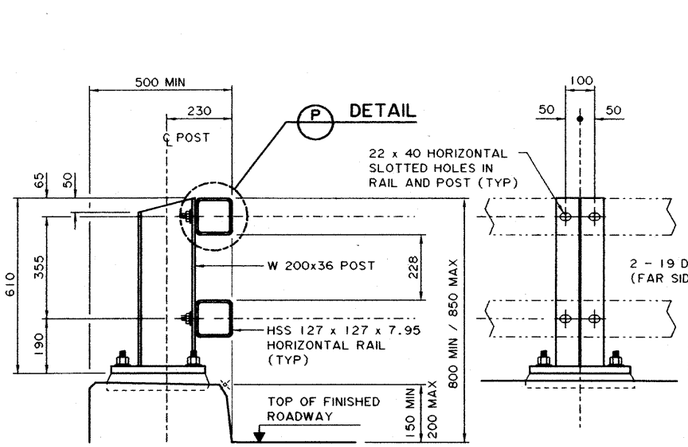
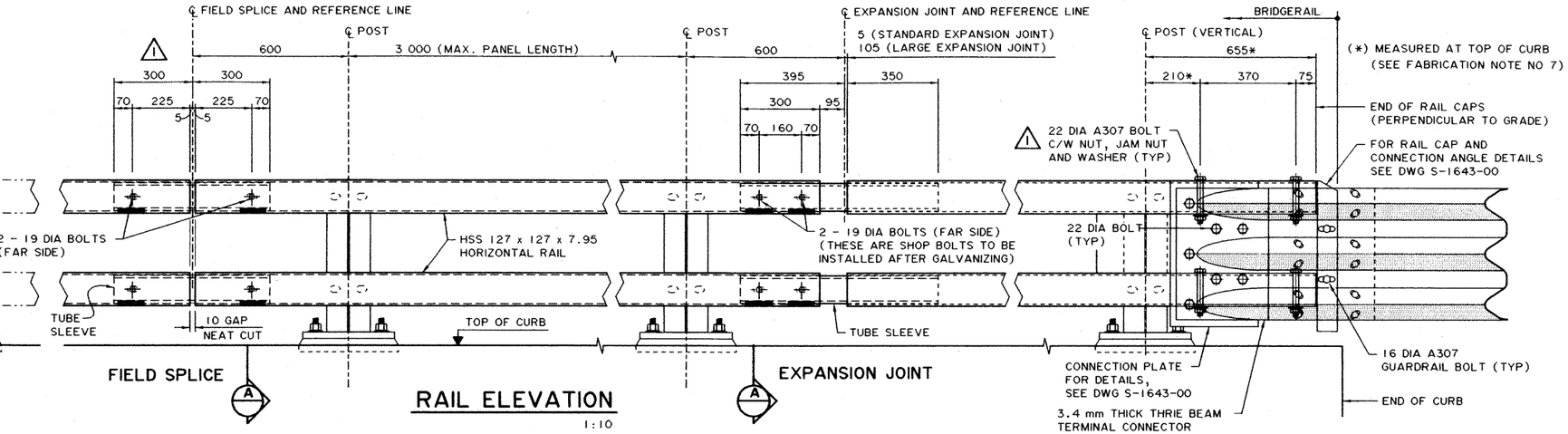


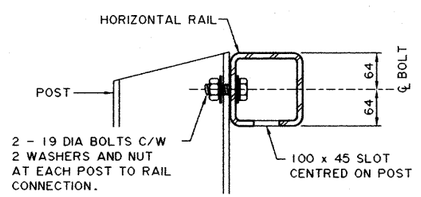
RAIL SECTION

1:10



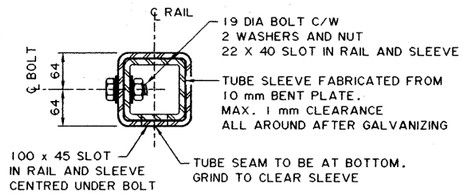
RAIL ELEVATION

1:10



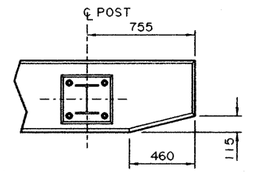
P DETAIL

1:5



A SECTION - TUBE SLEEVE

1:5



CURB END DETAIL

1:20

GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. RAILING CONFIGURATION IS BASED ON A RAILING CONFIGURATION THAT HAS BEEN CRASH TESTED AND MEETS THE REQUIREMENTS OF NCHRP 350, TEST LEVEL 4. (EQUIVALENT TO PERFORMANCE LEVEL 2 OF AASHTO GUIDE SPECIFICATIONS FOR BRIDGE RAILING, 1989).
3. RAILING SHALL BE USED WITH CURB CONFIGURATION SHOWN.
1 4. DESIGN OF DECK AND CURB REBAR SHALL BE CARRIED OUT ON A SITE SPECIFIC BASIS TO DEVELOP THE CAPACITY OF THE BRIDGERAIL POSTS.

