



## LETTER DECISION

File OF-Fac-Oil-T260-2013-03 63  
2 July 2021

To: All participants in Detailed Route Hearing MH-015-2020

**Trans Mountain Pipeline ULC (Trans Mountain)  
Trans Mountain Expansion Project (TMEP)  
Certificate of Public Convenience and Necessity (Certificate) OC-065  
Detailed Route Hearing MH-015-2020 – Yarrow Ecovillage Society Cooperative  
(Yarrow) [representative Michael Hale] and City of Chilliwack (Chilliwack)  
Decision of the Commission of the Canada Energy Regulator (Commission)**

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## 1 Background

On 16 December 2013, Trans Mountain filed an application with the National Energy Board (NEB or Board) under section 52 of the *National Energy Board Act*<sup>1</sup> (NEB Act) for a Certificate authorizing the construction and operation of the TMEP.

The TMEP includes twinning the existing 1,147-kilometre-long Trans Mountain Pipeline (TMPL) system in Alberta and British Columbia (BC) with approximately 981 kilometres of new buried pipeline; new and modified facilities, such as pump stations and additional tanker loading facilities at the Westridge Marine Terminal in Burnaby; and reactivating 193 kilometres of the existing pipeline between Edmonton and Burnaby. Trans Mountain requested approval of a 150-metre-wide corridor for the TMEP pipeline's general route.

Upon receipt of the application, the NEB commenced a public Certificate hearing process. Following the Certificate Hearing, on 19 May 2016, the NEB issued its OH-001-2014 Recommendation Report ([A77045](#)) recommending that the Governor in Council (GIC) approve the TMEP and its general pipeline corridor.

The TMEP was approved by Order in Council (OIC) P.C. 2016-1069 in November 2016. The NEB issued Certificate OC-064 and began work on various regulatory processes, including the 2017/18 detailed route approval process.

Certificate OC-064 included approval of a corridor through Chilliwack that followed BC Hydro transmission lines for some distance (Original Corridor). On 27 March 2017, Trans Mountain applied for the Chilliwack BC Hydro Route Realignment ([A82269](#)) in order to vary the NEB-approved corridor through Chilliwack (Chilliwack Realignment). A public hearing (OH-001-2017) was held. Chilliwack, the S'ólh Téméxw Stewardship Alliance (STSA), and The WaterWealth Project (WaterWealth) participated as intervenors and the NEB received 11 letters of comment.

The Chilliwack Realignment was to vary the pipeline corridor for a short section, relocating the TMEP away from the BC Hydro lines and to within the existing TMPL right-of-way (RoW). The realignment was outside the Original Corridor for approximately 1.8 kilometres. In April 2018, the NEB issued its OH-001-2017 Report ([A91053](#)) [Realignment Report] in which it recommended approval of the application to vary the corridor (Approved Corridor). On 21 June 2018, the GIC, via OIC P.C. 2018-859, approved the issuance of Order AO-007-OC-064 to vary Certificate OC-064 to reflect the Chilliwack Realignment, subject to conditions. This Order was issued on 4 July 2018 ([A92817](#)).

The Original Corridor and Approved Corridor related to the Chilliwack Realignment are shown in **Figure 1** below.

**Figure 1 – Original Corridor and Approved Corridor in the Chilliwack Realignment (Source: [A91053](#))**

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<sup>1</sup> R.S.C., 1985, c. N-7 (repealed).



On 30 August 2018, the Federal Court of Appeal (FCA) issued its decision in *Tsleil-Waututh Nation v. Canada (Attorney General)*<sup>2</sup> (FCA Decision), setting aside OIC P.C. 2016-1069 and remitting the matter back to the GIC for appropriate action. Following the FCA Decision, the NEB reconsidered the matter of TMEP-related marine shipping and the Government of Canada reinitiated consultations with Indigenous<sup>3</sup> peoples.

Following a second public hearing process, the NEB issued its MH-052-2018 Reconsideration Report ([A98021](#)) in February 2019. Canada's Crown Consultation and Accommodation Report ([C00219-5](#)) was issued in June 2019. The GIC approved the TMEP again in June 2019 via OIC P.C. 2019-820 ([C00219](#)) and the NEB subsequently issued Certificate OC-065 ([C00061](#)).

On 19 July 2019, following a public comment process, the NEB set out how it would resume the TMEP detailed route approval process ([C00593](#)). The NEB directed Trans Mountain to file its Plan, Profile and Book of Reference (PPBoR) for the entire proposed TMEP route. Trans Mountain served landowners along the length of the TMEP with a notice that the detailed route approval process was underway, and placed notices in local publications. The NEB placed Trans Mountain's published notices on the NEB's website. The notices indicated that landowners and Indigenous peoples with a continued or new objection to the proposed detailed route, or to the methods or timing of construction, were required to file a Statement of Opposition (SOO). Notices advised interested persons (other than an owner of lands) who anticipated their lands may be adversely affected by the proposed detailed route, the methods of construction, and/or the timing of construction that they could file a SOO, indicated the timeline for doing so, and described how to obtain further information or assistance.

<sup>2</sup> 2018 FCA 153.

<sup>3</sup> The use of the term "Indigenous" has the meaning assigned by the definition of "aboriginal peoples of Canada" in subsection 35(2) of the *Constitution Act, 1982* which states:

In this Act, "aboriginal Peoples of Canada" includes the Indian, Inuit, and Métis Peoples of Canada.

In addition, on 23 August 2019, the NEB notified by letter 70 Indigenous communities,<sup>4</sup> whose rights and interests could be potentially affected by the TMEP detailed route approval process in Segments 6 and 7, of the detailed route approval process ([C01164](#), [C01167](#)). All notices advised that interested Indigenous communities could file a SOO in relation to the proposed detailed route, the methods of construction, and/or the timing of construction; indicated the timeline for doing so; and described how to obtain further information or assistance.

Landowners and Indigenous peoples whose 2017/18 detailed route hearings were put on hold following the FCA Decision were required to file a new SOO to continue with their detailed route hearings. Landowners and Indigenous peoples seeking a new detailed route hearing (i.e., those who did **not** have a 2017/18 detailed route hearing underway at the time of the FCA Decision) were required to file SOOs that demonstrated a material change in circumstances in relation to the proposed route or to the methods or timing of construction. Only SOOs that were filed on time, made in good faith, not withdrawn, and not frivolous or vexatious were accepted.

On 28 August 2019, the *Canadian Energy Regulator Act*<sup>5</sup> (CER Act) came into force, repealing the NEB Act. As a result, the Commission is considering approval of the PPBoR under the provisions of the CER Act.

## **2 Process changes due to the COVID-19 pandemic**

The detailed route hearing processes began prior to the COVID-19 pandemic and contemplated an oral cross-examination portion, as well as optional site visits by the Commission to the lands subject to each hearing. After the pandemic struck, the Commission issued a Procedural Direction on 21 April 2020 ([C05817](#)) for in-progress detailed route hearings, modifying its processes to exclude steps that involved in-person contact. Oral cross-examination was replaced with rounds of written questions (called information requests or IRs) and answers. Site visits were replaced with the opportunity for parties to file photographs or videos with their written evidence.

As explained in the Procedural Direction, the process changes were aimed at finding alternative ways to ensure that the detailed route hearings could continue in a manner that is fair and transparent, while protecting the health of those involved.

## **3 Detailed Route Hearing MH-015-2020**

### **3.1 Hearing participants**

In 2017, Yarrow (through its representative Suzanne Hale), as well as four individual Yarrow members filed SOOs ([A83535](#), [A83355](#), [A83235](#), [A83171](#), [A83539](#)) in relation to Tract 2438 and were granted five detailed route hearings ([MH-037-2018](#), [MH-019-2018](#), [MH-030-2018](#), [MH-034-2018](#), and [MH-036-2018](#), respectively). On 8 August 2018, the NEB combined these five hearings ([A93439](#)). Each landowner retained their individual hearing number; however, the NEB indicated that it would hold a single proceeding pertaining to Tract 2438 and would release a single decision. Pro Information Pro Environment United People Network (PIPE UP) was granted commenter status. Trans Mountain filed the same written evidence in each of the hearings ([A93676](#)).

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<sup>4</sup> In referring to Indigenous communities, the Commission is using this term to describe the individual First Nations, treaty associations, tribal councils, local and provincial Métis associations, and Métis settlement governing bodies that were identified as being potentially impacted by the TMEP.

<sup>5</sup> S.C. 2019, c. 28, s. 10.

On 16 October 2019, Yarrow, through its representative Michael Hale, filed a SOO ([C02291](#)) seeking to resume its 2017/2018 detailed route hearing.

On 13 and 16 September 2019, Chilliwack filed SOOs ([C01654](#) and [C01655](#)) seeking to resume its 2017/2018 detailed route hearing ([MH-020-2018](#)).

On 23 September 2019, the CER received a SOO from the STSA ([C01778](#)) opposing the proposed detailed route and the methods and timing of construction throughout various segments of the TMEP, including the lands at issue in this detailed route hearing. The STSA filed amended SOOs on 1 and 16 October 2019 ([C02000](#), [C02290](#)).

No other notified Indigenous community filed a SOO regarding the proposed detailed route for the lands at issue in this hearing (described below).

On 29 November 2019, the Commission issued SOO Decision No. 4 ([C03323](#)) outlining its consideration of all SOOs that had been filed with respect to Segments 5, 6, and 7 of the TMEP, and reasoning for deciding which SOOs met its assessment criteria and were set down for detailed route hearings.

On 31 January 2020, the Commission issued the Hearing Order ([C04466](#)) for all Segment 6 detailed route hearings that overlapped geographically with Chilliwack's opposition. SOO Filers Yarrow and Chilliwack were granted this Detailed Route Hearing MH-015-2020 with respect to Tract 2438 in Segment 6.4, as shown on PPBoR Sheet M002-PM03017-005 ([C00974-5](#)) [the Lands]. The Commission confirmed that PIPE UP would remain a commenter in the hearing.

On 6 May 2020, the STSA filed a letter ([C06175](#)) requesting leave to substitute Semá:th First Nation (Semá:th) in the place of the STSA for the purposes of representing their own interests in the SOOs filed by the STSA for Segments 5, 6, and 7. The STSA explained that all original signatory communities, with the exception of Semá:th, had withdrawn their signatures from the SOOs.

On 13 May 2021, the Commission granted the STSA's substitution request ([C06261](#)). On 16 April 2021, Trans Mountain filed a letter ([C12443](#)), to which a letter from Semá:th was attached, notifying the Commission that Semá:th was withdrawing its SOOs.

### **3.2 Overlap with other Chilliwack-area detailed route hearings**

On 31 January 2020, the Commission issued a Procedural Direction ([C04458](#)) explaining that there are a number of instances where the geographical focus of one detailed route hearing overlaps with that of one or more other hearings. Pursuant to section 203 of the CER Act, the Commission makes detailed route decisions for specific tracts of land and/or PPBoR sheets. This Detailed Route Hearing **MH-015-2020** relates to tract 2438 only, which is in Segment 6.4. All other tracts of land within Segments 6.2, 6.3, and 6.4 are the subject of other detailed route hearings (**MH-010-2020**, **MH-011-2020**, **MH-013-2020**, and **MH-026-2020**). These five hearings are referred to collectively as the "Chilliwack-Area Hearings." The following table identifies the SOO Filers and intervenors involved in these hearings, and the lands at issue in each.



**Table – Chilliwack-Area Hearings**

Hearing	Subject lands	SOO Filers	Intervenors
MH-026-2020	Segments 6.2, 6.3, and 6.4 (except Tracts 2307, 2352, 2410, and 2438)	<ul style="list-style-type: none"> <li>Chilliwack</li> </ul>	<ul style="list-style-type: none"> <li>WaterWealth</li> </ul>
MH-010-2020	Tract 2307 (Segment 6.3)	<ul style="list-style-type: none"> <li>Chilliwack School District #33<sup>6</sup></li> <li>District Parent Advisory Council (Chilliwack)</li> <li>Chilliwack</li> </ul>	
MH-011-2020	Tract 2352 (Segment 6.3)	<ul style="list-style-type: none"> <li>Christine Bloom</li> <li>Chilliwack</li> </ul>	
MH-013-2020	Tract 2410 (Segment 6.4)	<ul style="list-style-type: none"> <li>Rudolf and Debra Enns</li> <li>Chilliwack</li> </ul>	
MH-015-2020	Tract 2438 (Segment 6.4)	<ul style="list-style-type: none"> <li>Yarrow</li> <li>Chilliwack</li> </ul>	

This Letter Decision is based on the record of this proceeding (MH-015-2020) only, considers its own evidentiary record and unique issues, and applies to specific tracts of land. Likewise, all other Chilliwack-Area Hearing decisions are based on their own separate evidentiary records and apply to specific tracts of land unique to each hearing. However, in some cases, parties cross-referenced and adopted evidence from other Chilliwack-Area Hearings, and/or repeated similar evidence and argument in more than one hearing. For example, similar proposed alternate routes were being considered in several of the Chilliwack-Area Hearings. The Chilliwack-Area Hearings also shared common parties. Chilliwack was a party to all Chilliwack-Area Hearings, given that its geographical interests span across all relevant tracts. Therefore, the Commission's Letter Decisions for all Chilliwack-Area Hearings are related; they collectively decide the detailed route, methods of construction, and timing of construction for the Chilliwack area, and are therefore being released concurrently.

### 3.3 Hearing record and scope

As explained in the Hearing Order, because Yarrow and Chilliwack were resuming their 2017/18 detailed route hearings, the Commission decided that it would bring forward and adopt the entirety of those previous records. The exhibits from Detailed Route Hearings MH-037-2020 ([C04584-2](#)) and MH-020-2018 ([C04580-1](#)) form part of the MH-015-2020 hearing record.

Since the hearing's resumption, Trans Mountain, Yarrow, and Chilliwack have filed written evidence, asked and replied to IRs, and Trans Mountain filed reply evidence. Chilliwack's written evidence filed in this Detailed Route Hearing MH-015-2020 duplicated the written evidence filed in Detailed Route Hearing MH-026-2020.

<sup>6</sup> This SOO Filer has also been referred to in the Commission's detailed route hearing processes as the Chilliwack Board of Education.

