



Navigation Protection Program  
Programs Group  
Transport Canada

Our file:  
**2019-500364**

### APPROVAL

**APPLICANT:** BC Hydro  
Ste 600, Four Bentall Centre, 1055 Dunsmuir St. PO Box 49260  
Vanouever, British Columbia V7X 1V5

**WORK:** Bridge

**SITE LOCATION:** Located at approximately 51.22823, -121.39409,  
Peace River, located on unsurveyed foreshore or land covered by water  
being part of the bed and islands of the Peace River, MR5 all-season  
crossing, lying within Sections 27, 28 and 33, Township 83, Range 22,  
West of The 6th Meridian Peace River District lying South 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 seven (7) attached plan(s) 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 CNWA Approval and its Terms and Conditions shall be posted at an easily accessible place at the worksite, and be provided to the contractor conducting the work.
2. The owner shall provide information about the causeway or abutments and bridge location using the Boater Communications Protocol, and post the information on the owner website, on a page related to the project.
3. Upon completion of the causeway or abutments and bridge construction, install and maintain a warning sign at the confluence of the side channel and the main channel of the Peace River approximately 150m upstream of the crossing advising of the obstruction of the side channel and include an arrow indicating the direction of the main channel. Sign shall be a minimum of 72" x 48", a white background with black lettering, the size of the text shall be at least 15cm tall with the word "WARNING" at 1.5 times the size of the message text.

WARNING  
OBSTRUCTION AHEAD  
KEEP TO THE MAIN CHANNEL



4. During construction the outermost extent of each abutment or causeway above the surface shall be marked with orange Hi-visibility markers on the upstream and downstream corners.
5. During construction the outermost extent of each abutment or causeway above the surface shall be marked with a flashing yellow light on the upstream and downstream corners.



6. Any construction equipment or machinery left in the water during periods of darkness or limited visibility shall be marked with a yellow flashing light visible to upstream and downstream traffic.
7. If using abutments and bridge deck, the outermost extent of each abutment above the surface shall be marked with orange Hi-visibility markers on the upstream and downstream corners once the bridge deck has been removed, until the abutments are submerged due to inundation.
8. If using abutments and bridge deck, the outermost extent of each abutment above the surface shall be marked with a flashing yellow light on the upstream and downstream corners once the bridge deck has been removed, until the abutments are submerged due to inundation.
9. If causeway is used, the upstream and downstream edges shall be marked with orange Hi-visibility markers, evenly spaced every 20m on both the upstream and downstream sides, until the causeway is submerged due to inundation.
10. Once the causeway or abutments are submerged due to inundation, yellow buoys shall be placed and maintained at the location of the causeway or abutments. Buoys are to be no more than 20 metres apart and no less than 0.6 metres 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 or abutment location reaches 5m greater than the causeway or abutment top elevation.
11. Upon completion of the associated vegetation clearing project, the bridge deck and associated equipment shall be completely removed without delay, including all anchors and piles

