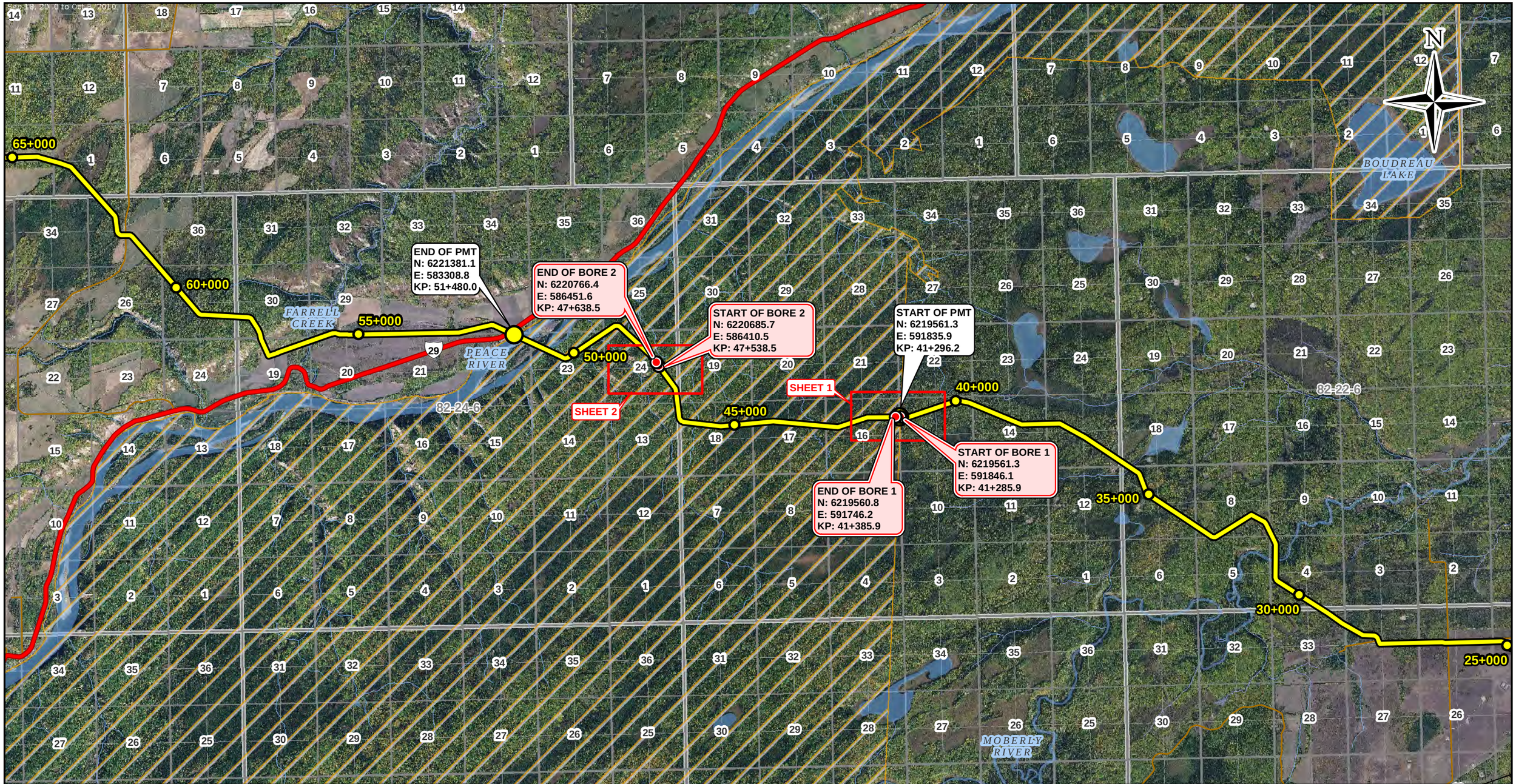
APPENDIX A – PRELIMINARY NGTL PLANS, BORES #1 - #4



Legend

- Approximate Bore Location
- Proposed Pipeline (Aitken Creek Section)
- 5km Contour KP's (Aitken Creek Section)
- Primary Highway
- Secondary Highway
- Minor Roads
- Railways
- Peace Moberly Tract (PMT)
- Hydrology
- City Town

REVISION	DESCRIPTION
6	Issued for Review, September 1, 2015

1:80,000 0 0.5 1 2 3 4 5 Kilometers

MIDWEST SURVEYS

NOVA GAS TRANSMISSION LTD.

NORTH MONTNEY MAINLINE (AITKEN CREEK SECTION)

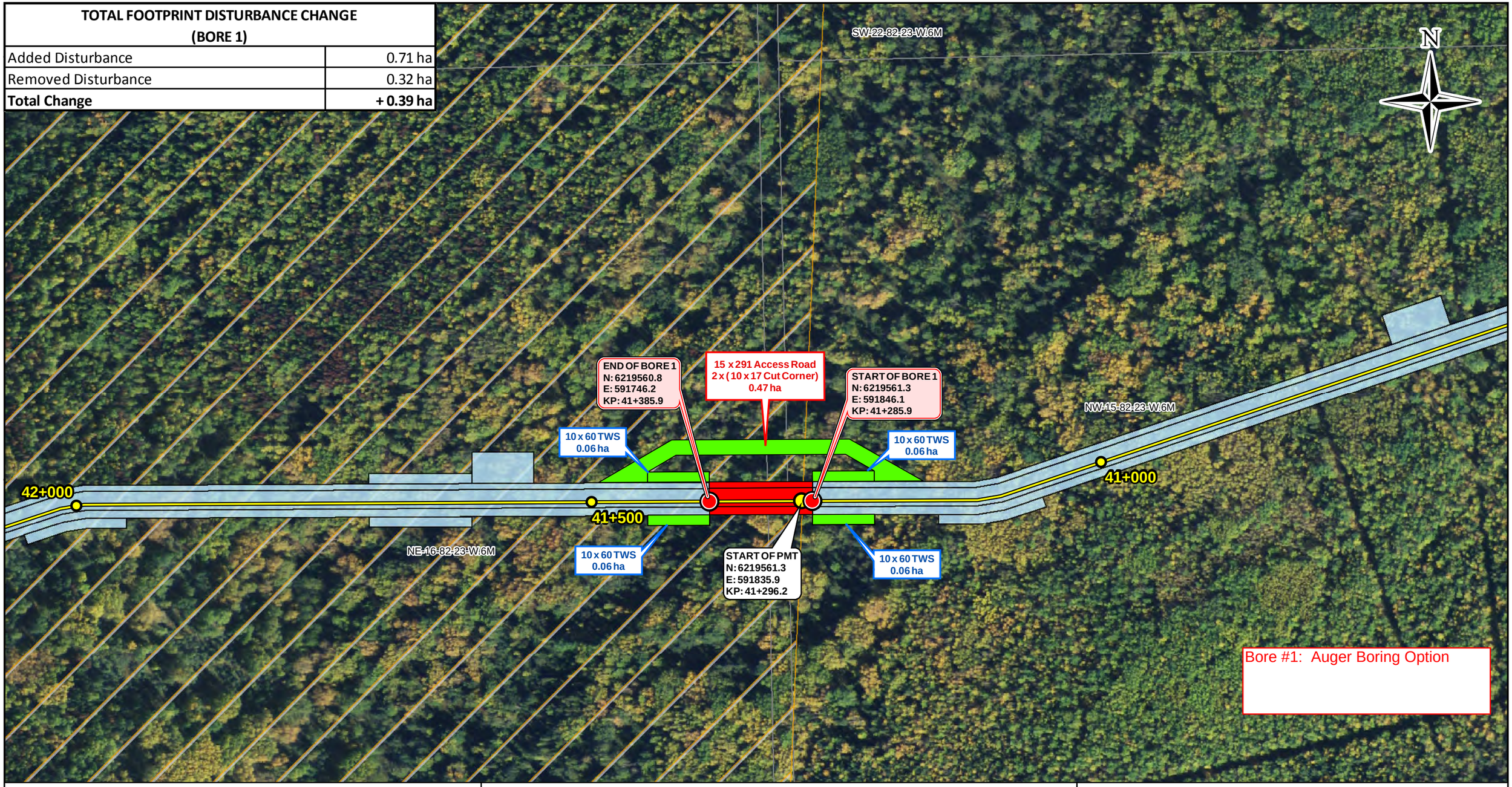
Peace Moberly Tract (PMT)
Approximate Bore Locations

REV 6

Route Reference: 2015_06_16_NMML_AitkenCreek_Ditchline_Rev9	September 1, 2015
MSI Job No: IB-0001-13 / PB-0002-15	KEY PLAN

M:\projects\2013\IB-0001-13\MAPPING\MAPBOOK\MXD\2015_09_01_NMML_PMT_BoreLocations_AitkenCreek_KeyPlan_Rev6_11x17.mxd

TOTAL FOOTPRINT DISTURBANCE CHANGE (BORE 1)	
Added Disturbance	0.71 ha
Removed Disturbance	0.32 ha
Total Change	**+ 0.39 ha**



Legend

- Parks / Protected Areas
- Approximate Bore Location
- 500km Contour KP's (Aitken Creek Section)
- Proposed Pipeline (Aitken Creek Section)
- Coincidental Disturbance
- Added Disturbance
- Removed Disturbance
- Peace Moberly Tract (PMT)
- City Town
- Hydrology

REVISION	DESCRIPTION
6	Issued for Review, September 1, 2015

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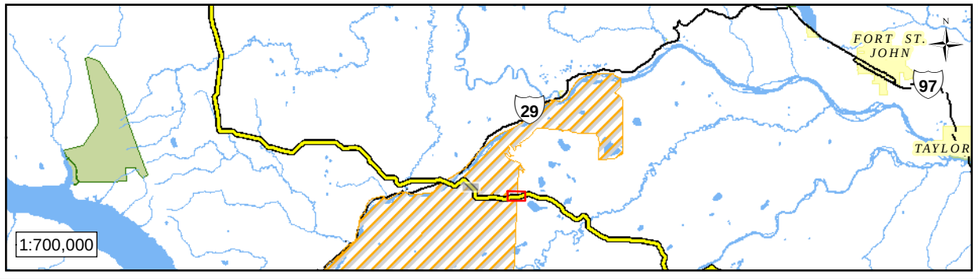


NOVA GAS TRANSMISSION LTD.

NORTH MONTNEY MAINLINE (AITKEN CREEK SECTION)

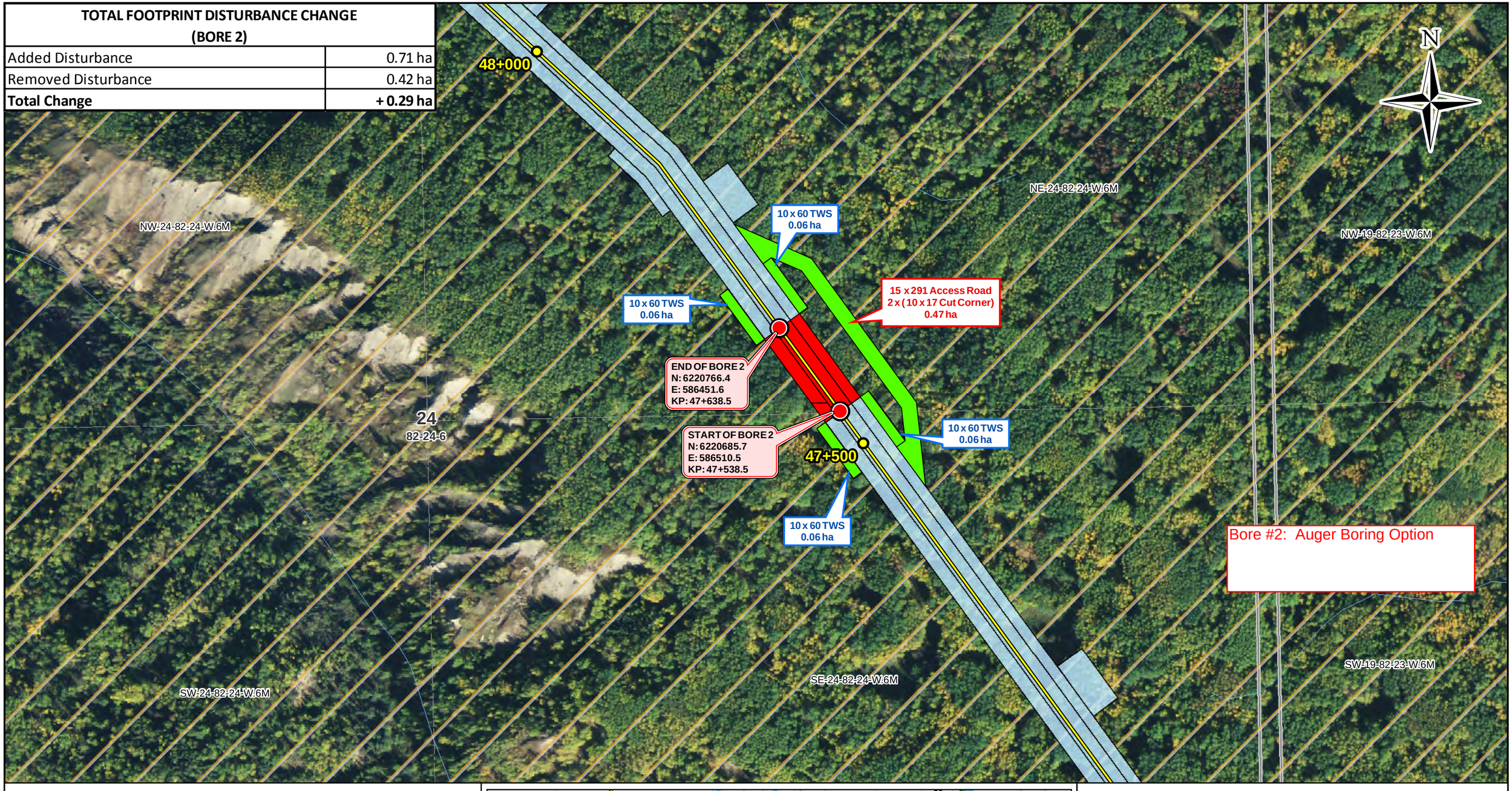
Peace Moberly Tract (PMT)
Approximate Bore Locations

REV 6

Route Reference: 2015_06_16_NMML_AitkenCreek_Ditchline_Rev9	September 1, 2015
MSI Job No: IB-0001-13 / PB-0002-15	Sheet 1 of 2

M:\projects\2013\IB-0001-13\MAPPING\MAPBOOK\MXD\2015_09_01_NMML_PMT_BoreLocations_AitkenCreek_Mapbook_Rev6_11x17.mxd

TOTAL FOOTPRINT DISTURBANCE CHANGE (BORE 2)	
Added Disturbance	0.71 ha
Removed Disturbance	0.42 ha
Total Change	**+ 0.29 ha**



Legend

- Parks / Protected Areas
- Approximate Bore Location
- 500km Contour KP's (Aitken Creek Section)
- Proposed Pipeline (Aitken Creek Section)
- Coincidental Disturbance
- Added Disturbance
- Removed Disturbance
- Peace Moberly Tract (PMT)
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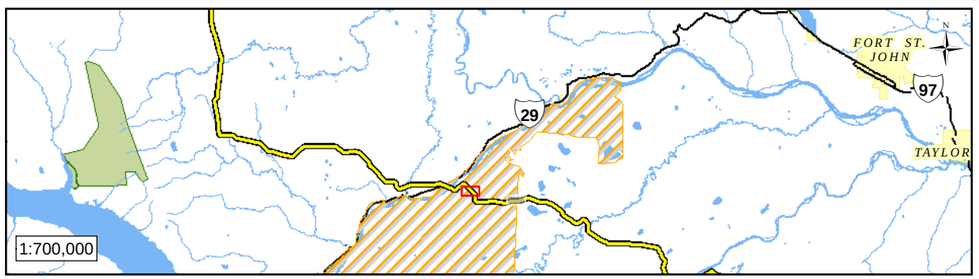
- Hydrology

REVISION	DESCRIPTION
6	Issued for Review, September 1, 2015

1:3,500 — 0 0.05 0.1 0.2 0.3 Kilometers



NOVA GAS TRANSMISSION LTD.

NORTH MONTNEY MAINLINE (AITKEN CREEK SECTION)

Peace Moberly Tract (PMT)
Approximate Bore Locations

REV 6

Route Reference: 2015_06_16_NMML_AitkenCreek_Ditchline_Rev9 | September 1, 2015

MSI Job No: IB-0001-13 / PB-0002-15 | Sheet 2 of 2

M:\projects\2013\IB-0001-13\MAPPING\MAPBOOK\MXD\2015_09_01_NMML_PMT_BoreLocations_AitkenCreek_Mapbook_Rev6_11x17.mxd

65+000
60+000
55+000
50+000
45+000
40+000
35+000
30+000
25+000

END OF PMT
N: 6221381.1
E: 583308.8
KP: 51+480.0

HORIZONTAL DIRECTIONAL DRILL (HDD)
START OF BORE
N: 6219375.5
E: 590090.5
KP: 43+078.6

HORIZONTAL DIRECTIONAL DRILL (HDD)
END OF BORE
N: 6219419.4
E: 589593.5
KP: 43+578.6

START OF PMT
N: 6219561.3
E: 591835.9
KP: 41+296.2

SHEET 1

FARRELL CREEK
PEACE RIVER
BOUDREAU LAKE
MOBERLY RIVER

82-24-6
82-23-6
82-22-6
81-23-6

N

Legend

- Approximate Bore Location
- Proposed Pipeline (Aitken Creek Section)
- 5km Contour KP's (Aitken Creek Section)
- Primary Highway
- Secondary Highway
- Minor Roads
- Railways
- Peace Moberly Tract (PMT)
- Hydrology
- City Town

REVISION	DESCRIPTION
1	Issued for Review, September 1, 2015

1:80,000 0 0.5 1 2 3 4 5 Kilometers

MIDWEST SURVEYS

NOVA GAS TRANSMISSION LTD.

NORTH MONTNEY MAINLINE (AITKEN CREEK SECTION)

Peace Moberly Tract (PMT)
Example of HDD Workspace

REV 1

Route Reference: 2015_06_16_NMML_AitkenCreek_Ditchline_Rev9	September 1, 2015
MSI Job No: IB-0001-13 / PB-0002-15	KEY PLAN

M:\projects\2013\IB-0001-13\MAPPING\MAPBOOK\MXD\2015_09_01_NMML_PMT_HDD_LocationsMap_AitkenCreek_KeyPlan_Rev1_11x17.mxd

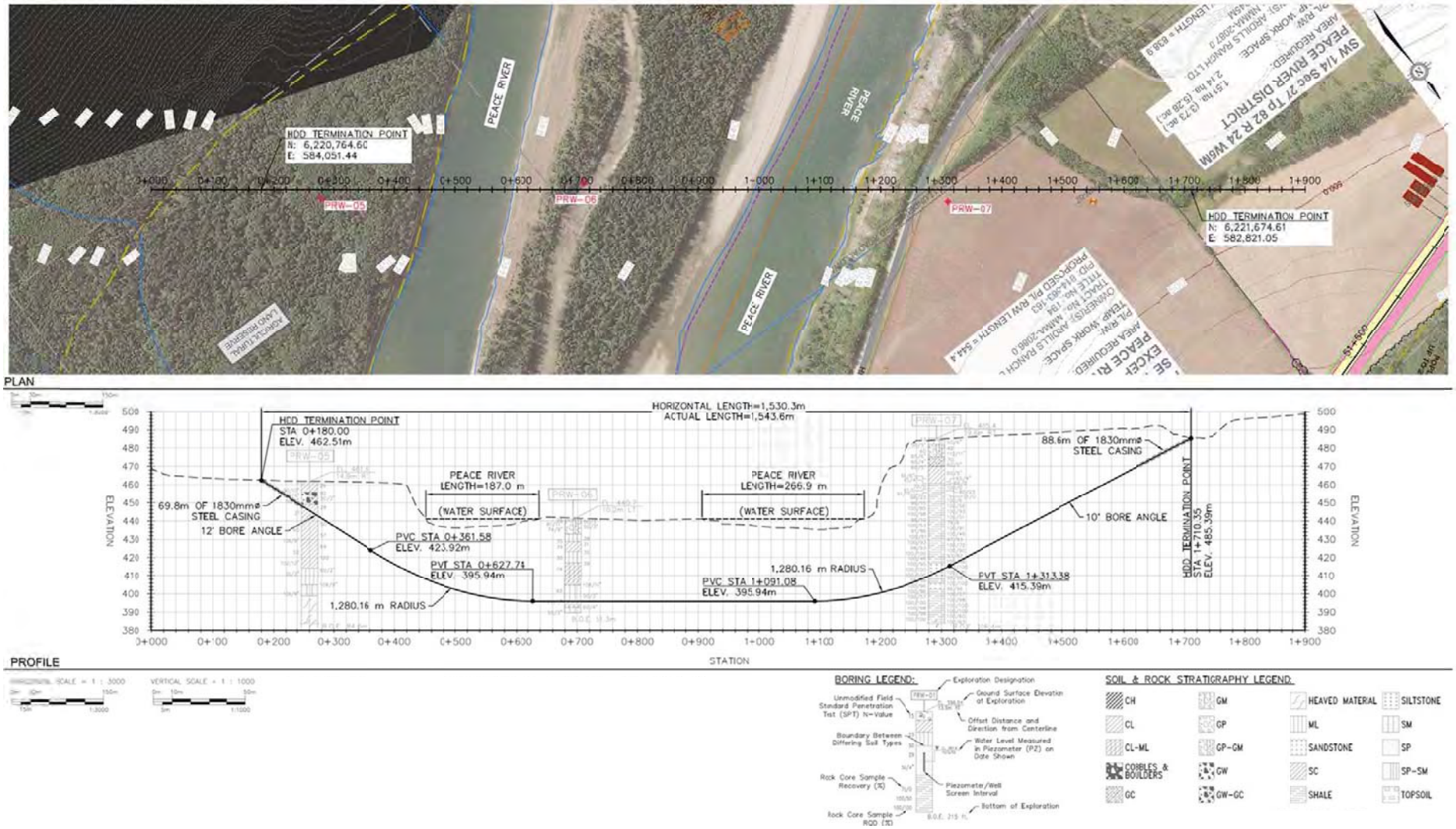


Figure 3-4: Peace River Crossing HDD Plan and Profile.

Bore #3: Peace River Crossing

TOTAL FOOTPRINT DISTURBANCE CHANGE (HDD)	
Added Disturbance	2.66 ha
Removed Disturbance	2.04 ha
Total Change	**+ 0.62 ha**

SE-20-82-23-W.6M

SW-21-82-23-W.6M

N

15 x 880 Access Road (15 x 15 Cut Corner) Partially Within Existing Cut Line 1.33 ha

Bore #4: HDD Alternative

NE-17-82-23-W.6M

NW-17-82-23-W.6M

NW-16-82-23-W.6M

HDD PAD 60 x 60 TWS (Minus Right of Way) 0.25 ha

HORIZONTAL DIRECTIONAL DRILL (HDD) END OF BORE N: 6219419.4 E: 589593.5 KP: 43+578.6

HORIZONTAL DIRECTIONAL DRILL (HDD) START OF BORE N: 6219375.5 E: 590090.5 KP: 43+078.6

HDD PAD 60 x 60 TWS (Minus Right of Way) 0.25 ha

Sump Site 100 x 100 1.00 ha

43+500

43+000

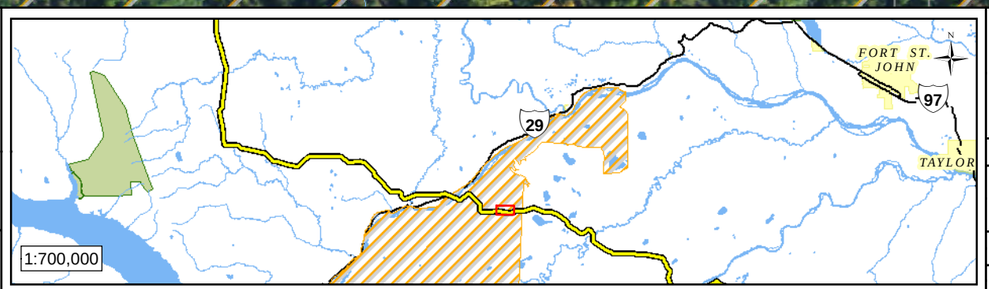
Legend

- Parks / Protected Areas
- Approximate Bore Location
- 500km Contour KP's (Aitken Creek Section)
- Proposed Pipeline (Aitken Creek Section)
- Coincidental Disturbance
- Added Disturbance
- Removed Disturbance
- Peace Moberly Tract (PMT)
- City Town
- Hydrology

REVISION	DESCRIPTION
1	Issued for Review, September 1, 2015

1:3,500 (0, 0.05, 0.1, 0.2, 0.3 Kilometers)

MIDWEST SURVEYS



NOVA GAS TRANSMISSION LTD.

NORTH MONTNEY MAINLINE (AITKEN CREEK SECTION)

Peace Moberly Tract (PMT)
Example of HDD Workspace

REV 1

Route Reference: 2015_06_16_NMML_AitkenCreek_Ditchline_Rev9	September 1, 2015
MSI Job No: IB-0001-13 / PB-0002-15	Sheet 1 of 1

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Appendix B - Selected Projects Using HDD to Minimize Surface Disturbance (Non-Stream, River)

Location	Surface Feature	Pipe Diameter (mm)	Approximate HDD Plan Length (m)
Longlac, Ontario	Railroad/wetland	914.4	793
Vancouver Island	Shore Crossing/Wetland	762	660
Chin Lake, Alberta	Environmental Sensitive/ Archeological Area	127	1280
Windsor, Ontario	3 Railway Crossings, 4 Major Road Crossings	304.8	12 bores up to 652
Northern British Colombia	Mountain Bypass	311.15	1300
Toronto, Ontario	Infrastructure Bypass/Indian Village Archaeological Area/ Forest	660.4	313
Martin and Palm Beach Counties, Florida	Wetland/Archeological Site	762	503
Napa, Florida	Utility/Archeological Site	609.6	7 bores, up to 518
Fort Andrews, MA	Island Certified Historical and Archeological Landmark	508	610
Anne Arundel County, Maryland, Mayo Water Treatment	Parks, Residential Roadways	609.6	11 bores, up to 1,250
Framingham, MA	Interstate Highway	203	183

Selected References:

McHugh, K.E., and F. Gabriel. "HDD Utility Tunnel to Peddocks Island - Fort Andrews." *(ASCE)*. American Society of Civil Engineers, 2007. Web. 27 Oct. 2015.

