

SITE C CLEAN ENERGY PROJECT

**Component Application Package – Dry
Creek Bridge Replacement**

**For Canadian Navigable Waters Act
Notice of Work**

May 22, 2020

Submitted to:

Transport Canada
Navigation Protection Program
Suite 1100 - 1166 W Pender Street
Vancouver, BC V6E 2R9

Submitted by:

BC Hydro and Power Authority
Site C Clean Energy Project
9th Floor – 1111 West Georgia Street.
Vancouver BC V6E 4M3

Site C Clean Energy Project – Dry Creek Bridge Replacement

TABLE OF CONTENTS

List of Tables	i
List of Appendices	i
1 INTRODUCTION	2
2 HIGHWAY 29 Realignment Bridge Replacements – Preliminary Construction SCHEDULE	2
2.1 DRY CREEK BRIDGE CROSSING	3
3 PUBLIC BOATER ACCESS	4
4 consultation.....	4

List of Tables

Table 1: Preliminary Construction Schedule - Highway 29 Bridge Replacements.....	3
--	---

List of Appendices

Appendix A	Dry Creek Engineering Design Drawings, Plan and Profile Views
Appendix B	Dry Creek Culvert Crossing Alignment and Arrangement presented in Site C Environmental Impact Statement

1 INTRODUCTION

The Canadian Navigable Waters Act (CNWA) came into force on August 28, 2019. The CNWA includes a schedule of navigable waters requiring regulatory approval for works that risk a substantial interference with navigation. Works required for construction and operation of the Site C Clean Energy Project (the Project) that occur on, over, under or through navigable waterways as defined by the CNWA must be permitted.

Dry Creek is a tributary to the Peace River and is not a named navigable waterway. However, the Site C Reservoir will inundate some of the Dry Creek lower reaches and the Site C Reservoir will be considered a named navigable waterway as part of the Peace River. The Site C reservoir will inundate the past location of the Dry Creek highway culvert crossing and flow under the proposed bridge. As such the CNWA will apply to the Dry Creek Bridge replacement once the Site C Reservoir is formed.

This Notice of Work package provides an overview of the Highway 29 realignment focusing on construction of the Dry Creek highway crossing replacement. This application package is one of a number of separate application packages that have or will be submitted for Project works requiring CNWA approvals or notices. The construction phase CNWA application packages have been generally organized into component packages by activity, location or timing, including Dam Site Components, Vegetation Clearing, Highway 29 Bridge Replacements, Reservoir Boat Launches, Transmission Line, and Hudson's Hope Shoreline Protection. Future application packages will be submitted to the Navigation Protection Program (NPP) that describe the other Highway 29 realignment locations and reservoir boat activities over existing or future navigable waterways scheduling during the remainder of the eight year Project construction period.

2 HIGHWAY 29 REALIGNMENT BRIDGE REPLACEMENTS – PRELIMINARY CONSTRUCTION SCHEDULE

The following information on the preliminary construction schedule for each of the Highway 29 bridge replacements is provided for context to support this application that is specific to Farrell Creek.

As described in Section 4 of the Site C Environmental Impact Statement (EIS), Highway 29 connects Hudson's Hope to Fort St. John and runs along the north side of the Peace River. It is a two lane rural arterial undivided highway under the jurisdiction of the BC Ministry of Transportation and Infrastructure (BCMoTI). Creation of the reservoir will require realignment of approximately 30km of existing highway at Lnyx Creek, Dry Creek, Farrell Creek, Halfway River and Cache Creek. Bridges sited at these locations will have to be replaced. In anticipation of the potential future navigation use, the vertical and horizontal clearance requirements to support navigation, as mandated by the CNWA, have been taken into account in the bridge design.

The preliminary construction schedule for the Highway 29 realignment and bridge replacement is outlined in Table 1.

Site C Clean Energy Project – Dry Creek Bridge Replacement

Table 1: Preliminary Construction Schedule - Highway 29 Bridge Replacements

Bridge	Commencement	Completion
Halfway River	Late Summer / Fall 2019	Fall 2021
Cache Creek	Late Fall / Winter 2019	Fall of 2022
Farrell Creek	Summer 2020	Fall of 2022
Dry Creek	Summer 2020	Fall of 2022

The construction schedule is indicative only and subject to change. The Purpose of the schedule is to illustrate the general sequence of construction activities, but the dates and schedule may change.

Communication protocols are outlined in this work package for informing users of construction activities during the approximate two year construction period for each bridge.

2.1 DRY CREEK BRIDGE CROSSING

The current highway crossing over Dry Creek is a 46 m long culvert (1.8 m diameter). During the Site C environmental assessment process, a number of options for Dry creek were presented. The option put forward for the Environmental Impact Statement for Definition Design was an 11m pipe-arch culvert (Appendix B). Subsequent analysis of geotechnical information collected after the EIS led the designers to revised the culvert to the bridge crossing design shown herein. An application to amend the Site C Environmental Assessment Certificate will be sent out for consideration to the BC Environmental Assessment Office. Referral of the EAC amendment to Transport Canada and others in the technical working group took place in early 2020.

A location map showing the Dry Creek replacement bridge is included in this submission (Figure 2), inclusive of a 3 m x 10 m navigation clearance envelope (above the maximum reservoir operating elevation = 461.8 m) specification (Figure 1). This boater navigation envelope considers the limited area of future reservoir upstream of the future bridge (Figure 2) and reflects past discussion with Transport Canada¹. Engineering design drawings, plan and profile views are provided in the Appendix A. The bridge location coordinates are: 56.117778 N; 121.771667 W. The proposed bridge is ~ 160 m upstream of the existing Highway 29 culvert crossing of Dry Creek and 380m upstream of the Peace River confluence .

The proposed bridge is ~145 m long and included 3 spans and 2 concrete piers. The navigation envelope is anticipated to be located between Piers 1 and 2.

The method for construction for the new bridge includes realigning a portion of the creek channel into a diversion channel using riprap berms. These berms would located between the future Piers 1 and 2, and be left in place until the reservoir is created. This diversion is needed for isolation from flowing water, over a range of flows, so as to allow pier construction as well as pile cap works at Piers 1 & 2.

¹ Memo to Transport Canada from Siobhan Jackson (BCH), RE: Site Clean Energy Project: Navigation Clearances for Highway 29 Bridge Crossings. 11 October, 2011

Site C Clean Energy Project – Dry Creek Bridge Replacement

The creation of the future Site C reservoir will create a series of safe harbours (inundated rivers and creeks) for boaters and recreational enthusiasts to utilize.² Navigation aids will be attached to either side of bridge piers that surround the navigation channel to support safe vessel passage through the Dry Creek Bridge.

The legal land descriptions of the proposed works are :

- The South East 1/4 of Section 24 Township 82 Range 25 West of the 6th Meridian Peace River District Except Plans 21821
- The South West 1/4 of Section 24 Township 82 Range 25 West of the 6th Meridian Peace River District Except Plan 30367 and 21821

3 PUBLIC BOATER ACCESS

Bridge piers and associated overhead works will mean boater access upstream of the existing Dry Creek culvert is not expected until construction is complete.

4 CONSULTATION

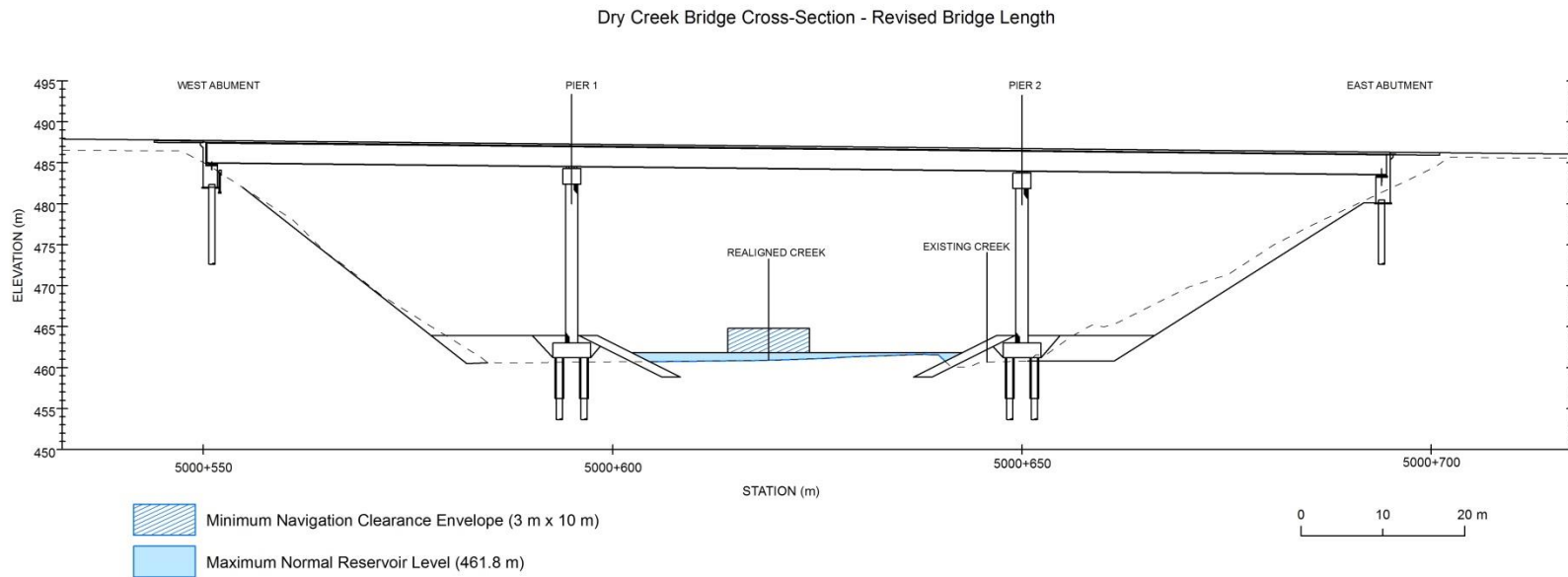
In January 2020, BC Hydro applied to amend the project Environmental Assessment Certificate to modify a portion of the Certificate Alignment (the Revised Alignment) and change the design of the highway crossing across Dry Creek. A technical working group, inclusive of Transport Canada representative(s), is coordinated by the BC Environmental Assessment Office during review of the application for Certificate amendment. The EAC amended is expected to be issued in late May/early April 2020.

BC Hydro is presenting several Dry Creek crossing provincial permit applications to local Indigenous groups during the February 2020 Permitting Forum in Fort St. John. The application approvals are contingent upon the Environmental Assessment Office issuing an EAC amendment for the Dry Creek bridge.

² For the purpose of this review safe harbours are defined as areas in which safe anchorage can be secured during periods poor weather

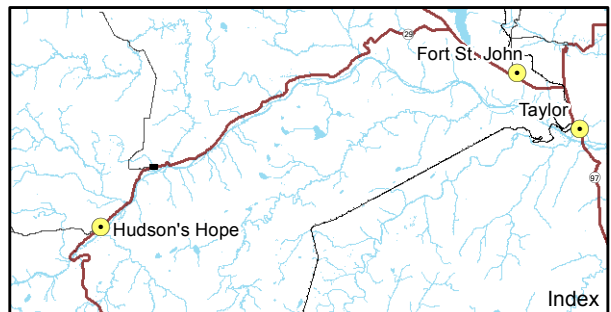
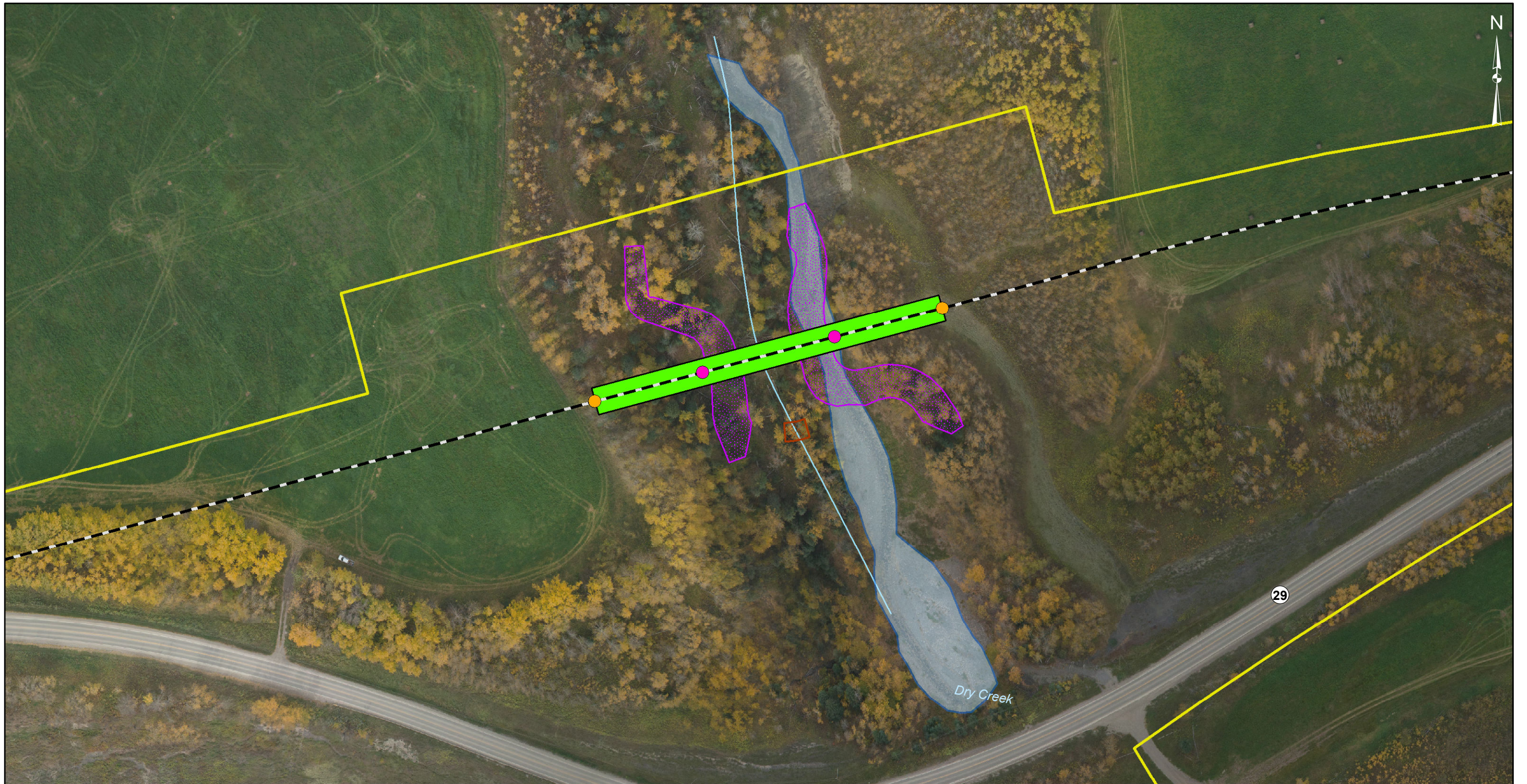
Site C Clean Energy Project – Dry Creek Bridge Replacement

Figure 1. Profile view of Highway 29 crossing over Dry Creek showing navigation envelope.



Site C Clean Energy Project – Dry Creek Bridge Replacement

Figure 2. Location of Highway 29 crossing over Dry Creek.



Map Notes:
 1. Datum: NAD83
 2. Projection: UTM Zone 10N
 3. Base Data: Province of B.C.
 4. Imagery: Sep. 2019 Lidar orthophotos.

- Legend**
- New Highway Realignment Bridge Abutments
 - Berm (831.1 m² inside HWM)
 - New Highway Realignment Bridge Piers
 - Creek Diversion Channel
 - New Highway Realignment Bridge
 - High Water Mark
 - - - New Highway Realignment Centerline
 - ⊠ Temporary Bridge Crossing
 - ▭ New Highway Realignment Right-of-Way

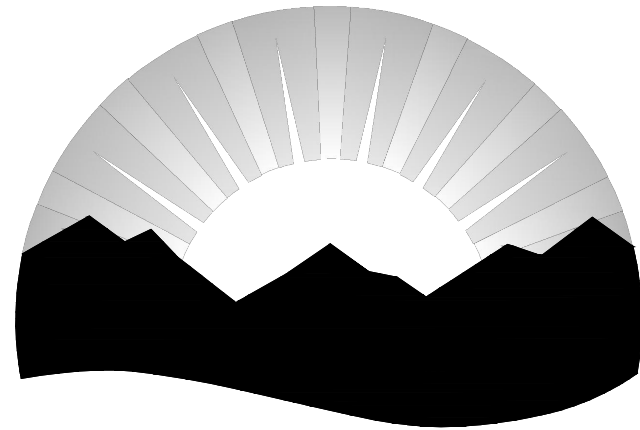
1:1,500 0 50 m

Dry Creek Highway 29 Approval Application Canadian Navigable Waters Act			
Date	May 21, 2020	DWG NO	1016-N11-00677
			R 1

Path: X:\ArcGISProjects\Permitting\Federal_Permitting\NavPro\ActDryCk_Hwy29_ApprovalApplic_1016_N11_00677.mxd

Site C Clean Energy Project – Dry Creek Bridge Replacement

Appendix A Farrell Creek Engineering Design Drawings, Plan and Profile Views



**BRITISH
COLUMBIA**

Ministry of Transportation & Infrastructure

Bridge Project

No. 37503-0000

Dry Creek Bridge No. 08660

Highway #29

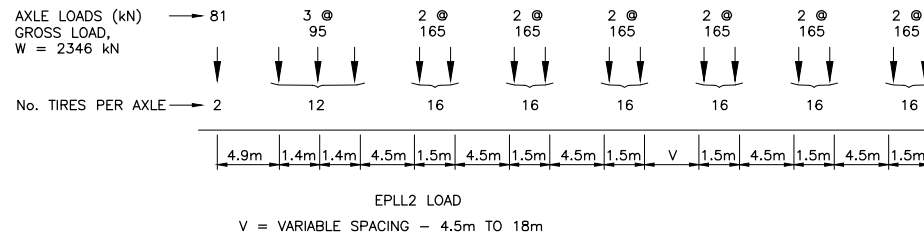
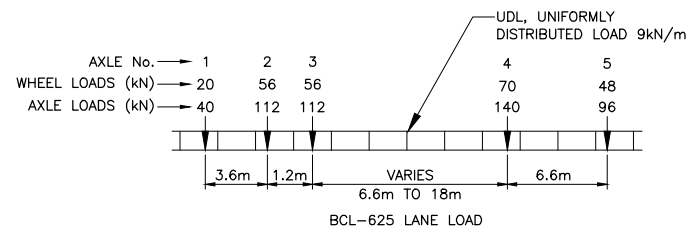
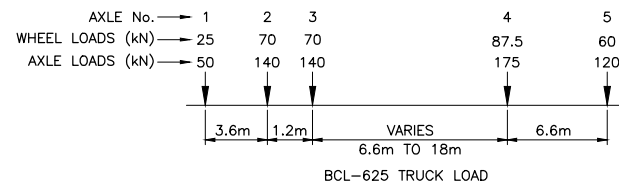
NOT FOR CONSTRUCTION

100% DETAILED DESIGN

1.0 - GENERAL NOTES:

UNLESS OTHERWISE NOTED ON THE DRAWINGS:

- ALL DIMENSIONS ARE GIVEN IN MILLIMETERS (mm). STATIONS AND ELEVATIONS ARE GIVEN IN METERS (m).
- DESIGN SPECIFICATIONS: CAN/CSA S6-14 AND THE BC MOTI SUPPLEMENT TO CSA S6-14.
- ALL WORK SHALL BE IN ACCORDANCE WITH SCHEDULE 3 - SPECIAL PROVISIONS AND THE 2016 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- DESIGN SPEED = 90 km/h
- THE CONTRACTOR IS RESPONSIBLE FOR ERECTION ENGINEERING AND CONTRACTOR'S MEANS AND METHODS.
- DESIGN LOADS:
FUTURE DEAD LOAD ALLOWANCE: 50 mm CONCRETE OVERLAY (1.20 kPa)
LIVE LOAD: BCL-625 AND EPLL2 VEHICLE AS DEFINED BELOW



CROSSING RESTRICTIONS:

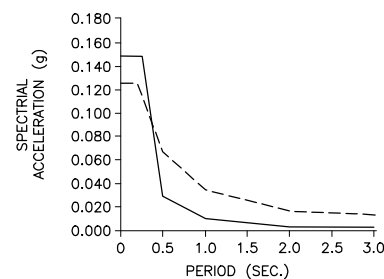
- CENTERLINE OF EPLL2 VEHICLE SHALL REMAIN WITHIN 600 mm OF THE CENTERLINE OF THE AVAILABLE BRIDGE ROADWAY BETWEEN BARRIERS.
- NO OTHER VEHICLES ON THE BRIDGE WHILE THE EPLL2 VEHICLE CROSSES.
- CROSSING SPEED < 10 km/h.
- TRAVELING ON BRIDGE WITHOUT SUPERVISION.

DESIGN TEMPERATURE RANGE: -42°C MIN./+40°C MAX.
WIND LOAD: 1/50 YEAR REFERENCE (FORT ST JOHN)

- SEISMIC DESIGN IMPORTANCE CATEGORY "MAJOR ROUTE BRIDGE".

SEISMIC SITE CLASS: B

PEAK GROUND ACCELERATION:
2% CHANCE OF EXCEEDANCE IN 50 YEARS - A = 0.081g
OIL & GAS ACTIVITY INDUCED - A = 0.124g



2.0 - CONCRETE NOTES:

UNLESS OTHERWISE NOTED ON THE DRAWINGS:

- CONCRETE SHALL CONFORM TO SS211 AS AMENDED BY THE SPECIAL PROVISIONS. CONCRETE MIXES SHALL MEET THE FOLLOWING REQUIREMENTS;

STRUCTURE ELEMENT	CLASSIFICATION	MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS	NOMINAL SIZE OF COARSE AGGREGATE	AIR CONTENT (%)	SLUMP (mm)	MAXIMUM W/Cm RATIO BY MASS
DECK CONCRETE: CIP DECK SLAB AND PARAPETS	GU WITH SILICA FUME	35	28 ⁽¹⁾	6±1	80±20 ⁽²⁾	0.38
SUBSTRUCTURE CONCRETE: CIP PIERS, ABUTMENTS, PILLS AND WORKING FLOORS	GU STANDARD	30	28	5±1	50±20	0.45

⁽¹⁾ THE MAXIMUM PROPORTION OF AGGREGATE PASSING THE 5 mm SCREEN SHALL BE 35% OF THE TOTAL MASS OF AGGREGATE.

⁽²⁾ SILICA FUME APPLICATION RATES SHALL BE 8% MAXIMUM BY MASS OF PORTLAND CEMENT. SLUMP SPECIFICATION IS BASED ON SUPERPLASTICIZED CONCRETE.

- CONCRETE SURFACE FINISHES SHALL MEET THE REQUIREMENTS OF SS211.17.
- ALL EXPOSED EDGES OF CONCRETE TO BE CHAMFERED 20 mm.

3.0 - REINFORCING STEEL NOTES:

UNLESS OTHERWISE NOTED ON THE DRAWINGS:

- ALL REINFORCING STEEL IDENTIFIED ON THE DRAWINGS AS "M" SHALL BE CARBON STEEL GRADE 400W IN ACCORDANCE WITH CAN/CSA-G30.18-M.
- ALL REINFORCING STEEL IDENTIFIED ON THE DRAWING AS "MS" SHALL BE STAINLESS STEEL IN ACCORDANCE WITH SS412. ALL STAINLESS STEEL REINFORCING SHALL HAVE A MINIMUM YIELD TENSILE STRENGTH OF 420 MPa. AND SHALL BE ONE OF THE FOLLOWING GRADES:

TYPE / ASTM DESIGNATION	UNS DESIGNATION
316LN	S31653
DUPLEX 2205	S31803
DUPLEX 2304 *	S32304

* CHEMICAL COMPOSITION OF DUPLEX 2304 SHALL BE WITHIN THE RANGES IDENTIFIED IN TABLE 1 (TYPICAL COMPOSITION %) AND IN CONFORMANCE TO THE REQUIREMENTS OF ASTM A276. THE DIMENSIONING AND MECHANICAL PROPERTIES SHALL BE IN CONFORMANCE WITH ASTM A955M.

