Transport Canada Transports Canada

Our File: 2018-500451
Registry Number: 2021

Navigation Protection Program (NPP)
820 - 800 Burrard St
Vancouver, BC, V6Z 2J8

APPROVAL

OWNER: BC Hydro and Power Authority
9th Floor, 1111 Georgia St W
Vancouver BC V6E 4M3

WORK: Causeway

SITE LOCATION: Located at approximately 56°14'10.94"N, -121°23'24.19"W, on unsurveyed foreshore or land covered by water being part of the bed of Peace River, Fronting Section 34, Township 83, Range 22, West of the 6th Meridian, Peace River District, in the Province of British Columbia.

As per the application (detailed above) to the Minister of Transport, submitted pursuant to the *Canadian Navigable Waters Act*, for an approval of the work per the attached three (3) plans the Minister hereby approves the work pursuant to subsection 7(6) for the construction of the above mentioned work, in accordance with the following terms and conditions:

1. The works are to be constructed or installed in accordance with the reviewed plans.

2. The NPA Approval and its Terms and Conditions shall be posted at an easily accessible place at the worksite.

3. Install and maintain warning signs at locations approx. 200 meters west and 3.5km east of the location of the site advising of the work in progress. Signs shall be a minimum of 72”x 48”, a white background with black lettering, with text as outlined below. Sign to be emplaced prior to and for the duration of construction.

WARNING CONSTRUCTION HAZARDS AHEAD

4. During construction the outermost extent of the work above the surface shall be marked with orange high-visibility markers on the upstream and downstream corners.

5. During construction the outermost extent of the work above the surface shall be marked with a flashing yellow light on the upstream and downstream sides. The lights are to be in operation in darkness or limited visibility.

6. Construction machinery left in the water during darkness or limited visibility shall be marked with a flashing yellow light, visible to upstream and downstream traffic.

7. Any construction equipment anchored or left in or on the waterway shall be marked with a yellow flashing light placed on the outermost extremity if left overnight.

8. During open water season the work’s span shall be marked using a flashing yellow light facing upstream and downstream and operating during times of darkness and limited visibility.

9. In the event that the operation of the above works is terminated, it will be the proponent's responsibility to remove the works and associated equipment in its entirety.

10. Upon removal of the work's deck, the outermost extent of the abutments above the surface on the south side of the channel shall be marked with orange Hi-visibility markers on the upstream and downstream corners until the abutments are submerged due to inundation.

