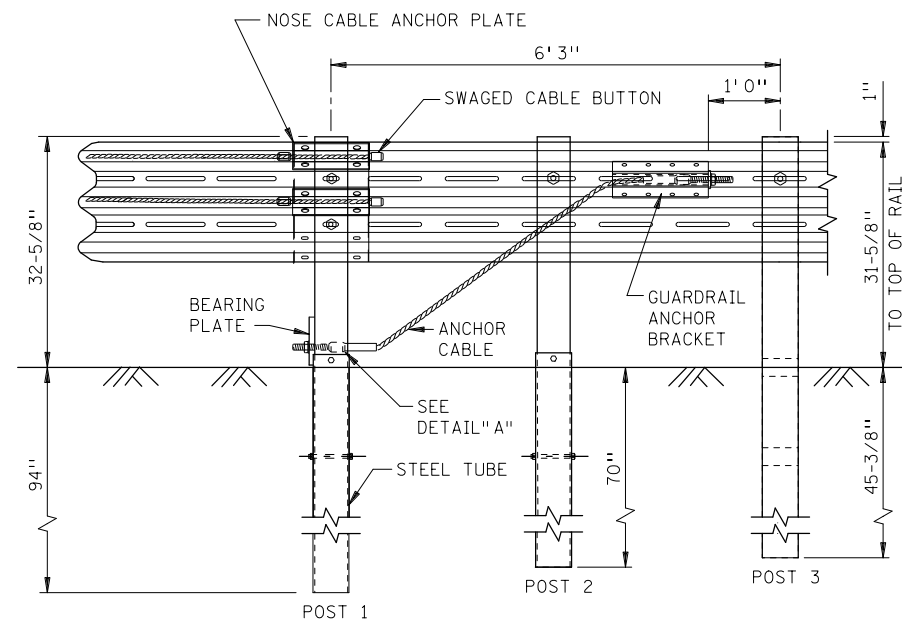
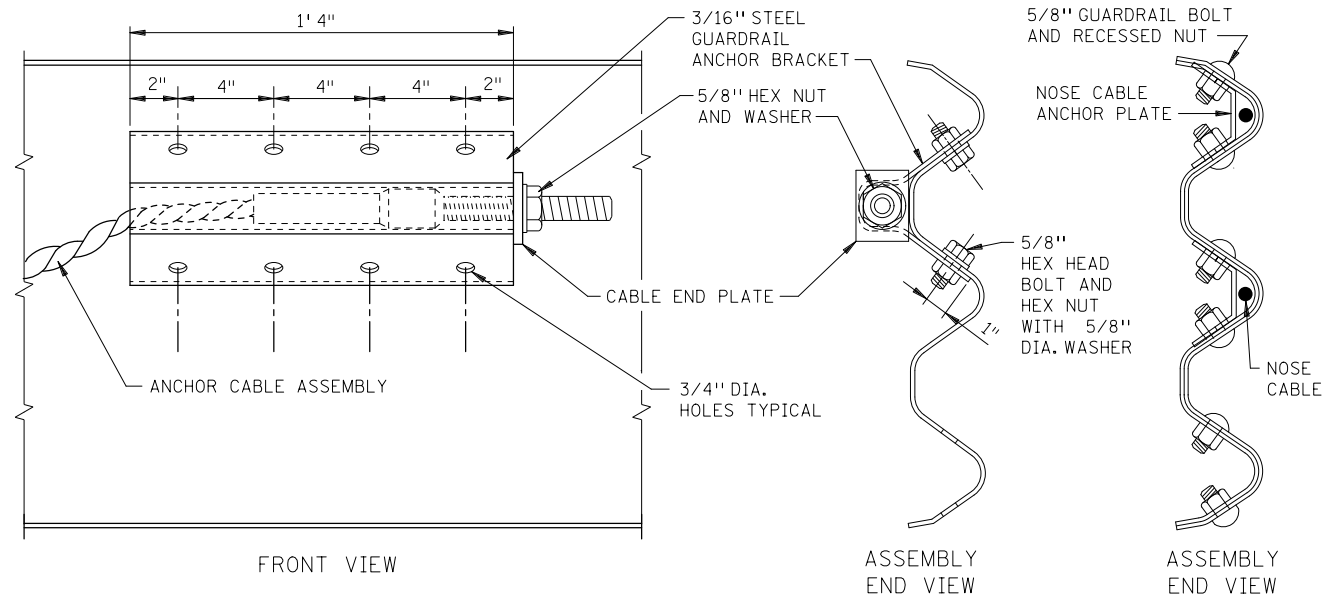


