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15. SUBJECTS OF NOTE

15.12 HERITAGE RESOURCES

15.12.1 Introduction

The purpose of this Subjects of Note (SON) Heritage Resources assessment is to meet the Terms of Reference (TOR) for the Developer's Assessment Report (DAR) (MVEIRB 2008). Adverse effects on heritage resources have been identified as a concern and are listed as a socio-economic SON. The proposed Taltson Hydroelectric Expansion Project (the Project) was assessed for effects on traditional and cultural sites, archaeological resources, and historical significance for all groups of people including Dene, Métis, and European.

The Project falls within the North-Central Area of the Sub-Arctic Cultural region identified by Donald Clark (1991). According to Clark, the North-Central Area stretches from Hudson Bay's Northern Manitoban shores in the east to Great Bear Lake in the west, and from Lake Athabasca in the Prairie Provinces to lands north of the Nunavut-NT border. The cultural history is believed to have been reasonably consistent across the region. To date, archaeological studies have identified a succession of four generally accepted archaeological traditions representing groups living in the area as many as 8,000 years before present (B.P.) (Gordon 1996). Variations in the archaeological assemblages exist between the northern and southern portions. However, Gordon (1996) addresses this variation not as a geographical variation in tool traditions among different groups, but as a seasonal adaptation of tool assemblages within single groups corresponding with annual migrations of caribou to areas below the tree line.

The earliest known evidence of people in the region is the archaeological tool tradition known as Northern Plano. Dating between 8,000 and 6,500 years B.P., and identified primarily by the presence of Agate Basin and similar long, lanceolate spear points, the appearance of the Northern Plano tradition is believed to represent an influx of people following the glacial retreat and the spread of vegetation and game into the area (Gordon 1996).

During the historic period, there were several well-used regions within the currently proposed area of the Taltson Hydroelectric Expansion Project (the Project). The southern portion of the transmission line route passes near several extant communities that were first established as forts and posts, including Fort Smith, Fort Resolution, Łutsel K'e, and Reliance. Great Slave Lake and nearby waterways supported a good deal of traffic by various fur traders, explorers, surveyors, and prospectors.

15.12.2 Spatial Boundaries of the Assessment

The effects study area (i.e. spatial boundary of the assessment) for this SON was not specifically identified in the final TOR (MVEIRB 2008). To assess the potential effects of the Project on heritage resources, it is necessary to define appropriate spatial boundaries; these spatial boundaries were delineated based on the predicted extent of the Project-related effects.

The spatial scales and boundaries selected for the effects assessment of the Project are as follows:

- Local Study Area (LSA): The LSA for heritage resources was defined as the entire Project footprint (or area to be disturbed), plus a 100 m buffer on either side. The LSA was selected to assess existing (baseline) conditions, and the immediate direct and small-scale indirect physical effects from all phases of the Project on heritage resources.
- Regional Study Area (RSA): The RSA for heritage resources was defined as the entire Project footprint (including both the transmission line and the winter roads), plus a 500 m buffer on either side. The boundary for the RSA was selected to quantify baseline conditions at a scale that was large enough to assess the maximum predicted geographic extent (i.e. maximum zone of influence) of direct and indirect aesthetic effects from all phases of the Project on Valued Components (VCs). The RSA scale may also include cumulative effects from activities adjacent to the Project.

15.12.2.1 ASSESSMENT ENDPOINTS

The assessment endpoint selected for both VCs is the preservation and avoidance of sites of traditional and cultural significance or containing archaeological resources.

15.12.3 Valued Components and Assessment Endpoints

The VC selection process reflects the values presented during the public screening sessions. Two VCs were identified for this SON. The first VC is the sites of traditional and cultural significance near the proposed Project footprint. Sites of traditional significance include the following:

- Ts'ankui Theda: a site of cultural and spiritual importance to the Dene people of the area.
- Old Fort Reliance: the closest historic fort to the proposed Project footprint, built by Alexander McLeod of the Hudson's Bay Company for the purposes of Captain George Back's expedition (Rescan Environmental Services Ltd. [Rescan], 2004).
- Grave sites: the numerous documented grave sites on Nonacho Lake and surrounding area.

The proposed route for the Project crosses the Lockhart River approximately seven kilometres downstream from Ts'ankui Theda near Tyrrell Falls.

The second heritage resource Valued Component is archaeological sites.