"Gulfstream Natural Gas/HDD Design and Construction | GeoEngineers, Inc." *GeoEngineers, Inc.* GeoEngineers, 2015. Web. 27 Oct. 2015.

Janz, Artur, James P. Murphy, and Heinrich K. Heinz. "4200 Foot HDD Below Chin Lake Reservoir in Alberta Canada." *NASTT*. NASTT, 15 Apr. 2007. Web. 27 Oct. 2015.

Currey, John, Gene Woodbridge, and Glenn Duyvestyn. "ON GRADE LARGE DIAMETER DIRECTIONAL DRILLING." *Earthboring*. NASTT, 29 Mar. 2009. Web. 27 Oct. 2015.

Murphy, James. "Drilling up a Mountain on a Gas Pipeline Project through Hard Quartz Arenite Using Horizontal Directional Drilling." *Drilling up a Mountain on a Gas Pipeline Project through Hard Quartz Arenite Using Horizontal Directional Drilling*. NASTT, 24 Apr. 2005. Web. 27 Oct. 2015.

APPENDIX C – PRELIMINARY COST AND SCHEDULE ESTIMATE, BORES #4 THROUGH #8

West Moberly First Nations c/o Brierley Associates

North Montney Mainline Pipeline Project Construction Cost Report

Prepared by:
ENGINEERING TECHNOLOGY INC.
#24, 12110 - 40 Street SE
Calgary, AB T2Z 4K6

Project Number:
15040

Date:
November 6, 2015

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by Engineering Technology Inc. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report:

- are subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represent Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- have not been updated since the date of issuance of the Report and their accuracy is limited to the time period and circumstances in which they were collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- were prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Unless expressly stated to the contrary in the Report or the Agreement, Consultant:

- shall not be responsible for any events or circumstances that may have occurred since the date on which the Report was prepared or for any inaccuracies contained in information that was provided to Consultant
- agrees that the Report represents its professional judgement as described above for the specific purpose described in the Report and the Agreement, but Consultant makes no other representations with respect to the Report or any part thereof
- in the case of subsurface, environmental or geotechnical conditions, is not responsible for variability in such conditions geographically or over time

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed by Consultant and Client
- as required by-law
- for use by governmental reviewing agencies

Any use of this Report is subject to this Statement of Qualifications and Limitations. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report.

ENGINEERING TECHNOLOGY INC.
#24, 12110 - 40 Street SE Calgary, AB T2Z 4K6
+1 (403) 319 0443
+1 (403) 640 0504
www.entecinc.com
info@entecinc.com

November 6, 2015

Brierley Associates
167 S.River Road, #8
Bedford, NH 03110

Attn: Nick Strater

Project No: 15040

Re: HDD Construction Costs

Please find attached the construction cost estimates for 5 potential HDD crossings for the North Montney Mainline Pipeline Project. These estimates are based solely on geographical location and crossing length provided. No site specific information was used in the development of these estimates and no assessment on the feasibility of these crossings has been made. Do not hesitate to contact Entec if you have any questions or concerns.

Sincerely,
Engineering Technology Inc.

Bruce Skibsted, E.I.T.
Trenchless Project Manager
bruce@entecinc.com

Distribution List

# of Hard Copies	PDF Required	Association / Company Name
0	1	Brierley Associates

Revision Log

Revision #	Revised By	Date	Issue / Revision Description
A	BS	October 27, 2015	Issued for Review
0	BS	November 6, 2015	Issued for Information

Entec Inc. Signatures

Report Prepared By:

Bruce Skibsted, E.I.T.
Trenchless Project Manager

Report Reviewed By:

Peter Inglis, P. Eng.
Trenchless Project Manager

PROFESSIONAL ENGINEERS
PROVINCE OF
P. R. INGLIS
41817

Nov 6, 2015

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APPENDICES

Appendix A

Itemized Cost Estimates

1. Introduction

Brierley Associates (Brierley) on behalf of West Moberly First Nations (WMFN) have requested that Engineering Technology Inc. (Entec) provide construction cost estimates for 5 proposed trenchless crossings for the North Montney Pipeline Project. The proposed Horizontal Directional Drill (HDD) crossings are located in northeastern British Columbia and consist of the installation of a steel transmission line with an outer diameter of 1067-mm (42”). Historical data and previous construction experience were used in creating schedule and cost estimates for the crossings.

2. Assumptions

2.1 Topography

The proposed crossings are located south of the Peace River approximately 20-km northeast of Hudson’s Hope, British Columbia. No site specific topographical information or detailed crossing locations were available at the time of writing. The crossings appear to be located within old growth forest with no existing access roads. Assumed crossing lengths have been provided by Brierley and are included in Table 1 below. Note that no assessment on the feasibility of these crossings has been completed.

Table 1. Proposed Crossing Lengths

Crossing #	Crossing Feature	Length (m)
4	Stream NM-WC-39-0	500
5	Peace River South Valley Slope	967
6	Stream NM-WC-38-0	1030
7	Stream NM-WC-33-0	756
8	Stream NM-WC-12A-0 and Stream NM-WC-12B-0	1190

2.2 Subsurface Conditions

No site specific geotechnical information was available at the time of writing. Entec project experience in this area suggests typical geology in this region is expected to consist of clay till overlying shale, sandstone, and mudstone bedrock. Based on 12 previous projects constructed within a 100-km radius, an average of 39-m of surface casing was required on the entry side of the HDD to isolate the borehole from soft soils, gravels, and cobbles. A similar casing length has been assumed for each of the proposed HDD crossings. Based on nearby completed crossings, the sandstone geology has led to accelerated tool wear. It has been assumed that one of each size of tooling will be required for every 500-m of hole drilled. Some crossings in this region have encountered produced water or significant fluid loss within the sandstone geology. Note that no provisions for increased risk have been included in this cost estimate.

2.3 Schedule

The HDD construction schedules have been estimated by assigning durations to each of the expected phases of construction. The stages of HDD construction are expected to consist of: mobilization, casing installation, pilot hole drilling, reaming, pipe pullback, and casing removal.

Site preparation, pipe preparation, pre-testing, pullback support, tie-ins, and restoration activities are expected to be completed by the pipeline contractor outside of the HDD scope and are not accounted for in this schedule discussion. Unless otherwise stated, drilling activities are expected to progress 24 hours per day. Assumptions to estimate the duration of each phase is described below:

Mobilization and Set-up
Mobilization and set-up activities for a large drilling rig spread will likely take 7 days (7 x 12 hour shifts) before full time construction work begins. This includes transport and placement of all equipment and materials, set-up of equipment, connecting power, water, hydraulic, and drilling fluid lines, starting up all engines and motors, and mixing new drilling fluid.

Casing Installation

Installation of casing will be accomplished using a combination of excavation, hammering, and augering. Based on previous Entec projects, production rates have been assumed as:

- 12m/shift (one joint per shift) average for welding of the 72" casing
- 8m/shift average for casing hammering
- 8m/shift average for casing augering

Pilot Hole
An average pilot hole production rate of 44m/shift is expected based on 75 of Entec's most recent large HDD projects with lengths between 500m and 1500m.

Reaming
An average production rate of 48m/shift is expected. This is based on 71 reaming passes from 35 of Entec's most recent projects with lengths between 500m and 1500m. These reaming stages ranged in diameter from 24" to 60". It is assumed that 4 reaming passes (24", 36", 48", and 54") will be required.

Product Pull
An average pull rate of 1000m/shift is expected. An additional 5 shifts have been included for pullback preparation. This includes time to perform a final wiper pass through the hole, satisfy the pipe lifting requirements, perform rig maintenance prior to pull, trip pipe, connect reamer, swivel, and pullhead, and standby (as pullback is typically only started first thing in the morning to accommodate daylight hours and support crew).

Casing Removal
An average removal rate of 6m/shift is expected. This is a combination of 12m/shift cutting/welding of the 72" casing and 12m/shift hammering required for casing removal.

Demobilization
Demobilization and tear-down activities for a large HDD rig spread is expected to take 4 days (4 x 12 hour shifts).

The schedule breakdown for each crossing can be found at the top of the itemized construction cost estimates included in Appendix A. A summary of the estimated construction schedule for each crossing is included in Table 2 below:

Table 2. HDD Schedule Summary

Crossing #	Length (m)	Schedule Estimate (days)
4	500	50
5	967	77
6	1030	80
7	756	65
8	1190	89

2.4 Costs – Conventional Access Road

A P50 construction cost estimate has been prepared for the HDD crossings by compiling cost line items expected to be incurred during the project. The estimate is based on the schedule estimate described in the previous section. Pricing for items is based on average bid rates of similar projects previously completed by Entec and may vary based on subcontractor availability at time of construction. As this estimate relies upon average production rates of previous completed projects, there is inherent contingency included for typical issues that may lead to schedule delays. The itemized construction cost estimates are included in Appendix A and summarized in Table 2.

Table 3. HDD Cost Summary

Crossing #	Length (m)	Cost Estimate ($)	Unit Cost ($/m)
4	500	$4,542,380	$9,085
5	967	$6,804,030	$7,036
6	1030	$7,409,580	$7,194
7	756	$5,917,180	$7,827
8	1190	$8,066,480	$6,779

It can be observed that the unit cost per meter varies with each crossing. While actual drilling costs have a relatively linear relationship to the crossing length, fixed costs, such as casing installation and mobilization, are independent of crossing length and can lead to large differences in per-unit cost. Please note that no site specific information has been used in the creation of these cost estimates. As site access has not yet been evaluated, driving proximity to a suitable water source, fluid disposal locations, accommodations, and other services has not been accounted for.

2.5 Costs – Helicopter Access Only

Entec was also asked to provide cost estimates for the same HDD crossings assuming no access roads would be built. It is our understanding that this method is being investigated to minimize surface disruption associated with the construction of access roads and temporary workspaces. A typical HDD requires a continuous section of pipeline equal to the length of the HDD to be fabricated and pulled into the completed hole. In any case, it is expected that significant workspace would be required for HDD pullback preparation. Dividing the pullback pipe into smaller sections could allow this workspace to be minimized; however, this would add considerable risk of borehole collapse or stuck pipe due to increasing stationary time required for each weld/inspection.

Significant planning would be required to undertake a project of this scope. Based on discussion with local helicopter suppliers, estimated helicopter costs have been provided in Table 4 below. While this list is not comprehensive, it is intended to highlight the order of magnitude of several of the additional mobilization and support costs that will be incurred.

Table 4. Approximate Helicopter Costs for Select Operations for a Single 1000m HDD

Operation	Helicopter Cost ($ MM)
Rig Mobilization Demobilization	8
Personnel Transport/Safety	8
Fluid Disposal	17
Water Hauling	14
Product Pipe	2.5

- A large HDD drilling rig spread typically requires approximately 25 truckloads for transport, at total weights of up to 100,000lbs each. One of the largest helicopters available commercially in Canada, the 234 Chinook, can carry up to 27,000lbs at an approximate cost of $15,000/hr in addition to 1500L/hr in fuel consumption. Assuming that this rig spread can be split into 80 loads under this weight limit, and a staging area can be set up nearby to allow for one load to be transported every 3 hours, the cost for mobilization/demobilization would increase approximately $8MM for helicopter operations alone. The cost to modify, disassemble and reassemble HDD drilling equipment into smaller loads has not been evaluated and would be in addition to this estimate.
- A crew of approximately 12 people will require access into and out of the site at every shift change. For safety purposes, a helicopter will need to be on standby 24/7. Assuming 2 personnel helicopters at all times at a rate of $2,200/hr, an 80 day construction schedule would result in an additional cost of approximately $8MM.
- An estimate of the required fluid disposal for a 1000m 54” HDD borehole would be approximately 4500m3. A 107 Vertol helicopter can carry up to 10,000lbs at an approximate cost of $6,000/lhr in addition to 650L/hr in fuel consumption. At an assumed mud weight of 1200kg/m3, approximately 1200 loads would be required. Assuming 2 hours per load, there would be an additional cost of approximately $17MM. Costs for additional personnel to load/unload this fluid or any delays associated with waiting for additional fluid handling have not been evaluated and would be in addition to this estimate.
- Similarly, water hauling to site would cost approximately $14MM. Alternatively, a pump and temporary pipeline could potentially be set up to draw water from the Peace River with minimal permanent surface disturbance.
- Assuming a 25mm wall thickness, a 12m length of 42” product pipe will weigh approximately 17,000lbs. Approximately 84 joints of pipe would be required for a 1000m HDD. An S-64E Sikorsky Skycrane can carry up to 20,000lbs at an approximate cost of $12,000/hr in addition to 2000L/hr in fuel consumption. Assuming 2 hours per load of a single 12m pipe section, there would be an additional cost of approximately $2.5MM. Costs for additional equipment and personnel required to assemble the product pipe section including sidebooms, cranes, excavators, welding equipment, x-ray and other testing equipment are not included in this estimate.

3. Summary

HDD schedules and costs have been developed by Entec based on general geographical location and crossing length provided. The estimated cost to complete a 1000m HDD crossing limited to helicopter access would be in excess of $60MM. No site specific information was used in the development of these estimates and no assessment of the feasibility of these crossings has been made. These estimates are considered to be high level and are intended to suggest an order of magnitude cost only. The HDD construction costs have been summarized in the table below:

Table 5. Estimate Summary

Crossing #	Length (m)	Schedule Estimate (days)	HDD Cost Estimate ($)	Unit Cost ($/m)	Helicopter Access HDD Cost Estimate ($)
4	500	50	$4,542,380	$9,085	$35MM+
5	967	77	$6,804,030	$7,036	$55MM+
6	1030	80	$7,409,580	$7,194	$60MM+
7	756	65	$5,917,180	$7,827	$45MM+
8	1190	89	$8,066,480	$6,779	$65MM+
Totals:		361	$32,739,650		$260MM+

Note: If crossings were to be completed consecutively by the same contractor, a reduction of approximately $250,000 in mobilization/demobilization costs would be realized for each subsequent crossing.

Appendix A

Itemized Cost Estimates

Engineering Technology Inc.
24, 12110 - 40 Street SE
Calgary, AB T2Z 4K6
P: (403) 319-0443
F: (403) 640-0504

HDD P50 Cost Estimate
North Montney Mainline Pipeline Project
Crossing #4
42"

Client:	**West Moberly First Nations**
Project:	**15040**
Location:	**Crossing #4**
Crossing Geometry	
Crossing Length (m) [A]	**500**
Entry Casing (m) [B]	**39**
Schedule Estimate (12 hr shifts)	
Entry Casing Install Shifts [F]	**13**
Mobilization / Set-Up [H]	**14**
Pilot Hole [I]	**11**
Reaming [K]	**42**
Wiper Pass and Pipe Pullback [L]	**6**
Casing Removal (entry and exit) [M]	**7**
Demobilization [N]	**8**
Schedule Estimate	
Total Shifts [O]	**101**
Total Days [P]	**51**

(8m/shift hammering + 8m/shift augering + 12m/shift welding)
(44 m/shift)
(48 m/shift, 4 passes)
(6m/shift)

	INCLUDES	QUANTITY INFO	QUANTITIES 1	2	3	UNIT PRICE	UNIT	TOTAL
HDD CONTRACTOR COSTS								
Equipment and Personnel								
Main Rig	625,000lb rig or larger, auger for casing cleaning, mud recycling equipment, standard mud additives, drill pipe, all ancillary pumps, hoses, lines, and control systems, and crew to operate equipment on a 24/7 schedule	All activities except casing removal: [O]-[M]	94			$22,000.00	/shift	$ 2,068,000.00
Mobilization	Trucking and transportation of all equipment to site		1			$150,000.00	/lump sum	$ 150,000.00
Demobilization	Trucking and transportation of all equipment from site		1			$150,000.00	/lump sum	$ 150,000.00
Casing Welding/Equipment								
Casing Pipe Welding	Beveling/welding/cutting of casing shoe, casing sections, and scud/canoe/support for hammer attachment. 2 welders to work on large diameter pipe simultaneously	2 welders every other shift durign casing install/extaction: ([F]+[M])/2	10	2		$1,600.00	/shift	$ 32,000.00
24" Air Hammer	Rental and labour	Casing install and removal activites: [F]+[M]	20			$3,750.00	/shift	$ 75,000.00
Air Compressor	Rental and labour	Casing install and removal activites: [F]+[M]	34			$550.00	/shift	$ 18,700.00
Pipe (72" OD)	Rental and labour	[B]	39			$3,000.00	/m	$ 117,000.00
Centrallizer	Rental and labour	[B]	39			$400.00	/m	$ 15,600.00
Tool, Bit, and Hole Opener								
BHA/Steering Tools	Paratrak II steering system or equivalent, downhole equipment, and steering hand	Pilot hole activities: [I]	11			$1,500.00	/shift	$ 16,500.00
Drill Bit 12 1/4" Mill Tooth	New or rebuilt, rental		1			$20,000.00	/bit	$ 20,000.00
Reamer 24" Mill Tooth	New or rebuilt, rental		1			$30,000.00	/bit	$ 30,000.00
Reamer 36" Mill Tooth	New or rebuilt, rental		1			$60,000.00	/bit	$ 60,000.00
Reamer 48" Mill Tooth	New or rebuilt, rental		1			$90,000.00	/bit	$ 90,000.00
Reamer 54" Mill Tooth	New or rebuilt, rental		1			$110,000.00	/bit	$ 110,000.00
							Sub - Total	**$ 2,952,800.00**
3RD PARTY COSTS								
Excavator - Entry Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, and transport of equipment and materials around site	Project duration: [O]	101			$2,200.00	/shift	$ 222,200.00
Excavator - Exit Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, tail string tension during reaming, make-up/teardown of tooling or pipe, and transport of equipment and materials around site	Project duration: [O]	101			$2,200.00	/shift	$ 222,200.00
Cranes - Pullback Breakover	100 ton or larger. Equipment and operator to lift product pipe to match HDD exit angle	3 days per crane to account for mobilization/ demobilization. Estimated 8 cranes required	3	8		$6,000.00	/day	$ 144,000.00
Crew Accomodations and Meals	Camp/catering, hotel/subsistence, camp, or equivalent	(6 day shift + 6 night shift + 1 supervisor) x [P]	13	51		$300.00	/day	$ 198,900.00
Water Hauling		During drilling activities: ([I]+[K]+[L])	59			$2,500.00	/shift	$ 147,500.00
Cuttings Disposal (Vac Truck)		During drilling activities: ([I]+[K]+[L])	59			$3,500.00	/shift	$ 206,500.00
Trenchless Inspection	One inspector 24 hours on site (on call nights). Includes wellsite trailer, generator, pason, mileage, subsistence and other expenses	Project duration: [P]	51			$3,000.00	/day	$ 153,000.00
Miscellaneous	Matting, support equipment, drill pipe inspections, dewatering equipment, road maintenance, environmental monitoring etc.	Approximately 10% of HDD contractor cost						$ 295,280.00
							Sub - Total	**$ 1,589,580.00**
							Estimated Day Rate Total	**$ 4,542,380.00**

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HDD P50 Cost Estimate
North Montney Mainline Pipeline Project
Crossing #5
42"

Client:	**West Moberly First Nations**
Project:	**15040**
Location:	**Crossing #5**
Crossing Geometry	
Crossing Length (m) [A]	**967**
Entry Casing (m) [B]	**39**
Schedule Estimate (12 hr shifts)	
Entry Casing Install Shifts [F]	**13**
Mobilization / Set-Up [H]	**14**
Pilot Hole [I]	**22**
Reaming [K]	**81**
Wiper Pass and Pipe Pullback [L]	**6**
Casing Removal (entry and exit) [M]	**7**
Demobilization [N]	**8**
Schedule Estimate	
Total Shifts [O]	**151**
Total Days [P]	**76**

(8m/shift hammering + 8m/shift augering + 12m/shift welding)
(44 m/shift)
(48 m/shift, 4 passes)
(6m/shift)

	INCLUDES	QUANTITY INFO	QUANTITIES 1	2	3	UNIT PRICE	UNIT	TOTAL
HDD CONTRACTOR COSTS								
Equipment and Personnel								
Main Rig	625,000lb rig or larger, auger for casing cleaning, mud recycling equipment, standard mud additives, drill pipe, all ancillary pumps, hoses, lines, and control systems, and crew to operate equipment on a 24/7 schedule	All activities except casing removal: [O]-[M]	144			$22,000.00	/shift	$ 3,168,000.00
Mobilization	Trucking and transportation of all equipment to site		1			$150,000.00	/lump sum	$ 150,000.00
Demobilization	Trucking and transportation of all equipment from site		1			$150,000.00	/lump sum	$ 150,000.00
Casing Welding/Equipment								
Casing Pipe Welding	Beveling/welding/cutting of casing shoe, casing sections, and scud/canoe/support for hammer attachment. 2 welders to work on large diameter pipe simultaneously	2 welders every other shift durign casing install/extaction: ([F]+[M])/2	10	2		$1,600.00	/shift	$ 32,000.00
24" Air Hammer	Rental and labour	Casing install and removal activites: [F]+[M]	20			$3,750.00	/shift	$ 75,000.00
Air Compressor	Rental and labour	Casing install and removal activites: [F]+[M]	34			$550.00	/shift	$ 18,700.00
Pipe (72" OD)	Rental and labour	[B]	39			$3,000.00	/m	$ 117,000.00
Centrallizer	Rental and labour	[B]	39			$400.00	/m	$ 15,600.00
Tool, Bit, and Hole Opener								
BHA/Steering Tools	Paratrak II steering system or equivalent, downhole equipment, and steering hand	Pilot hole activities: [I]	22			$1,500.00	/shift	$ 33,000.00
Drill Bit 12 1/4" Mill Tooth	New or rebuilt, rental		2			$20,000.00	/bit	$ 40,000.00
Reamer 24" Mill Tooth	New or rebuilt, rental		2			$30,000.00	/bit	$ 60,000.00
Reamer 36" Mill Tooth	New or rebuilt, rental		2			$60,000.00	/bit	$ 120,000.00
Reamer 48" Mill Tooth	New or rebuilt, rental		2			$90,000.00	/bit	$ 180,000.00
Reamer 54" Mill Tooth	New or rebuilt, rental		2			$110,000.00	/bit	$ 220,000.00
							Sub - Total	**$ 4,379,300.00**
3RD PARTY COSTS								
Excavator - Entry Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, and transport of equipment and materials around site	Project duration: [O]	151			$2,200.00	/shift	$ 332,200.00
Excavator - Exit Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, tail string tension during reaming, make-up/teardown of tooling or pipe, and transport of equipment and materials around site	Project duration: [O]	151			$2,200.00	/shift	$ 332,200.00
Cranes - Pullback Breakover	100 ton or larger. Equipment and operator to lift product pipe to match HDD exit angle	3 days per crane to account for mobilization/ demobilization. Estimated 8 cranes required	3	8		$6,000.00	/day	$ 144,000.00
Crew Accomodations and Meals	Camp/catering, hotel/subsistence, camp, or equivalent	(6 day shift + 6 night shift + 1 supervisor) x [P]	13	76		$300.00	/day	$ 296,400.00
Water Hauling		During drilling activities: ([I]+[K]+[L])	109			$2,500.00	/shift	$ 272,500.00
Cuttings Disposal (Vac Truck)		During drilling activities: ([I]+[K]+[L])	109			$3,500.00	/shift	$ 381,500.00
Trenchless Inspection	One inspector 24 hours on site (on call nights). Includes wellsite trailer, generator, pason, mileage, subsistence and other expenses	Project duration: [P]	76			$3,000.00	/day	$ 228,000.00
Miscellaneous	Matting, support equipment, drill pipe inspections, dewatering equipment, road maintenance, environmental monitoring etc.	Approximately 10% of HDD contractor cost						$ 437,930.00
							Sub - Total	**$ 2,424,730.00**
							Estimated Day Rate Total	**$ 6,804,030.00**

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HDD P50 Cost Estimate
North Montney Mainline Pipeline Project
Crossing #6
42"

Client:	**West Moberly First Nations**
Project:	**15040**
Location:	**Crossing #6**
Crossing Geometry	
Crossing Length (m) [A]	**1030**
Entry Casing (m) [B]	**39**
Schedule Estimate (12 hr shifts)	
Entry Casing Install Shifts [F]	**13**
Mobilization / Set-Up [H]	**14**
Pilot Hole [I]	**23**
Reaming [K]	**86**
Wiper Pass and Pipe Pullback [L]	**7**
Casing Removal (entry and exit) [M]	**7**
Demobilization [N]	**8**
Schedule Estimate	
Total Shifts [O]	**158**
Total Days [P]	**79**

(8m/shift hammering + 8m/shift augering + 12m/shift welding)
(44 m/shift)
(48 m/shift, 4 passes)
(6m/shift)

