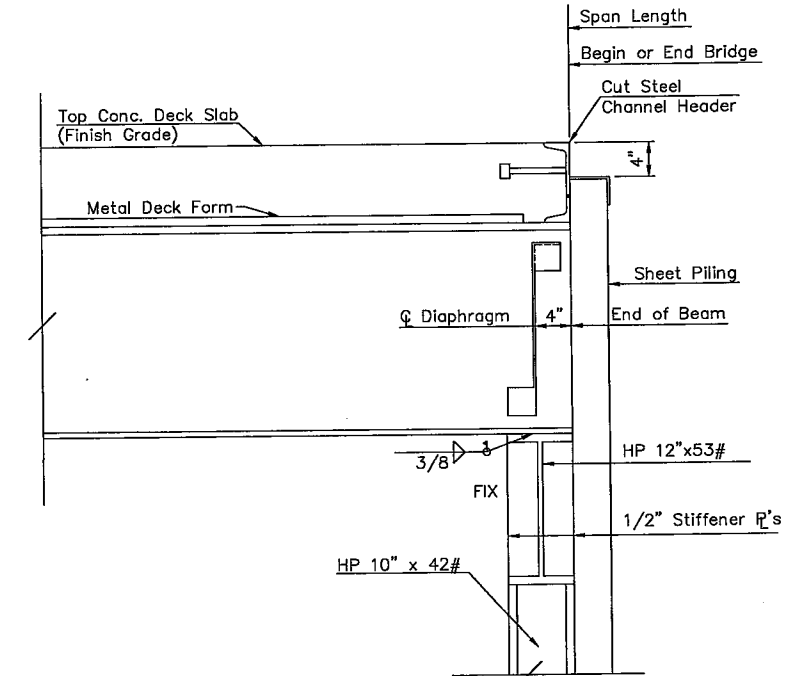
NOTE 1: E1 Bars shall be placed in the top mat of steel at piers only and shall be centered over piers.



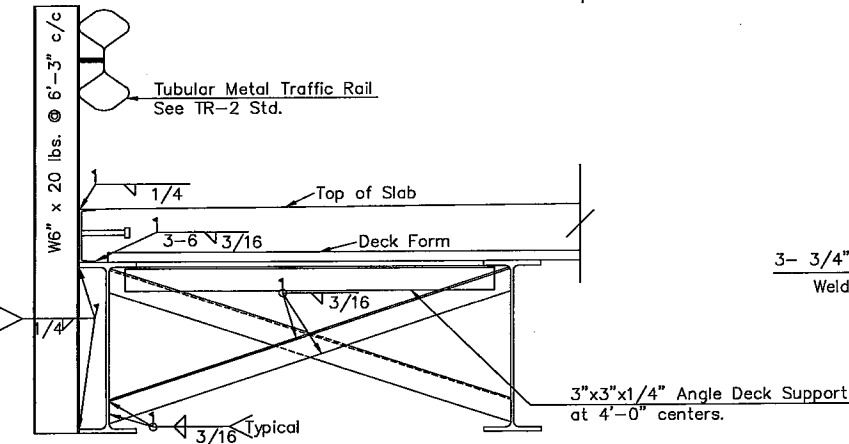
BRIDGE SECTION

Diaphragms at beam ends, piers, mid points of 30' spans, and 1/3 points of 60' span.

The minimum lap splice length for #5 reinforcing steel bars shall be 2'-6", and the minimum lap splice length for #4 reinforcing steel bars shall be 1'-8". The lap slices shall be staggered.

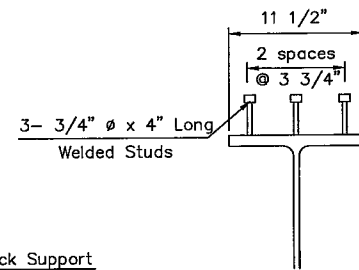


SHEET PILING ABUTMENTS



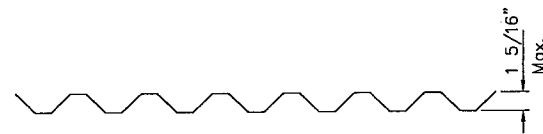
TR-2 TRAFFIC RAIL & DIAPHRAM DETAIL

(Rail, Posts & all fastener hardware to be included in price bid for Handrail)



SHEAR CONNECTORS

Existing Shear Connectors shall remain in place. Add additional Shear Connectors to insure a maximum row spacing of 12".