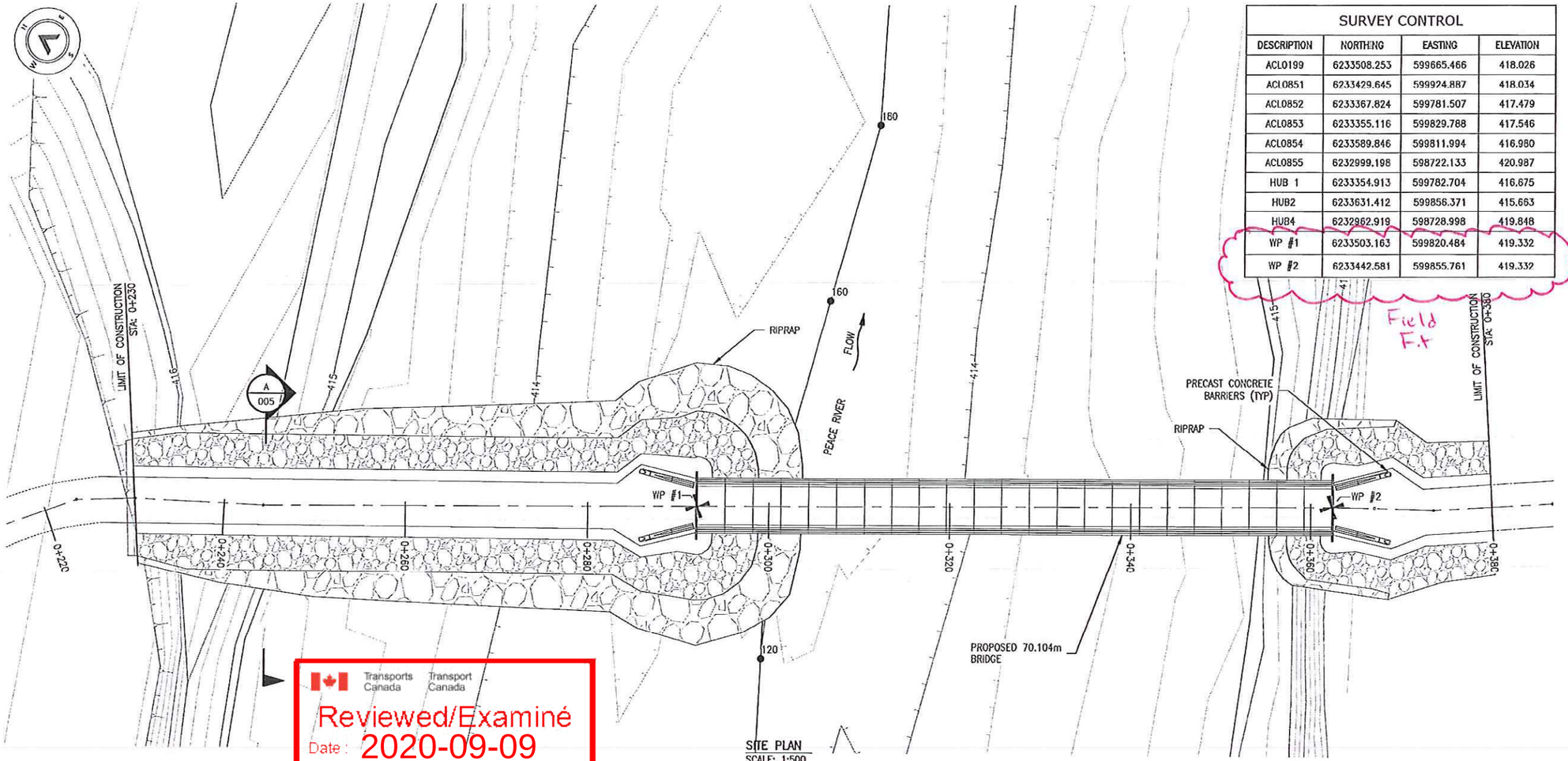
11. Upon removal of the work's deck, the outermost extent of each abutment above the surface on the south side of the channel shall be marked with a flashing yellow light on the upstream and downstream corners until the abutments are submerged due to inundation.

12. Upon submersion of the abutments on the south side of the channel due to inundation, yellow buoys shall be placed and maintained at the location of the causeway(s). Buoys are to be placed at midpoint and outermost end of each abutment, and no less than 0.6 meters in diameter. Horizontal bands of yellow reflective tape, not less than 10 cm in width and 15 cm in length, shall be either placed at intervals around the horizontal circumference of the buoys or displayed from suitable topmarks that are visible from all directions. Buoys shall remain in place until the water elevation at the causeway location reaches 5m greater than the causeway top elevation.

