

GENERAL NOTES

GENERAL

For additional details, see Std. Const. Dwg's. GR-1.1, GR-1.2 and other Standard Drawings pertaining to design of specific guardrail types. See Standard Construction Drawing MC-9.3 for concrete barrier details.

APPLICATION

The Bridge Terminal Assembly, Type 1, Barrier Design, shall be used to connect barrier type guardrail or Type 1 Impact Attenuators runs to concrete median barrier.

POSTS

GENERAL - Posts may be set in drilled holes or driven to grade.

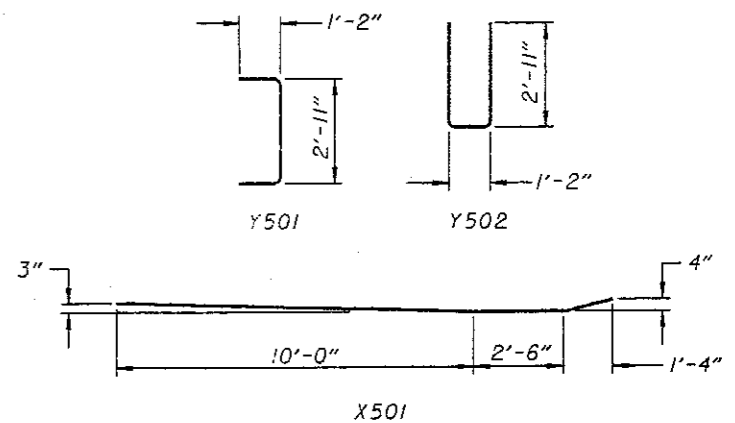
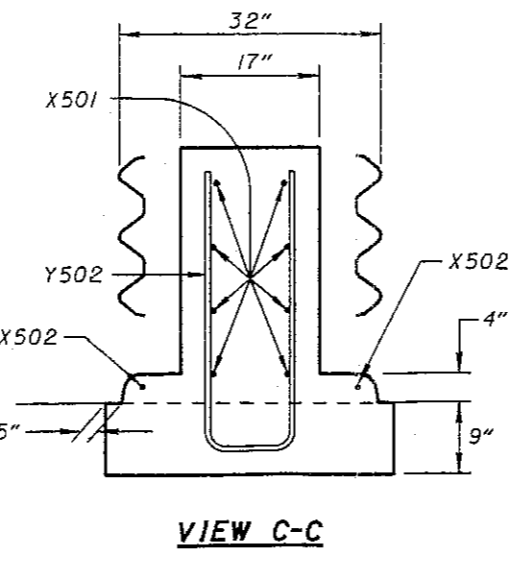
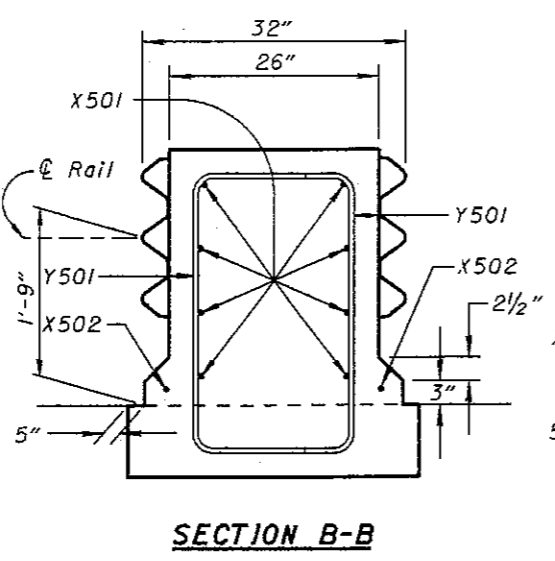
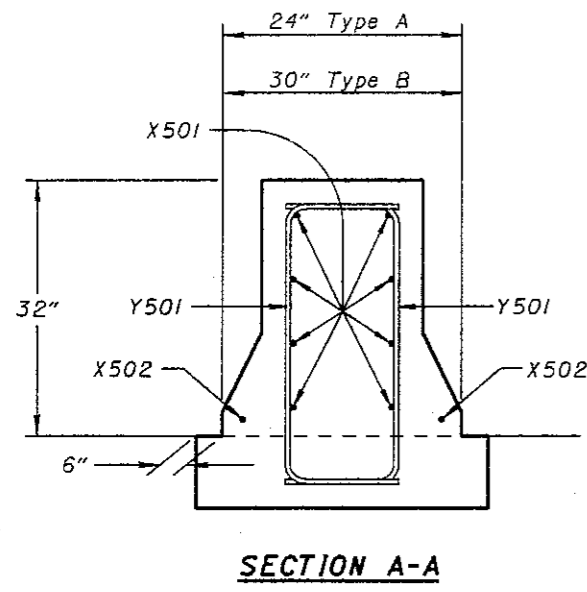
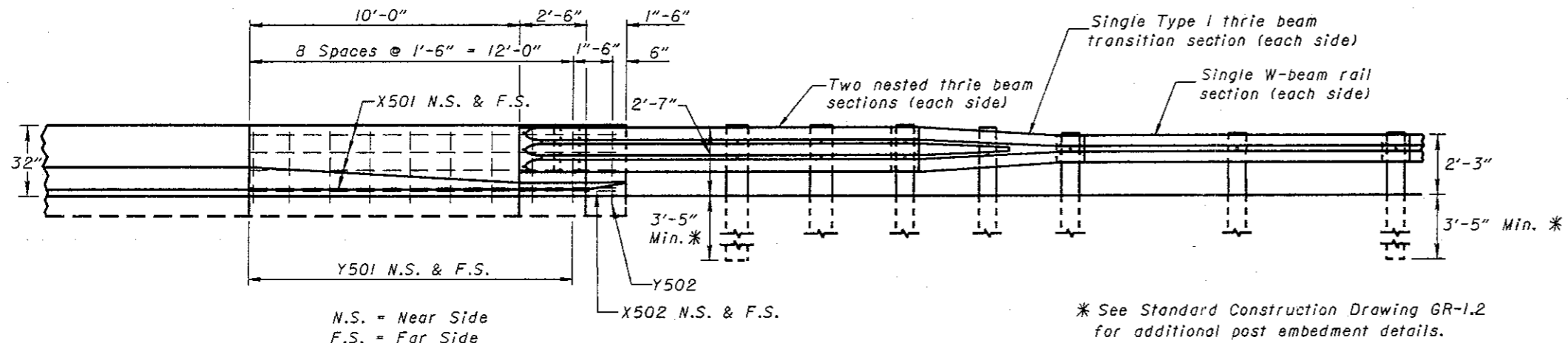
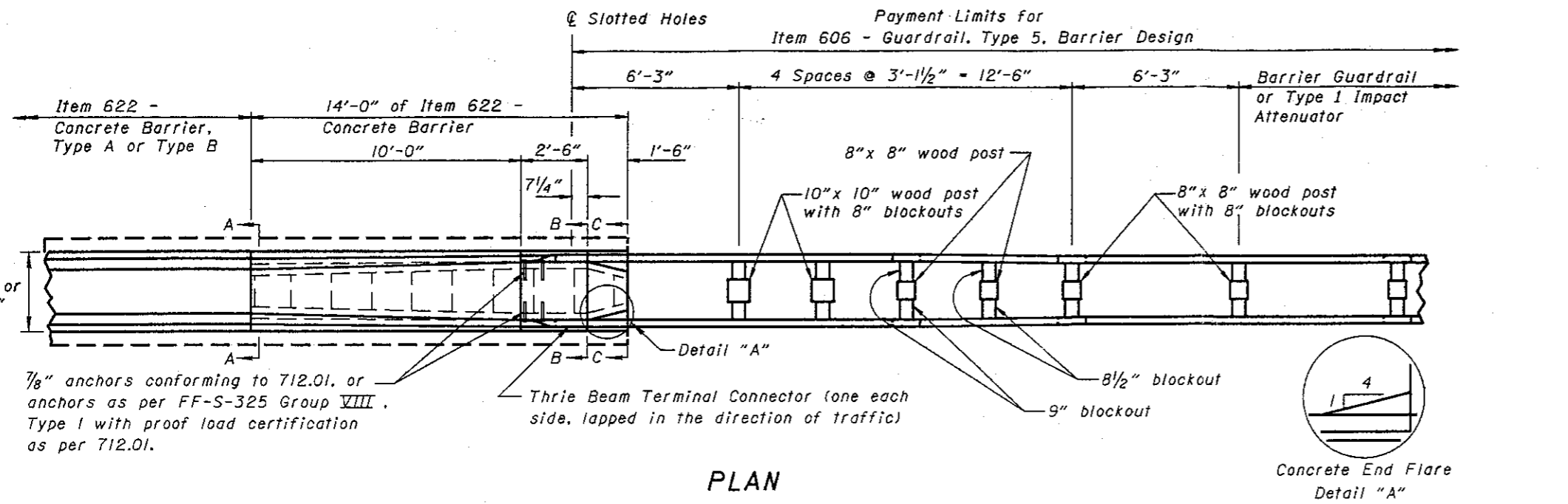
WOOD POSTS shall be square-sawn pressure treated wood as per 710.14 and fabricated with square ends. Bolt holes shall be bored and tops of posts trimmed, if required, after posts are set.

