UPDATE REPORT TO VOLUME 2
ENVIRONMENTAL ASSESSMENT FOR THE
MONTANA ALBERTA TIE LTD.
INTERNATIONAL POWER LINE PROJECT

Submitted to:

Montana Alberta Tie Ltd.
Calgary, Alberta

Submitted by:

AMEC Earth & Environmental
Calgary, Alberta

October 2006

CE03202/800

18 October 2006
CE03202

Robert L Williams
VP Regulatory
Montana Alberta Tie Ltd.
Suite 800, 615 Macleod Trail SE
Calgary, AB T2G 4T8

Dear: Mr. Williams:

Re: Update Report to Volume 2 Environmental Assessment for the Montana Alberta Tie Ltd. International Power Line Project

AMEC Earth & Environmental (AMEC) is pleased to submit the enclosed Environmental Assessment Update report (Update report). This report updates the information in Volume 2 Environmental Assessment (EA) for the Montana Alberta Tie Ltd. (MATL) International Power Line Project (EA report) (MATL 2005), submitted to the National Energy Board (NEB) in December 2005 by describing and comparing the revised Preferred Route to the previously filed Preferred Route. This Update report was prepared for the proposed 230 kV MATL Project, a 338 km (210 mi) international power line (IPL) which begins north of Lethbridge, Alberta, and continues to Great Falls, Montana. The Canadian portion of this line is approximately 130.5 km (82 mi).

This Update report describes how the changes to the Preferred Route affect the EA of the MATL project. The report includes discussion of the following:

- changes to the proposed IPL Preferred Route and the Alternative Routes considered;
- physical environment of the Project area;
- potential environmental effects arising from the construction and operation of the power line;
- possible cumulative effects;
- mitigation measures to control impacts; and
- public consultation program.

The Project plan took into consideration the input received from meetings with the following stakeholders:

- the public;
- commercial organizations;
- environmental non-governmental organizations (ENGOs):
  - Nature Conservancy of Canada (NCC); and
  - Southern Alberta Group for the Environment (SAGE).

AMEC Earth & Environmental
A division of AMEC Americas Limited
221 – 18th Street S.E.
Calgary, Alberta, CANADA T2E 6J5
Tel + 1 (403) 248-4331
Fax + 1 (403) 248-2188
www.amec.com

- the Kainai First Nation for Traditional Knowledge advice;
- municipal authorities associated with the two counties (Lethbridge and Warner) traversed by the Project;
- the Alberta government, through the offices of:
  - Alberta Environment (AENV); and
  - Alberta Sustainable Resource Development (ASRD).
- the federal government, through the offices of:
  - Environment Canada (EC), Environmental Protection Branch and Canadian Wildlife Service;
  - Fisheries and Oceans Canada (DFO); and
  - Transport Canada's Navigable Waters Protection Division.

The NEB's draft electricity filing requirements (NEB 2005) and Information Request (IR) comments were also used in the development of this Update report.

As discussed, MATL will be filing this Update report in support of their permit application to the NEB and the Alberta Energy and Utilities Board (EUB) for approval to construct and operate the power line. The purpose of this Update report is to provide the NEB with sufficient information to perform an environmental screening review of the Project according to conditions described in the *Canadian Environmental Assessment Act* (CEA Act) on the Preferred Route and the Alternative Routes. All of this Update report's content was developed to address EC, ASRD, ENGO and landowner Right-of-Way (RoW) location considerations and review comments pertaining to the Project's December 2005 EA report.

If you have any questions regarding this report, please feel free to contact the undersigned at (403) 207-7602.

Sincerely,

AMEC Earth & Environmental

Garry V. Ford
Senior Environmental Consultant
Natural Sciences Group
Environment Division

GVF/cj

c: John Railton, MATL

ACKNOWLEDGEMENTS

Montana Alberta Tie Ltd. wishes to acknowledge input from the following agencies and groups, who assisted in the development of this Update report.

- Environment Canada, Edmonton office;
- Alberta Sustainable Resource Development, Lethbridge office;
- Alberta Environment, Calgary and Lethbridge offices;
- Southern Alberta Group for the Environment, Lethbridge;
- Montana Department of Environmental Quality, Helena, Montana;
- Fisheries and Oceans Canada, Lethbridge office;
- Transport Canada, Navigable Waters Branch, Edmonton office;
- Participants of the June 2006 Open House in Milk River; and
- Kainai First Nation for Traditional Knowledge advice.

EXECUTIVE SUMMARY

Montana Alberta Tie Ltd. (MATL) is proposing to construct and operate a 230 kV merchant international power line (IPL) from a new sub-station near Lethbridge, Alberta to an existing sub-station in Great Falls, Montana. An environmental assessment (EA report) (MATL 2005) was submitted in support of a National Energy Board (NEB) permit application (file AFIPL-MAT-01) in December 2005.

Since the submission of the EA report, MATL has continued consultation with the stakeholders. These discussions prompted MATL to re-investigate portions of the southern half of the previously filed Preferred Route, which was originally analyzed during the second quarter of 2005. This investigation and finalized land negotiations with landowners and occupants resulted in a revised Preferred Route, whose description and impacts compared to the previously filed route are presented in this report (Update report), which updates the information in the Project's EA report.

Project Description

The revised Preferred Route is approximately 338 km (210 mi) long, with approximately 130.5 km (82 mi) located in Canada (Figure 2.1.1). The total length of the line is 12 km longer and the Canadian portion of the line is 7 km longer than the route filed in the EA report. The increased length is due to the shift around the Milk River Ridge and some changes in the US portion. Due to the movement of the line around the Milk River Ridge, the exit point from Canada has shifted eastward (to UTM Zone 12 V 411506 5427996).

The revised Preferred Route for the whole Project ends at the same location as filed in the EA report, but now begins at a new sub-station location (NW 14-10-21-W4), which has shifted approximately 300 m to the northwest from the location filed in the EA report. The exit point from Canada has also shifted eastward (to UTM Zone 12 V 411506 5427996), in order to accommodate the change in the revised Preferred Route around the Milk River Ridge. There are a few minor changes in the north end of the route which remain within the previously presented study corridor, and a major change around the Milk River Ridge which required an entirely new corridor. Compared to the previously filed route (approximately 123 km), the revised Preferred Route is approximately 7 km longer. These more southerly changes were made to protect the large tract of reasonably intact natural prairie located on the top of the Milk River Ridge. Environment Canada (EC), Alberta Sustainable Resource Development (ASRD), ENGOs and public land leasers did not want this prairie impacted.

Stakeholder Engagement

The stakeholder engagement process began before the EA report was filed with the NEB in December 2005 and has been ongoing since. A ninth public Open House was held in Milk River in June 2006 to present revisions to the route, as requested by federal and provincial agencies, and local ENGOs. Landowners and interested public presented their issues of concern to MATL during the Open Houses and identified others during MATL's land negotiation processes. MATL

has maintained contact with the counties of Lethbridge and Warner, special interest groups such as the Southern Alberta Group for the Environment (SAGE) and the Nature Conservancy of Canada (NCC), and government agencies such as EC, ASRD, Department of Fisheries and Oceans and Ducks Unlimited. MATL has kept these organizations informed of changes and updates to the power line route and impact assessment. MATL established a Community Advisory Committee in July 2006 to work with stakeholders along the power line route to address their concerns, resolve issues and make non-binding recommendations to MATL.

Environmental Impacts Assessment

As a result of the revision of the Preferred Route, updates were made to the effects assessments of surficial geology and soils, vegetation and rare plants, fisheries resources, wetlands, wildlife habitat, heritage resources, and socio-economic factors. The revisions to the Preferred Route do not change the conclusions contained in the cumulative effects assessment (CEA) for all disciplines, which indicates that the Project causes minimal impact.

Surficial Geology and Soils

The surficial geological setting and the soils for the Preferred Route are similar to those described in the original assessment. The soils along the revised Preferred Route are generally the same as the soils previously described in the original assessment and consist predominantly of Orthic Dark Brown Chernozems.

In the previously filed alignment, it was estimated that approximately 950 poles would be required and there would be a residual impact of approximately 0.17 ha along the right of way (RoW) and 3.85 ha at the new sub-station. With the revised Preferred Route, it is estimated that there will be approximately 1 073 poles with a residual impact of 0.19 ha within the RoW and 3.85 ha at the new sub-station. However, 3.96 ha (0.11 ha excluding the sub-station) of the disturbance is in cultivated lands and 0.05 ha in grasslands compared to 0.06 ha and 3.92 ha (0.07 ha excluding the sub-station), respectively, reported in the EA report. Overall, the impact rating for soil loss remains the same as in the original EA report.

Vegetation and Rare Plants

The increased length of the revised Preferred Route results in a greater area included in the study area (25 866 ha compared to 24 717 ha). In comparing the vegetation along the two routes, observed differences include: more cultivated (17 003 ha vs. 11 174 ha), forage (2 520 ha vs. 2 238 ha), shrubs (70 ha vs. 27 ha) and disturbed lands (1 193 ha vs. 688 ha) exist in the revised Preferred Corridor; less grasslands (4 940 ha vs. 10 401 ha) and treed areas (0 ha vs. 24 ha) exist in the revised Preferred Corridor; and the percent of water/wetlands areas remain similar (0.7%) between the two routes.

The impacts due to pole holes and the sub-station are similar for both the previously filed alignment (4.02 ha) and the revised Preferred Route (4.04 ha). The difference is in the distribution of land uses impacted. In the revised Preferred Route, more cultivated, forage and shrub lands will be impacted. However, impacts to native grasslands have been reduced

(3.92 ha (0.07 ha excluding the sub-station) to 0.05 ha). The impacts due to pole holes and the sub-station remain insignificant (0.02%) within the corridor. New Project-related impacts associated with the RoW of the revised Preferred Route are approximately 84 ha more than the previous corridor. Reasons for this greater area of impact include: a) the revised Preferred Route is longer than the previously filed route; b) the Project-related impacts now include access roads, which were not included in the December EA analysis; and c) a larger sub-station footprint. However, impacts to grasslands are expected to be almost half of what they were in the previously filed alignment described in the EA report (66 ha vs. 127 ha).

Fisheries Resources

As a result of the proposed route modification, the locations of fisheries resources within the study area subject to any potential impacts have been altered. Several watercourses are no longer crossed, others are being crossed that were not previously crossed by the Project, and several watercourses have changed crossing locations.

The previously filed alignment crossed 52 watercourses and water bodies while the revised Preferred Route now has 49 crossings. Overall, the watercourses crossed have not changed significantly and have similar characteristics between the two routes. Three crossings experienced a shift in location and include Etzikom Coulee, Middle Coulee and the Milk River. However, no differences in the fisheries resources are anticipated at any of the sites. Thirty-three watercourse crossings along the previously filed alignment are no longer crossed, including the North Milk River and a large reservoir. Of the 30 new crossings along the revised Preferred Route, all but two are small drainages with no fisheries potential or timing constraints. ASRD had previously indicated that most small drainages within the RoW are believed to be non-fish bearing.

Due to the similarity of the watercourses potentially impacted by the previously filed alignment and by the revised Preferred Corridor, there are no changes to the environmental effects assessment previously presented.

Wetlands

An inventory of wetlands within the Preferred Corridor of the previously filed alignment described in the EA report was presented in the response to an information request (IR) from the NEB. After meeting with EC and ASRD, it was recommended that all wetlands within 100 m of the proposed power line that were greater than or equal to 1 ha should be classified under the Stewart and Kantrud (1971) classification system. EC also stated that primary importance should be given to those wetlands identified as Class 3 or greater.

The wetlands crossed by the revised Preferred Route have been classified using a combination of information obtained from low level air photos of the RoW and observations obtained during the early spring and summer rare plant surveys. Where possible the proposed power line was also moved to minimize impacts of wetland areas and the 100 m setback buffer around the wetland. An analysis of the wetlands along the revised Preferred Route revealed that eight

wetlands have a primary importance to EC. The construction approach and mitigation measures remain the same as previously described in the EA report. Therefore, no changes to the environmental effects assessment previously presented are anticipated.

Wildlife Habitat

In relation to wildlife and their habitat, the most significant change from the EA report is the re-routing of the transmission line around the Milk River Ridge. By avoiding this biodiversity-rich region, the disturbance of natural grasslands along the revised Preferred Corridor is reduced. The re-routing of the transmission line will effectively contribute to mitigating Project impacts on many grassland wildlife species. MATL's decision to place poles outside of buffers around water bodies, wetlands and stream crossings, whenever possible, has contributed to mitigating Project impacts on amphibians and many species of migratory birds. Extensive field work was conducted for a more complete assessment of the wildlife along the Preferred Corridor, including surveys for amphibians, songbirds, burrowing owls, sharp-tailed grouse leks and reptiles.

Important information obtained from the 2006 field surveys includes no observations of listed amphibian or reptile species. However, historical observations of northern leopard frog and plains spadefoot have been reported along the revised Preferred Corridor. During songbird surveys, 7 listed species were identified, including Baird's sparrow, Sprague's pipit, common nighthawk, Swainson's hawk, ferruginous hawk, sharp-tailed grouse and long-billed curlew. The burrowing owl surveys did not reveal any individuals within the revised Preferred Corridor, although one adult was observed within the revised Preferred Corridor during previous amphibian surveys. Surveys of sharp-tailed grouse leks revealed one active lek approximately 500 m west of the revised Preferred Route. Throughout the 2006 field surveys, several incidental observations of other listed species were recorded, including pronghorn antelope, short-eared owl, black-necked stilt and long-billed curlew.

Heritage Resources

A Historical Resource Overview was completed for the revised Preferred Route alignment. Based on the analysis completed by Arrow Archaeology Ltd. the revised Preferred Route alignment is less likely to impact significant historical resources than the previously filed alignment. The revised Preferred Route has several previously recorded archaeological sites and historical resources within or adjacent to the RoW, which could probably be avoided by minor changes in pole locations, accesses, etc. Although field work has not been completed on the revised Preferred Route, there is no doubt that this route will impact or potentially impact fewer historical resources than the previously filed alignment.

Socio-Economics

There have been no changes to the socio-economic study area and baseline data presented in the EA report. However, specific social and economic concerns were identified by landowners, special interest groups and government agencies through ongoing consultation and stakeholder engagement activities. MATL has identified and is committed to implementation of mitigation measures that address stakeholder concerns. These concerns include: compensating economic

losses on agricultural land, monitoring electrical interference around residences and farmsteads, minimizing agricultural fragmentation and disruption to agricultural operations, minimizing aesthetic and visual impacts, and monitoring studies on electric and magnetic fields. MATL will provide a 24-hour service for landowners to access if they have concerns or problems arise.

Conclusions

The impact assessment for the revised Preferred Route is similar to the impacts described in the EA report. Utilizing the same data sources as the previous environment assessment, as well as new data collected through field surveys, the impact of the proposed MATL power line is still considered low.

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GLOSSARY

Aboriginal	Includes the Indian, Inuit and Métis peoples of Canada.
Action Plans	In the context of the *Species at Risk Act (SARA)* - The competent minister is required to prepare one or more action plans based on the recovery strategy for a listed species. The action plan or plans and any amendments will be included in the public registry established under the *SARA*.
Alignment	Centre line arrangement or position of the power line within the project's Right-of-Way.
Amendment (soil)	An alteration of the properties of a soil and, thereby, of the soil by adding substances such as lime, gypsum and sawdust to make the soil more suitable for the growth of plants. Fertilizers constitute a special group of soil amendments.
ANHIC	Alberta Natural History Information Centre. The ANHIC maintains a tracking list of species of concern in Alberta.
Baseline Information	The current state of the environment or environmental setting for a particular element. This information will assist in determining potential environmental effects of the project by providing an environmental reference point for the element, with which to compare future environmental conditions, and potential project effects.
Biophysical Environment	The components of the earth including: • land, water and air, including all layers of the atmosphere; • all organic and inorganic matter and living organisms; and • the interacting natural systems that include components referred to in the previous bullets.
Constraint	Environmental, engineering and socio-economic conditions that limit the design, alignment or timing of facility construction and use.
Critical Habitat	The habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species. [*SARA s.2*]
Cumulative Effects	Changes to the environment that are caused by an action in combination with other past, present and future human actions. ('Action' includes projects and activities.)
Deleterious Substance	(a) any substance that, if added to any water, would degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water; or (b) any water that contains a substance in such quantity or concentration, or that has been so treated, processed or changed, by heat or other means, from a natural state that it would, if added to any other water, degrade or alter or form part of a process of degradation or alteration of the quality of that water so that it is rendered or is likely to be rendered deleterious to fish or fish habitat or to the use by man of fish that frequent that water. [*Fisheries Act* s.34(1)]
EIA	Environmental Impact Assessment. A review of the effects that a proposed development will have on the local and regional environment.
Endangered Species	A species facing imminent extirpation or extinction in Canada (SARA 2003).

Environmental Effect	In respect of a project: (a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *SARA*, (b) any effect of any change referred to in paragraph (a) on (i) health and socio-economic conditions, (ii) physical and cultural heritage, (iii) the current use of lands and resources for traditional purposes by aboriginal persons, or (v) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or (c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada. *[CEA Act s.2]*
Environmentally Sensitive Area	An area designated in regional or local land use plans, or by a local, regional, provincial or federal government body as being sensitive to disturbance or identified by an applicant as being sensitive for some reason.
Erosion	The process by which material, such as rock or soil, is worn away or removed by wind or water.
H Pole Structure	A two pole vertical structure with one or two horizontal tie member used to support three conductors and their associated insulators.
Habitat	The part of the physical environment in which a plant or animal lives.
Heritage Resources	Cultural, historic, archaeological and paleontological resources are collectively known as heritage resources and can include pre-contact and post-contact features.
HRIA	Historical Resources Impact Assessment. A review of the effects that a proposed development will have on the local and regional historic and prehistoric heritage of an area.
International Power Line	Facilities constructed or operated for the purpose of transmitting electricity from or to a place in Canada to or from a place outside Canada.
Migratory Bird	A migratory bird referred to in the convention, and includes the sperm, eggs, embryos, tissue cultures and parts of the bird. [*Migratory Birds Convention Act* s.2]
Mitigation	In respect of a project, the elimination, reduction or control of the adverse environmental effects of the project, and includes restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means. [*CEA Act* s.2]
Monitoring Plan	The plan for resolving specific outstanding environmental issues, observing the potential environmental effects of a project, assessing the effectiveness of mitigation measures undertaken, identifying unanticipated environmental issues and determining the action required based on the result of these activities.
Mono Pole Structure	A single vertical power pole structure used to support three conductors and their associated insulators.
Permit	An authorization for the construction and operation of an international power line issued under Part III.1 of the NEB Act.
Reclamation	The process of re-establishing a disturbed site to a former or other productive use, not necessarily to the same condition that existed prior to disturbance. The land capability may be at a level different (i.e., lower or higher) than that which existed prior to the disturbance, depending on the goal of the process. Reclamation includes the management of a contaminated site and revegetation where necessary. Reclamation is not considered complete until the goals for reclamation have been achieved.

Recovery Strategy	A strategy for the recovery of a listed extirpated, endangered or threatened species prepared by the competent minister (as defined under the *SARA*). If the recovery of the listed species is feasible, the recovery strategy must address the threats to the survival of the species identified by the Committee for the Status of Endangered Wildlife in Canada, including any loss of habitat. The recovery strategy and any amendments will be included in the public registry established under the *SARA*.
Residual Effects	Effects that are present after mitigation is applied.
Right-of-Way (RoW)	The strip of land acquired for which a company has obtained the rights for the construction and operation of the pipeline or power line.
Shoe-fly Access Trails	Temporary construction access trails developed outside of the RoW.
Siting	The process of selecting the location of new facility. This process is sometimes referred to as site selection.
Socio-Economic Effect	In respect of a project, any effect on a socio-economic element found in Table 6-5 of the NEB Electricity Filing Guide (NEB 2005), including direct effects as well as effects resulting from a change in the environment (as referred to in the definition of Environmental Effect).
Species at Risk	An extirpated, endangered or threatened species or a species of special concern. [*SARA* s.2]
Species of Special Status	Species listed under provincial jurisdiction or of recognized local importance because they are vulnerable, threatened, endangered or extirpated.
Stakeholder	People or organizations with an interest or share in an undertaking, such as a commercial venture.
Study Area	The area within the spatial boundaries of the scope of the environmental and socio-economic effects assessment. Since the spatial boundaries of the assessment may vary with different biophysical and socio-economic elements, the study area may also vary.
Sub-station	A subsidiary station of the electric power system where network interconnections are made and managed between transmission lines, or where electricity is flowed to or from the transmission network and transformed for further transmission or distribution along lower-voltage lines.
Water Body	A water body, including a canal, reservoir, an ocean and a wetland, up to the high-water mark, but does not include a sewage or waste treatment lagoon or mine tailings pond. [*Exclusion List Regulations* s.2]
Wetlands	Land where the water table is at near or above the surface, or which is saturated for a long enough period to promote such features as wet-altered soils and water-tolerant vegetation. Wetlands include organic wetlands or “peatlands”, and mineral wetlands or mineral soil areas that are influenced by excess water, but produce little or no peat.
Wildlife	Any species of wild organism, including mammals, birds, reptiles, amphibians, fish, invertebrates, plants, fungi, algae and bacteria.

