J. Mark Rodger
T 416-367-6190
F 416-361-7088
mrodger@blg.com

John A.D. Vellone
T 416-367-6730
F 416-361-2758
jvellone@blg.com

Borden Ladner Gervais LLP
Scotia Plaza, 40 King St W
Toronto, ON, Canada M5H 3Y4
T 416.367.6000
F 416.367.6749
blg.com

Borden Ladner Gervais

January 4, 2013

Delivered by Courier and RESS

Ms. Kristen Walli, Board Secretary
Ontario Energy Board
2300 Yonge Street
Suite 2701
Toronto, ON M4P 1E4

Dear Ms. Walli:

Re: East-West Tie Line
AltaLink Ontario L.P.'s Designation Application
OEB File No. EB-2011-0140

On behalf of AltaLink Ontario L.P. we enclose our client's Application to be designated as the electricity transmitter to undertake development work for a new electricity transmission line between Northeast and Northwest Ontario known as the East-West Tie Line.

The Application consists of three distinct volumes:

Part A - Application Overview;

Part B – Compliance with OEB Filing Requirements;

(i) Evidence of AOLP's capability to carry out the East-West Tie Line project;
(ii) AOLP's Plan for the East-West Tie Line; and
(iii) Other factors relating to AOLP's Application; and

Part C – Appendices.

To assist the Board and for ease of reference, the following table identifies pinpoint references to Part A and Part B of this Application that are applicable to the Board's decision criteria as set out in the July 12, 2012 Phase 1 Decision and Order .

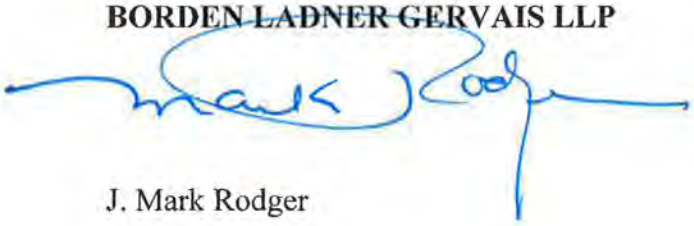
AltaLink's Application Organized by Decision Criteria

Decision Criteria	**Pinpoint Reference(s)**	
	Part A	**Part B**
Organization	Sections 1 and 2	Sections 1 and 2
First Nation and Métis Participation	Section 3.6 and 5.5	Section 3 (including a detailed First Nation and Métis Participation Framework at para. 58)
Technical Capacity	Sections 3.1 to 3.4, 3.7 to 3.4,	Section 4
Financial Capacity	Section 3.15	Section 5
Proposed Design for the East-West Tie Line	Sections 4 and 5	Section 6
Schedule	Sections 3.10 and 5.7	Section 7
Costs	Sections 3.11, 5.6 and 5.9 to 5.14	Section 8
Landowner, municipal and community consultations	Sections 3.4, 4.5 and 5.3	Section 9
First Nation and Métis Consultation	Sections 3.5, 4.6, 5.4 and 5.5	Section 10 (including a detailed Aboriginal Community Consultation Plan at para. 355)
Other Factors		
1. *Innovative Tariff Approach*	Section 5.13	Section 6.5.2
2. *Factors to Reduce Customer Risk*	Section 2	Sections 6.5.2 and 8.11
3. *AOLP to Absorb Costs of Preparing its Designation Application*	Section 5.9	Sections 6.5.2 and 8.6

AltaLink Ontario L.P. looks forward to actively participating in the next phase of the OEB's process.

Yours very truly,

BORDEN LADNER GERVAIS LLP



J. Mark Rodger

Encl.

Copy: Scott Thon, AltaLink
Steve Hodgkinson, AltaLink

ALTALINK

ONTARIO LIMITED PARTNERSHIP

AltaLink Ontario L.P.

Application for Designation
East-West Tie Line

AltaLink Ontario L.P

Application for Designation East-West Tie Line

Contents

Part A – Application Overview

Part B – Filing Requirements

Part C – Appendices

ALTALINK

ONTARIO LIMITED PARTNERSHIP

APPLICATION OVERVIEW

A

Contents

Part A – Application Overview

Application

1. Application

1. In this Application, AltaLink Ontario, L.P. (AOLP), pursuant to Ontario Energy Board (Board) *Phase 1 Decision and Order EB-2011-0149* dated July 12, 2012 (Order), is applying to the Board for designation as the qualified electricity transmitter to develop the new East-West Tie electric transmission line between Northeast and Northwest Ontario (East-West Tie Line).

2. This Application is organized in the following manner:

    Part A – Application Overview

    Part B – Board Filing Requirements

    Part C – Appendices

Application Overview

2. Introduction

3. AOLP is an Ontario electricity transmission company and a wholly owned subsidiary of AltaLink Investments, L.P. (AILP), which is the sole limited partner of AltaLink, L.P. (AltaLink). AOLP's general partner, AltaLink Ontario Management Ltd., is a wholly owned subsidiary of AltaLink Investment Management Ltd., which is the general partner of AILP. AILP is wholly owned by SNC-Lavalin Group Inc. (SNC-Lavalin).

4. In August 2010, the Board issued its policy, *Framework for Transmission Project Development Plans*, which set out a framework for new transmission investment in Ontario, in particular with regard to transmission project development planning.[1] The Board indicated that it believed the policy would accomplish three objectives:

[1] EB-2010-0059

- allow transmitters to move ahead on development work in a timely manner;
- encourage new entrants to transmission in Ontario to bring additional resources for project development; and
- support competition in transmission in Ontario to drive economic efficiency for the benefit of ratepayers.

5. As a new entrant to transmission in Ontario and the only other Canadian transmission company of significant size and with substantial transmission experience participating in the East-West Tie Line designation process, AOLP is uniquely positioned to deliver an expert and competitive result in all aspects of the East-West Tie Line – planning, development, construction, operations and maintenance.

2.1 Integrated Approach to Transmission Development

6. AOLP has taken an integrated approach in both its organization and this Application by calling upon the collective expertise of the AltaLink group of companies. AOLP has combined AltaLink's experience and expertise as a regulated transmission facilities owner with the experience and expertise of SNC-Lavalin in the engineering, procurement and construction (EPC) of transmission facilities.

7. AltaLink, which will provide support services and expertise to AOLP on the East-West Tie Line, is the largest transmission facility owner in Alberta's electricity industry. AltaLink brings extensive technical experience including planning, development, construction, operations and maintenance of electricity transmission facilities similar to the East-West Tie Line. AltaLink also has significant experience in all aspects of consultation and regulatory requirements having worked closely with intervenors and other key stakeholders and having appeared before the Alberta Utilities Commission in various proceedings.

8. SNC-Lavalin is a leading provider of EPC services for power facilities and infrastructure with the combined resources of more than 1,000 employees in the field of power transmission and distribution across Canada. In Ontario, SNC-Lavalin has over 150 environmental personnel and 180 engineers and project management personnel. SNC-Lavalin has planned, designed and constructed over 90,000 kilometres of transmission line and some 1,500 substations. In addition to its close

working relationship with AltaLink on high-voltage transmission projects in Alberta, SNC-Lavalin has also successfully completed several assignments covering planning, design, construction and project management for high-voltage transmission facilities in Ontario.

9. By combining the complementary skills and expertise of the AltaLink group of companies, AOLP has extensive skilled resources directly within its corporate family; resources that are essential to the success of the East-West Tie Line and critical to bringing the project in at the lowest cost and on schedule.

2.2 Transmission is Our Business

10. The hallmark of this Application is the accumulation of relevant transmission capabilities and experience that AOLP brings to the East-West Tie Line.

11. AOLP and AltaLink's sole business is transmission. Neither have generation, distribution, or any other type of business interests. There is no competition for capital, resources or attention from other business lines. AOLP's entire focus is on the development and operation of transmission facilities in Ontario.

12. AltaLink has broad and deep experience and understanding of Canadian regulatory processes and related issues. This extensive experience covers all aspects of regulatory matters relating to general tariff applications, facility applications (equivalent to Leave to Construct applications), developing mandatory reliability standards, requirements of the Alberta Electric System Operator and all other matters affecting the provision of a reliable regulated transmission service. AltaLink fully understands and is proficient at working with customers, intervenors and regulatory bodies such as the Board and the Board staff.

13. The AltaLink group of companies excels at both regulation and transmission; unlike other participants in this designation process, it is all we do.

2.3 AltaLink Has a Significant Transmission Development Program

14. From 2008 through 2012, AltaLink has either completed or currently has under development over $2.2 billion in transmission capital projects, the largest transmission development program in Canada.

15. AltaLink's transmission development program is large by North American standards; at $1.4 billion in capital projects over 2008-2011, AltaLink ranks seventh compared to transmission capital projects undertaken by the largest utilities during that same period.[2] Of the 108 projects delivered in that time, AltaLink's total final costs came within 10% of the total combined budget.

16. AOLP has extensive resources and efficient processes in place; each well tested for all aspects of project development, design, procurement, construction and financing to ensure a successful project, on time and on budget. Extensive, relevant capability and recent experience is needed to ensure that all elements of the East-West Tie Line plan - including cost estimates and schedules - are real, credible, and can be relied upon to a greater extent than other participants, which have built relatively little transmission, or in some cases, none at all.

17. It is this deep experience and detailed current knowledge of the transmission business that allows AOLP to share in the risk of actual costs exceeding the estimates for both the development and the design/construction phases of the project, an unusual approach in a regulated environment, but one which will benefit Ontario ratepayers.

2.4 AltaLink has Real Experience in Aboriginal Participation in Transmission Projects

18. AltaLink has a long and impressive history of working closely and effectively with Aboriginal peoples on the development of transmission lines. This experience ranges from extensive consultation and accommodation on transmission that impacts traditional land use, to direct ownership by First Nations. While others talk about such partnerships, AltaLink has actually forged partnerships that provide for First Nations direct ownership.

2.5 AOLP's Comprehensive and Inclusive Approach to First Nations and Métis Participation

19. AOLP is fully committed to meaningful and inclusive First Nations and Métis participation in the East-West Tie Line project. AOLP has reached out to each of the eighteen communities that may be impacted by the line to varying degrees, and has consulted extensively with willing communities to understand their expectations

[2] Based on the Federal Energy Regulatory Commission Form 1 filings.

and interests. The communities identified a wide range of issues and potential benefits that were of interest, including equity participation, employment, contracting, training and supplying services and products. Based on this consultation, it was clear that a flexible engagement framework was needed to recognize that not all First Nations and Métis communities will be affected in the same way by the East-West Tie Line nor would they wish to partner in the same manner.

20. AOLP is prepared to make a very high level of equity participation available to First Nations and Métis, up to 49% of the project. This offer is inclusive; each of the 14 First Nations and 4 Métis communities will have the opportunity to participate should they choose. AOLP will also make provision for different levels of participation, depending on the nature of the potential impact and the participation appetite of the community. AOLP believes that this inclusive approach ensures fairness and will encourage broader benefits and greater acceptance of the East-West Tie Line project by Aboriginal communities. If necessary, AOLP will assist the First Nations and Métis with structuring the commercial entities through which the respective communities will participate in the East-West Tie Line project including arranging financing for their respective equity interests, as requested.

2.6 AltaLink's Superior Operation and Maintenance Track Record

21. With a transmission system that serves approximately 212,000 square km and includes more than 12,000 km of high-voltage transmission lines and 280 substations, AltaLink's technical expertise is founded on its ability to operate and maintain transmission facilities in a safe, reliable and economic manner. Good utility practice is carried out across the spectrum of activities including a superior safety and reliability record and excellent environmental and regulatory compliance.

22. AltaLink's transmission system was built, and is now operated, over a wide variety of extremely challenging terrains including heavily forested and mountainous areas and is subject to extreme weather conditions with annual temperatures ranging from -50^{o}C to +40^{o}C, wind speeds of hurricane category 1 and severe snow and ice loading conditions.

23. In spite of such severe weather and geography challenges, AltaLink leads its peers in key operating and maintenance performance metrics monitored by the Canadian Electrical Association (CEA): reliability, safety and operating costs.

- Safety (AIFR) - in the five year period ending 2011, AltaLink had a 69% lower frequency of medical aids and lost time personal injuries than the CEA average.
- Safety (LTSR) - in the five year period ending 2011, AltaLink had a 63% lower degree of injury or the length away from work than the CEA average.
- Safety (VAFR) - in the five year period ending 2011, AltaLink had a 15% lower vehicle accident frequency rate than the CEA average.
- Reliability (SAIFI index) – in the five year period ending 2011, AltaLink had 14% fewer interruptions/delivery point/year than the CEA average.
- Reliability (SAIDI index) – in the five year period ending 2011, AltaLink had 33% fewer interruptions hours/delivery point/year than the CEA average.
- Lowest Operations and Maintenance Cost - from 2006 to 2010, AltaLink performed at or near the top for each of the following CEA recorded low-cost operations and maintenance benchmarks relative to its peers:
  - Total Cost per Energy Transmitted
  - Total Ops, Maintenance, and Admin Cost per circuit
  - Total O&M, and Admin Cost per Gross Fixed Assets
  - Direct O&M Cost per Circuit km
  - Direct O&M Cost per Energy Transmitted x Circuit km
  - Direct O&M Cost per Cost per Gross Fixed Assets

24. Electric transmission is critical infrastructure and each component is part of the overall network; one weak element can affect the reliability of the entire network. This is true of the East-West Tie Line which will form part of a critical integrated network. Consequently, it is essential that the development, design, construction, and operations and maintenance of the East-West Tie Line be undertaken by the entity that has demonstrated having the best experience and track record. To do otherwise, will unnecessarily put the whole network at risk.

2.7 AOLP's Approach Will Ultimately Provide Greater Benefit to Customers

25. AOLP's extensive and recent experience in developing transmission will ultimately result in the lowest cost and highest quality project for Ontario customers. Based on this experience and superior expertise, AOLP is also able to reduce the risks to customers in a number of key areas:

- AOLP will not pursue recovery of the cost of preparing this application to participate in the designation proceeding;
- AOLP will share the risk of the actual costs exceeding budget during the development stage, with customers; and
- AOLP is proposing the following three alternative models for consideration as a mechanism to develop, deliver, control and allocate project costs during the execution phase of the project.

(1) Actual cost of service

(2) Target price with risk sharing

(3) Fixed price

26. As an option to the traditional cost of service tariff, AOLP is also offering to pursue an innovative levelized tariff with the Board, which could provide significant benefits to customers.

27. The Aboriginal participation framework that AOLP is proposing for the East-West Tie Line will have very limited impact on Ontario ratepayers. This is due to AOLP offering First Nations and Métis a significant equity ownership opportunity as a means of participating in the East-West Tie Line project compared to other approaches which would have resulted in much greater cost impacts to ratepayers.

3. Capabilities and Experience

3.1 AltaLink has Proven Expertise in Planning and Siting Transmission Projects

28. AltaLink has effectively executed hundreds of transmission projects of every conceivable size, scope and complexity, delivering successfully every time. A key component of this success is seeking out solutions that pose low overall impacts to

stakeholders and the environment while meeting the technical needs of the project. AltaLink consistently works with customers and stakeholders to find solutions with the lowest overall impact while recognizing and appreciating that transmission facility projects pose impacts and concerns that must be understood and considered as part of the process. AltaLink considers a variety of factors in siting transmission line routes and facility locations, including:

- technical constraints and requirements;
- maximization of existing transmission assets and associated property rights;
- location of existing transmission lines;
- line outage requirements;
- socio-economic factors;
- natural environment;
- cultural environment;
- agricultural environment;
- cost to ratepayers; and
- stakeholder feedback.

29. These and other factors are considered collectively in conjunction with the application of professional judgment and experience gleaned from substantive project experience. AltaLink's approach and practices have been validated regularly through numerous regulatory approvals.

3.2 Combined Environmental Expertise

30. AOLP has structured its East-West Tie Line plan to benefit from the combined capabilities and experience of its affiliates, including the environmental expertise of AltaLink and SNC-Lavalin.

31. AltaLink employs over twenty in-house environmental and heritage resources professionals who will apply a broad range of expertise to the environmental assessments, construction, and operational phases of the East-West Tie Line. AltaLink is an active member of the CEA Sustainable Electricity Program, as well as a number of other environmentally focused CEA Working Groups. AltaLink is also an

active member in the Avian Power Line Interaction Committee, the Alberta Ferruginous Hawk Recovery Team and the Raptor Research Foundation.

