

P.A. RTR	SECTION	COUNTY	SHEET NO.
VAR. D4 GUARDRAIL REPAIRS 2023-MCHD	VARIOUS	22	3
ILLINOIS		CONTRACT NO. 68H01	

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROPOSED HIGHWAY PLANS

VARIOUS ROUTES
D4 GUARDRAIL REPAIRS 2023-MCHD
PROJECT COVD-UVQI(328)
VARIOUS COUNTIES
C-94-035-22

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 - 18 EXISTING GIBRALTAR CABLE BARRIER DETAIL
 - 19 EXISTING TRAFFIC BARRIER TERMINAL TYPE 8
 - 20 EXISTING TRAFFIC BARRIER TERMINAL TYPE 9
 - 21-23 EXISTING TUBULAR THRIE BEAM RETROFIT RAIL FOR BRIDGES
 - 24-27 STEEL PLATE BEAM GUARDRAIL, TYPE A, 6.75 FOOT POSTS
STANDARD 630011-D4

HIGHWAY STANDARDS:

630001-12	631046-04	701201-05	701456-05
630101-10	635001-02	701301-04	701601-09
630301-09	664001-02	701400-11	701608-10
631006-08	655001-02	701406-13	701701-10
631011-10	701006-05	701411-09	701901-08
631026-06	701011-04	701428-01	BLR-23-04
631031-18	701101-05		

DISTRICT STANDARDS:

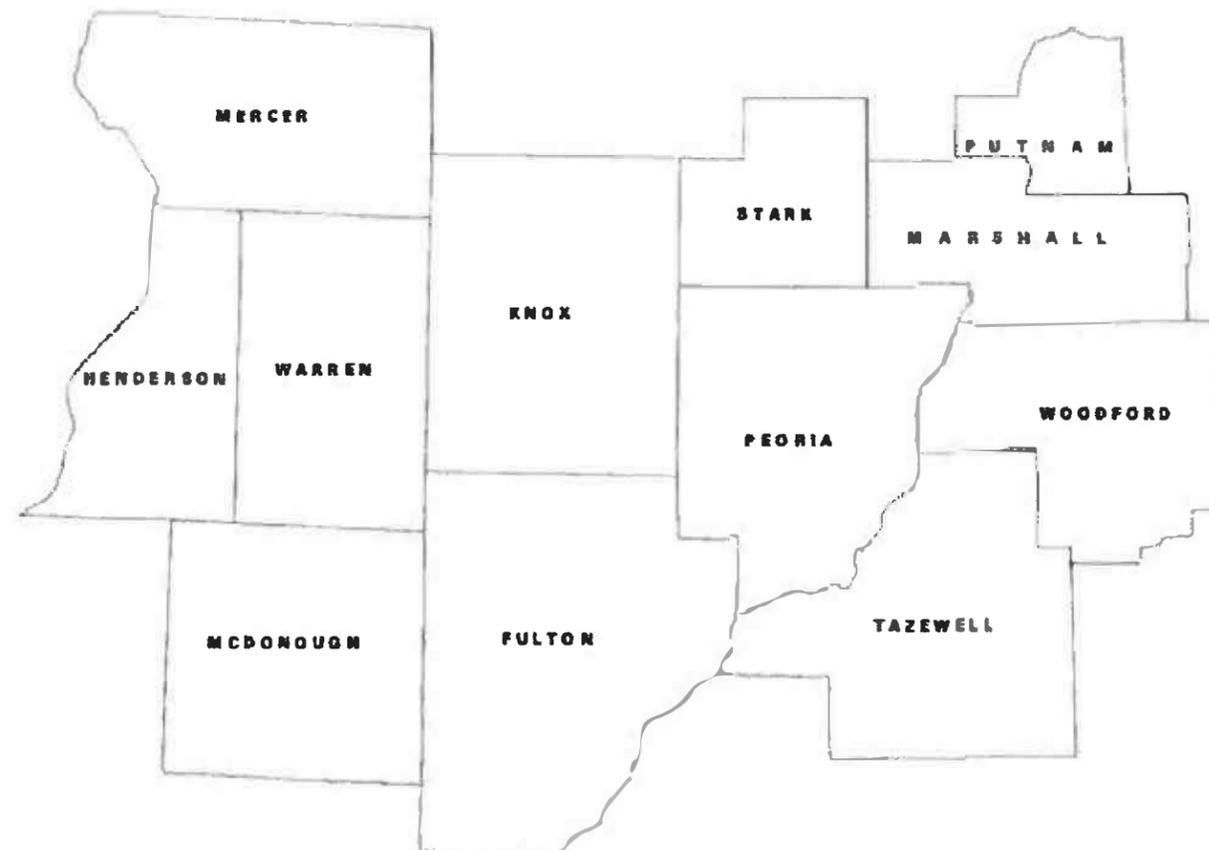
630011-D4



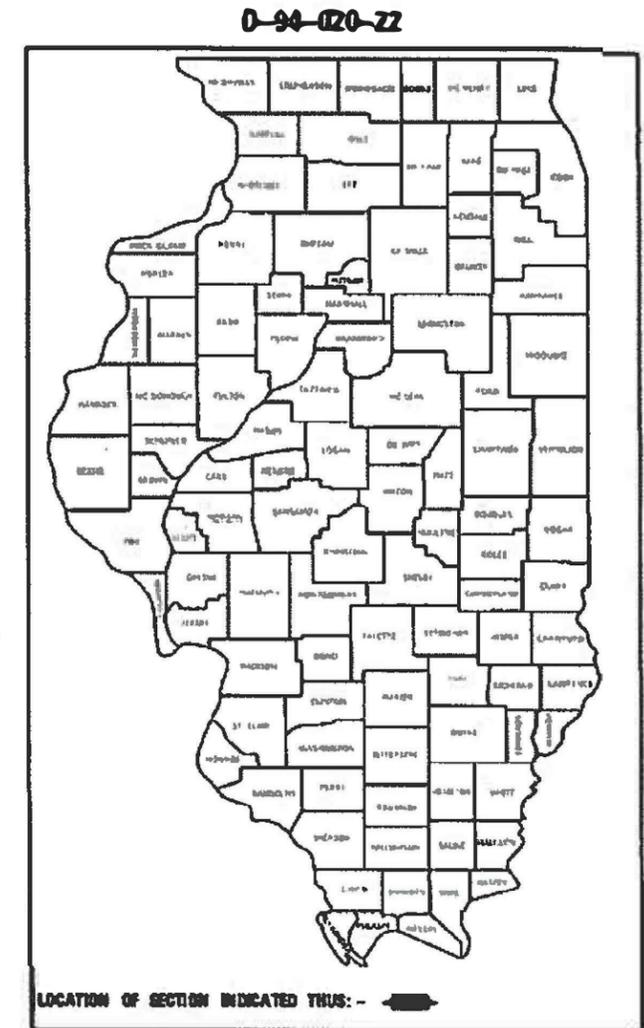
FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS THE ABOVE SCALES MAY BE USED.

JULIE
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-662-0723
OR 011

PROJECT ENGINEER BEN TELLEFSON (309) 671-3333
PROJECT MANAGER BEN TELLEFSON (309) 671-3333
CATALOG NO. 036309-000
CONTRACT NO. 68H01



GROSS LENGTH = NA
NET LENGTH = NA



DESCRIPTION:
GUARDRAIL REPAIRS CAUSED BY MOTORISTS AND CABLE GAURDRAIL REPAIRS AT VARIOUS LOCATIONS IN DISTRICT 4

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED December 5, 2023

[Signature]
REGIONAL ENGINEER

February 3, 2023
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

February 3, 2023
[Signature]
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

**PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS**

COMMITMENTS

NO COMMITMENTS HAVE BEEN MADE FOR THIS PROJECT.

TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL:

ANY TYPE 1, 1A, OR 1B TERMINAL REQUIRING REPLACEMENT UNDER THIS CONTRACT SHALL BE REPLACED BY A TYPE 1 (SPECIAL) TERMINAL AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL NOTIFY THE RESIDENT ENGINEER FORTY-EIGHT (48) HOURS PRIOR TO PERFORMING WORK.

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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

JOB SPECIFIC NOTES AND COMMITMENTS

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 GUARDRAIL REPAIRS 2023 - MCHD	VARIOUS	27	2
			CONTRACT NO. 68H01	
ILLINOIS FED. AID. PROJECT				

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE		
				VARIOUS COUNTIES	VARIOUS COUNTIES	VARIOUS COUNTIES
				100% STATE	100% STATE	100% FED
				MCHD	HTMCB	COVID RELIEF
				0021	0021	0021
63000001	SPBGR TY A 6FT POSTS	FOOT	649	572	0	77
63000003	SPBGR TY A 9FT POSTS	FOOT	56	56	0	0
63100045	TRAF BAR TERM T2	EACH	12	9	0	3
63100070	TRAF BAR TERM T5	EACH	8	8	0	0
63100085	TRAF BAR TERM T6	EACH	5	5	0	0
63100101	TRAF BAR TERM T9	EACH	8	8	0	0
63100105	TRAF BAR TERM T10	EACH	8	8	0	0
63100115	TRAF BAR TERM T12	EACH	8	8	0	0
63100167	TR BAR TRM T1 SPL TAN	EACH	60	56	0	4
63100169	TR BAR TRM T1 SPL FLR	EACH	11	10	0	1
63400105	GUARD POSTS	EACH	27	9	0	18
64300260	IMPATTEN FRD NAR TL3	EACH	2	1	0	1
64300320	IMPATTEN FRD RESTL3	EACH	1	0	0	1
64300370	IMPATTEN FRD WID TL3	EACH	2	1	0	1
64300450	IMPATTEN NRD TL3	EACH	4	4	0	0

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	DATE -	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES

SCALE: SHEET 1 OF 4 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 GUARDRAIL REPAIRS 2023 - MCHD	VARIOUS	27	3
ILLINOIS FED. AD. PROJECT			CONTRACT NO. 68H01	

ITEM NO.	DESCRIPTION	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE		
				VARIOUS COUNTIES	VARIOUS COUNTIES	VARIOUS COUNTIES
				100% STATE	100% STATE	100% FED
				MCHD	HTMCB	COVID RELIEF
				0021	0021	0021
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66400105	CH LK FENCE 4	FOOT	468	468	0	0
66400305	CH LK FENCE 6	FOOT	473	473	0	0
66500105	WOV W FENCE 4	FOOT	466	466	0	0
72501000	TERMINAL MARKER - DA	EACH	43	43	0	0
78200005	GRDRAIL REFTYPE A	EACH	22	22	0	0
X0301372	REPR/UPGR EXVAT-CAT	EACH	8	8	0	0
X0320013	REPR IMP ATTN FRW TL3	EACH	1	1	0	0
X0320014	REPR IMP ATTN SUN TL3	EACH	1	1	0	0
X0325264	RP IMP ATT FRN TL3	EACH	5	5	0	0
X6440130	REP HTC (GIBRALTAR)	FOOT	450	0	450	0
X6440131	R HT TERM (GIBRALTAR)	EACH	2	0	2	0
X6440134	R&R POSTS (GIBRALTAR)	EACH	34	0	34	0
X6360123	REP CABLE RD GUARD 3S	FOOT	45	0	45	0
X6440136	REPAIRP (GIBRALTAR)	EACH	46	0	46	0

