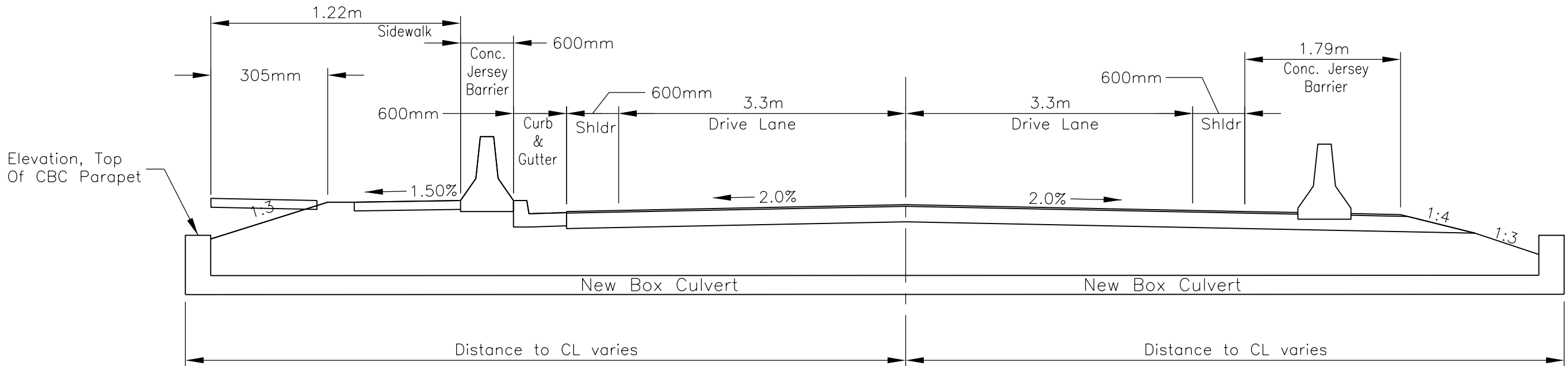


REGION	STATE	RESERVATION	ROUTE NO.	PROJECT NO.	SHEET NO.	TOTAL SHEETS
NAVAJO	AZ	NAVAJO	N12	N12(13-2) 1,2&4		

GENERAL NOTES:

1. AT NO TIME DURING THE PLACEMENT OF THE CBC GUARDRAILS SHALL THE ROADWAY EDGE AT ACTIVE TRAFFIC LANES BE LEFT WITHOUT CONTROL BARRIERS OR FLAGMEN.
2. PLACEMENT OF PRECAST CONCRETE BARRIER SECTIONS SHALL BE BASED ON THE MIDPOINT OF CBC. MIDPOINT OF CBC SHALL BE DETERMINED IN THE FIELD BY MEASUREMENT OF INLET AND OUTLET OF EACH CBC, AND SHALL BE CONCURRED BY THE COR/COTR.
3. AT THE CONTRACTOR'S OPTION, THE CONCRETE BARRIER MAY BE CAST IN PLACE IN LIEU OF PROVIDING PRECAST SECTIONS.
4. THE EXISTING ASPHALT AT THE NEW W-BEAM GUARDRAIL (INCLUDING THE 6 METER SHOULDER WIDENING TAPER AT GUARDRAIL ENDS) AND CONCRETE BARRIER TRANSITION (NOT THE PRECAST BARRIER SECTIONS) LOCATIONS, SHALL BE FULL DEPTH SAW CUT AT THE SHOULDER LINE AND ALL ASPHALT BEYOND SAW CUT SHALL BE REMOVED. THE EXISTING ASPHALT AT THE PRECAST BARRIER SECTIONS SHALL BE SAW CUT AND REMOVED TO THE LIMITS SHOWN ON THIS SHEET. THE WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 20304-1000, REMOVAL OF STRUCTURES AND OBSTRUCTIONS.
5. THE PRECAST CONCRETE BARRIER SECTIONS AND THE CONCRETE BARRIER TRANSITIONS WITH FOOTING SHALL BE SET AS PER FP-14, SECTION 618
6. GUARDRAIL WIDENING AND THE AREA IN FRONT OF THE TRANSITION FOOTING SHALL BE SURFACED WITH 152 mm OF ABC AND 76 mm OF ASPHALT SURFACING AND SHALL BE PLACED TO THE DIMENSIONS SHOWN ON SHEET xx OF xx. AGGREGATE BASE COURSE AND HOT ASPHALTIC CONCRETE FOR GUARDRAIL WIDENING SHALL BE PAID UNDER ITEM 30101-2000, UNTREATED AGGREGATE BASE COURSE, GRADING D, AND ITEM 40702-1100, MINOR HOT ASPHALTIC CONCRETE, RESPECTIVELY. THE FINISH ELEVATION OF THE GUARDRAIL WIDENING ASPHALT SHALL MATCH THE FINISHED RECYCLED ASPHALT COURSE ELEVATION.
7. THE NEW GUARDRAIL AND THRIE BEAM TRANSITION STRUCTURES SHALL BE INSTALLED AS PER FP-14, SECTION 617 AND AS DETAILED ON SHEETS 48 THRU 52.
8. THRIE-BEAM TRANSITIONS, INCLUDING ALL HARDWARE FOR CONNECTION TO THE CONCRETE BARRIER TRANSITION SHALL BE PAID UNDER ITEM 61801-1000 CONCRETE BARRIER.
9. ALL WORK, MATERIALS AND LABOR REQUIRED FOR THE EXISTING MATERIAL REMOVAL ABOVE THE EXISTING GUARDRAIL ATTACHMENT BLOCKS, AS SHOWN ON THIS SHEET, SHALL BE CONSIDERED INCIDENTAL ITEM 20304-1000, REMOVAL STRUCTURES AN OBSTRUCTIONS.
10. ALL WORK, MATERIALS AND LABOR REQUIRED FOR THE CONSTRUCTION OF THE HACB BACKFILL BENEATH THE CONCRETE BARRIER, AS SHOWN ON THIS SHEET, SHALL BE PAID UNDER ITEM 40702-1100, MINOR HOT ASPHALTIC CONCRETE.
11. THE PLACEMENT OF TACK COAT AGAINST AND UNDER CONCRETE BARRIER, INCLUDING ALL MATERIALS AND LABOR, SHALL BE CONSIDERED INCIDENTAL TO ITEM 40702-1100, MINOR HOT ASPHALTIC CONCRETE.
12. THE COMPACTION OF NATIVE MATERIAL BELOW HACB BACKFILL FOR AREAS BETWEEN CBC AND CONCRETE BARRIER TRANSITION FOOTING SHALL BE CONSIDERED INCIDENTAL TO ITEM 61801-1000, CONCRETE BARRIER.

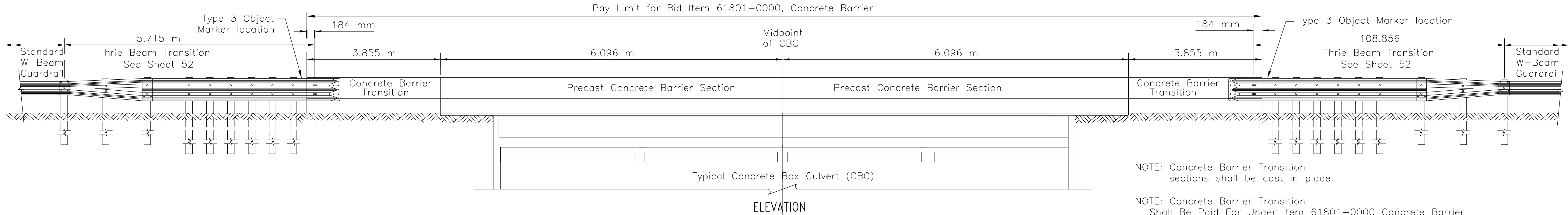
ITEM NO. 63308-3000 OBJECT MARKER TYPE 3		
DESCRIPTION	QTY.	LOCATION TYPE 3
N41 TOHAALI WASH CBC 0+638.350	4	LT. & RT.
UNIT TOTAL:	4	
UNIT USE:	4	



TYPICAL CBC SECTION

ITEM NO. 61801-0000 CONCRETE BARRIER				
ID	STATION*	LT/RT	LENGTH (m)	REMARKS
N5001				
N241 TOHAALI WASH	0+638.35	RT	9.951	INCLUDES BARRIER TRANSITION
N241 TOHAALI WASH	0+638.35	LT	9.951	INCLUDES BARRIER TRANSITION
UNIT SUBTOTAL:			19.90	
UNIT PROJECT USE:			20.00	

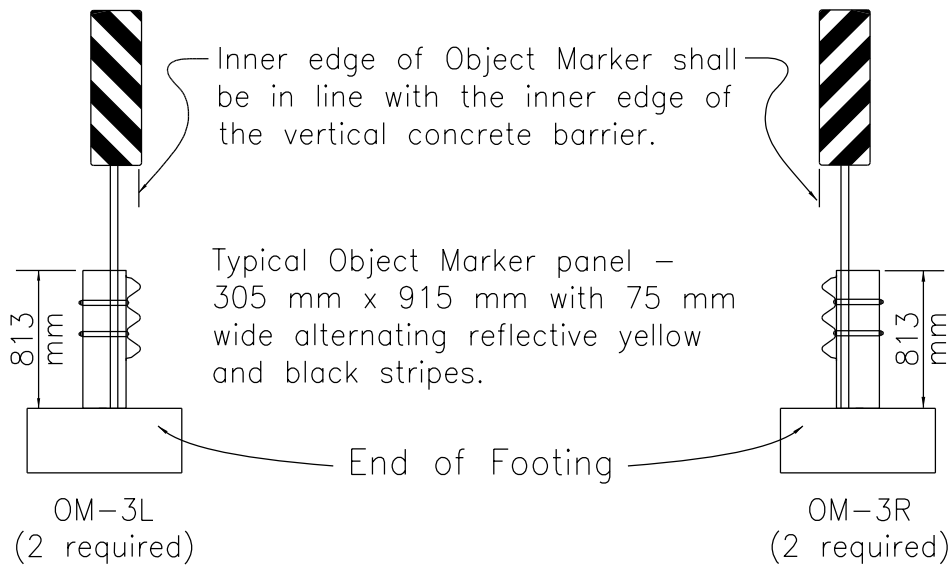
*NOTE: STATION CALLED OUT IS ROADWAY CENTERLINE AT CBC. BARRIER TO BE LAID OUT ABOUT MIDPOINT OF CBC AS DETAILED BELOW.



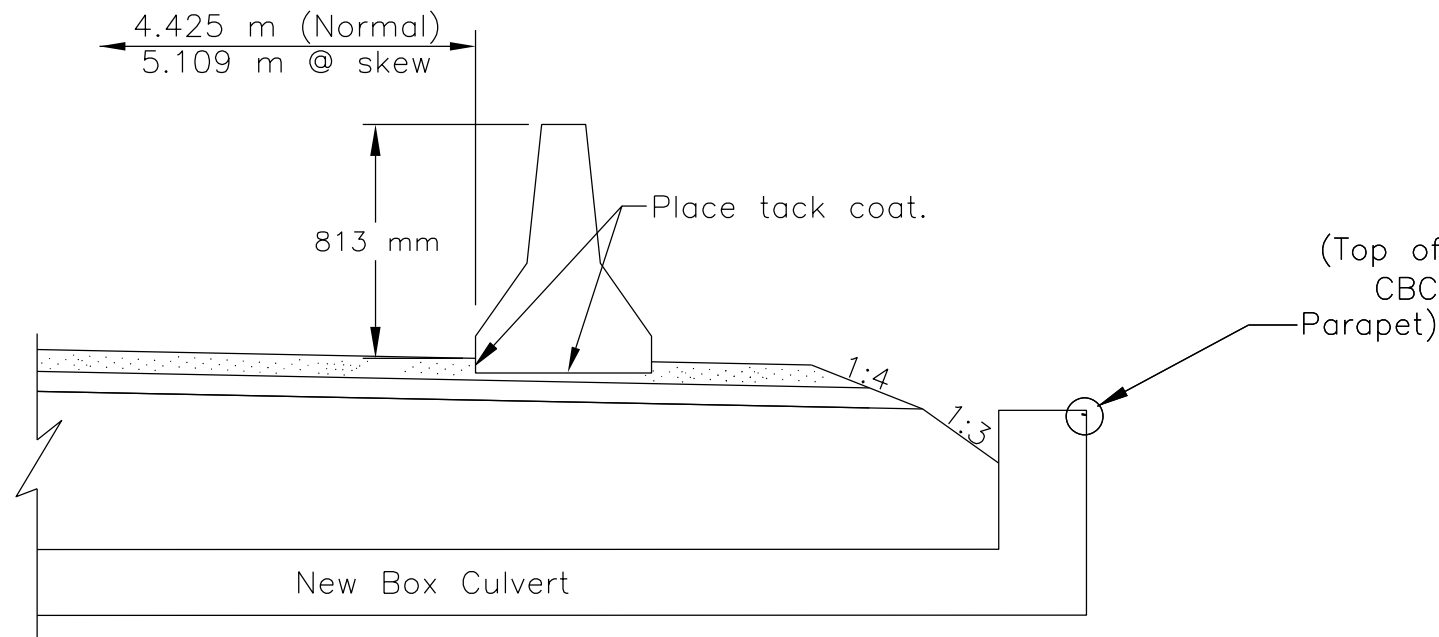
NOTE: Concrete Barrier Transition sections shall be cast in place.

NOTE: Concrete Barrier Transition Shall Be Paid For Under Item 61801-0000 Concrete Barrier

NOTE: Place Type 3 Object Markers between Concrete Barrier Transition and first Thrie-beam Transition post. If this is not possible, place between first and second post.

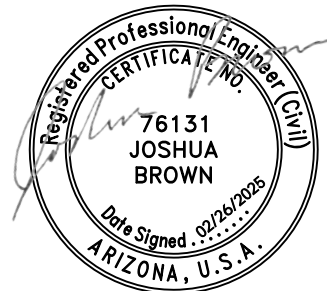


TYPE 3 OBJECT MARKER
INSTALLATION



BARRIER PLACEMENT

SYSTEM	A	H
SGM10a	60	810



NOTE: THIS
DETAIL IS METRIC

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NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

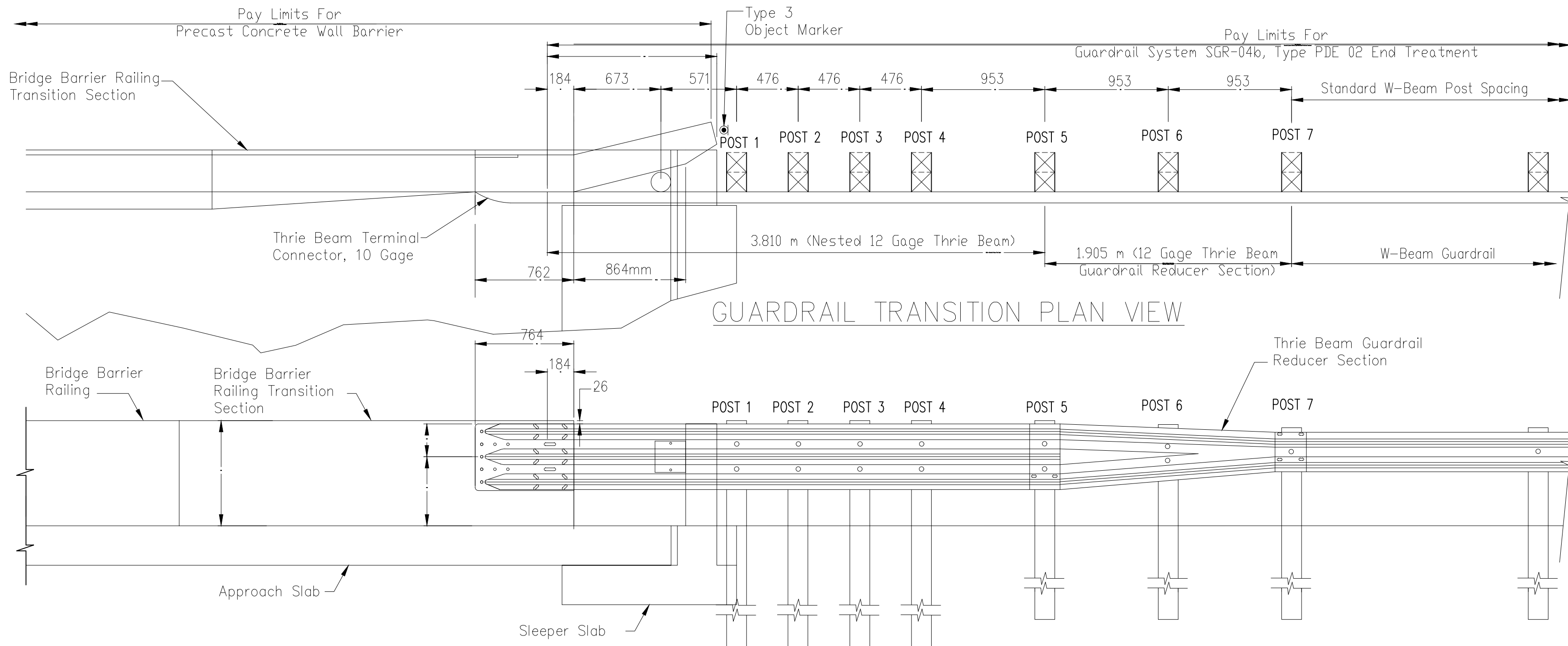
CONCRETE BARRIER DETAILS OVER
2-BARREL CBC

DRAWN BY: NRDOT DATE: 4/20/2018
DESIGNED BY: NRDOT DATE: 4/20/2018
REVISED: 10/19/2023 BY: Smlujan

FILES\$

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BUREAU OF INDIAN AFFAIRS

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NORTH	ARIZONA	NAVAJO	N12	N12 1,2&4	117	120



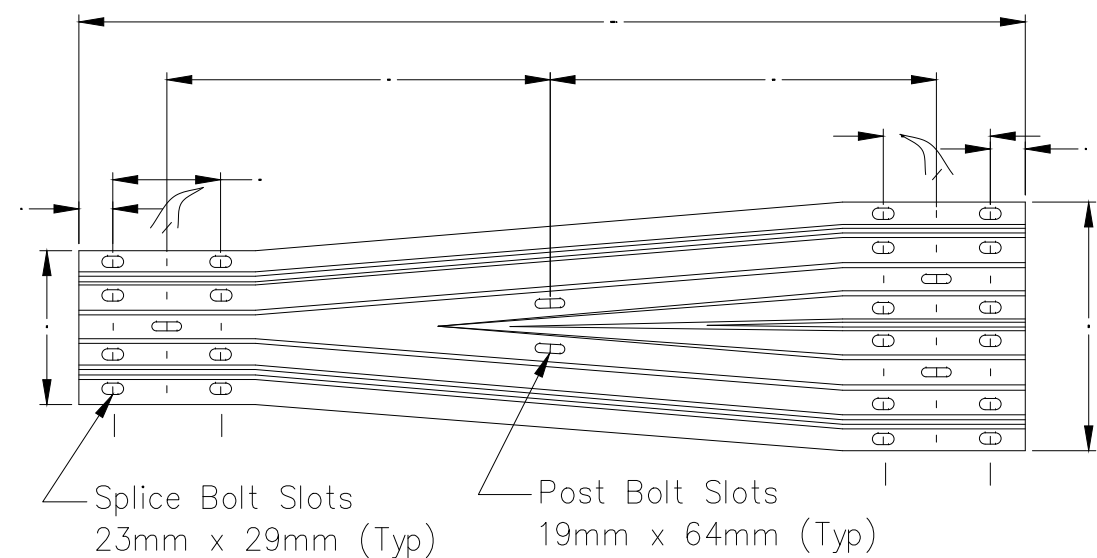
GUARDRAIL TRANSITION PLAN VIEW

GUARDRAIL TRANSITION ELEVATION VIEW

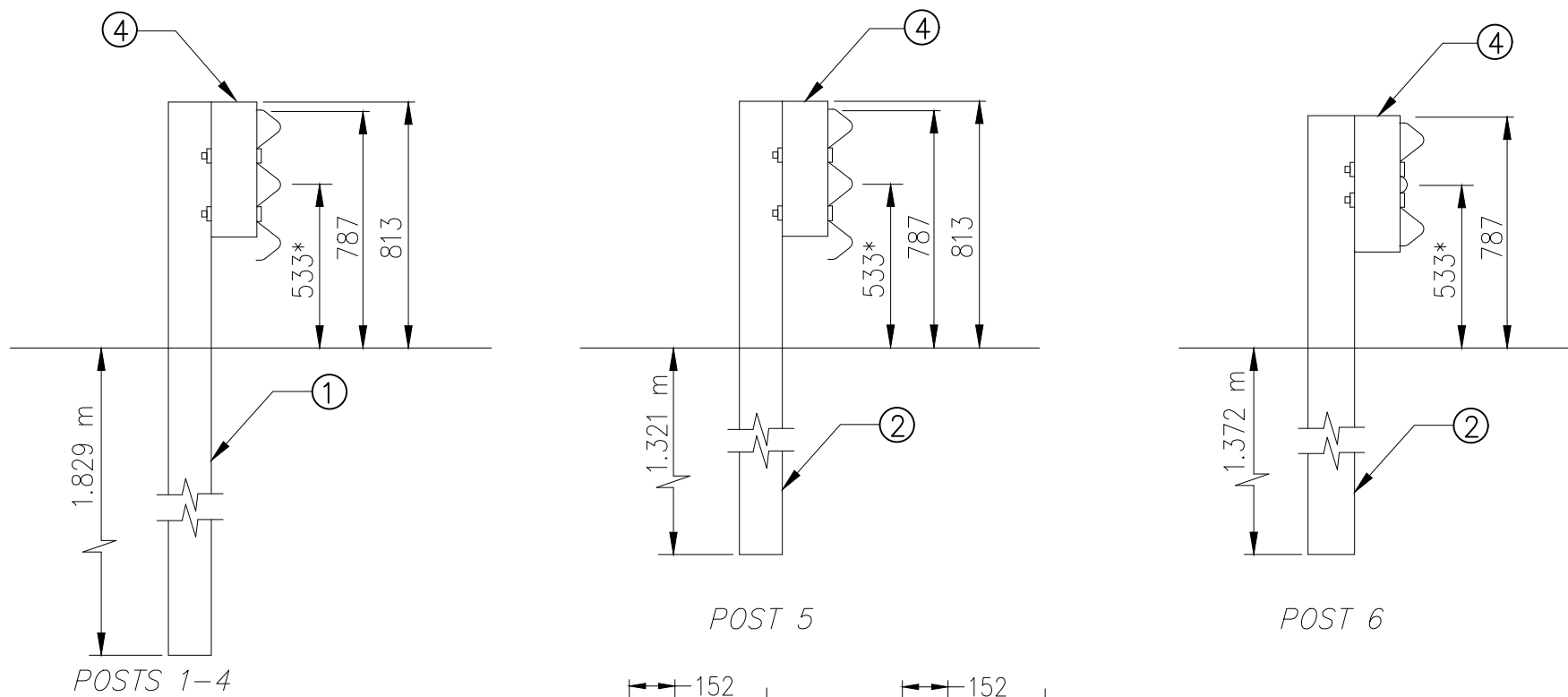
* Transition Center Height Of Thrie Beam Rail Element From 533 mm To 550 mm.

