



Trans Mountain Pipeline ULC



Trans Mountain Expansion Project

An Application Pursuant to Section 52 of the National Energy Board Act

December 2013

Volume



Project Overview, Economics
& General Information

NATIONAL ENERGY BOARD

IN THE MATTER OF

**the *National Energy Board Act*,
R.S.C. 1985, c. N-7, as amended, (“*NEB Act*”)
and the Regulations made thereunder;**

AND IN THE MATTER OF

**the *Canadian Environmental Assessment Act*, 2012,
S.C. 2012, c. 37, as amended,
and the Regulations made thereunder;**

AND IN THE MATTER OF

**an application by Trans Mountain Pipeline ULC
as General Partner of Trans Mountain Pipeline L.P.
(collectively “Trans Mountain”)
for a Certificate of Public Convenience and Necessity and
other related approvals pursuant to Part III of the *NEB Act***

**APPLICATION BY TRANS MOUNTAIN FOR APPROVAL OF
THE TRANS MOUNTAIN EXPANSION PROJECT**

December 2013

**To: The Secretary
The National Energy Board
444 — 7th Avenue SW
Calgary, AB T2P 0X8**

Trans Mountain Expansion Project

Application Pursuant to Section 52 of the *National Energy Board Act*

Guide to the Application

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Transmittal - Letter to the National Energy Board	
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Volume 3C	Landowner Relations
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Volume 5A	Environmental and Socio-Economic Assessment – Biophysical
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ABBREVIATIONS AND ACRONYMS

This table lists the abbreviations and acronyms used in this volume of the application.

Term	Meaning
AB	Alberta
AESRD	Alberta Environment and Sustainable Resource Development
AFUDC	Allowance for Funds Used During Construction
ALR	Agricultural Land Reserve
bbl/d	barrels per day
BC	British Columbia
BC OGC	BC Oil and Gas Commission
CCO	control centre operator
CEA	Canadian Environmental Assessment
CN	Canadian National
CO ₂	carbon dioxide
CPCN	Certificate of Public Convenience and Necessity
DFO	Fisheries and Oceans Canada
ESA	Environmental and Socio-Economic Assessment
ESD	emergency shut-down
FOTS	fibre optic transmission system
GDP	Gross Domestic Product
HDD	horizontal directional drill
IHS	IHS Global Canada Limited
IOS	Individual Ownership Sketch
KMC	Kinder Morgan Canada Inc.
KMP	Kinder Morgan Energy Partners, L.P.
KP	kilometre posts
NEB	National Energy Board
<i>NEB Act</i>	<i>National Energy Board Act</i>
NPS	nominal pipe size
OD	outside diameter
OMS	Operations Management System
PMV	Port Metro Vancouver
POD	Pattern of Dealing
PPA	Pacific Pilotage Authority
RK	reference kilometre
RMLBV	remote mainline block valve
SARA	<i>Species at Risk Act</i>
SCADA	Supervisory Control and Data Acquisition
TERMPOL	Technical Review Process of Marine Terminal Systems and Transshipment Sites
the Project	Trans Mountain Expansion Project
TMEP	Trans Mountain Expansion Project
TMPL	Trans Mountain Pipeline
TMPL system	Trans Mountain pipeline system
Trans Mountain	Trans Mountain Pipeline ULC
TUC	Transportation/Utility Corridor
TWS	temporary workspace
US	United States
WCMRC	Western Canada Marine Response Corporation

Term	Meaning
WCSB	Western Canadian Sedimentary Basin

NEB FILING MANUAL CHECKLIST

CHAPTER 3 – COMMON INFORMATION REQUIREMENTS

Filing #	Filing Requirement	In Application? References	Not in Application? Explanation
3.1 Action Sought by Applicant			
1.	Requirements of s.15 of the Rules.	Volume 1 Section 1.1	---
3.2 Application or Project Purpose			
1.	Purpose of the proposed project.	Volume 2 Section 1.1	---
3.4 Consultation			
3.4.1 Principles and Goals of Consultation			
1.	The corporate policy or vision.	Volume 3A Section 1.2.1 Volume 3B Section 1.2.1	--
2.	The principles and goals of consultation for the project.	Volume 3A Section 1.2.2 Volume 3B Section 1.2.2 Volume 5A Section 3.2.1 Volume 5B Section 3.2.1	--
3.	A copy of the Aboriginal protocol and copies of policies and principles for collecting traditional use information, if available.	Volume 3B Section 1.3.5	--
3.4.2 Design of Consultation Program			
1.	The design of the consultation program and the factors that influenced the design.	Volume 3A Section 1.3 Volume 3B Section 1.3 Volume 5A Section 3.1.1, 3.2.2 Volume 5B Section 3.1.1, 3.2.2	--
3.4.3 Implementing a Consultation Program			
1.	The outcomes of the consultation program for the project.	Volume 3A Section 1.7 Volume 3B Section 1.5 Table 1.5.1 Volume 5A Section 3.1.5, 3.2.4 Volume 5B Section 3.1.5, 3.2.4	--
3.4.4 Justification for Not Undertaking a Consultation Program			
2.	The application provides justification for why the applicant has determined that a consultation program is not required for the project.	N/A	N/A
3.5 Notification of Commercial Third Parties			
1.	Confirm that third parties were notified.	Volume 2 Section 3.2.2	--
2.	Details regarding the concerns of third parties.	Volume 2 Section 3.2.2	--
3.	List the self-identified interested third parties and confirm they have been notified.	N/A	N/A
4.	If notification of third parties is considered unnecessary, an explanation to this effect.	N/A	N/A

CHAPTER 4 – SECTIONS 4.1 AND 4.2: COMMON REQUIREMENTS FOR PHYSICAL PROJECTS

Filing #	Filing Requirement	In Application? References	Not in Application? Explanation
4.1 Description of the Project		Volume 2	--
1.	The project components, activities and related undertakings.	Volume 2 Section 2.0; Volume 4A	--
2.	The project location and criteria used to determine the route or site.	Volume 2 Section 4.0; Volume 4a	--
3.	How and when the project will be carried out.	Volume 2 Section 2.3; Volume 4B Section 2.0	--
4.	Description of any facilities, to be constructed by others, required to accommodate the proposed facilities.	N/A	N/A
5.	An estimate of the total capital costs and incremental operating costs, and changes to abandonment cost estimates.	Volume 2 Section 2.9	--
6.	The expected in-service date.	Volume 2 Section 1.1; Volume 4B Section 2.1	--
4.2 Economic Feasibility, Alternatives and Justification			
4.2.1 Economic Feasibility			
1.	Describe the economic feasibility of the project.	Volume 2 Section 3.5	--
4.2.2 Alternatives			
1.	Describe the need for the project, other economically-feasible alternatives to the project examined, along with the rationale for selecting the applied for project over these other possible options.	Volume 2 Section 3.0; Volume 8A Section 2.2	--
2.	Describe and justify the selection of the proposed route and site including a comparison of the options evaluated using appropriate selection criteria.	Volume 2 Section 4.0; Volume 8A Section 2.2	--
3.	Describe the rationale for the chosen design and construction methods. Where appropriate, describe any alternative designs and methods evaluated and explain why these other options were eliminated.	Volume 2 Section 4.0; Volume 8A Section 2.2	--
4.2.3 Justification			
1.	Provide a justification for the proposed project	Volume 2 Section 3.4	--

GUIDE A – A.1 ENGINEERING

Filing #	Filing Requirement	In Application? References	Not in Application? Explanation
A.1.1 Engineering Design Details			
1.	Fluid type and chemical composition.	Volume 4A Section 3.1.1	--
2.	Line pipe specifications.	Volume 4A Section 3.2.8	--
3.	Pigging facilities specifications.	Volume 4A Section 3.3.1, 3.3.2	--
4.	Compressor or pump facilities specifications.	Volume 4A Section 3.4	--
5.	Pressure regulating or metering facilities specifications.	Volume 4A Section 3.5	--
6.	Liquid tank specifications, or other commodity storage facilities.	Volume 4A Section 3.4	--
7.	New control system facilities specifications.	Volume 4A Section 3.3	--
8.	Gas processing, sulphur or LNG plant facilities specifications.	N/A	N/A
9.	Technical description of other facilities not mentioned above.	N/A	N/A
10.	Building dimensions and uses.	Volume 4A Section 3.3, 3.4, 3.5	--
11.	If project is a new system that is a critical source of energy supply, a description of the impact to the new system capabilities following loss of critical component.	N/A	N/A
A.1.2 Engineering Design Principles			
1.	Confirmation project activities will follow the requirements of the latest version of CSA Z662.	Volume 4A Section 2.2	--
2.	Provide a statement indicating which Annex is being used and for what purpose	Volume 4A Section 2.3	--
3.	Statement confirming compliance with OPR or PPR.	Volume 4A Section 2.1	--
4.	Listing of all primary codes and standards, including version and date of issue.	Volume 4A Section 2, Table 5.1.1	--
5.	Confirmation that the project will comply with company manuals and confirm manuals comply with OPR/PPR and codes and standards.	Volume 4A Section 2.6, Table 5.1.2	--
6.	Any portion of the project a non-hydrocarbon commodity pipeline system? Provide a QA program to ensure the materials are appropriate for their intended service.	N/A – all hydrocarbons	N/A
7.	If facility subject to conditions not addressed in CSA Z662: • Written statement by qualified professional engineer • Description of the designs and measures required to safeguard the pipeline	Volume 4A Section 2.9	--
8.	If directional drilling involved: • Preliminary feasibility report • Description of the contingency plan	Volume 4A Section 2.12	--
9.	If the proposed project involves the reuse of materials, provide an engineering assessment in accordance with CSA Z662 that indicates its suitability for the intended service.	Volume 4A, Section 2.7	--
10.	If new materials are involved, provide material supply chain information, in tabular format.	Volume 4A Section 2.7	--
11.	If reuse of material is involved, provide an engineering assessment in accordance with CSA Z662 that indicates its suitability for the intended service.	Volume 4A, Section 2.7	--
A.1.3 Onshore Pipeline Regulations			
1.	Designs, specifications programs, manuals, procedures, measures or plans for which no standard is set out in the OPR or PPR.	--	Existing standards will be followed
2.	A quality assurance program if project non-routine or incorporates unique challenges due to geographical location.	--	No unique challenges
3.	If welding performed on a liquid-filled pipeline that has a carbon equivalent of 0.50% or greater and is a permanent installation: • Welding specifications and procedures • Results of procedure qualification tests	--	Welding on liquid filled pipe will not be conducted

GUIDE A – A.2 ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT

The following table identifies where information requested in the National Energy Board (NEB) Filing Manual Guide A – A.2 Environmental and Socio-economic Assessment checklist may be found in the various volumes of the Application for the Trans Mountain Expansion Project.