	INCLUDES	QUANTITY INFO	QUANTITIES 1	2	3	UNIT PRICE	UNIT	TOTAL
HDD CONTRACTOR COSTS								
Equipment and Personnel								
Main Rig	625,000lb rig or larger, auger for casing cleaning, mud recycling equipment, standard mud additives, drill pipe, all ancillary pumps, hoses, lines, and control systems, and crew to operate equipment on a 24/7 schedule	All activities except casing removal: [O]-[M]	151			$22,000.00	/shift	$ 3,322,000.00
Mobilization	Trucking and transportation of all equipment to site		1			$150,000.00	/lump sum	$ 150,000.00
Demobilization	Trucking and transportation of all equipment from site		1			$150,000.00	/lump sum	$ 150,000.00
Casing Welding/Equipment								
Casing Pipe Welding	Beveling/welding/cutting of casing shoe, casing sections, and scud/canoe/support for hammer attachment. 2 welders to work on large diameter pipe simultaneously	2 welders every other shift durign casing install/extaction: ([F]+[M])/2	10	2		$1,600.00	/shift	$ 32,000.00
24" Air Hammer	Rental and labour	Casing install and removal activites: [F]+[M]	20			$3,750.00	/shift	$ 75,000.00
Air Compressor	Rental and labour	Casing install and removal activites: [F]+[M]	34			$550.00	/shift	$ 18,700.00
Pipe (72" OD)	Rental and labour	[B]	39			$3,000.00	/m	$ 117,000.00
Centrallizer	Rental and labour	[B]	39			$400.00	/m	$ 15,600.00
Tool, Bit, and Hole Opener								
BHA/Steering Tools	Paratrak II steering system or equivalent, downhole equipment, and steering hand	Pilot hole activities: [I]	23			$1,500.00	/shift	$ 34,500.00
Drill Bit 12 1/4" Mill Tooth	New or rebuilt, rental		3			$20,000.00	/bit	$ 60,000.00
Reamer 24" Mill Tooth	New or rebuilt, rental		3			$30,000.00	/bit	$ 90,000.00
Reamer 36" Mill Tooth	New or rebuilt, rental		3			$60,000.00	/bit	$ 180,000.00
Reamer 48" Mill Tooth	New or rebuilt, rental		3			$90,000.00	/bit	$ 270,000.00
Reamer 54" Mill Tooth	New or rebuilt, rental		3			$110,000.00	/bit	$ 330,000.00
							Sub - Total	**$ 4,844,800.00**

3RD PARTY COSTS								
Excavator - Entry Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, and transport of equipment and materials around site	Project duration: [O]	158			$2,200.00	/shift	$ 347,600.00
Excavator - Exit Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, tail string tension during reaming, make-up/teardown of tooling or pipe, and transport of equipment and materials around site	Project duration: [O]	158			$2,200.00	/shift	$ 347,600.00
Cranes - Pullback Breakover	100 ton or larger. Equipment and operator to lift product pipe to match HDD exit angle	3 days per crane to account for mobilization/ demobilization. Estimated 8 cranes required	3	8		$6,000.00	/day	$ 144,000.00
Crew Accomodations and Meals	Camp/catering, hotel/subsistence, camp, or equivalent	(6 day shift + 6 night shift + 1 supervisor) x [P]	13	79		$300.00	/day	$ 308,100.00
Water Hauling		During drilling activities: ([I]+[K]+[L])	116			$2,500.00	/shift	$ 290,000.00
Cuttings Disposal (Vac Truck)		During drilling activities: ([I]+[K]+[L])	116			$3,500.00	/shift	$ 406,000.00
Trenchless Inspection	One inspector 24 hours on site (on call nights). Includes wellsite trailer, generator, pason, mileage, subsistence and other expenses	Project duration: [P]	79			$3,000.00	/day	$ 237,000.00
Miscellaneous	Matting, support equipment, drill pipe inspections, dewatering equipment, road maintenance, environmental monitoring etc.	Approximately 10% of HDD contractor cost						$ 484,480.00
							Sub - Total	**$ 2,564,780.00**

Estimated Day Rate Total	**$ 7,409,580.00**

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HDD P50 Cost Estimate
North Montney Mainline Pipeline Project
Crossing #7
42"

Client:	**West Moberly First Nations**
Project:	**15040**
Location:	**Crossing #7**
Crossing Geometry	
Crossing Length (m) [A]	**756**
Entry Casing (m) [B]	**39**
Schedule Estimate (12 hr shifts)	
Entry Casing Install Shifts [F]	**13**
Mobilization / Set-Up [H]	**14**
Pilot Hole [I]	**17**
Reaming [K]	**63**
Wiper Pass and Pipe Pullback [L]	**6**
Casing Removal (entry and exit) [M]	**7**
Demobilization [N]	**8**
Schedule Estimate	
Total Shifts [O]	**128**
Total Days [P]	**64**

(8m/shift hammering + 8m/shift augering + 12m/shift welding)
(44 m/shift)
(48 m/shift, 4 passes)
(6m/shift)

	INCLUDES	QUANTITY INFO	QUANTITIES 1	2	3	UNIT PRICE	UNIT	TOTAL
HDD CONTRACTOR COSTS								
Equipment and Personnel								
Main Rig	625,000lb rig or larger, auger for casing cleaning, mud recycling equipment, standard mud additives, drill pipe, all ancillary pumps, hoses, lines, and control systems, and crew to operate equipment on a 24/7 schedule	All activities except casing removal: [O]-[M]	121			$22,000.00	/shift	$ 2,662,000.00
Mobilization	Trucking and transportation of all equipment to site		1			$150,000.00	/lump sum	$ 150,000.00
Demobilization	Trucking and transportation of all equipment from site		1			$150,000.00	/lump sum	$ 150,000.00
Casing Welding/Equipment								
Casing Pipe Welding	Beveling/welding/cutting of casing shoe, casing sections, and scud/canoe/support for hammer attachment. 2 welders to work on large diameter pipe simultaneously	2 welders every other shift durign casing install/extaction: ([F]+[M])/2	10	2		$1,600.00	/shift	$ 32,000.00
24" Air Hammer	Rental and labour	Casing install and removal activites: [F]+[M]	20			$3,750.00	/shift	$ 75,000.00
Air Compressor	Rental and labour	Casing install and removal activites: [F]+[M]	34			$550.00	/shift	$ 18,700.00
Pipe (72" OD)	Rental and labour	[B]	39			$3,000.00	/m	$ 117,000.00
Centrallizer	Rental and labour	[B]	39			$400.00	/m	$ 15,600.00
Tool, Bit, and Hole Opener								
BHA/Steering Tools	Paratrak II steering system or equivalent, downhole equipment, and steering hand	Pilot hole activities: [I]	17			$1,500.00	/shift	$ 25,500.00
Drill Bit 12 1/4" Mill Tooth	New or rebuilt, rental		2			$20,000.00	/bit	$ 40,000.00
Reamer 24" Mill Tooth	New or rebuilt, rental		2			$30,000.00	/bit	$ 60,000.00
Reamer 36" Mill Tooth	New or rebuilt, rental		2			$60,000.00	/bit	$ 120,000.00
Reamer 48" Mill Tooth	New or rebuilt, rental		2			$90,000.00	/bit	$ 180,000.00
Reamer 54" Mill Tooth	New or rebuilt, rental		2			$110,000.00	/bit	$ 220,000.00
							Sub - Total	**$ 3,865,800.00**
3RD PARTY COSTS								
Excavator - Entry Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, and transport of equipment and materials around site	Project duration: [O]	128			$2,200.00	/shift	$ 281,600.00
Excavator - Exit Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, tail string tension during reaming, make-up/teardown of tooling or pipe, and transport of equipment and materials around site	Project duration: [O]	128			$2,200.00	/shift	$ 281,600.00
Cranes - Pullback Breakover	100 ton or larger. Equipment and operator to lift product pipe to match HDD exit angle	3 days per crane to account for mobilization/ demobilization. Estimated 8 cranes required	3	8		$6,000.00	/day	$ 144,000.00
Crew Accomodations and Meals	Camp/catering, hotel/subsistence, camp, or equivalent	(6 day shift + 6 night shift + 1 supervisor) x [P]	13	64		$300.00	/day	$ 249,600.00
Water Hauling		During drilling activities: ([I]+[K]+[L])	86			$2,500.00	/shift	$ 215,000.00
Cuttings Disposal (Vac Truck)		During drilling activities: ([I]+[K]+[L])	86			$3,500.00	/shift	$ 301,000.00
Trenchless Inspection	One inspector 24 hours on site (on call nights). Includes wellsite trailer, generator, pason, mileage, subsistence and other expenses	Project duration: [P]	64			$3,000.00	/day	$ 192,000.00
Miscellaneous	Matting, support equipment, drill pipe inspections, dewatering equipment, road maintenance, environmental monitoring etc.	Approximately 10% of HDD contractor cost						$ 386,580.00
							Sub - Total	**$ 2,051,380.00**

Estimated Day Rate Total	**$ 5,917,180.00**

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HDD P50 Cost Estimate
North Montney Mainline Pipeline Project
Crossing #8
42"

Client:	**West Moberly First Nations**
Project:	**15040**
Location:	**Crossing #8**
Crossing Geometry	
Crossing Length (m) [A]	**1190**
Entry Casing (m) [B]	**39**
Schedule Estimate (12 hr shifts)	
Entry Casing Install Shifts [F]	**13** **(8m/shift hammering + 8m/shift augering + 12m/shift welding)**
Mobilization / Set-Up [H]	**14**
Pilot Hole [I]	**27** **(44 m/shift)**
Reaming [K]	**99** **(48 m/shift, 4 passes)**
Wiper Pass and Pipe Pullback [L]	**7**
Casing Removal (entry and exit) [M]	**7** **(6m/shift)**
Demobilization [N]	**8**
Schedule Estimate	
Total Shifts [O]	**175**
Total Days [P]	**88**

	INCLUDES	QUANTITY INFO	QUANTITIES 1	2	3	UNIT PRICE	UNIT	TOTAL
HDD CONTRACTOR COSTS								
Equipment and Personnel								
Main Rig	625,000lb rig or larger, auger for casing cleaning, mud recycling equipment, standard mud additives, drill pipe, all ancillary pumps, hoses, lines, and control systems, and crew to operate equipment on a 24/7 schedule	All activities except casing removal: [O]-[M]	168			$22,000.00	/shift	$ 3,696,000.00
Mobilization	Trucking and transportation of all equipment to site		1			$150,000.00	/lump sum	$ 150,000.00
Demobilization	Trucking and transportation of all equipment from site		1			$150,000.00	/lump sum	$ 150,000.00
Casing Welding/Equipment								
Casing Pipe Welding	Beveling/welding/cutting of casing shoe, casing sections, and scud/canoe/support for hammer attachment. 2 welders to work on large diameter pipe simultaneously	2 welders every other shift durign casing install/extaction: ([F]+[M])/2	10	2		$1,600.00	/shift	$ 32,000.00
24" Air Hammer	Rental and labour	Casing install and removal activites: [F]+[M]	20			$3,750.00	/shift	$ 75,000.00
Air Compressor	Rental and labour	Casing install and removal activites: [F]+[M]	34			$550.00	/shift	$ 18,700.00
Pipe (72" OD)	Rental and labour	[B]	39			$3,000.00	/m	$ 117,000.00
Centrallizer	Rental and labour	[B]	39			$400.00	/m	$ 15,600.00
Tool, Bit, and Hole Opener								
BHA/Steering Tools	Paratrak II steering system or equivalent, downhole equipment, and steering hand	Pilot hole activities: [I]	27			$1,500.00	/shift	$ 40,500.00
Drill Bit 12 1/4" Mill Tooth	New or rebuilt, rental		3			$20,000.00	/bit	$ 60,000.00
Reamer 24" Mill Tooth	New or rebuilt, rental		3			$30,000.00	/bit	$ 90,000.00
Reamer 36" Mill Tooth	New or rebuilt, rental		3			$60,000.00	/bit	$ 180,000.00
Reamer 48" Mill Tooth	New or rebuilt, rental		3			$90,000.00	/bit	$ 270,000.00
Reamer 54" Mill Tooth	New or rebuilt, rental		3			$110,000.00	/bit	$ 330,000.00
							Sub - Total	**$ 5,224,800.00**
3RD PARTY COSTS								
Excavator - Entry Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, and transport of equipment and materials around site	Project duration: [O]	175			$2,200.00	/shift	$ 385,000.00
Excavator - Exit Side	330 track hoe or larger. Equipment and operator for entry pit excavations, casing installation, tail string tension during reaming, make-up/teardown of tooling or pipe, and transport of equipment and materials around site	Project duration: [O]	175			$2,200.00	/shift	$ 385,000.00
Cranes - Pullback Breakover	100 ton or larger. Equipment and operator to lift product pipe to match HDD exit angle	3 days per crane to account for mobilization/ demobilization. Estimated 8 cranes required	3	8		$6,000.00	/day	$ 144,000.00
Crew Accomodations and Meals	Camp/catering, hotel/subsistence, camp, or equivalent	(6 day shift + 6 night shift + 1 supervisor) x [P]	13	88		$300.00	/day	$ 343,200.00
Water Hauling		During drilling activities: ([I]+[K]+[L])	133			$2,500.00	/shift	$ 332,500.00
Cuttings Disposal (Vac Truck)		During drilling activities: ([I]+[K]+[L])	133			$3,500.00	/shift	$ 465,500.00
Trenchless Inspection	One inspector 24 hours on site (on call nights). Includes wellsite trailer, generator, pason, mileage, subsistence and other expenses	Project duration: [P]	88			$3,000.00	/day	$ 264,000.00
Miscellaneous	Matting, support equipment, drill pipe inspections, dewatering equipment, road maintenance, environmental monitoring etc.	Approximately 10% of HDD contractor cost						$ 522,480.00
							Sub - Total	**$ 2,841,680.00**
							Estimated Day Rate Total	**$ 8,066,480.00**

APPENDIX L

NGTL RESPONSE TO TRENCHLESS OPPORTUNITIES

TRENCHLESS OPPORTUNITIES WITHIN THE PMT

On November 9, 2015, WMFN provided NGTL with a report prepared by Brierley Associates (Brierley Report) on trenchless opportunities within the PMT. SFN's consultant Steve Graham (S. Graham) also provided notes regarding trenchless opportunities within the PMT on November 11, 2015. On November 18, 2015, NGTL met with WMFN and SFN representatives in Vancouver (including representatives from Brierley Associates and S. Graham, as well as NGTL's HDD consultant) to discuss these reports and the potential for additional trenchless installations within the PMT. In the meeting, NGTL identified inaccuracies and concerns with the reports provided by WMFN and SFN. WMFN and SFN requested that NGTL not respond specifically to those issues, but consider the information provided by their consultants and evaluate whether there are any additional opportunities for trenchless pipeline installation within the PMT (beyond the two bores included in NGTL's draft PMTPP). The following provides NGTL's response to this request.

Purpose of Trenchless Installation

When considering whether to employ trenchless methods to install the pipeline at any location, it is important to first consider the purpose of considering alternative methods. For example, at watercourses with sensitive fisheries, or where an isolated open cut installation is not feasible, a trenchless installation such as a Horizontal Directional Drill (HDD) may be used to avoid instream works. For these reasons, NGTL has proposed to cross several watercourses for the Project using HDD, including the Peace River. At the entrance and exit of the PMT, NGTL has proposed a different trenchless technology – boring – to install the pipeline under 60-100 m of native vegetation. These bores would have different purposes than the HDDs at watercourses; they would create line of sight breaks and habitat connectivity and would assist with preventing new access into the PMT from the right-of-way (ROW) following construction.

Brierley and S. Graham both considered ways to maximize the use of trenchless installation methods (specifically HDD) in the PMT to the greatest extent possible. As discussed below, however, trenchless installation methods also have several shortfalls relative to open cut construction, including increased disturbance footprint, schedule and cost. As a result, NGTL does not believe trenchless installation methods are necessarily preferable to open cut installation (and should be maximized to the greatest extent possible) unless there are specific objectives or requirements identified in an area that trenchless installation methods can achieve and that open cut installation cannot. Trenchless methods should therefore target spatially defined locations of concern rather than general circumstances or conditions that can be addressed effectively through conventional construction methods. Trenchless technologies should be considered where conventional trenched construction methods would be more technically difficult, would create greater environmental impact and/or would be more costly to mitigate, thereby justifying the increased disturbance footprint, considerable added cost and time, and potential risk of failure associated with trenchless crossing methods.

Goals of WMFN and SFN in the PMT

The goals of the WMFN, as outlined in the Brierley Report, include the following:

- avoid unnecessary temporary and permanent surface disturbance associated with pipeline installation, including clearing and grading
- protect areas of archeological importance
- protect wetlands and natural watercourses
- minimize fragmentation of wildlife habit, and minimize localized habitat change that could favor non-native vegetation, or alter present wildlife diversity or population densities
- minimize impacts to wildlife migration patterns
- minimize potential for human access to the PMT, including non-aboriginal hunters
- reduce line of sight along the installation

Through engagement with SFN and WMFN regarding the PMTPP, NGTL understands the communities' goals regarding the PMT are generally aligned with those of the Brierley Report.

For the reasons explained below, NGTL believes that its proposed construction methods for the PMT, including the additional measures set out in the PMTPP, achieve the goals identified by SFN and WMFN. The attainment of these goals would not significantly improve through the use of additional trenchless installations (with the possible exception of boring to avoid specific TLU features that have not yet been identified, as set out in NGTL's TLU Sites Discovery Contingency Plan).

General Considerations for Trenchless Methods

Trenchless technologies have specific requirements, applications, and limitations that must be considered on a site by site basis. Additional temporary workspace (TWS) will be needed for all trenchless installation methods. The spatial needs for any installation are determined on the site specific conditions, project design (including pipe diameter and length of installation) and requirements of the location in question.

Additional Surface Disturbance

For an HDD installation, additional TWS is required for drill pads, extra workspace for drilling equipment, extra space for mud handling and disposal, and extra workspace for the pipe set up area (false right of way). Generally, two 80 m by 80 m drill pads are required for the drill rig, stacks of drill pipe, operator control cabin, tooling trailers, crane or excavator, separation plant, mud tanks, mud pumps, storage tanks, office trailer, support trailers, creation of a perimeter berm, and storage of stripped surface materials.

Remote sites may need additional staging areas for storage of additional supplies and materials. For boring, additional TWS is required for the entry and exit pit locations, as well as to accommodate spoil and provide fabrication and testing workspace.

Suitable disposal locations are required for drilling mud and cuttings associated with any HDD. As part of the PMTPP, NGTL indicated that it would not include sump or mix-bury-cover locations within the PMT for the Peace River HDD in an effort to reduce surface disturbance. However, for additional HDDs, sump locations would be required within the PMT due to the large volumes of drilling mud and cuttings. For the additional seven HDDs proposed by Brierley Associates, for example, the disposal volumes for excess drilling fluids and cuttings upon completion of drilling operations is estimated at approximately 30,000 m^3 and 13,500 m^3, respectively. An estimated 11 ha of additional workspace in the PMT would be required for drilling mud disposal.

For HDD, in the event that the pipe set up cannot be completed along the ROW (including space for a travel lane to allow access around the HDD), an additional staging area (false right of way) of up to 35 m in width for the length of the pipe string is required. The Brierley Report did not include any allowance for pipe pull back sections, only stating an assumption that site access and pipe laydown for the additional HDD installations may be accommodated along the planned ROW. Based on NGTL's review of the Brierley Report, the proposed HDDs would require additional staging areas for pipe fabrication outside of the current construction ROW.

Access is also an important consideration for HDD (as well as other trenchless methods) as vehicles and equipment will require access to both the entry and exit sides of the drill path through the duration of drilling activity. As the ROW is the only proposed access within the PMT, new access would be required between the entry and exit drill pads for any trenchless installation.

Appendix A of the Brierley Report includes a discussion on the use of helicopters for completing five of the additional HDDs proposed, which Brierley suggests could minimize or eliminate the need for additional access between the entry and exit points. NGTL disagrees with this suggestion. Helicopters are impractical for use in this context for a number of reasons including:

- There are a limited number of helicopters in North America which would have the capacity to carry such large loads.
- Even assuming NGTL could secure appropriate helicopters, the drilling rigs would need to be disassembled in order to be transported to site. The equipment is precision manufactured and not designed for disassembly and non-integral transportation. Any damage to the equipment during transport could prevent the drill rig from working properly. This risk would increase the overall cost and schedule risk associated with the installation.

- Based on the estimates in the Brierley Report for a single 1,000 m HDD, helicopter access would require approximately 80 loads for mobilization/demobilization, 320 trips for shift changes (assuming 2 helicopters and 2 crew shifts for 80 days), 1,200 loads for mud disposal and 84 loads for pipe hauling. This totals 1,672 helicopter loads for one HDD, not including water hauling or transport of equipment and personnel for assembling the product pipe section (including sidebooms, cranes, excavators, welding equipment and other equipment). The noise and downwash from the rotors of the helicopter would potentially be disruptive to wildlife and land users.
- There are many days when flying is not possible due to weather conditions. Therefore, the overall schedule would be extended.
- Additional workspace would be required for helicopter landing pads and the offloading of equipment
- Helicopter usage and longlining introduces safety risks.
- The Brierley Report included a high level cost estimate for helicopters as $260MM+ for five HDDs. Particularly in light of the above concerns regarding helicopter use, this cost is considered unreasonable.

The Brierley Report further noted that in some cases it may be possible to reduce the amount of clearing and grading by using adjacent existing cut lines for site access. The seismic lines that are available in the PMT do not intersect or parallel the route, therefore, the overall length of access would be increased significantly if existing cut lines were used for access to trenchless work staging areas. These lines would also require clearing and widening to be suitable for access for the Project, which would increase overall surface disturbance.

Based on the above, almost any trenchless installation in the PMT would require more surface disturbance than conventional installation methods. NGTL believes the additional HDDs recommended in the Brierley report would increase surface disturbance within the PMT by approximately 20 to 22 ha.

Water Requirements

HDD operations require reasonable access to large volumes of water to support drilling operations. For the HDDs proposed by Brierley Associates, the total water volume required is estimated to be 48,000-60,000 m^3. The nearest water sources which may support withdrawal of these volumes are the Peace River and the Pine River. Water would be trucked from either water source to the proposed HDD locations, increasing traffic on roads and the ROW, extending the construction schedule and increasing costs. The increased traffic also increases wildlife mortality risk and risks to workers and the public in terms of vehicular accidents and traffic concerns.

Geotechnical Conditions

HDD requires suitable geotechnical and ground conditions to maintain the integrity of the hole to minimize potential damage to the product pipe and to prevent drilling fluid release. Geotechnical and/or geophysical investigations are required to assess ground conditions. The geotechnical and geophysical investigations require access and a cleared workspace at the subject location to allow collection of the required data needed to confirm feasibility, develop engineering designs, and order pipe with the appropriate wall thickness. No geotechnical or geophysical investigations have been completed within the PMT, except for the Peace River crossing.

Boring is suitable for installations above the groundwater table. Boring is not preferred at watercourses or wetlands because wet and soft ground conditions at these features can lead to unstable entry/exit pits and bore hole annulus, resulting in a greater risk of a collapse due to unconsolidated areas of substrate between the feature and the bore. In addition, dewatering the ground to prevent uncontrolled flow of ground water into the entry or exit pit could impact the watercourse. There are also safety implications associated with a greater risk of entry/exit pit collapse. Entry/exit pits within the water table also result in challenges with managing constant water seepage into the bell holes.

Schedule

HDD operations are typically conducted continuously for 24 hours a day, 7 days a week until the installation is complete. The noise associated with drilling can be a deterrent for wildlife and concerning to people in proximity to the source. Bores can often be completed within 1-2 days during normal construction hours.

The duration for the HDDs proposed in the Brierley Report range from 50 to 89 days. If technical difficulties are encountered due to challenging topography or geotechnical/groundwater conditions (neither of which were considered in Brierley Associates' estimates), this duration can increase significantly.

Depending on the availability of drill rigs and qualified construction crew with suitable expertise for large diameter pipeline installations (which NGTL's contractor has advised are significantly limited for the next year), the proposed construction schedule within the PMT would be extended with the addition of any HDD installations. For example, even if NGTL was able to source two additional HDD drill rigs and drilled multiple HDDs at the same time, the scope of HDD work set out in the Brierley Report would require continuous drilling for roughly 12 months. This extended construction work would significantly increase sensory disturbance within the PMT and would mean that construction within the PMT could not be completed within frozen conditions unless multiple winter seasons are considered. Extending construction over multiple winter seasons would delay the in-service date for the Project, which would likely affect the development plans of NGTL's customers.

Cost

Appendix A of the Brierley Report provides approximate costs for the HDD installations proposed in that report (with and without use of helicopters for access). The report states that the costs are not representative of an engineer's estimate. NGTL notes that the costs do not take into consideration site-specific geotechnical risks which can greatly impact the cost of the drill, as well as clearing and grading additional access, water hauling, and mud disposal trucking (depending on disposal site). NGTL estimates that the scope of HDD work proposed in the Brierley report (assuming no use of helicopters) would add roughly $40-60 million to the cost of the Project, not including consideration for geotechnical risks. This cost estimate would not include the significant costs that would also be incurred from a failed HDD attempt.

Specific Technical Considerations for HDDs within the PMT

The Brierley Report recommends an HDD installation beneath the south Peace River slope (bore 5), due to slope instability. NGTL does not recommend an HDD installation at this location due to the large elevation difference between HDD entry and exit locations. The majority of the HDD bore will be left unsupported with drilling fluids as these fluids would tend to drain to the lower elevation side of the drill, increasing risks associated with raveling and bore instability. Under these conditions, it may not be possible to condition the ground sufficiently to allow for a successful completion of this installation. In addition, extensive gravel and cobble deposits are known to exist at various depths along the river slopes. The depths of the deposits are considered to be too great to be mitigated with casing pipe. For these reasons, NGTL does not believe an HDD beneath the south Peace River slope would be technically feasible.

The technical feasibility of completing HDDs through the remainder of the PMT route is unknown and would require additional geotechnical and/or geophysical investigations. These additional studies would require additional disturbance (including access to the sites), delay and cost.

Conclusions Regarding Additional Opportunities for Trenchless Methods in the PMT

Based on the considerations above, NGTL does not believe that any additional trenchless installations in the PMT (beyond the proposed HDD under the Peace River and the proposed bores in the PMTPP) are appropriate.