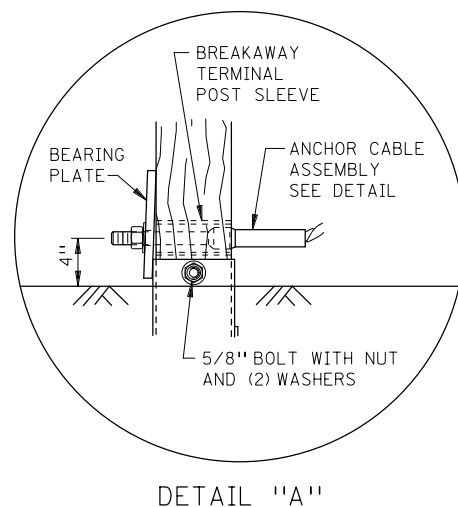
PLAN VIEW
DETAILS OF BULLNOSE



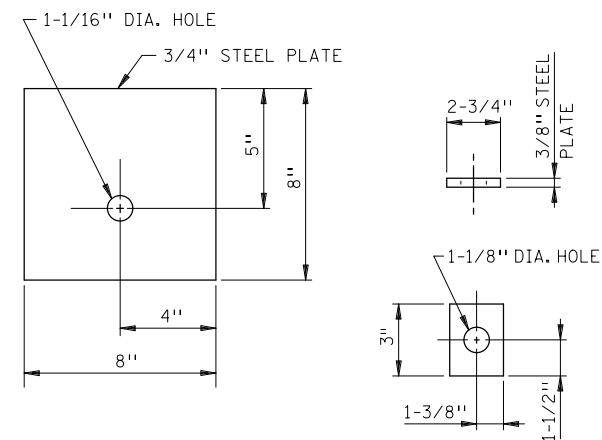
ELEVATION
BULL NOSE ASSEMBLY



GUARDRAIL ANCHOR BRACKET DETAILS

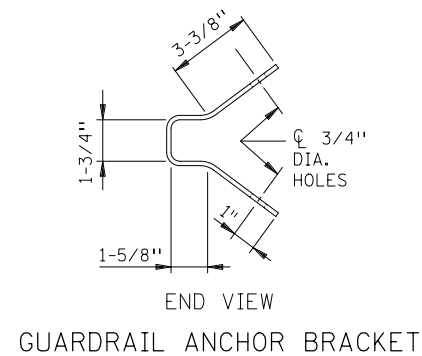


DETAIL "A"

