April 21, 2021

Trans Mountain Pipeline ULC
2700, 300 - 5th Avenue SW
Calgary, AB T2P 5J2

Attention: Trans Mountain Pipeline ULC

RE: Amendment to Application Determination Number 100101459

Permit Holder: Trans Mountain Pipeline ULC
Amendment Date of Issuance: April 21, 2021
Amendment Effective Date: April 21, 2021
Application Submission Date: February 25, 2021
Amendment Application Number: 100112776

AMENDMENT DETAILS

Changes In and About a Stream: 0003673

GENERAL APPROVALS AND CONDITIONS

Water Sustainability Act

1. The BC Oil and Gas Commission (the "Commission"), under section 26(1) of the *Water Sustainability Act*, hereby grants an amendment to the above referenced Application Determination Number permit, as detailed in the Amendment Details table, above, subject to the original permit, any subsequent amendments and any additional or revised conditions as set out herein.
2. The approvals granted under this permit are limited to the area identified in the spatial data submitted to the Commission in the permit application as identified and dated above; herein referred to as the 'activity area'.

CONDITIONS

Notification

3. A notice of construction start must be submitted, as per the relevant Commission process at the time of submission, at least 48 hours prior to the commencement of activities under this permit.
4. Within 60 days of the completion of construction activities under this permit, the permit holder must submit to the Commission a post-construction plan as a shapefile and PDF plan accurately identifying the location of the total area actually disturbed under this permit. The shapefile and plan must be submitted via eSubmission
5. The permit holder must notify any First Nation(s) who may have Aboriginal Interests identified, as per the BC First Nations Consultative Areas Database, within the area in which the works are to occur at least five (5) working days prior to project commencement.

Clearing

6. The permit holder is permitted to fell any trees located on Crown land within 1.5 tree lengths of the activity area that are considered to be a safety hazard under applicable regulations and must be felled in order to eliminate the hazard. Trees or portions of these trees that can be accessed from the activity area without causing damage to standing timber may be harvested.

Water Course Crossings and Works

7. Stream, lake and wetland crossings must be constructed in accordance with the methods and any mitigations, as specified in the application.
8. In-stream activities within a fish bearing stream, lake or wetland must occur:
    a. during the applicable reduced risk work windows as specified in the Omineca Region - Reduced Risk Work Window;
    b. in accordance with alternative timing and associated mitigation recommended by a Qualified Professional and accepted by the Commission; or
    c. in accordance with an authorization or letter of advice from Fisheries and Oceans Canada that is provided to the Commission.
9. At any time, the Commission may suspend instream works approved under this permit. Suspensions on instream works will remain in place until such time as the Commission notifies permit holders that works may resume. Reasons for suspension of works may include, but are not limited to, drought conditions and increased environmental or public safety risks.
10. Equipment used for activities under this Permit must not be situated in a stream channel unless it is dry or frozen to the bottom at the time of the activity.
11. The approval holder must ensure any instream works related to maintenance are planned and overseen by a qualified professional. This individual must assess and determine whether planned works pose a risk to any of the features listed below, and is responsible for developing and implementing mitigation measures to reduce any potential impacts on these features, as required:
    a. fish or important fisheries habitat;
    b. species identified as special concern, threatened, or endangered under the federal *Species at Risk Act*; or
    c. species identified by Order as a species at risk under the *Forest and Range Practices Act* or the *Oil and Gas Activities Act.*

    This assessment must be provided to the Commission upon request.
12. Following initial construction, stream, lake and wetlands crossings are approved for necessary maintenance activities on the activity area except for:
    a. works within the boundary of a provincial park;
    b. stream bank or stream bed revetment works in a stream classified as S1, S2, S3, S4 or S5;
    c. permanent alteration of a stream bank;
    d. works within a Temperature Sensitive Stream established by order under s. 27 of the Environmental Protection and Management Regulation; or
    e. works within a Fisheries Sensitive Watershed established by order under s. 28 of the Environmental Protection and Management Regulation.
13. Open cut crossings and works within streams, lakes or wetlands must be planned and conducted in accordance with the following requirements:
    a. an open cut of a stream classified as S1, S2, S3 or S4 must not occur, unless the stream is frozen to its bed or is completely dry with no evidence of subsurface flow;

b. where the streambed or substrate consists of rocks, pebbles or coarse gravel overlaying finer material, this material must be removed and stockpiled separately above the high water mark of the stream for replacement during restoration;

c. materials referred to in b. above must be excavated and stockpiled in a manner that minimizes sediment dispersal within the stream, lake or wetland and must be replaced in a manner that minimizes disturbance to the stream, lake or wetland following pipeline installation;

d. unless otherwise authorized by Fisheries and Oceans Canada, spawning gravels must not be disturbed when redds that contain eggs or alevins are present. The authorization must be provided to the Commission;

e. channels, banks and beds of wetlands, including any disturbed stable natural material, must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated;

f. excavated materials must be contained using appropriate techniques, so that that sedimentladen water and spoil do not re-enter the stream lake or wetland;

g. any sediment-laden trench water must be pumped onto stable surfaces in a manner that does not cause erosion of soils or release of suspended sediments to watercourses; and

h. where feasible, aquatic vegetation and organic debris removed from the construction area must be salvaged and returned following trench backfilling; and channels, banks and beds of streams, including any disturbed stable natural material must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated.