LEGEND

- ① W152 x 635 x 2.591 m or W203 x 533 x 2.591 m Post
- ② W152 x 508 x 2.134 m or W203 x 457 x 2.134 m Post
- ③ 152 x 203 x 356 Treated Timber Offset Block
- ④ 152 x 203 x 457 Treated Timber Offset Block
- ⑤ 152 x 152 x 203 Treated Timber Offset Block



THRIE BEAM GUARDRAIL REDUCER SECTION



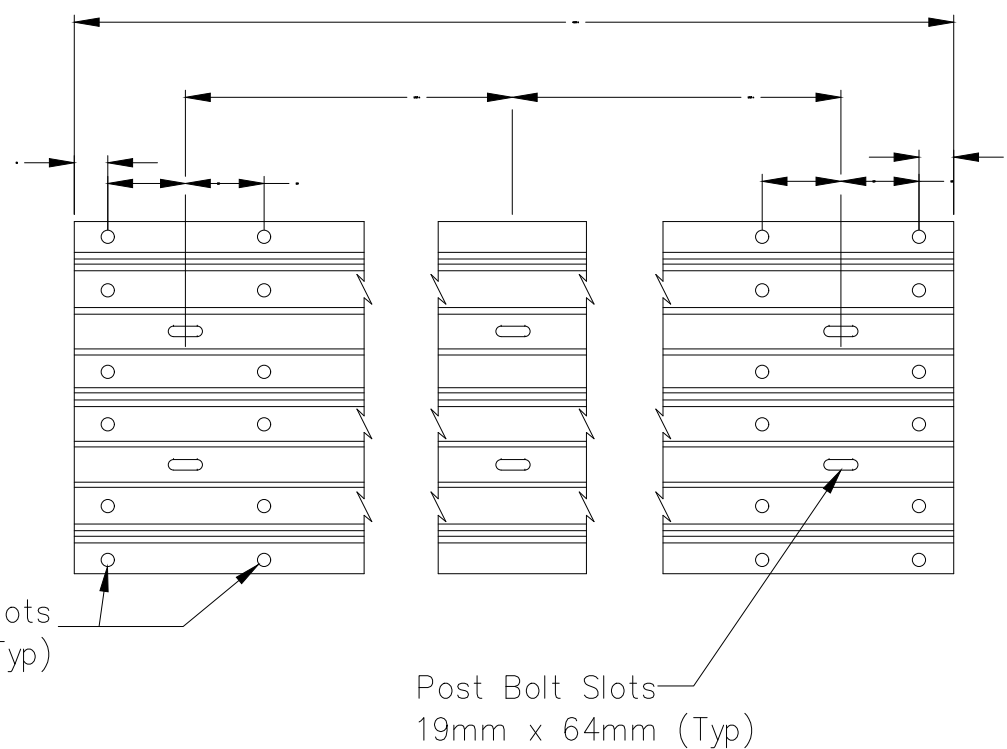
POST 5

POST 6

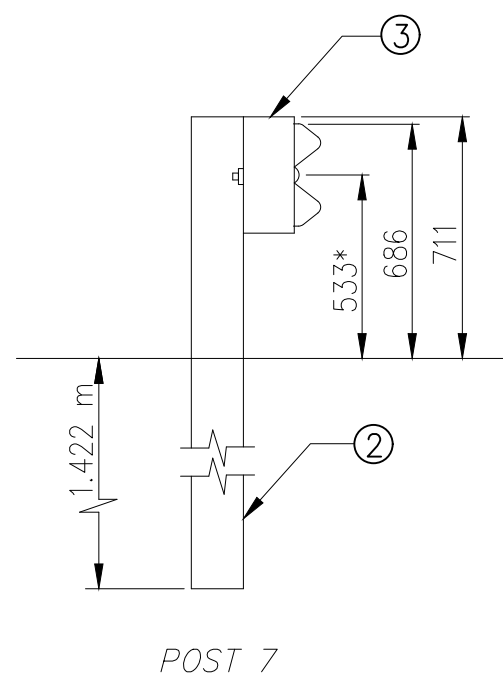
POSTS 1-5

POST 7

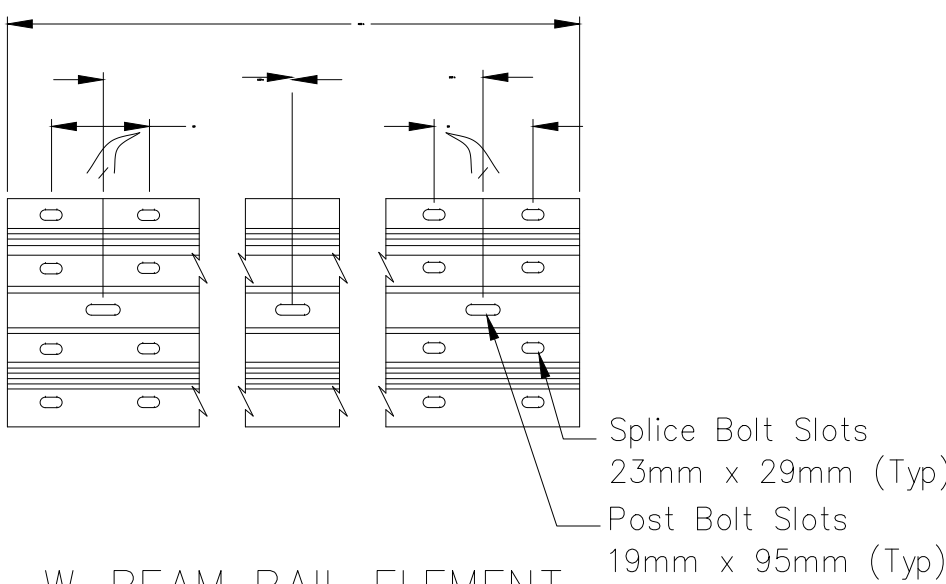
BLOCK DETAILS



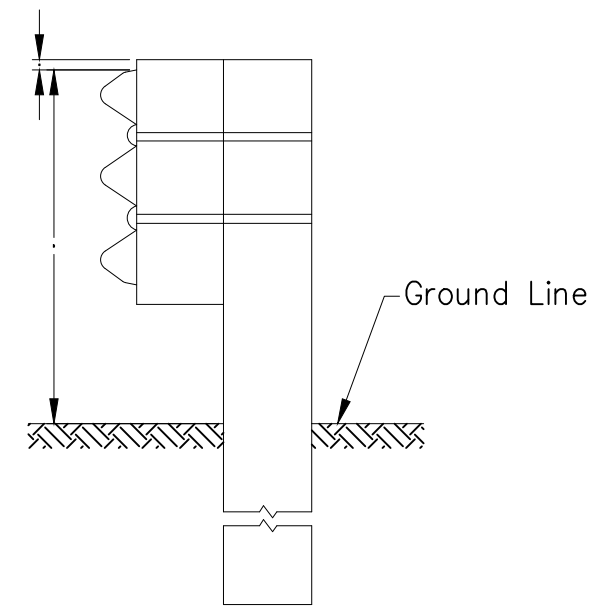
THRIE BEAM RAIL ELEMENT



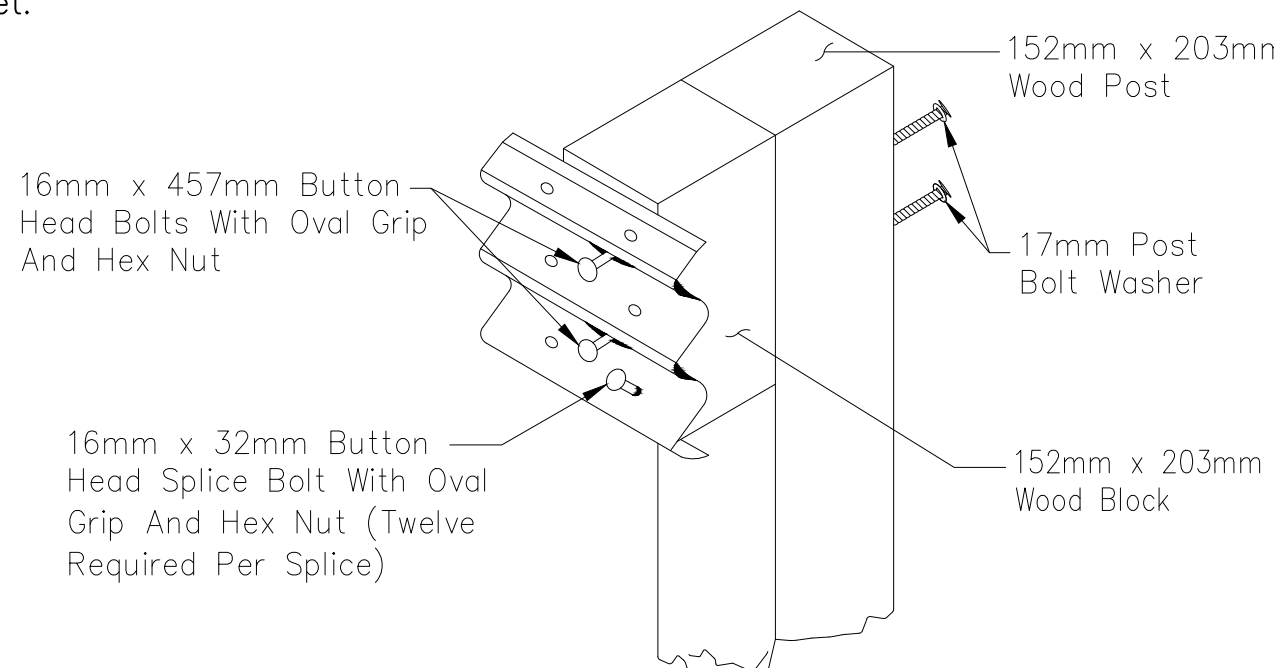
POST 7



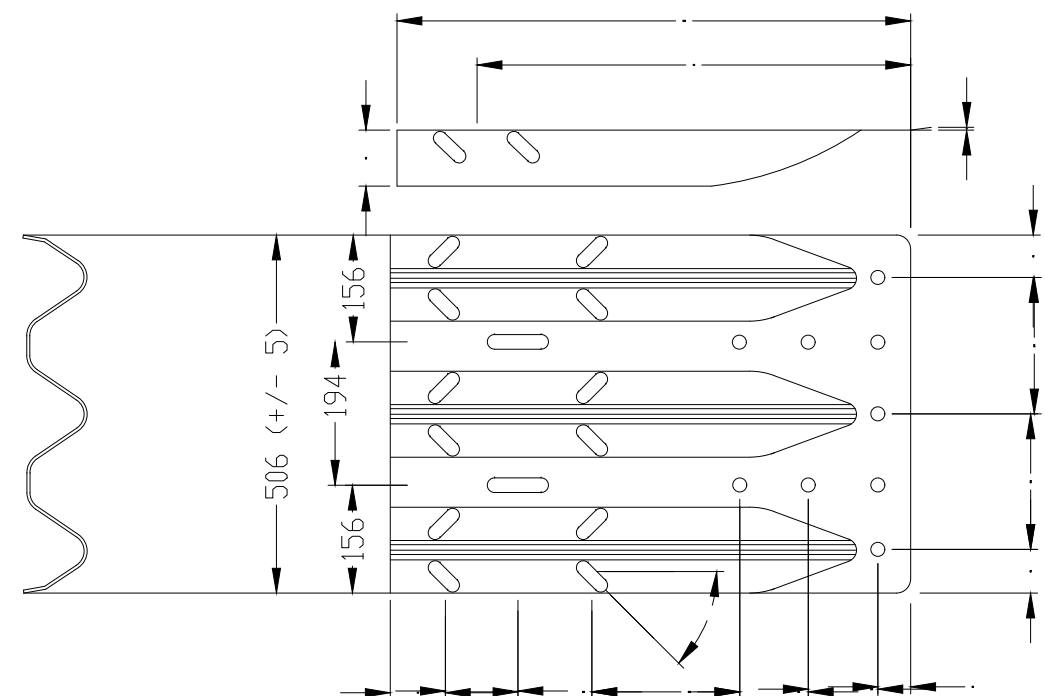
W-BEAM RAIL ELEMENT



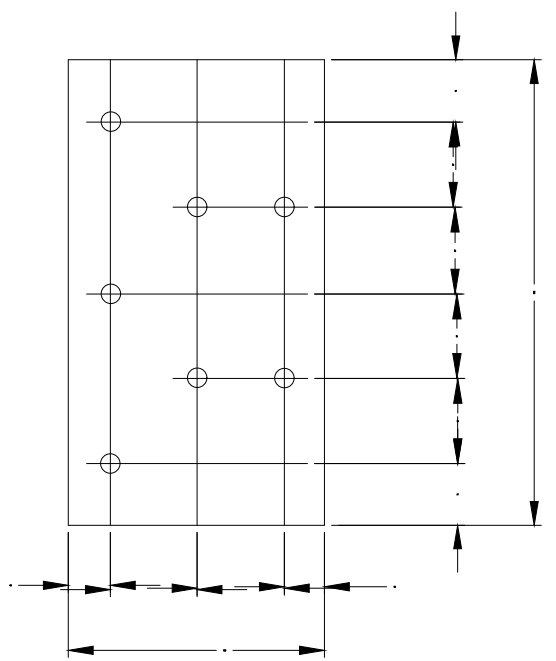
THRIE BEAM RAIL ASSEMBLY



THRIE BEAM POST ASSEMBLY



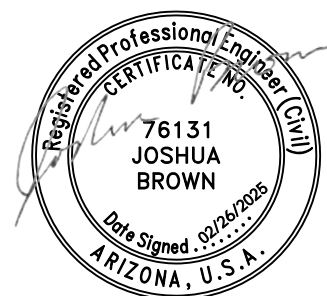
STANDARD THRIE BEAM TERMINAL CONNECTOR




16 mm BEARING PLATE

GENERAL NOTES

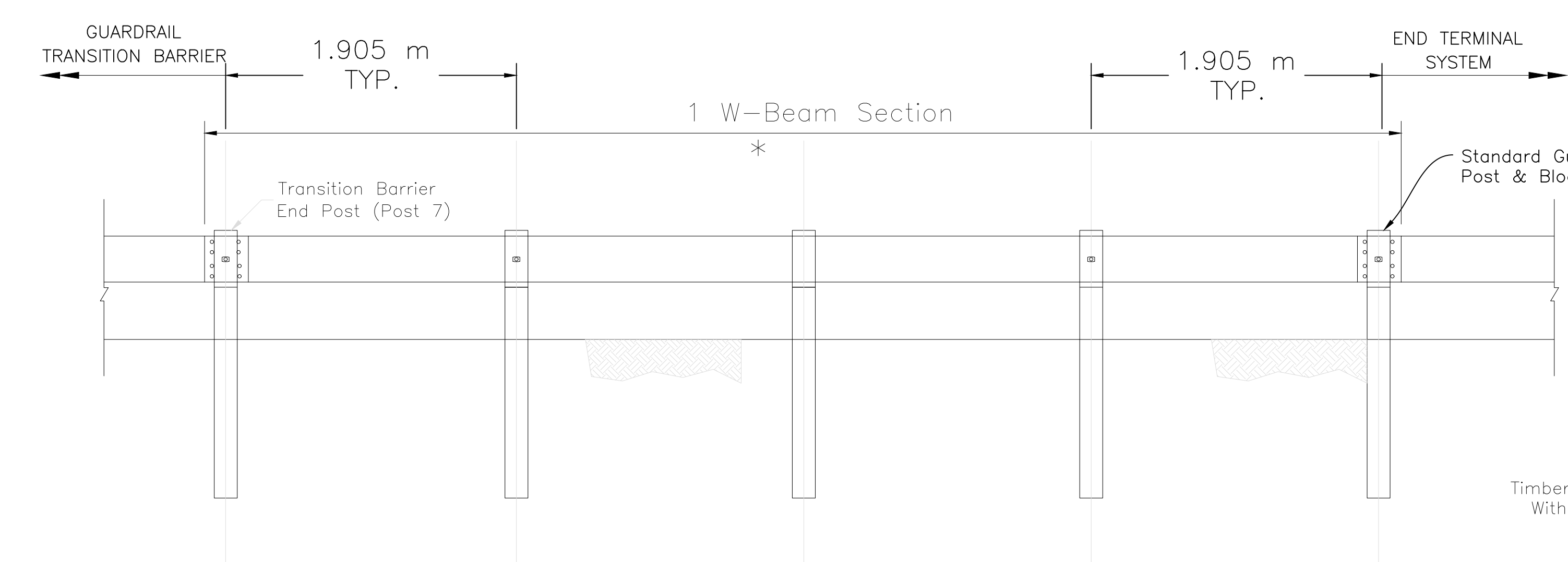
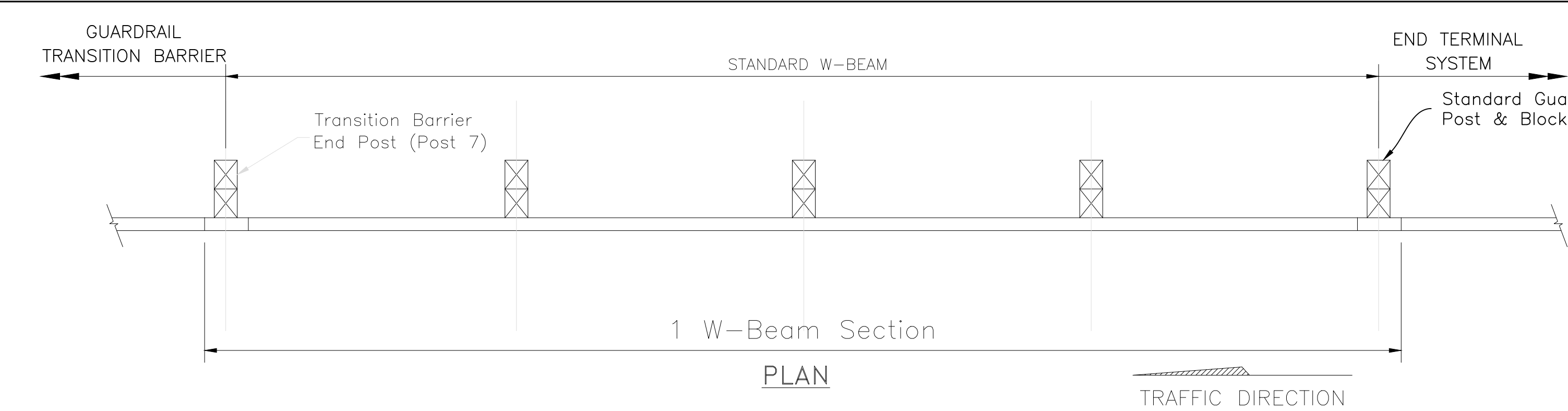
1. All Dimensions In Millimeters Unless Otherwise Shown.
2. All Materials and Workmanship Shall Conform To FP-14.
3. All Hardware Shall Meet FHWA Crash Worthiness Requirements As Per MASH 2016 Guidelines.
4. Five 22 mm H.T. S. Bolts Are Required For The Attachment Of The Thrie Beam Terminal Connector To The Concrete Barrier, Length To Be Determined In The Field By The Construction Manager Holes For Bolts Shall Be 25 mm Dia. And Shall Be Either Formed Or Core Drilled.
5. Furnishing And Placing Of Bolts, Washers, And Bearing Plate Shall Be Considered Incidental To The Cost Of Metal Barrier And No Direct Payment Will Be Made Therefor.
6. Install Thrie Beam Terminal Connector Between Nested Guardrail Elements On The Approach Section.
7. Install Thrie Beam Terminal Connector Outside Of The Nested Guardrail Elements On The Departure Section.
8. Bolts Are To Be Installed As Shown So That The Threaded End Of The Bolts And Nuts Are Placed Away From Traffic Side Of Rail.
9. Do Not Place Any Washers Under The Bolts On The Traffic Side Of The Barrier.
10. Reflector Tabs Shall Be Placed At 7.62 m Intervals On All Guardrail Installations.
11. The Color Of The Reflective Sheeting On The Reflector Tabs Shall Be The Same As The Color Of The Edgeline Pavement Marking In Front Of The Barrier.
12. Reflector Tabs Shall Have a Minimum Of 76 mm x 127 mm Reflective Sheeting On Both Sides And Shall Attach Securely To The Blockout.
13. Splices Shall Be Lapped So The Free End Does Not Face Traffic Flow.
14. Construction Tolerance For Height Of Guardrail Is 13 mm.
15. The Payment for Item 61701-5000 Includes Posts, Blocks, Rail, Thrie Beam & Concrete Transition including All Other Materials and Labor to Construct Guardrail Transition as Shown on This Sheet.



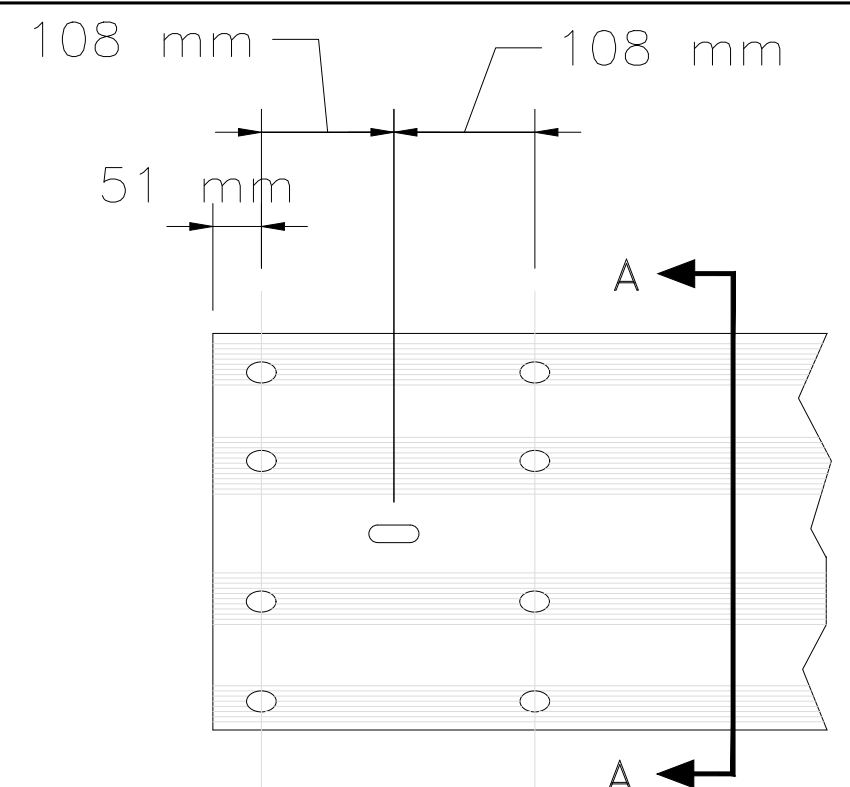
NAVAJO DIVISION OF TRANSPORTATION		
BIA GUARDRAIL TRANSITION AND THRIE BEAM DETAILS		
Designed by: JEB	Date: 11/21	
Drawn by: ERG	Date: 11/21	
Checked by: ASF	Date: 11/21	
File Name: C-CONSTRUCT STD N12.DWG		

NOTE: THIS
DETAIL IS METRIC

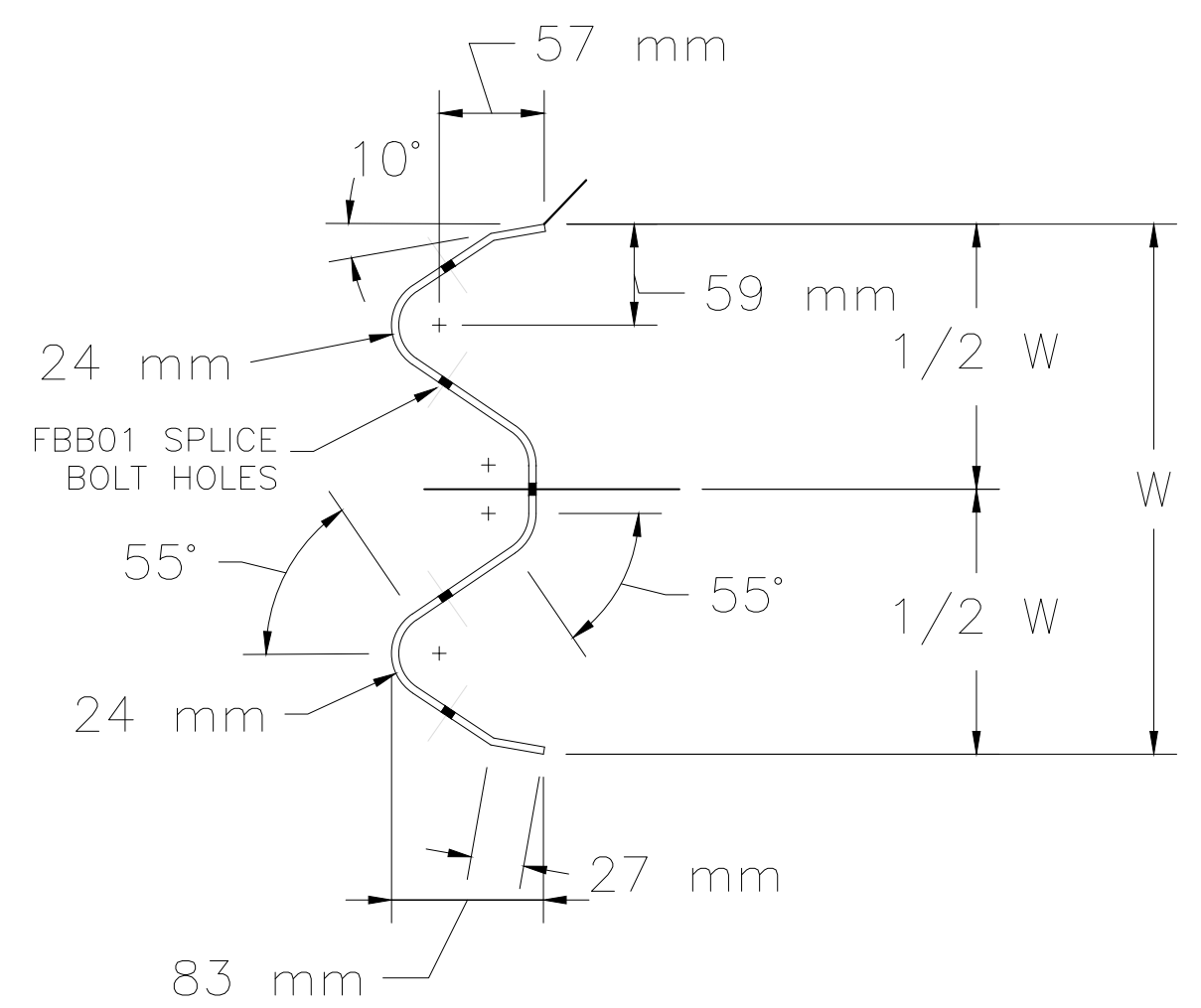
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NORTH	NEW MEXICO	NAVAJO	N 12	N12 1,2&4		120