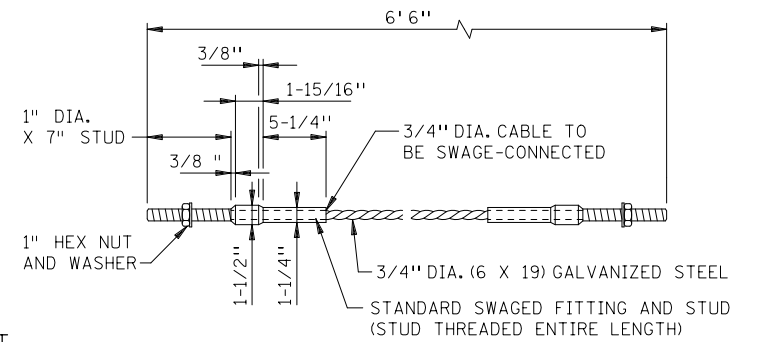


BEARING PLATE

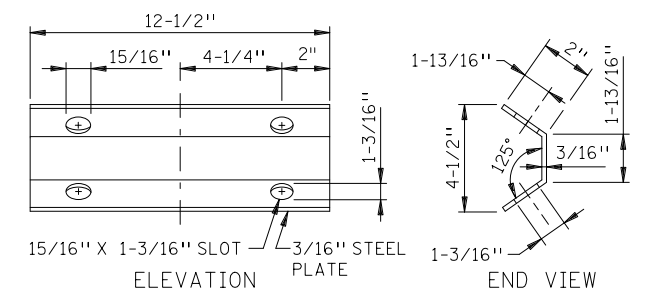
CABLE END PLATE



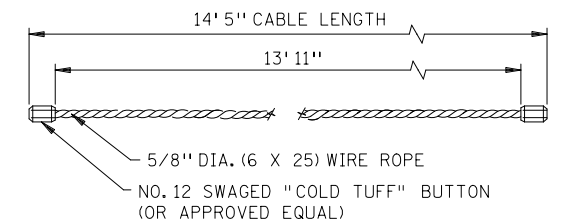
GUARDRAIL ANCHOR BRACKET



ANCHOR CABLE ASSEMBLY DETAILS



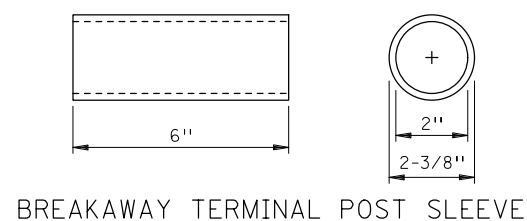
NOSE CABLE ANCHOR PLATE



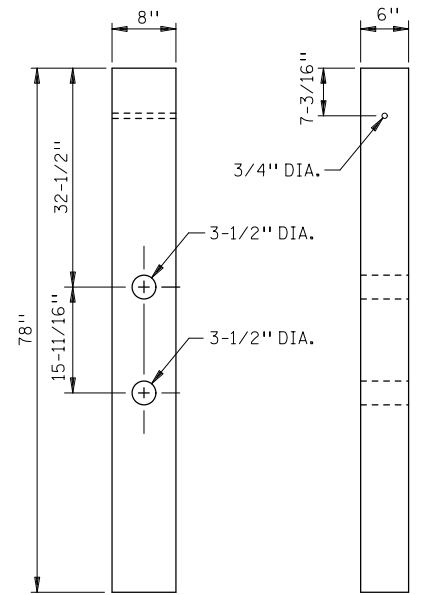
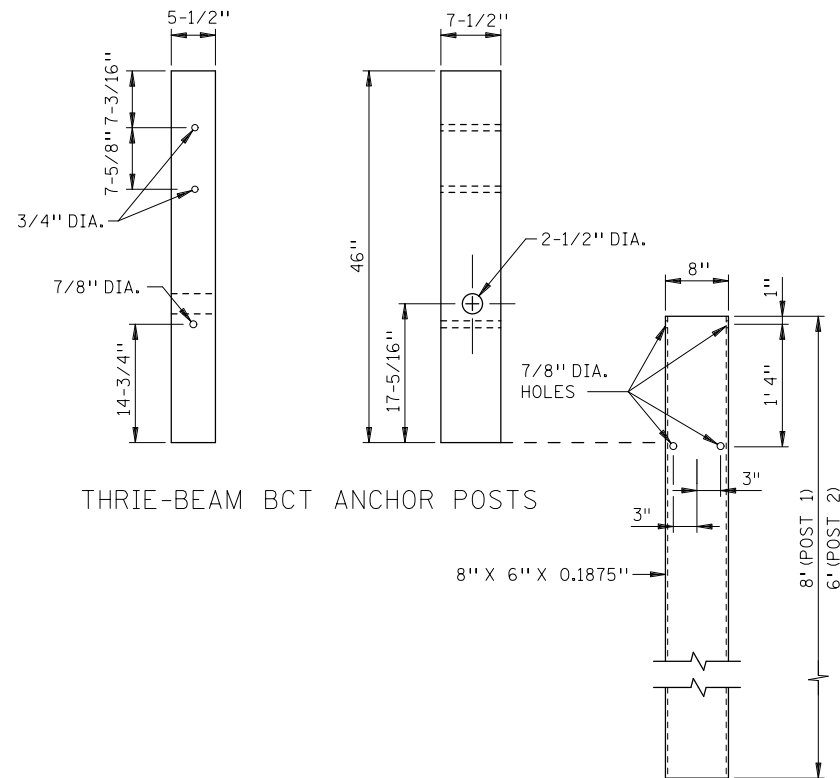
NOSE CABLE