14. Flow isolation crossings and works must be planned and conducted in accordance with the condition above regarding open cut crossings, and the following additional requirements:

    a. construction of the crossing or works, including the location and operation of any equipment, must be isolated from water flowing in the stream;

    b. welding, coating, weighting and, where applicable testing, of the pipe must be completed prior to commencement of trenching within fish-bearing water bodies;

    c. water from flumes, pump-arounds, diversions, or other methods must be released to downstream areas in an manner that avoids erosion or sediment release;

    d. pump intakes must not disturb beds of fish bearing streams, lakes or wetlands except as necessary to ensure safe installation and operation of equipment, and must be screened with maximum mesh sizes and approach velocities in accordance with the Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline;

    e. water flows downstream of in-stream construction sites must be maintained at volume and discharge consistent with upstream flows; and

    f. ditch plugs must be maintained at or near the banks of the crossing and left in place until the crossing has been initiated.

15. Mechanical stream crossings must be constructed, maintained and deactivated according to the following requirements, as applicable:

    a. To facilitate construction of a crossing, a machine is permitted to ford the stream a maximum of one time in each direction at the crossing location.

    b. Only bridges, culverts, ice bridges or snow fills may be constructed at stream crossings;

    c. The permit holder must ensure that permanent bridges are designed and fabricated in compliance with:

        i. the Canadian Standards Association Canadian Bridge Design Code, CAN/CSA-S6; and

        ii. soil property standards, as they apply to bridge piers and abutments; set out in the Canadian Foundation of Engineering Manual.

    d. Except with leave of the Commission, the permit holder must ensure that

        i. culverts are designed and fabricated in compliance with the applicable:

a. Canadian Standards Association CSA G401,Corrugated Steel Pipe Products; or

b. Canadian Standards Association Standard CSA B1800, Section B182.8, Plastic Non-pressure Pipe Compendium; or

ii. any pipe installed in lieu of a culvert is of at least equivalent standard and strength as any culvert as specified above.

e. Except with leave of the Commission, the permit holder must ensure that bridges or culverts meet the criteria set out in i., ii. or iii. below:

i. the bridge or culvert is designed to pass the highest peak flow of the stream that can reasonably be expected within the return periods set out in Column 2 of the table below for the period the permit holder anticipates the structure will remain on site, as set out in Column 1 of the table below:

Anticipated period crossing structure will remain on site	Peak flow period
Bridge or culvert, 3 years or less	10 years
Bridge other than a bridge within a community watershed, more than 3 years but less than 15	50 years
Bridge within a community watershed, more than 3 years	100 years
Bridge, 15 years or more	100 years
Culvert, more than 3 years	100 years

ii. the bridge, or any component of the bridge:

a. is designed to pass expected flows during the period the bridge is anticipated to remain on the site;

b. is constructed, installed and used only in a period of low flow; and

c. is removed before any period of high flow begins.

iii. the culvert;

a. is a temporary installation, and the permit holder does not expect to subsequently install a replacement culvert at that location;

b. is not installed in a stream, when the stream contains fish;

c. is sufficient to pass flows that occur during the period the culvert remains on the site;

d. is installed during a period of low flow; and

e. is removed before any period of high flow begins.

f. Snow fills must consist of clean snow and may only be located on streams that are dry or frozen to the bottom during the period of construction, maintenance and use. Where periodic thaws are anticipated, the permit holder must ensure measures are in place that allows meltwater to pass through, ensure movement of fish is not impeded, and prevent pooling on the upstream side of the snow fill. Snow fill and any installed culverts must be removed prior to spring snow melt;

g. Ice bridges on fish bearing streams may only be constructed where sufficient water depth and stream flows prevent the bridge structure from coming in contact with the stream bottom;

h. Water applied to construct an ice bridge on a water body must be sourced in accordance with the *Water Sustainability Act* unless

i. the water body is a stream with a stream channel width of at least 5 meters and is not designated as a sensitive stream under the *Fish Protection Act*, or has a riparian class of W1, W3, or L1;

ii. the water is sourced from the same water body proximal to the location on which the ice bridge is constructed;

iii. the water body is not within the boundaries of a public park;

iv. pump intakes do not disturb beds of streams or wetlands and are screened with a maximum mesh size and approach velocity in accordance with the Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline, and

a. where the water body is a stream, the flow of water in the stream at the time and location of pumping exceeds 60 litres per second and the instantaneous pumping rate does not exceed 1% of the water flowing in the water body at the time and location the pumping occurs, or

b. where the water body is a lake or pond, the cumulative volume of water withdrawn does not exceed 10 cm of lake or pond depth, calculated as the product of lake or pond surface area x 10 cm;

v. records of water withdrawal and corresponding streamflow measurements are maintained by the permit holder and provided to the Commission upon request.

i. Bridge or culvert abutments, footings and associated scour protection must be located outside the natural stream channel and must not constrict the channel width.

j. Wetland crossings must be constructed, maintained and removed in accordance with the following:

i. organic cover within and adjacent to the wetland must be retained;

ii. minimize erosion or release of sediment within the wetland;

iii. any padding materials must be placed on the wetland surface only and must not be used for infilling;

iv. any padding materials must be removed as soon as practicable following construction, considering weather and ground conditions; and

v. the wetland, including banks and bed, must be restored, to the extent practicable, to the condition that existed before the crossing was initiated.