- WELDING OF REINFORCING STEEL SHALL NOT BE PERMITTED.
- SPECIFIED COVER AND TOLERANCES TO REINFORCING STEEL SHALL BE AS FOLLOWS:

PIER COLUMNS, PIER FOOTING, ABUTMENTS AND ROCK SOCKETS	FACES CAST AGAINST EARTH	100±25
PIER CAP BEAMS	OTHER FACES	60±20
	ALL FACES	60±10
DECK	TOP	60+6/-0
	SOFFIT	40±10
PARAPET	ALL FACES	50±10

- LAP SPLICES OF REINFORCING BARS SHALL HAVE A MINIMUM LAP LENGTH AS FOLLOWS:

BAR SIZE	LAP LENGTH	LAP LENGTH TOP BARS *
10M	320	420
15M	480	630
20M	640	840
25M	990	1290
30M	1190	1550
35M	1390	1810

* HORIZONTAL REINFORCEMENT WITH MORE THAN 300 mm OF CONCRETE CAST BELOW BARS.

- MECHANICAL COUPLERS SHALL NOT BE USED UNLESS APPROVED IN ADVANCE BY THE MINISTRY REPRESENTATIVE. COUPLERS SHALL CONFORM TO CAN/CSA-S6 CLAUSE 8.4.4.4. NO OFFSET REBAR COUPLERS SHALL BE USED.
- ANCHORAGE AT ENDS OF SPIRAL REINFORCING SHALL BE PROVIDED BY AN EXTRA 2 TURNS OF SPIRAL BAR.
- LAP SPLICES FOR SPIRAL REINFORCING SHALL BE PROVIDED BY ENDS OF SPIRAL BARS BEING ANCHORED AROUND A VERTICAL REINFORCING BAR WITH THE EXTENSIONS OF AT LEAST 360 mm INTO THE CORE.

4.0 - STANDARD ABBREVIATIONS

ABBREVIATION DENOTES:

ABBREVIATION	DENOTES:
ADD'L.	ADDITIONAL
APPROX.	APPROXIMATE
AZ.	AZIMUTH
B.B.W.	BACK OF BALLAST WALL
BOT.	BOTTOM
BRG.	BEARING
B/S	BOTH SIDES
C/C	CENTER TO CENTER
CIP	CAST IN PLACE
CL	CENTERLINE
CONN.	CONNECTION
CONT.	CONTINUOUS
Cm	CEMENT
C.P.	COMPLETE PENETRATION
C/W	COMPLETE WITH
DET.	DETAIL
DWG.	DRAWING
E.F.	EACH FACE
EL.	ELEVATION
EMBED.	EMBEDMENT
EQ.	EQUAL
EXIST.	EXISTING
EXP.	EXPANSION
F.F.	FAR FACE
HORIZ	HORIZONTAL
I.D.	INSIDE DIAMETER
kN	KILONEWTONS
kPa	KILOPASCALS
MAX.	MAXIMUM
MIN.	MINIMUM
Mk.	MARK
MNRL	MAXIMUM NORMAL RESERVOIR LEVEL
MPa	MEGAPASCALS
N.F.	NEAR FACE
No.	NUMBER
NOM.	NOMINAL
O.D.	OUTSIDE DIAMETER
OPP.	OPPOSITE
P	PLATE
PROJ.	PROJECTION
REF.	REFERENCE
REINF.	REINFORCING
SEC.	SECONDS
SIM.	SIMILAR
SP.	SPACES
STA.	STATION
STD.	STANDARD
STIFF.	STIFFENER
SYM.	SYMMETRICAL
T.O.	TOP OF
T.O.C.	TOP OF CONCRETE
T.O.S.	TOP OF STEEL
TYP.	TYPICAL
UDL	UNIFORMLY DISTRIBUTED LOAD
U/N	UNLESS NOTED
U.N.O.	UNLESS NOTED OTHERWISE
U/S	UNDERSIDE
VERT.	VERTICAL
W.P.	WORK POINT

STANDARD DRAWINGS

DRAWING NUMBER	DRAWING TITLE
2784-7	BRIDGE PARAPET 810mm HIGH - STAINLESS STEEL REINFORCING
2785-4	STANDARD STEEL BICYCLE RAILING

DRAWING LIST

DRAWING NUMBER	DRAWING TITLE
08660-01	GENERAL NOTES & DRAWING LIST
08660-02	SITE PLAN
08660-03	GENERAL ARRANGEMENT - SHEET 1
08660-04	GENERAL ARRANGEMENT - SHEET 2
08660-05	PILE LAYOUT & DETAILS
08660-06	SLOPE TREATMENT - SHEET 1
08660-07	SLOPE TREATMENT - SHEET 2
08660-08	SLOPE TREATMENT - SHEET 3
08660-09	SLOPE TREATMENT - SHEET 4
08660-10	SLOPE TREATMENT - SHEET 5
08660-11	WEST ABUTMENT
08660-12	EAST ABUTMENT
08660-13	ABUTMENT REINFORCING - SHEET 1
08660-14	ABUTMENT REINFORCING - SHEET 2
08660-15	PIER 1
08660-16	PIER 2
08660-17	PIER REINFORCING - SHEET 1
08660-18	PIER REINFORCING - SHEET 2
08660-19	GIRDER LAYOUT & DETAILS
08660-20	GIRDER DETAILS - SHEET 1
08660-21	GIRDER DETAILS - SHEET 2
08660-22	DIAPHRAGM DETAILS - SHEET 1
08660-23	DIAPHRAGM DETAILS - SHEET 2
08660-24	GIRDER SPLICE DETAILS
08660-25	BEARING LAYOUT & DETAILS
08660-26	BEARING DETAILS
08660-27	DECK LAYOUT & SECTION
08660-28	DECK SECTIONS & DETAILS
08660-29	DECK REINFORCING
08660-30	PRECAST DECK PANELS
08660-31	EXTERIOR GIRDER - STRESS SHEET
08660-32	INTERIOR GIRDER - STRESS SHEET
08660-33	TEST HOLES - SHEET 1
08660-34	TEST HOLES - SHEET 2
08660-35	
08660-36	
08660-37	
08660-38	
08660-39	

REFERENCE DRAWINGS

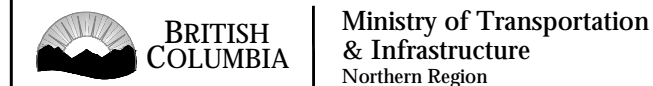
DRAWING NUMBER	DRAWING TITLE
R3-337-001 & 001A	KEY PLAN
R3-337-002	LEGEND
R3-337-101 to 103	PLANS
R3-337-201	L5000-LINE PROFILE
R3-337-202	L5000-LINE PROFILE
R3-337-301 to 304	TYPICAL SECTIONS
R3-337-401 & 402	GEOMETRICS, LANING, SIGNING, AND PAVEMENT MARKINGS
R3-337-701 to 704	DRAINAGE AND ENVIRONMENTAL DETAILS
R3-337-705	DRAINAGE DETAILS
R3-337-801	PIER 1 & PIER 2 PROTECTION
R3-337-802	PILOT CHANNEL
R3-337-803	PIER RIPRAP TYPICAL SECTION

Consultant Logo



Rev	Date	Description	Init

REVISIONS



PEACE DISTRICT
HIGHWAY No. 29

**DRY CREEK BRIDGE No. 08660
GENERAL NOTES & DRAWING LIST**

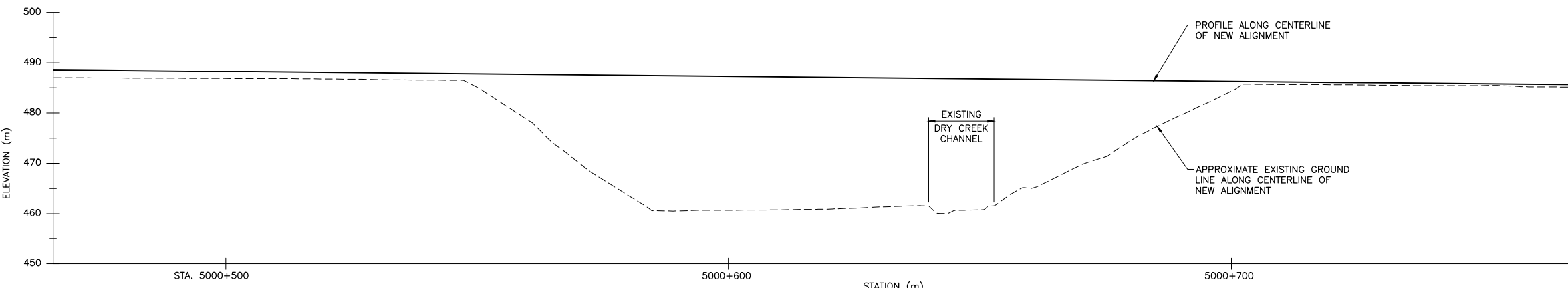
PREPARED UNDER THE DIRECTION OF	DESIGNED K.G. DATE JAN 2020
ENGINEER OF RECORD	CHECKED N.K. DATE JAN 2020
DATE	DRAWN M.B. DATE JAN 2020
FILE No.	SCALE AS NOTED
PROJECT No.	NEGATIVE No.
REG.	DRAWING No.
37503-000	08660-01

NOT FOR CONSTRUCTION

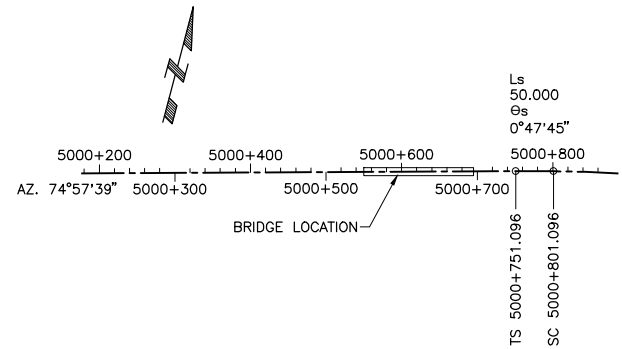
100% DETAILED DESIGN



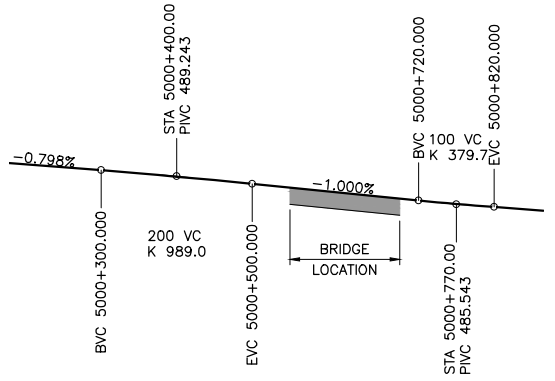
PLAN
SCALE 1:500



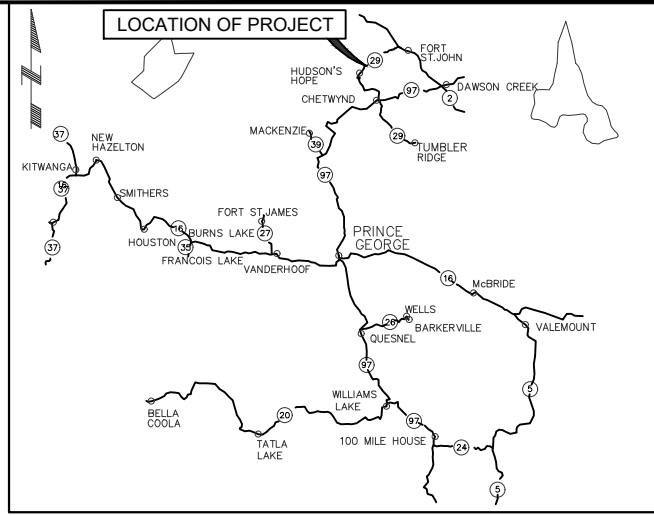
PROFILE ALONG CENTERLINE OF L5000 ALIGNMENT
SCALE 1:500



PLAN OF L5000 ALIGNMENT
N.T.S.



PROFILE OF L5000 ALIGNMENT
N.T.S.



BRIDGE SITE IS LOCATED APPROXIMATELY
18 km NORTHEAST OF HUDSON'S HOPE

KEYPLAN
N.T.S.

LEGEND:

● TEST HOLE

NOTES:

- FOR GENERAL NOTES SEE DRAWING 08660-01.
- BASE MAPPING PROVIDED BY R.F. BINNIE AND ASSOCIATES AND IS BASED ON 2015 LIDAR DATA AND 2018 GROUND SURVEY.
- HORIZONTAL DATUM: UTM Z10 NAD 83 CSRS.
- FOR BENCHMARKS SEE R.F. BINNIE AND ASSOCIATES DRAWING R3-337-001A.
- FOR TEST HOLE DATA SEE DRAWINGS 08660-38 TO 08660-39. REFERENCE: GEOTECHNICAL DATA REPORT, DRY CREEK SEGMENT PREPARED BY WOOD ENVIRONMENTAL AND INFRASTRUCTURE SOLUTIONS, DATED DECEMBER 9, 2019

Consultant Logo

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA | Ministry of Transportation & Infrastructure Northern Region

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
SITE PLAN

PREPARED UNDER THE DIRECTION OF

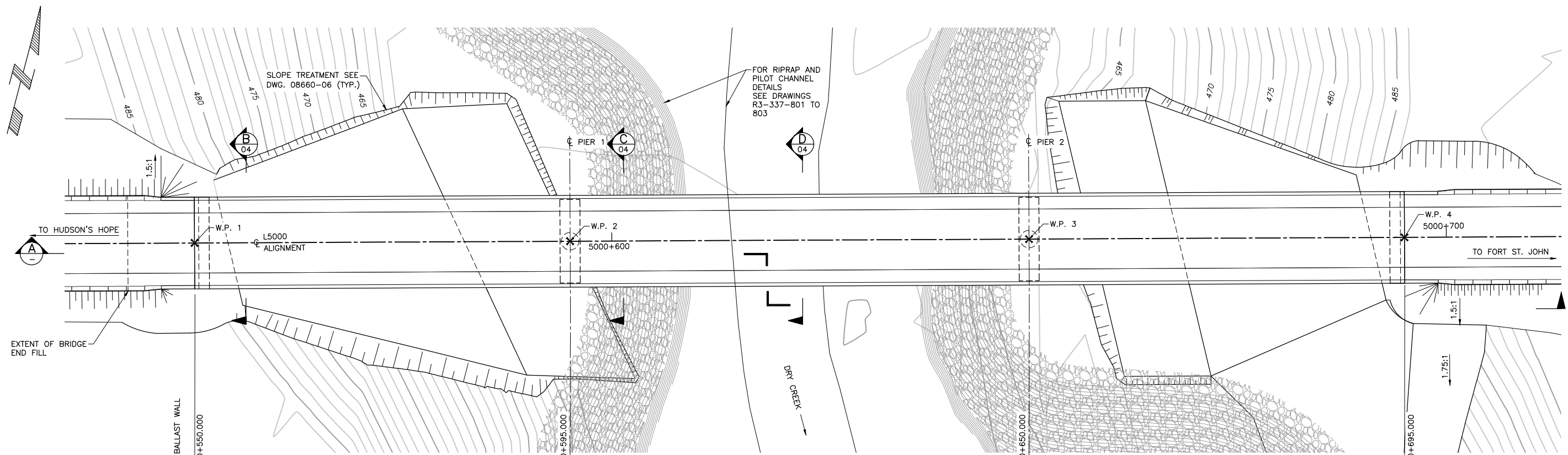
DESIGNED: K.G. DATE JAN 2020
CHECKED: N.K. DATE JAN 2020
DRAWN: M.B. DATE JAN 2020
SCALE: AS NOTED
NEGATIVE No.

ENGINEER OF RECORD
DATE

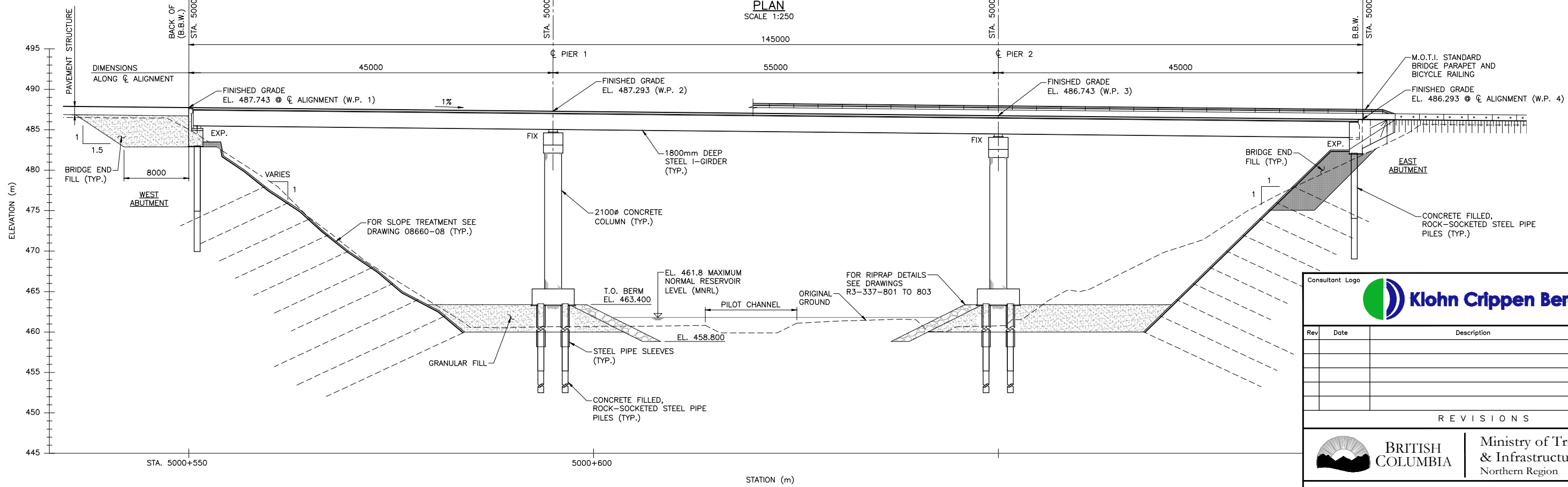
FILE No. PROJECT No. REG. DRAWING No.
37503-0000 08660-02

SEAL

NOT FOR CONSTRUCTION
100% DETAILED DESIGN



PLAN
SCALE 1:250



SECTION A
SCALE 1:250

NOTES:
1. FOR GENERAL NOTES SEE DRAWING 08660-01.

WORK POINT COORDINATE TABLE		
WORKPOINT	LOCAL NORTHING	LOCAL EASTING
W.P. 1	219840.020	576311.913
W.P. 2	219851.698	576355.372
W.P. 3	219865.970	576408.488
W.P. 4	219877.644	576451.947

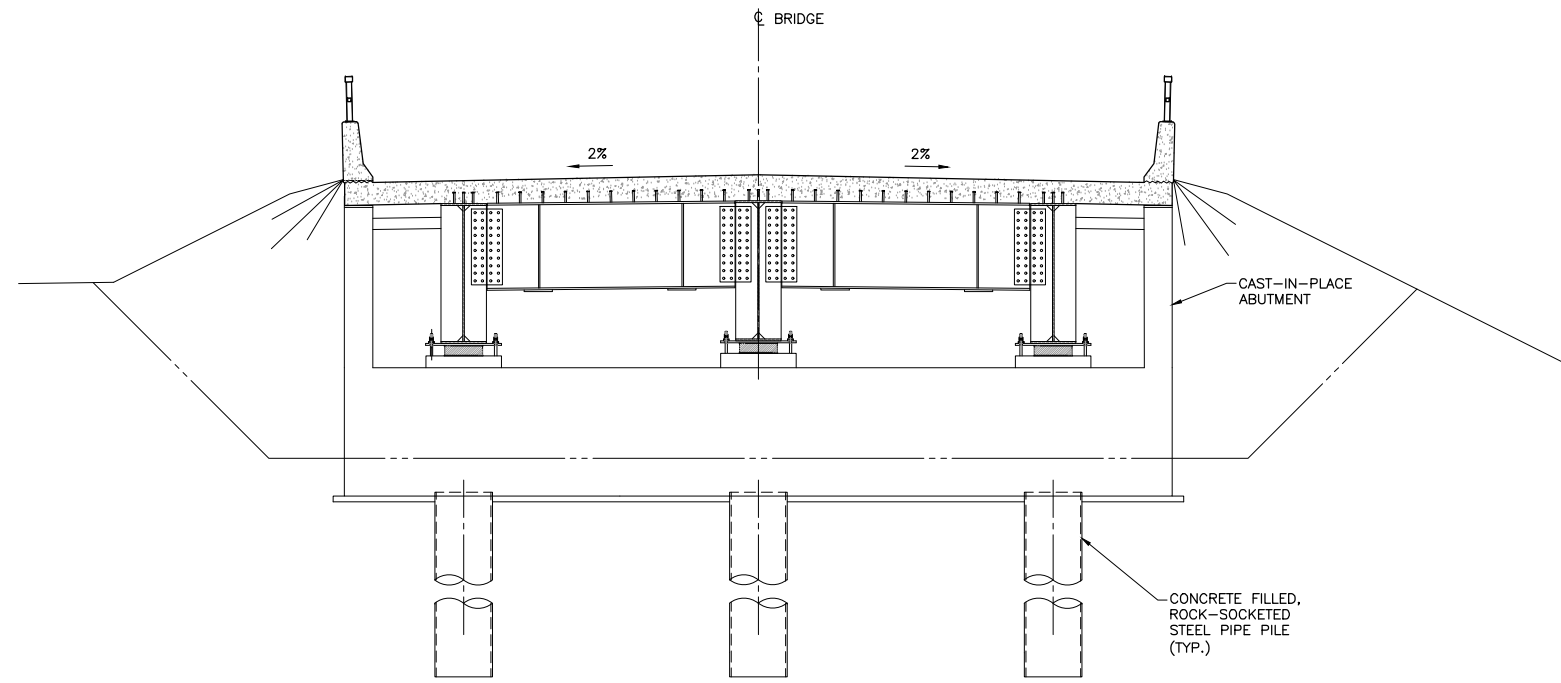
Rev	Date	Description	Init



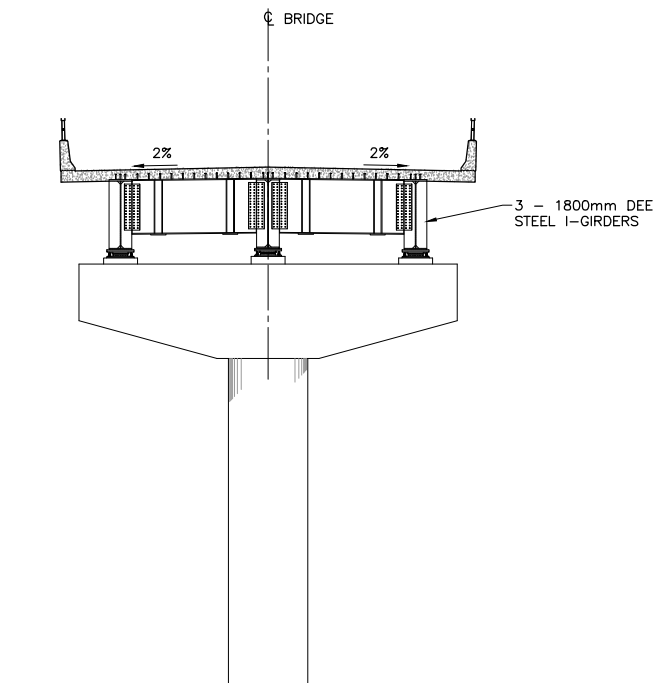
PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
GENERAL ARRANGEMENT - SHEET 1

DESIGNED	K.G.	DATE	JAN 2020
CHECKED	N.K.	DATE	JAN 2020
DRAWN	M.B.	DATE	JAN 2020
SCALE	AS NOTED		
NEGATIVE No.			
FILE No.	PROJECT No.	REG.	DRAWING No.
	37503-000		08660-03

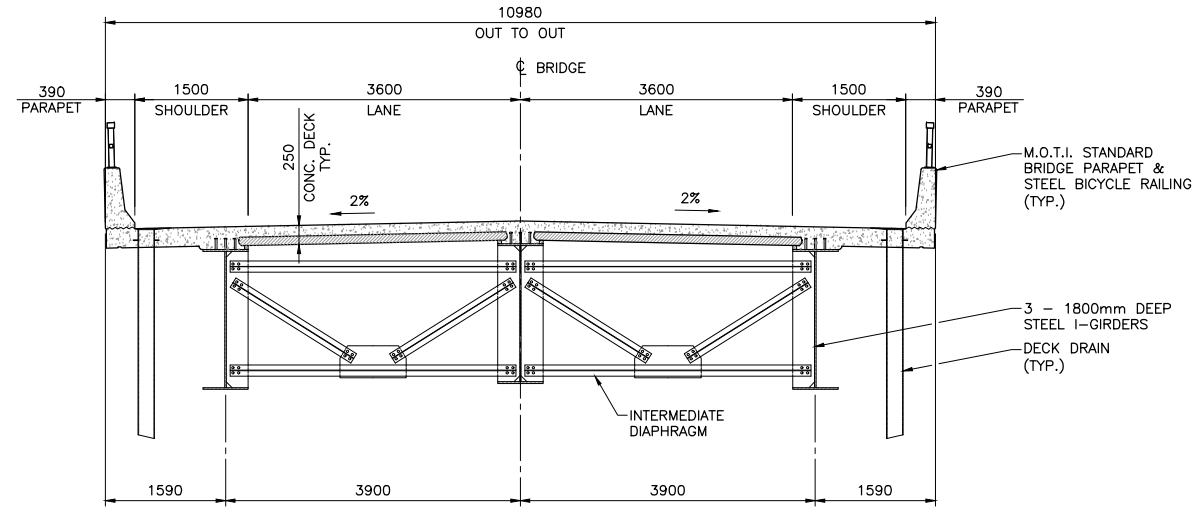
NOT FOR CONSTRUCTION
100% DETAILED DESIGN



SECTION B
SCALE 1:50



SECTION C
SCALE 1:100



SECTION D
SCALE 1:50

NOTES:
1. FOR GENERAL NOTES SEE DRAWING 08660-01.