STEEL POSTS and blockouts may be furnished as an alternate. The steel alternates for the wood posts are listed below.

WOOD	10"x10"	8"x8"
STEEL	W8x24	W6x25

PAYMENT

Payment will be made at the unit price bid of Each for Item 606 - Bridge Terminal Assembly, Type 1, Barrier Design, and shall include the extra cost, in excess of normal guardrail costs, for additional and different type posts and blockouts, nested thrie beam sections, terminal connectors, thrie beam transition sections, bolts, washers, and other hardware.



REINFORCING BAR LIST

MARK	LENGTH	SHP.	QTY.
X501	13'-10 1/2"	BT.	8 Ea.
X502	13'-10"	STR.	2 Ea.
Y501	5'-3"	BT.	18 Ea.
Y502	7'-0"	BT.	1 Ea.

All reinforcing bars shall be epoxy coated.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

BRIDGE TERMINAL ASSEMBLY, TYPE 1, BARRIER DESIGN

STANDARD CONSTRUCTION DRAWING

GR-3.5

APPROVED _____ ENGR., L & D

DATE
8-3-92

GENERAL NOTES

GENERAL

For additional details, see Std. Const. Dwg's, GR-1.1, GR-1.2 and other Standard Drawings pertaining to design of specific guardrail types. See Standard Construction Drawing MC-9.3 for concrete barrier details.

APPLICATION

The Bridge Terminal Assembly, Type 1, Barrier Design, shall be used to connect Type 5 barrier design guardrail or Type 1 Impact Attenuators to concrete median barriers.

POSTS

GENERAL - Posts may be set in drilled holes or driven to grade.

WOOD POSTS shall be square-sawed pressure treated wood as per 710.14 and fabricated with square ends. Bolt holes shall be bored and tops of posts trimmed, if required, after posts are set.

STEEL POSTS and blockouts may be furnished as an alternate. The steel alternates for the wood posts are listed below.

WOOD POSTS	10"x10"	8"x8"
STEEL POSTS	W8x24	W6x25

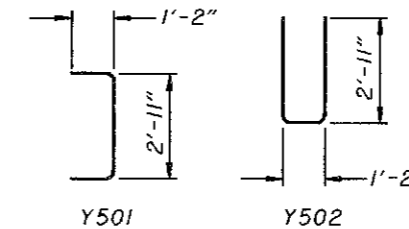
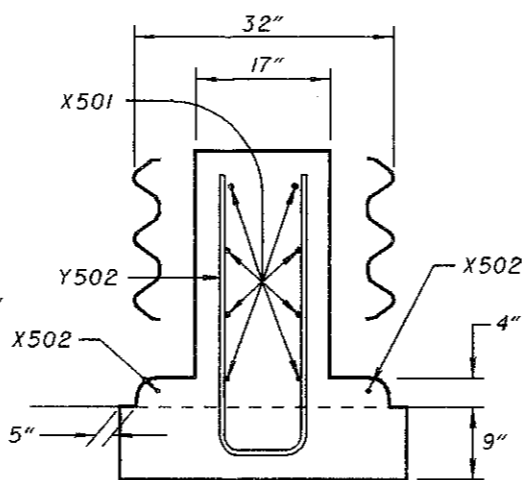
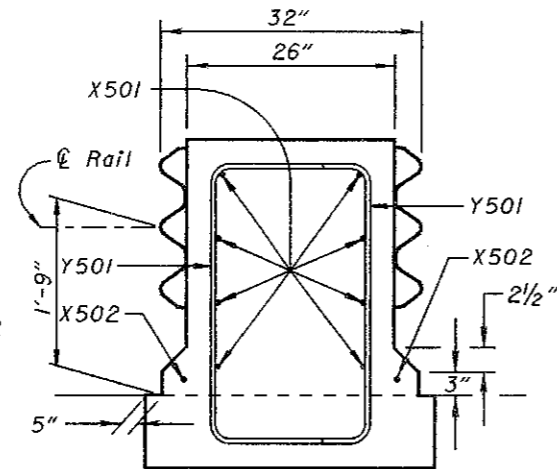
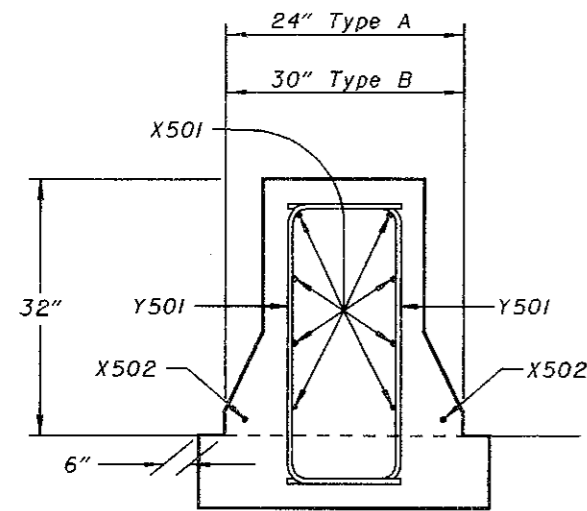
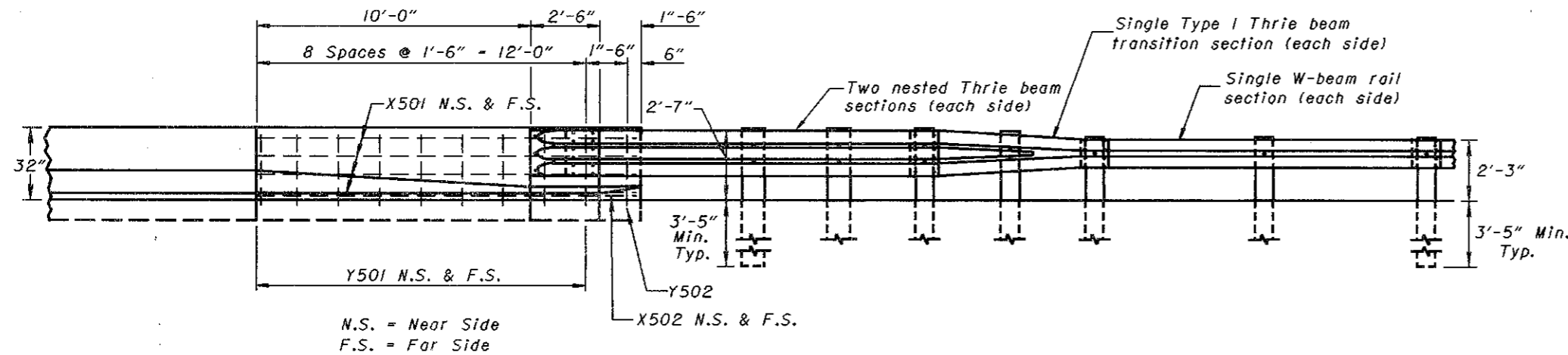
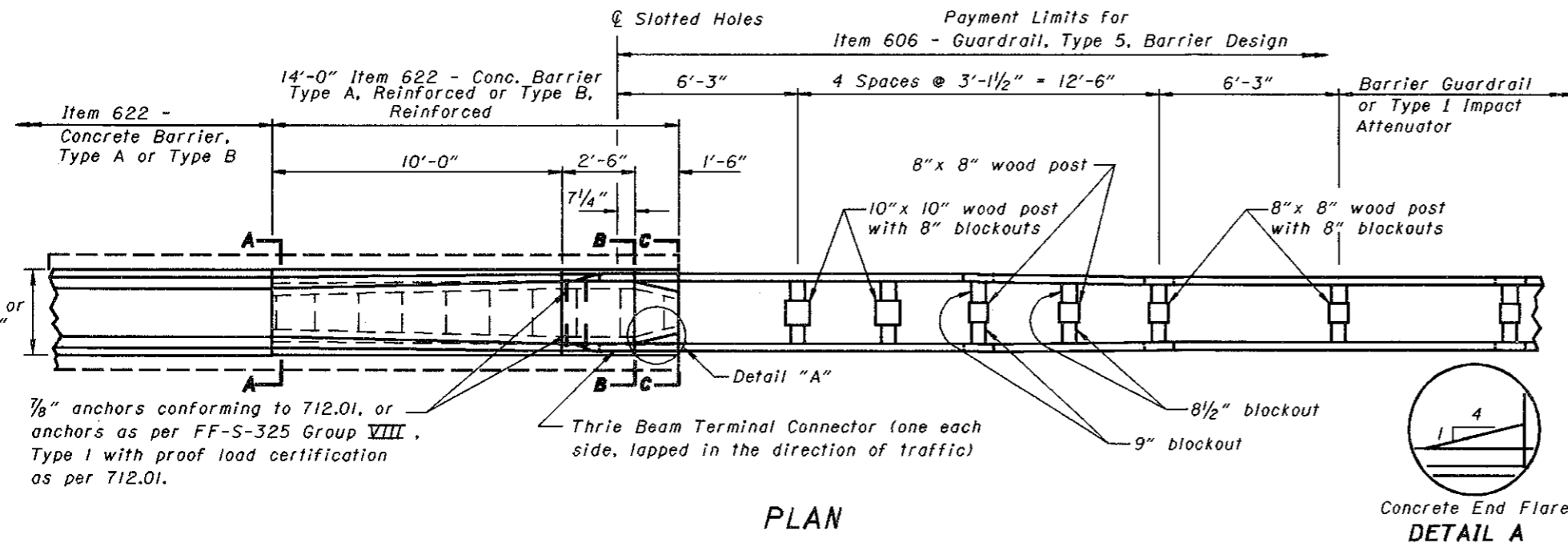
REINFORCING

All reinforcing bars shall be epoxy coated and included in the cost of Item 622.

PAYMENT

Payment will be made at the unit price bid per Each for Item 606 - Bridge Terminal Assembly, Type 1, Barrier Design, and shall include the extra cost, in excess of normal guardrail costs, for additional and different type posts and blockouts, nested thrie beam sections, terminal connectors, thrie beam transition sections, bolts, anchors, washers, and other hardware.

Payment for Item 622, Concrete Barrier, Type ____ (A, Reinforced or B, Reinforced) shall be in Lin. Ft. for the length specified in the plans including materials, labor and reinforcing steel required to construct the barrier as shown.



REINFORCING BAR LIST

MARK	LENGTH	SHP.	QTY.	WEIGHT
X501	13'-11"	BT.	8 Ea.	116.12
X502	13'-10"	STR.	2 Ea.	28.86
Y501	5'-0"	BT.	18 Ea.	93.87
Y502	6'-9"	BT.	1 Ea.	7.04
TOTAL WT. (For Info. only):				245.89

BENDING DIAGRAMS

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

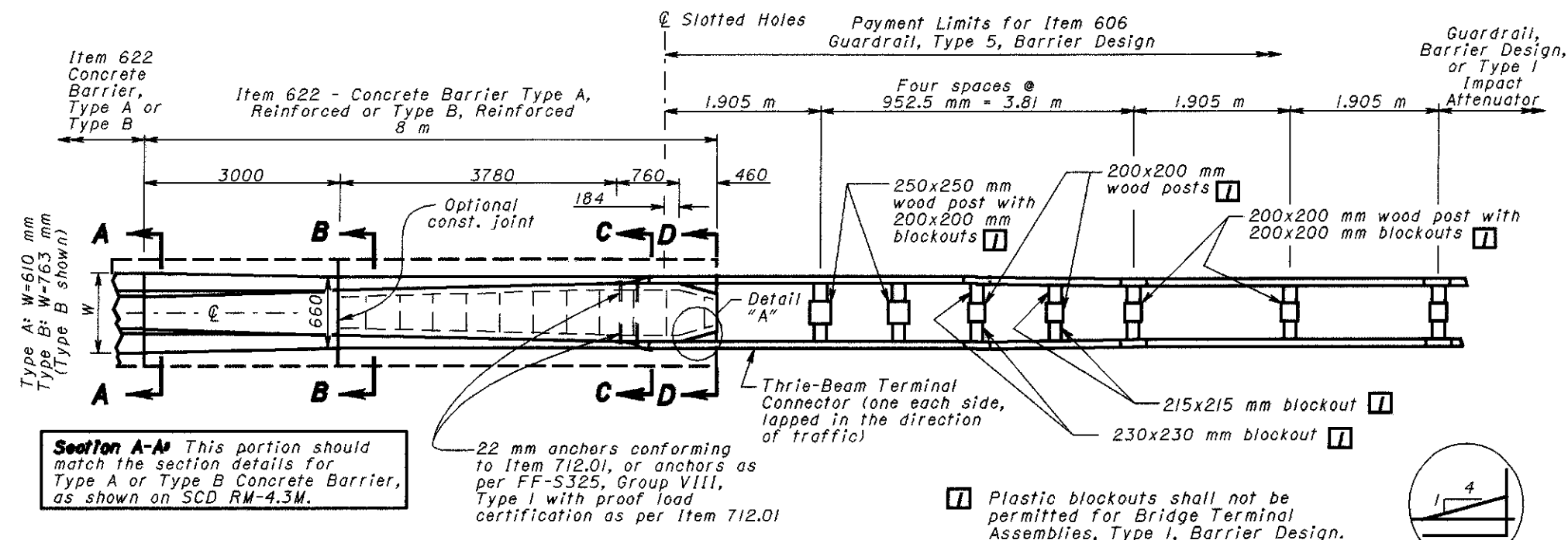
BRIDGE TERMINAL
ASSEMBLY, TYPE 1,
BARRIER DESIGN

DATE
1-31-94

STANDARD
CONSTRUCTION
DRAWING

GR-3.5

APPROVED S.K. Hubman ENGR., L & D



NOTES

GENERAL: For additional details, see SCD's GR-1.1M, GR-1.2M and other Drawings pertaining to design of specific guardrail types. See SCD RM-4.3M for concrete barrier details.

APPLICATION: The Bridge Terminal Assembly, Type 1, Barrier Design, shall be used to connect Type 5 barrier design guardrail or Type 1 Impact Attenuators to concrete median barriers.

POSTS: General - Posts may be set in drilled holes or driven to grade.

Wood Posts shall be square-sawed pressure treated wood as per Item 710.14 and fabricated with square ends. Bolt holes shall be bored and the tops of posts trimmed, if required, after posts are set.

Steel Posts and Blockouts may be furnished as an alternate. The steel alternates for wood posts are listed below.

Wood Posts	250x250 mm	200x200 mm
Steel Posts	W200x35.9	W150x37.1

REINFORCING: All reinforcing bars shall be epoxy coated and included in the cost of Item 622.

PAYMENT: Payment for the guardrail transition section will be made at the unit price bid per Each for Item 606 - Bridge Terminal Assembly, Type 1, Barrier Design and shall include the extra cost, in excess of normal guardrail costs, for additional and different type posts and blockouts, nested thrie beam sections, terminal connectors, thrie beam transitions sections, bolts, anchors, washers, and other hardware.

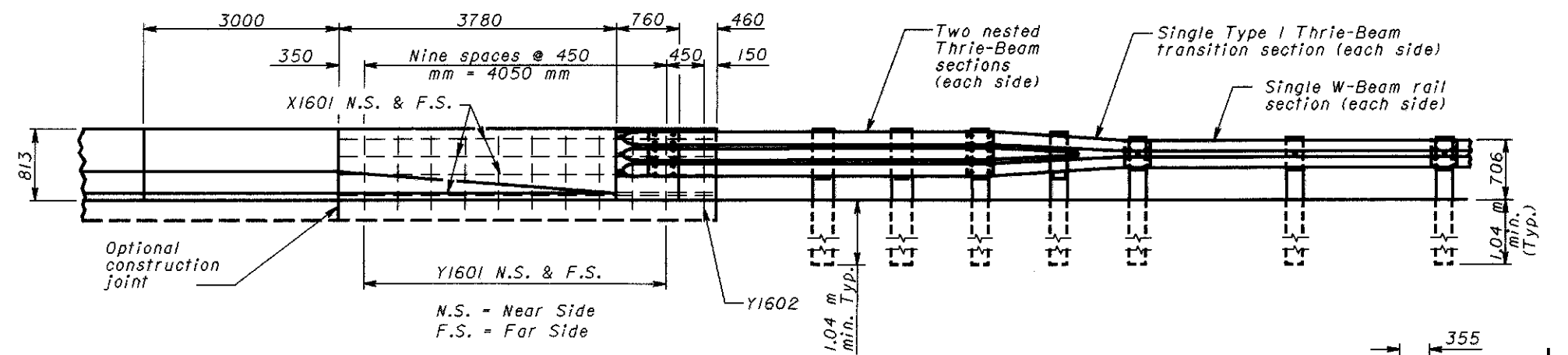
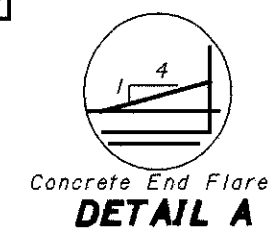
Payment for the concrete transition section will be made at the unit price bid per Meter for Item 622 - Concrete Barrier, Type (A, Reinforced or B, Reinforced) and shall include all materials, labor, and reinforcing steel required to construct the barrier as shown within the limits defined. (See Plan view.)

Section A-A This portion should match the section details for Type A or Type B Concrete Barrier, as shown on SCD RM-4.3M.

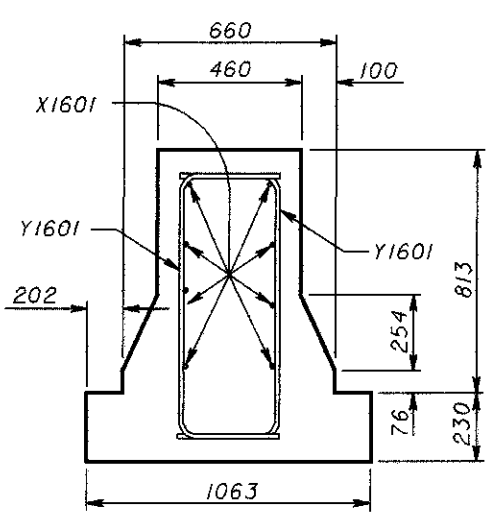
22 mm anchors conforming to Item 712.01, or anchors as per FF-S325, Group VIII, Type I with proof load certification as per Item 712.01

Plastic blockouts shall not be permitted for Bridge Terminal Assemblies, Type 1, Barrier Design.

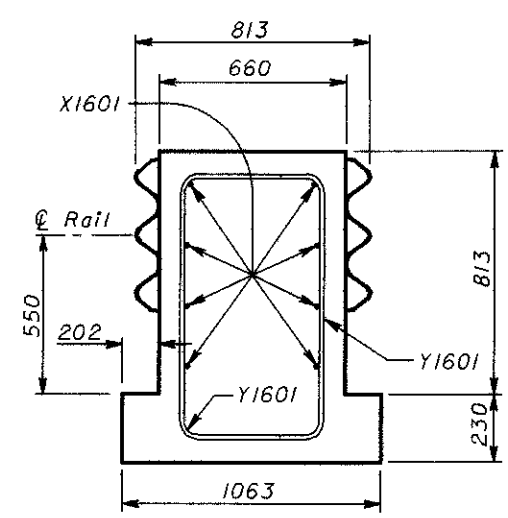
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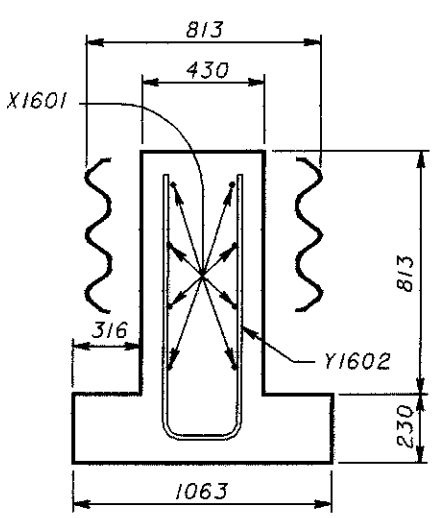
ELEVATION



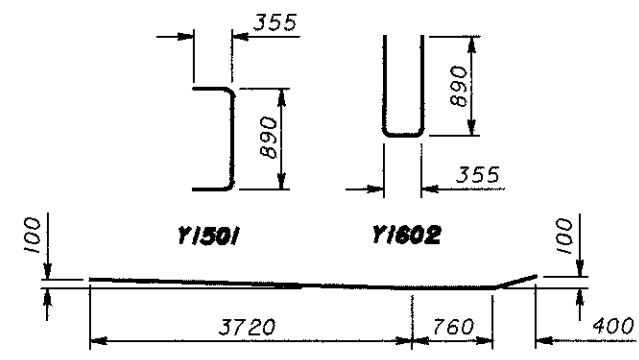
SECTION B-B



SECTION C-C



VIEW D-D



BENDING DIAGRAMS

REINFORCING BAR LIST

MARK	LENGTH (mm)	SHAPE	QUANTITY	MASS (kg)
X1601	4880	Bent	8 Each	61
Y1601	1530	Bent	20 Each	48
Y1602	2060	Bent	1 Each	4
Total Mass (for information only)				113

All dimensions are in millimeters unless otherwise noted.



This Drawing Replaces GR-3.5.

OHIO DEPARTMENT OF TRANSPORTATION

BRIDGE TERMINAL ASSEMBLY, TYPE 1, BARRIER DESIGN

STANDARD CONSTRUCTION DRAWING **GR-3.5M**

DATE
1-3-96
10-21-97

APPROVED *[Signature]*

NOTES

GENERAL: For additional post and rail details, see *SCD GR-1.1* and other Drawings pertaining to design of specific guardrail types. See *SCD RM-4.3* and *RM-4.6* for Concrete Barrier details.

APPLICATION: Use the Bridge Terminal Assembly, Type 1, Barrier Design, to connect Type 5 Barrier Guardrail or Type 1-98, Impact Attenuators to Concrete Median Barriers.

THREE BEAM TRANSITION: Symmetrical W-Beam to Thrie Beam transition panel shall be 10 gauge.

POSTS: Posts may be set in drilled holes or driven to grade. See *SCD GR-1.1* for additional Post embedment details.

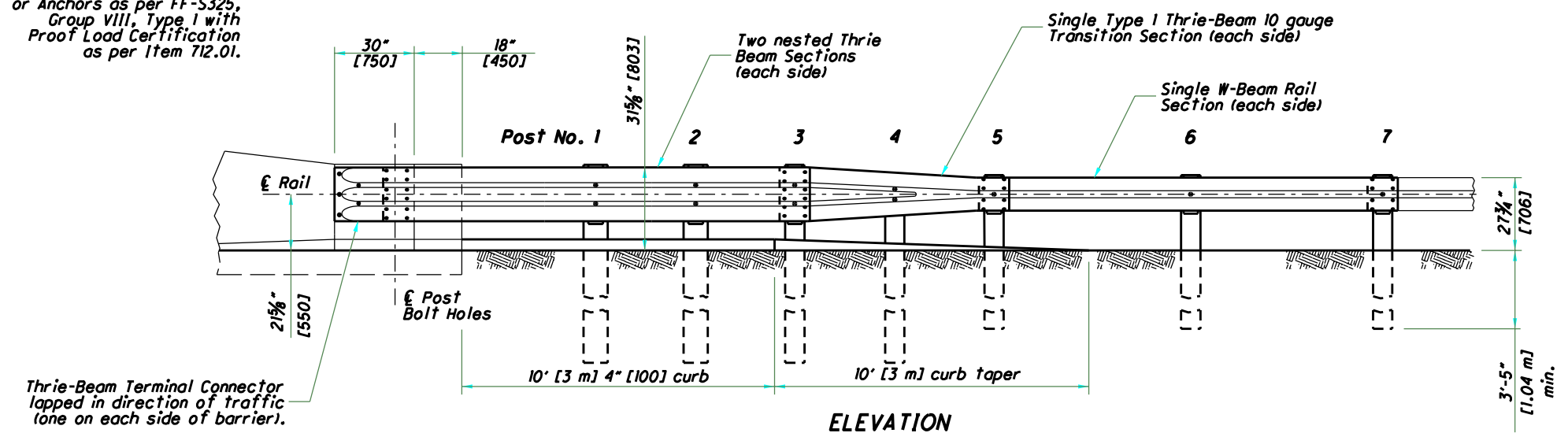
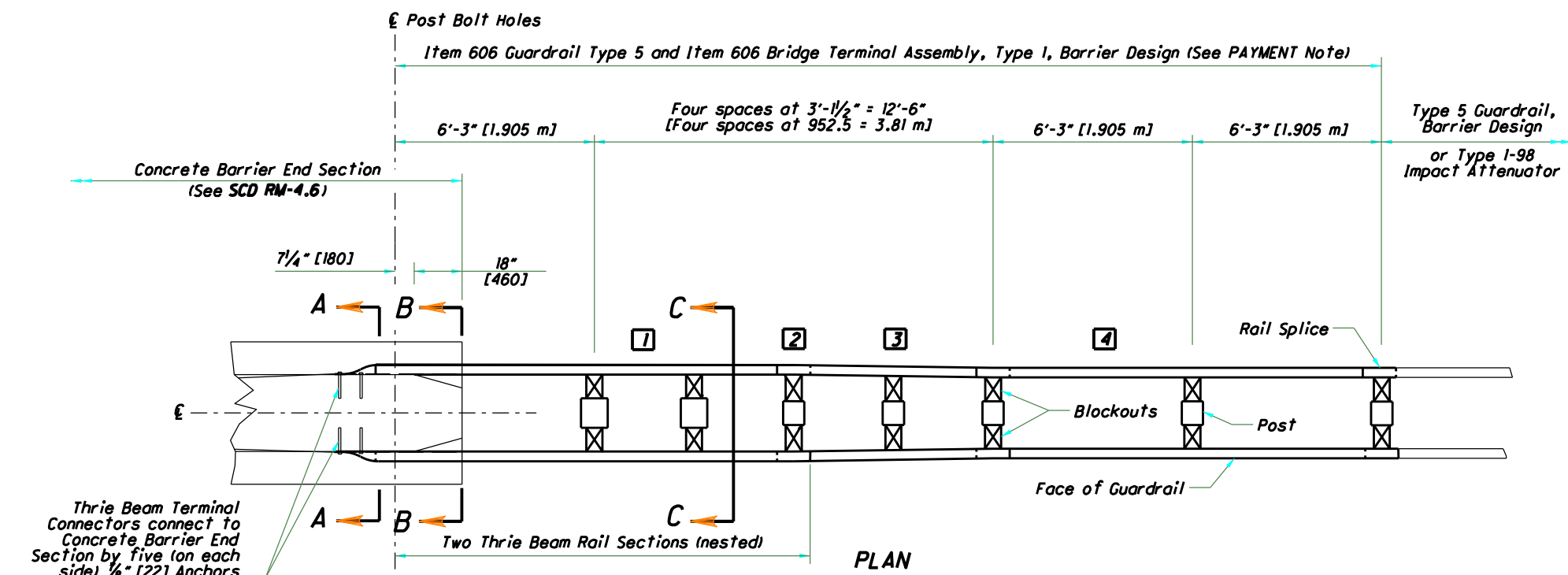
WOOD POSTS - Use square sawed pressure treated wood as per CMS 710.14 and fabricate with square ends. Bore bolt holes and trim the tops of posts, if required, after the posts are set.

STEEL POSTS - are allowed as an alternate. Use W8x24 [W200x35.9] for 10"x10" [250x250] wood posts and use W6x25 [W150x37.1] for 8"x8" [200x200] posts. Use same post material throughout assembly.

BLOCKOUTS: Use wood blockouts only, steel or plastic blockouts are not permitted. Use notched blockouts with steel posts.

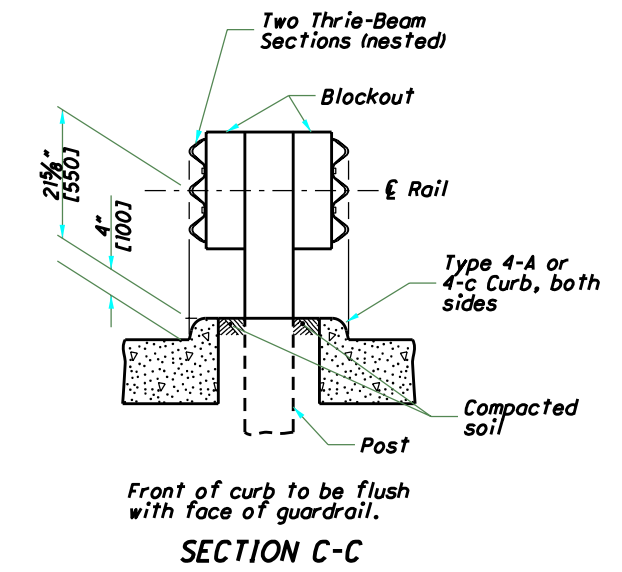
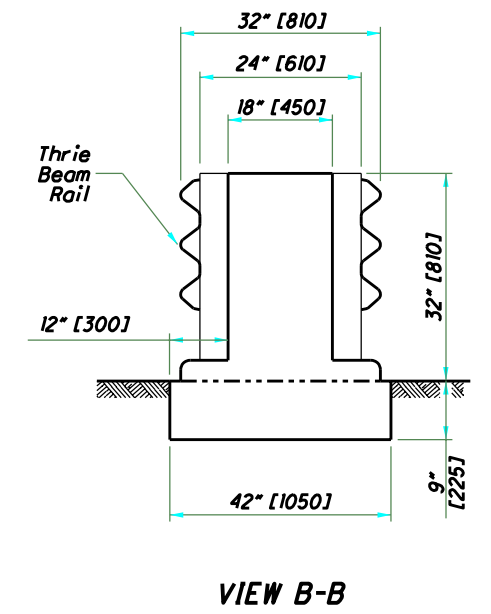
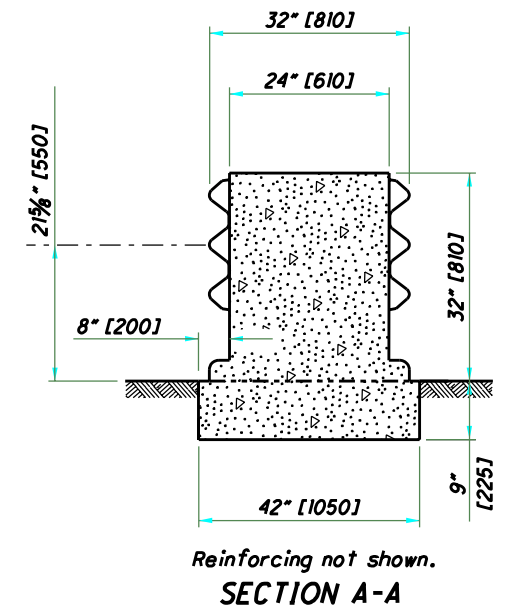
CURB: Provide a Type 4-A or 4-C concrete curb minimum of 20' [6 m], or longer as shown on plans, including a 10' [3 m] taper (from curb height to flush). Front of curb to be flush with face of guardrail.

PAYMENT: Payment for the Guardrail Transition Section will be made at the unit price bid per Each for *Item 606 - Bridge Terminal Assembly, Type 1, Barrier Design* and includes the extra cost, in excess of normal guardrail costs, for additional and different type Posts and Blockouts, nested Thrie Beam Sections, Terminal Connectors, Thrie Beam transition and connector sections, bolts, washers, nuts, anchors, other hardware, curb and compacted soil.

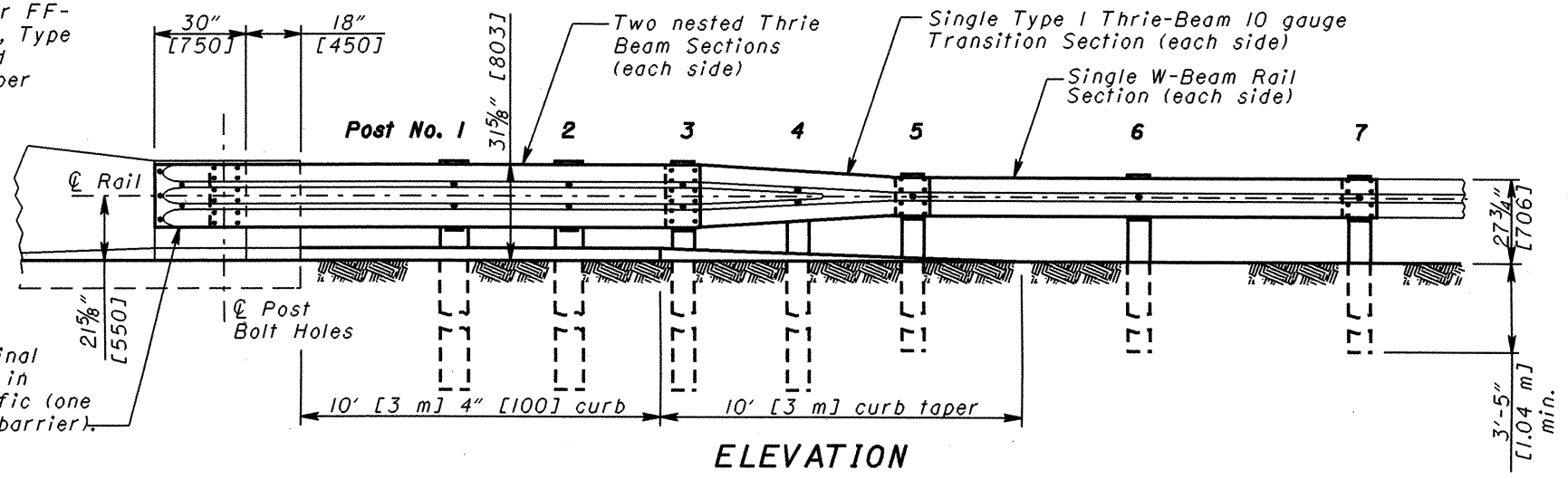
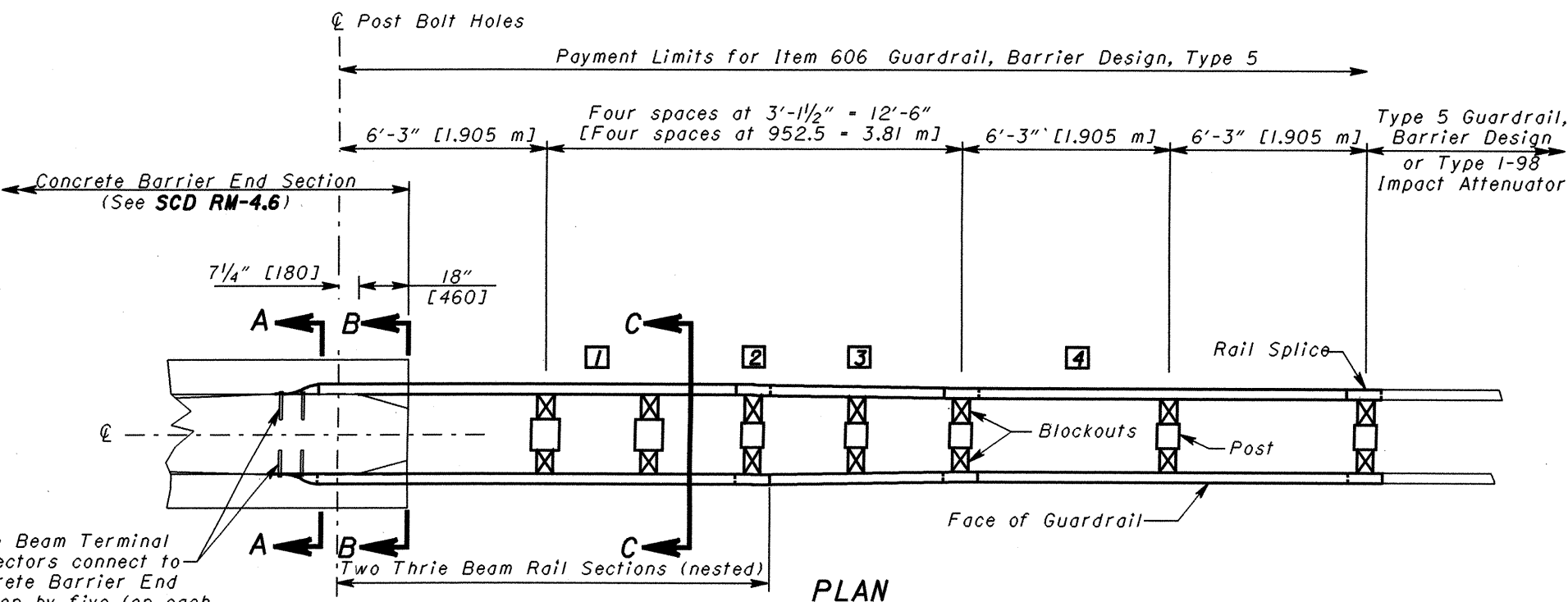


LEGEND

- 1 Posts 1 & 2:
10"x10"x8'-0" [250x250x2440] Wood Post with
8"x8"x22" [200x200x550] Wood Blockouts
- 2 Post 3:
8"x8"x8'-0" [200x200x2440] Wood Post with
9"x9"x22" [225x225x550] Wood Blockouts
- 3 Post 4:
8"x8"x6'-0" [200x200x1830] Wood Post with
8 1/2"x8 1/2"x14" [215x215x360] Wood Blockouts
- 4 Posts 5 & 6:
8"x8"x6'-0" [200x200x1830] Wood Post with
8"x8"x14" [200x200x360] Wood Blockouts

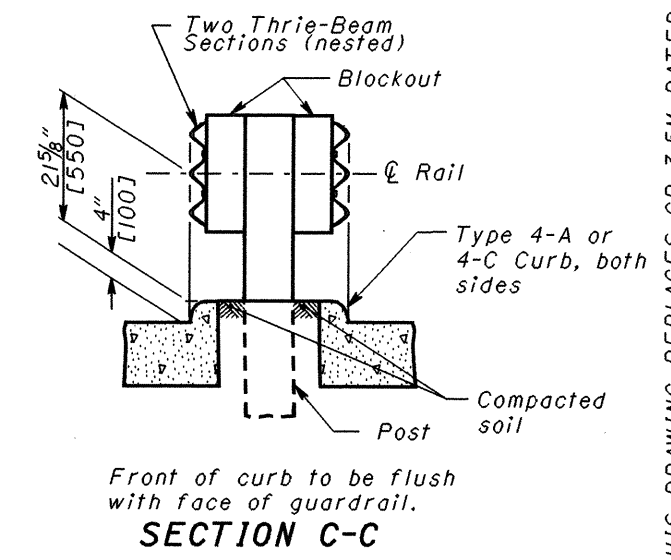
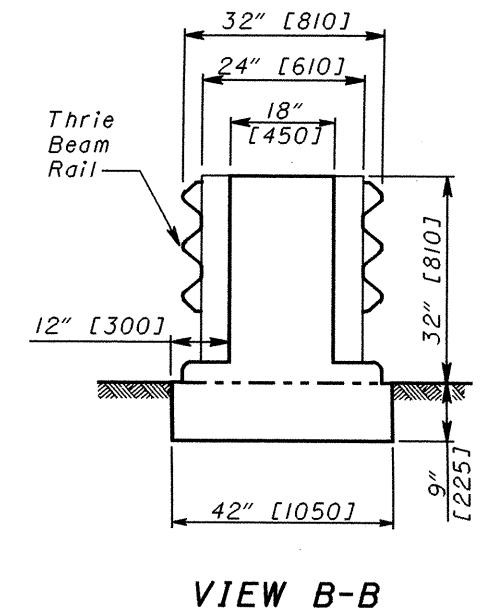
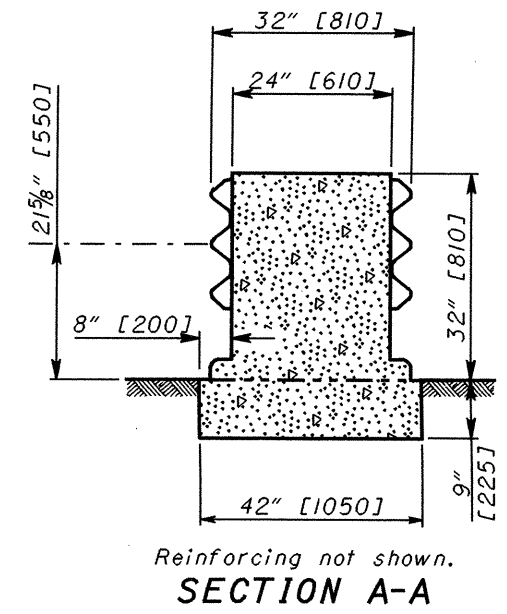


THIS DRAWING REPLACES GR-3.5M DATED 4-18-03.



LEGEND

- 1 Posts 1 & 2:
10"x10"x8'-0" [250x250x2440] Wood Post with
8"x8"x22" [200x200x550] Wood Blockouts
- 2 Post 3:
8"x8"x8'-0" [200x200x2440] Wood Post with
9"x9"x22" [225x225x550] Wood Blockouts
- 3 Post 4:
8"x8"x6'-0" [200x200x1830] Wood Post with
8 1/2"x 8 1/2"x14" [215x215x360] wood Blockouts
- 4 Posts 5 & 6:
8"x8"x6'-0" [200x200x1830] Wood Post with
8"x8"x14" [200x200x360] Wood Blockouts



NOTES

GENERAL: For additional post and rail details, see **SCD GR-1.1** and other Drawings pertaining to design of specific guardrail types. See **SCD RM-4.3** and **RM-4.6** for Concrete Barrier details.

APPLICATION: Use the Bridge Terminal Assembly, Type I, Barrier Design, to connect Type 5 Barrier Guardrail or Type I-98 Impact Attenuators to Concrete Median Barriers.

THRIE BEAM TRANSITION: Symmetrical W-Beam to Thrie Beam transition panel shall be 10 gauge.

POSTS: Posts may be set in drilled holes or driven to grade. See **SCD GR-1.1** for additional Post embedment details.

WOOD POSTS - Use square sawed pressure treated wood as per CMS 710.14 and fabricate with square ends. Bore bolt holes and trim the tops of posts, if required, after the posts are set.

STEEL POSTS - are allowed as an alternate. Use W8x24 [W200x35.9] for 10"x10" [250x250] wood posts and use W6x25 [W150x37.1] for 8"x8" [200x200] posts. Use same post material throughout assembly.

BLOCKOUTS: Use wood blockouts only, steel or plastic blockouts are not permitted. Use routed blockouts with steel posts.

CURB: Provide a Type 4-A or 4-C concrete curb minimum of 20' [6 m], or longer as shown on plans, including a 10' [3 m] taper (from curb height to flush). Front of curb to be flush with face of guardrail.

PAYMENT: Payment for the Guardrail Transition Section will be made at the unit price bid per Each for **Item 606 - Bridge Terminal Assembly, Type I, Barrier Design** and includes the extra cost, in excess of normal guardrail costs, for additional and different type Posts and Blockouts, nested Thrie Beam Sections, Terminal Connectors, Thrie Beam transition and connector sections, bolts, washers, nuts, anchors, other hardware, curb and compacted soil.

THIS DRAWING REPLACES GR-3.5M DATED 10-21-97.

OHIO DEPARTMENT OF TRANSPORTATION
 ROADWAY ENGINEERING SERVICES
 STANDARD ROADWAY CONSTRUCTION DRAWING
BRIDGE TERMINAL ASSEMBLY, TYPE I, BARRIER DESIGN
 NUMBER GR-3.5
 DATE 4-18-03
 STDS. ENGR. D. Focke
 ROADWAY DESIGN ENGINEER

Payment Limits for Item 606 Guardrail, Barrier Design, Type 5

NOTES

GENERAL: For additional post and rail details, see SCD GR-1.1 and other Drawings pertaining to design of specific guardrail types. See SCD RM-4.3 and RM-4.6 for Concrete Barrier details.

APPLICATION: Use the Bridge Terminal Assembly, Type 1, Barrier Design, to connect Type 5 Barrier Guardrail or Type 1 Impact Attenuators to Concrete Median Barriers.

THRIE BEAM TRANSITION: Symmetrical W-Beam to Thrie Beam transition panel shall be 10 gauge.

POSTS: Posts may be set in drilled holes or driven to grade. See SCD GR-1.1 for additional Post embedment details.

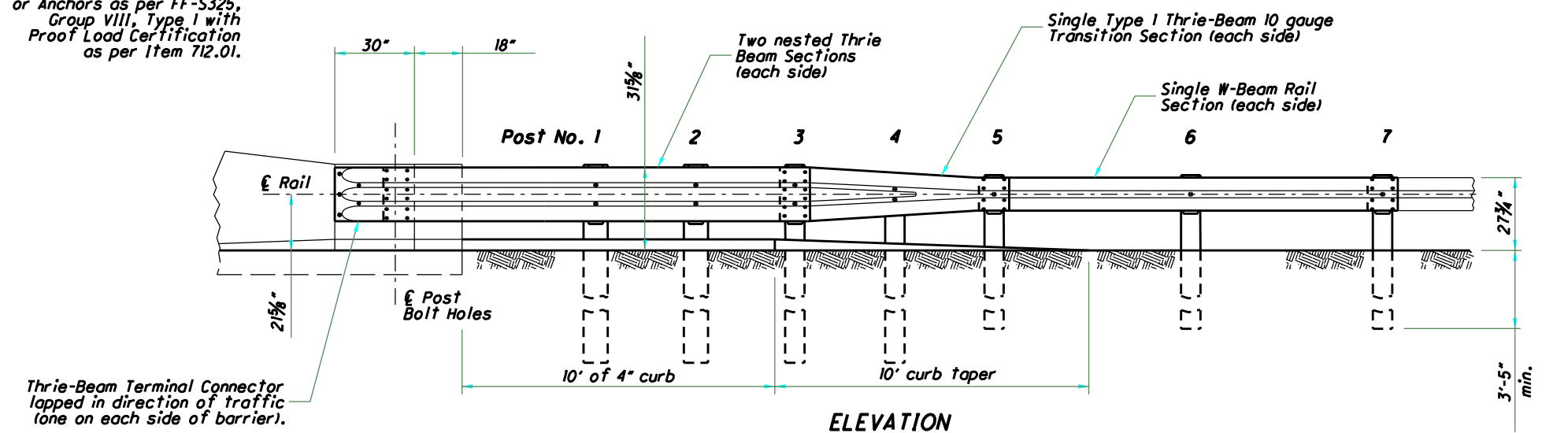
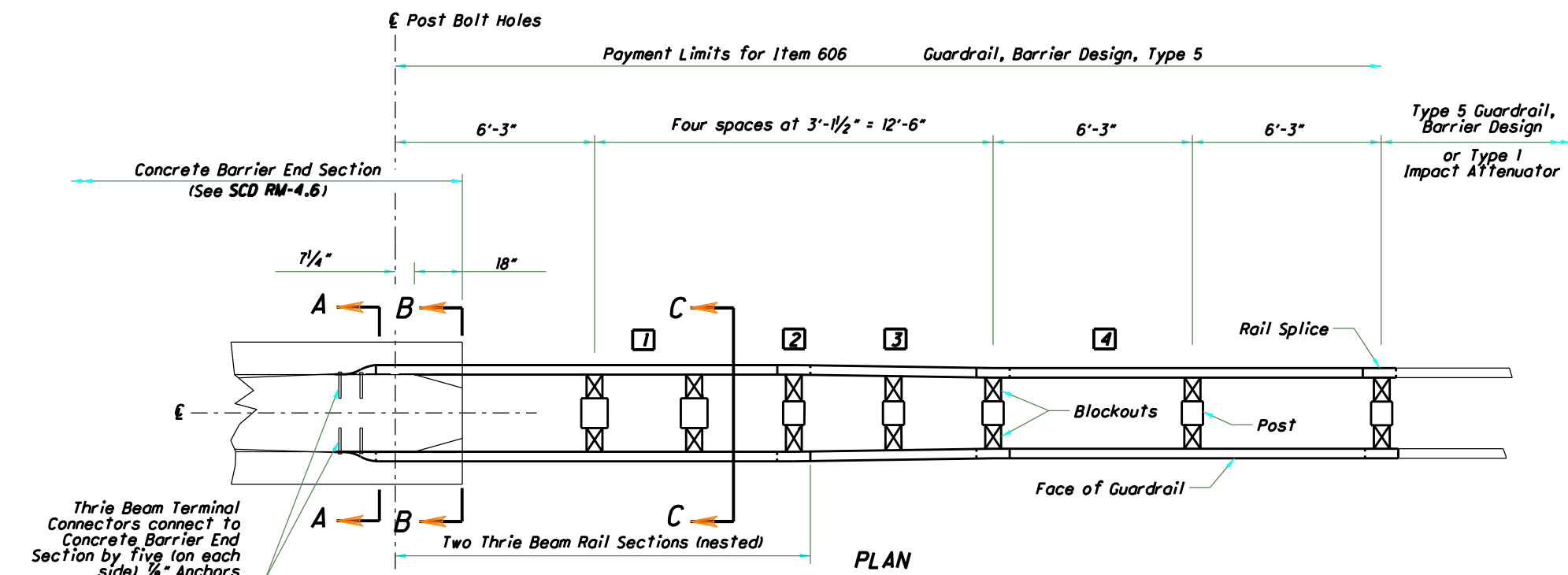
WOOD POSTS - Use square sawed pressure treated wood as per CMS 710.14 and fabricate with square ends. Bore bolt holes and trim the tops of posts, if required, after the posts are set.

STEEL POSTS - are allowed as an alternate. Use W8x24 for 10"x10" wood posts and use W6x25 for 8"x8" posts. Use same post material throughout assembly.

BLOCKOUTS: Use wood blockouts only, steel or plastic blockouts are not permitted. Use routed blockouts with steel posts.

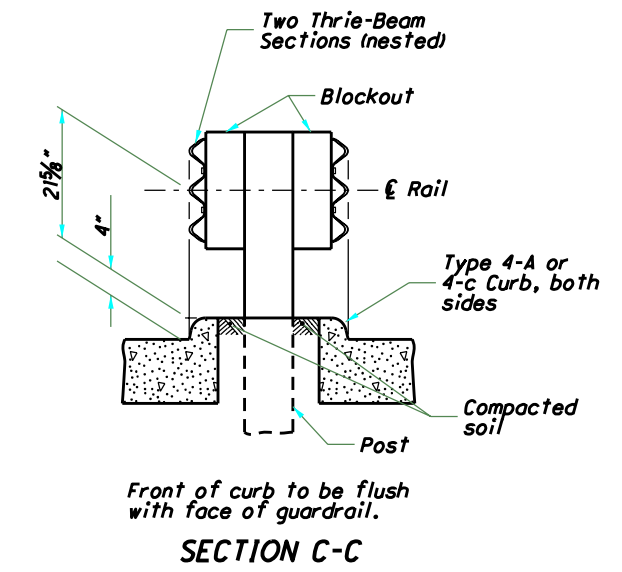
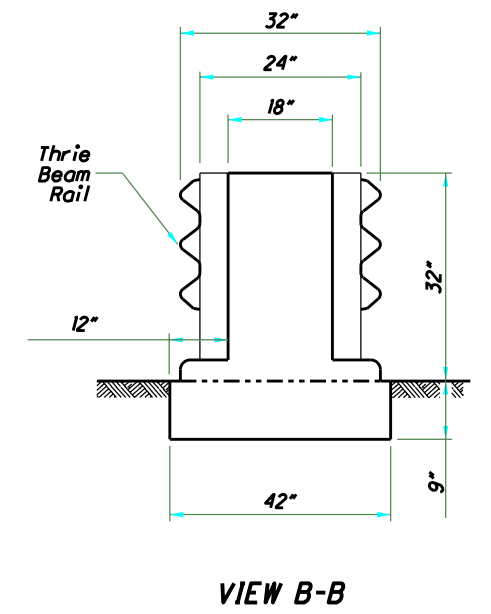
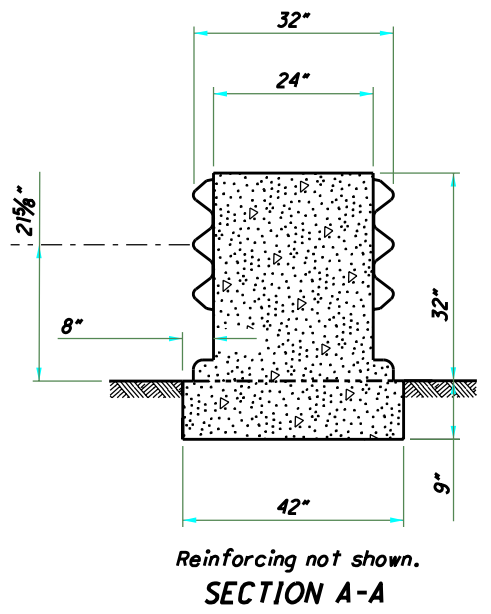
CURB: Provide a Type 4-A or 4-C concrete curb minimum of 20', or longer as shown on plans, including a 10' taper (from curb height to flush). Front of curb to be flush with face of guardrail.

PAYMENT: Payment for the Guardrail Transition Section will be made at the unit price bid per Each for Item 606 - Bridge Terminal Assembly, Type 1, Barrier Design and includes the extra cost, in excess of normal guardrail costs, for additional and different type Posts and Blockouts, nested Thrie Beam Sections, Terminal Connectors, Thrie Beam transition and connector sections, bolts, washers, nuts, anchors, other hardware, curb and compacted soil.



LEGEND

- 1 Posts 1 & 2:
10"x10"x8'-0" Wood Post with
8"x8"x22" Wood Blockouts
- 2 Post 3:
8"x8"x8'-0" Wood Post with
9"x9"x22" Wood Blockouts
- 3 Post 4:
8"x8"x6'-0" Wood Post with
8 1/2"x8 1/2"x14" Wood Blockouts
- 4 Posts 5 & 6:
8"x8"x6'-0" Wood Post with
8"x8"x14" Wood Blockouts



THIS DRAWING REPLACES GR-3.5M DATED 4-18-03.