Final argument was provided as follows:

- Trans Mountain filed written argument on 18 November 2020 ([C09674](#));
- Yarrow filed written argument on 26 November 2020 ([C09931](#));
- Chilliwack filed written argument on 26 November 2020 ([C09935](#)); and
- Trans Mountain filed written reply argument on 3 December 2020 ([C10138](#)).

On 3 December 2020, Trans Mountain filed a notice of motion requesting that its 27 August 2020 reply evidence filed in Detailed Route Hearing MH-026-2020 be included on the record of each of the other Chilliwack-Area Hearings. On 4 January 2021, the Commission issued a ruling ([C10670](#)) granting the motion for the reasons provided, and set out additional procedural opportunities that resulted in the following filings:

- Yarrow filed supplemental argument on 21 January 2021 ([C11078](#)); and
- Trans Mountain filed supplemental written reply argument on 28 January 2021 ([C11272](#)).

The written record of Detailed Route Hearing MH-015-2020 can be found in the CER's online public registry, in the hearing's dedicated folder (Folder [3891009](#)).

The three issues to be decided in this detailed route hearing are:

- 1) Is Trans Mountain's proposed detailed route for the TMEP pipeline the best possible detailed route? (see **Section 4**).
- 2) Are Trans Mountain's proposed methods of constructing the TMEP pipeline the most appropriate? (see **Section 5**).
- 3) Is Trans Mountain's proposed timing of constructing the TMEP pipeline the most appropriate? (see **Section 6**).

Trans Mountain bears the onus to prove its case with respect to these issues on a balance of probabilities.

As explained in the Hearing Order, evidence not related to the route location, or to the methods or timing of construction (as applicable), or that is not site-specific as **not** considered. The Commission clarified that it would **not** consider the following topics:

- Matters that were addressed in the completed hearings that pertained to Trans Mountain's application to construct and operate the TMEP,<sup>7</sup> such as the need for the TMEP, risks and impacts of accidents or malfunctions (i.e., spills), overall pipeline design, or the broader environmental or socio-economic impacts of the TMEP.
- Issues that relate to the existing pipeline.
- Landowner compensation matters.

Some matters were raised in this detailed route hearing that are outside the scope of the issues being considered. For example, PIPE UP raised concerns that the TMEP poses risks from spills to water and impacts on human health and fish. Yarrow raised concerns regarding the justification for the TMEP, including economic need, markets access, and climate change.

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<sup>7</sup> For example, Hearing OH-001-2014 related to Trans Mountain's 2013 application for the TMEP, and Hearing MH-052-2018 related to the reconsideration of TMEP-related marine shipping.

The Commission is of the view that such concerns are general in nature and were addressed in the Certificate hearings, including through the imposition of a number of conditions to address residual effects.

In its written argument, Chilliwack acknowledged that there is no evidence that it has any ownership interest in the Lands. Chilliwack's concerns specific to its Municipal Lands (such as its operational plans, roads, utility crossings, notice with respect to Charter Lands) are outside the geographic scope of this hearing. Issues related to Chilliwack's Municipal Land interests are considered in the MH-026-2020 Letter Decision. Chilliwack also requested that the Commission direct Trans Mountain to install a trench liner as a secondary containment measure to provide protection to Chilliwack's water wells and their capture zones. However the proposed location of such a trench liner is not in proximity to the Lands. The Commission notes that these concerns were included on this hearing's record by virtue of Chilliwack duplicating the evidence it filed in Detailed Route Hearing MH-026-2020. These issues were considered where relevant and in scope.

### **3.4 Overview of the proposed route on the Lands**

As described previously, the Lands at issue in this Detailed Route Hearing MH-015-2020 are limited to Tract 2438 in Segment 6.4, as shown on PPBoR Sheet M002-PM03017-005.

The following figures depict Trans Mountain's proposed detailed route, as well as alternate routes proposed WaterWealth (supported by Yarrow) and Chilliwack in the area of the Lands:

- **Figure 2** shows Trans Mountain's proposed route (in yellow) on the Lands.
- **Figure 3** shows Trans Mountain's proposed route (in red); Chilliwack's alternate routes (in dark blue); WaterWealth's alternate route, supported by Yarrow (in green), and other features in the area of the Lands.
- **Figure 4** shows Trans Mountain's proposed route (in red) and Chilliwack's alternate routes (in purple and yellow). Chilliwack has proposed an alternate route generally following the Trans-Canada Highway. From the Trans-Canada Highway, before reverting to the TMPL, Chilliwack's alternate route considers two potential alignments: (i) an optional alignment through Lickman Road; and (ii) an optional alignment through Hopedale Road.

As shown in **Figures 3 and 4**, both of Chilliwack's alternate routes are the same as Trans Mountain's proposed route on the Lands. They differ from Trans Mountain's proposed route east of the Lands, starting at Kilometre Post (KP) 1099.



Figure 2 – Trans Mountain’s proposed route on the Lands (C04927)

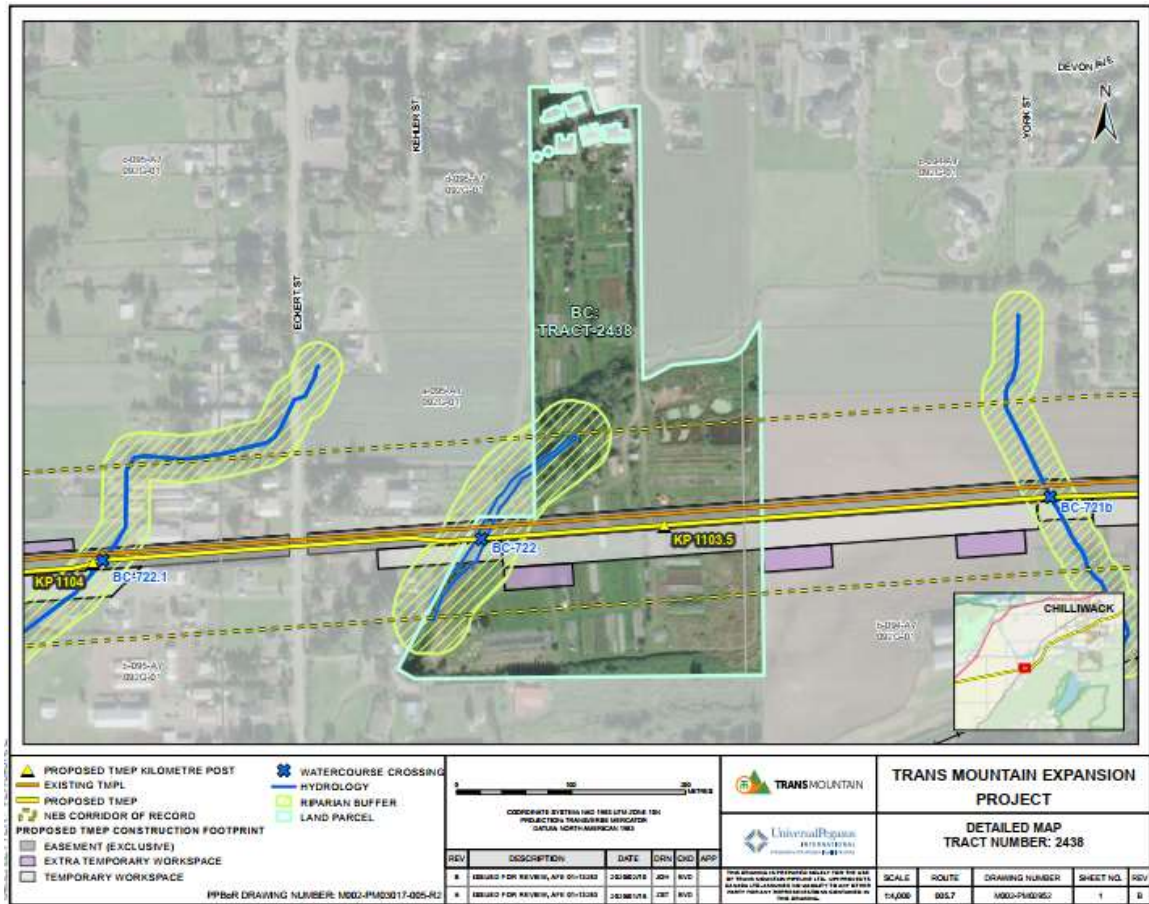


Figure 3 – Trans Mountain's proposed route, Chilliwack's alternate routes, WaterWealth's alternate route, and other features in the area (C07675)

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MH-015-2020  
July 2021

As noted in **Section 1** above, 70 Indigenous communities whose rights and interests could be potentially affected by the TMEP detailed route approval process in Segments 6 and 7 were notified of the detailed route approval process by NEB letter dated 23 August 2019. This followed a public comment process regarding the resumption of the TMEP regulatory processes, as well as notices that Trans Mountain was directed to, and did, place in local publications, and the publication of notices on the NEB's website.

The Commission is of the view that there has been appropriate notification provided to Indigenous communities regarding the TMEP detailed route approval process and that potentially impacted Indigenous communities have been provided the opportunity to participate in that process.

#### **4 Is Trans Mountain's proposed route the best possible detailed route?**

##### **4.1 What are the potential impacts on organic soil on the Lands and Yarrow's certified organic farm brand?**

###### ***Yarrow's submissions***

- In 2002, a group of people purchased Yarrow with the aim of creating a more sustainable way of living – a housing settlement incorporating an organic farm. The idea of the Ecovillage founders is that they could work with nature, enhancing soil and riparian habitats so that abundant and healthy food could be grown. The Yarrow Ecovillage Community Farm covers 20 acres of land and is certified organic.
- The proposed route may imperil the Lands' certified organic status, which would significantly degrade the Yarrow brand. Yarrow farmers sell their produce to customers in local markets. Organic produce and bitumen transport do not comfortably coexist in the mind of customers. If a season is lost, the customer base would also be lost. The impact on these farmers would extend well beyond the construction phase.
- The proposed route is at odds with Yarrow's vision of "a community living and working in harmony with neighbours and nature."
- Yarrow adopted two strategies to enhance organic farming on the Lands, including building organic soil matter and restoring riparian habitats.
- The RoW necessary for installing the pipeline would disrupt existing crops and hothouses, which are the main income sources for several farmers, and provide food security for Yarrow families.
- Each year since 2002, Yarrow has added organic matter to the soil in the form of compost and other organic inputs. Organic topsoil health can only be restored over years of rebuilding. If soil horizons are mixed during the construction process, it is not certain that soil quality can ever be effectively restored.
- The significance of building up the soil quality over several years was noted by Dr. Deborah Allan when she testified on an application to route an oil pipeline through an organic farm in Minnesota. Dr. Deborah Allan noted:

"Wherever digging or trenching is done, construction of a crude oil pipeline would remove and disrupt the A-horizon soils which are the organic farmer's bank account. Even if this soil was segregated and an effort was made to physically replace this topsoil layer, the stratification of organic soils (with the especially organic matter rich soil in the top several inches) would be



destroyed. Organic topsoil health could only be restored over years of rebuilding. If soil horizons were mixed in the construction process, it is not certain that soil quality could ever be effectively restored.”

- In summer 2018, the soil horizon was reviewed and found to be 45 centimetres of rich topsoil, and have deep roots extending approximately 1 metre into the clay layer. The time to replace that depth of soil was estimated by an agrologist (B. McTavish, on contract to Trans Mountain) to be approximately three to five years with a significant compost production operation.
- The removal and replacement of soil in layers and topsoil salvaging described by Trans Mountain are not appropriate for the organic farming practiced at Yarrow. To the extent that the soils are disturbed or compacted during the project, organic production would be curtailed. Even if the organic soil was segregated and an effort was made to physically replace this topsoil layer, the stratification of organic soils would be destroyed and the organic topsoil health could only be restored over years of rebuilding.
- The soil’s quality and value has been built up over several years to obtain organic certification. The soils have been laboriously enriched each year. Pipeline installation would severely impact them. Yarrow estimates that it would take over 10 years to restore the lands to their present state. It would take at least three years just to regain organic certification.
- Trans Mountain indicated that it intended to purchase and import compost to aid in the remediation of topsoil for organic agriculture on Yarrow’s property following construction. It has not provided Yarrow with any details of its proposed compost plan outside of what was filed at the last minute in an information request response. Although Trans Mountain claims that its plan will reduce the remediation timeline as compared to the three-to-five year horizon their expert had previously communicated, it provided no new timeline or evidence to support its claim that importing compost will assist in reclaiming the soil. Trans Mountain’s written argument refers in passing to a timeline that assumes reclamation will be completed by October 2021. As far as Yarrow is aware, this stated timeline is not supported by evidence.
- Given the lack of details and supporting evidence for Trans Mountain’s proposal, Yarrow urges the Commission not to accept that proposal at face value. A comprehensive reclamation plan must be prepared, including references to relevant research supporting the plan, before this route segment can be approved.

### ***PIPE UP’s submissions***

- Trans Mountain’s Commitment 371 states that, if herbicide is to be applied in close proximity to a certified organic farm, the contractors will be supervised by a qualified environmental professional to ensure that the farms are not affected by the activity. If weeds need to be controlled through a certified organic farm, Trans Mountain will coordinate an acceptable solution with the landowner/land manager to mitigate the weed concerns.
- Maintenance creates a risk for organic farms due to invasive and noxious weeds being carried onto properties via equipment, as has taken place on landowner property on Sumas Mountain. Trans Mountain’s methods throughout the entire life of the pipeline must meet the Certificate conditions.