Consultant Logo

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA | Ministry of Transportation & Infrastructure Northern Region

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
GENERAL ARRANGEMENT - SHEET 2

DESIGNED	K.G.	DATE	JAN 2020
CHECKED	N.K.	DATE	JAN 2020
DRAWN	M.B.	DATE	JAN 2020
SCALE	AS NOTED		
NEGATIVE No.			

PREPARED UNDER THE DIRECTION OF _____

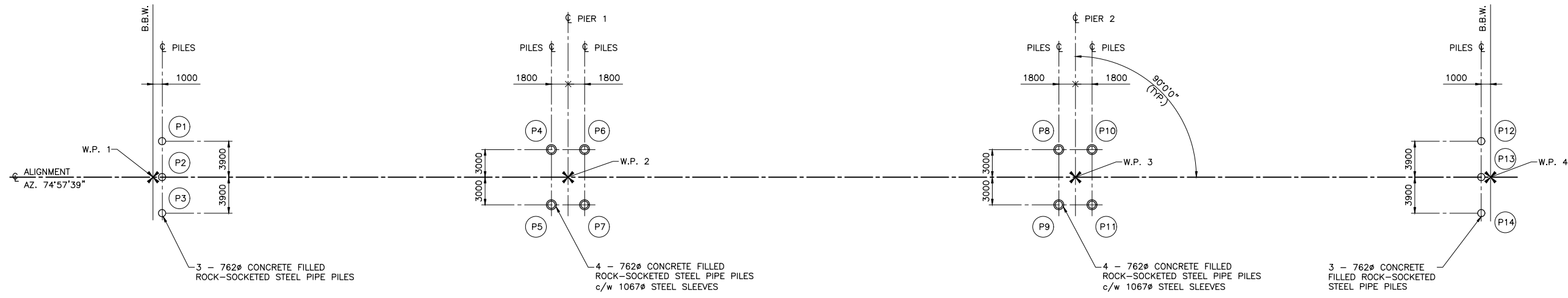
ENGINEER OF RECORD _____

DATE _____

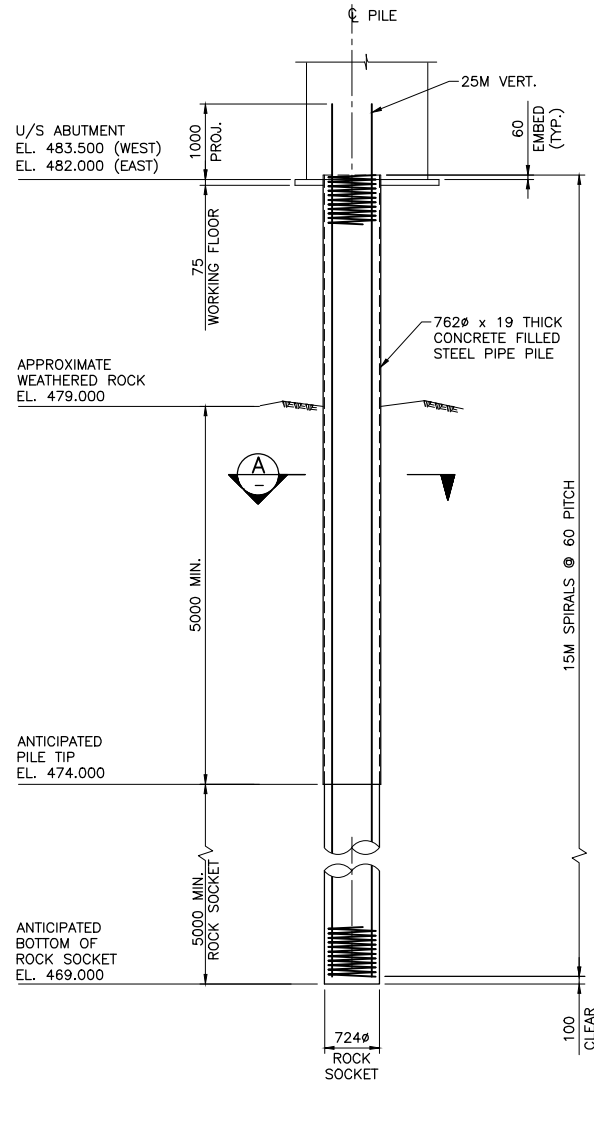
FILE No. _____ PROJECT No. 37503-0000 REG. No. _____ DRAWING No. 08660-04

SEAL

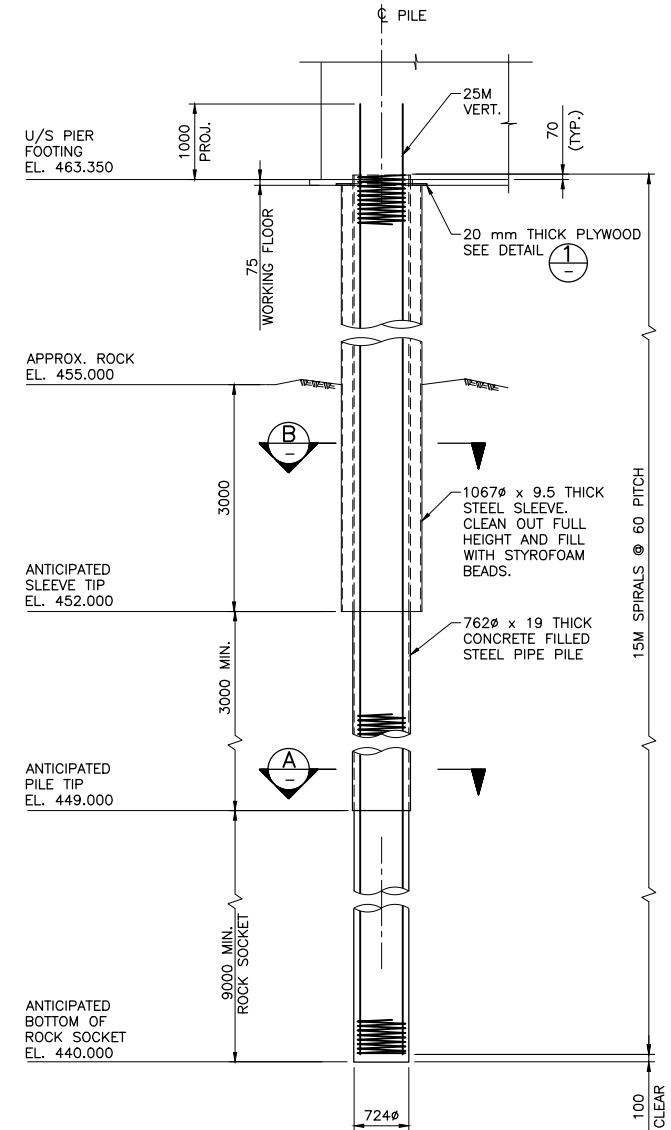
NOT FOR CONSTRUCTION
100% DETAILED DESIGN



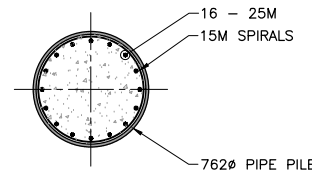
PILE LAYOUT
SCALE 1:250
PILES NUMBERED FOR IDENTIFICATION ONLY



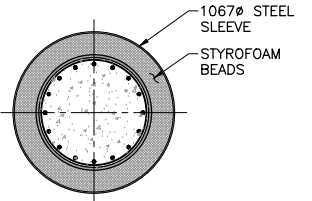
TYPICAL ABUTMENT PILE DETAIL
SCALE 1:50



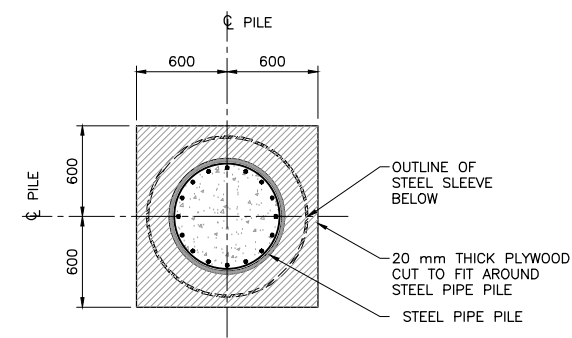
TYPICAL PIER PILE DETAIL
SCALE 1:50



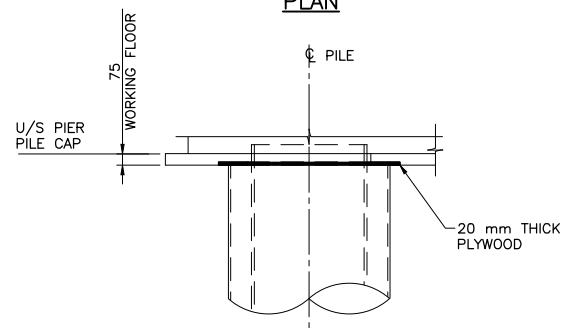
SECTION A
SCALE 1:25



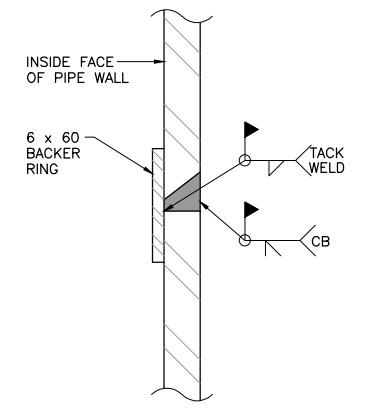
SECTION B
SCALE 1:25



PLAN



SECTION
TYPICAL PLYWOOD
DETAIL 1
SCALE 1:25



TYPICAL PIPE PILE SPlice DETAIL
SCALE 1:2

NOTES:

- FOR GENERAL NOTES SEE DRAWING 08660-01.
- PILES AND SLEEVES TO BE INSTALLED OPEN ENDED TO TIP ELEVATION SHOWN ON THE DRAWINGS OR TO SUCH ELEVATIONS AS MAY BE DIRECTED BY THE MINISTRY REPRESENTATIVE.
- STEEL PIPE PILES SHALL CONFORM TO ANSI/API 5L X52 OR ASTM SPECIFICATION A252, GRADE 3. PILES FABRICATED TO ASTM A252 SHALL MEET ADDITIONAL REQUIREMENTS AS SPECIFIED IN THE SPECIAL PROVISIONS.
- STEEL SLEEVES SHALL CONFORM TO ANSI/API 5L X52 OR ASTM SPECIFICATION A252, GRADE 3. SLEEVES FABRICATED TO ASTM A252 SHALL MEET ADDITIONAL REQUIREMENTS AS SPECIFIED IN THE SPECIAL PROVISIONS.

Consultant Logo

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA | Ministry of Transportation & Infrastructure
Northern Region

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
PILE LAYOUT & DETAILS

PREPARED UNDER THE DIRECTION OF _____

ENGINEER OF RECORD _____

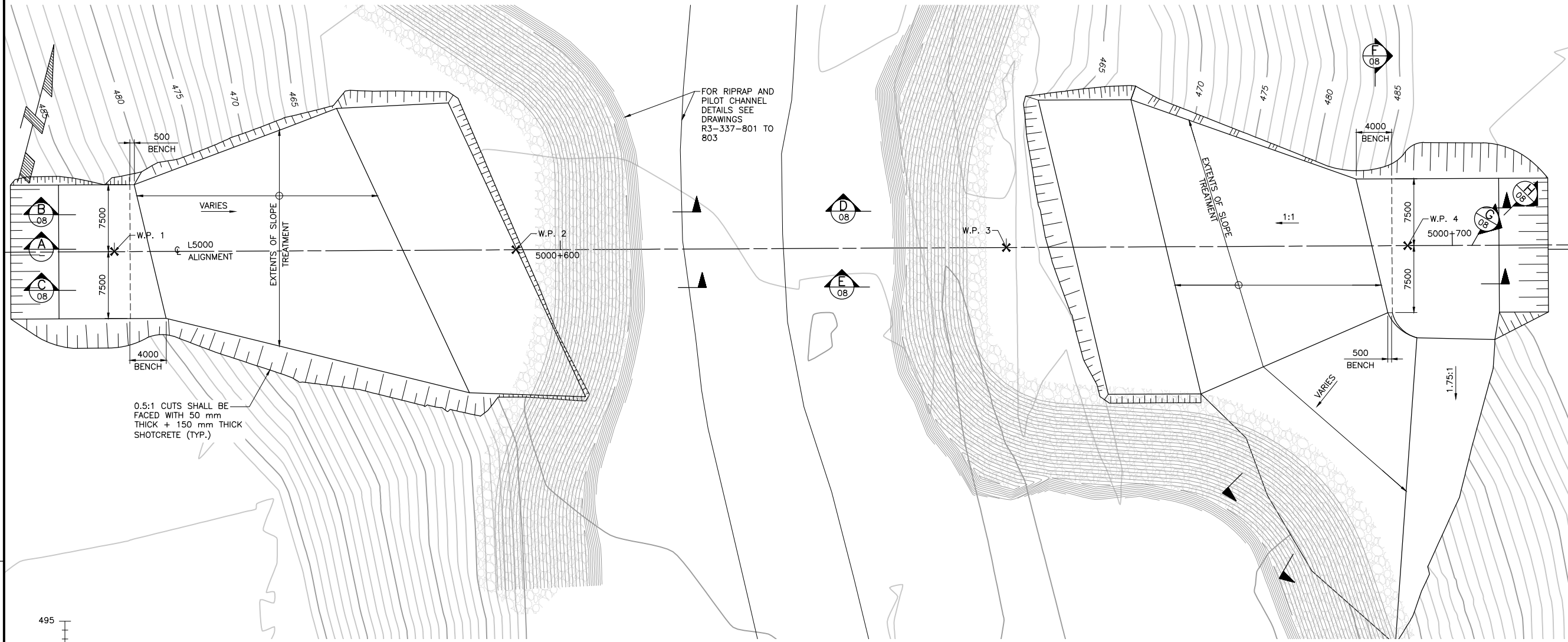
DATE _____

DESIGNED K.G. DATE JAN 2020
CHECKED N.K. DATE JAN 2020
DRAWN M.B. DATE JAN 2020

SCALE AS NOTED
NEGATIVE No. _____

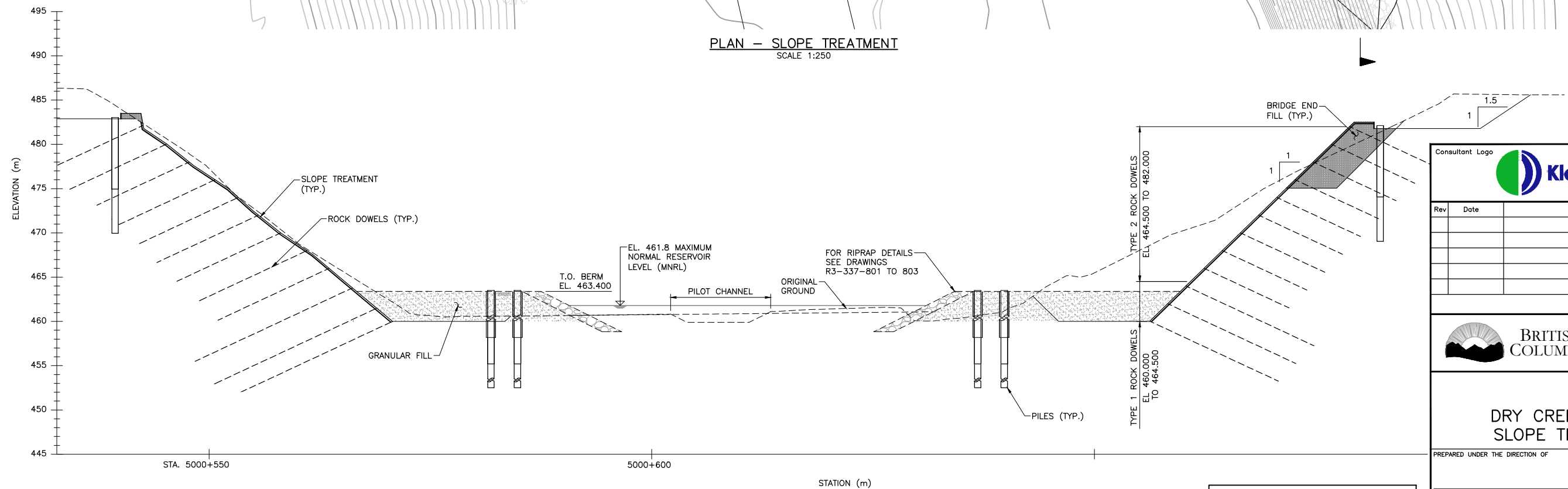
FILE No.	PROJECT No.	REG.	DRAWING No.
	37503-000		08660-05

NOT FOR CONSTRUCTION
100% DETAILED DESIGN



- NOTES:**
- FOR GENERAL NOTES SEE DRAWING 08660-01.
 - ROCK DOWELS:**
 - SEE TYPICAL SHOTCRETE DOWEL DETAILS AND ROCK DOWEL PLACEMENT PATTERN IS SHOWN ON DRAWING 08660-10.
 - THE DETAILS AND LOCATIONS OF THE ROCK DOWELS AND SHOTCRETE MAY REQUIRE ADJUSTMENT BY THE MINISTRY REPRESENTATIVE TO SUIT THE ACTUAL GEOTECHNICAL CONDITIONS ENCOUNTERED.
 - ROCK DOWELS SHALL CONFORM TO CSA G30.18, GRADE W, CARBON STEEL BARS FOR CONCRETE REINFORCEMENT AND SHALL HAVE A SPECIFIED YIELD STRENGTH OF 400 MPa.
 - THE DRILL HOLES SHALL BE THOROUGHLY CLEANED OUT OF LOOSE CUTTINGS PRIOR TO INSTALLING AND GROUTING THE DOWELS.
 - ALL DRILL HOLES FOR INSTALLATION OF ROCK DOWELS ARE TO BE WATER TESTED AS PER POST-TENSIONING INSTITUTE (PTI) RECOMMENDATIONS BEFORE GROUTING. IF LEAKAGE EXCEEDS 1 L/s, THEN THE HOLE WILL BE RE-GROUTED, RE-DRILLED AND RE-TESTED AT NO EXTRA COST TO THE OWNER.
 - HOLE FOR ROCK DOWELS SHALL BE MINIMUM 150 mm LONGER THAN THE EMBEDMENT LENGTH OF THE DOWELS. HOLES SHALL BE FLUSHED OF ALL DEBRIS AFTER DRILLING WITH AIR AND/OR WATER UNDER PRESSURE UNTIL RETURN IS CLEAN.
 - FILL THE DRILL HOLES WITH CEMENT GROUT USING THE TREMIE METHOD. ENSURE THAT THE FULL LENGTH OF THE DRILL HOLES ARE FILLED WITH GROUT.
 - DOWELS SHALL BE INSTALLED WITH PVC CENTRALIZERS EVENLY SPACED TO PERMIT GROUT TO FLOW FREELY AROUND THE TENDON AND ALONG THE DRILL HOLE. A MINIMUM OF TWO CENTRALIZERS SHALL BE USED PER HOLE.
 - DRILL HOLES SHALL BE TOPPED WITH GROUT, AS REQUIRED.
 - FOR ROCK DOWELS TEST REQUIREMENTS, SEE SPECIAL PROVISIONS.

PLAN - SLOPE TREATMENT
SCALE 1:250



SECTION A
SCALE 1:250

NOT FOR CONSTRUCTION
100% DETAILED DESIGN

Consultant Logo

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA

Ministry of Transportation & Infrastructure
Northern Region

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
SLOPE TREATMENT - SHEET 2

PREPARED UNDER THE DIRECTION OF

ENGINEER OF RECORD

DATE

FILE No.

PROJECT No.

37503-0000

REG.

DRAWING No.

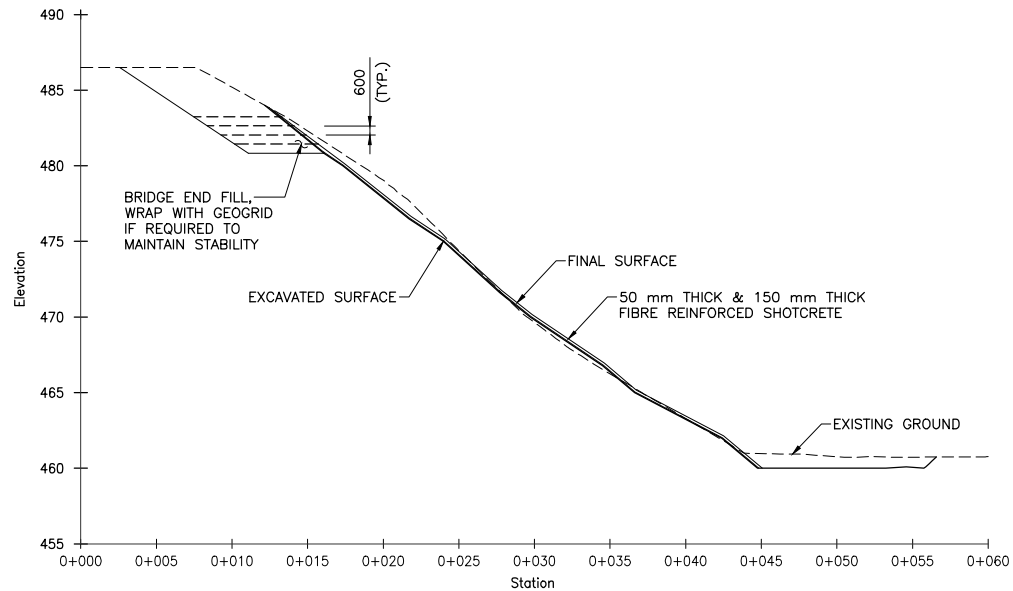
08660-07

DESIGNED J.W. DATE JAN 2020
CHECKED N.J. DATE JAN 2020
DRAWN M.B. DATE JAN 2020
SCALE AS NOTED
NEGATIVE No.