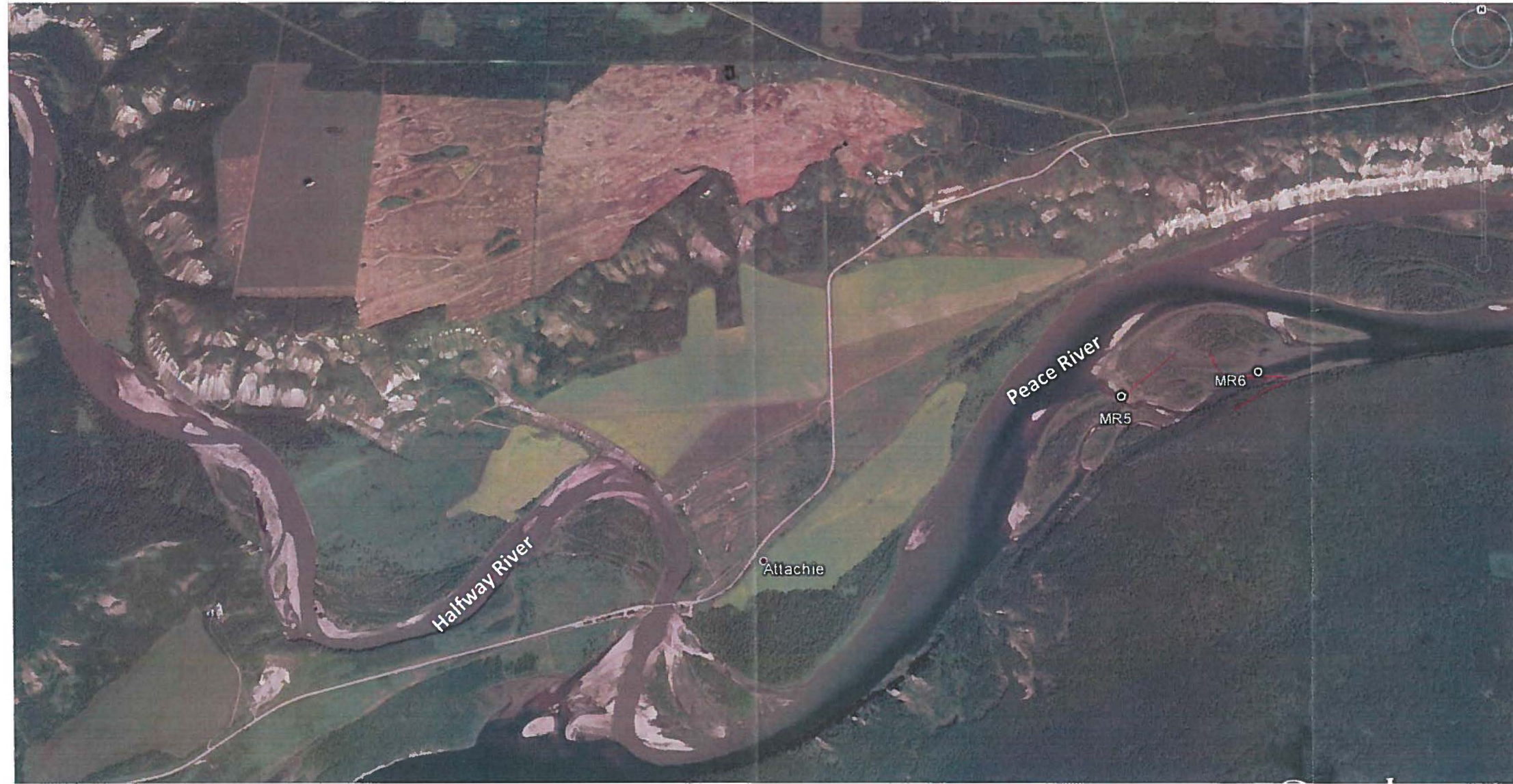
**SIGNED on December 2, 2019 in Pacific**

Jonn Leeden  
Navigation Protection Program  
Programs Group  
Transport Canada  
Pacific Region  
For the Minister of Transport

/sp



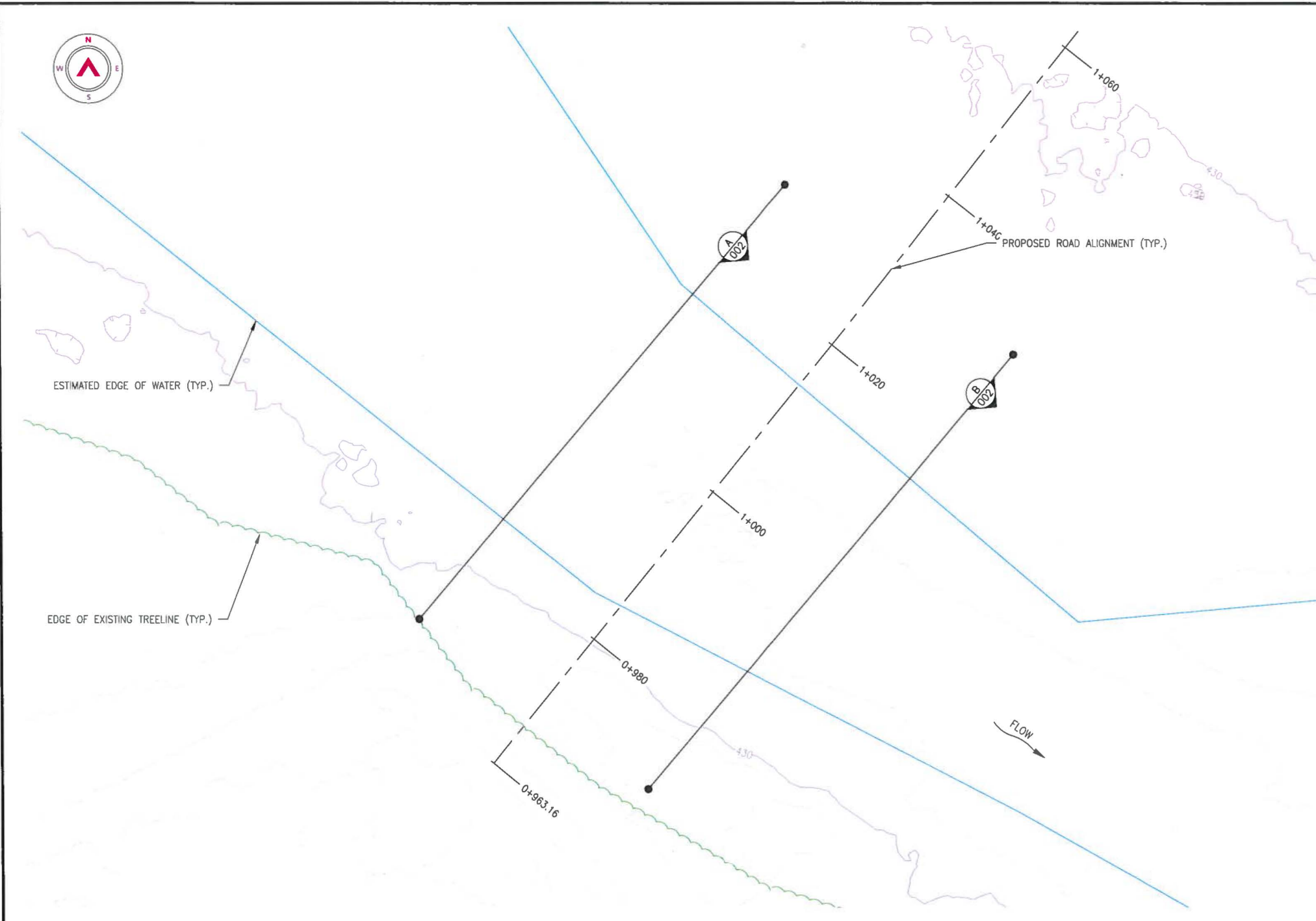
Figure 1. Map showing location of proposed MR5 crossing of the Peace River sidechannel.



