Design and Construction Guidelines for the Installation of Facilities in Proximity to Kinder Morgan Canada Operated Pipelines and Rights-of-Way

1.0 SCOPE

Kinder Morgan Canada ("Kinder Morgan") operates several pipelines in Canada and the United States including: Trans Mountain Pipeline, Express Pipeline, Trans Mountain (Jet Fuel) and Trans Mountain Pipeline (Puget Sound). Collectively these systems are referred to in this document as “the pipelines”, or individually “the pipeline”. In accordance with government regulations, this document outlines the information required when preparing applications for proposed works within the pipeline rights-of-way (easements) and the National Energy Board (“NEB”) safety zone. An application form and two copies of all applicable design drawings are to be included in the application package. For all ground disturbance activities adjacent to the right-of-way or within the safety zone, a Ground Disturbance Safety Zone Permit must be obtained from a Kinder Morgan Inspector prior to the commencement of any work. To determine if a permit is required, please contact your local one call centre.

2.0 GOVERNMENT REGULATORS

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<th>Pipeline System</th>
<th>Jurisdiction</th>
<th>Location</th>
<th>Regulator</th>
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<td>Trans Mountain Pipeline</td>
<td>Canada Federal</td>
<td>Alberta and British Columbia</td>
<td>National Energy Board</td>
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<tr>
<td>Express Pipeline</td>
<td>Canada Federal</td>
<td>Alberta</td>
<td>National Energy Board</td>
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<tr>
<td>Trans Mountain Pipeline (Jet Fuel)</td>
<td>BC Provincial</td>
<td>British Columbia</td>
<td>BC Oil and Gas Commission (OGC)</td>
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<tr>
<td>Trans Mountain Pipeline (Puget Sound)</td>
<td>United States</td>
<td>Washington</td>
<td>US Department of Transportation, Office of Pipeline Safety</td>
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3.0 REGULATIONS AND STANDARDS

Crossing designs shall be in accordance with the latest editions of the listed codes and standards for the applicable jurisdiction.
4.0 DRAWING AND DESIGN REQUIREMENTS

4.1 General

4.1.1 Crossing Angle

The crossing angle of proposed new facilities crossing the pipeline and/or rights-of-way shall be as close to 90° as possible.

4.1.2 Pre-Loading

No pre-load or surcharge will be allowed within the pipeline right-of-way or its projected limits. Pre-loading adjacent to a right-of-way is subject to review and approval by Kinder Morgan.

4.1.3 Locating Kinder Morgan’s Pipelines

To determine whether the pipeline right of way or safety zone is in the vicinity of proposed works, contact the appropriate one call centre in your jurisdiction. The one call centre will notify Kinder Morgan of the contact, and Kinder Morgan will contact you if the proposed works are within the right of way or safety zone. If the proposed works are within...
the right of way or safety zone, then a Ground Disturbance Permit will be required. If the proposed works include the installation of facilities, then additionally a Pipeline Proximity Installation Permit will be required.

4.1.4 **Plan View Drawing**

The plan view drawing shall include at a minimum the following information:

- the unverified location of any of the pipeline and right-of-way boundary (to be verified by physical locate);
- a complete legal land description and civic address of the property;
- the location of the proposed crossing with dimensions to a reference point such as a legal property line, the pipeline, or right-of-way boundary;
- the location of all applicable property boundaries as well as road and utility right-of-way boundaries; and
- a north arrow.

4.1.5 **Profile or Elevation View Drawing**

For surface crossings, the profile shall be taken along the pipeline(s). For underground and aerial crossings, the profile shall be taken along the proposed new crossing facility. The elevation view drawing shall include at a minimum the location of any pipeline and associated depth of cover and all horizontal and vertical dimensions (clearances) from the pipeline(s). Kinder Morgan reserves the right to increase the minimum clearances listed below if deemed necessary.