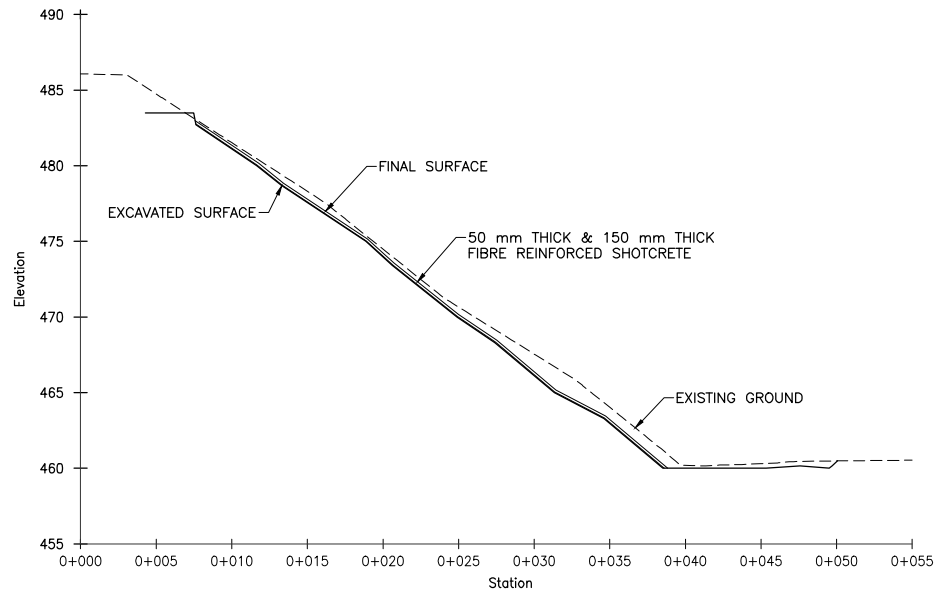
SEAL

H-3081-13-e(07-08)

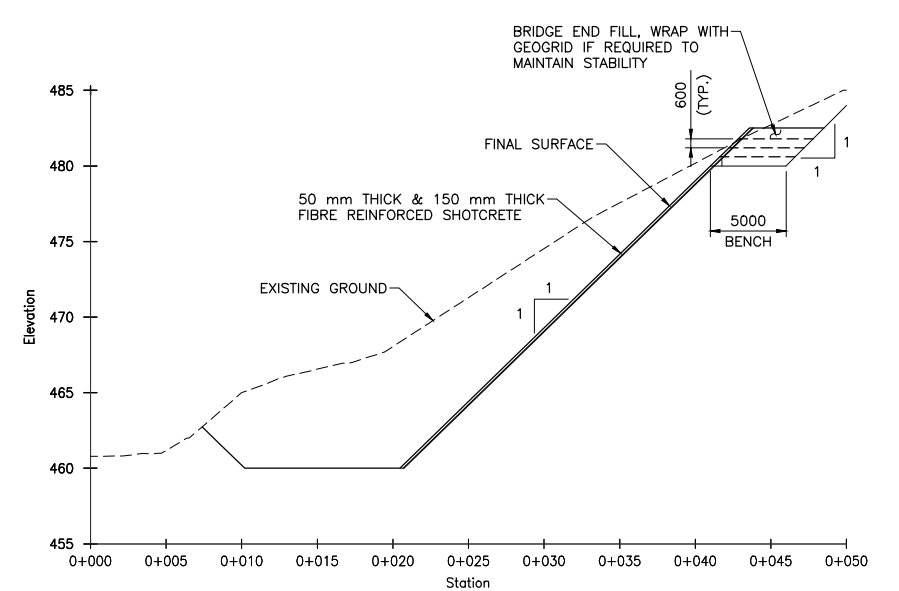
CANCEL PRINTS BEARING PREVIOUS LETTER



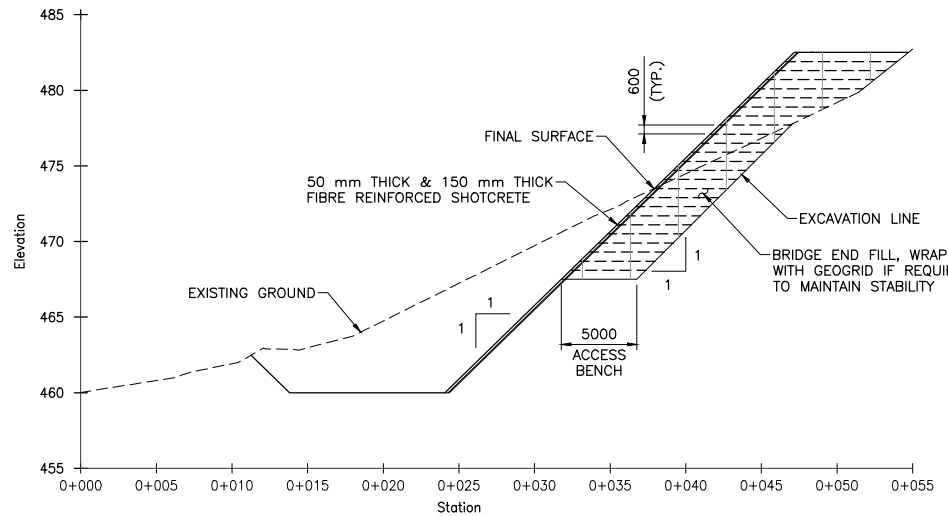
SECTION B-B
SCALE 1:250



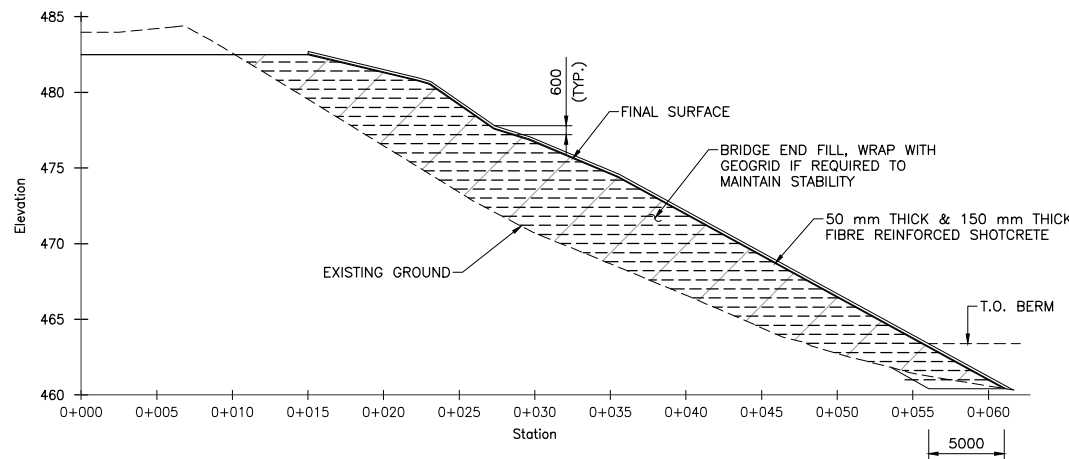
SECTION C-C
SCALE 1:250



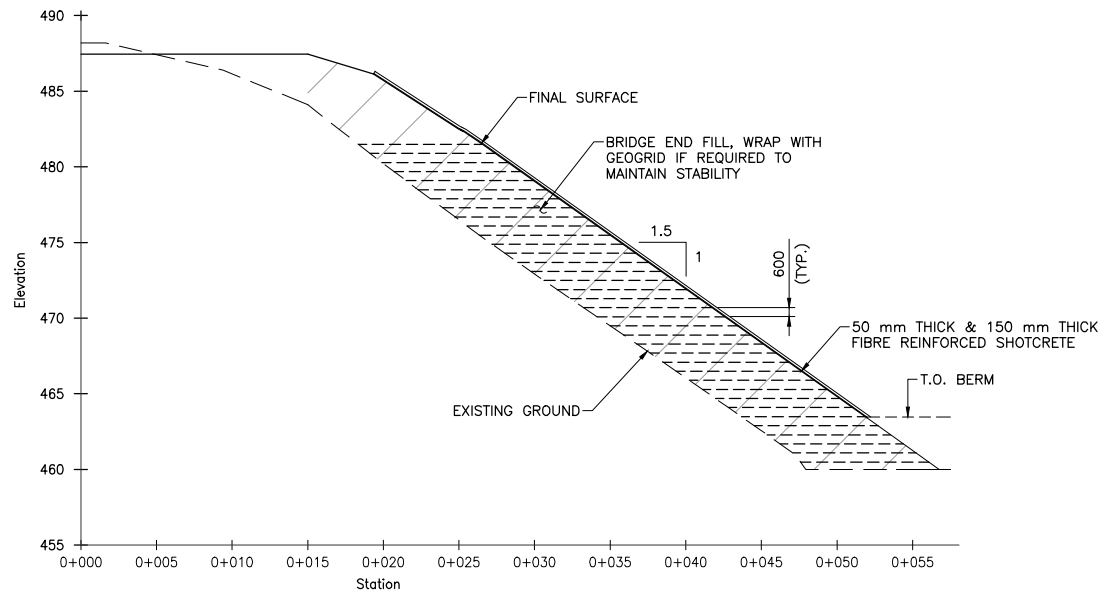
SECTION D-D
SCALE 1:250



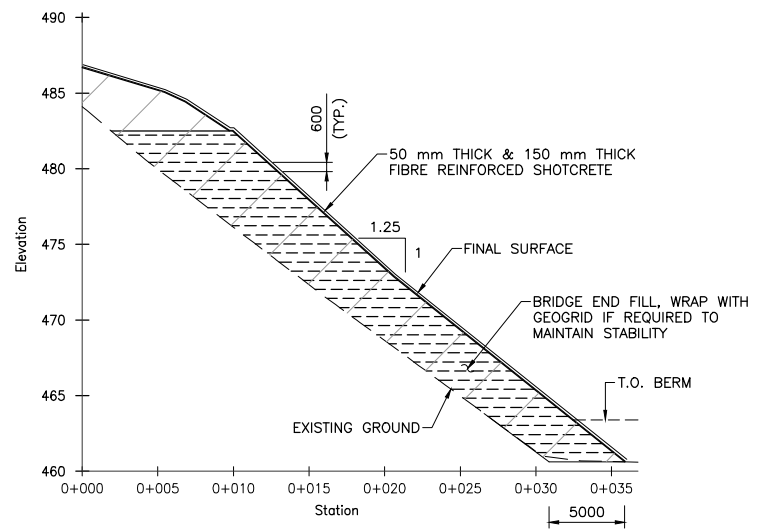
SECTION E-E
SCALE 1:250



SECTION F-F
SCALE 1:250



SECTION G-G
SCALE 1:250



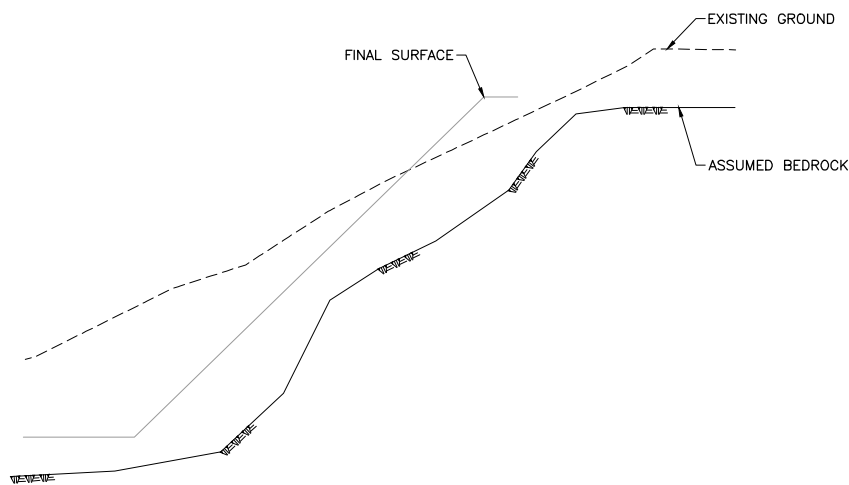
SECTION H-H
SCALE 1:250

NOTES:
1. FOR GENERAL NOTES SEE DRAWING 08660-01.

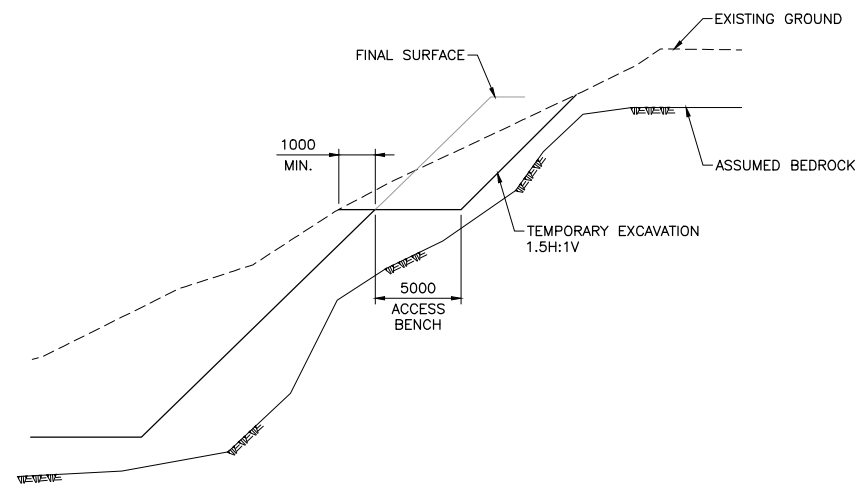
Consultant Logo			
Rev	Date	Description	Init
REVISIONS			
		Ministry of Transportation & Infrastructure Northern Region	
PEACE DISTRICT HIGHWAY No. 29 DRY CREEK BRIDGE No. 08660 SLOPE TREATMENT - SHEET 3			
PREPARED UNDER THE DIRECTION OF		DESIGNED J.W. DATE JAN 2020	
ENGINEER OF RECORD		CHECKED N.J. DATE JAN 2020	
DATE		DRAWN M.B. DATE JAN 2020	
FILE No.		SCALE AS NOTED	
PROJECT No.		NEGATIVE No.	
37503-000		08660-08	
DRAWING No.			

NOT FOR CONSTRUCTION
100% DETAILED DESIGN

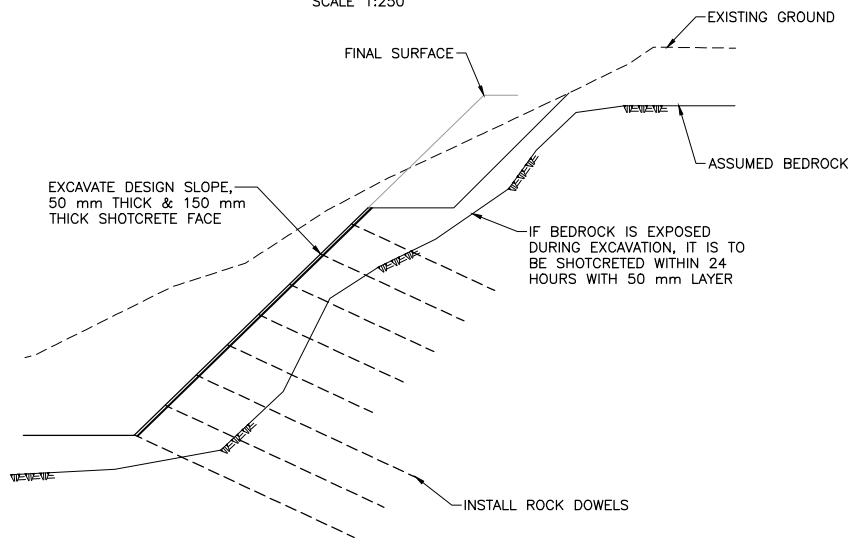
**SUGGESTED CONSTRUCTION SEQUENCE
SLOPE TREATMENT**



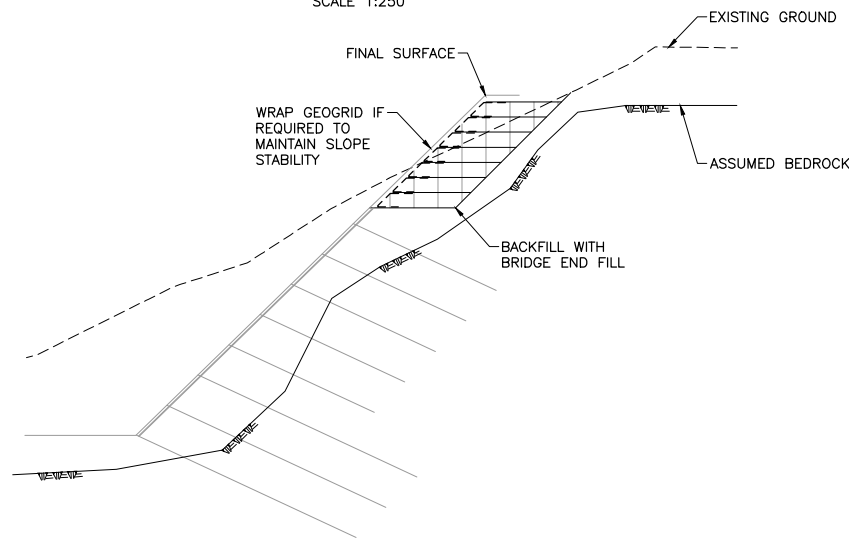
STAGE 0 – EXISTING CONDITONS
SCALE 1:250



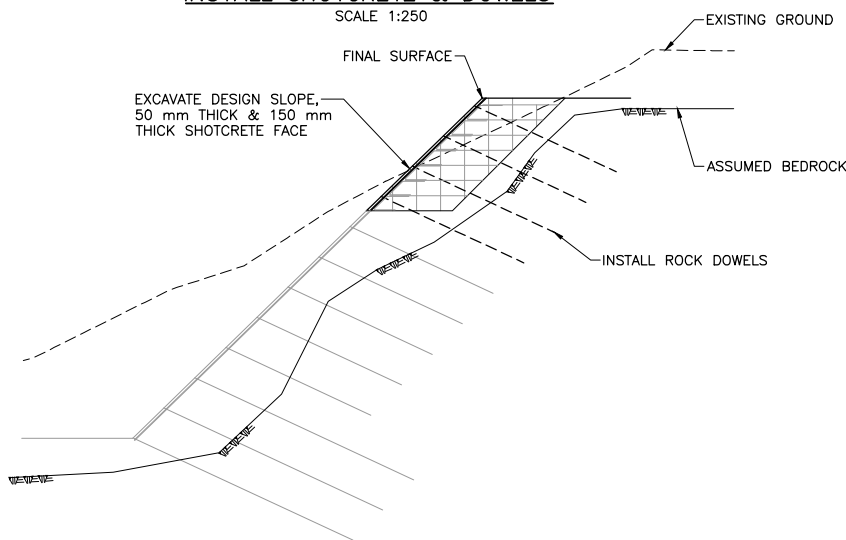
STAGE 1 – EXCAVATE OVERBURDEN
SCALE 1:250



**STAGE 2 – EXCAVATE BACK SLOPE
INSTALL SHOTCRETE & DOWELS**
SCALE 1:250



STAGE 3 – BACKFILL WITH BRIDGE ENDFILL
SCALE 1:250



**STAGE 4 – INSTALL ROCK DOWELS
& SHOTCRETE UPPER FACE**
SCALE 1:250

NOTES:

1. FOR GENERAL NOTES SEE DRAWING 08660-01.

GROUT:

- ALL GROUT FOR DOWELS SHALL BE A NEAT MIX OF PORTLAND CEMENT CONFORMING TO ASTM C150 WITH WATER-CEMENT RATION OF MAXIMUM 0.45. THE MINIMUM 28 DAYS UNCONFINED COMPRESSIVE STRENGTH OF GROUT SHALL BE 50 MPa.
- ACCEPTABLE GROUT PRODUCTS SHALL BE BASALITE "MICROSIL ANCHOR GROUT", TARGET "UNSANDED SILICA FUME GROUT", OR APPROVED EQUIVALENT.
- PLACE GROUT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

GROUT TESTING:

- THE CONTRACTOR SHALL SUBMIT THEIR PROPOSED MIX DESIGN TO THE MINISTRY REPRESENTATIVE FOR REVIEW AND APPROVAL 7 DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING. FINAL PROPORTIONS OF MATERIALS SHALL BE BASED ON RESULTS OF TESTS MADE ON SAMPLE MIXTURES OF GROUT.
- THE CONTRACTOR SHALL TEST THE COMPRESSIVE STRENGTH OF THE GROUT AND BE RESPONSIBLE FOR TAKING, CURING AND BREAKING GROUT TEST CUBES. THE CONTRACTOR SHALL PROVIDE THE MINISTRY REPRESENTATIVE WITH THE RESULTS OF ALL COMPRESSIVE STRENGTH TESTS FOR REVIEW.
- FOR EVERY BATCH OF GROUT, SIX 50 mm CUBES WILL BE SAMPLED. THREE CUBES WILL BE TESTED AT 7 DAYS AND THREE AT 28 DAYS. TESTING SHALL BE IN ACCORDANCE WITH CAN/CSA A23.2.09.

PROOF LOADING ROCK DOWELS:

- THE CONTRACTOR SHALL PROOF LOAD ROCK DOWELS IN THE PRESENCE OF THE MINISTRY REPRESENTATIVE PRIOR TO ACCEPTANCE. A SUITABLE CALIBRATED HYDRAULIC CYLINDER, PUMP AND PRESSURE GAUGE OF SUFFICIENT CAPACITY TO PROOF LOAD AND TENSION THE ANCHORS SHALL BE USED. A MICROMETER AND SUITABLE HOLDING APPARATUS TO ALLOW MEASURING OF ANCHOR DEFORMATIONS DURING TESTING SHALL ALSO BE PROVIDED BY THE CONTRACTOR.
- TENSION PROOF TESTS SHALL BE PERFORMED ON THE FIRST THREE DOWELS TO CONFIRM VIABILITY OF ANCHORAGE REQUIREMENTS, AND 5% OF THE REMAINING DOWELS, CHOSEN AT VARIOUS LOCATIONS AS REQUESTED BY THE MINISTRY REPRESENTATIVE. THE DOWELS SHALL BE TESTED TO THE MAXIMUM TENSION LOADS (SEE TABLE BELOW) IN ACCORDANCE WITH PTI'S RECOMMENDATION FOR PRE-STRESSED ROCK DOWELS.
- THE CONTRACTOR SHALL COMPLETE PROOF LOADING IN ACCORDANCE WITH THE FOLLOWING CREEP TEST PROCEDURE:

THE PROOF TEST SHALL BE PERFORMED BY INCREMENTALLY LOADING THE DOWEL IN ACCORDANCE WITH THE FOLLOWING SCHEDULE SHOWN IN THE TABLE BELOW. AT EACH INCREMENT, THE MOVEMENT OF THE TENDON SHALL BE RECORDED TO THE NEAREST 0.03 mm WITH RESPECT TO AN INDEPENDENT FIXED REFERENCE POINT. THE JACK LOAD SHALL BE MONITORED WITH A PRESSURE GAUGE OR LOAD CELL.

DURATION IN (MINUTES)	STEPS	28 mm ROCK DOWEL LOADS (kN)
0-1	ALIGNMENT LOADS	10
1-2	0.25 DESIGN LOAD (DL)	20
2-3	0.5 DL	40
3-4	0.75 DL	60
4-5	1.00 DL	80
5-6	1.20 DL	100
6-16	1.33 DL (TEST LOAD)	105

- DURING THE CREEP TEST THE CONTRACTOR SHALL MAINTAIN A CONSTANT TEST LOAD FOR 10 MINUTES AND TOTAL MOVEMENTS SHALL BE MEASURED AT 1, 2, 3, 4, 5, 6 & 10 MINUTES. IF THE TOTAL CREEP MOVEMENT BETWEEN 1 & 10 MINUTES EXCEEDS 1 mm (0.04 in), THE TEST LOAD SHALL BE MAINTAINED FOR AN ADDITIONAL 50 MINUTES AND THE MOVEMENT READINGS SHALL BE TAKEN AT 20, 30, 40, 50 AND 60 MINUTES.
- DURING THE CREEP TEST, THE PRESSURE SHALL NOT DEVIATE BY MORE THAN 345 kPa (50 psi) AND THE LOAD SHALL ALWAYS BE RETURNED TO THE TEST LOAD PRIOR TO TAKING MOVEMENT READINGS. IF NO MOVEMENT OCCURS AFTER 1 MINUTE, THE CREEP TEST MAY BE STOPPED AT THE 5-MINUTE PERIOD. IF THE TOTAL MOVEMENT BETWEEN 1 & 10 MINUTES OR 10 & 20 MINUTES IS LESS THAN 1 mm OR NO MOVEMENT OCCURS AFTER 1 MINUTE, THE DOWEL WILL BE ACCEPTED BY THE MINISTRY REPRESENTATIVE. ANY FAILED DOWELS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- ADDITIONAL PROOF TESTS MAY BE REQUESTED BY THE MINISTRY REPRESENTATIVE IF THE RESULTS OF THE INITIAL TESTS ARE UNSATISFACTORY.
- COUPLERS MAY BE USED FOR TESTING OF ROCK DOWELS.