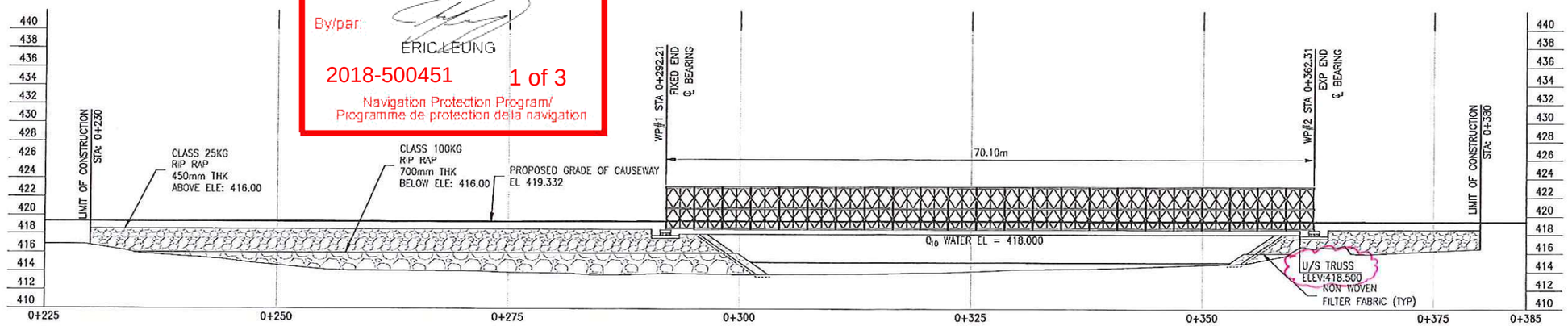
13. Upon completion of the associated vegetation clearing project, the work's deck and associated equipment, as well as the abutments and causeway on the north side of the channel shall be removed completely without delay.

SIGNED on September 11, 2020 Pacific

Eric Leung
NPP Officer
Programs Group
Transport Canada
Pacific Region
For the Minister of Transport



SITE PLAN
SCALE: 1:500



BRIDGE PROFILE
SCALE: 1:500

SURVEY CONTROL			
DESCRIPTION	NORTHING	EASTING	ELEVATION
ACL0199	6233508.253	599665.466	418.026
ACL0851	6233429.645	599924.887	418.034
ACL0852	6233367.824	599781.507	417.479
ACL0853	6233355.116	599829.788	417.546
ACL0854	6233589.846	599811.994	416.980
ACL0855	6232999.198	598722.133	420.987
HUB 1	6233354.913	599782.704	416.675
HUB2	6233631.412	599856.371	415.663
HUB4	6232862.919	598728.998	419.848
WP #1	6233503.163	599820.484	419.332
WP #2	6233442.581	599855.761	419.332

Field F.t

191101 CRS

Transports Canada / Transport Canada
Reviewed/Examiné
Date : 2020-09-09
By/par: ERIC LEUNG
2018-500451 1 of 3
Navigation Protection Program/ Programme de protection de la navigation

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
-	-	1

REV	YY/MM/DD	DESCRIPTION	DRWN	APVD
0	19/08/20	ISSUED FOR TENDER	GSB	DDW

CLIENT: BC Hydro

Allnorth

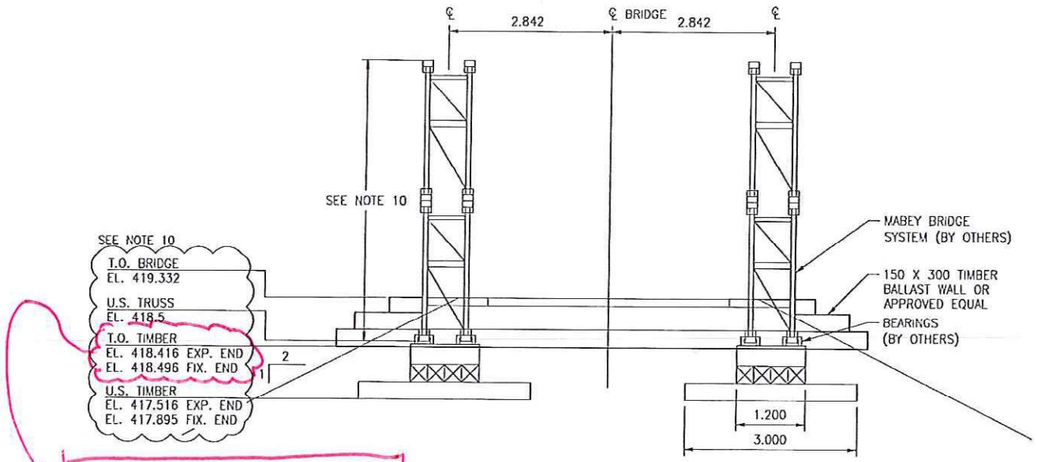
CLIENT NO:	-	DRWN: ADW	DATE: 18/07/25
PROJECT NO:	17PG0123	DSGN: DDW	DATE: 18/07/20
DRAWING SIZE:	ANSI "B"	CHKD: DDW	DATE: 18/07/31
SCALE:	AS NOTED	APVD: DDW	DATE: 19/01/25