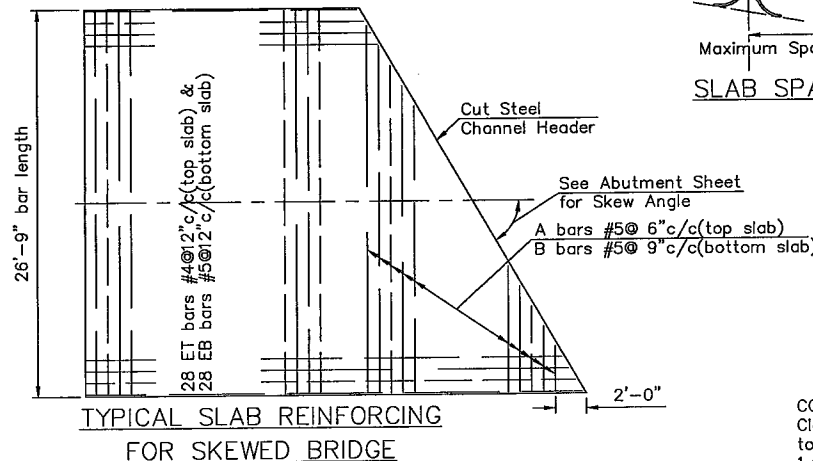


METAL DECK FORM DETAIL

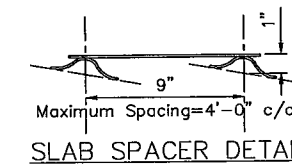
Deck Form shall be tough tempered cold rolled steel, sheet formed to a corrugated rib pattern with a maximum depth of 1 5/16". The steel shall have an average minimum yield strength of not less than 80,000 psi. Steel shall conform to A653, Grade E with Zinc coating conforming to ASTM A525 G90. Deck Form shall have a minimum Moment of Inertia = 0.204 in⁴/ft and a minimum Section Modulus = 0.119 in³/ft. Deck Form sections shall be placed with ribs parallel to beams and with side laps down. Allow 3" for end laps and center all end laps over supports. Do not allow bottom sheets to extend beyond edge of support flange. Install adjacent rows end to end, side lapping one corrugation rib with previously placed section.

Deck Form material shall be electric arc welded to the supporting steel beams and supports and adjoining deck sheets in accordance with manufacturer's specifications. Weld shall not exceed 12" on center at end lap joints and 18" on center on beams. All skew cutting shall be done in the field.

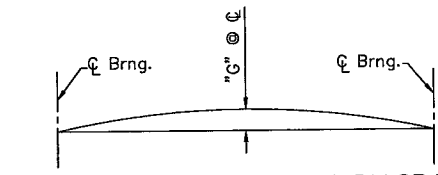
Deck Forms shall have holes field cut to allow shear connectors to protrude through the forms. Do not flame cut. Alternate stay-in-place forms may be used provided they are prepared by a registered engineer and approved by the County Commission. All costs associated with the use of an alternate design shall be at the contractors expense.



TYPICAL SLAB REINFORCING FOR SKEWED BRIDGE



SLAB SPACER DETAIL



DEAD LOAD DEFLECTION DIAGRAM

NOTE: The Contractor shall adjust the Finish Grade Line to provide for the Dead Load Deflection as shown above.

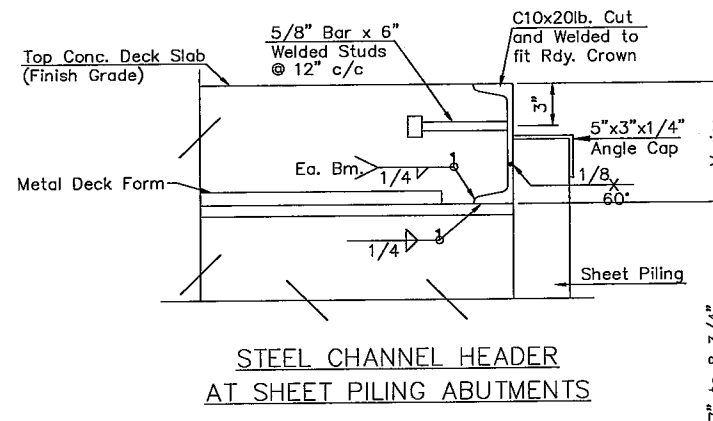
LENGTH OF A & B BARS	
SPAN	26' CL. RDY.
20' to 30'	26'-9"
35' to 50'	26'-9"
55' to 70'	26'-9"
75' to 80'	26'-9"