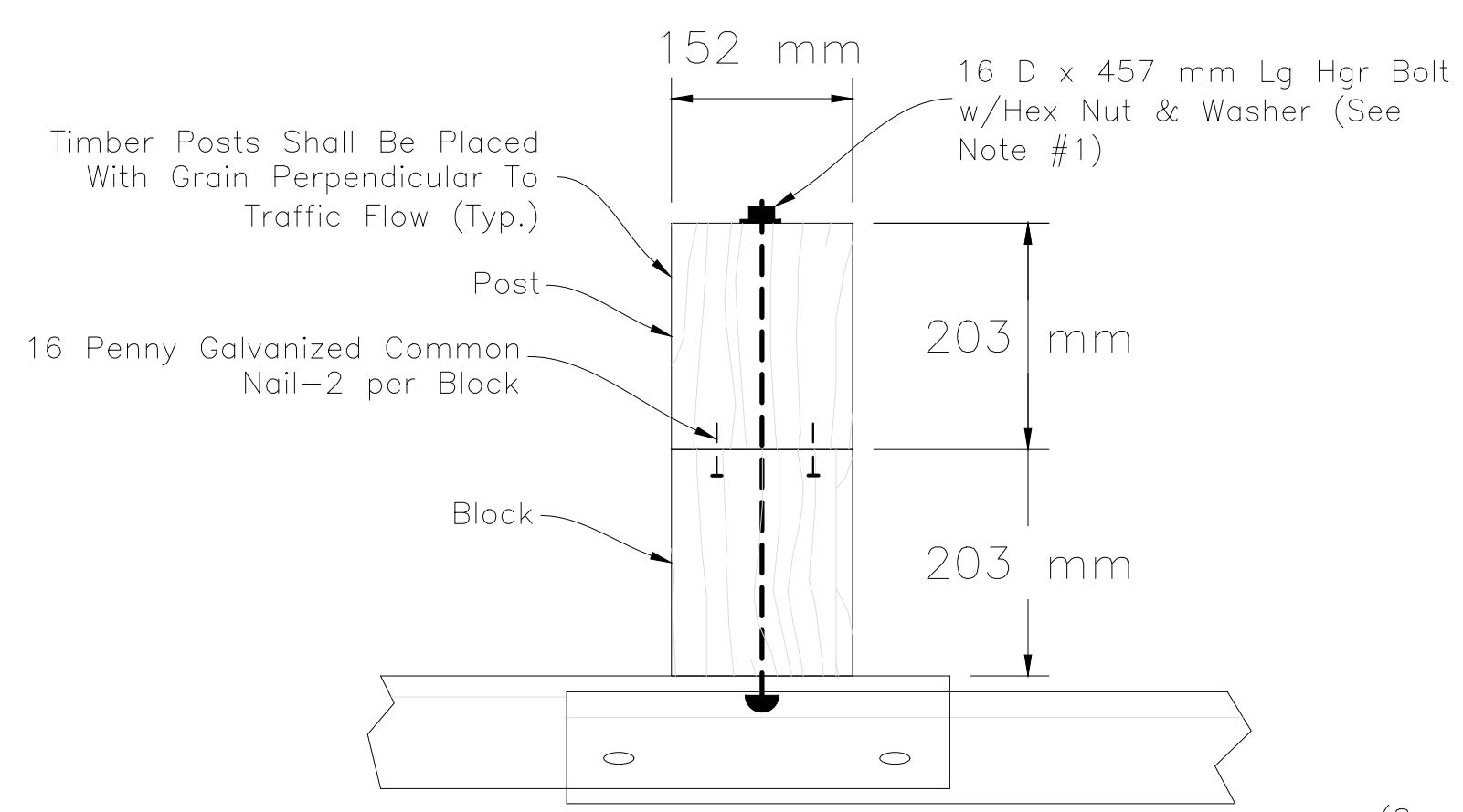
* SEE GUARD RAIL SCHEDULE FOR FINAL SYSTEM AND W-BEAM LENGTHS



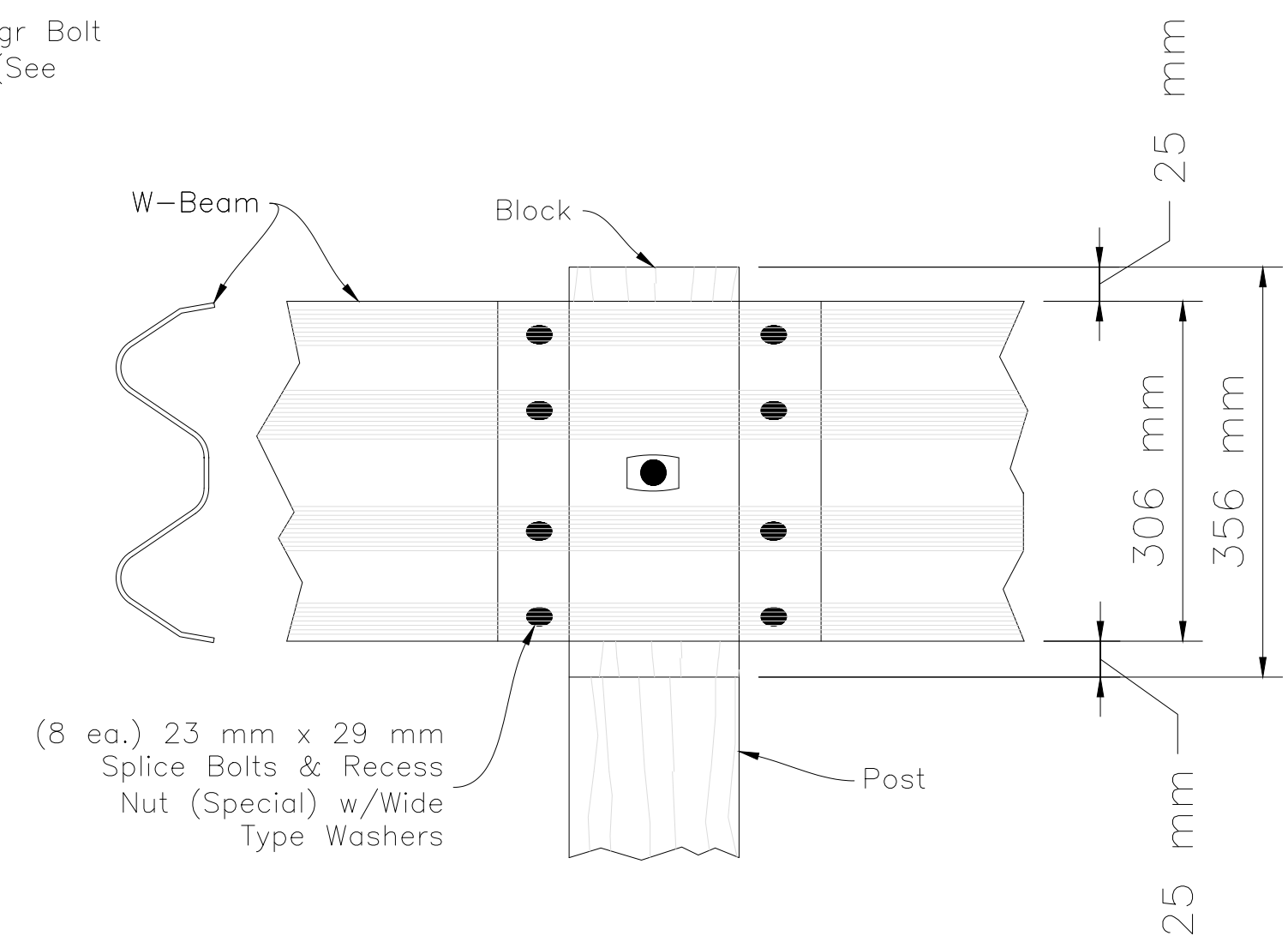
DESIGNATOR	COMPONENT	NUMBER
FBB01	Splice Bolt and Nut	2
FBB02	Guardrail-Post Bolt and Nut	2
FBB03	Guardrail-Post Bolt and Nut	2
FBB04	Guardrail-Post Bolt and Nut	2
FBX16a	Post Blockout Bolt (40 mm)	4
FWC16a	Round Washer	2
PDB01a	Timber Post Blockout	2
PDB01b	Timber Post Blockout	2
PDE02	Timber Post	2
PDE13	Timber Post	2
PWB01	Steel Post Blockout	2
PWE01	Steel Post	2
PWE02	Steel Post	2
RWB01a	W-Beam Backup Plate	1
RWM02a	W-Beam Rail	1



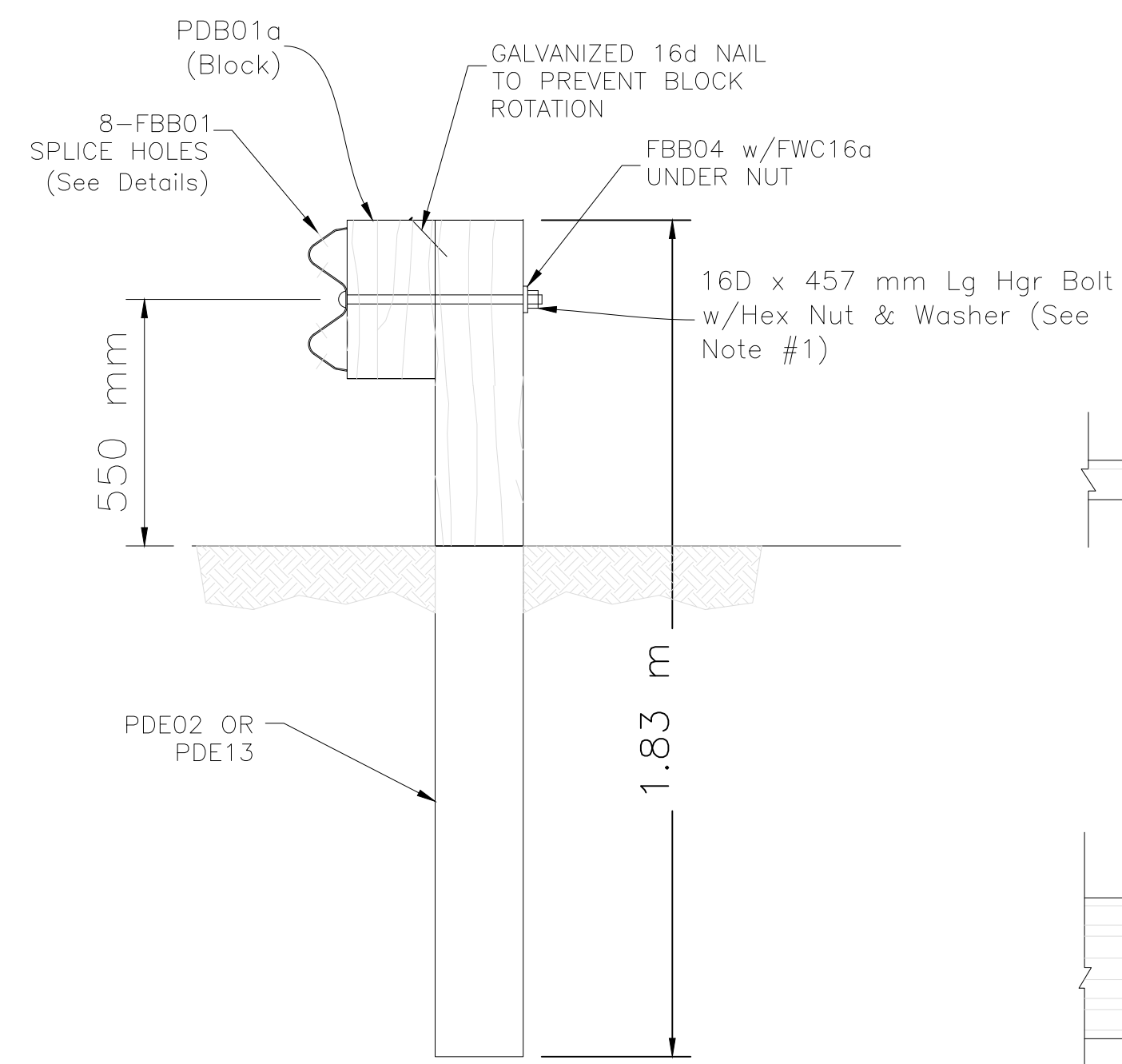
SECTION A-A
W-BEAM (RWM02A)



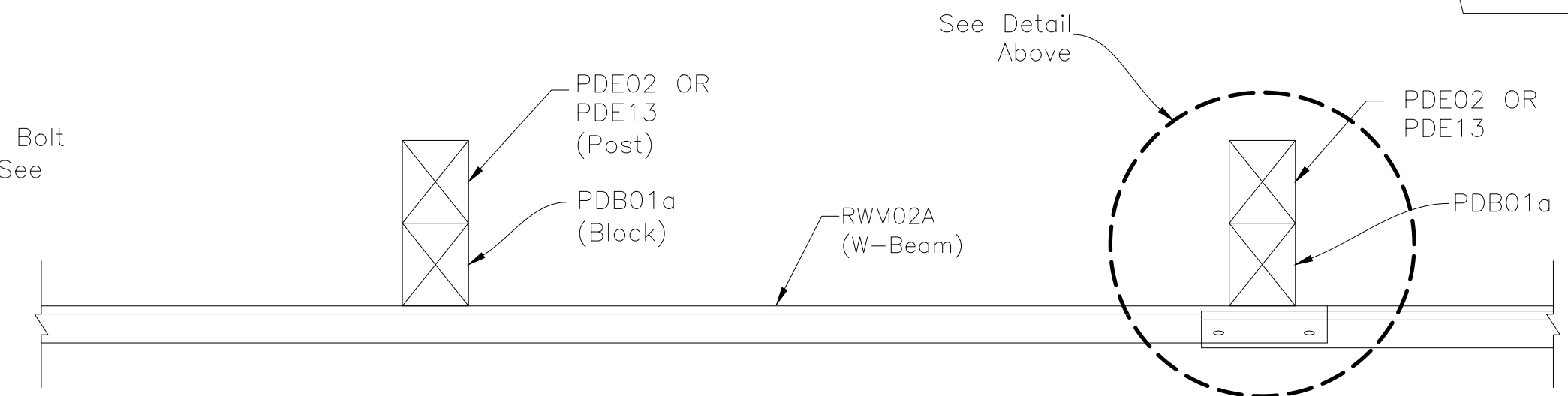
PLAN
POST/BLOCK &
SPLICE DETAIL



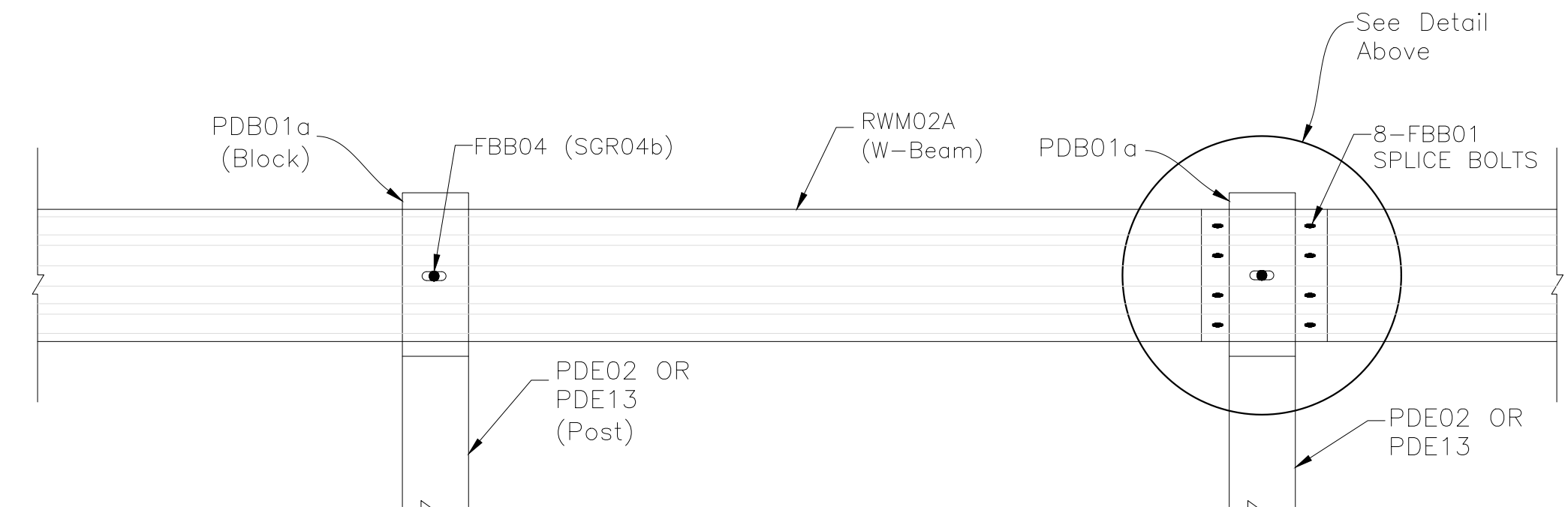
ELEVATION
POST/BLOCK
SPLICE DETAIL



ELEVATION
STRONG-POST W-BEAM



PLAN
W-BEAM/POST & BLOCK DETAILS

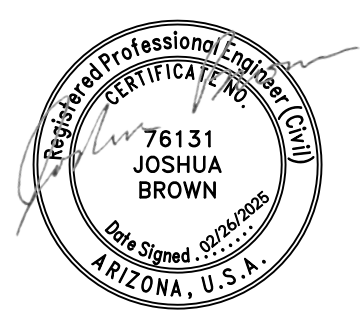


ELEVATION
W-BEAM/POST & BLOCK DETAILS

GENERAL NOTES

1. THE 16 D FLAT WASHER IS USED UNDER THE NUT, BEHIND THE POST ONLY. NO WASHER IS USED AT THE RAIL.
2. SEE STANDARD GUARDRAIL DETAIL 2 FOR ADDITIONAL NOTES.
3. THE CONTRACTOR HAS THE OPTION TO USE ALL-STEEL POSTS W/WOODEN BLOCK ON STANDARD LINE POSTS, UNLESS OTHERWISE NOTED ON THE DESIGN PLANS.
4. IF STEEL POSTS ARE APPROVED THEN RUBBER OR RECYCLED PLASTIC BLOCKS WILL BE REQUIRED AS SPECIFIED BY SUPPLIER.
5. BEGIN/END ASPHALT CURB AT POST #2.
6. BEGIN REFLECTIVE TABS ON THE W-BEAM AT EVERY FOURTH POST. THE COLOR OF THE TABS SHALL CONFORM TO THE COLOR OF THE ADJACENT EDGE LINE.
7. ANGLE STRUT MUST BE ATTACHED USING 19D HIGH STRENGTH BOLTS.

NOTE: THIS
DETAIL IS METRIC



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STANDARD GUARDRAIL
DETAIL 1

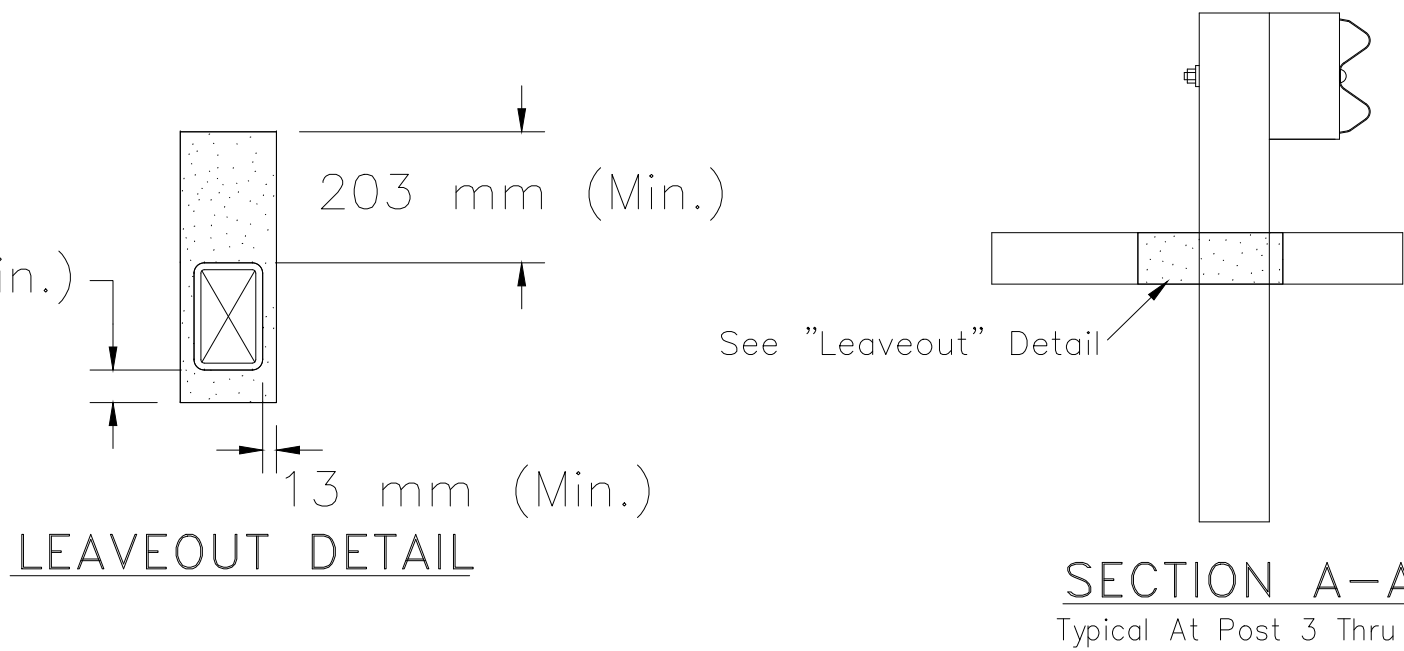
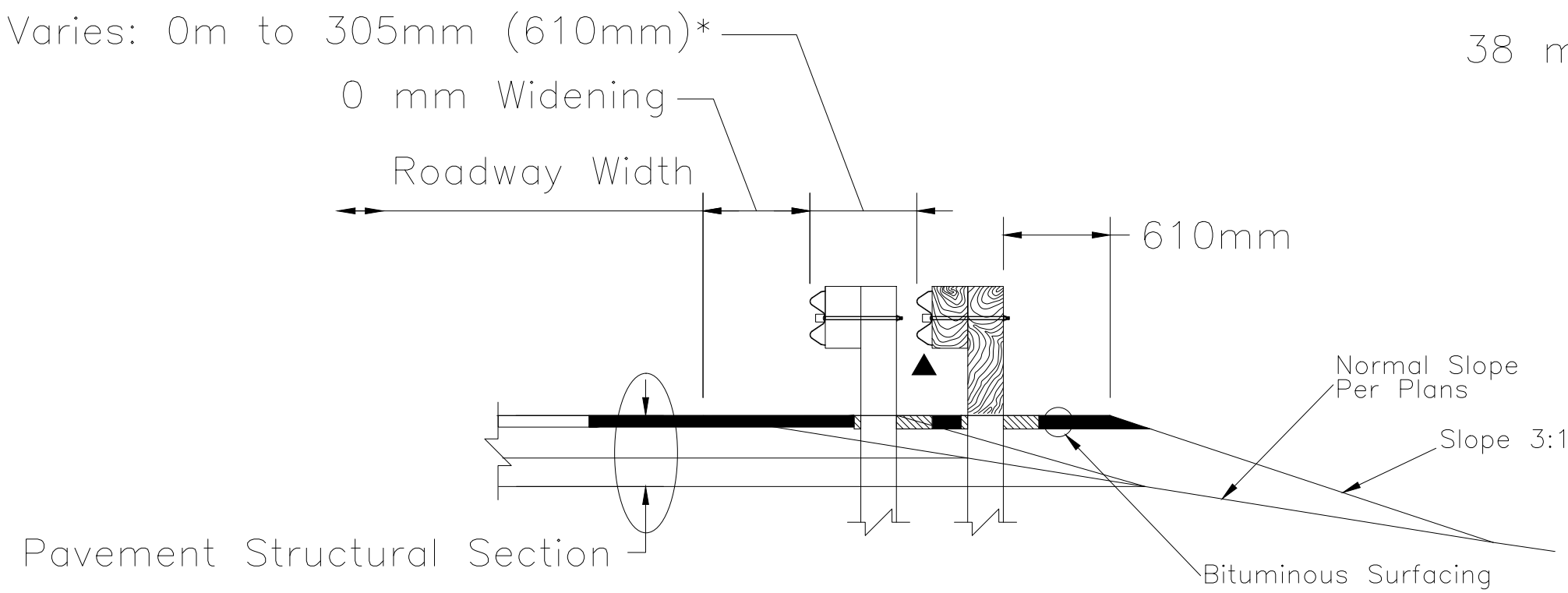
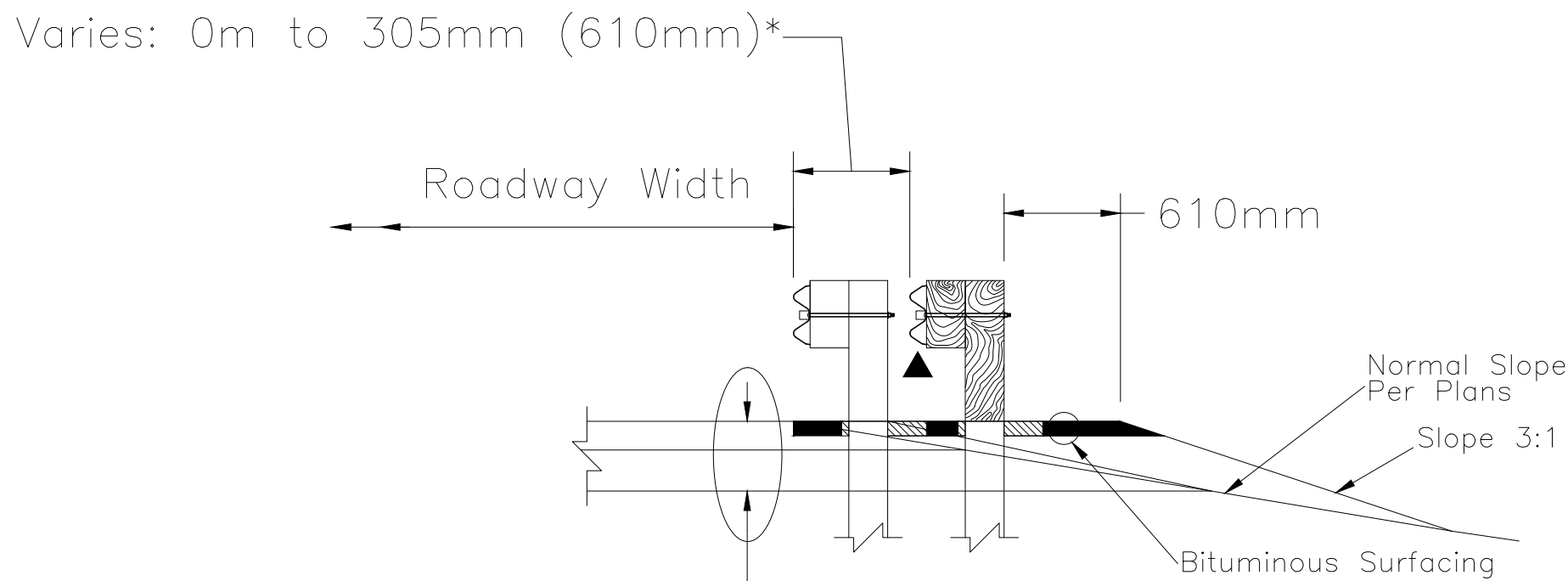
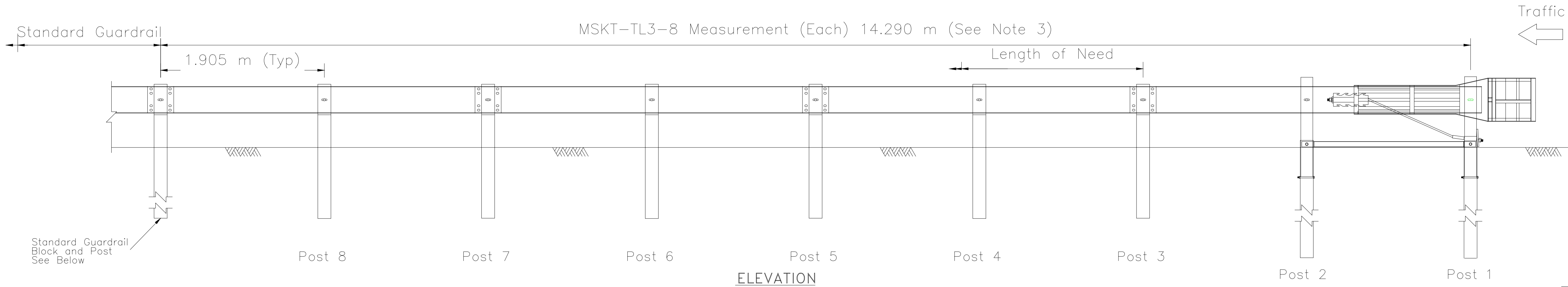
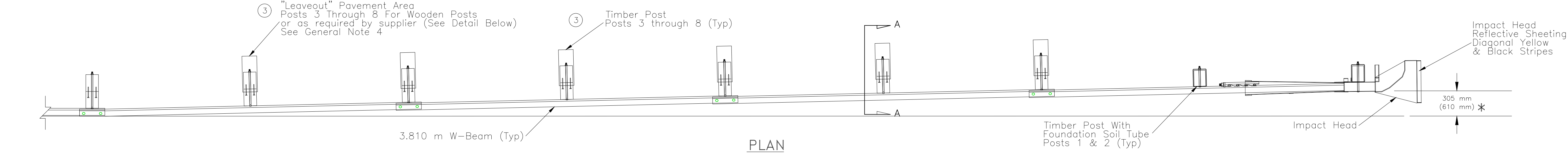
DRAWN BY: MR	DATE:10/19
DESIGNED BY: DDM	DATE:10/19
REVISED: 10/19	BY: DDM

C-CONSTRUCT STD N12.dwg

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NORTH	NEW MEXICO	NAVAJO	N12	N12 1,2&4		120

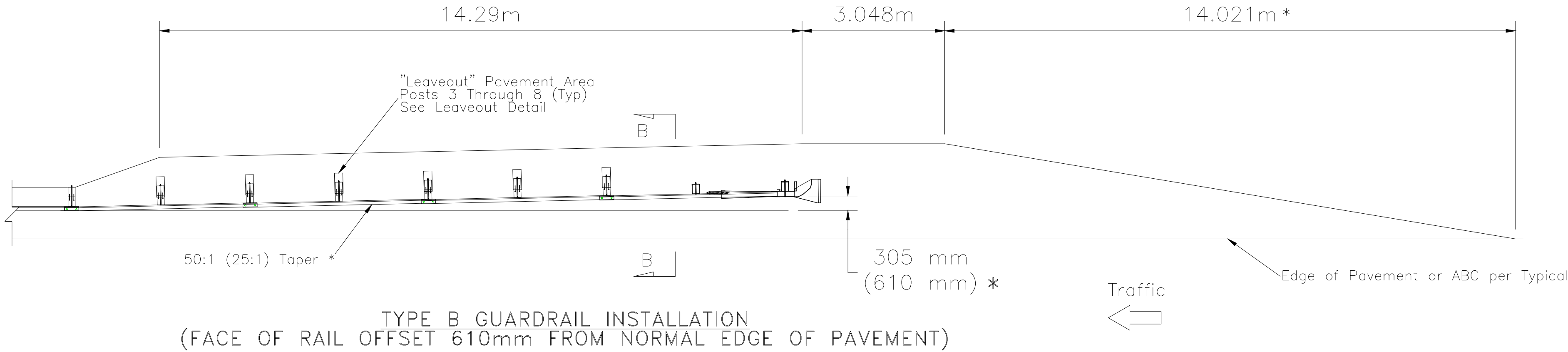
*FOR ELEVATIONS ABOVE (1,220 m) USE THE VALUES IN PARENTHESES



GENERAL NOTES

- THIS DETAIL IS FOR ROADWAY LAYOUT ONLY.
- THE MSKT-TL3-8 SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND CURRENT APPROVED DRAWINGS INCLUDING ALL MATERIALS, HARDWARE, AND OTHER INFORMATION AS SHOWN IN THESE PLANS.
- THE 14.290 m W-BEAM LENGTH SHALL CONSIST OF FOUR SECTIONS. THE END SECTION BEING A PROPRIETARY SPLIT RAIL.
- IF SPECIFIED BY THE SUPPLIER, THE "LEAVEOUT" IN ASPHALTIC CONCRETE SHALL BE PROVIDED IN THE AC PAVEMENT AROUND THE GUARDRAIL POSTS AT THE LOCATIONS AND DIMENSIONS SPECIFIED BY SUPPLIER APPROVED SHOP DRAWING. "LEAVEOUT" MATERIAL SHALL CONSIST OF A 1-SACK GROUT MIX OR OTHER NON-COHESIVE MATERIAL AS APPROVED BY THE COR/COTR.