PROJECT:
OLTC 16 CAUSEWAY SURVEY AND DESIGN

TITLE:
CAUSEWAY BRIDGE PLAN AND PROFILE

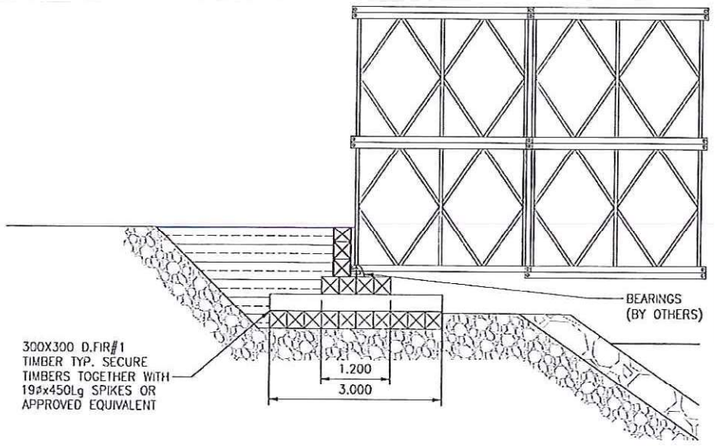
DWG NO: 17PG0123-1000-1960-004 REV: 0

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D.D. WILLIAMS — AUG 20 2019



EL. 418.510 Exp End
EL. 418.590 Fix End

END VIEW TYPICAL ABUTMENT
SCALE: 1:100



SIDE VIEW TYPICAL ABUTMENT
SCALE: 1:100

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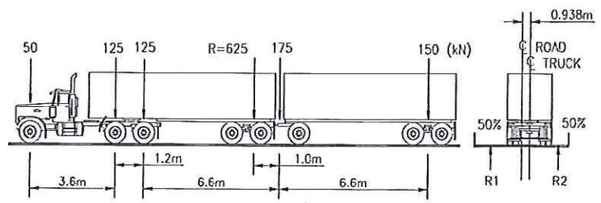
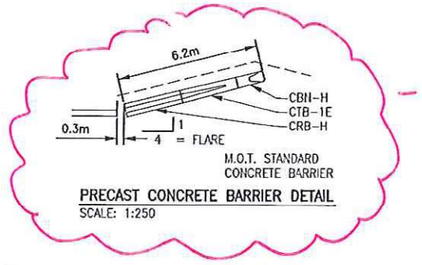
NOTES:

1. BACK FILL OF APPROACHES SHALL GENERALLY CONFORM TO THE LINES SHOWN ON THE DRAWINGS AND SHALL BE PLACED IN LIFTS NOT EXCEEDING 305mm THICK, COMPACTED TO 95% STANDARD PROCTOR DENSITY USING A MINIMUM 1000lbs VIBRATORY PLATE COMPACTOR. MATERIAL SHALL BE CLEAN, FREE DRAINING, WELL GRADED GRANULAR FILL OF 75mm MAXIMUM SIZE. LIFTS SHALL ALTERNATE BOTH WAYS AT EACH END OF THE BRIDGE TO ENSURE MINIMAL MOVEMENT.
2. NON-WOVEN FILTER FABRIC TO BE PLACED OVER EXCAVATION TO HAVE A MINIMUM MULLEN BURST STRENGTH OF 2500kPa. FILTER FABRIC TO BE USED UNDER FOUNDATIONS.
3. ALL EXPOSED MINERAL SOILS TO BE SEEDED USING AN APPROVED RECLAMATION GRASS SEED MIXTURE AND COVERED WITH AN APPROVED EROSION CONTROL BLANKET.
4. THE CONTRACTOR IS TO CONTACT THE ENGINEER PRIOR TO PLACING FOUNDATIONS. FOUNDATIONS PLACEMENT SHALL BE SUPERVISED BY THE ENGINEER TO CONFIRM BEARING REQUIREMENTS.
5. ALL PERMITS AND REGULATORY APPROVALS TO BE IN PLACE PRIOR TO COMMENCING WORK.
6. ENVIRONMENTAL MANAGEMENT PLAN TO BE PREPARED FOR PROJECT BY OTHERS. COMPLETION OF WORKS TO COMPLY WITH MITIGATION RECOMMENDATIONS OUTLINED IN ENVIRONMENTAL MANAGEMENT PLAN.
7. NO SITE SPECIFIC GEOTECHNICAL INVESTIGATION HAS BEEN COMPLETED AS PART OF ALLNORTH CONSULTANTS LIMITED SCOPE OF WORK. THEREFORE, THIS DESIGN HAS BEEN PREPARED WITHOUT THE BENEFIT OF A SITE SPECIFIC GEOTECHNICAL FIELD INVESTIGATION OR GEOTECHNICAL ADVICE. GROUND CONDITIONS MAY VARY AND THE FOUNDATION REQUIREMENTS AND BRIDGE CONCEPT MAY NEED TO BE MODIFIED TO ACCOMMODATE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION. ALLNORTH CONSULTANTS LIMITED ACCEPTS NO RESPONSIBILITY FOR ADDITIONAL COSTS OR DELAYS THAT MAY RESULT IF THE GROUND CONDITIONS VARY FROM THOSE ASSUMED IN THE DESIGN. THE DESIGN ENGINEER SHALL BE CONTACTED IF FIELD CONDITIONS VARY FROM THE DESIGN ASSUMPTIONS SHOWN ON THE DRAWINGS OR IN THE CONSTRUCTION SPECIFICATIONS. INSTALLATIONS OF FOUNDATIONS SHALL BE SUPERVISED BY THE DESIGN ENGINEER OR THEIR REPRESENTATIVE.
8. WHERE EXCAVATION SPECIFICATIONS ON THESE DRAWINGS CONFLICT WITH WORKSAFE BC (WSBC) REGULATIONS, WSBC REGULATIONS ARE TO GOVERN.
9. GENERAL ARRANGEMENT DRAWING. SOME STRUCTURE DETAIL NOT SHOWN. REFER TO FABRICATION DRAWINGS FOR FURTHER DETAIL PRIOR TO EXCAVATION AND INSTALLATION.
10. DIMENSIONS TO BE CONFIRMED WITH BRIDGE SUPERSTRUCTURE DRAWINGS.
11. RIPRAP SPECIFICATIONS:

CLASS OF RIPRAP (kg.)	NOMINAL THICKNESS OF RIPRAP (mm)	ROCK GRADATION PERCENTAGE SMALLER THAN GIVEN ROCK MASS (kg)			APPROXIMATE AVERAGE DIMENSION (mm)		
		15%	50%	85%	15%	50%	85%
10	350	1	10	30	90	195	280
25	450	2.5	25	75	120	260	380
50	550	5	50	150	155	330	475
100	700	10	100	300	195	415	600
250	1000	25	250	750	260	565	815
500	1200	50	500	1500	330	715	1030

LOADING DIAGRAM CL-625 ON HIGHWAY G.V.W. = 63 710kg:
DESIGN IN ACCORDANCE WITH CAN/CSA-S6-06 WITH LOADING AS FOLLOWS:





PRECAST CONCRETE BARRIER DETAIL
SCALE: 1:250

- Logs Used

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
-	-	1

191101
CRS

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
W.D. WILLIAMS
AUG 20 2019

REV	YY/MM/DD	DESCRIPTION	DRWN	APVD
0	19/08/20	ISSUED FOR TENDER	GSB	DDW

CLIENT: BC Hydro

Allnorth

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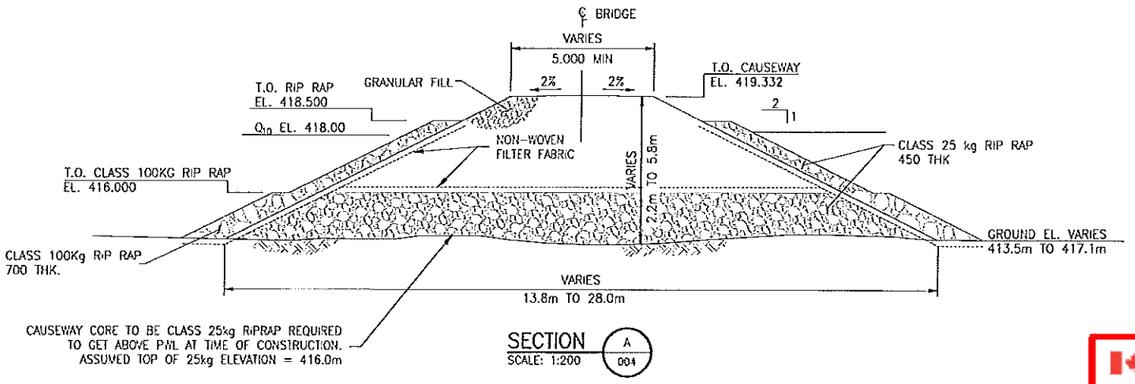
SCALE:	AS NOTED	APVD: DDW	DATE: 19/01/25

PROJECT:
OLTC 16 CAUSEWAY
SURVEY AND DESIGN

TITLE:
ABUTMENT, SECTIONS AND NOTES

DWG NO: 17PG0123-100-1960-005
REV. 0



ROAD WAY MATERIALS				
	CLASS 100Kg RIP RAP	CLASS 25Kg RIP RAP	NON-WOVEN FILTER FABRIC	GRANULAR FILL
0+230 TO 0+303	340 m^3	2512 m^3	2215 m^2	2056m^3
0+353 TO 0+380	28 m^3	110 m^3	608 m^2	611 m^3
TOTAL:	368 m^3	2622 m^3	2823 m^2	2667 m^3

BRIDGE MATERIALS	
DESCRIPTION:	# REQ'D:
300x300X3.0m D.FIR #1	28
300x300x1.2m D.FIR #1	8
150x300x6.6m D.FIR #2	2
150x300x7.8m D.FIR #2	2
150x300x9.0m D.FIR #2	2
19Ø SPIKES x 450 Lg	AS REQ'D
BRIDGE SUPERSTRUCTURE	BY OTHERS

Transports Canada Transport Canada

Reviewed/Examiné

Date : 2020-09-09

By/par:

ERIC LEUNG

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Navigation Protection Program/
Programme de protection de la navigation

REFERENCE DRAWINGS

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-	-	1

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PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D.D. WILLIAMS

AUG 20 2019

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0	19/08/20	ISSUED FOR TENDER	GSB	DDW

CLIENT: BC Hydro

Allnorth

CLIENT NO: -	DRWN: DMM	DATE: 19/02/27	
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SCALE: AS NOTED	APVD: DDW	DATE: 19/02/27	

PROJECT:

OLTC 16 CAUSEWAY SURVEY AND DESIGN

TITLE:

SECTIONS, NOTES AND TABLES

DWG NO. 17PG0123-100-1960-006 REV. 0