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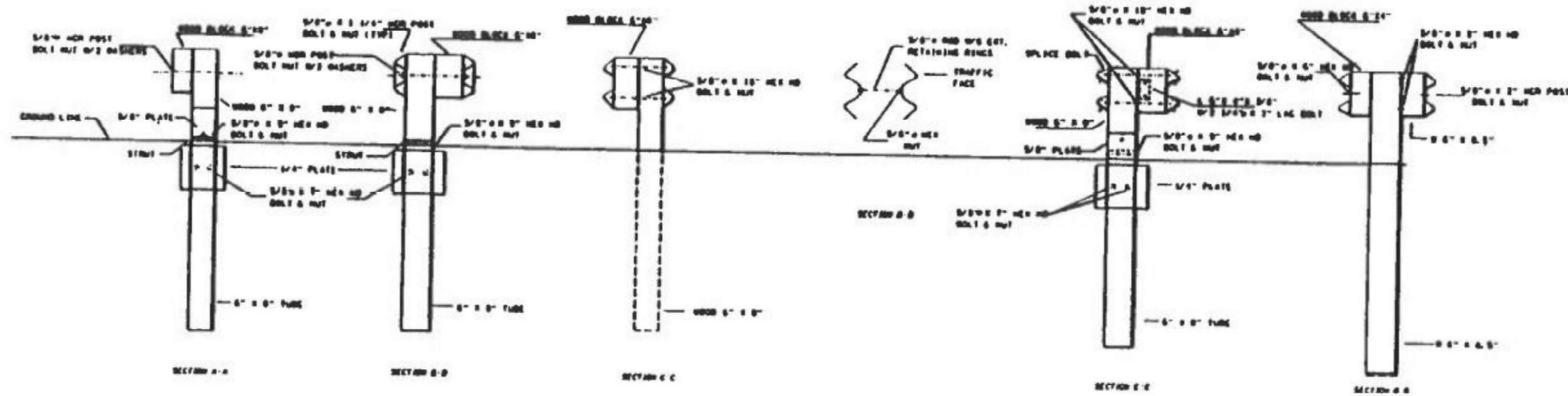
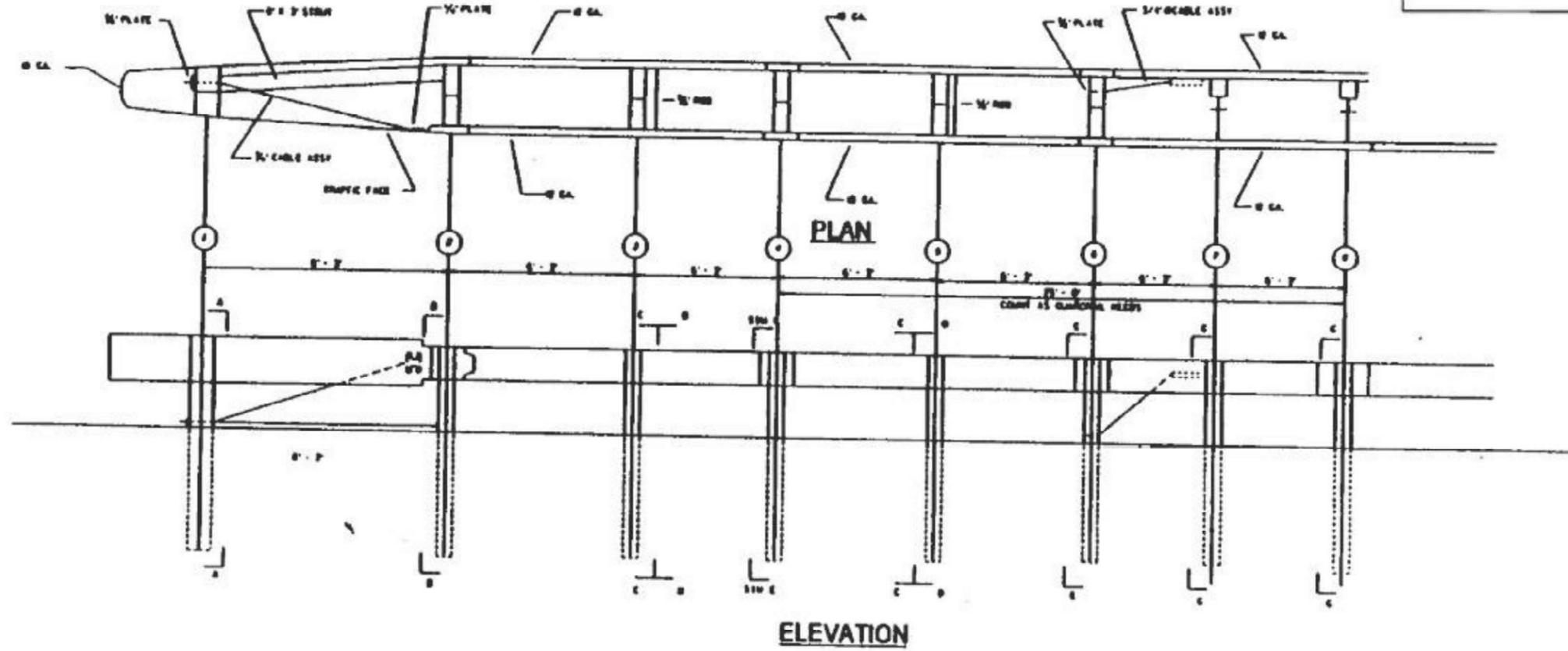
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

SUMMARY OF QUANTITIES

SCALE: SHEET 1 OF 4 SHEETS STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 GUARDRAIL REPAIRS 2023 - MCHD	VARIOUS	27	4
ILLINOIS FED. AD. PROJECT			CONTRACT NO. 68H01	

**DETAIL INCLUDED
FOR REPAIR ONLY**



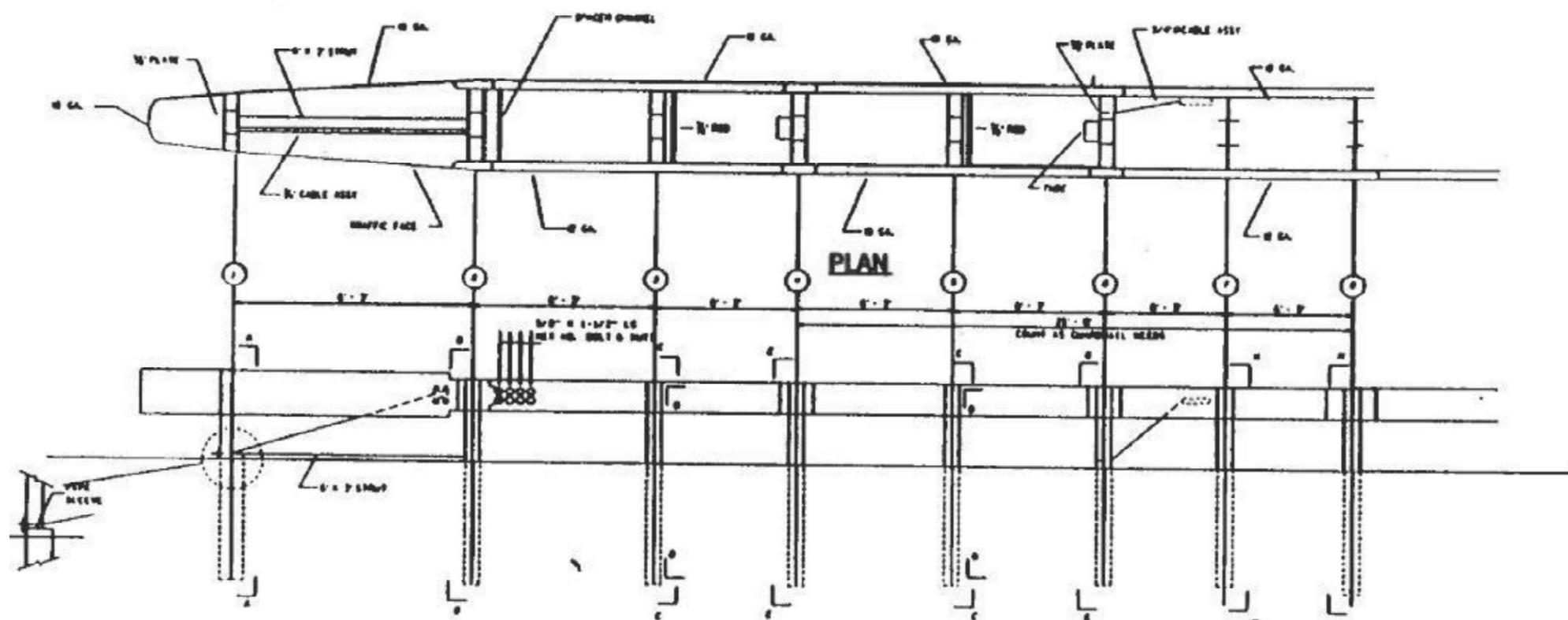
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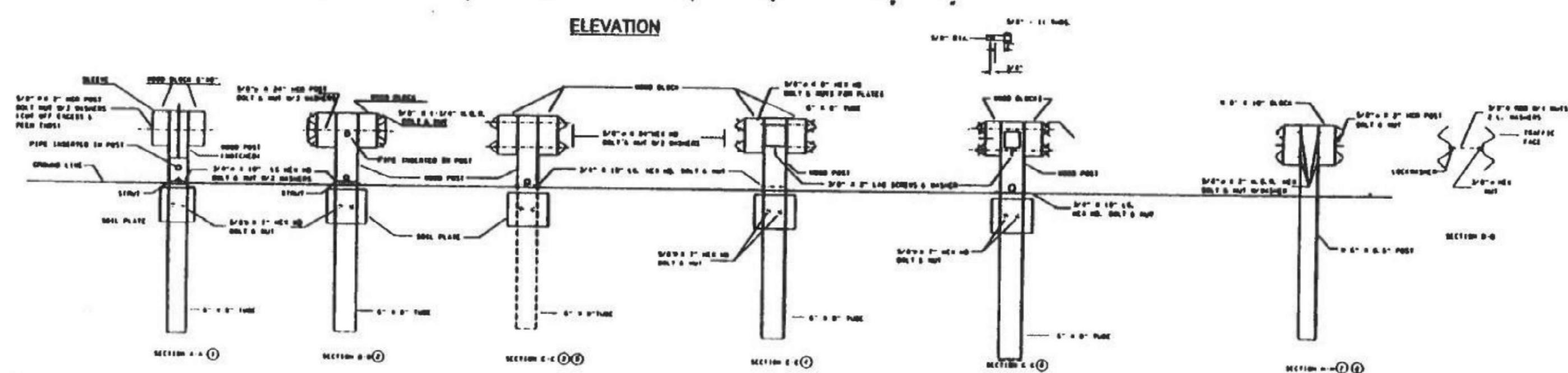
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

EXISTING V.A.T. SYSTEM
SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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			CONTRACT NO. 68H01	
ILLINOIS FED. AD. PROJECT				



**DETAIL INCLUDED
FOR REPAIR ONLY**



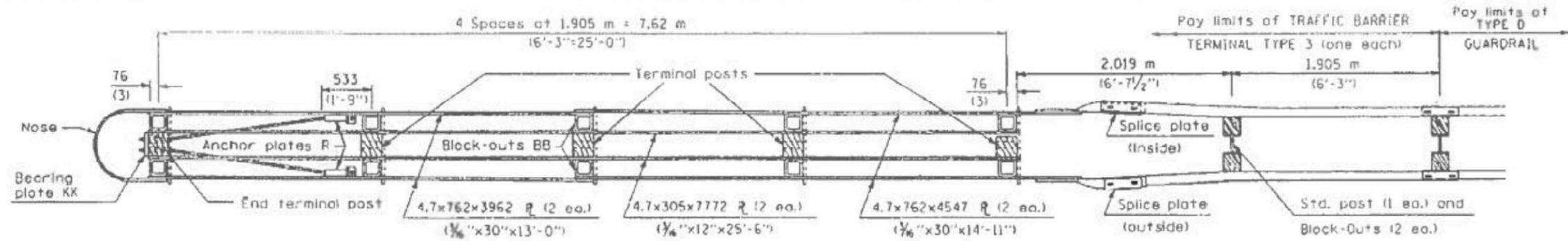
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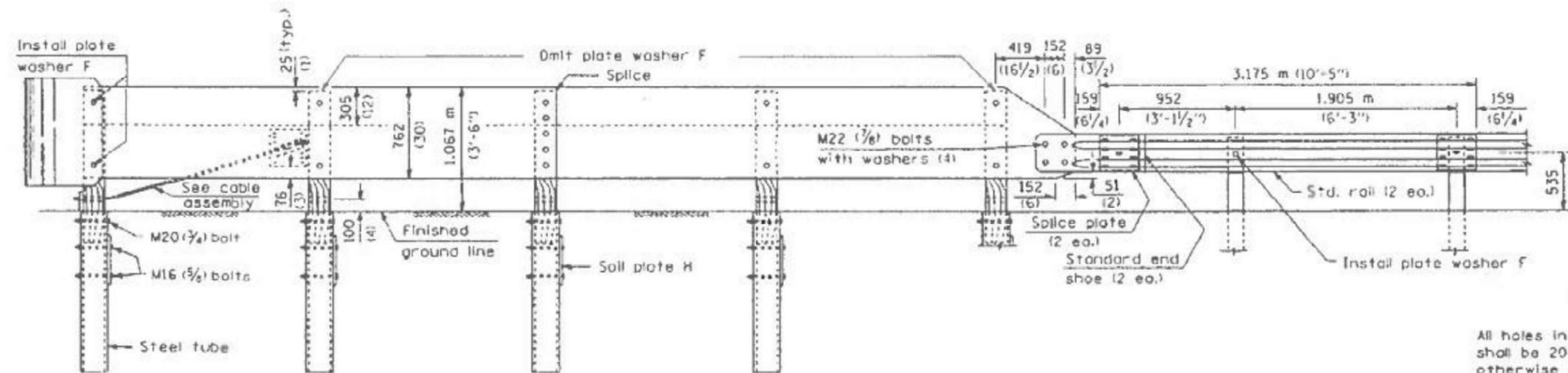
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