32. AltaLink brings established success in Environmental Protection Planning (EPP) to the East-West Tie Line. AltaLink's EPP, which avoids or mitigates potential impacts to environmental and heritage resources, has proven successful on large scale transmission projects throughout Alberta. AOLP will customize AltaLink's EPP to the East-West Tie Transmission Line.

33. AltaLink has pioneered several environmental protection initiatives to safeguard Alberta's wildlife. It was the first utility in Canada to implement an Avian Protection Plan and the first company to use GREENJACKET™ covers to protect wildlife from electrical contacts. AltaLink has also developed cost-effective practices to reduce its environmental footprint including screw-pile foundations, pre-assembly yards and aerial assisted tower installation.

34. AltaLink, working with third party professional biologists and environmental agencies, has advanced new approaches to reduce environmental impacts. These approaches include restricted construction periods during critical wildlife lifecycle periods; constructing facilities under frozen ground conditions; adding surface protection to reduce disturbance in sensitive areas; and intact patch analysis to identify caribou natural habitat and reduce the effect of transmission line development on that habitat.

35. AltaLink is the industry leader in innovative approaches to historical resources management in Alberta exemplified by its development of the draft *Historical Resources Avoidance Plan (HRAP)* currently under provincial regulator review. Under the HRAP, historical sites can be avoided and left undisturbed. When approved, AltaLink's HRAP will result in a major policy shift by Alberta Culture that will preclude the excavation of many archaeological sites in transmission rights of way.

36. SNC-Lavalin has comprehensive environmental engineering and consulting teams with over 50 years of experience and hundreds of specialists the world over. SNC-Lavalin's portfolio includes thousands of environmental projects in sectors as diverse as power, government, forestry, mining, petroleum, petrochemicals, organic

chemicals, metal processing and road, rail and air transportation, as well as projects for developers and financiers. In Ontario, SNC-Lavalin's portfolio includes a wide variety of projects related to power transmission.

37. SNC-Lavalin uses an integrated approach to achieve environmental responsibility, social equity and economic efficiency in all phases of the project life cycle. This triple bottom line approach to sustainability strengthens the technical and financial performance of the project. SNC-Lavalin is experienced in a variety of regulatory environments including public consultations, interactions with regulatory authorities, and securing permits and approvals. SNC-Lavalin has established a rigorous system for compiling and tracking project permits and approvals, conditions of approval and reporting requirements.

3.3 AltaLink is Experienced with Canadian Regulatory Processes

38. AltaLink has seasoned transmission regulatory expertise relevant to the East-West Tie Line. This expertise includes general tariff applications, applications to construct and operate transmission facilities, the development of and compliance with reliability standards and other associated regulatory matters. Years of Canadian regulatory experience brings a unique understanding of the importance of working with landowners, Aboriginal communities, other stakeholders and regulators in a fully transparent and cooperative manner.

39. In Alberta, AltaLink is regulated by the Alberta Utilities Commission, which approves, among other things, AltaLink's prospective cost of service, tariff and terms and conditions under which AltaLink provides transmission service to the Alberta Electric System Operator. AltaLink submits a comprehensive tariff application, on average every two years. The Alberta Utilities Commission's tariff review process is a public detailed examination of AltaLink's capital, operations, maintenance and administrative costs.

40. AltaLink also applies to the Alberta Utilities Commission for permits and licences to construct and operate each transmission facility (facility applications). As part of this process, AltaLink consults with stakeholders regarding potential routing of the transmission facility. AltaLink understands the value and importance of stakeholder feedback in the routing of transmission facilities and is rigorous in providing

stakeholders with straightforward and transparent project information materials and the opportunity to raise issues and concerns and have those issues and concerns addressed.

41. In addition to the facility application approval process, AltaLink has significant experience with obtaining other approvals required for the construction and operation of transmission facilities. These range from a successful experience with a Canadian Environmental Assessment Agency approval required for a major transmission project in southern Alberta that crossed First Nations land, to approvals under the *Water Act*, RSA 2000, ch. W-3 and *Historical Resources Act*, RSA 2000, ch. H-9.

42. AOLP is mindful of the collective interests of all stakeholders in the East-West Tie Line and will participate in the regulatory processes in a responsible and transparent manner.

3.4 AltaLink has Broad Consultation Capabilities and Experience

43. AltaLink's External Engagement department is comprised of more than forty professionals focused on Consultation, Aboriginal Relations, Government and Community Relations, and Communications. Team members are well-versed in building relationships with stakeholders and Aboriginal groups in a variety of communities, organizations and situations. Nearly all staff has received training from the International Association for Public Participation (IAP2).

44. AltaLink plans and implements consultation programs to provide stakeholders the opportunity for meaningful input that will help shape a project with the lowest overall impact. AltaLink continually develops new communication strategies as a result of community feedback. Its consultation programs are also designed to fulfill the regulatory obligations related to consultation associated with every project.

45. AltaLink has consulted with over 50,000 landowners on some of its larger recent projects. This includes close to 4,500 one-on-one conversations with landowners, over sixty open houses and more than eighty information sessions or community meetings.

46. In June 2012, AltaLink commissioned an independent research firm to survey 1,040 landowners, occupants and renters from eleven projects throughout Alberta. Overall, 87% of respondents ranked their consultation experience with AltaLink as satisfactory to very positive. Notwithstanding the approach to consultation in Alberta, AOLP is very sensitive to the Ontario environment and will tailor its consultation program to Ontario standards and precedents in meeting the requirements of stakeholders in northwestern Ontario.

3.5 AltaLink Aboriginal Relations

47. AltaLink recognizes Aboriginal peoples as the original and continuing inhabitants of the land and respects the diversity of Aboriginal cultures and the importance of the land to these communities. AltaLink's focus is on long-term relationships with Aboriginal communities sustained by a collaborative approach with community leaders. To that end, AltaLink has negotiated limited partnership agreements with two First Nations in Alberta that included the opportunity for an equity investment in existing and new AltaLink facilities on their reserve lands.

48. AltaLink has a dedicated Aboriginal Relations team whose expertise includes First Nations governance administration, Aboriginal social work, program execution with the Métis Nation of Alberta's regional and provincial offices and with the Métis communities.

49. AltaLink consults with First Nations and Métis communities to identify, avoid or minimize potential impacts to Aboriginal and Treaty rights on Crown lands and reserve lands. The following is a brief overview of AltaLink's experience working with Aboriginal communities.

- AltaLink's service territory includes 19 First Nations with reserve land, two Métis Settlements and four of the Métis Nation of Alberta's six regions. In addition, there are many other First Nations that exercise their treaty rights within AltaLink's service territory.
- Thirteen First Nations within AltaLink's service territory have transmission lines on the reserve that are maintained and operated by AltaLink.
- Since 2009 AltaLink has engaged in over 50 traditional land use assessments through project consultation.

- Over 35 information sessions have been coordinated with Aboriginal communities.
- AltaLink actively participates on the CEA's Aboriginal Relations Task Group comprised of Aboriginal portfolio leads within the electrical energy industry across Canada.

50. AltaLink is experienced in developing sustainable and significant business partnerships with First Nations and has extensive current experience designing, implementing, and completing meaningful consultation with First Nations and Métis communities. Employing these engagement processes, AltaLink has recently obtained permits and licences on four projects, consisting predominantly of Crown land, near environmentally significant areas with multi-industry development, often of a contentious nature.

3.6 AltaLink's Alberta First Nations Partnerships

51. In collaboration with both the Piikani and Blood First Nations, AltaLink recently established partnerships to allow the Blood and Piikani to invest in new transmission facilities proposed on their respective reserve lands. These arrangements were fundamental to right of way land acquisition for the 240 kV double circuit transmission line between Pincher Creek and Lethbridge, Alberta; of its 90 km length, 26 km was located on Piikani reserve lands and 23 km located on the Blood reserve lands. AltaLink completed this project in 2010.

52. These partnerships established a long-term relationship with the First Nations that will benefit future construction and ongoing operation and maintenance activities. The partnerships also contemplate incorporating existing transmission assets on Piikani and Blood First Nations reserve lands in the future.

53. In their respective partnerships, the Blood and Piikani are able to invest to acquire up to a 51% interest in the new facilities located on their land. Each partnership will then become a regulated transmission facility owner in Alberta with AltaLink acting as the general partner and operator of each.

54. The business arrangements are captured in three main agreements between each of the First Nations and AltaLink including a Facilities Operations Accord that outlines communications, consultation and cooperation plans between the parties. This

agreement also established a joint committee to review ongoing operations and formally cement the new relationship.

3.7 Design

55. AltaLink and SNC-Lavalin have extensive experience in all aspects of transmission line design including: tower design and procurement, steel monopole design and procurement, line and conductor optimization, conductor selection and procurement, hardware assembly design and procurement and foundation design at voltages up to 800 kV. In addition, both companies have experience with EMF and audible noise studies as well as pipeline and other electrical studies and mitigation.

56. AltaLink and SNC-Lavalin engineers apply flexible design plans to meet challenging situations and have experience with the design and installation of non-standard conductor types including self-damping and high temperature-low sag designs.

57. SNC-Lavalin has been named by Engineering News-Record to be one of 2011 World's Top 10 Design Firms. SNC-Lavalin has planned, designed, or constructed over 90,000 kilometers of transmission lines and more than 1,500 substations including overhead power transmission to 800 kV AC and +/-600 kV DC on steel, wood, and concrete structures.

3.8 Land Acquisition

58. AltaLink has considerable land acquisition expertise specifically relevant to the East-West Tie Line including:

- development of land acquisition principles and strategies;
- benchmark analyses to ensure compensation is fair and acceptable to landowners;
- document preparation and management;
- budgeting;
- tracking deliverables; and
- project status milestones and reporting.

59. AltaLink is currently managing a portfolio of projects with a comprehensive acquisition delivery model to deliver on approximately twenty major projects with a combined land acquisition budget of $300 million.

60. AltaLink has a high success rate for land acquisition; this avoids delays on project execution and is a key contributor to AltaLink's success in completing projects on schedule and on budget.

3.9 Procurement

61. In conjunction with SNC-Lavalin, AOLP brings outstanding procurement capabilities and expertise to the East-West Tie Line project.

62. SNC-Lavalin has the logistical capability to plan, organize, and control material and equipment volumes for the East-West Tie Line. Its Quality Management System is certified to ISO 9001:2008 and its Global Procurement System has been rated as the Best-of-Breed of eSourcing tools by market expert analysts of Procurement and Sourcing, Supply Chain Technology.

63. The combined spend by SNC-Lavalin project teams for services and equipment for the years 2006 through 2010 was approximately $31 billion. SNC-Lavalin's high spend on commodities such as structural steel ($1.8B), HV/MV Transformers ($557M), and wire and cable ($236M) provides AOLP with a distinct competitive advantage in the market place.

3.10 Project Scheduling

64. AltaLink has a solid history of scheduling complex projects both in isolation and in collaboration with other transmission owners, accounting for a variety of challenges including terrain, environment and climate while addressing landowner concerns. As part of its project schedule management, AltaLink's scheduling templates include 26 major milestones.

65. In conjunction with SNC-Lavalin, AltaLink uses the Primavera P6 scheduling tool to optimize and integrate schedules. Primavera P6 is integrated with Oracle to provide almost real-time project status reports. Both SNC-Lavalin and AltaLink also use Earned Value Management tools as a leading indicator of project health, regularly obtains direct updates to schedule from the field and has experience in

implementing GIS/GPS-based field data collection tools to measure field progress in real time.

3.11 Project Estimating

66. AltaLink's project estimating processes involve regular benchmarking against other projects. In the past three years, AltaLink delivered 87 projects with the cumulative cost within 10% of the total combined budget.

67. The dependability of AOLP's East-West Tie Line cost estimate is enhanced by AltaLink's solid risk assessment process that anticipates both project delays and cost impacts. AltaLink and SNC-Lavalin each have the capability to employ detailed benchmarking and analysis.

3.12 Project Management

68. AltaLink has project management experience ranging from 69 to 500 kV including complex projects with staged construction and challenging technical and terrain components. AltaLink's project management processes align with Project Management Institute principles; proactive risk mitigation strategies enable project execution and cost performance. In addition, AltaLink assesses its transmission projects objectively using leading indicators such as Earned Value Management.

3.13 Construction

69. AltaLink and SNC-Lavalin's collective construction experience leads the industry with innovative practices fostered to optimize transmission development over a variety of conditions. Both companies have the experience to deliver projects in the most challenging environmental, terrain and climatic conditions and the ability to ensure those projects meet the needs of stakeholders.

70. To accommodate a variety of construction conditions, AltaLink has employed innovative techniques to reduce cost and environmental impact while continuing to meet schedule commitments. For instance, environmental conditions or schedule implications may require tower assembly and erection on site or the use of large-scale assembly yards and helicopters to fly complete tower assemblies or tower segments to the site. AltaLink's extensive experience with both methods positions it well to respond quickly to changing requirements.

71. AltaLink and SNC-Lavalin also have experience with the installation of various tower foundations, including caisson, drilled pier, screw-pile, H-pile, chimney, rock anchor and pad foundations. Managing the wide variation of surface and sub-surface conditions encountered during previous construction activities provides these transmission companies with critical experience to employ and install appropriate foundation systems.

72. Whether working in remote locations, sensitive environmental areas, on Crown land, or on First Nations or traditional land, AltaLink's experience managing relationships with key stakeholders and ensuring appropriate permits are in place ensures schedules are maintained during construction activities.

73. AltaLink has established compatible systems and construction processes with contractors, allowing for accurate construction and commitment tracking. AltaLink and SNC-Lavalin's extensive long-term arrangements and relationships with major construction contractors across Canada and North America ensure that AOLP can consider extending these pre-existing relationships to the East-West Tie Line project.

3.14 AltaLink's Superior Operations and Maintenance Record

74. AltaLink employs over 200 office and field professionals focused on operating and maintaining its transmission lines, substations, protection and control, SCADA and telecommunications. AltaLink has over 12,000 km of transmission line in Alberta ranging in voltages from 69 kV to 500 kV. AltaLink has over 3,200 km of 240 kV lines equating to approximately 4,700 km in circuit length.

75. AltaLink is a leader in safety, cost-efficiency and reliability performance among CEA reporting members:

- top quartile in safety performance compared to Canadian peers;
- 2006 - 2010 operating and overhead costs approximately 10% lower than Canadian average; and
- 2006 - 2010, 25% fewer outages, and 30% shorter outage duration than the national average.

76. AltaLink was recently awarded silver for the CEA President's Award of Excellence for Employee Safety and a bronze in the transmission and distribution category for the CEA Vice President's Award of Safety Excellence.

77. AltaLink has implemented a series of structured, disciplined operating practices, maintenance programs and work procedures including highly specialized techniques such as performing maintenance procedures from helicopters and live line work up to 500 kV, that result in safe, reliable and cost effective transmission services as evidenced by AltaLink's top performance when compared to its peers.

3.15 AOLP has the Necessary Financing Experience and Capacity

78. AOLP has access to sufficient capital resources to develop, finance, construct, operate and maintain the East-West Tie Line.

79. AOLP and its sponsors offer robust infrastructure financing capabilities that have been demonstrated by the highly successful financing of AltaLink's multi-billion dollar capital investment program. AOLP is wholly-owned by SNC-Lavalin and benefits from the expertise of SNC-Lavalin Capital (SL Capital), a renowned infrastructure investor and financial advisor. Through its strong liquid balance sheet, SNC-Lavalin provides solid financial sponsorship. SNC-Lavalin has the financial capacity to contribute all of the equity needed to finance the East-West Tie Line project in accordance with the Board's prescribed capital structure for transmission utilities in Ontario. With cash and cash equivalents totaling $1.1 billion as of September 30, 2012, SNC-Lavalin Group is rated BBB+ by S&P and BBB (high) by DBRS.

80. AOLP targets a credit rating in the "A" range which typically provides unfettered access to debt capital markets under most capital market conditions. Regulated utilities with "A" category credit ratings, such as AltaLink, have demonstrated their ability to access debt capital markets under most capital market conditions. AltaLink's most recent medium- term note issues were oversubscribed at interest rates that, at the time of issue, were the lowest in Canadian corporate bond market history. By targeting an "A" category credit rating, AOLP intends to arrange low-cost debt capital and credit on terms and conditions comparable to Hydro One Networks Inc. (Hydro One) and other Canadian utilities.