See Sheet GUARDRAIL END TREATMENT DETAIL 2 For General Notes.



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DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

GUARDRAIL END TREATMENT
MSKT-TL3-8 LAYOUT; SHEET 1 of 2

DRAWN BY: MR DATE:10/19
DESIGNED BY: DDM DATE:10/19
REVISED: 10/19 BY: DDM
C-CONSTRUCT STD N12.dwg



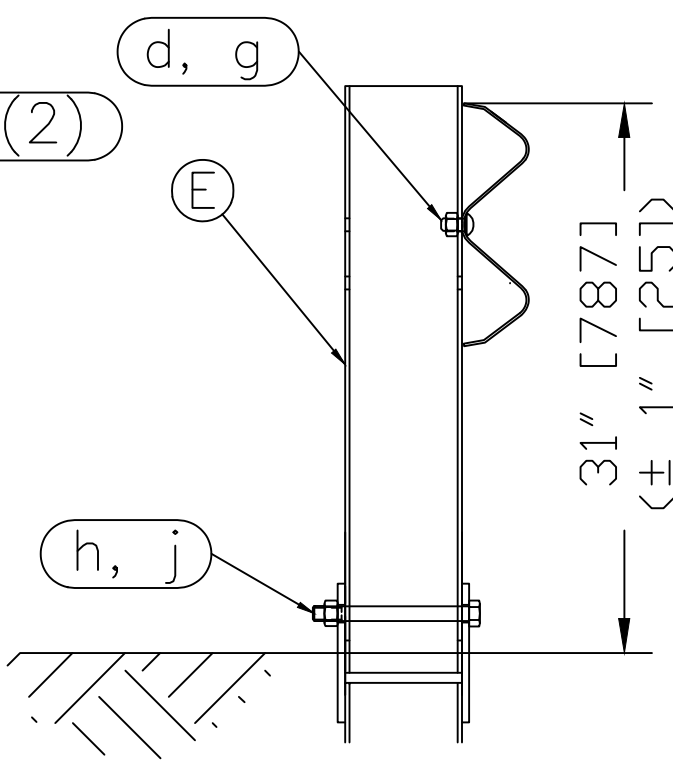
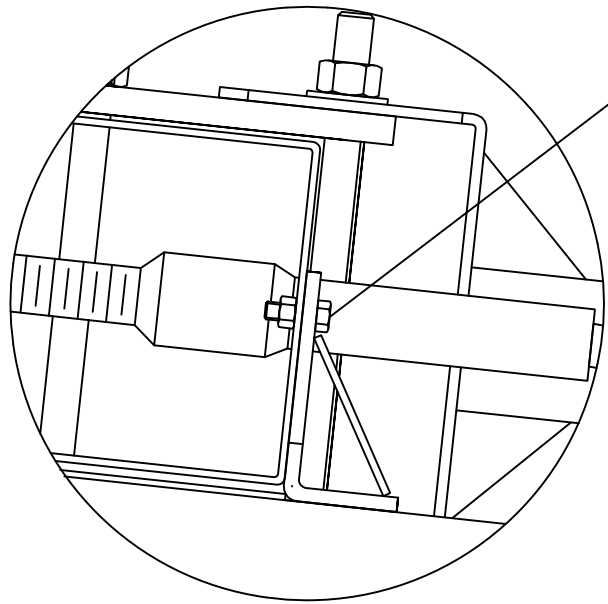
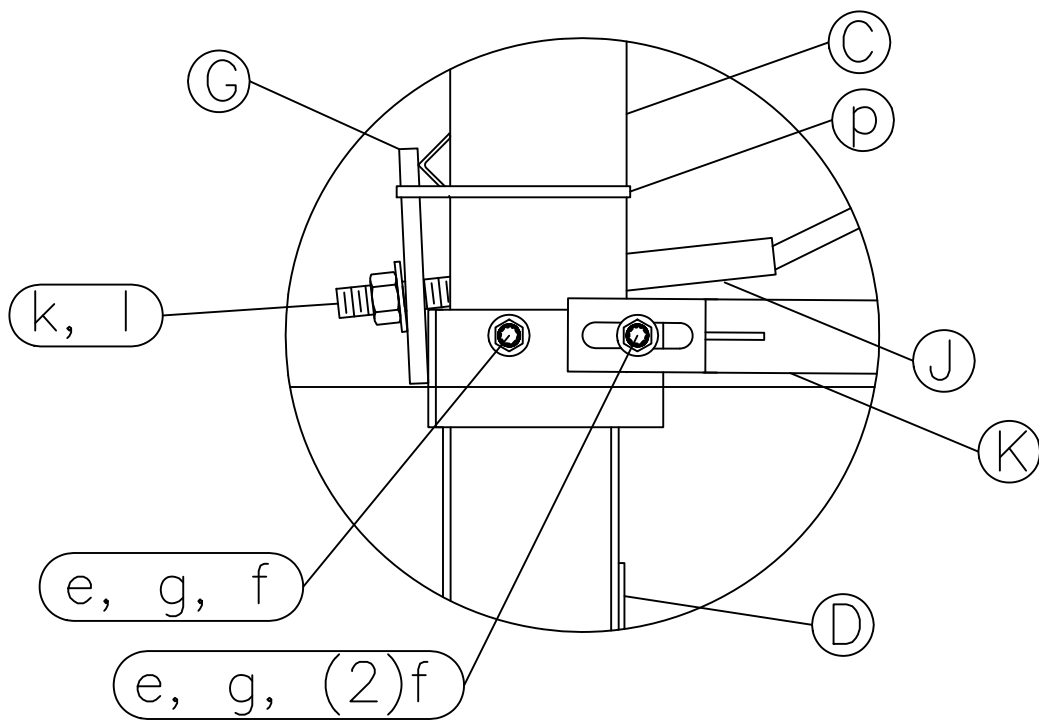
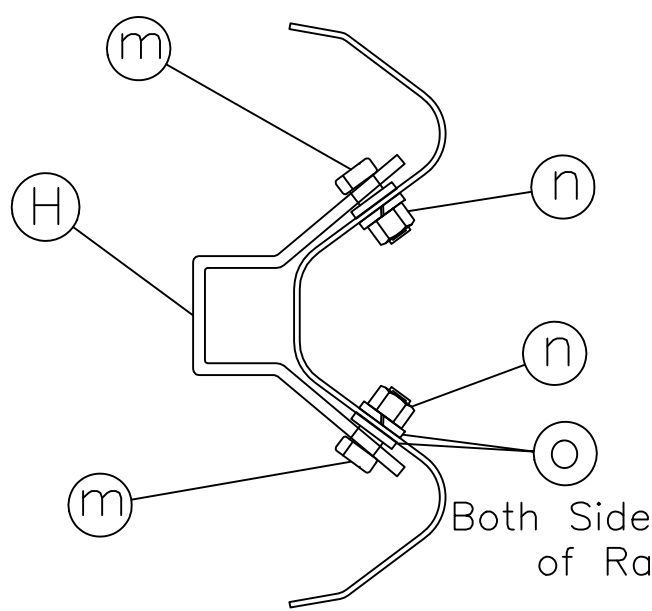
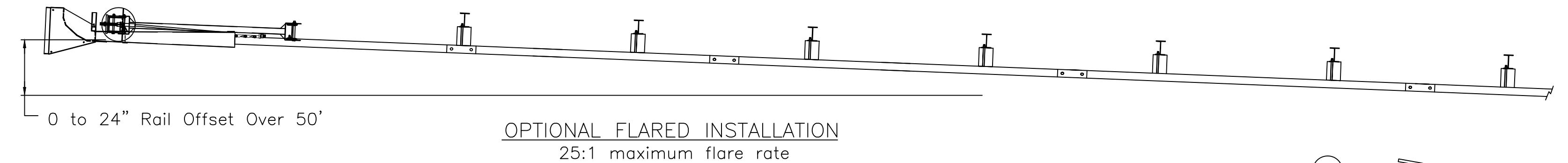
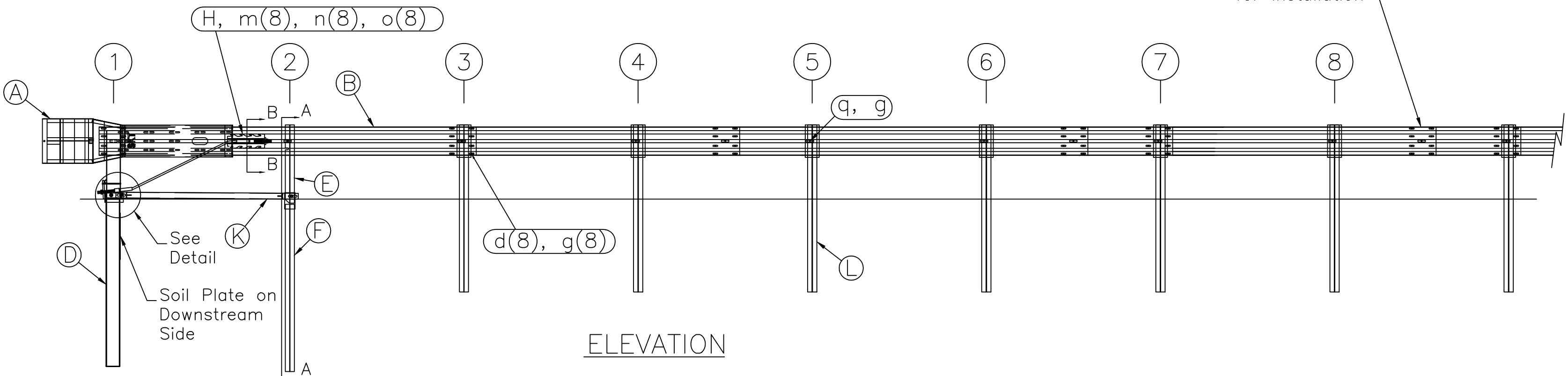
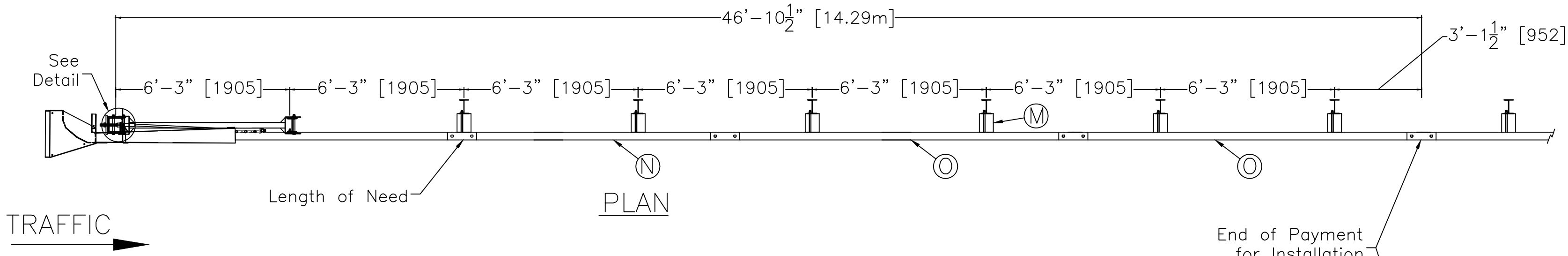
NOTE: THIS
DETAIL IS METRIC

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NORTH	NEW MEXICO	NAVAJO	N12	N12 1,2&4		120

NOTES:

- BREAKAWAY POSTS ARE REQUIRED WITH SEQUENTIAL KINKING TERMINAL.
- ALL BOLTS, NUTS, CABLE ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
- THE MSKT-TL3-8 CAN BE FLARED AT A RATE OF 25:1 TO PREVENT THE IMPACT HEAD FROM ENCRORACHING ON THE SHOULDER. THE FLARE IS NOT REQUIRED MAY BE DECREASED OR ELIMINATED FOR SPECIFIC INSTALLATIONS.
- THE SOIL TUBES SHALL NOT PROTRUDE MORE THAN 102 mm ABOVE GROUND (MEASURED ALONG A 1.5 m CHORD). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
- THE SOIL TUBES MAY BE DRIVEN WITH AN APPROVED DRIVING HEAD. SOIL TUBES SHOULD NOT BE DRIVEN WITH THE POST IN THE TUBE. IF THE ARE PLACED IN DRILLED HOLES, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
- WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 308 mm DIA. POST HOLE, 508 mm INTO ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL WILL BE PLACED IN THE BOTTOM OF THE HOLE APPROX. 64 mm DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES WILL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE, AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM HOLE.
- THE BREAKAWAY CABLE ASSEMBLY MUST BE TAUT. A LOCKING DEVICE, (VICE-GRIPS OR CHANNEL-LOCK PLIERS) SHOULD BE USED TO PREVENT CABLE FROM TWISTING WHEN TIGHTENING NUTS.
- A SPECIAL SITE EVALUATION SHOULD BE CONSIDERED PRIOR TO USING THE MSKT-TL3-8 WHERE THERE IS LESS THAN 7.620 m BETWEEN THE OUTLET SIDE AND ANY ADJACENT DRIVING LANE.
- THE WOOD BLOCKOUTS SHOULD BE "TOE-NAILED" TO THE WOOD POSTS TO PREVENT THEM FROM TURNING WHEN WOOD SHRINKS.
- GUARDRAIL SPLICE SHALL BE OVERLAPPED IN HE DIRECTION OF THE ADJACENT TRAFFIC.
- BILL OF MATERIALS AND SOME OF THE DETAILS HEREIN WERE PROVIDED BY ROAD SYSTEMS INC.
- ALL BOLTS, NUTS, CABLES ASSEMBLIES, CABLE ANCHORS AND BEARING PLATES SHALL BE GALVANIZED.
- THE LOWER SECTION OF THE POSTS 1 & 2 SHALL NOT PROTRUDE MORE 4 in. (100 m) ABOVE THE GROUND (MEASURED ALONG A 5' [1.5M] CORD LONGITUDINAL TO THE SYSTEM). SITE GRADING MAY BE NECESSARY TO MEET THIS REQUIREMENT.
- THE LOWER SECTION OF THE HINGED POST SHOULD NOT BE DRIVEN WITH THE UPPER POST ATTACHED. IF THE POST IS PLACED IN A DRILLED HOLE, THE BACKFILL MATERIAL MUST BE SATISFACTORILY COMPACTED TO PREVENT SETTLEMENT.
- THE TERMINAL BREAK-AWAY SYSTEM SHALL MEET THE CRASH TEST AND EVALUATION CRITERIA ASSHTO MASH (TL3).
- THE DETAILS PROVIDED ARE FROM ROAD SYSTEMS INC. THE CONTRACTOR SHALL PROVIDE THE SKT IMPACT HEAD WITH 350 SKT TERMINALS OR EQUAL FROM ANY APPROVED VENDER.
- DIMENSIONS IN BRACKETS [] ARE METRIC.
- SEE THE CONTRACT SUPPLEMENTAL SPECIFICATION FOR SECTION 617 FOR ADDITIONAL REQUIREMENTS.

ITEM		QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	MS3000	
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	SF1303	
C	1	FIRST POST TOP (6X6X $\frac{1}{8}$ " Tube)	MTPHP1A	
D	1	FIRST POST BOTTOM (6' W6X15)	MTPHP1B	
E	1	SECOND POST ASSEMBLY TOP	UHP2A	
F	1	SECOND POST ASSEMBLY BOTTOM	HP2B	
G	1	BEARING PLATE	E750	
H	1	CABLE ANCHOR BOX	S760	
J	1	BCT CABLE ANCHOR ASSEMBLY	E770	
K	1	STRUT	MS785	
L	6	6x9 (6x8.5) STEEL POST	P621	
M	6	RECYCLED PLASTIC BLOCK OR EQUIV.	CBSP-14	
N	1	W-BEAM MGS RAIL SECTION (9'-4 1/2")	G12025	
O	2	W-BEAM MGS RAIL SECTION (12'-6")	G1203A	
HARDWARE (ALL DIMENSIONS IN INCHES)				
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A	
b	4	5/16 WASHER	W0516	
c	2	5/16 HEX NUT	N0516	
d	25	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122	
e	2	5/8 Dia. x 9 HEX BOLT A449	B580904A	
f	3	5/8 WASHER	W050	
g	33	5/8 Dia. H.G.R NUT	N050	
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A	
j	1	3/4 Dia. HEX NUT	N030	
k	2	1 ANCHOR CABLE HEX NUT	N100	
l	2	1 ANCHOR CABLE WASHER	W100	
m	8	1/2 RSI SHOULDER BOLT W/WASHER	SB12A	
n	8	1/2 STRUCTURAL NUT	N012A	
o	8	1/2 STRUCTURAL WASHER	W012A	
p	1	BEARING PLATE RETAINER TIE	CT-100ST	
q	6	5/8" x 10" H.G.R. BOLT	B581002	



SECTION B-B
Anchor Bracket

Post #1 Connection Detail

Impact Head Connection Detail

SECTION A-A
Post #2



NOTE: THIS
DETAIL IS ENGLISH
[METRIC]