ABBREVIATIONS AND ACRONYMS

%	Percent
<	less than
ACD	Alberta Community Development
AENV	Alberta Environment
AMEC	AMEC Earth & Environmental
ASRD	Alberta Sustainable Resource Development
ATSDR	Agency for Toxic Substances and Disease Registry
ATV	all-terrain vehicle
BC	British Columbia
BMP	Best Management Practice
BSOD	Biodiversity/Species Observation Database
CAC	Canadian Advisory Committee
CCA	chromated copper arsenate
CCME	Canadian Council of Ministries of the Environment
CEA	Cumulative Effects Assessment
CEA Act	*Canadian Environmental Assessment Act*
CITW	Canadian Institute of Treated Wood
cm	centimetre
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CSA	Canadian Standards Association
DEC	Department of Environmental Conservation
DFO	Fisheries and Oceans Canada
DU	Ducks Unlimited
EA	Environmental Assessment
EC	Environment Canada
EDO	Economic Development Officer or Office
EMF	Electric and Magnetic Fields
ENGO	Environmental Non-governmental Organizations
EPA	Environmental Protection Agency
EPP	Environmental Protection Plan
EPRI	Electric Power Research Institute
EUB	Alberta Energy and Utilities Board

FAQ	frequently asked question
FWMIS	Fish and Wildlife Management Information System
GIS	Geographic Information System
GTC	Georgia Transmission Corporation
ha	hectare
Hwy	Highway
HRIA	Historical Resources Impact Assessment
INAC	Indian and Northern Affairs Canada
IPL	International Power Line
IR	Information Request
KP	kilometre point
km	kilometre
kV	kilovolt
LWEPA	Lake Wabamun Enhancement and Protection Association
m	metre
m^2	square metre
MATL	Montana Alberta Tie Ltd.
mi	mile
mm	millimetre
MW	megawatts
NCC	Nature Conservancy of Canada
NEB	National Energy Board
NEB Act	*National Energy Board Act*
OM	Organic Matter
OS	Operational Statements
PCP	Pentachlorophenol
pers. comm.	personal communication
PRFA	Prairie Farm Rehabilitation Administration
PMRA	Pest Management Regulatory Agency
RoW	Right-of-Way
RSA	Regional Study Area
SAGE	Southern Alberta Group for the Environment
SARA	*Species at Risk Act*

SNC	SNC-LAVALIN ATP INC.
TLU	Traditional Land Use
TLUOS	Traditional Land Use Occupancy Study
US	United States
USNPS	United States National Park Service
UPTAG	United Power Transmission Area Groups
UTM	Universal Transverse Mercator
vs.	versus
WWPI	Western Wood Preservative Institute

1.0 INTRODUCTION

Applicant: Montana Alberta Tie Ltd. (MATL)

NEB File: AFIPL-MAT-01

Application Date: 21 December 2005

Title: Montana Alberta Tie International Power Line Project

1.1 Background

Montana Alberta Tie Ltd. (MATL) is proposing to construct and operate a 230 kV merchant international power line (IPL) from a new sub-station near Lethbridge, Alberta to an existing sub-station in Great Falls, Montana (the Project). An environmental assessment (EA report) (MATL 2005) was submitted in support of a National Energy Board (NEB) permit application in December 2005. To date, the Information Requests (IRs) received and the responses that have been submitted include the following:

- Response to IR 1 dated 30 January 2006 (MATL 2006a);
- Response to IR 2 dated 2 March 2006 (MATL 2006b);
- Response to IR 3 dated 14 March 2006 (MATL 2006c);
- Addendum to Response to IR 3 dated 10 May 2006 (MATL 2006d);
- Response to IR 4 dated 13 April 2006 (MATL 2006e); and
- Response to IR 5 dated 1 June 2006 (MATL 2006f).

Since the submission of the EA report, MATL has continued consultation with the following stakeholders:

- the public;
- commercial organizations;
- environmental non-governmental organizations (ENGOs):
  - Nature Conservancy of Canada (NCC); and
  - Southern Alberta Group for the Environment (SAGE).
- the Kainai First Nation for Traditional Knowledge advice;
- municipal authorities associated with the two counties (Lethbridge and Warner) traversed by the Project;
- the Alberta government, through the offices of:
  - Alberta Environment (AENV); and
  - Alberta Sustainable Resource Development (ASRD).

- the federal government, through the offices of:
  - Environment Canada (EC), Environmental Protection Branch and Canadian Wildlife Service;
  - Fisheries and Oceans Canada (DFO); and
  - Transport Canada, Navigable Waters Protection Division.

These discussions focused on MATL's continuing work to address issues raised by the IRs issued by the NEB (MATL 2006a-f), including the stakeholders' concerns with the Project's Right-of-Way (RoW) over the Milk River Ridge. The discussions prompted MATL to re-investigate portions of the southern half of the previously filed Preferred Route (Figure 1.1.1), which was originally analyzed during the second quarter of 2005. This investigation and finalized land negotiations with landowners and occupants resulted in a revised Preferred Route (Figure 1.1.1), whose description and impacts are presented in this report (Update report), which updates the information in the Project's EA report.

2.0 PROJECT DESCRIPTION AND ENGINEERING

This section updates the Project description and summarizes engineering changes. The Project description and engineering information updates are contained in the Update Report to Volume 1 (MATL 2006g).

The sections from the EA which will be updated in this report include the Project location, brief update to the Project description, Project schedule, and portions of the corridor selection process.

2.1 Project Location

Based on the consultation described in Section 1.1 above, particularly the input from EC, ASRD and ENGOs, the Preferred Route was revised and indicates the route MATL would prefer to construct (Figure 1.1.1). MATL has elected to shift the Project's Preferred Route from over the Milk River Ridge to around the east end of the Milk River Ridge, which also resulted in a different point of entry into the United States (US) (at UTM Zone 12 V 411506 5427996). MATL identified and examined two Alternative Routes (C and D as indicated on Figure 1.1.1) as potential mitigation measures to concerns raised by local residents.

This Update report describes and assesses the environmental impacts of the revised Preferred Route compared to the RoW alignment submitted in the EA report (Figure 1.1.1). Detailed map sheets are presented in Appendix A. The description and environmental assessment of the Alternative Routes are compared to the revised Preferred Route and presented in Appendix B. Detailed map sheets for the Alternative Routes are also presented in Appendix A.

The revised Preferred Route is approximately 338 km (210 mi) long, with approximately 130.5 km (82 mi) located in Canada (Figure 2.1.1). The total length of the line is 12 km longer and the Canadian portion of the line is 7 km longer than the route filed in the EA report. The increased length is due to the shift around the Milk River Ridge and some changes in the US portion. Due to the movement of the line around the Milk River Ridge, the exit point from Canada has shifted eastward (to UTM Zone 12 V 411506 5427996).

The end point for the revised Preferred Route for the whole Project remains the same sub-station in Great Falls, Montana, as described in the previously filed EA report. However, the location of the new sub-station located to the northeast of Lethbridge has shifted slightly. In the EA report, the sub-station was located in NW 13-10-21-W4. Since that time, an agreement has been reached with a different landowner to locate the sub-station to NE 14-10-21-W4, approximately 300 m to the northwest of the location filed in the EA report (Map 1 in Appendix A). However, since the agreement was just recently reached (early October 2006), the kilometre points (KPs) for the revised Preferred Route were not changed. Instead, the previously filed sub-station location remained KP 0 and the new location was given a negative KP (-0.3). The change in sub-station location was incorporated into all the impact analysis.

There are a few minor changes in the north end of the route (from approximately KP 9.5 to KP 16 as indicated on Map 2 in Appendix A), which remain within the previously presented study corridor, and a major change south of KP 72.5 around the Milk River Ridge (Maps 9 to 15 in Appendix A). The revised Preferred Route heads east from KP 72.5 (Map 9 in Appendix A) and south to a location approximately a mile due south of the town of Warner (approximately KP 100.5 on Maps 11 and 12 in Appendix A). The revised Preferred Route then heads south, passing the east boundary of the Twin River Natural Heritage Rangelands, to the US. These more southerly changes were made to protect the large tract of reasonably intact natural prairie located on the top of the Milk River Ridge. EC, ASRD, ENGOs and public land leasers did not want this prairie impacted.

2.2 Project Description

As previously stated, changes in the Project description and engineering may be found in the Update Report Volume 1 (MATL 2006g). However, the change from steel to laminated wood poles and limited use of round natural wood poles has some environmental implications and will be discussed in this report.

Wood Poles

MATL is planning on using lumber that is pressure-treated with a mixture of oil and pentachlorophenol (also referred to as penta or PCP), which is one of the wood preservatives currently authorized for use in Canada (Health Canada PMRA 2006). This pressure-treated oil/PCP lumber not only protects the wood against fungi and insects, but also provides extra protection against moisture content changes (EC and CITW 1999). All of these factors result in greater wood stability and resistance to splitting, which substantially extends the service life of wood and increases its durability. This in turn would reduce the number of times MATL would need to disturb the environment by replacing poles that have deteriorated. As an added benefit, this type of treatment provides resistance to electrical currents and facilitates the climbing of poles by line maintenance staff (EC and CITW 1999).

Government and industry recognize there are environmental and human health risks associated with the use of PCPs, particularly at wood treatment facilities and lumber mills (ATSDR 2001). However, both government and industry believe these risks to workers, the public and the environment can be minimized and managed (EC and CITW 1999) through the use of standards and best management practices (BMPs) available for the manufacturing, handling, and disposal of PCP-treated poles (as described below), which MATL is committed to complying with. This includes avoiding the placement of poles in standing water.

Environmental and Human Health Effects

PCP is a semi-volatile chlorinated phenolic compound and has historically been used in many applications including preservation of starches, in glues to inhibit mould growth, on crops as a herbicide, in paints, pulp and paper, and wood preservation. Scientific literature indicates that environmental and health risks are associated with PCP use and hence restrictions have been

imposed on their production, use and disposal (EPA 2006; Agriculture Canada 1987). At low concentrations, PCP is not considered a persistent contaminant in the environment because it can be degraded either photochemically or microbially (EC and CITW 1999).

PCPs may be introduced into the atmosphere through volatilization. Approximately 2% of the total PCP applied to the poles may be lost by volatilization annually (ATSDR 2001). Most of the inputs of PCPs to the atmosphere occur from wood preservation plants and cooling towers (ATSDR 2001). One mitigation measure recommended is the aging of PCP-treated poles for three months prior to installation (New York DEC 2000).

PCPs can also be leached from the treated wood poles to the soil, however its movement is dependent on the soil's acidity being more mobile in alkaline soils (USNPS 1997; New York DEC 2000). As summarized in a North American Wood Pole Coalition Technical Bulletin, a 1997 study by the Electric Power Research Institute (EPRI) indicated PCB concentrations in soil around 180 PCP-treated poles were not detectable beyond 20 cm (eight inches). PCP was found to leach from treated wood at very slow rates ranging from 2.1% per month over an 18 month period year to 0.55% per month over 10 years (Sinnott 2000). PCP can degrade quickly in soil depending on the pH, with a half-life estimated to be weeks to months (USNPS 1997; Choudhury et al. 1986 as cited by New York DEC 2000; EPA 2006). The Canadian Council of Ministries of the Environment (CCME) established a limit of 7.6 mg/kg PCP in agricultural soils (CCME 2006a).

PCPs may leach into waterbodies. If released in water, PCP will absorb to sediments, photodegrade (especially when pH is greater than 7.3) and/or slowly biodegrade (USNPS 1997). One study concluded that in most instances the use of PCP-treated wood in water was unlikely to harm aquatic life with measurable impacts occurring only during the first month after the wood is installed and potential for leaching is at its highest (New York DEC 2000). However, even in situations where the treated poles would be placed in standing water, modeling concluded that the New York ambient water quality guidelines would not be exceeded (New York DEC 2000). Therefore, only wood treated in accordance with the Western Wood Preservative Institute (WWPI) or the Canadian Institute for Treated Wood (CITW) BMPs should be used in water construction. As well, it is recommended that PCP-treated wood should be aged for three months after treatment and prior to use in water and should not be used in saline water (New York DEC 2000). The following guidelines for PCP have been set for water: 0.5 µg/L for the protection of freshwater aquatic life (CCME 2006b) and 0.06 mg/L for drinking water (Health Canada 2006). There is no CCME guideline for PCP for the protection of agricultural water uses (CCME 2005).

PCP is listed as a probable human carcinogen by the US Environmental Protection Agency (EPA). Human exposure primarily occurs during production, treatment of the wood and during installation or maintenance. A study prepared for the US National Parks Service in 1997 (USNPS 1997), stated that health hazards of wood treated with PCP in accordance with the American Wood Preservers Institute (AWPI) or related industry standard poses minimal risks to human health provided that proper adherence to standards are followed.

Government and Industry Response

As previously mentioned, PCP, as well as chromated copper arsenate (CCA) and creosote, are wood preservatives authorized for use in Canada today (Health Canada PMRA 2005; 2006). PCP is not produced in Canada and is mostly imported from the United States (Agriculture Canada 1987; Health Canada PMRA 2006; EC and CITW 1999). PCP is currently registered with the Pesticide Management Regulatory Agency (PMRA), who are currently working with the US Environmental Protection Agency (EPA) on a re-evaluation of the health and environmental risks associated with the use of wood preservatives including PCP (Health Canada PMRA 2005). As of April 2005 PCP was being re-evaluated for registration by PMRA and the EPA (Health Canada PMRA 2005). The *Alberta Users Guide for Waste Managers* (Alberta Environmental Protection 1995) states that wood treated with PCP and other preservatives registered under PMRA are not hazardous waste. Therefore, railway ties, utility poles, etc. can be disposed of in Class I or Class II landfills with the permission of the facility operator.

There are many documents which describe recommended industry practices associated with the use of PCP-treated poles, which MATL is committed to complying with, including the following:

- The Canadian Standards Association 080 Series (CSA 1997) which describes requirements for materials, analysis of materials, and operational practices for pressure and thermal impregnation for the chemical preservation of wood.
- *Industrial Treated Wood Users Guidance Document* published by EC (2004) which provides Best Management Practices (BMPs) and guides users of treated wood on purchasing, storage, use and disposal/reuse of these products.
- EC also recommended following the BMPs produced by the CITW and the WWPI.

2.3 Project Schedule

The construction start-up date is highly dependent on regulatory approval. At this point in time, MATL anticipates a construction start-up date of January 2007 with a planned facility activation date in June 2007.

The general procedure for construction of the power line will be as follows:

- land surveying, gate and fencing crews will initiate work on the Project;
- temporary bar-ditch access approaches will be constructed at strategic road crossings. This work will start from both the north, at the Project's proposed sub-station and proceed south, as well as the south, from the Alberta/Montana border and move north. Construction is occurring at both ends of the power line in order to complete construction in the grassland sections of the Project area before migratory birds begin nesting (15 April). Should construction occur simultaneously at both ends of the power line, the Project will employ the use of one environmental monitor on one end, reporting to one environmental specialist on the other end. The environmental specialist will then report to the Project's environmental manager;

- power poles will then be delivered and assembled along the RoW, followed by the soil auguring, erection and string crews;
- preliminary RoW clean-up will commence at this stage of the Project followed by final clean-up. This final clean-up will depend on soil moisture and seeding conditions. Timing will be coordinated with landowners, federal and provincial regulatory agencies (i.e., NEB, ASRD and AENV) and county staff in order to minimize clean-up impacts; and
- temporary gates and bar-ditch approaches will be removed once the RoW clean-up condition has final landowner/renter acceptance.

Table 2.3-1 displays the key milestone start and completion dates based on the above description.

Table 2.3-1: MATL Key Milestone Dates

Task Name	Start	Finish	2006												2007											
			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter			1st Quarter			2nd Quarter			3rd Quarter			4th Quarter		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Meetings with EC, ASRD and SAGE	2/1/06	9/22/06																								
Environmental Field Studies	4/4/06	9/15/06																								
Public Consultation	1/4/06	10/3/07																								
Construction*	1/1/06	9/15/07																								
Reclamation*	2/3/07	12/1/07																								
MATL in-Service (Operation)*	6/1/07	6/1/07																								

* Pending all regulatory approvals.

Given the potential restrictions on construction activity in environmentally sensitive areas in the late spring or early summer, MATL would prefer to start construction in early January. Depending on the timing of the issuance of the permits and licences and in the situation where construction is not completed prior to the implementation of restrictions, MATL will work with EC and ASRD to ensure that its construction schedule and activities comply with all restrictions on both private and public lands.

2.4 Selection of Preferred Route and Alternative Routes

MATL adopted a corridor selection process at the commencement of the Project to identify the most suitable areas to locate the proposed power line (Section 2.5 of the EA report). This is the same approach developed by Georgia Transmission Corporation (GTC) to site its transmission power lines projects. GTC was awarded the 2006 Cooperative Innovators' Award by the Cooperative Research Network of the Rural Electric Cooperative Association (Electricity Today 2006) for this innovative approach that removes areas of environmental, social, technical and economic concern from the proposed utility corridor.

The revised Preferred Route is based on the work described in Section 2.5 of the EA report. Section 2.5 identified alignment corridor segments (Figure 2.3.1 in this Update report). These new alignment segments approximate the currently proposed Preferred Corridor within the Project's original regional study area (RSA). To address concerns raised by EC, ASRD and ENGOs associated with the proposed power line's alignment across a relatively large block of native grassland on the Milk River Ridge, MATL investigated alternative routes around the ridge.

The primary selection tools to perform this task were defined selection criteria applied through the use of Geographic Information System (GIS) constraints mapping. The Project's existing RSA constraints mapping was used, along with updated data sets containing a range of land use and biophysical data (as described in Section 2.5.4.1 of the EA report).

By using the above information and incorporating the issues and concerns of local landowners into the corridor selection process, a revised Preferred Corridor was identified. Field work for land use and environmental studies were conducted using protocols agreed to by AENV, ASRD and EC and began in April 2006 and were completed in August 2006. Historical and archaeological studies also commenced in April 2006 with an anticipated report completion date in November 2006. The final Traditional Land Use and Occupancy Studies (TLUOS) study with the Kainai First Nation will be completed by mid to late November 2006. MATL used known and preliminary findings from these studies, field work and report to modify the Project's facility locations.

To further address the Project's re-route, MATL met with the above-noted government agencies in March, April, June and August 2006, and conducted additional pre-design engineering work to fine tune and confirm a routing option around the Milk River Ridge. This work identified a number of viable modifications to the alternative routing options. Preliminary findings of this work were then presented and discussed with SAGE, EC and ASRD, as well as the public in a 19 June 2006 Open House in Milk River, Alberta. The result of this work identified a number of localized modifications to the Preferred and Alternative Routes to address landowner/renter concerns, and the avoidance of wetlands, unique topographic features and relatively large native grassland blocks to the east and south on the Milk River Ridge. Based on this work and similar re-route work being investigated in Montana, a final Preferred Route was selected in August 2006. This final preferred alignment eliminated many alternative routes, but two alternative routes (C and D) were kept to address landowner routing concerns between Highway (Hwy) 3 and Hwy 61.

2.4.1 Options Analysis

This section analyzes and compares the impacts of the different MATL power line route options (Table 2.4-1). This is a summary of the information contained in Section 4 and in Appendix B of this report. Elements that were similar for all the proposed routes (e.g., physical and meteorological environment, ambient air quality, and traditional land and resource use) are not discussed below.

Table 2.4-1: Comparison of the Proposed MATL Power Line Routes

Route	Summary of Impacts
Revised Preferred Route (described in this Update report)	*Description* • Canadian portion is 130.5 km, which is longer than the previously filed route as the revised Preferred Route is going around the Milk River Ridge • total length (Canada and US portion) of 338 km *Soils* • predominantly Orthic Dark Brown Chernozems • fluvial and ice-contact lacustrine deposits found in association with the Milk River crossing • approximately 1 073 poles with a residual impact of 0.19 ha within the RoW and 3.85 ha at the new sub-station • 3.86 ha (0.11 ha excluding the sub-station) of the disturbance is in cultivated lands and 0.05 ha in grasslands *Vegetation* • revised Preferred Corridor study area is 25 866 ha • primarily cultivated, forage and grasslands; some disturbed areas • impacts to grasslands estimated to be 0.05 ha (<0.01% of the corridor) • the impacts due to pole holes and the sub-station (4.04 ha) remain insignificant (0.02%) within the corridor • four rare plant species were identified within the corridor: Pursh's milk vetch (*Astragalus purshii*), narrow-leaved goosefoot (*Chenopodium leptophyllum*), dwarf fleabane (*Erigeron radicatus*) and tufted hymenopappus (*Hymenopapus filifolius*). One location of tufted hymenopappus was identified within the revised Preferred Route RoW. • new Project-related impacts associated with the revised Preferred Route RoW are approximately 84 ha more than the previous filed corridor. However, impacts to grasslands are expected to be almost half of what they were in the previously filed alignment. *Fisheries* • 49 watercourse crossings from ephemeral to permanent flowing • 4 with restricted activity periods, one of which is an intermittently flowing watercourse • 15 crossings have some fisheries potential, nine of which are irrigation canals or reservoirs *Wetlands* • eight wetlands of primary importance to EC, all avoided or mitigated *Wildlife habitat (based on 2006 field surveys outlined in Section 4.7.2)* • no observations of listed amphibian or reptile species • historical observations of northern leopard frog and plains spadefoot toad have been reported • seven bird species listed by ASRD and/or COSEWIC (Table 4.7-1) were identified during songbird surveys, including Baird's sparrow (ASRD), Sprague's pipit (ASRD and COSEWIC), common nighthawk (ASRD), Swainson's hawk (ASRD), ferruginous hawk (ASRD and COSEWIC), sharp-tailed grouse (ASRD) and long-billed curlew (ASRD and COSEWIC) • burrowing owl surveys did not reveal any individuals within the revised Preferred Corridor, although one adult was observed within the Preferred Corridor during amphibian surveys • one active lek was observed approximately 500 m west of the revised Preferred Route • incidental observations of other listed species were recorded, including pronghorn antelope, short-eared owl and black-necked stilt. *Heritage resources* • several previously recorded archaeological sites and historical resources within or adjacent to the revised Preferred Route RoW *Socio-economics** • proximity of occupied residences and farmsteads*, location of sub-station*, compensation, agricultural operations, agricultural fragmentation, aesthetics, EMF and electrical interference identified as issues of concern. * Note: while the impacts identified with an asterisk are issues for both the revised Preferred Route and the Previously Filed Route, MATL did not have detailed information on the subject matter at the time of the December filing and therefore these issues do not appear as impacts for the Previously Filed Route.

