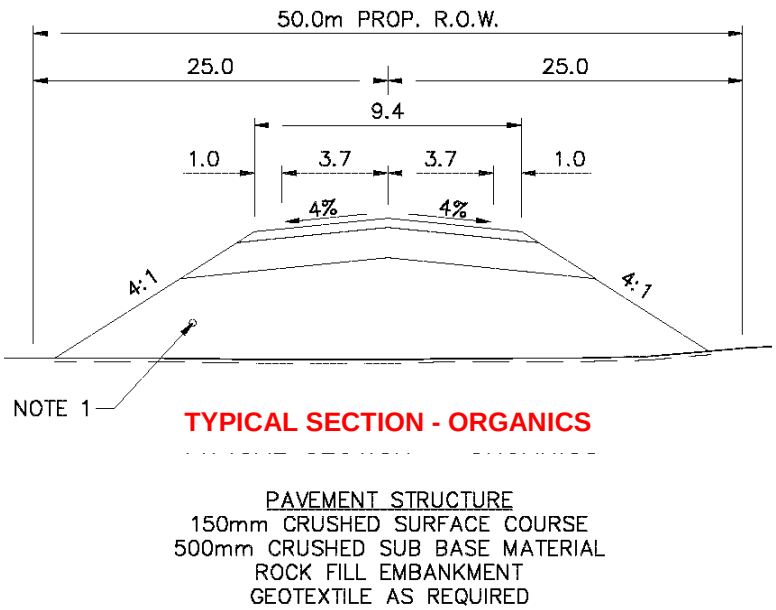
2.1 ALTERNATIVES

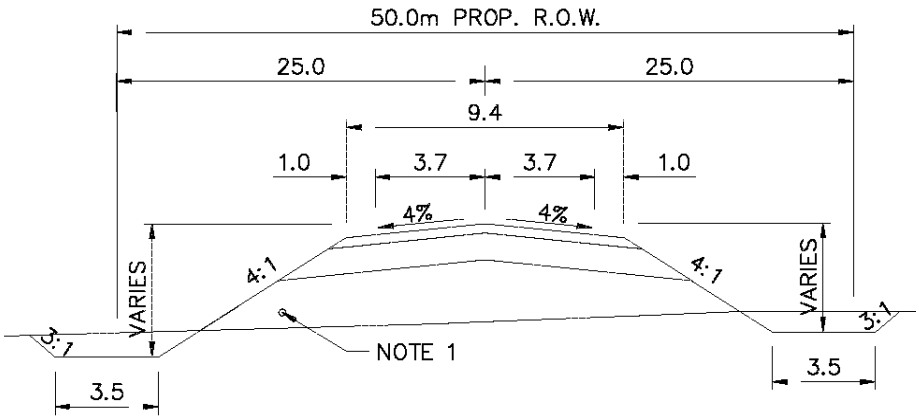
The functional design study included an assessment of several alternative alignments for the new private all-weather road. These alignments were evaluated from both environmental and engineering perspectives. The preferred alignment being proposed is shown in Appendix A.

2.2 ROADWAY DESIGN

The proposed private, all-weather road would be constructed using approximately 65% of the existing tramway alignment. The functional design describes two 3.7 metre travel lanes with 1.0 metre shoulders, resulting in a 9.4 metre roadway top width. Where applicable, ditches would be designed with 4:1 sideslopes, 3.5 metre ditch bottoms and 3:1 backslopes. In rock excavation areas, the ditch bottoms would be 1.5 metre width with backslopes having a 0.25:1 slope resulting from overbreak after blasting. Several typical cross-section designs are shown below.