EXISTING C.A.T. SYSTEM
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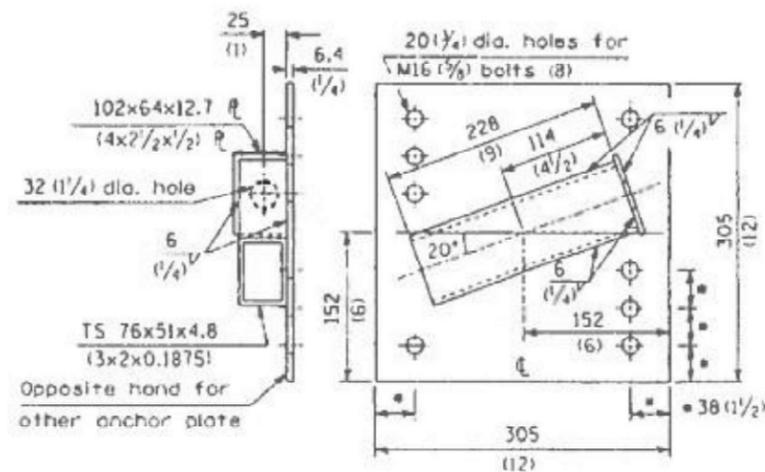
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			CONTRACT NO. 68H01	
ILLINOIS FED. AD. PROJECT				



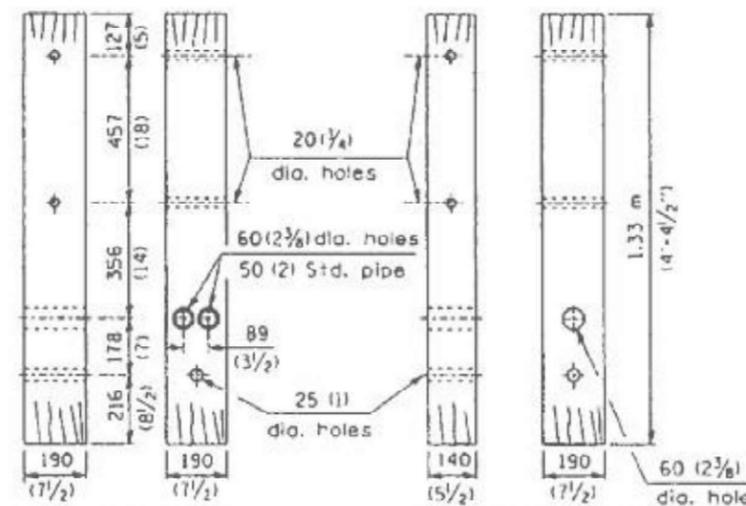
PLAN - TRAFFIC BARRIER TERMINAL TYPE 3



ELEVATION

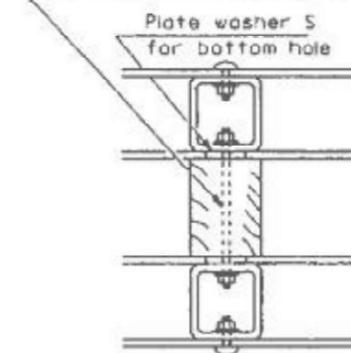


ANCHOR PLATE R
(1 ea. lt. hd. & 1 ea. rt. hd.)



END TERMINAL POST (1 ea.)
TERMINAL POST (4 ea. Type 3) (5 ea. Type 3A)

M16 (5/8) x 280 (11) threaded rod with nuts and washers (10 ea. Type 3) (12 ea. Type 3A)



TYPICAL BLOCK-OUT/POST ATTACHMENT

GENERAL NOTES

All holes in Posts, Block-Outs and Plates shall be 20 mm (3/4") diameter unless otherwise noted.

See Standard 630001 for details of guardrail elements not shown.

Unless otherwise shown all bolts and nuts shall be Standard Post and Splice Bolts and Nuts (See Standard 630001).

Block-Out AA shall be used at all locations unless otherwise noted.

DETAIL INCLUDED FOR REPAIR ONLY

All dimensions are in millimeters (inches) unless otherwise shown.

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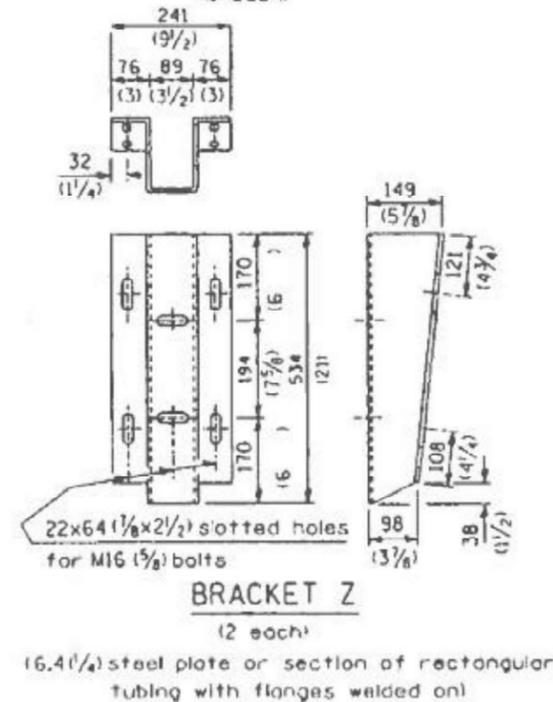
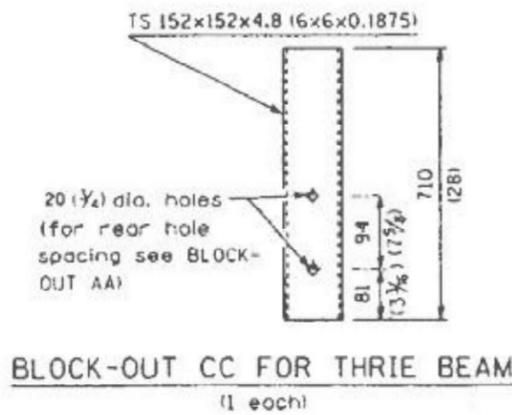
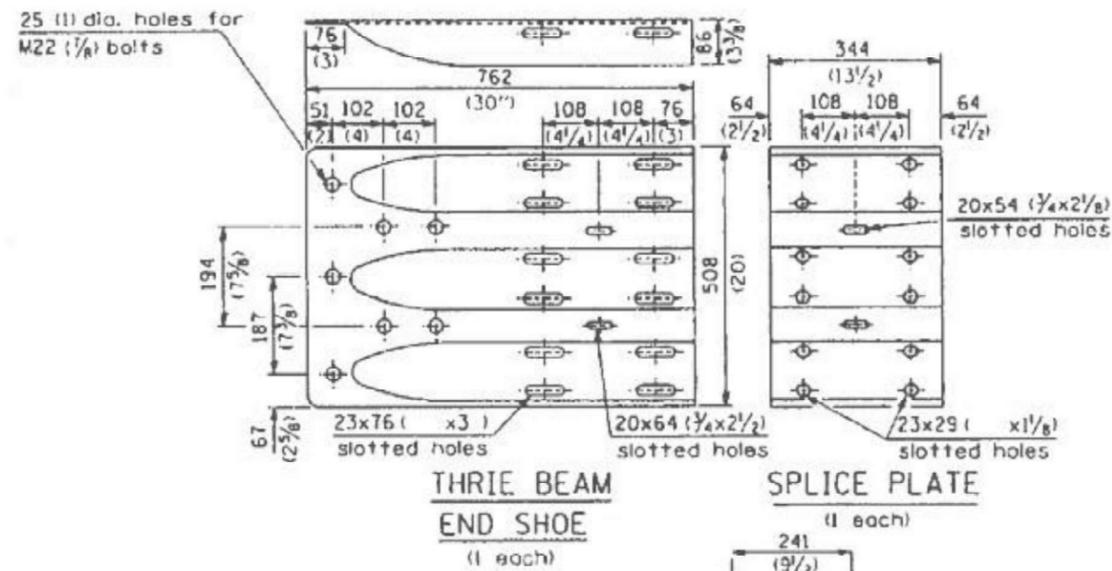
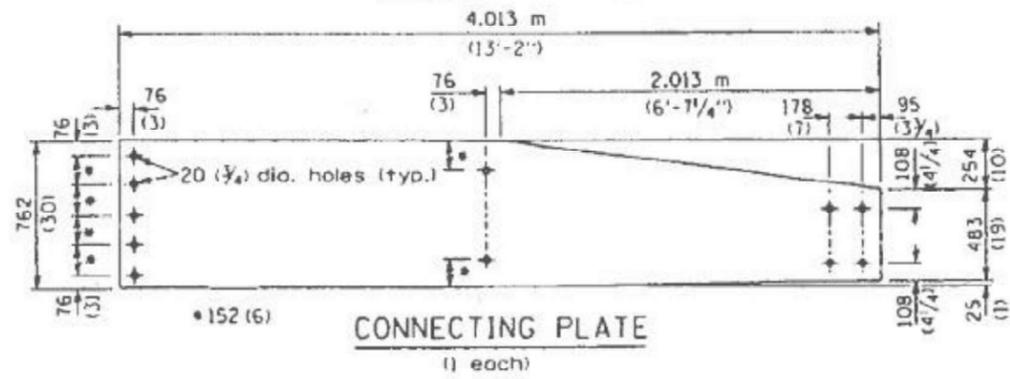
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING TRAFFIC BARRIER TERMINAL
TYPE 3 & TYPE 3A

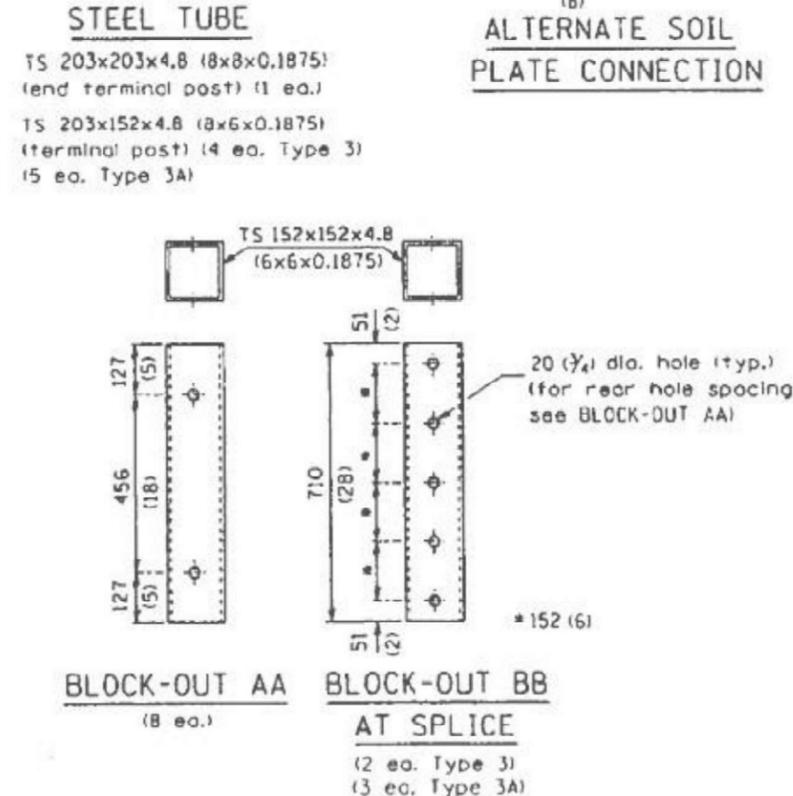
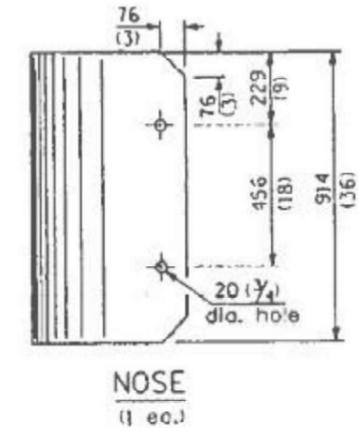
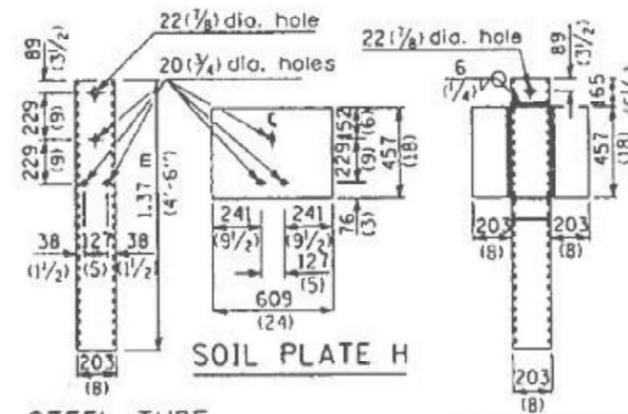
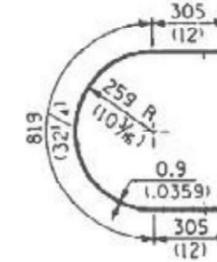
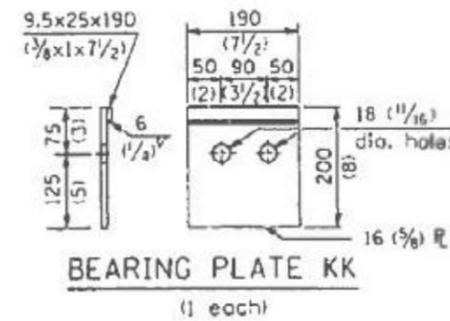
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F.A. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 GUARDRAIL REPAIRS 2023 - MOHD	VARIOUS	27	10
			CONTRACT NO. 68H01	
ILLINOIS FED. AD. PROJECT				

TYPE 3A ONLY



TYPE 3 & 3A



DETAIL INCLUDED FOR REPAIR ONLY

All dimensions are in millimeters (inches) unless otherwise shown.