Route	Summary of Impacts
Previously Filed Preferred Route (EA report filed in December 2005)	*Description* • Canadian portion is 123 km long, which is 7 km shorter than the revised Preferred Route due to its more direct route into the US through the Milk River Ridge • total length (Canada and US portion) of 326 km, which is 12 km shorter than the revised Preferred Route *Soils* • generally similar soil types • less fluvial and ice-contact lacustrine deposits • approximately 950 poles with a residual impact of approximately 0.17 ha along the previously filed RoW and 3.85 ha at the new sub-station. This is approximately 123 poles less than the revised Preferred Route because of the shorter length and more direct alignment of the line. • 0.06 ha of the disturbance is in cultivated lands and 0.07 ha in grasslands. There is 3.90 ha less disturbance in cultivated lands and 3.87 ha more disturbance in grasslands compared to the revised Preferred Route. *Vegetation* • the corridor study area is 24 717 ha, which is 1 149 ha less than the revised Preferred Corridor due to the shorter length of the route • fewer cultivated (0.06 ha vs. 3.90 ha), forage (0.03 ha vs. 0.05 ha) and shrubs (0 ha vs. <0.01 ha) areas impacted compared to the revised Preferred Route • more grasslands (3.92 ha vs. 0.05 ha) impacted than in the revised Preferred Route • four rare plant species were found within the Corridor: prickly milk vetch (*astragalus kentrophyta*), tufted hymenopappus (*hymenopappus filifolius*), yellow paintbrush (*castilleja cuskickii*) and stiff yellow paintbrush (*castilleja lutescens*). Yellow paintbrush was subsequently downlisted and is no longer considered rare and stiff yellow paintbrush was delisted since the December 2005 filing. *Fisheries* • 52 watercourse crossings, which is three more crossings than in the revised Preferred Route • 3 with restricted activity periods, which is one fewer than the revised Preferred Route • 14 crossings have some fisheries potential, one fewer than the revised Preferred Route *Wetlands* • tentatively identified 20 wetlands meeting EC requirements, which is 12 more than in the revised Preferred Route *Wildlife habitat (based on field reconnaissance observations and a burrowing owl call-playback survey)* • potential negative impacts to biodiversity by crossing the Milk River Ridge • increased disturbance of native grasslands • no observations of listed amphibian or reptile species, though preferred reptile habitat was observed near Middle Coulee • historical observations of northern leopard frog and plains spadefoot toad have been reported • 15 listed bird species were identified • burrowing owl surveys did not reveal any individuals within the previously filed Preferred Corridor • potentially 5 to 10 leks within the previously filed Preferred Route corridor • incidental observations of other listed species included American badger and pronghorn antelope *Heritage resources* • more observations of significant historical resources along RoW than along the revised Preferred Route *Socio-economics* • EMF, aesthetics, noise, agricultural operations, agricultural fragmentation, compensation, infrastructure and services and employment identified as issues of concern.

Route	Summary of Impacts
Alternative Route C (Appendix B of this Update report)	*Description* • 0.2 km longer (19.4 km vs. 19.2 km) than the corresponding portion of the revised Preferred Route • is located along a developed road allowance, compared to the corresponding portion of the revised Preferred Route which is located along the quarter section line *Soils* • generally similar soil types • one area of Gleysolic soils • four more poles (146 vs. 142) resulting in 7.2 m^2 more cultivated and forage land disturbed *Vegetation* • no rare plants • RoW partially located along a developed road allowance therefore corridor covers 24 ha less land area (3 909 ha vs. 3 933 ha) • Alignment is expected to disturb 8 ha more forage land (11 ha vs. 3 ha), 1 ha more grassland (2 ha vs. 1 ha) than the corresponding section of the revised Preferred Route • 18 fewer ha of cultivated land (30 ha vs. 12 ha) will be disturbed compared to the corresponding section of the revised Preferred Route *Fisheries* • four watercourse crossings, three with some fisheries potential • no timing constraints • same as those crossed by the revised Preferred Route with minor location shifts *Wetlands* • two wetlands, which do not meet EC criteria of importance, are crossed, which is two more crossings than the corresponding section of the revised Preferred Route. *Wildlife habitat* • impacts less habitat (25 ha vs. 35 ha) but no anticipated differences compared to the corresponding portion of the revised Preferred Route. • prevalence of non-native agricultural habitat and pre-existing access roads *Heritage resources* • completely disturbed area, analogous to the corresponding section of the revised Preferred Route *Socio-economics* • RoW located within 100 m of three occupied residences and 12 occupied farmsteads, compared to no occupied residences located within 100 m of the corresponding portion of the revised Preferred Route • RoW impacts a smaller amount (10 ha less) of cultivated and forage land than the corresponding portion of the revised Preferred Route (23 ha vs. 33 ha) • routing the power line along Alternative Route C will necessitate the relocating Fortis distribution lines and may result in interference on Telus telephone cables, which are typically installed along road allowances, which will impact the environmental and economic costs • although the County of Lethbridge has granted MATL land access along Alternative Route C, MATL would still need to acquire safety zone easements (6.1 m) from the adjacent landowners who are the same landowners who oppose the line (refer to Section 3.1.2 of the Update report for more detailed information about landowner agreements) • MATL acknowledges that the revised Preferred Route will have a greater impact on the economics of agricultural operations if it locates the power line along quarter section lines. This is primarily due to the required safety and operational zone easements (18.2 m). However MATL is prepared to compensate affected landowners for reasonable economic losses

Route	Summary of Impacts
Alternative Route D (Appendix B of this Update report)	*Description* • 0.7 km longer (15.2 km vs. 14.5 km) than the corresponding portion of the revised Preferred Route • is located along a developed road allowance, compared to the corresponding portion of the revised Preferred Route which is located along the quarter section line *Soils* • generally similar soil types • one area of Solonetzic soils and one area of Gleysolic soils • seven more poles (113 vs. 106) resulting in 12.6 m^2 more cultivated and forage land disturbed *Vegetation* • no rare plants in either the revised Preferred or Alternative Route. • similar amounts of non-native vegetation compared to the revised Preferred Route • impacts less cultivated (15 ha vs. 23 ha), forage (1 ha vs. 2 ha), and grassland (1 ha vs. 2 ha) than the corresponding section of revised Preferred Route *Fisheries* • two watercourse crossings with fisheries potential • one has a construction timing constraint • same as those crossed by the revised Preferred Route with minor location shifts *Wetlands* • six wetlands not meeting EC requirements are crossed, which is one fewer wetland than the corresponding portion of the revised Preferred Route. *Wildlife habitat* • impacts less habitat (17 ha vs. 27 ha) but no anticipated changes relative to the portion of the revised Preferred Route • prevalence of non-native agricultural habitat and pre-existing access roads *Heritage resources* • completely disturbed area, analogous to the corresponding section of the revised Preferred Route *Socio-economics* • RoW is located within 200 m of two occupied residences and one occupied farmstead compared to no occupied buildings within 200 m of the corresponding section of the revised Preferred Route • RoW impacts a greater amount of cultivated and forage land compared to the corresponding section of the revised Preferred Route (25 ha vs. 16 ha) • routing the power line along Alternative Route C will necessitate the relocating Fortis distribution lines and may result in interference on Telus telephone cables, which are typically installed along road allowances, which will impact the environmental and economic costs • although the counties of Lethbridge and Warner have granted MATL land access along Alternative Route D, MATL would still need to acquire safety zone easements (6.1 m) from the adjacent landowners who are the same landowners who oppose the line (refer to Section 3.1.2 of the Update report for more detailed information about landowner agreements) • MATL acknowledges that the revised Preferred Route will have a greater impact on the economics of agricultural operations if it locates the power line along quarter section lines. This is primarily due to the required safety and operational zone easements (18.2 m). However MATL is prepared to compensate affected landowners for reasonable economic losses

3.0 STAKEHOLDER ENGAGEMENT

The stakeholder engagement process began before the initial application was filed with the NEB in December 2005 and has been ongoing since then. MATL has continued to meet with government agencies, municipalities, landowners and special interest groups to discuss their issues and concerns. Further details are contained in MATL's responses to IRs 1.6, 1.15, 1.17, 1.22, 3.6, 3.8, 3.10, 3.12, 3.13, 3.17 and 4.2. Additional stakeholder engagement activities are described below.

3.1 Landowners and Community Residents

3.1.1 Public Meetings

A ninth public Open House was held in Milk River, Alberta on 19 June 2006 to present proposed route changes that addressed individual landowner and interest group concerns. Notice of the Open House was published in the Lethbridge Herald on 3 and 10 June 2006 and in the Prairie Post West on 2 and 9 June 2006. The Open House was also advertised on the local Milk River cable television station from 12 to 19 June 2006.

Fifty-six people attended the Open House on 19 June 2006 and 13 individuals returned questionnaires. The attendees were landowners with property adjacent to the proposed power line and interested community residents. Forty-one attendees were from the Milk River area while 11 people were from the Coaldale/Lethbridge area north of Stirling. Also present were media personnel, local and provincial government representatives from the County of Warner and Lethbridge East constituency, and a representative from SAGE. MATL personnel presented the revised Preferred Route and Alternative Routes on poster board maps displayed throughout the room. The Alternative Routes north of Stirling were identified to provide options to landowners in the event that the revised Preferred Route conflicted with their current farming practices. South of Stirling, the Preferred Route was revised to bypass the environmentally sensitive native grassland area of the Milk River Ridge.

MATL provided copies of its Frequently Asked Questions (FAQs) document to all Open House attendees. This document presented information and details about the Project in addition to what was displayed on the poster boards. A revised edition that reflects the Project updates and route revisions is presented in Appendix D.1.

Media coverage of the Open House included the Lethbridge Global television station and the Lethbridge Herald. MATL personnel and several Open House attendees were interviewed.

MATL is planning to hold three additional Open House information meetings in Coaldale, Stirling and Milk River. These Open Houses are planned for mid-November following the EUB's notice of a public hearing on this Project.

3.1.2 Landowner Issues

One hundred and seven landowners own land along the revised Preferred Route. These landowners were contacted by MATL regarding access and safety zone easements, and negotiations are still ongoing with some (Table 3.1-1).

Table 3.1-1: Summary of Landowner Negotiations along RoW as of October 2006

Status of Landowner Negotiations	North of Stirling – Revised Preferred Route	South of Stirling – Revised Preferred Route	Totals (%)
Signed Agreements	15	11	26 (24%)
Ongoing Negotiations	20	18	38 (36%)
Opposed	32	11	43 (40%)
Total Number of Landowners	67	40	107

In the portion of the revised Preferred Route north of Stirling, out of a total of 67 landowners MATL has signed agreements with 15, and is negotiating with approximately 20 others (Gugyelka 2006, pers. comm.). Currently, 32 landowners north of Stirling are opposed to the line, 13 of whom have retained legal counsel to present their concerns to MATL. A number of issues of concern were identified by those landowners negotiating with MATL and those who are opposed to the Project (Table 3.1-2). Some of these landowners did not identify any specific issues of concern, while others identified more than one issue. As a result, the number of landowners with issues (36) does not add up to the total number of landowners in both of these two categories (52) (Edwards 2006a, pers. comm.).

Table 3.1-2: Summary of Landowner Issues North of Stirling

Issue	Number of Landowners Who Identified This Issue[1]
Interference with Agricultural Operations	8
Compensation	8
Location of Power Line – did not want along quarter section line	4
Property Values/Subdivision of Land	3
Location of Sub-station	2
Human and Animal Health	2
Visual aesthetics	2
Ineffective Communication	2
Location of Power Line – general	2
Location of Power Line – did not want along road allowance	1
EMF	1
Electrical Interference	1

[1] Note that the number of landowners with issues does not add up to the total number of landowners opposed to the Project and negotiating with MATL.

The landowners located north of Stirling raised 12 issues of concern to MATL (Table 3.1-2). The two main issues of concern identified by eight of these landowners were interference with agricultural operations and compensation. Their issues related to interference with agricultural operations and ranged from concerns with the power line's impact on their pivot irrigation

systems, crop spraying activities, and farm buildings, cultivating around power poles to farm operations in general. MATL has commissioned Dr. Kurt Klein from the Department of Economics at the University of Lethbridge to study these issues and the loss of productivity in agricultural fields along the powerline route. Professor Klein will develop a Canadian version of an economic model currently being developed by Dr. Eric Devuyst from North Dakota State University. Dr. Klein's model, referred to as a farm-level model, will estimate annual losses to agricultural fields for each property owner (Klein 2006, pers. comm.). MATL will use this information to determine compensation on an individual basis. Eight landowners also identified compensation as an important issue.

Fewer (four) landowners in the north expressed concern about the location of the power line along their quarter section lines, the impact on their property values and their ability to subdivide their land in the future (three). The human and animal health issues raised (two) were related to the impacts of EMF from the line. Two people were concerned about the visual appearance of the line and loss of mountain views by poles located in proximity to their property. Two others felt that they had received inadequate communication from the land agents involved in the negotiation process and insufficient notification of the Open Houses that were held in 2005. Two landowners initially had concerns regarding the location of the sub-station, which has subsequently been relocated. This issue is discussed further in Section 4.11.2.

Of the 32 landowners opposed to the Project north of Stirling, 4 are opposed to the routing of the line, 6 are opposed because they are sympathetic towards their neighbours' issues and want to support them, 13 have retained legal counsel to address their concerns and the remaining 9 are opposed to the power line altogether (Gugyelka 2006b, pers. comm.). One landowner opposed to the line and who has retained legal counsel, developed an alternate route for the power line that avoid visual impacts to the landowner. This document was presented to MATL in August 2006 through Paul Hinman, MLA for Cardston, Taber and Warner Counties. This alternate route and MATL's response to the proposed rerouting are presented in Appendix D.2. A copy of MATL's response to the landowner's report and a copy of this Update Report will be sent to Paul Hinman when this document has been filed with the NEB.

Landowners located south of Stirling identified five issues of concern which are presented in Table 3.1-3 below. Of the 40 landowners located along the power line in this area, MATL has signed agreements with 11 and is negotiating with 18 others (Table 3.1-1). Eleven landowners are opposed to the line if it is to be located on their property.

Table 3.1-3: Summary of Landowner Issues South of Stirling

Issue	Number of Landowners Who Identified This Issue[1]
Compensation	11
Location of Power Line - general	3
Property Values/Subdivision of Land	2
Interference with Agricultural Operations	1
Visual aesthetics	1

[1] Note that the number of landowners with issues does not add up to the total number of landowners opposed to the Project and negotiating with MATL.

The primary area of concern for 11 landowners south of Stirling is compensation. In addition, three landowners are concerned about the location of the power line in proximity to their residences or to the location of the line in general, while two others are concerned that the power line could impact their ability to subdivide their land or the resale value of their land. Another landowner has indicated he is concerned that the power line will impact his agricultural operation and the power poles will impact the visual aesthetics of the area.

In summary, currently, with the signed agreements from 15 landowners north of Stirling and from 11 landowners south of Stirling, MATL has acquired rights to approximately 50% of the land area of the line (Gugyelka, 2006b).

3.2 Municipalities

Ongoing consultation has occurred between MATL and the counties of Lethbridge and Warner from the December filing to the present, regarding revisions to the Preferred Route, Alternative Routes, and the technical, engineering and environmental details of the line. The County of Lethbridge agreed in May 2006 to the MATL route revisions and to the placement of the power line within the County's road allowances. The County of Warner approved the MATL Project and the use of the County's road allowances in defined areas in October 2006.. The revised Preferred Route no longer goes through the County of Cardston.

3.3 Special Interest Groups

Meetings were held with Kelsey Prenevost, President of SAGE, and three other SAGE members on 24 April 2006 to introduce MATL personnel to SAGE and to present the power line options identified at that time. Topics of discussion also included pole types, routing options along Hwy 4, areas closer to Taber, Alberta, and concerns associated with grassland and agricultural fragmentation impacts. SAGE agreed that a re-route around the ridge would reduce their concerns with the Project. A SAGE representative attended the Open House in Milk River on 19 June 2006. Verbal support for the re-route around the Milk River Ridge was provided at the Open House. MATL personnel met again with SAGE on 25 August 2006 to review the 2006 summer field work program that had occurred within the Milk River Ridge area and a subsequent final Preferred Route design. Following this meeting, SAGE presented a letter of support for the Project to MATL on 8 September 2006 (Appendix D.3).

Telephone conversations with Ducks Unlimited (DU) occurred in March 2006 to present route revisions and options, and to obtain any comments or concerns that DU had regarding the Project re-route. DU indicated it had no concerns with the Project given the relocation of the power line to the east, away from Stirling Lake, which is an important waterfowl staging area (Peers 2006a, pers. comm.). Further conversations with DU occurred in October 2006, when the proximity of the transmission line to the DU Gundlock Project (located in sections 15 and 16-4-17-W4 to the northwest of the town of Warner) was discussed. DU indicated it was not opposed to the location of the transmission line, and it was agreed that bird deflectors would be used to mitigate waterfowl collisions adjacent to the Gundlock Project (Peers 2006b, pers. comm.).

The NCC was contacted by telephone in February 2006 and again in July 2006 regarding route revisions (DeGama Blanche 2006, pers. comm.). On 28 August 2006, MATL personnel met with NCC Regional Vice President Larry Simpson to review the 2006 summer field work program and to present the final Preferred Route location. Following the presentation, NCC personnel indicated they were in agreement with the relocation of the power line. However; the NCC declined to provide any other form of input and stated that should the NEB desire such a statement, the NEB should request input from the Board of the NCC.

MATL met with representatives from The Lake Wabamun Enhancement and Protection Association (LWEPA), The Toxics Watch Society of Alberta and UPTAG in February 2006 in Edmonton. MATL presented information to these groups regarding its power line Project.

3.4 Industry

MATL has met with the original Open Season registered participants, as well as numerous other interested parties in Alberta, Saskatchewan, British Columbia, Washington, Idaho, Oregon and Montana. Many of these parties have indicated a desire to use the MATL transmission capacity for short-term transactions.

MATL used its OASIS system to conduct a second Open Season from 9 June to 30 June 2006 in response to additional written requests for capacity. MATL received 37 bids from four different companies. The total amount of capacity that was requested was in excess of 2000 MWs, or approximately 5 times the available capacity up for bid. This is an indication of the interest in this tie line.

3.5 Government Agencies

To further the development of the Project's wetland inventory, MATL met with EC in Edmonton on 24 April and 29 May 2006. MATL met again with EC personnel, Dale Kirkland, Environmental Assessment and Contaminated Sites Coordinator, and Paul Gregoire, Wildlife Biologist, in Edmonton on 22 August 2006 to review the 2006 summer field program that had taken place throughout the Milk River Ridge area and along the power line route. EC indicated that it was generally in agreement with the Project following relocation of the route to the east of the Milk River Ridge.

MATL held a telephone conversation on 27 April with Shane Petry from the DFO Lethbridge office. As requested, a Project briefing was subsequently provided to DFO in October 2006. The Navigable Waters Branch of Transport Canada was contacted by telephone on 27 April 2006 and subsequent email communications occurred throughout May to discuss permitting requirements. MATL submitted a formal application, Request for Project Review Under the Navigable Waters Protection Act in August 2006.

Following a letter submitted on 21 March 2006 by ASRD to the NEB, numerous meetings, telephone conversations and email communications were conducted by MATL to obtain information or provincial requirements regarding wildlife protection measures, and to update

ASRD on the progress and changes on the Project. Meetings were held with ASRD representatives from the Public Lands and Forests Division and Fish and Wildlife Division on 27 April, 6 June and 23 August 2006 to review the proposed environmental field study protocols, preliminary results, land access approvals, the proposed area of study and proposed re-route options around the Milk River Ridge. Telephone and email contact between MATL and ASRD occurred on 25 July, and 8, 14, 17 and 18 August 2006 to obtain information on setback distances, land use timing restrictions, mitigation measures and calving periods for specific species.

MATL has addressed EC's and ASRD's concerns as expressed in their letters to the NEB on 8 March 2006 and 21 March 2006, respectively in this Update report. However, MATL will also provide direct written responses to the NEB concerning EC's and ASRD's letters by the end of October 2006.

3.6 Community Advisory Committees

MATL issued two press releases on 7 April 2006 and 6 July 2006, to announce the establishment of two Community Advisory Committees; the Montana Alberta Tie Canadian Advisory Committee (CAC) and the Montana Alberta Tie American Advisory Committee. These Committees were established to work with stakeholders located along the power line route to address their concerns, resolve issues, if possible, and make non-binding recommendations to MATL. All Advisory Committee meetings were open to the public and media except when the Committee itself is having in-camera sessions deciding on recommendations and report writing. Meeting agendas and minute summaries were posted on the MATL website, and are included in Appendix D. Inputs to Committee meetings were summarized by each Committee Chair, and recommendations were developed by the Advisory Committees and forwarded to MATL.

The CAC held its first meeting in Lethbridge on 12 July 2006 (Appendices D.4 and D.5). Dates and times were posted on the MATL website and advertised in the local media, including: newspapers such as The Lethbridge Herald, Sunny South News, The Prairie Post West; Lethbridge television stations such as Global TV, City TV, and CTV; and the local country radio station (Peak Communications 2006, pers. comm.). The members of the Canadian Advisory Committee are: Dr. Howard Tennant, C.M. Ph.D., Committee Chair; Mr. Bob Jones, Reeve County of Warner, Warner, AB; Mr. Mac MacLean, M S MacLean Livestock Co Ltd., Picture Butte, AB; and Dr. William Rosehart, Ph.D. Associate Professor, Director of Electrical Engineering, University of Calgary, Calgary, AB. Although Mr. Lorry Wilson, President, MATL, Calgary, AB was originally on the Committee, he withdrew in order to maintain the independence of the Committee. A follow-up meeting was held by the CAC to review the results of the 12 July meeting (Appendix D.6). The information gathered at these meetings was compiled by the Committee Chair and a document subsequently produced entitled "Report of the Canadian Advisory Board to Montana Alberta Tie Ltd (MATL)", on 31 August, 2006 (Appendix D.7). Although the title of Canadian Advisory Committee was initially given to this body, the document produced refers to the Canadian Advisory Board, which is used interchangeably with the Canadian Advisory Committee within the document.

MATL's responses to the CAC recommendations are presented in Appendix D.8.

3.7 Aboriginal Stakeholder Engagement

Details of MATL's consultation attempts with the Kainai and the North Piikani up to 14 February 2006 were submitted as a response to IR 1.3 (MATL 2006a). Consultation with the Kainai and the North Piikani to document their issues within the context of the Project continues as is evident in Tables 3.7-1 and 3.7-2. While significant progress has been made with the Kainai to document their Traditional Land Use and Occupancy Studies (TLUOS) (see Section 4.10 and Table 3.7-1), consultation attempts to do the same with the North Piikani continue.

