

ROUTING AND SITING

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4.0 ROUTING AND SITING

The following subsections describe the route selection process for the proposed Provident pipeline.

4.1 Pipeline Route Alternatives

Routing of the proposed pipeline was influenced by Provident's desire to avoid areas of high environmental sensitivity, minimize the amount of new land disturbance and maximize operational efficiency.

The following routing criteria/factors were considered in the development and evaluation of route alternatives:

- modify the route to accommodate input from landowners, the public and regulatory agencies, where practical;
- minimize crossings of wetlands, lakes and sloughs;
- avoid, where practical, farm buildings, farmsteads, well sites, aquifer recharge areas and shelterbelts;
- minimize the amount of steep terrain, side hill and unstable terrain;
- parallel existing pipelines, existing rights-of-way or other linear developments (e.g., roads, abandoned railroad);
- minimize crossings of native prairie;
- avoid, where possible, environmentally sensitive areas such as difficult river or creek crossings, critical wildlife areas, natural areas, parks, archaeological or historical sites;
- avoid, where practical, special land use areas;
- cross windbreaks and shelterbelts, to the extent possible, at right angles to minimize the width of the right-of-way to that necessary for the trench line and vehicle traffic;
- cross roads and rail lines at or near right angles; and
- minimize pipeline length in order to minimize potential disturbance and cost.

4.1.1 *Alternate Routes Considered*

Initial site and route selection was completed using existing aerial photographs and topographic maps with adjustments to the routing made based on field reconnaissance completed by the Environmental Inspector. During the desktop review, alternative routes were considered using a different tie-in location for the NGL storage facility (not included in the scope of this EA) closer in proximity to the third party shipper pump station. However, alternatives were limited due to weight restrictions on the nearby access roads.

4.1.2 *Routing Summary*

The proposed pipeline route is the preferred route as it satisfies the routing criteria. Additional minor reroutes may be required to accommodate landowner concerns and avoid site-specific features. The proposed route is considered to be environmentally satisfactory.

4.2 Temporary Facility Site Selection

The following temporary facilities may be required prior to or during the construction program:

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- temporary construction workspace;
 - shoo-flies/temporary access roads;
 - equipment storage sites (marshalling yards);
 - pipe stockpile sites;
 - bone yards; and
 - construction office sites.

The need for and the respective general location of these sites are the responsibility of the pipeline construction contractor. However, all temporary workspace and temporary facility site locations will require the approval of Provident's Environmental Inspector or Provident designate. Provident intends to use the proposed lease at LSD 13-17-10-28 WPM as a stockpile site for all material and construction office trucks, where reasonable.

Once the approximate location of temporary workspace or a temporary facility for use during construction has been identified, the sites will be assessed and, where appropriate, approved by the Environmental Inspector or Provident designate. Detailed environmental surveys (e.g., soils, vegetation and wildlife) will be conducted, where warranted, to determine any potential environmental issues (see Section 9.0 of this EA). The temporary facility site/workspace selection process will take into consideration any environmental issues (as identified in Section 6.0 of this EA) and ensure adherence to the site selection criteria noted below. It is of note that there is a great deal of flexibility for some temporary facilities (e.g., pipe stockpile sites) while other temporary facilities must be located at or in the immediate vicinity of a particular location (e.g., temporary workspace where heavy grading is necessary).

The following site selection criteria will be used to evaluate and select temporary facility sites and workspace:

- selection of an optimal location for construction needs;
- avoidance, to the extent practical, of areas of native vegetation by maximizing the use of previously cleared or broken lands, or lands currently under industrial land use;
- preferential selection of grassed areas over bush or wooded areas when temporary workspace is necessary on lands supporting native vegetation;
- avoidance, to the extent practical, of known locations that provide site-specific habitat for wildlife species of concern or apply special mitigation (see Section 6.0 of this EA);
- avoidance, to the extent practical, of known sites that support vascular plant species of concern or apply special mitigation (see Section 6.0 of this EA);
- avoidance, to the extent practical, of steep slopes, organic soils and poorly-drained areas;
- avoidance, to the extent practical, of known areas with heritage resource sites or apply special mitigation (see Section 6.0 of this EA);
- locate the facility in the vicinity of similar existing facilities to minimize environmental and land use disturbances;
- avoidance of locations adjacent to a conflicting land use where potential noise, dust or visual concerns could not be readily mitigated; and
- locate temporary facilities that require the use of utilities at sites already serviced by roads and utilities.

The evaluation of potential temporary facility sites/workspace will be conducted as far in advance of its intended use as practical in order to allow an adequate time to choose and evaluate any alternate sites. In

the event that specific mitigation is warranted for the site, the measures developed will be documented in the Environmental As-built Report (see Section 8.3.4 of this EA). General provisions will be included in the contract documents that commit contractors to site protection/restoration measures at sites identified, evaluated and used during the construction program. Mitigative measures to be used at temporary facility sites and temporary work areas will be as described in Section 6.0 of this EA. All applicable landowner as well as municipal, provincial and federal government approvals for the temporary facility site or workspace will be acquired prior to use of the site or area. The level of mitigation applied will ensure that any residual environmental effects are reduced to a level that is not significant.