81. AOLP's sponsors have tremendous experience in financing projects of this magnitude. AltaLink is one of SNC-Lavalin's most successful infrastructure investments, currently in the midst of a multi-billion dollar expansion and reinforcement of Alberta's transmission system. AltaLink has successfully issued approximately $1.9 billion since its inception and plans to issue another $2 billion of debt in 2013 and 2014. AltaLink also maintains $1.5 billion of credit facilities, arranged through most of Canada's major chartered banks, to provide liquidity that meets the guidelines published by credit rating agencies. AltaLink has a strong working relationship with a broad syndicate of underwriters, has worked effectively with credit rating agencies and the Alberta Utilities Commission to sustain its A-level credit ratings through its significant capital program, and established its capital markets platform with a broad base of institutional debt investors. The debt capital markets have exhibited strong interest and participation in AltaLink's medium-term note offerings, which are invariably oversubscribed and marketed within minutes of announcing the offerings. AltaLink often receives reverse inquiries from debt investors seeking additional opportunities to invest in AltaLink's medium-term notes for maturities of up to 50 years.

82. SL Capital is the investment and financing arm of SNC-Lavalin, one of the world's largest engineering and construction companies, and the largest in Canada, with some 32,000 employees globally and a history spanning over 100 years. SL Capital is a long standing developer of infrastructure assets having invested in major infrastructure projects since the mid 1980's. During the last decade, SL Capital has served as financial advisor to raise more than $11 billion to finance dozens of projects around the world and sponsored a number of projects, such as the recent issuance of $571 million of bonds to finance the Highway 407 East Extension Project in Ontario. SL Capital was actively involved in all aspects of the financing, including the competitive process to select the underwriters, negotiating the term sheets and inter-creditor agreement, drafting offering documents, and marketing the transaction to investors.

83. As a long-standing developer of infrastructure assets, SNC-Lavalin has a strong record of investing and committing equity investment and has a sound reputation of successfully completing all of its obligations on a given project.

4. Project Work Completed in Preparation of this Application

4.1 Field reviews

84. To familiarize itself with the intricacies of the East-West Tie Line project, AOLP has completed a number of activities that are critical to the future success of the project.

85. AOLP identified areas where the potential transmission line route could carry increased risk during the construction and operation of the facilities. Where AOLP was able to gain public access, personnel walked each of these locations to collect information and gain an understanding of potential risk. AOLP then began preliminary risk mitigation planning to reduce the potential for adjustments during construction.

86. The variety of surface and sub-surface terrain throughout AOLP's proposed East-West Tie Line route may require significant variation in tower foundation technology depending on the location of the facilities. AOLP has tested tower foundation options at sites where access was provided to identify the preferred foundation solutions for the existing geotechnical conditions. This preliminary testing creates increased certainty in the estimating process because it reduces the likelihood of a foundation scope change during construction.

87. Reliability and public safety are key values for AOLP. Where the transmission line crosses other linear infrastructure, such as roads, railways or pipelines, special consideration must be given to ensure the system remains safe and reliable. To ensure that AOLP understands the impact at each of these crossings, company representatives travelled the length of the route to identify major infrastructure crossings and to document specific issues to be addressed during the construction and operation of the facilities.

4.2 Route selection

88. AOLP evaluated the Board *Minimum Technical Requirements for the Reference Option of the E-W Tie Line*, dated November 9, 2011 (Technical Requirements) and has identified its proposed East-West Tie Line route to be adjacent to the existing 230 kV transmission line for the entire line length subject to detailed design, environmental assessments and stakeholder input.

89. In determining its preferred route for the East-West Tie Line, AOLP defined its route selection principles and study area and conducted a preliminary evaluation of the study area to assess existing facilities such as gas pipelines, railways, highways and power lines; leverage existing access roads; and identify opportunities to minimize landscape fragmentation and stakeholder impact.

90. This preliminary evaluation also provided AOLP with the basis for its estimated East-West Tie Line schedule, cost estimates, appropriate scopes for the Environmental Assessment (EA) and consultation program, and mapping.

4.3 Mapping

91. Mapping played a critical role in AOLP's plan for the East-West Tie Line. AOLP used general environmental principles, government policies and directives as well as existing data from a variety of sources including the Corridor Level Environment Analysis Report (Golder 2011) to establish regional study area boundaries that ranged from 20 km to 95 km in width.

92. Databases from the Ontario Geospatial Data Exchange (OGDE) were superimposed on base mapping to provide a series of map books with different layers of information. Approximately twenty different databases were used to develop AOLP's East-West Tie Line series of map books. This Application includes, in Appendix 15, the following four map books each consisting of a series of maps covering the entire study area length (>400km).

Map Book 1 - Regional study area corridor boundaries and environmental constraints (ESAs, ANSIs, parks, reserves, etc.)

Map Book 2 - Surficial Geology

Map Book 3 - Land cover and watercourses

Map Book 4 – Preferred Route and Optimization Options

93. AOLP completed Map Books 1 to 3 before field reviews and these were used to identify locations that would warrant a site investigation. Geo-referencing equipment was employed in the field to locate and photograph environmental features for later reference and to assist in the preparation of individual study plans.

94. Map Book 4 displays the preferred route and optimization options. The base map of the existing transmission line was provided by Hydro One. AOLP identified potential environmental constraints (natural and man-made) using Map Book 1 and a flyover video and superimposed these on Map Book 4.

95. As the East-West Tie Line project progresses, AOLP's GIS/GPS field data collection and mapping capabilities will play an important role. This technology will support the project during all phases, including environmental assessment, pre-mobilization planning, clearing, staging, construction and post-construction/operations. Using this technology, AOLP will collect field data that will be transferred to the project GIS to facilitate timely status reporting for all activities.

4.4 Structure Design

96. AOLP has undertaken preliminary engineering work in the design of the East-West Tie Line tower family including completion of the preliminary design criteria and preliminary tower design for environmental loading and electrical clearance requirements. AOLP has provided preliminary designs for five towers that will meet the galloping criteria set out in the Board's Technical Requirements. However, based on its assessment of the galloping risk in the area, and of Hydro One's historical information on the phenomenon in the area, AOLP considers that the inclusion of the galloping requirement in the tower design may not be the most cost effective solution. Consequently, AOLP has also included preliminary designs for a five tower family that does not meet the Board's Technical Requirements, but where galloping could be mitigated with the use of interphase spacers in the future as needed. Preliminary estimates show that the removal of the Board's conductor galloping requirement may reduce the overall tangent tower weight by approximately 10%. This would result in a reduction of both tower steel and

foundation costs on the order of $5 million. In addition, the design of a new family of towers (galloping or not) is based on the assumption that there is no existing Hydro One tower family design that meets the Board Technical Requirements. If however, Hydro One does have such a tower design, making that design available to the designated transmitter would eliminate new tower design and testing costs of approximately $3 million. AOLP is also proposing the use of a long span tangent structure for large crossings in order to reduce the size and weight of the typical tangent tower potentially resulting in savings to foundations, towers and construction costs.

97. AOLP has investigated the use of parallel single circuit H-Frame structures as an alternative to the double circuit towers for certain portions of the line. The advantages of H-Frame structures are reduced foundation size and construction equipment as well as the potential for narrower and lower grade access roads. The H-Frame design will require a larger right of way and reduced span lengths which make it unsuitable for the entire line route, but where applicable, offers a lower cost option as well as a potential reduction in land and environmental impact in sensitive and difficult to access areas.

4.5 Landowner, Municipal and Community Consultation

98. As part of its EA scope of work, AOLP has established its preliminary East-West Tie Line public consultation plan, identified the stakeholder categories and, in some cases, the individual organizations within those categories, and developed stakeholder-specific consultation methods.

99. AOLP has also established the process by which the Record of Consultation will be developed and administered, the means by which affected and other interested parties will be engaged and how the information will be incorporated into AOLP's project plan.

100. AOLP plans to hold Public Information Centres at five stages of its EA process. The communities designated for Public Information Centres, based on size and geographical location, are: Thunder Bay, Nipigon, Terrace Bay, Marathon and Wawa. The Town of White River will be added to this list of communities if an alternate

AOLP route is selected to bypass Pukaskwa National Park. AOLP has also identified municipal centres and media outlets for meetings and disseminating information.

4.6 First Nations and Métis Consultation

101. Appreciating the significant role that First Nations and Métis will play in the East-West Tie Line project, AOLP engaged the services of Ishkonigan Inc. (Ishkonigan) and its president, former National Chief of the Assembly of First Nations, Phil Fontaine to assist in discussions with Aboriginal communities whose traditional lands may be impacted by the East-West Tie Line. Former National Chief Phil Fontaine and his Ishkonigan team are experienced participants in consultation processes at the highest levels and in the development of federal and provincial consultation legislation and policy.

102. Over the last several months, AOLP met with several First Nations and Métis communities to discuss their unique and distinct interests in participating in the East-West Tie Line project. These meetings were extremely helpful in understanding the diversity of perspectives, expectations and interests amongst the Aboriginal communities in relation to the project. Based on this input, AOLP developed a consultation plan that will allow for the meaningful and respectful engagement of Aboriginal communities.

103. AltaLink has also used the feedback from these meetings to develop a participation framework that will provide opportunities for all identified Aboriginal communities to participate in AOLP's East-West Tie Line project and that has the flexibility to address the differing impacts and diverse interests of these communities.

4.7 Environmental Assessment

104. AOLP reviewed the *Canadian Environmental Assessment Act, 2012*, SC 2012, c.19, s.52 (CEA Act) and the *Environmental Assessment Act*, R.S.O 1990, c-E18, s. 6(1) (Ontario EA Act) and concluded that the East-West Tie Line project is not a designated project under the CEA Act, but would be subject to the Ontario EA Act. Under the Ontario EA Act, the environmental assessment process is initiated through the submission of a Terms of Reference (ToR).

105. AOLP has prepared a draft ToR that will serve as the starting point for AOLP's East-West Tie Line consultation process, initially with the Ontario Ministry of the Environment (OMOE), and subsequently with other stakeholders and the public. On average, proponents take from six to nine months to prepare a ToR.[3] By preparing its draft ToR at this stage, AOLP will be able to prepare the ToR for formal submission in approximately four months, potentially reducing the approval process time by two to five months.

106. AOLP has also prepared its EA Scope of Work which generally follows the commitments described in AOLP's Draft ToR. AOLP's EA Scope of Work document:

- demonstrates that AOLP has a clear understanding of the project;
- sets a realistic schedule for undertaking the EA as part of the overall project schedule;
- details the individual studies and provides cost estimates; and
- enables AOLP to initiate the EA studies immediately after designation.

107. The EA process, including development and approval of the ToR, typically takes a minimum of 27 months to complete provided that the proponent is not deficient in terms of content or meeting timelines at any stage. It is generally accepted that EA field studies will encompass all four seasons. EA studies are often initiated prior to the completion of the ToR with the caveat that the study area and/or study components in the EA could change significantly. The consultation that is an integral part of the EA process may also identify deficiencies in the EA study plan in terms of both scope and geographical boundaries, which would require additional studies and time to complete.

108. AOLP has developed detailed study plans for the individual EA study components based on a thorough review of the available data on the East-West Tie Line project as well as the regulatory requirements and associated protocols.

109. By developing detailed study plans prior to designation, AOLP has effectively reduced the probability of delays to the EA process.

[3] Ontario Ministry of the Environment, Codes of Practice for Preparing and Reviewing Terms of Reference, October 2009

5. AOLP Plan for the East-West Tie Line

5.1 Proposed Route

110. AOLP has selected its preferred route for the East-West Tie Line to generally parallel the existing 230 kV transmission line and include east and west segments, as further described below and illustrated by the following map.

111. The West Segment of AOLP's proposed East-West Tie Line route will be located between the Lakehead and Marathon transmission stations and lay primarily north of the Trans-Canada Highway. This segment of the line runs northeast from Thunder Bay until Nipigon at which point the route turns east towards Marathon. The study area corridor boundaries in the West Segment between Thunder Bay and Marathon comprise the area between the Lake Superior shoreline inland up to 20 km. AOLP is proposing that the Lakehead transmission station fence be expanded to the east; this will allow the proposed East-West Tie Line to parallel the two existing transmission lines. AOLP is also proposing that the Marathon transmission station be expanded on the north side to allow the line to enter and exit without creating the need to cross the existing 230kV transmission line. AOLP's West Segment of the East-West Tie Line route is proposed to cross Pays Plat First Nations lands.

112. The East Segment of AOLP's proposed East-West Tie Line route will be located between the Marathon and Wawa transmission stations and lay primarily south of the Trans-Canada Highway traversing Pukaskwa National Park. From Marathon, the East segment runs generally southeast until it reaches the termination at the Wawa transmission station. AOLP's East Segment of the East-West Tie Line route is proposed to cross Michipicoten First Nations lands.

AOLP Proposed East-West Tie Line Route

113. As the East-West Tie Line project progresses, AOLP will refine its routing options to accommodate information obtained from the ToR, EA, and stakeholder consultations. Accordingly, the preferred routing is subject to change throughout these processes.

114. AOLP will solicit input from landowners, agencies, First Nations, Métis and other interested parties and fulfill all requirements of the EA process as described in its Draft ToR and EA Scope of Work. AOLP's goal is to resolve, address or mitigate concerns with its proposed East-West Tie Line route while providing the best possible value for Ontario ratepayers. AOLP's final routing will form the basis for its East-West Tie Line cost estimate and schedule included in its Leave to Construct application.

5.1.1 Potential Alternate Routing

115. In the event that AOLP is unable to obtain agreement for crossing any or all of the Pays Plat First Nation, the Michipicoten First Nation or the Pukaskwa National Park, AOLP will pursue alternative routing around these locations in accordance with its route selection principles described in sections 3.1 and 4.2 of Appendix 15.

5.2 Environmental Assessment

116. AOLP plans to initiate the EA process immediately after designation. The EA will be formally triggered only after the ToR has been completed and approved as described below.

117. While AOLP does not expect that the East-West Tie Line project will be subject to an environmental assessment under the CEA Act, should the Federal Minister of the Environment so designate, AOLP is prepared to proceed under the harmonized process described in its EA Scope of Work. AOLP considers the federal EA timelines to be manageable and would result in only minor alterations to the overall project schedule. Expectations in terms of consultation and environmental studies are similar for both the Ontario and federal EA processes and should not result in any significant delays.

118. In revising its draft ToR for formal approval, AOLP will:

- consult with OMOE Environmental Assessment and Approvals Branch staff to discuss preparation, consultation and submission requirements;
- identify government ministries and agencies, municipalities, members of the public, Aboriginal communities, and other persons or entities that may have an interest in the proposal;
- engage in meaningful consultation with all interested persons to identify and respond to needs and concerns;
- establish reasonable time frames for feedback and review during the consultation process;
- ensure that issues and concerns are identified and considered early in the planning process before irreversible decisions are made;
- establish the “Record of Consultation” database;

- document the results of the consultation process; and
- prepare the ToR in consultation with the appropriate government ministries and agencies, Aboriginal communities, municipalities and all interested persons.

119. Concurrently, AOLP will:

- formally commence the Public and Aboriginal Consultation processes;
- establish its Record of Consultation database including separate databases for Public/Agency Consultation and Aboriginal Consultation;
- develop and maintain an engagement website for the duration of the East-West Tie Line project so that interested parties can receive information and provide comments, questions and concerns, to be undertaken by a sub-contractor, SustainNet, generally considered an industry leader in this field; and
- initiate EA Studies immediately after designation to ensure that the East-West Tie Line project proceeds as scheduled.

120. AOLP has developed most study plans to the point where additional staffing requirements and training, equipment acquisition, and other logistical items can be procured expeditiously. Since the study plans developed in the EA Scope of Work address most, if not all, of the regulatory requirements, there is little risk associated with AOLP's plan to commence its EA studies immediately after designation. Any deficiencies will be identified early in the process during ToR consultation and early public, stakeholder and Aboriginal consultation. EA studies will be revised or augmented to incorporate identified deficiencies.

121. The components of AOLP's East-West Tie Line plan relate to the early stages of the EA process. The EA will proceed as described in AOLP's ToR and EA Scope of Work following these prescribed procedures.

5.3 Public Consultation

122. AOLP will undertake public consultation in conjunction with development of its ToR and continue until the EA is approved. AOLP's goal for its public consultation process is to inform stakeholders of the East-West Tie Line project, respond to stakeholder comments and questions, gather feedback and incorporate the

consultation outcomes into its development plan for the East-West Tie Line. AOLP has preliminarily defined its information distribution and consultation to include:

- public meetings;
- open houses;
- meetings with interested parties;
- media attention about the project, including:
  - publication in local magazines and community newspapers;
  - interviews on local radio and television; and
- participation in community events.

123. AOLP plans to initiate its public consultation immediately after designation and has designed a detailed plan that meets or exceeds regulatory requirements. AOLP developed its public consultation plan based on regulatory requirements, information from its field review, published information and the experience of its EA Team.