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Date: 2019/07/29 5:30 PM | User: Brandon Kramer | File: P:\PG02017\10017PG0213 BC Hydro Site C Forestry Consulting\1000-Drawings\1000-Drawings\1011-Civil-Production\MRS\_MRB\17PG0213 Lida Surface MRS-MRS-5P\_ | Layout: 001-MRS | Paper Size: 558.0mm x 431.8mm

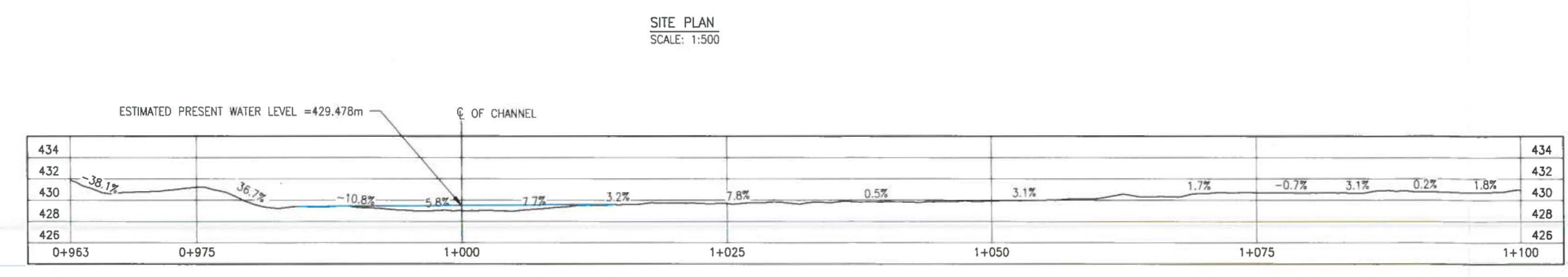


- SITE/SURVEY NOTES:**
1. SITE SURVEY BASED ON LIDAR DATA. NO SITE SURVEY HAS BEEN COMPLETED
  2. GENERAL SITE COORDINATES: N6232519 E599114
  3. STATIONING AND CONTOURS ARE IN METERS.