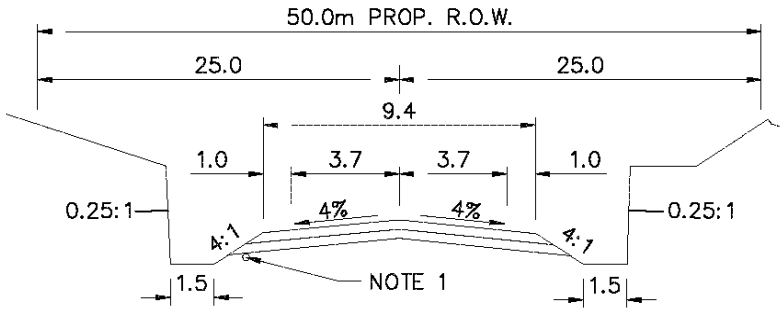


Typical cross-sections from the Functional Design Study (Earth Tech, 2007)



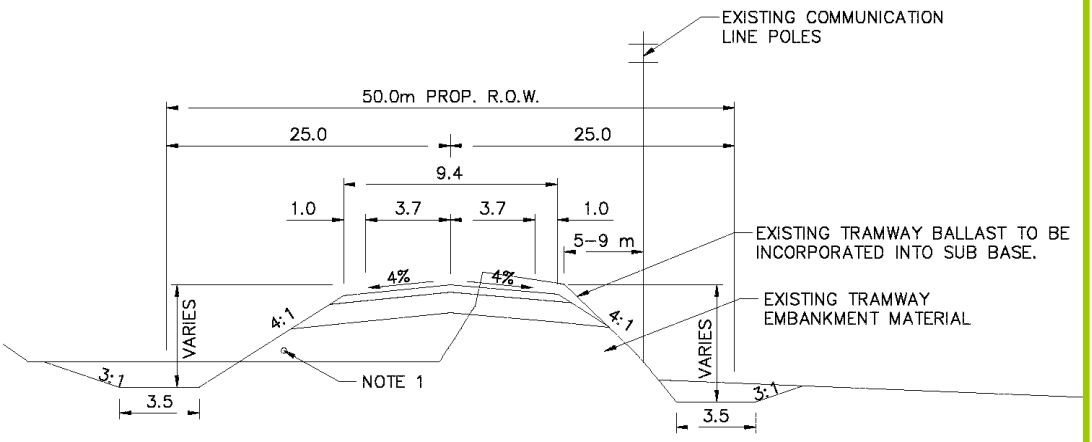
TYPICAL SECTION – TILL AND TILL/ORGANICS

PAVEMENT STRUCTURE
150mm CRUSHED SURFACE COURSE
425mm CRUSHED SUB BASE MATERIAL
SUITABLE FILL MATERIAL (TILL OR ROCK) EMBANKMENT



TYPICAL SECTION – ROCK CUT

PAVEMENT STRUCTURE
150mm CRUSHED SURFACE COURSE
150mm CRUSHED SUB BASE MATERIAL
ROCK SPALLS



TYPICAL SECTION – TILL AND TILL/ORGANICS AT EXISTING TRAMWAY EMBANKMENT

PAVEMENT STRUCTURE
150mm CRUSHED SURFACE COURSE
425mm CRUSHED SUB BASE MATERIAL
SUITABLE FILL MATERIAL (TILL OR ROCK) EMBANKMENT

The standard proposed RoW width to accommodate the new roadway geometry is 50.0 metres, as defined by MIT for Collector Road Class B.

The functional plan also describes the geometry for access to the Slave Falls powerhouse from the wye at the south end of the existing tramway alignment. This portion of the new private, all-weather road will cross a rock-fill dam and would be designed as a 5.0 metre wide single lane roadway to run in two-way configuration. This is necessary due to the top width of the rock-fill dam at 8.0 metres, which leaves insufficient space for a standard 9.4 metre road width. The 5.0 metre road width will also allow space for the installation of safety barriers. No in-water work is anticipated.

Rock-fill dam crossing

A gravel pad area next to the Slave Falls powerhouse has been designated to accommodate employee parking and the turning radius of the Low Bed Unit 2058, the largest vehicle requiring access to the powerhouse. The pad has been designed to allow this truck to complete a U-turn with rear-assisted steering.