ADVISORY GUIDANCE

1. CIAS Sketch Plan fig_123512347_pup_01_mrpp_section_11_mapbook_ams_100112776_20210216.pdf is for the permit holder's internal reference only and was not reviewed as a decision tool for this permit, nor does it form an integral part of this permit.
2. Instructions for submitting notice of construction start, as required by regulation, can be found in the Oil and Gas Activity Operations Manual on the Commission's website.
3. Unless a condition or its context suggests otherwise, terms used in this approval have the same meaning as the Environmental Protection and Management Regulation under the *Oil and Gas Activities Act*.

All pages included in this permit and any attached documents form an integral part of this permit.

Justin Anderson
Authorized Signatory, Commission Delegated Decision Maker

Copied to:
First Nations – Ktunaxa Nation Council, Lheidli T'enneh First Nation, Neskonlith Indian Band, Little Shuswap Lake Indian Band, Simpcw First Nation (North Thompson)

BC Oil & Gas COMMISSION

Correction v 1.0

December 29, 2020

Trans Mountain Pipeline ULC
2700, 300 - 5th Avenue SW
Calgary, AB T2P 5J2

Attention: Trans Mountain Pipeline ULC

Re: Correction of to Application Determination Number 100101459

Permit Holder: Trans Mountain Pipeline ULC
Date of Permit Issuance: June 6, 2017
Date of Correction: December 29, 2020
Application Determination Number: 100101459

The BC Oil and Gas Commission hereby corrects the permit identified and dated above as follows:

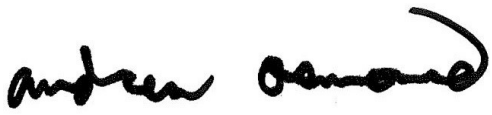
- **Condition 17. a) should read:**

  17. In-stream activities within a fish bearing stream, lake or wetland must occur:

  a) during the applicable reduced risk work windows as specified in the Region 7a Omineca – Reduced Risk Timing Windows for Fish and Wildlife; or

The Permit Holder must comply with any permissions, authorizations, approvals and conditions set out in the original permit, any subsequent amendments to the permit and any additional corrections as set out herein.

This letter forms an integral part of your permit and should be attached thereto.



Andrew Osmond
Authorized Signatory
Commission Delegated Decision Maker

Copied to:

First Nations – Lheidli T'enneh First Nation, Neskonlith Indian Band, Simpcw First Nation (North Thompson)

December 3, 2020

Trans Mountain Pipeline ULC
2700, 300 - 5th Avenue SW
Calgary, AB T2P 5J2

Attention: Trans Mountain Pipeline ULC

RE: Amendment to Application Determination Number 100101459

Permit Holder: Trans Mountain Pipeline ULC
Amendment Date of Issuance: December 3, 2020
Amendment Effective Date: December 3, 2020
Application Submission Date: September 24, 2020
Amendment Application Number: 100111780

AMENDMENT DETAILS

Changes In and About a Stream: 0003673

GENERAL APPROVALS AND CONDITIONS

Water Sustainability Act

1. The BC Oil and Gas Commission (the "Commission"), under section 26(1) of the *Water Sustainability Act*, hereby grants an amendment to the above referenced Application Determination Number permit, as detailed in the Amendment Details table, above, subject to the original permit, any subsequent amendments and any additional or revised conditions as set out herein.
2. The approvals granted under this permit are limited to the area identified in the spatial data submitted to the Commission in the permit application as identified and dated above; herein referred to as the 'activity area'.

CONDITIONS

Notification

3. A notice of construction start must be submitted, as per the relevant Commission process at the time of submission, at least 48 hours prior to the commencement of activities under this permit.
4. Within 60 days of the completion of construction activities under this permit, the permit holder must submit to the Commission a post-construction plan as a shapefile and PDF plan accurately identifying the location of the total area actually disturbed under this permit. The shapefile and plan must be submitted via eSubmission.
5. The permit holder must notify any First Nation(s) who may have Aboriginal Interests identified, as per the BC First Nations Consultative Areas Database, within the area in which the works are to occur at least five (5) working days prior to project commencement.

Clearing

6. The permit holder is permitted to fell any trees located on Crown land within 1.5 tree lengths of the activity area that are considered to be a safety hazard under applicable regulations and must be felled in order to eliminate the hazard. Trees or portions of these trees that can be accessed from the activity area without causing damage to standing timber may be harvested.