**HYDROTECHNICAL DATA:**

- STREAMCLASS S1
- DRAINAGE AREA = XXkm<sup>2</sup>
- DESIGN FLOW IS ESTIMATED @ XXm<sup>3</sup>/s
- Q10 DESIGN VELOCITY IS ESTIMATED @ XXm/s
- Q10 DESIGN FLOW WATER ELEV. IS ESTIMATED @ XXm

HOLD



GROUND PROFILE ALONG PROPOSED ROAD ALIGNMENT  
SCALE: 1:500

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REV	YY/MM/DD	DESCRIPTION	DRWN	APVD
A	19/07/30	ISSUED FOR REVIEW	BK	GDF

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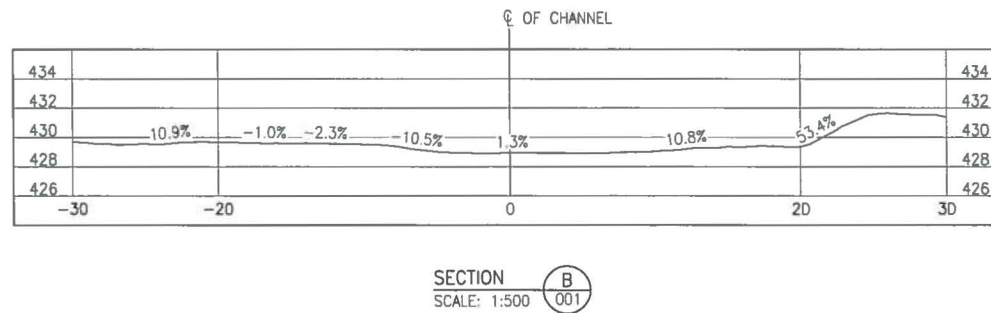
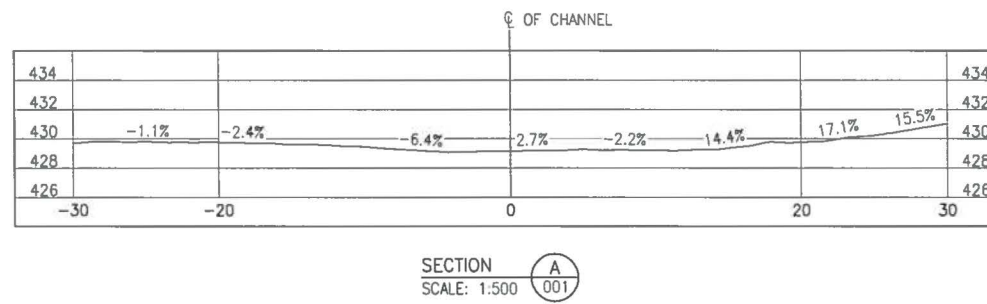
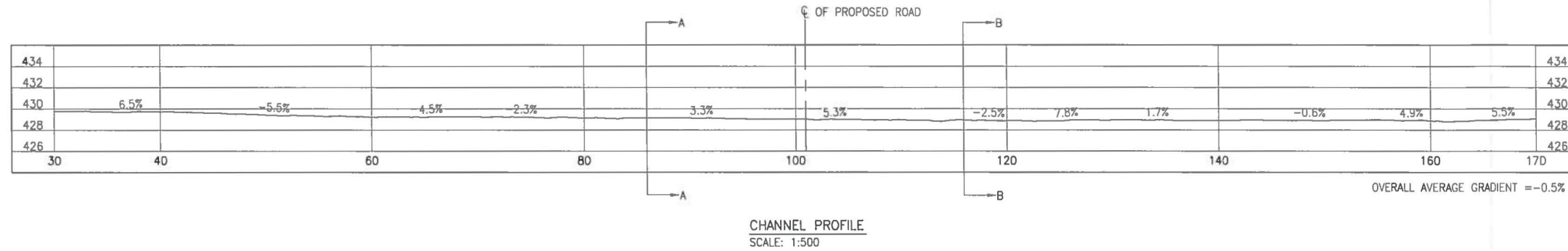
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DRAWING SIZE:	ANSI "B"	CHKD:	GDF	DATE:	19/07/30
SCALE:	AS NOTED	APVD:	GDF	DATE:	19/07/30

PROJECT  
**MRS CROSSING**

TITLE  
**SITE PLAN AND PROFILE**

DWG NO:	17PG0123-1500-1960-001	REV:	A
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CLIENT NO:	DRWN:	BK	DATE:	19/07/26	
PROJECT NO:	17PG0123	DSGN:	GDF	DATE:	19/07/26
DRAWING SIZE:	ANSI "B"	CHKD:	GDF	DATE:	19/07/30
SCALE:	AS NOTED	APVD:	GDF	DATE:	19/07/30