***Trans Mountain's submissions***

- As part of the Pipeline Environmental Protection Plan (EPP), Trans Mountain has prepared an Agricultural Management Plan containing mitigation to reduce impacts on agricultural operations, including measures to address potential concerns on organic properties. Trans Mountain proposes to implement a number of site-specific measures in relation to organic soils, including the following:
  - Creating a workplan, in cooperation with the landowner, and submitting it to the appropriate certification board for approval.
  - Confirming biosecurity protocols with the landowner within the workplan for pre-construction and construction activities.
  - Not importing soil material onto organic lands unless approved by the landowner and the certification board.
  - Storing stripped topsoil in low windrows and managing the topsoil piles to prevent deterioration of the soil fauna. Support from the resource specialist may be warranted during topsoil salvage and stockpiling. The landowner agreement may be consulted regarding preferred soil storage locations, if applicable.
  - Ensuring that additional steps for preserving topsoil on the farm are developed in cooperation with the landowner, land users, and their organic certification boards.
  - Ensuring that a statistically valid sample of soils is taken prior to construction and before re-spreading topsoil on the lands. This sample will be tested for metal concentrations to ensure that there has been no metal contamination of the soil due to pipeline construction activities.
- Trans Mountain will also follow its Weed and Vegetation Management Plan required by Certificate Condition 45. This plan includes pre-construction surveys, measurable goals, criteria for managing problem vegetation, management procedures and a decision-making framework, and the methods and schedule for short- and long-term vegetation monitoring.
- Trans Mountain stated that its soil-related mitigation measures for the Lands were endorsed by the NEB in the Reconsideration Report:

The Board is satisfied with Trans Mountain's response to [Yarrow's] concerns about disturbance to organic farm soils, which includes commitments to develop additional mitigation in cooperation with landowners, users and organic certification boards to ensure that soil handling procedures do not affect organic certification. The Board would also require Trans Mountain to address potential adverse effects of treatment measures for weeds, such as contamination of organic lands by prohibited substances, in the Weed and Vegetation Management Plan (Condition 45).
- Trans Mountain has committed to add high-quality organic compost to the topsoil at the time of reclamation. This measure will be implemented subject to Yarrow's consent.
- Trans Mountain has identified several sources of compost that are suitable for use on the Lands. One source in particular is identified as having high microbial values. A final choice will be made in consultation with Yarrow depending on the nutrient status of the compost, application rates, and future crops. Trans Mountain will engage with Yarrow at their convenience.
- Trans Mountain understands that the Lands are under organic cultivation and its products are certified organic as per the applicable standards. Their certifier, the BC

Association for Regenerative Agriculture (BCARA), lists the farm as “Certified” in its directory. The BCARA does not provide information about which program the Lands are certified under (i.e., Canada Organic Regime or BC Certified Organic Program). The organic compost referred to in Trans Mountain’s reply evidence can originate from the farm itself (Section 4.2 of CAN/GCSB-32.311) or from off-farm sources.

**4.1.1 The Commission: Trans Mountain’s proposed route will impact the organic soil, and may impact the Yarrow organic farm brand, but there will be substantial mitigation in place to minimize these impacts**

***Organic soil***

In its Reconsideration Report, the NEB considered Yarrow’s concerns about disturbance to organic farm soils in detail. The NEB was satisfied with Trans Mountain’s response to these concerns, which included commitments to develop additional mitigation in cooperation with landowners, users, and organic certification boards with the aim of ensuring that soil handling procedures do not affect organic certification. The NEB stated that it would require Trans Mountain to address the potential adverse effects of weed treatment measures, such as contamination of organic lands by prohibited substances, in its Weed and Vegetation Management Plan (Certificate Condition 45). Further, the NEB required that this plan include mitigation and monitoring that would be undertaken during and after construction and throughout the TMEP’s operational life.

The Commission recognizes PIPE UP’s concerns regarding the use of herbicides and weed control in and around organic farms. The Commission is of the view that these concerns are sufficiently addressed through the mitigation measures identified in Trans Mountain’s filings with respect to Certificate Condition 45 (Weed and Vegetation Management Plan) and Certificate Condition 72 (Pipeline EPP). The Commission is of the view that these measures will protect the organic soils and organic farming operations, and will be implemented during the TMEP’s operational life.

Some topics that were considered for the purpose of approving the TMEP’s general corridor (or realignment of that corridor) may also be relevant to the consideration of the proposed detailed route. Accordingly, all matters that were considered for the purpose of approving the general corridor (or realignment) are not necessarily out of scope for this Detailed Route Hearing MH-015-2020. The Commission has considered matters that it considers relevant to the issues being decided in this hearing. Accordingly, the Commission has considered Yarrow’s concerns relating to its organic soils and organic farm brand, as they are relevant to the issue of best possible detailed route.

The Commission finds that the organic topsoil layer would be impacted by the proposed route on the Lands. However, the Commission is of the view that, with the conditions imposed following the Certificate hearings and Trans Mountain’s commitments and site-specific mitigation measures, impacts on the rich organic topsoil will be appropriately mitigated.

The Commission accepts that the soil horizon on the Lands shows a rich topsoil layer 45 centimetres in depth, based on the results of the 2018 soil horizon examination. Both Yarrow and Trans Mountain submit that it would take three to five years to replace the topsoil and restore it to full crop production following construction. Yarrow submits that this three-to-five year period assumes a significant compost operation is in place, and it argued that organic topsoil health can only be restored over years of rebuilding. The Commission



agrees that restoring organic topsoil health is a lengthy process, and restoration must take this into account.

In addition to measures required by the Certificate conditions, in this detailed route hearing, Trans Mountain committed to additional mitigation measures to minimize the impact on organic soils and potentially decrease the required time to restore the organic topsoil health. Trans Mountain committed to manage the topsoil windrows to prevent deterioration of the soil fauna. It also committed to add high-quality organic compost to the topsoil at the time of reclamation, and has identified potential sources for such compost, one of which is noted as having high microbial values. The Commission also notes Trans Mountains' commitment to consult with Yarrow when making the final choice on a compost source. Further, the Commission notes that the NEB stated in its Reconsideration Report that soil issues were to be included in Trans Mountain's post-construction monitoring reports (Certificate Condition 151), including in the final report for the fifth growing season. This includes identifying any outstanding soil issues that require ongoing action or assessment. The Commission finds these measures are appropriate to restore the organic soil health to allow for full crop production.

With respect to Yarrow's argument that a comprehensive reclamation plan is required for the Lands before the proposed route can be approved, the Commission is of the view that, in this hearing, Trans Mountain has provided a comprehensive list of mitigation measures to minimize impacts on organic soils on the Lands and, therefore, a comprehensive reclamation plan is not required.

A further assessment of the impacts on organic soils from the proposed methods of construction, including consideration of Yarrow's proposed conditions for any approval, is found in **Section 5** below.

### ***Yarrow organic farm brand***

The Commission recognizes that impacts on organic soils and potential economic impacts on the organic farm brand and business are closely related issues. The Commission accepts Yarrow's submissions that it is a small-scale business with an organic certification and a known organic "brand."

Beyond the measures incorporated into Trans Mountain's Pipeline EPP and Agricultural Assessment Technical Report, Trans Mountain made additional commitments in this hearing that address potential impacts on the Yarrow organic farm brand. These commitments are summarized in Trans Mountain's submissions above. The Commission put significant weight on Trans Mountain's commitments to work cooperatively with Yarrow in creating a workplan for certification board approval, to develop additional steps for topsoil preservation, and to conduct statistically valid soil samples prior to construction to ensure that construction activities do not threaten certification of the farm operated on the Lands.

The Commission is of the view that Trans Mountain's commitments described above related to the organic certification of the farm will also mitigate some impacts on Yarrow's organic farm brand. The Commission acknowledges that, even with the proposed mitigation in place, the proposed route may result in residual economic impacts on Yarrow's organic farm. The Commission did not consider such economic impacts further, on the basis that, while such impacts could, hypothetically, give rise to a compensation issue, such matters are out of scope of this hearing.

The Commission recognizes that construction of the proposed route would impact Yarrow's ability to grow and sell produce temporarily, which may have short-term impacts on Yarrow's customers. Beyond this general understanding, Yarrow did not provide evidence to specifically describe how its farming practices would be impacted, or how its customer base would be affected, by the proposed route location. Therefore, the Commission finds that Yarrow's position that its customer base would be lost as a result of the proposed route is unsupported.

A further assessment of the impacts on Yarrow's business from the proposed methods of construction is found in **Section 5** below.

### ***Other concerns***

The Commission recognizes that Yarrow is an intentional organic farming community with shared environmental values. Yarrow submits that the proposed route is at odds with its community's sustainable way of living and Yarrow's vision of "a community living and working in harmony with neighbours and nature." Aside from those impacts addressed above and below regarding Stewart Creek<sup>8</sup> riparian habitat, Yarrow has not described how the proposed route will adversely impact its way of living. The Commission notes that the proposed route is parallel to and within close proximity of the existing TMPL, which is presently on the Lands. The Commission finds that Yarrow has not provided evidence to support its submissions that the location of the proposed route will negatively impact a community living and working in harmony with neighbours and nature.

## **4.2 What are the potential impacts on Stewart Creek and riparian habitat?**

### ***Yarrow's submissions***

- Stewart Creek flows from its origin on Vedder Mountain, through the village of Yarrow, and into the Sumas Drainage Canal. It was formerly a tributary of Sumas Lake until the lake was drained in the 1920s. It is underlain by the Sardis-Vedder Aquifer and bisects the Lands, meandering from east to west. The initial 3.5 kilometres of the creek immediately downstream of the mountain follows a fairly natural meander pattern. Most of the remaining length of the creek is channelized into roadside ditches.
- Yarrow's property is within the naturally meandering section of Stewart Creek.
- Stewart Creek is a salmonid-bearing stream with excellent water quality. Spawning populations of coho salmon, chum salmon, coastal cutthroat trout, and rainbow trout are known to be present; however, there is no data for population size. The creek had been previously stocked with cutthroat trout and rainbow trout in 1926, from 1938 through 1945, 1991, and 1995. Suitable salmonid spawning habitat has been identified on the Lands and at a number of other locations in the creek.
- The entire length of Stewart Creek through Yarrow's property has been restored over the past decade, with major work completed in 2011 and 2012. This work, which included placing large woody debris in the channel and extensive native riparian tree plantings and shrubs, is maturing well and has greatly increased habitat complexity and shade in the reach. In a 2016 fish survey of the creek, this section of stream had a higher catch-per-unit effort (average number of fish per trap) for coho salmon, coastal cutthroat trout, and steelhead/rainbow trout than any other reach in the system.

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<sup>8</sup> Stewart Creek is also referred to as Stewart Slough.

- Members of the Yarrow have worked with local stewardship organizations and Fisheries and Oceans Canada for almost 20 years to enhance riparian habitat. Successive tree plantings, bioengineering workshops, a permaculture food forest, and adding coarse woody debris have all served to create a more vibrant ecosystem. In so doing, carbon capture has been increased, and the diversity of trees, shrubs, insects, fungi, animals, and fish have increased resilience, helped control pest infestations, and added to the beauty of the environment. Such restoration is not compatible with an industrial project resulting in drastic modification of the riparian habitat.
- In August/September 2018, the existing pipeline was re-excavated for an integrity dig using an open-cut method, presumably similar in nature to what is proposed for installing the new pipeline. To protect the pipe, the streambed was lined completely with concrete blocks, and covered with a layer of uniformly sized crushed gravel (approximately 2-centimetre grain size), an inappropriate choice for stream substrate. Riparian plantings included a narrow band (1 to 2 metres wide) of native shrubs, instead of a 5-to-10-metre-wide band from the streambank, as is the case for the rest of the site.
- The recent work on the existing pipeline crossing was completed with little regard for fish habitat and has degraded the site significantly.

#### ***Trans Mountain's submissions***

- Trans Mountain's site-specific Reclamation Plan identifies a moderate riparian habitat function reclamation target for the Stewart Creek crossing. The bed and banks of the stream channel will be restored, stabilized, and reclaimed to a condition that is consistent with the pre-construction conditions. The disturbed bed and banks will be backfilled using the channel substrate in the reverse order it was removed.
- Reclamation crews and resource specialists will assist in implementing construction mitigation measures. These measures will be implemented for invasive species management, delineation of construction footprint, protection of special features, vegetation clearing, vehicle and equipment crossings at watercourses, permanent bio-stabilization measures, and clean-up. Reclamation crews will also be responsible for plantings and seeding after final clean-up.
- Reclamation priorities for watercourse crossings include stabilizing the bed and banks of the watercourse channel and restoring the morphology and integrity of the stream to pre-construction conditions.
- Channel morphology and instream habitat, as documented in the preliminary environmental assessment or site-specific watercourse crossing plan to be developed immediately prior to construction, will be reinstated following pipeline construction.
- The preferred method for revegetating riparian habitat is natural regeneration with supplemental plantings. Litter and topsoil salvage methods will be implemented in riparian habitat areas. An annual cover crop may be seeded in natural regeneration areas that are susceptible to a moderate amount of wind or water erosion. The proposed seed mix will be developed in cooperation with Yarrow.
- Riparian habitat buffers, as determined by Trans Mountain, will be enhanced with shrub and tree plantings. Species successfully planted by Trans Mountain during riparian reclamation at Stewart Slough in 2018 will be used for reclamation.
- At the crossing within the identified riparian habitat buffer, low-growing native shrubs are proposed to be planted within 3 metres of the pipeline centreline, with larger shrubs

planted on the remainder of the RoW and suitable species within the temporary workspace.