The existing location where the tramway crosses the sluiceway and spillway structures to access the powerhouse will be converted to a roadway to allow direct access by vehicles into the powerhouse. A similar geometry to the rock-fill dam crossing is expected based on width restrictions of the trestle. Again, no in-water work is anticipated.

Tramway crossing sluiceway and spillway towards entrance to powerhouse building

Most of the drainage in the area surrounding the tramway alignment is to localized natural depressions that have developed shallow to deep organic soils. These depressions often overflow very slowly and irregularly so that the overflow routes have not developed into significant streams. There are only a few drained watersheds of significant size along the route. Drainage for the new roadway can be handled by the proposed ditches or small through-grade culverts and will be improved when compared to the tramway. No fish-bearing stream crossing structures are required for the Project.

2.3 ROADWAY CONSTRUCTION

Clearing and grubbing for the proposed private, all-weather road would include the removal of all trees, vegetation and root removal within the predetermined limits of the RoW. In keeping with the intent of parkway design, clearing will be minimized to the extent practicable based on safety considerations. Typically, clearing and grubbing operations take place in winter periods when freezing temperatures make access through low-lying or boggy areas easier.

As conditions require, roadway embankment construction will consist of a combination of bulk excavation for ditches, rock excavation, embankment construction adjacent to the existing tramway embankment and installation of new drainage appurtenances.

The functional design indicates that all sub-base and base material can be produced from processing blasted rock on-site. Blasted rock would also be used in embankment construction particularly through boggy areas. Roadway embankment construction would be completed within one construction season to provide roadway access to Slave Falls with a thin lift of traffic gravel placed over the sub-base.

The existing tramway track would be removed and the railway ballast, where suitable, will be utilized on the new roadway and graded to the required cross-section, followed by placement of traffic gravel. Reclamation of any unused portion of the tramway alignment would include levelling of the railway embankment with the assumption that natural revegetation would occur.

The existing communication pole line that is located within the tramway RoW will be removed in advance of construction and the line placed underground within the new roadway RoW.

A site-specific design will be developed for the Moose Creek inlet site in order to minimize disturbance in the area. The new roadway alignment will bypass this area by approximately 300 – 500 metres to the west. A recommendation to modify/reclaim the abandoned tramway section in this area, sufficient to allow fish passage at all flows will be developed. The concept would include rip rapped embankments and would be constructed in the winter period. This structure would be an improvement over the current conditions and is expected to eliminate concerns with respect to harmful alteration, disruption or destruction of fish habitat.

Potential borrow and quarry areas have been outlined on the location plan in Appendix A and are being investigated to determine the quantity and suitability of the material present.

Moose Creek tramway crossing location

3.0 EXISTING ENVIRONMENTAL SETTING

Physical, biological and socio-economic studies and activities have been initiated to describe the components of the existing environment within the Study Area. The Study Area is expected to be limited to the Water Power Act license area as shown in Appendix A, with the exception of some socio-economic components. A brief overview summarized from the Earth Tech 2007 functional design study and from information provided by Dr. James Ehnes is presented below. This overview was developed based on a broad survey and involved limited field reconnaissance.

3.1 BIOPHYSICAL ENVIRONMENT

Slave Falls is one of six hydroelectric generating stations on the Winnipeg River. The Winnipeg River is approximately 813 kilometres long and flows from Lake of the Woods in northwest Ontario to Lake Winnipeg in Manitoba. Numerous lakes, rivers and streams are dispersed throughout the Winnipeg River drainage system that covers approximately 150,000 square kilometres.

Aquatic vegetation found in the shallow waters of the Winnipeg River includes lilies, pondweeds, bull rushes, and cattails. These plants also occur in many of the creeks, streams and back lakes that drain into the Winnipeg River.

The native terrestrial vegetation is primarily forest whose composition generally varies with soils, drainage and fire history. Upland forests are predominantly a mixture of Jack Pine, Black Spruce and Trembling Aspen. Jack Pine is more abundant on rocky outcrops or sandy areas while Trembling Aspen is more abundant in moist depressions. Mixed stands of Trembling Aspen, Jack Pine, Black Spruce and White Spruce are less common and generally confined to well drained, clayey mineral soils. Wetland forests on bogs are characterized by Black Spruce while treed fens are generally a mixture of Tamarack and Black Spruce.