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
A.2.5 Description of the Environmental and Socio-Economic Setting				
1.	Identify and describe the current biophysical and socio-economic setting of each element (<i>i.e.</i> , baseline information) in the area where the project is to be carried out.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5C: ESA - Biophysical Technical Reports Volume 5D: ESA - Socio-Economic Technical Reports	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.2 Volume 8B: Technical Reports	---
2.	Describe which biophysical or socio-economic elements in the study area are of ecological, economic, or human importance and require more detailed analysis taking into account the results of consultation (see Table A-1 for examples). Where circumstances require more detailed information in an ESA see: i. Table A-2 – Filing Requirements for Biophysical Elements; or ii. Table A-3 – Filing Requirements for Socio-economic Elements.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5C: ESA - Biophysical Technical Reports Volume 5D: ESA - Socio-Economic Technical Reports	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.2 Volume 8B: Technical Reports	---
3.	Provide supporting evidence (<i>e.g.</i> , references to scientific literature, field studies, local and traditional knowledge, previous environmental assessment and monitoring reports) for: <ul style="list-style-type: none"> information and data collected; analysis completed; conclusions reached; and the extent of professional judgment or experience relied upon in meeting these information requirements, and the rationale for that extent of reliance. 	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5C: ESA - Biophysical Technical Reports Volume 5D: ESA - Socio-Economic Technical Reports	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.2 Volume 8B: Technical Reports	---
4.	Describe and substantiate the methods used for any surveys, such as those pertaining to wildlife, fisheries, plants, species at risk or species of special status, soils, heritage resources or traditional land use, and for establishing the baseline setting for the atmospheric and acoustic environment.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Sections 5.0 and 6.0 Volume 5C: ESA - Biophysical Technical Reports Volume 5D: ESA - Socio-Economic Technical Reports	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.2 Volume 8B: Technical Reports	---
5.	Applicants must consult with other expert federal, provincial or territorial departments and other relevant authorities on requirements for baseline information and methods.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Sections 3.0, 5.0 and 6.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Sections 3.0, 5.0 and 6.0 Volume 5C: ESA - Biophysical Technical Reports Volume 5D: ESA - Socio-Economic Technical Reports	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Sections 3.0 and 4.2 Volume 8B: Technical Reports	---

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
A.2.6 Effects Assessment				
Identification and Analysis of Effects				
1.	Describe the methods used to predict the effects of the project on the biophysical and socio-economic elements, and the effects of the environment on the project (<i>i.e.</i> , changes to the Project caused by the environment).	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0 Volume 7: Risk Assessment and Management of Pipeline and Facility Spills • Sections 6.0, 7.0 and 8.0 • Technical Reports	Volume 8A: Marine Transportation • Sections 4.3, 5.5 and 5.6	---
2.	Predict the effects associated with the proposed project, including those that could be caused by construction, operations, decommissioning or abandonment, as well as accidents and malfunctions. Also include effects the environment could have on the project. For those biophysical and socio-economic elements or their valued components that require further analysis (see Table A-1), provide the detailed information outlined in Tables A-2 and A-3.	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0 Volume 5C: ESA - Biophysical Technical Reports Volume 5D: ESA - Socio-Economic Technical Reports Volume 7: Risk Assessment and Management of Pipeline and Facility Spills • Sections 6.0, 7.0 and 8.0 • Technical Reports	Volume 8A: Marine Transportation • Sections 4.3, 5.6 and 5.7 Volume 8B: Technical Reports	---
Mitigation Measures for Effects				
1.	Describe the standard and project specific mitigation measures and their adequacy for addressing the project effects, or clearly reference specific sections of company manuals that provide mitigation measures. Ensure that referenced manuals are current and filed with the NEB.	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0 Volume 5C: ESA - Biophysical Technical Reports Volume 5D: ESA - Socio-Economic Technical Reports Volume 6B: Pipeline Environmental Protection Plan (EPP) Volume 6C: Facilities EPP Volume 6D: Westridge Marine Terminal EPP Volume 6E: Environmental Alignment Sheets Volume 7: Risk Assessment and Management of Pipeline and Facility Spills • Sections 2.0, 3.0, 4.0, 6.0, 7.0, and 8.0 • Technical Reports	Volume 8A: Marine Transportation • Sections 4.3, 5.1, 5.3, 5.6 and 5.7 Volume 8B: Technical Reports	---
2.	Ensure that commitments about mitigative measures will be communicated to field staff for implementation through an Environmental Protection Plan.	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0 Volume 6A: Environmental Compliance Volume 6B: Pipeline EPP Volume 6C: Facilities EPP Volume 6D: Westridge Marine Terminal EPP Volume 6E: Environmental Alignment Sheets Volume 7: Risk Assessment and Management of Pipeline and Facility Spills • Sections 2.0, 3.0, 4.0, 6.0, 7.0 and 8.0	Volume 8A: Marine Transportation • Sections 4.3, 5.1, 5.3, 5.6 and 5.7	---

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
3.	Describe plans and measures to address potential effects of accidents and malfunctions during construction and operation of the project.	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0 Volume 6B: Pipeline EPP Volume 6C: Facilities EPP Volume 6D: Westridge Marine Terminal EPP Volume 7: Risk Assessment and Management of Pipeline and Facility Spills • Sections 2.0, 4.0, 6.0, 7.0 and 8.0	Volume 8A: Marine Transportation • Sections 4.3, 5.1, 5.3, 5.6 and 5.7	---
Evaluation of Significance				
1.	After taking into account any appropriate mitigation measures, identify any remaining residual effects from the project.	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0	Volume 8A: Marine Transportation • Section 4.3	---
2.	Describe the methods and criteria used to determine the significance of remaining adverse effects, including defining the point at which any particular effect on a valued component is considered "significant".	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0	Volume 8A: Marine Transportation • Section 4.3	---
3.	Evaluate significance of residual adverse environmental and socio-economic effects against the defined criteria.	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0	Volume 8A: Marine Transportation • Section 4.3	---
4.	Evaluate the likelihood of significant, residual adverse environmental and socio-economic effects occurring and substantiate the conclusions made.	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0	Volume 8A: Marine Transportation • Section 4.3	---
A.2.7 Cumulative Effects Assessment				
Scoping and Analysis of Cumulative Effects				
1.	Identify the valued components for which residual effects are predicted, and describe and justify the methods used to predict any residual results.	Volume 5A: ESA - Biophysical • Section 8.0 Volume 5B: ESA - Socio-Economic • Section 8.0	Volume 8A: Marine Transportation • Section 4.4	---
2.	For each valued component where residual effects have been identified, describe and justify the spatial and temporal boundaries used to assess the potential cumulative effects.	Volume 5A: ESA - Biophysical • Section 8.0 Volume 5B: ESA - Socio-Economic • Section 8.0	Volume 8A: Marine Transportation • Section 4.4	---
3.	Identify other physical works or activities that have been or will be carried out within the identified spatial and temporal boundaries for the cumulative effects assessment.	Volume 5A: ESA - Biophysical • Section 8.0 Volume 5B: ESA - Socio-Economic • Section 8.0	Volume 8A: Marine Transportation • Section 4.4	---
4.	Identify whether the effects of those physical works or activities that have been or will be carried out would be likely to produce effects on the valued components within the identified spatial and temporal boundaries.	Volume 5A: ESA - Biophysical • Section 8.0 Volume 5B: ESA - Socio-Economic • Section 8.0	Volume 8A: Marine Transportation • Section 4.4	---

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
5.	Where other physical works or activities may affect the valued components for which residual effects from the applicant's proposed project are predicted, continue the cumulative effects assessment, as follows: <ul style="list-style-type: none"> consider the various components, phases and activities associated with the applicant's project that could interact with other physical work or activities; provide a description of the extent of the cumulative effects on valued components; and where professional knowledge or experience is cited, explain the extent to which professional knowledge or experience was relied upon and justify how the resulting conclusions or decisions were reached. 	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Section 8.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Section 8.0 	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.4 	---
Mitigation Measures for Cumulative Effects				
1.	Describe the general and specific mitigation measures, beyond project-specific mitigation already considered, that are technically and economically feasible to address any cumulative effects.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Section 8.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Section 8.0 	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.4 	---
Applicant's Evaluation of Significance of Cumulative Effects				
1.	After taking into account any appropriate mitigation measures for cumulative effects, identify any remaining residual cumulative effects.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Section 8.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Section 8.0 	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.4 	---
2.	Describe the methods and criteria used to determine the significance of remaining adverse cumulative effects, including defining the point at which each identified cumulative effect on a valued component is considered "significant".	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Section 8.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Section 8.0 	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.4 	---
3.	Evaluate the significance of adverse residual cumulative effects against the defined criteria.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Section 8.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Section 8.0 	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.4 	---
4.	Evaluate the likelihood of significant, residual adverse cumulative environmental and socio-economic effects occurring and substantiate the conclusions made.	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Section 8.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Section 8.0 	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.4 	---
A.2.8 Inspection, Monitoring and Follow-up				
1.	Describe inspection plans to ensure compliance with biophysical and socio-economic commitments, consistent with Sections 48, 53 and 54 of the <i>NEB Onshore Pipeline Regulations (OPR)</i> .	Volume 5A: ESA - Biophysical <ul style="list-style-type: none"> Section 7.0 Volume 5B: ESA - Socio-Economic <ul style="list-style-type: none"> Section 7.0 Volume 6A: Environmental Compliance Volume 6B: Pipeline EPP Volume 6C: Facilities EPP Volume 6D: Westridge Marine Terminal EPP	Volume 8A: Marine Transportation <ul style="list-style-type: none"> Section 4.3 	---

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
2.	Describe the surveillance and monitoring program for the protection of the pipeline, the public and the environment, as required by Section 39 of the <i>NEB OPR</i> .	Volume 5A: ESA - Biophysical • Section 7.0 Volume 5B: ESA - Socio-Economic • Section 7.0 Volume 6A: Environmental Compliance Volume 6B: Pipeline EPP Volume 6C: Facilities EPP Volume 6D: Westridge Marine Terminal EPP	Volume 8A: Marine Transportation • Section 4.3	---
3.	Consider any particular elements in the Application that are of greater concern and evaluate the need for a more in-depth monitoring program for those elements.	Volume 5A: ESA - Biophysical • Sections 9.0 and 10.0 Volume 5B: ESA - Socio-Economic • Sections 9.0 and 10.0 Volume 6A: Environmental Compliance Volume 6B: Pipeline EPP (Socio-Economic Management Plan of Appendix C)	Volume 8A: Marine Transportation • Section 4.5	---
4.	For <i>Canadian Environmental Assessment (CEA) Act, 2012</i> designated projects, identify which elements and monitoring procedures would constitute follow-up under the <i>CEA Act, 2012</i> .	Volume 5A: ESA - Biophysical • Section 10.0 Volume 5B: ESA - Socio-economic • Section 10.0	N/A	---