CONCRETE DECK SLAB:

Class "AA" Concrete and Maximum Aggregate 1" ϕ . All construction shall conform to the 2009 Oklahoma Standard Specifications. Surface of roadway shall slope 1/8" per foot each way from centerline of bridge. Transverse reinforcing steel in the floor shall begin and end a maximum of 2" from end of concrete panels. All reinforcing steel bars in top of slab shall be supported on approved metal high chairs. The spacing of the high chairs shall be a maximum of 4'-0" on center. Bottom layers of reinforcing steel shall be supported on continuous steel slab spacers as shown. Longitudinal bars shall begin and end 1" from end of slab.

DESIGN DATA

CONCRETE: CLASS "AA" HIGH EARLY $f'_c=4,000$ psi
 REINFORCING STEEL: (Gr. 60) $f_y=60,000$ psi
 STRUCTURAL STEEL: (A 36) $f_y=36,000$ psi
 STRUCTURAL STEEL: (BEAMS) $f_y=33,000$ psi
 NOTE: MINIMUM COMPRESSIVE STRENGTH FOR CLASS AA HIGH EARLY CONCRETE SHALL BE 4,000 psi AT 28 DAYS.
 LOADING HS 20-44



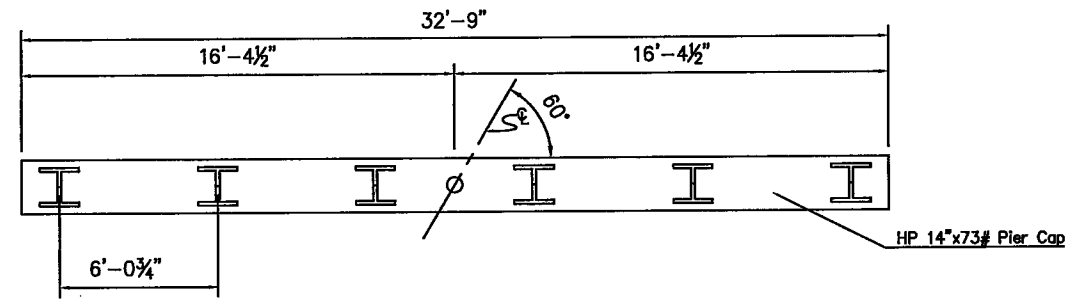
STEEL CHANNEL HEADER AT SHEET PILING ABUTMENTS

NOTE: Interior Diaphragms to be located at mid span for 20', 25', 30', 35', and 40' spans and at 1/3 span points for 45', 50', 55', and 60' spans and at 1/4 span points for 65', 70', 75', and 80' spans.