Common shrubs in this region include Bush Honeysuckle, Velvetleaf Blueberry and Mountain Cranberry on the uplands while Mountain Cranberry, Labrador Tea and Leather Leaf characterize the wetlands. Common herbs are Bunchberry, False Lily-of-the-Valley, Pale Corydalis, Twinflower, Three-Toothed Cinquefoil and Northern Rice Grass. Common mosses and lichens include Sphagnum mosses, Schreber's Moss, haircap mosses, Dicranum mosses, Green Reindeer Lichen and Grey Reindeer Lichen.

Wildlife in the project area is abundant, including black bear, moose, whitetail deer, coyotes, mink and a variety of waterfowl and upland birds. A preliminary survey of the species is listed under the Species at Risk Act (SARA) and the Manitoba Endangered Species Act (MESA) indicate that sprague's pipit (threatened), grey fox (threatened), northern leopard frog (special concern), yellow rail (special concern) and monarch (special concern) may be present in the study area. Detailed field investigations are being undertaken to determine the presence/absence of these species within the specific project area.

Manitoba Conservation staff indicated that Whitetail Deer have displaced moose north of the Winnipeg River and that no moose have been observed in the Slave Falls area for many years. During one site visit, approximately twenty deer were observed along the tramway and in the Slave Falls area.

Poorly drained area along tramway alignment

The tramway is located within Registered Trapline (RTL) #24 of the Whiteshell Registered Trapline District (RTD) with two trappers utilizing this trapline. Beaver management is occasionally required along the tramway RoW.

The Winnipeg River provides a habitat suitable for a variety of fish species and supports both domestic and sport fisheries that include walleye, lake sturgeon, mooneye, sauger, northern pike, smallmouth bass, whitefish and yellow perch. The Moose Creek area near the tramway crossing appears to provide suitable habitat for northern pike, yellow perch and some cyprinid species both downstream and for the small area upstream of the crossing. However the current, gated culvert probably impedes upstream movement of these species past the crossing for most flow conditions.

3.2 SOCIO-ECONOMIC ENVIRONMENT

Dominant land uses within the area include cottage, resource extraction, hydroelectric generation, tourism and service industries. The Whiteshell Provincial Park is the location of many resorts and outfitters that support

activities such as boating, fishing, swimming, canoeing, camping, horseback riding and bird watching.

A historic resource assessment has been completed for the tramway area by Quaternary Resources. It is expected that most historical resources would be located adjacent to, or in close proximity to the Winnipeg River because it has historically been used for transportation, camping and fishing. With the exception of the Moose Creek inlet, the existing tramway and new roadway locations are not located near the Winnipeg River.

Sagkeeng First Nation holds a wild rice permit within the study area. Private and Crown land holdings are located adjacent to the tramway and proposed roadway RoW.

The study area and surrounding lands are mostly utilized by the Métis, Treaty 1 and 3 First Nations such as Sagkeeng and Shoal Lake First Nations, Brokenhead Ojibway Nation and the Wabaseemong Independent Nations.

3.3 CURRENT FIELD STUDIES

As part of the EIS activities, Manitoba Hydro is conducting detailed field investigations to describe the baseline environmental and socio-economic environments of the study area. During the spring, summer and fall of 2007, the following field activities are expected to occur:

- Aquatic studies at the Moose Creek crossing and rock-fill dam crossing locations as well as along the entire alignment to describe fish habitat and species utilization
- Amphibian and reptile studies to describe habitat and species distribution
- Review of insect species utilizing the area
- Botanical studies at four different time periods to describe the vegetative communities and occurrence of rare plant species
- Wildlife studies (mammals and avian) to describe habitat and species utilization
- Ecosystem habitat classification and mapping studies to integrate the biophysical field information