



Regional Engineering
Engineering Services
4 Welding Way
off Administration Road
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Concord, Ontario, L4K 1B9

Gas / Oil Pipeline Crossing Application

Applicants shall submit **three (3)** copies of an acceptable plan. Plans shall conform to Transport Canada (TC) Standards Respecting Pipeline Crossings Under Railways, the latest revision of CSA Z662 and Railway Standards.

The application fee, in the amount of **\$1350.00** (+HST) to cover the cost of reviewing the application and plans, will be invoiced. The Applicant will be charged an additional fee of **\$200.00** (HST included) for each review after the initial application due to inadequate or missing information.

- The Applicant shall indicate the duration of construction on / above / below the CN right-of-way, provide an estimated construction schedule and provide a field contact name and phone number.**

The following information is required on the application drawing:

- Drawings must be to scale or have all dimensions shown.
- A site plan showing the location of crossing in relation to a legal description or road allowance or Railway mileage and subdivision.
- Dimension width of CN right-of-way, the number of tracks and the angle of crossing.
- Indicate direction of flow and location of nearest shut off valves.
- Provide a profile showing the depth of burial from the base of rail and ditch bottom to top of pipe.
- Show the cross-section of the pipe, or note that the carrier pipe will be held clear of the casing pipe by supports (if applicable as per General Order E-10).(CN requires carrier & casing to be designed for cooper E-90 loading)
- Note type, wall thickness and pressures (operating and maximum test) of carrier and casing pipes.
- Note intention to install warning markers at each edge of the CN right-of-way.
- Indicate type of cathodic protection (if used).
- When casing is used, it must extend the full width of CN's right-of-way or a minimum of fifty (50) feet on each side of the outermost track.
- Conform to Z662-07 4.12.3.2
 - The pipe has been designed to sustain the loads at the crossing as specified in Clause 4.3. of the Z662
 - For steel pipe with a joint factor of less than 1.00, the hoop stress in the carrier pipe does not exceed:
 - 50% of its specified minimum yield strength, if such pipe crosses secondary or industry tracks;
 - 30% of its specified minimum yield strength, if such pipe crosses tracks that are other than secondary or industry tracks.
 - The pipe nominal wall thickness is not less than the applicable least nominal wall thickness given in Table 4.10 (Z662) or the applicable least nominal wall thickness for steel carrier pipe specified in clause 4.3.11.2, whichever is the greater.
 - The D/t ratio is not greater than the applicable maximum D/t ratio specified in Table 4.11 (Z662)
 - The design requirements are applied to the pipeline for a minimum distance of 7 m beyond the centerline of the outside track, measured at right angles to the centerline of the track.
 - All circumferential joints within the railway rights-of-way are nondestructively inspected as specified in Clause 7 (Z662)
- The ends of the casing shall be suitably sealed to the outside of the carrier pipe or casing vents shall be required.
- Provide hoop stress calculation.
- Note method of installation (i.e. boring / augering).
- Indicate location of nearest excavation from gauge side (inside) of nearest rail.
- Include a caption stating "Construction and maintenance to be in accordance with Transport Canada Standards Respecting Pipeline Crossings Under Railways, and the latest revision of CSA Z662."
- Professional Engineer's stamp, date and signature required.
- Contact name, address and phone number of Utility Owner on plan or cover letter.
- Revised drawings shall be marked as revised and state reason for revision.

Additional requirements for **underground** crossing application drawings:

- ❑ Supply pipes must be protected for the full width of CN's right-of-way.
- ❑ Indicate type and details of cable and mechanical protection.
- ❑ If cables are to be encased, the casing shall extend the full width of CN's right-of-way.
- ❑ Include a profile showing depth of burial from base of rail and ditch bottoms to cable.
- ❑ Minimum depth of burial below base of rail is 1.68 m Main Tracks.
- ❑ Minimum depth of burial below base of rail is 1.37 m Industrial Tracks.
- ❑ Minimum depth of burial below road surface is 1.0 m.
- ❑ Minimum depth of burial below ditch bottom is 1.52 m.
- ❑ Note intention to install warning markers at each edge of CN right-of-way.

Additional requirements for **250 mm diameter (10 inches) or greater**:

- ❑ Submit a complete copy of the Geotechnical Report, including comments and recommendations with respect to construction methodology.
- ❑ Submit a detailed proposal for in-ground settlement monitoring, developed by a Geotechnical Engineer with experience in large diameter pipe installation.
- ❑ Provide, in writing, the name and phone number of the qualified site inspector(s) who will be on the job site on a full time basis for the duration of construction, as specified by NTA General Orders.

NOTE: The nearest point at which excavation can be undertaken, is as follows:

Starting ten (10) feet from the gauge side (inside) of the nearest rail, measured perpendicular to the rail, calculate a slope to the bottom of the proposed pipe at a 1.5:1 slope. If a 1.5:1 slope cannot be maintained or more restrictive conditions occur, approved shoring will be required.