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Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

Randell D. Hiatt
REGISTERED CIVIL ENGINEER
May 20, 2011
PLANS APPROVAL DATE
Randell D. Hiatt No. C50200 Exp. 6-30-11 CIVIL STATE OF CALIFORNIA
REGISTERED PROFESSIONAL ENGINEER
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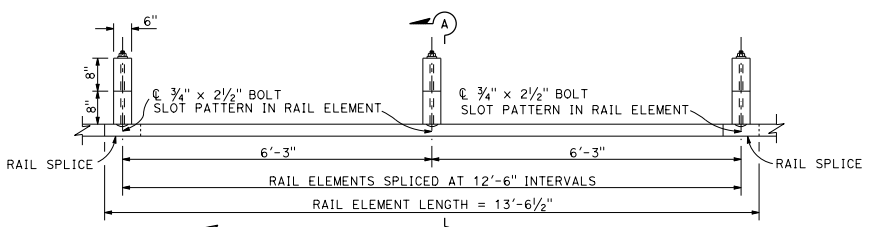
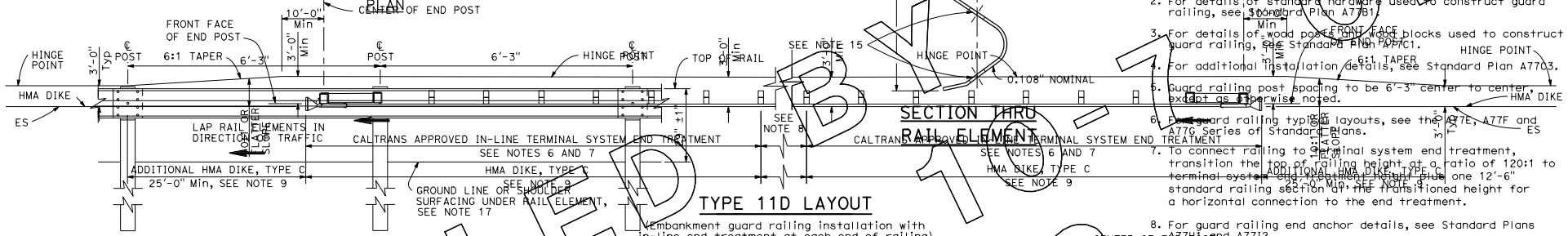
CANCELLED BY ERRATA NO. 1 2013

METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS

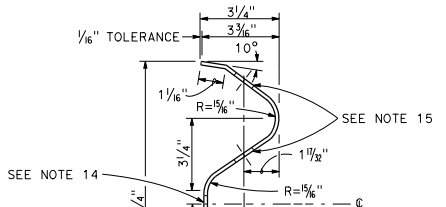


PLAN

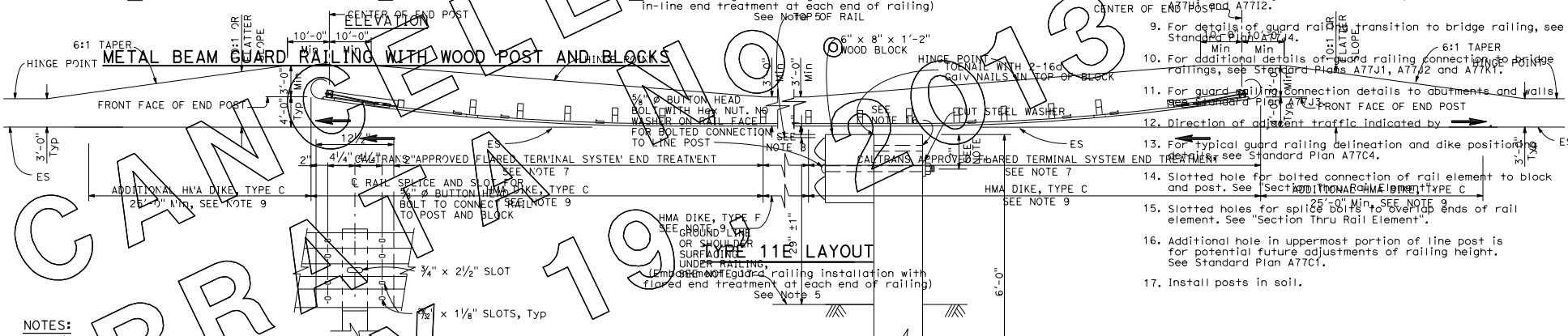


TYPE 11D LAYOUT

(Embankment guard railing installation with in-line end treatment at each end of railing)



SECTION THRU RAIL ELEMENT



ELEVATION

FIGURE 11E LAYOUT

(Embankment guard railing installation with flared end treatment at each end of railing)
See Note 5

RAIL ELEMENT SPLICE DETAIL

SECTION A-A

TYPICAL WOOD LINE POST INSTALLATION

See Note 4

NOTES:

1. For details of steel post installations, see Standard Plan A77A2.
2. For details of standard hardware used to construct guard railing, see Standard Plan A77B1.
3. For details of wood posts and wood blocks used to construct guard railing, see Standard Plan A77C1.
4. For additional installation details, see Standard Plan A7703.
5. Guard railing post spacing to be 6'-3" center to center, except as otherwise noted.
6. For guard railing typical layouts, see the A77E, A77F and A77G Series of Standard Plans.
7. To connect railing to terminal system end treatment, transition the top of railing height at a ratio of 120:1 to terminal system height. Install one 12'-6" standard railing section at the transitioned height for a horizontal connection to the end treatment.
8. For guard railing end anchor details, see Standard Plans A77H1 and A77I2.
9. For details of guard railing transition to bridge railing, see Standard Plan A77J4.
10. For additional details of guard railing connection to bridge railings, see Standard Plans A77J1, A77J2 and A77K1.
11. For guard railing connection details to abutments and walls, see Standard Plan A77J3.
12. Direction of adjacent traffic indicated by ➡.
13. For typical guard railing delineation and dike positioning, see Standard Plan A77C4.
14. Slotted hole for bolted connection of rail element to block and post. See "Section Thru Rail Element".
15. Slotted holes for splice bolts to overlap ends of rail element. See "Section Thru Rail Element".
16. Additional hole in uppermost portion of line post is for potential future adjustments of railing height. See Standard Plan A77C1.
17. Install posts in soil.

NOTES:

1. Line post, blocks and hardware to be used are shown on Standard Plans A77A1, A77A2, A77B1, A77C1 and A77C2.
2. Guard rail post spacing to be 6'-3" center to center, except as otherwise noted.
3. Except as noted, line posts are identical to the 6" x 8" wood blocks and bolted together 6" x 8" x 1'-2" wood blocks with 6" x 8" x 2'-6" wood posts. Recess of hex nut points toward adjacent wood post. Two 5/8" Ø bolts and nuts may be used for 6" x 8" wood blocks where applicable and when specified.
4. Direction of adjacent traffic indicated by ➡.
5. Layout Types 11D through 11H, shown on the A77E Series of Standard Plans, are typically used where guard railing encroachment is limited and embankment slopes and a crashworthy end treatment is required for both directions of traffic.
6. In-line Terminal System End Treatments are used where site conditions will not accommodate a flared end treatment.
7. The type of terminal system end treatment to be used will be shown on the Project Plans.
8. Dependent on site conditions (embankment height and side slope), construction of additional guard railing (length equal to multiples of 12'-6" with 6'-3" post spacing) may be advisable.
9. Where placement of dike is required with guard railing installations, see Standard Plan A77C4 for dike positioning details.

6" x 8" x 6'-0" WOOD POST (SEE NOTE 3)
8"

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METAL BEAM GUARD RAILING STANDARD RAILING SECTION METAL BEAM GUARD RAILING WITH WOOD POST AND BLOCKS TYPICAL LAYOUTS FOR EMBANKMENTS

NO SCALE

A77B2

2010 STANDARD PLAN A77B2