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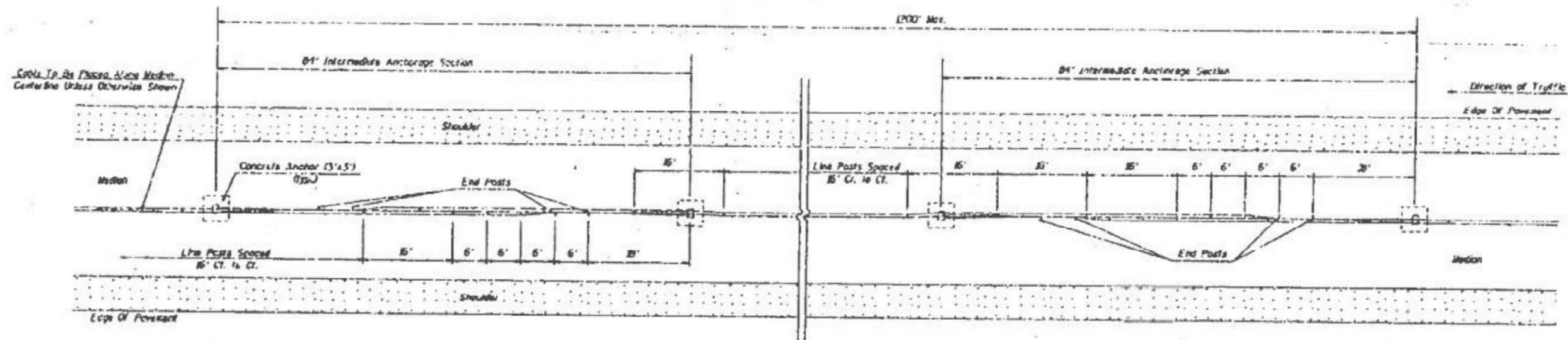
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING TRAFFIC BARRIER TERMINAL
TYPE 3 & TYPE 3A

SCALE: SHEET 3 OF 3 SHEETS STA. TO STA.

F.A. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR.	D4 GUARDRAIL REPAIRS 2023 - MOHD	VARIOUS	27	12
			CONTRACT NO. 68H01	
ILLINOIS FED. AD. PROJECT				



TYPICAL CABLE MEDIAN BARRIER ANCHORAGE LAYOUT
 PLAN VIEW
 Not to Scale

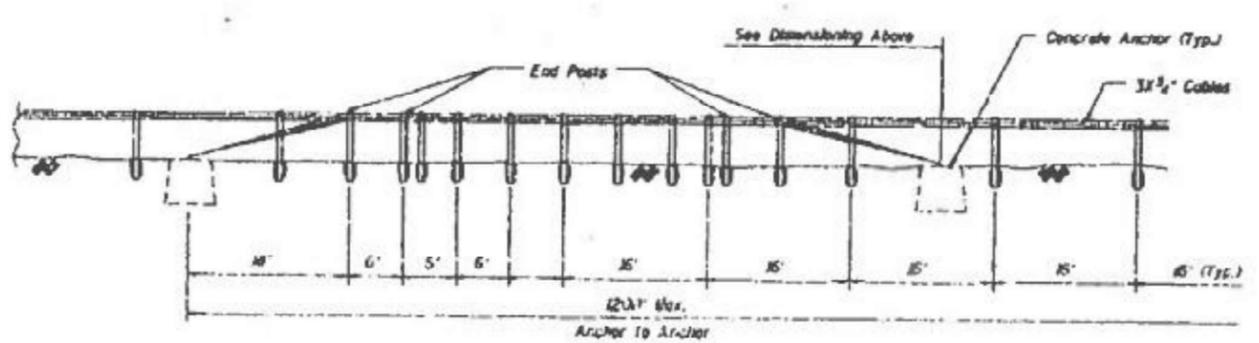
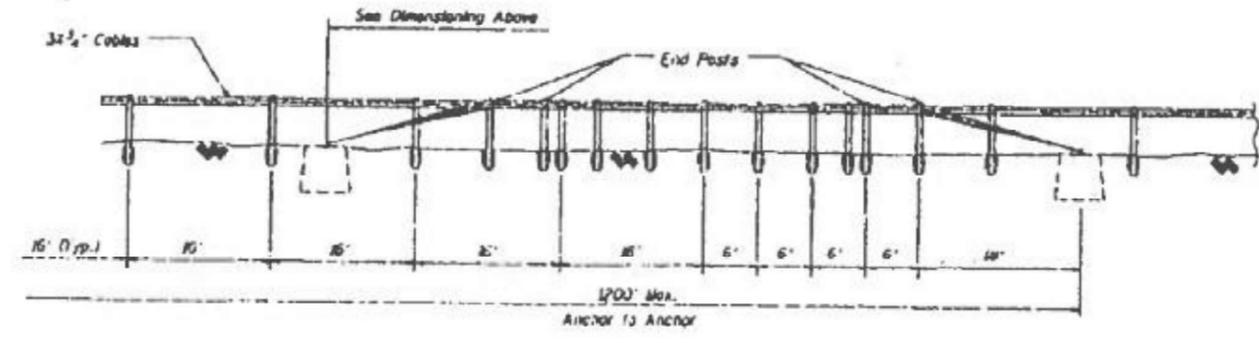
GENERAL NOTE

DELINEATORS: Two reflectors, placed back to back, shall be required for each delineator post.

NOTE: This work shall be done in accordance with Section 835 and no additional compensation will be allowed for two single reflector units placed back to back.

The delineator shall be installed adjacent to a cable road guard post at 80 foot centers.

Notes:
 1. All posts are the posts unless otherwise specified.
 2. See detail sheets for Post, Concrete Anchor and Assembly Parts specifications.



TYPICAL CABLE MEDIAN BARRIER ANCHORAGE LAYOUT
 ELEVATION VIEW
 Not to Scale

**DETAIL INCLUDED
 FOR REPAIR ONLY**

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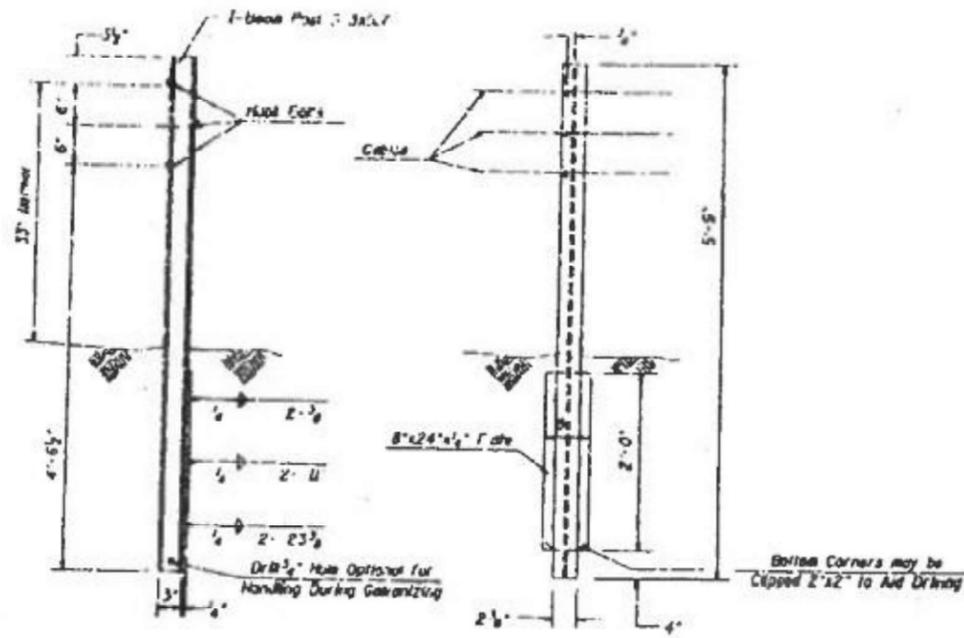
STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

EXISTING CABLE MEDIAN BARRIER (CABLE ROAD GUARD)

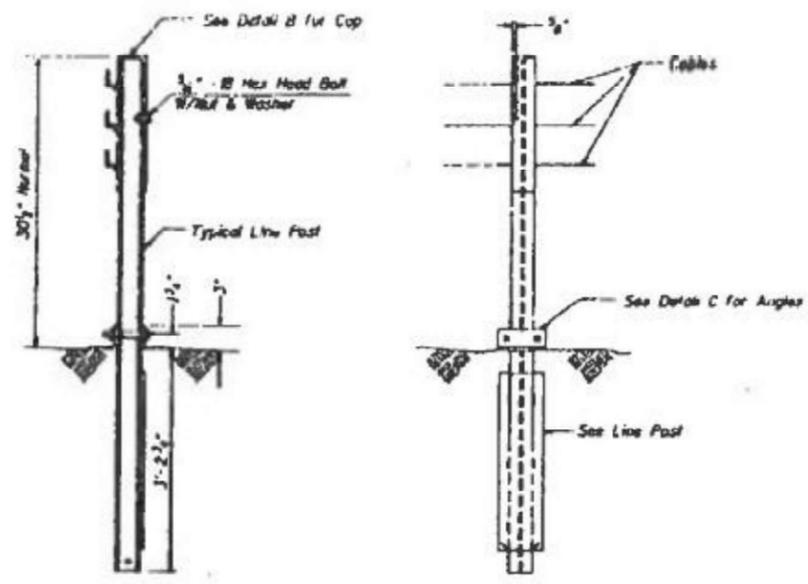
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F.A. R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
V.A.R.	D4 GUARDRAIL REPAIRS 2023 - MOHD	VARIOUS	27	15
			CONTRACT NO. 68H01	

