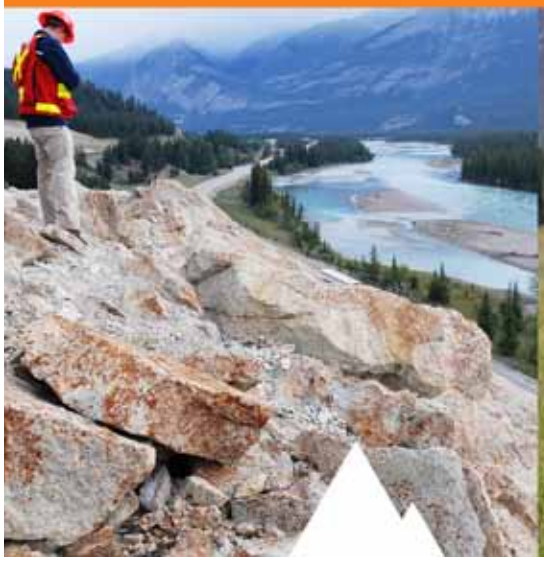
PROPOSED TRANS MOUNTAIN EXPANSION PROJECT

Field Studies Program Update – May 2014



OVERVIEW

For almost two years, crews have been examining vegetation, soils and wetlands and documenting fish and wildlife habitat, and identifying heritage resources along the proposed Trans Mountain Pipeline corridor and marine study area.

The goal of these field programs has been to collect environmental and socio-economic information that was included in the Trans Mountain Expansion Project's Facilities Application to the National Energy Board (NEB) in December 2013.

The surveys are designed to meet NEB requirements and to assist in Project design, construction and restoration.

Study teams have also completed several meetings with municipal, regional districts, provincial and federal regulators to review the field data collection methods and the overall approach to the environmental and socio-economic assessment.

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ACTIVITIES IN 2014

Most of the field programs this year will take place between March 1 and August 31, with the archaeology crews continuing into November.

Field studies include: soils, wildlife, fisheries, wetlands, rare plants and rare plant community surveys and archaeological assessments. Studies will be completed along the proposed pipeline corridor from Edmonton to Burnaby but will be mainly focused in BC.

Field Studies will also take place in BC Parks along the proposed corridor in Finn Creek Provincial Park, North Thompson River Provincial Park, Lac du Bois Grasslands Protected Area, Coquihalla Summit Recreational Area and Bridal Veil Falls Provincial Park.

First Nations and First Nation-owned businesses will participate in field programs to assist in the data collection.

PROGRAM DESCRIPTIONS

Wildlife

Wildlife studies are conducted to determine the presence of wildlife species and wildlife habitat potential. Wildlife surveys are observation-based surveys. The timing of these surveys is critical to gather the appropriate information. For example, song bird surveys generally take place between late May and the end of June. The surveys are done between 4 am to approximately five hours past sunrise. Wildlife resource specialists may walk or use ATVs to survey locations from existing access roads or trails.

Soils

Soils studies are completed to determine the type and condition of soils along the proposed pipeline corridor. The studies for the Project will mostly involve a groundbased agricultural soil survey program.

Access in cultivated fields will be on foot, with vehicles parked off fields in appropriate and safe locations such as approaches and shallow ditches unless vehicle/ATV use is approved by the landowner. In forested areas with limited access potential, helicopters may be used in combination with ATVs.

If land access approval is granted, the data collection sites will be carefully accessed by pick-up truck or quad. Investigations will be conducted at regularly-spaced sites. For example, in active agricultural areas, typically two to three sites per 800 m will be inspected. In the Agricultural Land Reserve in BC, one site every 250 m will be inspected and sampled by auguring a borehole approximately 8 cm in diameter to a maximum depth of 1.2 m and immediately filling in the hole following data collection. Select areas may be investigated at a later date.

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Vegetation

Vegetation studies focus on determining the nature and type of vegetation along the proposed pipeline corridor. The field program will encompass vegetation surveys (general and rare plant) and wetland surveys, as well as a Vegetation Community Mapping component.

Vegetation and wetland resource specialists will walk from existing access roads or trails to locations where surveys are to be conducted and record data. Plant samples may be collected if identification is not possible in the field. At the Vegetation Community Mapping investigation sites, wildlife and soils specialists will accompany vegetation specialists in the collection of data.

As part of Vegetation Community Mapping, plots will be located intermittently along the proposed pipeline corridor. Crews may dig holes with the use of a hand-held auger to obtain soil and parent material samples for examination up to a depth of 1 m. In peatlands, a small diameter (about 2 cm) probe on a rod will be pushed into the peat to mineral material up to a depth of approximately 1.6 m. All holes will be filled in immediately following data collection.