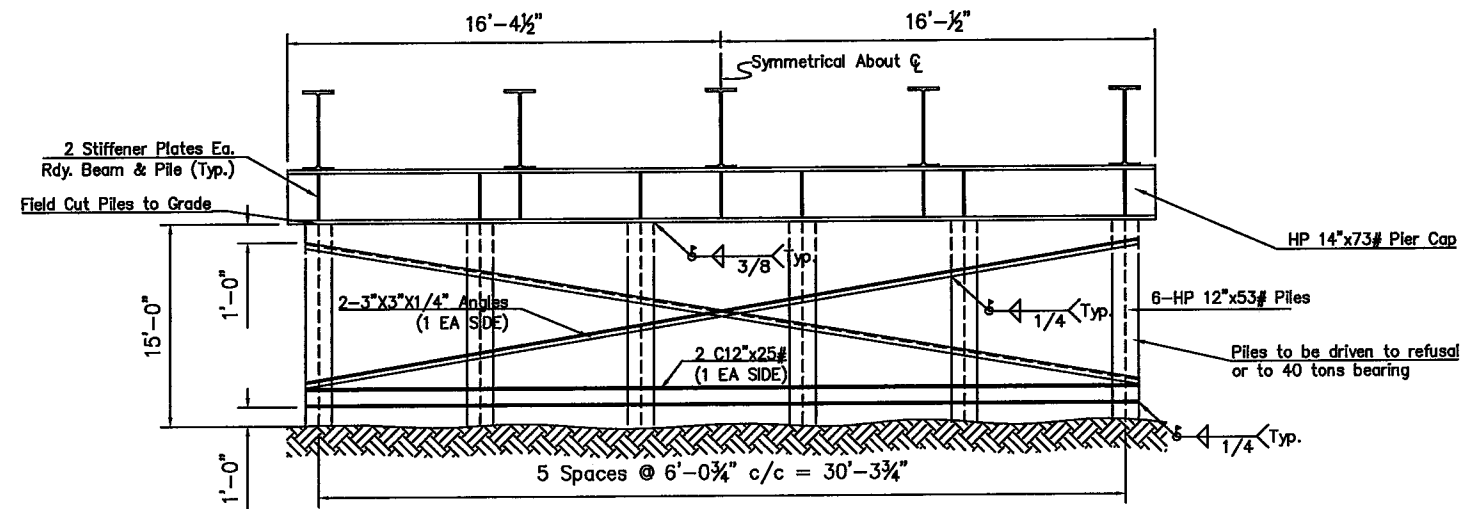
DIAPHRAM LOCATIONS-SKEWED BRIDGE

I-BEAM SUPERSTRUCTURE COMPOSITE CONCRETE DECK 26' CL. RDY.

60° Rt. Fwd. details are shown.
60° Lt. Fwd. details by opposite hand.