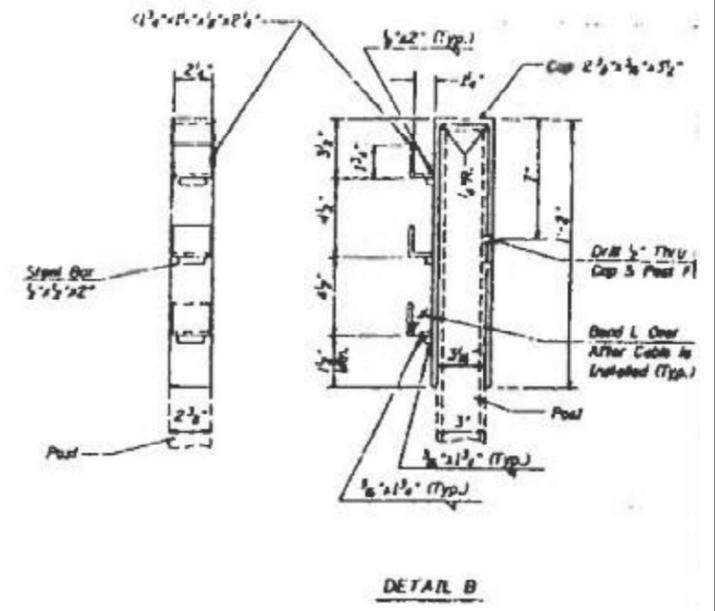
ILLINOIS FED. AD. PROJECT



LINE POST DETAIL



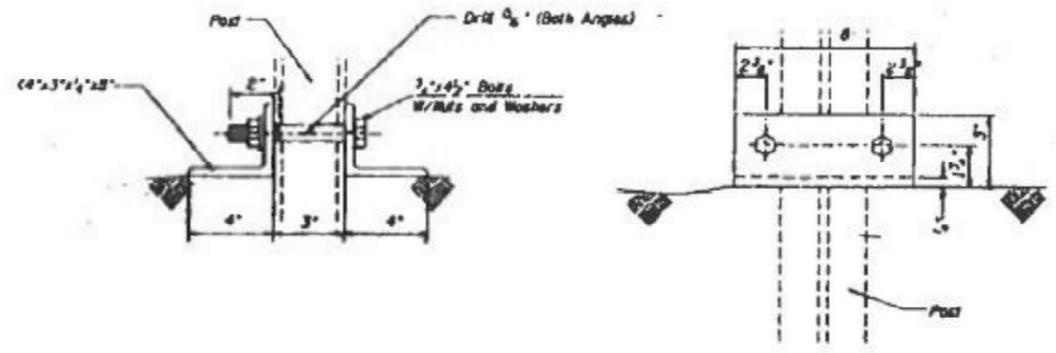
END POST DETAIL



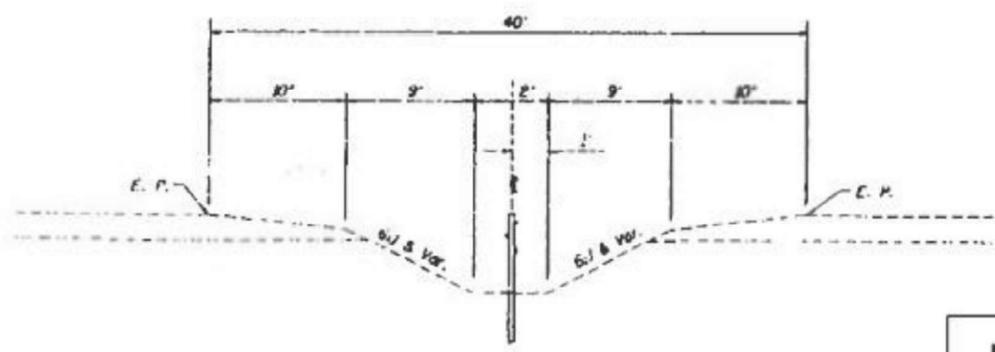
DETAIL B

NOTES

- At all locations where the cable is connected to a cable socket with a wedge type connection, one wire of the wire rope shall be crimped over the base of the wedge to hold it firmly in place.
- Compensating devices shall have spring constants of 450 Pounds Per Inch, plus or minus 50 Pounds Per Inch, and permit a travel of 5 inches, plus or minus 1 inch.
- Socket baskets shall be designed for use with the wedge detailed in these Standards.
- Alternate hardware designs will be considered for approval provided their connection details, for the purpose of maintenance substitutions, are compatible with the details of these standards and their operating characteristics are similar to those of the hardware shown.
- Threads of externally threaded parts shall be UNC, Class 2A tolerance (A.N.S.I. Q111). Internally threaded parts shall meet the dimensional requirements of ASTM A 563.
- All fittings (including splices) shall be so designed to use the wedge shown in the wedge detail and shall be of such section as to develop the full strength of the 3/4" round cable (25,000 lbs.).
- For arrangement of spring cable end assemblies (compensating devices) and turnbuckle cable end assemblies, the following criteria shall apply:
Length of Cable Runs:
To 1000' - Use compensating cable and assembly on one end, and turnbuckle cable end assembly on the other end of each individual cable.
Over 1000' to 2500' - Use compensating cable end assembly on each end of each individual cable.
- All assembly parts and parts are to be galvanized and no punching, cutting or welding will be permitted after galvanizing.
- Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance, and accepted manufacturing practices.
- Prior to final acceptance by the State the following procedure shall be used to adjust the turnbuckle, depending on the temperature of the time of adjustment in accordance with the following table:
Temperature: 120° 99° 79° 59° 39° 19° 1°
to 10 10 10 10 10 10 10
100° 80° 60° 40° 20° 1° 20°
Spring contraction from unstressed position in each spring: 1" 1 1/2" 2" 2 1/2" 3" 3 1/2" 4"



DETAIL C



CABLE MEDIAN BARRIER TYPICAL SECTION

DETAIL INCLUDED FOR REPAIR ONLY

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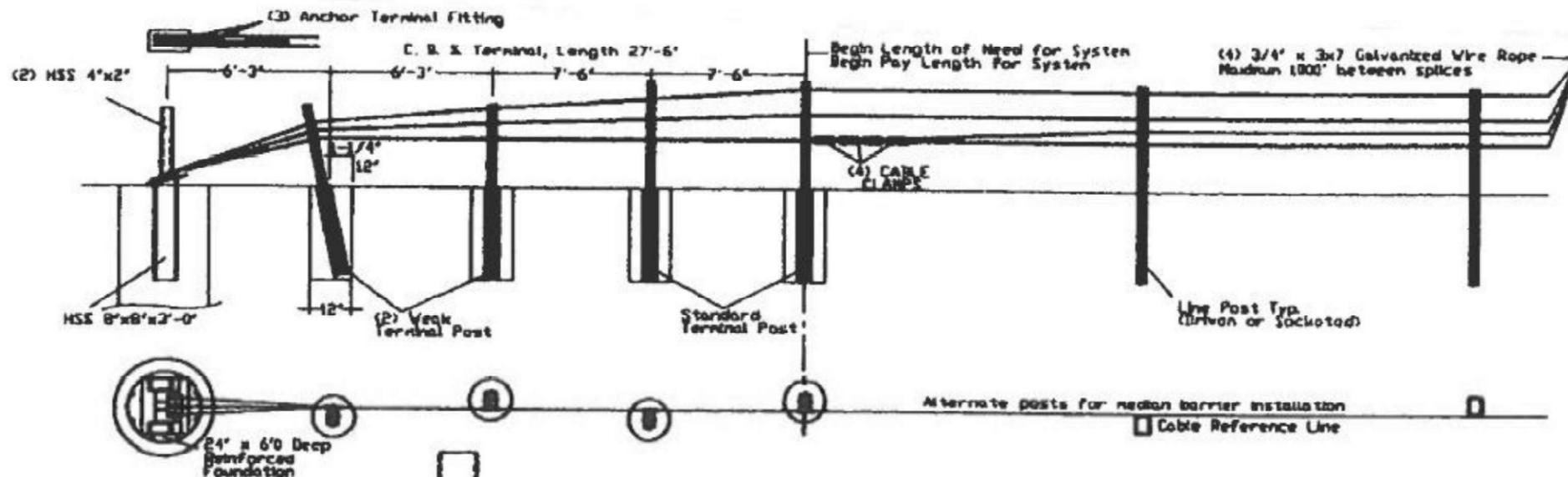
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING CABLE MEDIAN BARRIER (CABLE ROAD GUARD)

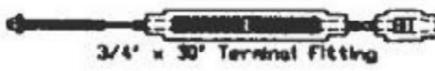
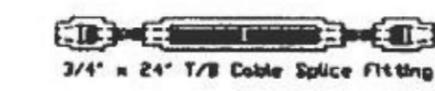
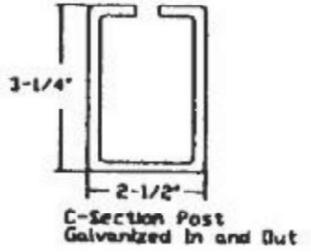
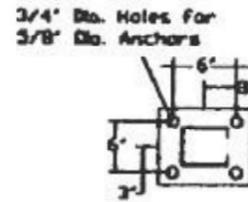
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F.A. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
V.A.R.	D4 GUARDRAIL REPAIRS 2023 - MOHD	VARIOUS	27	16
			CONTRACT NO. 68H01	
ILLINOIS FED. AD. PROJECT				



- ### GENERAL NOTES
- For additional information contact Gibraltar, Inc. at 1-800-493-8937, or see the manufacturer's product manual.
 - All concrete shall be minimum 2500 PSI.
 - Alternate Post for bi-directional traffic flow. If installed for traffic in one direction install cables on traffic side of posts.
 - The Cable Barrier System shall be installed on median shoulders or on depressed medians with slopes of 6:1 or flatter.
 - The Cable Barrier System is accepted by the FHWA Test Level - 4
 - See the MUTCD for proper 'Barrier' delineation
 - Rock Clause: Where solid rock is encountered
 - For socketed post, continue digging 12" diameter, 15' deep into rock or the required plan depth, whichever comes first.
 - For driven post, core drill a 4" diameter hole 18" deep into rock or the required plan depth, whichever comes first.
 - For Anchor post, continue digging 24" diameter, 30' deep into rock or the required plan depth, whichever comes first.
 - Every component to be galvanized.

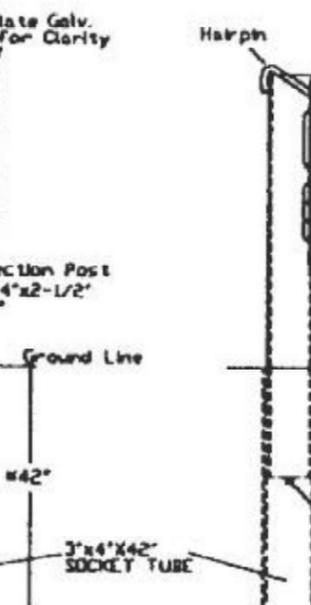
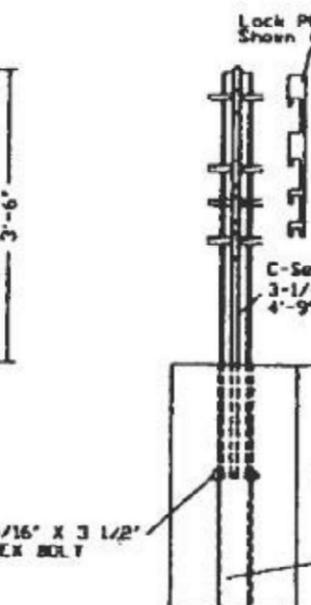
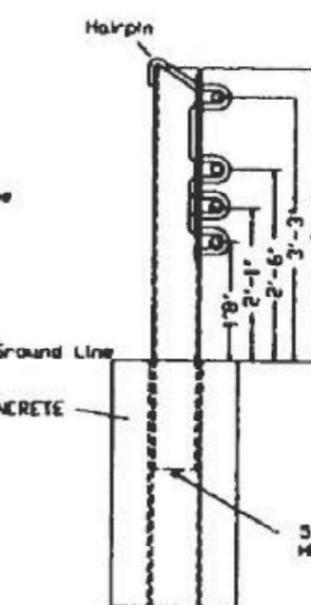
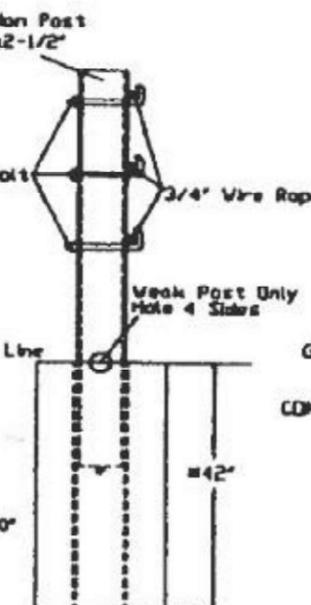
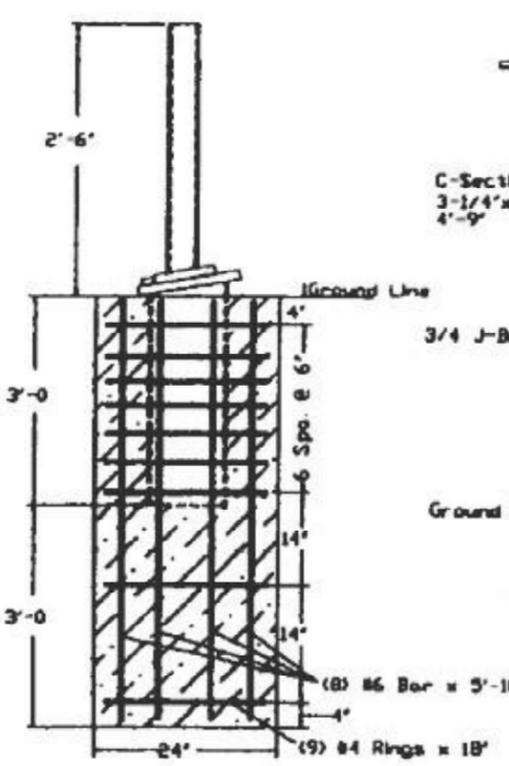
BASE-PLATED POST
 For Use On Concrete
 5/8" Mechanical Anchor
 Min. Pullout Strength 10,000 lbs.