5.4 AOLP's Principles and Commitments to Consulting with Aboriginal Communities

124. AOLP's affiliate, AltaLink, has a long history of working in positive and collaborative ways with First Nations and Métis communities. From successfully undertaking procedural aspects of consultation for the Crown in relation to various transmission projects in Alberta, to partnering with First Nations for equity ownership in a southern Alberta transmission line, AltaLink has embraced working with Aboriginal communities. Through these experiences, AltaLink has gained an appreciation and respect for the diverse and distinct rights, interests and ambitions of First Nations and Métis communities.

125. AOLP recognizes that true collaboration and partnership with Aboriginal communities requires respect, a willingness to listen, learn and adapt, and an unwavering commitment to working together. Moreover, AOLP respects the deep connections and relationships that Aboriginal communities have to the land and their traditional territories and is cognizant of the fundamental importance of these

lands and traditional territories to building and sustaining strong, healthy and prosperous Aboriginal communities for generations to come.

126. AOLP also acknowledges and respects the unique treaty relationships that are in place between the Crown and First Nations in the territories traversed by the East-West Tie Line. Understanding and appreciating these treaty relationships is essential to the success of this project. AOLP is committed to working with the Crown and First Nations to ensure these treaty relationships are respected during the development, construction and operation of the East-West Tie Line.

127. AOLP also acknowledges and respects the Aboriginal rights held by Métis communities within the areas the East-West Tie Line will traverse. AOLP is fully committed to working with the Crown and Métis communities to ensure these Aboriginal rights are respected during the development, construction and operation of the East-West Tie Line.

128. AOLP believes that the locational importance of the East-West Tie Line in relation to First Nations and Métis communities, combined with current government policies and initiatives that encourage Aboriginal participation in transmission projects in Ontario (e.g., Ontario's Long Term Energy Plan, the Aboriginal Loan Guarantee Program, and the Minister of Energy's Directive to expand the Aboriginal Energy Partnership Program to transmission projects), create a unique opportunity for a project that achieves a "win-win" situation for ratepayers, Ontario, First Nations and Métis communities as well as AOLP, as a new transmitter in the Ontario marketplace.

129. AOLP has met with willing First Nations and Métis communities to discuss their unique and distinct interests in relation to consultation and participation in the East-West Tie Line. These engagements have been extremely helpful in understanding the diversity of perspectives, expectations and interests amongst the Aboriginal communities in relation to the project. Based on this input and AOLP's principles of Aboriginal community consultation, AOLP has developed (1) a First Nations and Métis Consultation Plan that is flexible and (2) a First Nations and Métis Participation Framework that will assist in realizing this "win-win" opportunity. However, AOLP recognizes that the successful finalization and

implementation of its Consultation Plan and Participation Framework are dependent on the meaningful and respectful collaboration with First Nations and Métis communities. Consequently, AOLP's plans may need to be modified and/or adapted based on further discussions, engagement and negotiations with affected First Nations and Métis communities.

130. AOLP also respects the Aboriginal partnership commitments in Ontario's Long-term Energy Plan and the importance of equity participation in the project for the First Nations located along the project route as well as for other First Nations and Métis communities that are either located near AOLP's proposed East-West Tie Line route or have been identified by the Crown for consultation purposes.

131. In response to Ontario government policy and the expectations and interests of the identified First Nations and Métis communities, AOLP's Participation Framework includes the opportunity for the identified First Nations and Métis communities to acquire up to 49% of the equity ownership of the project. This provides all identified First Nations and Métis communities an opportunity to participate in, and benefit from, equity ownership, if they so choose. Additionally, the Participation Framework contemplates preferential business opportunities for First Nations and Métis communities including priority employment, training and contracting with local Aboriginal service providers and product suppliers.

132. AOLP believes this inclusive approach ensures fairness to identified First Nations and Métis communities, encourages broader benefits and acceptance of the project amongst all Aboriginal communities and limits costs to ratepayers for Aboriginal participation by opening up a greater equity share for Aboriginal communities. Based on AltaLink's previous experiences in working with First Nations, this model has significant advantages and can be facilitated by AOLP.

133. AOLP is very grateful to the First Nations and Métis for their wise counsel on these matters.

5.5 AOLP's Aboriginal Community Consultation Plan

134. AOLP will initiate discussions with Aboriginal communities at the front end of the consultation program to ascertain their specific consultation needs and preferences

in respect of the East-West Tie Line project. In addition, if appropriate, a framework to perform traditional land use site assessments focused on issues and interests related to the Treaty rights to hunt, trap and fish, and traditional uses within the proposed development area, will be developed. In this context, traditional use areas may include sites of cultural and historic importance such as burial grounds, gathering areas, ceremonial, archaeological and paleontological sites.

135. AOLP has designed its Aboriginal Community Consultation plan to include the following activities.

- Preparation – includes issue identification, strategy development, defining deliverables, correspondence preparation and establishing information management systems.
- Notification and Project Introduction – includes project information distribution and follow-through.
- Introductory Meetings and Strategy Collaboration – includes meeting with Aboriginal communities, initiating development of relationship agreements, developing community-specific consultation work plan and ratifying proposals.
- Conducting project information sessions.
- Planning and conducting consultation developed in concert with First Nations and Métis communities.
- Maintaining communication and consultation records.
- Providing project updates and notice of regulatory milestones to participating Aboriginal communities.
- Preparing Leave to Construct application.
- Submitting relevant government/agency approvals pertaining to Aboriginal consultation.
- Coordinating consultation commitments with construction team.

136. AOLP has designed its Aboriginal Community Consultation plan to include Traditional Ecological Knowledge (TEK) and Traditional Land Use (TLU) studies for the East-West Tie Line Project. The scope, content, structure and nature of AOLP's TEK and TLU studies will be determined in consultation with participating Aboriginal peoples.

137. The key objectives of AOLP's TEK Study are to identify traditional uses and local valued ecological components, seek opinions from community members regarding

potential effects of the East-West Tie Line on traditional areas of activity and wildlife, and identify the need for specific mitigation measures.

138. The key objectives of AOLP's TLU Study are to identify past, present, and prospective traditional land use values and assess the potential effects of the proposed East-West Tie Line on these values and the broader rights and interests of communities.

139. In response to the Board's letter of December 11, 2012 concerning the Ministry of Energy's letter regarding the duty to consult with Aboriginal communities, AOLP confirms that it is prepared to enter into a memorandum of understanding (MOU) with the Ministry of Energy in respect of the procedural aspects of the next phase of consultation. AOLP understands that the MOU will set out the respective roles and responsibilities of the Crown and the designated transmitter of the East-West Tie Line and that the terms and conditions of the MOU will be determined by the Ministry of Energy.

5.6 Project Cost Estimates

140. AOLP has identified project risks and will manage and mitigate those risks as planning and construction continues. In preparing the Leave to Construct application, AOLP will develop detailed cost estimates along with an accurate risk matrix with measurable mitigation measures.

5.7 Schedules

141. AOLP's East-West Tie Line schedule assumes an in-service date of November 2018. Key dates to achieve this in-service are:

- June 30, 2013 - Designation of successful transmitter
- June 30, 2014 - File application for leave to construct and EA
- June 30, 2015 - Approval of leave to construct and EA
- November 1, 2015 - Start construction

142. The 2018 in-service date has been proposed to minimize risk to ratepayers prior to approval of the Leave to Construct application. The in-service date could however be advanced to Q4 2017 by advancing certain expenditures from the construction phase to the development phase. This would involve early authorization of

expenditures associated with design and testing of the tower family as well as advance ordering a percentage of tower steel, conductor and hardware. This pre-authorization would adjust the breakdown of development and construction costs described in the following sections. The detailed project implementation schedule is included in section 7, Part B of this Application.

5.8 Structure Family

143. AOLP has completed the preliminary design of a five member 230 kV tower family as per the Board reference option. In addition, AOLP will design a long span tangent tower for large crossings and H-Frame deadend structures for crossing under the existing 230 kV transmission line. The addition of the long span tangent tower will reduce the size, weight and cost of the standard tangent tower and foundation. Preliminary drawings of the five-member tower family are included in Appendix 10, *Preliminary Technical Specification, OEB E-W Tie Line (230kv Wawa to Thunder Bay Transmission Line)* and Appendix 11. In a previous tower development project, AltaLink found that additional cost savings could be achieved with small adjustments to the minimum and maximum deflection limits of the angle towers based on actual line deviations. It is AOLP's plan to revisit these angle tower deflection limits during detailed design to determine what, if any, adjustments can be made.

144. AltaLink has experience with the mitigation of conductor galloping in the Alberta transmission system. Hydro One has also stated in its response to Galloping (Q2) that it has no record of forced outages on the existing East-West Tie Lines due to conductor galloping in the last 20 years. Consequently, AOLP has completed the preliminary design of a tower family that does not meet the Board Technical Requirements for conductor galloping, but where interphase spacers or other galloping mitigation devices could be installed in the future if required. Preliminary estimates show that the removal of the Board's conductor galloping requirement may reduce the overall tangent tower weight by approximately 10%. This would result in a reduction of both the tower and foundations costs on the order of $5 million.

145. AOLP has also completed a preliminary investigation into the use of two parallel single circuit H-Frame structures as an alternative design to the double circuit lattice tower reference option. The H-Frame design requires an increased right of way and will have shorter span lengths, but where appropriate on stretches of low varying terrain, may result in construction cost reductions in the order of 5-10%. The H-frame design may also be beneficial in difficult access areas due to the use of smaller construction equipment and the potential for smaller and lower grade access roads.

5.9 Development Costs

146. In order to increase the benefit to Ontario ratepayers, AOLP will not seek recovery of the costs of participating in the designation process up to the date of filing this Application. AOLP's estimated costs of participating in the remainder of the designation process, which are somewhat uncertain, are included in its development costs which are defined to be costs incurred from January 4, 2013 up to filing of the Leave to Construct application. This approach is consistent with instructions in the Board letter of December 20, 2011 wherein the Board stated that development costs "…end when a leave to construct application is submitted." AOLP's estimated cost of developing the project is approximately $18 million ($2012). A detailed breakdown of AOLP's development costs is included in section 8.2, Part B of this Application.

147. There are two alternatives for dealing with recovery of development costs. The first would be recovery of actual incurred costs on a cost of service basis. That is, AOLP would seek recovery of actual expenditures subject to standard prudency review by the Board. The second alternative would provide some additional protection for ratepayers and would involve a proposal for risk/reward sharing on expenditures above or below the budgeted development costs of $18 million. In this case, AOLP would propose to share, on a 50/50 basis, any over or under expenditures up to 10% of the budgeted development costs ($1.8 million). Any expenditures above or below this 10% limit would be dealt with in a traditional cost of service prudence review.

5.10 Construction Costs

148. AOLP's estimated cost of constructing the East-West Tie Line is in the range of $425 - $550 million ($2012), exclusive of escalation, interest during construction and contingencies. This range reflects the uncertainties associated with providing a preliminary estimate at this early stage of project development. Typical uncertainties associated with this preliminary estimate include, but are not limited to:

- design of suitable crossovers with existing transmission/distribution facilities to satisfy reliability criteria and respond to issues related to ownership of the facilities being crossed;
- assumptions related to specific foundation conditions at proposed structure locations along the line route;
- encountering unanticipated environmental conditions or historical and archaeological artifacts;
- potential route changes and other issues that may be raised through the stakeholder consultation process;
- unusually adverse weather conditions; and
- availability of existing access roads including access to and along the existing transmission line right-of-way.

149. AOLP has carried out a number of critical pre-development activities, as outlined in section 3, in order to reduce the uncertainties in the proposed schedule and cost estimates for development and construction of the East-West Tie Line. Throughout development of the Leave to Construct application, and as detailed construction cost estimates become more certain, AOLP will explore various approaches for managing cost certainty and regulatory treatment of costs in collaboration with the Board.

150. The first option will be the traditional cost of service model by which actual costs are subject to prudency review by the Board and the resulting rate structure based on actual costs and the right to earn a limited, regulated return on capital invested.

151. The second option will be a target price mechanism whereby a target price for construction costs would be negotiated. This option would entail a risk/reward

sharing mechanism based on 50/50 sharing of costs and savings above or below the target price, up to a predetermined cap (potentially on the order of 10% of the construction cost). Any costs in excess of the cap would be subject to prudency review by the Board as in the cost of service alternative. This option has the benefit of ensuring alignment of interests and providing incentives for innovation and continuous improvement.

152. The third option would be determination of a lump sum fixed price. This approach would transfer all of the cost risk to AOLP and provide price certainty to ratepayers. Each of the target price and lump sum approaches would have associated premiums over the cost of service approach to compensate for the transfer of risk.

5.11 Operations and Maintenance Cost

153. AOLP expects the long-term operations and maintenance costs of the East-West Tie Line to be relatively small compared with construction costs. AOLP has estimated operations and maintenance costs to average approximately $1.7 million ($2012) per year. This estimate is based on extensive experience with similar facilities and excludes catastrophic events and customary capital maintenance expenditures. AOLP proposes to treat these costs in the typical regulated cost of service manner.

5.12 Financing

154. Once designated as the transmitter for the East-West Tie Line, AOLP plans to implement a capital structure consistent with the Board's approved capital structure for transmission utilities. AOLP has assumed that such capital structure would be comparable to the current capital structure of transmission facility owners in Ontario.

155. AOLP's financing plan for the East-West Tie Line also assumes that the regulatory tariff awarded to the designated transmitter of the East-West Tie Line would be similar in all material respects to the regulatory tariff that is currently awarded to transmission facility owners in Ontario. In particular, AOLP assumes that:

- the regulatory tariff will be determined using a traditional cost of service framework;
- the Board will apply the standalone principle;

- the Board will follow its established practices for determining fair return (including prescribed capital structure and return on equity) and award the successful developer a fair return comparable to other utilities with similar risk;
- the successful developer will be permitted to recover financing costs related to short-term debt, including bank credit, and long-term debt financing; and
- limited partnerships owned by taxable corporations will be permitted to recover income taxes determined as if the regulated utility were a taxable corporation.

156. The guiding principles that AOLP will apply to provide the optimal financing solution for the East-West Tie Line project include, but are not limited to:

- delivering a financing plan that is consistent with the Board's regulated capital structure and the Board's processes for setting transmission tariffs;
- leveraging the underlying creditworthiness of the Province of Ontario and SNC-Lavalin Group; and
- obtaining credit ratings comparable to those of AltaLink and other major utility and pipeline companies accessing Canadian debt capital markets.

157. AOLP plans to finance the East-West Tie Line project on a standalone basis, with all equity required under the Board's regulated capital structure to be contributed by SNC-Lavalin and its subsidiaries. AOLP believes that its ownership structure and proposed ring fencing measures are supportive of its ability to attain A-level credit ratings and to raise debt financing on competitive terms.

158. AOLP will implement appropriate ring fencing measures to ensure that the financial health of AOLP is protected from potential credit risk concerns arising elsewhere in the ownership structure. Some of the ring fencing measures to be implemented or already in place are: creation of a legally separate special purpose entity; separate Board of Directors; separate financial records and books; separate bank accounts, debt and credit ratings; and compliance with regulatory directives such as capital structure and inter-affiliate code of conduct. The ring fencing measures protect the interests of ratepayers by enhancing the financial integrity of the utility.

159. AOLP requires no alternative mechanisms (e.g., rate treatment of construction work in progress) to develop and finance the East-West Tie Line project.

5.13 AOLP's Innovative Tariff Alternative

160. While AOLP's financing plan assumes that the rate setting mechanism for the East-West Tie Line would follow a traditional cost of service framework, AOLP is fully prepared to consider a more levelized approach to recover its costs of developing, constructing and owning the East-West Tie Line.

161. One of the issues associated with the development of new transmission facilities is that system additions, by their nature, can be large and costly, but once completed, the network is able to meet the needs of both present and future customers for many years. While current customers benefit from increased reliability, the capacity added is usually in excess of that required by current customers since it is primarily required to meet future load growth, and is therefore largely to the benefit of future customers. This creates an issue of intergenerational customer fairness, in that there is a mis-match between current customers bearing a disproportionate amount of the line cost and those future customers receiving a large portion of the future benefits.

162. This issue is exacerbated by the traditional cost of service approach, in which the tariff is the highest in the first year and declines thereafter over the life of the facility. Under cost of service, the highest cost to customers occurs when the load is lowest, and assuming the load is growing, the tariffs are lower when there is more load on the system to support the cost of the line.