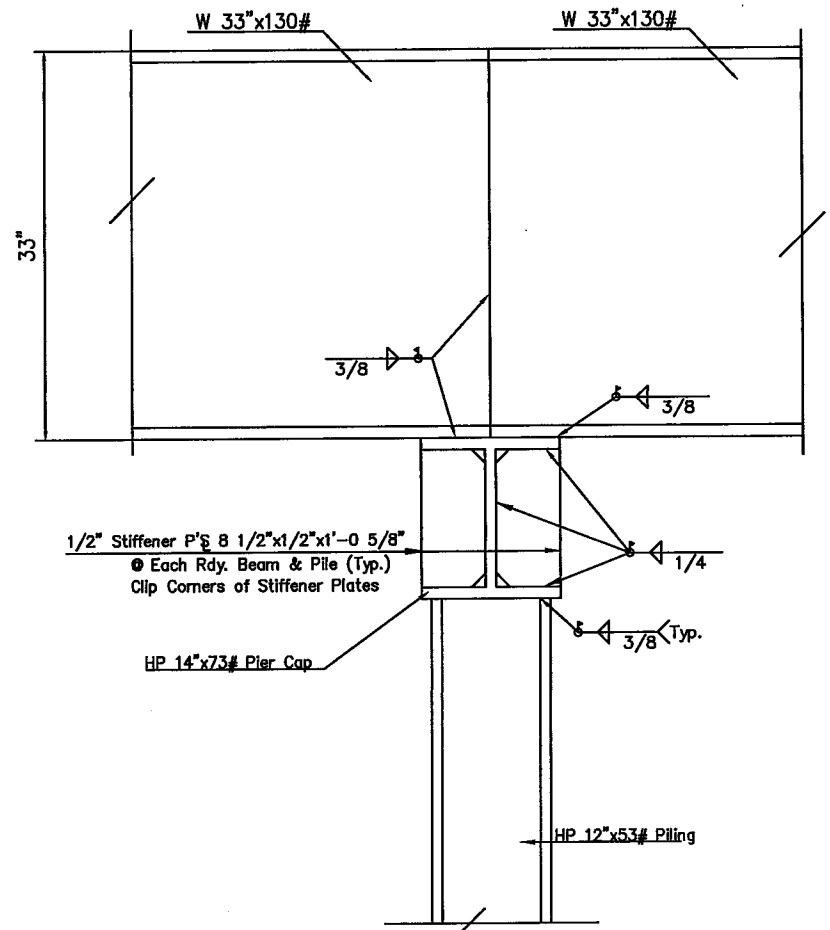


PLAN



ELEVATION

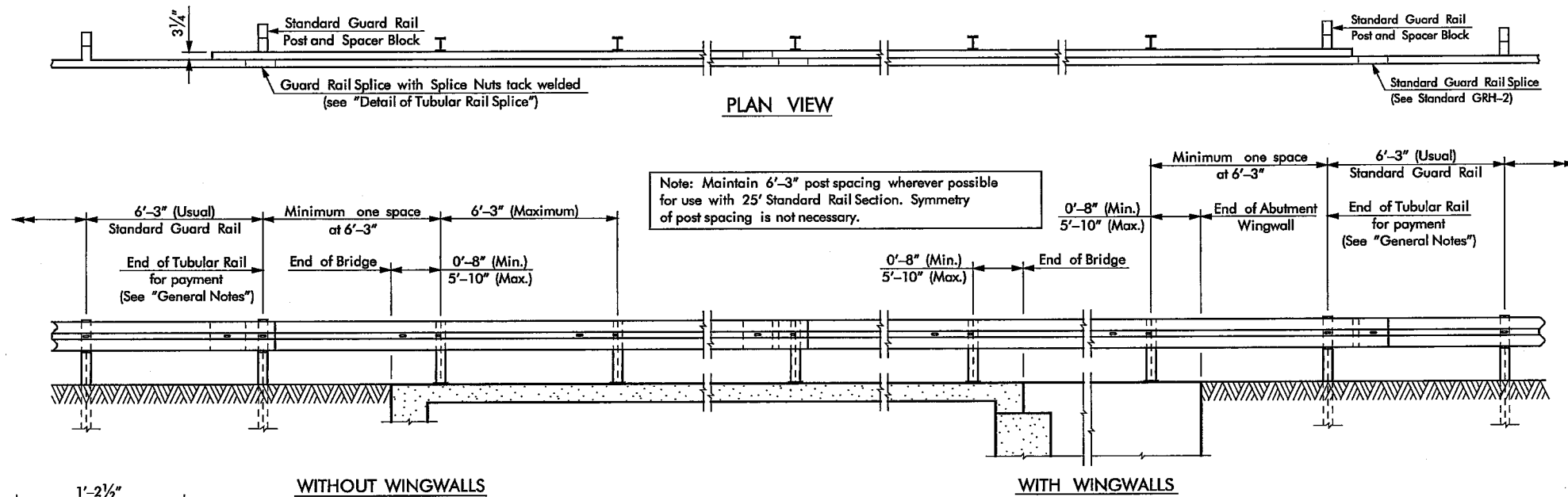
NOTE:
The Height of the Pier may be adjusted in the field.
The Height of the Pier may not exceed 1/2 of the Pile Length.
The Height of the Pier may not exceed 15 feet measured from ground line to the bottom of the Pier Cap.



BEARING ASSEMBLY DETAIL

Design	
Drawn	T.D.S.
Checked	
Approved	
Squad	CEDB

PIER DETAIL



GENERAL NOTES:
 THIS RAIL HAS BEEN SUCCESSFULLY EVALUATED BY FULL SCALE IMPACT TESTS CONDUCTED IN ACCORDANCE WITH NCHRP REPORT 153. TEST DOCUMENTATION MAY BE FOUND IN RESEARCH REPORT 230-1, "TUBULAR W-BEAM BRIDGE RAIL", OF RESEARCH STUDY 2-5-78-230 "BRIDGE RAIL TO CONTAIN HEAVY TRUCKS AND BUSES", TEXAS TRANSPORTATION INSTITUTE, OCTOBER 1978.

TUBULAR METAL TRAFFIC RAIL SHALL EXTEND ACROSS THE BRIDGE AND CONNECT TO AT LEAST THE FIRST SOIL EMBEDDED POST AT EACH END OF THE STRUCTURE. APPROACH GUARD RAIL POSTS SHALL BE SPACED AT 6'-3" CENTERS ADJACENT TO THE TUBULAR RAIL SINCE THE FLEXIBILITY OF SINGLE FACE GUARD RAIL AND TUBULAR RAIL IS SIMILAR. (DO NOT INSTALL ADDITIONAL POSTS AT 3'-1 1/2" CENTERS).

RAIL POSTS ON THE BRIDGE SHALL BE SPACED AT 6'-3" CENTERS WHEREVER POSSIBLE AND SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND CROSS SLOPE. AT THE CONTRACTOR'S OPTION, THE POST MAY BE PLACED AT EITHER OF THE POST MOUNTING SLOTS SHOWN. GROUT OR SHIM PLATES MAY BE USED UNDER THE BASE PLATE IF NECESSARY TO SECURE PROPER ALIGNMENT OF THE RAIL.