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NAVAJO REGIONAL OFFICE * DIVISION OF TRANSPORTATION

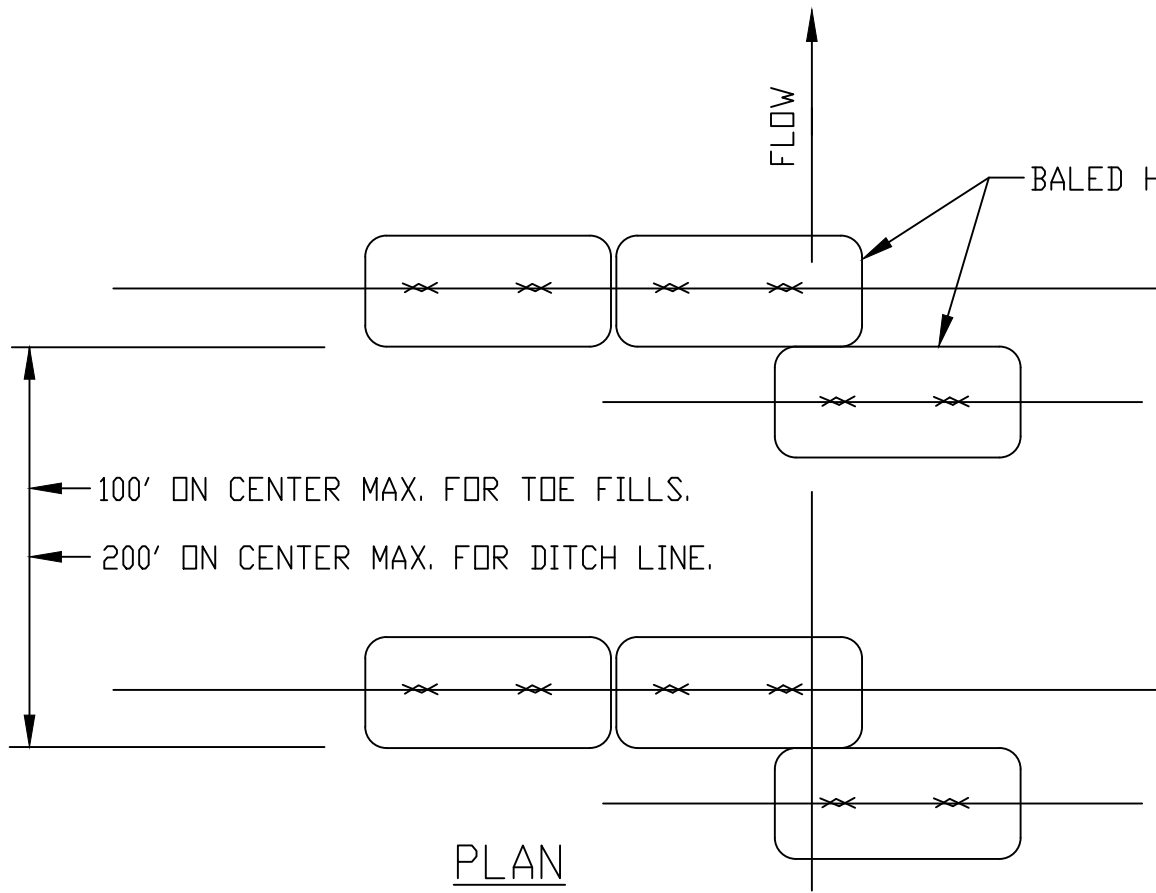
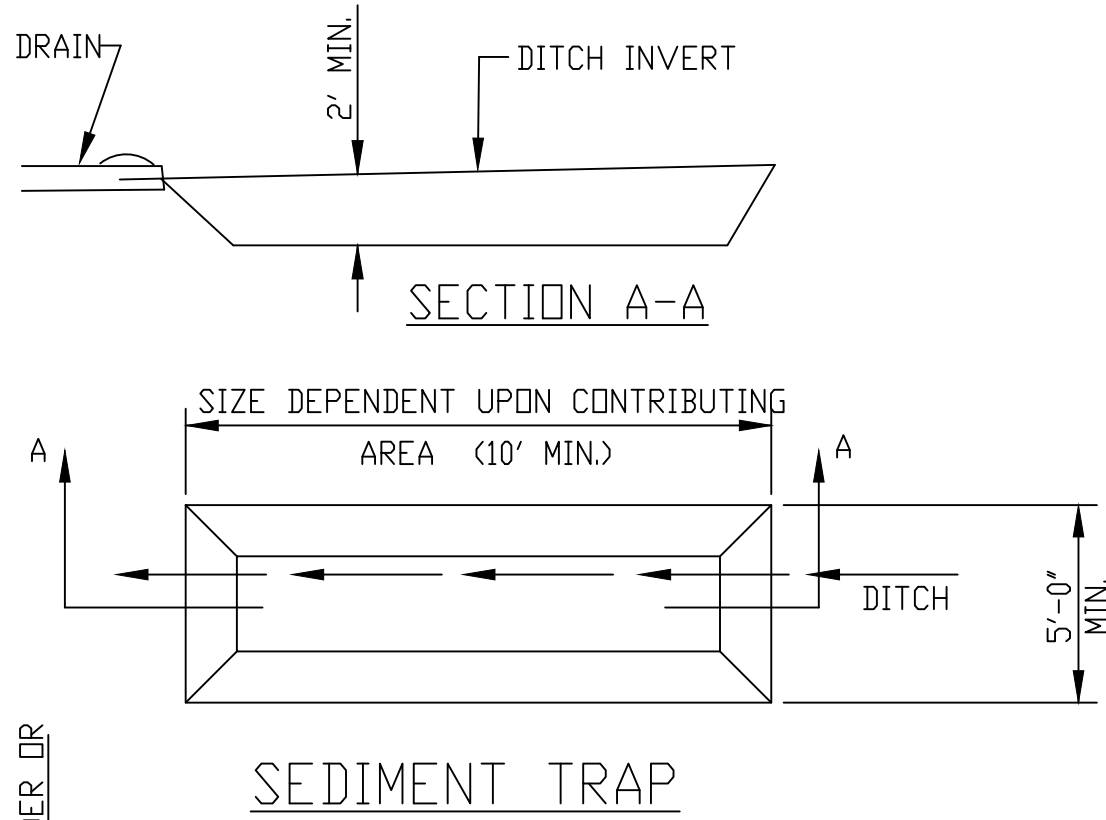
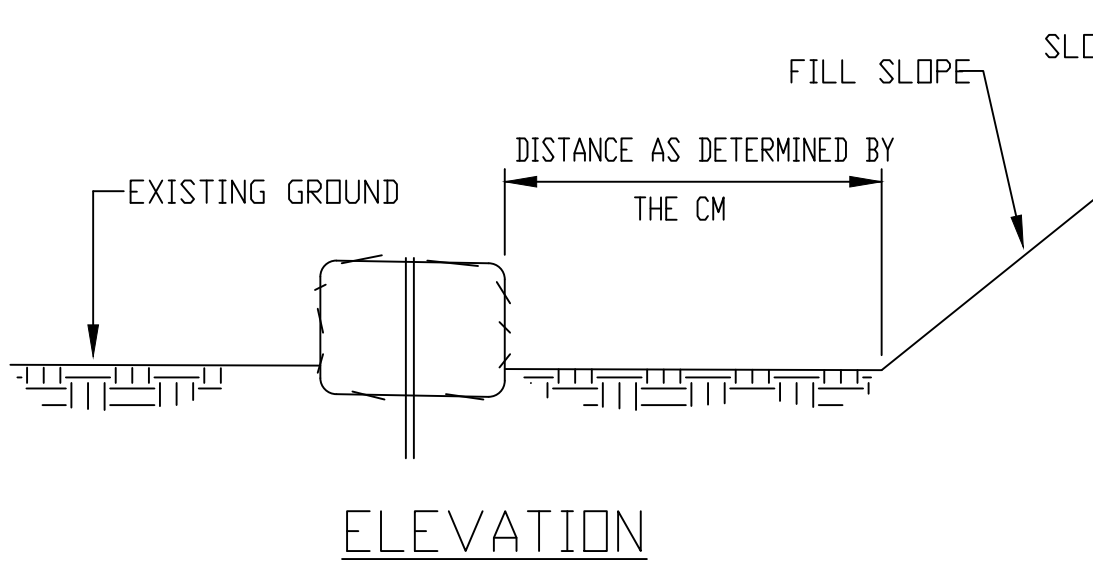
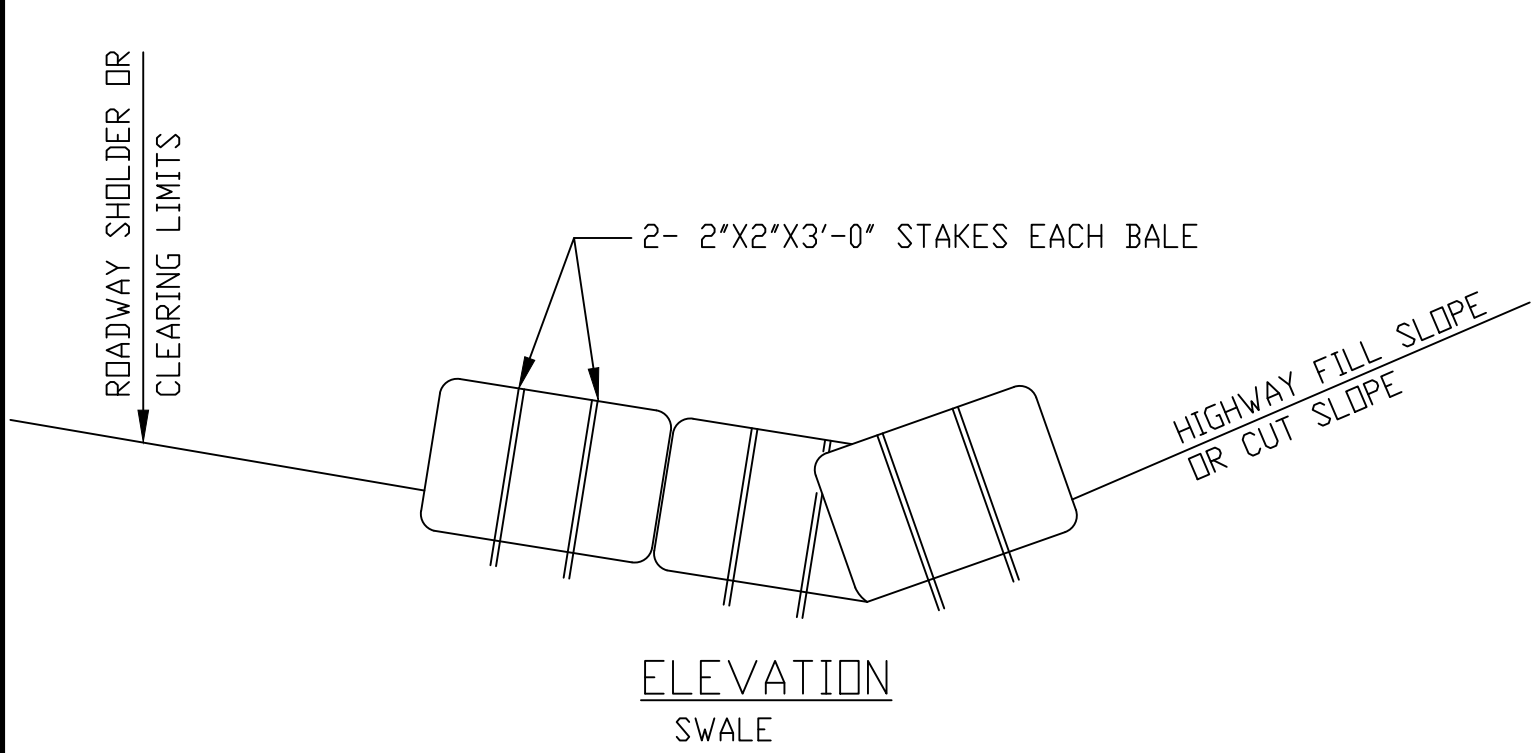
GUARDRAIL END TREATMENT
MSKT-TL3-8 LAYOUT; SHEET 2 of 2

DRAWN BY: MR DATE:10/19
DESIGNED BY: DDM DATE:10/19
REVISED: 10/19 BY: DDM
C-CONSTRUCT STD N12.dwg

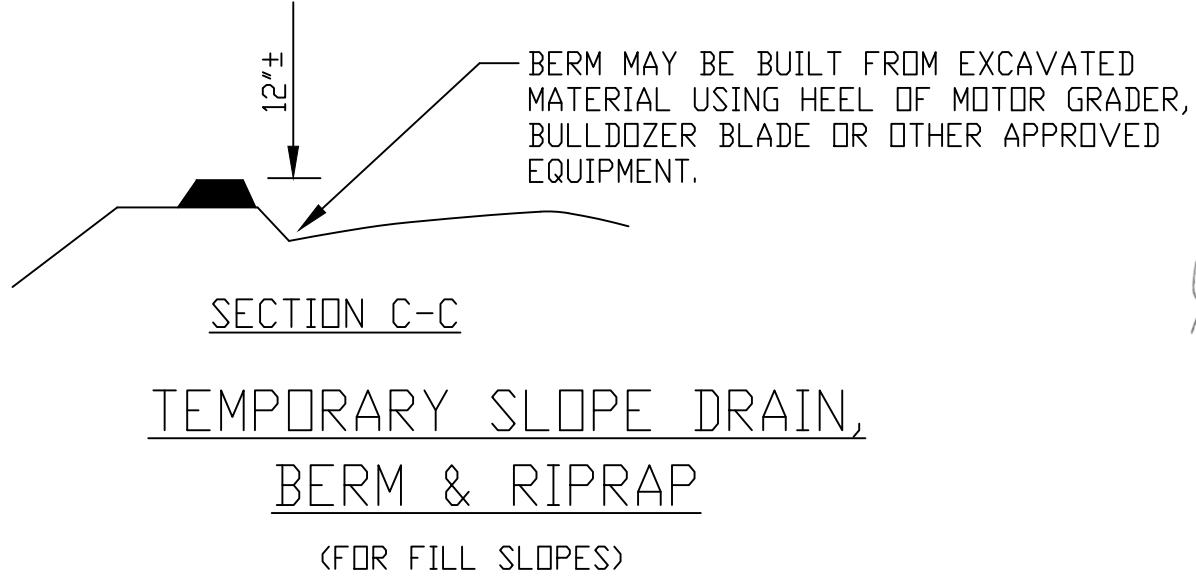
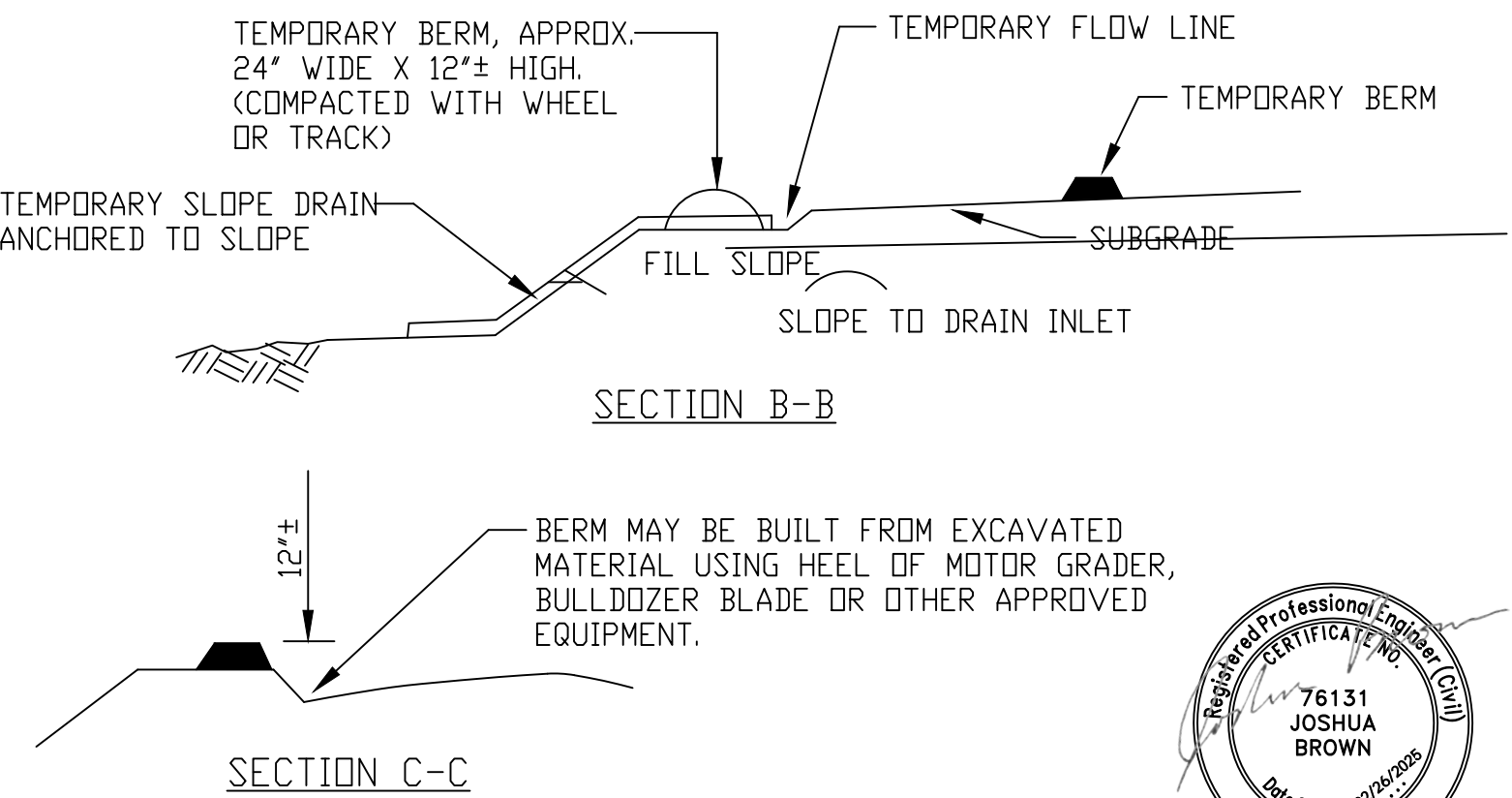
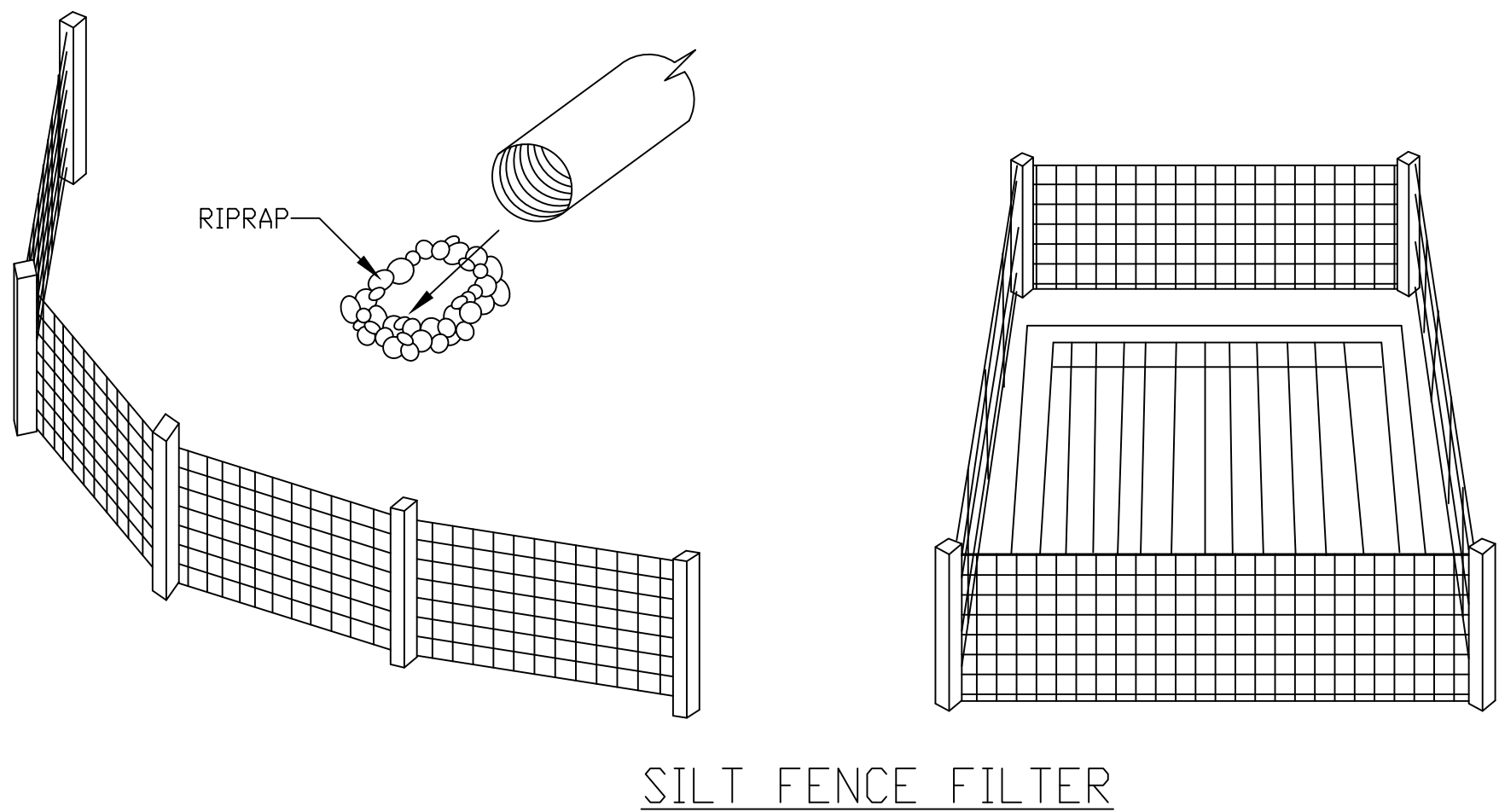
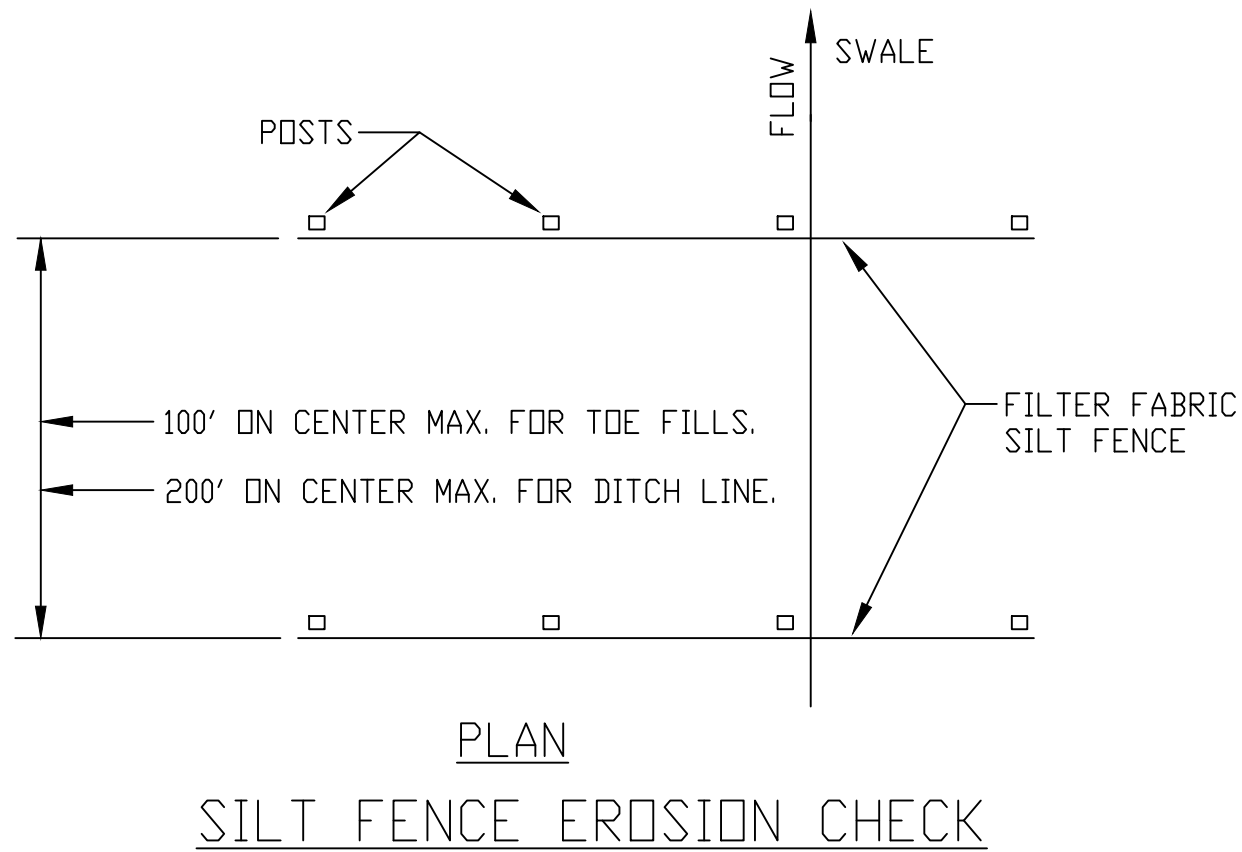
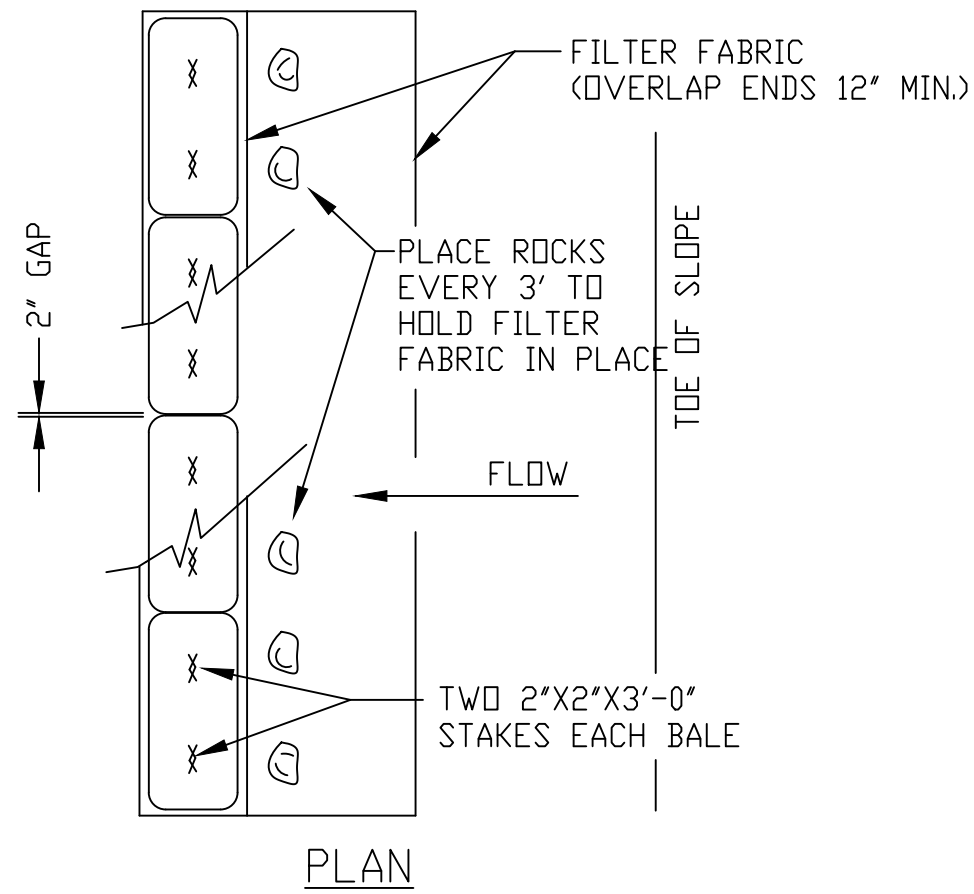
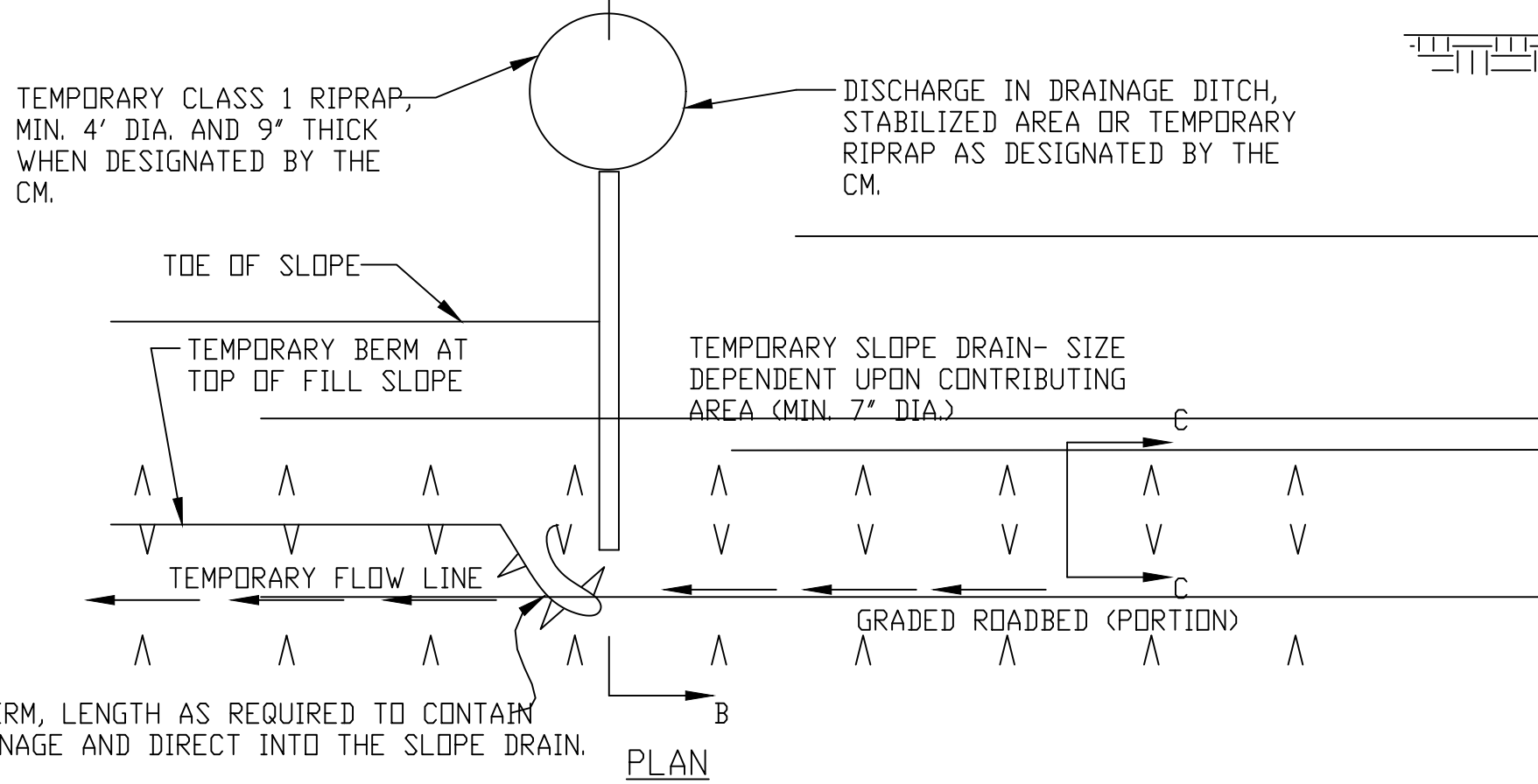
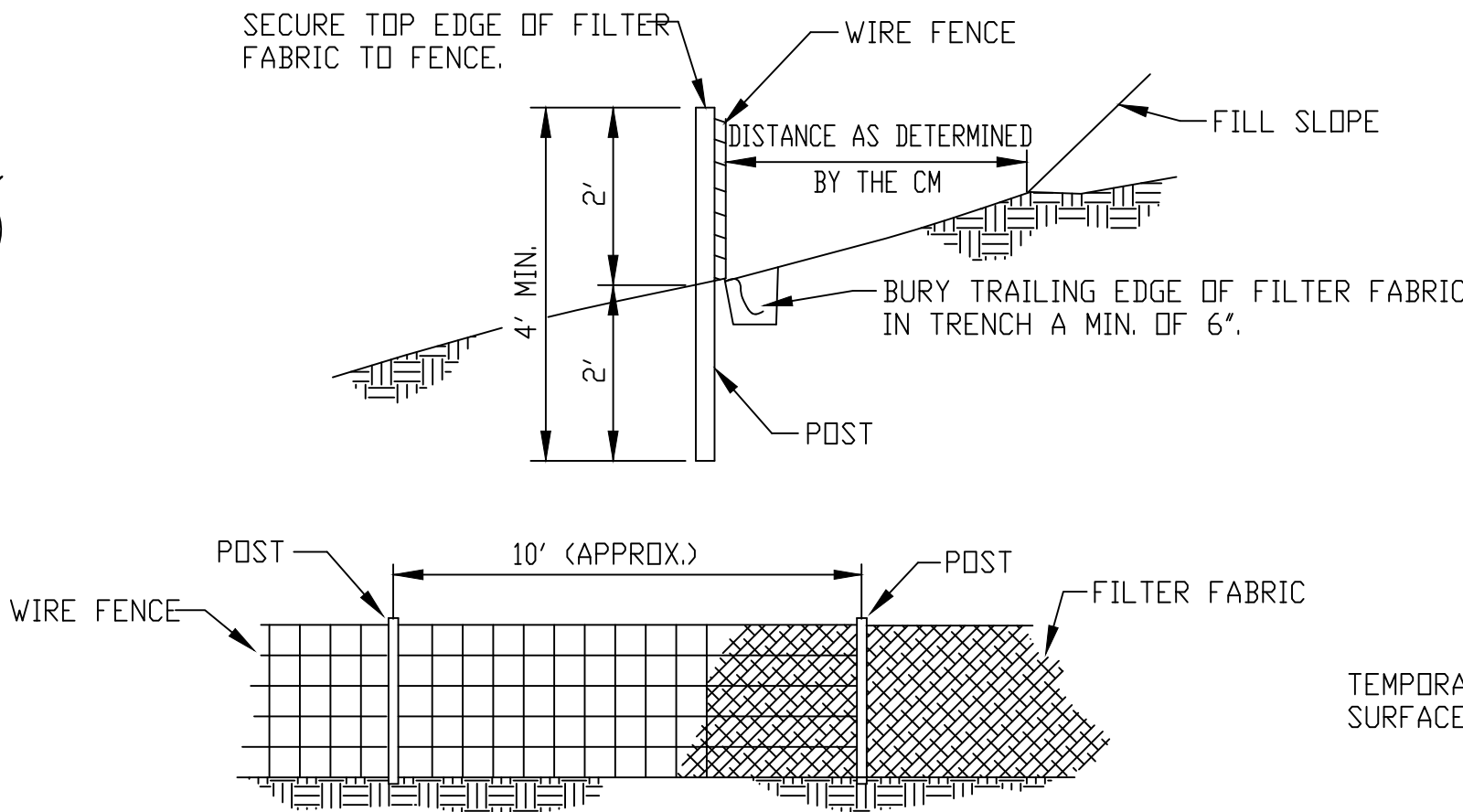
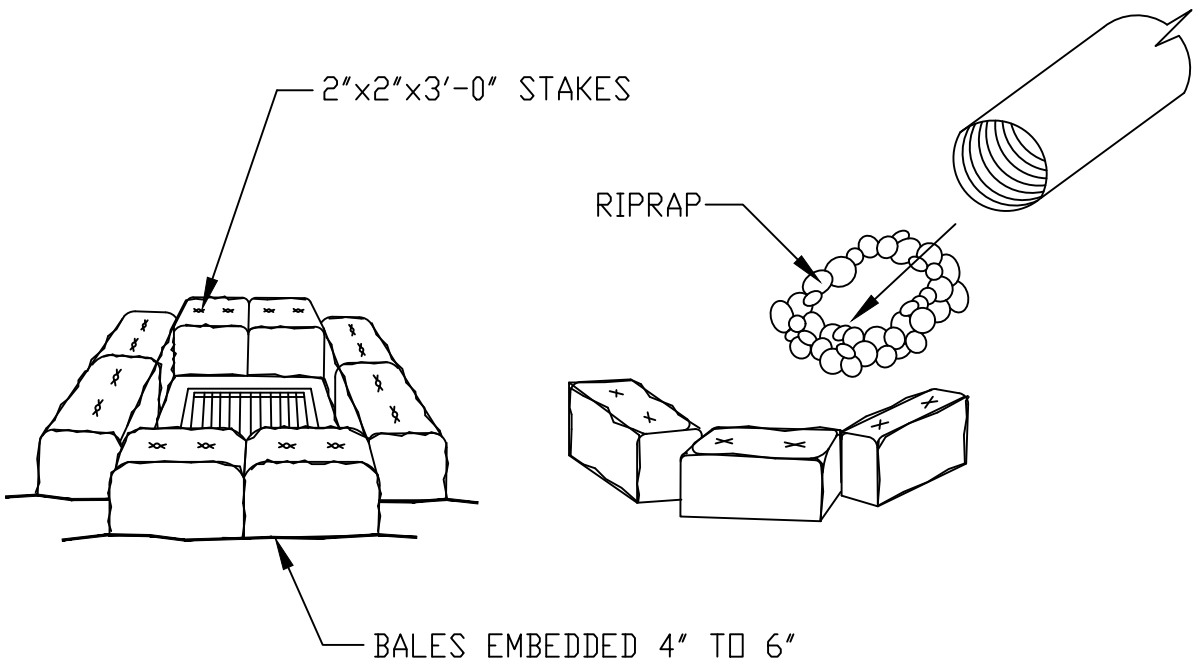
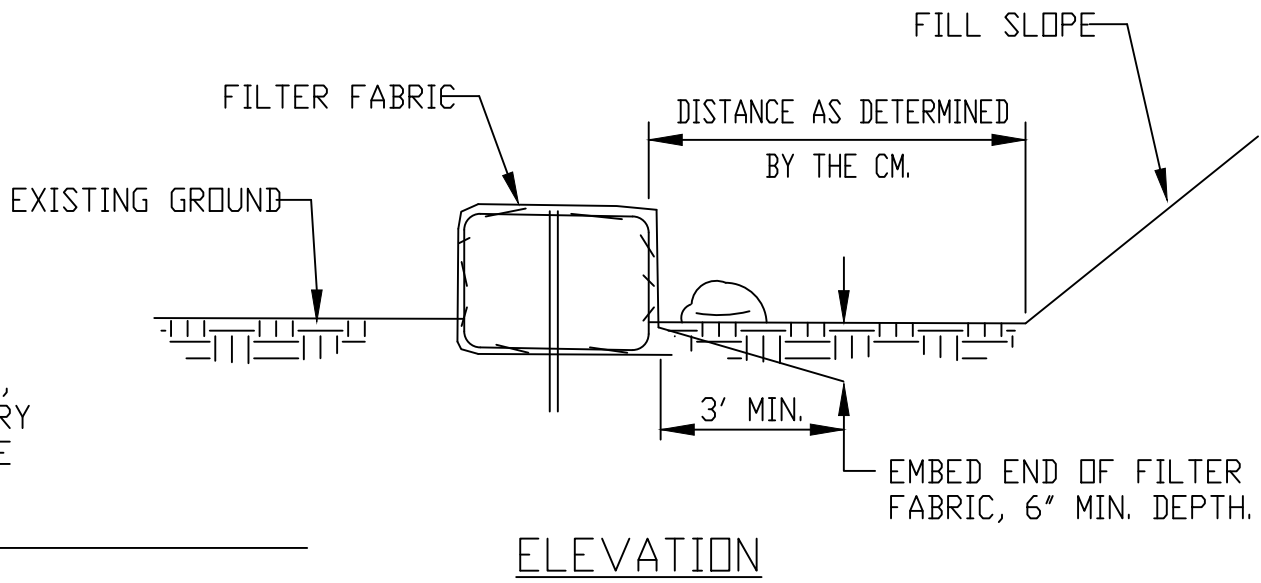
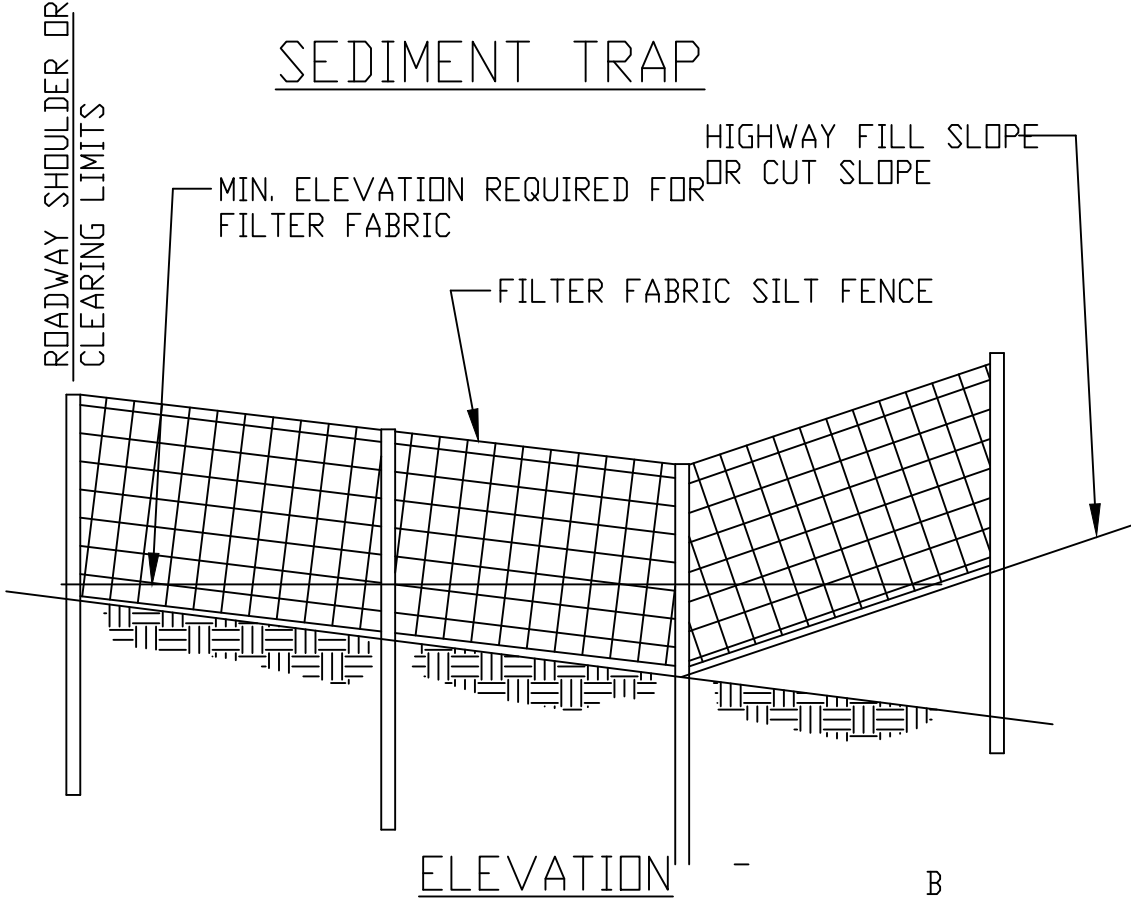
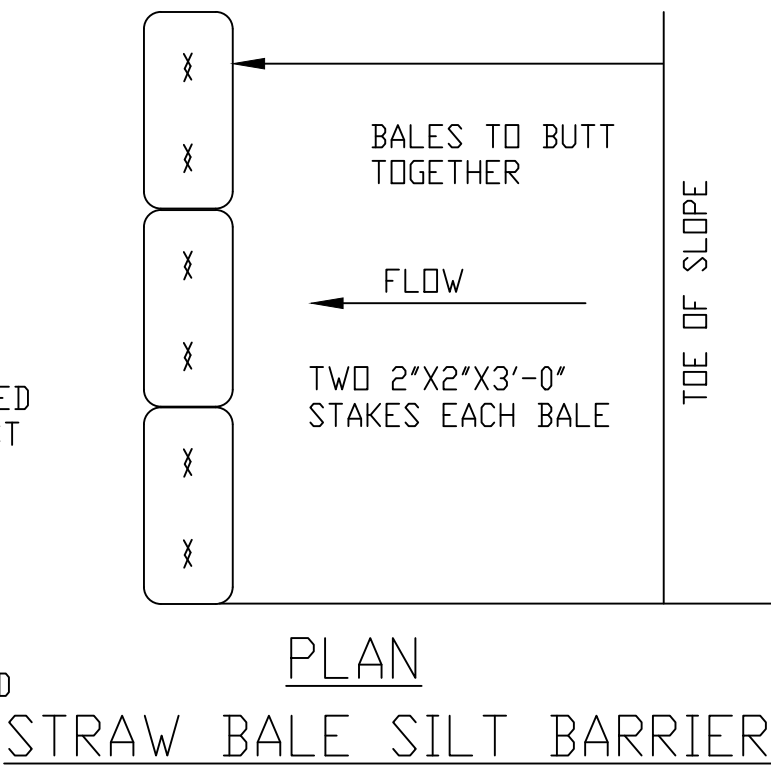
REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NORTH	ARIZONA	NAVAJO	N12	N12 1,2&4		120