163. The net result of these two factors is that current customers bear a much higher portion of the total cost of the line, even though future customers derive a similar benefit, but at a much lower cost. This imposes a significant burden on today's customers, and many would argue results in an unfair matching of the costs and benefits of transmission between generations of customers. There is a minor distortion with distribution assets which can be added incrementally but since transmission must be added in large blocks of capacity and capital, it is a significant distortion.

164. Given that the East-West Tie Line will be a single, large discrete asset to AOLP at least initially, it may well lend itself to an alternate tariff approach which would help alleviate this issue, should the Board determine there is value in addressing

the concern. Therefore, once designated, AOLP would be pleased to work with the Board to determine whether this innovative approach, which would better align cost and benefit between generations of customers, could be used as an alternative to the traditional cost of service tariff.

165. Conceptually, this would mean utilizing a levelized tariff that, at least in real terms (net of inflation), would result in both current and future customers paying the same tariff or portion of the cost of the line, given that they would be receiving similar benefits. Under this approach, a long-term contract would replace traditional year by year regulation, which would allow structured financing to be used to match the agreed upon tariff shape. In addition to significantly reducing the cost burden on customers in the early years, the need for frequent ongoing regulatory proceedings relating to a single line would be avoided, further reducing costs that would otherwise also be borne by ratepayers. The contract could have periodic reopeners to the extent that refinancing was necessary or as required to ensure that ongoing customer interests continued to be satisfied.

166. At this preliminary stage of the East-West Tie Line process, AOLP has not fully researched all of the issues associated with this approach, and understands that there would be many business, regulatory and technical details to be identified and resolved, if the Board had an interest in pursuing this option. As such, AOLP once designated, would be prepared to work in close collaboration with the Board staff to further delineate, test and evaluate this proposed approach.

5.14 Operation and Maintenance

167. AOLP's organizational plan for the operations and maintenance of the East-West Tie Line includes an office in the Thunder Bay area that will have overall management accountability for operations and maintenance of the line. AOLP also plans to use local contractors where possible and may contract with affiliates for various corporate and administrative support as well as operating and maintenance services.

168. A summary description of AOLP's operations and maintenance plan for the East-West Tie Line is provided below.

- 24/7/365 monitoring – AOLP intends to use AltaLink's Control Centre, which is staffed by fifteen trained and NERC-certified transmission system operators, to monitor the operation of the East-West Tie Line and coordinate closely with Hydro One on any operational issues.
- Emergency/trouble response – AOLP plans to use AltaLink's Control Centre to dispatch local contract crews to the affected location to diagnose, repair and restore the East-West Tie Line as quickly as possible. AOLP's local contractor will provide 24/7/365 response, including labour and any material and equipment necessary to complete the repairs.
- Periodic visual inspections – AOLP will utilize experienced journeyman linemen to perform annual air patrols; detailed ground patrols on a 10-year cycle; and detailed ground patrols of wood pole lines on a 7-year cycle. Additional patrols may be triggered in response to storms, outages, line conditions and maintenance projects.
- Insulator washing – during the visual inspections, AOLP would note any insulation contamination and trigger insulator washing as required.
- Planned repairs and replacements – AOLP will utilize experienced maintenance analysts to assess the results of its visual inspections and develop the following year's repair and replacement plan along with detailed work scope packages for contractors.
- Right of way and vegetation management – primarily comprised of: spray, mow, trim or removal. AOLP will utilize right of way maintenance professionals to participate in its annual air patrol to inspect the right of way condition and using the inspection results, develop the following year's work plan.

6. AOLP's Approach Will Provide Greater Benefit

169. AOLP offers capabilities and experience specifically relevant to the East-West Tie Line. Its expertise reflects the cumulative experiences of its affiliates that include technical expertise in developing and constructing major transmission facility

projects, unparalleled operations and maintenance, unquestionable financing capacity, wide ranging and inclusive environmental and consultation expertise, and extensive regulatory experience.

170. AOLP's commitment to meaningful First Nations and Métis participation in the East-West Tie Line is evidenced by its offer of significant equity participation - up to 49% of the project. AOLP is extending this offer to each of the 14 First Nations and 4 Métis communities. Recognizing that not all Aboriginal communities will choose to participate to the same level, AOLP will make provision for different levels of participation, depending on the nature of the potential impact and the participatory interest of each community. AOLP is also prepared to assist the First Nations and Métis with structuring the commercial entities, including arranging financing, as requested.

171. AOLP's sole business purpose is to develop, build, own, operate and maintain regulated transmission facilities in Ontario. AltaLink's sole business is regulated transmission and its significant transmission experience will be brought to bear on all aspects of the East-West Tie Line project. SNC-Lavalin is a leading provider of transmission engineering, procurement and construction services alongside AltaLink in Alberta and on high-voltage transmission facilities in Ontario.

172. AOLP is organized specifically to deliver qualified resources to meet the demands of developing, constructing, operating and maintaining the East-West Tie Line. By integrating the capabilities and expertise of its affiliates, AltaLink and SNC-Lavalin, AOLP offers considerable benefits to stakeholders in the East-West Tie Line and to Ontario ratepayers.

ALTALINK

ONTARIO LIMITED PARTNERSHIP

FILING REQUIREMENTS

B

Contents

AltaLink Ontario, L.P.
Application for Designation East-West Tie Line
Part B Compliance with EB-2011-0140 Filing Requirements

1. In this Part B, AOLP provides the information required by the Board EB-2011-0140, Appendix A including:

   (A) Evidence of AOLP's capability to carry out the East-West Tie Line project;

   (B) AOLP's Plan for the East-West Tie Line; and

   (C) Other factors relating to AOLP's Application.

(A) Capability of AOLP

1. Background Information

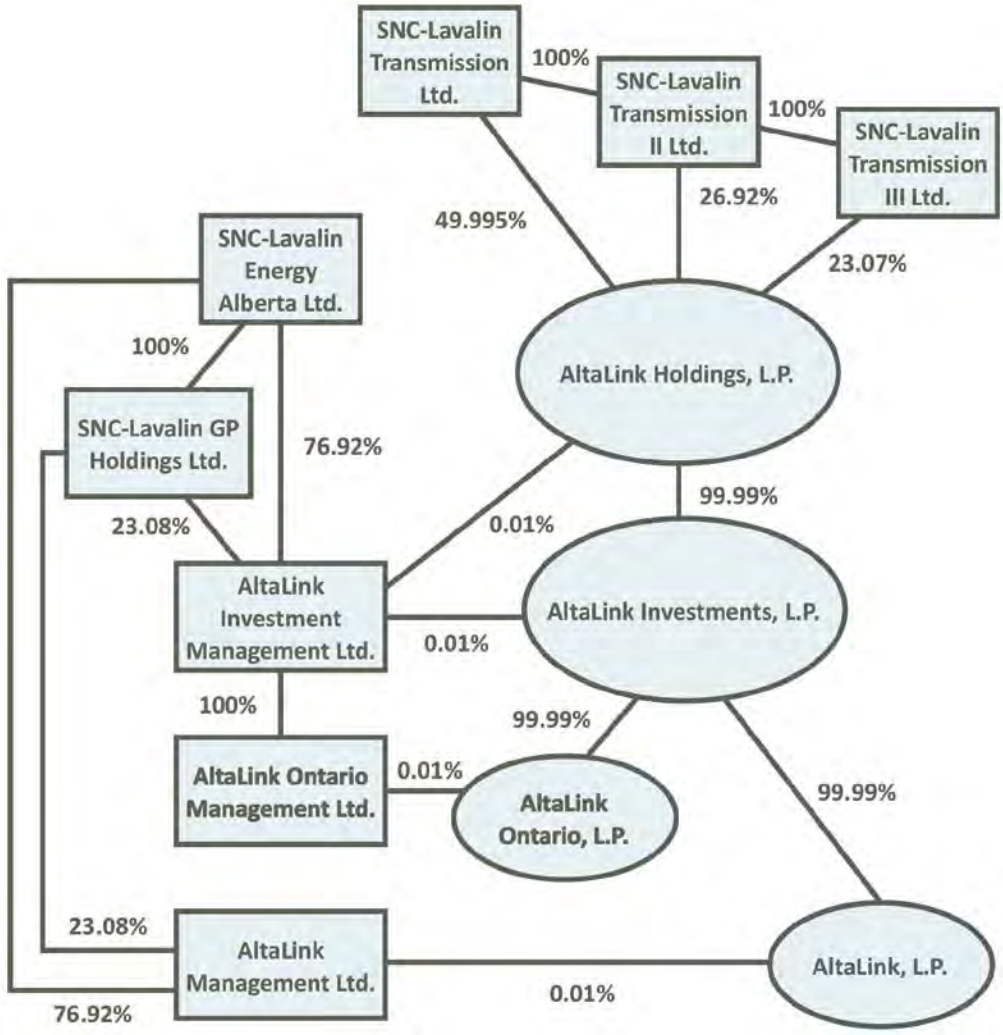
The applicant must provide the following information:

1.1 The applicant's name

2. The applicant is AltaLink Ontario, L.P. (AOLP), through its general partner AltaLink Ontario Management Ltd. AOLP was incorporated on March 25, 2011.

3. AOLP is an Ontario electricity transmission company and is a wholly owned subsidiary of AltaLink Investments, L.P. (AILP), which is the sole limited partner of AltaLink, L.P. (AltaLink). The sole limited partner of AILP is AltaLink Holdings, L.P. (AHLP), a limited partnership formed under the laws of Alberta. The limited partners of AHLP are subsidiaries of SNC-Lavalin Inc. SNC-Lavalin also holds, indirectly, the outstanding shares of the General Partner of AOLP through subsidiaries established for that purpose. An organizational diagram of these entities is provided in Figure 1.1-1.

Figure 1.1-1 – Corporate Organization



1.2 The applicant's OEB transmission licence number

4. On April 29, 2011, AOLP applied to the Board for an Electricity Transmission Licence. AOLP's application was approved by the Board on August 31, 2011 in *Decision EB-2011-0126* and AltaLink Ontario Management Ltd, on behalf of, AOLP was granted Electricity Transmission Licence ET-2011-026 (Licence). The Licence was amended on December 23, 2011 to reflect a change requested by AOLP to the effective date of the Licence.

1.3 Any change in information provided as part of the transmitter's licence application

5. AOLP hereby advises of a change to the information originally provided in its Licence application wherein AOLP described its ownership to be 76.92% by SNC-Lavalin and 23.08% by Macquarie Transmission Alberta Ltd., through their ownership of AltaLink Investments, L.P. (AILP). AOLP also explained in the Licence application that an agreement had been reached for SNC-Lavalin to acquire Macquarie's interest, subject to customary closing conditions and regulatory approvals, including approval from the Alberta Utilities Commission. AOLP confirms that this transaction received regulatory approval from the Alberta Utilities Commission on September 14, 2011 in *Decision 2011-374*. The closing date for the transaction was September 20, 2011. This change in ownership also applies to AOLP's affiliates, AILP and AltaLink Holdings, L.P.

1.4 Confirmation that the applicant has not previously had a licence or permit revoked and is not currently under investigation by any regulatory body

6. AOLP confirms that it has never had a licence or permit revoked and is not currently under investigation by a regulatory body.

1.5 Confirmation that the applicant is committed to the completion of the development work for the East-West Tie line, and to the filing of a leave to construct application for the line, to the best of its ability

7. AOLP was formed for the express purpose of developing transmission facilities in Ontario. As a new entrant in Ontario, AOLP obtained its Licence with the goal of becoming the designated transmitter for the East-West Tie Line. Specifically in respect of this Application, AOLP is fully committed to developing and operating the East-West Tie Line in compliance with all applicable legislative and regulatory requirements including filing a Leave to Construct application in the form and substance required by the Board.

1.6 A statement from a senior officer that the application for designation is complete and accurate to the best of his/her information and belief

8. AOLP has attached, as Appendix 1, a statement from a director of AltaLink Management Ontario Ltd., on behalf of AOLP, confirming that this Application is complete and accurate to the best of his information and belief.

1.7 An indication of whether the applicant is willing to be named as a runner up designated transmitter and a statement of any conditions necessary to this role

9. AOLP confirms that it is willing to be named as a runner up designated transmitter for the East-West Tie Line and makes this confirmation without qualification.

1.8 A description of any co-ordination or co-operation with other parties that has contributed to this application

10. In preparing this Application, AOLP has not coordinated or co-operated with any other prospective applicants for designation in this proceeding. AOLP has considered information provided by AltaLink and SNC-Lavalin, and in particular, information relating to capabilities and experience. AOLP has also benefitted from the advisory services of Phil Fontaine, former National Chief of the Assembly of First Nations and his consulting and mediation firm, Ishkonigan Inc. (Ishkonigan).

2. Organization

The applicant shall identify how, from an organizational perspective, it intends to undertake the East-West Tie line project. The applicant must file:

2.1 An overview of the organizational plan for undertaking the project, including:

2.1.1 Any partnerships or contracting for significant work

11. As a new entrant in Ontario's transmission environment, AOLP's organizational structure demonstrates its expertise and disciplined approach to transmission development.

12. AOLP's organizational plan for the East-West Tie Line project integrates the experience and expertise of the AltaLink group of companies, specifically SNC-Lavalin and AltaLink. AOLP has arrangements with its affiliates for the provision of services in respect of the East-West Tie Line. SNC-Lavalin will provide planning and development services as well as engineering, procurement and construction (EPC) and AltaLink will provide support services and expertise in operating and maintaining the East-West Tie Line.

13. SNC-Lavalin is a leading provider of EPC services for power facilities and infrastructure with the combined resources of more than 1,000 employees in power transmission and distribution across Canada. It provides a full range of services including planning and feasibility studies, engineering, procurement, construction and project management. Its transmission and distribution division has experience working with voltages up to 800 kV AC and +/- 600 kV DC. SNC-Lavalin's expertise includes overhead and underground transmission lines, high-voltage substations, facility protection and control, telecommunication networks, customized control systems, remote terminal units, substation and distribution automation, and generation and industrial system interconnection. In addition to its close working relationship with AltaLink on high-voltage transmission projects in Alberta, SNC-Lavalin has also completed several assignments covering planning, design, construction and project management for high-voltage transmission facilities in Ontario.

14. As the largest Transmission Facility Owner (TFO) in Alberta's electricity industry, AltaLink specializes in electricity transmission and has a long and successful track

record in the planning, development, construction, operations and maintenance of electricity transmission infrastructure. AltaLink's transmission system serves approximately 212,000 square km in the southern half of Alberta and includes more than 12,000 km of high-voltage transmission lines and 280 substations, energized at voltages up to 500 kV. AltaLink's system is used to supply electricity to most major urban centres in Alberta and approximately 85% of Alberta's population. AltaLink also owns and operates the interconnection facilities that connect the Alberta Interconnected Electric System with the transmission network in British Columbia, allowing electricity to flow into and out of Alberta. AltaLink's transmission system operates synchronously with the North American western interconnected system.

2.1.2 Identification and description of the role of any third parties that are proposed to have a major role in the development, construction, operation or maintenance of the line

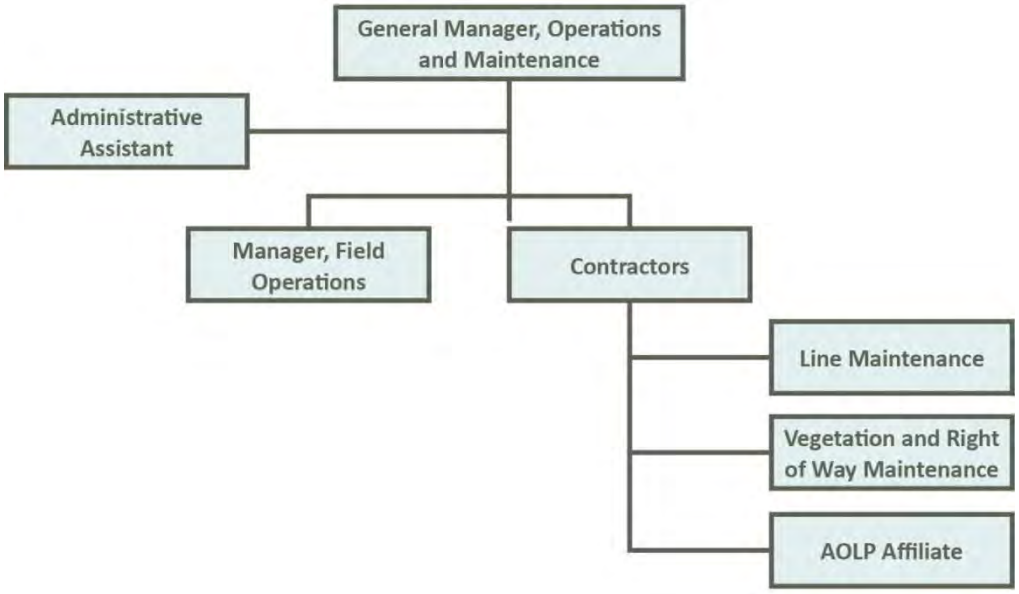
15. In addition to the roles of AltaLink and SNC-Lavalin described in section 2.1.1, AOLP has arranged for services and participation from the following entities in the development, construction, operation and maintenance of the East-West Tie Line.