Table 3.7-1: MATL Project Consultation Attempts – Kainai from 5 May to 13 October 2006

Date	Name	Title	Contact Method	Comments
5 May 2006	Nadine Tailfeathers	Administrative Assistant to Darlene Plume	Telephone	Left a voice message with Nadine to connect with Darlene with respect to the potential of an Open House for the Project in Standoff. No response received.
6 May 2006	Nadine Tailfeathers	Administrative Assistant to Darlene Plume	Telephone	Left a voice message with Nadine to connect with Darlene with respect to the potential of an Open House for the Project in Standoff. No response received.
7 June 2006	Nadine Tailfeathers	Administrative Assistant to Darlene Plume	Telephone	Left a voice message with Nadine to connect with Darlene with respect to the potential of an Open House for the Project in Standoff. Was told that Darlene is out of the office until 3 pm. Stressed the urgency for either Darlene or Nadine to respond today about the possibility of an Open House. No response received.
26 June 2006	Rob Crow Roxanne Scout	Director, Economic Development Office; Public Relations Dept.	Telephone	Spoke with both Rob Crow and Roxanne Scout. Rob Crow has asked for a formal letter indicating the intent of the Open House in Standoff. Roxanne has offered to advertise the Open House within the community and to assist with venue selection and/or catering.
30 June 2006	Rob Crow	Director, Economic	Letter	Formal letter outlining MATL's intent to hold an Open House in Standoff.
4 July 2006	Lyle Scout	Corporate Development Manager	Telephone	Spoke with Lyle Scout outlining MATL's intent to have an Open House in Standoff. Lyle suggested contacting either Annabel Crop-Eared Wolf or Dorthy First Rider to work with Elders.
12 July 2006	Annabel Crop-Eared Wolf Dorothy First Rider		Telephone	Left a voice message with both Annabel and Dorthy asking them to contact MATL's representative (Katherine Bosch) for the arrangements on the Open House.
17 July 2006	Annabel Crop-Eared Wolf		Telephone	Annabel left a voice message asking representative from MATL to contact her.
24 July 2006	Annabel Crop-Eared Wolf			Message left with Annabel Crop-Earred Wolf for her to contact MATL.

Date	Name	Title	Contact Method	Comments
2 August, 2006	Annabel Crop Eared Wolf		Telephone	Annabel returned Katherine Bosch's phone call advising that the Blood Tribe would like to use their own (internal) approach to discussing issues associated with TLUOS and Project development.
8 August 2006	Annabel Crop Eared Wolf		Telephone	Annabel called Katherine Bosch advising Katherine that Annabel, Dorothy First Rider and possibly 1 member from the Council Committee would meet with MATL on 14 August 2006 in Lethbridge.
14 August 2006	Annabel Crop Eared Wolf Dorothy First Rider		Meeting in Standoff	Bob Williams (MATL), Garry Ford (AMEC), Katherine Bosch (AMEC) met with Annabel and Dorothy for a preliminary overview of the proposed Kainai TLUOS for the Project.
24 August 2006	Dorothy First Rider Frank Weaselhead		Meeting in Standoff	John Railton (MATL), Garry Ford (AMEC), Katherine Bosch (AMEC), and Dr. Neil Mirau (Arrow Archaeology) met with Dorothy and Frank to review the proposed TLUOS budget as put forward by the Kainai.
21 September 2006	Annabel Crop Eared Wolf, Dorothy First Rider, 10 Elders, 5 Band Support staff.		First Meeting for TLUOS in Standoff	One day meeting with 10 Elders and a number of support staff. Other attendees included MATL (John Railton, Bob Williams, Lorry Wilson, Laura Dunphy and Erin Van Overloop), AMEC (Katherine Bosch and Garry Ford) and two Project archaeologists (Dr. Neil Mirau and Cynthia Temoin)
27 to 29 September 2006	Dorothy First Rider 5 Elders (who were at the previous meeting), 6 Band Support Staff		TLUOS Preliminary Field Trip from Standoff to Great Falls	Three day field work trip with 5 Blood Elders, MATL (Erin Van Overloop), AMEC (Katherine Bosch) and the Project archaeologist (Dr. Neil Mirau) and land access via Martin Geomatic Consultants Ltd. (Greg Weadick)
10 to 13 October 2006	Dorothy First Rider 5 Elders Band Support Staff		TLUOS Site Verification/Ground Truthing	Four day field work trip with 5 Blood Elders, MATL (Erin Van Overloop, Dr. John Railton), AMEC (Katherine Bosch) and Project archaeologist (Cynthia Temoin) and land access via Martin Geomatic Consultants Ltd. (Greg Weadick)

Table 3.7-2: MATL Project Consultation Attempts – North Piikani from 15 February to 16 October 2006

Date	Name	Title	Contact Method	Comments
15 February 2006	Tobias Provost, EDO	North Piikani Band Office	Telephone	Follow-up with Tobias on the outcome of his tabling the MATL Project at the Council meeting on Monday, 13 February 2006 and the possibility of holding an Open House in Brocket and setting up a MATL meeting with the Blackfoot Confederacy.
10 April 2006	Tobias Provost, EDO	North Piikani Band Office	Telephone	Left a voice message for Tobias for him to contact AMEC with updates on the possibility of an Open House in Brocket. No response received.
5 May 2006	Voice mail for Darryll Crowshoe	Assistant to Tobias Provost	Telephone	Left a voice message with Darryll to connect with Tobias with respect to the potential of an Open House for the Project in Brocket. No response received.
6 May 2006	Voice mail for Darryll Crowshoe	Assistant to Tobias Provost	Telephone	Left a voice message with Darryll to connect with Tobias with respect to the potential of an Open House for the Project in Brocket. No response received.
7 June 2006	Administrative Assistant	Assistant to Darryll Crowshoe and Tobias Provost	Telephone	Left a voice message with Assistant to speak with either Darryll or Tobias about the possibility of an Open House in Brocket. Was told that both were in meetings for most of the day.
26 September	Telephone conversation with Indian and Northern Affairs, Edmonton		Telephone	Dr, John Railton (MATL) called INAC, seeking advice, guidance and possible intervention on contacting chief and council representatives.
26 September 2006	Telephone conversation with Daryl Crowshoe		Telephone	Asked to call back on 2 October 2006 to speak with Kirby Smith, Executive Coordinator. Contact made by Katherine Bosch. Project information was also faxed to Daryl's attention
2 October 2006	Telephone conversation with Daryl Crowshoe		Telephone	Kirby Smith was out of the office until 6 October. Reassured that the Project information was given to Kirby Smith. Contact was made by Katherine Bosch. K. Bosch to give Kirby a call on Friday, 6 October.
6 October 2006	Telephone conversation with Daryl Crowshoe and Kirby Smith	Kirby Smith, Executive Coordinator, North Piikani First Nation	Telephone	MATL to meet with select representatives of the Electrification Group for the North Piikani on 13 October 2006. Offer extended to MATL to be on the agenda for a presentation to the Blackfoot Confederacy at their Conference in Billings, Montana on 23 to 26 October.
16 October 2006	Telephone conversation with Tobias Provost	North Piikani Band Office	Telephone	The13 October meeting was postponed due to an emergency at the North Piikani First Nation. Katherine Bosch called Tobias Provost on 16 October. Tobias mentioned that the meeting will have to be re-scheduled in two weeks time.
16 October 2006	E-mail sent to Kirby Smith	Kirby Smith, Executive Coordinator	E-mail	Katherine Bosch sent Kirby Smith an e-mail to re-schedule the meeting with the North Piikani that was cancelled on Friday, 13 October. K. Bosch also inquired of the possibility of MATL getting on next week's agenda at the Blackfoot Confederacy in Billings, Montana.

4.0 ENVIRONMENTAL AND SOCIO-ECONOMIC ASSESSMENT

The following subsections clarify changes made to statements contained in the December 2005 EA report and the subsequent IR responses to the NEB due to the revisions to the Preferred Route alignment. Changes contained in this Update report are the result of ongoing landowner and occupant requests associated with the final RoW locations. The information contained in this section also takes into consideration additional research requested by EC, ASRD and SAGE, as well as Project-related field work completed between April and June 2006.

4.1 Approach and Methodology

The approach and methodology used to assess the baseline setting and anticipated effects of the Project were the same as those used in the EA report. This approach and methodology is described in detail in Section 4.1 of the EA report.

Methodologies used to assess the environmental impacts for each element (surficial geology and soils, vegetation and rare plants, fisheries resources, etc.) are the same as those used in the EA report. Any changes in the methodologies will be described in the appropriate section.

4.2 Physical and Meteorological Environment

The general study area for the Project (as described in 2.5.2 of the EA report) has not changed, therefore there was no change to the physical and meteorological assessment.

4.3 Surficial Geology and Soils

The surficial geological setting and the soils for the revised Preferred Route are similar to those described in the original assessment. The revised Preferred Route crosses the Milk River east of the Milk River Ridge region and then continues south to the US. This route is approximately 7 km longer than the route filed in the EA report. The revised Preferred Route will encounter more fluvial and ice-contact lacustrine deposits found in association with the new Milk River crossing. These thick sequences of gravel, sand, silt and clay are susceptible to erosion but have the same hummocky surface expression as the glacial till (moraine) deposits common to the area. The soils along the revised Preferred Route are generally the same as the soils previously described in the original assessment and consist predominantly of Orthic Dark Brown Chernozems. A summary of the specific soils encountered along the revised Preferred RoW is presented in Table E-1 in Appendix E.

4.3.1 Environmental Effects Assessment

The environmental effects identified for the revised Preferred Route are the same as those identified in the original EA report (Section 4.2.4). The Project has a low risk profile when the Environmental Protection Plan (EPP) (Appendix D of the EA report) is taken into consideration. The soil capability of the cultivated fields may be temporarily reduced due to compaction by heavy equipment during construction. This impact would be addressed through a deep cultivation program. The long-term ability of the soils within the cultivated fields to sustain crops would not be affected.

4.3.2 Mitigative Measures

There are no changes in the mitigative measures utilized on this Project. The mitigation measures are described in Section 4.3.5 of the EA report as well as in the EPP (Appendix D of the EA report).

4.3.3 Residual Impacts

An area of 1.8 m^2, which is double the area of the pole hole, is estimated to be the residual impact by the MATL Project for each pole (i.e., the residual impact area for a H pole structure is 3.6 m^2). An estimate of the difference in length of the previously filed route compared to the revised Preferred Route would provide an indication of the relative residual impact per route. This assumes that the longer the route, the more areas of residual impact that would exist.

In the previously filed alignment, it was estimated that approximately 950 poles would be required and there would be a residual impact of approximately 0.17 ha (erroneously reported as 1.62 ha in the EA report) along the RoW and 3.85 ha at the new sub-station. Note that the area of the sub-station has changed from the area reported in the EA report due to more detailed engineering information which was not previously available.

With the revised Preferred Route, it is estimated that there will be approximately 1 073 poles with a residual impact of 0.19 ha within the RoW and 3.85 ha at the new sub-station (refer to Section 4.4.1 of this report for more detailed impact tables). However, 3.86 ha (0.11 ha excluding the sub-station) of the disturbance is in cultivated lands and 0.05 ha in grasslands compared to 0.06 ha and 3.92 ha (0.07 ha excluding the sub-station), respectively, reported in the EA report. Overall, the impact rating of soil loss remains the same as in the original EA report (Table 4.3-1).

Table 4.3-1: Project Impact Rating for Soils During Construction and Operation Activities

Project Phase	Direction	Scope	Magnitude	Duration	Frequency	Confidence	Final Impact Rating
Construction	Negative	Local	Moderate	Moderate	Once	High	Low
Operations	Negative	Local	Low	Short Term	Intermittent	Moderate	Low

4.3.4 Cumulative Effects Assessment

Revisions to the Preferred Route do not change the assessment that the impacts to soils in the Project revised Preferred Corridor are negligible. Therefore, the assessment of cumulative effects, as discussed in Section 4.3.7 of the EA report, does not change. This conclusion is also supported by an additional review that was conducted for the response to IR 3.16 (MATL 2006d).

4.4 Vegetation and Rare Plants

Two rare plant surveys were conducted from 30 May to 2 June 2006 and 4 to 7 of July 2006. The surveys were conducted by two crews, each consisting of two vegetation ecologists, in the native grasslands along the entire width of the power line RoW and followed the *Guidelines for Rare Plant Surveys* (ANPC 2000). Using portable global positioning system (GPS) units and the field maps (Appendix A), each crew located the centreline of the RoW. The crew then spread themselves out so that they could survey the entire width of the RoW (which ranged from 20 m up to 32 m, as described in Table 2.1-1 in the EA report). Where a rare plant was observed, the crew recorded the coordinates of the plant and expanded their survey into similar habitats, which may have ranged from 10 to 30 m, to ascertain whether there were other similar rare plants in the area.

There were slight differences in the way impacts were assessed in this Update report compared to how the impacts were assessed in the EA report. In both assessments, theoretical pole locations were selected. In the previous assessment, the two poles of a H pole structure could be located in two different land cover classes (e.g., cultivated land and disturbed land). In this assessment, the land cover class that was at the centre line of the RoW was used to calculate the impacts for both poles (e.g., *either* cultivated land *or* disturbed land, but *not both*). Individual guy wires were not located in this update assessment, but rather a block of disturbance associated with each pole hole (i.e., 1.8 m^2) was assessed. This methodology was chosen to better reflect the current level of engineering detail. As well, this Update report includes impacts due to the creation of new access trails. All other methodologies remain consistent with the previously submitted EA report.

4.4.1 Differences in Baseline Condition Compared to the Previously Filed Alignment

As described in Section 2.1 of this Update report, MATL has re-routed the Preferred Route around the Milk River Ridge (Figure 1.1.1). Approximately 130.5 km (82 mi) of the proposed 338 km (210 mi) transmission power line will be in Canada. The Canadian segment of the line begins in a parcel of land located approximately 8 km (5 mi) northeast of the City of Lethbridge (NW 14-10-21-W4) and follows an alignment that utilizes many existing RoWs. At Hwy 506 the route turns east and traverses agricultural lands before turning south by Warner, Alberta. From this point, the line now heads south to the Canada/US border. The new route bypasses the Milk River Ridge in its entirety.

Land cover classes within the corridor for the previously filed alignment and the revised Preferred Route are summarized in Table 4.4-1. The revised Preferred Corridor around the Milk River Ridge is approximately 7 km longer than the previous alignment, which results in a greater area included in the study area (25 866 ha compared to 24 717 ha). In comparing the two routes, a few observations can be made including:

- more cultivated, forage, shrubs and disturbed lands exist in the revised Preferred Corridor;
- less grasslands, treed and non-vegetated areas exist in the revised Preferred Corridor; and
- percent of water/wetland areas remain similar between the two routes.

Table 4.4-1: Baseline Conditions in the Previous and Revised Preferred Corridors

	Previously Filed Alignment[1]		Revised Preferred Corridor[2]	
	Area (ha)	Percent of Corridor (%)	Area (ha)	Percent of Corridor (%)
Cultivated Land	11 174	45.2	17 003	65.6
Forage[3]	2 238	9.0	2 520	9.7
Grassland[4]	10 401	42.1	4 940	19.1
Shrubs	27	0.1	70	0.3
Trees	24	0.1	0	0.0
Water/Wetlands	162	0.7	194	0.7
Non-Vegetated[5]	3	0	2	<0.1
Disturbed[6]	688	2.8	1,193	4.6
Total	**24 717**	**100.0**	**25 866**	**100.0**

[1] Original Route filed in the previous EA report (MATL 2005).
[2] Preferred Route (Revision 17) as indicated in Figure 1.1.1 of this report.
[3] Forage – agronomic (hay crop) species (i.e., timothy, alfalfa, clover).
[4] Grassland – native prairie grasses and forbs.
[5] Non-vegetated – PFRA generalized land cover for the Prairies (website: http://www.agr.gc.ca/pfra/gis/lcv_e.htm).
[6] Disturbed – roads, trails, railways, pipelines and low pressure pipelines, well sites, oil and gas facilities, gravel pits, industrial sites.

Rare Plants

Two rare plant surveys were conducted in 2006: one from 30 May to 2 June and one from 4 to 7 July. Four rare plant species were identified in the grasslands of the corridor: tufted hymenopappus (*Hymenopappus filifolius*), dwarf fleabane (*Erigeron radicatus*), Pursh's milk vetch (*Astragalus purshii*) and narrow-leaved goosefoot (*Chenopodium leptophyllum*). One location of tufted hymenopappus was found within the revised Preferred Route RoW (refer to Map Sheets 13 and 14A of Appendix A). The latter three species have been sent out for independent expert confirmation. A brief description of the plants and their habitat is included in Table 4.4-2 below. The locations of the rare plants identified along the revised Preferred Route RoW are presented in the "a" series map in Appendix A.

4.4.2 Environmental Effects Assessment

Impacts on the land cover classes for this Update report were determined using the centre line of the RoW (as described in Section 4.4.1) and are presented in Table 4.4-3.

Table 4.4-2: Rare Plant Species Identified Along the Corridor

Species Common Name *(Scientific Name)*	Plant Description	Habitat	Ranking[1]
Pursh's milk vetch *(Astragalus purshii)**	Low tufted perennial herb with leaflets about twice as long as they are wide and rounded tips, hairs attached by their bases and flowers 20 to 30 mm long; appears from April to June.	Found on dry prairies in Alberta; elsewhere found in mixed grasslands and on sand plains	S2
Narrow-leaved goosefoot *(Chenopodium leptophyllum)**	Annual herb covered with fine granules; erect stems up to 40 cm tall; arises from slender taproot; leaves alternate, linear less than 15 mm wide and 1-veined from the base; small flowers, lacking petals, calyx split almost to the base into 5 lobes with a sharp ridge down the back of each; appears from June to August.	Found on open, slightly disturbed, sandy areas; in sandy blowouts under deciduous vegetation and on shale cliffs	SU
*Dwarf fleabane (Erigeron radicatus)**	Small perennial herb with erect stems 3 to 5 cm tall, and coarse or soft hairs especially near the top; almost leafless; formed from branched root crowns on taproots; white ray florets 5 to 8 mm long; involucres greenish, glandular, sticky with short, soft hairs and equal, narrow lance-shaped to oblong bracts; appears from May to July.	Found on dry, open ridges, rocky slopes, hilltops and grasslands, in sites considered to have escaped Wisconsin glaciation	S2
Tufted hymenopappus *(Hymenopappus filifolius)*	Perennial herb with stems 20 to 40 cm tall, few to several, almost hairless or sparsely covered with soft, woolly tufts; from stout, woody root crowns on deep, woody taproots; leaves mostly basal but also alternate on stem with blades once or twice pinnately divided into linear or thread-like segments, covered with soft, white, woolly hair when young; flowers yellowish, 12 to 20 mm across, with tubular disc florets only, involucres 5 to 7 mm high, with bracts pressed together with broad, blunt, yellowish translucent tips; appear from May to August.	Found on dry gravelly or sandy sites on valley slopes and at the edges of coulees and badlands.	S2

Note: * Indicates a specimen whose id is being confirmed.
[1] Gould, 2006.
S2 6 to 20 occurrences or with many individuals in fewer occurrences.
SU status uncertain often because of low search effort or cryptic nature of the element; possibly in peril, unrankable, more information needed.

Table 4.4-3: Impacts Due to Pole Holes and the Sub-Station in the Preferred Corridor

	Previously Filed Alignment[1]		Revised Preferred Corridor[2]	
	Area (ha)	Percent Impact (%)	Area (ha)	Percent Impact (%)
Cultivated Land	0.06	<0.01	3.96**	0.02
Forage[3]	0.03	<0.01	0.05	<0.01
Grassland[4]	0.07* (3.92**)	<0.01* (0.04**)	0.05	<0.01
Shrubs	0	0	<0.01	<0.01
Road	0.01	<0.01	0.01	<0.01
Total	**0.17* (4.02**)**	**<0.01 (0.02**)**	**4.04**	**0.02**

[1] Original Route filed in the previous EA report (MATL 2005).
[2] Preferred Route (Revision 17) as indicated in Figure 1.1.1 of this report
[3] Forage – agronomic (hay crop) species (i.e., timothy, alfalfa, clover).
[4] Grassland – native prairie grasses and forbs.
* The original numbers presented in the EA report where the sub-station was not included in the impact area.
** Areas including the sub-station impact area (3.85 ha).

The total impacts due to pole holes and the sub-station are similar for both the previously filed alignment and the revised Preferred Route (Table 4.4-3). The difference is in the distribution of land uses impacted, particularly since the sub-station has moved from a grassland area into a cultivated field. In the revised Preferred Route, more cultivated (increase from 0.06 ha to 3.96 ha), forage (increase from 0.03 ha to 0.05 ha) and shrub lands (increase from 0 ha to <0.01 ha) will be impacted. However, impacts to grasslands have been greatly reduced (from 3.92 ha to 0.05 ha). The impacts due to pole holes and the sub-station remain insignificant (0.02%) within the corridor.

New Project-related impacts associated with the revised Preferred Route RoW are approximately 84 ha more than the previous filed corridor (Table 4.4-4). Reasons for this greater area of impact include: a) the revised Preferred Route is longer than the previously filed route; b) the Project-related impacts now include access roads, which were not included in the December EA analysis; and c) a larger sub-station footprint. However, impacts to grasslands are expected to be almost half of what they were in the previously filed alignment described in the EA report.

Table 4.4-4: New Project Related Disturbance Within the Preferred Corridor

	Previously Filed Alignment[1]		Revised Preferred Corridor[2]	
	Area (ha)	Percent Impact (%)	Area (ha)	Percent Impact (%)
Cultivated Land	98	0.9	230	1.4
Forage[3]	11	0.5	22	0.9
Grassland[4]	127	1.2	66	1.3
Shrubs	0	0	2	2.9
Trees	0	0	0	0.0
Water/Wetlands	1	0.6	0	0.5
Non-Vegetated[5]	0	0	1	50.0
Disturbed[6]	0	0	0	0.0
Total	**237**	**1.0**	**321**	**1.2**

[1] Original Route filed in the previous EA report (MATL 2005).
[2] Preferred Route (Revision 17) as indicated in Figure 1.1.1 of this report.
[3] Forage – agronomic (hay crop) species (i.e., timothy, alfalfa, clover).
[4] Grassland – native prairie grasses and forbs.
[5] Non-vegetated – PFRA generalized land cover for the Prairies (website: http://www.agr.gc.ca/pfra/gis/lcv_e.htm).
[6] Disturbed – roads, trails, railways, pipelines and low pressure pipelines, well sites, oil and gas facilities, gravel pits, industrial sites.

4.4.3 Mitigative Measures

There are no major changes in the mitigative measures proposed for this Project. The mitigation measures are described in Section 4.4.10 of the EA report and will be addressed in the EPP (Appendix D of the EA report). These measures will include fencing the area where the rare plants are located, shoe-fly construction and covering the area by rig/swamp mats. Reclamation activity may include seed collection and broadcasting in adjacent areas of similar habitat. Post-construction monitoring will occur to follow-up on the success of reseeding measures. Low impact equipment will be used in native prairie portions when soils are not frozen along the revised Preferred Route.