GENERAL NOTES:

- SEDIMENT TRAPS, EROSION CHECKS, AND/OR FILTERS ARE TO BE CONSTRUCTED PRECEDING OR FOLLOWING ALL CULVERT OR OTHER DRAINS AND IN ALL DITCHES BEFORE THE WATER (RUNOFF) LEAVES THE PROJECT CONSTRUCTION LIMITS OR ENTERS A STREAM, AND AT OTHER LOCATIONS AS DESIGNATED BY THE CONSTRUCTION MANAGER (CM).
- SEDIMENT TRAPS ARE TO BE CLEANED OF ACCUMULATED SEDIMENT WHEN APPROXIMATELY 75 PERCENT FILLED WITH SUCH SEDIMENT.
- TEMPORARY SLOPE DRAINS (BERMS, DRAINS, AND RIPRAP, IF NECESSARY) ARE USED AS THE EMBANKMENT IS CONSTRUCTED. LOCATION AND SPACING OF THE DRAIN ASSEMBLY WILL BE DESIGNATED BY THE CM. ALL SLOPE DRAINS ARE TO BE IN PLACE BY THE END OF EACH WORK SHIFT. THE DRAIN ASSEMBLIES ARE TO BE USED UNTIL THE SLOPES ARE PROTECTED WITH PERMANENT SOIL EROSION CONTROL MEASURES.
- ALL DIMENSIONS AND LOCATIONS OF TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES ARE SUBJECT TO ADJUSTMENT, AS DESIGNATED BY THE CM.
- WHEN THE TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE, IN THE OPINION OF THE CM, THEY WILL BE OBLITERATED OR REMOVED.
- MATERIALS FOR FILTER FENCE WILL CONSIST OF STANDARD WOVEN LIVE-STOCK WIRE, A MIN. OF 24 INCHES IN HEIGHT, A MIN. OF 14-GAGE WIRE, WITH A MAX. MESH SPACING OF 6 INCHES; POSTS ARE EITHER WOOD OR STEEL, MIN. LENGTH OF 4 FEET; AND FABRIC WILL MEET THE REQUIREMENTS OF FP-14, SUBSECTION 714.01(a).

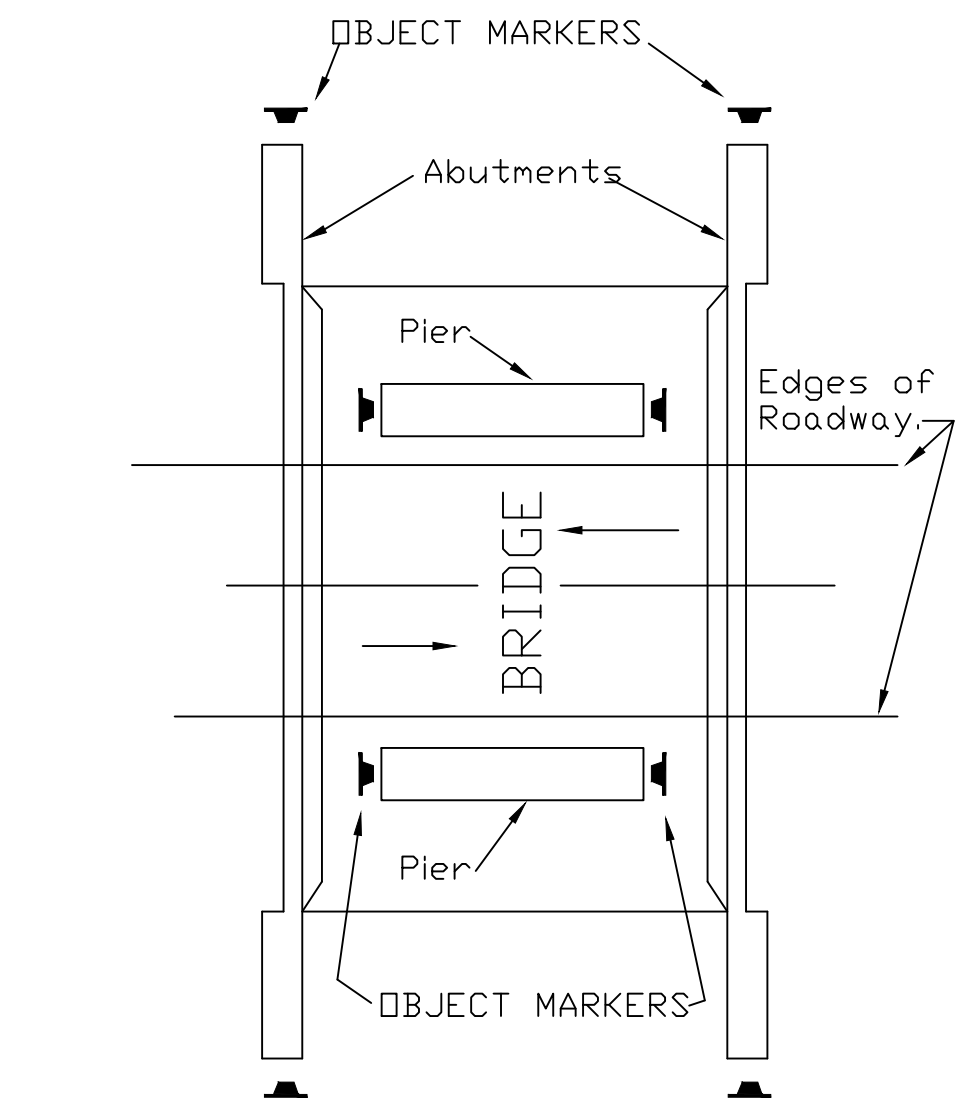
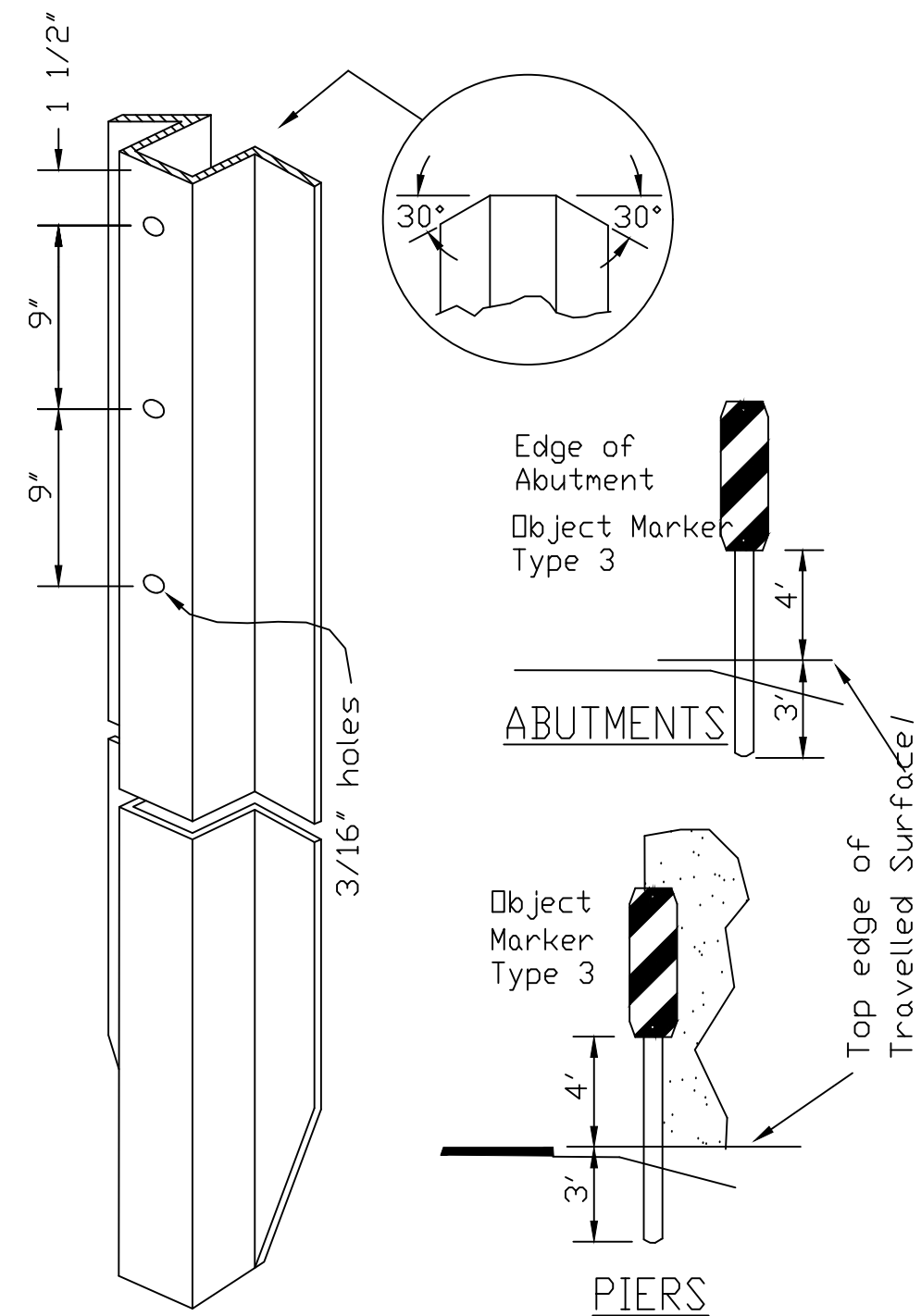


- NOTES:
- EMBED BALES 4 TO 6 INCHES INTO GROUND.
 - IN AREAS WHERE BALES MAY BE ALLOWED TO REMAIN IN PLACE, WOOD STAKES MUST BE USED. IN OTHER AREAS ALTERNATE STAKES MAY BE USED.
 - OTHER CONFIGURATION AS DIRECTED BY THE AWARDED OFFICIAL.
 - LOOSE HAY OR STRAW WILL BE STUFFED BETWEEN BALES TO FILL VOIDS.



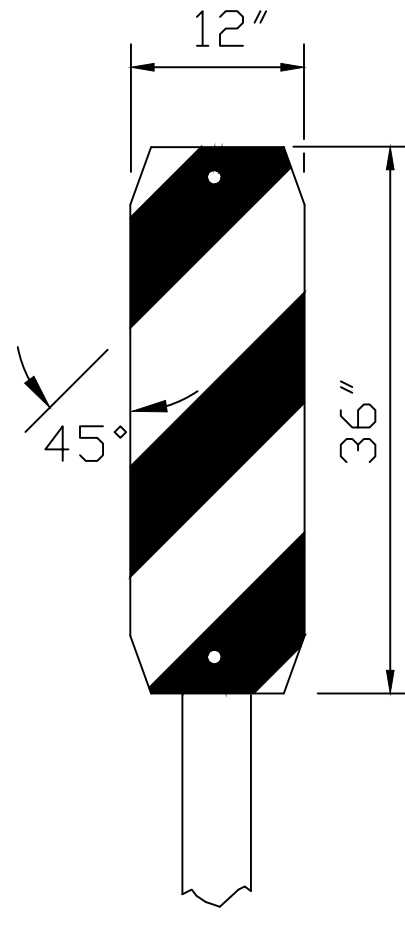
NAVAJO DIVISION OF TRANSPORTATION		
BIA STANDARD SOIL EROSION AND POLLUTION CONTROL DEVICES DETAILS		
Designed by: JEB	Date: 11/21	
Drawn by: ERG	Date: 11/21	
Checked by: ASF	Date: 11/21	
File Name: C-CONSTRUCT STD N12.DWG		

REGION	STATE	RESERVATION	ROUTE	PROJECT NO.	SHEET	TOTAL SHEETS
NORTH	ARIZONA	NAVAJO	N12	N12 1,2&4		120

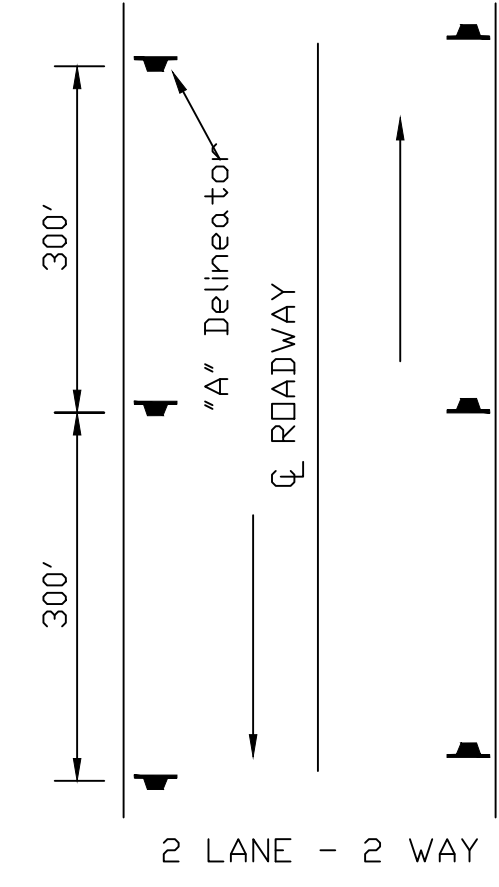


PLACEMENT OF DELINEATORS AT BRIDGE ABUTMENTS AND PIERS

Above plan for 2 lane - 2 way roadways. Use delineators on approach side only on 2 lane - 1 way roadways. (One half of divided highway.)