- Ishkonigan specializes in consultation and mediation services for indigenous communities, government and business. Specifically they have worked with AOLP providing advice, guidance and planning in developing relationships and consultation plans for Aboriginal communities in the project area. Phil Fontaine, former National Chief of the Assembly of First nations, is the founder of Ishkonigan.
- Aboriginal Communities - AOLP has met with a number of Aboriginal communities as well as with the Métis Nation of Ontario. Information gathered through these meetings has helped to shape AOLP's Aboriginal consultation program and Participation Framework.
- Local contractors as described below.

16. AOLP's organizational plan for East-West Tie Line includes an office in the Thunder Bay area that will have overall management accountability for operations and maintenance of the line. AOLP's Thunder Bay office will consist of one General Manager, one Field Manager and an administrative assistant; the majority of the operations and maintenance functions for the line will be contracted out to companies located in the Thunder Bay area wherever possible. Additionally, AOLP may contract various corporate and administrative support and operating and

maintenance functions to the AltaLink group of companies. Figure 2.1-1 outlines AOLP's organizational structure for the operations and maintenance of the line followed by a description of the entities.

Figure 2.1-1 – Operations and Maintenance Organization



17. AOLP will secure line maintenance services from a company located in the Thunder Bay area that has extensive experience in transmission line design, construction and maintenance. This contractor will be responsible for emergency/trouble response, emergency material inventory management and storage, as well as planned repairs and replacements on the transmission line and optical ground wire.

18. AOLP will secure vegetation and right of way maintenance services from companies located in the Thunder Bay area that have extensive experience with this type of work such as Davey Tree Services and Asplundh. Davey Tree Services and Asplundh are companies that operate across Canada including Alberta and Ontario. AltaLink has worked extensively with each of these companies in Alberta for right of way and vegetation management work.

19. AOLP intends to contract back to an affiliate various operations and maintenance functions including, but not limited to:

    - 24/7/365 monitoring;

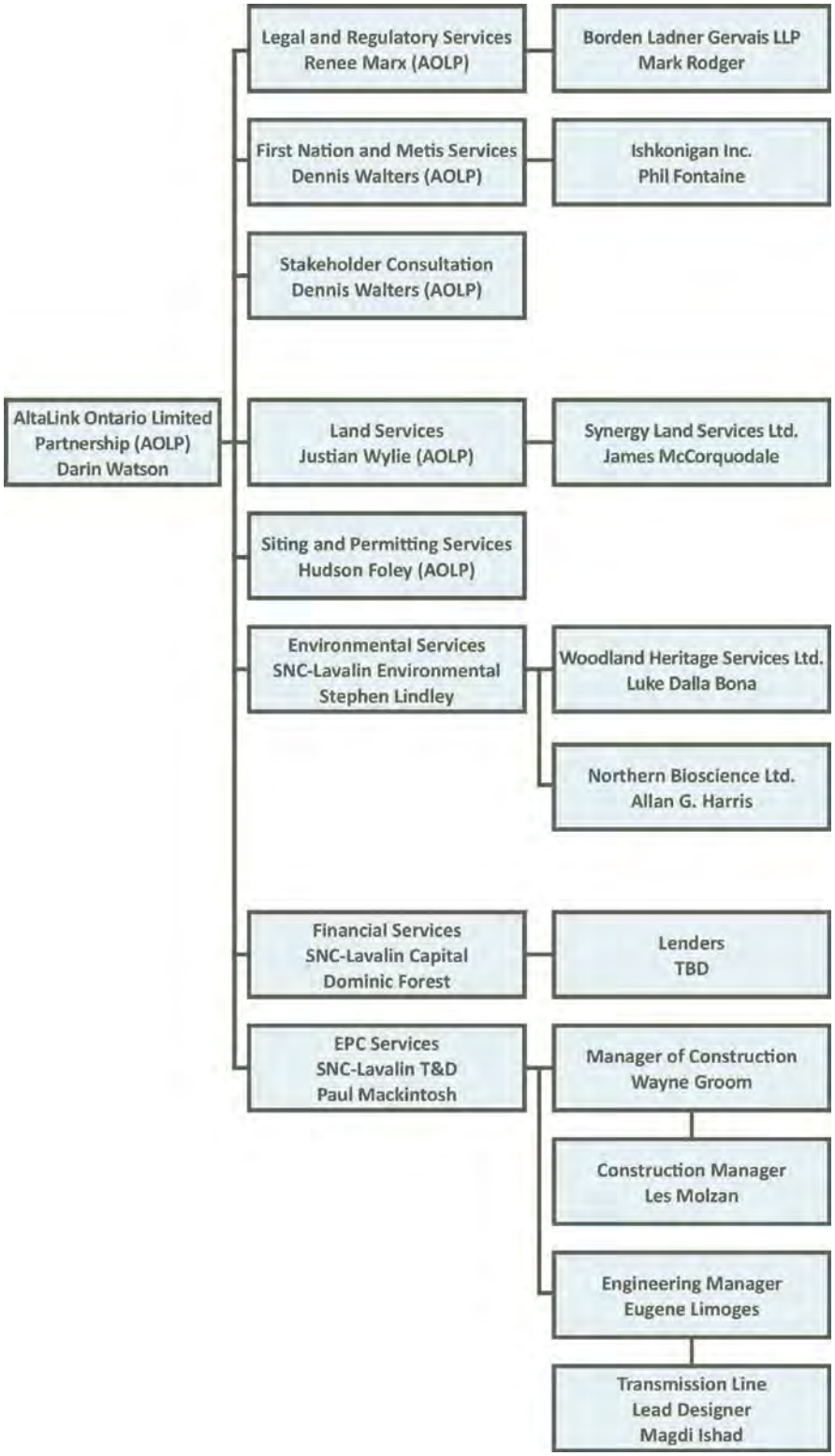
- technical support;
- periodic visual inspections;
- annual maintenance plans and work packages;
- North American Electric Reliability Corporation (NERC) Reliability Standards compliance;
- contract and contractor management;
- landowner agreement management;
- safety and environmental management; and
- administrative functions such as regulatory applications and administration, accounts payable/receivable, human resource administration, payroll, taxes, facilities and information technology.

20. AOLP understands that Hydro One will be installing the line termination equipment at Wawa, Marathon and Lakehead transmission stations (TS) including the associated breakers, bus work, disconnect switches, instrument transformers, protection relays, local and remote controls, and telecommunications equipment. Under this arrangement, Hydro One's equipment would be used for protecting, controlling, monitoring and operating the line. Consequently, AOLP would work closely with Hydro One to develop the necessary interconnection agreements and operating procedures to outline the responsibilities of each party.

2.1.3 A chart to illustrate the organizational structure described

21. An AOLP organizational chart illustrating the structure for the development and construction of the East-West Tie Line is provided in Figure 2.1-2. A description of the operation and maintenance organization is provided in section 2.1.2.

Figure 2.1-2 AOLP Organizational Chart



2.2 Identification of the specific management team for the project, with résumés for key management personnel

22. AOLP's management team for the East-West Tie Line is identified on the organization chart provided in section 2.1.3. The résumés of key management personnel are provided in Appendix 2.

2.3 An overview of the applicant's experience with:

2.3.1 The management of similar projects

23. As part of the AltaLink group of companies, AOLP has firmly established and long-held experience in successfully managing projects similar to the East-West Tie Line. The combined project execution experience of SNC-Lavalin and AltaLink includes expertise in EPC, planning, project development, consultation, project management, ownership and operation of transmission infrastructure similar to the East-West Tie Line. An overview of each entity's experience with projects similar to the East-West Line is described below.

24. SNC-Lavalin is a leading provider of EPC services for power facilities and infrastructure has planned, designed and constructed over 90,000 kilometres of transmission and distribution lines and some 1,500 substations. In addition to its close working relationship with AltaLink on managing and executing high-voltage transmission projects in Alberta, SNC-Lavalin has also successfully completed several assignments covering planning, design, construction and project management for high-voltage transmission facilities in Ontario.

25. AltaLink's transmission system has grown substantially over the last ten years. AltaLink has completed numerous transmission projects similar to the East-West Tie Line in that period and has proven technical experience in planning, managing and constructing both interconnections and new system facilities, including major capital projects that use both AC and DC technology. In 2010-2011 alone, AltaLink completed over forty transmission facility projects, each of which included activities similar to those needed for the East-West Tie Line: planning, design, project management, consultation, land rights, procurement, regulatory, and construction. Among AltaLink's current projects, the Alberta Utilities Commission recently

approved a facility application for 350 km of 500 kV direct current (DC) transmission lines and related facilities between the Edmonton and Calgary regions.

26. In the five year period from 2007-2011, AltaLink delivered 108 transmission projects with demonstrated cost performance. The total combined final cost of these projects was within 10% of the total estimate including one major project that underwent significant scope changes throughout the project life. Within that 10% overall variance, actual costs ranged within and outside of AltaLink's +20%/-10% estimates as shown in Table 2.3-1. For each project, a solid risk assessment process was in place to anticipate project delays and cost impacts. AOLP will adopt AltaLink's cost control strategies employing proactive management of risk mitigation strategies to manage the East-West Tie Line project execution and cost performance.

Table 2.3-1 AltaLink +20/-10% Project Variance 2007-2011

Actual Cost Range	Number of Projects	% of Projects
Greater than 20% of Estimate	13	12%
Within +20%/-10%	45	42%
Less than -10% of Estimate	50	46%
Total Projects	108	100%

AltaLink project cost estimates filed with the Alberta Utilities Commission are at the +20%/-10% accuracy level.

27. The territory served by AltaLink includes 19 First Nations including 13 First Nations with transmission lines on reserve, most of which are owned by a separate entity but are maintained and operated by AltaLink. Two Métis Settlements are also within AltaLink's service territory including one settlement with a transmission line owned and operated by AltaLink. AltaLink has engaged First Nations and Métis communities outside of its service territory to consult on their potential concerns and interests for AltaLink's transmission projects within their traditional territories.

28. AltaLink recently completed a project to construct 90 kilometres of double circuit 240 kV transmission line between Pincher Creek and Lethbridge that crosses approximately 50 km of First Nations reserve lands (Southwest Project in Appendix 3). The balance of the route crosses traditional lands. AltaLink was able to obtain

the required approvals to construct the transmission line across the First Nations reserve lands and complete this project by securing the consent of both the Piikani and Blood First Nations with innovative arrangements. These arrangements included Facilities Operations Accords that outline collaborative frameworks in respect of future projects and ongoing operations. These First Nations agreements are the result of a strong and resilient working relationship between AltaLink and the First Nations and will serve as a model for future cooperation with Aboriginal partners in Ontario.

2.3.2 Regulatory processes and approvals related to similar projects

29. AltaLink regularly submits facility applications to the Alberta Utilities Commission for permits to construct and licenses to operate new transmission facilities similar to the East-West Tie Line. In the previous five years, AltaLink filed 192 facility applications with the Alberta Utilities Commission, each of which included evidence supporting AltaLink's preferred and alternate routes, socio-economic assessments, EAs, detailed engineering and design, schedule, cost estimating and the results of its comprehensive stakeholder engagement programs.

30. In addition to facility applications, AltaLink submitted 229 transmission related applications to the Alberta Utilities Commission in the last five years. AltaLink's extensive regulatory experience includes general tariff applications and other regulatory matters affecting TFOs, such as compliance with developing mandatory reliability standards. AltaLink is well versed in the transmission regulatory process including application preparation, interrogatories, written and oral hearings, presenting expert witness panels and argument.

2.4 An explanation of the relevance of the applicant's experience to the East-West Tie line project

31. To support the sustained growth of the Alberta economy over the past decade, AltaLink has developed competencies, bench strength, and a considerable track record in managing and executing major transmission project developments similar to the East-West Tie Line. As further described below, these competencies include stakeholder engagement and consultation, system designs with multiple options, project management tools, and regulatory interaction in public processes.

32. From 2002 to 2012, AltaLink completed 19 transmission projects with a value of $10M or greater, 75% of which came in on or under budget. This is a significant achievement in Alberta's overheated construction industry. AltaLink has utilized the EPC services of SNC-Lavalin for over a decade to efficiently and effectively execute a very significant capital program.

Relevance of Project Experience to the East-West Tie Line

33. At $1.4 billion in capital projects over 2008-2011, AltaLink ranks seventh compared to transmission capital projects undertaken by the largest American utilities during that same period. AltaLink is now in the process of executing $2.3 billion in transmission capital projects, representing one of the largest transmission development programs in North America.

34. Appendix 3 provides an overview of various major AltaLink transmission projects recently completed or currently in progress; a brief description of major projects similar to the East-West Tie Line is provided below.

35. The largest single transmission project currently underway by AltaLink and SNC-Lavalin is the Western Alberta Transmission Line (WATL). The line route will connect parts of the electrical grid in the Calgary region to the Edmonton region. Its design involved the development of probabilistic (reliability based) climate models that predicted environmental loading conditions for 1 in 100 year events. These events included wet snow loading and high wind loading. The design of the towers was optimized for the terrain type traversed. This optimization demanded the development of separate tower designs for a large river crossing. The functional climate models facilitated determination of enhanced reliability criteria for the river crossing, to maximize reliability in this critical section of the line. The WATL is currently at the materials ordering stage, with construction scheduled to commence in 2013.

36. AltaLink's Heartland project is currently under construction; stringing began in October 2012. The design for this line was developed using the same probabilistic climate models as the WATL project. Since this line is a double circuit 500 kV with twin shield wires, maintenance of conductor clearances under galloping events was a crucial determinate to the size and configuration of the supporting lattice steel

structures. Together with this, the structures were designed to accommodate live line work as a maintenance option. The line route is located within a high density urban area in proximity to the City of Edmonton, with unique public and media attention and significant challenges for the core line design that had to accommodate multiple crossings of low voltage transmission lines, roads and highways arranged around the City of Edmonton. For a short portion of the line route, approximately 9 km of the total 66 km, aesthetic considerations demanded the adoption of tubular steel structures rather than lattice towers.

37. AltaLink has substantial experience constructing 240 kV transmission line projects in Alberta under particular challenges of climate and schedule demands. The extremes of wind and wet snow loading events in southern Alberta have led to extremely robust designs of transmission line support structures. The pace of construction on these projects has been bolstered by helicopter lifting operations for transporting preassembled sections of towers from assembly yards to the final erection positions. There are also examples in these projects where tubular steel structures formed part of the final transmission line design solution rather than lattice towers.

38. Each of the projects identified in Appendix 3 involves similar activities, requirements, expertise and capabilities as that for constructing the East-West Tie Line and generally includes:

- design, engineering, including detailed planning and evaluation of design alternatives including transmission line, telecommunication networks, protection and controls, and substation interconnections;
- siting and routing of transmission infrastructure optimized to balance technical, economic, project execution, environmental, Aboriginal, land use and stakeholder considerations;
- land acquisition;
- material and equipment procurement and management;
- compliance with applicable standards, legislative and regulatory requirements;

- licence and permit regulatory proceeding;
- environmental assessments;
- construction;
- operations and maintenance;
- project management and execution;
- stakeholder consultation and engagement with government agencies, and other communities and organizations; and
- expertise in working with Aboriginal communities and AOLP's understanding and respect for the diverse and distinct rights, interests and ambitions of these communities positions us well to successfully engage with them. This includes AOLP's capabilities related to consultation, studies regarding tradition land use and to provide participation opportunities such as AltaLink's Equity partnership with the Blood and Piikani.

39. To ensure effective project management of the East-West Tie Line, AOLP will replicate AltaLink's proven project delivery model and create a team dedicated to the East-West Tie Line supported by a project management office. The function of this office will be to enhance overall organizational capability, ensure best practices and provide centralized reporting, cost and schedule control and risk and change management. Stage gates, which define readiness to proceed to the next stage, are an integral part of the project delivery model and include early risk identification and mitigation. Quality is embedded as a key control element.