Any HDD within the PMT would increase surface disturbance, significantly extend the duration of construction within the PMT and add considerable cost to the Project. The minimum amount of disturbance for pipeline installation is achieved by conventional construction in the PMT. As NGTL is proposing to complete the majority of construction activities in frozen conditions, minimal disturbance construction will be conducted in areas where grading is not required. This will retain the vegetation mat and soil structure and promote timely re-establishment of native vegetation. Using trenchless installations

would increase the surface footprint, extend the construction duration, and result in less area where minimal disturbance construction methods can be employed. In NGTL's view, this outcome would defeat the goal of minimizing unnecessary surface disturbance.

With respect to the goal of minimizing habitat fragmentation and impacts to wildlife migration patterns, additional trenchless installations would not be achieve this goal relative to conventional installation methods because new cut would still be required for access and TWS (including pullback). As discussed in the ESA, the change in movement patterns for wildlife is not expected to be significant for any stage of the Project, including within the PMT. As discussed in section 9.1.4.3 of the ESA, pipeline ROWs are not regarded as barriers to movement for large mammals. The two proposed bores of 60-100 m in length with actively reclaimed access roads, as well as access control measures and line of sight blocks, will help to minimize fragmentation of wildlife habitat, with less surface disturbance than an HDD.

Similarly, the potential for new access within the PMT would not be reduced through the use of additional trenchless installations due to new cut required for access and TWS. As per the Access Management Plan that has been approved by the NEB, access control and the use of adaptive management are the most effective tools for reducing the potential for an increase in human access to the PMT. Access control and line of sight barriers (which includes the two bores and the line of sight blocks proposed in the PMTPP) achieve this goal.

Line of sight would not be improved through the use of additional trenchless installations for the same reasons stated above, namely that new cut would still be required for access and TWS.

Additional trenchless installations would not avoid disturbance within riparian areas since access would still be required across all watercourses along the route. With respect to concerns about modification of groundwater or stream flow patterns in the PMT, this will not occur with NGTL's proposed construction methods so additional trenchless installations are not required to avoid these types of effects. The protection of wetlands and watercourses will occur through the implementation of mitigation measures outlined in sections 7.0 and 8.4 of the Project's EPP.

Finally, while HDD could be used to avoid specific TLU sites or other important features identified by SFN or WMFN in advance of construction, avoidance of specific sites or features may also be achieved through micro-routing and/or boring. Given the additional impacts associated with HDD, NGTL believes these alternative methods of avoidance are preferable to HDD. The specific mitigation and avoidance measures will depend on the nature of the feature and will be determined if and when such features are identified, in accordance with the TLU Sites Discovery Contingency Plan. No archaeological sites were identified within the Project footprint within the PMT. Any heritage resource sites found during construction will be handled as per the Heritage Resource Discovery Contingency Plan.

NGTL believes that its proposed construction methods for the PMT, including the additional measures set out in the PMTPP, achieve the goals identified by SFN and WMFN. The attainment of these goals would not significantly improve through the use of additional trenchless installations (with the possible exception of boring to avoid specific TLU features that have not yet been identified, as set out in NGTL's TLU Sites Discovery Contingency Plan).

APPENDIX M

S. GRAHAM ENGINEERING AND GEOLOGY INC. NOTES

S. Graham Engineering and Geology Inc.
Delta BC

Notes for Circulation for the NMMPP Meeting on November 16, 2015

Table 2

Buried vs Total Plan Distance in the PMT

Bore	Type	Length (m)	PMT Length (m)	Ratio	Cumulative Ratio	Comment
1	auger	100	8500	1.2%	1.2%	east border
2	auger	100	8500	1.2%	2.4%	top of Peace R bluff
3	HDD				2.4%	under Peace River
4	HDD	1375	8500	16.2%	18.5%	Stream
5	HDD	967	8500	11.4%	29.9%	S Peace R Slope
6	HDD	1030	8500	12.1%	42.0%	Stream
7	HDD	756	8500	8.9%	50.9%	Stream
8	HDD	1190	8500	14.0%	64.9%	Stream

If replace auger with 500 m of HDD

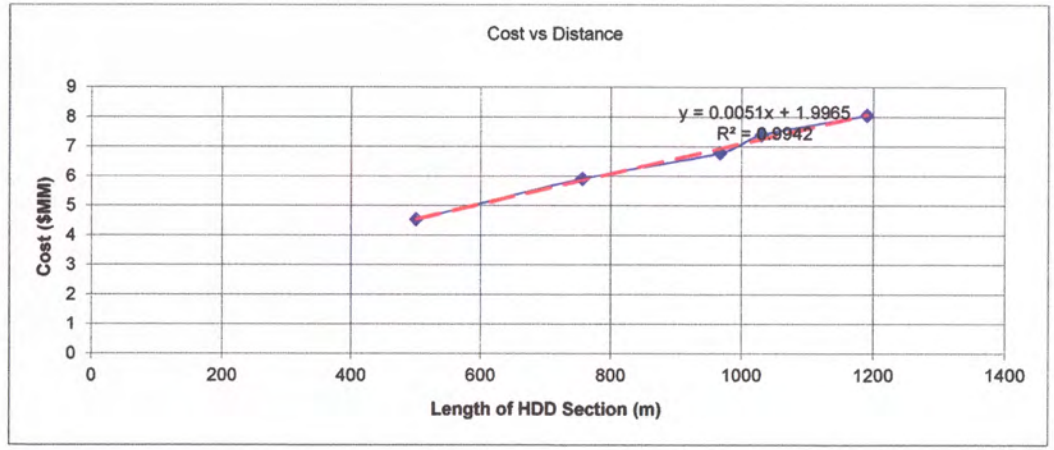
Bore	Type	Length (m)	PMT Length (m)	Ratio	Cumulative Ratio	Comment
1	HDD	500	8500	5.9%	5.9%	east border
2	HDD	500	8500	5.9%	11.8%	top of Peace R bluff
3	HDD				11.8%	under Peace River
4	HDD	1375	8500	16.2%	27.9%	Stream
5	HDD	967	8500	11.4%	39.3%	S Peace R Slope
6	HDD	1030	8500	12.1%	51.4%	Stream
7	HDD	756	8500	8.9%	60.3%	Stream
8	HDD	1190	8500	14.0%	74.3%	Stream

Table 1

Entec HDD Cost Estimates

Crossing #	Length (m)	Cost ($MM)
4	500	4.542
7	756	5.917
5	967	6.804
6	1030	7.41
8	1190	8.066
r =		99.7%

Cost per Meter ($m)
9084
7827
7036
7194
6778
r= -96.9%



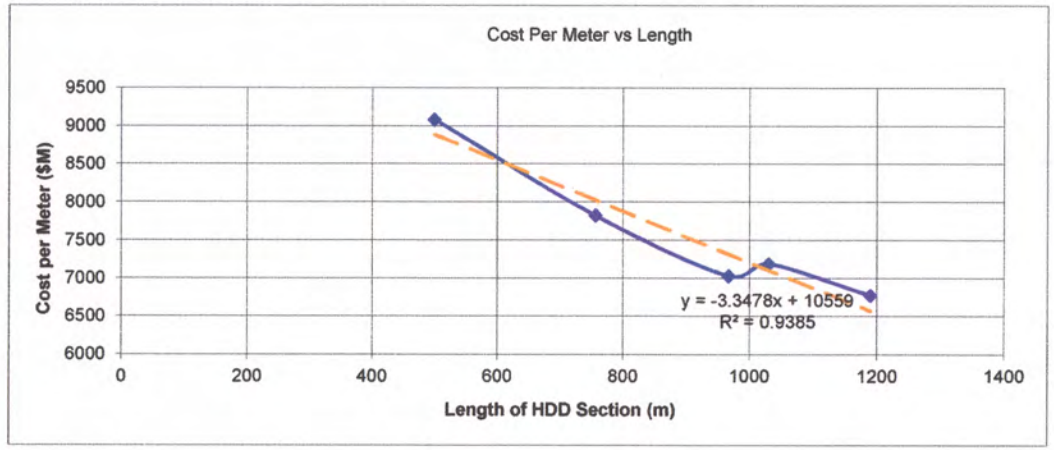


Table 4

Unit Cost Data

Name	Length KM	Cost $MM	$MM/Km	Diameter Inch	Capacity Bcf/d
Merrick	260	1900	$7.308	48	1.9
Coastal Gaslink	700	4000	$5.714	48	1.7->5
PRGT	900	5000	$5.556	48	2 -> 3.6
NMMP	305	1500	$4.918	48?	2
Mackie Ck to Saturn	77.5	383	$4.942	42	
West Option Incremental			$4.70		

Source: News Releases on the Interent except West Option
Mackie Ck to Saturn from IR response FE-NGTL-10

Note: West Option may not include metering stations, compressor stations and river crossings

from SGE report to the NEB -2014-

Table 3-3: State of the HDD Industry.

Installation Diameter (Casing Pipe)	Installation Length										
	1,000 m	1,200 m	1,400 m	1,600 m	1,800 m	2,000 m	2,200 m	2,400 m	2,600 m	2,800 m	3,000 m
	3,281 ft	3,937 ft	4,593 ft	5,249 ft	5,905 ft	6,562 ft	7,218 ft	7,874 ft	8,530 ft	9,186 ft	9,842 ft
200 mm (8 inch)	12	6	10	4	4	7	3	0	0	0	0
250 mm (10 inch)	9	6	3	11	0	0	0	1	0	0	0
300 mm (12 inch)	13	7	6	3	0	1	0	1	0	0	0
350 mm (14 inch)	3	5	3	0	1	0	0	0	0	0	0
400 mm (16 inch)	8	4	3	5	4	1	3	0	0	0	2
450 mm (18 inch)	0	0	0	0	0	0	0	0	0	0	0
500 mm (20 inch)	5	9	9	1	0	0	2	1	0	0	0
600 mm (24 inch)	25	26	8	10	6	1	1	1	0	0	1
750 mm (30 inch)	16	8	5	7	1	1	1	0	0	0	1
900 mm (36 inch)	0	5	18	3	0	0	0	0	0	0	0
→ 1050 mm (42 inch)	15	13	11	4	1	1	0	0	0	0	0
1200 mm (48 inch)	24	19	0	0	0	0	0	0	0	0	0

Color Coding:

	Within typical capabilities of industry. Multiple experienced contractors.
	Zone of limited industry application. Considered feasible with an experienced contractor and favorable ground conditions.
	Exceeds current capabilities of industry. Considered risky even with an experienced contractor and favorable ground conditions.

NOTE: Current State of the HDD Industry shown above is based solely on the reported installation lengths and diameters. Site-specific geotechnical and installation based risks have not been considered in developing this chart.

S

N

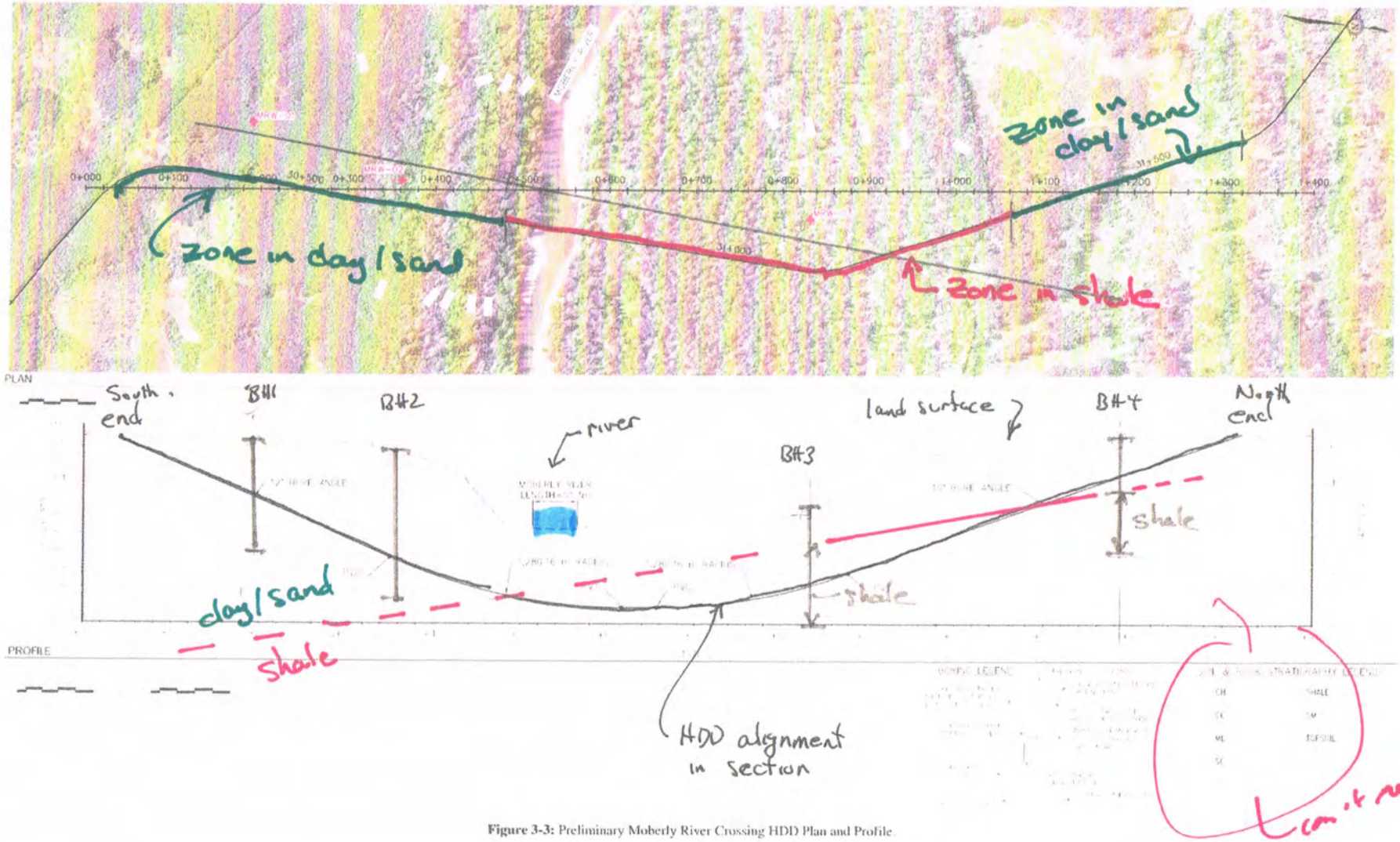


Figure 3-3: Preliminary Moberly River Crossing HDD Plan and Profile.

Figure 1

HDD

S Graham
8/12/15

APPENDIX N

SFN GROUND TRUTHING REPORT

TECHNICAL MEMORANDUM

Report for the Saulteau First Nations On-the-ground Knowledge and Use Study of Peace Moberly Tract section of the TransCanada Pipelines Ltd.'s North Montney Mainline Pipeline Project

Prepared by:	Rachel Olson, Ph.D., Jordan Tam Ph.D. (Candidate), and the Firelight Group Research Cooperative
Submitted to:	Saulteau First Nations
Date:	November 25, 2015

1. Introduction

1.1. Overview

The Firelight Group Research Cooperative (Firelight) is pleased to provide this on-the-ground traditional knowledge and use report to the Saulteau First Nations (SFN) as part of reporting requirements between SFN and TransCanada Pipelines Ltd. (the Proponent or TCPL).

This report provides information and consideration of anticipated Project interactions based on current and available SFN knowledge and use data collected within the traditional lands of the SFN and in the (vicinity) of the proposed North Montney Mainline Project (NMM). This report includes non-confidential information related to the proposed Project area overlapping the Peace Moberly Tract (PMT). Confidential site-specific information has been collected and is available in a Confidential Addendum to this report.

1.2. Scope of work

The Firelight Group has been retained by the SFN to conduct an on-territory knowledge and use study (the Study) in relation to the proposed TCPL NMM Project. Work for the Study conducted by Firelight includes:

- Work planning, preliminary meetings with Proponent, SFN leadership and lands staff, and project management;
- Methods preparation and finalization of on-the-ground fieldwork materials;
- Data collection through on-the-ground mapping and interviews in the area of the proposed Project overlapping the PMT, followed by a data verification and analysis; and
- Final reporting, including supporting SFN staff on communications to SFN leadership and members.

2. Background

2.1. The Project

NOVA Gas Transmission Ltd. (NGTL), a wholly owned subsidiary of TransCanada Ltd., is proposing to construct, own and operate an extension to the existing Groundbirch Mainline sweet liquid natural gas (LNG) pipeline. The proposed North Montney Mainline Project would deliver LNG to the existing NGTL System.

The proposed Project would be located in the Peace River Regional District, comprised of approximately 301 kilometers of pipeline starting about 180 km northwest of Fort St. John and continuing southwest to a point approximately 35 km southwest of Fort St. John.

The proposed Project would be composed of two sections, Khata and Aitken Creek. The Kahta section would be approximately 119 km of 42-inch diameter pipeline. The Aitken Creek section would be approximately 182 km of 42-inch diameter pipeline.
The Kahta section would begin at a point about 180 km northwest of Fort St. John and continue in a southern direction until it connects to the northern end of the Aitken Creek section. The northern end of the Aitken Creek section would begin about 100 km northwest of Fort St. John and continue southeast to connect with the northern end of the existing Groundbirch Mainline (Saturn Section) pipeline, located about 35 km southwest of Fort St. John.

Approximately 155 km of the proposed pipeline length would be located alongside or parallel to existing linear disturbances such as pipelines, railways, roads, electrical power lines, and seismic cuts. The remaining length, or about 151 km, would be installed on a new right-of-way (ROW).

The proposed Project runs through the traditional lands of the Saulteau First Nations, and crosses the Area of Critical Community Interest (ACCI) identified by Saulteau First Nations and West Moberly First Nations. The proposed route also passes through the Peace Moberly Tract.

2.2. The Peace Moberly Tract

The Saulteau First Nations and the nearby West Moberly First Nations have identified two areas of special significance for their communities. These are an Area of Critical Community Interest and the Peace Moberly Tract. The communities rely heavily upon these areas for sustenance, cultural, commercial, and socioeconomic purposes.

Continued activities in the PMT are in accordance with Treaty 8 rights, and include hunting for large and small game, trapping for furbearing animals, fishing, building and maintaining cabins, camping, and building new trails to access these resources.

Industrial developments that occur within the PMT are of particular concern and interest for SFN. The proposed Project passes through both the ACCI and the PMT.

3. Methods

On-the-ground data was recorded using Open Data Kit (ODK) technology[1], audio equipment, and cameras. Data collection with all participants included documentation of prior informed consent.

Six SFN community members took part in the site visits, with two researchers from the Firelight Group. The visits took place from September 14-16, 2015. Site visits were conducted in the vicinity of where the PMT and the Project footprint overlap. A second helicopter trip with three SFN members and one researcher from the Firelight Group took place on November 6, 2015.

The aims of the site visits were to:

- Give SFN members the opportunity to see the Project site to better understand the pipeline, its location, how it would function, and likely impacts;
- Give SFN elders and members the opportunity to visit the PMT, a culturally important place for the SFN;
- Document SFN elders' memories of the region;
- Document current environmental features at the site;
- Document potential future uses of the site for the SFN; and
- Document likely impacts from the Project on both environmental features and SFN values at the site.

[1] Open Data Kit (ODK) is an open-source, modular kit, designed to leverage mobile devices to enhance community-based data collection, aggregation, and analysis.

4. Site-specific data

The following data was gathered during the September 14-16, 2015 site visits and the helicopter flyover on November 6, 2015. The following table (Table 1) shows the type of site-specific data, and the following map (Figure 1) shows the randomized and buffered points collected on the trip. Exact points that are not randomized or buffered are reported in the confidential addendum to this report. The helicopter flight focused flying over the proposed pipeline route within the PMT.

4.1 Description of Site-specific values

Participants recorded a total of 31 site-specific values within the PMT. While not all recorded value noted time of use, SFN use was reported from the 1940s to present (2015). Values recorded were as follows.

Table 1. SFN reported site-specific use values in the PMT, by activity class, within the project footprint, LSA, and RSA of the TCPL North Montney Mainline Project. Numbers shown are cumulative (i.e. RSA includes footprint and LSA).

Activity Class	Within 250m of the proposed Project (footprint)		Within 5km of the proposed Project (LSA)		Within 25km of the proposed Project (RSA)	
	# of reported values	% of reported values	# of reported values	% of reported values	# of reported values	% of reported values
Cultural	1	8	5	20	7	23
Environmental	11	85	18	72	19	61
Habitation	0	0	0	0	1	3
Subsistence	0	0	1	4	1	3
Transportation	1	8	1	4	3	10
Total	**13**	**100**	**25**	**100**	**31**	**100**

- *Cultural* values include: a ceremonial site; sites used for collection of medicinal plants and traditional place names for lakes and a creek.
- *Environmental* values include: important habitat for beaver; moose calving grounds; mineral licks; game trails; areas containing medicinal and subsistence plants; and valued undisturbed wilderness areas.
- *Habitation* values include: site of a former cabin used by a participant.
- *Subsistence* values include: a site used for collection of berries.
- *Transportation* values include: a trail used for hunting; traditional pack horse trails used by a participant.

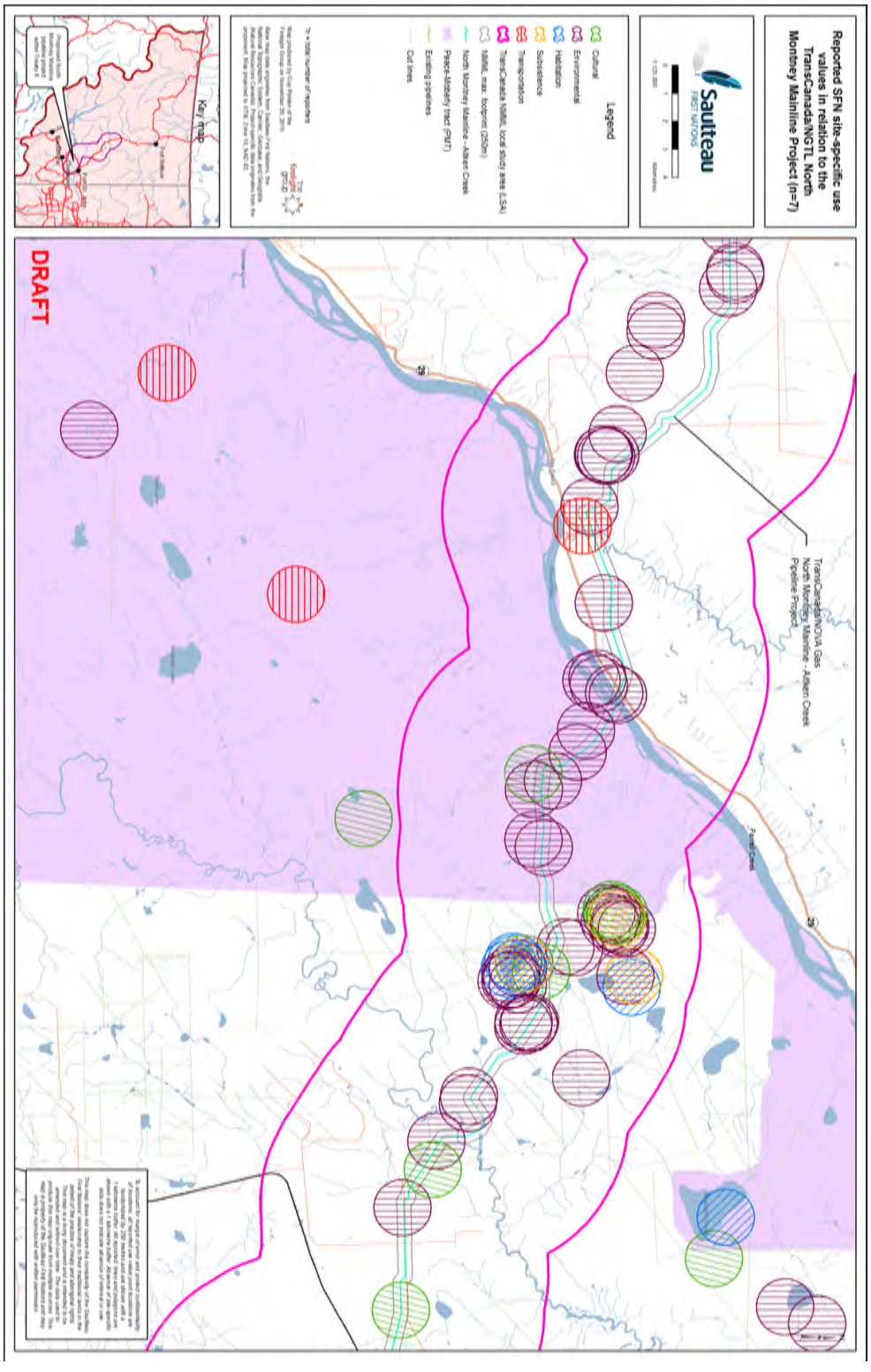


Figure 1. SFN reported site-specific use values within the project footprint, LSA, and RSA of the TCPL North Montney Mainline Project, in relation to the Peace-Moberly tract (PMT).

5. Discussion of Key Issues

Construction of the NMM Project has the potential to traverse a number of highly important ecosystem features within the PMT with possible adverse impacts for numerous SFN Valued Components. In particular, onsite fieldwork identified the region's wetlands, lakes, mineral licks, and forest (vegetation) as critical features sensitive to Project impacts.

5.1. Wetlands and lakes

Participants identified wetlands and lakes as an essential aspect of the region's environmental integrity, especially for providing food, refuge, and habitat for moose and other wildlife. Participants also noted that the wetlands of the PMT and the broader region are unique with respect to their size and interconnectedness.

> *I would build this pipeline away from this wetland area, for sure, guaranteed, because this is the only wetland with a lot of adjoining lakes that's a huge, vast area in here, probably on the south side of the Peace River. I don't think there's a wetland this many lakes anywhere on the south side of the Peace River, near this area so it's kind of like ... It's a very unique type of terrain in this place…* (S92 2015)

Interviewees repeatedly emphasized the important role of wetlands in providing valuable habitat for moose and a diversity of wildlife (including uniquely large muskrats) as a reason for requiring special protection.