4.4.4 Residual Impacts

After the implementation of the mitigation measures and the EPP, the residual impacts remain loss of vegetation due to the structures (<1% of the revised Preferred Corridor) and the potential introduction and spread of non-native, invasive and weedy species.

Final impact ratings for the revised Preferred Route remain the same as in the EA report (Table 4.4-5).

Table 4.4-5: Project Impact Rating for Vegetation During Construction and Operation Activities

Project Phase	Direction	Scope	Magnitude	Duration	Frequency	Confidence	Final Impact Rating
Construction	Negative	Local	Low	Long-term	Once	High	Low
Operations	Negative	Local	Low	Long-term	Intermittent	High	Low

4.4.5 Cumulative Effects Assessment

Changes in the Preferred Route did not change the assessment that the impacts to vegetation and rare plants are negligible. Therefore, the assessment of cumulative effects, as discussed in Section 4.3.7 of the EA report, does not change. This conclusion is also supported by an additional review that was conducted for the response to IR 3.16 (MATL 2006d).

4.5 Fisheries Resources

This section identifies the changes in the information presented within the Fisheries Resources section (Sections 4.5 and 4.6) of the EA report, as a result of revisions to the Preferred Corridor.

The RoW continues to traverse the southeastern portion of Alberta with the majority of the alignment shift confined to the southern end of the route, as the revised Preferred Route alignment avoids the Milk River Ridge and then enters the US. As a result of this proposed route modification, the locations of fisheries resources within the study area subject to any potential impacts have been altered. Several watercourses are no longer crossed, others are being crossed that were not previously crossed by the Project, and several watercourses have changed crossing locations.

These changes in locations of impacted water bodies and watercourses will be the focus of this update to baseline reporting and the environmental effects assessment.

4.5.1 Methodology

The methodology used in the assessment is described in Section 4.5 of the EA report.

MATL has conducted an investigation into all watercourse crossings along the length of its proposed Preferred Route. This inventory was developed utilizing published maps, low level air photos and field investigations. Based on this work, the following tables and definitions were used to associate crossings types with DFO Alberta Operational Statements (OS) (DFO nd, a through e), watercourse size classifications utilized by ASRD (2004) and fisheries habitat capabilities developed by AENV (2000).

The watercourse size was classified using the following categories and definitions.

- *Ephemeral Draw* – vegetated draws with no channel development.
- *Intermittent Flows* – channel development with widths up to 0.5 m.
- *Irrigation Canal* – canals, or channels, owned or utilized by the irrigation district.
- *Small Permanent* – channel development with widths up to 5 m.
- *Large Permanent* – channel development with widths over 5 m.
- *Reservoir* – impounded water body used for irrigation purposes.
- *Lake* – naturally occurring water body with defined bed and bank areas.

4.5.2 Differences in Baseline Condition Compared to the Previously Filed Alignment

The previously filed alignment crossed 52 watercourses and water bodies while the revised Preferred Route now has 49 crossings. Tables 4.5-1 and 4.5-2 replace the watercourse crossing table presented within Section 4.5 of the EA report and include more detailed information (i.e., crossing status, estimated channel width, estimated riparian zone).

The watercourse crossings have been named to provide a logical sequence from the start point in the north to the end point at the Canada/US border. This includes renaming the watercourse crossings which have not changed from the previously filed alignment.

Table 4.5-3 summarizes the watercourse characteristic differences between the previously filed route and the revised Preferred Route. Overall, the watercourses crossed have not changed significantly and are similar between the two routes.

Crossings to KP 63.8 (i.e., Irrigation Canal P-7) remain unchanged except for Etzikom Coulee, which has experienced a small shift in crossing location (Tables 4.5-1 and 4.5-2). After KP 63.8, the majority of the crossings (i.e., 30 crossings) are new and two additional crossings, Middle Coulee and Milk River, were subject to a shift in location. Those two crossings where a shift occurred are more significant changes than Etzikom Coulee. However, no differences in the fisheries resources are anticipated at any of the sites. Thirty-three watercourse crossings along the previously filed alignment are no longer crossed, including the North Milk River and a large reservoir.

Table 4.5-1: Intermittent and Ephemeral Watercourse Crossings Along the Preferred Route

KP (17)[1]	Stream/Water body Name[2]	Status[3]	Legal Land Description	Watercourse Size Classification[4]	Estimated Channel Width (m)	Estimated Riparian Zone (m)	Fisheries Resource Potential	Stream Class[5]	Fisheries Timing Constraints[5]
0.4	Unnamed Stream P-1	U	NW13-10-21-W4	Intermittent	0.5	5	No	D	None
1.2	Unnamed Stream P-2	U	NE13-10-21-W4	Ephemeral	NDC	NA	No	D	None
36.2	Unnamed Stream P-3	U	SE15-8-19-W4	Ephemeral	NDC	NA	No	D	None
53.7	Unnamed Stream P-4	U	NE35-6-19-W4	Ephemeral	NDC	NA	No	D	None
55.0	Unnamed Stream P-5	U	NE26-6-19-W4	Ephemeral	NDC	NA	No	D	None
56.0	Unnamed Stream P-6	U	NE26-6-19-W4	Ephemeral	NDC	NA	No	D	None
78.5	Unnamed Stream P-8	N	NE32-4-18-W4	Intermittent	0.5	5	No	D	None
81.3	Unnamed Stream P-9(1)	N	NE20-4-18-W4	Intermittent	0.5	5	No	D	None
81.3	Unnamed Stream P-9(2)	N	NE20-4-18-W4	Intermittent	0.5	5	No	D	None
81.4	Unnamed Stream P-9(3)	N	NE20-4-18-W4	Intermittent	0.5	5	No	D	None
84.3	Unnamed Stream P-10(1)	N	SE17-4-18-W4	Ephemeral	NDC	NA	No	D	None
84.6	Unnamed Stream P-10(2)	N	SW16-4-18-W4	Ephemeral	NDC	NA	No	D	None
85.0	Unnamed Stream P-11	N	SW16-4-18-W4	Ephemeral	NDC	15	No	D	None
88.1	Unnamed Stream P-12	N	SW14-4-18-W4	Intermittent	0.5	50	No	D	None
92.8	Unnamed Stream P-13	N	NW8-4-17-W4	Intermittent	3	75	Yes	D	None
93.3	Unnamed Stream P-14	N	NW8-4-17-W4	Intermittent	2	60	Yes	D	None
106.4	Unnamed Stream P-15	N	SE15-3-17-W4	Intermittent	0.5	15	No	D	None
110.1	Unnamed Stream P-16	N	SE3-3-17-W4	Ephemeral	NDC	NA	No	D	None
111.4	Unnamed Stream P-17	N	SW34-2-17-W4	Ephemeral	NDC	10	No	D	None
112.0	Unnamed Stream P-18	N	SW34-2-17-W4	Ephemeral	NDC	10	No	D	None
112.3	Unnamed Stream P-19	N	NW27-2-17-W4	Ephemeral	NDC	NA	No	D	None
113.1	Unnamed Stream P-20	N	SW27-2-17-W4	Intermittent	1	30	Yes	C	1 Apr – 30 Jun
116.3	Unnamed Stream P-21	N	SW15-2-17-W4	Ephemeral	NDC	NA	No	D	None
117.3	Unnamed Stream P-22	N	NW10-2-17-W4	Ephemeral	NDC	NA	No	D	None
119.8	Unnamed Stream P-23	N	SW3-2-17-W4	Ephemeral	NDC	5	No	D	None
119.9	Unnamed Stream P-24	N	SW3-2-17-W4	Ephemeral	NDC	NA	No	D	None
121.3	Unnamed Stream P-25	N	SW34-1-17-W4	Ephemeral	NDC	25	No	D	None
123.8	Unnamed Stream P-26	N	NW22-1-17-W4	Ephemeral	NDC	10	No	D	None
125.6	Unnamed Stream P-27	N	NW15-1-17-W4	Ephemeral	NDC	7	No	D	None
126.2	Unnamed Stream P-28	N	SW15-1-17-W4	Ephemeral	NDC	5	No	D	None
126.4	Unnamed Stream P-29	N	SW15-1-17-W4	Ephemeral	NDC	NA	No	D	None
127.7	Unnamed Stream P-30	N	NW10-1-17-W4	Intermittent	0.5	25	No	D	None
129.1	Unnamed Stream P-31	N	NW3-1-17-W4	Intermittent	0.5	100	No	D	None
129.8	Unnamed Stream P-32	N	SW3-1-17-W4	Ephemeral	NDC	15	No	D	None

Notes:
1. KP refers to kilometre point along the RoW for the Preferred Route as defined in revision 17.
2. Stream, lake, or other water body names are given a “P” prefix (to indicate Preferred Route) and sequentially ordered from the sub-station southward to the Canada / US border (1, 2, 3…).
3. Indicates crossing status relative to previously filed alignment: U = unchanged; S = shifted; N = new.
4. Watercourse size classifications are described in *Instructions for Submission of Environmental Field Reports with Surface Disposition Applications Under the Public Lands Act* (ASRD 2004).
5. Stream classifications and fisheries timing constraints are outlined based on the *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body* (AENV 2000).

Table 4.5-2: Permanent Watercourse Crossings along the Preferred Route

KP (17)[1]	Stream/Water body Name[2]	Status[3]	Legal Land Description	Watercourse Size Classification[4]	Estimated Channel Width (m)	Estimated Riparian Zone (m)	Fisheries Resource Potential	Stream Class[5]	Fisheries Timing Constraints[5]
7.4	Irrigation Canal P-1	U	NE15-10-20-W4	Small Permanent	5	30	Yes	D	None
11.3	Irrigation Canal P-2(1)	U	SE13-10-20-W4	Small Permanent	5	25	Yes	D	None
12.6	Irrigation Canal P-2(2)	U	SW18-10-19-W4	Small Permanent	5	25	Yes	D	None
22.4	Irrigation Canal P-3	U	NW27-9-19-W4	Small Permanent	5	20	Yes	D	None
29.2	Irrigation Canal P-4	U	NW3-9-19-W4	Small Permanent	5	15	No	D	None
30.1	Irrigation Canal P-5	U	SW3-9-19-W4	Small Permanent	5	20	Yes	D	None
40.2	Irrigation Canal P-6	U	SE13-8-19-W4	Large Permanent	25	50	Yes	D	None
52.8	Etzikom Coulee	S	SE1-7-19-W4	Small Permanent	3	25	Yes	C	Apr 1 – Jun 1
59.9	Reservoir P-1	U	SE14-6-19-W4	Reservoir	50	80	Yes	N/A	None
61.1	Unnamed Stream P-7	U	SE11-6-19-W4	Small Permanent	4	15	No	D	None
63.6	Irrigation Canal P-7	U	NE35-5-19-W4	Small Permanent	3	25	No	D	None
78.8	Middle Coulee	S	NE32-4-18-W4	Small Permanent	3	10	Yes	D	None
103.3	Irrigation Canal P-8	N	SE27-3-17-W4	Small Permanent	3	5	Yes	D	None
113.0	Irrigation Canal P-9	N	SW27-2-17-W4	Small Permanent	2	15	Yes	C	Apr 1 – Jun 30
113.6	Milk River	S	SW27-2-17-W4	Large Permanent	32	125	Yes	C	Apr 1 – Jun 30

Notes:

1. KP refers to kilometre point along the RoW for the Preferred Route as defined in revision 17.
2. Stream, lake, or other water body names are given a “P” prefix (to indicate Preferred Route) and sequentially ordered from the sub-station southward to the Canada / US border (1, 2, 3…).
3. Indicates crossing status relative to previously filed alignment: U = unchanged; S = shifted; N = new.
4. Watercourse size classifications are described in *Instructions for Submission of Environmental Field Reports with Surface Disposition Applications Under the Public Lands Act* (ASRD 2004).
5. Stream classifications and fisheries timing constraints are outlined based on the *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body* (AENV 2000).

Table 4.5-3: Summary of Watercourse Crossings Along the Previously Filed Alignment and the Revised Preferred Alignment

Watercourse Class	Fisheries Potential	Number of Crossings	
		Previous Alignment	Revised Preferred Alignment
Class C	Yes	3	4
Class D	Yes	9	10
Class D	None	37	34
Lakes/Reservoirs	Yes	2	1
Lakes/Reservoirs	None	1	0
Total		**52**	**49**

Of the 30 new crossings along the revised Preferred Route, all but two are small, generally intermittent or ephemeral, Class D drainages with no fisheries potential or timing constraints. Based on field reconnaissance conducted in 2005, it is likely that most ephemeral/intermittent watercourses are non-fish bearing and others provide low quality habitat for primarily forage fish species. ASRD had previously indicated that most small drainages within the RoW are believed to be non-fish bearing (Clayton 2005, pers. comm.).

A detailed description of the fisheries resources within watercourses in the study area has been provided in Section 4.5.1 of the EA report.

4.5.3 Environmental Effects Assessment

Due to the similarity of the watercourses potentially impacted by the previously filed alignment (as described in the EA report) and by the revised Preferred Corridor, there are no changes to the environmental effects assessment previously presented (Section 4.6 of the EA report).

4.5.4 Mitigation Measures

Along with the mitigation measures described in Section 4.6 of the EA report, a methodology for crossing watercourses based on the watercourse size, construction conditions (i.e., wet or dry/frozen) and construction activity has been devised (Table 4.5-4).

Table 4.5-4: Watercourse Crossing Matrix

Watercourse Classification	Summer Construction (Wet Conditions)					Summer or Winter Construction (Dry or Frozen Conditions)				
	Construction Activities					Construction Activity				
				Stringing					Stringing	
	Engineering & Survey (ATV or 4x4 trucks)	Pole Trucks	Structure Framing & Setting	Equipment	Line	Engineering & Survey (ATV or 4x4 trucks)	Pole Trucks	Structure Framing & Setting	Equipment	Line
Ephemeral Draw	Test Before Crossing	Test Before Crossing	Test Before Crossing	Test Before Crossing	Test Before Crossing	Cross	Cross	Cross	Cross	Cross
Intermittent Flows	Test Before Crossing	Bridge or Go Around	Bridge or Go Around	Bridge or Go Around	Aerial Delivery	Cross	Test Before Crossing	Test Before Crossing	Test Before Crossing	Test Before Crossing
Irrigation Canal	Go Around	Go Around	Go Around	Go Around	Aerial Delivery	Go Around	Go Around	Go Around	Go Around	Aerial Delivery
Small Permanent	Test Before Crossing	Bridge or Go Around	Bridge or Go Around	Bridge or Go Around	Ford Once or Aerial Delivery	Test Before Crossing	Bridge or Go Around	Bridge or Go Around	Bridge or Go Around	Aerial Deliver or ATV
Large Permanent	Go Around	Go Around	Go Around	Go Around	Aerial Delivery or Boat	Go Around	Go Around	Go Around	Go Around	Aerial Delivery or ATV
Reservoir	Go Around	Go Around	Go Around	Go Around	Aerial Delivery or Boat	Go Around	Go Around	Go Around	Go Around	Aerial Delivery or ATV
Lake	Go Around	Go Around	Go Around	Go Around	Aerial Delivery or Boat	Go Around	Go Around	Go Around	Go Around	Aerial Delivery or ATV

Note: Testing before crossing means testing the weight-bearing capacity of riparian areas before crossing the watercourse. Aerial delivery includes line stringing utilizing a pull line ("P" line) and/or helicopter.

4.5.5 Residual Impacts

The modification of the alignment of the Preferred Route of the MATL Project does not result in any changes of the prediction of no residual impacts, as described in Section 4.6 of the EA report and is presented again in Table 4.5-5.

Table 4.5-5: Impact Rating for Fisheries Resources during Construction and Operation of the MATL Power Line Project

Project Phase	Direction	Scope	Magnitude	Duration	Frequency	Confidence	Final Impact Rating
Construction	Neutral	Local	Low	Short-term	Once	High	Low
Operation	Neutral	Local	Low	Short-term	Intermittent	High	Low

4.5.6 Cumulative Effects Assessment

There are no updates to cumulative effects assessment (CEA) for fisheries resources, as described in Section 4.6.3 of the EA report. This conclusion is also supported by an additional review that was conducted for the response to IR 3.16 (MATL 2006d).

4.6 Wetlands

4.6.1 Methodology

The methodology used to assess wetlands in the study area is described in Section 4.7.3. An inventory of wetlands within the Preferred Corridor of the previously filed alignment described in the EA report was presented in the response to IR 3.17 (MATL 2006d).

To further the development of the Project's wetland inventory, MATL met with EC on 24 April and 29 May 2006. During these meetings, EC recommended that all wetlands within 100 m of the proposed power line that were greater than or equal to 1 ha should be classified under the Stewart and Kantrud (1971) classification system. EC also stated that primary importance should be given to those wetlands identified as Class 3 or greater. Similarly, a meeting held with ASRD 24 August 2006 confirmed the use of Stewart and Kantrud (1971) classification process and the incorporation of Provincial guidelines which recommend a 100 m setback from all wetland areas regardless of size or class.

As recommended by ASRD and EC, the wetlands have been classified using a combination of information obtained from low level air photos of the RoW and observations obtained during the early spring and summer rare plant surveys. Where possible, the proposed power line was also moved to minimize impacts of wetland areas and the 100 m setback buffer around the wetland.

4.6.2 Differences in Baseline Condition Compared to the Previously Filed Alignment

The inventory of wetlands presented in the response to IR 3.17 (MATL 2006d) includes all the wetlands that met the EC criteria in the previously filed alignment. The table presented below (Table 4.6-1) replaces the table of wetlands presented in MATL (2006d) and includes more detailed information (i.e., class, type of crossing and estimated crossing width) regarding each wetland crossed by the revised Preferred Route. The eight shaded entries indicate wetlands having a primary importance to EC (e.g., are at least 1 ha in size, and Class 3 and up) and are summarized in Table 4.6-2. When an ASRD wetland buffer is crossed by the RoW, design efforts to move the power line or to span the buffer area will be made to avoid the placement of power poles in these areas. Appendix A contains detailed Preferred Route and Alternative Routes RoW alignment sheets depicting wetland no pole zones on the "a" series sheets. Efforts were made to minimize a majority of the Project's facility related impacts in these areas.

4.6.3 Environmental Effects Assessment

The construction approach and mitigation measures remain the same as previously described in the EA report (Section 4.74 of the EA report). Therefore, no changes to the environmental effects assessment previously presented are anticipated.

Table 4.6-1: Wetlands Along the Preferred Route RoW

KP (17)[1]	Wetland Name[2]	Legal Land Description	Wetland Classification[3]	Crossed (Wetland or Buffer)	Crossing Width (m)[4]	Wetland Duration	Wetland Area (ha)
10.0	P1	SW13-10-20-W4	Class 3	Buffer	805	Permanent	180.86
15.2	P2	SE1-8-19-W4	Class 1/2	Buffer	192	Seasonal	0.46
42.1	P3	NW1-8-19-W4	Class 1/2	Buffer	97	Seasonal	0.04
43.0	P4	SE1-8-19-W4	Class 1/2	Buffer	81	Seasonal	0.47
43.2	P5	SE1-8-19-W4	Class 1/2	Buffer	210	Seasonal	0.31
48.6	P6	NW13-7-19-W4	Class 1/2	Buffer	227	Seasonal	0.12
48.9	P7	NW13-7-19-W4	Class 1/2	Buffer	238	Seasonal	0.09
49.6	P8	SW13-7-19-W4	Class 1/2	Wetland	286	Seasonal	0.83
51.1	P9	SW12-7-19-W4	Class 1/2	Buffer	226	Seasonal	0.23
61.6	P10	SW12-6-19-W4	Class 2/3	Wetland	427	Seasonal	1.35
68.1	P11	NE14-5-19-W4	Class 1/2	Buffer	158	Seasonal	0.15
68.6	P12	NW13-5-19-W4	Class 2/3	Wetland	313	Seasonal	4.53
70.2	P13	NE11-5-19-W4	Class 1/2	Buffer	215	Seasonal	0.18
70.6	P14	SW12-5-19-W4	Class 2/3	Wetland	358	Seasonal	2.66
71.3	P15	NE2-5-19-W4	Class 5	Buffer	278	Seasonal	18.08
74.5	P16	NW31-4-18-W4	Class 6	Buffer	222	Seasonal	0.07
75.3	P17	SE6-5-18-W4	Class 2/3	Buffer	227	Seasonal	0.05
76.3	P18	NW32-4-18-W4	Class 1/2	Buffer	226	Seasonal	0.07
78.4	P19	NW33-4-18-W4	Class 1/2	Buffer	242	Seasonal	0.56
79.6	P20	NE29-4-18-W4	Class 1	Buffer	370	Seasonal	0.46
79.6	P21	NW28-4-18-W4	Class 4	Buffer	307	Seasonal	1.34
82.6	P22	SW21-4-18-W4	Class 5	Buffer	295	Seasonal	0.95
85.6	P23	NE9-4-18-W4	Class 2	Wetland	229	Seasonal	0.07
85.7	P24	NE9-4-18-W4	Class 1/2	Buffer	214	Seasonal	0.04
89.5	P25	NW12-4-18-W4	Class 1/2	Wetland	474	Seasonal	5.98
90.1	P26	NW12-4-18-W4	Class 1/2	Buffer	228	Seasonal	0.10
90.5	P27	NE12-4-18-W4	Class 2/3	Buffer	246	Seasonal	0.36
91.3	P28	SW18-4-17-W4	Class 1/2	Buffer	134	Seasonal	0.22
91.3	P29	NW7-4-17-W4	Class 2/3	Buffer	333	Seasonal	1.19
91.7	P30	SW18-4-17-W4	Class 1/2	Wetland	360	Seasonal	0.31
93.6	P31	NE8-4-17-W4	Class 1	Wetland	342	Seasonal	0.28
94.0	P32	SE17-4-17-W4	Class 5	Buffer	341	Seasonal	0.67
94.4	P33	NE8-4-17-W4	Class 1/2	Wetland	458	Seasonal	0.37
95.1	P34	SW9-4-17-W4	Class 2/3	Buffer	257	Seasonal	0.09
97.8	P35	SW4-4-17-W4	Class 2/3	Wetland	235	Seasonal	0.19
101.0	P36	NE34-3-17-W4	Class 2	Buffer	190	Seasonal	0.10
102.2	P37	SE34-3-17-W4	Class 1/2	Buffer	217	Seasonal	0.04
106.3	P38	SE15-3-17-W4	Class 5	Buffer	271	Permanent	2.31
118.0	P39	SE9-2-17-W4	Class 1/2	Buffer	243	Seasonal	0.06
125.6	P40	NW15-1-17-W4	Class 3/4	Wetland	234	Seasonal	0.06
127.9	P41	SE9-1-17-W4	Class 1/2	Buffer	246	Seasonal	0.18

Notes:
Shaded entries display wetlands having a primary importance to EC
1. KP refers to kilometre point along the RoW for the Preferred Route as defined in revision 17.
2. Wetland names are sequentially ordered from the sub-station southward to the Canada / US border along the Preferred Route.
3. Wetland classification as per Stewart and Kantrud (1971).
4. The estimated width includes both the buffer and wetland (if crossed).