Wetland

Wetland Studies focus on identifying, delineating and classifying all wetlands and riparian areas within the study area. Wetland assessments include, but are not limited to basic water chemistry, flow parameters, peat profiling and vegetation characteristics. Data collection will involve field observations, photographic documentation and recording GPS co-ordinates. Access will be primarily on foot, although access to the survey locations may be by ATV where permissible.

Noise and Air Quality

Determining ambient sound and air quality levels at select locations are the focus of the air and noise programs for the Project.

Noise scientists will access the study locations by foot from the nearest road or trail. At each of the sound monitoring locations, a sound level meter will be set up and run for a minimum of 24 hours to measure all sounds at each location. Microphones will be set up on tripods at an approximate height of 1.5 m above the ground and fitted with wind screens. During the ambient sound survey, simultaneous weather monitoring and audio recordings will be made using a portable weather station and digital audio recording devices.

At each air quality monitoring location, a portable air quality monitoring station will be set up. The monitoring station will record specific air quality parameters (such as ozone, carbon dioxide and carbon monoxide). Air quality specialists will return to the location and collect the data gathered by the monitoring station at a pre-selected time interval.

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Aquatic Resources

Aquatic resource studies are completed to determine the nature and quality of the waters and aquatic habitats along the proposed pipeline corridor. These studies involve hydrology, wetlands, water quality, watercourse crossing and groundwater well surveys.

Crews will access the area using existing roads and will access the water body on foot and/or by boat. Groundwater wells will be accessed on foot.

- Hydrology field program: includes stream flow measurements and morphological data collection at selected streams crossings. Typical equipment involves water collection bottles and hand-held devices for measuring flow rates.
- Water quality program: includes water and sediment sampling at selected waterbodies to provide an overview of water and sediment chemistry. Typical equipment includes: water collection bottles and hand-held water quality multi-meters.
- Watercourse crossing studies program: involves collecting fish and fish habitat information by fish sampling (such as angling or electrofishing), extensive visual observations and measurement recordings.
- Wetland classification program: involves classifying wetlands and evaluating wetland function along the proposed pipeline corridor.
- Groundwater surveys involve site inspections by groundwater specialists to locate and sample groundwater wells. Samples will be analyzed for specific groundwater quantity and quality parameters.

Archaeology and Palaeontology

Surveys are completed to identify and assess archaeological and palaeontological resource potential or sensitivity along the proposed pipeline corridor. Sites may be accessed by foot or ATV from the nearest road or trail. Archaeological and palaeontological resources will be identified by visual inspection and, where necessary, potential shovel testing. The depth of theshovel tests will be up to 1 m. All holes will be filled in immediately following data collection.

Traditional Knowledge Studies

The traditional knowledge studies involve the collection of traditional knowledge from potentially affected Aboriginal communities through their participation in the biophysical field programs for the Project.

While in the field, Aboriginal participants will provide traditional knowledge input into the design and execution of the biophysical field programs, establish baseline environmental and socio-economic conditions, document the nature and location of trails, habitation sites, medicinal and food source plants, hunting, fishing, trapping, gathering places and sacred areas and identify mitigation opportunities that contribute to Project design.

Forestry and Forest Health

Visual forestry and forest health surveys are completed to assess and document tree species populations and densities, timber quality and volumes on forested stands along the proposed pipeline corridor. As part of this evaluation, a forest health assessment will be conducted to provide a measure of the effects of forest pests and pathogens such as the pine beetle. Forestry resource specialists may walk or use ATVs to survey locations from existing access roads or trails.

Engineering Civil Survey

During the early routing phase of the Project, engineering civil surveys are completed to confirm the location of the existing Trans Mountain pipeline within the existing easement. The surveys will also identify the existing easement boundary and review if new construction can occur within the existing right-of-way.

As part of this effort, surveyors may be in the areas along the existing pipeline corridor with equipment set up on known monuments and tying in survey control points near intersections or other Trans Mountain Pipeline system facilities. Surveyors typically walk or use ATVs from existing access roads or trails.

Once the routing process is complete, additional surveys will be required to locate and mark the centreline for the new pipeline, the construction right-of-way and any additional lands required for construction at road, water, rail and utility crossings.

Route and Facility Site Selection

Engineering and routing specialists conduct field surveys to determine route feasibility and identify environmental concerns or constraints for potential route refinements and facility site locations. As part of this program, travel off the existing easement boundary may be required. Work will be completed on foot or with the use of an ATV or snowmobile.

One Call Survey

At select locations where subsurface testing (e.g., digging) may be required (e.g., soils program), a One Call survey will be completed prior to digging to locate buried utilities. Surveyors will access the location on foot to mark buried utilities. The markers will show the location of the buried utility and will be colour-coded to show utility type. Each buried utility may be marked by a separate surveyor.

For a current list of scheduled field studies programs go to www.transmountain.com.

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