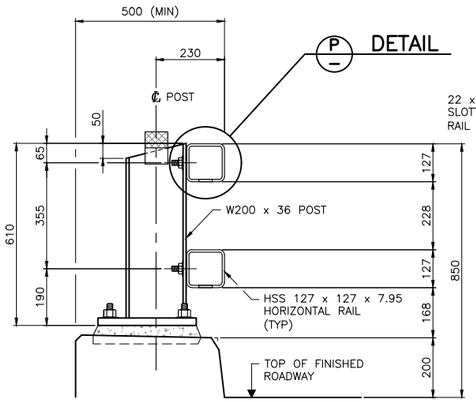
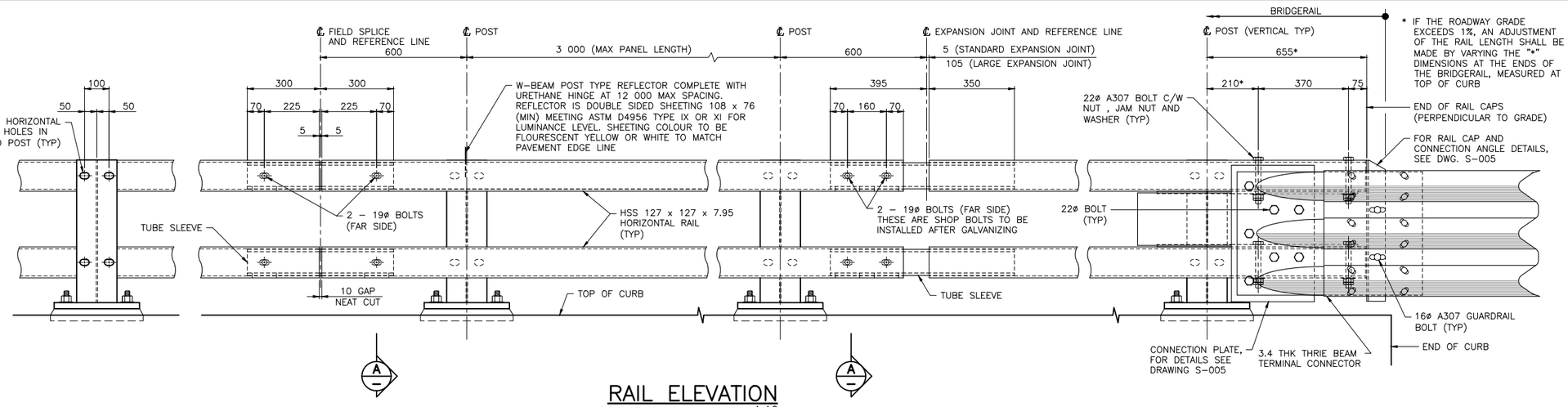


RAIL SECTION
1:10



RAIL ELEVATION
1:10

GENERAL NOTES

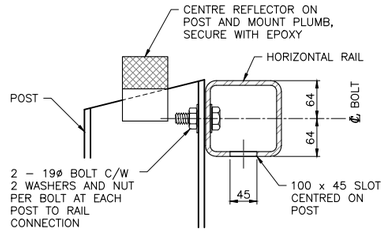
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE.
- RAILING CONFIGURATION IS BASED ON A RAILING CONFIGURATION NCHRP 350, TEST LEVEL 4.
- RAILING SHALL BE USED WITH CURB CONFIGURATION SHOWN.
- DESIGN OF DECK AND CURB REINFORCING BARS SHALL BE CARRIED OUT ON A SITE SPECIFIC BASIS TO DEVELOP THE CAPACITY OF THE BRIDGERAIL POSTS BASED ON Fy = 350 MPa.
- POST SPACING SHOWN IS CORRECT AT 15°C. LOCATION OF BRIDGERAIL POST ANCHOR ROD ASSEMBLIES SHALL BE ADJUSTED TO ACCOUNT FOR INSTALLATION TEMPERATURE. SEE SITE SPECIFIC DRAWINGS FOR ANCHOR ROD ASSEMBLY LOCATIONS.
- HORIZONTAL RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF TWO POSTS AND A MAXIMUM OF FOUR POSTS, SEPARATED BY FIELD SPLICES AS SHOWN.
- A STANDARD EXPANSION JOINT SHALL BE PROVIDED EVERY 45 METRES (MAX) OF BRIDGERAIL UNLESS NOTED OTHERWISE ON SITE SPECIFIC DRAWINGS. THE STANDARD EXPANSION JOINT MAY ALSO BE USED WITHOUT MODIFICATION, FOR BRIDGES WHERE THE TOTAL THERMAL MOVEMENT AT A DECK JOINT IS LESS THAN OR EQUAL TO 90 mm.
- THE LARGE EXPANSION JOINT MAY BE USED WITHOUT MODIFICATION FOR BRIDGES WHERE THE TOTAL THERMAL MOVEMENT AT A DECK JOINT IS LESS THAN OR EQUAL TO 100 mm.
- FOR BRIDGES WHERE THE TOTAL THERMAL MOVEMENT AT A DECK JOINT IS GREATER THAN 100 mm, THE LARGE EXPANSION JOINT SHALL BE USED BUT THE JOINT GAP AT INSTALLATION AND THE TUBE SLEEVE EMBEDMENT LENGTH WILL NEED TO BE MODIFIED TO ENSURE THAT THE GAP IS NEVER SMALLER THAN 10 mm AND THE TUBE SLEEVE EMBEDMENT IS NEVER SMALLER THAN 200 mm.
- CONCRETE DECK SURFACE SHOWN, ACP WEARING SURFACE SIMILAR.