Table 4.6-2: Summary of Wetlands Along the Preferred Route Meeting EC Criteria

Class of Wetland	Crossing Type		Estimated Area of Wetland (ha)
	Wetlands	100 m Buffer	
Class 2/3	2	1	1.19 – 4.53
Class 3	0	1	180.86
Class 3/4	1	0	1.24
Class 4	0	1	1.34
Class 5	0	2	2.31 – 18.08

4.6.4 Mitigative Measures

The mitigative measures have not changed and are described in Section 4.7.5 of the EA report. The wetlands that meet EC criteria and the proposed mitigation strategies are individually discussed below.

P1 – Class 3 Wetland Buffer

Depending on the year the southwest corner of the wetland that parallels the proposed line may be a Class 2 or 3. During 2005 (August and September) and 2006 (May, June and July) field observations confirmed a majority of the vegetation zones in the southwest corner of the wetland were associated with a Class 2 wetland with a small portion being typical of a Class 3 wetland. Engineering review of the area since the submission of the EA report has resulted in the relocation of the RoW centre line to the west and south of the wetland's southwest corner area. This new alignment avoids all areas that may have been classified as permanent Class 3 and its associated Class 2 areas within the wetland areas. Maps 2 and 2a (Appendix A) display the area in question. MATL will parallel this area with approximately six poles having an average separation distance of 140 m. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's shield wire.

P10 – Class 2/3 Wetland Area

Depending on the year this wetland may be a Class 2 or 3. During 2005 (August and September) and 2006 (May, June and July) field observations confirmed a majority of the vegetation zones were associated with a Class 2 wetlands with a small central portion being typical of a Class 3 wetland. Engineering review of the area since the submission of the EA report has resulted in the relocated the RoW centre line east of the main wetland area. This new alignment avoids all areas that may have been classified as a Class 3 wetland. Maps 8 and 8a (Appendix A) display the area in question. MATL will span a majority of this area with two poles having a separation distance of approximately 240 m. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's two shield wires at this location.

P12 – Class 2/3 Wetland Area

Depending on the year this wetland may be a Class 2 or 3. During 2005 (August and September) and 2006 (May, June and July) field observations confirmed a majority of the vegetation zones were associated with a Class 2 wetlands with two small central portions being typical of a Class 3 wetland. The westernmost Class 3 zone is adjacent to the RoW. A majority of the surrounding land use is cultivated fields. Access to the site is provided by a well-developed farm trail that parallels the RoW. Maps 9 and 9a (Appendix A) display the area in question. The wetland was substantially smaller during the 2005/2006 observation periods when compared to the map image. MATL will span a majority of this area adjacent to the wetland with three poles having a separation distance of approximately 240 m each. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's two shield wires at this location.

P14 – Class 2/3 Wetland Area

Depending on the year this wetland may be a Class 2 or 3. During 2005 (August and September) and 2006 (May, June and July) field observations confirmed a majority of the vegetation zones were associated with a Class 2 wetlands with one eastern portion being typical of a Class 3 wetland. The westernmost Class 3 portion is adjacent to the RoW. A majority of the surrounding land use is cultivated fields. Access to the site is provided by a well-developed farm trail that parallels the RoW. Maps 9 and 9a (Appendix A) display the area in question. The wetland was substantially smaller during the 2005/2006 observation periods when compared to the map image. MATL will span a majority of this area adjacent to the wetland with two poles having a separation distance of approximately 240 m each. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's two shield wires at this location.

P15 – Class 5 Wetland/Reservoir Buffer Area

During 2005 (August and September) and 2006 (May, June and July) field observations confirmed this area as a Class 5 wetland. All of the land surrounding the reservoir is used for cultivation. Access to the site is provided by a well-developed farm trail that parallels the RoW on the east side of the reservoir. Map sheets 9 and 9a (Appendix A) displays the area in question. MATL will traverse through the east side of the area buffer by spanning a majority of this area with four poles having a separation distance of approximately 240 m each. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's two shield wires at this location.

P21 – Class 4 Wetland Buffer Area

During 2006 (April, May, June and July) field observations confirmed this area as a Class 4 wetland. All of the land surrounding the wetland is used for cultivation. Access to the site is provided by a developed county road that parallels the RoW on the west side. Maps 10 and 10a (Appendix A) display the area in question. MATL will traverse through the west side of the wetland buffer by spanning a majority of this area with two poles having a separation distance of approximately 240 m each. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's two shield wires at this location.

P29 – Class 2/3 Wetland Buffer Area

During 2006 (April, May, June and July) field observations confirmed this area as a Class 2 or 3 wetland. All of the land surrounding the reservoir is used for cultivation. Access to the site is provided by a developed county road that parallels the RoW on the north side. Maps 11 and 11a (Appendix A) display the area in question. MATL will traverse through the north side of the wetland buffer by spanning a majority of this area with two poles having a separation distance of approximately 240 m each. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's two shield wires at this location.

P38 – Class 5 Wetland Buffer Area

During 2006 (April, May, June and July) field observations confirmed this area as a Class 5 wetland buffer. Approximately 50 % of the land surrounding the wetland is used for cultivation. The remainder is disturbed native vegetation. Access to the site is provided by a developed county road that parallels the RoW on the east side. Maps 12 and 12a (Appendix A) display the area in question. MATL will traverse through the east side of the wetland buffer by spanning a majority of this area with two poles having a separation distance of approximately 240 m each. Anti-perching devices will be used on all poles within 100 m of the wetland. Bird strike deterrents will be installed on the power line's two shield wires at this location.

4.6.5 Residual Impacts

The changes in the alignment proposed by the revised Preferred Route does not result in any changes to the prediction of no residual impacts, as described in Section 4.7 of the EA report, provided the mitigation measures referenced above are implemented.

4.6.6 Cumulative Effects Assessment

The CEA has not changed from the previous assessment. The cumulative effects are described in Section 4.7.6 of the EA report. This conclusion is also supported by an additional review that was conducted for the response to IR 3.16 (MATL 2006d).

4.7 Wildlife Habitat

4.7.1 Methodology

The methodology used to assess wildlife habitat is described in Section 4.8 of the EA report. Current information on wildlife resources was obtained from literature review and a wildlife habitat assessment. Additional species-specific surveys were conducted based on the schedule outlined in the response to IR 4.1 and followed the *Alberta Sensitive Species Inventory Protocol Guidelines* (ASRD 2005) (Attachment 1 of IR 3). The following information summarizes data collected during the 2006 field program using the most current alignments and corridors (Revision 16). The only differences between Revision 16 and Revision 17 are minor adjustments to avoid a wetland around KP 110.6 and routing around a hill near KP 119.5.

4.7.2 Differences in Baseline Condition Compared to the Previously Filed Alignment

The main difference in baseline condition is the re-routing around the Milk River Ridge, a sensitive area rich in biodiversity, and the moving of the transmission line adjacent to an existing county road south of Hwy 501, thereby reducing the disturbance of the power line to native grasslands. More intensive field surveys have been conducted since the filing of the EA report to obtain site-specific wildlife information related to the revised Preferred Corridor. In 2006, the following wildlife surveys were conducted:

- amphibian call surveys;
- songbird point counts;

- burrowing owl call-playback;
- lek surveys; and
- incidental ground searches for reptiles.

This increase in wildlife information allowed for a more complete assessment of the potential impacts of the transmission line on native wildlife, especially species with special status.

4.7.2.1 Key Wildlife Species

Table 4.8-1 in the EA report, which identified the wildlife species that potentially occur within the Preferred Corridor and their respective status as listed by ASRD and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), has been updated in Table 4.7-1 below. The painted turtle has been added to the list of sensitive species (Table 4.7-1) per the comment on Table 4.8-1 from the ASRD letter in IR 4 (MATL 2006e). As well, EC had expressed some concern about northern pintails in the study area. Although the northern pintail has been classified as secure (ASRD 2000), MATL still considered this species in the field surveys.

Amphibians

During the breeding season, male amphibians use distinctive calls to attract mates. Call survey methods are used to determine species presence, relative abundance, breeding habitat use and distribution (Heyer et al. 1994). A call survey was conducted in late May 2006, during the peak breeding season for most amphibian species. A total of 20 locations were sampled (Appendix F, Table F-1). Surveys were conducted between 30 minutes after sunset and 0200 h. When within 100 m of the water body, field crews waited two minutes to mitigate the effects of their disturbance and then listened for five minutes (as per ASRD 2005). All amphibians identified during the survey were recorded in addition to other wildlife species encountered (Appendix F, Table F-2).

The survey targeted water bodies along the revised Preferred Corridor, including wetlands, drainages, irrigation ponds and ditches. Boreal chorus frogs were the only amphibian species heard during the call surveys. No observations of tiger salamander, plains spadefoot toad, Western toad or Northern leopard frog were made during the May nocturnal surveys.

Although no observations of Northern leopard frogs were made during the 2006 survey, the Fish and Wildlife Management Information System (FWMIS, which replaces the Biodiversity/Species Observation Database [BSOD]) indicated three historical records of the species within the revised Preferred Corridor. Two records were located approximately 3 km south of the Milk River drainage in 1990 and one record was located within Middle Coulee, approximately 8 km east of the Milk River Ridge Reservoir in 1968. Six observations of plains spadefoot toads were recorded at the Milk River crossing in 2002. This species is difficult to detect and may only call after heavy rain, which did not occur during the spring sampling period. High-quality habitat for both the Northern leopard frog and the plains spadefoot toad exists along the revised Preferred Corridor.

Table 4.7-1: Update to Table 4.8-1 in the EA Report with Additional Listed Species that May Occur near the Power Line

Common Name	Scientific Name	Alberta Ranking[1]	COSEWIC Ranking[2]	SARA Schedule (1, 2, or 3)[3]
Amphibians				
Plains Spadefoot	*Spea bombifrons*	May be at Risk	N/A	
Western Toad	*Bufo boreas*	Sensitive	Special Concern	1
Northern Leopard Frog	*Rana pipiens*	At Risk	Special Concern	1
Reptiles				
Short-horned lizard	*Phrynosoma hernandesi*	May be at Risk	Special Concern	3
Painted Turtle	*Chrysemys picta*	Sensitive	Not at Risk	
Bullsnake	*Pituophis catenifer*	Sensitive	Data Deficient	
Wandering Garter Snake	*Thamnophis elegans*	Sensitive	N/A	
Plains Garter Snake	*Thamnophis radix*	Sensitive	N/A	
Red-sided Garter Snake	*Thamnophis sirtalis*	Sensitive	N/A	
Prairie Rattlesnake	*Crotalus viridis*	May be at Risk	N/A	
Birds				
Pied-billed Grebe	*Podilymus podiceps*	Sensitive	N/A	
Horned Grebe	*Podiceps auritus*	Sensitive	N/A	
Western Grebe	*Aechmophorus occidentalis*	Sensitive	N/A	
Clark's Grebe	*Aechmophorus clarkii*	Sensitive	N/A	
American White Pelican	*Pelecanus erythrorhynches*	Sensitive	Not at Risk	
American Bittern	*Botaurus lentiginosus*	Sensitive	N/A	
Black-crowned Night Heron	*Nycticorax nycticorax*	Sensitive	N/A	
White-faced Ibis	*Plegadis chihi*	Sensitive	N/A	
White-winged Scoter	*Melanitta fusca*	Sensitive	N/A	
Osprey	*Pandion haliaetus*	Sensitive	N/A	
Swainson's Hawk	*Buteo swainsoni*	Sensitive	N/A	
Ferruginous Hawk	*Buteo regalis*	At Risk	Special Concern	3
Bald Eagle	*Haliaeetus leucocephalus*	Sensitive	Not at Risk	
Golden Eagle	*Aquila chrysaetos*	Sensitive	Not at Risk	
Prairie Falcon	*Falco mexicanus*	Sensitive	Not at Risk	
Greater Sage Grouse	*Centrocercus urophasianus*	At Risk	Endangered	1
Sharp-tailed Grouse	*Tympanuchus phasianellus*	Sensitive	N/A	
Sandhill Crane	*Grus Canadensis*	Sensitive	Not at Risk	
Piping Plover	*Charadrius melodus*	At Risk	Endangered	1
Black-necked Stilt	*Himantopus mexicanus*	Sensitive	N/A	
Upland Sandpiper	*Bartramia longicauda*	Sensitive	N/A	
Long-billed Curlew	*Numenius americanus*	May be at Risk	Special Concern	1
Caspian Tern	*Sterna caspia*	Sensitive	Not at Risk	
Forster's Tern	*Sterna forsteri*	Sensitive	Undetermined	
Black Tern	*Chlidonias niger*	Sensitive	Not at Risk	
Burrowing Owl	*Athene cunicularia*	At Risk	Endangered	1
Short-eared Owl	*Asio flammeus*	May be at Risk	Special Concern	3
Common Nighthawk	*Chordeiles minor*	Sensitive	N/A	
Sprague's Pipit	*Anthus spragueii*	Sensitive	Threatened	1
Loggerhead Shrike	*Lanius ludovicianus*	Sensitive	Threatened	1
Lark Bunting	*Calamospiza melanocorys*	Sensitive	N/A	
Brewer's Sparrow	*Spizella breweri*	Sensitive	N/A	
Lark Bunting	*Calamospiza melanocorys*	Sensitive	N/A	
Baird's Sparrow	*Ammodramus bairdii*	Sensitive	Not at Risk	

Common Name	Scientific Name	Alberta Ranking[1]	COSEWIC Ranking[2]	SARA Schedule (1, 2, or 3)[3]
Grasshopper Sparrow	*Ammodramus savannarum*	Sensitive	N/A	
Bobolink	*Bolichonyx oryzuvorus*	Sensitive	N/A	
Mammals				
Western Small-footed Bat	*Myotis ciliolabrum*	Sensitive	N/A	
Olive-backed Pocket Mouse	*Perognathus fasciatus*	Sensitive	N/A	
Long-tailed Weasel	*Mustela frenata*	May be at Risk	Not at Risk	
American Badger	*Taxidea taxus*	Sensitive	Not at Risk	
Bobcat	*Lynx rufus*	Sensitive	N/A	
Swift Fox	*Vulpes velox*	At Risk	Endangered	1
Pronghorn Antelope	*Antilocapra Americana*	Sensitive	N/A	

[1] At Risk is any species known to be at risk after formal detailed status assessment and designation as endangered or threatened in Alberta; May be at Risk is any species that may be at risk of extinction or extirpation, and is therefore a candidate for detailed risk assessment; Sensitive is any species that is not at risk of extinction or extirpation but may require special attention or protection to prevent it from becoming at risk; Undetermined is any species for which insufficient information, knowledge or data is available to reliably evaluate its general status (ASRD 2000).

[2] Endangered is a wildlife species facing imminent extirpation or extinction; Threatened is a wildlife species that is likely to become endangered if limiting factors are not reversed; Special Concern is a wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats; Not at Risk is a wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances; Data Deficient is a wildlife species for which there is inadequate information to make a direct, or indirect, assessment of its risk of extinction (SARA, 2003).

[3] Schedule 1 refers to the official list of wildlife species at risk. Schedule 2 refers to species listed as Threatened or Endangered prior to 1999. These species must be reassessed with revised criteria before be added to Schedule 1. Schedule 3 refers to species listed as Special Concern prior to 1999. These species must also be reassessed with revised criteria before be added to Schedule 1 (SARA, 2003).

Reptiles

No reptile species were observed during incidental ground searches in the 2006 field season. No historical data from FWMIS exists with regards to reptiles along the revised Preferred Corridor. However, preferred habitat features such as dry grasslands, short-grass prairie along south-facing coulee rims and rock outcrops were noted within the revised Preferred Corridor. In particular, a south-facing rock outcrop near Middle Coulee (35 and 36-19-4-W4) and within the revised Preferred Corridor was noted as providing suitable habitat to support reptiles.

Birds

A total of 24 burrowing owl call-playback stations were sampled within the revised Preferred Corridor in July 2006 (Appendix F, Table F-3). The call-playback survey totalled 360 minutes, of which 120 minutes were spent broadcasting calls. Call-playbacks were conducted between daybreak and 1400 hrs. All 24 call-playback stations were situated within native grassland habitat consisting of suitable burrowing owl habitat, particularly south of Hwy 506. This area is comprised mainly of native grassland and also encompasses the Milk River Ridge. No responses to the call-playback were detected and no burrowing owls were observed within the revised Preferred Corridor during the survey.

An incidental observation of a burrowing owl was made on 30 May 2006 during the songbird surveys. The observation was south of Hwy 501 and more than 2 km east of the revised Preferred Route. The location of the observation was revisited during the burrowing owl survey. One active burrow (two adults, five juveniles) was observed approximately 2 km east of the revised Preferred Route. The average home range of the burrowing owl is within a 1 km radius from the nest burrow (Alberta Burrowing Owl Recovery Team 2005), and thereby does not overlap with the revised Preferred Corridor.

An incidental observation of a burrowing owl was also made on 26 May 2006 during the amphibian call survey. The observation was south of Hwy 501 along the revised Preferred Corridor. During the burrowing owl survey, a call-playback and an intensive ground search were conducted at the location of the observation. No sign of burrowing owl was recorded at that time. FWMIS data indicated one burrowing owl observation along the revised Preferred Corridor east of Hwy 4 in 1988. No additional evidence of burrowing owl activity was found in that area.

Lek surveys were conducted from 20 to 22 April, and 4 and 15 May 2006. The native grassland region south of Hwy 506 was surveyed for sharp-tailed grouse, and four historically active leks were visited to confirm the present status of each lek. One historically active lek was active in 2006 (MR-59, as labelled by ASRD). MR-59 is located approximately 1 km north of the Milk River and 0.5 km west of the revised Preferred Corridor, where approximately 20 birds (six males and 14 females) were flushed. Four coyotes were observed foraging in the area, three of which travelled in close proximity to the lek. Three other historical leks were visited, including MR-60, MR-61, and MR-85. No evidence of an active lek was observed at any of these locations. No new leks were observed during these surveys.

During the 2006 field assessments, incidental observations of seven sharp-tailed grouse were recorded along the revised Preferred Corridor approximately 3 km north of the Milk River. In addition to the historical lek information, FWMIS records indicate seven records of individual sharp-tailed grouse observations along the revised Preferred Corridor.

A total of 21 songbird point counts were conducted along the revised Preferred Corridor; 14 in the native grassland region south of Hwy 506 and seven in agricultural land north of Hwy 506 (Appendix F, Table F-4). Twenty-seven bird species were recorded during these point counts, including nine songbirds, five shorebirds, three raptors, two blackbirds, two corvids, two waterfowl, two game birds, one swallow, and one nighthawk (Table 4.7-2). Of the 27 observed species, seven species are listed by ASRD (2000) as Sensitive, May be at Risk or At Risk (Table 4.7-1). These include Baird's sparrow, Sprague's pipit, common nighthawk, Swainson's hawk, ferruginous hawk, sharp-tailed grouse and long-billed curlew.

Table 4.7-2: Number of Individuals of Each Bird Species Recorded During Songbird Surveys Along the Revised Preferred Corridor

Common Name	Scientific Name	Individuals
American Avocet	*Recurvirostra americana*	3
American Crow	*Corvus brachyrhynchos*	3
American Robin	*Turdus migratorius*	3
Baird's Sparrow*	*Ammodramus bairdii*	1
Bank Swallow	*Riparia riparia*	7
Black-billed Magpie	*Pica pica*	3
Brown-headed Cowbird	*Molothrus ater*	6
Brewer's Blackbird	*Euphagus cyanocephalus*	77
Common Nighthawk*	*Chordeiles minor*	1
Common Snipe	*Gallinago gallinago*	1
Double-crested Cormorant	*Phalacrocorax auritus*	3
Eastern Kingbird	*Tyrannus tyrannus*	3
Ferruginous Hawk*	*Buteo regalis*	1
Horned Lark	*Eremophila alpestris*	32
Killdeer	*Charadrius vociferous*	3
Long-billed Curlew*	*Numenius americanus*	1
Marbled Godwit	*Limosa fedoa*	1
Mallard	*Anas platyrhynchos*	3
Mourning Dove	*Zenaida macroura*	1
Northern Harrier	*Circus cyaneus*	3
Ring-necked Pheasant	*Phasianus colchicus*	3
Red-winged Blackbird	*Agelaius phoeniceus*	11
Sprague's Pipit*	*Anthus spragueii*	16
Sharp-tailed Grouse*	*Tympanuchus phasianellus*	1
Swainson's Hawk*	*Buteo swainsoni*	2
Vesper Sparrow	*Pooecetes gramineus*	57
Western Meadowlark	*Sturnella neglecta*	63

* See Table 4.7-1 for current status as listed by ASRD and COSEWIC

Four short-eared owls were observed during the May and July field assessment (Table 4.7-3). One of the observations was made within the revised Preferred Corridor, while the other three observations were adjacent to the revised Preferred Corridor. The owls were either perched on a fence post or flying over fields, exhibiting hunting behaviour. There was no indication of nesting behaviour during the survey and no sightings of young were made.

Twenty-two Swainson's hawks were observed during the July field assessment (Table 4.7-3). Sixteen of these observations were made within the revised Preferred Corridor, which included three pairs foraging, one individual carrying a ground squirrel, five individuals foraging, and one active nest occupied by two adults and two juveniles, located approximately 8 km south of Hwy 501. The remaining observations were not within the revised Preferred Corridor, including one observation of an active nest with one adult female and three juvenile hawks.

Four ferruginous hawks were observed during the July field assessment (Table 4.7-3), all outside the revised Preferred Corridor. One observation included three individuals at one location approximately 2.3 km east of the revised Preferred Corridor, just north of the Milk River. Two adults with one juvenile were foraging in very close proximity to the aforementioned active Swainson's hawk nest.