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
Table A-1 Circumstances and Interactions Requiring Detailed Biophysical and Socio-Economic Information				
Physical and meteorological environment	Volume 5A: ESA - Biophysical <ul style="list-style-type: none">Sections 5.0, 6.0 and 7.0	N/A	---	
Soil and soil productivity	Volume 5A: ESA - Biophysical <ul style="list-style-type: none">Sections 5.0, 6.0, 7.0 and 8.0 Volume 5C: ESA - Biophysical Technical Reports <ul style="list-style-type: none">Soil Assessment Technical Report Volume 7: Risk Assessment and Management of Pipeline and Facility Spills <ul style="list-style-type: none">Section 5.3, 6.0 and 7.0	N/A	---	
Water quality and quantity (onshore and marine)	Volume 5A: ESA - Biophysical <ul style="list-style-type: none">Sections 5.0, 6.0, 7.0 and 8.0 Volume 5C: ESA - Biophysical Technical Reports <ul style="list-style-type: none">Groundwater Technical ReportFisheries (Alberta) Technical ReportFisheries (British Columbia) Technical ReportWetland Evaluation Technical ReportMarine Sediment and Water Quality – Westridge Marine Terminal Technical Report Volume 7: Risk Assessment and Management of Pipeline and Facility Spills <ul style="list-style-type: none">Sections 7.0Quality Ecological Risk Assessment of Pipeline Spills Technical Report	Volume 8A: Marine Transportation <ul style="list-style-type: none">Sections 4.2, 4.3, 4.4, 5.6 and 5.7 Volume 8B: Technical Reports <ul style="list-style-type: none">Ecological Risk Assessment of Marine Transportation Spills Technical Report	---	
Air emissions (onshore and marine)	Volume 5A: ESA - Biophysical <ul style="list-style-type: none">Sections 5.0, 6.0, 7.0 and 8.0 Volume 5C: ESA - Biophysical Technical Reports <ul style="list-style-type: none">Marine Air Quality and Greenhouse Gas – Marine Transportation Technical ReportAir Quality and Greenhouse Gas Emissions Technical Report Volume 7: Risk Assessment and Management of Pipeline and Facility Spills <ul style="list-style-type: none">Section 7.0	Volume 8A: Marine Transportation <ul style="list-style-type: none">Sections 4.2, 4.3, 4.4, 5.6 and 5.7 Volume 8B: Technical Reports <ul style="list-style-type: none">Marine Air Quality and Greenhouse Gas Emissions	---	
Greenhouse gas emissions (onshore and marine)	Volume 5A: ESA - Biophysical <ul style="list-style-type: none">Sections 5.0, 6.0 and 7.0 Volume 5C: ESA - Biophysical Technical Reports <ul style="list-style-type: none">Air Quality and Greenhouse Gas Emissions Technical Report	Volume 8A: Marine Transportation <ul style="list-style-type: none">Sections 4.2 and 4.3 Volume 8B: Technical Reports <ul style="list-style-type: none">Marine Air Quality and Greenhouse Gas Emissions	---	
Acoustic environment (onshore and marine)	Volume 5A: ESA - Biophysical <ul style="list-style-type: none">Sections 5.0, 6.0, 7.0, and 8.0 Volume 5C: ESA - Biophysical Technical Reports <ul style="list-style-type: none">Acoustic Environment Technical Report	Volume 8A: Marine Transportation <ul style="list-style-type: none">Sections 4.2, 4.3 and 4.4 Volume 8B: Technical Reports <ul style="list-style-type: none">Marine Noise (Atmospheric)	---	

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
	Fish and fish habitat (onshore and marine), including any fish habitat compensation required	<p>Volume 5A: ESA - Biophysical</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5C: ESA - Biophysical Technical Reports</p> <ul style="list-style-type: none"> Fisheries (Alberta) Technical Report Fisheries (British Columbia) Technical Report Marine Resources - Westridge Marine Terminal Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 7.0, 8.0 and 9.0 Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report 	<p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Sections 4.2, 4.3, 4.4, 5.6 and 5.7 <p>Volume 8B: Technical Reports</p> <ul style="list-style-type: none"> Marine Resources – Marine Transportation Technical Report Ecological Risk Assessment of Westridge Marine Terminal Spills 	---
	Wetlands	<p>Volume 5A: ESA - Biophysical</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5C: ESA - Biophysical Technical Reports</p> <ul style="list-style-type: none"> Wetland Evaluation Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 7.0 and 8.0 Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report 	N/A	---
	Vegetation	<p>Volume 5A: ESA - Biophysical</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5C: ESA - Biophysical Technical Reports</p> <ul style="list-style-type: none"> Vegetation Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 7.0 and 8.0 Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report 	N/A	---
	Wildlife and wildlife habitat (onshore and marine)	<p>Volume 5A: ESA - Biophysical</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5C: ESA - Biophysical Technical Reports</p> <ul style="list-style-type: none"> Wildlife and Wildlife Habitat Technical Report Wildlife Modeling and Species Accounts Report Marine Resources –Westridge Marine Terminal Technical Report Marine Birds – Westridge Marine Terminal Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 7.0, 8.0 and 9.0 Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report 	<p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Sections 4.2, 4.3, 4.4, 5.6 and 5.7 <p>Volume 8B: Technical Reports</p> <ul style="list-style-type: none"> Marine Resources – Marine Transportation Technical Report Marine Birds – Marine Transportation Technical Report Ecological Risk Assessment of Westridge Marine Terminal Spills 	---

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
	Species at Risk or Species of Special Status and related habitat (onshore and marine)	<p>Volume 5A: ESA - Biophysical</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5C: ESA - Biophysical Technical Reports</p> <ul style="list-style-type: none"> Fisheries (Alberta) Technical Report Fisheries (British Columbia) Technical Report Vegetation Technical Report Wildlife and Wildlife Habitat Technical Report Wildlife Modeling and Species Accounts Report Marine Resources – Westridge Marine Terminal Technical Report Marine Birds – Westridge Marine Terminal Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 7.0, 8.0 and 9.0 <p>Volume 7: Technical Reports</p> <ul style="list-style-type: none"> Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report 	<p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Sections 4.2, 4.3, 4.4, 5.6 and 5.7 <p>Volume 8B: Technical Reports</p> <ul style="list-style-type: none"> Marine Resources – Marine Transportation Technical Report Marine Birds – Marine Transportation Technical Report Marine Transportation Spills Ecological Risk Assessment Technical Report 	---
	Human occupancy and resource use (onshore and marine)	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5D: ESA - Socio-Economic Technical Reports</p> <ul style="list-style-type: none"> Socio-Economic Technical Report Managed Forest Areas Technical Report Agricultural Assessment Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 6.0, 7.0 and 8.0 	<p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Sections 4.2, 4.3, 4.4, 5.6 and 5.7 <p>Volume 8B: Technical Reports</p> <ul style="list-style-type: none"> Marine Commercial, Recreational and Tourism Use – Marine Transportation Technical Report 	---
	Heritage resources	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0 and 7.0 <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Section 6.3.3 	N/A	---
	Navigation and navigation safety	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0 and 7.0 <p>Volume 5D: ESA - Socio-Economic Technical Reports</p> <ul style="list-style-type: none"> Socio-Economic Technical Report 	<p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Section 5.2 	---
	Traditional land and resource use	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5D: ESA - Socio-Economic Technical Reports</p> <ul style="list-style-type: none"> Traditional Land and Resource Use Report Pipeline and Facilities Human Health Risk Assessment Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 7.0, 8.0 and 9.0 Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report 	<p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Sections 4.2, 4.3, 4.4, 5.6 and 5.7 <p>Volume 8B: Technical Reports</p> <ul style="list-style-type: none"> Traditional Marine Use Report for Marine Transportation Marine Transportation Human Health Risk Assessment Technical Report 	---
	Social and cultural well-being	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5D: ESA - Socio-Economic Technical Reports</p> <ul style="list-style-type: none"> Socio-Economic Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 6.0, 7.0 and 8.0 	N/A	---

Filing #	Filing Requirement	In Application? References	Applicable Marine Transportation Elements	Not in Application? Explanation
	Human health and aesthetics	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5D: ESA - Socio-Economic Technical Reports</p> <ul style="list-style-type: none"> Socio-Economic Technical Report Community Health Technical Report Viewshed Modelling Analysis Technical Report Pipeline and Facilities Human Health Risk Assessment Technical Report <p>Volume 7 Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 6.0, 7.0 and 8.0 Qualitative Ecological Risk Assessment of Pipeline Spills Technical Report 	<p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Qualitative Human Health Risk Assessment of Westridge Marine Terminal Technical Report <p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Sections 4.2, 4.3, 4.4, 5.6 and 5.7 <p>Volume 8B: Technical Reports</p> <ul style="list-style-type: none"> Marine Transportation Human Health Risk Assessment Technical Report Marine Transportation Spills Human Health Risk Assessment Technical Report 	---
	Infrastructure and services	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5D: ESA - Socio-Economic Technical Reports</p> <ul style="list-style-type: none"> Socio-Economic Technical Report Community Health Technical Report <p>Volume 7: Risk Assessment and Management of Pipeline and Facility Spills</p> <ul style="list-style-type: none"> Sections 6.0, 7.0 and 8.0 	<p>Volume 8A: Marine Transportation</p> <ul style="list-style-type: none"> Sections 4.2, 4.3, 4.4, 5.6 and 5.7 <p>Volume 8B: Technical Reports</p> <ul style="list-style-type: none"> Marine Commercial, Recreational and Tourism Use – Marine Transportation Technical Report 	---
	Employment and economy	<p>Volume 5B: ESA - Socio-Economic</p> <ul style="list-style-type: none"> Sections 5.0, 6.0, 7.0 and 8.0 <p>Volume 5D: ESA - Socio-Economic Technical Reports</p> <ul style="list-style-type: none"> Socio-Economic Technical Report Worker Expenditures Analysis Technical Report 	N/A	---

GUIDE A – A.3 ECONOMICS

Filing #	Filing Requirement	In Application? References	Not in Application? Explanation
A.3.1 Supply			
1.	A description of each commodity.	Volume 2 Section 3.1.1	--
2.	A discussion of all potential supply sources.	Volume 2 Section 3.3.2	--
3.	Forecast of productive capacity over the economic life of the facility.	Volume 2 Sections 3.3.1, 3.4.1	
4.	For pipelines with contracted capacity, a discussion of the contractual arrangements underpinning supply.	Volume 2 Section 3.3.2	--
A.3.2 Transportation Matters			
Pipeline Capacity			
1.	In the case of expansion provide: <ul style="list-style-type: none"> Pipeline capacity before and after and size of increment Justification that size of expansion is appropriate 	Volume 2 Sections 1.1, 2.1, 3.5	--
2.	In case of new pipeline, justification that size of expansion is appropriate given available supply.	N/A – expansion	N/A
Throughput			
1.	For pipelines with contracted capacity, information on contractual arrangements.	Volume 2 Section 3.2.1	--
2.	For non-contract carrier pipelines, forecast of annual throughput volumes by commodity type, receipt location and delivery destination over facility life.	N/A	N/A
3.	If project results in an increase in throughput: <ul style="list-style-type: none"> theoretical and sustainable capabilities of the existing and proposed facilities versus the forecasted requirements flow formulae and flow calculations used to determine the capabilities of the proposed facilities and the underlying assumptions and parameters 	Volume 2 Section 3.1	--
4.	If more than one type of commodity transported, a discussion pertaining to segregation of commodities including potential contamination issues or cost impacts.	N/A	N/A
A.3.3 Markets			
1.	Provide an analysis of the market in which each commodity is expected to be used or consumed.	Volume 2 Section 3.4.2	--
2.	Provide a discussion of the physical capability of upstream and downstream facilities to accept the incremental volumes that would be received and delivered.	Volume 2 Section 3.4.2	--
A.3.4 Financing			
1.	Evidence that the applicant has the ability to finance the proposed facilities.	Volume 2 Section 3.2.2	--
2.	Estimated toll impact for the first full year that facilities are expected to be in service.	Volume 2 Section 3.2.1	--
3.	Confirmation that shippers have been apprised of the project and toll impact, their concerns and plans to address them.	Volume 2 Section 3.2.1	--
4.	Additional toll details for applications with significant toll impacts.	Volume 2 Section 3.2.1	
A.3.5 Non-NEB Regulatory Approvals			
1.	Confirm that all non-NEB regulatory approvals required to allow the applicant to meet its construction schedule, planned in-service date and to allow the facilities to be used and useful are or will be in place.	Volume 2 Section 1.5	--
2.	If any of the approvals referred to in #1 may be delayed, describe the status of those approval(s) and provide an estimation of when the approval is anticipated.	Volume 2 Section 1.5	--