> *We shouldn't impact that unique type of terrain because the wildlife tend to use that terrain also to, to reproduce, to increase their population of the wildlife. This is the main place they use. That is why, you know, it shouldn't be disturbed, this area, it should be more minimal impacts if they should build it away from this place. It's for wildlife and the environment.* (S92 2015)

> *[S18] Big Lake ... Kamsacsagagun [Big Lake in Cree]. And those ones over there are Wapsuak [swans in Cree] ... [S92] That one is Wiskachan [Whiskey Jack in Cree]. So this is where they use to catch those really rare type of muskrat. They were as little bigger than a yearling beaver. Now I think they're even more rare today but you know you still see a lot of those small muskrats, you know, normal size, everybody sees them. But the big ones, we don't really see them any more. It would be nice to do a study on those muskrats. Is that a different species? That extra large muskrats, between, you know, to the little one that anybody sees anywhere, we see those all over. But those giant ones, we don't seem them in these areas. All these lakes here, surrounding this big lake, you know everywhere; it's kind of a huge wetland area here. It's very big; it's*

> *where they used to catch these giant muskrats ... Yeah, yeah [you can find the giant muskrats] in all these lakes [in this region]. There's another lake over here, not too far, Frog Lake. And you go further down this side and its Egg Lake. And it's, all these lakes are just full of muskrats and stuff. Beavers ... Mink and all that [inaudible 0:02:05]. In the summertime there's all kinds of—that's why they migrate here. Swans and geese lay their eggs here, along this, kinda, among this goose grass they call it.* (S18 and S92 2015)

The wetlands of the region are a rich source of forage and minerals for wildlife.

> *[S92] What moose also like to go in this lake here and eat the vegetation underwater. [S18] Yeah and they eat stuff from underwater too. [S92] But at the same time they are eating the vegetation from underwater they also get a mineral from that vegetation because when they pull the vegetation out they, a bunch of mud will stay on that vegetation, on the roots, so they eat that mineral and everything along with the underwater vegetation so it kind of also acts like a mineral lick at the same time. You know what I'm saying? It's, they like that mud that they get off the bottom, you know? [S18] They can go under there quite a long time ...They can dive under there.* (S18 and S92 2015)

> *This is a wet lick. But one of the nice things about where this lick was, is the whole area is, it's very wet. There's some big beaver lands in the area, very close, and moose like that, moose forage in lakes and swamps and stuff and they eat the plants from the bottom of the lake, they'll eat that and so they'll frequent around those kinds of areas. So like, I said, this one here just happens to be one because, because it's in that kind of beaver dam, swampy area. The other good thing about it is because a lot of people don't hunt those kinds of areas. It's because it's tough. But the moose are there, the elk are there. Elk are a little bit more, they like the big poplar flats and stuff. And it's the same thing, we've got some really really big poplar flats in that area where they're at there too. Same thing with moose, they like those poplar flats too.* (X166 2015)

Wetlands and lakes are also used by moose, elk, and deer as a refuge from predation and for calving, and are frequented by migratory birds and other waterfowl for nesting. Thus, the area and the broader wetland ecosystem help to support the population abundances of valued species.

> *It's real prime area, also, all these lakes here and this wetland for moose and all kinds of ungulates, you know, deer, elk because it's a good calving ground for them and there is a lots of wetness here. It protects them also*

> *a lot from the predators. In the wetlands and also around the lakes.* (S92 2015)

> *[S92] So all, within that whole area is a huge wetland, you know, where the wildlife is able to use on a year round basis and especially for calving also. For the moose and the dear and the elk. [S18] For calving, good habitat for calving in the springtime. [S92] So its like, the predators cannot get there scent very easy in water so they like to go have there young ones in those type of areas. So really, when you have that type of area, a huge wetland like that and I know wildlife use that, for their cover. [S18] Protection. [S92] It means like you could use it as a place for the wildlife would increase their population within this environment ... It's very important to know that ... But if the wolves chase a moose over there, in a dry country, first thing the moose will do is run into the swamp land, where it's wet, where there's water. They will run into those areas. [S18] And then they'll swim right across. [S92] So, this, that's why this wetland is really important, you know, not disturb, because this is where the wildlife will multiply, where they have the best chance of, you know, to keep that kind of species going like a moose.* (S18 and S92 2015)

> *[S18] Swans, yeah. Swans and geese. They're migratory birds here [lakes and wetlands], they lay their eggs here when they come from down south ... Yeah they nest, that's their nesting place. [S92] That's what this wetland, it's such a huge -- [S18] That's where their nest is, see the way it looks here? Uh huh, they nest there. [S92] Huge bird, you know, all kinds of wildlife they use, you know, to survive here, you know, the young ones, like the eggs. The birds come flying from, you know, down south to come and have their young.* (S18 and S92 2015)

Due to the richness of wildlife and the abundance of freshwater resources found in the region's wetlands, SFN members are highly active in the area. The wetland ecosystem that characterizes the region is also regarded as important for ensuring the continuation of the SFN way of life.

> *Water is the most important thing we have. We don't want that to be destroyed or even to be disturbed. It is, what you see out there is our way of life. We live with the nature. That's how we were raised and born. That's it. We still believe in that because we are First Nations. That's how come we still believe in things like that we were raised like that. We have to follow the path of our ancestors. If we don't do that what's going to happen? We're going to starve. You know?* (S18 2015)

> *[Interviewer: Do you see moose frequently in this lake here?] [S18] Oh yeah. All the time. [S92] That's why, there's a big mineral lick over there,*

> *that's where, one of the prime areas for the First Nations to hunt moose is in this place here, in this whole area, in this wetland area. All these lakes here, there's another lake down here, which is called Swan Lake. And this one here, in English, you know they have their Indian names, but in English it's called Big Lake. And the other one over there, way up there, you can see on a map is Boudreau Lake ...* (S18 and S92 2015)

As participants explained, however, wetlands and lakes are sensitive to impacts from the Project through physical disturbance and the disruption of natural water flows that create and perpetuate their existence.

> *[S92] You either, you obstruct, you either create a big water where it holds back, like a dam where the natural water flow doesn't go out anymore or you know, or you know sediment, also soil, you know, going into these areas ... Yeah from the roads and the pipelines. The pipeline will be dug in a pipe way down there. And the water, most of the time, this water in the wetlands is running a lot underground. So you disturb that, you know, that natural flow under ground in these wetland areas and then they basically, you're just like you're building a dam so that the swamp dries up over here. And over here it gets too wet. So it completely destroys the natural terrain of the wetland area. [S18] It'll never be the same again. [Interviewer: Have you seen that happen elsewhere?] [S92] Oh yeah, yeah. That road over there, [personal name], where those guys are going, where they built that road there. There's a big blockage there of that wetland. That's why that lake is by that road.* (S18 and S92 2015)

> *They've got to leave a moose habitat area, beaver, beaver food along around the lake, all kinds of things. You know, they migrate there in that area, because they drink water right? They have it too close, and they're going to disturb everything. The livelihood of wildlife.* (S18 2015)

> *Yeah, this, kind of a big wetland, you know, lake area, that we're looking at here, along this road. It's been formed by an obstruction, an obstruction of the natural flow of this swamp, by this road being built through the swamp area here. It's blocked off where, now it's formed a lake here, is what we're looking at. Ok. This obstruction here, it does a lot of impact to the environment because down below this wetland area, where the outflow goes into this other swamps down here, as I looked at a while back, mostly all dried up because this natural flow of this wetland over here has been disturbed so much so. But gives us an example of what the possibilities are for impacts, also on other developments … it also gives us, educates us also what could possibly happen if the TransCanada, you know, pipeline comes through also, where we could do, you know, obstruction within the water flow very easily through these swamps.*

> *Because a lot of these swamps the water flow is underground also in these swamps, not just above ground. So, ok, when you dig a pipeline trench through an area where you probably have to go eight feet deep whatever to put in your pipe, and then you could obstruct also the groundwater flow underneath in that ground where you could form probably something like this. A lake again where the swamp has lost its natural way of flow within that wetland area. So there's a high risk for that kind of stuff also...* (S92 2015)

5.1.1. Mitigations for wetlands and lakes

When asked what could be done to prevent impacts to wetland ecosystems, SFN members explained that one way to mitigate adverse effects was to avoid wetlands and lakes entirely. The use of buffers between the Project and the wetlands was also proposed.

> *[S92] They'd have to go around, you have to go around, go way around this wetland area, around somewhere so you're not going right through the middle of it. [S18] Even their calving ground's close to the water. That's how come its important to have a buffer, at least two kilometres, maybe three kilometres away from the wetland. You know like, I'm pretty sure that they can make their way around to go on dry land more than they do to go on the water. You know? Cause we use that water too.* (S18 and S92 2015)

> *Really the pipeline should go somewhere else, it shouldn't go through this big wetland here. It should go somewhere else around these wetlands. Wetlands now are considered, you know, starting to be rare, endangered, whatever they call them. We shouldn't, you know, be giving full access on a wetland anymore where everything else is going to come along and impact it more. And when you build a pipeline across these wetlands, even though you hit these little valleys and whatever, where it might not look that wet but underground is where some of this water travels also from wetland to wetland because there is so much wetland and little lakes surrounding it.* (S92 2015)

> *[Interviewer: How could TransCanada avoid having these kinds of impacts [obstructing wetlands] in the construction of their pipeline?] Well the only way that you could avoid that is go around that wetland. Exactly that, simply that. Go around it, don't go near those wetlands because the wetlands are the ones that are a high priority for wildlife where wildlife their, you know, their populations of wildlife could increase, is a wetland is used for that by wildlife. That'll be birds, all kinds of, geese, swans, ducks and also the ungulate, you know, like the deer, the moose, the elk, they go*

> *into those water areas where they can have their calving grounds. So if you destroy that wetland, then the wildlife don't really have anywhere to go as far as for using the wetland to escape their predators. The wetland would keep the wildlife, the scent from the predators, from smelling them in that water, that's what they use it for. So it's a really good calving ground also for moose, you know, elk. It, there's just not way of avoiding that unless you go around it. There's no way you could make it the same if you go through it. It's absolutely going to be a guaranteed impact of some sort because you don't know what you're gonna run into underground also. Where's the outflow, where's the inflow, you know, of that area? Could it be going that way or that way? It's all wild guess, its all just a gamble.* (S92 2015)

5.2. Mineral licks

As highlighted in several quotes above, mineral licks support wildlife health and was noted by participants to be found frequently near lakes and other water bodies. SFN members described dispersed mineral licks as networks; a series of set locations visited by animals on a regular basis. Many minerals licks were identified in the vicinity of the Project and PMT region.

> *[S92] Yeah, a white mud lake. It's a mineral that lake. It stretches out, like [personal name] was saying, from way over there all the way to there. The moose you that whole area for a mineral lick … [S18] Yeah, that's right [we are close to the Project footprint]. [S92] It'll probably be behind us right here, a couple hundred metres I think.* (S18 and S92, 2015)

Participants expressed concern over the sensitivity of mineral licks to development activities, and how damage, once inflicted, can be irreversible.

> *Yep. The big thing is, once the pipeline goes through, the corridor goes in, then you have easier access. And if they find, you know, it's not like there's springs, which are always a concern, and the water, and the licks themselves. And you know, some licks, really, once a lick is gone its gone, you're never ever going to replace it. So that's the last thing you want to avoid is. And we've seen some, where there has been licks that have basically, basically been destroyed. There's licks along our highways and stuff like that and yeah, they use them once and a while or whatever but even so, there's regular routine maintenance activity that happens and they run machines and equipment right through them. And that's no good, like you know; you can't be doing that type of stuff…* (X166 2015)

> *The animals know where they [licks] are. They're all over the place. But the thing is, we hope, we always hope that you can hide and protect*

> *them, those areas, right? … Well they'll [animals] definitely be scared off [by construction]. The first thing when there's activity they'll definitely move out of the area for a while. And sometimes it can be for a few years. Certain animals just don't like it, like elk especially…* (X166)

One participant also spoke about the increased risk posed to mineral licks when they have not been properly identified, and in particular when development occurs in the winter.

> *Some people, you know, our activity, it's frustrating, you go and work gets done in the wintertime. And people, unless they know about them, equipment works right through them and then when that's done, the damage is done. And that's the type of stuff that my concerns are and want to avoid, that that doesn't happen. You know.* (X166 2015)

In addition, participants explained how linear corridors that are cleared of vegetation could threaten mineral licks by increasing access for recreational hunters and Project workers (also see section 4.3).

> *And you know these licks, when I pointed them out before, the reason why I plotted some of these on the maps is because of how close some of the lineal corridors from before came to some of these. It's just surprising that they come so close … Because, if you know, if people work on projects, that's how they find this kind of stuff. And a lot of people nowadays, especially with the technology, all they have to do is have a phone or have a GPS with them and plot it and come back in here later on right?* (X166 2015)

Not only are mineral licks important resources for animal health and the support of subsistence hunting activities, they are also a part of the cultural continuity of the SFN community, as described below.

> *And like I say, these spots really are pretty private for our elders, I know all our old elder people know where these licks are. And a lot of them probably don't get to them anymore because of their age and stuff but its been passed down from generation and generation and it's something you always want to try and look after.* (X166 2015)

> *So its good that we can communicate but that's the issues, people need to talk to us and understand that, you know, there's a reason why it's [licks are] propriety information as far as we're concerned. And the thing is, it's nice to be able to communicate and you always worry, you know. It's a private, sacred spot and you want to protect it but yet if we don't say*

> *something and identify it then we can see where damage will be done, and once the damage is done it's no good.* (X166 2015)

5.2.1. Mitigations for mineral licks

As suggested in the preceding quote, consultation with SFN members and employment of their knowledge and expertise (also see section 5.1) may be a means to protect key mineral licks, however the sensitivity of this information must be respected and protected. Similar to wetlands and lakes, SFN members reported that the best way of avoiding impacts is to avoid the licks by avoiding the area or by using buffers.

> *The licks, it should be, I believe a mile, a kilometre and a half buffer. Oh they say, "Oh, we'll leave a buffer, half a mile on that lick". A moose runs away from a person, sometimes two miles away. How is he going to survive a half a mile buffer on a lick? Its stupid, you know? I would say at least a mile and a half buffer; they've got to leave on every lick.* (S18 2015)

> *Like I said, now as a project person myself, knowing, we always ask people not to go outside of the corridors when they work on our projects and stuff. But it's, people do it. They go outside the boundaries, they'll, and like I say, if they know there's a lick, and that's why hopefully you can mitigate and make the corridor go far enough away from it so they won't find it in the first place…* (X166 2015)

5.3. Forest and undergrowth

Some SFN members observed that forest cover in the region has already been compromised to a degree, and is problematic as intact forest provides essential habitat for a variety of wildlife valued for hunting and trapping.

> *That's, not only that where does the moose live? In the bush! No bush, hardly any. They cut all that down too. That's how come we don't even have fur-bearing animals that we live off also, we go trapping. Squirrels got no homes because there's no spruce, no cones anymore ... You can't even hear a squirrel chattering somewhere anymore because they've got nothing to eat also. All marten, everything. They're gone. No trees*. (S18 2015)

> *A seed block, this is a seed block here and this here surrounding area is all clear-cut. It's a no good thing, you go over there and it's all clear-cut. Just these areas where they leave a seed block. And where the trees, where the regrowth comes out, you can't even see a rabbit running full speed. Because it's so thick now, and small.* (S18 2015)

As discussed, the creation of linear corridors can destroy or disturb mineral licks and the animals that they support. Linear corridors, such as pipelines and roads that are cut through forest and the undergrowth, also threaten subsistence and trapping species not only by facilitating access for people but also natural predators.

> *[S92] So, then these, these, also these pipeline that they're gonna build through here, ok? The predators, bears and wolves, they use those as their highways because the snow gets harder on those big openings where it's not soft. So the wolves get to run along ways and hunt along ways and then so the animals get more pressure from predators when they open up these big wide open spaces from roads and pipelines. [S18] There's a lot of access for quads and skidoos and for other hunters too.* (S18 and S92, 2015)

> *That's how come the wildlife, the moose is getting scarce now. You don't even see moose anymore hardly, and this is what they're doing. They're making to more hunters, making access to more wolves and stuff to kill off the moose … But what they do is they go back to States, they go back to their own country and forget about us here, that are left with no moose left to eat anymore. No game.* (S92 2015)

> *And we've seen, like I come in here, we have friends that have a trap line cabin very close to here, where we're talking right now. And Boucher Lake last year, we saw fourteen wolves out on the lake there, you know, its those types of things when we talk linear corridors and stuff that make it tough because these wolves, these moose are having a harder enough time surviving as it is because of how many hunts are allowed … So that's why a place like this [PMT and surrounding area] is significant because its an area, and right actually on the map, the Peace River Boudreau Lake, there's a protected area all along the Peace River here. So this whole area has always been good for moose, elk and deer, along the Peace River. And thank goodness that's protected right now, so here we go if linear corridor comes across there, you've got a way to access a point into that. And right now the only access would be horse back or maybe on, by riverboats or whatever on the river, right? And you know, it'll happen anywhere if the right corridor pulls in. And you know, depending on how the connection is, there could be a connection from the Del Rio side. Not necessarily from this side. And that's an area our community is trying to, avoid a lot of activity happening because its something we like to keep close to home.* (X166 2015)

> *As you can like, look at the easy access they have, for ATVs and quads. Like, you know, you go this way and this way, and just in this area right here, you can see quite a ways, right? So everybody in the wintertime too with skidoos, you can see, you can see a moose a long ways in this area because there's no leaves and stuff, it leaves it open for them. So it's harder for them to hide.* (S63 2015)

SFN members also voiced concern over native vegetation, once cleared by the Project, could be threated by invasive species brought in by newly created access. Participants reported that some of the species used for replanting during Projects can also be problematic for wildlife and for SFN use.

> *Then there's also the traffic is open to the public, like ATVs … like skidoos, ok? And the skidoos and the ATVs can also bring in what you call the weeds that come in in those vehicles like – could take over and invade native species. There's also a risk for that, also when the skidoos go back and forth and the quads on that new pipeline ... So some of these skidoos or quads come from Vancouver, could come from [Saint] Albert, could come from wherever and they have these weeds in there that could take over the native plants around here. And pretty soon you get a big spread of that weed out here that takes over all the native plants and then you have the wildlife also impacted because they don't have those plants anymore that are natural here. So there's many types of impacts that need to be looked at, also, to keep the wildlife healthy, the environment healthy. What are we going to do? You know these weeds, are we going to shut this place off or should we just not build a pipeline here?* (S92 2015)

> *[S92] The deer tastes different today than they did twenty years ago, thirty years ago. The meat was more so like, closer to a moose. A moose is really mild meat, its not like a gamey meat, you know, like you're saying, like a strong taste. The deer were more like that way back there. Today they're stronger, the deer, and I don't know what causes that … [S167] You know, what I'm thinking is they eat a lot of these … chemicals like ... from the wells, yes. I know in Del Rio here, some of the moose died because of that, cause that's what they eat, I've seen them eating it underneath, they're licking up that stuff. Right where the flare stacks are at. You know? ... Yes, the flare pits. And they, a lot of moose and a lot of people I talked to from Moberly too said they wouldn't even eat that meat there. [S92] And the clover, they've planted a lot of clover or all kinds of plants that are not a native species, you know, of the area ... No like here, like-- [S167] Like pipelines ... That's right [for reclamation], so I think the deer end up, the wildlife ends up feeding on that kind of vegetation. It acts*

up different on how they taste, their meat. It's not natural any more. (S92 and S167 2015)

5.3.1. Mitigations for forests and undergrowth

To counter the potential impacts of the Project on forests and accompanying effects, participants suggested that replanting activities be conducted by SFN members, with the use of native species, and the use of barriers along linear corridors.

Probably what we'll be pushing for, whoever is now doing the vegetation studies [for the Project], you know, to try and do replanting of the native species back on to the pipeline, that's why they have that, what do they call it, nursery thing in Moberly. Between West Moberly and Saulteau is for that kind of vegetation for ... replanting, yeah. (S92 2015)

Yes. One thing that I'd like to talk about is when the pipelines goes through there, I have already talked to a guy from ... from TransCanada. That I'd like to have, get work in there. Or put in machinery in there, or after he's done its me that's gonna do the seeding, things like that ... So [personal name] has a company already going. He has for many years, so. It's kinda not good for him to, you know, as a landholder. (S92 2015)

Well, line of sight is another one we have big concerns about because of that too, it's how do we do it and I know, there's ways that they're talking about, maybe, putting barriers and stuff when they put the pipelines or the linear corridors in. That they can put some type of barrier in. I realise that it is something that's hard for construction and stuff like that but you kind replant or do whatever afterwards. (X166 2015)

5.4. Cumulative impacts and broader concerns

Conversations with site visit participants frequently included the topic of existing and ongoing drivers of change and sources of impact in SFN's territory. Discussion of the Project was often set in the context of SFN members' awareness of cumulative impacts through time, and impacts that have already damaged SFN members' ability to practice and maintain their culture and rights such as through impacts on moose and other animals.

Right now the moose is in quite a big decline, because of too much developments, because of too much everything. Not only hunters hunt these moose, you know, where they kill them off its also the highways, the railroads, everything. We need to do a count and also to have a record of it, you know, to know what's happening for CN and the highways, and you know, how much are getting killed. You know, wildlife on roads like

> *moose, deer, elk. I think, maybe, if we start starting counting the moose that killed on the road we would, there is a chance that it'll be a higher count than one the hunters are killing, including the railroads.* (S92 2015)

> *When you used to go hunting, even ten years ago, you go on one given trip and you can find nine or ten moose quite easily. Now days you can spend all day and not even find a moose. And there's some things that are driving that. You know. But we've had a severe winter a few years ago that, a lot of the population died off because of starvation and ticks. And, it's not good, they need to recover somehow and if you can't control non-native hunting and things like that, they don't get a change to recover the way they need too.* (X166 2015)

> *That's right, they don't understand how important the land is to us. And so are the animals. You know, the moose is very minimal now; they're almost all gone. We don't see moose just like we used to see three every square mile, four or five every square mile. Sometimes you see six in one place! ... Not even a track [now]. You know it's, at least they should leave a track if they're going somewhere. But it's pretty hard. It's hard for First Nations people – to survive or to try to pass it on to the younger generations so they can make them really understand what is a moose to them.* (S18 2015)

> *One of the issues too for us is, is that animals lately, because of activity, more and more, are getting very nocturnal now. So it means they come out at night all the time. And you can get out early early in the morning and stay right out until just before dark and sometimes you might see them then. A lot of times they don't come out until after dark. So it's tough too because you can't go out in daylight hours and harvest an animal like because of activity. It's proven, everywhere that I hunt, you see it all the time, you won't see them out until its dark.* (X166 2015)

In addition to oil and gas operations in SFN territory, logging and power generation comprise major issues that have, and continue to, threaten members' way of life.

> *My biggest concern is the way that they're logging. Like lease here, clear-cut here; pipeline here, power line here, like it all takes a toll on everything. It's not just a pipeline it's all, everything combined. It's not, you know, like we've got to talk for everything that's going on now, not just this one that we're checking out, but it's the logging, the pipelines, the power lines and more and more and more and more and more leases and more smaller pipelines ... Oh there's always little projects going on here. I was just up the other road, there where we turned into, straight ahead to come into here, the other way there are leases going on. There's*

> *leases, like when we went today, they are, they've been capped but they're accessible. So there's thousands of them out here.* (S63 2015)

> *In an area like this too you know the other thing is that about being hunted out or whatever, I know it's a big concern of mine because of the gas wells and stuff like that, you know. They say, they say there's no effects from chemicals and stuff like that, and I know, personally myself, not too far from here, straight across from us, in the Del Rio area, there's a lot of gas wells, sour gas wells out there. And we've had moose that we've shot out there, that the liver, it's in really, really, rough shape, and like as aboriginal people, one of the first things we do is look at the liver, look at the organs. And you can tell if there's something wrong, if that animal's sick, if there's something wrong with it. And we've seen a lot of animals over the years in the Del Rio area, where the liver's been really, really, gross. So really, they're not even edible then because there's something wrong, they're sick. So, you know, that's the other thing about limiting certain types of activity and stuff like that is to help and try and protect these animals and give them a spot where they can still thrive and do ok.* (X166 2015)

Critically, participants stated that the Project was likely to induce development in the area by catalyzing projects like drilling, other pipelines, logging, and more, by utilizing the Project's infrastructure and land clearing efforts.

> *[Interviewer: So this little area … where the North Montley Mainline crosses the Peace Moberly Tract ... what's the importance of an area like that?] So see once they put that pipeline in there, they're going to open it up. And the next thing you know there will be leases all around that area. But isn't that area protected? It's supposed to be protected. You know, government does what they want to do. So eventually, once it's through, like, and plus they could directional drill, you know? So matter what, you're gonna have an impact.* (S63 2015)

> *And you know, there's going to be so many pipelines. The reason why they're opening this area is because that's the biggest pipeline so they're gonna by tying into this pipeline. So they're gonna be opening up this whole area. I think that's what they're up to. Because I'm a pipeliner and I know this stuff. I do. I know how this. But that's basically what they're gonna do. But this is, this is elk country. And moose. Lots of game in here* (S63 2015)

> *[S109] The animals, they use this for shelter too and once they open up the corridors. The more corridors the less shelter and the more the wolves and the humans get at them. Then they're doing a lot of poplar logging in*

> *here too, so they're clear-cutting. What's gonna be left by time they're done is the biggest concern really.* (S109 2015)

> *[S63] So stuff like this [liner corridors] just makes it harder for moose and elk and deer. [S109] And the logging on top of that, so now you've got the wind just a howling, in like, when they're in the bush, like this evening if its windy they could still hear but when its really blowing in the clear cuts they can't. The wind has got them muffled, and that's where they get it because the wolves and the grizzlies will sneak up on them. [S63] More pipelines, more logging. [S109] A few years down the road this will all be wiped out because the poplars, they're starting to cut poplars now again. At the mill. They just opened that mill not too long ago. Now they're probably going to come and cut all this out, that's what'll happen eventually. [S63] Sure it grows back but the pipelines and the power lines they're gonna put in, they're gonna keep them mulched down, till the power lines and the pipelines are gone. So it's always gonna be an open corridor and always gonna be a threat to the animals, that's their shelter. And eventually not gonna have nowhere to hide; they'll be on private property where there's still trees left.* (S63 and S109 2015)

6. Conclusion

6.1. Summary

For SFN, the area of the PMT and the broader region in which the NMM Project is proposed are critical places for the cultural continuity and identity of the community. Beyond the environmental features identified above that are at risk from the Project, the intangible connections SFN members too are at stake.