One long-billed curlew was observed foraging approximately 7 km north of the Milk River within the revised Preferred Corridor (Table 4.7-3).

Table 4.7-3: Incidental Observations of Bird Species Listed by ASRD and/or COSEWIC

Species*	Number of Observations	Comments
Burrowing Owl	8	3 adults, 5 juveniles
Short-eared Owl	4	4 adults
Ferruginous Hawk	4	3 adults, 1 juvenile
Swainson's Hawk	22	3 pairs, 11 adults, 5 juveniles, including 1 active nest with 2 adults and 2 juveniles
Sharp-tailed Grouse	3	3 adults
Black-necked Stilt	4	4 adults
Long-billed Curlew	1	1 adult

* See Table 4.7-1 for current status as listed by ASRD and COSEWIC.

Historical data from FWMIS indicated that observations of other listed bird species that have occurred within the revised Preferred Corridor include bald eagle (one in 1999), golden eagle (one in 1997, one in 1998, two in 2002, and four in 2003), lark bunting (two in 1999 and one in 2000) and prairie falcon (one in 1996 and 2000). These observations all occurred south of Hwy 506.

Other incidental bird observations in 2006 included one American kestrel, four great horned owls, one willet, five red-tailed hawks and six northern harriers.

Mammals

The only sensitive mammal species that was recorded was the pronghorn antelope (Table 4.7-4).

Table 4.7-4: Incidental Mammal Observations

Species*	Number of Individuals	Comments
Coyote	2	2 adults
Mule deer	32	6 males, 20 females, 6 juveniles
White-tailed deer	2	2 unidentified adults
Pronghorn	16	2 unidentified adults, 3 males, 7 females, 4 juveniles

*See Table 4.8-1 in EA report and Table 4.7-1 in this report for current status

The FWMIS data for listed mammals along the revised Preferred Corridor included one observation of an olive-backed pocket mouse in Middle Coulee in 2000.

4.7.3 Environmental Effects Assessment

Refer to the EA report Section 4.8.2 for Project-specific environmental effects on wildlife. In addition, the RoW will be used intermittently during emergencies and for normal maintenance (approximately once every 5 years). Since pre-existing RoWs exist along the majority of the revised Preferred Route, impacts caused by intermittent use of the RoW for emergencies and normal maintenance are anticipated to be minimal.

Fragmentation

Fragmentation is defined as the ecological condition that occurs when a large area of contiguous plant and animal habitat is converted into smaller, divided remnants separated by dissimilar habitat (Wilcove et al. 1986; Meffe et al. 2002). There is a point at which any additional fragmentation results in a rapid decrease in habitat connectivity, making movement across the landscape no longer possible. This represents a critical threshold at which incremental habitat loss results in a sudden change in the landscape (With 1997). Above this threshold, impacts to wildlife from vegetation removal equates primarily to habitat loss (With and King 2004). At or below the threshold, a small incremental loss of habitat will produce a fragmented landscape in which habitat is dissected into many small isolated patches, and the effect of such disturbance may be greater than that represented by habitat loss alone (With and King 2004). The degree of fragmentation at which habitat use is altered is generally species-specific, and may vary by season.

Increased habitat loss over time is often assumed to equal a proportional decrease in animal abundance. However, the identification of a critical threshold implies that the relationships among fragmentation, habitat loss and wildlife populations are non-linear. Decreased animal abundance is subtle at the initial stages of habitat loss, but beyond a habitat fragmentation threshold there may be rapid decline in species abundance (Andren 1994; Monkkonen and

Reunanen 1999). The threshold value may be species-specific and depend on dispersal abilities, habitat preferences, interactions with landscape features, and on the scale at which a species perceives habitat patch structure (With 1997; Bissonette and Storch 2002). Highly mobile species may perceive the landscape as connected across a greater range of habitat loss.

Although considerable fragmentation research has been complete to date, it is largely relevant to forested ecosystems, where fragmentation effects are more widely recognized. Fragmentation within prairie ecosystems is more difficult to identify, and may occur for some species in areas of high human activity such as major access corridors and large-scale urban developments. Results from various studies have conflicting conclusions, rendering fragmentation generalizations difficult to make (Tewksbury et al. 1998; Collinge 2000; Willyard et al. 2004). Fragmentation may concurrently have both a negative and positive effect on different species. For example, in a breeding bird study, edge and short distance migrants were more common in a fragmented landscape, while forest interior and long distance migrants were more common in a contiguous forest in the boreal mixedwood of Saskatchewan (Hobson and Bayne 2000).

Many factors still need to be considered when assessing the effects of fragmentation due to linear disturbances. These include the type, timing, and frequency of human use associated with disturbance (Jalkotsky et al. 1997). Bradley et al. (2002), in a native foothills parkland industrial report, state that biodiversity and ecosystem functions can be maintained in the long and short term if habitat connectivity is maintained.

Willyard et al. (2004) researched the potential effects of fragmentation created by transmission line RoWs in Wisconsin. They suggested that although a transmission line may contribute to fragmentation in a forested ecosystem; this may not be the case in prairie ecosystems, especially if vegetation is managed within the RoW to enable the maintenance of one contiguous ecosystem.

Saunders et al. (1991) suggested that larger remnant patches of native grassland vegetation are less adversely affected by fragmentation than small patches. The current alignment of the transmission line leaves large patches of native grassland intact on either side of the RoW. Also, grassland birds may use smaller sized fragments if the surrounding landscape consists of native grassland (Herkert et al. 1996).

Due to the proposed winter construction schedule in the native grasslands region of the MATL RoW, the majority of native vegetation will be maintained, with minimal overall removal (Table 4.4-4). Therefore, fragmentation effects are not expected to occur. Should construction be delayed into other times of the year, construction can be scheduled to minimize the length of time that grassland communities are disturbed, and to avoid critical time periods during the growing season when soil is saturated. Where necessary, rigmats and other forms of cover can be used in very sensitive areas.

4.7.4 Mitigative Measures

Amphibians

MATL's decision to place poles outside of buffers around water bodies, wetlands, and stream crossings whenever possible will mitigate the Project's effects on amphibians. In all seasons, vehicular traffic will avoid wetlands and buffers during construction (see Section 4.7.5 of the EA report). It is anticipated that there will be minimal amphibian mortality or loss of habitat as a result of construction and operations activities.

Reptiles

Pole placement and construction of the sub-station may potentially disturb critical reptile habitat. The transmission line will increase the number of raptor perches along the RoW, thereby potentially increasing the hunting pressure from raptor species on reptiles. However, lack of reptilian evidence within the revised Preferred Corridor (no reptiles were observed during 2006 field surveys, no historical data (FWMIS) exists for reptiles within the revised Preferred Corridor and critical hibernacula were not observed within the Preferred Route) suggests that impacts to reptiles and their habitat will be minimal. Where critical reptile habitat is present along the revised Preferred Corridor, anti-perching devices will be implemented to discourage raptors from perching on poles in the vicinity of the reptile habitat.

Waterfowl and Shorebirds

Whenever possible, MATL will not place poles within wetland buffers. However, mortality from transmission line collisions may still impact waterfowl and shorebirds along the RoW. Waterfowl are at risk of colliding with transmission lines during landing approaches or take-offs. Bird deflectors will be used to mitigate this Project impact (refer to the response to IR 3.12 (a) and (b) (MATL 2006c)) when the power line crosses coulees, permanent streams and when the power line occurs within 100 m of a wetland. Scheduling construction during winter months will avoid interference with all nesting migratory birds (i.e., construction will be halted between 15 April and 31 July in grassland regions per Morton 2006a, pers. comm.) until a qualified ornithologist has inspected the area and determined that no nesting migratory birds will be impacted by the resumption of activities.

Raptors

Construction of the transmission line may result in an increased risk of mortality of raptors through electrocution, although this is more commonly observed in association with distribution lines because of reduced conductor separations (Platt 2005; URS Corporation 2005). To mitigate this impact, bird-friendly designs will be implemented by spacing live conductors at a distance exceeding the 60 inches recommended by the Avian Power Line Interaction Committee (1996). This commitment will effectively reduce the possibility of raptors contacting two conductors simultaneously (Table 4.7-5).

Table 4.7-5: Vertical and Horizontal Separation Distances for Conductors and Ground Wires on Various Pole Designs to be Implemented by MATL

Structure	Separation Points	Vertical Separation (m)[1]	Horizontal Separation (m)[1]
Monopole Tangent Structure (Drawing MATLP-43-D1-0001 in Appendix C)	Conductor to Conductor	2.75 Different Sides 5.5 Same Side	5.3
	Ground Wire to Conductor	4.8	5.3
Monopole Light Angle Structure (Drawing MATLP-43-D1-0002 in Appendix C)	Conductor to Conductor	4.6	2.65
	Ground Wire to Conductor	4.6	2.65
H Pole Tangent Structure (Drawing MATLP-43-D1-0003 in Appendix C)	Conductor to Conductor	0.0	6.6
	Ground Wire to Conductor	5.1	3.3

[1] The largest wingspan of a raptor potentially occurring within the revised Preferred Corridor is of the bald eagle, and is 2.03 m (Sibley, 2000)

Game Birds

No leks will be affected by the Project and a 500 m setback distance will be implemented to avoid historical leks. Anti-perching devices will be installed to mitigate increased raptor hunting pressure at any pole locations in the vicinity of active leks. If new leks are identified within the RoW, anti-perching devices will also be installed on adjacent poles to mitigate increased raptor hunting pressure.

Passerines

Minimal clearing and grading of the Project site or construction of access roads will be required during Project construction. However, construction is scheduled to take place during the winter months, thereby eliminating interference with nesting migratory birds. Bird deflectors (refer to response to IR 3.12 (a) and (b)) will reduce collisions with the transmission line.

Mammals

Although minimal clearing and grading of the Project site or construction of access roads will be required during Project construction, existing dens and habitat for mammals may be disturbed. However, MATL's revised Preferred Route uses many existing RoWs, and frequently intersects previously disturbed agricultural lands. If occupied dens are found during construction, appropriate ASRD officials will be contacted before construction proceeds. South of Hwy 506 the RoW intersects critical ungulate winter range (Morton 2006b, pers. comm.). If harsh winter conditions exist between 1 January and 15 April, construction will be suspended in this area to mitigate disturbance of ungulates pending consultation with ASRD. Harsh winter conditions will be identified by communication with appropriate regulatory officials (Morton 2006b, pers. comm.). Due to the high volume of pre-existing roads in the vicinity of the RoW, increased hunting pressure by humans is not expected to be a significant impact.

Species at Risk

The effects of the Project on listed wildlife species includes loss or alteration of habitat, displacement due to construction noise, and direct mortality of avifauna due to collisions with support wires or transmission lines. Refer to Table 4.7-1 for a complete list of all special status species potentially occurring along the Preferred Route.

Refer to Section 4.8.3 and Appendix H of the EA report and the response to IR 3.12 (a) and (b) for mitigation measures to lessen the impact of the Project on wildlife species. Species-specific mitigation measures for listed species potentially occurring within the revised Preferred Corridor are provided in Table 4.7-6 below.

If migratory species or species at risk are found, EC recommends, and MATL agrees, that measures will be taken to avoid or reduce construction-related effects (Table 4.7-6). These measures should be monitored to assess their effectiveness. As well, these measures must be implemented in a manner that is consistent with any applicable recovery strategy and action plans. MATL's response to IR 3.8 (MATL 2006c) describes the status of recovery strategies for species potentially found within the Project study area. Subsequent review of this information by EC concluded that the Great Blue Heron could be removed from the list of *Species at Risk Act* (SARA) species applicable to this Project since this strategy only applies to the Great Blue Heron subspecies (*Ardea herodias fannini*) located in the province of British Columbia (BC) (Gregoire 2006, pers. comm.).

Table 4.7-6: Mitigative Measures for SARA Listed Species Potentially Found Within the Revised Preferred Corridor, as Recommended by EC and/or ASRD

Species	Mitigative Measures
Amphibians	
Western Toad	Maintain a 100 m setback from all wetlands and water bodies, including pole placement.
Northern Leopard Frog	Maintain a 100 m setback from all wetlands and water bodies, including pole placement.
Reptiles	
Short-horned Lizard	It is anticipated that the short-horned lizard will not be encountered within the revised Preferred Corridor. If this species is observed, appropriate Alberta Fish and Wildlife personnel will be contacted.
Birds	
Ferruginous Hawk	Maintain a year-round setback of 1 km from any nest site. Design of transmission poles and conductor placement to eliminate large raptor electrocutions.
Greater Sage Grouse	Maintain a year-round setback of 1 km from any active lek.
Long-billed Curlew	Maintain a 250 m setback from nests between 15 April and 15 July.
Piping Plover	Maintain a 250 m setback from any active nest between 1 May and 1 August. Maintain a 200 m setback from any nesting beach between 2 August and 30 April.
Burrowing Owl	Maintain a 500 m setback from active dens between 15 April and 15 August. Maintain a setback of 250 m from 15 August to 15 September.
Short-eared Owl	Maintain a 400 m setback from any nest site between 1 April and 31 July.
Sprague's Pipit	Maintain a 100 m setback from nests between 1 May and 15 August.
Loggerhead Shrike	Maintain a 100 m setback from all wetlands and water bodies, maintain existing shrub vegetation along the RoW, where possible.
Mammals	
Swift Fox	Maintain a year-round setback of 500 m from any active den site.

In addition to the above, MATL will implement the following protection measures, based on recommendations provided by EC and ASRD for critical features that are known to occur in the Project area:

- Active Swainson's Hawk nest south of Hwy 501: Timing of construction activities in that area should ensure no nesting disturbance.
- Pronghorn antelope calving: The calving period for pronghorn is 15 May to 7 June. Since construction and construction-related activities will be avoided in the grasslands region between 15 April and 31 July, this will also effectively mitigate the impact of the Project on pronghorn calving.

Monitoring strategies will include spring and fall carcass surveys for both migratory birds and bats. These surveys will address the effectiveness of bird deterrents on the power line. They will consist of a one week intensive survey during peak migration for these species. This will be conducted over two complete growing seasons after the completion of the power line.

Fragmentation

Changes to the baseline condition (as outlined in Section 4.7.2 above) included re-routing the transmission line around the Milk River Ridge, thereby keeping this biodiversity-rich region intact. This re-route around the ridge was a mitigation measure to reduce fragmentation. Although native grasslands are traversed by the current alignment, this occurs mainly in small parcels of land existing amidst a mosaic of agricultural land. From a wildlife perspective, fragmentation resulting from the transmission line in these small parcels of native grasslands will be insignificant.

4.7.5 Residual Impacts

The impacts to wildlife habitat are not expected to change materially from the impacts described in Section 4.8.2 and 4.8.4 of the EA report. The most notable change occurs in the area of land disturbed (Table 4.4-4). New Project disturbance is limited to 66 ha of native grasslands in an area of approximately 200 000 ha of native or minimally disturbed grassland in the Milk River Ridge region. Long-term disturbance will be limited to the power pole locations and the location of the sub-station, a combined disturbance of approximately 0.05 ha of native grasslands. These structures and the power line RoW are positioned such that minimal adverse effects will occur in the native grassland region. Also, H pole structures will be used in the native grasslands region, providing longer spans between poles (240 m vs. 140 m) and reducing visual, as well as environmental impacts. Although several wetlands and watercourses exist within the RoW, minimal disturbance to these habitats is expected during construction.

4.7.6 Cumulative Effects Assessment

The CEA has not changed from that described in Section 4.8.4 of the EA report. This conclusion is also supported by an additional review that was conducted for IR 3.16 (MATL 2006d).

4.8 Ambient Air Quality

No changes in the ambient air quality is expected due to the changes in the Preferred Route alignment (refer to Section 4.9 in the EA report).

4.9 Heritage Resources

A Historical Resource Overview was completed for the revised Preferred Route alignment. The result of the Overview was that virtually all the native prairie areas along the Preferred Route required field assessment, site recording and, if appropriate, historical resource mitigation.

Field work for the Preferred Route has been partially completed. The revised Preferred Route alignment is less likely to impact significant historical resources than the previously filed alignment. The Preferred Route has several previously recorded archaeological sites and historical resources within or adjacent to the RoW. No archaeological mitigation or subsurface testing has been carried out at these sites because most sites will be avoided by minor changes in pole locations, accesses etc. Although fieldwork has not been completed on the revised Preferred Route, there is no doubt that this route will impact or potentially impact fewer historical resources than the previously filed alignment.

Further work on historical resources must be completed to obtain an *Historical Resources Act* clearance for this Project. Planned work includes completion of the field work, planning to facilitate avoidance of any sites within the proposed RoW and, if necessary, mitigation of any sites that cannot be avoided by development related to the Project. An interim Historical Resources Impact Assessment (HRIA) report has been completed by Arrow Archaeology Ltd. and is attached as Appendix G. Following completion of field work and related avoidance or mitigation action, a final report will be prepared and submitted to Alberta Community Development (ACD) for formal *Historical Resource Act* clearance. Current work schedules have the Project's HRIA report being filed with ACD by Arrow Archaeology Ltd. by mid-November 2006 with land access being the only limiting factor associated with meeting that date.

4.10 Traditional Land and Resource Use

MATL has made a significant effort and investment in establishing relationships with the Alberta traditional communities of Standoff and Brocket (see Section 3.7).

TLUOS is currently underway with members of the community of Standoff (for the Kainai First Nation). On 21 September 2006, members of the Project Team met with representatives of the TLUOS Committee and Elders from the Kainai First Nation for Project Team Orientations. The Orientations were followed by a Preliminary Field Trip taking place between the 27 to 29 September 2006 with select Elders of the Kainai First Nation and the TLUOS Committee. Additional Site Verification for the TLUOS is planned for 10 to 13 October 2006. As of the date of this filing, TLUOS for the Kainai First Nation have not progressed to the point where an assessment of Project impacts on Kainai traditional activities can be made. Current work schedules show a study completion date of 15 November 2006. for the TLUOS for the Kainai First Nation.

Discussions with the North Piikani continue (see Section 3.7 of this Update report). An initial Project Overview meeting is planned with select representatives of the North Piikani Electrification Group on 13 October 2006. Provided subsequent discussions with the North Piikani will result in sufficient information on the traditional activities of the North Piikani and the information is made available to MATL, an assessment of the potential impacts of the MATL Project on these activities will be forthcoming.

4.11 Socio-Economic Effects Assessment

4.11.1 Differences in Baseline Condition Compared to the Previously Filed Alignment

There have been no changes to the socio-economic study area and baseline data presented in the December 2005 filing. However, some additional social and economic concerns have been identified by landowners, special interest groups and government agencies through ongoing consultation and stakeholder engagement activities. MATL has identified and is committed to implementation of the following mitigation measures that address stakeholder concerns.

4.11.2 Concerns and Mitigative Measures

Location of Sub-station

Mitigation: The sub-station was originally located in NW 13-10-21-W4. When MATL began negotiating with the two affected landowners they identified their opposition to this location. Since that time, an agreement was reached in early October with a different landowner to locate the sub-station in NE 14-10-21-W4, approximately 300 m to the northwest of the location filed in the EA report (Map 1 in Appendix A). MATL has purchased the sub-station property from this landowner.

Compensation

Mitigation: MATL is currently in discussions with affected landowners to address their concerns regarding compensation. The MATL compensation program is designed to pay fair market value and to treat all landowners in a fair and equitable manner. This compensation program is heavily influenced by decisions made by the Alberta Surface Rights Board. Crop damages will be paid where such impacts occur. MATL has also hired an agricultural economist from the University of Lethbridge to study this issue and provide compensation guidelines to MATL. Should the compensation proposed by MATL not be acceptable to the affected landowners, appropriate dispute resolution practices will be offered by MATL to address the differences.

Residences and Farmsteads

Mitigation: The corridor selection process, outlined in Section 2.5 of the report, identified one of the criteria as avoiding or maximizing the distance between residences and farmsteads and the proposed power line. The proximity of residences and agricultural structures to the centreline of the Preferred Route RoW was identified over a range of distances commencing with 60 m (recommended distance away from a power line to avoid radio and television interference as identified by SNC, 2006) to 1,600 m or one mile away.

The table below (Table 4.11-1) shows that one occupied residence and one occupied farmstead are located within 60 m of the centreline of the RoW. Three occupied farmsteads, two abandoned farmsteads, two grainaries, a shed and a shelterbelt are also located within 100 m of the centreline, while two more occupied residences and five occupied farmsteads are located within 200 m of the centreline.

MATL will establish baseline conditions for radio and television interference prior to construction for the occupied residence and farmstead located within 60 m of the centreline of the RoW. MATL will check the conditions following power line construction and if there is evidence of signal degradation, MATL will enter into negotiations with the affected landowners to adequately compensate them. Discussions with the landowners are ongoing and MATL will ensure that any necessary action to address the issues of building or shelterbelt relocation or removal is undertaken in consultation with the affected landowners.

Table 4.11-1: Occurrences of Residences and Agricultural Structures Between Centreline of Preferred Route RoW and Given Distances

Type of Structure[1]	Within 60 m	Within 100 m	Within 200 m	Within 400 m	Within 800 m	Within 1600 m
Occupied Residence	1	1	3	2	9	12
Unoccupied Residence	-	-	-	-	-	-
Occupied Farmstead	1	4	9	11	44	53
Abandoned Farmstead	-	2	2	1	3	2
Barn	-	-	-	-	-	-
Granary	-	2	2	2	4	6
Shed or Outbuilding	-	1	-	2	2	2
Shelterbelt	-	1	-	-	-	-
Other[2]	-	2	2	1	8	2

1 "-" indicates no said residence or agricultural activity was observed for the given distance.
2 Elevators, major oil and gas facilities, golf course, campground.

Agricultural Fragmentation

Mitigation: MATL will minimize disruption to agricultural practices and fragmentation of agricultural land by utilizing the established corridor selection process, outlined in Section 2.5 of the EA report, and by siting the proposed RoW along quarter section lines and road allowances where possible. As indicated in responses to IR 1.16 and 3.13, MATL will continue to work with landowners to address their concerns. The final decisions on mutually acceptable locations for the placement of line structures on agricultural operations, specifically with regard to irrigation systems, will be determined in consultation with landowners during the RoW acquisition. At the same time, engineering design and regulatory requirements will be balanced with landowner requests. MATL recognizes that where it becomes necessary to cross fields on the diagonal, cultivating and spraying activities could become difficult. MATL has commissioned studies by university personnel in both Canada and the United States to try and estimate this cost to the farmer, and will utilize the results of this study in the compensation program.