Water Course Crossings and Works

5. Stream, lake and wetland crossings must be constructed in accordance with the methods and any mitigations, as specified in the application.
6. In-stream activities within a fish bearing stream, lake or wetland must occur:
    a. during the applicable reduced risk work windows as specified in the Omineca Region - Reduced Risk Work Windows;
    b. in accordance with alternative timing and associated mitigation recommended by a Qualified Professional and accepted by the Commission; or
    c. in accordance with an authorization or letter of advice from Fisheries and Oceans Canada that is provided to the Commission.
7. At any time, the Commission may suspend instream works approved under this permit. Suspensions on instream works will remain in place until such time as the Commission notifies permit holders that works may resume. Reasons for suspension of works may include, but are not limited to, drought conditions and increased environmental or public safety risks.
8. Equipment used for activities under this Permit must not be situated in a stream channel unless it is dry or frozen to the bottom at the time of the activity.
9. Following initial construction, stream, lake and wetlands crossings are approved for necessary pipeline maintenance activities on the activity area except for:
    a. works within the boundary of a provincial park;
    b. stream bank or stream bed revetment works in a stream classified as S1, S2, S3, S4 or S5;
    c. pipe replacement within the stream channel where the original application specified a trenchless crossing method and the planned works involve a trenched crossing method;
    d. permanent alteration of a stream bank;
    e. works within a Temperature Sensitive Stream established by order under s. 27 of the Environmental Protection and Management Regulation; or
    f. works within a Fisheries Sensitive Watershed established by order under s. 28 of the Environmental Protection and Management Regulation.
10. Open cut crossings and works within streams, lakes or wetlands must be planned and conducted in accordance with the following requirements:
    a. an open cut of a stream classified as S1, S2, S3 or S4 must not occur, unless the stream is frozen to its bed or is completely dry with no evidence of subsurface flow;
    b. where the streambed or substrate consists of rocks, pebbles or coarse gravel overlaying finer material, this material must be removed and stockpiled separately above the high water mark of the stream for replacement during restoration;
    c. materials referred to in b. above must be excavated and stockpiled in a manner that minimizes sediment dispersal within the stream, lake or wetland and must be replaced in a manner that minimizes disturbance to the stream, lake or wetland following pipeline installation;
    d. unless otherwise authorized by Fisheries and Oceans Canada, spawning gravels must not be disturbed when redds that contain eggs or alevins are present. The authorization must be provided to the Commission;
    e. channels, banks and beds of wetlands, including any disturbed stable natural material, must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated;

f. excavated materials must be contained using appropriate techniques, so that that sediment-laden water and spoil do not re-enter the stream lake or wetland;

g. any sediment-laden trench water must be pumped onto stable surfaces in a manner that does not cause erosion of soils or release of suspended sediments to watercourses; and

h. where feasible, aquatic vegetation and organic debris removed from the construction area must be salvaged and returned following trench backfilling; and channels, banks and beds of streams, including any disturbed stable natural material must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated.

11. Flow isolation crossings and works must be planned and conducted in accordance with the condition above regarding open cut crossings, and the following additional requirements:
    a. construction of the crossing or works, including the location and operation of any equipment, must be isolated from water flowing in the stream;

    b. welding, coating, weighting and, where applicable testing, of the pipe must be completed prior to commencement of trenching within fish-bearing water bodies;

    c. water from flumes, pump-arounds, diversions, or other methods must be released to downstream areas in an manner that avoids erosion or sediment release;

    d. pump intakes must not disturb beds of fish bearing streams, lakes or wetlands except as necessary to ensure safe installation and operation of equipment, and must be screened with maximum mesh sizes and approach velocities in accordance with the Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline;

    e. water flows downstream of in-stream construction sites must be maintained at volume and discharge consistent with upstream flows; and

    f. ditch plugs must be maintained at or near the banks of the crossing and left in place until the crossing has been initiated.

12. Mechanical stream crossings must be constructed, maintained and deactivated according to the following requirements, as applicable:
    a. To facilitate construction of a crossing, a machine is permitted to ford the stream a maximum of one time in each direction at the crossing location.

    b. Only bridges, culverts, ice bridges or snow fills may be constructed at stream crossings;

    c. The permit holder must ensure that permanent bridges are designed and fabricated in compliance with:

        i. the Canadian Standards Association Canadian Bridge Design Code, CAN/CSA-S6; and

        ii. soil property standards, as they apply to bridge piers and abutments; set out in the Canadian Foundation of Engineering Manual.

    d. Except with leave of the Commission, the permit holder must ensure that

        i. culverts are designed and fabricated in compliance with the applicable:

            a. Canadian Standards Association CSA G401,Corrugated Steel Pipe Products; or

            b. Canadian Standards Association Standard CSA B1800, Section B182.8, Plastic Non-pressure Pipe Compendium; or

        ii. any pipe installed in lieu of a culvert is of at least equivalent standard and strength as any culvert as specified above.

    e. Except with leave of the Commission, the permit holder must ensure that bridges or culverts meet the criteria set out in i., ii. or iii. below:

        i. the bridge or culvert is designed to pass the highest peak flow of the stream that can reasonably be expected within the return periods set out in Column 2 of the table below for the period the permit holder anticipates the structure will remain on site, as set out in Column 1 of the table below:

Anticipated period crossing structure will remain on site	Peak flow period
Bridge or culvert, 3 years or less	10 years
Bridge other than a bridge within a community watershed, more than 3 years but less than 15	50 years
Bridge within a community watershed, more than 3 years	100 years
Bridge, 15 years or more	100 years
Culvert, more than 3 years	100 years

ii. the bridge, or any component of the bridge:

a. is designed to pass expected flows during the period the bridge is anticipated to remain on the site;

b. is constructed, installed and used only in a period of low flow; and

c. is removed before any period of high flow begins.

iii. the culvert;

a. is a temporary installation, and the permit holder does not expect to subsequently install a replacement culvert at that location;

b. is not installed in a stream, when the stream contains fish;

c. is sufficient to pass flows that occur during the period the culvert remains on the site;

d. is installed during a period of low flow; and

e. is removed before any period of high flow begins.