Cable Tension	
-10F	8000
0	7600
10	7200
20	6800
30	6400
40	6000
50	5600
60	5200
70	4800
80	4400
90	4000
100	3600
110	3200

Allowable Deviation
 from Chart +/- 200
 lbs./force

Deflection	Post Spacing
9'3"	30.FT
9'	28.FT
8'	20.FT
7'	12.FT
6'8"	10.FT



Cable Release
 Anchor Post

Terminal Post

Line Post (Socketed)

Socketed Line
 Post (Driven)

Line Post
 (Driven)

=30" DIA Deep concrete foundation with Min. 18" wide Max Strip
 =42"x12" DIA Deep w/o Max Strip

**DETAIL INCLUDED
 FOR REPAIR ONLY**

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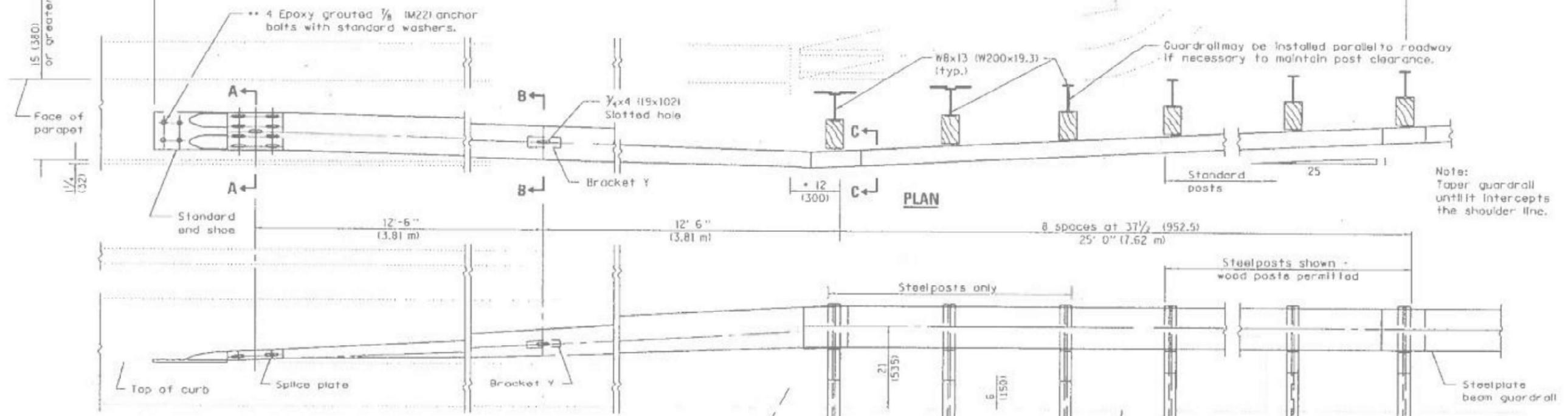
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	DATE -	REVISED -

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

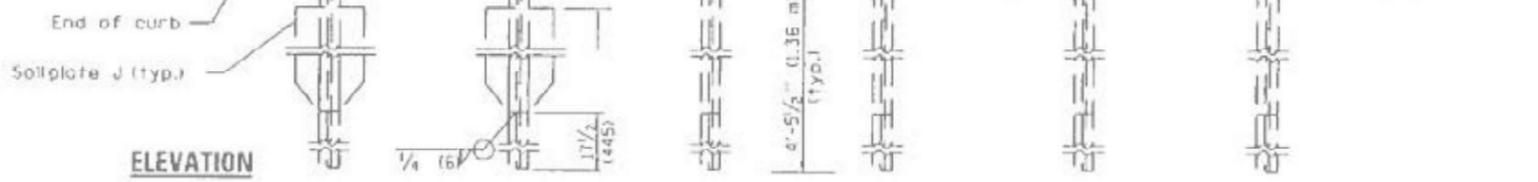
EXISTING GIBRALTAR CABLE BARRIER DETAIL

SCALE: SHEET 3 OF 3 SHEETS STA. TO STA.

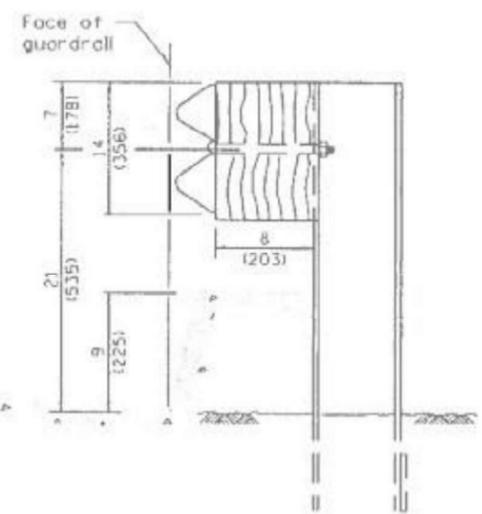
F.A. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 GUARDRAIL REPAIRS 2023 - MOHD	VARIOUS	27	18
CONTRACT NO. 68H01			ILLINOIS FED. AD. PROJECT	



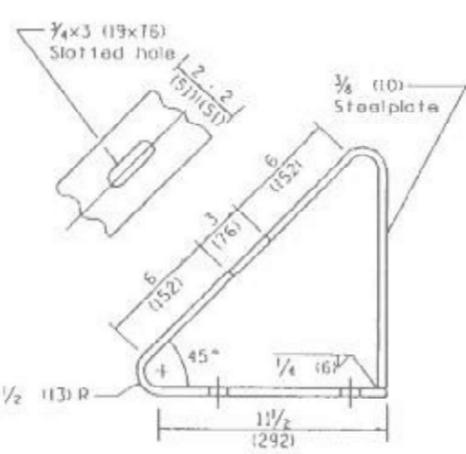
Note: Taper guardrail until it intercepts the shoulder line.



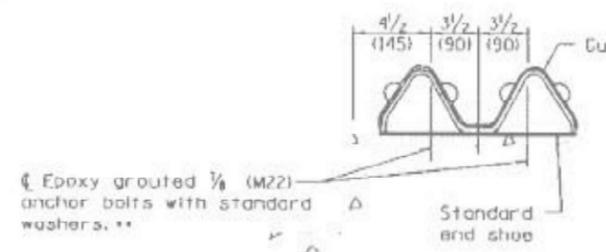
ELEVATION



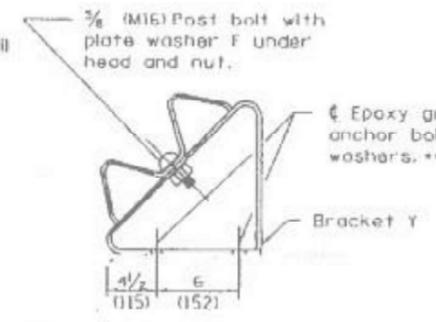
SECTION C-C



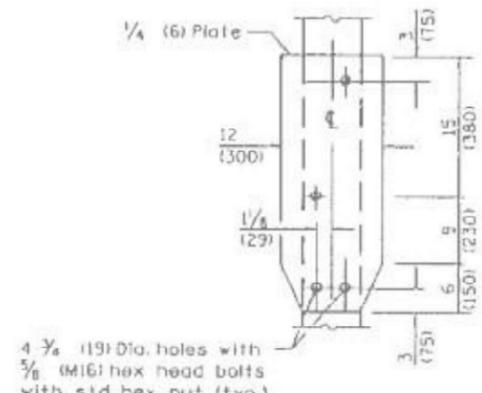
BRACKET Y



SECTION A-A



SECTION B-B



SOIL PLATE J & ALTERNATE CONNECTION DETAILS

- GENERAL NOTES**
- See Standard 630001 for details of guardrail not shown.
 - This dimension may be increased to fit field conditions. This post shall be located first. The layout of the terminal shall be determined by its location.
 - ** After tightening, cut the anchor bolts flush with nuts, and damage the bolt head to prevent them from loosening.
- All dimensions are in inches (millimeters) unless otherwise shown.

DETAIL INCLUDED FOR REPAIR ONLY

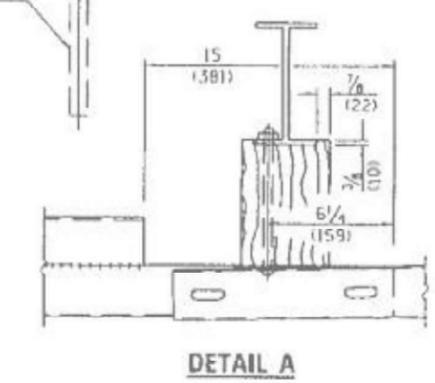
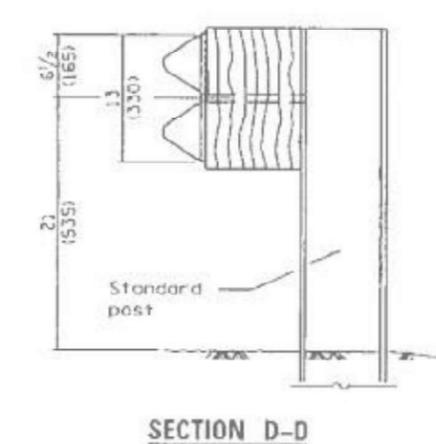
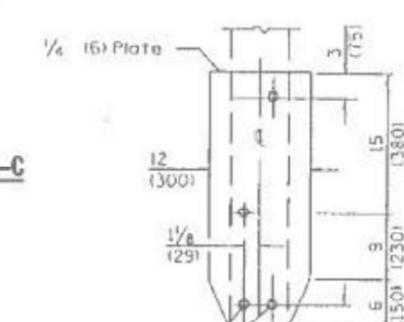
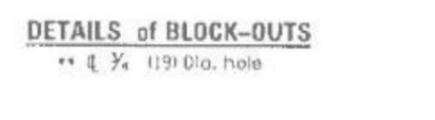
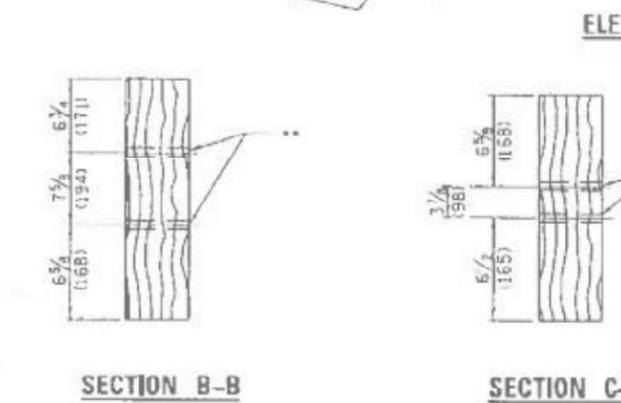
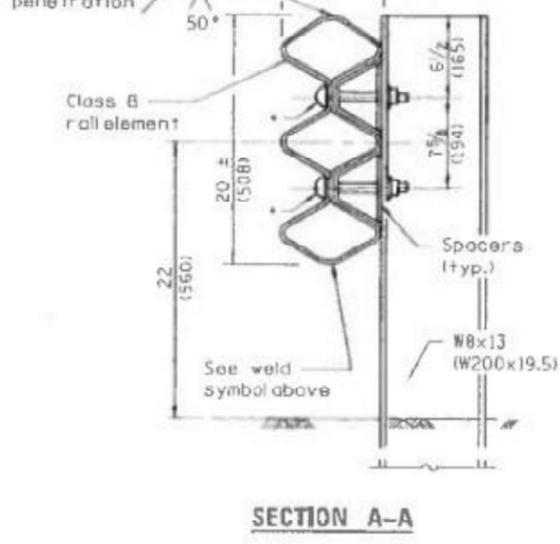
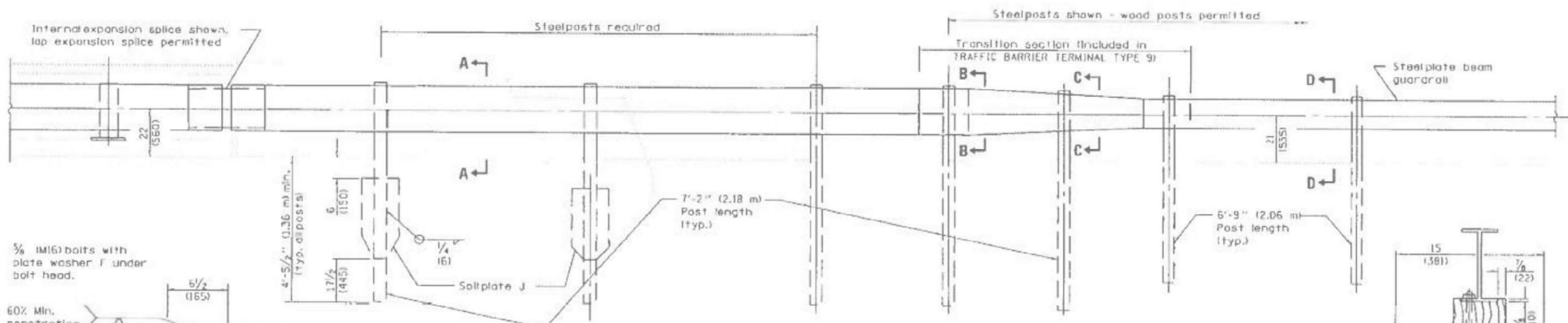
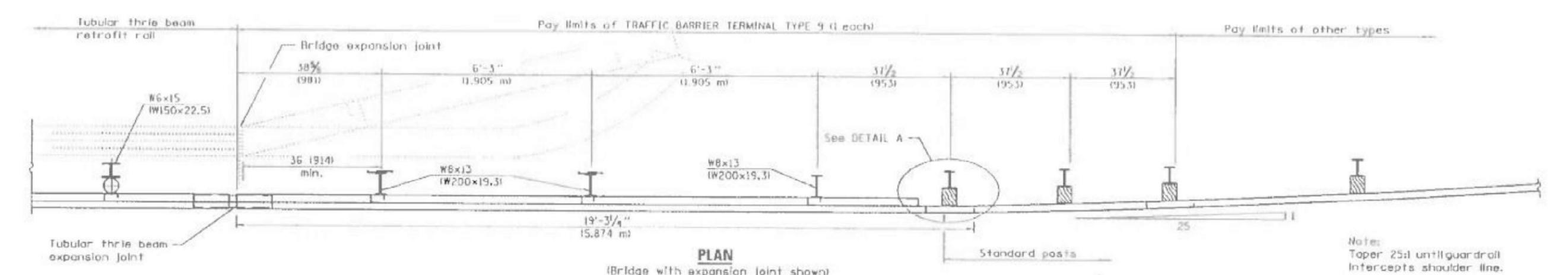
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING TRAFFIC BARRIER TERMINAL TYPE 8
(STANDARD 631036)
SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

F.A. RE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 GUARDRAIL REPAIRS 2023 - MOHD	VARIOUS	27	19
			CONTRACT NO. 68H01	
ILLINOIS FED. AD. PROJECT				



GENERAL NOTES

See Standards 509001 and 630001 for details of guardrail elements not shown.