FABRICATION

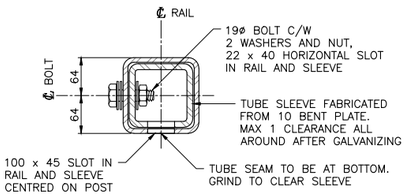
- BRIDGERAIL INCLUDING APPROACH RAIL TRANSITION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR BRIDGE CONSTRUCTION SECTION 12 AND SECTION 14.
- ALL PLATE STEEL AND STRUCTURAL SHAPES SHALL CONFORM TO CSA G40.21 GRADE 350W OR ASTM A36 EXCEPT STRUCTURAL TUBING WHICH SHALL CONFORM TO ASTM A500B.
- ALL BOLTS SHALL CONFORM TO ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX TYPE UNLESS NOTED OTHERWISE. ALL GUARDRAIL BOLTS, NUTS, AND WASHERS SHALL CONFORM TO AASHTO M180. ALL BOLTS FOR CONNECTING THE STEEL SPACER TO POST SHALL CONFORM TO ASTM A307.
- ANCHOR RODS SHALL CONFORM TO ASTM A193 GRADE B7 (Fy = 720 MPa, Fu = 860 MPa). GALVANIZING OF ANCHOR RODS SHALL BE IN ACCORDANCE WITH THE PROCEDURE OUTLINED IN THE STANDARD SPECIFICATIONS FOR BRIDGE CONSTRUCTION.
- ALL NUTS AND WASHERS SHALL CONFORM TO ASTM A563 AND ASTM F436 RESPECTIVELY UNLESS NOTED OTHERWISE.
- ALL W-BEAM AND THRIE BEAM GUARDRAIL (INCLUDING W-THRIE BEAM TRANSITION SECTION) SHALL HAVE A MINIMUM YIELD STRENGTH OF 345 MPa.
- ALL WELDING SHALL CONFORM TO CURRENT AWS SPECIFICATION D1.5.
- IF ROADWAY GRADE EXCEEDS 2% BOTTOM OF POST SHALL BE BEVELLED TO MATCH ROADWAY GRADE (SEE POST BEVEL DETAIL).
- TUBE SECTIONS SHALL BE CONTINUOUS OVER AT LEAST TWO POSTS.
- ALL MATERIALS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123/A123M AND ASTM F2329 UNLESS NOTED OTHERWISE.
- THE BOTTOM SURFACE OF THE BASEPLATES SHALL BE COATED WITH AN APPROVED COATING SYSTEM, SUITABLE FOR APPLICATION ON GALVANIZED STEEL, TO PREVENT CONTACT BETWEEN THE ZINC AND THE GROUT. THE COLOUR SHALL BE MEDIUM GREY.
- TIMBER POSTS AND SPACERS SHALL BE COAST DOUGLAS FIR, PACIFIC COAST HEMLOCK OR LODGEPOLE PINE CONFORMING TO THE STRESS GRADE "SELECT STRUCTURAL POSTS AND TIMBERS" (NLGA PARAGRAPH 131 a).

ERECTION

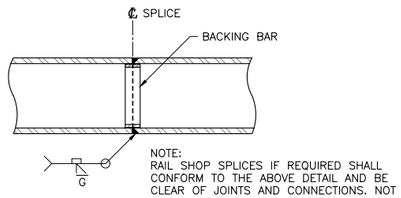
- ALL ALIGNMENT NUTS MUST BE "SNUG- TIGHT" BEFORE ANCHOR RODS ARE FULLY PRETENSIONED.
- ALL ANCHOR ROD NUTS AND A325 BOLTS SHALL BE TIGHTENED AN ADDITIONAL 1/3 TURN OF THE NUT PAST THE "SNUG-TIGHT" CONDITION.
- ALL POSTS SHALL BE VERTICAL.
- ALL DIMENSIONS ARE MEASURED PARALLEL TO TOP OF CURB AND ALONG THE CENTRELINE OF ANCHOR ROD ASSEMBLIES.
- LINE AND ELEVATION OF RAIL SHALL BE SET BY INSTRUMENT.