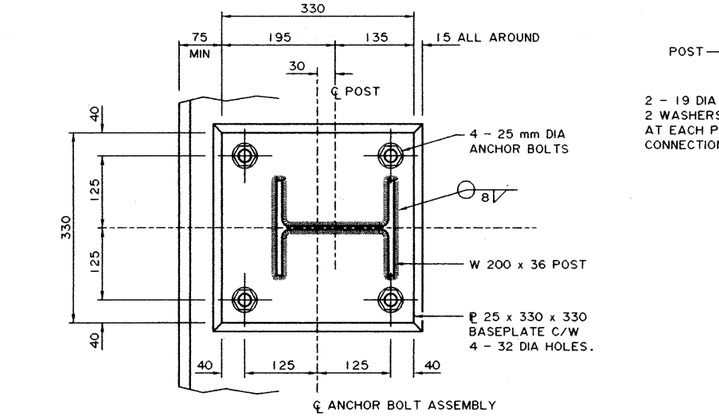
FABRICATION

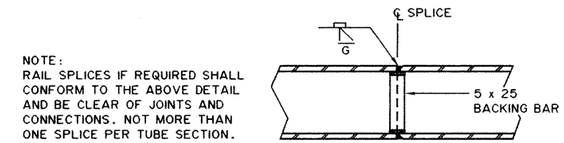
1. BRIDGERAIL INCLUDING APPROACH RAIL TRANSITION SHALL CONFORM TO CURRENT REQUIREMENTS OF THE SPECIFICATIONS FOR BRIDGE CONSTRUCTION SECTION 12 - BRIDGERAIL AND SECTION 14 - GUARDRAIL.
2. ALL PLATE STEEL AND STRUCTURAL SHAPES SHALL CONFORM TO CSA G40.21 GRADE 300W OR ASTM A36 EXCEPT STRUCTURAL TUBING SHALL CONFORM TO ASTM A500B.
3. ALL ANCHOR BOLTS SHALL CONFORM TO AISI 4140 ANNEALED AND SHALL HAVE A MINIMUM YIELD STRENGTH (AT 0.2% OFFSET) OF 420 MPa AND A MINIMUM ULTIMATE TENSILE STRENGTH OF 650 MPa. ALL NUTS AND WASHERS SHALL CONFORM TO A325.
4. ALL W-BEAM AND THRIE BEAM GUARDRAIL (INCLUDING W-THRIE BEAM TRANSITION SECTION) SHALL HAVE A MINIMUM YIELD STRENGTH OF 345 MPa.
5. ALL WELDING SHALL CONFORM TO CURRENT AWS SPECIFICATION D1.5.
6. POST BASEPLATES SHALL BE PLACED ON BEVEL IF ROADWAY GRADE EXCEEDS 2% (SEE POST BEVEL DETAIL).
7. IF THE ROADWAY GRADE EXCEEDS 1%, AN ADJUSTMENT OF THE RAIL LENGTH SHALL BE MADE BY VARYING THE 655 mm DIMENSION AT THE ENDS OF THE BRIDGERAIL.
8. TUBE SECTIONS SHALL BE FABRICATED IN THE CONFIGURATIONS SHOWN IN "TUBE SECTION TYPES".
9. ALL MATERIALS SHALL BE HOT DIP-GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH CSA G164 UNLESS NOTED OTHERWISE.
10. 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.
1 11. TIMBER POSTS AND SPACERS SHALL BE COAST DOUGLAS FIR OR PACIFIC COAST HEMLOCK CONFORMING TO THE STRESS GRADE "SELECT STRUCTURAL POSTS AND TIMBERS" (NLGA PARAGRAPH 131 a).

ERECTION

1. ALL A325 BOLTS SHALL BE TIGHTENED AN ADDITIONAL 1/3 TURN OF THE NUT PAST THE "SNUG-TIGHT" CONDITION EXCEPT FOR ANCHOR BOLTS WHICH SHALL BE TIGHTENED AN ADDITIONAL ½ TURN OF THE NUT PAST THE "SNUG-TIGHT" CONDITION.
2. ALL POST SHALL BE VERTICAL.
3. ALL DIMENSIONS ARE MEASURED PARALLEL TO TOP OF CURB AND ALONG THE CENTRELINE OF ANCHOR BOLT ASSEMBLIES.
4. LINE AND ELEVATION OF RAIL SHALL BE SET BY INSTRUMENT.