- At watercourse crossings, the area between the high-water mark and top of the stream bank that will be planted perpendicular to the pipeline construction footprint permanent easement is a maximum of 18 metres in riparian habitats. Rooted shrubs will be spaced approximately two to three plants per square metre.
- At watercourse crossings, the area between top of the streambank to the outside edge of the riparian buffer zone will be planted with shrubs grouped in single species patches of 8 to 16 plants, depending on the plant species growth habitat and stock type. Where coarse woody debris clusters and stumps are replaced in the riparian buffer zone, shrubs will be planted alongside them to enhance habitat function. Single deciduous or coniferous trees will be planted in the outer edges of the RoW, outside the 6-metre sight line over each pipeline (TMEP and TMPL). On average, the shrubs in the patch will be planted at two to three plants per square metre. Tree spacing will vary by species, but will typically be two to four metres on centre.
- Trans Mountain will monitor the effectiveness of the riparian habitat reclamation and enhancement measures for five years following final clean-up, as required by Certificate Condition 151. The monitoring results will then be used to complete the Riparian Habitat Reclamation Evaluation Report and Offset Plan as required by Certificate Condition 154.
- Site-specific environmental surveys were completed on the Lands for soils, watercourses, and riparian habitat. The results of these surveys are captured in the Environmental Alignment Sheets and Resource-Specific Mitigation Tables. No further studies are required for the Lands and the applicable measures will be employed to preserve the soils and water quality while reclaiming the riparian habitat following construction.
- With respect to the remediation works conducted on Stewart Creek in 2018, Trans Mountain did not observe any suitable spawning habitat for salmonids at the crossing location. At this location, the watercourse was characterized as a run, void of pools and back eddies, with dense reed canary grass root matting encroaching on the channel from both banks. The substrate was predominantly fine sand, silt, and organics. The remediation works were designed with careful consideration of environmental impact assessment, low-flow hydrology fish passage assessment, and the development of Environmental Management and Reclamation Plans. Environmental design and planning were based on provincial Standards and Best Practices for Instream Works and federal Measures to Avoid Harm to Fish and Fish Habitat. The remediation works were approved through regulatory processes and underwent stakeholder engagement.
- A post-disturbance assessment was conducted in April 2019 by a qualified environmental professional and showed that the reclaimed riparian area was functioning as intended with 95 per cent plant survivorship. The crossing was deemed stable from an erosion and sediment control perspective. Natural recruitment of fines was observed to have continued to re-establish native substrate material consistent with the stream channel upstream and downstream of the TMPL crossing. The work was inspected by regulatory agencies (Fisheries and Oceans Canada [January 2019] and BC Oil and Gas Commission [October 2018 and May 2019] with no issues or site deficiencies noted by either agency.

**4.2.1 The Commission: Although Trans Mountain's proposed route will impact Stewart Creek and the riparian habitat, there will be substantial mitigation in place to minimize that impact**

The Commission finds that the proposed route will result in adverse impacts on fish and fish habitat, including riparian habitat of Stewart Creek. The Commission finds the mitigation measures identified in the Pipeline EPP and the site-specific Reclamation Plan are appropriate to minimize the impacts on fish and fish habitat in the creek. In particular, the Commission places weight on Trans Mountain's commitment to stabilize the bed and banks of the stream channel and, at a minimum, return the bed and banks to a condition that is consistent with pre-construction conditions.

As required by Certificate Condition 99, the Commission expects Trans Mountain to consult with Yarrow with respect to its concerns, including the issue of riparian reclamation that maintains the existing health of both the riparian habitat and the watercourse. The Commission expects that Yarrow will have information to share with Trans Mountain on the past habitat restoration efforts that Yarrow, local stewardship organizations, and Fisheries and Oceans Canada have completed over the last decade on Stewart Creek. Certificate Condition 99 also requires Trans Mountain to submit to the Commission a summary of that consultation, including any actions Trans Mountain has undertaken to address or respond to each of the issues or concerns raised, or an explanation for why no actions were taken. In addition, the Commission reminds Trans Mountain that it is required to monitor the effectiveness of the riparian habitat reclamation and enhancement measures for five years following final clean-up, pursuant to Certificate Condition 151, and subsequently complete the Riparian Habitat Reclamation Evaluation Report and Offset Plan, pursuant to Certificate Condition 154.

Yarrow has expressed concerns with respect to the proposed route by referring to the 2018 remediation work conducted by Trans Mountain on the existing TMPL at Stewart Creek. The Commission is of the view that the adequacy of Trans Mountain's 2018 TMPL remediation work is out of scope for this hearing. While the Commission disregarded evidence relating to Trans Mountain's 2018 remediation work accordingly, the Commission wishes to clarify that it expects all reclamation and restoration work for new pipeline construction to return the habitat to pre-construction conditions.

The Commission is of the view that, with Trans Mountain's consultation with Yarrow regarding the riparian habitat restoration, and associated reporting pursuant to Certificate Condition 99, the mitigation measures identified in the Pipeline EPP and the site-specific Reclamation Plan, potential impacts on fish and fish habitat in Stewart Creek will be minimized.

An assessment of the impacts related to the Stewart Creek crossing methodology is found in **Section 5** below.

**4.3 What is the risk to the Sardis-Vedder Aquifer and associated water wells?**

***Yarrow's submissions***

- Yarrow is alarmed that a bitumen export pipeline would be expanded over Chilliwack's drinking water aquifer, and it supports WaterWealth's alternate route which avoids the aquifer.

### ***Chilliwack's submissions***

- Chilliwack draws water from wells located to the south of Trans Mountain's proposed route. Water from Chilliwack's wells is used for drinking water and other domestic, commercial, and industrial uses. It is also used for fire protection. While drinking water can theoretically be provided with bottled water or water that is trucked to temporary storage, fire protection can only be provided by maintaining full reservoirs. If reservoirs are not full, Chilliwack's ability to provide adequate fire protection would become impaired. Chilliwack's reservoirs are sized to provide flows for between 4 and 10 hours of fire suppression. Thus, the ability to provide sufficient water for fire protection can be quickly compromised if water supply is reduced.
- Chilliwack's prime objective is to protect the aquifer and wells that are supplied by it. No further infrastructure posing contamination risk should be added through the well capture zones.

### ***Trans Mountain's submissions***

- Trans Mountain has proposed comprehensive mitigation measures to protect the aquifer, which were accepted by the NEB, including those identified in Certificate Condition 72 filings.
- Trans Mountain has adopted a series of comprehensive measures to mitigate risks to all aquifers that may arise as a result of TMEP construction and operation, some of which are outlined in Trans Mountain's Groundwater Management Plan.
- Trans Mountain has also incorporated supplemental mitigation measures, exceeding regulatory requirements, to provide added protection to the aquifer. Some of these measures include (i) limiting trenching of ditches for open-trench construction to the dry season; (ii) treating construction activities over the aquifer as a water crossing; and (iii) adding a pipeline valve upstream of the aquifer and an enhanced leak detection system to be able to respond to potential leaks and ruptures. In its Realignment Report, the NEB considered and subsequently approved Trans Mountain's enhanced measures to protect the aquifer, Chilliwack's wells, and their capture zones.
- Issues relating to groundwater contamination and aquifer protection are outside the scope of this Detailed Route Hearing MH-015-2020, as they were previously considered and addressed by the NEB in its Realignment Report.
- The capture zones of Chilliwack's wells are expected to be smaller than Chilliwack previously stated, thus likely eliminating any overlap with the TMEP.
- The proposed route does not cross the Yarrow Waterworks wells, which are located approximately 1 kilometre from the route. The Yarrow Waterworks wells' capture zone will depend on the licensed extraction rate of the wells, and is likely to be of limited areal extent due to the wells' proximity to the Vedder River.

#### **4.3.1 The Commission: Trans Mountain's proposed route does pose some risk to the aquifer but there will be substantial mitigation in place to minimize that risk, and the likelihood of impact to the associated water wells is considered negligible**

As noted in **Section 4.1.1** above, depending on the circumstances, some topics that were considered for the purpose of approving the TMEP's general corridor (or realignment of that corridor) may also be relevant to the consideration of the proposed detailed route, and are not necessarily out of scope for this Detailed Route Hearing MH-015-2020.



The Lands are located within the estimated extent of the aquifer. Given that Chilliwack's water wells draw water from the aquifer, the Commission disagrees with Trans Mountain that the potential risks to the aquifer and Chilliwack's water wells resulting from the proposed route on the Lands are not within the scope of this hearing. The Commission finds these matters to be within scope. While the Commission is considering evidence and argument related to the protection of the aquifer and water wells that was also raised and considered in the Chilliwack Realignment hearing, this evidence and argument relates to the detailed route issues at hand, including the proposed alternate routes.

The NEB's hearing process that led to the Realignment Report included the filing of written evidence (including technical evidence from hydrogeologists) and IR responses, oral Indigenous knowledge, cross-examination, and argument. The Commission considers that process, together with this detailed route hearing process, to be adequate for the purposes of considering whether Trans Mountain's proposed route is the best possible detailed route, including consideration of the proposed alternate routes.

The Commission notes that there is no suggestion in the evidence that the capture zones for Chilliwack's water wells intersect the pipeline route on the Lands. Chilliwack provided evidence on the potential risks to its water supply from the proposed routing on lands at issue in Detailed Route Hearing MH-026-2020, but did not mention anything specific about risks to Chilliwack's water wells from routing the pipeline on the Lands at issue in this Detailed Route Hearing MH-015-2020. The Commission is of the view that the likelihood of impacts on Chilliwack's water supply from pipeline construction or a leak or spill on the Lands is negligible. Nevertheless, some risk to the aquifer will remain from the construction and operation of the proposed route on the Lands. The Commission takes this into account in its consideration of the proposed alternate routes below, and in its ultimate consideration of evidence in making its detailed route decision. The mitigation summarized above will reduce both the likelihood of a spill, and the consequences should one occur. The Commission considers this suite of mitigation to be appropriate for Trans Mountain's proposed route.

The proposed route does not cross the Yarrow Waterworks wells, which are located approximately 1 kilometre from the route. Nevertheless, the Commission accepts that spills or leaks from a pipeline can have broad impacts downstream or downgradient. The potential effects of spills or leaks were extensively examined during the Certificate hearings, which resulted in numerous commitments and conditions regarding pipeline integrity, leak detection, and spill response.

The residual likelihood of impacts on the Yarrow Waterworks wells is included in the consideration of proposed alternate routes below.

#### **4.4 Did Trans Mountain apply its routing criteria appropriately?**

##### ***Trans Mountain's submissions***

- The TMEP's corridor, approved via Certificate OC-065, was developed based on a standard set of routing criteria designed to enable the pipeline to be installed safely, and to reinforce the protection and integrity of the pipeline while minimizing the adverse effects of pipeline installation and operation to the extent practicable.
- During the route selection process undertaken by Trans Mountain, a hierarchy of routing options was established. In descending order of preference, these were:

- 1) where practicable, co-locate the TMEP on or adjacent to the existing TMPL easement to:
    - reduce land use fragmentation;
    - reduce the use of unencumbered lands by using the existing TMPL RoW for the location of the TMEP pipeline and construction workspace; and
    - leverage the existing pipeline protection program and landowner knowledge of the location and nature of the existing TMPL to optimize pipeline integrity and safety;
  - 2) where co-location with the TMPL is not practicable, minimize the creation of new linear corridors by installing the TMEP segments adjacent to existing easements or RoWs of other linear facilities, including other pipelines, power lines, highways, roads, railways, fibre-optic cables, and other utilities;
  - 3) if co-location with an existing linear facility is not feasible, install the TMEP segments in a new easement selected to balance safety, engineering, construction, environmental, cultural, and socio-economic factors; and
  - 4) in the event a new easement is necessary, minimize the length of the new easement before returning to the TMPL easement or other RoWs.
- As a practice, determining routing feasibility for the entire TMEP included consideration of a range of factors including constructability; long-term geotechnical stability; and environmental, cultural, and socio-economic suitability.
  - In addition to adhering to the routing criteria and corridor selection strategy, the following guidelines were used to enable and maintain consistent decision-making regarding route and corridor selection:
    - minimize the length of the TMEP pipeline;
    - avoid areas that have significant environmental or cultural value or restrictions;
    - minimize routing through areas of extensive urban development;
    - be consistent with established land use planning;
    - avoid areas of potential geotechnical or geological hazards;
    - avoid areas of extremely rough terrain or areas that have limited access;
    - minimize the number of watercourse, highway, road, railway, and utility crossings; and
    - establish the crossing of watercourses at as close as practical to right angles.
  - To determine the location of the pipeline alignment, the easement, and temporary workspace on a specific land parcel, Trans Mountain employed the same process and criteria as was used in determining the location of the proposed pipeline corridor. Where possible, the TMEP easement was fixed within the overlapping easement. Required temporary workspace was located as much as possible on open and undeveloped lands to avoid proximity to residences, treed areas, and areas of environmental or cultural sensitivity.
  - The proposed route on the Lands follows the existing TMPL alignment. Trans Mountain proposes to construct the TMEP within the existing RoW, consistent with its routing principles. Re-routing the pipeline around the Lands is not consistent with Trans Mountain's routing principles since it would increase the route length and, consequently, result in increased land fragmentation and overall environmental and social impacts. It would also require the TMEP to deviate away from the existing TMPL alignment and outside of the approved corridor, which would require additional environmental studies, public consultation, and engagement with Indigenous peoples.

- Trans Mountain's routing criteria were found to be appropriate and were approved by both the NEB and the Federal Cabinet in the Certificate hearings. Further, the NEB considered and approved Trans Mountain's application of its routing criteria in arriving at the proposed route in the Realignment Report.
- Applying Trans Mountain's routing criteria as a mathematical formula or a one-way process hierarchy would prevent Trans Mountain from considering and accommodating the particularities and unique circumstances of distinct areas of the TMEP and incorporating new information. Trans Mountain's routing selection process is necessarily a fact-based iterative process informed by technical and environmental studies, engagement with interested parties, and on-the-ground fieldwork.

### ***Yarrow's submissions***

- In respect of routing other portions of the pipeline, Trans Mountain itself has argued that routing only through areas with an existing pipeline RoW is not always feasible and does not always create the lowest risk. This is one such case where the routing criterion of adhering to the existing RoW is outweighed by the likely and potential impacts of constructing the pipeline as proposed, and that a lower overall impact would be achieved by adhering to more substantial linear disturbances like the Trans-Canada Highway.

### ***Chilliwack's submissions***

- Trans Mountain's routing criteria focus on abstract concepts that fail to provide sufficient, or even any, recognition of specific impacts from the TMEP. Trans Mountain submits that its route selection criteria operate "in descending order of preference." A "descending order of preference" is predictable and free from variation.
- In using routing criteria that have a descending order of preference, if the first preference cannot be met, the next one is selected. Once it is determined that a higher criterion is unacceptable, it is "spent," and the next available criterion is to be used to determine the best possible detailed route. The "spent" nature of a criterion is particularly so in the case where Trans Mountain's first criterion, co-location on the TMPL RoW, was initially not selected by Trans Mountain. That is, once the routing was found to be unsuitable under the first criterion, Trans Mountain must go to the next descending criterion; there is no going back or "ascending" to the first one. If Trans Mountain's routing criteria are going to be given any weight, they have to be applied in the manner they are intended to be applied, and that is to go from higher criteria to lower criteria, and not vice versa.
- Applying Trans Mountain's routing criteria, Trans Mountain had determined that the TMPL RoW between Kilometre Post 1095.5 and 1097.3 was not appropriate for the TMEP's routing. Trans Mountain then applied its routing criteria and went in descending order to the second principle, which was to co-locate the TMEP adjacent to other linear facilities' existing easements or RoWs; in this case, a BC Hydro transmission corridor. Trans Mountain determined that routing to also be problematic. Applying the "descending order of preference" to Trans Mountain's routing criteria would then result in applying the third principle, which is to "install the TMEP segments in a new easement selected to balance safety, engineering, construction, environmental, cultural and socio-economic factors."