Relevance of Regulatory Experience to the East-West Tie Line

40. AltaLink is subject to the rules, standards and direction of the Alberta Electric System Operator (AESO) and regulated by the Alberta Utilities Commission, primarily under the *Public Utilities Act*, RSA 2000, c. P-45, the *Hydro and Electric Energy Act*, RSA 2000, c. H-16, the *Electric Utilities Act*, S.A. 2003, c. E-5.1, the Transmission Regulation, AR 86/2007 and various Alberta Utilities Commission Rules. AltaLink completes extensive reporting to the financial and performance oversight requirements of the AESO and the Alberta Utilities Commission.

41. Pursuant to applicable legislation and at the direction of the AESO, AltaLink must apply to the Alberta Utilities Commission for approval of permits and licenses to construct and operate specific transmission facilities. As part of this facility application process, which is the equivalent to the Leave to Construct process in Ontario, AltaLink consults with stakeholders regarding siting and routing of the transmission facilities, acquires land use rights, completes EAs as required, and performs detailed design, cost and schedule estimating. In 2011, AltaLink submitted over 30 facility applications to the Alberta Utilities Commission. AltaLink's facility applications range from projects for substation upgrades to major projects for the construction of long portions (100km+) of new 240 kV or 500 kV transmission line, all of which were approved. AltaLink has an excellent track record of facility application approvals with no or few changes directed by the Alberta Utilities Commission.

42. The Alberta Utilities Commission also approves, among other things, AltaLink's prospective cost of service, tariff and terms and conditions under which AltaLink provides transmission service to the AESO. AltaLink routinely engages in this General Tariff Application process which is a detailed and exhaustive examination of AltaLink capital, operations, maintenance and administrative costs.

43. The Alberta Utilities Commission typically holds oral hearings for tariff applications. In hearings, AltaLink puts forward company witnesses who are credible and well versed and consultant witnesses who are experts in their respective fields.

44. AOLP's organizational functionality draws on the extensive regulatory experience of its affiliate. Furthermore, AOLP understands the importance of transparency and responsiveness in the regulatory process and will demonstrate that commitment to stakeholders and the Board in the East-West Tie Line process.

Relevance of Operations and Maintenance Experience to the East-West Tie Line

45. AltaLink currently maintains 12,067 circuit km of transmission line with plans to add over 1,500 km in the next two years; voltages range from 69 kV to 500 kV. Structure types range from wood or steel H-frame structures to lattice steel and guyed aluminum. AltaLink currently has 4,706 circuit km of 240 kV, with 1,616 line km of

double circuit lattice towers, 1,093 line km of single circuit towers and 380 km of H-Frame construction.

46. AltaLink's system terrain includes everything from native prairie grass, cultivation, urban centres to heavily forested and mountainous areas. Approximately 16% of AltaLink's transmission lines run through heavily treed, difficult access terrain similar to Ontario. Approximately 965 km of line is located in mountainous (rocky) areas. AltaLink has experience with longs spans up to 1.3 km through mountain areas and water crossings.

47. AltaLink's transmission facility designs and maintenance plans accommodate a wide variety of temperatures ranging from -50 C to +40 C, heavy snow fall up to 4 metres and winds up to 260 km / hour in certain locations.

48. AltaLink has good relationships with the First Nations in Alberta as it maintains approximately 400 km of transmission line that traverses First Nations lands.

49. AltaLink has over 240 km of line running through National and Provincial Parks, and was the first utility to develop a Class Screening management plan for a national park. AltaLink is experienced working with various environmental groups and regulators, with approximately 100 km of line located within a Caribou protection area.

50. Through its design, construction and maintenance practices, AltaLink works to reduce the ecosystem impact by siting in previously disturbed areas, and utilizing proper construction and maintenance practices such as allowing for vegetation barriers at road crossings, wildlife predator screens where appropriate, and providing gates and barriers to limit off road vehicle traffic on the right of way in sensitive areas. AltaLink also accommodates the traditional harvesting by First Nations of medicinal plants and berries.

51. AltaLink is a member of the Canadian Electricity Association's Transmission Committee of Performance Excellence along with several other Canadian companies. The committee, representing more than 80% of the transmission kilometres in Canada, has developed Key Performance Indicators within the member

organizations to provide quantitative performance measures that can be used to indicate performance in respect of overall objectives and in relation to its peers.

52. From 2006 to 2010, AltaLink performed at or near the top for each of the following CEA recorded performance benchmarks relative to its peers.

- Total Cost per Energy Transmitted
- Total Ops, Maintenance, and Admin Cost per circuit
- Total O&M, and Admin Cost per Gross Fixed Assets
- Direct O&M Cost per Circuit KM
- Direct O&M Cost per Energy Transmitted x Circuit KM
- Direct O&M Cost per Cost per Gross Fixed Assets
- Transmission System Average Interruption Frequency Index

53. AOLP has the organization and plans in place to operate and maintain the East-West Tie Line and in doing so will undertake risk and performance trend assessments to better optimize investment and maintenance decisions. Planned programs that will benefit the East-West Tie Line operations and maintenance include defined Risk Assessment and Maintenance Priority frameworks to prioritize asset replacement.

54. AOLP is mindful of the collective interests of all parties to the East-West Tie Line and will balance safety and operational excellence with fiscal prudence and responsibility, in a fully transparent manner.

3. First Nation and Métis Participation

The applicant must address its approach to First Nation and Métis participation in the East-West Tie line project. To that end, the applicant must file evidence of one of the following:

3.1 If arrangements for First Nation and Métis participation have been made, a description of:

- **The First Nation and Métis communities that will be participating in the project**
- **The nature of the participation (e.g. type of arrangement, timing of participation)**
- **Benefits to First Nation and Métis communities arising from the participation**
- **Whether participation opportunities are available for other First Nation and Métis communities in proximity to the line.**

55. While AOLP has completed significant preliminary work on First Nations and Métis participation in the East-West Tie Line, no specific formal arrangements have been made at this time. A description of AOLP's planned Aboriginal community participation in the East-West Tie Line is set out in the following section 3.2 and a detailed description of AOLP's Aboriginal community consultation plan is provided in section 10.

3.2 If arrangements for First Nation and Métis participation have not been made but are planned, a description of:

- **The plan for First Nation and Métis participation in the project, including the method and schedule for seeking participation;**
- **The nature of the planned participation**
- **The planned benefits to First Nation and Métis communities arising from the participation**

56. In June of 2012, AOLP opened communication channels with the Aboriginal communities whose traditional lands may be impacted by the East-West Tie Line. To assist in this, AOLP engaged the services of Ishkonigan and its president, Former National Chief of the Assembly of First Nations, Phil Fontaine. Appreciating the significant role First Nations and Métis will play in this project, AOLP recognized that Former National Chief of the Assembly of First Nations, Phil Fontaine and his Ishkonigan team would be a tremendous asset with their experience participating in consultation processes at the highest levels and in the development of federal and provincial consultation legislation and policy.

57. In June of 2012, AOLP sent letters of introduction to the chiefs of the First Nations. These letters introduced AOLP as a licensed transmitter registered in the Ontario Energy Board's designation process for the East-West Tie Line. The letters also

provided an overview of AltaLink. In addition to this, contact was made with the Métis Nation of Ontario to determine the best way to engage with the impacted Métis organizations.

58. These letters were then followed-up by phone calls from Former National Chief of the Assembly of First Nations, Phil Fontaine indicating Ishkonigan's involvement with AOLP in the designation process and initiating the process of arranging for face to face meetings with the chiefs or their designates. Over the last several months, AOLP has met with willing First Nations and Métis communities in order to discuss their unique and distinct interests in participating in the East-West Tie Line. These meetings and engagement were extremely helpful in understanding the diversity of perspectives, expectations and interests amongst the Aboriginal communities in relation to the project. Based on this input, AOLP has developed its consultation plan that will allow for the meaningful and respectful engagement of Aboriginal communities and the following *First Nations and Métis Participation Framework* that provides opportunities for all identified Aboriginal communities to participate, but is flexible enough to meet the differing impacts and diverse interests of these communities.

FIRST NATIONS AND MÉTIS PARTICPATION FRAMEWORK
FOR THE EAST WEST TRANSMISSION LINE (THE "PROJECT")

AltaLink Ontario, LP (AOLP) is committed to achieving meaningful and inclusive First Nations and Métis participation in the Project. During 2012, AOLP reached out to 18 First Nations and Métis communities impacted by East-West Tie Line. AOLP's objective was to listen, learn and understand the expectations and interests of the First Nations and Métis communities and to obtain their direct input on specific forms of possible participation that best reflects their interests and aspirations.

The following Framework has resulted from the guidance, input and direction AOLP received from the First Nations and Métis. AOLP is very grateful to the First Nations and Métis for their wise counsel on these matters.

The Participation Framework sets out specific areas of benefit that First Nations and Métis communities will receive from the Project if AOLP is designated by the Ontario Energy Board. The range of benefits includes equity ownership, employment, contracting, training and development or some combination of these. The First Nations and Métis themselves will decide which particular benefits provide the optimum advantages for their respective communities.

If designated by the Ontario Energy Board, AOLP's objective is to conclude binding agreements will all those First Nations and Métis communities who indicate a willingness to pursue some or all of the benefits identified in this Participation Framework.

AOLP's intention is to finalize and file these agreements with the Board at the same time AOLP files its Leave to Construct application.

Principles of First Nations and Métis Participation and Summary of Benefits

1. **First Nations and Métis could acquire up to 49% equity ownership in the Project.**

   The opportunity to acquire a significant ownership stake in the Project will assure the continued participation of First Nations and Métis in the East-West Tie Line for decades to come and provide First Nations and Métis with an important asset and future income that can be applied to community needs as determined by the First Nations and Métis themselves.

2. **First Nations and Métis equity interest in the project would be held by a single entity in a limited partnership.**

   AOLP is committed to establishing viable commercial structures within which the First Nations and Métis will hold and control their equity interest. AOLP will be the General Partner.

3. **First Nations and Métis would acquire their equity interest in the Project.**

   As Aboriginal communities are doing in connection with other AltaLink transmission projects in Canada, First Nations and Métis will acquire their equity interest in the Project on industry acceptable commercial terms that reflect the fair market value associated with their interest in the East-West Tie Line. If requested to do so, AOLP would be pleased to assist participating First Nations and Métis communities in arranging financing for their equity interest in the Project.

4. **AOLP's Participation Framework is responsive to Aboriginal goals and open and inclusive of all relevant First Nations and Métis communities affected by the Project.**

   AOLP places the utmost importance in taking an open and inclusive approach to its Aboriginal Participation Framework. AOLP strongly believes that no directly or indirectly affected First Nations and Métis community should be excluded from this Framework. While individual First Nations and Métis communities will ultimately decide themselves whether and to what extent they want to share in the specific benefits and advantages contemplated under this Framework, all relevant Aboriginal communities are welcome and invited to participate.

5. **The Participation Framework acknowledges that different First Nations and Métis communities will be affected differently by the EW Line.**

   AOLP understands that not all First Nations and Métis communities will be affected the same way by the Project. Some First Nations will experience direct impacts by

having the transmission line being located on their traditional lands. Other Aboriginal communities will experience more indirect impacts which must also be recognized. This Framework expressly recognizes and provides for different levels of participation depending upon the nature of the impact resulting from the Project.

6. **Compensation for First Nations and Métis land rights.**

   AOLP understands that all landowner compensation, including any payments associated with the use of Aboriginal traditional or reserve lands; represent project costs that fall outside of this Participation Framework.

7. **Other Economic Benefits.**

   First Nations and Métis communities have clearly signaled the desire to include employment, training and contracting benefits as part of the Aboriginal Participation Framework. AOLP undertakes to facilitate preferential business opportunities for First Nations and Métis including priority employment, training and contracting with local Aboriginal service providers and product suppliers that reflect the appropriate competencies, prices and labour rates.

8. **Implementation and Aboriginal participation capacity building.**

   AOLP is proud to cooperate and work with First Nations and Métis communities in important capacity building exercises to ensure that Aboriginal involvement results in clear understandings of the regulatory, financial and other critical commercial issues and requirements associated with the Project. AOLP believes it is appropriate for project development costs to include a reasonable funding component for Aboriginal capacity building to ensure that First Nations and Métis are provided with the means and vehicle to facilitate their equity participation in the Project.

3.3 If no First Nations or Métis participation in the project is planned, detailed reasons for this choice

59. This section is not applicable to AOLP.

4. Technical Capability

The applicant must demonstrate that it has the technical capability to engineer, plan, construct, operate and maintain the line, based on experience with projects of equivalent nature, magnitude and complexity. To that end, the following must be filed:

4.1 A discussion of the type of resources, including relevant capability (in-house personnel, contractors, other transmitters, etc.) that would be dedicated to each activity associated with developing, constructing, operating and maintaining the line, including:

60. As detailed below, AOLP, in conjunction with affiliates and third party agreements, will deliver sufficient and expert resources to meet the magnitude and complexity of engineering, planning, constructing, operating and maintaining the East-West Tie Line.

4.1.1 Design

61. AOLP has arranged, among its affiliates, for experienced transmission resources to design the East-West Tie Line. Please refer to Appendix 4, for the résumés of AOLP's key technical personnel. In addition to those listed in Appendix 4, AOLP intends to use tower design specialists for the East-West Tie Line structure design.

4.1.2 Engineering

62. AOLP has arranged, among its affiliates, for experienced transmission resources to engineer the East-West Tie Line. Please refer to Appendix 4, for the résumés of AOLP's key technical personnel.

4.1.3 Material and equipment procurement

63. AOLP has arranged for SNC-Lavalin to provide material and equipment procurement on the East-West Tie Line project. SNC-Lavalin has the logistical capability to plan, organize, and control material and equipment volumes for the East-West Tie Line.

64. SNC-Lavalin's procurement professionals are located in the SNC-Lavalin offices in Calgary, Edmonton, Toronto and Vancouver, enabling SNC-Lavalin to leverage multiple resource markets to sufficiently staff the East-West Tie Line project, as required. Structuring the procurement organization in this way provides SNC-Lavalin greater flexibility in optimizing the best resources available. SNC-Lavalin's procurement system establishes a de-centralized procurement model, allowing SNC-Lavalin to attract and retain highly-skilled professionals in various markets.

65. Moreover, the combined spend by SNC-Lavalin for services and equipment for the years 2006 through 2010 was approximately $31 Billion. Having high dollar spend on commodities such as structural steel ($1.8B), HV/MV Transformers ($557M), and wire and cable ($236M) has positioned SNC-Lavalin with a distinct competitive advantage in the market place.

4.1.4 Licensing and permitting

66. AOLP understands and appreciates that the planning and coordination of transmission facilities is a complex endeavor, requiring knowledge of the policy direction from a variety of government agencies and effective coordination with overlapping plans and developments underway or already in place. AOLP also fully appreciates that Board approval is only one of the many permits and approvals to be pursued and acquired to construct transmission facilities.

67. AOLP has arranged for resources from the AltaLink group of companies that will focus on the various types and levels of permits and licenses required for the East-West Tie Line. All of these resources have experience in negotiating and acquiring multiple permits, licenses and approvals on a variety of projects, ranging from smaller transmission projects to those much larger in size and complexity.

68. As described in section 4.3, AltaLink has particularly extensive experience in the permitting and approval of transmission facilities in Alberta which is similar to the Ontario process.

69. SNC-Lavalin has successfully completed and permitted a significant number of projects under the federal and provincial Environmental Assessment (EA) processes, including coordinated EA and multi-jurisdictional processes with a wide variety of stakeholders. It has extensive expertise in carrying out feasibility, routing, and EAs and all other aspects of the permitting and approval process for both large and small transmission line projects in northern Canada as well as throughout the remainder of Canada and worldwide. With its team of environmental planners, biologists, project managers, environmental engineers, socio-economists and legal experts, SNC-Lavalin can address every aspect of EAs for power lines and other linear facilities, including:

- public, First Nations, and government agency consultation;
- permitting and approvals;
- baseline studies and TEK studies;
- route/site selection and comparative analysis;
- environmental impact assessment and mitigation;
- environmental management plans; and
- environmental inspection and monitoring.

4.1.5 Completion of environmental assessment and other regulatory approvals

70. AOLP has arranged for SNC-Lavalin to conduct the East-West Tie Line Environmental Assessment (EA). SNC-Lavalin will draw on its in-house expertise in environmental planning, biology, aquatic and terrestrial ecology, forestry, soil science, hydrogeology, hydrology, air and water quality management, environmental engineering, computer modeling and analysis, land related information systems and environmental permitting. In addition, SNC-Lavalin has access to a variety of specialist sub-consultants (for example, cultural heritage, landscape architecture, archaeology) that it works with on a regular basis where licensed experts or other regulated personnel are required. A description of the SNC-Lavalin EA project team for the East-West Tie Line is included in Appendix 14, *Draft Report: Environmental Assessment of the East-West Transmission Tie Line Scope of Work* (EA Scope of Work).