PROJECT

MR5 CROSSING

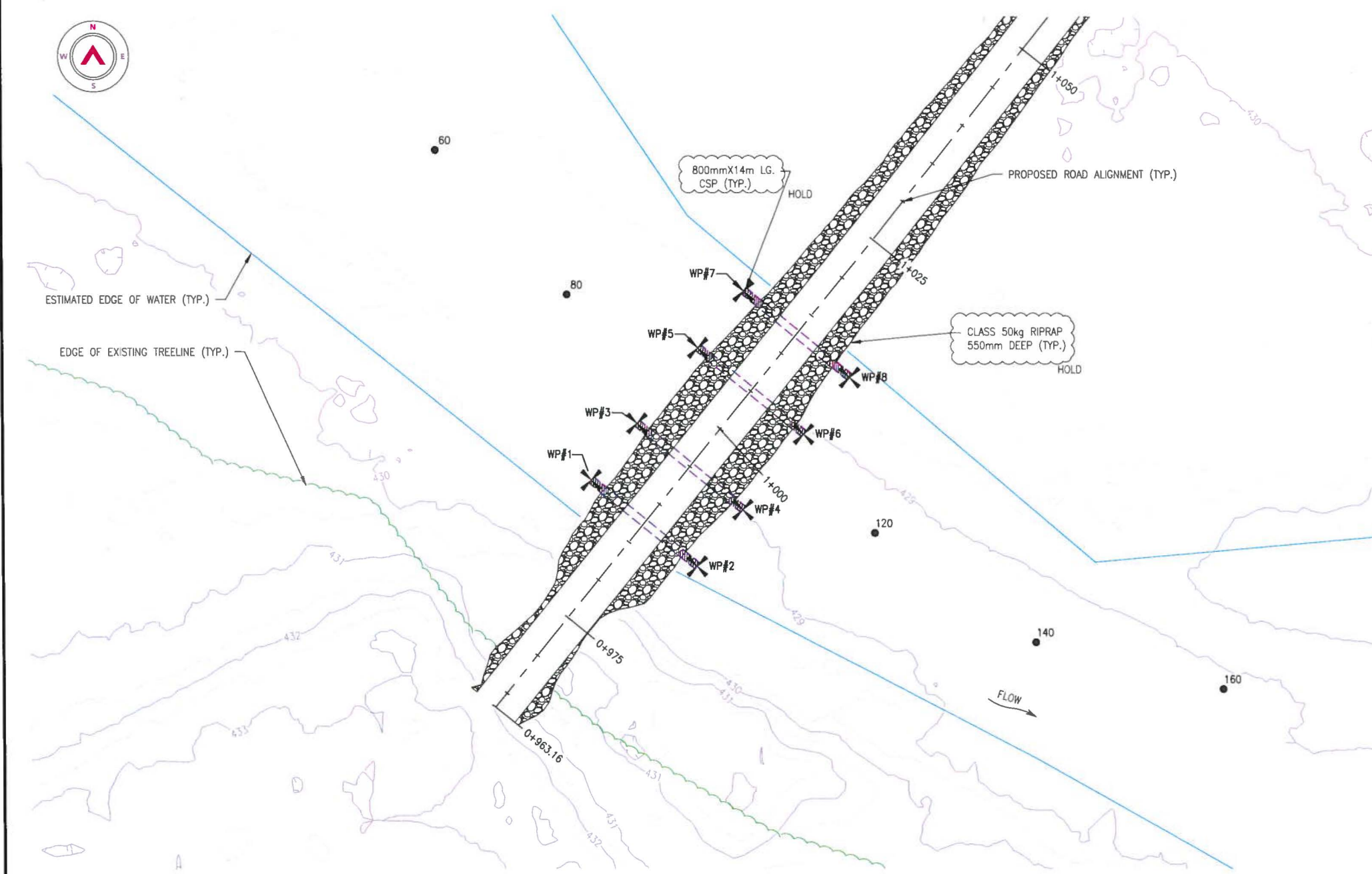
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PROFILE AND SECTIONS

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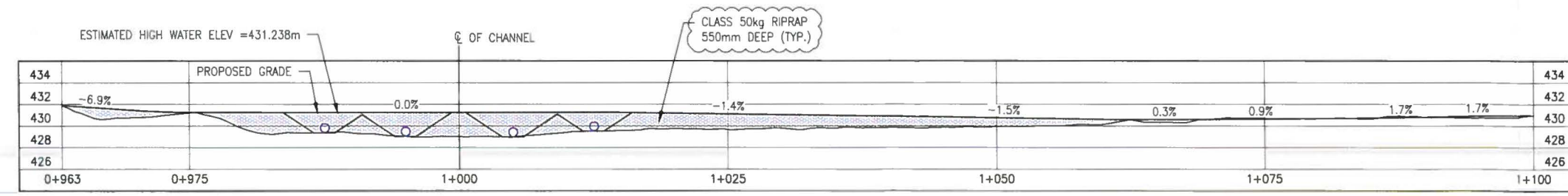