#### **4.4.1 The Commission: Trans Mountain applied its routing criteria appropriately**

Following the Certificate hearings, and the issuance of the NEB's OH-001-2014 Recommendation Report and OH-001-2017 Realignment Report, the GIC approved the TMEP and its general pipeline corridor. The criteria proposed by Trans Mountain were found to be appropriate for determining the pipeline's general route. In assessing whether a proposed detailed route is the best possible detailed route, the Commission considers how the proponent has applied its routing criteria, while also considering the concerns of affected parties, including any measures the proponent has taken to avoid or mitigate those concerns.

The majority of Trans Mountain's proposed route through the Chilliwack area follows the existing TMPL, with most of the route through Chilliwack being constructed within the existing TMPL RoW, such that the first routing criterion applies.

The Commission has considered Chilliwack's submission that, since Trans Mountain's originally proposed corridor deviated from the TMPL in the Chilliwack area and instead followed the BC Hydro route (i.e., moved from the first criterion to the second), Trans Mountain cannot now revert back to the first criterion. The Commission cannot accept this argument.

First, the NEB's Realignment Report recommended approving Trans Mountain's application to move the corridor from the BC Hydro route (the Original Corridor) to follow the existing TMPL (the Approved Corridor), and so the NEB and GIC, at that time in the context of that variance application, found it acceptable to revert to the first routing criterion.

Second, routing through a highly populated area is a complex and complicated constraint mapping activity. It involves weighing the interests and concerns of various stakeholders and careful consideration of site-specific risks and impacts to find the best possible detailed route. As noted in the MH-018-2020 Letter Decision ([C09840](#)), the approved routing criteria are a hierarchy that follow a descending order of preference. However, this does not mean a pre-determined, strict sequencing, or descending-only approach to applying the routing criteria. The weight attributed to each routing criterion is informed on a case-by-case basis, having regard to the site-specific facts and circumstances. Applying the criteria otherwise would be inappropriately rigid; it could quickly exhaust all possible routing locations and result in the best possible detailed route not being found because it would deny the opportunity to consider all available criteria for the next-best option if a route under consideration is found to be unsatisfactory.

The Commission finds it appropriate that, in applying the criteria, Trans Mountain considered site-specific factors (such as constructability; long-term geotechnical stability; and environmental, cultural, and socio-economic suitability) and its own routing guidelines. The strength or weight of these factors depends on the facts and circumstances unique to the Lands. The Commission expects proponents to engage with potentially affected parties and take all of their concerns, as well as potential risks and effects, into account in routing. This requires flexibility in applying the routing criteria to settle on the best possible detailed route, and address remaining concerns through mitigation.

The Commission expects Trans Mountain to justify the application of its criteria. This should include explaining why it has followed a certain criterion (with reference to the relative importance of that criterion), consideration of site-specific factors associated with its proposed route in the circumstances, and consideration of its own guidelines, which it states it used to enable and maintain consistent decision-making regarding route and corridor selection. There

is no notion of a criterion being “spent,” as suggested by Chilliwack, merely on the basis of past consideration or past circumstances.

The Commission is of the view that Trans Mountain appropriately applied its routing criteria in this flexible manner in this case. Trans Mountain’s Original Corridor applied the second general criterion (routing alongside an existing RoW), as Trans Mountain was attempting to avoid the site-specific densely populated area associated with the first general criterion (routing alongside the existing TMPL). However, when even more substantial site-specific engineering challenges with the Original Corridor came to light, circumstances changed, and Trans Mountain considered that the next-best option was to apply the first criterion.

The Commission notes that the NEB’s OH-001-2014 Recommendation Report placed weight on the fact that the TMEP would be co-located with the TMPL. The NEB stated:

The Board further finds that aligning the majority of the proposed pipeline route alongside, and contiguous to, existing linear disturbances is reasonable, as this would minimize the environmental and socio-economic impacts of the [TMEP].

The Commission is of the view that applying the first criterion is reasonable and appropriate in these circumstances. The Commission has considered Yarrow’s submission that a lower overall impact would be achieved by adhering to more substantial linear disturbances like the Trans-Canada Highway. The factors that have been presented in this hearing that are within the scope of the issues being decided include the potential impacts on Yarrow’s certified organic farm brand, the Ecovillage community’s way of life, potential impacts on Stewart Creek and riparian habitat, and the risk to the Sardis-Vedder Aquifer and associated water wells, as discussed in **Sections 4.2 and 4.3** above. As noted above, substantial mitigation will be in place for each of these impacts, resulting in any remaining effects being temporary and negligible. However, a viable alternate route with potentially less impacts than Trans Mountain’s proposed route might call into question whether Trans Mountain’s proposed route is the best possible detailed route.

The Commission has considered the alternate routes proposed by Chilliwack and WaterWealth (supported by Yarrow), as discussed in **Sections 4.6 and 4.7** below. The Commission is of the view that using the first criterion, in these circumstances, carries greater weight than the third or fourth criterion, considering all of the site-specific advantages and disadvantages of each, and application of the guidelines.

#### **4.5 Who has the burden of proof with respect to alternate routes?**

##### ***Chilliwack’s submissions***

- Trans Mountain has the onus of showing that its proposed route is the best possible detailed route.
- While Chilliwack is under no legal obligation to prove this, the routing it proposed in its evidence is superior to Trans Mountain’s proposed route.

##### ***Trans Mountain’s submissions***

- Trans Mountain acknowledges that it has the onus of proving, on a balance of probabilities, that its proposed route is the best possible detailed route.

- As stated by the Commission in its 21 April 2020 Procedural Direction, landowners and intervenors must file details of the alternate route as part of their written evidence, and any deficiencies in the evidence will be considered by the Commission in determining whether they have successfully challenged the proposed route.
- Trans Mountain's burden is not to exhaustively review alternate routes that are clearly inferior, but to conduct an appropriate and practical technical review in order to determine whether alternate routes present challenges and have more negative impacts when compared to the route proposed by Trans Mountain.

#### **4.5.1 The Commission: The burden of proof with respect to alternate routes**

There is no disagreement among the parties that Trans Mountain has the onus (or burden) to prove, on a balance of probabilities, that its proposed route is the best possible detailed route, and that its proposed methods and timing of construction are the most appropriate.

There is no requirement in a detailed route hearing for SOO Filers or intervenors to identify an alternate route. Trans Mountain's citation of the Commission's 21 April 2020 Procedural Direction in its reply argument is best understood when the sentence is read in its entirety:

As stated in the Hearing Orders, if a SOO Filer and/or intervenor wishes to identify an alternate pipeline route for the Commission's consideration in determining whether Trans Mountain's proposed route is the best possible route, they must file details of the alternate route as part of their written evidence.

A party who advocates a particular position has an evidentiary burden; that is, it bears the onus of producing evidence in support of its position, to persuade the decision-maker. If a SOO Filer or intervenor presents an alternate route for consideration, the alternate route must be described in sufficient detail for the proponent and Commission to understand where it would be located and how it would address the SOO Filer's or intervenor's concerns. However, the Commission does not necessarily require SOO Filers or intervenors to undertake engineering or other field studies, or consult with all landowners along a proposed alternate route, to persuade the Commission that Trans Mountain's proposed route is not the best possible detailed route. The Commission recognizes that SOO Filers and intervenors are typically individual landowners, Indigenous peoples, and companies that may not have access to pipeline alignment experts with specialized knowledge of the proponent's project.

The proponent is generally the party with the best ability to design and propose a route for a pipeline project, and the proponent will always bear the ultimate burden to prove entitlement to the relief it seeks.

The Commission's consideration of the issues in a detailed route hearing is a highly fact-specific exercise. The amount of detail required to persuade the Commission on a balance of probabilities will depend on the facts and circumstances in any given case.

When alternate routes are raised, the Commission does not require a proponent to complete an exhaustive review of each proposed alternate route. Again, this will depend on the facts and circumstances, and the nature of the alternate route that has been presented. The Commission echoes the NEB's statement in the Burnaby Residents Decision<sup>9</sup> ([A91504](#)), which was cited by Trans Mountain:

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<sup>9</sup> Pertaining to Detailed Route Hearings MH-049-2017, MH-050-2017, MH-051-2017, MH-052-2017, MH-057-2017, and MH-058-2017.



There is no need for Trans Mountain to exhaustively review routes that clearly present significant challenges and have more negative impacts; further studies would only confirm this, are unnecessary and beyond the onus a proponent must meet.

The Commission adds, however, that if an alternate route presents a viable option, or an option with potentially less impacts than the proponent's proposed route, the proponent's evidentiary burden would be greater; such circumstances would require stronger evidence from the proponent to prove, on a balance of probabilities, that the proposed alternate route is inferior to its proposed route. In such circumstances, the proponent would be encouraged to file evidence to assist the parties and Commission in understanding the benefits and burdens of each.

The Commission is of the view that an alternate route should not be disregarded on the basis that aspects of that route present technical feasibility issues, especially if those feasibility issues could reasonably be avoided or mitigated with alterations or improvements by the proponent's technical specialists. As stated above, the Commission is mindful that the proponent is generally the party with the best ability to design and propose a route for a pipeline project.

#### **4.6 Considering Chilliwack's alternate routes, is Trans Mountain's proposed route the best possible detailed route?**

**Figure 4** above shows Chilliwack's alternate route options. Chilliwack proposes routing the TMEP north of the Approved Corridor and either routing along Highway 1 and Lickman Road, or along Highway 1, Hopedale Road, and Keith Wilson Road.

##### ***Chilliwack's submissions***

- While Chilliwack is under no legal obligation to prove this, the routing it has proposed is superior to Trans Mountain's proposed route. Chilliwack's alternate routes avoid the risks and impacts of Trans Mountain's proposed route identified by the owners of the Lands.
- Consideration of whether to approve Trans Mountain's proposed route also requires consideration of the part of that route that does not include the Lands.
- Chilliwack's alternate routes avoid the potential risks to Chilliwack's supply of water from the Sardis-Vedder Aquifer, while Trans Mountain's proposed route does not. This issue was canvassed by Chilliwack in its argument in Detailed Route Hearing MH-026-2020 and will not be repeated here other than to note that, when consideration is given to the impacts of Trans Mountain's proposed route on the Lands that would be avoided by using Chilliwack's alternate routes, the basis for refusing Trans Mountain's proposed route is reinforced.
- The major landowner potentially affected by Chilliwack's alternate routes is the Ministry of Transportation and Infrastructure (MOTI). To the extent that consent is relevant in determining the best possible detailed route, Trans Mountain has not provided any evidence from the MOTI saying that the MOTI would object to Chilliwack's alternate routes. The evidentiary and legal burden to show this lies with Trans Mountain. That is, as Trans Mountain has the burden of proof in this proceeding, then Trans Mountain has to lead evidence to that effect.

### ***Yarrow's submissions***

- Yarrow supports WaterWealth's alternate route because, while Chilliwack's alternate routes may protect the city's municipal drinking water wells, it still goes directly through the Lands, traverses a portion of the Sardis-Vedder Aquifer, and passes through ecologically sensitive areas, such as the Browne Creek Wetlands and Peach Creek. Yarrow considers Chilliwack's alternate routes to be inadequate for these reasons. WaterWealth's alternate route avoids these sensitive locations.
- Yarrow notes that Trans Mountain's analysis of Chilliwack's alternate routes relies heavily on "nit-picking" the difficulties that could easily be resolved by moving the proposed route slightly to one side or the other, and Trans Mountain heavily emphasizes the cost and delay that would result from adopting an alternate route. These factors should not be determinative. Chilliwack's alternate routes also contravenes Trans Mountain's routing criteria. A lower overall impact would be achieved by adhering to more substantial linear disturbances like the Trans-Canada Highway.

### ***Trans Mountain's submissions***

- Yarrow agrees with Trans Mountain that the City Alternate Route is not the best possible detailed route for the pipeline. Since the City Alternate Route does not have the support of Trans Mountain or the affected landowner, the Commission should determine that the City Alternate Route is not the best possible detailed route.
- This detailed route hearing is not the appropriate place for Chilliwack's general submissions about its alternate routes outside of the Lands. The geographical scope of the hearing is limited to the Lands (i.e., Tract 2438 in Segment 6). Detailed Route Hearing MH-026-2020 pertained to a large geographical scope (17 different tracts with 17 unique parcel identifiers) and contained extensive evidence from both Trans Mountain and Chilliwack regarding Chilliwack's alternate routes. Each private landowner's hearing should focus on the lands subject to the hearing in question. Accordingly, Chilliwack's submissions should be limited to the effects of the TMEP on the Lands.
- The Commission should determine that neither of Chilliwack's alternate routes is the best possible detailed route for the purposes of this hearing.

#### **4.6.1 The Commission: Chilliwack's proposed alternate route is inferior to Trans Mountain's proposed route**

Chilliwack's alternate routes do not differ from Trans Mountain's proposed route on the Lands. Chilliwack's alternate routes on the Lands do not address Yarrow's concerns. In fact, these alternate routes would have the same potential impacts as Trans Mountain's proposed route on the Lands. Any advantages of these alternate routes are out of the geographic scope of this Detailed Route Hearing MH-015-2020. Therefore, there was no "alternate" route to consider in these circumstances.

As this detailed route hearing is limited to Tract 2438, the Commission disagrees that it is required to consider advantages of these alternate routes on other lands. The Commission has made it clear throughout the Chilliwack-Area Hearings that each hearing has a specific geographic focus, as discussed in **Section 3.2** above. The Commission thoroughly considered

the benefits of Chilliwack's alternate routes, including avoidance of potential risks to Chilliwack's water supply, in its MH-026-2020 Letter Decision. As WaterWealth's alternate route (supported by Yarrow) includes a portion of Chilliwack's alternate routes (the Trans-Canada Highway corridor portion), that portion was considered, as discussed in **Section 4.7** below.