15.12.4 Pathway Analysis

Pathway analysis identifies and screens the issues and linkages between Project components or activities and the potential effects on heritage resources. A pathway analysis was completed for sites of traditional and cultural significance, and archaeological sites to identify Valid, Minor, and Invalid Project-related pathways.

The first part of the analysis provides a list of potential pathways, without considering if they can possibly occur. This step is followed by a summary of

mitigation practices and design features that remove the pathway or limit the effects on heritage resources. Knowledge of the ecological system and possible mitigation strategies is then applied to the pathways to determine which pathways are Invalid, Minor, or Valid. Each potential pathway is evaluated to determine if it could lead to a change in the environment that could directly or indirectly affect heritage resources.

15.12.4.1 MITIGATION

Mitigation refers to the practices taken to reduce or avoid environmental effects. Any effects remaining after mitigation are referred to as residual effects. Within this DAR, mitigation has been divided into two categories:

- Mitigation practices: refer to any activity, strategy, or practice (e.g. management plans, best management practices) used to reduce or avoid a negative effect.
- Mitigation design features: refer to any Project component both designed and incorporated into the Project to avoid or reduce a negative effect; mitigation practices incorporated into the Project to remove or limit effects to traditional, cultural, and archaeological sites are listed in Table 15.12.1.

Table 15.12.1 — Mitigation for Effects to Sites of Traditional and Cultural Significance and Archaeological Sites

Project Component	Pathway	Pathway Duration	Valued Components	Mitigation
Nonacho Lake control structure South Valley Spillway Existing Twin Gorges power facility Winter access roads Transmission line Barge landing Substations	Construction activity leading to ground disturbance	Construction	Sites of traditional and cultural significance Archaeological resources	Avoid known sites of traditional and cultural significance Avoid known archaeological resources Complete archaeological assessment for areas that are considered likely to contain archaeological resources Complete additional archaeological assessment for any changes to Project Footprint in areas considered to have moderate to high potential to contain archaeological resources Monitor condition of known archaeological sites near the Project footprint Provide manual for recognizing heritage resources to construction crews Diversion of the transmission line route from the narrows between Lac de Gras and Lac du Sauvage as these sites have numerous archaeological sites (see Chapter 8)
Nonacho Lake control structure South Valley Spillway Existing Twin Gorges power facility Winter access roads Transmission line Barge landing Substations	Project activity and physical footprint leading to aesthetic effects	Construction Operations	Sites of traditional and cultural significance	Reduce visibility of the Project components from identified sites of traditional and cultural significance (i.e., Ts'ankui Theda and Old Fort Reliance)

15.12.4.2 PATHWAY VALIDATION

The pathways presented in Table 15.12.1 were identified through reviewing concerns raised during the following:

- Public information sessions in Fort Smith, Fort Resolution, and Hay River in March, 2004 (Rescan, 2004),
- Feedback received from Aboriginal organizations, as well as territorial and federal government departments including the Prince of Wales Northern Heritage Centre, during the land use permit application to the Mackenzie Valley Land and Water Board (MVLWB, 2007), and
- Public hearings hosted by the MVEIRB, and the MVEIRB TOR (MVEIRB, 2008).

Project environmental effects occur when there is a pathway between a Project component or activity and a VC. Effects from some pathways may be reduced or eliminated through mitigation. Pathway validation is the process of screening each pathway to assess its expected contribution to the overall Project's residual effects on VCs after mitigation.

In the pathway validation step, knowledge of the mitigation practices and mitigation design features is applied to assess how each pathway is affected by mitigation. Some pathways may not be affected by mitigation, but others may be reduced or eliminated completely. Each potential pathway was evaluated to determine if it could lead to a change in various components of the environment that could affect a VC. Each potential pathway is evaluated and characterized as follows:

- Invalid: pathway does not exist, is removed by mitigation, or mitigation results in no detectable (measurable) change and residual effect relative to baseline or guideline values.
- Minor: mitigation results in a minor change from the pathway, but has a negligible residual effect (e.g. the loss of a small amount of wildlife habitat, or a short-duration stressor such as blasting noise, which has little effect on the population).
- Valid: a pathway that likely contributes to residual effects on a VC.

Invalid, Minor, or Valid pathways are determined using scientific knowledge, logic, and experience with similar developments. Invalid and Minor pathways were not carried forward into the effects assessment. A pathway is categorized as Valid if a more detailed analysis is required to assess the effects. The pathway analysis is summarized in Table 15.12.2.