NOT FOR CONSTRUCTION
100% DETAILED DESIGN

Consultant Logo

Rev	Date	Description	Init

R E V I S I O N S

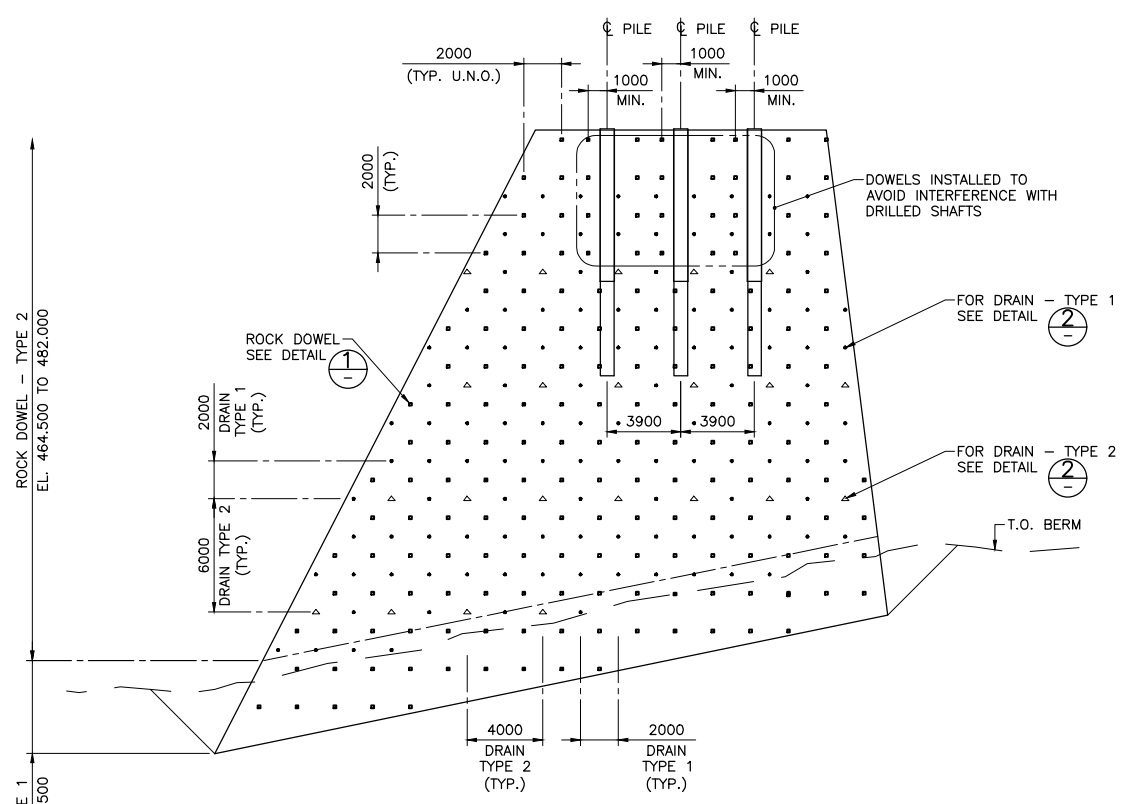
BRITISH COLUMBIA

Ministry of Transportation
& Infrastructure
Northern Region

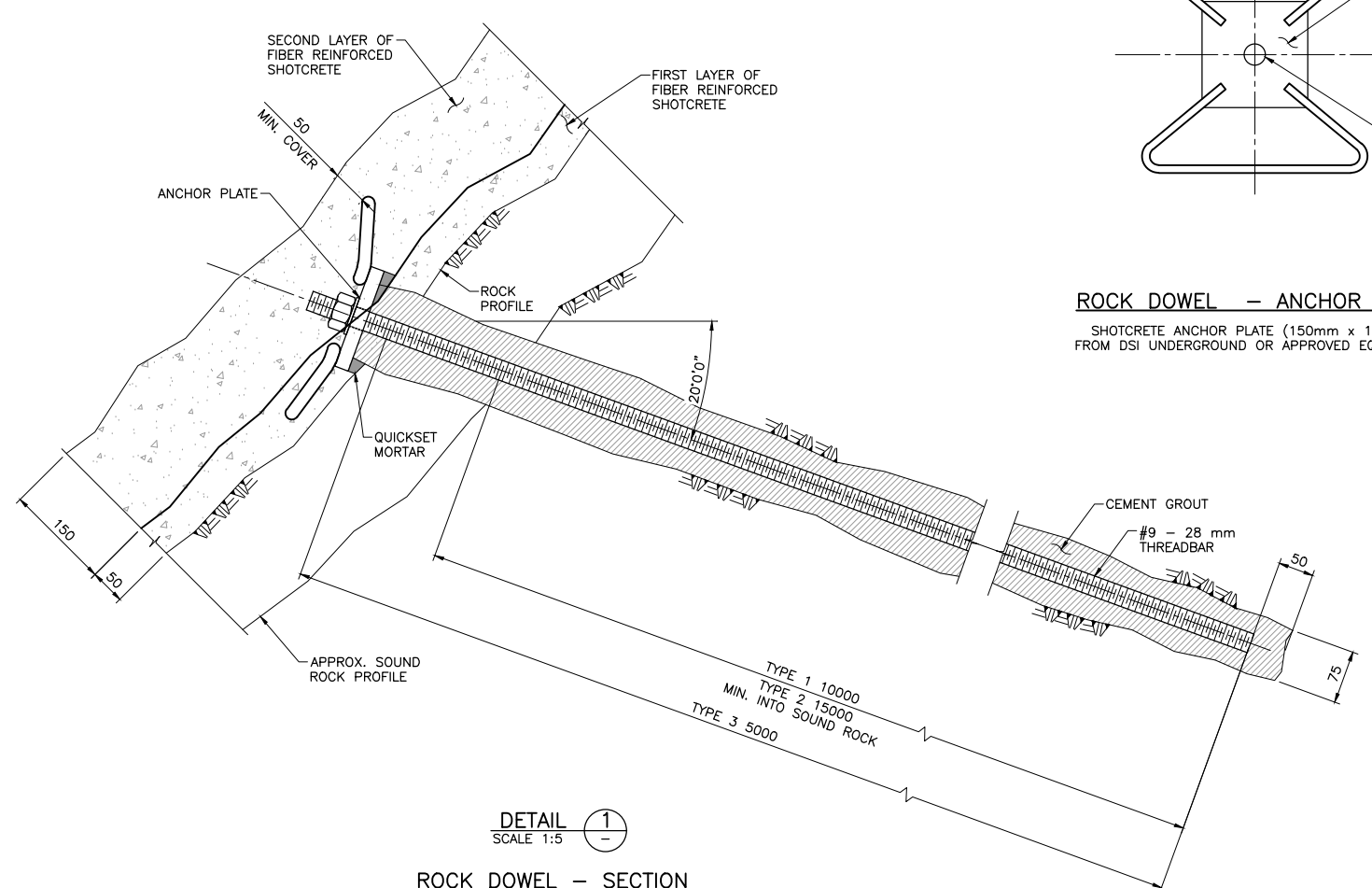
PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
SLOPE TREATMENT – SHEET 4

PREPARED UNDER THE DIRECTION OF		DESIGNED	J.W.	DATE	JAN 2020
ENGINEER OF RECORD		CHECKED	N.J.	DATE	JAN 2020
DATE		DRAWN	M.B.	DATE	JAN 2020
FILE No.	PROJECT No.	REG.	DRAWING No.		
	37503-0000		08660-09		

SCALE AS NOTED
NEGATIVE No.

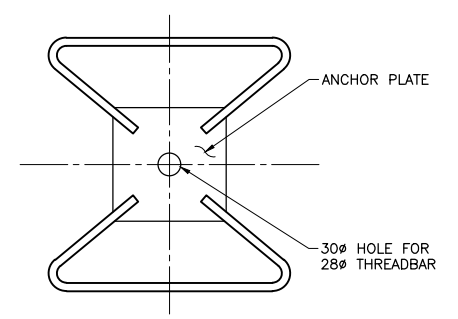


WEST ABUTMENT – ROCK DOWEL & DRAIN PLACEMENT
SCALE 1:200

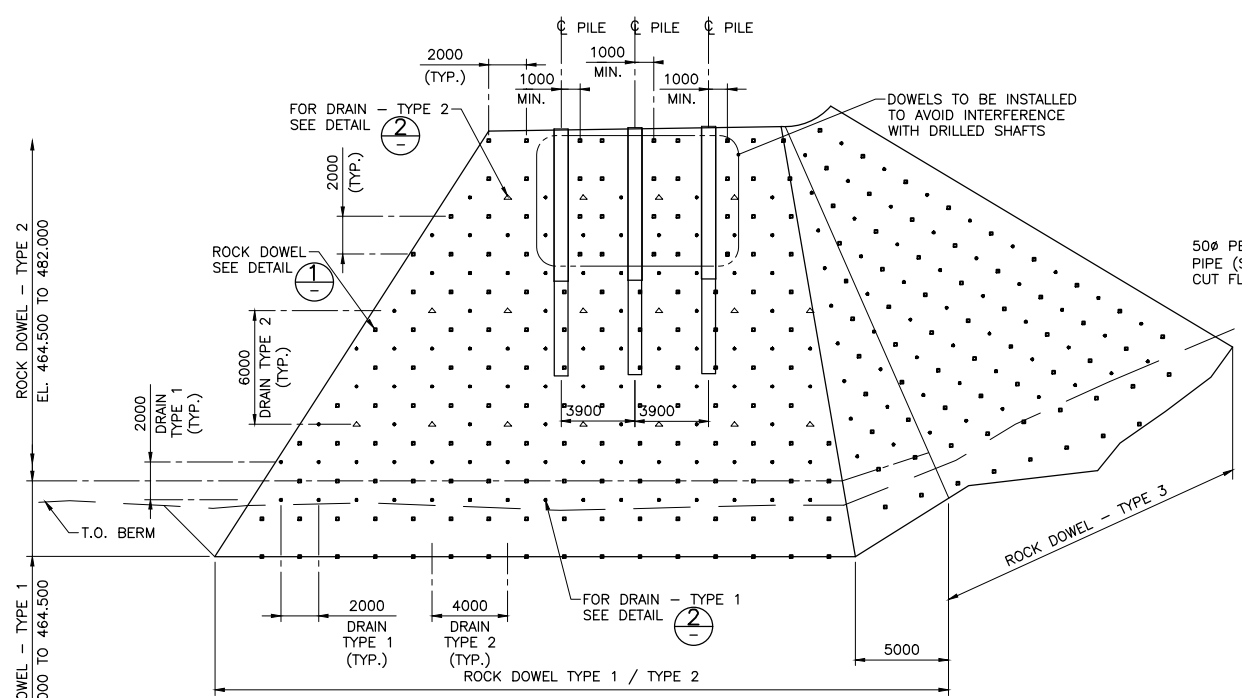


DETAIL 1
SCALE 1:5
ROCK DOWEL – SECTION

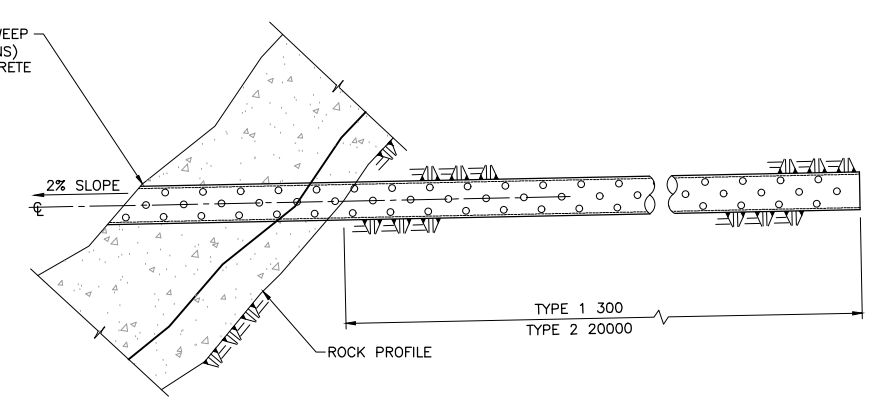
164 (128 – TYPE 1 & 36 TYPE 2) REQUIRED WEST ABUTMENT
211 (108 – TYPE 1, 51 TYPE 2 & 52 TYPE 3) REQUIRED EAST ABUTMENT



ROCK DOWEL – ANCHOR PLATE
SHOTCRETE ANCHOR PLATE (150mm x 150mm)
FROM DSI UNDERGROUND OR APPROVED EQUIVALENT



EAST ABUTMENT – ROCK DOWEL & DRAIN PLACEMENT
SCALE 1:200



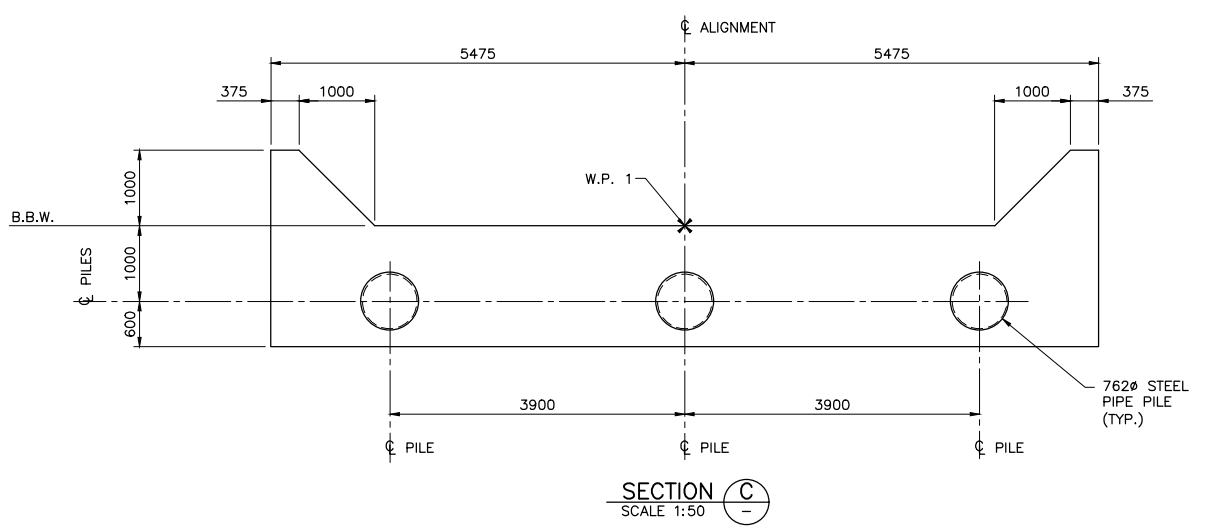
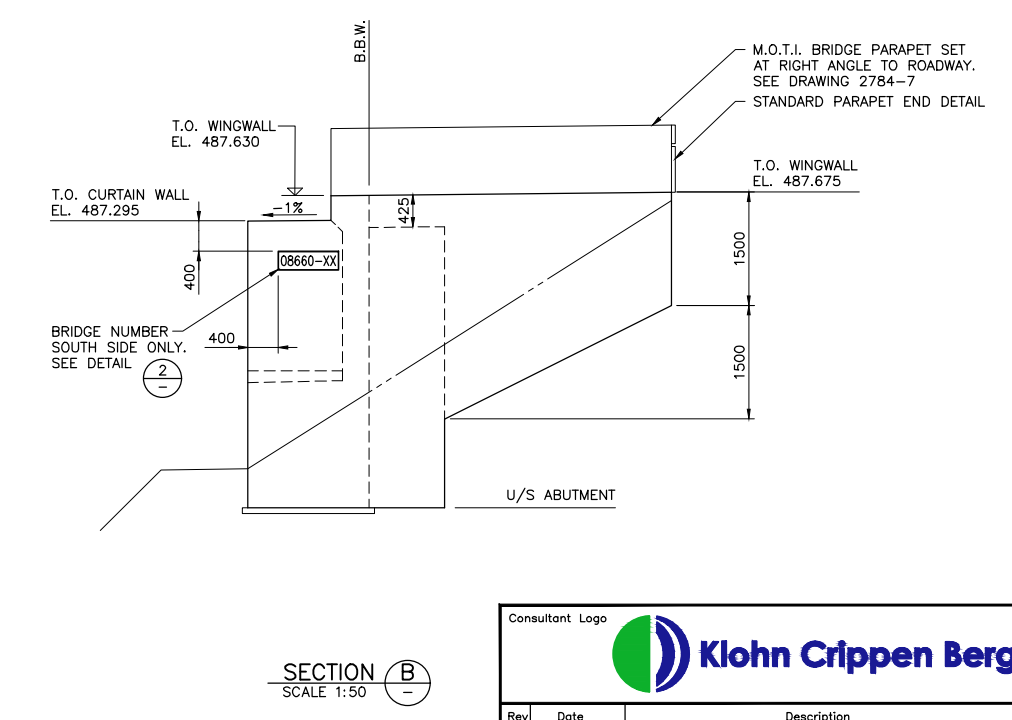
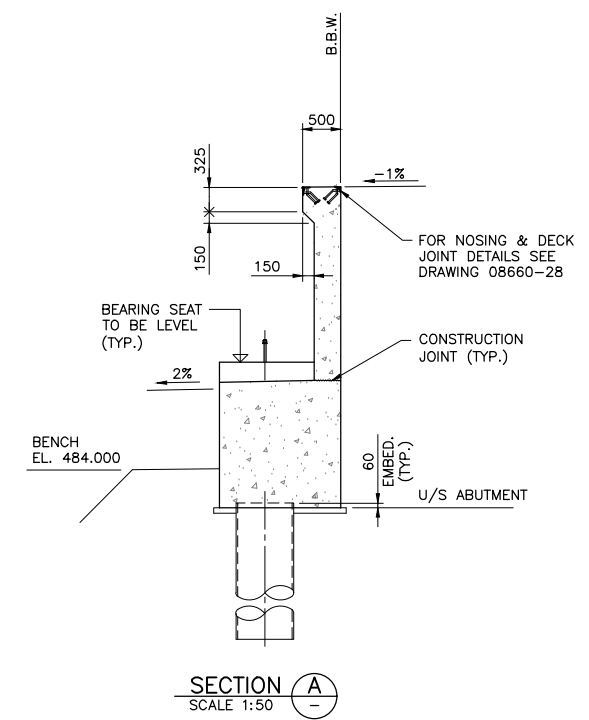
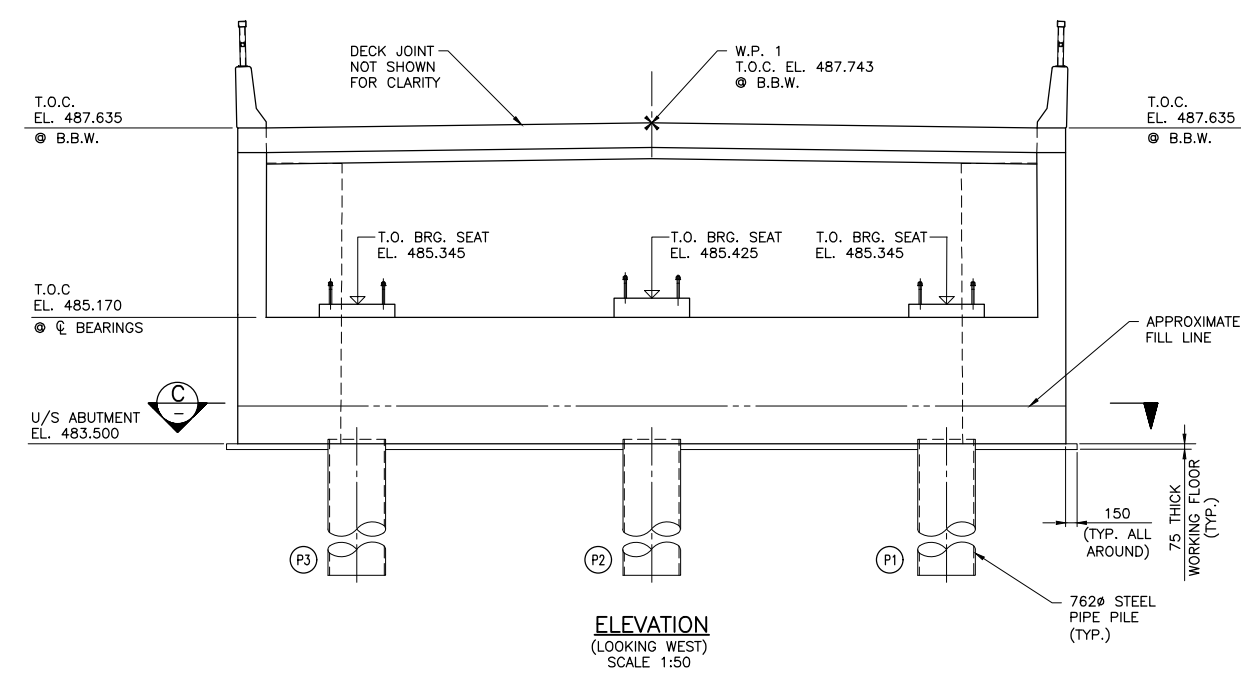
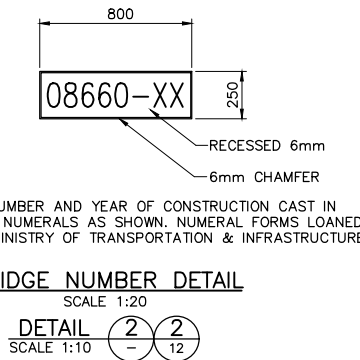
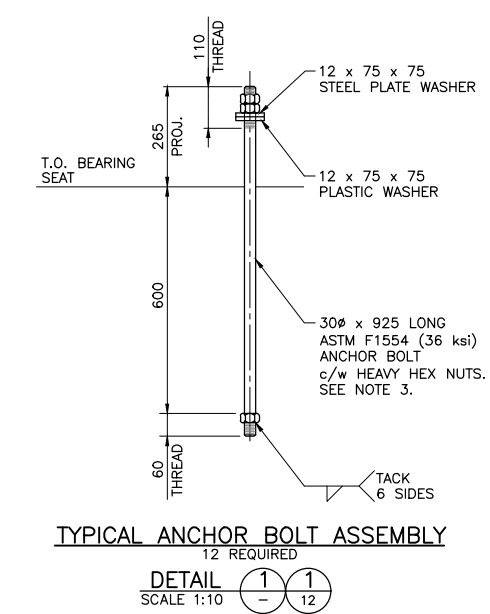
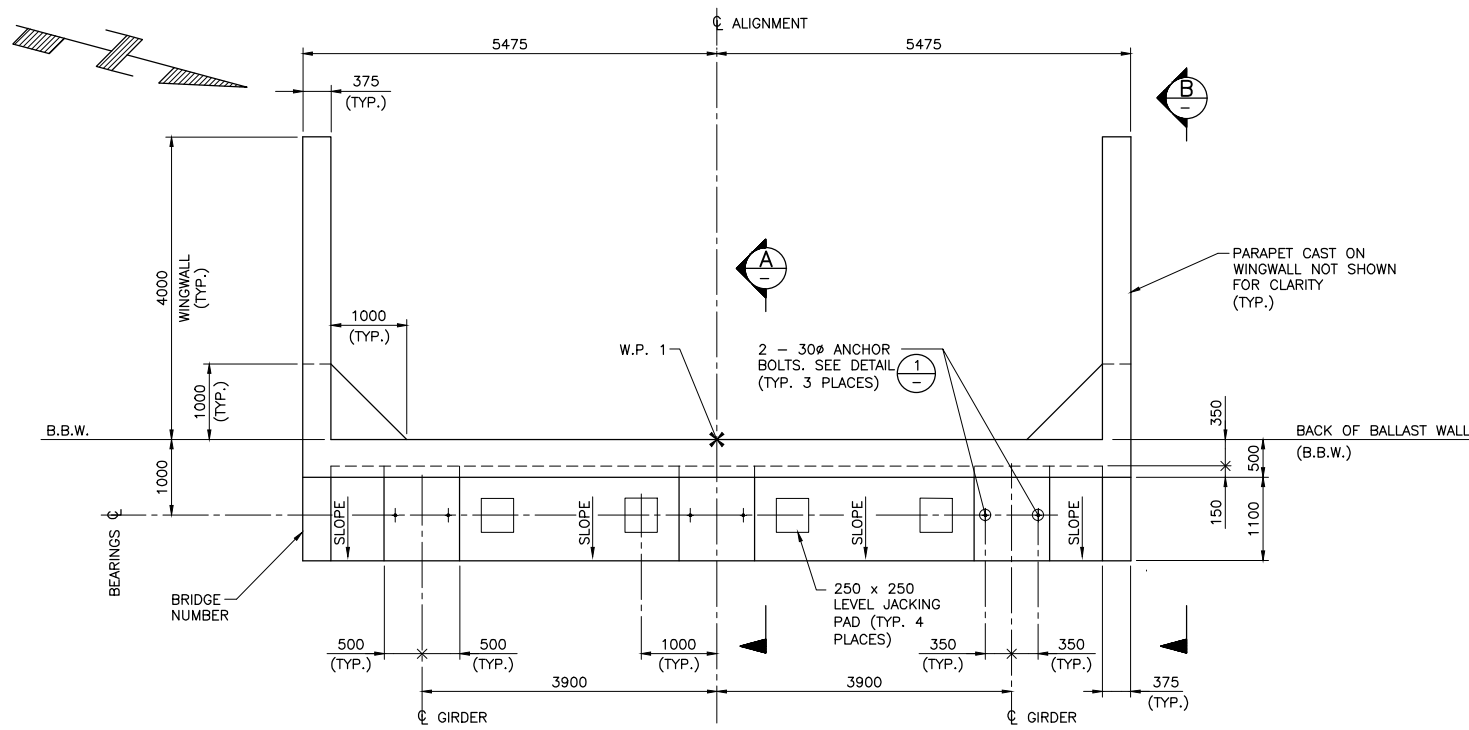
DETAIL 2
SCALE 1:5
DRAIN – SECTION

142 (119 – TYPE 1 & 23 TYPE 2) REQUIRED WEST ABUTMENT
164 (147 – TYPE 1 & 17 TYPE 2) REQUIRED EAST ABUTMENT

- NOTES:**
- FOR GENERAL NOTES SEE DRAWING 08660-01.
 - DRAINS TO BE INSTALLED AFTER PILES.