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GENERAL ARRANGEMENT  
SCALE: 1:500

NOTE: THESE DRAWINGS ARE CONCEPTUAL AND ARE FOR PLANNING PURPOSES ONLY. HIGH WATER LEVELS ARE BASED ON PHOTO IMAGERY AND ARE ESTIMATES ONLY. DURING WINTER CONDITIONS WHEN WATER LEVELS ARE TYPICALLY HIGHER, THE ROAD SURFACE MAY BE UNDERWATER AT TIMES AND MAY REQUIRE MAINTENANCE FOLLOWING HIGH FLOW EVENTS. CULVERTS HAVE NOT BEEN DESIGNED TO HANDLE HIGH WATER FLOWS AND ARE INTENDED TO PROVIDE CHANNEL CONNECTIVITY ONLY.



GROUND PROFILE ALONG PROPOSED ROAD ALIGNMENT  
SCALE: 1:500

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

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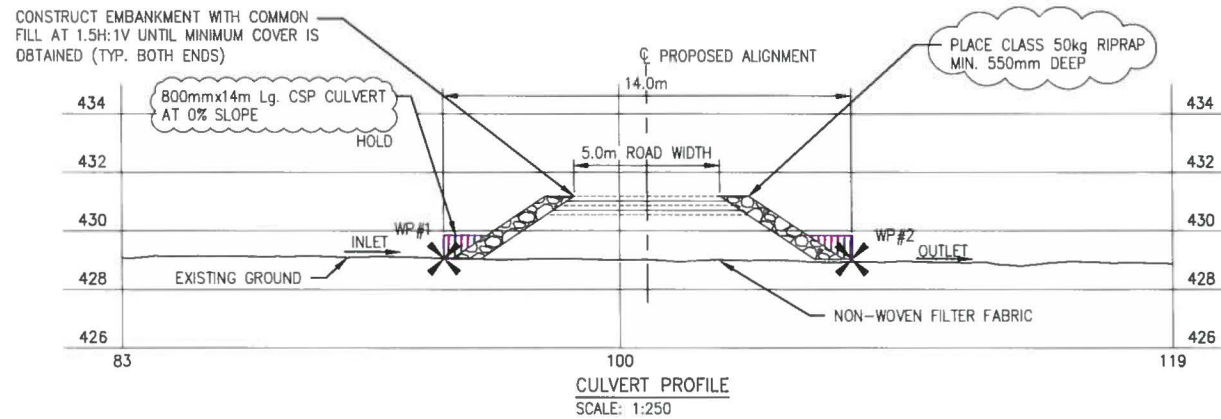
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PROJECT NO:	17PG0123	DSGN:	GDF	DATE:	19/07/26
DRAWING SIZE:	ANSI "B"	CHKD:	GDF	DATE:	19/07/30
SCALE:	AS NOTED	APVD:	GDF	DATE:	19/07/30

**MRS CROSSING  
OPTION 1: CAUSEWAY**

**GENERAL ARRANGEMENT  
AND PROFILE**

DWG NO:	17PG0123-1500-1960-003	REV:	A
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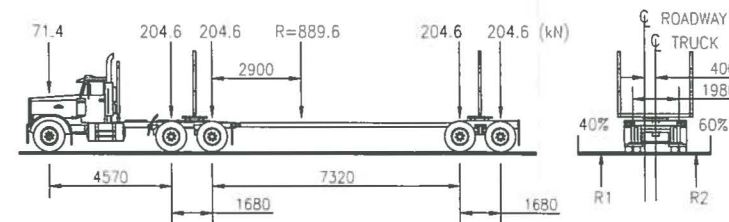


SURVEY CONTROL			
DESCRIPTION	NORTHING	EASTING	ELEVATION
WP#1	6232514.097	599099.067	429.369
WP#2	6232505.240	599109.909	429.369
WP#3	6232519.905	599103.812	429.040
WP#4	6232511.048	599114.654	429.040
WP#5	6232527.650	599110.138	428.982
WP#6	6232518.806	599120.964	428.982
WP#7	6232533.458	599114.883	429.511
WP#8	6232524.601	599125.725	429.511