GUIDE A – A.4 LANDS INFORMATION

Filing #	Filing Requirement	In Application? References	Not in Application? Explanation
A.4.1 Land Areas			
1.	<ul style="list-style-type: none"> Width of right-of-way and locations of any changes to width Locations and dimensions of known temporary work space and drawings of typical dimensions Locations and dimensions of any new lands for facilities 	Volume 2 Section 5.2	--
A.4.2 Land Rights			
1.	The type of lands rights proposed to be acquired for the project.	Volume 2 Section 5.3	--
2.	The relative proportions of land ownership along the route of the project.	Volume 2 Section 5.3.2	--
3.	Any existing land rights that will be required for the project.	Volume 2 Section 5.4	--
A.4.3 Lands Acquisition Process			
1.	The process for acquiring lands.	Volume 2 Section 5.4.1, 5.4.2	--
2.	The timing of acquisition and current status.	Volume 2 Section 5.4.3	--
3.	The status of service of section 87(1) notices.	Volume 2 Section 5.4.4	--
A.4.4 Land Acquisition Agreements			
1.	A sample copy of each form of agreement proposed to be used pursuant to section 86(2) of the NEB Act.	Volume 2 Section 5.4.2	--
2.	A sample copy of any proposed fee simple, work space, access or other land agreement.	Volume 2 Section 5.5.2	--
A.4.5 Section 87 Notices			
1.	A sample copy of the notice proposed to be served on all landowners pursuant to section 87(1) of the NEB Act.	Volume 2 Section 5.4.4, Appendix D	--
2.	Confirmation that all notices include a copy of Pipeline Regulation in Canada: A Guide for Landowners and the Public.	Volume 2 Section 5.4.4	--
A.4.6 Section 58 Application to Address a Complaint			
1.	The details of the complaint and describe how the proposed work will address the complaint.	N/A	N/A

CONCORDANCE TABLE WITH THE *CEA ACT, 2012*

<i>CEA Act, 2012</i> Requirement	Section in <i>CEA Act, 2012</i>	Application Volume and Section
The environmental effects of the designated project, including:		
the environmental effects of malfunctions or accidents that may occur in connection with the designated project;	s.19.1(a)	Volume 5A ESA - Biophysical: <ul style="list-style-type: none"> Section 7.0 Volume 5B ESA - Socio-economic: <ul style="list-style-type: none"> Section 7.0 Volume 7 Risk Assessment and Management of Pipeline and Facility Spills Volume 8A Marine Transportation: <ul style="list-style-type: none"> Sections 4.3 and 5.0
any cumulative environmental effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out;	s.19.1(a)	Volume 5A ESA - Biophysical: <ul style="list-style-type: none"> Section 8.0 Volume 5B ESA - Socio-economic: <ul style="list-style-type: none"> Section 8.0 Volume 8A Marine Transportation: <ul style="list-style-type: none"> Section 4.4
the significance of the effects referred to in paragraph (a);	s.19.1(b)	Volume 5A ESA - Biophysical: <ul style="list-style-type: none"> Sections 7.0 and 8.0 Volume 5B ESA - Socio-economic: <ul style="list-style-type: none"> Sections 7.0 and 8.0 Volume 8A Marine Transportation: <ul style="list-style-type: none"> Sections 4.3 and 4.4
comments from the public – or, with respect to a designated project that requires that a certificate be issued in accordance with an order made under section 54 of the <i>National Energy Board Act</i> , any interested party – that are received in accordance with this <i>act</i> ;	s.19.1(c)	Volume 3A Public Consultation Volume 3B Aboriginal Engagement Volume 3C Landowner Relations Volume 5A ESA - Biophysical: <ul style="list-style-type: none"> Section 3.0 Volume 5B ESA - Socio-economic: <ul style="list-style-type: none"> Section 3.0 Volume 8A Marine Transportation: <ul style="list-style-type: none"> Section 3.0
mitigation measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the designated project;	s.19.1(d)	Volume 5A ESA - Biophysical: <ul style="list-style-type: none"> Sections 7.0 and 8.0 Volume 5B ESA - Socio-economic: <ul style="list-style-type: none"> Sections 7.0 and 8.0 Volume 5C ESA – Biophysical Technical Reports Volume 5D ESA - Socio-economic Technical Reports Volume 6B Pipeline Environmental Protection Plan Volume 6C Facilities Environmental Protection Plan Volume 6D Westridge Marine Terminal Environmental Protection Plan Volume 6E Environmental Alignment Sheets Volume 8A Marine Transportation: <ul style="list-style-type: none"> Sections 4.3, 4.4 and 5.0 Volume 8B Technical Reports
the requirements of the follow-up program in respect of the designated project;	s.19.1(e)	Volume 5A ESA - Biophysical: <ul style="list-style-type: none"> Section 10.0 Volume 5B ESA - Socio-economic: <ul style="list-style-type: none"> Section 10.0
the purpose of the designated project;	s.19.1(f)	Volume 5A ESA - Biophysical: <ul style="list-style-type: none"> Section 2.0 Volume 5B ESA - Socio-economic: <ul style="list-style-type: none"> Section 2.0 Volume 8A Marine Transportation: <ul style="list-style-type: none"> Section 1.1

CONCORDANCE TABLE WITH THE *CEA ACT, 2012*

<i>CEA Act, 2012</i> Requirement	Section in <i>CEA Act, 2012</i>	Application Volume and Section
alternative means of carrying out the designated project that are technically and economically feasible and the environmental effects of any such alternative means;	s.19.1(g)	Volume 5A ESA - Biophysical: • Sections 2.0 and 4.0 Volume 5B ESA - Socio-economic: • Sections 2.0 and 4.0 Volume 8A Marine Transportation: • Section 2.2
any change to the designated project that may be caused by the environment;	s.19.1(h)	Volume 5A ESA - Biophysical: • Section 7.10 Volume 8A Marine Transportation: • Section 4.3
the results of any relevant study conducted by a committee established under section 73 or 74; and	s.19.1(i)	N/A
any other matter relevant to the environmental assessment that the responsible authority, or, – if the environmental assessment is referred to a review panel – the Minister, requires to be taken into account.	s.19.1(j)	Volume 8A Marine Transportation Volume 8B Technical Reports Volume 8C TERMPOL Reports These volumes take into consideration the <i>Filing Requirements Related to the Potential Environmental and Socio-Economic Effects of Increased Marine Shipping Activities, Trans Mountain Expansion Project</i> (September 10, 2013) (NEB 2013)
The environmental assessment of a designated project may take into account community knowledge and Aboriginal traditional knowledge.	s 19.3	Volume 5A ESA - Biophysical: • Sections 5.0, 6.0, 7.0 and 8.0 Volume 5B ESA - Socio-economic: • Sections 5.0, 6.0, 7.0 and 8.0 Volume 5C ESA - Biophysical Technical Reports Volume 5D ESA - Socio-economic Technical Reports Volume 8A Marine Transportation: • Sections 4.2, 4.3 and 4.4 Volume 8B Technical Reports
Subsection 5(1) of <i>CEA Act, 2012</i> defines environmental effects as a change that may be caused to the following components of the environment that are within the legislative authority of Parliament:		
fish as defined in section 2 of the <i>Fisheries Act</i> and fish habitat as defined in subsection 34(1) of that <i>Act</i> ;	s.5(1)(a)(i)	Volume 5A ESA - Biophysical: • Sections 5.0, 6.0, 7.0 and 8.0 Volume 5C ESA - Biophysical Technical Reports Volume 8A Marine Transportation: • Sections 4.2, 4.3, 4.4 and 5.0 Volume 8B Technical Reports
aquatic species as defined in subsection 2(1) of the <i>Species at Risk Act</i> ;	s.5(1)(a)(ii)	Volume 5A ESA - Biophysical: • Sections 5.0, 6.0, 7.0 and 8.0 Volume 5C ESA - Biophysical Technical Reports Volume 8A Marine Transportation: • Sections 4.2, 4.3, 4.4 and 5.0 Volume 8B Technical Reports
migratory birds as defined in subsection 2(1) of the <i>Migratory Birds Convention Act, 1994</i> , and	s.5(1)(a)(iii)	Volume 5A ESA - Biophysical: • Sections 5.0, 6.0, 7.0 and 8.0 Volume 5C ESA - Biophysical Technical Reports Volume 8A Marine Transportation: • Sections 4.2, 4.3, 4.4 and 5.0 Volume 8B Technical Reports
any other component of the environment that is set out in Schedule 2.	s.5(1)(a)(iv)	N/A
Subsection 5(1) of the <i>CEA Act, 2012</i> defines environmental effects as (b) a change that may be caused to the environment that would occur		

CONCORDANCE TABLE WITH THE *CEA ACT, 2012*

<i>CEA Act, 2012</i> Requirement	Section in <i>CEA Act, 2012</i>	Application Volume and Section
on federal lands,	s.5(1)(b)(i)	Volume 5A ESA - Biophysical: • Section 7.0 Volume 5B ESA - Socio-economic: • Section 7.0
in a province other than the one in which the <i>act</i> or thing is done or where the physical activity, the designated project or the project is being carried out, or	s.5(1)(b)(ii)	N/A No changes are anticipated in provinces other than Alberta and BC in relation to the ESA.
outside Canada.	s.5(1)(b)(iii)	Volume 8A Marine Transportation: • Sections 4.3, 4.4 and 5.0
Subsection 5(1) of the <i>CEA Act, 2012</i> defines environmental effects as (c) with respect to aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on:		
health and socio-economic conditions;	s.5(1)(c)(i)	Volume 5B ESA - Socio-economic: • Sections 5.0, 6.0, 7.0 and 8.0 Volume 5D ESA - Socio-economic Technical Reports Volume 8A Marine Transportation: • Sections 4.3 and 4.4 Volume 8B Technical Reports
physical and cultural heritage;	s.5(1)(c)(ii)	Volume 5B ESA - Socio-economic: • Sections 5.0, 6.0 and 7.0
the current use of lands and resources for traditional purposes; or	s.5(1)(c)(iii)	Volume 5B ESA - Socio-economic: • Sections 5.0, 6.0, 7.0 and 8.0 Volume 5D ESA - Socio-economic Technical Reports Volume 8A Marine Transportation: • Sections 4.3 and 4.4 Volume 8B Technical Reports
any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.	s.5(1)(c)(iv)	Volume 5B ESA - Socio-economic: • Sections 5.0, 6.0 and 7.0

1.0 INTRODUCTION

1.1 Project Overview

Trans Mountain Pipeline ULC (Trans Mountain) is a Canadian corporation with its head office located in Calgary, Alberta (AB). Trans Mountain is a general partner of Trans Mountain Pipeline L.P., which is operated by Kinder Morgan Canada Inc. (KMC), and is fully owned by Kinder Morgan Energy Partners, L.P. Trans Mountain is the holder of the National Energy Board (NEB) certificates for the Trans Mountain pipeline system (TMPL system).