Rev	Date	Description	Init
REVISIONS			
		Ministry of Transportation & Infrastructure Northern Region	
PEACE DISTRICT HIGHWAY No. 29 DRY CREEK BRIDGE No. 08660 SLOPE TREATMENT – SHEET 5			
PREPARED UNDER THE DIRECTION OF 		DESIGNED J.W. DATE JAN 2020 CHECKED N.J. DATE JAN 2020 DRAWN M.B. DATE JAN 2020 SCALE AS NOTED NEGATIVE No.	
ENGINEER OF RECORD	DATE	FILE No.	PROJECT No.
			37503-000
		REG.	DRAWING No.
			08660-10

NOT FOR CONSTRUCTION
100% DETAILED DESIGN



- NOTES:**
1. FOR GENERAL NOTES SEE DRAWING 08660-01.
 2. FOR PILE LAYOUT AND DETAILS SEE DRAWING 08660-05.
 3. ANCHOR BOLT ASSEMBLIES SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123M AND A385.
 4. FOR BEARING DETAILS SEE DRAWING 08660-26.

NOT FOR CONSTRUCTION
100% DETAILED DESIGN

Consultant Logo **Klohn Crippen Berger**

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA Ministry of Transportation & Infrastructure Northern Region

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
WEST ABUTMENT

PREPARED UNDER THE DIRECTION OF

DESIGNED	K.G.	DATE	JAN 2020
CHECKED	N.K.	DATE	JAN 2020
DRAWN	M.B.	DATE	JAN 2020
SCALE	AS NOTED		
NEGATIVE No.			

ENGINEER OF RECORD

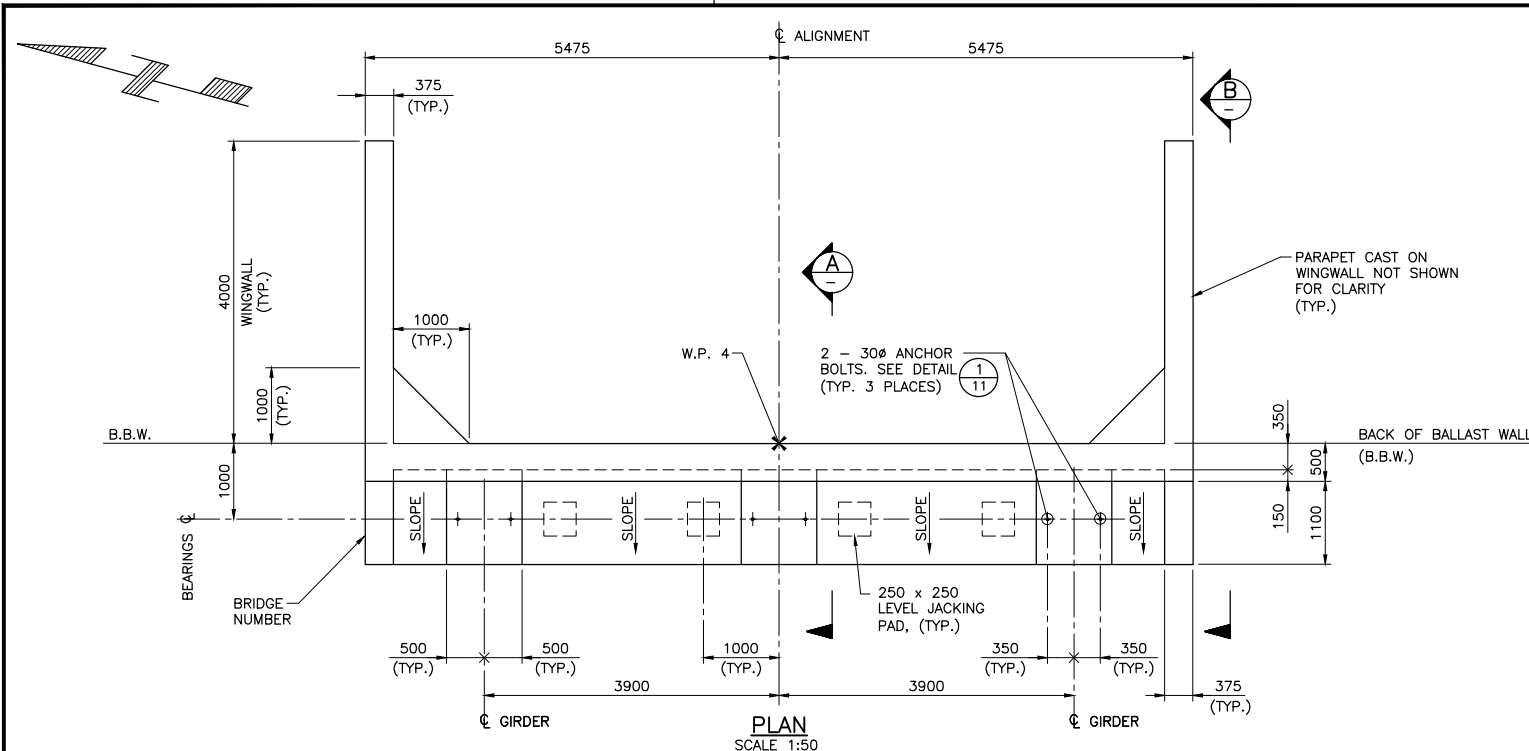
FILE No.	PROJECT No.	REG.	DRAWING No.
	37503-0000		08660-11

DATE

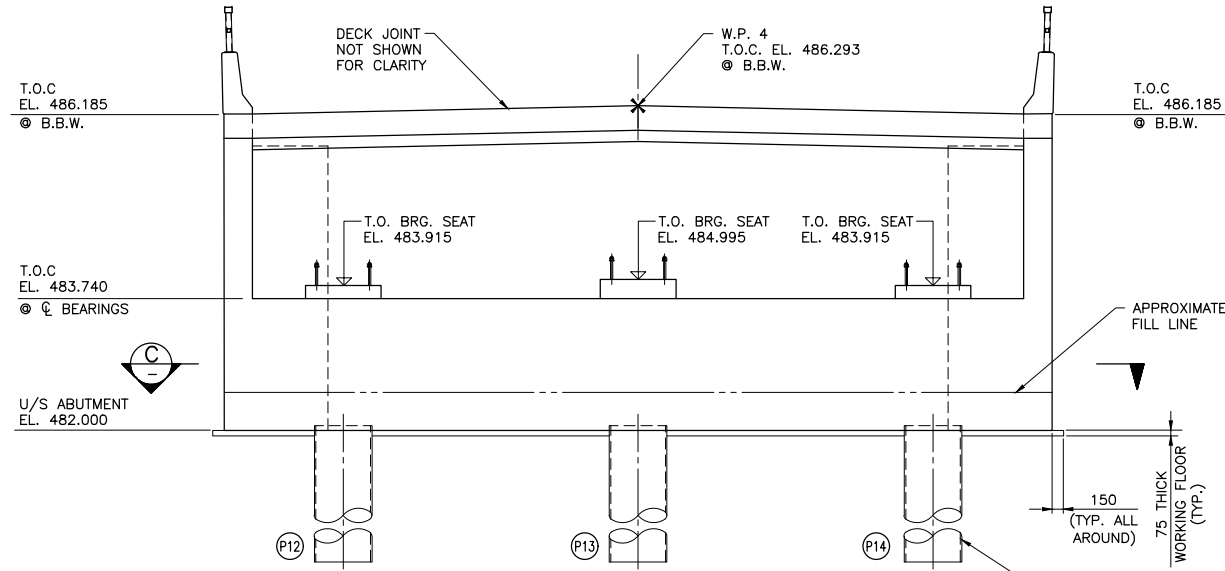
SEAL

H-30813-07-08

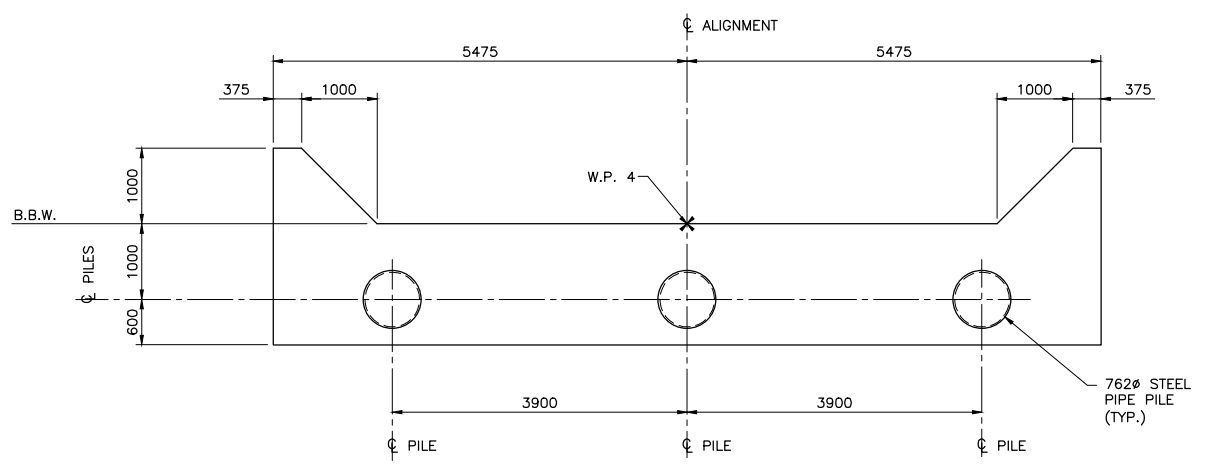
CANCEL PRINTS BEARING PREVIOUS LETTER



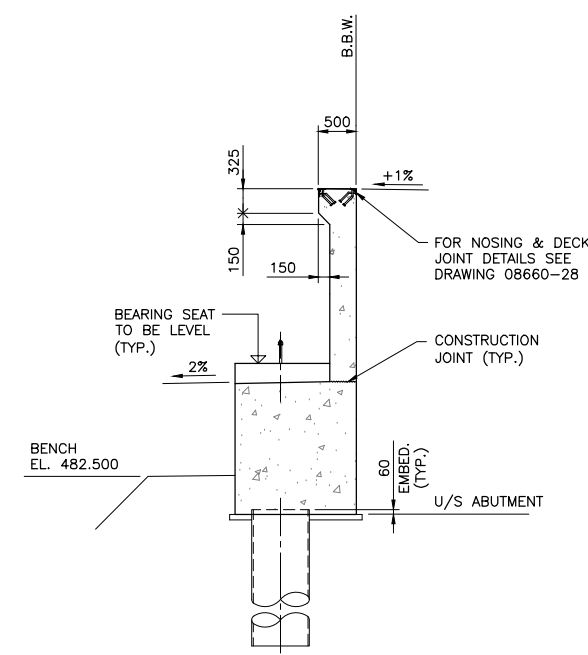
PLAN
SCALE 1:50



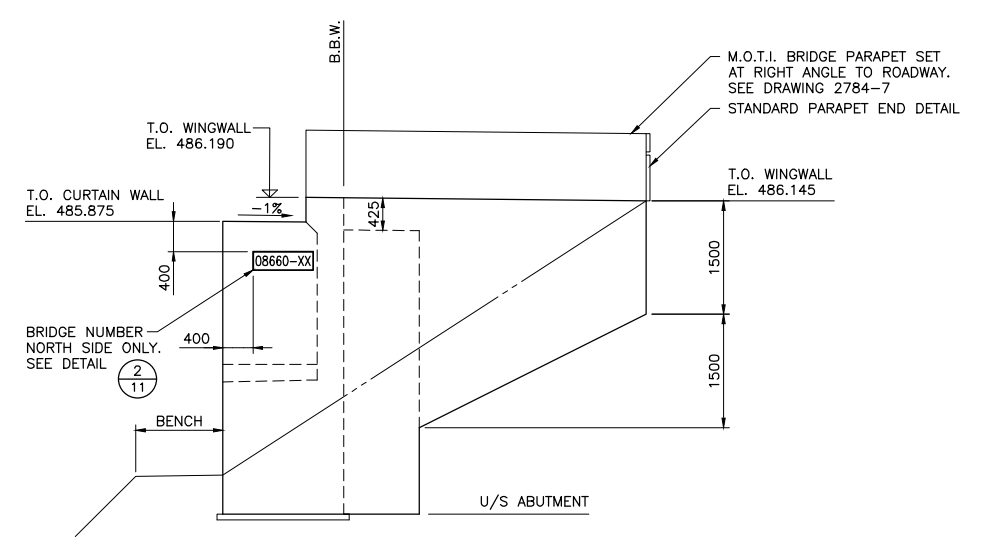
ELEVATION
(LOOKING EAST)
SCALE 1:50



SECTION C
SCALE 1:50



SECTION A
SCALE 1:50



SECTION B
SCALE 1:50

- NOTES:**
- FOR GENERAL NOTES SEE DRAWING 08660-01.
 - FOR PILE LAYOUT AND DETAILS SEE DRAWING 08660-05.

NOT FOR CONSTRUCTION
100% DETAILED DESIGN

Consultant Logo

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA | **Ministry of Transportation & Infrastructure Northern Region**