● WORK THESE DRAWINGS TOGETHER: S-1642-00 AND S-1643-00 (2)

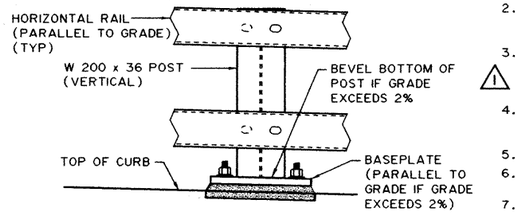




NOTE:
RAIL SPLICES IF REQUIRED SHALL CONFORM TO THE ABOVE DETAIL AND BE CLEAR OF JOINTS AND CONNECTIONS. NOT MORE THAN ONE SPLICE PER TUBE SECTION.

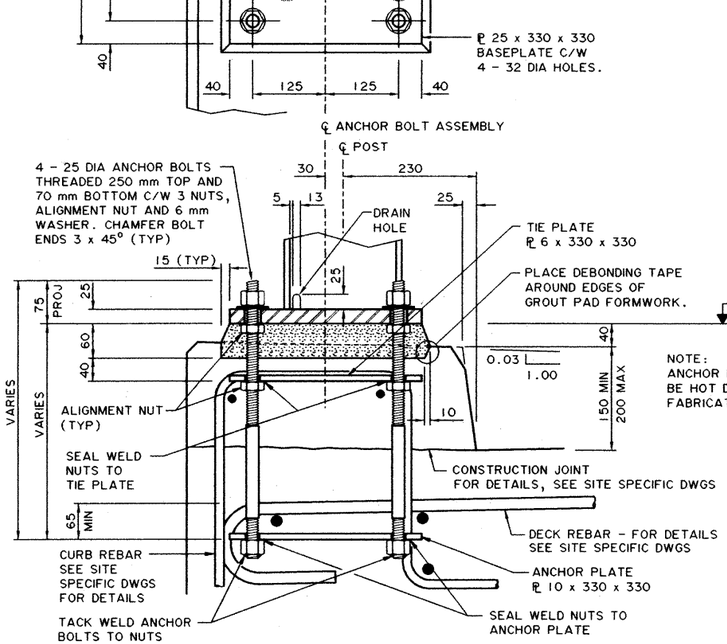
RAIL SHOP SPLICE DETAIL

1:5



POST BEVEL DETAIL

1:10

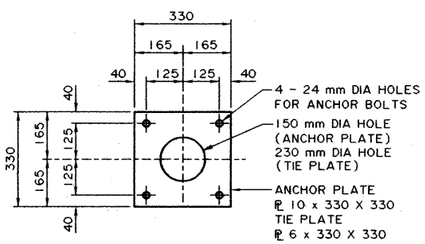


NOTE:
ANCHOR BOLT ASSEMBLIES TO BE HOT DIP GALVANIZED AFTER FABRICATION.

1 ANCHOR BOLT ASSEMBLIES DETAIL

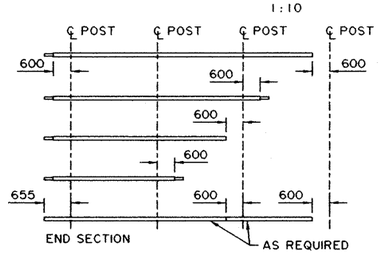
(ANCHOR BOLT ASSEMBLY SHALL BE MINIMUM 25 CLEAR FROM BOTTOM OF DECK)

1:5



1 ANCHOR PLATE AND TIE PLATE DETAIL

1:10



TUBE SECTION TYPES

(DIMENSIONS ARE TO REFERENCE LINES) NTS

0705-103-00-03 / S-1642-00.DGN

UMA Engineering Ltd.
Engineers, Planners & Surveyors

PERMIT TO PRACTICE
UMA ENGINEERING LTD.
Signature
Date Nov 21, 2000
PERMIT NUMBER: P329
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

DESIGNER — PROFESSIONAL ENGINEER ALBERT JOHN RAMAN — DATE Nov 21, 2000

CHECKER — PROFESSIONAL ENGINEER DALE B. SERNIA — DATE Nov 22/2000

SUPERSEDED BY S-1643-00 BY REV 2 ON SHEET DATE: 2001-12-03

REV	DATE	REVISIONS	BY
6			
5			
4			
3			
2			
1	2000.09.20	ANCHOR BOLTS, NOTES, MISC	NSP

RECOMMENDED
DIRECTOR BRIDGE ENGINEERING

APPROVED
EXECUTIVE DIRECTOR
TECHNICAL STANDARDS BRANCH
DATE 22 Nov 00

Alberta INFRASTRUCTURE

PL-2 DOUBLE TUBE TYPE BRIDGERAIL
BRIDGERAIL DETAILS

F500730 | DATE 2000-03-30 | SHEET 1 OF 2 | DRAWING S-1642-00