The TMPL system commenced operations 60 years ago and now transports a range of crude oil and petroleum products from Western Canada to locations in central and southwestern British Columbia (BC), Washington State and offshore. The TMPL system currently supplies much of the crude oil and refined products used in BC. The TMPL system is operated and maintained by staff located at Trans Mountain's regional and local offices in Alberta (Edmonton, Edson, and Jasper) and BC (Clearwater, Kamloops, Hope, Abbotsford, and Burnaby).

The TMPL system has an operating capacity of approximately 47,690 m³/d (300,000 bbl/d) using 23 active pump stations and 40 petroleum storage tanks. The expansion will increase the capacity to 141,500 m³/d (890,000 bbl/d).

The proposed expansion will comprise the following:

- Pipeline segments that complete a twinning (or “looping”) of the pipeline in Alberta and BC with about 987 km of new buried pipeline.
- New and modified facilities, including pump stations and tanks.
- Three new berths at the Westridge Marine Terminal in Burnaby, BC, each capable of handling Aframax class vessels.

The expansion has been developed in response to requests for service from Western Canadian oil producers and West Coast refiners for increased pipeline capacity in support of growing oil production and access to growing West Coast and offshore markets. NEB decision RH-001-2012 reinforces market support for the expansion and provides Trans Mountain the necessary economic conditions to proceed with design, consultation, and regulatory applications.

Application is being made pursuant to Section 52 of the *National Energy Board Act (NEB Act)* for the proposed Trans Mountain Expansion Project (referred to as “TMEP” or “the Project”). The NEB will undertake a detailed review and hold a Public Hearing to determine if it is in the public interest to recommend a Certificate of Public Convenience and Necessity (CPCN) for construction and operation of the Project. Subject to the outcome of the NEB Hearing process, Trans Mountain plans to begin construction in 2015/2016 and go into service in 2017.

Trans Mountain has embarked on an extensive program to engage Aboriginal communities and to consult with landowners, government agencies (e.g., regulators and municipalities), stakeholders, and the general public. Information on the Project is also available at www.transmountain.com.

1.2 The Trans Mountain Pipeline

1.2.1 About the Applicant

1.2.1.1 The Trans Mountain Pipeline System

The TMPL system began transporting crude oil in 1953, ushering in a new era of economic growth in western Canada. Originally designed to transport just crude oil, the pipeline was later modified to allow customers to also ship refined products and production from Alberta's oil sands. Today, Trans Mountain remains the only pipeline that transports liquid petroleum from the Western Canadian Sedimentary Basin to the west coast of Canada. The pipeline celebrated 60 years of service in 2013.

1.2.1.2 Kinder Morgan

Kinder Morgan is the largest midstream and the fourth largest energy company (based on combined enterprise value) in North America. Kinder Morgan owns an interest in or operates approximately 130,000 km of pipelines transporting natural gas, refined petroleum products, crude oil, and carbon dioxide (CO₂). The Kinder Morgan family of companies has four publicly traded entities: Kinder Morgan, Inc., Kinder Morgan Energy Partners, L.P. (KMP), Kinder Morgan Management, LLC and El Paso Pipeline Partners. Combined, the Kinder Morgan companies have an enterprise value of approximately \$105 billion.

Kinder Morgan, through its operating company KMC, has owned and operated the Trans Mountain pipeline (TMPL) since 2005. Trans Mountain is the holder of the operating certificate from the NEB for the TMPL and is the applicant for the expansion.

1.2.1.3 Operations Management

Safety, compliance and protection are the key components of Kinder Morgan's Operations Management System (OMS), a single management system capturing the company's important operational expectations in areas such as physical operations, engineering, environmental compliance, asset integrity, efficiency, quality, and project management.

The OMS plays a critical role in setting the objectives and expectations for all these activities. Individual business unit operations including those of KMC, its maintenance procedures, and site-specific procedures are designed to meet these objectives and expectations.

Across all its operations, Kinder Morgan strives to provide for the safety of the public, its employees and contractors; protect the environment; comply with applicable laws, rules, regulations, and permit requirements; and operate and expand efficiently and effectively to serve our shareholders and customers. The OMS plays a critical role in setting the objectives and expectations for all these activities. Individual business unit operations including those of KMC, its maintenance procedures, and site-specific procedures are designed to meet these objectives and expectations.

Kinder Morgan is governed by its operational goals, which include risk reduction, efficiency and productivity, effective expansion and integration, quality assurance, and a culture of excellence. These goals are embedded into the company and its operations. The operations of each business unit are as unique as the regulatory and commercial environments in which they operate.

1.2.1.4 *Focused on Safety*

Pipeline safety is Kinder Morgan's top priority. With 60 years of operating experience, KMC employs rigorous safety standards.

The control centre for the pipeline is located at the Edmonton terminal, the start of the TMPL system. Control Centre Operators (CCOs) remotely monitor all aspects of pipeline operations. Operating conditions are monitored 24 hours a day, 7 days a week by staff using a Supervisory Control and Data Acquisition (SCADA) computer system. This electronic surveillance system gathers and displays such data as pipeline pressures, volume and flow rates and the status of pumping equipment and valves. Alarms notify CCOs if parameters deviate from prescribed operating limits. Both automated and manual valves are strategically located along the pipeline system to enable the pipeline to be shut down immediately and sections to be isolated quickly, if necessary. In the event of a precautionary shutdown of the pipeline there is a formal protocol, which must be followed prior to restarting the pipeline. This protocol includes analysis of SCADA and leak detection system data, aerial or foot patrols of the pipeline as appropriate, completion of any inspections or repairs, notifications to regulators, and development of a restart plan. The approval of two operations directors is required prior to the restart of the pipeline.

Operations staff trained to maintain the pipeline and respond in the event of a spill or other safety related incidents are located in communities along the pipeline route. Currently, in Alberta 100 staff are employed in Edmonton, Stony Plain, Edson, and Jasper. Through central BC in the towns of Blue River, Clearwater, and Kamloops, an additional 40 operations personnel maintain the pipeline while in southern BC, 60 staff are located in Hope, Sumas (near Abbotsford) and Burnaby.

The pipeline right-of-way is regularly patrolled by both land and air. Any unauthorized activity or encroachment is reported and investigated. KMC has a public awareness program designed to create awareness about pipelines, provide important safety information, increase knowledge of the regulations for working around pipelines, and educate first responders and the public on our emergency preparedness response activities.

The integrity of the pipeline is regularly monitored using electronic equipment called "smart pigs". These devices inspect the pipeline from the inside and can identify potential anomalies or changes to the condition of the pipe. The collected data is analyzed to pinpoint locations where further investigation is required. If necessary, a section of the pipe is exposed and assessed by qualified technicians so that it can be repaired or replaced.

As a federally regulated company, KMC is regularly audited by the NEB. Any concerns identified in these audits are addressed through a comprehensive Corrective Action Plan approved by the NEB that remains in place until all items are completed.

Kinder Morgan is committed to continually improving pipeline and facility integrity to protect the safety of the public, the environment, and company employees. The company is committed to being a good corporate citizen by incorporating responsible business practices and conducting its operations in an ethical manner.

1.2.1.5 *Westridge Marine Terminal*

Trans Mountain has been safely loading tankers and barges since 1956 from the Westridge Marine Terminal in Burnaby, BC. Trans Mountain is responsible for and has internal standards and procedures relating to marine safety at the Westridge Marine Terminal including rigorous

inspections and monitoring for each vessel. In addition, Trans Mountain works closely with Port Metro Vancouver (PMV), Transport Canada, the Canadian Coast Guard, and other agencies to ensure the safety and efficiency of this traffic. Trans Mountain has consistently worked to bring parties to the table to advance opportunities to improve the safety and efficiency of tanker traffic.

Stringent regulations and requirements provide oversight and ensure that oil tankers navigate local waters safely. For example, on the west coast of Canada all oil tankers must be double-hulled, guided by two BC coast pilots, and escorted by tethered tugs.

Trans Mountain is a shareholder and member of the Western Canada Marine Response Corporation (WCMRC), Canada's West Coast-certified response organization responsible for emergency response preparedness — on call 24 hours a day, 7 days per week to manage oil spill response on the BC coast.

1.2.1.6 Engaging Communities

At KMC, we believe our neighbours, governments, and Aboriginal communities play an important role in how we conduct our business. Our success depends on earning the trust, respect and cooperation of community members.

In anticipation of TMEP, Trans Mountain has established relationships with landowners, neighbours, and communities along the pipeline corridor developed over the last six decades. The TMPL crosses private properties, as well as public lands. Agreements are in place with landowners that have allowed Trans Mountain to build and operate the existing pipeline. Trans Mountain values its ongoing and positive relationships with landowners and neighbours in all communities along the route.

Trans Mountain is committed to respectful, transparent and collaborative interactions with communities to develop long-term effective relationships. To honour this commitment, we participate in communities by hosting facility open houses, providing newsletters and project updates, making safety and public awareness presentations and participating in community events.

With operations in Aboriginal traditional territories and on reserve lands, Trans Mountain recognizes and appreciates the many unique and diverse interests of Aboriginal groups, and is committed to open, transparent dialogue and creating mutually beneficial working relationships. Trans Mountain views the Crown's obligation for Aboriginal consultation as an opportunity to demonstrate recognition and respect for the constitutionally protected rights held by Aboriginal Peoples.

1.2.1.7 Environmental Stewardship

As a long-time industry and community member, Trans Mountain is committed to working with residents, regulatory authorities, and other stakeholders on environmental initiatives. Recent examples of Trans Mountain's commitment to preserving and protecting the environment include:

- **Raft River Stabilization (Clearwater, BC)** - Trans Mountain helped stabilize the Raft River near Clearwater, BC. This erosion protection project has helped enhance the river's fish habitat, an important historical fishing ground for local Aboriginal communities. This enhancement project involved stabilizing more than 700 m of riverbank to prevent erosion, improving the local fish habitat, as well as planting native trees and shrubs.