- NOTES:
- OTHER ANCHOR CABLE ASSEMBLIES HAVING 40,000 LBS. MIN. BREAKING STRENGTH MAY BE USED.
- ALTERNATE HARDWARE DESIGNS WILL BE CONSIDERED FOR APPROVAL PROVIDED THEIR CONNECTION DETAILS, FOR THE PURPOSE OF MAINTENANCE SUBSTITUTIONS, ARE COMPATIBLE WITH THE DETAILS OF THIS STANDARD AND THEIR OPERATING CHARACTERISTICS ARE SIMILAR TO THOSE OF THE HARDWARE SHOWN IN THIS STANDARD.
- BOLTS AND ALL NECESSARY HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.
- SEE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER RAIL HARDWARE" FOR ADDITIONAL HARDWARE INFORMATION. THE MNDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION SHALL GOVERN.
- FOR GRADING DETAILS SEE STANDARD PLAN 5-297.601.
- ① SLOTTED RAIL NO. 1, 12' 6", SHOP BEND TO R=5' 3"
- ② SLOTTED RAIL NO. 2, 12' 6", SHOP BEND TO R=34' 2"
- ③ SLOTTED RAIL NO. 3, 12' 6", TANGENT
- ④ U-BOLT CABLE CLIPS (3 PER CABLE) SPACED OUT ON NOSE, TO HOLD CABLE TO BACKSIDE OF THE RAIL.
- ⑤ NOSE CABLE W/SWAGED END BUTTONS
- ⑥ NOSE CABLE ANCHOR PLATE (BACKSIDE OF SPLICE).
- ⑦ THRIE-BEAM GUARDRAIL, 12' 6".
- ⑧ MEASUREMENTS ARE FROM BACK OF RAIL TO BACK OF RAIL. FOR GUARDRAIL LAPPING DETAIL, SEE SHEET 2 OF 3.
- ⑨ MINIMUM DESIGN DEFLECTION FOR BARRIER USED.
- ⑩ SEE STANDARD PLAN 5-297.614.