The Type 9 terminal shall be installed after the posts for the bridge retrofit rail have been located as shown on Standard 509001.

All dimensions are in inches (millimeters) unless otherwise shown.

DETAIL INCLUDED FOR REPAIR ONLY

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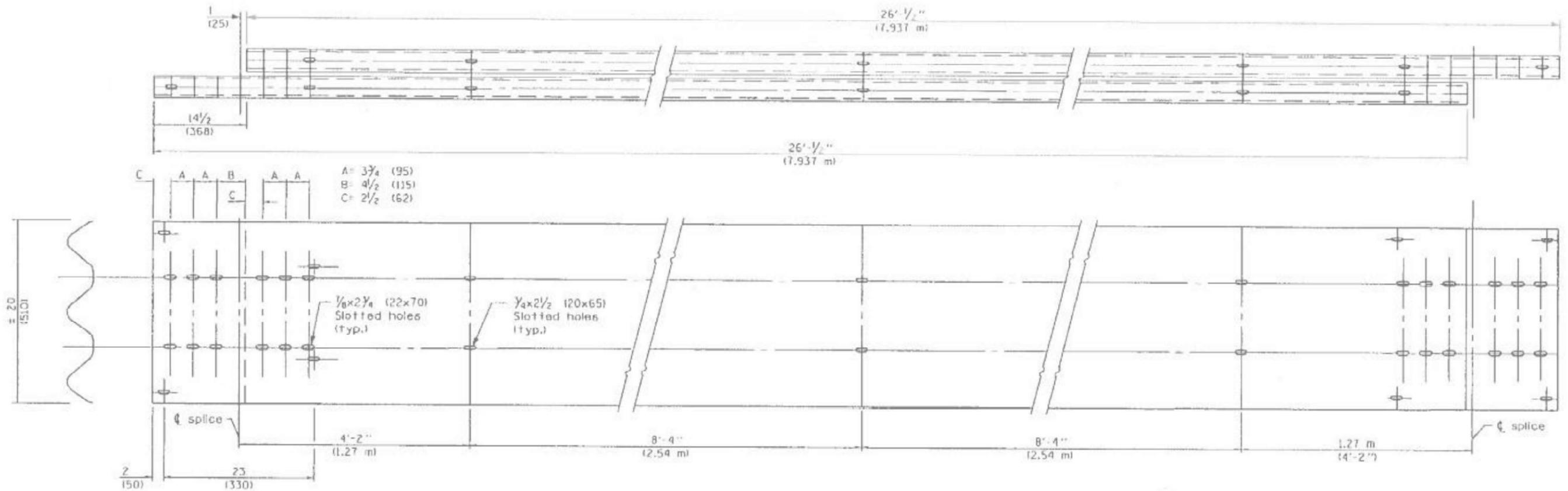
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

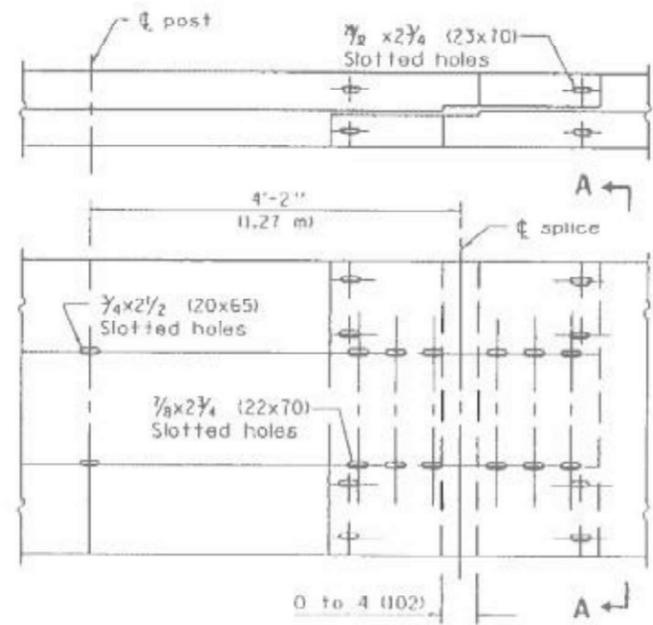
EXISTING TRAFFIC BARRIER TERMINAL TYPE 9
(STANDARD 631041)

SCALE: SHEET 1 OF 1 SHEETS STA. TO STA.

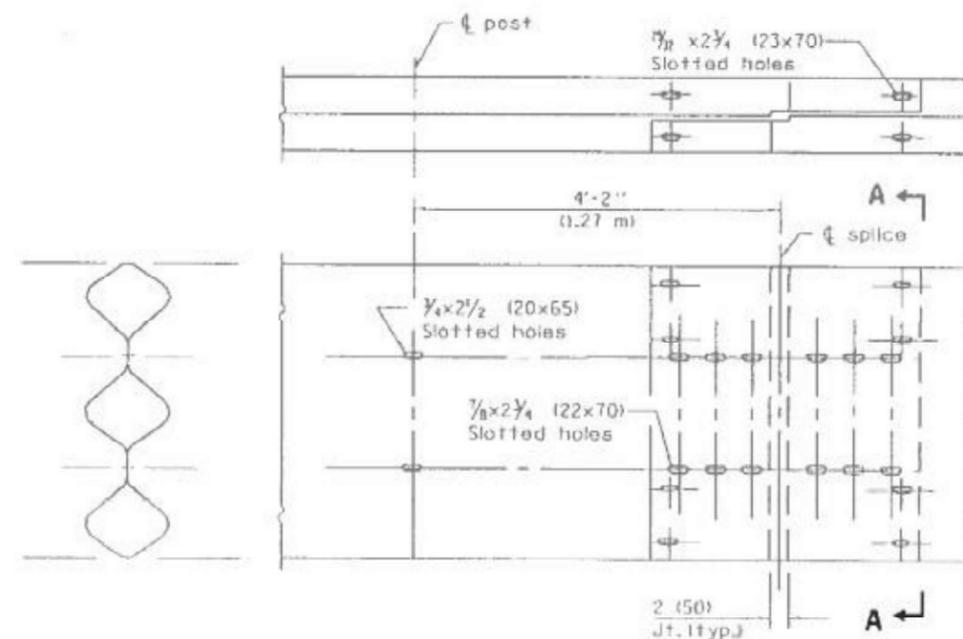
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			CONTRACT NO. 68H01	
ILLINOIS FED. AD. PROJECT				



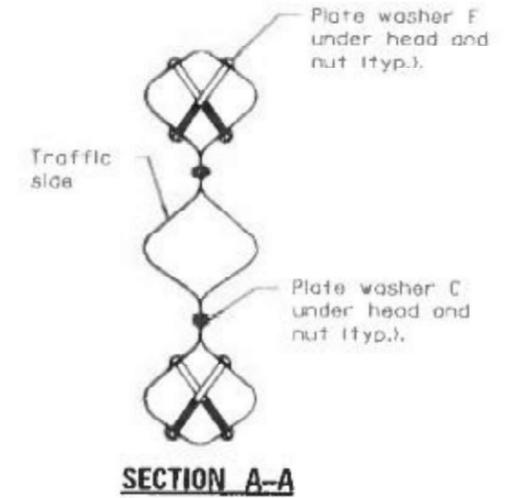
TUBULAR THRIE BEAM FOR LAP SPLICE JOINT



LAP EXPANSION SPLICE JOINT



LAP SPLICE JOINT



SECTION A-A

DETAIL INCLUDED FOR REPAIR ONLY

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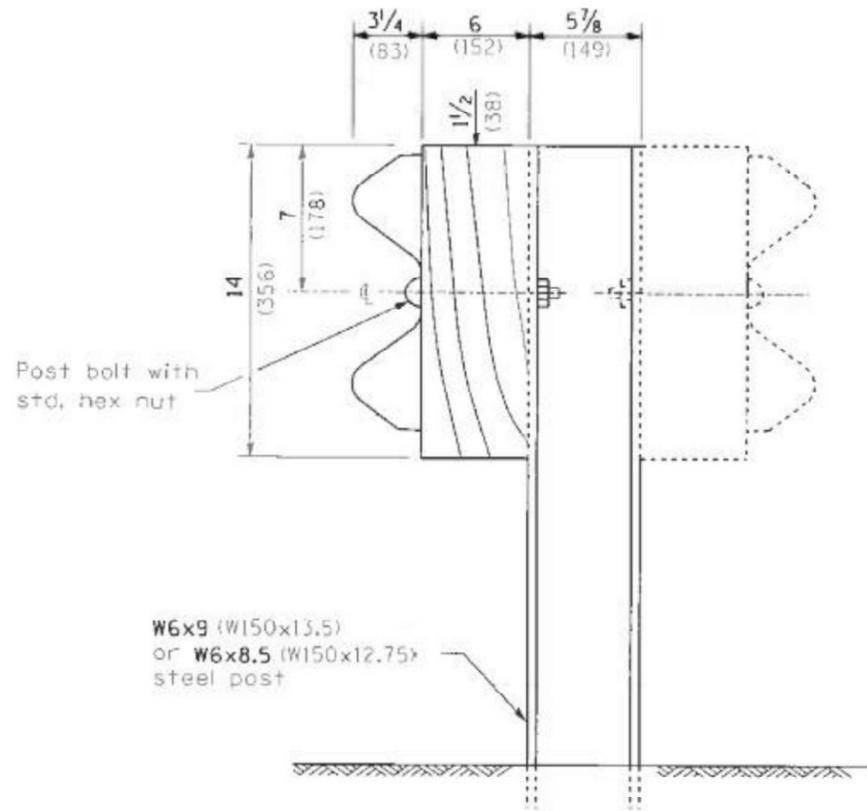
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**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

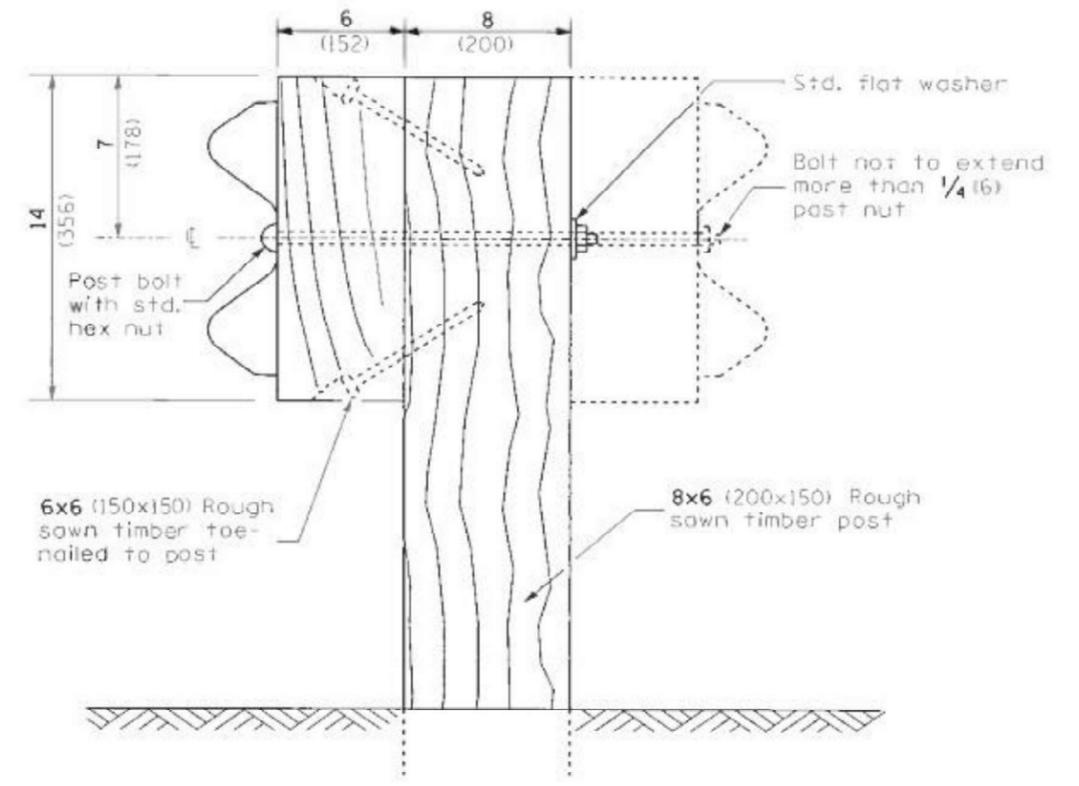
**EXISTING TUBULAR THRIE BEAM RETROFIT RAIL FOR BRIDGES
(STANDARD 509001)**

F.A. RFE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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J. ILLINOIS, FED. AD. PROJECT			CONTRACT NO. 68H01	

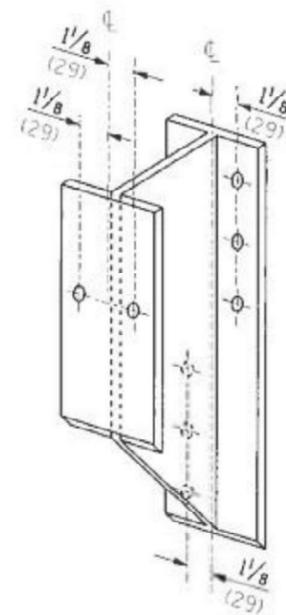
SCALE: SHEET 2 OF 3 SHEETS, STA. TO STA.