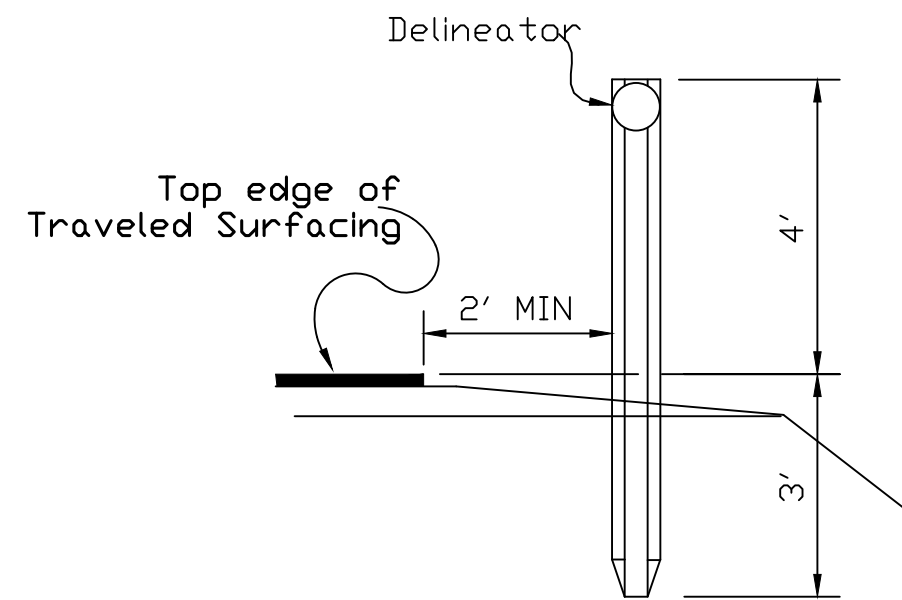


OBJECT MARKER TYPE 3



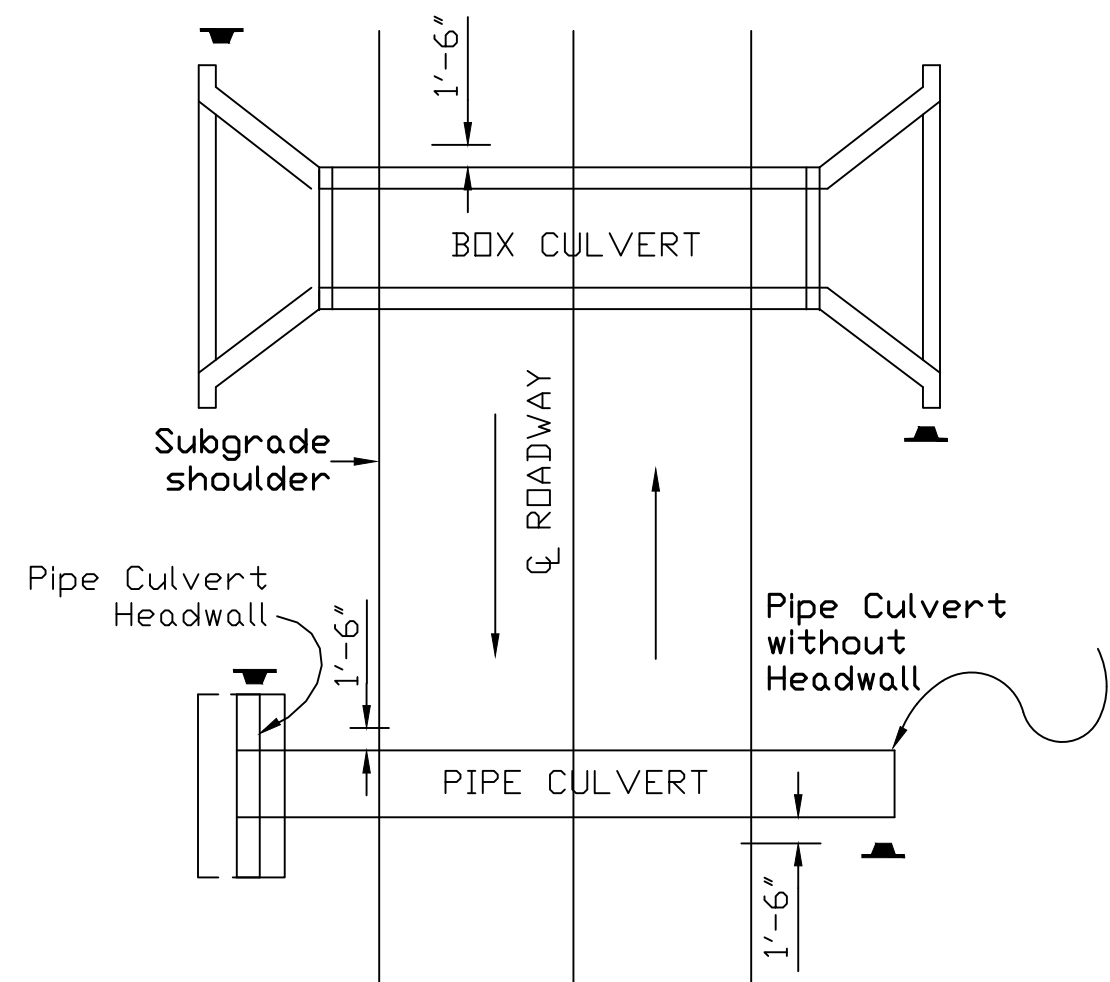
PLAN ON HIGH FILLS

Not necessarily needed on both sides. Use only on side of roadway that meets high fill requirements.



DELINEATOR PLACEMENT

(In relation to Roadway Edge) AT STRUCTURE HEADWALLS ON HIGH FILLS AND CURVES

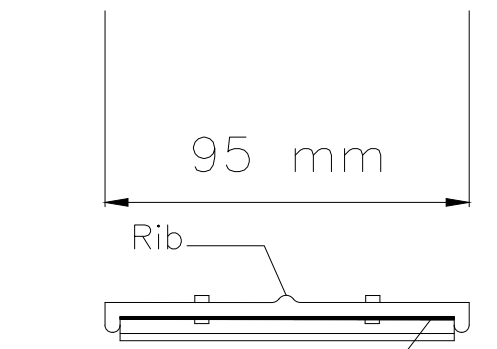
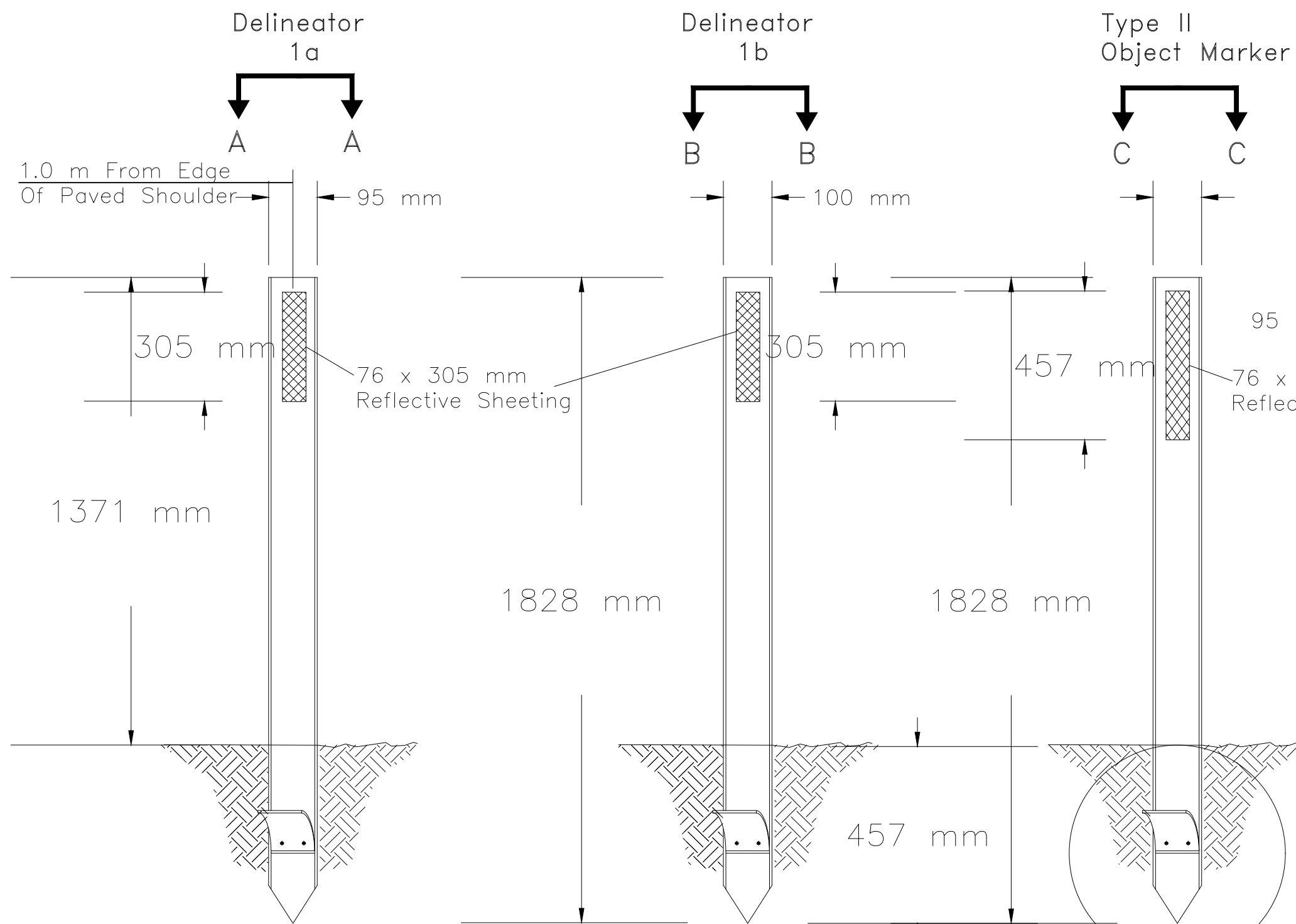


PLAN AT STRUCTURES

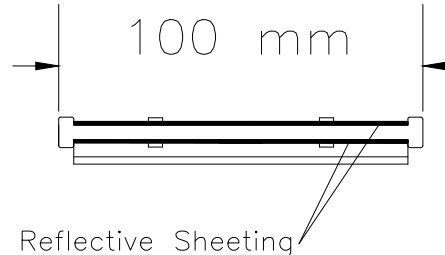
NOTE:

Other Delineator System Support which are commercially available and which have been approved for use by the State Highway Department of the state where this project is located, may be submitted to the Construction Manager, for consideration as alternate to the Delineator System shown on the plans.

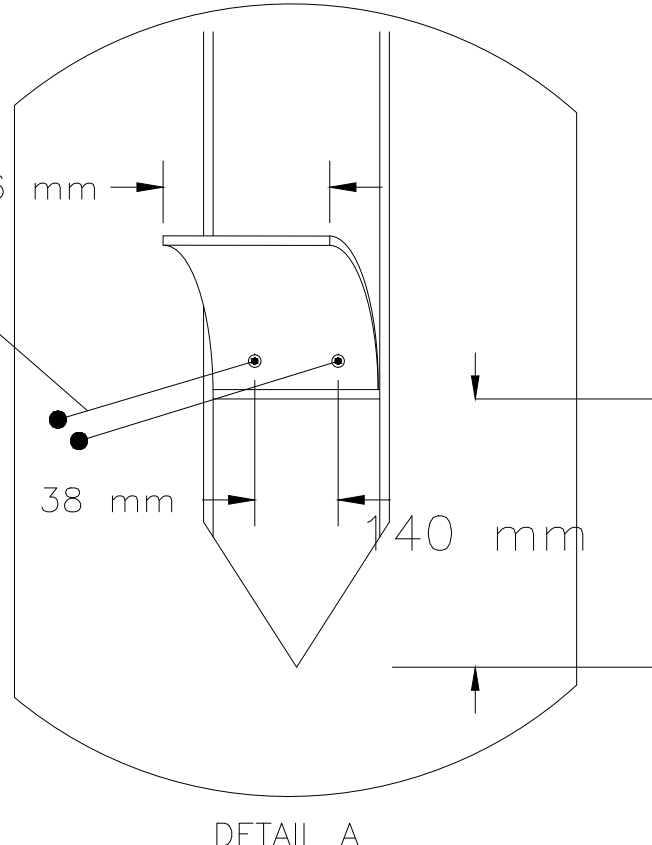
GLASS FIBER TYPE DELINEATOR AND OBJECT MARKER



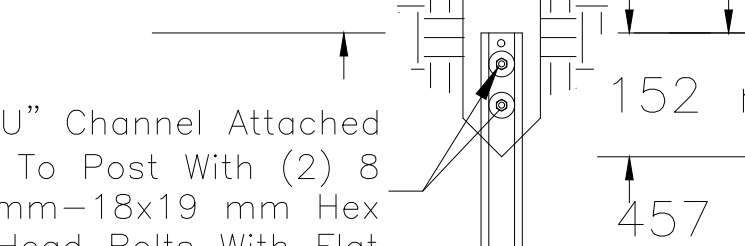
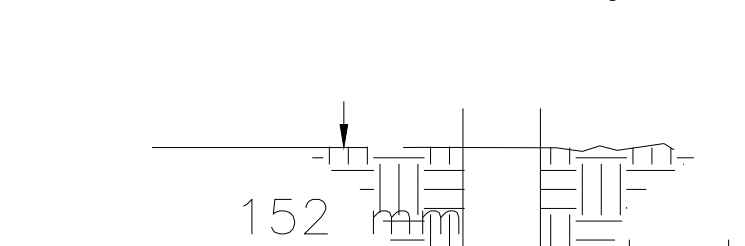
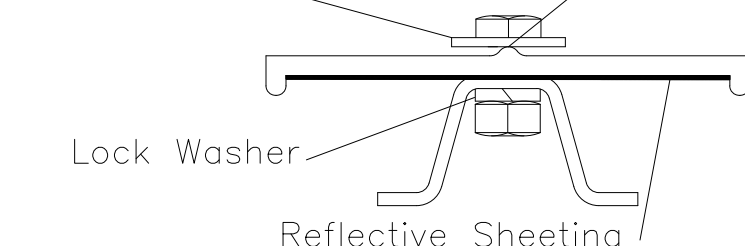
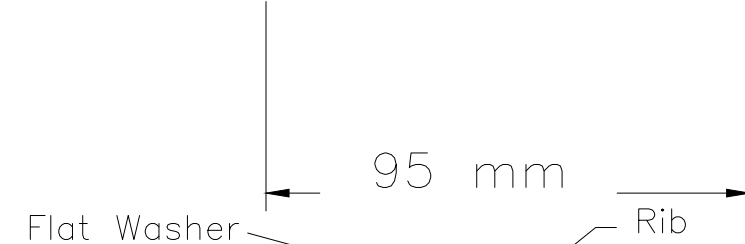
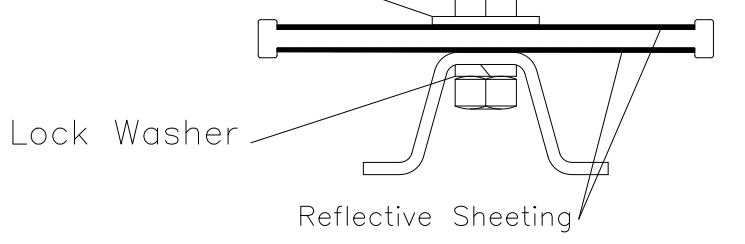
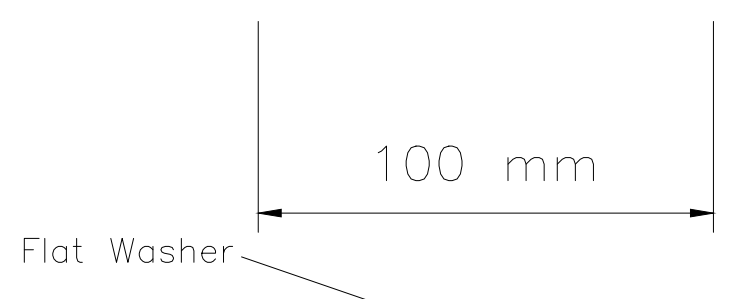
SECTION A-A & C-C



SECTION B-B



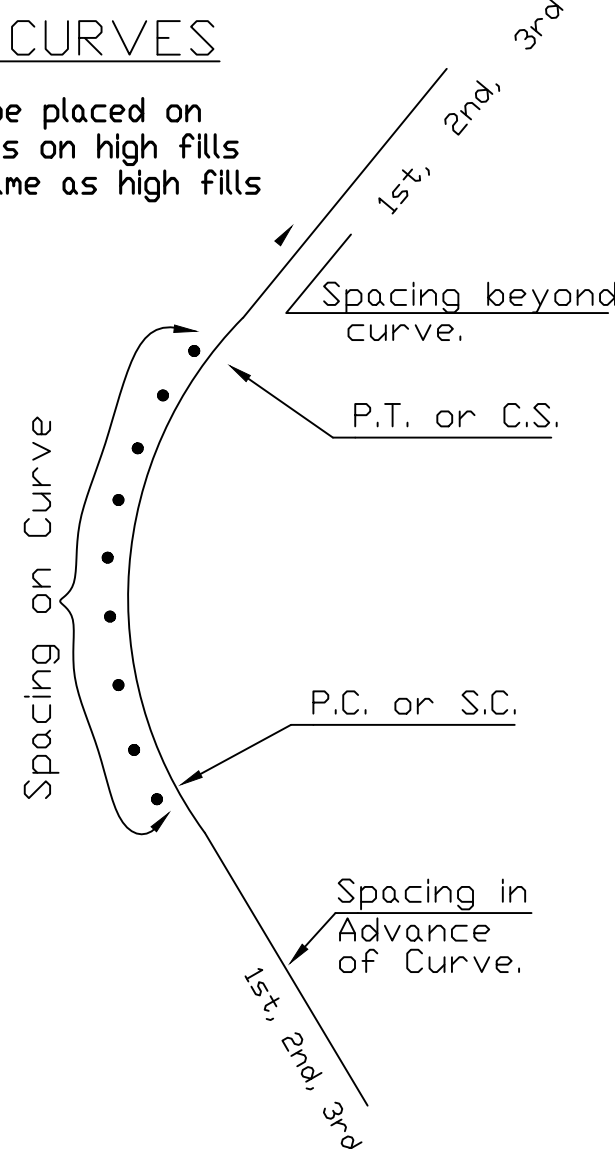
DETAIL A



ALTERNATE DETAIL

PLAN ON CURVES

Delineator to be placed on inside of curves on high fills only. Space same as high fills on tangent.



DEGREE OF CURVE	RADIUS IN FEET	SPACING ON CURVE	SPACING IN ADVANCE AND BEYOND CURVE
1°00'	5730	226'	300'
1°30'	3820	184'	300'
2°00'	2865	159'	300'
2°30'	2292	142'	284'
3°00'	1910	129'	258'
3°30'	1638	120'	240'
4°00'	1432	112'	224'
4°30'	1274	105'	210'
5°00'	1146	99'	198'
6°00'	955	90'	180'
7°00'	818	83'	166'
8°00'	716	77'	154'
9°00'	636	73'	146'
10°00'	573	69'	138'
12°00'	478	62'	124'
15°00'	382	55'	110'
18°00'	318	49'	98'

* For spacing on curve $S=3\sqrt{R-50}$ where R=radius in feet. 1st. Space = 2(S), 2nd. Space = 3(S), 3rd = 6(S), but not to exceed 300'. Minimum spacing = 20 feet.

TYPE	POST COLOR	HIGH INTENSITY REFLECTIVE SHEETING
1a	WHITE	WHITE, ONE SIDE
1b	WHITE	WHITE, BOTH SIDES
2	YELLOW	AMBER, ONE SIDE

NOTE:

The Contractor shall use glass fiber type highway delineators. The cost of supplying materials and installation of U-channel shall be included in the unit price bid under Items 63306-2000, 63309-0010, and 63309-0020.



NAVAJO DIVISION OF TRANSPORTATION	
BIA STD 3 OBJECT MARKERS DETAILS	
Designed by: JEB	Date: 11/21
Drawn by: ERG	Date: 11/21
Checked by: ASF	Date: 11/21
File Name: C-CONSTRUCT STD N12.DWG	



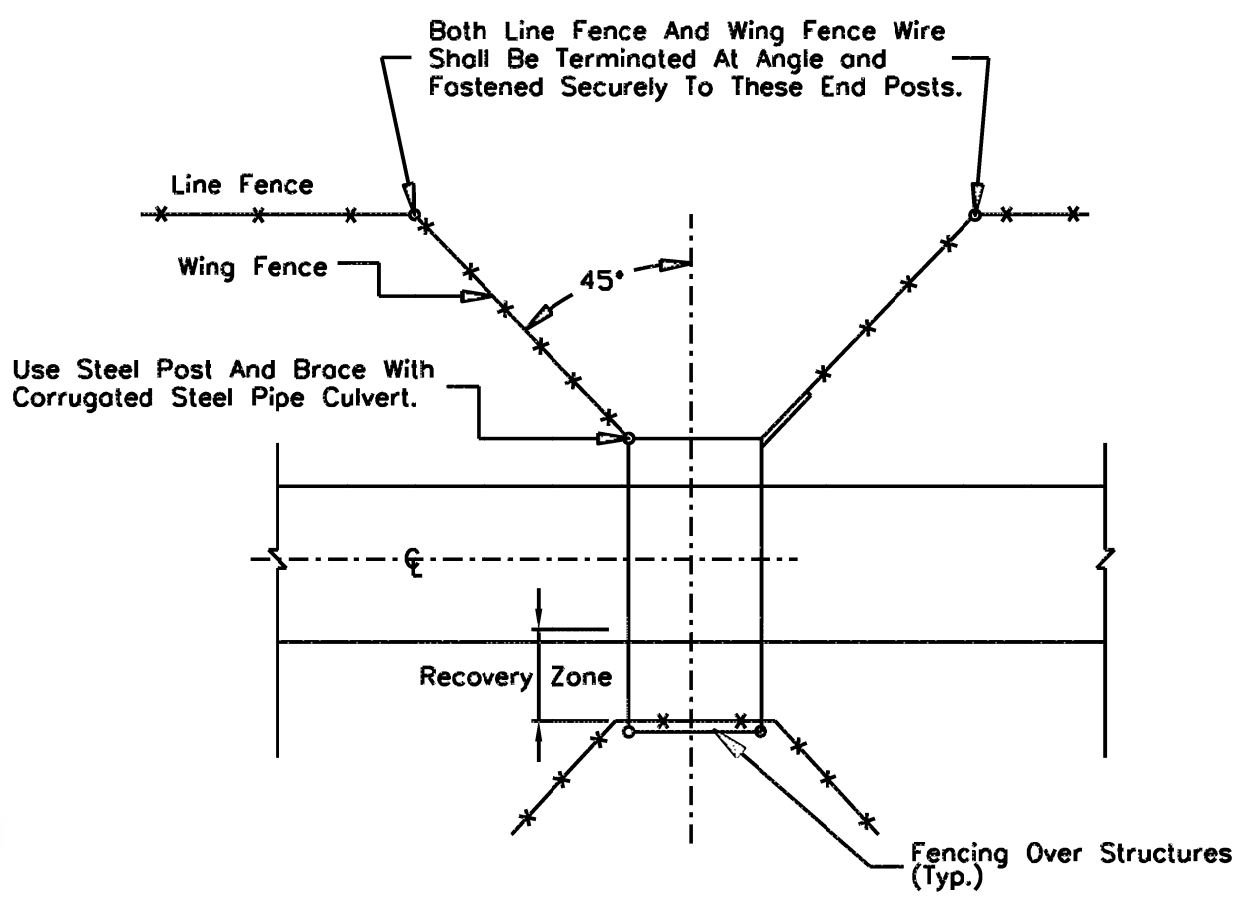
NOTE: THIS DETAIL IS METRIC

M:\TRN\17-100-090-12\2_DISCIPLINES\3_SHEETS - ROADWAY\STANDARDS\C-CONSTRUCT STD N12.DWG2/26/2025 9:25

REGION	STATE	RESERVATION	ROUTE NO.	PROJECT NO.	SHEET NO.	TOTAL SHEETS
NORTH	NEW MEXICO	NAVAJO	N5012	N5012(1)1,2&4		75

GENERAL NOTES

- CORNER, GATE, INTERMEDIATE BRACE POSTS AND LINE POSTS SHALL BE EITHER GALVANIZED OR PAINTED IN ACCORDANCE WITH AASHTO M 281-96. METAL POSTS AND BRACES SHALL BE FABRICATED FROM RAIL, BUILT, OR COMMERCIAL GRADE STEEL CONFORMING WITH THE REQUIREMENT OF ASTM A 702.
- LINE POSTS SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO M 281-96, AND SHALL A NOMINAL WEIGHT OF 1.98 kg/m EXCLUSIVE OF ANCHOR PLATES. ANCHOR PLATES SHALL BE CLAMPED, WELDED OR RIVETED TO THE SECTION IN SUCH A MANNER AS TO PREVENT DISPLACEMENT WHEN THE POSTS ARE DRIVEN.
- WHEN LINE POST ANCHORS ARE OMITTED, DUE TO CHANGE IN SOIL CONDITIONS SUCH AS ROCK, THEN THE POSTS SHALL BE SET IN CONCRETE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.
- TIE WIRE, WIRE FASTENERS OR WIRE CLIPS FOR FASTENING BARBED AND WOVEN FABRIC FENCING TO THE STEEL POSTS SHALL BE 3.0 mm DIA. (11 GAGE) STEEL WIRE, CLASS 1 (ZINC COATED), SOFT TEMPER AND MEET THE REQUIREMENTS OF ASTM A 641. FURNISHING AND PLACEMENT OF FASTENERS SHALL BE INCLUDED WITH ITEM 61901-1000.
- CONCRETE FOR ANCHORS, POST HOLES, ETC. SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 20.7 MPa IN 28 DAYS AND SHALL CONFORM TO SECTION 601 OF THE FP-14. FURNISHING AND PLACEMENT OF CONCRETE SHALL BE INCLUDED WITH ITEM 61901-1000.
- TWO SPLICES ON THE SAME LINE BETWEEN THE STRAIN POST ASSEMBLIES SHALL NOT BE PERMITTED. NO SPLICES SHALL BE PLACED CLOSER THAN 30 METER OF ANY POST ASSEMBLIES.
- CONNECT ALL R.O.W. FENCING TO CATTLEGUARDS, CULVERTS (GREATER THAN 1524 mm DIA.), AND CONCRETE STRUCTURES AS SHOWN ON THESE PLANS, AND/OR AS DIRECTED BY THE CM.
- ANY CONFLICT IN PLACEMENT OF THE R/W FENCING AT DRAINAGE PIPE LOCATION, DUE TO NARROW R/W WIDTH OR OTHER CONSTRAINTS, THE FENCE MAY BE PLACED OVER THE DRAINAGE STRUCTURE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 61901-1000.
- CLEARING AND GRUBBING SHALL INCLUDE SHAPING AND/OR REMOVAL OF SMALL MOUNDS NECESSARY TO PRESENT A SMOOTH UNIFORM APPEARANCE OF BOTH GROUND AND FENCING LINE. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- ALL DRILLING INTO ROCK MATERIAL, ETC. SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- GATE CLOSURE DEVICE SHALL BE STEEL PIPE, NPS 3/4 (26.7 mm) SCHEDULE 40, CONFORMING TO THE REQUIREMENT OF ASTM A 53. THE GATE CLOSURE STEEL CHAIN SHALL BE WELDED TO THE STEEL PIPE AND ANGLE IRON FENCE POST. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING AND NO ADDITIONAL PAYMENT SHALL BE MADE.
- CONTRACTOR SHALL BE REQUIRED TO INSTALL SAG WEIGHTS WHERE VERTICAL CLEARANCE BETWEEN THE BOTTOM WIRE AND NATURAL GROUND IS 610 mm OR GREATER. THIS WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF FENCING.
- CONTRACTOR MUST COORDINATE WITH THE LAND OWNERS WHEN REMOVING THE EXISTING FENCES.