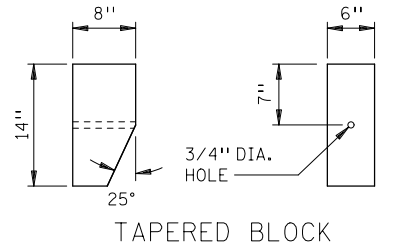
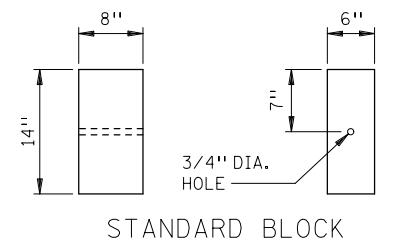
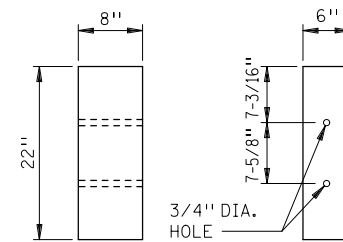
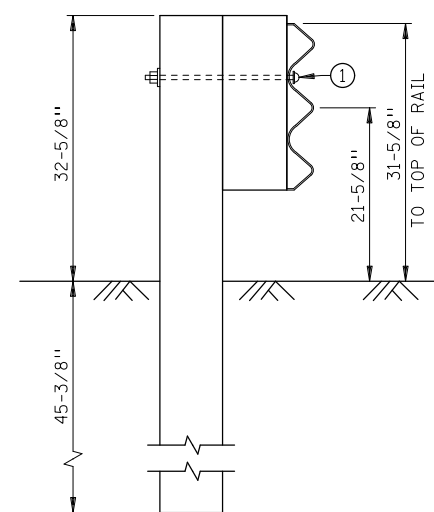
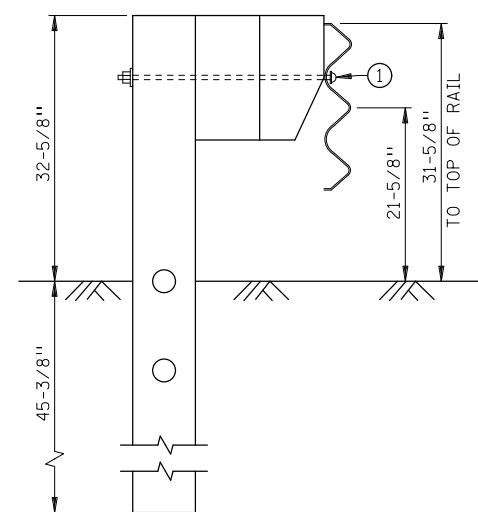
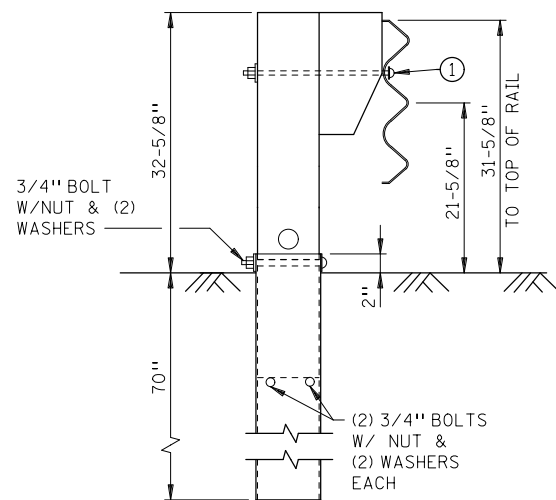