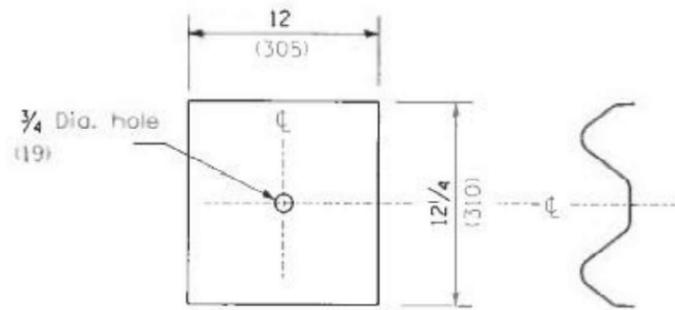
STEEL POST CONSTRUCTION



WOOD POST CONSTRUCTION



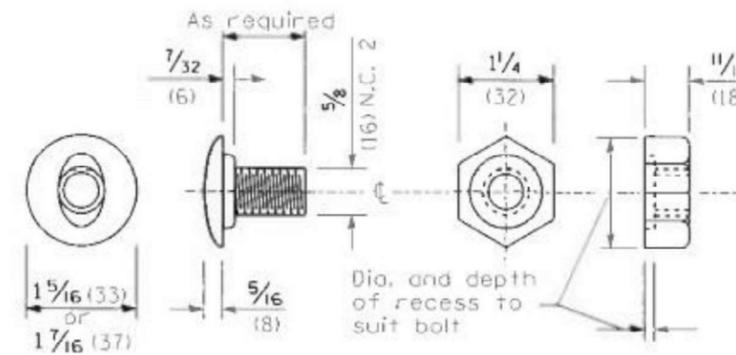
STEEL BLOCK-OUT DETAIL



NOTE

Plate A shall be placed between rail element and block-out at non-splice mounting points only when steel block-outs are used.

PLATE A



POST OR SPLICE BOLT & NUT

All dimensions are in inches (millimeters) unless otherwise noted.

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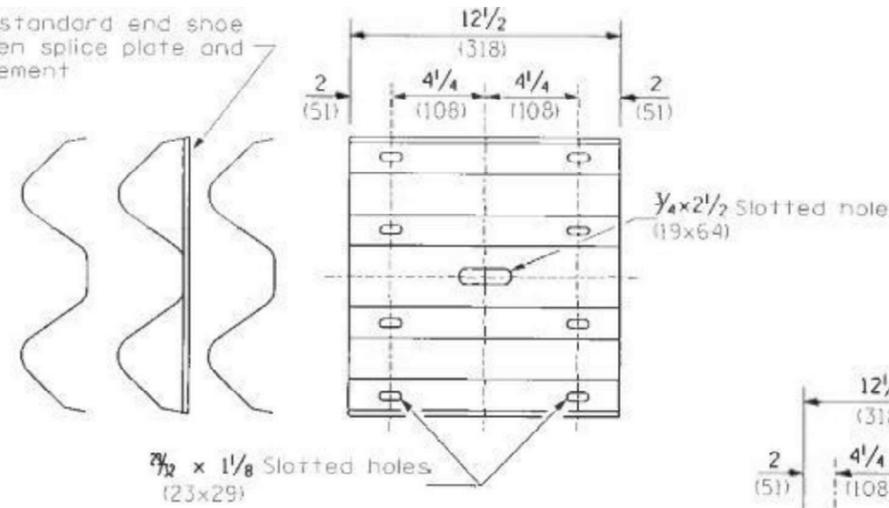
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**STEEL PLATE BEAM GUARDRAIL, TYPE A,
6.75 FOOT POSTS**

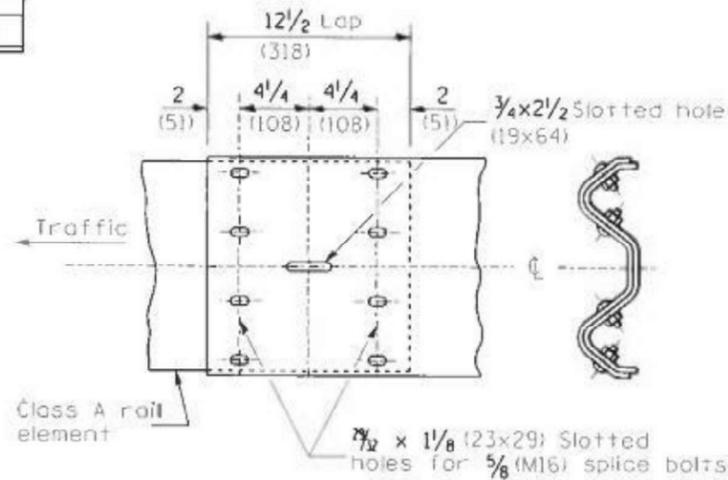
SCALE: SHEET 2 OF 4 SHEETS STA. TO STA.

F.A. RITE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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			CONTRACT NO. 68H01	
J. ILLINOIS, FED. AD. PROJECT				

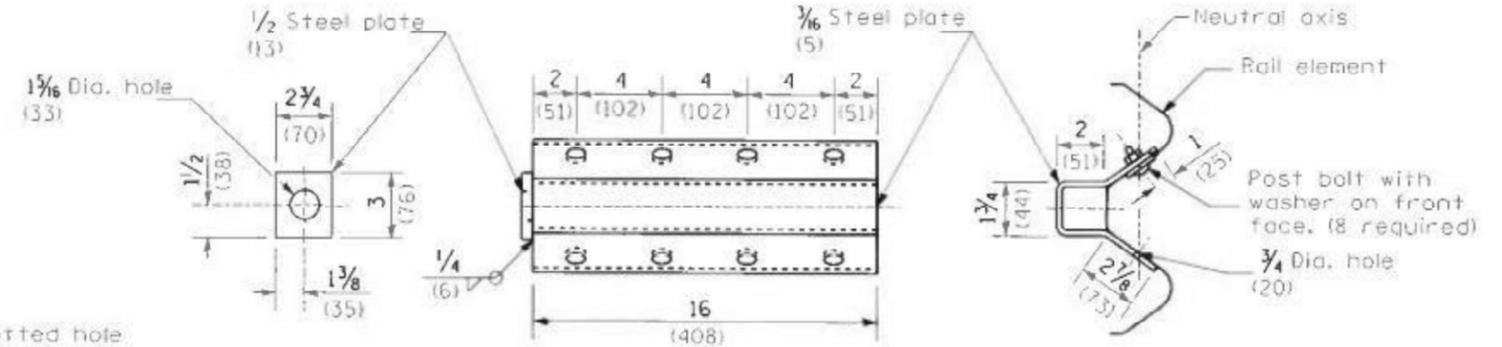
Place standard end shoe between splice plate and rail element



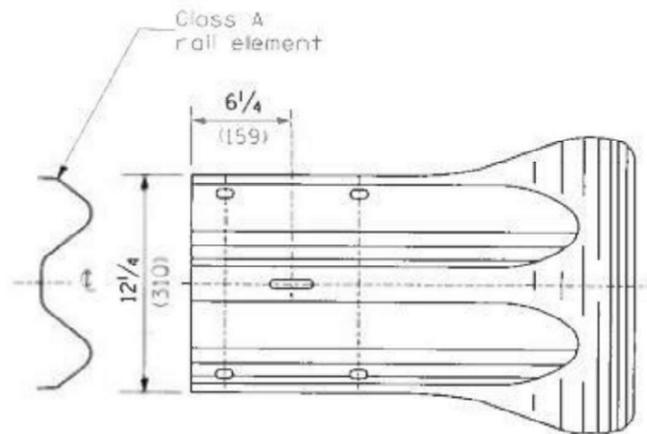
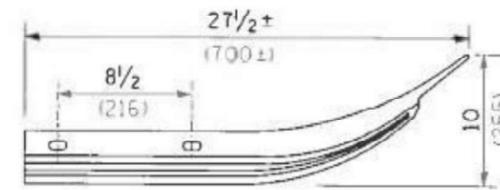
SPLICE PLATE



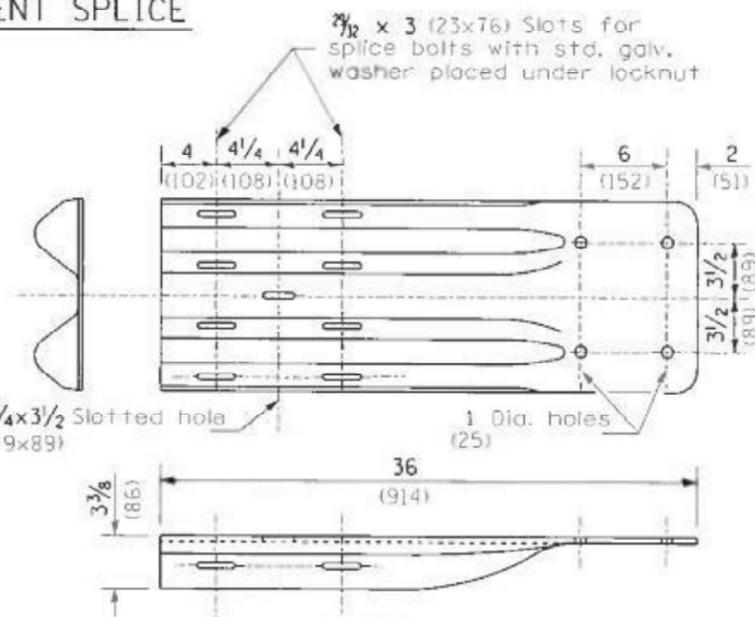
RAIL ELEMENT SPLICE



ANCHOR PLATE T DETAILS



END SECTION

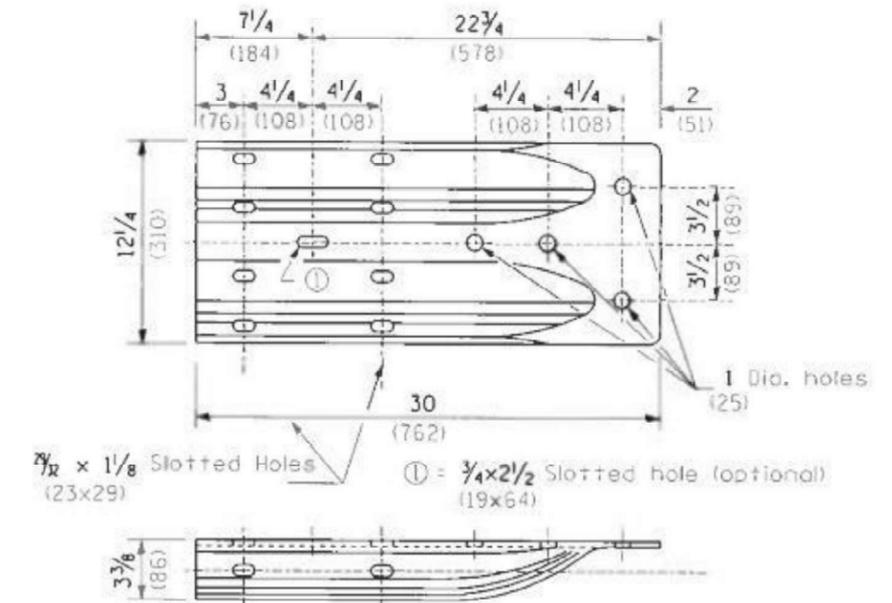


When end shoe is attached to a bridge parapet which has an expansion joint, the bolts shall be provided with a locknut or double nut and shall be tightened only to a point that will allow guardrail movement.

The standard end shoe shall be attached to the concrete with pre-drilled or self-drilling anchor bolts. The anchor cone shall be set flush with the surface of the concrete.

Externally threaded studs protruding from the surface of the concrete will not be permitted.

END SHOE



ALTERNATE END SHOE

All dimensions are in inches (millimeters) unless otherwise noted.

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	DATE -	REV(SED) -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

STEEL PLATE BEAM GUARDRAIL, TYPE A,
6.75 FOOT POSTS

SCALE: SHEET 3 OF 4 SHEETS STA. TO STA.

FA R.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VAR	D4 GUARDRAIL REPAIRS 2023 - MOHD	VARIOUS	27	26
ILLINOIS FED. AID PROJECT			CONTRACT NO. 68H01	