- **Improving wildlife habitat and conservation education along Stoney Creek (Burnaby, BC)** - 20 years ago there were no salmon in Stoney Creek. Thanks to the Stoney Creek Environment Committee, this habitat has been restored. Trans Mountain and its employees have been involved with many of these projects, including participating annually in the Stoney Creek Environmental Committee's "Great Salmon Send-Off."
- **Tree Canada Partnership** - Since 1998, Trans Mountain has contributed to the planting of 13,000 trees. Over the next 80 years, this will offset 2,300 tonnes of CO₂, a main contributor to greenhouse gases.

1.2.1.8 Award-winning Projects: The Anchor Loop Expansion

Kinder Morgan Canada recently expanded a portion of the TMPL, a 158 km section of the existing Trans Mountain system between Hinton, Alberta and Hargreaves, BC. Completed in 2008, the Anchor Loop expansion project involved installing a second pipeline adjacent to the existing pipeline, which included construction through Jasper National Park and Mount Robson Provincial Park, both designated part of the Canadian Rocky Mountains Parks, a United Nations Educational, Scientific, and Cultural Organization World Heritage Site.

Successful completion of Anchor Loop was the result of years of planning and execution of a very complex and highly scrutinized pipeline project. Rugged terrain, stringent environmental requirements and intense regulatory scrutiny were all challenges that were met with excellence.

For this work, KMC received a prestigious Emerald Award in 2010 from the Alberta Emerald Foundation; it has been recognizing, celebrating and inspiring environmental excellence in Alberta for more than 20 years. Each year, the Emerald Awards recognize and reward the excellent environmental initiatives undertaken each year by large and small corporations, individuals, not-for-profit associations, community groups, and governments. Of six finalists in the business category, KMC was one of three companies to receive this prestigious award that year.

The success of the Anchor Loop project has been attributed to a strong collaborative effort and teamwork involving KMC's project team, consultants, contractors, the regulatory community, Aboriginal Peoples, and stakeholders.

Today, as plans progress for the proposed expansion of the TMPL between Edmonton and Burnaby, should the NEB approve the company's bid to further expand the TMPL, KMC would aim to replicate the best practices and many successes of the Anchor Loop project.

1.3 Regulatory Framework

This section describes and identifies the regulatory framework applicable to the Project, including the approvals and requirements of relevant federal, provincial, and other regulatory bodies.

In May 2013, pursuant to NEB Reasons for Decision RH-001-2012, the Project received approval pursuant to Part IV of the *NEB Act* for the toll methodology, terms and conditions that would apply to the Project. This approval reinforces market support for the Project and provides Trans Mountain with the necessary economic incentive to proceed with design, consultation, and regulatory applications.

1.3.1 Federal Regulatory Framework

The Project will require a CPCN pursuant to Section 52 of the *NEB Act* to permit construction and operation of the expanded pipeline system. A comprehensive Environmental and Socio-Economic Assessment (ESA) and a public hearing is required as part of the NEB regulatory process for the Project. The recent NEB Reasons for Decision RH-001-2012 concerning Trans Mountain's tolls and tariff application provides the financial grounding that Trans Mountain requires to proceed with this application under Section 52 of the *NEB Act*. The NEB Section 52 application constitutes Trans Mountain's formal application to the NEB seeking approval for the Project. The Section 52 application forms the basis for the regulatory process and public hearing for the Project.

Trans Mountain is required to prepare an application package for the Project in accordance with guidance provided in the NEB Filing Manual (NEB 2013a). To satisfy the specifications set out for large proposals such as the Project, this application includes a facilities application that describes the Project; its economic feasibility and justification; its engineering design and operating and maintenance activities, including the quality assurance program; the public consultation program undertaken for the Project including engagement with Aboriginal communities, landowners, government agencies (e.g., regulators, municipalities), stakeholders (e.g., environmental non-governmental organizations, recreation associations), and the general public; lands information, including accurate documentation on land areas, land rights, the service of notice and the land acquisition process; and an assessment of the environmental and socio-economic implications of the Project.

For a proposed project that involves constructing or modifying facilities that require an application under the *NEB Act*, the NEB must satisfy itself, or make recommendations to the Governor in Council, that the facilities are and will be required for the present and future public convenience and necessity.

Under the *Canadian Environmental Assessment (CEA) Act, 2012*'s Designated Project Regulations, there are three possible Project-related criteria that could potentially result in the Project being a *CEA Act, 2012* designated project: length of the new pipeline, oil storage volume, and marine terminal development. Trans Mountain does not believe the criteria for oil storage volumes or creation of a new marine terminal would apply to the Project given the size of existing oil storage at any of the associated terminals is under 500,000 m³, and the Westridge Marine Terminal is an existing terminal and will continue to be located on land that has historically been used as a marine terminal. The Project will be a designated project under the *CEA Act, 2012*, based on the fact that the new pipeline will be more than 40 km in length.

In any event, based on the level of public interest in the Project, Trans Mountain believes it should be considered a designated project, and subject to a rigorous environmental review required under both the *NEB Act* and the *CEA Act, 2012*. Therefore, Trans Mountain requested that the Project be deemed a designated project under the *CEA Act, 2012*. As such, the environmental assessment prepared for the Project considers the mandatory factors listed in Section 19(1) of the *CEA Act, 2012*, as well as the factors listed in the NEB Filing Manual (NEB 2013a), and pertinent issues and concerns identified through consultation and engagement with Aboriginal communities, landowners, government agencies, stakeholders, and the general public.

Marine transportation in Canadian waters is authorized and regulated through the *Canada Shipping Act* and related legislation and regulations administered by Transport Canada and the Canadian Coast Guard. There will be additional marine traffic to offload the product from the

Project. Although regulation and authorization of marine transportation is not specifically within the jurisdiction of the NEB, the environmental and socio-economic effects of the increased marine traffic is considered by Trans Mountain in accordance with the NEB's direction from their list of Issues for the Project, released on July 29, 2013.

Routine operation and maintenance activities will be evaluated by the NEB as part of the Section 52 application for Project construction and operation of a pipeline. For those activities listed under Section 4.1 of the Operations and Maintenance Activities on Pipelines Regulated under the *NEB Act*: Requirements and Guidance Notes (NEB 2013b), Trans Mountain will provide notification to the NEB as required.

Pursuant to the *NEB Act*, approval must be received from the NEB prior to abandonment activities taking place. Accordingly, Trans Mountain will file an application with the NEB if it seeks to abandon any portion of the TMPL system at some point in the future. Abandonment will be conducted in accordance with the legislation and requirements in place at the time of the application. The Preliminary Abandonment Plan for the Project in accordance with the NEB Filing Manual (Section 4A.2.6.1) is presented in Volume 4C, Section 12.

1.3.2 Other Federal Requirements

In addition to seeking a certificate under the *NEB Act* to construct and operate the Project, other federal permits and approvals may be required for certain construction activities to proceed. The project is federally regulated and subject to obtaining a CPCN from the NEB and complying with the conditions imposed by the NEB. Trans Mountain intends to work with provincial and municipal regulatory agencies to provide them the information they need to fulfill their permitting requirements.

1.3.2.1 Federal Undertakings

Trans Mountain will work with various federal agencies with responsibilities related to Project components and environmental impacts. Table 1.3.1 provides a preliminary list of potential federal permits and approvals required for the Project.

TABLE 1.3.1

POTENTIAL FEDERAL ENVIRONMENTAL PERMITS/APPROVALS

Regulatory Agency	Legislation	Permit, Approval, Authorization and/or Notification	Activity/Trigger
Aboriginal Affairs and Northern Development Canada	<i>Indian Act</i>	Section 28 Approval to Cross an Indian Reserve	As required, approval for the proposed pipeline corridor to cross reserve lands.
	<i>First Nations Land Management Act</i>	Section 20 Approval to Cross an Indian Reserve	As required, approval for the proposed pipeline corridor to cross reserve lands.
Canadian Transportation Agency	<i>Railway Relocation and Crossing Act</i>	Crossing Permit	Approval to cross railways with access roads and power lines.

TABLE 1.3.1

POTENTIAL FEDERAL ENVIRONMENTAL PERMITS/APPROVALS (continued)

Regulatory Agency	Legislation	Permit, Approval, Authorization and/or Notification	Activity/Trigger
Environment Canada	<i>Canadian Environmental Protection Act, 1999</i> ; Disposal at Sea Regulations; Regulations Respecting Applications for Permits for Disposal at Sea	Section 127: Disposal at Sea Permit (previously called Ocean Dumping Permit)	Approval to dispose of materials at sea (e.g., dredge spoil from the Westridge Marine Terminal expansion).
	<i>Species at Risk Act</i> (SARA)	Permit pursuant to Section 73 of SARA - Species at Risk Permit	Activities that affect a listed species, its critical habitat or residence.
Fisheries and Oceans Canada (DFO) ¹	<i>Fisheries Act: Section 32(2)</i>	Case-specific request for review	Authorization required if fish will be destroyed during construction.
	<i>Fisheries Act: Section 35(2)</i>	Case-specific request for review	Authorization required if construction will cause harm to fish habitat.
	Operational Statements	Notification as per the applicable Operational Statements	As required, notifications for watercourse crossings that comply with DFO Operational Statements. Marine Communications and Traffic Services oversight of marine traffic within Canadian jurisdiction.
	Section 52 of <i>Fishery (General) Regulation</i>	Authorization of Fish Collection for Scientific, Experimental, Educational or Public Display Purposes	Approval to collect salmon, eulachon or SARA-listed species during scientific studies.
	SARA	Permit pursuant to Schedule 1 Aquatic Species of SARA - Species at Risk Permit	Activities that may affect a listed fish species, its critical habitat or residence.
Industry Canada	<i>Radiocommunication Act</i>	Radio Licence	Radio communication.
Natural Resources Canada	<i>Explosives Act</i>	Ammonium Nitrate Fuel Oil Permit	Blending of ammonium nitrate and fuel oil.
		Sections 6 and 7: Explosives Transportation Permit	Approval to transport explosives.
		Temporary Magazine Licence	Approval for any storage place of explosives in amounts that exceed the regulations. If a factory is required to make explosives near the site, additional permits may be required. Additional permits may be required, depending on the type of explosives (e.g., an Ammonium Nitrate Fuel Oil Permission) and whether they are blended.
		Temporary Blaster's License or Blaster's Permit	Approval for the use of explosives.

TABLE 1.3.1

POTENTIAL FEDERAL ENVIRONMENTAL PERMITS/APPROVALS (continued)

Regulatory Agency	Legislation	Permit, Approval, Authorization and/or Notification	Activity/Trigger
Parks Canada	<i>Canada National Parks Act</i>	Special Activity Permits	Approval to conduct activities such as valve work.
Transport Canada	<i>Canada Shipping Act</i>	An act respecting shipping and navigation	Ensures compliance of vessels with relevant marine regulations.
PMV	<i>Canada Marine Act</i>	Project Permit Building Permit Water Lease Expansion	Approval for new structures on water or land including modifications to existing structures.

Note: 1 As a result of the passage of the *Jobs, Growth and Long-term Prosperity Act* (Bill C-38), regulation requirements of some federal legislation are evolving and actual triggers and permitting requirements will be confirmed over the next year.