4.2 **Roads and Parking Lots**

4.2.1 **Plan View Drawing**

For parking lots, the following additional information is required on the plan view drawing: all existing buildings within 30 metres (100 feet) of the pipeline’s right-of-way or safety zone (whichever is greater); the parking stall layout (no parking or storage within 3 metres (10 feet) of a pipeline); and the location of all access roads.

4.2.2 **Profile or Elevation View Drawing**

A section view or description providing the proposed backfill structure
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around the pipeline is required. The construction of all roads and parking lots across the right-of-way is to be completed in accordance with Kinder Morgan’s Engineering Standard MP3120D which is available upon request.

4.2.3 *Depth of Cover*

The minimum depth of cover shall be 1.2 metres (4 feet) from the top of the pipeline to the final road grade. The maximum depth of cover shall not exceed 1.8 metres (6 feet).

4.2.4 *Inspection Cut-Outs*

For parking lots, 150 mm (6 inch) square inspection cut-outs shall be installed directly over the centreline of the pipe every 10 metres (33 feet). The inspection cut-outs shall be filled with free draining gravel and covered with grating. The layout of the inspection cut-outs may be determined at the time of construction with consultation with the Kinder Morgan Inspector.

4.3 *Railways*

Specific requirements for new railway crossings will be established on a case by case basis. Please contact Kinder Morgan directly at the number listed below for your area.

4.4 *Trails*

The minimum depth of cover shall be 1.0 metre (3.3 feet) from the top of the pipeline to the final grade and 1.2 metres (4 feet) if the trail is used for vehicle access.

4.5 *Ditches*

4.5.1 *Profile or Elevation View Drawing*

A section view shall include the dimensions of the width at the top of the ditch, the invert width of the ditch, and the depth of the ditch.

4.5.2 *Depth of Cover*

The minimum depth of cover shall be 1.0 metre (3.3 feet) from the top of the pipeline to the invert of the ditch.
4.5.3 **Liners**

A description of any proposed ditch liners including the material type shall be included in the application.

4.6 **Aerial Cable Utilities**

4.6.1 *Plan View Drawing*

The location of all proposed poles, towers, guys, anchors, or any other supporting structure shall be shown on the plan view drawing. Note that none of these facilities will be permitted within the pipeline right-of-way or its projected limits across a road easement.

4.6.2 *Profile or Elevation View Drawing*

The section view shall provide a dimension of the proposed minimum height of the overhead cable(s) across the right-of-way.

4.6.3 **Cable Information Requirements**

A description of the type, size, and voltage of the proposed cable(s) as applicable shall be included in the application.

4.7 **Underground Utilities**

4.7.1 **Clearances**

For underground utilities other than fibre optic cables, the minimum vertical clearance shall be 0.3 metres (1 foot). For fibre optic cables, the minimum vertical clearance shall be 0.6 metres (2 feet). For trenchless construction such as directional drills or boring, the minimum vertical clearance for all utilities shall be 2 metres (6.6 feet). All underground utilities shall cross underneath the pipeline unless site conditions make it impractical. For all parallel works within a road allowance, the minimum horizontal clearance shall be 1.5 metres (5 feet) from the edge of the pipe. No parallel works are permitted within the right-of-way.
4.7.2 Constant Elevation

All underground facilities shall maintain a constant elevation across the entire width of the right-of-way and extend a minimum of 0.6 metres (2 feet) beyond the right-of-way boundaries.

4.7.3 Cable Information Requirements

For electrical, telephone, fibre optic, or other buried cables information required in the application includes voltage if applicable, conduit size, and method of installation. Cables installed using trenching methods shall be installed within rigid PVC type conduit and encased in concrete with applicable warning marker tape across the entire width of the right-of-way.

4.7.4 Pipeline Information Requirements

For pipelines including services, mains, and distribution systems, information required in the application includes pipe material, outside diameter, wall thickness, pipe grade, maximum operating pressure, maximum test pressure, type of coating, type of cathodic protection, substance pipeline will be transporting, and method of installation. For steel pipelines, the installation of a test tap may be required at the crossing to monitor cathodic protection. The Kinder Morgan inspector will determine the necessity of a test tap at the time of construction. All costs associated with test tap installation are the responsibility of the applicant.