f. Snow fills must consist of clean snow and may only be located on streams that are dry or frozen to the bottom during the period of construction, maintenance and use. Where periodic thaws are anticipated, the permit holder must ensure measures are in place that allows meltwater to pass through, ensure movement of fish is not impeded, and prevent pooling on the upstream side of the snow fill. Snow fill and any installed culverts must be removed prior to spring snow melt;

g. Ice bridges on fish bearing streams may only be constructed where sufficient water depth and stream flows prevent the bridge structure from coming in contact with the stream bottom;

h. Water applied to construct an ice bridge on a water body must be sourced in accordance with the *Water Sustainability Act* unless

i. the water body is a stream with a stream channel width of at least 5 meters and is not designated as a sensitive stream under the *Fish Protection Act*, or has a riparian class of W1, W3, or L1;

ii. the water is sourced from the same water body proximal to the location on which the ice bridge is constructed;

iii. the water body is not within the boundaries of a public park;

iv. pump intakes do not disturb beds of streams or wetlands and are screened with a maximum mesh size and approach velocity in accordance with the Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline, and

a. where the water body is a stream, the flow of water in the stream at the time and location of pumping exceeds 60 litres per second and the instantaneous pumping rate does not exceed 1% of the water flowing in the water body at the time and location the pumping occurs, or

b. where the water body is a lake or pond, the cumulative volume of water withdrawn does not exceed 10 cm of lake or pond depth, calculated as the product of lake or pond surface area x 10 cm;

v. records of water withdrawal and corresponding streamflow measurements are maintained by the permit holder and provided to the Commission upon request.

i. Bridge or culvert abutments, footings and associated scour protection must be located outside the natural stream channel and must not constrict the channel width.

j. Wetland crossings must be constructed, maintained and removed in accordance with the following:

i. organic cover within and adjacent to the wetland must be retained;

ii. minimize erosion or release of sediment within the wetland;

iii. any padding materials must be placed on the wetland surface only and must not be used for infilling;

iv. any padding materials must be removed as soon as practicable following construction, considering weather and ground conditions; and

v. the wetland, including banks and bed, must be restored, to the extent practicable, to the condition that existed before the crossing was initiated.

ADVISORY GUIDANCE

1. Sketch Plan - fig_123512347_pup_01_mrpp_section_11_mapbook_ams_100111780_20200923.pdf is for the permit holder's internal reference only and was not reviewed as a decision tool for this permit, nor does it form an integral part of this permit.
2. Instructions for submitting notice of construction start, as required by regulation, can be found in the Oil and Gas Activity Operations Manual on the Commission's website.
3. Unless a condition or its context suggests otherwise, terms used in this approval have the same meaning as the Environmental Protection and Management Regulation under the *Oil and Gas Activities Act*.

All pages included in this permit and any attached documents form an integral part of this permit.

Justin Anderson
Authorized Signatory
Commission Delegated Decision Maker

Copied to:

First Nations – Ktunaxa Nation Council, Lheidli T'enneh First Nation, Neskonlith Indian Band, Little Shuswap Lake Indian Band, Simpcw First Nation (North Thompson)

July 16, 2020

Trans Mountain Pipeline ULC
2700, 300 - 5th Avenue SW
Calgary, AB T2P 5J2

Attention: Trans Mountain Pipeline ULC

RE: Amendment to Application Determination Number 100101459

Permit Holder: Trans Mountain Pipeline ULC
Amendment Date of Issuance: July 16, 2020
Amendment Effective Date: July 16, 2020
Application Submission Date: March 22, 2020
Amendment Application Number: 100110685

AMENDMENT DETAILS

Changes In and About a Stream: 0003673

GENERAL APPROVALS AND CONDITIONS

Water Sustainability Act

1. The BC Oil and Gas Commission (the "Commission"), under section 26(1) of the *Water Sustainability Act*, hereby grants an amendment to the above referenced Application Determination Number permit, as detailed in the Amendment Details table, above, subject to the original permit, any subsequent amendments and any additional or revised conditions as set out herein.
2. The approvals granted under this permit are limited to the area identified in the spatial data submitted to the Commission in the permit application as identified and dated above; herein referred to as the 'activity area'.

CONDITIONS

Notification

3. A notice of construction start must be submitted, as per the relevant Commission process at the time of submission, at least 48 hours prior to the commencement of activities under this permit.
4. Within 60 days of the completion of construction activities under this permit, the permit holder must submit to the Commission a post-construction plan as a shapefile and PDF plan accurately identifying the location of the total area actually disturbed under this permit. The shapefile and plan must be submitted via eSubmission.
5. The permit holder must notify any First Nation(s) who may have Aboriginal Interests identified, as per the BC First Nations Consultative Areas Database, within the area in which the works are to occur at least five (5) working days prior to project commencement.

Clearing

6. The permit holder is permitted to fell any trees located on Crown land within 1.5 tree lengths of the activity area that are considered to be a safety hazard under applicable regulations and must be felled in order to eliminate the hazard. Trees or portions of these trees that can be accessed from the activity area without causing damage to standing timber may be harvested.

Water Course Crossings and Works

7. Stream, lake and wetland crossings must be constructed in accordance with the methods and any mitigations, as specified in the application.

8. At any time, the Commission may suspend instream works approved under this permit. Suspensions on instream works will remain in place until such time as the Commission notifies permit holders that works may resume. Reasons for suspension of works may include, but are not limited to, drought conditions and increased environmental or public safety risks.