1.4 TERMPOL Review Process

In addition to federal authorizations, Trans Mountain requested to undertake the Technical Review Process of Marine Terminal Systems and Transshipment Sites (TERMPOL) process, which focuses on the increase in marine transportation related to the Project. The review process is chaired and led by Transport Canada and has involved other federal departments and stakeholders, as required. The review may consider safety measures above and beyond existing regulations to address site-specific circumstances.

In general and for any project, the TERMPOL process focuses on the marine transportation components of a project and examines the safety of tankers entering Canadian waters, navigating through channels, approaching berthing at a marine terminal and loading or unloading oil or gas.

With respect to the increase in existing marine traffic related to the TMEP, the TERMPOL process focuses on the effects of the incremental increase in marine traffic related to the Project. To fulfill the requirements of TERMPOL, Trans Mountain undertook a number of studies focused on the Project-related increase in tanker traffic. The relevant results of these studies have been incorporated into the ESA for marine transportation (Volume 8A, Sections 4.0 and 5.0). In particular, the results of a quantitative risk assessment informed the assessment of accidents and malfunctions, the description of spill prevention, emergency preparedness and response, and the identification of improved practices (Volume 8A, Section 5.0). The relevant TERMPOL studies referenced in Volume 8A are provided in Volume 8C.

Trans Mountain has provided all of the TERMPOL studies in Volume 8C to Transport Canada for review. In addition, Trans Mountain is seeking endorsement from Transport Canada on the proposed measures to improve navigational safety outlined in Volume 8A, Section 5.4.2, as Trans Mountain has no regulatory authority to implement the proposed measures. A summary of the TERMPOL process is provided in Volume 8C-1 (TERMPOL 3.1).

1.5 Non-NEB Regulatory Approvals

Trans Mountain is currently working with provincial and municipal agencies to understand their expectations for information and permits related to federally regulated projects.

1.5.1 Provincial Permitting Requirements

1.5.1.1 Provincial Undertakings

A list of potential provincial permits and approvals is provided in Table 1.5.1.

TABLE 1.5.1

POTENTIAL PROVINCIAL ENVIRONMENTAL PERMITS/APPROVALS

Regulatory Agency	Permit, Approval, Authorization and/or Notification
Alberta	
Alberta Culture	<ul style="list-style-type: none"> • <i>Historical Resources Act</i> clearance
Alberta Environment and Sustainable Resource Development (AESRD)	<ul style="list-style-type: none"> • Public Land Agreement (Pipeline Land Agreement) on Crown land • Fish Research License for fish rescue at isolated crossings • Temporary Field Authorization for access roads on Crown land • Wildlife damage permits for beaver, lodge and beaver dam removal • <i>Water Act</i> approval for construction within a water body • Notification under the <i>Code of Practice for Watercourse Crossings</i> • Notification under the <i>Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body</i> • Notification under the <i>Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing of Pipelines</i> • Registration under the <i>Code of Practice for the Release of Hydrostatic Test Water from Hydrostatic Testing of Petroleum Liquid and Gas Pipelines</i> • Tree cutting, burning, road use and special use permits under the <i>Alberta Forests Act</i> • Master Land Withdrawal and Consent Agreement
Alberta Energy Regulator (AER)	<ul style="list-style-type: none"> • Environmental Field Report for Pipeline Licence or Approval under the <i>Alberta Public Lands Act</i>
Alberta Tourism, Parks and Recreation	<ul style="list-style-type: none"> • Research and Collection Permit
Alberta Transportation and Infrastructure	<ul style="list-style-type: none"> • Roadside Development Permit • Several other items (dangerous goods, overweight permit, etc.)
BC	
BC Oil and Gas Commission (BC OGC)	<ul style="list-style-type: none"> • NEB Pipeline Provincial Authorization Application for: <ul style="list-style-type: none"> - temporary occupation of Crown land for the pipeline right-of-way and for ancillary land uses (camps, access, workspaces, etc.); - authorizations under Section 9 of the <i>Water Act</i> (changes in and about a stream) for stream or water body crossings; - cutting permits under Section 47.4 of the <i>Forest Act</i> to harvest Crown timber; - road use permits under Section 117 of the <i>Forest Act</i>; and - Agricultural Land Reserve (ALR) authorizations for constructing a pipeline or facility, and for importing/removing soil from ALR lands. • Road permits under Section 14 of the <i>Land Act</i> • Temporary Crown land access approval under Section 14 of the <i>Land Act</i> • Section 8 <i>Water Act</i> Approval for short-term diversion or use of water • Aggregate Operations and Borrow Pit Permit

TABLE 1.5.1

POTENTIAL PROVINCIAL ENVIRONMENTAL PERMITS/APPROVALS (continued)

Regulatory Agency	Permit, Approval, Authorization and/or Notification
BC	
BC Parks	<ul style="list-style-type: none"> • Park Use Permit
BC Ministry of Forests, Lands and Natural Resource Operations	<ul style="list-style-type: none"> • Authorization under Section 40 of the BC <i>Wildlife Act</i> (temporary closure to hunting, trapping and guide outfitting if necessary during a construction activity) • General wildlife permit under the <i>Wildlife Act</i> and Approval or Notification for Changes In and About a Stream under Section 9 of the <i>Water Act</i> and Section 44 of the <i>Water Act</i> Regulations for beaver dam removal • Scientific Fish Collection Permit • <i>Heritage Conservation Act</i> permit • Road use permits • Special Use Permit • Burning Permit
BC Ministry of Transportation and Infrastructure	<ul style="list-style-type: none"> • Road Use and Highway Crossing Permit • Several other items (overweight, highway access, land closure request)
BC Ministry of Environment	<ul style="list-style-type: none"> • Section 44 Notification under the BC <i>Water Act</i> (minor work near a stream) • Section 14 Permit under the BC <i>Environmental Management Act</i> for the introduction of waste into the environment • Section 7 Waste Discharge Permit under the <i>Oil and Gas Waste Regulation</i> for testing and disposing of test water with additives

1.5.1.2 Other Non- National Energy Board Approvals

Trans Mountain will work with various municipal agencies with responsibilities related to Project components and impacts. Municipal requirements (including communities, counties [Alberta] and regional districts [BC]) may include burning permits, road crossing permits, utility crossing permits, development permits, excavation permits, refuse permits and herbicide/weed permits. Agreements with Forestry Management Area holders will be required for any Forestry Management Agreements encountered along the proposed pipeline corridor in Alberta.

2.0 PROJECT DESCRIPTION

After receiving strong commitments from its customers, KMC, in April 2012, announced a proposed expansion of the TMPL system between Edmonton and Burnaby.

In operation since 1953, the 1,150-km existing TMPL system, owned by KMC, has been responsibly providing the only West Coast access for Canadian oil products, including being the major transporter of the gasoline to the interior and south coast of BC.

The existing TMPL system began operating 60 years ago with a single pipeline constructed between Edmonton, AB (Plate 2.1) and Burnaby, BC (Plate 2.2). Shipments to the Westridge Marine Terminal on the Burrard Inlet began in 1956 (Plate 2.3). Over the years in response to changing market conditions, pumping capacity and tank storage has been added and new pipeline sections (or “loops”) have been constructed; most recently in 2008 in Jasper National Park and Mount Robson Provincial Park (Plate 2.4).

The TMPL system has a current operating capacity of approximately 47,690 m³/d (300,000 barrels per day [bbl/d]) using 23 pump stations and 40 storage tanks.

Trans Mountain is applying for approval to expand TMPL. The Project includes:

- 994 km of new, buried pipeline segments that twin (or “loop”) the existing pipeline in Alberta and BC, including two 3.6 km segments (7 km) of new buried delivery lines from the Burnaby Terminal to Trans Mountain’s Westridge Marine Terminal;
- new and modified facilities, including pump stations and terminals; and
- a new dock complex with three new berths at the Westridge Marine Terminal (the existing berth will be decommissioned).

After TMPL the capacity will be 141,500 m³/d (890,000 bbl/d), using 31 pump stations and 74 tanks.

An overview of the Project configuration is shown on Figure 2.1 and is described below. Additional details related to the pipelines and facilities are provided in the Project Design and Execution volumes (Volumes 4A, 4B, and 4C). Marine shipping activities associated with the Project are described briefly in Section 2.6 and more detail can be found in Volume 8A.



Plate 2.1 Edmonton Terminal



Plate 2.2 Burnaby Terminal



Plate 2.3 Westridge Marine Terminal



Plate 2.4 Construction of Trans Mountain Expansion Anchor Loop in Mount Robson Provincial Park

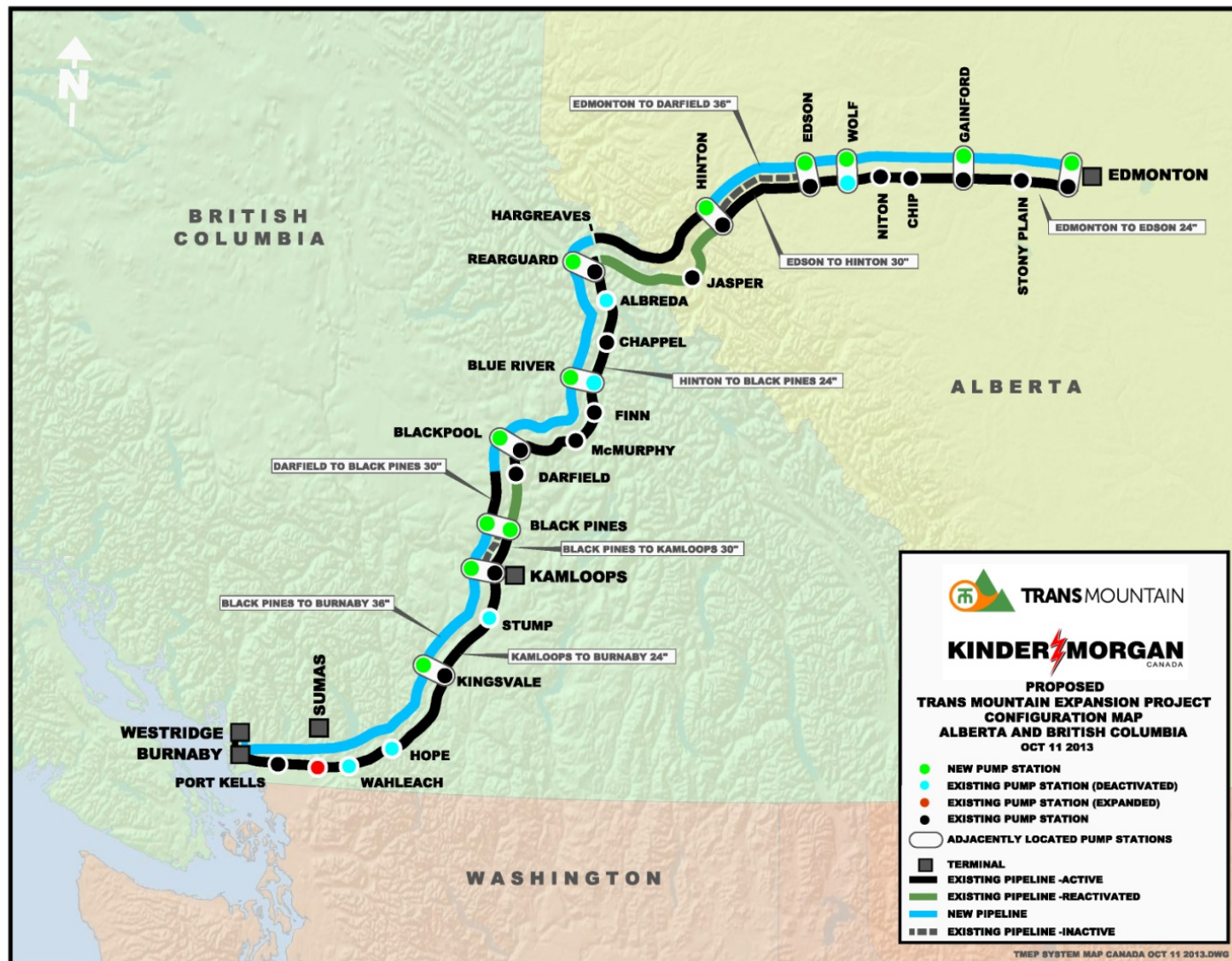


Figure 2.1 Project Configuration Map

2.1 Pipeline

The major components of the pipeline portion of the Project include:

- using existing active 610 mm (nominal pipe size [NPS] 24) and 762 mm (NPS 30) outside diameter (OD) buried pipeline segments;
- reactivating two 610 mm (NPS 24) OD buried pipeline segments that have been maintained in a deactivated state
 - Hinton to Hargreaves – 150 km;
 - Darfield to Black Pines – 43 km;
- constructing three new 914 mm (NPS 36) OD buried pipeline segments totaling approximately 987 km:
 - Edmonton to Hinton – 339.4 km;
 - Hargreaves to Darfield – 279.4 km;
 - Black Pines to Burnaby – 367.9 km; and
- constructing two parallel 3.6 km long 762 mm (NPS 30) OD buried delivery lines from the Burnaby Terminal to the Westridge Marine Terminal.

The Expansion will result in two continuous pipelines between Edmonton and Burnaby:

- Line 1 will have a sustainable capacity of 55,640 m³/d (350,000 bbl/d); and
- Line 2 will have a sustainable capacity of 85,850 m³/d (540,000 bbl/d).

Illustrations of pipeline construction are shown on Figures 2.1.1 and 2.1.2 and Plate 2.1.1. Additional details on pipeline construction methods are described in Volume 4B.

The existing TMPL has been operating safely for more than 60 years and its location is known to local TMPL operations crews, landowners, surface management agencies, and local emergency responders. To minimize environmental and socio-economic effects and facilitate efficient pipeline operations, use of the existing TMPL 18.3 m wide right-of-way has been maximized. Where it was not possible to align along the existing TMPL right-of-way, construction along other linear facilities was evaluated including other pipelines, power lines, highways and roads, railways, communication lines and other utilities. The result is that approximately 73 per cent of the of the new pipeline corridor follows the existing TMPL right-of-way, approximately 17 per cent follows other existing rights-of-way, and 10 per cent will be within a new corridor. Section 2.8 of Volume 4A details the corridor selection process. Sections 4.2 and 4.3 of Volumes 5A and 5B describe the proposed corridor and the alternatives considered.



Plate 2.1.1 Typical Pipeline Construction

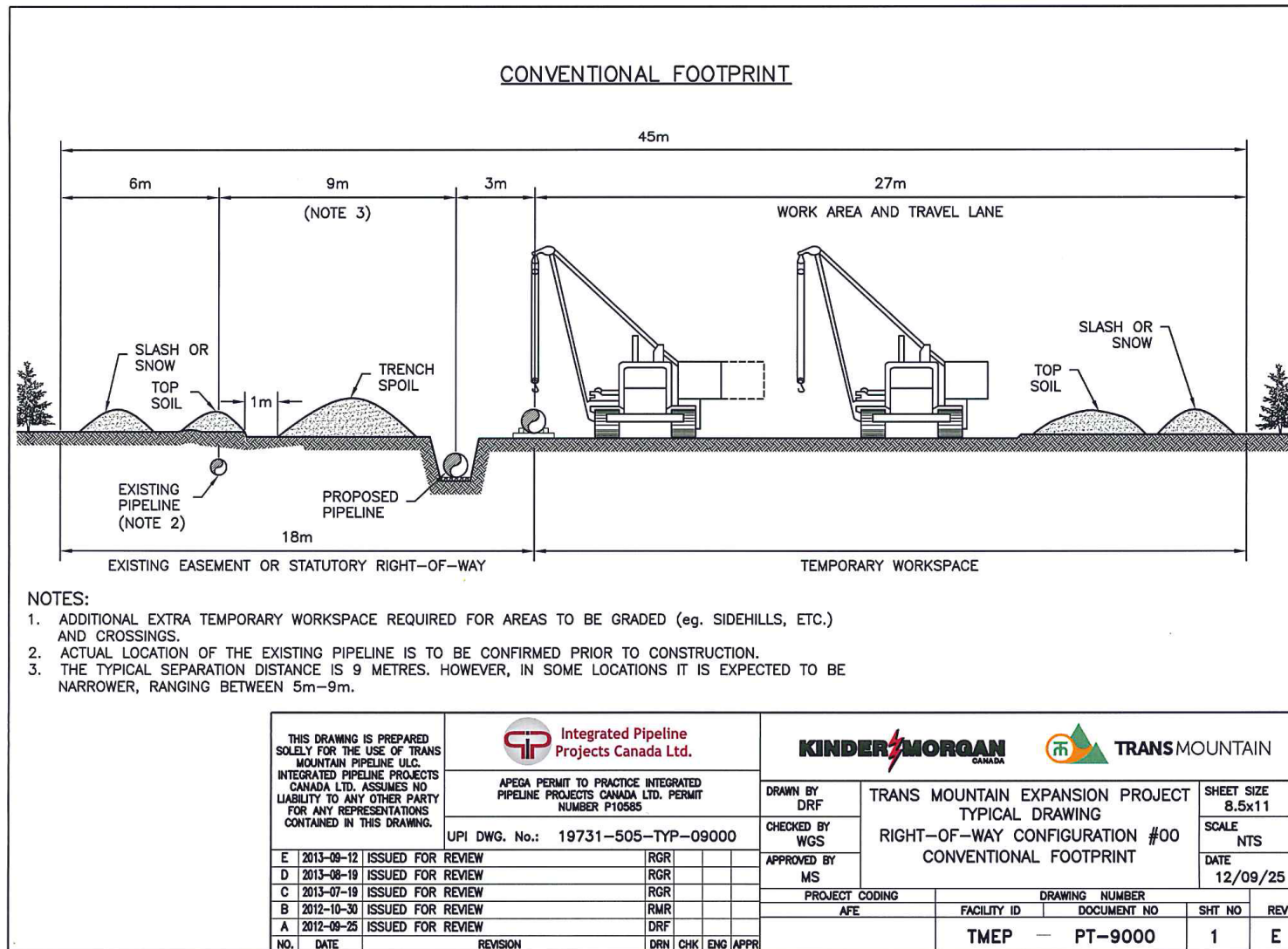


Figure 2.1.1 Conventional Footprint

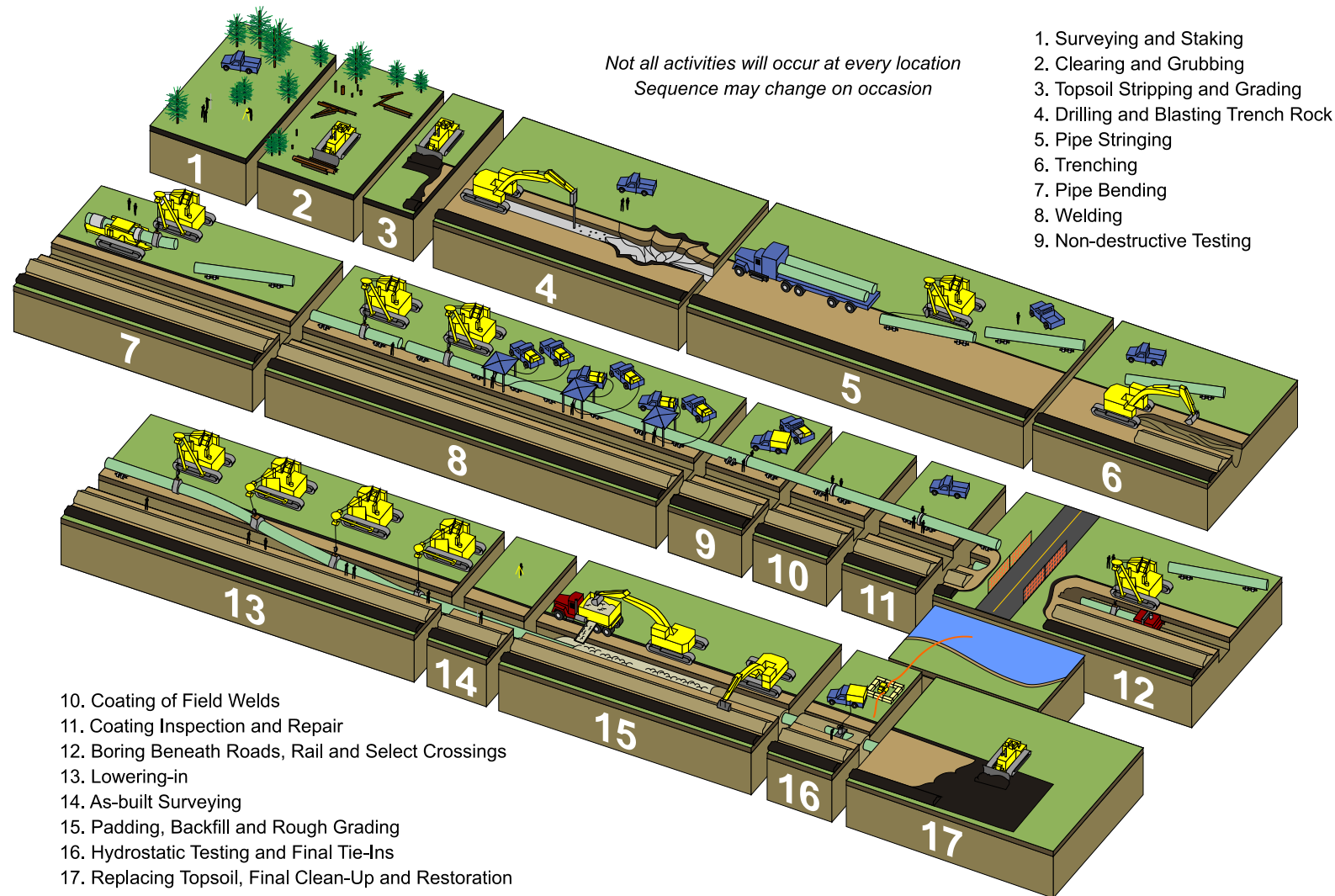


Figure 2.1.2 Typical Rural Pipeline Construction: Sequence of Activities