4.7.5 Limitations

No junction boxes, manholes, kiosks, catch basins, valves, meters, or other similar facilities related to underground utilities are permitted within the right-of-way or its projected limits.

4.8 Landscaping

The height of mature vegetation shall not exceed 1 metre (3.3 feet) within 3 metres (10 feet) of the pipeline and shall not exceed 1.8 metres (6 feet) on the remaining portions of the right-of-way. For more information on landscaping requirements refer to Kinder Morgan’s Landscaping Guidelines which are available upon request.
4.9 Posts, Signs and Bollards

4.9.1 Clearances

The minimum horizontal dimension from the centreline of the pipe to the centreline of a post, sign or bollard shall be 2 metres (6.5 feet).

4.9.2 Fences

The fence height and material of construction shall be included in the application.

4.10 Storage of Materials Within the Right-of-Way

Storage of any material is not permitted within 3 metres (10 feet) of either side of the pipeline. Storage of materials within the right-of-way outside this area may be permitted as long as the stored materials can be easily moved from the right-of-way in the event of an emergency or other requirement by Kinder Morgan to access the right-of-way.

5.0 APPLICATION PROCESS FOR FACILITIES INSTALLED IN PROXIMITY TO PIPELINE

5.1 The applicant prepares and submits the application documents to Kinder Morgan.

5.2 The Kinder Morgan Crossing Technologist processes the crossing application and sends two copies of the Pipeline Proximity Installation Permit to the applicant for signature.

5.3 The applicant signs both copies of the Permit and returns one copy of the agreement to the Kinder Morgan Crossing Technologist.

5.4 The applicant notifies Kinder Morgan a minimum of three working days prior to the start of construction by contacting Kinder Morgan to arrange for a pre-construction meeting with the Kinder Morgan inspector as necessary.

5.5 A Kinder Morgan Inspector arranges a site meeting, locates the pipeline, issues a Ground Disturbance Safety Zone Permit, and inspects the construction activities.
6.0 ONE CALL CENTRES

A minimum of three working days prior to commencing any digging or other ground disturbance activities, call your local one call centre.

<table>
<thead>
<tr>
<th>Location</th>
<th>One Call Centre</th>
<th>Phone</th>
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<tbody>
<tr>
<td>Alberta</td>
<td>Alberta One Call</td>
<td>Toll Free 1-800-242-3447</td>
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</table>
| British Columbia | BC One Call                          | Toll Free 1-800-474-6886  
|               |                                        | Cellular *6886  
|               |                                        | Greater Vancouver (604) 257-1940           |
| Washington    | Utility Notification Center            | 811                                        |
|               |                                        | Toll Free 1-800-424-5555                   |

7.0 KINDER MORGAN CONTACT INFORMATION

For further information contact the Kinder Morgan representative for your location.

<table>
<thead>
<tr>
<th>Location</th>
<th>Address</th>
<th>Phone</th>
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</table>
| Alberta       | Permit Technician  
|               | Kinder Morgan Canada  
|               | #68 – 80 Chippewa Road  
|               | Sherwood Park, AB, T8A 4W6  
|               | (780) 449-5906  
|               | Fax (780) 449-3053  
|               | Toll Free 1-866-677-0771                          |
| British Columbia | Permit Technician  
|               | Kinder Morgan Canada  
|               | 7815 Shellmont Street  
|               | Burnaby, BC, V5A 4S9  
|               | (604) 268-3093  
|               | Fax (604) 268-3063  
|               | Toll Free 1-866-268-3001                          |
| Washington    | Puget Sound Operations Supervisor  
|               | Kinder Morgan Canada  
|               | 1009 East Smith Road  
|               | Bellingham, WA, 98226  
|               | (360) 398-1541  
|               | Fax (360) 398-7432  
|               | Toll Free 1-888-767-0304                          |