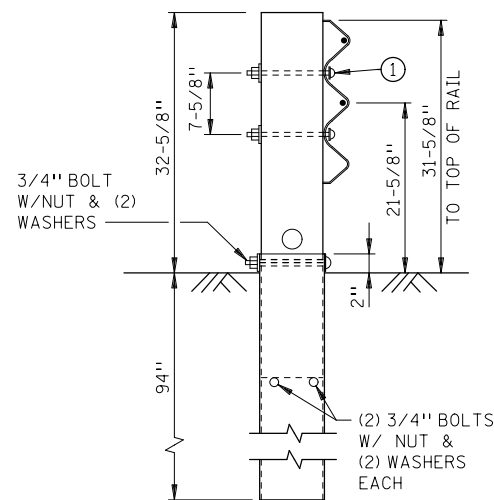
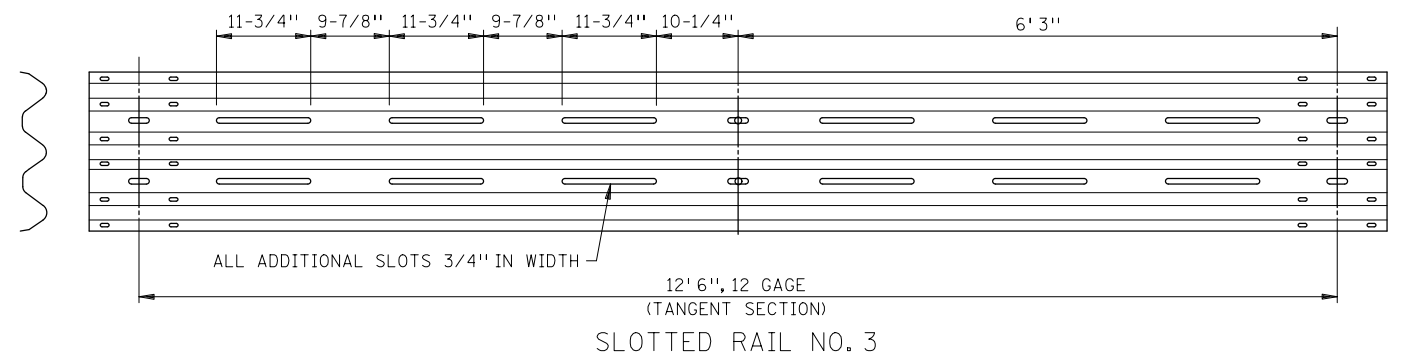
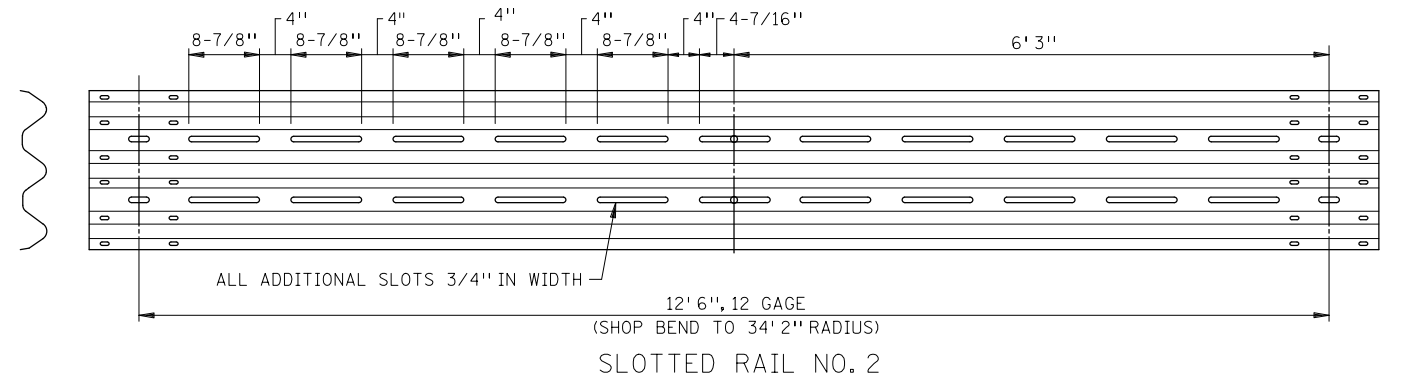
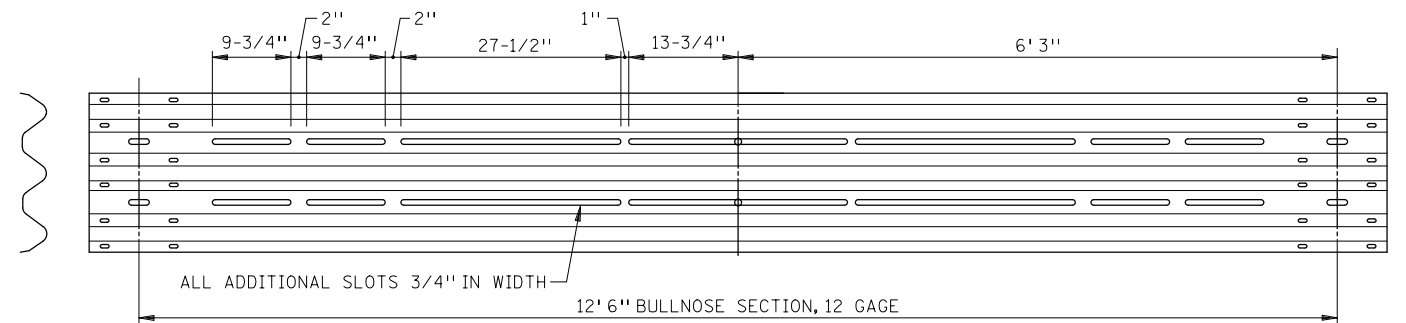
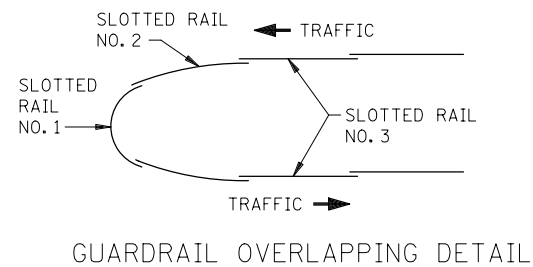
MEETS CRASH TEST CRITERIA: NCHRP 350 (TL-3)