> *[S92] That's the first thing, that's the first thing an Indian will think. [S18] That's a sacred thing. [S92] It's like a, this place is like more so as a priority as a church to us. It's like that for us. And after that then its— [S18] It's our medicine. Right there too, we use that for medicine. The water ... [S92] You look at it as a church, as a spiritual place. And after that, if you don't look at yourself, and you're in the area as a spiritual place, as your church, then you can't function normal to understand the rest of the, you know, the rest of the life, life forms that are out there besides ourselves as human beings, life forms and how the Creator created all those things out there. You can't begin to function right unless you put your base as a religious belief, religious practice first, it's a church out here. That's how it is to be a real, you know, practicing way as a First Nations person, you know on your traditions and your culture. [S18] You know what the old people used to call this "the land of first people". You know if I really, really, believe in, I believe in what they have left for us. When they call this land the land of first people, I believe it a 100% because I live off it also. Now I've got to pass it on to our younger generation because that has to continue. Our way of live, they better find where we were because we still follow our ancestors' path, that's for everything. How we live off the land was what we taught that we cannot forget. And we use it.* (S18 and S92 2015)

> *Even the air is more fresh than in town or wherever. Here is always fresh. You feel good to be here ... You feel, you feel better than to be on a highway or anywhere else. You just feel perfect right here. Everything seems to be fresh. Yeah, it's a sad story to hear things that's coming through an area where – Wilderness, it's the only wilderness, nothing else. If this was only for pipelines I wouldn't care. But we live off the land, in this wilderness. We're wild people, we live off that bush. All our lives. You know like, we eat everything; we even eat the trees, the sap of the trees and birch water. We drink off of them. Everything you see out there. It's a pretty disgusting matter to hear a pipeline coming through an area where you don't want to see it coming through.* (S18 2015)

In light of SFN members' intergenerational knowledge and connection with the land, participants expressed keen interest for the SFN to be included and consulted throughout the Project to limit the extent of impacts.

> *I think we should be as a community level, especially people like us and [personal name] and whoever, you know, the elders, should a lot of say in where the pipeline's gonna go. That's all we can do because we're the ones that know, you know, the land, the most like the best because we've used it already in our day and age today we're the oldest. So we know these things a lot, better than the land areas than you know, the younger generation. Because that is the way it is, you know, when you're younger to older, you learn a lot more. So if we could have like the elders, have a say in where the pipeline should go, the government shouldn't just come along and say this is where we're gonna come and put a pipeline. There's nowhere, we don't want that. We want at least the elders to be fully involved and making decisions where the pipeline is gonna go through. Because we understand, like [personal name]'s saying too, how this land, we give this our benefits, you know, to survive. We understand that. But the people from wherever, you know, they're taking the oil to, and wherever they have their offices, all over the place in Calgary, they seem to come over here and tell us "this is the way it's going to be in your lifestyle from now on". And then they leave us out of the picture, out of the decisions, in order to really decide on how this land is going to be impacted. You know they try to go for minimal impacts but I'm sure if the elders got into it on those impacts there would be still more minimal impacts to be counted because we know the land, we know how it works, we don't sit in our offices in Calgary and never used the land at all to make decisions like that, you know, with minimal impact.* (S92 2015)

Based on the data collected in this on-the-ground Study, it is possible to state with a high degree of confidence that the Project area that overlaps the PMT is of great importance to SFN members.

It is important to note that a suite of cumulative impacts have already affected SFN members' abilities to carry out subsistence activities and maintain their culture. All Project interactions and potential for continued interactions will therefore exacerbate existing and increasing pressures on SFN members, further impeding their efforts to practice their rights.

6.2. Closure

Should you wish to discuss any aspect of the memorandum further, please do not hesitate to contact Naomi Owens (nowens@saulteau.com) or Rachel Olson.

Sincerely,
ORIGINAL SIGNED

Dr. Rachel Olson

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APPENDIX O

PMTPP COMMUNICATION LOG

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations Saulteau First Nations	Apr 22, 2015	E-mail (Sent)	Roland Willson, Clarence Willson, Laura Webb, Dean Dokkie, Lisa McArthur Nathan Parenteau, Naomi Owens, Teena Demeulemeester, Lana Garbitt, Nicole Garbitt	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Eric Mohun e-mailed Chief Roland Willson and Chief Nathen Parenteau to note that with the NEB's decision on the Project included conditions related to Aboriginal Consultation. Conditions 11 and 12 of the NEB report direct NGTL to continue to consult with WMFN & SFN on the section of the pipeline right-of-way that traverses the Peace Moberly Tract (approximately 8 km) and to develop a Peace Moberly Tract Protection Plan (PMTPP) and an associated PMTPP Consultation Plan. Eric Mohun requested to meet to discuss the consultation process with WMFN & SFN and agree on how they should proceed during the next couple of months in developing a PMTPP, as it relates to the construction of the Project.	Logistics & Planning, Wildlife & Wildlife Habitat, Regulatory Process & Permitting, Project Information
Saulteau First Nations	Apr 22, 2015	E-mail (Sent)	Nathan Parenteau, Nicole Garbitt	Eric Mohun (TransCanada), Donna Taylor (TransCanada)	Donna Taylor forwarded Eric Mohun's April 22, 2015 e-mail in regards to the drafting of the Peace Moberly Tract Protection Plan (PMTPP) to the correct e-mail address for Chief Nathan Parenteau and Nicole Garbitt.	Logistics & Planning, Wildlife & Wildlife Habitat, Regulatory Process & Permitting
Saulteau First Nations	Apr 23, 2015	E-mail (Received)	Lana Garbitt, Laura Murfitt, Naomi Owens, Nathan Parenteau, Nicole Garbitt, Teena Demeulemeester	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Naomi Owens replied to Eric Mohun's April 22, 2015 e-mail to note that SFN is currently reviewing the NEB's decision and will be in contact with NGTL once their review is complete.	Logistics & Planning
Saulteau First Nations	Apr 23, 2015	E-mail (Sent)	Mark Stevenson	Eric Mohun (TransCanada)	Eric Mohun forwarded the April 22, 2015 e-mail in regards to drafting the Peace Moberly Tract Protection Plan (PMTPP) to Mark Stevenson.	Logistics & Planning, Wildlife & Wildlife Habitat, Regulatory Process & Permitting
West Moberly First Nations	May 04, 2015	E-mail (Received)	Lisa McArthur, Roland Willson, Clarence Willson, Dean Dokkie, Laura Webb, Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Lisa McArthur replied to Eric Mohun's April 22, 2015 e-mail in regards to drafting the PMTPP. WMFN is including their lawyer in the drafting of the PMTPP. WMFN requested to schedule a meeting to discuss a timeframe and a schedule of meetings to draft the PMTPP. WMFN requested that a review of the information for the PMT and the Area of Critical Community Interest (ACCI) be tabled as an agenda item for the first meeting. Eric Mohun replied to the e-mail chain to request a meeting with WMFN later in the week to commence the discussion on the PMTPP. NGTL agrees that one of the agenda items would be to identify information that has already been collected within the PMT, as well as measures designed to address these known sites of concerns. This information will provide a common starting point for the continued consultation. NGTL requested WMFN's dates of availability. Also, as was discussed with Chief and Council in Vancouver, it may be beneficial to have Saulteau First Nations participate in this collaborative process from the outset. NGTL suggested that both NGTL and WMFN contact SFN to see if they're available to participate in the discussion.	Logistics & Planning, Regulatory Process & Permitting
West Moberly First Nations	May 04, 2015	E-mail (Received)	Clarence Willson, Lisa McArthur, Roland Willson, Dean Dokkie, Laura Webb, Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Clarence Willson replied to Eric Mohun's April 22, 2015 e-mail in regards to drafting the PMTPP. WMFN inquired about the planning processes that are being considered for the PMT and ACCI. WMFN inquired if the PMTPP will have different options to address for the planned BC Hydro Site C project; and will the recommendations of the Site C Joint Review Panel (JRP) be incorporated into the PMTPP.	Logistics & Planning, Regulatory Process & Permitting
West Moberly First Nations	May 06, 2015	E-mail (Sent)	Lisa McArthur, Roland Willson, Clarence Willson, Dean Dokkie, Laura Webb	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Eric Mohun e-mailed Lisa McArthur a PDF copy of the PMTPP Consultation Plan that was filed with the NEB on May 6, 2015. Eric Mohun noted that he notified Saulteau First Nations in regards to WMFN and NGTL's interest to meet to ensure collaboration among all parties.	Logistics & Planning, Regulatory Process & Permitting

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations	May 06, 2015	E-mail (Sent)	Naomi Owens, Nathan Parenteau, Teena Demeulemeester, Lana Garbitt, Nicole Garbitt, Laura Murfitt	Eric Mohun (TransCanada) Shelly Cairns (TransCanada)	Eric Mohun e-mailed Naomi Owens in follow up to the April 22, 2015 NGTL's request to meet with SFN to discuss the NEB's report and the direction given for NGTL and SFN to draft a PMTPP. NGTL provided a PDF copy of the PMTPP Consultation Plan that was filed with the NEB.Eric Mohun requested to schedule a meeting within the next week to discuss the PMTPP and begin consultation with SFN towards drafting the PMTPP. Eric Mohun noted that West Moberly First Nations (WMFN) has agreed to a joint meeting between NGTL, SFN, and WMFN.	Logistics & Planning, Regulatory Process & Permitting
West Moberly First Nations	May 07, 2015	E-mail (Sent)	Clarence Willson, Lisa McArthur, Roland Willson, Dean Dokkie, Laura Webb, Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Blaine Trout (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun replied to Clarence Willson's May 4, 2015 questions in regards to the PMTPP and incorporating the BC Hydro Site C findings. Eric Mohun noted that the Project's current plans have been developed considering input from various stakeholders including BC Hydro. The current Project plans have been developed to accommodate the potential development of BC Hydro's Site C Project; any recommendations from the Site C JRP would not likely impact the Project. NGTL acknowledges that the PMTPP may be influenced by any BC Hydro Site C decisions.	Logistics & Planning, Regulatory Process & Permitting
West Moberly First Nations	May 07, 2015	E-mail (Received)	Lisa McArthur, Roland Willson, Clarence Willson, Dean Dokkie, Laura Webb	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Lisa McArthur replied to Eric Mohun's May 6, 2015 e-mail notification about the filed PMTPP Consultation Plan. Lisa McArthur stated her dislike that NGTL would file a plan without WMFN's input then request participation and feedback. Any protection plans that are for the ACCI and PMT should be written with the First Nations. This will be tabled as a discussion item at their first meeting. Eric Mohun replied to the e-mail to clarify that the document filed the previous day with the NEB was the Consultation Plan. The Consultation Plan is a document that describes, in general, a consultation process as directed by the NEB in Condition 12. NGTL intends to consult with WMFN on the process and collaborate on the activities that will occur towards the drafting of a PMTPP, in collaboration with First Nations and government. NGTL looks forward to hearing from WMFN with respect to the meeting logistics, as previously requested.	Logistics & Planning, Regulatory Process & Permitting
Saulteau First Nations	May 12, 2015	Face to face	Nathan Parenteau, Gil Davis	Eric Mohun (TransCanada)	Eric Mohun paid an unannounced visit to SFN's band office and was able to briefly speak with Chief Nathan Parenteau and Gill Davis. The basis of the discussion was around the importance of training. Chief Parenteau was interested in NGTL providing training to their members, SFN shared examples of how existing industry offered programs aren't working for SFN. SFN expressed interest on a "Green Hat" program where trainees would receive hands-on experience during construction. Eric Mohun attempted to schedule a meeting to discuss the consultation for the PMT; no meeting was scheduled at this time.	Training & Employment, Logistics & Planning
West Moberly First Nations	May 14, 2015	E-mail (Sent)	Lisa McArthur, Roland Willson	Eric Mohun (TransCanada)	Eric Mohun e-mailed Lisa McArthur (with Chief Roland Willson cc'd) to request a meeting with WMFN to discuss the PMT protection plan.	Logistics & Planning
West Moberly First Nations	May 19, 2015	E-mail (Received)	Lisa McArthur, Roland Willson	Eric Mohun (TransCanada)	Lisa McArthur replied to Eric Mohun's May 14, 2015 e-mail to provide a different e-mail address. Lisa McArthur noted that she will phone Eric Mohun later that day. Eric Mohun replied to the e-mail chain to provide a contact number.	Logistics & Planning
West Moberly First Nations	May 21, 2015	E-mail (Sent)	Lisa McArthur	Eric Mohun (TransCanada)	Eric Mohun replied to the May 19, 2015 e-mail chain between WMFN and NGTL. Eric Mohun requested that Lisa McArthur call him to discuss the consultation process for the PMT Protection Plan and WMFN's availability to meet with NGTL.	Logistics & Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations West Moberly First Nations	May 25, 2015	E-mail (Sent)	Nathan Parenteau, Lana Garbitt, Teena Demeulemeester, Nicole Garbitt, Laura Murfitt, Naomi Owens Roland Willson, Clarence Willson, Dean Dokkie, Laura Webb, Theresa Davis, Lisa McArthur	Shelly Cairns (TransCanada)	Shelly Cairns e-mailed Chief Nathan Parenteau and Chief Roland Willson (with additional leadership from both communities cc'd) a PDF letter addressed to SFN and WMFN in regards for the urgent need to engage on developing the PMTPP.NGTL's letter noted the following:-NGTL's attempt to engage with SFN and WMFN since the release of the NEB Report on April 17, 2015-Planning phase discussions that need to be scheduled (funding for resources, PMT site visit, reclamation)-Construction mitigation measures that need to be discussed further (reduced RoW clearing, horizontal bore, and access management)-Post-construction options that need to be discussed further (vegetation reclamation and RoW monitoring)-Timeline and schedule constraints that stress the urgency to complete the PMTPP discussions.	Training & Employment, Logistics & Planning, Construction Methods & Timing, Capacity Funding, Restoration and Reclamation, Project Information
West Moberly First Nations	May 27, 2015	Meeting	Clarence Willson, Dean Dokkie, Jim Webb	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Robert Kendel (TransCanada), Inya Mitrovic (TransCanada), Eric Denhoff (TransCanada)	NGTL met with WMFN to discuss multiple projects and agreements. In regards to the Project the following was discussed: • Election for WMFN's Chief is on July 15, 2015. • Councillor Tim Davis replaced Councillor Kyle Brown. • WMFN's continued opposition to development within the PMT. • WMFN's concern with the Project opening the door for future development in the PMT. • WMFN expressed interest in having the Project complete a "pre-assessment" with Elders, trappers, hunters, and gatherers with NGTL representatives. WMFN had a positive experience with a previous NGTL project • NGTL corrected WMFN's understanding of the PMT Consultation Plan that was filed with the NEB. The purpose of this meeting is to start the engagement for the development of the PMT Protection Plan. • NGTL raised the opportunity for the Twin Sisters Nursery (owned and operated by WMFN and SFN) to play a role in the reclamation on the Project RoW as part of the PMTPP and NEB condition. • NGTL stated that there are financial resources available to assist WMFN. NGTL requested that WMFN and NGTL develop a Joint Working Group (JWG). WMFN will follow up with Council on June 2, 2015; NGTL can follow up with WMFN on the status of the development of a JWG.WMFN agreed to conduct a follow-up meeting with NGTL after their next Council meeting on June 2, 2015.	Aboriginal Agreements & Protocols, Logistics & Planning, Aboriginal Hunting, Trapping & Fishing, Aboriginal Sacred & Cultural Sites, Facilities & Pipeline Routing, Capacity Funding, Restoration and Reclamation
West Moberly First Nations	Jun 02, 2015	E-mail (Sent)	Clarence Willson	Eric Mohun (TransCanada)	Eric Mohun e-mailed Clarence Willson to confirm that the upcoming meeting will discuss the Project and WMFN's proposal of a pre-assessment survey of the PMT as well as any outstanding items of concern or interest to WMFN. Clarence Willson replied to the e-mail to note that it was his understanding that the pre-assessment was suggesting a pre-assessment of another project route. Eric Mohun replied to the e-mail chain to note that in the previous meeting the discussion was in consideration of the NEB's approval condition to develop a Protection Plan for the PMT in consultation with both WMFN and Saulteau First Nations.	Logistics & Planning
West Moberly First Nations	Jun 02, 2015	Meeting	Clarence Willson, Dean Dokkie, Jim Webb, Laura Webb, Roland Willson	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Robert Kendel (TransCanada)	NGTL met with WMFN Chief and Council to continue Project and Community Agreement negotiations. WMFN raised concern for the scheduling for filing informaton related to the PMTPP Conditions and suggested asking the NEB for an additional 30 days to prepare the Consultation Plan. A site visit was also discussed as a possible consultation measure and WMFN would get back to NGTL.	Aboriginal Agreements & Protocols

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations	Jun 03, 2015	Email (Received)	Naomi Owens, Carmen Marshall, Nathan Parenteau, Lana Garbitt, Teena Demeulemeester, Nicole Garbitt, Laura Murfitt, Kari Reilander	Shelly Cairns (TransCanada)	Shelly Cairns received a letter from SFN regarding the NEB Condition 10 and 11 and stated the Nations their interests in the PMT and stated that the earliest that a meeting could occur was July 7, 2015.	Logistics and Planning
Saulteau First Nations West Moberly First Nations	Jun 11, 2015	E-mail (Sent)	Naomi Owens, Nathan Parenteau, Teena Demeulemeester, Lana Garbitt, Laura Murfitt, Nicole Garbitt Roland Willson, Clarence Willson, Dean Dokkie, Laura Webb, Tim Davis, Lisa McArthur	Eric Mohun (TransCanada) Shelly Cairns (TransCanada)	Shelly Cairns emailed Naomi Owens a letter of response to SFN's letter of June 3, 2015 to NGTL regarding Condition 11 and 12 and SFN's letter of May 22, 2015 to the NEB regarding Condition 12.	Project Information
Saulteau First Nations West Moberly First Nations	Jun 12, 2015	E-mail (Sent)	Naomi Owens, Nathan Parenteau, Teena Demeulemeester, Lana Garbitt, Laura Murfitt, Nicole Garbitt Roland Willson, Clarence Willson, Dean Dokkie, Laura Webb, Tim Davis, Lisa McArthur	Shelly Cairns (TransCanada)	Shelly Cairns e-mailed Naomi Owens a PDF map of the proposed horizontal bore locations within the Peace Moberly Tract. Shelly Cairns noted that the locations are approximate and are not field verified at this point. Materials provided: 121511126_0224_PMT_Approx_Bore_20150612_small (3).pdf	Project Information
West Moberly First Nations	Jun 22, 2015	E-mail (Sent)	Clarence Willson, Dean Dokkie, Jim Webb, Laura Webb, Roland Willson, Tim Davis	Shelly Cairns (TransCanada)	Shelly Cairns e-mailed WMFN in regards to NGTL requesting an extension of the PMTPP filing date. It was noted in the June 2, 2015 meeting that WMFN may support a request to the NEB to extend the deadline for the submission of the PMTPP from 60 days prior to construction within the PMT to 30 days prior to construction within the PMT. Shelly Cairns noted that NGTL is prepared to request for this extension and NGTL is requesting WMFN's confirmation that WMFN is still in favor of this request.	Project Notification, Logistics & Planning
Saulteau First Nations	Jun 25, 2015	Telephone (Made)	Angie Grant	Eric Mohun (TransCanada)	Eric Mohun called Angie Grant to request a meeting with SFN Chief and Council and Lands. Angie Grant will inquire about this meeting SFN's governance.	Logistics & Planning
Saulteau First Nations	Jun 25, 2015	E-mail (Sent)	Naomi Owens	Eric Mohun (TransCanada)	Eric Mohun e-mailed Naomi Owens to note that he spoke with Angie Grant about a possible meeting scheduled for July 7, 2015 with Chief and Council and Lands as mentioned in SFN's letter addressed to NGTL. Eric Mohun requested Naomi Owens' confirmation on the proposed meeting.	Logistics & Planning
Saulteau First Nations	Jun 27, 2015	E-mail (Received)	Naomi Owens	Eric Mohun (TransCanada)	Naomi Owens replied to Eric Mohun's July 25, 2015 meeting request. Naomi Owens confirmed that the meeting is scheduled for July 7, 2015. Further meeting logistics are to be determined.	Logistics & Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations	Jun 29, 2015	E-mail (Received)	Angie Grant	Eric Mohun (TransCanada)	Angie Grant e-mailed Eric Mohun in response to the June 25, 2015 request to meet with SFN Chief & Council and Lands. Angie Grant confirmed that July 7, 2015 is still available for NGTL to meet with SFN.	Logistics & Planning
West Moberly First Nations Saulteau First Nations	Jul 06, 2015	E-mail (Sent)	Lisa McArthur, Clarence Willson, Dean Dokkie, Tim Davis, Laura Webb Naomi Owens	Eric Mohun (TransCanada)	Eric Mohun e-mailed the proposed agenda in preparation for the July 7, 2015 SFN and WFM meeting. Eric Mohun provided a list of NGTL attendees and the proposed agenda.	Logistics & Planning
West Moberly First Nations Saulteau First Nations	Jul 06, 2015	E-mail (Sent)	Lisa McArthur, Roland Willson, Clarence Willson, Dean Dokkie, Tim Davis, Laura Webb Naomi Owens	Eric Mohun (TransCanada)	Eric Mohun e-mailed WMFN & SFN the Project PMTPP PowerPoint presentation in preparation for the July 7, 2015 meeting.	Logistics & Planning, Project Information
Saulteau First Nations West Moberly First Nations	Jul 07, 2015	Meeting	Nathan Parenteau, Naomi Owens, Fernie Garbitt, Jesse McCormick, Roland Willson, Lisa McArthur, Jim Webb, Tim Davis, Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Blaine Trout (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada), Anthony Chan (TransCanada), Charles MacMichael (Stantec)	NGTL met with SFN and WMFN to discuss the PMTPP. The following was discussed during the meeting: • NGTL brought forward the request for relief from 60 days prior to construction to 30 days for the PMTPP • SFN and WMFN's capacity for review and timelines • NGTL presented an overview of potential mitigation and offsetting measures for the PMTPP • Trenchless mitigation options and limitations were outlined with a commitment to provide more information • Access control was discussed as a concern and the intent to collaborate to find workable solutions was brought forward • SFN and WMFN recommended being more inclusive of cultural values in the PMTPP • Timing of construction • NGTL to prepare a draft PMTPP for SFN and WMFN review and comment	Aboriginal Sacred & Cultural Sites, Wildlife & Wildlife Habitat, Construction Methods & Timing, Project Information
West Moberly First Nations Saulteau First Nations	Jul 13, 2015	E-mail (Sent)	Naomi Owens, Jesse McCormick, Nathan Parenteau Lisa McArthur, Tim Thielmann, Roland Willson	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada), Patricia Zuczek (TransCanada), Charles Macmichael (Stantec) Nancy Porter (TransCanada)	Eric Mohun e-mailed SFN and WMFN a list action items identified from the July 7, 2015 meeting.	Logistics & Planning, Project Information