TUBULAR W-BEAM RAIL MEMBER IS TO BE FABRICATED FROM STANDARD 25' GUARD RAIL ELEMENTS. W-BEAM MEMBER SHALL BE 12 GAGE STEEL WITH NOMINAL THICKNESS OF 0.1046" EXCLUSIVE OF PROTECTIVE COATING. ADDITIONAL POST MOUNTING SLOTS ARE TO BE MADE IN EACH MEMBER 15" FROM THE STANDARD SLOTS AT 6'-3" CENTERS. TOP AND BOTTOM SEAMS SHALL BE BUTT WELDED 6" AT 12" SPACING. CONTINUOUS SEAM WELDING IS ALSO ACCEPTABLE. WELDS SHALL BE CHIPPED, CLEANED, AND PAINTED IN ACCORDANCE WITH SECTION 732.01(B) OF THE STANDARD SPECIFICATIONS. ALL BRIDGE RAILING HARDWARE SHALL CONFORM TO SECTIONS 732.01 AND 732.03 OF THE STANDARD SPECIFICATIONS.

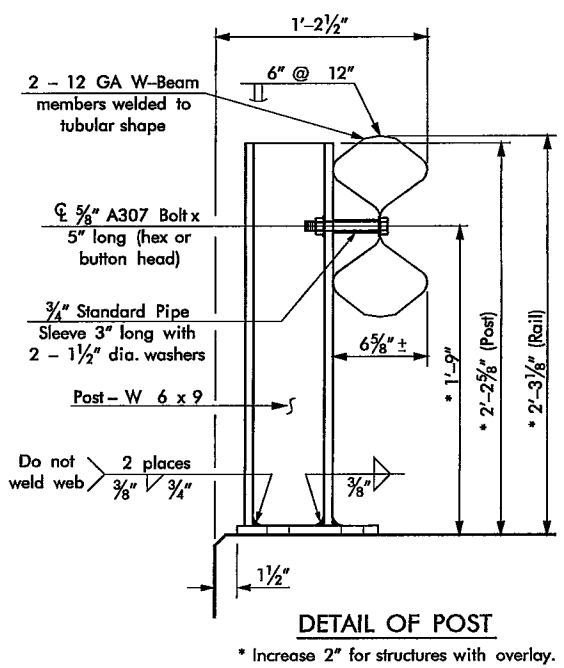
THE TUBULAR RAIL SHALL EXTEND ACROSS ALL JOINTS (FIXED AND EXPANSION) WITH NO CHANGE IN POST SPACING OR CONTINUITY. AT EXPANSION JOINTS OF 1/4" OR LESS, THE SPICE BOLTS ON THE SPICE NEAREST THE JOINT AND ALL POST MOUNTING BOLTS BETWEEN THE EXPANSION JOINT AND THIS SPICE SHALL BE SNUGLY TIGHTENED TO ALLOW FOR RAIL EXPANSION. AT EXPANSION JOINTS OVER 1/4", THE BOLT TREATMENT WILL BE THE SAME AS FOR JOINTS 1/4" OR LESS WITH SUITABLY LONGER SPICE HOLES PROVIDED.

3/8" SPICE NUTS SHALL BE TACK WELDED ON THE INSIDE OF THE TUBULAR RAIL SECTION AT ALL RAIL SPICES. THE NUTS MUST BE TACKED APPROX. 3/32" OFF THE CENTER OF THE BOLT SLOT TOWARD THE OUTSIDE OF THE TUBULAR RAIL. AT THE CONTRACTOR'S OPTION, THE NUTS MAY BE TACK WELDED TO A BENT SHEET METAL POSITIONER AS SHOWN IN THE DETAILS. OTHER SUITABLE POSITIONING METHODS OR DEVICES MAY BE SUBSTITUTED FOR THE METHODS NOTED. THE COMPLETE SPICE SHALL HAVE 16-5/8" SPICE BOLTS. FOR DETAIL OF SPICE BOLT SEE ROADWAY STD. GRH-2.