**NOTES:**

- 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.
- NON-WOVEN FILTER FABRIC TO BE PLACED OVER EXCAVATION TO HAVE A MINIMUM MULLEN BURST STRENGTH OF 2500kPa
- ALL EXPOSED MINERAL SOILS TO BE SEEDED USING AN APPROVED RECLAMATION GRASS SEED MIXTURE AND COVERED WITH AN APPROVED EROSION CONTROL BLANKET.
- THE CONTRACTOR IS TO CONTACT THE ENGINEER PRIOR TO PLACING FOUNDATIONS. FOUNDATIONS PLACEMENT SHALL BE SUPERVISED BY THE ENGINEER TO CONFIRM BEARING REQUIREMENTS.
- ALL PERMITS AND REGULATORY APPROVALS TO BE IN PLACE PRIOR TO COMMENCING WORK.
- ENVIRONMENTAL MANAGEMENT PLAN TO BE PREPARED FOR PROJECT BY OTHERS. COMPLETION OF WORKS TO COMPLY WITH MITIGATION RECOMMENDATIONS OUTLINED IN ENVIRONMENTAL MANAGEMENT PLAN.
- 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.
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LOADING DIAGRAM L-100 OFF HIGHWAY G.V.W. = 90 680kg;  
DESIGN IN ACCORDANCE WITH CAN/CSA-S6-14 WITH MODIFIED LOADING AS FOLLOWS:



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

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CLIENT:  
**BC Hydro**

**Allnorth**

CLIENT NO:	-	DRWN:	BK	DATE:	19/07/26
PROJECT NO:	17PG0123	DSGN:	GDF	DATE:	19/07/26
DRAWING SIZE:	ANSI "B"	CHKD:	GDF	DATE:	19/07/30
SCALE:	AS NOTED	APVD:	GDF	DATE:	19/07/30

PROJECT:  
**MR5 CROSSING  
 OPTION 1: CAUSEWAY**

TITLE:  
**DETAILS AND NOTES**

DWG NO:	<b>17PG0123-1500-1960-004</b>	REV:	<b>A</b>
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ESTIMATED EDGE OF WATER (TYP.)

EDGE OF EXISTING TREELINE (TYP.)

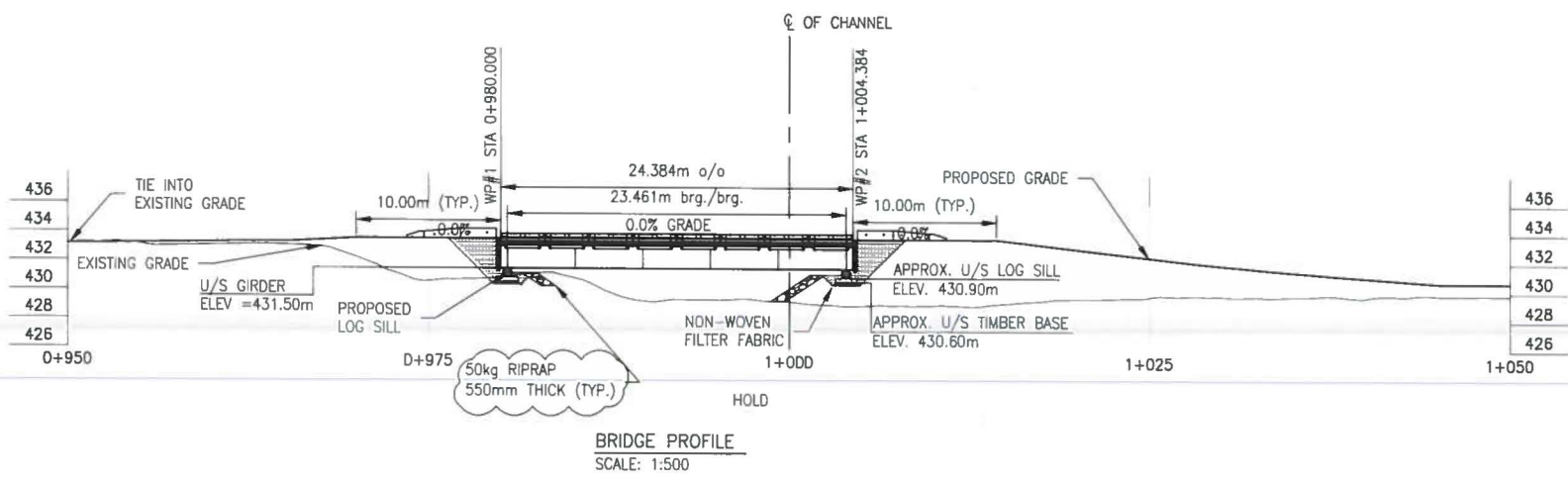
PROPOSED 24.384m BRIDGE

PROPOSED ROAD ALIGNMENT (TYP.)

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DESCRIPTION	NORTHING	EASTING	ELEVATION
WP#1	6232503.860	599099.743	433.550
WP#2	6232522.860	599115.265	433.550

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GENERAL ARRANGEMENT  
SCALE: 1:500



REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
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SCALE:	AS NOTED	APVD:	GDF	DATE:	19/07/30

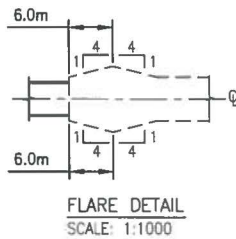
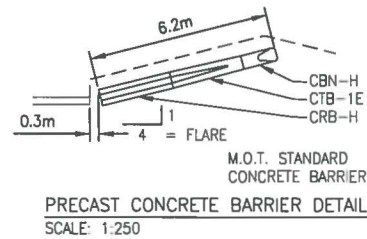
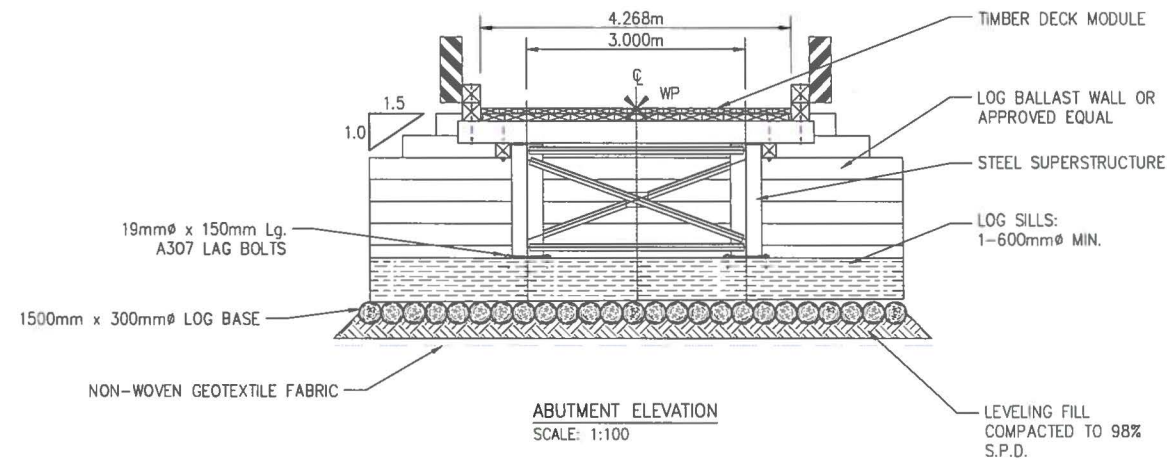
**MR5 CROSSING  
OPTION 2: CAUSEWAY WITH  
80' BRIDGE**

**GENERAL ARRANGEMENT  
AND PROFILE**

DWG NO:	17PG0123-1500-1960-005	REV:	A
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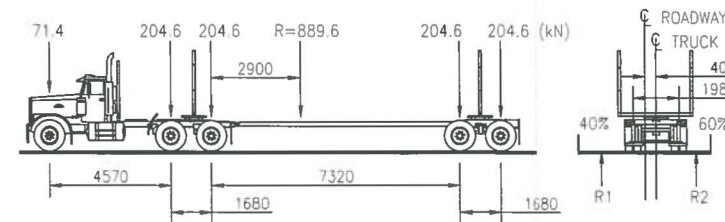
Date: 2019/07/26 5:50 PM | User: Braden Kumer | File: P:\P\2017\1001\17PG0123 BC Hydro Site - C Ferrety Consulting\1000-Drawings\1000-Drawings\1011-Ce\201-Production\MR5\_MR6\17PG0123-1500-1960-GA-OPTION 2 | Layout: 004 | Paper Size: 598.8mm x 431.8mm



**NOTES:**

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LOADING DIAGRAM L-100 OFF HIGHWAY G.V.W. = 90 680kg;  
 DESIGN IN ACCORDANCE WITH CAN/CSA-S6-14 WITH MODIFIED LOADING AS FOLLOWS:



REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
1		

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CLIENT:



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SCALE	AS NOTED	APVD	GDF DATE: 19/07/30

PROJECT

**MR5 CROSSING  
 OPTION 2: CAUSEWAY WITH  
 80' BRIDGE**

TITLE:

**DETAILS AND NOTES**

DWG NO:	REV:
17PG0123-1500-1960-006	A