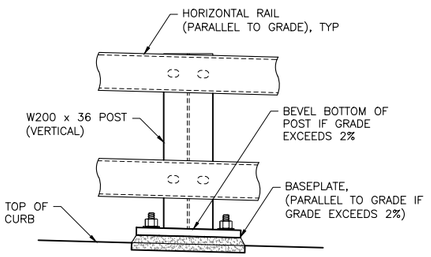
DETAIL
1:5



SECTION - TUBE SLEEVE
1:5



RAIL SHOP SPLICE DETAIL
1:5



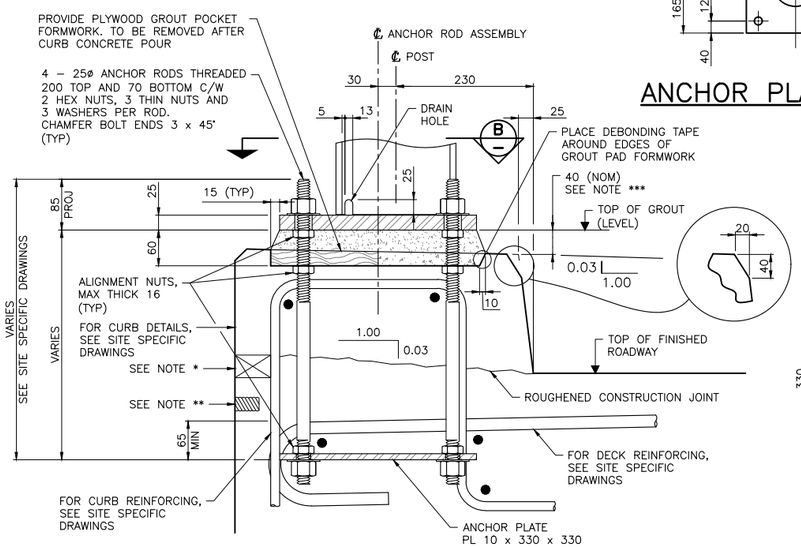
POST BEVEL DETAIL
1:10

NOTES:

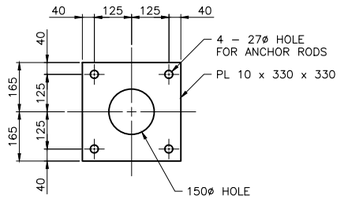
* 38 x 60 TEMPORARY POUR STRIP SET PARALLEL TO GRADE

** 2 - STRUT TYSCRU COUPLER C/W 50 SET BACK CONE OR APPROVED EQUIVALENT TO FACILITATE VERTICAL ALIGNMENT OF FORMWORK WITH ADJACENT CONCRETE

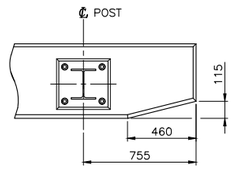
*** VARY DIMENSION (MAX 60, MIN 20) AS REQUIRED TO MEET RAIL HEIGHT AND ALIGNMENT



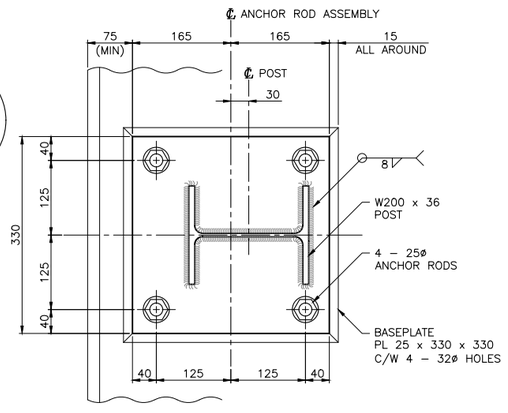
ANCHOR ROD ASSEMBLY DETAIL
1:5



ANCHOR PLATE DETAIL
1:10



CURB END DETAIL
1:20



B SECTION
1:5

* WORK THESE DRAWINGS TOGETHER: S-004 AND S-005

Government of Northwest Territories

Consultant Logo

Rev	Date	Description	Init

REVISIONS

Government of Northwest Territories

STANDARD DRAWING

TL-4 DOUBLE TUBE TYPE BRIDGERAIL

BRIDGERAIL DETAILS

DESIGNED	K. HABEL	DATE	OCTOBER 25, 2024
CHECKED	K. WILLIS	DATE	OCTOBER 25, 2024
DRAWN	T. CHIU	DATE	OCTOBER 25, 2024
SCALE	AS SHOWN		

PERMIT TO PRACTICE
ASSOCIATED ENGINEERING (B.C.) LTD.
Signature
Date 2024-11-15
PERMIT NUMBER: P 554
The Association of Professional Engineers, Geologists and Geophysicists of NWT/NU

PREPARED UNDER THE DIRECTION OF
K. HABEL
ENGINEER OF RECORD
DATE OCTOBER 25, 2024

PROJECT No.

DRAWING No.
S-004

CANCEL PRINTS BEARING PREVIOUS LETTER

FILE: \\AE-CA\DATA\WORKING\VAN\2021-2234-00\STRU\MODEL\S-004.DWG
PLOTTED: October 25, 2024