Table 15.12.2 — Pathways to Sites of Traditional and Cultural Significance and Archaeological Sites

Project Component	Pathway	Pathway Duration	VC	Validation
Nonacho Lake control structure South valley spillway Existing Twin Gorges power facility Winter access roads Transmission line Barge landing Substations	Construction activity leading to ground disturbance	Construction	Sites of traditional and cultural significance Archaeological resources	Invalid
Nonacho Lake control structure South valley spillway Existing Twin Gorges power facility Winter access roads Transmission line Barge landing Substations	Project activity and physical footprint leading to aesthetic effects	Construction Operation	Sites of traditional and cultural significance	Minor

15.12.4.3 INVALID PATHWAYS

Pathways may be Invalid if the activity does not occur, the pathway does not result in effects to traditional and cultural sites or archaeological resources, or if it has a negligible effect. Invalid pathways were not assessed in the effects analysis. The following pathways were determined to be Invalid for linking Project-related activities to effects on heritage resources.

15.12.4.3.1 Construction Activity Leading to Ground Disturbance: Sites of Traditional and Cultural Significance

Construction activities would avoid known sites of traditional and cultural significance (Table 15.12.1). The transmission line corridor would avoid Old Fort Reliance and Ts’ankui Theda. The transmission line is the nearest component to these sites and is approximately 7 km from Ts’ankui Theda. No known grave sites would be disturbed by construction activities related to the various Project components. No residual effects would result because no physical effects on sites of traditional and cultural significance would occur. Therefore, this pathway was determined to be Invalid.

15.12.4.3.2 Construction Activity Leading to Ground Disturbance: Archaeological Resources

Construction activities would avoid known archaeological resources. Additional archaeological assessments for any changes to the Project footprint in areas considered to have moderate to high potential to contain archaeological resources would be completed. Therefore, no effects to the archaeological resources would occur and the pathway is considered Invalid. A mitigation plan would be prepared and distributed to the appropriate people (e.g. contractors, surveyors), which would outline the appropriate measures to be undertaken in the event that previously-unrecorded archaeological resources are discovered during the various components of the Project.

15.12.4.4 MINOR PATHWAYS

In some cases, both a source and a pathway exist, but the change caused by the Project is anticipated to be Minor. Minor pathways were not assessed in the effects analysis. The following were determined to be Minor pathways for heritage resources.

15.12.4.4.1 Project Activity and Physical Footprint Leading to Aesthetic Effects: Sites of Traditional and Cultural Significance

A viewshed analysis was conducted for the proposed transmission line route. Results indicated that the transmission line and towers may be visible from Old Fort Reliance, which is a Dené site of traditional and cultural significance. Geographic Information Systems (GIS) analysis indicates this site is 4.6 km away from the proposed route, and that 10 km of transmission line and 28 towers could potentially be seen from a straight line of sight from Old Fort Reliance (see DAR Section 15.10 – Tourism and Wilderness).

There is uncertainty when conducting this type of analysis caused by inaccuracies in the digital elevation model and assumptions made by the modelling. However, the proposed transmission line is almost 5 km away from Old Fort Reliance, in the treeline, and likely too far away to be viewed when standing at ground level without some form of visual aid (e.g. binoculars). Therefore, this pathway was determined to be Minor.

15.12.4.5 VALID PATHWAYS

No Valid pathways were identified for heritage resources. Therefore, a residual effects assessment and classification was not required.

15.12.5 Uncertainty

The primary source of uncertainty in the pathways analysis presented here is the possibility that an archaeological site was overlooked during the field investigation stage. This could occur because of a variety of factors, such as the site being overgrown with vegetation, weathered, or eroded. Also, as the exact footprint of the Project would not be determined until construction, the assessment was conducted on areas where a high degree of potential for archaeological resources exists and where the Project would likely be situated. Minor changes to the Project footprint may require further archaeological investigations.

15.12.6 Monitoring

During Project construction, environmental monitors would oversee the implementation of any commitments, requirements and regulations relevant to the preservation of heritage resources. The environmental monitors would report any new archaeological sites uncovered during Project construction, and would ensure that all Project activity maintains a safe distance from all known archaeological sites. The environmental monitors would also assist in training construction crews to recognize and report any archaeological sites that are found.

Should the Project footprint change in areas considered to have moderate to high potential to contain archaeological resources, an additional archaeological assessment would be completed.