#### **4.7 Considering WaterWealth's alternate route (supported by Yarrow), is Trans Mountain's proposed route the best possible detailed route?**

**Figure 3** above shows Yarrow's property and WaterWealth's alternate route. This alternate route departs from the proposed route at approximately KP 1085, runs north, then west, and rejoins the proposed route at approximately KP 1110.35.

##### ***Yarrow's submissions***

- Yarrow supports WaterWealth's alternate route, not Chilliwack's alternate routes which go directly through Yarrow's property, a portion of the Sardis-Vedder Aquifer, and ecologically sensitive areas, such as the Browne Creek Wetlands and Peach Creek. WaterWealth's alternate route avoids these locations.
- Yarrow is alarmed that a bitumen export pipeline would be expanded over Chilliwack's drinking water aquifer, through communities, farms, schoolyards, and sensitive restored riparian habitats. WaterWealth has recommended that a route parallel to Highway 1 would minimize the disruption and risk that new pipeline construction would present.
- Much of Trans Mountain's argument in this hearing addressed the issue of the viability of WaterWealth's alternate route. WaterWealth itself is better equipped than Yarrow to respond to the positions advanced by Trans Mountain on this issue, and has done so in the context of Detailed Route Hearing MH-026-2020. Yarrow has reviewed and agrees with WaterWealth's written argument filed in that hearing ([C08916](#)), and refers the Commission to that document in response to the issues raised by Trans Mountain in this hearing with respect to this alternate route.
- Yarrow agrees that much of Trans Mountain's criticism of WaterWealth's alternate route appears to be an effort to find fault rather than a sincere evaluation of viability, perhaps best illustrated by the absurd suggestion that the intersection of a draft, coarse-resolution line with a building could not be resolved by detailed routing and renders the entire alternate route infeasible. It seems clear that Trans Mountain is unwilling to sincerely explore any alternate route that may delay construction or increase costs and, therefore, an adequate assessment of alternate routes will only be carried out if required by the Commission.
- Trans Mountain's evidence neither disproves the viability of WaterWealth's alternate route, nor does it prove that its proposed route is the best available detailed route.
- Trans Mountain's proposed route will render organic farming business unsustainable for three to five years if they cannot bring produce to market in that time.
- In a case study in Minnesota, a pipeline was re-routed to avoid an organic farm.

### ***Trans Mountain's submissions***

- WaterWealth's alternate route is not feasible, is contrary to Trans Mountain's routing criteria by affecting multiple previously unencumbered lands, would cause major project delays, and would significantly increase overall costs.
- WaterWealth's alternate route is unfeasible for four main reasons: (i) it is not supported by Chilliwack; (ii) it relies on an unfeasible crossing of the Trans-Canada Highway; (iii) it creates various conflicts with existing infrastructure; and (iv) it does not allow for sufficient space to safely and efficiently construct the pipeline.
- WaterWealth's alternate route crosses in close proximity to Chilliwack Municipal Airport, which would likely add significant complexity and cost to the route. Based on Trans Mountain's experience, routing the TMEP in proximity to airports could result in significant engagement requirements under Certificate Condition 49, concerns from airports regarding future runway expansions and utility crossings, access disruptions and operations, and potential route objections.
- WaterWealth's alternate route's ability to avoid densely urbanized areas is contingent on crossing the Trans-Canada Highway at the intersection between the highway and Evans Road (Evans Interchange Crossing). If a crossing were to be attempted west of the Evans Interchange Crossing, WaterWealth's alternate route would run into a highly congested commercial area on the north side of the Trans-Canada Highway, with limited space available for construction. Trying to cross the Trans-Canada Highway anywhere east of the Evans Interchange Crossing, would eventually lead WaterWealth's alternate route directly into the densely urbanized areas of Chilliwack.
- Based on studies conducted by Trans Mountain suggesting that soil conditions in the area may be unsuitable for a horizontal directional drill (HDD) crossing in the area, WaterWealth proposed to complete the Evans Interchange Crossing by way of a Direct Pipe<sup>10</sup> construction methodology. WaterWealth proposed seven potential alignments for the Direct Pipe Evans Interchange Crossing; all of which are unfeasible from an engineering and constructability perspective because they pass directly under buildings and/or cross roads at oblique angles. Trans Mountain has been unable to find a feasible Direct Pipe alternative for this crossing.
- If the Direct Pipe installation of the Evans Interchange Crossing were to fail, there are no apparent contingency options to complete the crossing. An open-cut construction methodology would likely be unacceptable to the MOTI and, based on geotechnical studies, using a HDD construction methodology may not be a suitable alternative. Accordingly, the Evans Interchange Crossing is a major flaw in the design of WaterWealth's alternate route.
- WaterWealth's alternate route does not allow for sufficient space to safely and efficiently construct the pipeline. All seven alignments suggested by WaterWealth for the Evans Interchange Crossing fail to meet the project's temporary workspace requirements. The space available for the SRY Rail Crossing near Vedder Road is also insufficient.
- WaterWealth's alternate route is a greenfield route that generally does not parallel any existing linear infrastructure. It would also affect approximately 113 parcels of land with TMEP RoW and/or temporary workspace, including lands owned by First Nations.

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<sup>10</sup> Direct Pipe is a construction methodology that combines elements of micro-tunneling and horizontal directional drilling.

Engagement with these newly affected landowners and First Nations would entail additional effort, cost, and time.

- Proposing a 25.2-kilometre-long reroute (the approximate length of WaterWealth's alternate route) to avoid a single parcel of land is unreasonable as it would significantly increase overall impacts. This is especially the case considering that Trans Mountain has obtained significant landowner consent in respect of its proposed route in Chilliwack.
- Trans Mountain has achieved landowner consent for the vast majority of the proposed route along Segment 6.3. Indeed, of the 75 parcels of land along Segment 6.3, Trans Mountain has reached agreements with approximately 90 per cent of all affected landowners. Conversely, WaterWealth has not been able to identify any landowners affected by its alternate route. Landowner agreement is a factor which has previously been given weight at the detailed route hearing stage.
- It has taken Trans Mountain 8 years to achieve 90 per cent landowner consent for the approximately 2-kilometre-long route in Segment 6.3. Trans Mountain would have to repeat this process in respect of WaterWealth's up-to-25-kilometre-long alternate route. To date, Trans Mountain has secured none of the required landowner consent for this alternate route.
- Pursuing WaterWealth's alternate route would result in major project delays associated with: (i) submitting a variance application under the CER Act; (ii) engaging with and satisfying requirements from the MOTI for the Evans Interchange Crossing; (iii) engaging with affected First Nations and landowners; and (iv) conducting requisite geotechnical studies for trenchless crossings and detailed engineering. It is reasonable to expect that this process would result in approximately two or more years of overall delay in commissioning the TMEP.
- Construction of WaterWealth's alternate route would add significant additional costs, totaling approximately \$20-25 million. These costs would include material regulatory and construction delays, engagement with affected stakeholders and landowners, construction costs, additional mobilization and demobilization costs, detailed engineering and design costs, and geotechnical investigations.

#### **4.7.1 The Commission: WaterWealth's alternate route (supported by Yarrow) is inferior to Trans Mountain's proposed route**

While WaterWealth was not a participant in this Detailed Route Hearing MH-015-2020, the Commission considered WaterWealth's alternate route in Detailed Route Hearing MH-026-2020 because Yarrow adopted that route on the record of this hearing. The Commission has considered only those portions of WaterWealth's evidence and written argument filed in Detailed Route Hearing MH-026-2020 which pertain to its alternate route. The Commission notes that Trans Mountain took the opportunity to reply to WaterWealth's evidence on the record of this Detailed Route Hearing MH-015-2020.

#### ***Burden of proof***

As noted above, Trans Mountain discharging its burden of proof involves considering proposed alternate routes, with reasonable modifications, to prove on a balance of probabilities that they are unfeasible or inferior to its proposed route. The Commission is of the view that Trans Mountain has undertaken sufficient technical analyses with respect to WaterWealth's alternate route.

### ***Potential benefits of the alternate route***

WaterWealth's alternate route would address Yarrow's concerns, including avoiding impacts on organic soil on the Lands, potential impacts on the Yarrow organic farm brand, and potential impacts on Stewart Creek and riparian habit.

While WaterWealth's alternate route avoids Yarrow's property, it still crosses the Sardis-Vedder aquifer substantially downgradient of both Chilliwack's water wells and the Yarrow Waterworks wells, and there is no suggestion that the capture zones of those wells extend to the location of the alternate route. Therefore, while the alternate route could pose some risk to the aquifer and uses of it downgradient from that route, potential impacts on the current Chilliwack and Yarrow Waterworks wells would be essentially eliminated. The Commission notes that Yarrow also identified the avoidance of ecologically sensitive areas, such as the Browne Creek Wetlands and Peach Creek, as reasons for preferring WaterWealth's alternate route. The Commission is of the view that the Browne Creek Wetlands and Peach Creek ecologically sensitive areas are not within the geographic scope of this detailed route hearing. The Commission has therefore not considered this in its assessment of WaterWealth's alternate route.

### ***Routing criteria***

Yarrow has adopted WaterWealth's submission that its alternate route better fits Trans Mountain's routing criteria. The Commission does not accept this submission. Trans Mountain's proposed route follows the existing TMPL, meaning that it minimizes the amount of new linear disturbance. WaterWealth's alternate route, for the most part, does not parallel existing linear infrastructure, and would require substantial disturbance to lands and infrastructure not currently impacted by the TMPL. WaterWealth's alternate route introduces land fragmentation which, in the Commission's view, is not consistent with the approved routing criteria and is a notable disadvantage of the alternate route.

The Commission is of the view that the benefits of WaterWealth's alternate route, noted above, are far outweighed by the burden of requiring substantial disturbance to lands and infrastructure not currently impacted by the TMPL. The Commission is of the view that applying the first routing criterion (that is, following the existing TMPL) is preferable in these circumstances, all factors considered. As a result, the Commission is of the view that Trans Mountain's proposed route is superior to WaterWealth's alternate route.

### ***Feasibility***

WaterWealth's alternate route involves the Evans Interchange Crossing. WaterWealth proposes to use Direct Pipe as the construction methodology at this location and provided seven potential crossing alignments. Trans Mountain argues that the potential alignments are not feasible because they pass directly under buildings and/or cross roads at oblique angles. Further, if the Direct Pipe installation of the crossing were to fail, there are no apparent contingency options to complete this crossing because an open-cut construction methodology would likely be unacceptable to the MOTI and, based on geotechnical studies, using a HDD construction methodology may not be a suitable alternative. Trans Mountain is of the view that, without a feasible contingency plan for the Direct Pipe construction methodology and a suitable alignment, the Evans Interchange Crossing is not feasible.



The Commission accepts Trans Mountain's submission that, without a suitable construction methodology for the Evans Interchange Crossing, WaterWealth's alternate route is not feasible.

### ***Potential delays and costs***

Yarrow is of the view that Trans Mountain is unwilling to sincerely explore any alternate route that may delay construction or increase costs. The Commission does not consider project delays and inconvenience associated with a denial of Trans Mountain's proposed route to be relevant factors in assessing whether it is the best possible detailed route. While incremental cost associated with an alternate route (e.g., the cost associated with building a longer pipeline, or performing technical studies unique to that route) is a relevant consideration, the weight to be given to such cost is a matter to be decided by the Commission, considering the circumstances of each case.

In this case, the incremental cost of WaterWealth's alternate route was not a significant factor. The Commission recognizes that, naturally, there is incremental cost associated with a longer pipeline, such as WaterWealth's alternate route. However, there was no evidence to describe such incremental cost independent of other types of costs. The cost, or economic feasibility, of this alternate route was not determinative in this case.

### ***Conclusion***

Upon considering the potential benefits of WaterWealth's alternate route (supported by Yarrow), as well as feasibility challenges and the disadvantages arising from land fragmentation, the Commission finds that Trans Mountain's proposed route is superior to WaterWealth's alternate route. Given this finding, the Commission did not find it necessary to further examine other potential adverse environmental and socio-economic effects of the alternate route in more detail.

## **4.8 The Commission: Trans Mountain's proposed route is the best possible detailed route**

The Commission has considered the proposed route, including assessing and weighing its impacts on organic soil on the Lands, potential impacts on the Yarrow organic farm brand, and potential impacts on Stewart Creek and the riparian habitat, as well as the risk to the Sardis-Vedder Aquifer and likelihood of impact on the associated water wells. Finding that Trans Mountain appropriately applied the approved routing criteria in the circumstances, the Commission also considered and weighed the benefits and feasibility of the alternate routes and issues that Chilliwack and Yarrow sought to address in proposing those routes, again weighing the benefits and burdens of Trans Mountain's proposed route.

For the reasons provided, the Commission is of the view that, on a balance of probabilities, Trans Mountain's proposed route, along with the commitments and conditions that apply to it, is the best possible detailed route.

## **5 Are Trans Mountain's proposed methods of constructing the pipeline the most appropriate?**

Trans Mountain proposes to construct the TMEP on the Lands with a conventional open-trench construction methodology. For the crossing of the watercourse on the Lands, the proposed

methodology is isolated open-cut with water quality monitoring, as described in further detail below.