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations Saulteau First Nations	Jul 17, 2015	E-mail (Sent)	Lisa McArthur, Tim Thielmann, Roland Willson Naomi Owens, Jesse McCormick, Nathan Parenteau	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun e-mailed SFN and WMFN in regards to the PMTPP. NGTL provided the action items that were a result of the July 7, 2015 meeting. NGTL noted that NGTL will collaboratively draft a proposed schedule for consultation activities based on the framework from the PMTPP Consultation Plan with Lisa McArthur. The proposed schedule will then be provided for review and approval by all three parties. Eric Mohun followed up with additional e-mails with attachments to complete NGTL's deliverables. Materials provide: 1c WMFN PMT Mitigation Response.docx 1c SFN PMT Mitigation Response.docx 6a Reclamation Measures for PMT Access Roads.docx 6b Condition 15 CHRP.pdf 7 Intervenor IR Responses - Hunting Restrictions.pdf 8 EPP Appendix 1e Contingency Plans.pdf	Project Information
West Moberly First Nations	Jul 20, 2015	E-mail (Sent)	Lisa McArthur	Eric Mohun (TransCanada)	Due to the size restrictions Eric Mohun e-mailed Lisa McArthur the Environmental Alignment Sheets as a PDF document, because the original format was too large of a file for WMFN to receive.Materials provided:1ad Environmental Alignment Sheets v4_DRAFT_PMT.pdf	Logistics & Planning, Project Information
West Moberly First Nations Saulteau First Nations	Jul 20, 2015	E-mail (Sent)	Lisa McArthur, Tim Thielmann Naomi Owens, Maya Duvage	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun e-mailed SFN and WMFN the draft PMTPP work plan for review and comment, prior to confirming a meeting. Eric Mohun then followed up with a meeting invite for July 23, 2015. Materials provided: Shelly's Comments - DRAFT WORKPLAN - Saulteau Consultation Activities for Peace Moberly Tract Protection Plan_syc.docx Shelly's Comments - DRAFT WORKPLAN - West Moberly Consultation Activities for Peace Moberly Tract Protection Plan_syc.docx	Aboriginal Agreements & Protocols
West Moberly First Nations	Jul 20, 2015	E-mail (Sent)	Lisa McArthur, Tim Thielmann	Eric Mohun (TransCanada)	Eric Mohun e-mailed Lisa McArthur the water course documents that failed to deliver the previous Friday, due to their size. Materials provided: 1ad Environmental Alignment Sheets v4_DRAFT_PMT.pdf 1b Condition 16 Access Management Plan.pdf 1_generic_trenchless.pdf 2_generic_trenchless.pdf 3_generic_dam_and_pump_1.pdf 4_generic_dam_and_pump_2.pdf 5_generic_dam_and_pump_3.pdf 6_generic_opencut_1.pdf 7_generic_opencut_2.pdf	Project Information
West Moberly First Nations	Jul 22, 2015	Telephone (Made)	Lisa McArthur	Eric Mohun (TransCanada)	Eric Mohun called Lisa McArthur to confirm the meeting scheduled for Thursday, July 23, 2015 to review the draft PMTPP work plan. Lisa McArthur stated that WMFN would prefer to hold this meeting with SFN so that there is collaboration with SFN on the draft work plan. Eric Mohun agreed, but noted that SFN is unavailable and suggested to postpone the meeting until the following Monday/Tuesday. Lisa McArthur stated that she would contact SFN to confirm their availability for Monday, July 27, 2015.	Logistics & Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations West Moberly First Nations	Jul 27, 2015	E-mail (Received)	Jesse McCormick Tim Thielmann, Lisa McArthur	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Jesse McCormick (legal counsel to SFN) e-mailed Eric Mohun to note that SFN has reviewed the NEB's decision granting NGTL's request to file the PMTPP at least 30 days prior to commencing construction in the PMT (instead of 60 days prior). SFN provided comments in response to the draft work plan. SFN stated that they are in the process of reviewing the materials provided by NGTL following the July 7, 2015 meeting; SFN will provide a response to those materials shortly. SFN requested NGTL provide a copy of the feasibility study completed for the Moberly River crossing. Eric Mohun replied to the e-mail with a PDF copy of the Project feasibility study for the Moberly River crossing (to cover one of SFN's requests right away). Materials provided: NMML Feasibility Moberly River RevB.pdf	Aboriginal Agreements & Protocols, Project Information
West Moberly First Nations	Jul 29, 2015	E-mail (Received)	Tim Thielmann, Bruce Muir, Jim Webb	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada)	Tim Thielmann e-mailed Eric Mohun WMFN's revisions to the draft Project PMTPP work plan.	Aboriginal Agreements & Protocols
West Moberly First Nations	Jul 30, 2015	E-mail (Sent)	Jim Webb, Sara Knappe, Tim Thielmann, Bruce Muir	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun replied to Tim Thielmann's July 29, 2015 e-mail. Eric Mohun noted that NGTL is in agreement to most of WMFN's proposed revisions. A copy of the Project PMTPP work plan was provided back to WMFN with comments and track changes. Eric Mohun proposed a meeting with WMFN, SFN, NGTL and the BC OGC.	Aboriginal Agreements & Protocols, Logistics & Planning
West Moberly First Nations	Jul 31, 2015	E-mail (Received)	Tim Thielmann, Bruce Muir, Lisa McArthur, Jim Webb, Sara Knappe	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Tim Thielmann replied to Eric Mohun's July 30, 2015 e-mail in regards to the Project PMTPP work plan. WMFN accepted some of NGTL's proposed changes and clarified some of WMFN's previous comments.WMFN requested alternative dates to meet to discuss the PMTPP between NGTL, WMFN, SFN, and BC OGC.	Aboriginal Agreements & Protocols, Logistics & Planning
West Moberly First Nations	Aug 10, 2015	E-mail (Received)	Tim Thielmann	Eric Mohun (TransCanada)	Tim Thielmann e-mailed Eric Mohun to propose a new time for the meeting. Eric Mohun replied to confirm the new meeting time for the following day.	Logistics & Planning
Saulteau First Nations	Aug 10, 2015	Meeting	Lana Garbitt, Mark Stevenson, Nathan Parenteau	Shelly Cairns (TransCanada), Robert Kendel (TransCanada), Inya Mitrovic (TransCanada), Eric Denhoff (TransCanada)	NGTL met with SFN to discuss various projects. In regards to the Project, Shelly Cairns provided an update on where NGTL and SFN are at with the PMT discussions. Shelly Cairns noted that the Project wants input from SFN and WMFN to identify additional mitigation that the Project can provide. NGTL noted that the construction start date has changed to November 2015 in order for the Project to identify additional mitigation measures and the filing date for the PMTPP is now October 7, 2015.	Project Information
West Moberly First Nations	Aug 11, 2015	Conference Call	Tim Thielmann, Jim Webb	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada)	NGTL and WMFN met via conference call to discuss the Project PMTPP work plan. Tim Thielmann confirmed Lisa McArthur's resignation from WMFN's Lands department. In regards to WMFN's discussions for the PMTPP, Tim Thielmann, Jim Webb, and Bruce Muir will continue to be WMFN's representation.	Aboriginal Agreements & Protocols
Saulteau First Nations West Moberly First Nations	Aug 13, 2015	E-mail (Sent)	Jesse McCormick, Naomi Owens, Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada), Patricia Zuczek (TransCanada)	Jesse McCormick e-mailed Eric Mohun on behalf of SFN to propose a meeting between NGTL and SFN to discuss the PMTPP on September 4, 2015. SFN noted that they are waiting on confirmation from WMFN's availability.	Logistics & Planning
Saulteau First Nations	Aug 14, 2015	E-mail (Received)	Jesse McCormick, Naomi Owens, James Hickling	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada)	Jesse McCormick e-mailed Eric Mohun to follow up on the July 7, 2015 discussions in regards to NGTL providing SFN with capacity funding with a Project LOA and work plan. Jesse McCormick provided some insight as to the details of the agreements. Jesse McCormick noted that any draft agreements that NGTL can provide in regards to protecting the confidentiality of sensitive TLU study information would be appreciated.	Aboriginal Agreements & Protocols, Logistics & Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations	Aug 15, 2015	E-mail (Sent)	Tim Thielmann, Lisa McArthur, Bruce Muir, Jim Webb, Sara Knappe	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun replied to Tim Thielmann's July 31, 2015 e-mail. Eric Mohun provided the updated revisions to the Project PMTPP work plan as discussed.	Aboriginal Agreements & Protocols
Saulteau First Nations	Aug 17, 2015	E-mail (Sent)	Jesse McCormick, Naomi Owens, James Hickling, Nathan Parenteau, Lana Garbitt	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun replied to Jesse McCormick's August 14, 2015 e-mail. Eric Mohun provided a draft LOA and draft work plan in regards to the Project. Eric Mohun noted that the work plan was sent previously to SFN for review and comment on July 20, 2015. In regards to confidentiality, Eric Mohun noted that agreements have been executed between NGTL's consultants and SFN for gathering TLU and TEK information.	Aboriginal Agreements & Protocols
Saulteau First Nations	Aug 19, 2015	E-mail (Sent)	Jesse McCormick	Eric Mohun (TransCanada)	Eric Mohun e-mailed Jesse McCormick the construction schedule, as requested by SFN. Jesse McCormick replied to the e-mail to acknowledge receipt of the construction schedule. Materials provided: 20150717 - PMT Prelim Construction Schedule.pdf	Project Information
Saulteau First Nations	Aug 19, 2015	E-mail (Received)	Jesse McCormick, Naomi Owens	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada)	Jesse McCormick and Eric Mohun exchanged e-mails on August 19, 20, and 21 to confirm the logistics for a meeting scheduled on September 3, 2015. NGTL, SFN, and WMFN confirmed to meet to discuss the PMTPP.	Logistics & Planning
West Moberly First Nations Saulteau First Nations	Aug 20, 2015	Email (Sent)	Roland Willson, Jim Webb, Tim Theilmann, Dean Dokkie, Tim Davis, Bruce Muir Naomi Owens Nathan Parenteau Lana Garbitt Jesse McCormick	Shelly Cairns (TransCanada)	Shelly Cairns sent WMFN and SFN a copy of the draft PMTPP for review and comment. Shelly Cairns stated that she hopes they can work together to prepare the final PMTPP in collaboration with both SFN and WMFN. Shelly Cairns said that NGTL is open to comments and/or feedback on how to present the information required under NEB Condition 11. NGTL welcomes comments prior to our next meeting, scheduled for September 3, 2015; if possible, otherwise they will be discussed at the meeting at SFN on September 3, 2015. Shelly Cairns reminded WMFN that the target filing date for the PMTPP is October 7, 2015 and attention to the matter is greatly appreciated. WMFN was directed to address any questions or comments to Eric Mohun and/or Shelly Cairns.	Project Information
West Moberly First Nations	Aug 31, 2015	E-mail (Sent)	Tim Thielmann, Laura Webb, Jim Webb, Lisa McArthur	Eric Mohun (TransCanada), Patricia Zuczek (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun e-mailed Tim Thielmann the shape file that contains all the Project and environmental features. A concordance table was provided that shows if the project or environmental feature can be found within the PMT or not. Materials provided: PMT_SHP.ZIP eas_v4_PMT.pdf MW_PLROUTE.kmz	Project Information
West Moberly First Nations Saulteau First Nations	Aug 31, 2015	E-mail (Sent)	Tim Thielmann, Lisa McArthur, Laura Webb, Jim Webb Jesse McCormick	Eric Mohun (TransCanada)	Eric Mohun e-mailed Jesse McCormick and Tim Thielmann to confirm the September 3, 2015 meeting. Eric Mohun provided the proposed agenda items and requested SFN and WMFN provide any additional agenda items prior to the meeting.	Logistics & Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations Saulteau First Nations	Sep 01, 2015	E-mail (Received)	Tim Thielmann, Lisa McArthur Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Jesse McCormick replied to Eric Mohun's August 31, 2015 e-mail. SFN intends to provide comments on the proposed mitigation measures and the content of the draft PMTPP. SFN will also propose additional mitigation measures and content for inclusion in the PMTPP. Jesse McCormick also provided a list of questions from both SFN and WMFN in relation to the PMTPP. Eric Mohun replied the following day to the e-mail. Eric Mohun noted that NGTL will be prepared with responses to the provided questions at the meeting. A list of NGTL attendees was provided for SFN and WMFN's information.	Logistics & Planning, Project Information
Saulteau First Nations	Sep 01, 2015	E-mail (Sent)	Jesse McCormick, Naomi Owens, Donovan Cameron	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun e-mailed Jesse McCormick (as requested) the shape file that contains all the Project and environmental features. A concordance table was provided that shows if the project or environmental feature can be found within the PMT or not. Jesse McCormick replied to the e-mail to acknowledge receipt of the shape file. Materials provided: PMT_SHP.ZIP eas_v4_PMT.pdf MW_PLROUTE.kmz	Project Information
West Moberly First Nations Saulteau First Nations	Sep 02, 2015	E-mail (Sent)	Lisa McArthur, Tim Thielmann, Jim Webb, Laura Webb Jesse McCormick, Naomi Owens	Eric Mohun (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun replied to the e-mail chain between himself, SFN, and WMFN. Eric Mohun provided responses to the questions provided to NGTL on September 1, 2015. NGTL's responses will be discussed on the September 3, 2015 meeting.	Logistics & Planning
West Moberly First Nations Saulteau First Nations	Sep 03, 2015	Meeting	Jim Webb, Tim Thielmann, Bruce Muir, Mark d'Entremont, Jesse McCormick, Naomi Owens, Sheri Gutsell,	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Ian Somers (TransCanada), Bob Hudson (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Anthony Chan (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec)	NGTL met with SFN and WMFN to discuss the PMTPP. The following was discussed at the meeting:- SFN and WMFN both expressed interest and intent to complete TLU ground truthing field work -SFN and WMFN will provide NGTL with biophysical and socio-economic elements for consideration of inclusion in the PMTPP -SFN and WMFN requested that NGTL draft an initial PMTPP based on available TLU data and the meeting discussion and not use the Draft Management Plan for the PMT or refer to ALR -SFN and WMFN gave NGTL permission to use the information in the TLU reports for the purpose of the PMTPP - NGTL to update the PMTPP with socio-cultural information based on the permission given above -Various comments were provided on the PMTPP from SFN and WMFN	Traditional Land Use, Aboriginal Sacred & Cultural Sites, Project Information
Saulteau First Nations	Sep 09, 2015	E-mail (Sent)	Naomi Owens	Eric Mohun (TransCanada)	Eric Mohun e-mailed Naomi Owens to follow up on the tentative September 18, 2015 PMTPP meeting date with SFN and WMFN.	Logistics & Planning
Saulteau First Nations West Moberly First Nations	Sep 10, 2015	E-mail (Sent)	Jesse McCormick, Naomi Owens, Donovan Cameron, Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Kevin Thrasher (TransCanada)	Eric Mohun e-mailed SFN and WMFN the Project information that was discussed during their previous meeting. The most recent maps showing the workspace required for the PMT bore locations and an example of the workspace required for a Horizontal Directional Drill (HDD) was provided. Two examples for the HDD were provided, one with a typical drill pad of 80m x 80m and a second example with a smaller drill pad of 60m x 60m which may or may not be achievable depending on site-specific conditions. Materials provided: 2015_09_01_NMML_PMT_BoreLocations_AitkenCreek_Mapbook_Rev6_11x17.pdf 2015_09_02_NMML_PMT_HDD_Locations_AitkenCreek_Mapbook_Rev2_11x17.pdf 2015_09_01_NMML_PMT_HDD_Locations_AitkenCreek_Mapbook_Rev1_11x17.pdf	Project Information

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations	Sep 10, 2015	E-mail (Sent)	Naomi Owens, Jesse McCormick	Eric Mohun (TransCanada), Patricia Zuczek (TransCanada), Charles MacMichael (Stantec)	Eric Mohun provided Naomi Owens with a few items NGTL would like to table for discussion. NGTL would like to work out the logistics regarding the PMT site visit, providing a qualified bear monitor, and providing the value components. NGTL noted that Stantec would like to receive a list of the value components by Friday, in order to continue to draft the PMTPP. Materials provided: PRGT004776-TC-SA-LI-0001_Wildlife_Checklist_R0.pdf PRGT004776-TC-SA-GL-0001_Wildlife_Monitor_Guidelines_R1.pdf	Logistics & Planning, Project Information
West Moberly First Nations	Sep 14, 2015	E-mail (Received)	Tim Thielmann, Sara Knappe, Jim Webb, Bruce Muir, Laura Webb, Roland Willson	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Tim Thielmann e-mailed Eric Mohun a signed copy of the LOA and BCR for the capacity funding to be provided for the PMTPP process. Eric Mohun replied to the e-mail to acknowledge receipt of the documents.	Aboriginal Agreements & Protocols
Saulteau First Nations West Moberly First Nations	Sep 15, 2015	Email (Sent)	Naomi Owens, Jesse McCormick Tim Thielmann	Eric Mohun (TransCanada), Patricia Zuczek (TransCanada), Donna Taylor (TransCanada)	Eric Mohun emailed Naomi Owens to confirm the details and NGTL attendees for September 18, 2015 meeting. Jesse McCormick responding to ask (1) whether a revised PMTPP would be provided in response to the WMFN and SFN meeting on September 4, 2015 prior to September 18, 2015 meeting and (2) whether NGTL will approach the NEB to request additional time for the development of PMTPP.	Logistics and Planning
Saulteau First Nations West Moberly First Nations	Sep 16, 2015	E-mail (Received)	Jesse McCormick,Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada), Charles MacMichael (Stantec)	Jesse McCormick e-mailed Eric Mohun to provide the two documents for discussion on the September 18, 2015 meeting. SFN noted that the draft moose contamination study is preliminary and subject to adjustment upon further review by additional biologists. These materials have been provided to WMFN and may be subject to refinement and adjustment to account for traditional land use values or additional input from WMFN.Materials provided:- EA3565 LGL REPORT North Montney PMTPP_14Sept2015.pdf-SFN_PMTPP_Moose Study Proposal.pdf	Logistics & Planning, Wildlife & Wildlife Habitat
West Moberly First Nations	Sep 16, 2015	E-mail (Received)	Tim Thielmann	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada)	Tim Thielmann e-mailed Eric Mohun to notify NGTL that WMFN is seeking advice from a pipeline engineering firm regarding feasible options to reduce access and disturbance in the PMT. WMFN requested any detailed alignment sheets not already provided and all geotechnical studies for portions of the line between and including the Moberly and Peace crossings.	Watercourse Crossing Methodologies, Logistics & Planning, Construction Methods & Timing
West Moberly First Nations	Sep 17, 2015	E-mail (Sent)	Tim Thielmann, Sara Knappe	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Kevin Thrasher (TransCanada)	Shelly Cairns replied to Tim Thielmann's September 16, 2015 request to note that Patricia Zuczek will provide the requested information.	Logistics & Planning
West Moberly First Nations Saulteau First Nations	Sep 17, 2015	Email (Sent)	Tim Thielmann, Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Kevin Thrasher (TransCanada)	Shelly Cairns sent a draft PMTPP to WMFN and SFN for review and comment, in preparation of the September 18, 2015 meeting.	Logistics and Planning
West Moberly First Nations	Sep 17, 2015	Email (Received)	Tim Thielmann, Sara Knappe, Jim Webb, Bruce Muir, Laura Webb, Roland Willson	Eric Mohun (TransCanada)	NGTL received a letter from WMFN addressed to FLNRO and MARR setting out WMFN proposals regarding avoidance and management of access related to the PMTPP.	Wildlife & Wildlife Habitat, Project Information
West Moberly First Nations	Sep 18, 2015	E-mail (Sent)	Tim Thielmann	Eric Mohun (TransCanada)	Eric Mohun e-mailed NGTL's attendee list for the September 18, 2015 meeting.	Logistics & Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations West Moberly First Nations	Sep 18, 2015	Meeting	Jesse McCormick, Naomi Owens, Donovan Cameron, Mark d'Entremont, Sheri Gutsell, Tim Thielmann	Eric Mohun (TransCanada), Ian Somers (TransCanada), Bob Hudson (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Anthony Chan (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec), Giles Stevenson (TransCanada)	NGTL met with SFN and WMFN to discuss the PMTPP. The following was discussed at the meeting: • WMFN indicated that they reached out to an engineering firm (Brierley Associates) to complete an analysis of trenchless options. The engineering report is pending but will not be ready by September 20. • The possibility of helicopter access in the PMT was discussed. NGTL discussed the logistical constraints around this option. • SFN gave an update on the ground truthing exercises. Naomi Owens suggested a preliminary report would be provided to NGTL the following week (September 21–25). • Recommendations in the technical reports from SFN and adopted by WMFN were discussed and reviewed. • Jesse McCormick stated that a NGTL and First Nations field visit to the PMT is still being considered. • Possible amendments to the Project contingency plans were discussed. • Logistics and timing of cultural ceremonies to occur in advance of construction. • Submission of documents to the government was discussed and NGTL committed to responding to WMFN's September 17, 2015 letter by September 25.	Construction Methods & Timing, Project Information
West Moberly First Nations	Sep 19, 2015	E-mail (Sent)	Tim Thielmann, Sara Knappe	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada)	Patricia Zuczek replied to Tim Thielmann's September 16, 2015 e-mail with the requested information. The survey plans were provided as attachments. The individual NEB website links to the following geotechnical reports was also provided: • Peace River HDD Feasibility Study (Preliminary Report (Appendix 7-8) and Final Report) • North Montney Geologic Hazards Assessment Phase I • North Montney Geologic Hazards Assessment Phase II • Hydrotechnical Assessment (Aitken Creek Section)	Project Information
West Moberly First Nations Saulteau First Nations	Sep 22, 2015	E-mail (Received)	Tim Thielmann Jesse McCormick	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada), Charles MacMichael (Stantec)	Jesse McCormick e-mailed Eric Mohun a written version of the changes to the Heritage Resource Discovery Contingency Plan that was proposed orally by SFN during the meeting on September 18, 2015.	Project Information
West Moberly First Nations Saulteau First Nations	Sep 25, 2015	E-mail (Sent)	Tim Thielmann, Marc d'Entremont, Bruce Muir, Laura Webb, Jim Webb Naomi Owens, Jesse McCormick	Eric Mohun (TransCanada)	Eric Mohun e-mailed SFN and WMFN an action item list associated with the PMTPP development process, from the September 18, 2015 meeting. Jesse McCormick replied to the e-mail to acknowledge receipt of the action items.	Logistics & Planning, Project Information
West Moberly First Nations	Sep 25, 2015	E-mail (Sent)	Tim Thielmann	Amira Omar (TransCanada), Sander Duncanson (TransCanada) Kevin Thrasher (TransCanada)	NGTL replied to WMFN's September 17, 2015 request for regulatory measures on access control.	Logistics & Planning, Project Information
West Moberly First Nations	Sep 29, 2015	E-mail (Sent)	Tim Thielmann	Eric Mohun (TransCanada), Patricia Zuczek (TransCanada)	Eric Mohun e-mailed Tim Thielmann a list of pipe specifications that was requested during the previous meeting. A .KMZ file and additional website links that provide additional imagery of the route through the PMT were provided. Materials provided: MW_PLROUTE.KMZ	Project Information

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations	Sep 29, 2015	Email (Sent)	Tim Thielmann	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	Sander Duncanson provided Stantec's responses to several of the items requested by LGL in a previous meeting. S. Duncanson proposed that SFN and WMFN consultants reach out directly to Stantec or the project team at NGTL for related information requests without the need to coordinate through counsel.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Sep 30, 2015	E-mail (Sent)	Tim Thielmann Jesse McCormick	Eric Mohun (TransCanada), Sander Duncanson (TransCanada)	Sander Duncanson e-mailed Jesse McCormick and Tim Thielmann the draft agenda in preparation for the October 1, 2015 conference call. Sander Duncanson also provided NGTL's response to the information requests sent by Tim Thielmann regarding trenchless crossings.	Logistics & Planning, Project Information
Saulteau First Nations West Moberly First Nations	Oct 01, 2015	Conference Call	Jesse McCormick, Mark d'Entremont, Fernie Garbitt Tim Thielmann, Jim Webb, Bruce Muir, Roland Willson	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Bob Hudson (TransCanada), Patricia Zuczek (TransCanada), Nancy Porter (TransCanada), Mikyla Zolpys (TransCanada), Sander Duncanson (TransCanada), Anthony Chan (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec), Giles Stevenson (TransCanada)	NGTL met with SFN and WMFN via conference call. The following was discussed: • a review and update of action items from previous meetings • the details of the fisher den box plan • the vegetation reclamation plan was discussed • the engagement with the Province and that NGTL sent the document to the Province for their review and comment SFN and WMFN further expressed concern with access control in the PMT. Bruce Muir described details of the TLU elements spread sheet that was sent to NGTL. SFN asked for further details regarding micro rerouting, which was provided by NGTL.	Wildlife & Wildlife Habitat, Project Information
Saulteau First Nations	Oct 07, 2015	E-mail (Sent)	Jesse McCormick, Naomi Owens	Eric Mohun (TransCanada), Shelly Cairns (TransCanada)	Shelly Cairns e-mailed Jesse McCormick the TEK Protocol Agreement and the ITR Agreement with reference to the confidentiality terms. Jesse McCormick replied to the e-mail to acknowledge receipt of the agreements.	Aboriginal Agreements & Protocols, Logistics & Planning
Saulteau First Nations West Moberly First Nations	Oct 09, 2015	Email (Received)	Jesse McCormick Tim Thielmann	Eric Mohun (TransCanada), Shelly Cairns (TransCanada) Kevin Thrasher (TransCanada)	SFN stated that NGTL committed to provide a copy of the draft version of the PMTPP that was shared with government departments. NGTL also committed to provide any comments received from government departments and an updated list of contacts within the government departments .SFN requested the NGTL advise when they will be provided the feedback from government, stating that It is their understanding that the Government departments were requested to provide their responses to NGTL by October 9, 2015. SFN requested that NGTL provide the list of action items from the meeting held on September 18, 2015, as agreed during the meeting.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Oct 09, 2015	Email (Sent)	Tim Thielmann Jesse McCormick Naomi Owens	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	Shelly Cairns sent WMFN and SFN a copy of the draft PMTPP, which was sent to Government agencies on September 25, 2015. Shelly Cairns said that NGTL had not received comments on the draft as of October 9, 2015, but will share the feedback when received.	Logistics and Planning
Saulteau First Nations West Moberly First Nations	Oct 09 2015	Email (Sent)	Jesse McCormick, Tim Thielmann	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	Shelly Cairns sent an email to SFN and cc'd WMFN with the following documents attached: 1) Summary of Action Items from PMTPP Meetings held on September 18th and October 1st 2) Table C-2: LGL Recommendations and NGTL Responses 3) Table C-1: PMTPP Comment Tracking Table and Comment Status 4) Draft Fisher Management Plan for the Peace Moberly Tract 5) Draft Vegetation Baseline and Reclamation Plan Shelly Cairns said she would confirm the updated list of government agencies as soon as possible.	Logistics and Planning, Wildlife & Wildlife Habitat, Project Information