ADVISORY GUIDANCE

1. Sketch Plan - 01-13283-M002-PT110001_0_IFC_2014-05-12_01 - Single Span Bridge Example.pdf is for the permit holder's internal reference only and was not reviewed as a decision tool for this permit, nor does it form an integral part of this permit.
2. Instructions for submitting notice of construction start, as required by regulation, can be found in the Oil and Gas Activity Operations Manual on the Commission's website.
3. Unless a condition or its context suggests otherwise, terms used in this approval have the same meaning as the Environmental Protection and Management Regulation under the Oil and Gas Activities Act.

All pages included in this permit and any attached documents form an integral part of this permit.

Adam Kamp
Authorized Signatory
Commission Delegated Decision Maker

Copied to:

First Nations – Lheidli T'enneh First Nation, Neskonlith Indian Band, Little Shuswap Lake Indian Band, Simpcw First Nation (North Thompson)

June 13, 2017

Trans Mountain Pipeline ULC
2700, 300 - 5th Avenue SW
Calgary AB T2P 5J2

Attention: Trans Mountain Pipeline ULC

Re: Correction of Application Determination Number 100101459

Permit Holder: Trans Mountain Pipeline ULC
Date of Permit Issuance: June 6, 2017
Date of Correction: June 13, 2017
Application Determination Number: 100101459

The BC Oil and Gas Commission hereby corrects the permit identified and dated above as follows:

1. to replace condition 21 with "Open cut crossings and works within streams, lakes or wetlands must be planned and conducted in accordance with the following requirements:
    a) Where the streambed or substrate consists of rocks, pebbles or coarse gravel overlaying finer material, this material must be removed and stockpiled separately above the high water mark of the stream for replacement during restoration;
    b) Materials referred to in (a) above must be excavated and stockpiled in a manner that minimizes sediment dispersal within the stream, lake or wetland and must be replaced in a manner that minimizes disturbance to the stream, lake or wetland following pipeline installation;
    c) Unless otherwise authorized by Fisheries and Oceans Canada, spawning gravels must not be disturbed when redds that contain eggs or alevins are present. The authorization must be provided to the Commission;
    d) Channels, banks and beds of wetlands, including any disturbed stable natural material, must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated;
    e) Excavated materials must be contained using appropriate techniques, so that that sediment-laden water and spoil do not re-enter the stream lake or wetland;
    f) Any sediment-laden trench water must be pumped onto stable surfaces in a manner that does not cause erosion of soils or release of suspended sediments to watercourses.
    g) Where feasible, aquatic vegetation and organic debris removed from the construction area must be salvaged and returned following trench backfilling; and channels, banks and beds of streams, including any disturbed stable natural material must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated."

The Permit Holder must comply with any permissions, authorizations, approvals and conditions set out in the original permit, any subsequent amendments to the permit and any additional corrections as set out herein.

This letter forms an integral part of your permit and should be attached thereto.

Andrew Osmond
Authorized Signatory
Commission Delegated Decision Maker

Copied to:

First Nations – Lheidli T'enneh First Nation, Neskonlith Indian Band, Simpcw First Nation (North Thompson)
OGC Compliance and Enforcement

June 6, 2017

Trans Mountain Pipeline ULC
2700, 300 - 5th Avenue SW
Calgary AB
T2P 5J2

Attention: Trans Mountain Pipeline ULC

RE: Determination of Application Area Number 100101459

Permit Holder: Trans Mountain Pipeline ULC
Date of Issuance: June 6, 2017
Effective Date: June 6, 2017
Application Submitted Date: Jan 13, 2017
Application Determination Number: 100101459
Approved Disturbance Footprint: 0.0 ha

ACTIVITIES APPROVED

Changes In and About a Stream: 0003673

GENERAL AUTHORIZATIONS and CONDITIONS

AUTHORIZATIONS

Water Sustainability Act

1. The Commission, pursuant to section 11 of the *Water Sustainability Act*, approves the changes in and about a stream, as detailed in the Activities Approved table above, within the activity area for construction and maintenance activities, unless otherwise restricted by this approval

    a) Instream works must be carried out in accordance with the methods and any mitigations, as specified in the application.

2. The authorizations granted under this permit are limited to the area identified in the spatial data submitted to the Commission in the permit application as identified and dated above; herein referred to as the 'activity area'.

CONDITIONS

Notification

3. A notice of construction start must be submitted, as per the relevant Commission process at the time of submission, at least 48 hours prior to the commencement of activities under this permit.

4. Within 60 days of the completion of construction activities under this permit, the Permit Holder must submit to the Commission a post-construction plan as a shapefile and PDF plan accurately identifying the location of the total area actually disturbed under this permit. The shapefile and plan must be submitted via eSubmission.

5. The permit holder must notify Lheidli T'enneh a minimum of five (5) days prior to commencement of construction activities.

6. The permit holder must notify Simpcw First Nation a minimum of five (5) days prior to commencement of construction activities.
7. The permit holder must notify Neskonlith Indian Band a minimum of five (5) days prior to commencement of construction activities.