### ***Yarrow's submissions***

#### Organic soil

- An open-cut construction method will result in destruction of soil organic matter, which will require an unknown amount of time for soil organic matter recovery.
- Since 2002, organic matter in the form of compost and other organic inputs have been continuously added to the soil every year. Organic topsoil health can only be restored over years of rebuilding. If soil horizons were mixed during the construction process, it is not certain that soil quality can ever be effectively restored.
- The removal and replacement of soil in layers and topsoil salvaging described by Trans Mountain are not appropriate for the organic farming practiced at Yarrow. To the extent that the soils are disturbed or compacted during the project, organic production would be curtailed. Even if the organic soil was segregated and an effort was made to physically replace this topsoil layer, the stratification of organic soils would be destroyed and the organic topsoil health could only be restored over years of rebuilding.
- The soil's quality and value has been built up over several years to obtain organic certification. The soils have been laboriously enriched each year. Pipeline installation would severely impact them. Yarrow estimates that it would take over 10 years to restore the lands to their present state. It would take at least three years just to regain organic certification.
- The significance of building up the soil quality over several years was noted by Dr. Deborah Allan when she testified on an application to route an oil pipeline through an organic farm in Minnesota. Dr. Deborah Allan noted:

“Wherever digging or trenching is done, construction of a crude oil pipeline would remove and disrupt the A-horizon soils which are the organic farmer's bank account. Even if this soil was segregated and an effort was made to physically replace this topsoil layer, the stratification of organic soils (with the especially organic matter rich soil in the top several inches) would be destroyed. Organic topsoil health could only be restored over years of rebuilding. If soil horizons were mixed in the construction process, it is not certain that soil quality could ever be effectively restored.”
- In 2018, an examination of the soil horizon on the Lands showed the rich topsoil layer was 45 centimetres in depth. The time to replace that depth of soil was estimated by an agrologist (B. McTavish, on contract to Trans Mountain) to be approximately three to five years with a significant compost production operation.
- Trans Mountain indicated that it intended to purchase and import compost to aid in the remediation of topsoil for organic agriculture on Yarrow's property following construction. It has not provided Yarrow with any details of its proposed compost plan outside of what was filed at the last minute in an information request response. Although Trans Mountain claims that its plan will reduce the remediation timeline as compared to the three-to-five year horizon their expert had previously communicated, it provided no new timeline or evidence to support its claim that importing compost will assist in reclaiming the soil. Trans Mountain's written argument refers in passing to a

timeline that assumes reclamation will be completed by October 2021. As far as Yarrow is aware, this stated timeline is not supported by evidence.

- Given the lack of details and supporting evidence for Trans Mountain's proposal, Yarrow urges the Commission not to accept that proposal at face value. A comprehensive reclamation plan must be prepared, including references to relevant research supporting the plan, before this route segment can be approved.
- If the Commission intends to proceed with a decision on this segment in the absence of any evidence to support Trans Mountain's vague claims regarding the advantages of importing compost, Yarrow submits that the Commission must rely on the only concrete timeline on the record, which is Mr. McTavish's statement that reclamation would take three to five years. Yarrow's residents cannot afford to lose three to five years' worth of crops. Even if those considerable losses were fully offset by financial compensation, the loss of connection to the land for such a long period would be devastating to the Yarrow community and cannot be valued in dollars.
- Yarrow argues that, if the Commission approves the proposed methods of construction, the following be made conditions of any approval:
  - 1) Trans Mountain is required to have an accredited soil scientist onsite directly supervising all agricultural topsoil excavation, storage, and reclamation activities.
  - 2) Trans Mountain is required to conduct appropriate soil testing, with input on appropriate parameters from Yarrow, following reclamation to ensure that the restored agricultural topsoil meets the needs of Yarrow and the certification requirements of Yarrow's organic certifying body, and to conduct additional reclamation work if those standards are not met.

#### Impacts on irrigation infrastructure

- Construction on the RoW will impact irrigation infrastructure that provides irrigation for 10 acres. Access to the pump house for the system is located just north of the construction RoW. Irrigation lines south of the pump house would be severed as they run perpendicular to the pipeline. Therefore, all crops in this 10-acre sector of the farm would be without water. This would disrupt any farming activity during the construction phase.

#### Stewart Creek crossing

- In 2002, Stewart Creek was a ditch flowing through the Lands. Over the last 20 years, the riparian habitat of Stewart Creek has been enhanced. Tree plantings, bioengineering workshops, the addition of coarse woody debris, and a permaculture food forest have served to create a more vibrant ecosystem. This has resulted in increased carbon capture, and the diversity of trees, shrubs, insects, fungi, animals, and fish have increased resilience and added to the beauty of the environment.
- As part of an integrity dig in 2018, the existing TMPL crossing of Stewart Creek on the Lands was re-excavated using an open-cut method. The streambed was lined with concrete blocks to protect the pipe and covered with a uniformly sized crushed gravel and a narrow band (1 to 2 metres wide) of native shrubs were planted in the riparian. This work degraded salmon habitat in several ways. The smooth hard bottom has no cover value, will support very few aquatic invertebrates that fish feed on, and will inhibit plant growth. The use of simple standard fish habitat restoration methods could have enhanced habitat value at little or no additional cost.

- In his report filed as Yarrow's written evidence, biologist Mike Pearson provided an example of spawning riffle construction that would have provided greater restored habitat value than Trans Mountain's bare gravel approach, without interfering with the concrete armouring system or substantially increasing cost. This approach is common and well-established, and should be required as a bare minimum for future crossings at any salmon-bearing stream. Depending on the specific conditions at each crossing, other solutions may be more appropriate, such as adding coarse woody debris. In any case, it is clear that concrete and gravel alone are not an adequate substitute for a healthy stream bed.
- Trans Mountain characterizes the riparian reclamation following the 2018 crossing as "successful," and indicates that it intends to use the same approach during TMEP construction (with the vague qualifier "if suitable, where feasible"). However, several of Trans Mountain's statements regarding the success of that effort are inconsistent with the filed evidence and Yarrow's first-hand observations.
- Trans Mountain relies on the success of its previous reclamation efforts, and that success is clearly called into question by Yarrow's evidence. More effort needs to be taken to provide for robust riparian revegetation that reflects the depth of riparian vegetation along the rest of the reach and discourages infiltration by invasive species.
- In considering the inadequacy of Trans Mountain's plans with respect to the Stewart Creek crossing, Yarrow requests that the Commission require that any changes to those plans be reflected as appropriate in the Pipeline EPP, such that any improvements may be adopted more broadly, in addition to any more site-specific measures that may be more appropriately incorporated into the site-specific Reclamation Plan developed for the Lands.

#### ***PIPE UP's submissions***

- A HDD method of construction should be used for salmon-bearing watercourses.

#### ***Trans Mountain's submissions***

##### Organic soil

- Trans Mountain had a soil scientist complete a detailed soil evaluation for the BC Fraser Valley. Its environmental alignment sheets identify soil handling requirements for agricultural areas based on soil sampling and specific evaluation of soils.
- Trans Mountain conducted a site visit to the land parcel in 2017 and incorporated the results in the applicable sections of the Pipeline EPP. At the time of that visit, Yarrow seemed satisfied that the topsoil could be managed and the soil handling and mitigation would maintain soil quality (to ensure there is no significant deterioration in soil quality).
- Trans Mountain proposes to implement a number of site-specific measures relating to organic soils handling, which are described in detail in Technical Report 5D-6 of Volume 5D, Agricultural Assessment Technical Report ([A3S2K9](#)), Sections 9 and 10 of Appendix B of the Pipeline EPP ([C01961](#)), and the Agriculture Management Plan attached as Appendix G of the Pipeline EPP. This includes the following:

- Implementing 8-metre buffer zones around organic or organic-transitional lands, and treating these buffer zone lands as organic, except as clearly agreed-upon with the landowner.
- Creating a workplan in cooperation with the landowner and submitting it to the appropriate certification board for approval.
- Installing signage at access points identifying the organic property and any special restrictions and requirements.
- Confirming biosecurity protocols with the landowner within the workplan for pre-construction and construction activities.
- Storing stripped topsoil in low windrows and managing the topsoil windrows to prevent deterioration of the soil fauna.
- Following the equipment cleaning requirements according to any landowner agreements, as indicated in the line list and the Weed and Vegetation Management Plan.
- Prohibiting re-fueling and servicing of equipment and vehicles on organic and organic-transitional lands.
- Maintaining signage at access points to the pipeline construction footprint to ensure organic status of property and restrictions/requirements are identified.
- Maintaining irrigation when interrupted by construction, where feasible, and providing alternate water supply or functional systems where required.
- Installing waste collection receptacles and portable toilets off organic and organic-transitional lands.
- Not importing soil material onto organic lands unless approved by the landowner and the certification board.
- Trans Mountain proposes the following additional site-specific mitigation measures in relation to the soil handling on the Lands:
  - Adding high-quality organic compost to the topsoil at the time of reclamation. This mitigation measure will be implemented subject to landowner consent.
  - Setting aside topsoil and ensuring that it is not mixed with subsoil. Where subsoil is found in distinct layers, these layers will be separated using a three-lift process.
  - Providing onsite inspection and monitoring by a professional agrologist during construction to ensure that appropriate soil handling protocols are implemented.
  - Involving resource specialists and reclamation crews to assist in the execution of construction mitigation measures. The reclamation crews will be responsible for additional plantings and seeding after final clean-up.
  - Reducing grading along the pipeline construction footprint within riparian habitat buffers where ground conditions are able to support equipment traffic without rutting or mixing soils.
  - Involving a resource specialist and an environmental inspector to consider soil texture in the process of evaluating clearing and grading within the riparian habitat buffer.
  - Implementing litter and topsoil salvage methods to revegetate riparian habitat.
  - Storing stripped topsoil in low windrows and managing the topsoil piles to prevent deterioration of the soil fauna. Support from the resource specialist may be warranted during topsoil salvage and stockpiling. The landowner agreement would be consulted regarding preferred soil storage locations, if applicable.

- Ensuring that additional steps for preserving the topsoil on the farm are developed in cooperation with the Landowner, land users, and their organic certification boards.
- Ensuring that a statistically valid sample of soils is taken prior to construction and before re-spreading topsoil on the Lands. This sample will be tested for metal concentrations to ensure that there has been no metal contamination of the soil due to pipeline construction activities.
- Having procedures in place to ensure that irrigation water is not interrupted. Trans Mountain has committed to working with Yarrow in advance of construction to develop a strategy to ensure that temporary irrigation lines are installed and permanent irrigation lines are re-established during and after construction.
- Trans Mountain has provided assurances that a professional agrologist with soil specialization would be onsite during all soil handling, including reclamation, on farms between Chilliwack and Surrey, which includes the Lands.
- Trans Mountain will follow its Weed and Vegetation Management Plan required by Certificate Condition 45. This plan includes pre-construction surveys, measurable goals, criteria for managing problem vegetation, management procedures and a decision-making framework, and the methods and schedule for short- and long-term vegetation monitoring.
- Trans Mountain is of the view that Dr. Deborah Allan's testimony from a Minnesota pipeline regulatory hearing from 14 years ago is not relevant to the TMEP. Dr. Allan's testimony does not contemplate the results of topsoil salvage methods and other mitigation measures in the Reclamation Plan, which are proposed for the Lands.
- While Trans Mountain confirms that disturbed soil without any mitigation could potentially take three to five years to restore full crop production, its proposed approach of adding high-quality organic compost to the topsoil at the time of reclamation would expedite the soil's biological processes and significantly shorten the duration of any effects from TMEP construction.
- Trans Mountain's soil-related mitigation measures for the Lands were endorsed by the NEB in its Reconsideration Report:

The Board is satisfied with Trans Mountain's response to [Yarrow's] concerns about disturbance to organic farm soils, which includes commitments to develop additional mitigation in cooperation with landowners, users and organic certification boards to ensure that soil handling procedures do not affect organic certification. The Board would also require Trans Mountain to address potential adverse effects of treatment measures for weeds, such as contamination of organic lands by prohibited substances, in the Weed and Vegetation Management Plan (Condition 45).
- Trans Mountain understands that the Lands are under organic cultivation and its products are certified organic as per the applicable standards. Their certifier, the BCARA, lists the farm as "Certified" in its directory. The BCARA does not provide information about which program the Lands are certified under (i.e., Canada Organic Regime or BC Certified Organic Program). The organic compost referred to in Trans Mountain's reply evidence can originate from the farm itself (Section 4.2 of CAN/GCSB-32.311) or from off-farm sources.
- Trans Mountain has identified several sources of compost that are suitable for use on the Lands. A final choice will be made in consultation with Yarrow depending on the

nutrient status of the compost, application rates, and future crops. Trans Mountain will engage with Yarrow at their convenience.

- Mitigation applicable to organic farms is included in the Pipeline EPP, within the Agricultural Management Plan, regarding refueling and/or servicing of equipment, and the re-establishment of agricultural operations infrastructure.
- With respect to Yarrow's request that the Commission impose two conditions on Trans Mountain (i.e., requirement to have an accredited soil scientist onsite supervising all agricultural topsoil work; and soil testing following reclamation to ensure topsoil meets Yarrow's needs and the certification requirements of Yarrow's organic certifying body), Trans Mountain is of the view that Mr. Hale has mischaracterized Trans Mountain's statements, that Yarrow's submissions are not supported by evidence or contradict evidence on the record, and that the proposed conditions are unnecessary. Trans Mountain has already committed to implement Yarrow's proposed requirements through this hearing and other TMEP regulatory processes.
- Certain of Yarrow's submissions about the appropriateness of storing excavated topsoil in windrows and conditions to be imposed were introduced for the first time in Yarrow's argument. Trans Mountain is of the view that these submissions are new evidence and should be disregarded by the Commission.

#### Impact to business

- In response to Yarrow's concerns regarding construction impacts on organic farming operations, Trans Mountain has offered to have a full-time agrologist onsite for the duration of construction and to not allow construction during heavy rain.
- With respect to crop losses, consistent with the requirements of section 314 of the CER Act, Trans Mountain will minimize damage to the extent practicable and compensate Yarrow for reasonable damages.
- Trans Mountain's Agricultural Management Plan contains mitigations to reduce impacts on agricultural operations, including maintaining irrigation when interrupted by construction and providing alternate water supply or functional systems when required.
- Since 2018, Trans Mountain has updated the EPP and Agricultural Management Plan to reflect refined mitigation measures applicable to organic farms.

#### Stewart Creek crossing

- Trans Mountain has conducted field studies and assessed Stewart Creek as Watercourse BC-722 on its environmental alignment sheets and resource-specific mitigation tables. Based on the field investigation findings and associated geotechnical studies, Trans Mountain determined the most technically and economically feasible crossing method for Stewart Creek is an isolated open-cut with water quality monitoring scheduled for instream work during the window of 1 August to 15 September. This crossing has been classified as a moderate riparian habitat function reclamation target.
- Trans Mountain's Pipeline EPP contains mitigation for fish, fish habitat, and surface water quality. Mitigation will be implemented to reduce spatial scale, duration, and intensity of effects to manage potential serious harm to fish and habitat, including limiting disturbance within riparian areas.