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations	Oct 09 2015	Email (Sent)	Tim Thielmann	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	Shelly Cairns sent an email with the updated list of Government authorities consulted on the PMTPP, referring to Table 4-5 in the draft PMTPP, which had been sent to the Government agencies on September 25th and forwarded to WMFN earlier on October 9, 2015.	Logistics and Planning
West Moberly First Nations	Oct 10, 2015	Email (Sent)	Tim Thielmann	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	Shelly Cairns provided responses to several action items from the September 18 and October 1 meetings, including survey and geotechnical information.	Logistics and Planning
Saulteau First Nations	Oct 13, 2015	Email (Sent)	Jesse McCormick	Shelly Cairns (TransCanada)	Shelly Cairns sent SFN the list of SFN members that participated in the biophysical field studies on the Project.	Logistics and Planning
West Moberly First Nations	Oct 16, 2015	Email (Received)	Tim Thielmann	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	WMFN sent an email to NGTL providing a status update on the engineering report by Brierley Associates saying they are continuing to work on the report and they would like to communicate directly to technical personnel at NGTL or Stantec and requested contact information, which was provided by NGTL in a follow up email the same day.	Logistics and Planning
West Moberly First Nations	Oct 16, 2015	Email (Received)	Tim Thielmann, Sara Knappe, Jim Webb, Bruce Muir	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	WMFN requested that a word version of the PMTPP be provided so that they could more effectively track changes from previous versions. Also, WMFN inquired as to whether an updated version of the PMTPP would be available prior to the meeting on November 2, 2015.	Logistics and Planning
West Moberly First Nations	Oct 19, 2015	Email (Sent)	Tim Thielmann, Sara Knappe, Jim Webb, Bruce Muir	Shelly Cairns (TransCanada) Eric Mohun (TransCanada), Sander Duncanson (TransCanada) Patricia Zuczek (TransCanada) Kevin Thrasher (TransCanada)	Shelly Cairns provided a Word version of the draft PMTPP. Shelly Cairns advised that NGTL had not yet received feedback from the government agencies on the draft PMTPP. A revised draft will be provided before the November 2, 2015 meeting.	Logistics and Planning
Saulteau First Nations West Moberly First Nations	Oct 26, 2015	E-mail (Sent)	Jesse McCormick, Tim Thielmann	Eric Mohun (TransCanada)	Eric Mohun e-mailed Jesse McCormick and Tim Thielmann to inquire if SFN and WMFN would like to develop the agenda for the upcoming meeting. Eric Mohun noted that NGTL is planning to send out a revised draft PMTPP prior to the November 2, 2015 meeting for review.	Logistics & Planning
Saulteau First Nations West Moberly First Nations	Oct 28, 2015	E-mail (Received)	Jesse McCormick, Tim Thielmann	Eric Mohun (TransCanada), Sander Duncanson (TransCanada)	Jesse McCormick replied to Eric Mohun's October 26, 2015 e-mail to note that SFN will provide the contact for the November 2, 2015 meeting agenda. SFN requested NGTL provide the track changes and a clean copy of the revised draft PMTPP. SFN also requested NGTL's attendee list for the scheduled meeting.	Logistics & Planning
Saulteau First Nations West Moberly First Nations	Oct 29, 2015	E-mail (Sent)	Naomi Owens, Jesse McCormick Tim Thielmann, Jim Webb, Bruce Muir, Marc d'Entremont	Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Cindy Grieder (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada), Allison Grant (Stantec)	Eric Mohun replied to the e-mail chain between NGTL, SFN, and WMFN. Eric Mohun provided the draft PMTPP and a list of attendees for the November 2, 2015 meeting. Eric Mohun requested the attendee list from SFN and WMFN.	Logistics & Planning
West Moberly First Nations	Oct 29, 2015	Email (Received)	Tim Thielmann Jesse McCormick Sara Knappe	Eric Mohun (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada),	WMFN sent an email stating that they anticipate sharing a draft report on trenchless opportunities within the PMT, and proposals for a number of monitoring programs for discussion at the meeting on November 2, 2015 and request this be added to the agenda.	Logistics and Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations West Moberly First Nations	Oct 29, 2015	Email (Received)	Jesse McCormick, Tim Thielmann	Eric Mohun (TransCanada) Sander Duncanson (TransCanada)	Jesse McCormick provided NGTL with a list of SFN attendees for the November 2nd meeting.	Logistics and Planning
West Moberly First Nations	Oct 30, 2015	E-mail (Received)	Tim Thielmann, Jim Webb, Bruce Muir, Marc d'Entremont	Eric Mohun (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada)	Tim Thielmann replied to the e-mail chain between NGTL, SFN, and WMFN. Tim Thielmann provided WMFN's attendee list for the November 2 meeting and noted that WMFN is awaiting the revisions to the Brierley Associates report on the trenchless installations. Eric Mohun replied to the e-mail chain the following day to acknowledge receipt of WMFN's attendee list. Eric Mohun noted that the status of the Brierley Associates report can be discussed at the meeting and NGTL can determine if they can speak to any known issues or suggestions.	Logistics and Planning, Wildlife
Saulteau First Nations West Moberly First Nations	Oct 30, 2015	Email (Received)	Jesse McCormick, Naomi Owens, Fernie Garbitt, Tim Thielmann, Marc d'Entremont	Shelly Cairns (TransCanada), Eric Mohun (TransCanada) Kevin Thrasher (TransCanada), Charles MacMichael (Stantec)	SFN provided comments from LGL on mitigation measures proposed by NGTL. SFN added that they would like to further discuss the comments at the meeting on November 2, 2015, including NGTL's involvement in the implementation of fisher den boxes and the protection of ungulate winter range.	Logistics and Planning Wildlife & Wildlife Habitat
West Moberly First Nations Saulteau First Nations	Nov 01, 2015	Email (Received)	Tim Thielmann, Jim Webb, Bruce Muir, Jesse McCormick	Eric Mohun (TransCanada)	Bruce Muir sent NGTL a table describing an overview of follow-up monitoring programs for the PMTPP.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 02, 2015	Meeting	Tim Thielmann, Jim Webb, Bruce Muir, Caleb Behn, Naomi Owens, Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Bob Hudson (TransCanada), Patricia Zuczek (TransCanada), Nancy Porter (TransCanada), Sander Duncanson (TransCanada), Anthony Chan (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec), Giles Stevenson (TransCanada)	A meeting was held at WMFN administration building between SFN, WMFN and NGTL to discuss the draft PMTPP and related documents and activities. The schedule of the NEB filing of the PMTPP was discussed. SFN provided a status of the ground-truthing report. WMFN provided a high level summary of the engineering report on trenchless technology saying that it would completed within a week. The reclamation plan and monitoring was also discussed. The development and deployment of Fisher den boxes was discussed. The timelines for SFN and WMFN to provide comments on the final draft PMTPP were also discussed and agreed upon (November 24 for all aspects of the PMTPP except Appendix D, for which the deadline was November 27).	Logistics and Planning Trenchless Technology Monitoring Program
West Moberly First Nations	Nov 04, 2015	Email (Received)	Tim Thielmann, Jim Webb, Bruce Muir, Roland Willson, Jesse McCormick, Nick Strater	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada),	Email sent to NGTL saying that WMFN would like to propose a full day meeting in Vancouver on November 16th to discuss the trenchless installations report forthcoming next week from Brierley Associates and WMFN's Monitoring Program proposals sent to NGTL on November 2nd. Nick Strater has confirmed his availability to attend in person on that date, as has Bruce Muir (who was the lead in developing WMFN's Monitoring Program Proposals). WMFN requested that NGTL have relevant technical staff available for this proposed meeting, whether TransCanada's Vancouver office would be an available location, and if you have any comments on the proposed agenda. WMFN also inquired as to whether SFN is interested and available to attend this meeting or has any comments on the proposed agenda.	Logistics and Planning Trenchless Technology Monitoring Program
West Moberly First Nations	Nov 04, 2015	Email (Received)	Tim Thielmann, Bruce Muir Jesse McCormick	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada),	Tim Thielmann sent NGTL a map showing the same telemetry data for caribou provided earlier to TransCanada through a separate project (PRGT), but with the North Montney, and Spectra Energy's West Coast Connector project footprints added.	Logistics and Planning Wildlife & Wildlife Habitat

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations	Nov 05, 2015	Email (Received)	Tim Thielmann, Bruce Muir, Jim Webb, Calen Benn	Shawn Denstedt (Osler)	E-mail enclosing letter from Tim Thielmann to Shawn Denstedt in response to September 25, 2015 letter from Shawn Denstedt to provincial agencies regarding proposal by WMFN to restrict motor vehicle use within PMT. The letter outlines WMFN's objections to existing access management plans and requesting more comprehensive access management measures be implemented.	Wildlife & Wildlife Habitat, Project Information
Saulteau First Nations	Nov 06, 2015	Email (Received)	Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Sander Duncanson(TransCanada)	SFN emailed to say they will attend the meeting proposed by WMFN to discuss trenchless installation and monitoring proposals on November 16, 2015 in Vancouver. SFN would like to include on the agenda NGTL's response to the contingency plan changes requested by WMFN and SFN as there was insufficient time to address those points at the meeting on November 2, 2015.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 09, 2015	Email (Received)	Tim Thielmann, Jim Webb, Bruce Muir, Caleb Behn, Sara Knappe Roland Wilson Jesse McCormick	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada), Sander Duncanson (TransCanada)	Tim Thielmann sent an email with a link to the Brierley report on trenchless opportunities in the PMTPP and requesting confirmation of NGTL's attendance at the proposed meeting on November 16, 2015.	Logistics and Planning, Trenchless Technology
West Moberly First Nations Saulteau First Nations	Nov 10, 2015	Telephone (Made)	Tim Thielmann, Jesse McCormick	Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada)	In a discussion between counsel, NGTL informed SFN and WMFN that they believed the proposed meeting in Vancouver on November 16th to discuss trenchless options would be more efficient by way of a conference call. NGTL also suggested that WMFN's monitoring proposals would be addressed in the revised draft of the PMTPP and another meeting to discuss this issue may not be needed.	Logistics and Planning
Saulteau First Nations West Moberly First Nations	Nov 10, 2015	Email (Sent)	Jesse McCormick, Naomi Owens, Tim Thielmann, Caleb Behn Marc d'Entremont, Bruce Muir	Eric Mohun (TransCanada), Kevin Thrasher (TransCanada), Sander Duncanson (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec)	NGTL e-mailed WMFN and SFN the most recent draft PMTPP for review and comment. NGTL noted the following: • The PMTPP includes all appendices available to date. • The reclamation plan will be sent to the SFN and WMFN on Thursday. • NGTL is working on a reply to the October 21, 2015 LGL comments to the Fisher Den Box Plan • NGTL requested a Word document of LGL's Table 2 reply Materials provided: 20151110_rpt_pmtpp_draft.docx app_e_rpt_pmt_fisher_plan.docx	Logistics & Planning, Wildlife & Wildlife Habit, Project Information
West Moberly First Nations Saulteau First Nations	Nov 11, 2015	Email (Sent)	Tim Thielmann Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada), Charles MacMichael (Stantec)	NGTL sent a proposed agenda to SFN and WMFN for a conference call on November 16, 2015 regarding trenchless options and fisher den box suggestions.	Logistics and Planning
Saulteau First Nations	Nov 11, 2015	Email (Received)	Jesse McCormick	Eric Mohun (TransCanada) Shelly Cairns (TransCanada), Kevin Thrasher (TransCanada)	Jesse McCormick sent NGTL notes for discussion provided by Steve Graham, engineering consultant to SFN, for the meeting scheduled for November 16, 2015.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 13, 2015	Email (Sent)	Tim Thielmann, Jim Webb, Bruce Muir, Caleb Behn, Naomi Owens, Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Ian Somers (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec),	Eric Mohun sent WMFN and SFN the FTP site that contains the updated reclamation plan for the PMTPP.	Logistics and Planning

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations Saulteau First Nations	Nov 13, 2015	Email (Received)	Tim Thielmann, Jim Webb, Bruce Muir, Roland Willson, Jesse McCormick, Nick Strater	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Ian Somers (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Bob Hudson (TransCanada) Charles MacMichael (Stantec),	Tim Thielmann sent an email suggesting that for logistical reasons i.e., scheduling of attendees and proposed agenda, WMFN would like to reschedule the November 16 meeting to November 18, 2015. Tim Thielmann also raised concern that during the November 10 telephone discussion between counsel, NGTL said that they were unwilling to discuss the monitoring program as proposed by WMFN. Tim Thielmann said that he looks forward to a response concerning a video-conference on November 18, 2015 on the trenchless report, and the request that NGTL reconsider the decision not to discuss WMFN monitoring program proposals.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 16, 2015	Email (Sent)	Tim Thielmann, Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Ian Somers (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Bob Hudson (TransCanada) Charles MacMichael (Stantec),	NGTL sent an email to WMFN and SFN saying that they apologize about the scheduling issues for the meeting on November 16. In light of the concerns expressed by both communities, NGTL is willing to host an in-person meeting in TransCanada's Vancouver office on Wednesday, November 18th. NGTL proposes to spend half of the day discussing the trenchless crossing options, and allow time the rest of the day to discuss any additional substantive issues SFN or WMFN would like to cover (e.g., West Moberly's monitoring proposals, NGTL's response to the fisher den box requests).	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 16, 2015	Email (Sent)	Tim Thielmann, Caleb Behn Jesse McCormick	Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Cindy Grieder (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada), Allison Grant (Stantec)	Eric Mohun sent SFN and WMFN a copy of the finalized meeting minutes from the October 23, 2015 meeting between NGTL and FLNRO. Eric Mohun said that the minutes will be included in the final draft of the PMTPP, which will be submitted to the NEB.	Logistics and Planning
West Moberly First Nations	Nov 16, 2015	Email (Sent)	Tim Thielmann, Sara Knappe, Jim Webb, Bruce Muir, Laura Webb, Roland Willson Caleb Behn	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada), Charles MacMichael (Stantec)	Eric Mohun sent WMFN an email stating that he was looking into the Vancouver office's availability for video conferencing and/or WebEx for the November 18th meeting. Once confirmed, E. Mohun will communicate the call in number and logistics in an email to all parties, which will likely be done on November 17th.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 17, 2015	Email (Sent)	Tim Thielmann, Jim Webb, Bruce Muir, Caleb Behn, Naomi Owens, Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Ian Somers (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec),	NGTL sent an Outlook meeting invitation to SFN and WMFN for the meeting on November 18, including conference call numbers and Webex sign in information. An agenda was provided for the meeting.	Logistics and Planning
Saulteau First Nations	Nov 17, 2015	Email (Received)	Jesse McCormick Naomi Owens	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada), Charles MacMichael (Stantec)	Jesse McCormick confirmed SFN's participation and attendees with Eric Mohun for the November 18, 2015 meeting. SFN had no additional agenda items to add.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 18, 2015	Meeting	Tim Thielmann, Jim Webb, Bruce Muir, Caleb Behn Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Ian Somers (TransCanada), Patricia Zuczek (TransCanada), Sander Duncanson (TransCanada), Allison Grant (Stantec), Charles MacMichael (Stantec),	A meeting was held in NGTL's Vancouver office between SFN, WMFN and NGTL representatives. WMFN and SFN had representatives from Brierley Engineering to present their report and trenchless crossing methods proposed for the PMTPP on which a detailed discussion of risks and benefits was held. Further discussion on the Fisher den boxes was held. Aboriginal monitoring programs were discussed. Contingency plans for 'chance finds' and appropriate buffers were discussed. The timelines for SFN and WMFN to provide comments on the final draft PMTPP were confirmed (November 24 for all aspects of the PMTPP except Appendix D, for which the deadline was November 27).	Logistics and Planning Wildlife & Wildlife Habitat, Traditional Land Use

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
West Moberly First Nations	Nov 19, 2015	Email (Sent)	Tim Thielmann	Amira Omar (TransCanada),Sander Duncanson (TransCanada)Kevin Thrasher (TransCanada)	NGTL replied to WMFN's November 4, 2015 letter regarding access control measures within the PMT. NGTL stated that NGTL remains in the view that the measures outlined in the Access Management Plan, together with the additional measures proposed in the PMTPP will sufficiently mitigate the potential for the Project to create new access within the PMT.	Logistics & Planning, Project Information
Saulteau First Nations	Nov 20, 2015	Email (Received)	Jesse McCormick	Eric Mohun (TransCanada), Shelly Cairns (TransCanada), Sander Duncanson (TransCanada), Charles MacMichael (Stantec)	Jesse McCormick advised NGTL that he had received a draft copy of the ground truthing report and that it might be necessary to execute a confidentiality agreement for some of the content, which was noted during the meetings with NGTL on November 2, 2015 and November 18, 2015. Jesse McCormick inquired as to whether it would be possible for NGTL to forward a template confidentiality agreement in word format for review and approval to facilitate sharing of the ground truthing report.	Logistics and Planning
Saulteau First Nations	Nov 24, 2015	Email (Sent)	Jesse McCormick	Emily Joyce (TransCanada)	Emily Joyce provided a draft confidentiality agreement to Jesse McCormick for SFN's review and execution. Emily Joyce requested that a copy of the ground-truthing report be made available to NGTL as soon as was possible.	Logistics and Planning
Saulteau First Nations West Moberly First Nations	Nov 25, 2015	Email (Sent)	Jesse McCormick, Naomi Owens, Tim Thielmann	Eric Mohun (TransCanada), Sander Duncanson (TransCanada), Charles MacMichael (Stantec)	Jesse McCormick provided NGTL with SFN's comments on the most recent version of the draft PMTPP. Jesse McCormick said that further comments may follow later the same week. Naomi Owens was copied on the email as she may have additional comments. Tim Thielmann was also copied so that WMFN may be informed and aware of the concerns of Saulteau First Nations.	Logistics and Planning
Saulteau First Nations West Moberly First Nations	Nov 25, 2015	Email (Received)	Jesse McCormick, Naomi Owens, Tim Thielmann	Eric Mohun (TransCanada), Sander Duncanson (TransCanada), Charles MacMichael (Stantec)	Jesse McCormick identified that NGTL had requested comments on the reclamation plan by November 27, 2015. Jesse McCormick requested that NGTL confirm if the most recent version of the Reclamation Plan was the version provided by Allison Grant on November 13, 2015. Eric Mohun confirmed this was the most recent version in his response the same day. WMFN was copied on the correspondence.	Logistics and Planning
Saulteau First Nations	Nov 25, 2015	Email (Received)	Jesse McCormick Naomi Owens	Eric Mohun (TransCanada), Sander Duncanson (TransCanada), Charles MacMichael (Stantec)	Jesse McCormick provided NGTL with a Technical Memorandum setting out a Report for the SFN On-the-ground Knowledge and Use Study of the Peace Moberly Tract section of the TransCanada Pipelines Ltd.'s North Montney Mainline Pipeline Project. Jesse McCormick described that the document provides non-confidential information related to the proposed Project area overlapping the PMT. Confidential site-specific information has also been collected and will be made available in a Confidential Addendum to this report once a confidentiality agreement is executed by SFN and NGTL. SFN requested that NGTL address the content of this report within the PMTPP and that SFN will file the attached report with the National Energy Board as part of its submissions on the final version of the PMTPP.	Logistics and Planning
West Moberly First Nations Saulteau First Nations	Nov 26, 2015	Email (Received)	Tim Thielmann, Jim Webb, Bruce Muir, Caleb Behn, Sara Knappe Jesse McCormick	Eric Mohun (TransCanada), Sander Duncanson (TransCanada), Charles MacMichael (Stantec),	WMFN provided NGTL their review of the latest version of the PMTPP. WMFN copied Jesse McCormick so that SFN is apprised of WMFN's views of the PMTPP. Tim Thielmann notes that comments are provided in separately labeled spreadsheets for each section and one for the Appendices. Tim Thielmann sent a follow-up email saying that he understands Charles MacMichael and other NGTL representatives may be having trouble opening the attachment that had been sent earlier in the day (with xlsx file extension). A revised attachment was resent to NGTL, which NGTL was able to open.	Logistics and Planning
Saulteau First Nations, West Moberly First Nations	Nov 26, 2015	Email (Sent)	Jesse McCormick, Naomi Owens Tim Thielmann, Caleb Behn	Eric Mohun (TransCanada), Patricia Zuczek (TransCanada), Kevin Thrasher (TransCanada), Sander Duncanson (TransCanada)	Eric Mohun e-mailed SFN and WMFN the KMZ files for the HDDs, as proposed in the Brierley Report, within the PMT. Materials provided: 2015_11_24_ Peace Moberly Tract - Proposed HDD Pads, Access & False RW's.kmz 2015_11_25_ Peace Moberly Tract - Current Aitken Creek FOOTPRINT with Proposed Bore Disturbance.kmz	Project Information, Trenchless Technology

Community	Date	Communication Method	Community Contacts	Team Members	Communication Summary	Topics
Saulteau First Nations	Nov 27, 2015	Email (Sent)	Jesse McCormick Naomi Owens	Eric Mohun (TransCanada), Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada) Emily Joyce (TransCanada)	As a result of a series of emails from November 25 - 27 between SFN and NGTL, Jesse McCormick provided NGTL with the signed copies of the Capacity Funding LOA and the Confidentiality LOA. Jesse McCormick also attached the Confidential Addendum to the Ground Truthing Report of SFN, provided to NGTL subject to the terms of the Confidentiality LOA. Jesse McCormick said SFN would return executed copies of the agreements next week and that SFN intends to provide a copy of the document to WMFN upon the execution of a similar agreement.	Logistics and Planning
Saulteau First Nations	Nov 28, 2015	Email (Sent)	Jesse McCormick	Sander Duncanson (TransCanada), Kevin Thrasher (TransCanada)	Sander Duncanson wrote to Jesse McCormick noting that comments on the reclamation plan from Sheri Gutsell had not been received and inquiring as to whether comments would be received prior to November 30, 2015. Jesse McCormick replied stating that Sheri Gutsell had provided comments on the previous draft of the reclamation plan and no further comments would be provided before November 30, 2015.	Logistics and Planning

APPENDIX P

SFN AND WMFN CONTINGENCY PLAN EDITS

Proposed Changes to Heritage Resource Discovery Contingency Plan

Saulteau First Nations

September 18, 2015

1. NGTL will, pursuant to an Aboriginal Monitoring Program, ensure that Saulteau First Nations are provided with the opportunity to have monitors on site for physical work taking place in areas of concern to Saulteau First Nations.
2. If a cultural site is identified at any time during construction or archaeological assessment, NGTL will inform the appropriate First Nations and the Parties will work collaboratively to minimize impacts and ensure respectful treatment of any artifacts or human remains in accordance with the following process:
    a. All work in the area will be stopped immediately within 500 m to avoid damaging the location of the cultural site;
    b. No part of the cultural site will be disturbed;
    c. Any finds will be reported immediately to the appropriate representative of NGTL and the Saulteau First Nation monitors.
    d. A geographic reference point will be taken;
    e. NGTL will contact appropriate regulatory authorities and the Chief and Council of Saulteau First Nations. The Chief and Council will provide direction on how to proceed, and may direct NGTL to engage with knowledge holders from Saulteau First Nations.
    f. If appropriate measures to avoid or minimize impacts to the cultural site are not agreed upon within a reasonable timeframe, NGTL and Saulteau First Nations will meet jointly with government regulators to discuss the matter.
3. If at any time during construction, operations or archaeological assessment, human remains are encountered, the following steps will be taken:
    a. The person in charge of the work will immediately contact Saulteau First Nations;
    b. All excavation and other activity that could disturb the site shall immediately cease, and the area shall be secured in a manner which protects the burial location and prevents public access, public knowledge and trespass;

c. In addition to any statutory, regulatory or best practices requirements NGTL shall recognize the right of Saulteau First Nations to determine the requirements for treatment of Saulteau First Nations human remains discovered through construction or operations relating to the Project, including Saulteau First Nations protocols and ceremonies pertaining to the recovery, handling, protection and/or reburial of Saulteau First Nations human remains; and,

d. Saulteau First Nations may request, in its discretion, that a burial site which is Saulteau First Nations in origin shall remain unexcavated and shall be protected in accordance with the specific wishes of Saulteau First Nations, and NGTL shall comply with that request.

Contingency Plan for Heritage Resources, Wildlife Species of Concern, and TLU Sites within the Peace Moberly Tract

West Moberly First Nations

September 28, 2015

Application: This Plan applies to discoveries of wildlife species of concern or their site-specific habitat, heritage resources, and traditional land use sites (collectively, "Sites of Concern") which are within the Peace Moberly Tract and have the potential to be impacted by the Project. West Moberly proposes the adoption of this plan into the PMTPP. This Plan will prevail to the extent of any inconsistency with the Plant Species and Ecological Communities of Concern Discovery Contingency Plan, Wildlife Species of Concern Discovery Contingency Plan, Heritage Resource Discovery Contingency Plan, and Traditional Land Use Site Contingency Plan.

1. **Monitors:** NGTL will, pursuant to an Aboriginal Monitoring Program, ensure that West Moberly First Nations are provided with the opportunity to have monitors on site for physical work taking place in areas of concern to West Moberly First Nations.

2. **Contingency Discovery Process:** If a Site of Concern is identified at any time during pre-construction studies or assessments, construction, operations, or archaeological assessment, NGTL will inform the appropriate First Nations and the Parties will work collaboratively to minimize impacts and ensure respectful treatment of any Sites of Concern in accordance with the following process:

    a. All work in the area will be stopped immediately within 500 m to avoid damaging the location of the Site of Concern;

    b. No part of the site will be disturbed, and appropriate steps will be taken to protect the location and prevent public access and public knowledge of the Site of Concern;

    c. A geographic reference point will be taken;

    d. Any finds will be reported immediately to the appropriate representative of NGTL, the West Moberly First Nation monitors, West Moberly Chief and Council, and appropriate regulatory authorities.

    e. The Chief and Council will provide direction on how to avoid or minimize potential impacts to the Cultural Site to the greatest extent possible, and may direct NGTL to engage with knowledge holders from West Moberly First Nations.

    f. If appropriate measures to avoid or minimize impacts to the site are not agreed upon within a reasonable timeframe, NGTL and West Moberly First

Nations will meet jointly with government regulators to discuss the matter.

3. **Additional Steps for Human Remains:** If at any time during construction, operations or archaeological assessment, human remains are encountered, the following additional steps will be taken:

    a. In addition to any statutory, regulatory or best practices requirements NGTL shall recognize the right of West Moberly First Nations to determine the requirements for treatment of West Moberly First Nations human remains relating to the Project, including West Moberly First Nations protocols and ceremonies pertaining to the recovery, handling, protection and/or reburial of West Moberly First Nations human remains; and,

    b. West Moberly First Nations may request, in its discretion, that a burial site which is West Moberly First Nations in origin shall remain unexcavated and shall be protected in accordance with the specific wishes of West Moberly First Nations, and NGTL shall comply with that request.