BREAKAWAY TERMINAL POST SLEEVE



STEEL TUBE



NOTES:
① 5/8" DIA. BUTTON HEAD BOLT X LENGTH AS REQUIRED,
SECURED WITH WASHER AND HEX NUT.

MEETS CRASH TEST CRITERIA: NCHRP 350 (TL-3)



STATE DESIGN ENGINEER

REVISED:

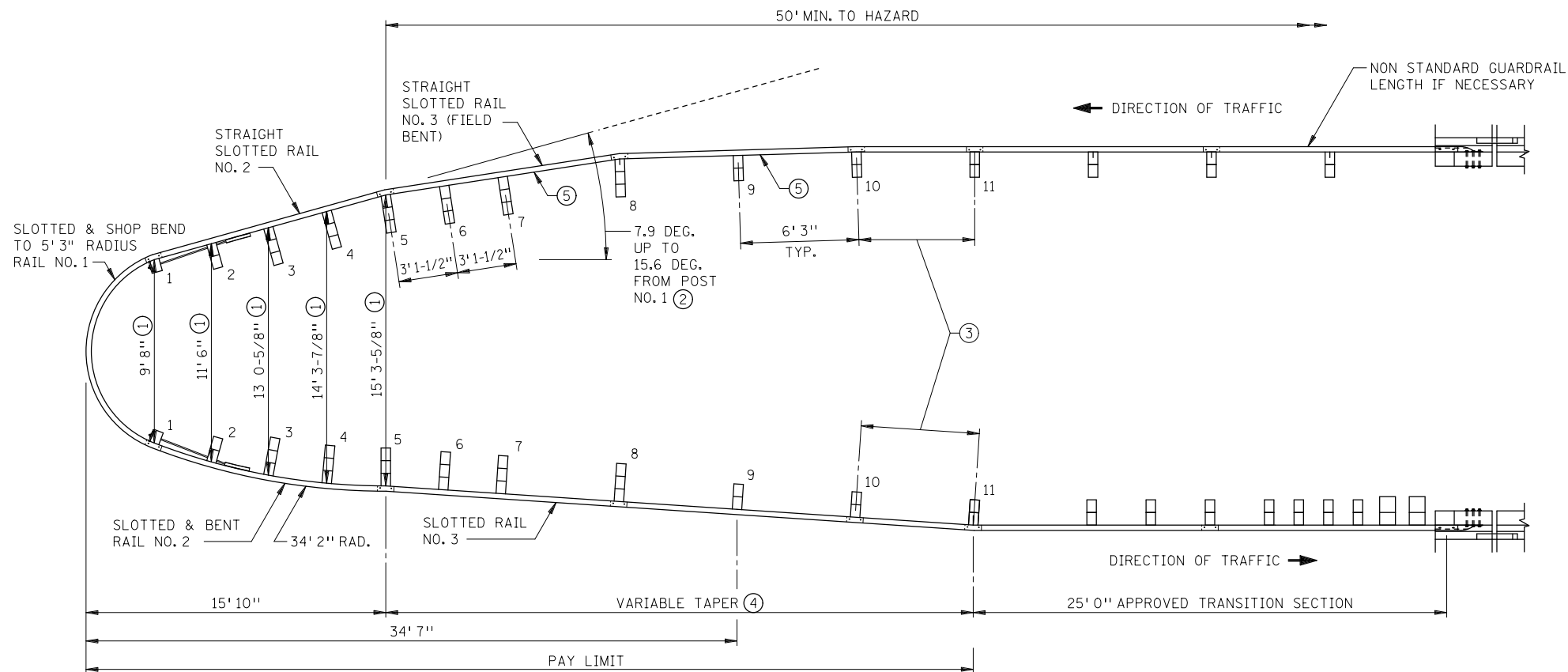
APPROVED:

5-27-2014

THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS
(14' 2-1/2" WIDTH)

STANDARD PLAN 5-297.611

2 OF 3




PLAN VIEW

WIDENED BULLNOSE DESIGN

NOTES:

- ① POST SPACINGS ACROSS THE BARRIER ARE MEASURED AS PERPENDICULAR DISTANCE ACROSS THE BARRIER FROM THE CENTER OF POST.
- ② TAPER BEGINNING AT POST NO.1 MUST CONTINUE TO POST NO.5, PAST POST NO.5, TAPER MAY END OR BE EXTENDED UP TO 15.6 DEGREES TO FIT VARIABLE MEDIAN WIDTHS.
- ③ W-BEAM TO THRIE-BEAM TRANSITION SECTION. SEE STD. PLAN 5-297.614.
- ④ FOR MEDIANS WIDER THAN 14'2 1/2", BEFORE TAPERING THE APPROACH SIDE, TAPER THE OPPOSING SIDE AS SHOWN ON THE BULLNOSE DESIGN DETAIL. APPROACH TAPER SHOULD NOT EXCEED 1:25 IF THE BARRIER IS WITHIN THE SHY LINE OR 1:15 IF IT IS OUTSIDE.
- ⑤ THRIE BEAM MAY BE FIELD BENT UP TO 18" IN A 12'6" LENGTH (APPROX. 6.9 DEG.). ADJUST BENDS TO FIT BULLNOSE TO SITE. SLOTTED RAIL NO.2 ON OPPOSING SIDE MAY BE USED STRAIGHT OR NORMAL (SHOP BEND TO 34'2" RAD.). SLOTTED RAIL NO.3 ON OPPOSING SIDE DOES NOT HAVE TO BE SHOP BENT (BEND IN FIELD).

MEETS CRASH TEST CRITERIA: NCHRP 350 (TL-3)

	REVISED:
	APPROVED: <i>Christy Ry</i> STATE DESIGN ENGINEER 5-27-2014

THRIE BEAM BULLNOSE GUARDRAIL FOR MEDIANS
(WIDER THAN 14'2-1/2")

STANDARD PLAN 5-297.611

3 OF 3