WING FENCE DETAIL

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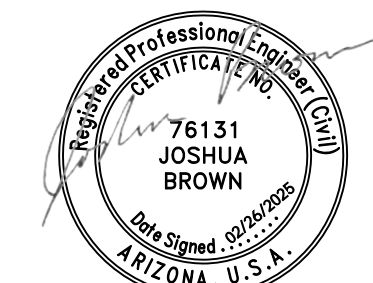
STANDARD FENCING DETAILS

DRAWN BY: NRDOT DATE: 02/2015

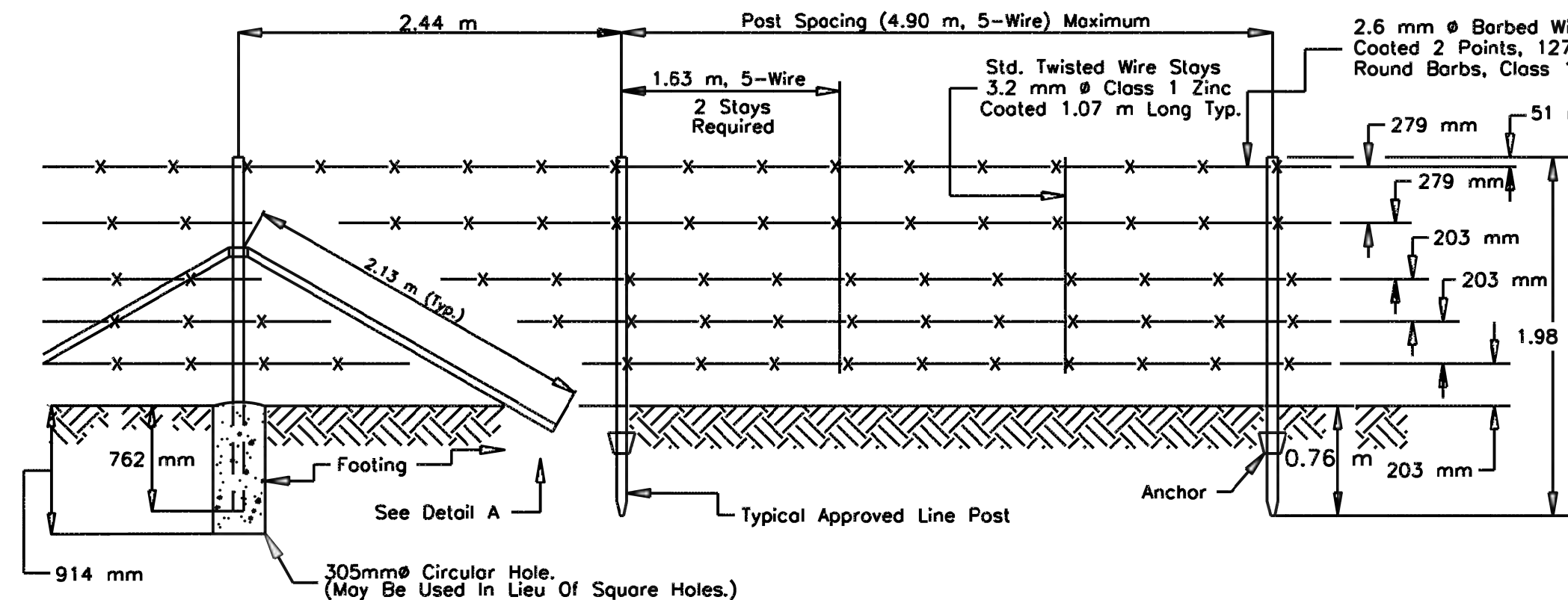
DESIGNED BY: NRDOT DATE: 02/2015

REVISED: --/---- BY: DESIGN 1

\$FILES\$

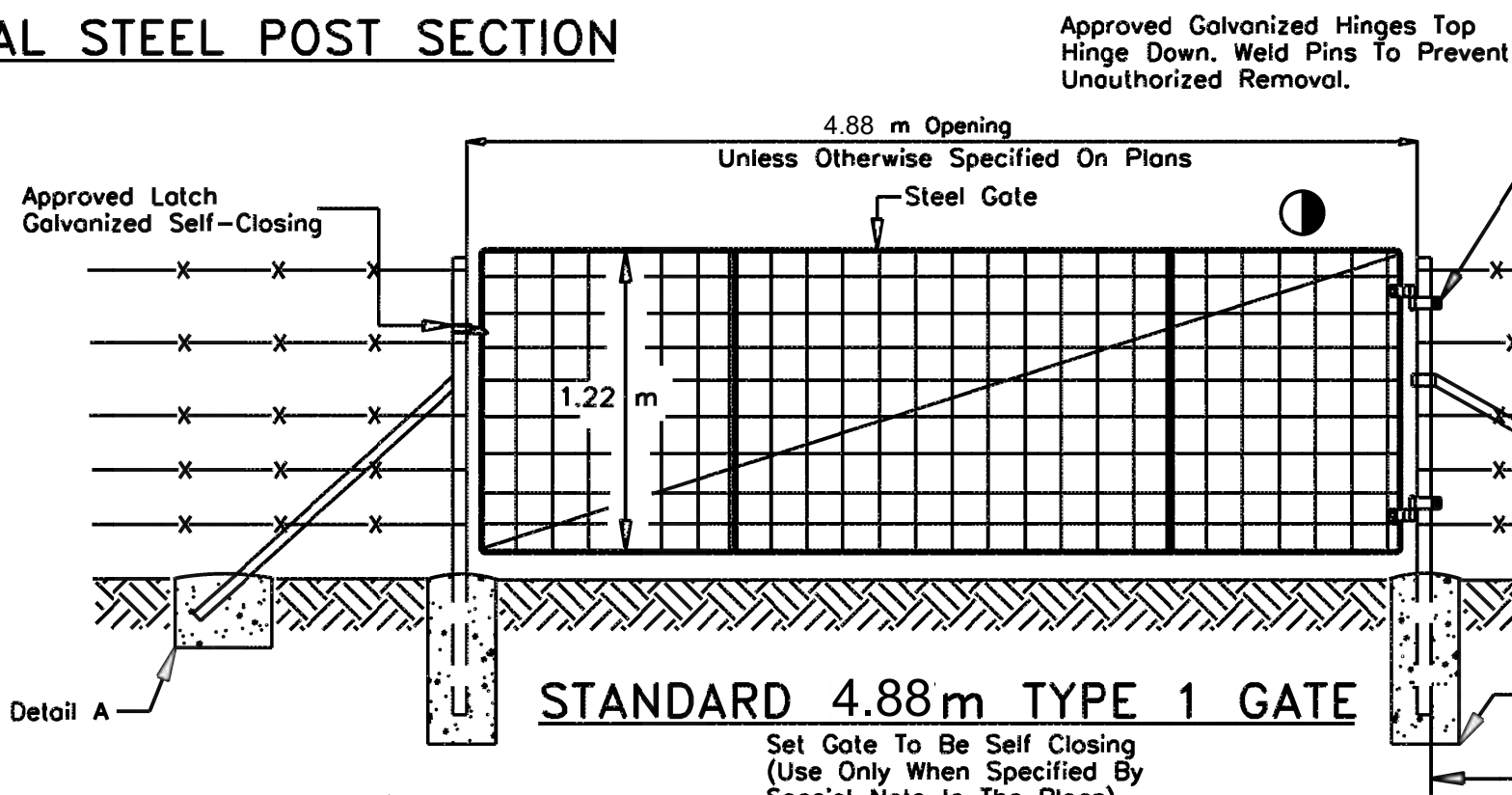


NOTE: THIS
DETAIL IS
METRIC



STANDARD 5 LINE GALVANIZED BARBED WIRE PANEL

TYPICAL STEEL POST SECTION

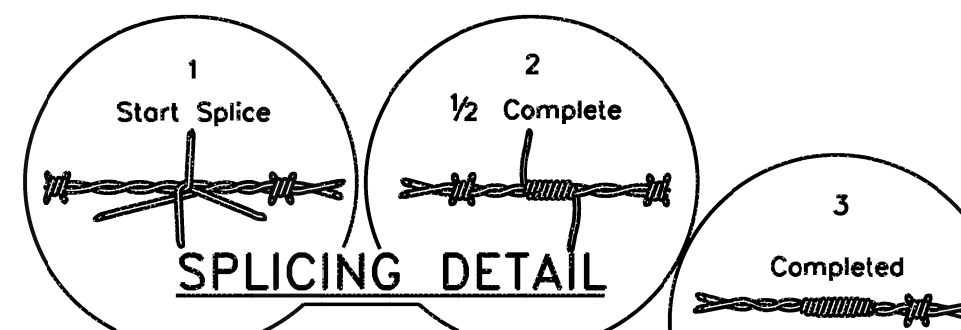


STANDARD 4.88m TYPE 1 GATE

NOTE: When Tubular Post Hangers And/Or Latches Are Used, It Shall Be Drilled For A Single 2.38 mm Min. Drive Pin To Prevent Rotation Of The Hangers And/Or Latches.

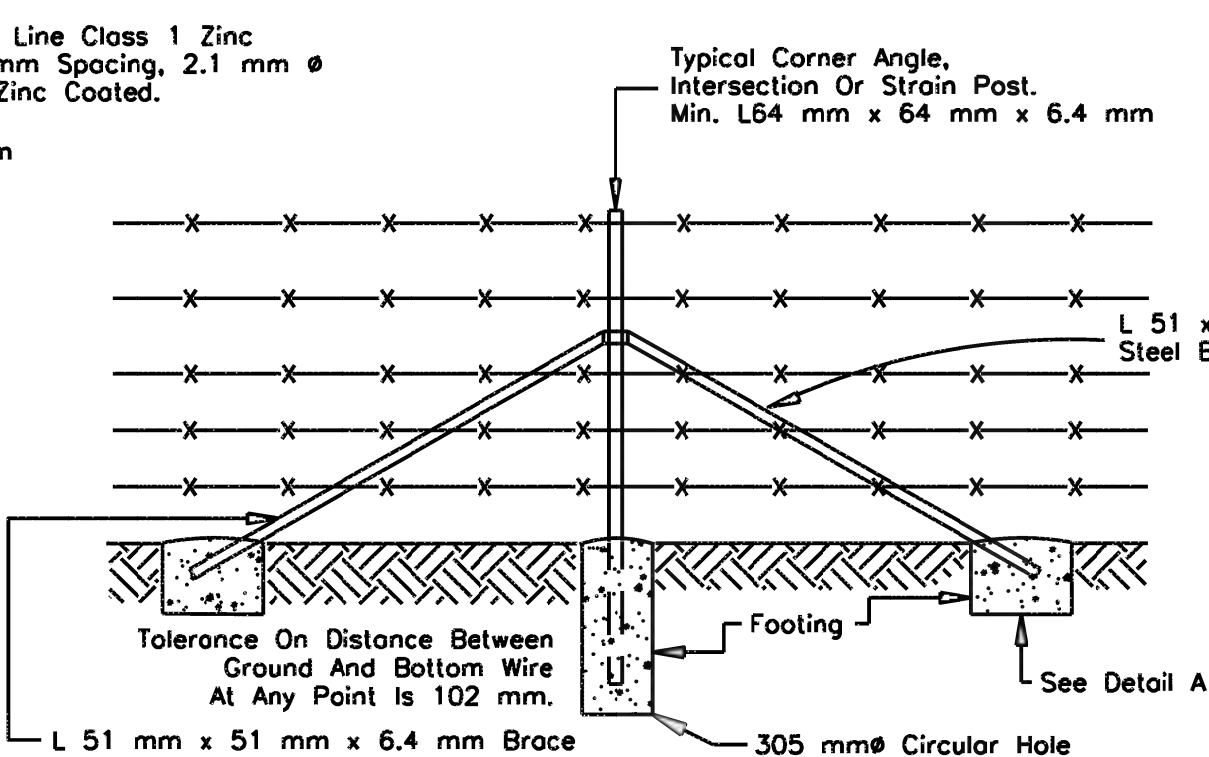
Set Gate To Be Self Closing (Use Only When Specified By Special Note In The Plans)

For Gate Details At Cattle guard Location See Standard Cattle guard Drawings.



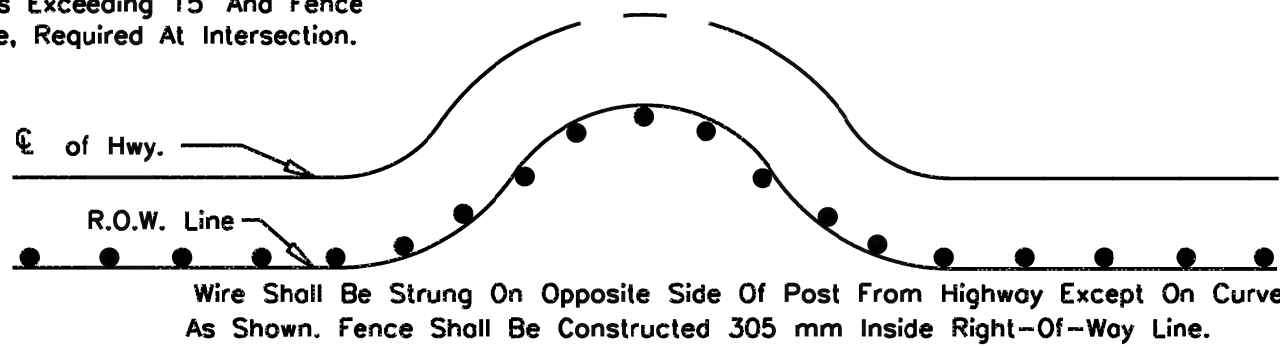
SPLICING DETAIL

35 mm Tubing 2 Vert. Braces Mesh \square , \triangle , \diamond , 3.2 mm Line Wires 2.6 mm Crosswires, 1 Adjustable Diagonal Guy Fully Galvanized.



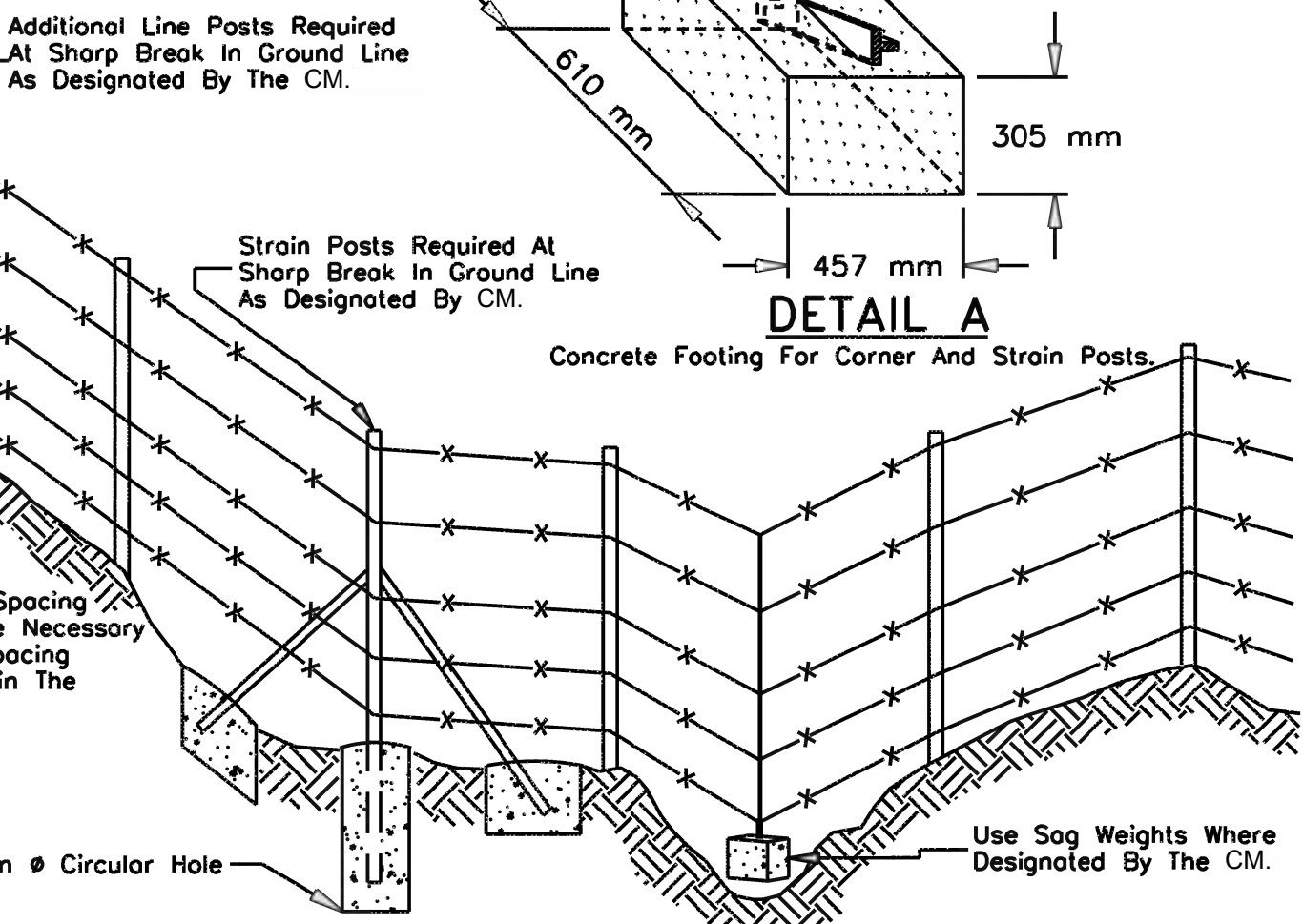
STANDARD STRAIN POST

To Be Placed @ 198 m Max. Intervals. Strain Posts With Braces Shall Be Installed At All Corners (R/W Corners Etc.) And Angles Exceeding 15° And Fence Intersections. A Third Brace, In Line With Cross Fence, Required At Intersection.

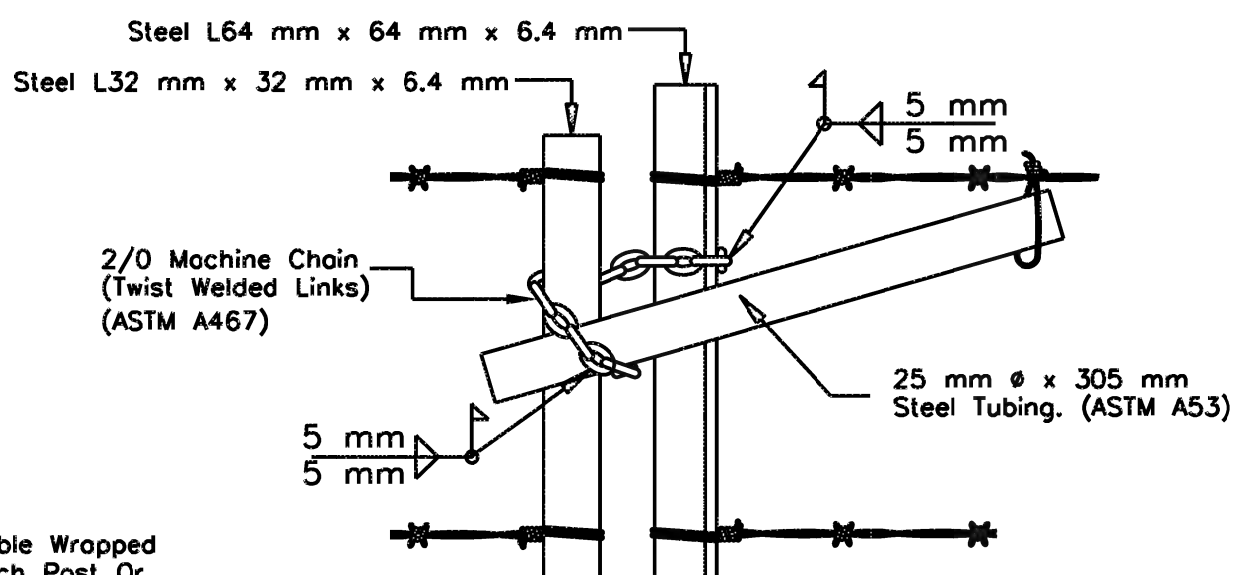


CONNECTION TO MAJOR STRUCTURES

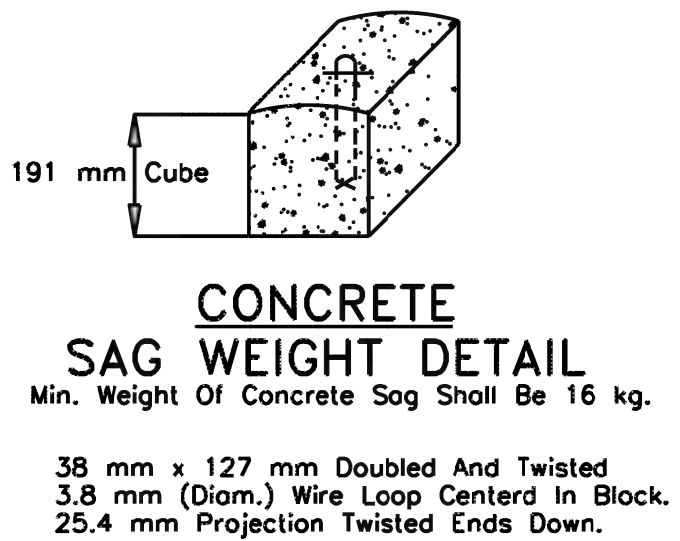
END POST



FENCE PROFILE IN ROUGH TERRAIN



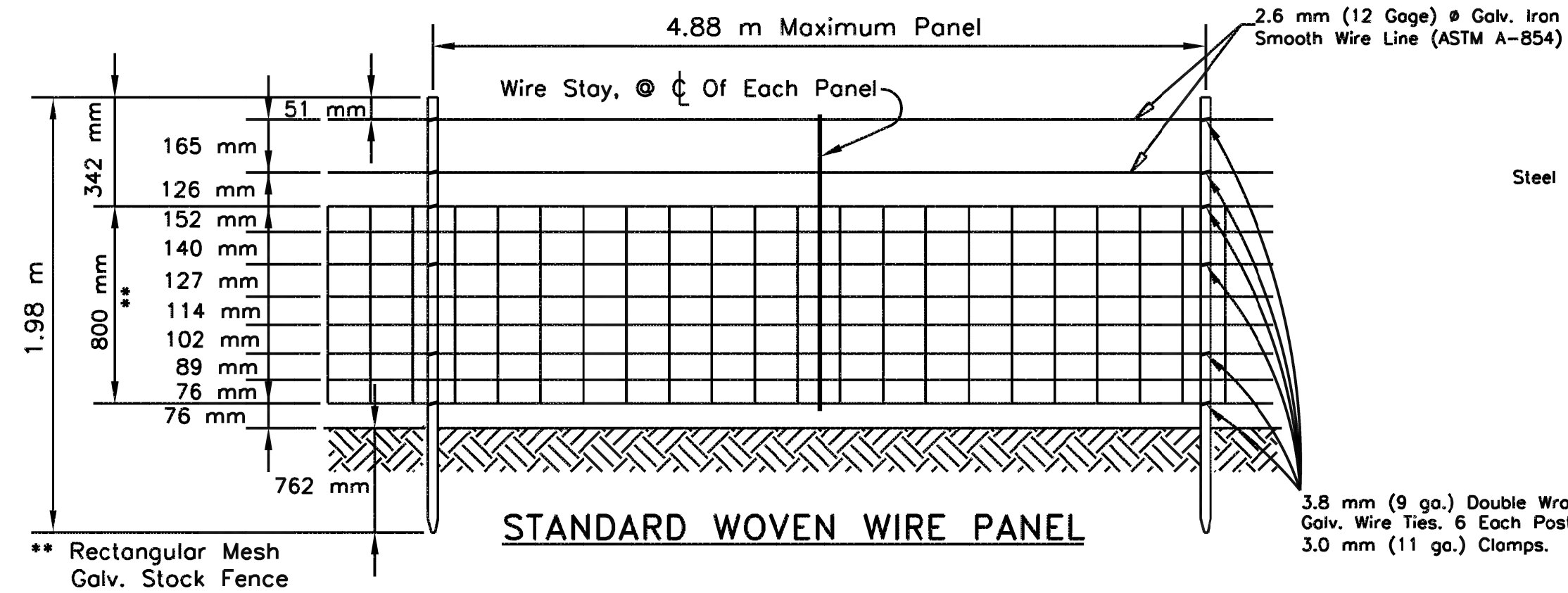
GATE SECURING DFTAIL



CONCRETE SAG WEIGHT DETAIL

Min. Weight Of Concrete Sag Shall Be 16 kg.

38 mm x 127 mm Doubled And Twisted 3.8 mm (Diam.) Wire Loop Centerd In Block. 25.4 mm Projection Twisted Ends Down.



STANDARD WOVEN WIRE PANEL

** Rectangular Mesh Galv. Stock Fence