General

8. The rights granted by this permit in relation to unoccupied Crown land are subject to all subsisting grants to or rights of any person made or acquired under the *Coal Act, Forest Act, Land Act, Mineral Tenure Act, Petroleum and Natural Gas Act, Range Act*, *Water Sustainability Act* or *Wildlife Act*, or any extension or renewal of the same.
9. The Permit Holder must not assign, sublicense or permit any person other than its employees, contractors or representatives to use or occupy any Crown land within the activity area, other than its employees, contractors or representatives, without the Commission's written consent. The Permit Holder must ensure that the activity area is maintained in a condition so as to minimize hazards, including but not limited to hazards associated with storage of materials and equipment.
10. The Permit Holder must ensure that the activity area is free of garbage, debris and unused equipment.

Environmental

11. Construction activities must not result in rutting, compaction or erosion of soils that cannot be reasonably rehabilitated to similar levels of soil productivity that existed on the activity area prior to the construction activities taking place.
12. Any temporary access must be constructed and maintained in a manner that provides for proper surface drainage, prevents pooling on the surface, and maintains slope integrity.
13. The Permit Holder must make reasonable efforts to prevent establishment of invasive plants on the activity area associated with the related activities set out in the Authorized Activities table above resulting from the carrying out of activities authorized under this permit.
14. Following completion of construction associated with the associated activities set out in the Authorized Activities table above, the Permit Holder must, as soon as practicable
    a) decompact any soils compacted by the activity;
    b) if natural surface drainage pattern was altered by the carrying out of the activity, the Permit Holder must restore, to the extent practicable, to the drainage pattern and its condition before the alteration; and
    c) re-vegetate any exposed soil on the activity area including, where necessary, using seed or vegetative propagules of an ecologically suitable species that
        (i) promote the restoration of the wildlife habitat that existed on the area before the oil and gas activity was begun, and
        (ii) stabilize the soil if it is highly susceptible to erosion.
    d) Following completion of construction activities authorized herein, any retrievable surface soils removed from the activity area must be redistributed so that the soil structure is restored, to the extent practicable, to its condition before the activity was begun.

Clearing

15. The Permit Holder is permitted to fell any trees located on Crown land within 1.5 tree lengths of the activity area that are considered to be a safety hazard according to *Workers Compensation Act* regulations and must be felled in order to eliminate the hazard. Trees or portions of these trees that can be accessed from the activity area without causing damage to standing timber may be harvested.

Water Course Crossings and Works

16. Stream, lake and wetland crossings must be constructed in accordance with the methods and any mitigations, as specified in the application.
17. In-stream activities within a fish bearing stream, lake or wetland must occur:

a) during the applicable reduced risk work windows as specified in the Region 4 Kootenay - Reduced Risk Timing Windows for Fish and Wildlife; or

b) in accordance with alternative timing and associated mitigation recommended by a qualified professional and accepted by the National Energy Board and provided to the Commission; or

c) in accordance with an authorization or letter of advice from Fisheries and Oceans Canada that is provided to the Commission.

18. At any time, the Commission may suspend instream works approved under this permit. Suspensions on instream works will remain in place until such time as the Commission notifies Permit Holders that works may resume. Reasons for suspension of works may include, but are not limited to, drought conditions and increased environmental or public safety risks.

19. Mechanical stream crossings must be constructed, maintained and deactivated according to the following requirements, as applicable:

a) Only bridges, culverts, ice bridges or snow fills may be constructed at stream crossings;

b) The Permit Holder must ensure that permanent bridges are designed and fabricated in compliance with

i. the Canadian Standards Association Canadian Bridge Design Code, CAN/CSA-S6; and

ii. soil property standards, as they apply to bridge piers and abutments; set out in the Canadian Foundation of Engineering Manual.

c) Except with leave of the Commission, the Permit Holder must ensure that:

i. any culverts used are designed and fabricated in compliance with the applicable:

(a) Canadian Standards Association CSA G401,Corrugated Steel Pipe Products; or

(b) Canadian Standards Association Standard CSA B1800, Section B182.2, Plastic Non-pressure Pipe Compendium, or

ii. Any pipe installed in lieu of a culvert is of at least equivalent standard and strength as any culvert as specified above.

d) Except with leave of the Commission, the Permit Holder must ensure that bridges and culverts meet the criteria set out in (i), (ii), or (iii) below:

i. The bridge or culvert is designed to pass the highest peak flow of the stream that can reasonably be expected within the return periods set out in column 2 the table below for the period the Permit Holder anticipates the structure will remain on site, as set out in column 1in the table below:

Column 1 **Anticipated period crossing structure will remain on site**	**Column 2** **Peak flow period**
Bridge or culvert, 3 years or less	10 years
Bridge other than a bridge within a community watershed, more than 3 years but less than 15	50 years
Bridge within a community watershed, more than 3 years	100 years
Bridge, 15 years or more	100 years
Culvert, more than 3 years	100 years

ii. The bridge, or any component of the bridge:

(a) is designed to pass expected flows during the period the bridge is anticipated to remain on the site;

(b) is constructed, installed and used only in a period of low flow; and

(c) is removed before any period of high flow begins.

iii. The culvert:

(a) is a temporary installation, and the Permit Holder does not expect to subsequently install a replacement culvert at that location;

(b) is not installed in a stream, when the stream contains fish;

(c) is sufficient to pass flows that occur during the period the culvert remains on the site;

(d) is installed during a period of low flow; and

(e) is removed before any period of high flow begins.