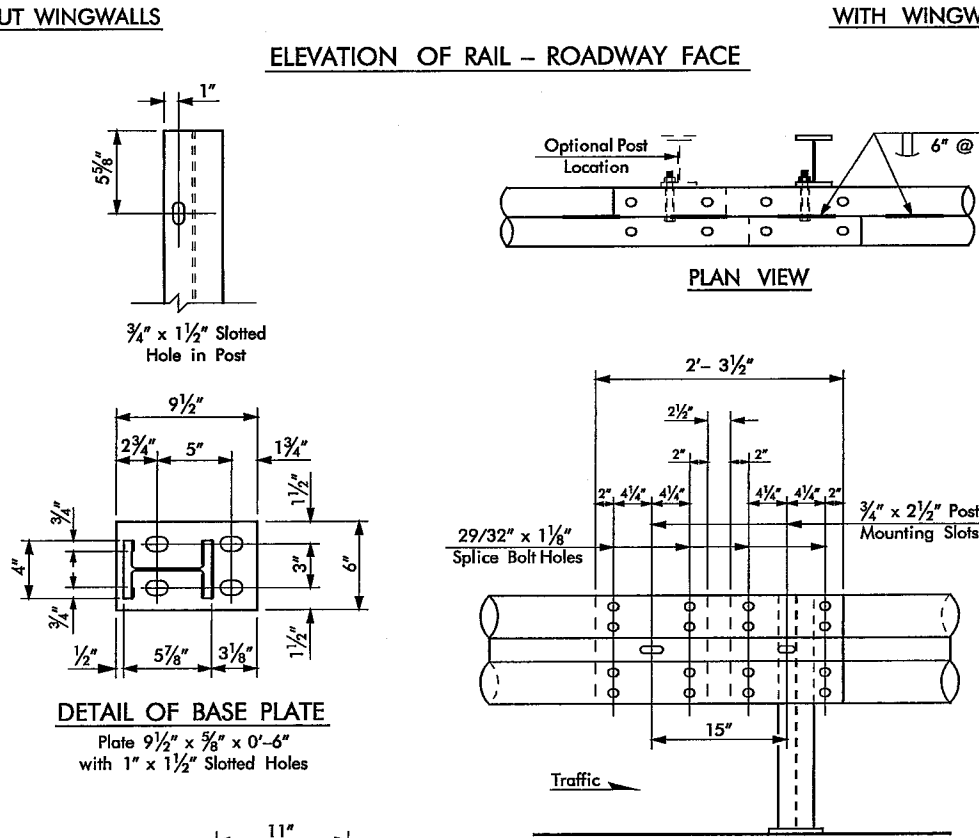
ANCHOR BOLTS SHALL BE 7/8" DIA. A-307 (OR A-36 THREADED RODS WITH TACK WELDED NUTS) WITH HEX NUTS AND WASHERS AS SHOWN. THREADED RODS MAY BE 0.781" MIN. DIA. WITH ROLLED THREADS. NUTS SHALL CONFORM TO A-307 REQUIREMENTS AND MAY BE TAPPED OR CHASED AFTER GALVANIZING. BOLTS AND NUTS SHALL HAVE CLASS 2A AND 2B FIT TOLERANCES.

SHOP DRAWINGS SHOWING DIMENSIONS AND DETAILS OF THE COMPLETE TUBULAR METAL TRAFFIC RAIL SHALL BE SUBMITTED TO THE BRIDGE ENGINEER FOR APPROVAL. BASIS OF PAYMENT: THE TUBULAR METAL TRAFFIC RAIL WILL BE MEASURED FOR PAYMENT BY THE LINEAR FOOT COMPLETE IN PLACE FROM END TO END OF TUBULAR RAILING SECTION ON EACH SIDE OF BRIDGE. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE FOR:

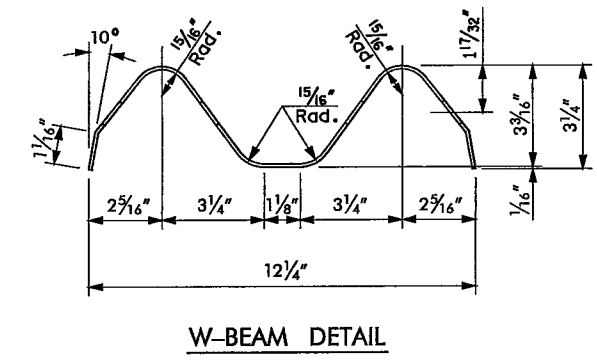
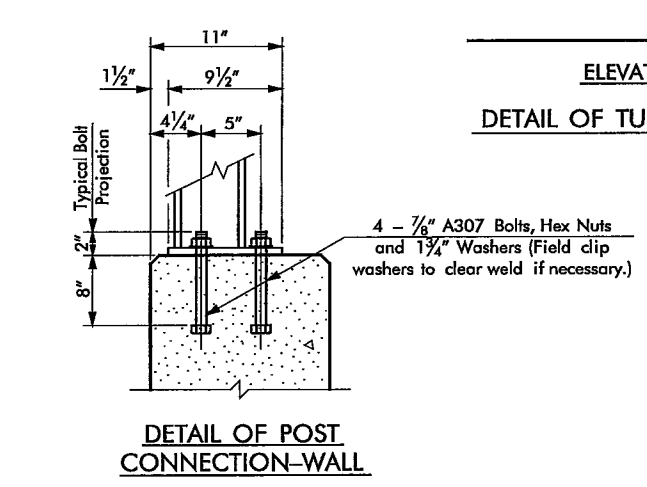
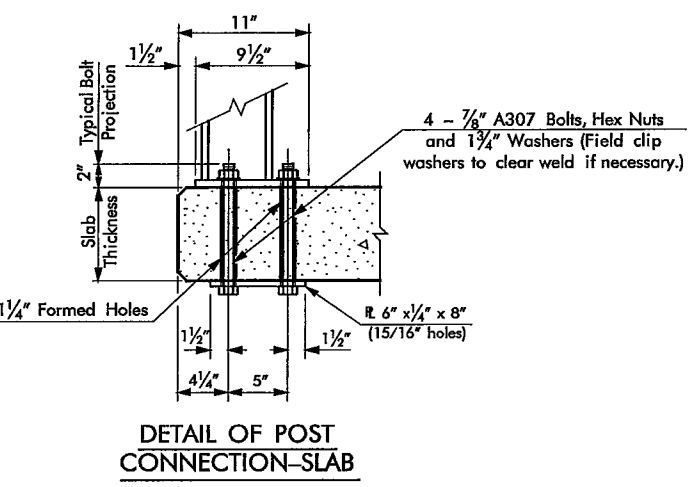
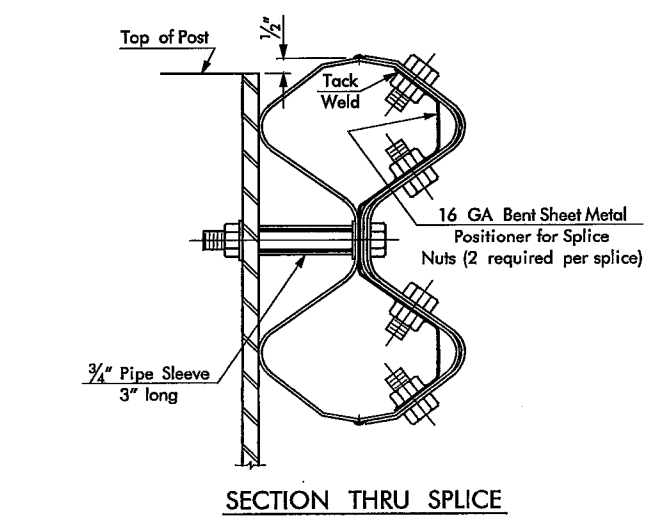
TUBULAR METAL TRAFFIC RAIL L.F.
 WHICH PRICE SHALL INCLUDE ALL COST OF TUBULAR W-BEAM RAIL, POSTS, ANCHOR BOLTS, WELDING, NUTS, BOLTS, WASHERS, CONNECTING PLATES, MISCELLANEOUS HARDWARE, LABOR, AND INCIDENTALS NECESSARY TO INSTALL THE TRAFFIC RAIL AS NOTED AND SPECIFIED.



Note: Posts shall be welded only at locations shown. NO ADDITIONAL WELDING WILL BE PERMITTED.



ELEVATION VIEW
 DETAIL OF TUBULAR RAIL SPICE



APPROVED BY BRIDGE ENGINEER: _____ DATE: _____

OKLAHOMA DEPT. OF TRANSPORTATION
 COUNTY BRIDGE STANDARD (ENGLISH)
 TUBULAR METAL TRAFFIC RAIL

1999 SPECIFICATIONS TR2-2 00E
 CB-34E