Agricultural Operations

Mitigation: Monopoles will be utilized north of Hwy 61 to minimize the necessity for guy wires in areas where irrigation systems are predominant. However, guy wires will still be required on monopoles at corners. South of Highway 61, parcels of land are generally larger, there are more undeveloped road allowances, and fewer operating irrigation systems. Using H pole structures in this area will generally impact agricultural operations to a lesser extent than using H pole structures where irrigation systems are more common. MATL will discuss the most suitable option with individual landowners to minimize impacts to their irrigation systems and other agricultural operations.

At all times during construction and maintenance of the transmission line, care will be taken to ensure the safety of livestock and rural residents. Excavation, material stockpiles and equipment will be clearly marked, maintained and isolated to prevent injury to livestock and interference with normal farming operations. Pasture gates will be closed and fences maintained. If temporary livestock relocation is required (e.g., where fence lines are severely affected), MATL will discuss the most suitable options with the affected landowners. All fences will be restored to full operation with input from the landowner once construction activities are completed.

Where an existing natural or man-made shelterbelt is cleared entirely or a gap created, MATL will re-establish the shelterbelt or portions of it, or provide compensation to the landowner's .

Any water control structures of concern will be avoided or protected by the construction of access roads, ramping, and/or using erosion control mats, corduroy or steel plates over any structures of concern. Any drainage feature or crossing concern will be reviewed in the field with the landowners.

MATL will advise landowners of the timing, duration and nature of activities to be conducted on their property, provide compensation for crop damage or any physical damage resulting from its construction, maintenance and repair activities and designate a company representative to be available to respond to any future landowner or farm operator concerns.

Aesthetics

Mitigation: Aesthetic and visual impacts resulting from construction of the proposed power line were identified during the public consultation process. Based on discussions with potentially affected landowners, MATL will use earth-toned monopoles consisting of either wood or laminate materials where the aesthetic and visual impacts were identified as a concern.

Electric and Magnetic Fields (EMF)

Mitigation: MATL will construct its power line to meet or exceed all safety standards set by the Canadian Standards Association (CSA) in relation to transmission line design. Nevertheless, MATL understands the publics' concerns expressed regarding EMFs and the potential health effects on people and livestock. While MATL is aware that scientific evidence to date has not established any cause-and-effect link between EMF exposure and adverse health effects, MATL

will continue to monitor studies on this subject and provide any available information to the public and affected landowners. In addition, at the request of the landowners/residents, MATL will send a qualified technician to measure the magnetic field levels of individual residences. The investigation will be paid for by MATL.

Electrical Interference

Mitigation: MATL will conduct radio interference measurements prior to, and within 6 months of, the construction and commissioning of the transmission line to determine the levels of noise from the line. Should radio interference difficulties be detected, MATL will identify the source. MATL will rectify all interference difficulties related to the transmission line by repair of the line and will report all non-transmission line related difficulties to Industry Canada. MATL has hired Shel-Bar Electronics to investigate any electrical problems experienced by the landowners prior to construction. Recommendations will be provided for remedial action.

MATL has contacted two prominent wireless router providers, Linksys (Linksys 2006, pers. comm.) and Netgear (Netgear 2006, pers. comm.), and both companies have stated that there should be no interruption to wireless service resulting from proximity to the power line. MATL will establish a 24-hour contact service for the public to utilize if problems arise.

4.12 Cumulative Effects Assessment

There is no change in the cumulative effects identified in the previous assessment. The cumulative effects described in the EA report and subsequent statements contained in the response to IR 3.16 (MATL 2006c) remain unchanged.

5.0 CUMULATIVE EFFECTS

The cumulative effects assessment (CEA) was presented in the response to IR 3.16 (MATL 2006c). The revisions to the Preferred Route do not change the conclusions contained in the CEA.

6.0 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

An examination of the effects of the environment on the Project is presented in the response to IR 3.15c.

7.0 ACCIDENTS AND MALFUNCTIONS

The materials that may enter the environment during the construction and operation of the MATL power line are hydraulic fluids, fuel oils, gasoline, lubricants and coolants. These chemicals may be accidentally released into the environment via spills during re-fuelling and maintenance or due to equipment failure. Environmental impacts from the spills include soil and water contamination. Soil contamination may result in the localized loss of soil productivity. If hazardous chemicals enter surface watercourses, there may be an increase in the risk to human health and safety for those located down-gradient of the spill site. The magnitude and duration of the effects of accidental spills are dependent upon the nature of the material spilled, the quantity spilled, the location of the spill, and the time of year the incident occurs.

During construction and operation every effort will be made to prevent accidents and malfunctions. Contractors hired will be experienced in the construction, operation and maintenance of transmission lines. Fuel, lubricants and other hazardous materials will not be stored near water bodies. Refuelling, and repairs will not be permitted within 100 m of water bodies. There will be dedicated storage areas capable of handling problems from all materials, including spill response materials and fire fighting equipment. Contractors will establish emergency plans and will hold “tailgate” meetings daily. A proper safety program will be setup for construction, and operation of the transmission line. All provincial and federal regulations will be followed.

In the event of an accidental release of contaminants, containment and clean-up will proceed as quickly as possible, as outlined in a spill contingency plan which will be developed prior to the start of construction. Winter conditions during construction would facilitate containment and recovery of spilled materials and reduce the effects on soils and surface water bodies.

Other contingency plans, including one for fire and saturated soils, are discussed in Section 4 of the EPP. These plans will be updated and finalized when the EPP is submitted before construction on the power line begins.

8.0 MONITORING AND FOLLOW-UP PROGRAMS

8.1 Construction Inspection

In the EPP (Appendix D of the EA report), MATL stated that it would use an environmental monitor and a chief construction inspector during construction. A description of the environmental monitor's duties is contained in Section 7.0 of the EPP. This EPP was submitted to the NEB in December 2005, but is currently under review and will be finalized and submitted to the NEB 60 days before construction begins. This process will allow for the inclusion of all final comments and recommendations made by the NEB.

A qualified environmental specialist will assist the environmental monitor during the construction of the Project, by addressing questions and providing advice in the interpretation of regulatory documents and permits. Together, the environmental specialist and environmental monitor will ensure that the needs of the legislation and regulations are satisfied, such as the following:

- *the Alberta Wildlife Act*, as regulated by the Fish and Wildlife division of ASRD;
- the *Species at Risk Act*, as regulated by EC, Canadian Wildlife Services branch; and
- the *Fisheries Act*, as regulated by DFO.

The environmental specialist and the environmental monitor will report to MATL's Regulatory/Environmental Assessment Officer for the Project, who has over 25 years of environmental assessment experience.

MATL will conduct a pre-construction session for all personnel to ensure that they understand their roles and responsibilities. The construction supervisor will enforce all environmental protection measures, as outlined in the EPP. Representatives of provincial and federal agencies will enforce their regulations and licence conditions as necessary.

Following construction, MATL will:

- invite DFO, EC, ASRD and AENV to complete a post-construction inspection of the Project in conjunction with the construction supervisor and the environmental monitor;
- conduct a post-construction inspection of all stream and creek crossings with DFO;
- seek reclamation acceptance with AENV on private lands and ASRD on Crown-controlled lands; and
- submit a post-construction environmental report for the Project 90 days after the Project reaches substantial completion and will indicate any follow-up mitigation or impact management requirements.

Also, MATL will conduct the following wildlife monitoring surveys over two complete growing seasons after completion of the power line to address the effectiveness of bird deterrents on the power line:

- a six day spring carcass survey for migratory birds during peak spring migration (i.e., 15 April to 15 May);
- a six day late summer carcass survey for songbirds and bats during peak fall migration (i.e., 20 August to 10 September);
- a six day fall carcass survey for migratory birds during peak fall migration (i.e., 1 November to 30 November);

Surveys will be concentrated along the Preferred Route at anticipated high activity areas for songbirds, waterfowl, and bats. These primary locations include Middle Coulee, native grasslands on either side of the Milk River, Etzikom Coulee and several significant water bodies that may provide staging habitat for waterfowl. Consultation with EC will identify other areas of the power line that have a high potential for bird strikes. One day of each survey will be used to conduct field reconnaissance surveys at secondary locations along the Preferred Route where bird strikes may occur.

To protect rare plants, MATL will fence the area(s) where rare plants are located, utilize shoe-fly construction access trails and evaluate the use of protective covers in area(s) containing rare plants. Reclamation activity may include seed collection and broadcasting in adjacent areas of similar habitat. Post-construction monitoring will occur to follow-up on the success of reseeding measures. Low impact equipment will be used in native prairie portions when soils are not frozen along the Preferred Route.

8.2 Operational Inspections and Monitoring

MATL will conduct air patrols at least once per year by fixed-wing aircraft. Air patrols will have very limited impacts on the environment and are generally well understood by landowners, industry, and regulatory agencies.

Routine ground patrols of the RoW will typically occur once a year during the fall to minimize potential impacts to the environment and agricultural activities. These regularly scheduled inspections will be supplemented with spot point inspections that are typically performed when maintenance activities take place along the power line. Where roads do not allow proper access, inspections would be carried out by foot or using all-terrain vehicles (ATV). However, ATV access is only required on short (< 3km) sections that are cross connected by all season roads.

9.0 ABANDONMENT AND RESTORATION

Abandonment of the power line would involve the removal of all lines and support structures, including the materials associated with the sub-station. Holes would be filled with clean fill and the RoW would be allowed to return to its preconstruction condition. Wherever possible, the power poles will be recycled or reused. Otherwise the power poles will be disposed properly according to regulations. MATL would adhere to all relevant provincial and federal laws and regulations in force at the time of abandonment.

10.0 SUMMARY AND CONCLUSION

Summary

Based on landowner and occupant requests, as well as discussions with EC, ASRD, SAGE, and other government agencies, a Preferred Route and two Alternative Routes were selected. This Update report describes how the revisions to the Preferred Route affect the EA submitted to the NEB in the EA report in December 2005.

The impact assessment for the revised Preferred Route is similar to the impacts described in the EA report. Utilizing the same data sources as the previous environment assessment, as well as new data collected through field surveys, the impact of the proposed MATL power line is still considered low (Table 10.0-1).

Table 10.0-1: Project Impact Summary

Project Phase	Direction	Scope	Magnitude	Duration	Frequency	Confidence	Final Impact Rating
Construction							
Soils	Negative	Local	Moderate	Moderate	Once	High	Low
Vegetation and Rare Plants	Negative	Local	Low	Long-term	Once	High	Low
Fisheries Resources	Neutral	Local	Low	Short-term	Once	High	Low
Wetlands	Negative	Local	Low	Long-term	Once	High	Low
Wildlife Habitat	Negative	Local	Moderate	Short-term	Once	Moderate	Low
Socio-economic	Negative	Local	Low	Short-term	Once	High	Low
Operations							
Soils	Negative	Local	Low	Short term	Intermittent	Moderate	Low
Vegetation and Rare Plants	Negative	Local	Low	Long-term	Intermittent	High	Low
Fisheries Resources	Neutral	Local	Low	Short-term	Intermittent	High	Low
Wetlands	Neutral	Local	Low	Long-term	Intermittent	High	Low
Wildlife Habitat	Negative	Local	Low	Long-term	Continuous	High	Low
Socio-economic	Negative	Local	Low	Long-term	Continuous	Moderate	Low

Conclusion

This report has concluded that the updated MATL transmission power line project will occupy 321 ha in the 2 km wide Preferred Corridor (25 922 ha) which is 84 ha more than the area reported in the EA report. This increase is due primarily to the increased line length, the addition of impacts from access roads and a larger sub-station footprint. This area still equal to approximately 1% of the Preferred Corridors area, which supports the conclusion that the Project's overall impact is still low.

MATL's choice of the revised Preferred Route for its power line project is primarily related to the avoidance of environmental impacts in native grassland areas in the southern portion of the power line and socio-economic factors in the northern portion. The socio-economic issues of concern identified by affected landowners included the location of the sub-station, the proximity of the power line to occupied residences and farmsteads, agricultural fragmentation, impacts to

agricultural operations, aesthetics and visual impacts, EMF and electrical interference. By constructing the power line along the revised Preferred Route, the power line is located away from as many occupied residences and farmsteads as possible which also minimizes the aesthetic and visual impacts, electrical interference and the effects of EMF. Interference with irrigation systems and resulting fragmentation of agricultural operations is also minimized. Engineering and technical designs that are feasible along the revised Preferred Route minimize impacts to agricultural operations by enabling the use of monopoles and reducing the number of guy wires required. MATL has relocated the sub-station to accommodate landowner concerns. Where engineering and design constraints cannot avoid impacting agricultural operations, MATL is developing a compensation program to address these issues. MATL is committed to undertaking ongoing consultation with affected landowners during construction of the power line and will make a 24-hour information program available to landowners and the public to address any issues or concerns that arise when the power line comes into service.

MATL is committed to completing this Project along the revised Preferred Route, while still respecting and protecting the environment. MATL will submit an Environmental Protection Plan (EPP) to the NEB 60 days prior to the commencement of construction and will comply with the measures which will mitigate the environmental impacts of the Project, as outlined in the EPP. Steps will be taken to prevent accidents and malfunctions. Monitoring and follow-up programs will be implemented to ensure compliance with the plans presented in the EA report and this Update report. Abandonment and restoration plans will be conducted according to all federal and provincial laws and regulations at the time of abandonment.

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Figures

R 23 R 22 R 21 R 20 R 19 R 18 R 17 R 16 R 15

T 10 T 9 T 8 T 7 T 6 T 5 T 4 T 3 T 2 T 1

5520000 5510000 5500000 5490000 5480000 5470000 5460000 5450000 5440000 5430000

360000 370000 380000 390000 400000 410000 420000

Lethbridge
Coalhurst
Coaldale
Barnwell
Taber
Stirling
Raymond
Magrath
Warner
Milk River
Blood I. R. 148
Oldman River
St. Mary River
Milk River Ridge Reservoir
Jensen Reservoir
Chin Lakes
North Milk River
Milk River
Alberta, CANADA
Montana, U.S.A.

3 4 5 25 52 61 62 36 504 506 501 512 844 845

N

5 2.5 0 5 10
Kilometres
2.5 1.25 0 2.5 5
Miles
1:300,000

Legend

- Preferred Right-of-Way Alignment
- Alternative Route C
- Alternative Route D
- Old Proposed Right-of-Way Alignment (December 2005)
- Transmission Corridor (2.0 km)
- Old Transmission Corridor (2.0 km, December 2005)
- Federally Controlled Land
- Order-in-Council Protected Area

Land Cover Classification

- Cultivated Land
- Forage
- Grassland
- Shrubs
- Trees
- Wetlands
- Water
- Non-Vegetated

REFERENCES:
Road data from GeoBase (2005);
Land cover data from PFRA (2001);
Orthophotos from Geobase (1999 - 2000)

Montana Alberta Tie Ltd.

Preferred and Alternative Transmission Routes

DATE:	PROJECTION:	DATUM:
October 2006	UTM Zone 12	NAD83

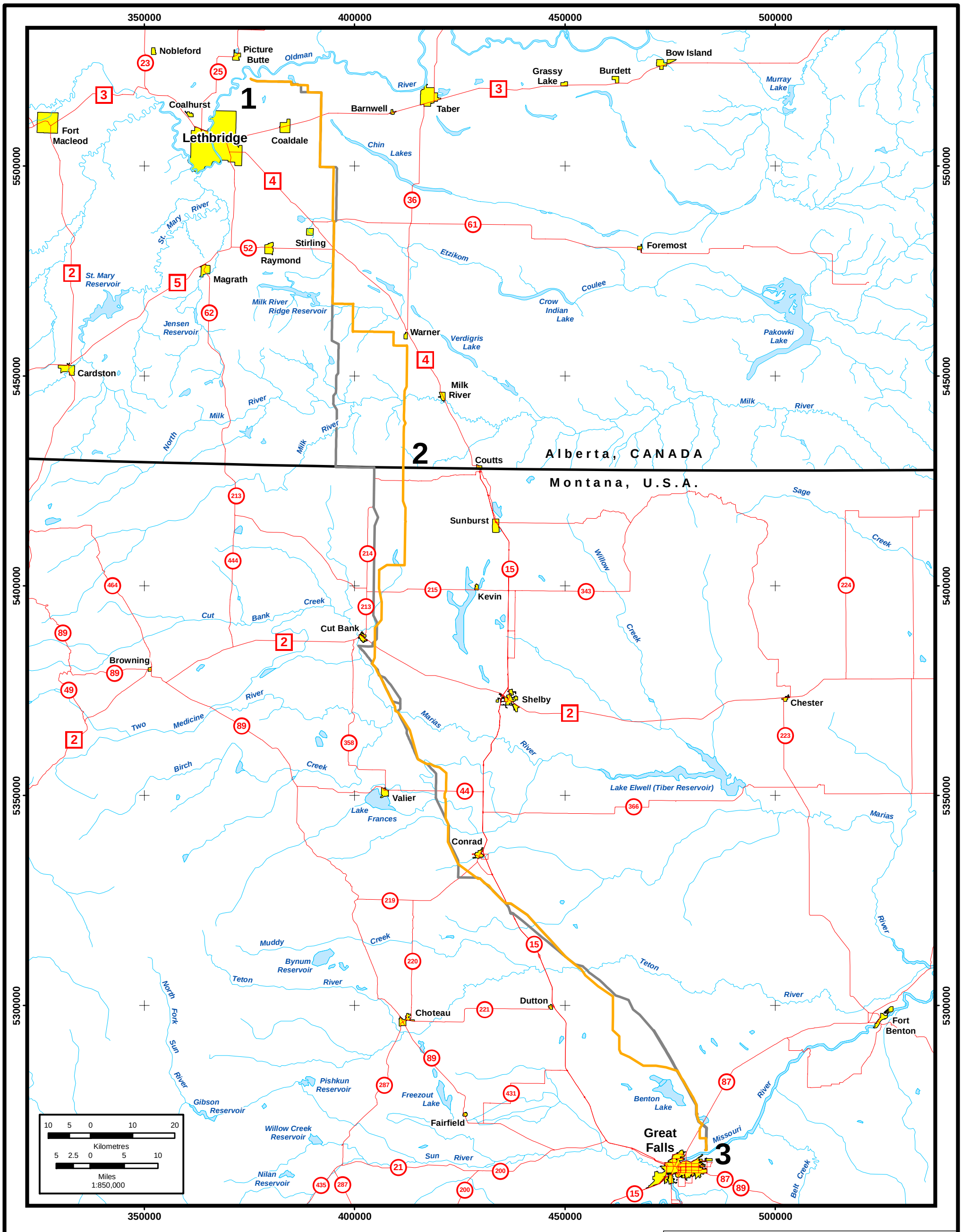
JOB No: CE03202

GIS FILE: Fig1.1.1 Routes Overview - Landcover rev17

PDF FILE: Fig1.1.1 Routes Overview - Landcover rev17 06-10-12

Figure 1.1.1

Map Path: S:\gis\Projects\CE03202_montana_alberta_tie\ArcGIS Projects\Overview_Maps\Fig1.1.1 Routes Overview - Landcover rev17.mxd



Legend

- Preferred Right-of-Way Alignment
- Old Proposed Right-of-Way Alignment (December 2005)

UTM NAD83 Zone 12:

Point	Description	Easting	Northing
1	Lethbridge Sub-station	375292	5520811
2	USA/Canada Border Crossing	411506	5427996
3	Great Falls Sub-station	483389	5265538

Note: Coordinates are in UTM Zone 12 NAD83.

REFERENCES:
Road data from GeoBase (2005); Orthophotos from Geobase (1999 - 2000)

Montana Alberta Tie Ltd.

Preferred Route

DATE:	PROJECTION:	DATUM:
October 2006	UTM Zone 12	NAD83
JOB No: CE03202		
GIS FILE: Fig2.1.1 Route Preferred Canada USA rev17		
PDF FILE: Fig2.1.1 Route Preferred Canada USA rev17 06-10-12		

Figure 2.1.1

Map Path: S:\gis\Projects\CE03202_montana_alberta_tie\ArcGIS Projects\Overview_Maps\Fig2.1.1 Route Preferred Canada USA rev17.mxd

R 23 R 22 R 21 R 20 R 19 R 18 R 17 R 16 R 15

T 10 T 9 T 8 T 7 T 6 T 5 T 4 T 3 T 2 T 1

5520000 5510000 5500000 5490000 5480000 5470000 5460000 5450000 5440000 5430000

360000 370000 380000 390000 400000 410000 420000 430000

375292, 5520811

411506, 5427996

Preferred

CE Segment 6

CE Segment 5

Central Eastern

CE & Preferred Segment Link

Western Segment 1

Western Segment 4

Central Eastern (CE)

CE Segment 1

CE Segment 2

CE Segment 3

Preferred

Western

Lethbridge

Coalhurst

Coaldale

Barnwell

Taber

Stirling

Raymond

Magrath

Warner

Milk River

Coutts

Blood I. R. 148

Oldman River

St. Mary River

Milk River Ridge Reservoir

Jensen Reservoir

North Milk River

Milk River

Chin Lakes

Alberta, CANADA

Montana, U.S.A.

25 3 845 512 4 5 52 844 62 506 504 501 61 36

5 2.5 0 5 10
Kilometres
2.5 1.25 0 2.5 5
Miles
1:300,000

Legend

- Route End Point
- Preferred Right-of-Way Alignment
- Old Proposed Right-of-Way Alignment (December 2005)
- Preferred Corridor - Revision 17 (2.0 km wide)
- Transmission Corridor - Revisions 1 - 17 (3.2 km wide)
- Old Transmission Corridor (2.0 km wide, December 2005)
- Federally Controlled Land
- Order-in-Council Protected Area
- County

Note: Coordinates are in UTM Zone 12 NAD83.

REFERENCES:
Road data from GeoBase (2005); Orthophotos from Geobase (1999 - 2000)

Montana Alberta Tie Ltd.

Preferred and Previous Corridor Options

DATE:	PROJECTION:	DATUM:
October 2006	UTM Zone 12	NAD83

JOB No: CE03202

GIS FILE: Fig2.3.1 Corridors Overview Ortho rev1-17

PDF FILE: Fig2.3.1 Corridors Overview Ortho rev1-17 06-10-16

Figure 2.3.1

Map Path: S:\gis\Projects\CE03202_montana_alberta_tie\ArcGIS Projects\Overview_Maps\Fig2.3.1 Corridors Overview Ortho rev1-17.mxd