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
EAST ABUTMENT

PREPARED UNDER THE DIRECTION OF _____

ENGINEER OF RECORD _____

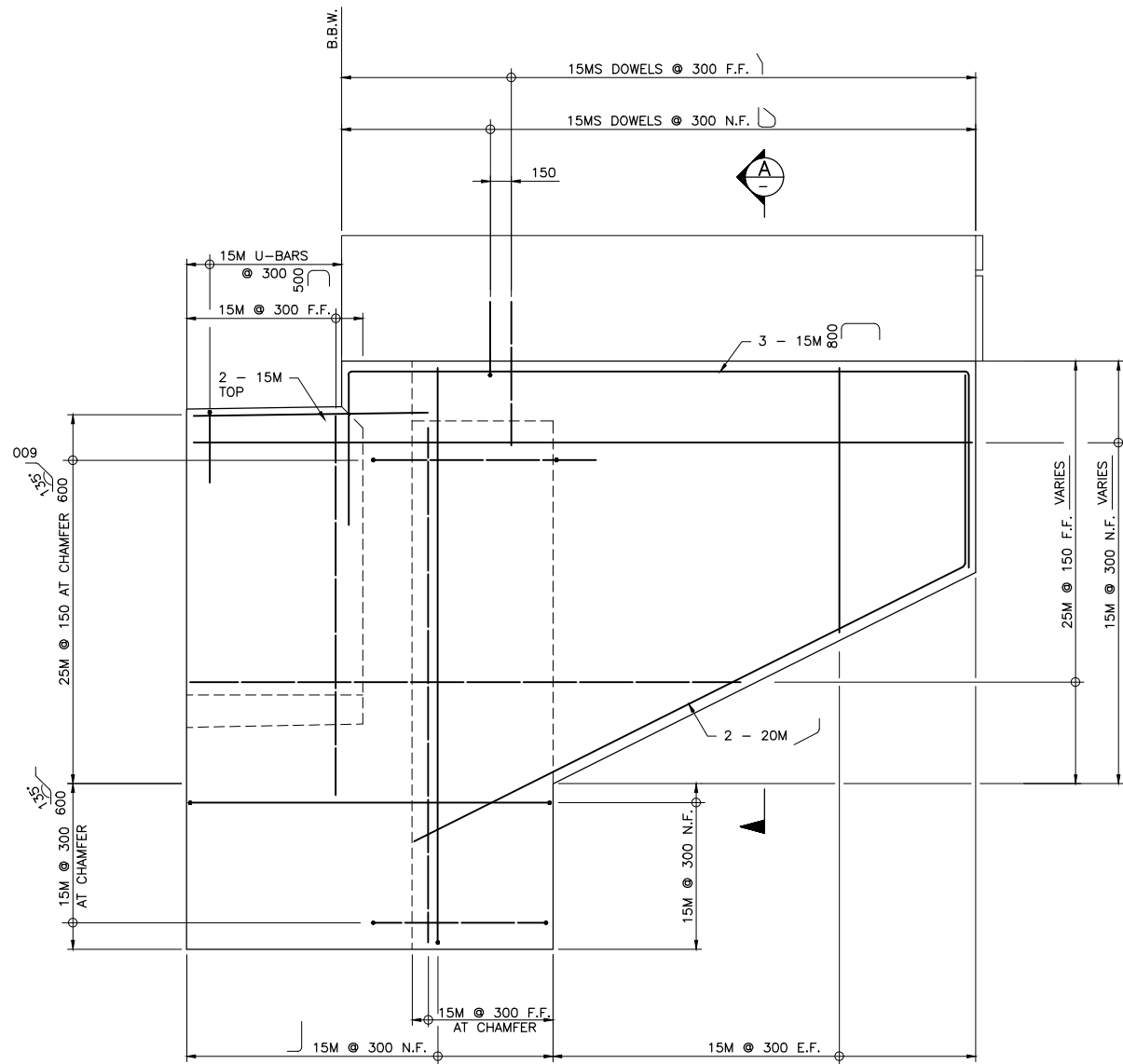
DATE _____

DESIGNED K.G. DATE JAN 2020
CHECKED N.K. DATE JAN 2020
DRAWN M.B. DATE JAN 2020

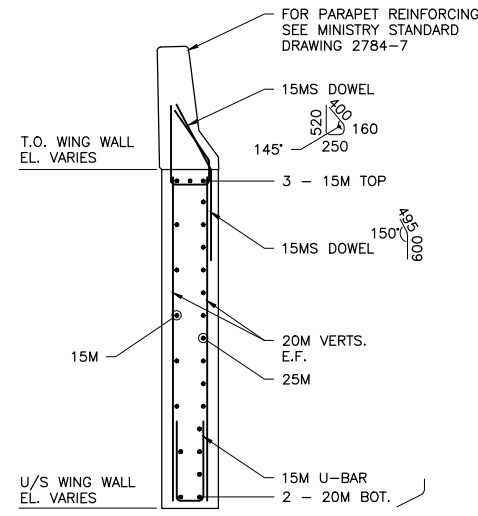
SCALE AS NOTED
NEGATIVE No. _____

FILE No. _____ PROJECT No. **37503-000** REG. _____ DRAWING No. **08660-12**

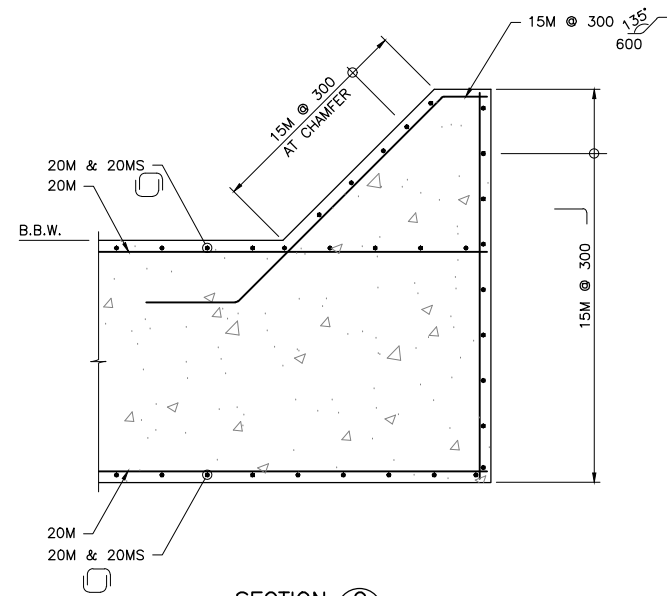
CANCEL PRINTS BEARING PREVIOUS LETTER



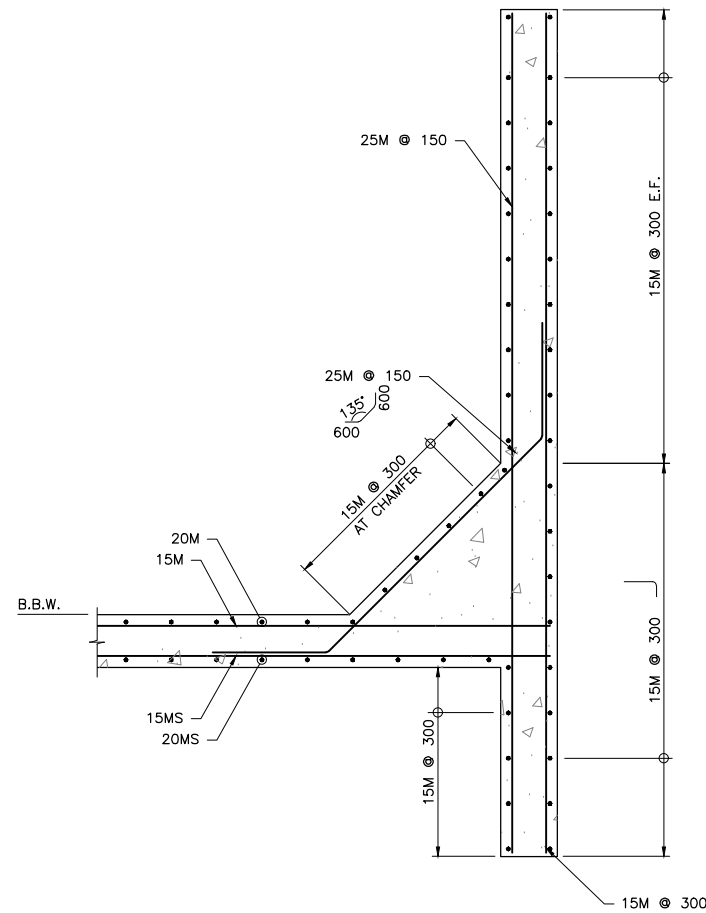
SECTION B
SCALE 1:25



SECTION A
SCALE 1:25



SECTION C
SCALE 1:25
TYPICAL REINFORCING AT CORNER



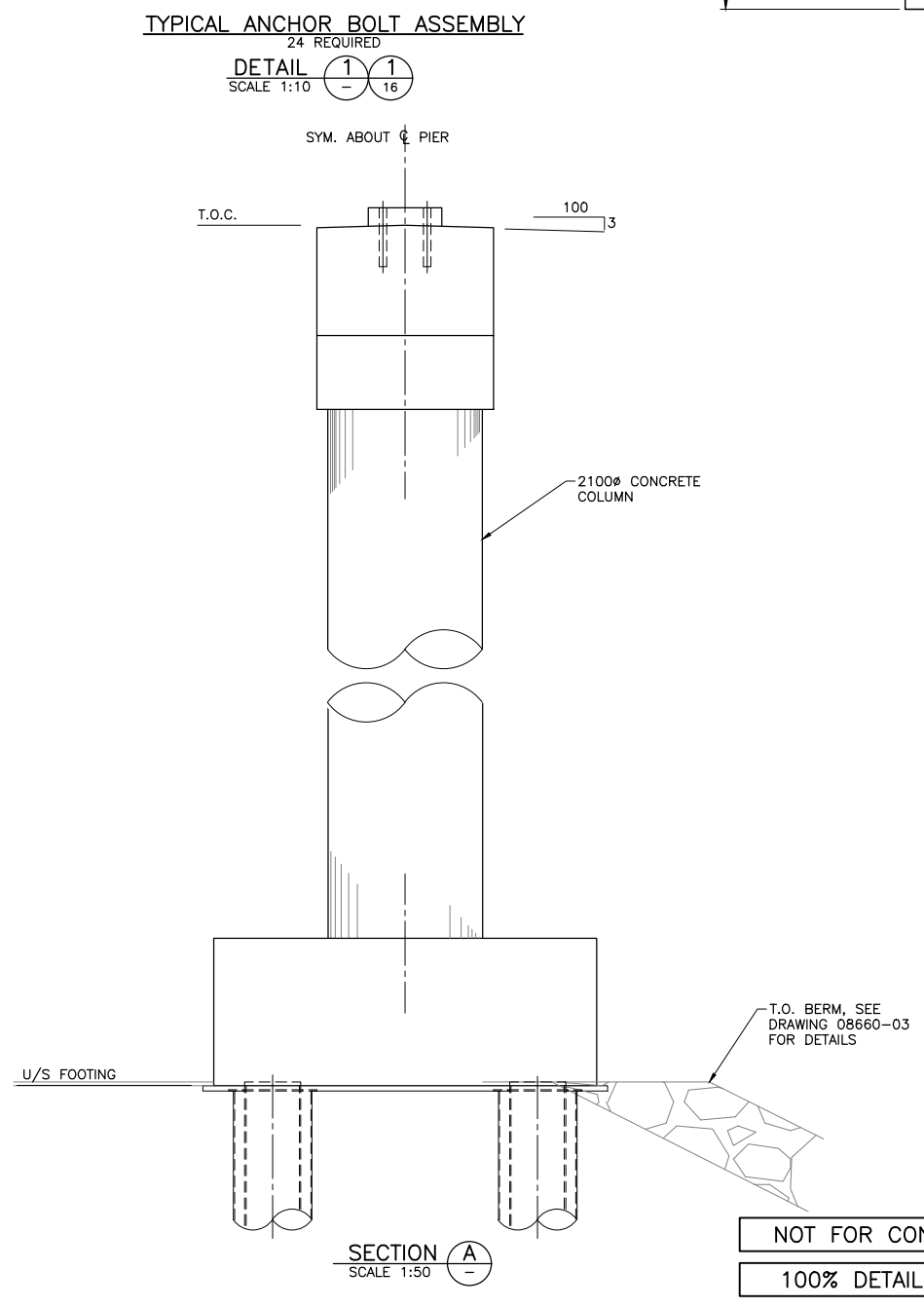
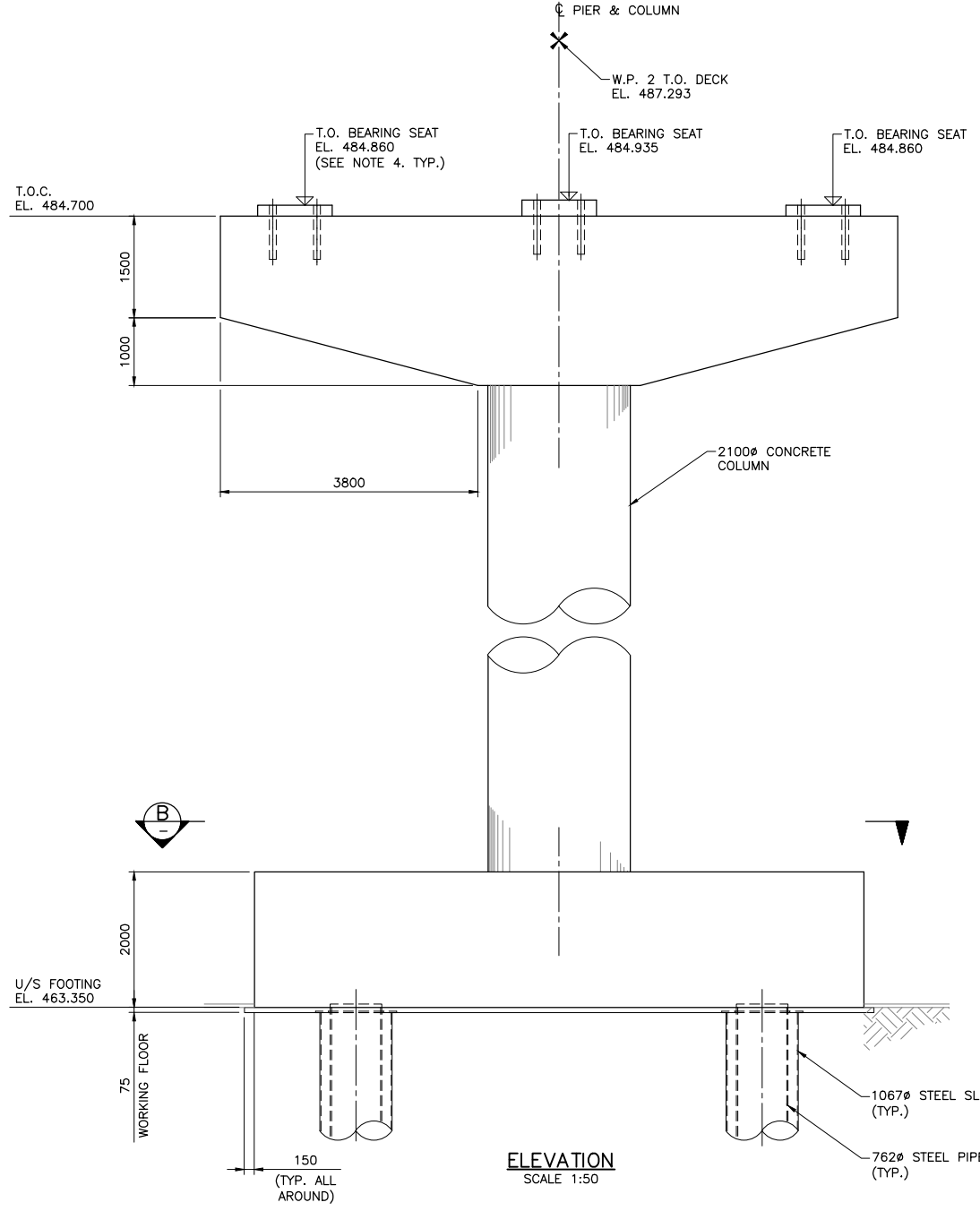
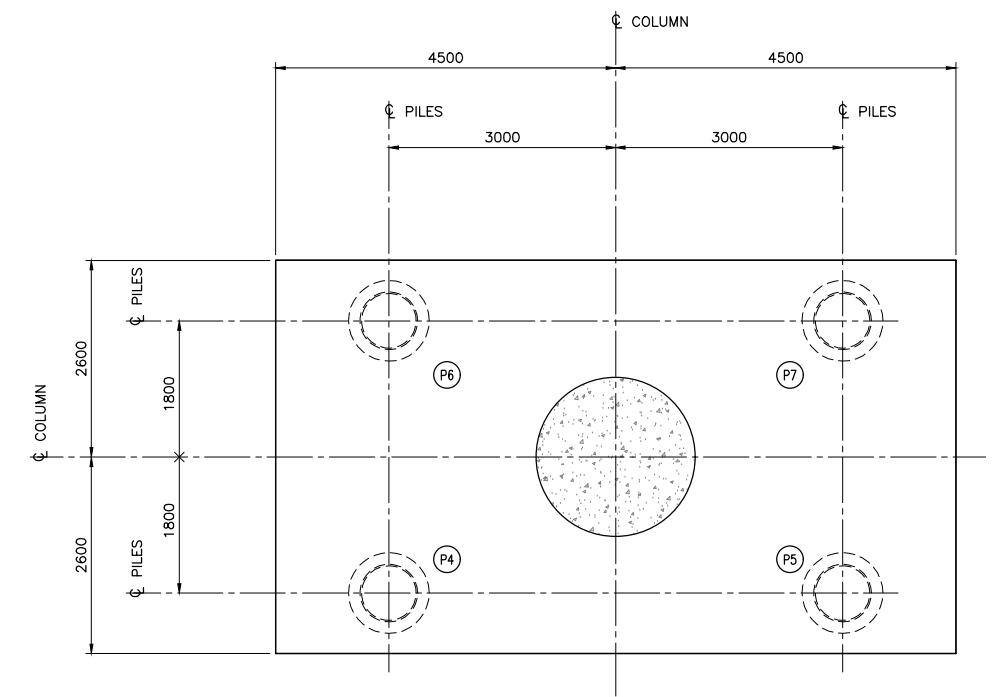
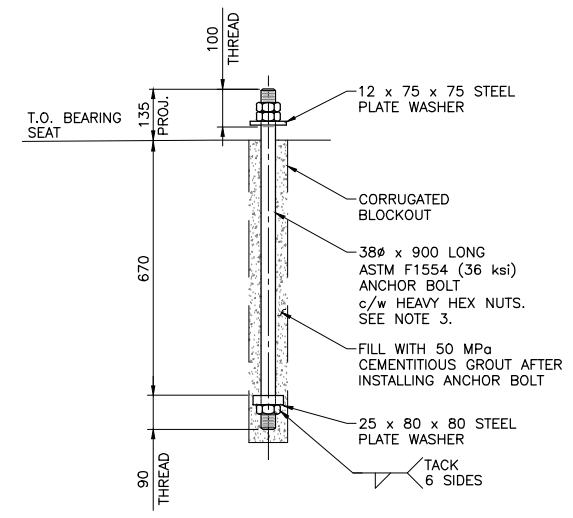
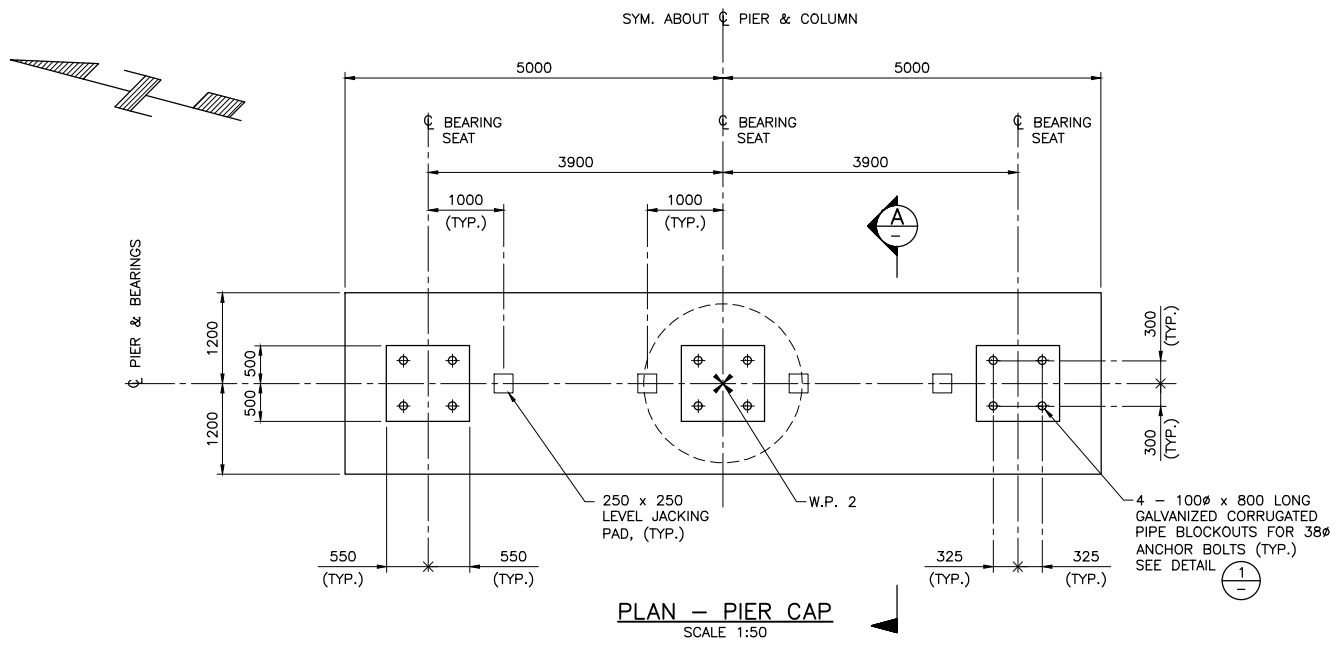
SECTION D
SCALE 1:25
TYPICAL REINFORCING AT CORNER

NOTES:

- FOR GENERAL NOTES SEE DRAWING 08660-01.

Rev	Date	Description	Init
REVISIONS			
		Ministry of Transportation & Infrastructure Northern Region	
PEACE DISTRICT HIGHWAY No. 29 DRY CREEK BRIDGE No. 08660 ABUTMENT REINFORCING - SHEET 2			
PREPARED UNDER THE DIRECTION OF 		DESIGNED K.G. DATE JAN 2020 CHECKED N.K. DATE JAN 2020 DRAWN M.B. DATE JAN 2020 SCALE AS NOTED NEGATIVE No.	
ENGINEER OF RECORD DATE	FILE No.	PROJECT No. 37503-0000	REG. DRAWING No. 08660-14

NOT FOR CONSTRUCTION
100% DETAILED DESIGN



- NOTES:**
- FOR GENERAL NOTES SEE DRAWING 08660-01.
 - FOR PILE LAYOUT AND DETAILS SEE DRAWING 08660-05.
 - ANCHOR BOLT ASSEMBLIES SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123M AND A385.
 - TOP OF BEARING SEAT ELEVATIONS TO BE CONFIRMED AFTER BEARING THICKNESS IS CONFIRMED.
 - FOR BEARING DETAILS SEE DRAWING 08660-26.

Consultant Logo

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA Ministry of Transportation & Infrastructure Northern Region

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
PIER 1

PREPARED UNDER THE DIRECTION OF

ENGINEER OF RECORD

DATE

FILE No. PROJECT No. REG. DRAWING No.

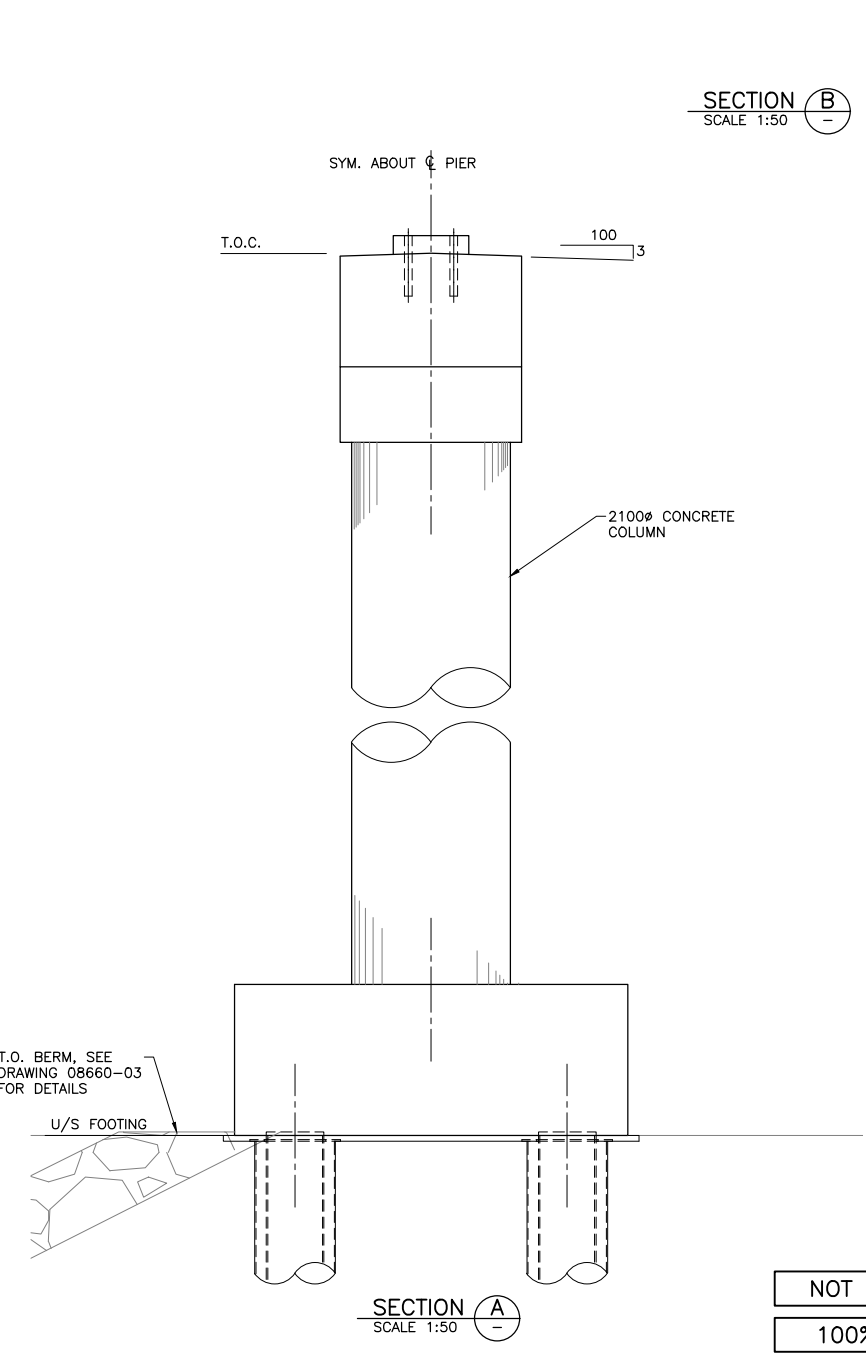
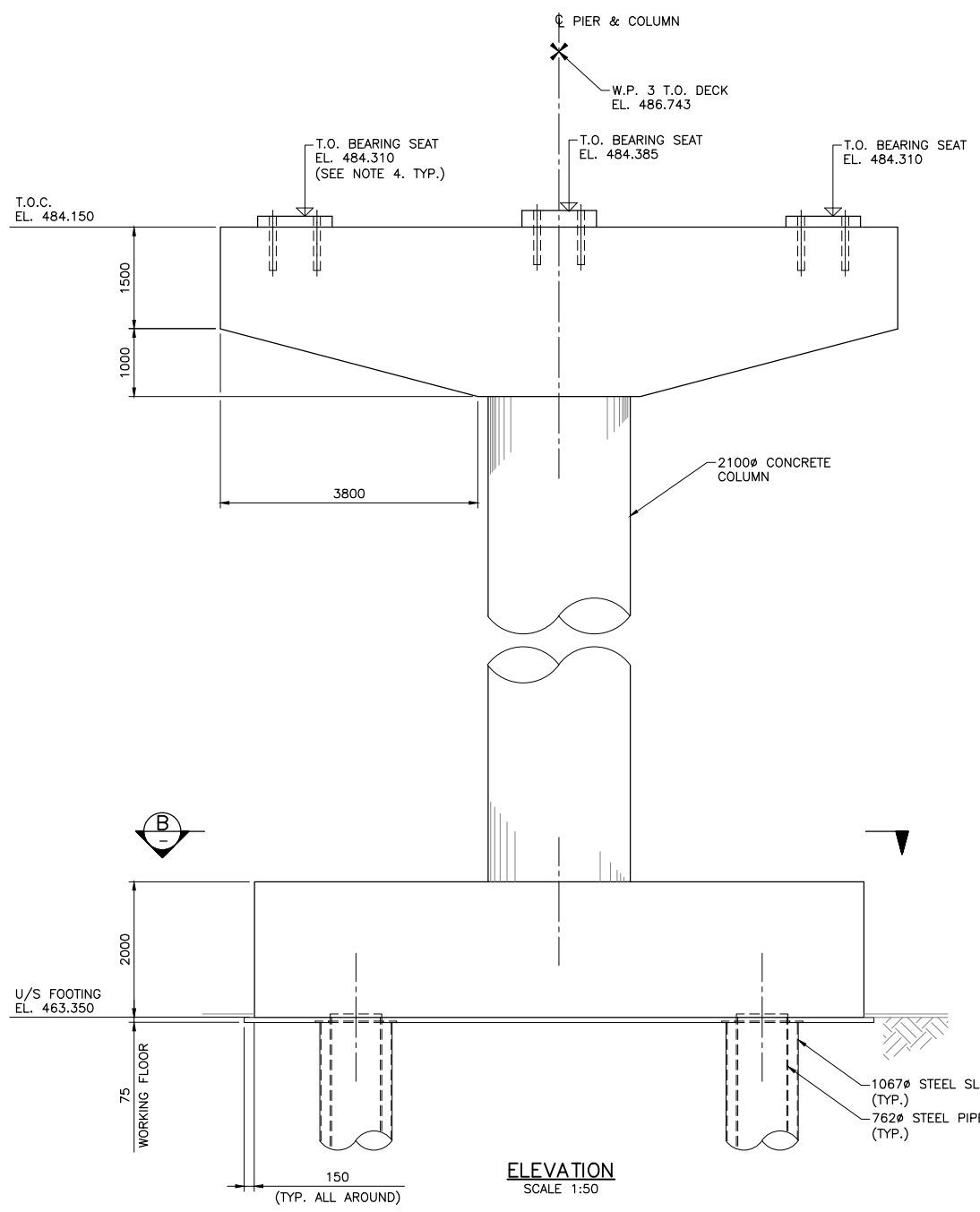
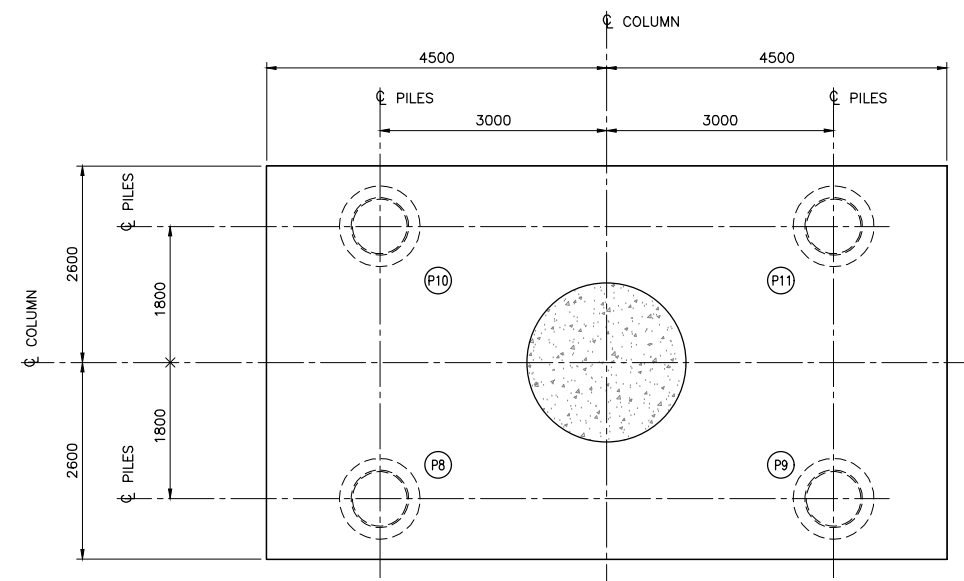
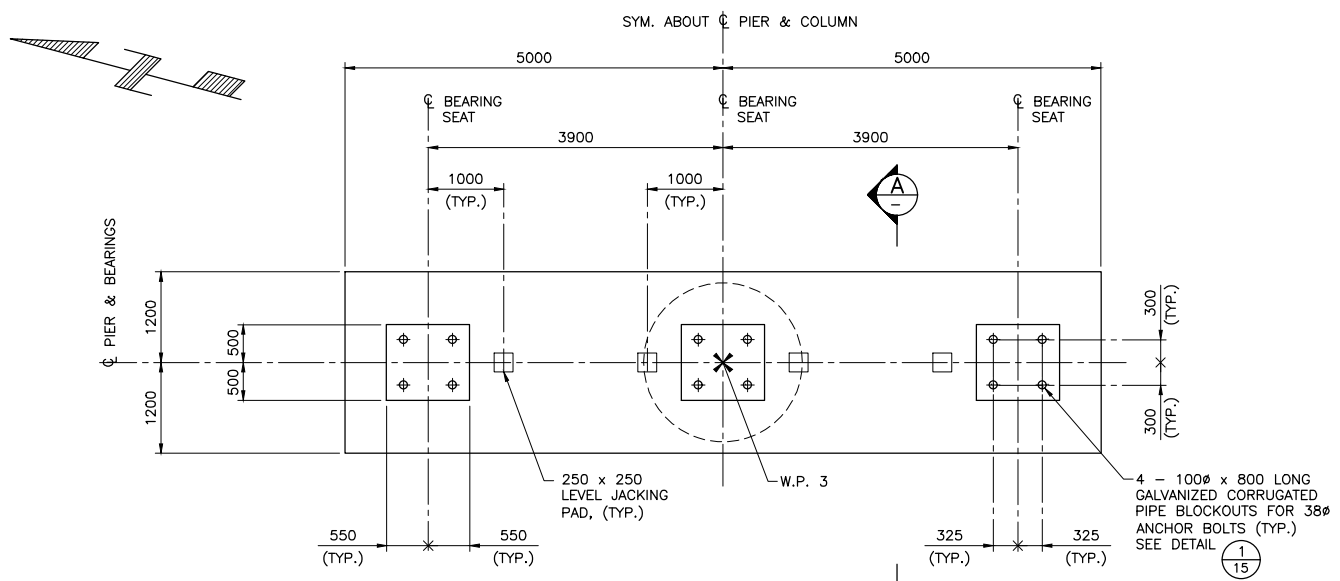
37503-000 08660-15

DESIGNED K.G. DATE JAN 2020
CHECKED N.K. DATE JAN 2020
DRAWN M.B. DATE JAN 2020
SCALE AS NOTED
NEGATIVE No.