71. SNC-Lavalin has relevant and in-depth experience in all technical areas for conducting EAs in power transmission, distribution and generation. These include EAs conducted under the *Canadian Environmental Assessment Act* (CEA Act); the *Ontario Environmental Assessment Act* (Ontario EA Act); and other environmental legislative requirements for private and public sectors, including First Nations and Métis. SNC-Lavalin has completed EAs, as well as scoping studies for EAs, which covered all environmental aspects required for successful project approvals, including baseline studies, community and agency consultation, impact

assessments, permitting, monitoring and environmental inspection during construction.

4.1.6 Consultations, both with First Nations and Métis, and other communities

72. AOLP has arranged for SNC-Lavalin to complete the public and community consultations on the East-West Tie Line, as described further in Appendix 14. AOLP will oversee public consultations and will conduct the Aboriginal consultations in conjunction with AltaLink, Ishkonigan and potentially other consultants.

73. AltaLink's External Engagement department is comprised of Consultation, Aboriginal Relations, Government and Community Relations, and Communications. The more than forty professionals that work in the department come from various backgrounds, including oil and gas, government, planning, land, operations, transmission design, geography and social sciences. Nearly all staff has received training from the International Association for Public Participation (IAP2).

4.1.7 Construction

74. AOLP has arranged, among its affiliates, for experienced resources to assist AOLP in planning and managing all components of the East-West Tie Line construction. Please refer to Appendix 4 for the résumés of AOLP's key technical personnel. In addition to those listed in Appendix 4, AOLP intends to use third-party contractors to complete construction of the East-West Tie Line.

4.1.8 Operation and Maintenance

75. AOLP's General Manager, located in the Thunder Bay area, would have overall management accountability for operations and maintenance of the East-West Tie Line with additional support from a Field Manager and an administrative assistant. The General Manager will have an extensive and broad knowledge of all aspects of operating and maintaining transmission lines including knowledge of all applicable regulations, codes, and standards as well as safety and environmental management, contract and contractor management, and other related items such as the regulatory framework and requirements for operating and maintaining transmission lines. A description of AOLP's planned use of local contractors to assist in the operation and maintenance of the East-West Tie Line is provided in section 2.1.

76. In addition, AOLP has planned the following resource and technical capabilities for each of the key East-West Tie Line operation and maintenance functions.

- 24/7/365 monitoring – the East-West Tie Line will require communication-aided line protection, including fault recording, and real time local and remote control and monitoring including quantities such as power flow, voltage, alarm and status indications. The devices used for these functions are typically located at the terminal ends of the lines within the substations. AOLP understands that Hydro One will be required to install this equipment at the transmission stations. AOLP would work closely with Hydro One to develop the appropriate interconnection agreements, operating procedures and any required communication links between the two entities to stream the data to AltaLink's Control Centre. It is AOLP's intention to use AltaLink's Control Centre, which is staffed by fifteen trained and NERC-certified transmission system operators, to monitor the operation of the East-West Tie Line and coordinate closely with Hydro One on any operational issues. AOLP assumes Hydro One would be the operating authority of the substation equipment and would coordinate isolation of the line when required through Hydro One.
- Emergency/trouble response – when a sustained outage occurs or when conditions of imminent failure of the line exist, AOLP intends to use AltaLink's Control Centre to dispatch local contract crews to the affected location to diagnose, repair and restore the East-West Tie Line as quickly as possible. AOLP's local contractor will provide 24/7/365 response, including labour and any material and equipment necessary to complete the repairs.
- Periodic visual inspections – AOLP will perform annual air patrols of the East-West Tie Line to monitor unusual wear patterns, detect encroachments and update and modify subsequent maintenance plans. On a steel tower line, AOLP will also perform a detailed ground patrol of the line on a 10-year cycle alternating with a detailed air patrol. On wood pole lines, AOLP will perform a detailed ground patrol on a 7-year cycle alternating with a detailed air patrol. These cycles may be altered for lines or sections of lines based on need (access, public concerns, and encroachments). Additional patrols may be

triggered in response to storm events, outages or to ensure stability before, during or after large line maintenance projects. Based on the annual air patrols, additional maintenance or detailed ground patrols may be triggered due to unusual conditions or concerns. Personnel performing these inspections use condition assessments and a risk based priority system to prioritize and schedule repairs and replacements. These inspections will be completed by experienced journeyman linemen that specialize in performing inspections, maintenance and emergency repair of transmission lines (in-house personnel).

- Insulator washing – during the visual inspections, identification of any insulation contamination would be noted and trigger insulator washing as required.
- Planned repairs and replacements – upon completion of the visual inspections, AOLP will review the inspection results, condition assessments and priority ranking for any identified deficiencies and develop the following year's repair and replacement plan along with detailed work scope packages for contractors.
- Right of way and vegetation management – primarily comprised of: spray, mow, trim or removal. AOLP's annual air patrol will include inspecting the right of way condition, vegetation growth and any areas that require vegetation work and/or further follow up along with the priority of any work to be completed. Results of the inspection will be used to develop the following year's work plan.

4.1.9 Project Management

77. AOLP has arranged, among its affiliates, for experienced project management professionals to manage the overall East-West Tie Line project. Please refer to Appendix 4, for the résumés of AOLP's key technical personnel.

78. To ensure effective project management of the East-West Tie Line, AOLP will create a project management office to enhance overall organizational capability, ensure best practices and provide centralized reporting, cost and schedule control and risk

and change management. Stage gates, which define readiness to proceed to the next stage, are an integral part of AOLP's project delivery model and include early risk identification and mitigation.

4.2 Résumés for key technical team personnel

79. Résumés of AOLP's key technical personnel are included in Appendix 4.

4.3 A description of sample projects, and other evidence of experience in Ontario and/or other jurisdictions in developing, constructing and operating transmission lines or other infrastructure and why these projects and experience are relevant to the East-West Tie line project. The evidence should include a description of experience with:

80. AOLP has provided a description of projects in Appendix 3 that collectively demonstrate the AltaLink group of companies' experience in developing and constructing transmission projects similar to the East-West Tie Line. AOLP has also provided a detailed description of relevant experience in the following subsections.

4.3.1 The acquisition of land use rights from private landowners and the Crown

81. AltaLink's cumulative land acquisition experience relates directly to that required on the East-West Tie Line as it encompasses the processes, variety of stakeholder engagements, and structured approach necessary to secure land use rights in a timely manner to meet schedule deadlines. Table 4.3-1 lists several recent AltaLink projects as a representative example of AltaLink's relevant land acquisition experience.

Table 4.3-1 Sample Land Acquisition Projects

Project	Total Tracts (160 acre quarters)	Crown Applications	Surface Rights Board Applications	% of Land Acquired
Western Alberta Transmission Line	644	42	125	67%
South Foothills Transmission Project	223	7	TBD	65%
Hanna – Nilrem	60	7	0	100%
Hanna – Hansman Lake	53	19	5	88%
Cassils to Ware Junction	80	74	0	93%
Heartland	133	1	25	78%
North Foothills Transmission Project	95	5	TBD	23%
Langdon to Janet	79	0	TBD	46%

4.3.2 The acquisition of necessary permits from government agencies

82. All major transmission projects in Alberta require approval from the Alberta Utilities Commission. AltaLink submitted facility applications (similar to Leave to Construct applications in Ontario) for the projects noted in Table 4.3-1. Five of these projects have been approved and three are currently before the Alberta Utilities Commission having been filed in July and September 2012.

83. There are several types and levels of government agencies involved in the approval, construction and operation of transmission facilities, all of which must be actively engaged as part of the ongoing project stakeholder engagement program including incorporating agency feedback. In addition to the important input provided, several of these government agencies have additional permitting or approval requirements over and above those required by the Board. AltaLink has effectively carried out this type of agency engagement on hundreds of successfully permitted projects, to the point where it has become a mainstay in the planning and permitting stage of all transmission projects and solid working relationships have been established with many of the agencies routinely consulted. These productive relationships have resulted in AltaLink being recognized as a key industrial stakeholder by many levels of government and participating in broader policy based initiatives, including:

- Alberta Land Use Framework;
- South East Alberta Conservation Offset Pilot;
- implementation of a trial program to streamline the Water Act application and regulatory review process with Alberta Environment and Sustainable Resources Development;
- joint effort to inventory native grasslands in southern Alberta with Alberta Environment and Sustainable Resource Development; and
- regional development plans.

84. A description of relevant experience in securing permits and licences from government agencies is provided below.

Municipal – provides a local perspective since representatives live and work in the communities touched by the project footprint. AltaLink reviews municipal plans in relation to a proposed project and work with municipal representatives to attempt to mitigate impacts and, where possible, incorporate a proposed transmission facility into municipal plans. This working relationship continues through construction of the project as municipalities are provided regular project updates. Operation of the facilities is a key area of engagement given the long-term presence of the facilities within the municipalities and the potential impact of associated maintenance activities on municipal infrastructure and local stakeholders. While there are a variety of municipal permits/approvals commonly obtained, some of the more common examples are listed below.

- Road-use agreements/permits - These are commonly obtained from municipalities to use municipal roads during construction and for long-term access to the facilities for maintenance or emergency repair work. Examples of these permits are: (1) AltaLink's Heartland Transmission project in Alberta, where road permits were acquired from Strathcona County to use municipal roads to transport equipment and project materials; and (2) in Ontario, SNC-Lavalin obtained entrance permits to use an existing MTO access road located off of Highway 101 for access onto the transmission line corridor.
- Encroachment agreements - These are sought when facilities may encroach on existing municipal facilities, such as a road allowance. Coordinated discussions are held with municipalities to ensure any concerns are addressed and their approval is obtained.

Examples of these agreements are: (1) AltaLink's Southwest Development Project in Alberta, where Sterling 67S substation, an older substation, was located in close proximity to a municipal road and approval for encroaching within municipal limits was acquired; (2) SNC-Lavalin obtained an encroachment permit for the Goldcorp 115 kV transmission line project for work close to Highway 101; and (3) the Class EA for the Markham Transformer Station #4, located within an urban area of the Town of Markham, required a number of encroachment permits related to its proximity to Highway 407 and other roads.

- Telecommunication Facilities – AltaLink has routinely worked with Industry Canada and municipalities when locating telecommunication towers and other facilities. This includes complying with stakeholder consultation requirements and obtaining required permits as necessary.

Provincial – provides the broader provincial direction for development of infrastructure projects such as transmission facilities. The AltaLink group of companies has extensive experience in this area, with multiple successful projects in Ontario, Alberta and other jurisdictions. This expertise includes engagement with a number of provincial government departments for not only specific feedback into proposed transmission projects, but also to identify and obtain any required permits or approvals AltaLink has broad experience in Alberta, successfully working with provincial government departments on hundreds of projects. This includes working through individual department concerns and obtaining required permits, such as Water Act permits, crossing agreements for major highways, Ministerial Orders for location within provincially controlled Transportation/Utility Corridors, Historical Resource clearances, Wildlife Act compliance, approvals for easement dispositions and others. While the types and numbers of provincial permits will vary depending on project scope and location, some common examples are listed below.

- Water Act Permits – In Alberta, when locating transmission structures and other facilities in or within close proximity to wetlands or other water bodies, approval must be obtained from Alberta Environment and Sustainable Resource Development (AESRD) in the form of a Water Act permit. This is a common practice in Alberta and one that AltaLink has extensive experience in completing. A specific example would be the Water Act permits acquired along the right of way on the Cassils-Bowmanton-Whitla projects in southern Alberta.

- Historical Resources – In Alberta, full assessments are required to identify the existence or potential for the existence of historical resources within or in close proximity to a proposed transmission facility and to acquire approval from the Alberta Culture and Community Spirit division through the issuance of an *Historical Resource Act* clearance letter which, for example, AltaLink acquired for the Heartland Transmission project.
- Land Rights – A consistent requirement is the acquisition of land rights on public lands, which are generally provided through the application and issuance of easements or other land dispositions by the provincial government. These typically have numerous requirements that must be met prior to approval and issuance. In Alberta, this process involves the completion of an Environmental Field Report, which requires the applicant to confirm the lack of any conflicts or issues in a variety of areas, including environment, historical resources, wildfire risk, Aboriginal consultation and other areas. AltaLink routinely applies for, and receives, easements and other dispositions as part of this process in Alberta such as the easements acquired for the Southwest Project, which involved a double-circuit 240 kV transmission line between Pincher Creek and Lethbridge.

SNC-Lavalin has broad experience working with provincial agencies in Ontario including the Victor Mine Class EA which was conducted in accordance with the "Class Environmental Assessment for Minor Transmission Facilities" process, for an expansion of the existing electrical grid to supply Victor Diamond Mine, a remote site in the James Bay lowlands. This involved approximately 450 km of 115 kV transmission line and modifications at three substations, one distribution station and one transformer station. The completion of the project involved the acquisition of numerous permits related to the Ontario provincial and municipal regulatory agencies listed below.

- Ministry of the Environment

  Category CEA Approval

  Permit to take Water

  Sewage, Potable water (*Health and Promotion Act*)

  Waste, Emissions (*Environmental Protection Act*)

  Noise (*Environmental Protection Act*)

  Hazardous Waste (*Environmental Protection Act*)

- Ministry of Natural Resources

  Species and Habitat protection (*Endangered Species Act*)

  Permit to collect Fish (*Fish and Wildlife Conservation Act*)

  Permit to collect Wildlife (*Fish and Wildlife Conservation Act*)

  Park Superintendent Approval for work in Ontario Protected Areas

  Project Construction/Operation Authorizations

  Cutting Permit – Forest Resource Licence (*Crown Sustainability Act*)

  Burn Permits (*Forest Fires Prevention Act*)

  Work Permits (*Public Lands Act*)

  Land Use Permits

  Aggregate Permits (*Aggregate Resources Act*)

  Park Crossing Approvals (Provincial *Parks and Conservation Reserves Act*)

  Licence of Occupation (*Public Lands Act*)

- Ministry of Transportation

  Encroachment Permit

  Temporary Road Entrance Permits

- Ministry of Labour

  Notice of Project (*Occupational Health and Safety Act*)

- Ministry of Municipal Affairs and Housing

  Zoning Conformity Permits

- Ministry of Tourism, Culture and Sport

  Archaeological/Heritage assessments

- Ontario Energy Board

  Approval of Leave to Construct

Federal – provides for the broader federal or national direction for development of infrastructure projects such as transmission facilities. The AltaLink group of companies has extensive experience and expertise dealing with a number of federal government departments to obtain specific feedback into proposed transmission projects and to identify any required permits or approvals. This includes working through individual department concerns and obtaining any required permits, such as transmission permits on federal lands, Transport Canada approvals related to obstruction when constructing close proximity to airports or heliports, NavCan approvals related to electrical interference with federal facilities, Industry Canada in relation to telecommunication facilities, Environment Canada in relation to the *Migratory Birds Convention Act* and the *Species at Risk Act*, Fisheries and Oceans in relation to construction near or within sensitive watercourses, and the Canadian Environmental Assessment Agency for projects subject to federal environmental screenings or assessments. SNC-Lavalin regularly seeks and obtains approvals from federal agencies, such as *Fisheries Act* approvals for road and transmission line projects, Transport Canada approvals under the Navigable Waters Protection Act, Migratory Birds Convention Act. A recent example is the Western James Bay Transmission Line EA which was a design/build turnkey project to extend the existing hydro electric grid 275 km from Moosonee to Attawapiskat along the James Bay coastline in Ontario. It involved multidisciplinary technical studies and impact studies including traditional ecological knowledge assessment, biology, hydrology, geotechnical, water quality assessment during preparation of the federal EA. SNC-Lavalin prepared an environmental management plan for construction and undertook a comprehensive public consultation program in affected Five Nations communities. Environmental clearance (permits and approvals) were obtained under applicable provincial and federal legislation.

4.3.3 Obtaining environmental approvals similar to the environmental approvals that will be necessary for the East-West Tie line

85. Drawing on over 30 years of experience, SNC-Lavalin provides the expertise and project management skills to conduct large and small multi-disciplinary projects, as well as highly specialized problem solving studies. SNC-Lavalin assists clients in problem identification, implementation of impact management programs, and the development of solutions, within a complex environment of regulatory requirements and public perception. SNC-Lavalin's comprehensive environmental planning expertise includes:

- **Multi-disciplinary project management** ranging from small short-term studies to large multi-year projects. