



U.S. Department
of Transportation
**Federal Highway
Administration**

June 16, 2006

400 Seventh St., S.W.
Washington, D.C. 20590

In Reply Refer To:
HSA-10/B147A

Mr. Bill Neusch, President
Gibraltar
320 Southland Road
Burnet, Texas 78611

Dear Mr. Neusch:

In your June 7th letter to Mr. Richard Powers of my staff, you requested formal Federal Highway Administration acceptance of a design concept by which your high-tension test level 3 (TL-3) and TL-4 Gibraltar cable rail could be transitioned and connected to a strong-post W-beam guardrail.

Your transition design is intended for use in conjunction with a W-beam installation that has a standard, crashworthy terminal with a minimum 4'-0" offset from the cable. Each cable is threaded through a 12.75-inch x 1-inch slot in the valley of the W-beam panel and connected to the back of the panel with a modified, commercially-available steel bracket and cable fitting anchor. The first eleven Gibraltar posts are set on 6'-3" centers and all of these posts are behind the cables. From this point, the posts are set on alternating sides of the cables, with the next two posts on 10-foot centers and the remainder on the post spacing selected for the barrier length of need. Details for this transition design are shown in the enclosed drawings.

Previous full-scale crash testing has shown that high-tension cable barriers result in lower deflections than those reported for the lesser-tensioned generic cable barrier. In earlier cable-to-W-beam transition testing with the lower-tensioned generic cable rail, the cable deflection allowed the W-beam terminals to be impacted, resulting in significant vehicle instability. With your high-tension design, it is less likely that the nose of the terminal will be impacted in a typical impact. Even so, the use of a lightweight, non-energy absorbing W-beam terminal is suggested to minimize vehicle instability if the terminal is hit.

Based on the specific design details noted above, your proposed transition design is acceptable for use on the National Highway System at National Cooperative Highway Research Program Report 350 test level 3 when used in conjunction with a crashworthy terminal having a



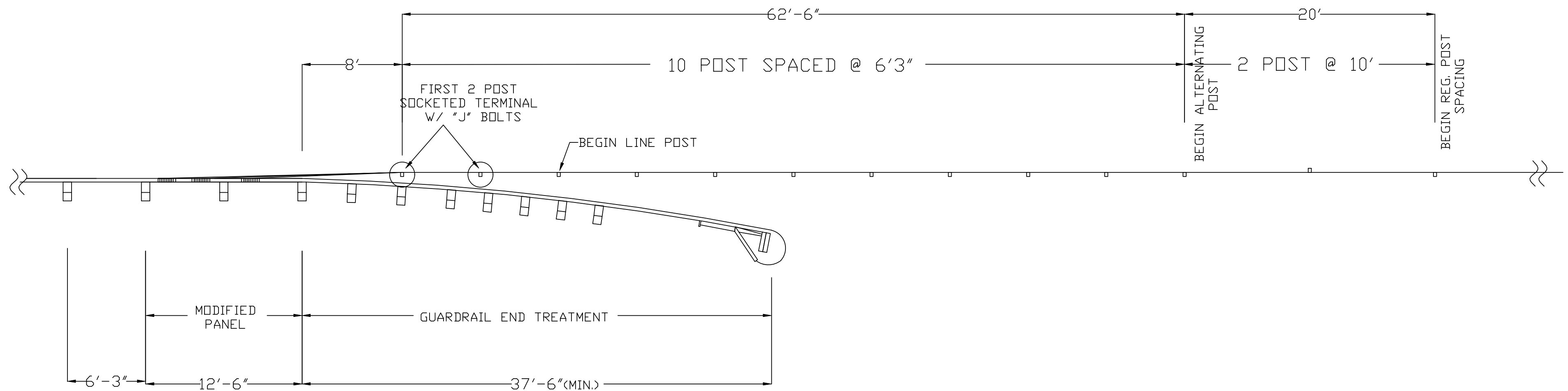
minimum 4-foot offset from the cables. Since this transition design has not been physically tested, field installations should be monitored to verify their presumed crashworthiness.

Sincerely yours,

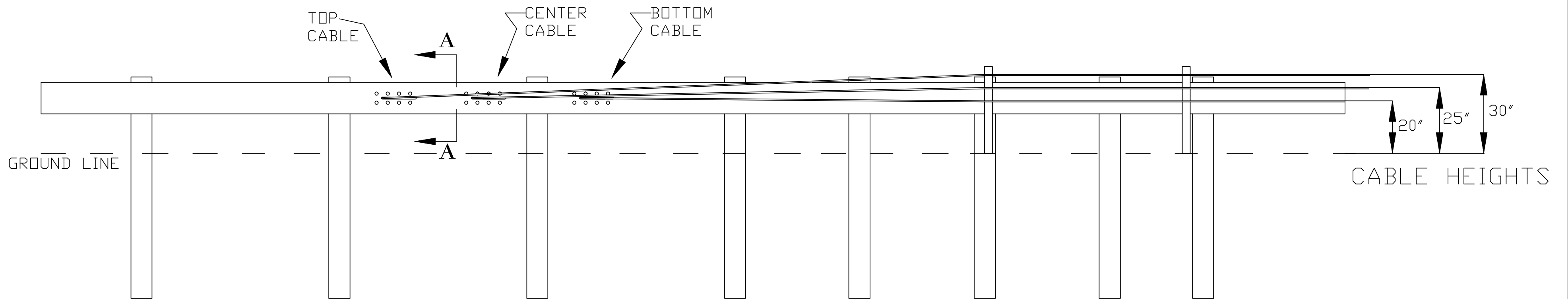
/original signed by/

John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

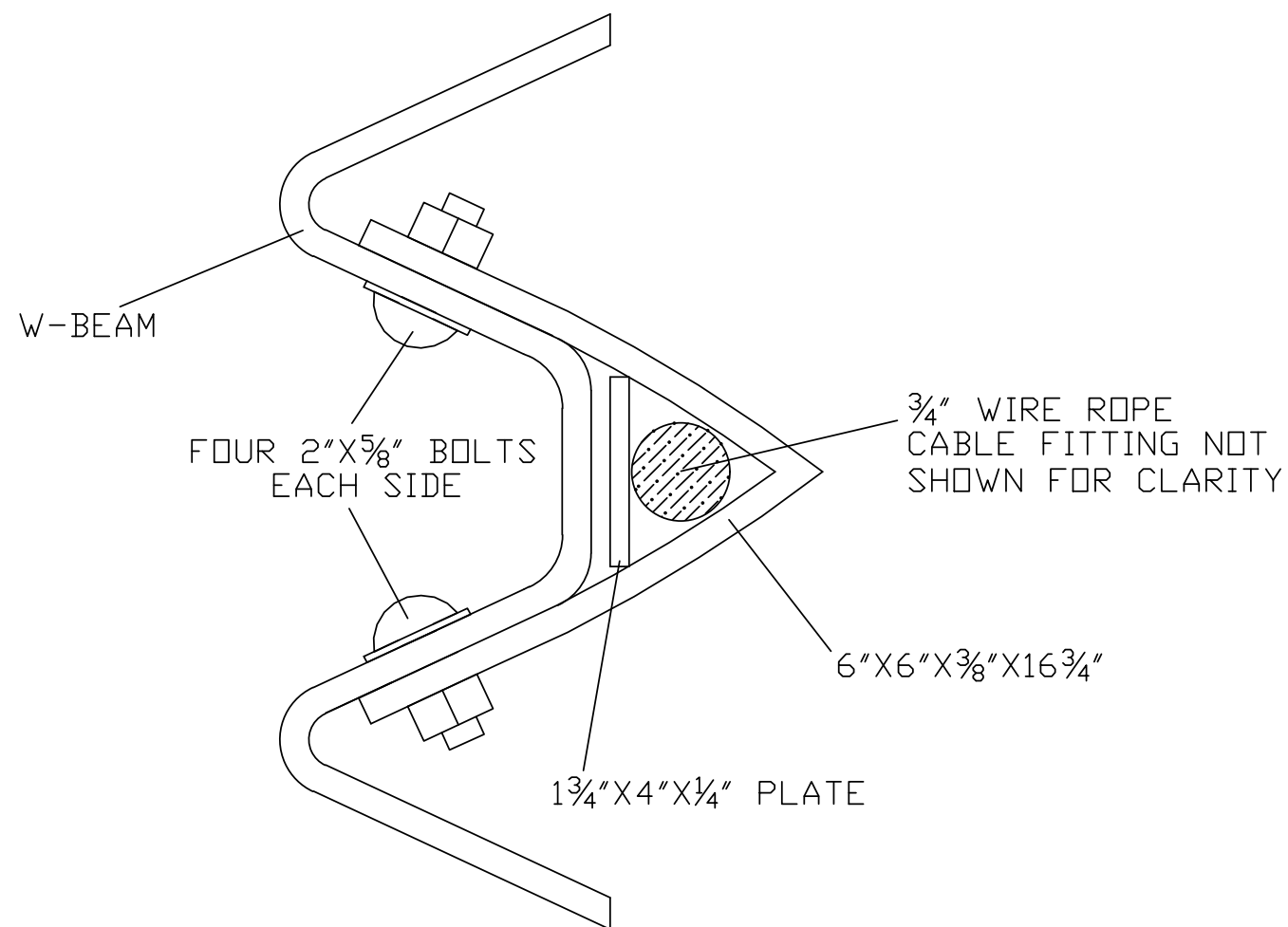
Enclosure



PLAN VIEW GUARDRAIL



FRONT VIEW GUARDRAIL



SECTION VIEW A-A

NOTE:

REVIEW GIBRALTAR SHOP DRAWINGS FOR MODIFIED 12' 6" GUARDRAIL PANEL AND CABLE CONNECTION TO BRACKET DETAILS. MODIFIED 12'-6" GUARDRAIL PANEL WITH BRACKETS AND HARDWARE PROVIDED BY GIBRALTAR.