e) Ice bridges on fish bearing streams may only be constructed where sufficient water depth and stream flows prevent the bridge structure from coming in contact with the stream bottom;

f) Water applied to construct an ice bridge on a water body must be sourced in accordance with the *Water Sustainability Act* unless

i. the water body is a stream with a stream channel width of at least 5 metres and is not designated as a sensitive stream under the *Fish Protection Act*, or has a riparian class of W1, W3, or L1,

ii. the water is sourced from the same water body proximal to the location on which the ice bridge is constructed,

iii. the water body is not within the boundaries of a public park,

iv. pump intakes do not disturb beds of streams or wetlands and are screened with a maximum mesh size and approach velocity in accordance with the Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline, and

(a) where the water body is a stream, the flow of water in the stream at the time and location of pumping exceeds 60 litres per second and the instantaneous pumping rate does not exceed 1% of the water flowing in the water body at the time and location the pumping occurs, or

(b) where the water body is a lake or pond, the cumulative volume of water withdrawn does not exceed 10 cm of lake or pond depth, calculated as the product of lake or pond surface area x 10 cm;

g) Records of water withdrawal and corresponding streamflow measurements are maintained by the Permit Holder and provided to the Commission upon request;

h) Snow fills must consist of clean snow and may only be located on streams that are dry or frozen to the bottom during the period of construction, maintenance and use. Where periodic thaws are anticipated, culverts must be installed to allow meltwater to pass through. Snow fill and any installed culverts must be removed prior to spring snow melt;

i) Bridge or culvert abutments, footings and scour protection must be located outside the natural stream channel and must not constrict the channel width;

j) Equipment used for activities under this approval must not be situated in a stream channel unless it is dry or frozen to the bottom at the time of the activity.

20. Wetland crossings must be constructed, maintained and removed in accordance with the following:

a) Organic cover within and adjacent to the wetland must be retained;

b) Minimize erosion or release of sediment within the wetland;

c) Any padding materials must be placed on the wetland surface only and must not be used for infilling;

d) Any padding materials must be removed as soon as practicable following construction, considering weather and ground conditions; and

e) The wetland, including banks and bed, must be restored, to the extent practicable, to the condition that existed before the crossing was initiated.

21. Open cut crossings and works within streams, lakes or wetlands must be planned and conducted in accordance with the following requirements:

    a) An open cut of a stream classified as S1, S2, S3 or S4 must not occur, unless the stream is frozen to its bed or is completely dry with no evidence of subsurface flow;

    b) Where the streambed or substrate consists of rocks, pebbles or coarse gravel overlaying finer material, this material must be removed and stockpiled separately above the high water mark of the stream for replacement during restoration;

    c) Materials referred to in (b) above must be excavated and stockpiled in a manner that minimizes sediment dispersal within the stream, lake or wetland and must be replaced in a manner that minimizes disturbance to the stream, lake or wetland following pipeline installation;

    d) Unless otherwise authorized by Fisheries and Oceans Canada, spawning gravels must not be disturbed when redds that contain eggs or alevins are present. The authorization must be provided to the Commission;

    e) Channels, banks and beds of wetlands, including any disturbed stable natural material, must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated;

    f) Excavated materials must be contained using appropriate techniques, so that that sediment-laden water and spoil do not re-enter the stream lake or wetland;

    g) Any sediment-laden trench water must be pumped onto stable surfaces in a manner that does not cause erosion of soils or release of suspended sediments to watercourses.

    h) Where feasible, aquatic vegetation and organic debris removed from the construction area must be salvaged and returned following trench backfilling; and channels, banks and beds of streams, including any disturbed stable natural material must be restored, to the extent practicable, to the structure and conditions that existed before the crossing construction was initiated.

22. Flow isolation crossings and works must be planned and conducted in accordance with the condition above regarding open cut crossings, and the following additional requirements:

    a) Construction of the crossing or works, including the location and operation of any equipment, must be isolated from water flowing in the stream;

    b) Welding, coating, weighting and, where applicable testing, of the pipe must be completed prior to commencement of trenching within fish-bearing water bodies;

    c) Water from flumes, pump-arounds, diversions, or other methods must be released to downstream areas in an manner that avoids erosion or sediment release;

    d) Pump intakes must not disturb beds of fish bearing streams, lakes or wetlands except as necessary to ensure safe installation and operation of equipment, and must be screened with maximum mesh sizes and approach velocities in accordance with the Fisheries and Oceans Canada Freshwater Intake End-of-Pipe Fish Screen Guideline;

    e) Water flows downstream of in-stream construction sites must be maintained at volume and discharge consistent with upstream flows; and

    f) Ditch plugs must be maintained at or near the banks of the crossing and left in place until the crossing has been initiated.

ADVISORY GUIDANCE

1. Construction plan 01-13283 is for the Permit Holder's internal reference only and was not reviewed as a decision tool for this permit, nor does it form an integral part of this permit.
2. Unless a condition or its context suggests otherwise, terms used in this approval have the same meaning as the Environmental Protection and Management Regulation under the *Oil and Gas Activities Act*.
3. A major culvert has the same meaning as in the Oil and Gas Road Regulation.

All pages included in this permit and any attached documents form an integral part of this permit.

Andrew Osmond
Authorized Signatory
Commission Delegated Decision Maker

Copied to:

First Nations – Lheidli T'enneh First Nation, Neskonlith Indian Band, Simpcw First Nation (North Thompson)
OGC Compliance and Enforcement