- Opinions on the potential effects of the TMEP on streams and waterbodies outside of the Lands are outside the geographical scope of this detailed route hearing.
- The Pipeline EPP is designed to identify mitigation measures to be implemented during construction activities, providing instructions for carrying out construction activities in a manner that will avoid or reduce adverse environmental effects and assist environmental inspection staff's decision-making. Mitigation measures are provided in the Pipeline EPP Watercourse Crossing Inventory and the Riparian Habitat Management Plan (Appendix G of the Pipeline EPP). Specific landowner requests are not typically captured in the Pipeline EPP. Rather, they are noted in the line list and provided to the contractor.
- Trans Mountain has developed a site-specific Reclamation Plan, which details mitigation measures proposed to be employed in respect of instream works and riparian reclamation. These mitigation measures are expected to minimize any adverse impacts on salmon habitats. These measures were summarized from the Riparian Habitat Management Plan (Certificate Condition 71) and Pipeline EPP (Certificate Condition 72).
- The watercourse crossing mitigation measures in the Reclamation Plan include implementing conditions and measures from applicable crossing permits, providing crossing-specific plans to the environmental inspector prior to construction, isolating the crossing from flowing water, developing a Water Quality Management Plan with input from a qualified environmental professional, maintaining downstream flow conditions, fish salvage and amphibian salvage measures, adhering to requirements applicable to equipment, identifying the watercourse crossing with signs, and measures in respect of sediment and salvage of streambed material.
- The Reclamation Plan identifies a number of measures for reclamation of the riparian area, including establishing a riparian buffer zone where vegetative ground cover and root structures will be left intact, with the exception of required vehicle crossings. Natural regeneration with supplemental plantings will be used to revegetate the riparian habitat. The bed and banks of the stream channel will be restored, stabilized, and reclaimed to a condition that is consistent with pre-construction conditions. Other riparian reclamation measures include involving resource specialists and reclamation crews; restricting root grubbing in wet areas; reducing grading where possible; minimizing impacts on vegetative ground cover, root structure, streambanks, beds, and adjacent trees; reinstating channel morphology and instream habitat after construction; implementing litter and topsoil salvage methods; and enhancing riparian habitat buffers.
- Under Certificate Condition 151, Trans Mountain will monitor the effectiveness of the riparian habitat reclamation and enhancement measures for five years following final clean-up. After that, the monitoring results will be used to complete the Riparian Habitat Reclamation Evaluation Report and Offset Plan under Certificate Condition 154.
- Trans Mountain is proposing to implement the successful mitigation measures introduced in the 2018 TMPL remediation works for the TMEP watercourse crossing if suitable, and where feasible.
- The site-specific mitigation measures applicable to Stewart Creek should not be extrapolated to lands other than the Lands. Trans Mountain refers to the Commission's Hearing Order, where it identifies that evidence in each detailed route hearing must be relevant to the tract(s) and issue(s) set out in its Appendix 2.



### **5.1 The Commission's decision: Trans Mountain's proposed methods of constructing the pipeline are the most appropriate for the Lands**

The Commission is of the view that open-trench construction and installing the pipeline to a depth of 1.2 metres below ground level, which meets the requirements of CSA Z662, is appropriate.

#### ***New evidence***

Yarrow's written argument includes information regarding the oxidation of organic matter in the soil, which the Commission considers to be new evidence. In its 2 June 2020 ([C06617](#)) and 31 July 2020 ([C07624](#)) Procedural Directions, the Commission stated, and emphasized, that new evidence cannot be provided in argument. There was adequate opportunity for Yarrow to file a motion to provide additional evidence before its argument deadline. However, Yarrow did not seek such relief or otherwise attempt to justify including this evidence at the argument stage. Therefore, the Commission disregarded this portion of Yarrow's argument. For clarity, this includes paragraph 17 of Yarrow's written argument ([C09931-1](#)).

The Commission considered the two conditions proposed by Yarrow in its argument to constitute proper argument to have been introduced at the argument stage. The Commission has considered them accordingly.

The Commission notes Yarrow's argument that Trans Mountain did not provide details of its proposed compost plan outside of what was provided at the last minute in Trans Mountain's information request response. The Commission finds that the mitigation of adding high-quality organic compost to the topsoil at the time of reclamation was addressed by Trans Mountain in paragraph 12 of its 15 October 2020 reply evidence ([C08904-1](#)). Again, there was ample opportunity for Yarrow to file a motion for a further opportunity to question or respond to this evidence; however, Yarrow did not do so.

#### ***Organic soil***

In **Section 4.1.1** above, the Commission provided its views regarding impacts of the proposed route on the organic soil on the Lands and the Yarrow organic farm brand. Those views equally apply to the Commission's assessment of whether the proposed methods of construction are appropriate, given the chosen method of construction creates impacts on organic soil on the Lands. This section should be read as a supplement to the Commission's decision provided in **Section 4.1.1**.

Trans Mountain's additional commitments relating to the methods of construction are summarized in its submissions above. Notably, Trans Mountain's commitments include setting aside topsoil to avoid mixing it with subsoil, using a three-lift process to separate subsoil that is in distinct layers, storing stripped topsoil in low windrows, and managing the windrows to prevent deterioration of the soil fauna. The Commission notes that this is standard mitigation used to avoid mixing of the soil horizons and is satisfied that these commitments will avoid stratification of the soil.

The Commission is of the view that the attendance of a professional agrologist onsite who will inspect and monitor to ensure soil handling protocols are properly implemented during construction and at the time of reclamation, as requested by Yarrow and committed to by Trans Mountain, is a valuable site-specific measure that is appropriate in these circumstances.

The Commission has considered Yarrow's request for the Commission to include, on any approval regarding the Lands, two conditions requiring Trans Mountain to:

- 1) have an accredited soil scientist onsite during topsoil excavation, storage, and reclamation activities; and
- 2) conduct appropriate soil testing, with input on appropriate parameters from Yarrow, following reclamation, to ensure that the restored agricultural topsoil meets the needs of Yarrow and the certification requirements of Yarrow's organic certifying body, and to conduct additional reclamation work if those standards are not met.

The Commission is of the view that several of Trans Mountain's proposed mitigation measures are particularly responsive to Yarrow's interest in protecting organic soils and the requested conditions. The Commission views commitments made by companies to be significant, and not trivial, matters, as they can further reduce potential impacts on landowners. Therefore, the Commission expects Trans Mountain to fulfill the commitments it has made in this detailed route hearing. As Trans Mountain acknowledged, the additional commitments made in this hearing will be tracked and reported on pursuant to Certificate Condition 6. For this reason, the Commission is of the view that the commitments from Trans Mountain to have a professional agrologist onsite during construction and reclamation, and to take statistically valid soil samples prior to construction and before re-spreading the topsoil at the Lands, negate the need for Yarrow's proposed conditions.

With all the mitigations outlined in **Sections 4.1 and 5** of this Letter Decision, the Commission is satisfied that the proposed open-trench method of constructing the pipeline is the most appropriate in this case.

### ***Irrigation infrastructure***

The Commission is of the view that the proposed methods of construction will cause temporary impacts on irrigation infrastructure. The Commission finds that these temporary impacts have been appropriately addressed by Trans Mountain in its Agricultural Management Plan, which contains mitigation measures to reduce impacts on agricultural operations. These measures include maintaining irrigation when interrupted by construction, and providing alternate water supply or functional systems when required.

### ***Stewart Creek crossing***

Some of Yarrow's submissions concern impacts on streams outside of the Lands and are therefore out of scope of this detailed route hearing.

The Commission finds that Trans Mountain's proposed crossing method (isolated open-cut with water quality monitoring) is the most appropriate. The Commission is of the view that the mitigation measures identified in the Pipeline EPP and the site-specific Reclamation Plan are appropriate to protect the fish and fish habitat in Stewart Creek during construction and reclamation activities.

The Commission is satisfied with the measures in Trans Mountain's Reclamation Plan and finds them to be appropriate. This includes having the bed and banks of the stream channel restored, stabilized, and, at minimum, returned to a condition that is consistent with pre-construction conditions, and establishing a riparian buffer zone where vegetative ground cover and root structures will be left intact.

Further, as discussed in **Section 4.2.1** above, pursuant to Certificate Condition 99, the Commission expects Trans Mountain to consult with Yarrow with respect to their concerns, including the issue of riparian reclamation that maintains the existing health of both the riparian habitat and watercourse.

Again, the Commission notes that Trans Mountain is required to monitor the effectiveness of the riparian habitat reclamation and enhancement measures for five years following final clean-up, pursuant to Certificate Condition 151, and subsequently complete the Riparian Habitat Reclamation Evaluation Report and Offset Plan under Certificate Condition 154.

The Commission notes Yarrow's request for spawning riffle construction being required at all future salmon-bearing watercourse crossings and the site-specific mitigation measures identified for the Lands to be adopted more broadly in the EPP. The Commission is of the view that all lands, including watercourse crossings and the specific habitat they provide, are unique in nature and should be assessed individually for the appropriate mitigation to minimize effects on the lands. The Commission notes that, by applying site-specific mitigation required at one site, to all sites, may create unintended adverse effects on other sites. Therefore, the Commission finds that it is not appropriate to require that the site-specific mitigation for the Lands be incorporated into the standard mitigation in the EPP.

### ***Engagement***

The Commission acknowledges the importance to Yarrow of its organic brand and business. Yarrow has years of experience on the Lands and has an abundance of knowledge about soil handling protocols aimed at preserving the soil.

The Commission again notes Trans Mountain's commitments to work cooperatively with Yarrow, and encourages both parties to continue engaging about the best approach to maintain and restore the organic nature of the soil and reduce the economic impacts on the business. The Commission notes that Certificate Condition 99 requires Trans Mountain to submit landowner consultation reports that will capture any concerns raised by Yarrow and detail the actions Trans Mountain has undertaken to address those concerns.

### ***Other concerns***

Yarrow expressed concerns that a period of crop loss may affect its community's connection to the Lands. Yarrow was of the view that such an impact "cannot be valued in dollars." The Commission finds that Yarrow did not provide evidence to describe this potential impact. Therefore, the Commission is unable to find, without speculation, that this is a potential impact of the proposed methods of construction. The Commission encourages Yarrow to engage with Trans Mountain to describe this concern and discuss how it may be mitigated to the degree possible.

## **6 Is Trans Mountain's proposed timing of constructing the pipeline the most appropriate?**

Trans Mountain expects construction activities on the Lands to occur in three phases spanning from June to September 2021 (with reclamation of the Lands potentially extending to October 2021), subject to regulatory approval.

Yarrow made no submissions with respect to the proposed timing of construction.

### ***PIPE UP's submissions***

- BC watercourse regulations require that any work in fish-bearing watercourses be limited to the low-risk window. Trans Mountain has asserted in a number of instances that it cannot comply with that requirement.

### ***Trans Mountain's submissions***

- With respect to crop losses, consistent with the requirements of section 314 of the CER Act, Trans Mountain will minimize damage to the extent practicable and compensate Yarrow for reasonable damages.
- Watercourse crossing construction activities will be timed to occur within the least-risk biological window for Stewart Creek (1 August to 15 September) to avoid causing serious harm to fish.

## **6.1 The Commission: Trans Mountain's proposed timing of constructing the pipeline is the most appropriate for the Lands**

The Commission notes that Yarrow made no submissions with respect to the timing of construction. With respect to PIPE UP's submission regarding the timing of the Stewart Creek crossing, the Commission is of the view that Trans Mountain's proposed schedule for conducting instream work within the creek during the least-risk biological window of August 1 to September 15 is appropriate and will minimize impacts on fish species in the creek.

Chilliwack made submissions with respect to the timing of construction; however, the Commission finds that they relate to concerns and interests that are outside of the Lands. Chilliwack did not provide site-specific submissions regarding the timing of construction on the Lands.

The Commission finds that Trans Mountain's proposed timing of constructing the pipeline across the Lands is the most appropriate.

## **7 Conclusion**

The Commission appreciates the time and effort spent by Mr. Hale and others from Yarrow, Chilliwack, PIPE UP, and Trans Mountain in providing their evidence and argument for consideration in this detailed route hearing.

The Commission has decided that Trans Mountain's proposed route is the best possible detailed route on the Lands, and the proposed methods and timing of constructing the pipeline are the most appropriate, subject to the commitments made by Trans Mountain and ongoing compliance with the Certificate OC-065 conditions. The Commission has arrived at this conclusion having considered the obligations under the CER Act and finds that its determinations are consistent with those obligations.

Having decided the above, the Commission will issue an Order approving the PPBoR for the Lands. Any future Order approving the PPBoR for the Lands will include conditions requiring Trans Mountain to list and fulfill the commitments it made in the course of this Detailed Route Hearing MH-015-2020, to file updated environmental and construction alignment sheets, and to maintain a copy of the Order and condition filings at its construction office(s).

The Commission reminds Trans Mountain that it has articulated in this Letter Decision a number of expectations that Trans Mountain is expected to meet. The Commission also reminds Trans Mountain that the relevant conditions of approval in Certificate OC-065 apply to the construction and operation of the TMEP pipeline on the Lands.

Finally, as the Commission has communicated in previous correspondence in this hearing, under Part 6 of the CER Act, parties may apply to the Commission to determine compensation disputes in relation to land matters. The CER's [Land Use Compensation webpage](#) provides further information about when compensation may be available.

The CER offers alternative dispute resolution (ADR) services to assist parties in reaching resolution of outstanding issues outside of the regulatory process. To take advantage of ADR, both parties must agree to take part. This process is voluntary and facilitated by trained CER mediators, or by another neutral third party mediator. If interested in using the CER's ADR services or learning more information about ADR options, please email [ADR-RED@cer-rec.gc.ca](mailto:ADR-RED@cer-rec.gc.ca) or call 1-800-899-1265.

Yours sincerely,

*Signed by*

Jean-Denis Charlebois  
Secretary of the Commission

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