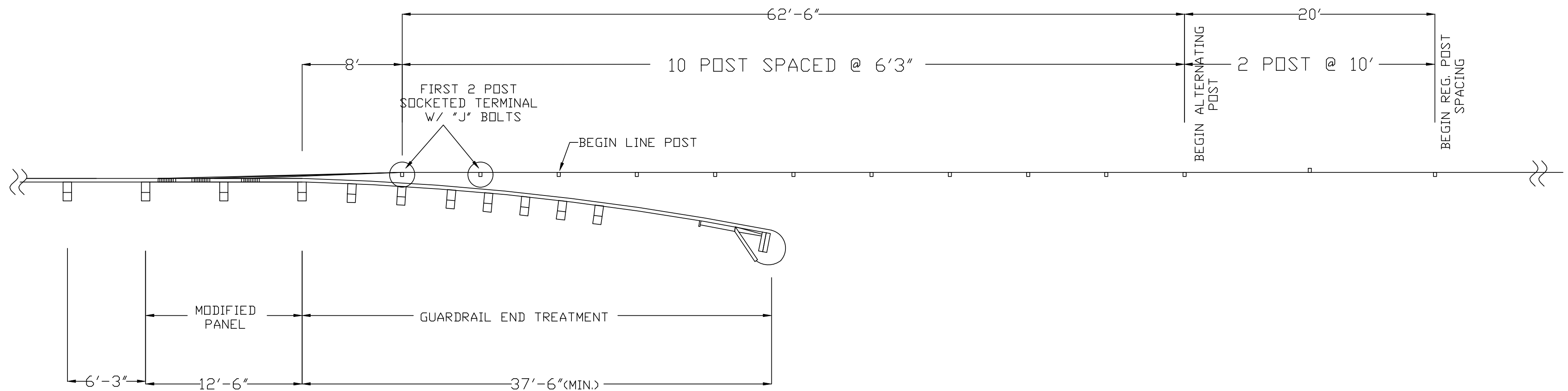
GIBRALTAR
TL-3 CABLE
BARRIER
ATTACHMENT
TO GUARDRAIL

GIBRALTAR
320 SOUTHLAND RD.
BURNET TX. 78611

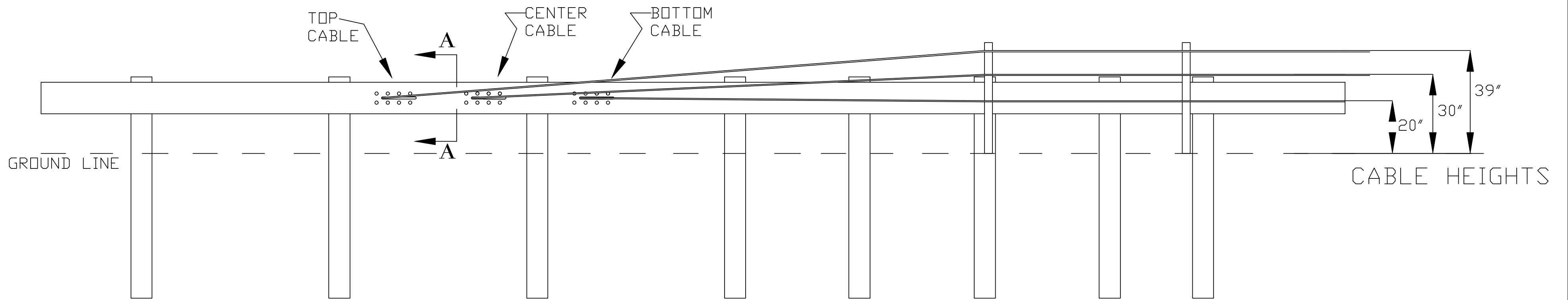
1-800-495-8957

DATE: 6-06-06

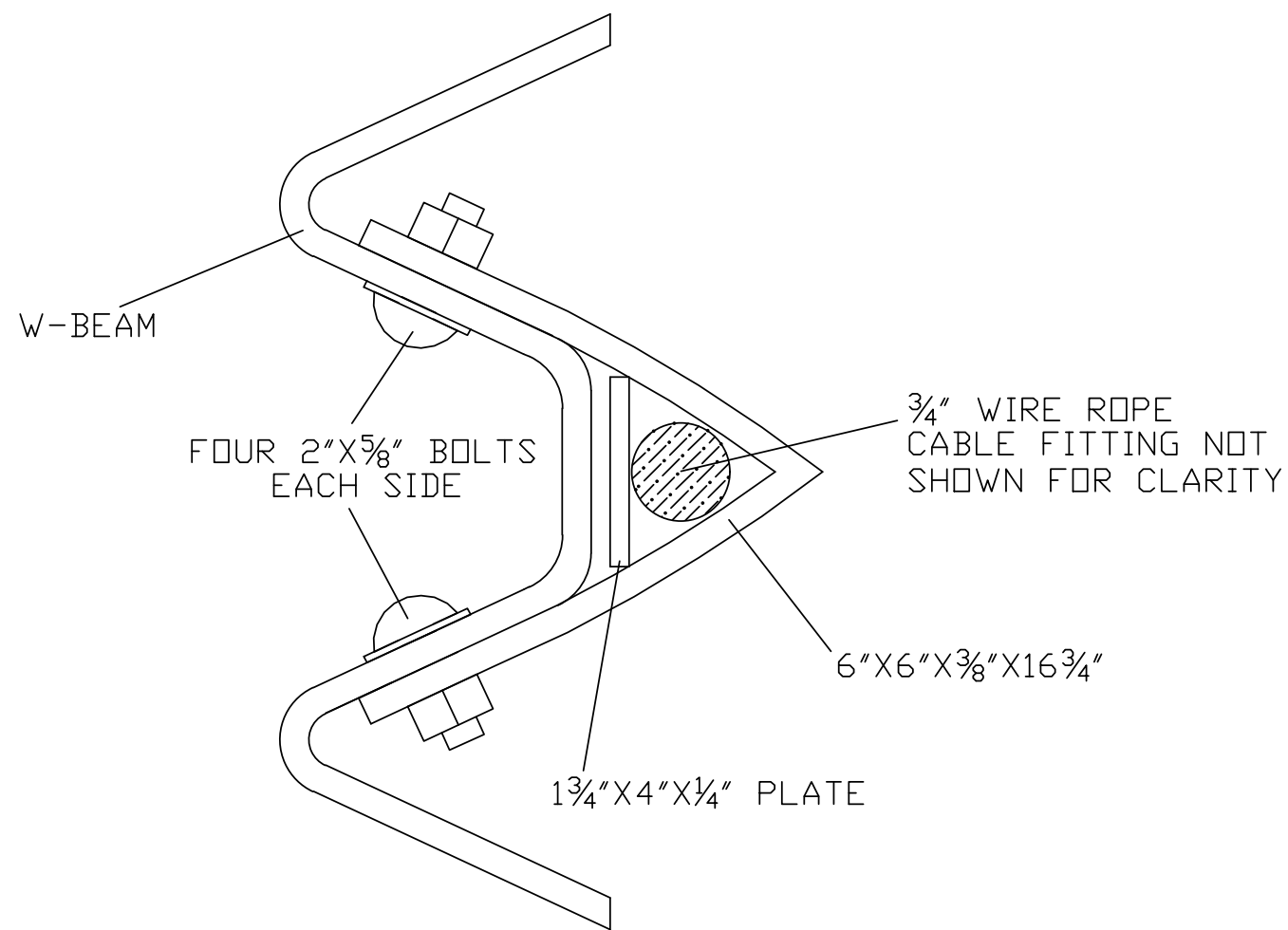
DRAFTED BY: ERJ



PLAN VIEW GUARDRAIL



FRONT VIEW GUARDRAIL



SECTION VIEW A-A

NOTE:

REVIEW GIBRALTAR SHOP DRAWINGS FOR MODIFIED 12' 6" GUARDRAIL PANEL AND CABLE CONNECTION TO BRACKET DETAILS. MODIFIED 12'-6" GUARDRAIL PANEL WITH BRACKETS AND HARDWARE PROVIDED BY GIBRALTAR.

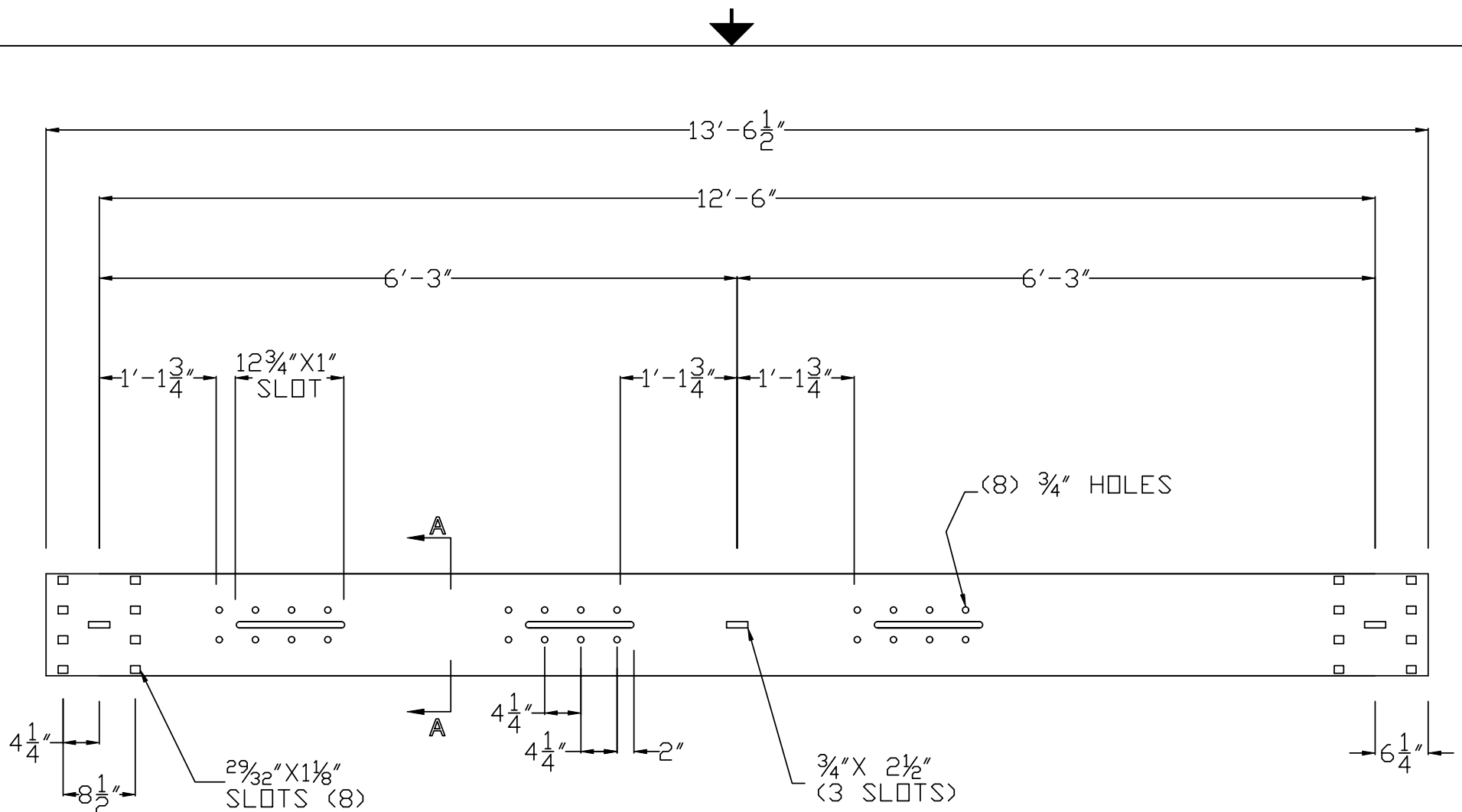
GIBRALTAR
TL-4 CABLE
BARRIER
ATTACHMENT
TO GUARDRAIL

GIBRALTAR
320 SOUTHLAND RD.
BURNET TX. 78611

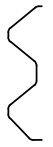
1-800-495-8957

DATE: 6-06-06

DRAFTED BY: ERJ



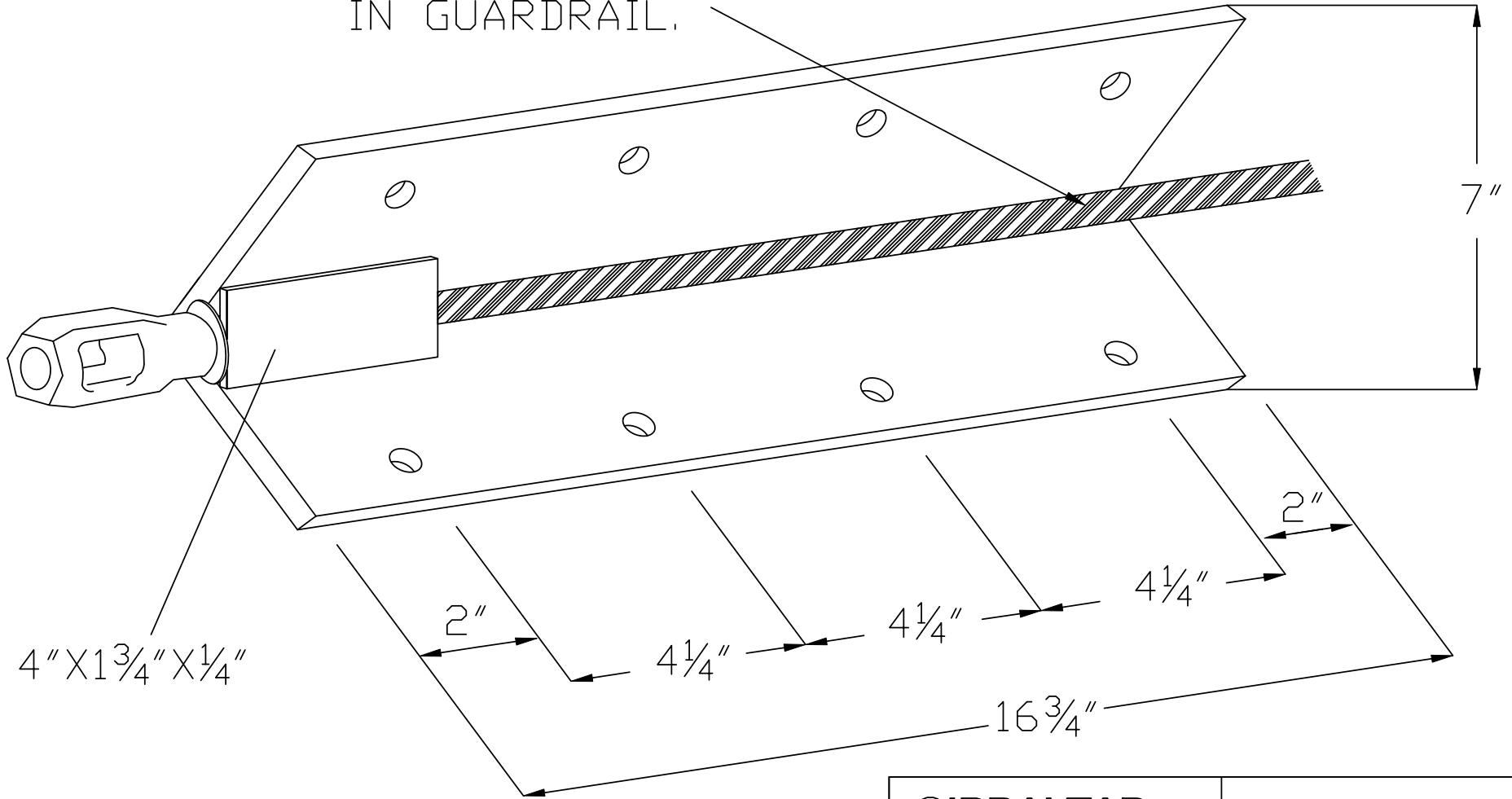
NOTE:
 WHEN TRANSITIONING INTO
 EXISTING GUARDRAIL FIELD CUT
 HOLES AND SLOTS INTO 12 1/2' OR
 25' PANEL PER PATTERN SHOWN
 ON THIS DRAWING.



SECTION A-A

<p>GIBRALTAR 320 SOUTHLAND RD. BURNET TX, 78611</p>	<p>MODIFIED GUARDRAIL PANEL</p>
<p>1-800-495-8957</p>	<p>DATE 6-08-06 DRAFTED BY ERJ</p>

THREAD $\frac{3}{4}$ " CABLE
THROUGH $12\frac{3}{4}$ "X1" SLOT
IN GUARDRAIL.



4" X $1\frac{3}{4}$ " X $\frac{1}{4}$ "

GIBRALTAR 320 SOUTHLAND RD. BURNET TX, 78611 1-800-495-8957	CABLE CONNECTION BRACKET DATE 6-08-06 DRAFTED BY ERJ
--	--