SEAL

NOT FOR CONSTRUCTION
100% DETAILED DESIGN

CANCEL PRINTS BEARING PREVIOUS LETTER



- NOTES:**
- FOR GENERAL NOTES SEE DRAWING 08660-01.
 - FOR PILE LAYOUT AND DETAILS SEE DRAWING 08660-05.
 - ANCHOR BOLT ASSEMBLIES SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123M AND A385.
 - TOP OF BEARING SEAT ELEVATIONS TO BE CONFIRMED AFTER BEARING THICKNESS IS CONFIRMED.
 - FOR BEARING DETAILS SEE DRAWING 08660-26.

Consultant Logo

Rev	Date	Description	Init

REVISIONS

Ministry of Transportation & Infrastructure
Northern Region

PEACE DISTRICT
HIGHWAY No. 29
**DRY CREEK BRIDGE No. 08660
PIER 2**

PREPARED UNDER THE DIRECTION OF

ENGINEER OF RECORD

DATE

FILE No.

PROJECT No.
37503-000

REG. No.

DRAWING No.
08660-16

DESIGNED K.G. DATE JAN 2020

CHECKED N.K. DATE JAN 2020

DRAWN M.B. DATE JAN 2020

SCALE AS NOTED

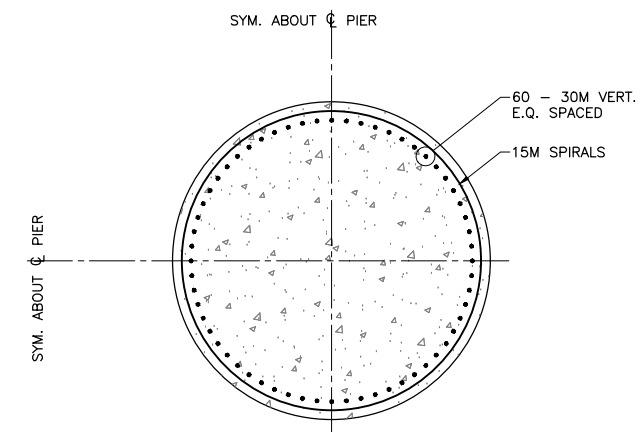
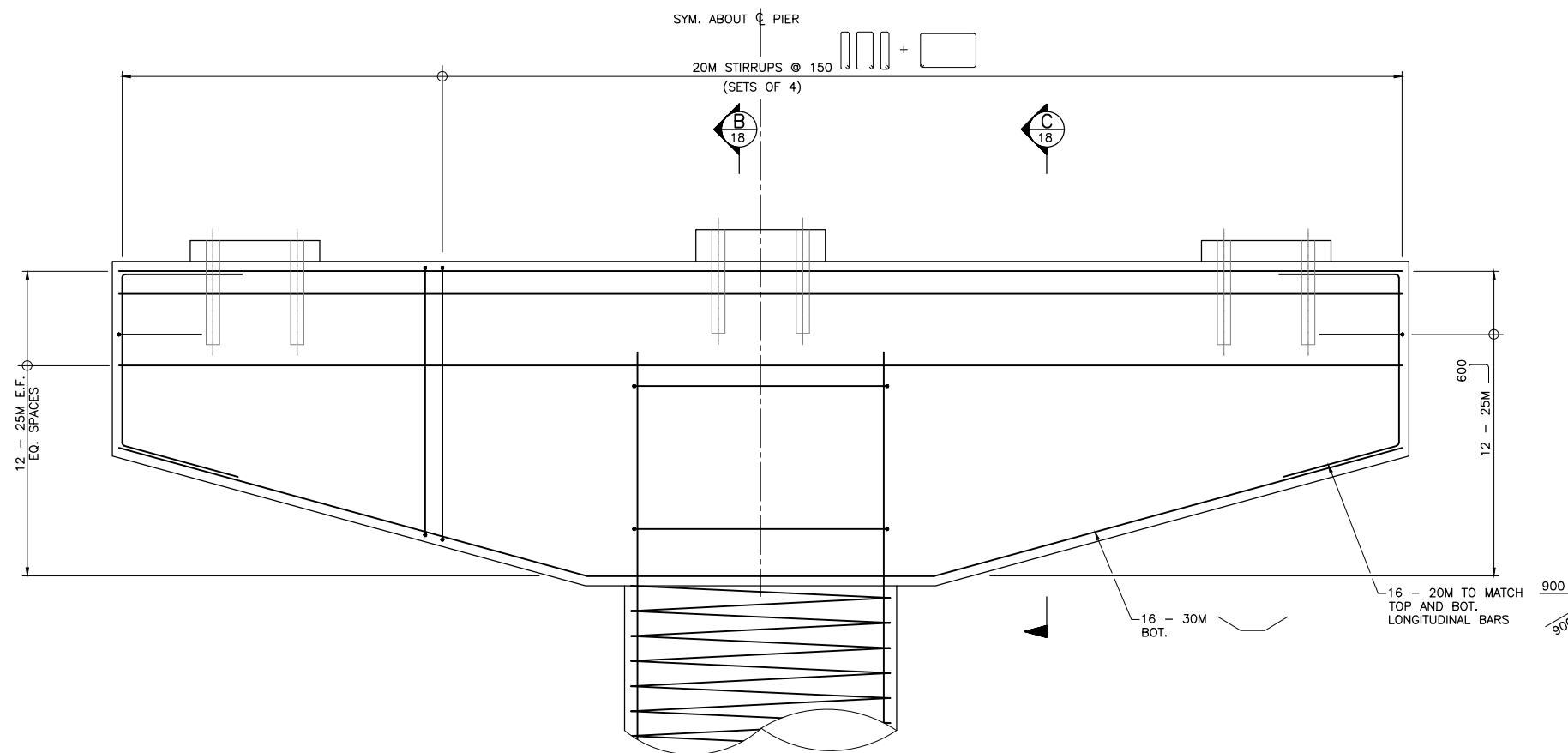
NEGATIVE No.

SEAL

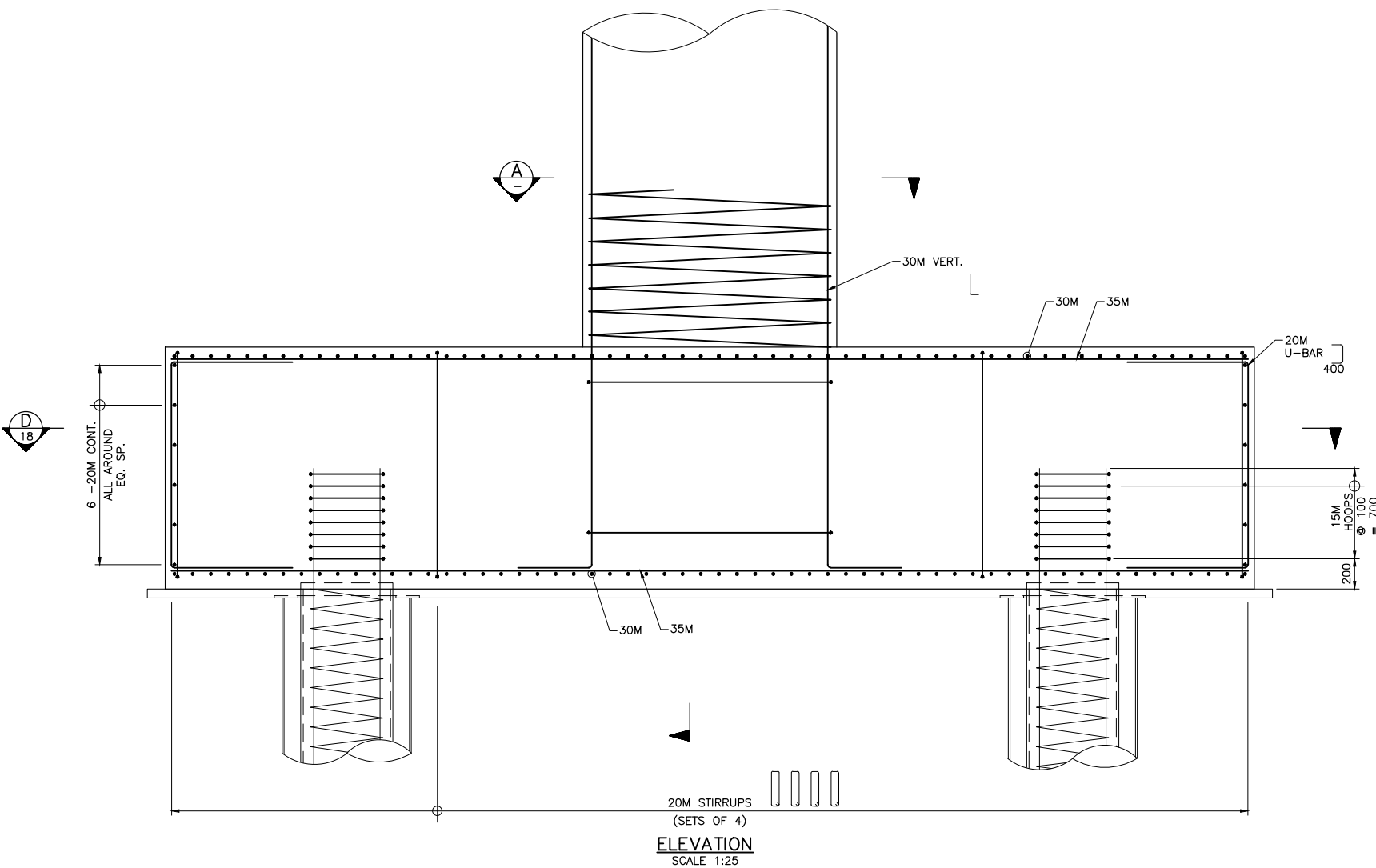
NOT FOR CONSTRUCTION

100% DETAILED DESIGN

CANCEL PRINTS BEARING PREVIOUS LETTER



SECTION A
SCALE 1:25



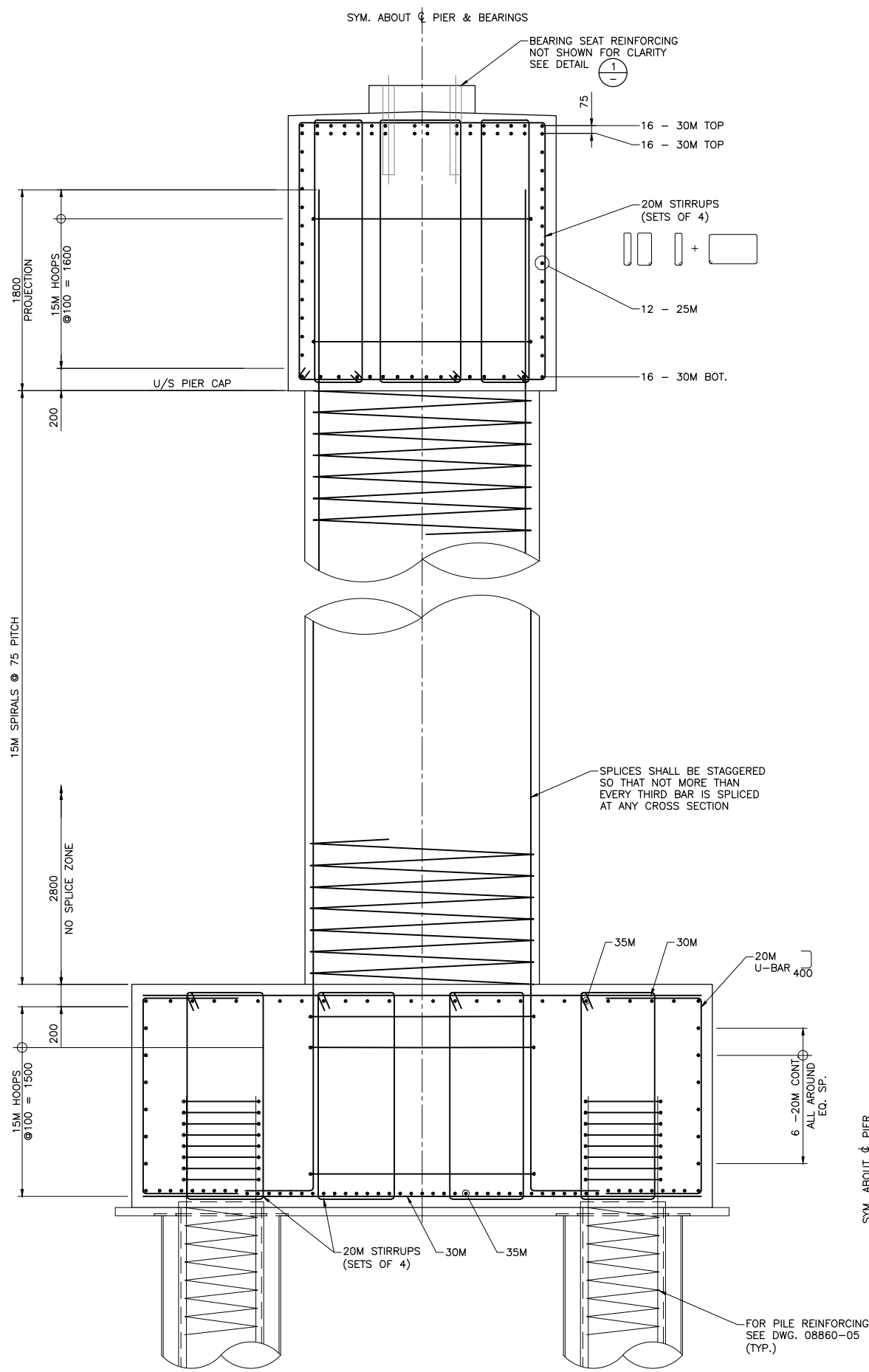
NOTES:

- FOR GENERAL NOTES SEE DRAWING 08660-01.

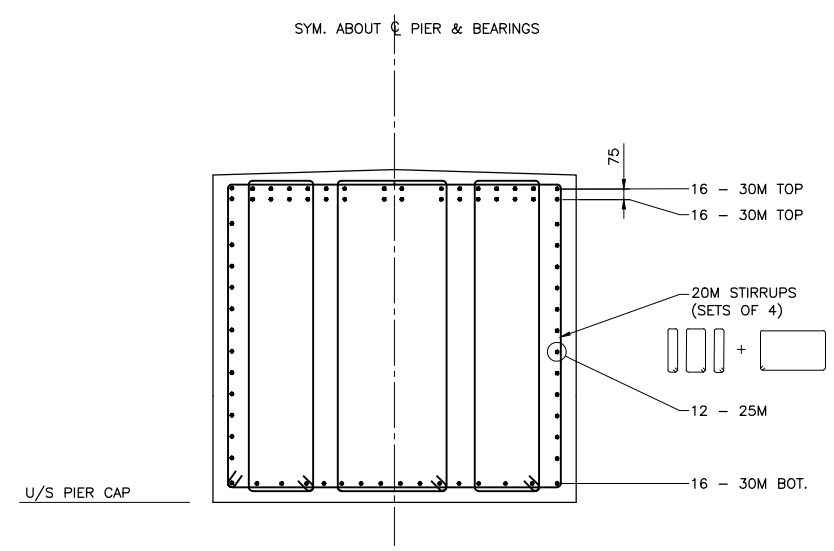
Consultant Logo			
Rev	Date	Description	Init
REVISIONS			
		Ministry of Transportation & Infrastructure Northern Region	
PEACE DISTRICT HIGHWAY No. 29 DRY CREEK BRIDGE No. 08660 PIER REINFORCING - SHEET 1			
PREPARED UNDER THE DIRECTION OF		DESIGNED	K.G. DATE JAN 2020
ENGINEER OF RECORD		CHECKED	N.K. DATE JAN 2020
DATE		DRAWN	M.B. DATE JAN 2020
FILE No.		PROJECT No.	REG. DRAWING No.
		37503-0000	08660-17

NOT FOR CONSTRUCTION

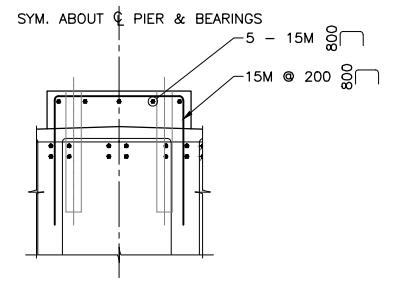
100% DETAILED DESIGN



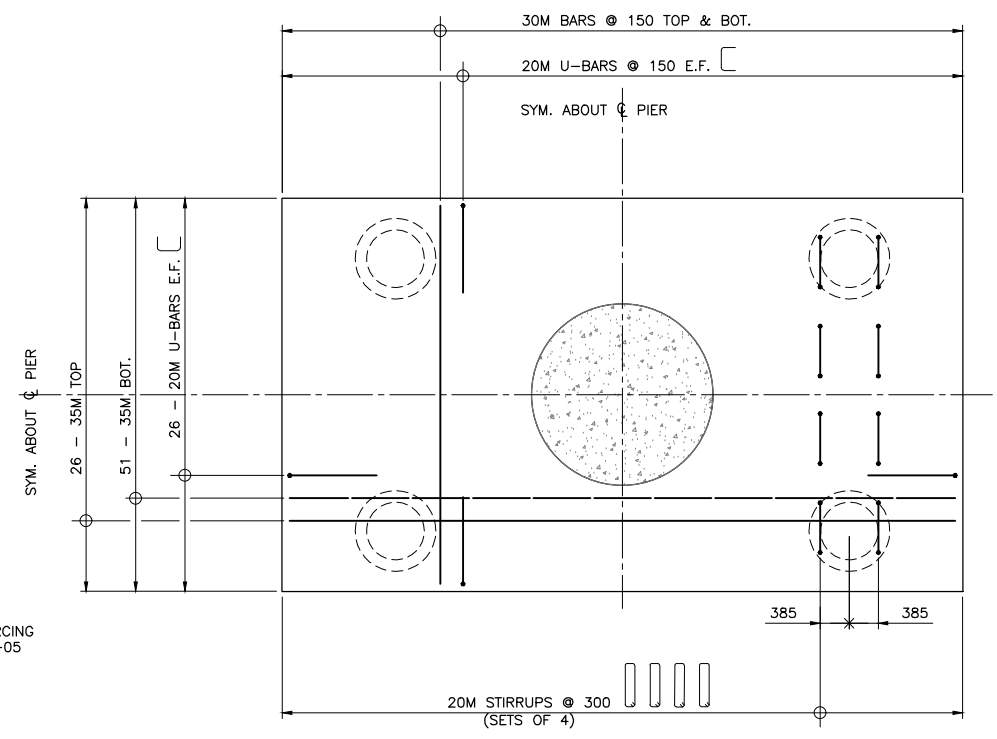
SECTION B
SCALE 1:25
17



SECTION C
SCALE 1:25
17



DETAIL 1
SCALE 1:25



SECTION D
SCALE 1:50
17

NOTES:
1. FOR GENERAL NOTES SEE DRAWING 08660-01.

Consultant Logo

Rev	Date	Description	Init

REVISIONS

BRITISH COLUMBIA Ministry of Transportation & Infrastructure Northern Region

PEACE DISTRICT
HIGHWAY No. 29
DRY CREEK BRIDGE No. 08660
PIER REINFORCING - SHEET 2

PREPARED UNDER THE DIRECTION OF _____

ENGINEER OF RECORD _____

DATE _____

DESIGNED K.G. DATE JAN 2020
CHECKED N.K. DATE JAN 2020
DRAWN M.B. DATE JAN 2020
SCALE AS NOTED
NEGATIVE No. _____

FILE No. _____ PROJECT No. 37503-0000 REG. DRAWING No. 08660-18

SEAL

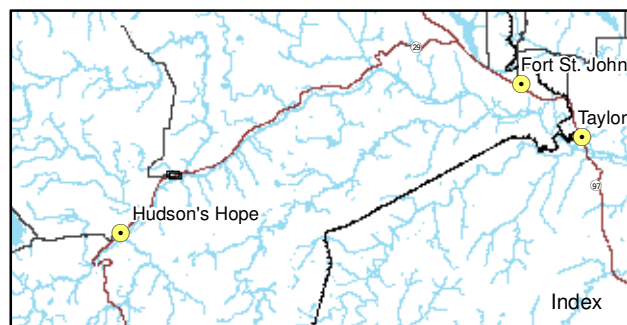
NOT FOR CONSTRUCTION
100% DETAILED DESIGN

CANCEL PRINTS BEARING PREVIOUS LETTER

Site C Clean Energy Project – Dry Creek Bridge Replacement




Appendix B: Dry Creek Culvert Crossing Alignment and Arrangement presented in Site C Environmental Impact Statement

- Figure 4.29 Rev 0 General arrangement of Highway 29 realignment segment at Dry Creek





Map Notes:
 1. Datum: NAD83
 2. Projection: UTM Zone 10N
 3. Orthophotos created from 1:40,000 photos taken Sept 10th 2007; 1:15,000 photos taken Aug 26, 2011; 1:5,000 photos taken Aug 26, 2011; TRIM
 4. Proposed maximum normal reservoir level (full supply level-461.8 m) from Digital Elevation Models (DEM) generated from LiDAR data acquired July/Aug 2006.
 5. Realignments subject to change.
 6. Reservoir elevation = 461.8 m does not consider realignments.

Legend

-  Highway 29 Realignment
-  Pipe Arch
-  Maximum Normal Reservoir Level (461.8 m)

1:5,000 0 0.25 km

				
		Figure 4.29 General arrangement of Highway 29 realignment segment at Dry Creek		
Date	Nov. 23, 2012	DWG NO	1016-C14-B6158-15	R 0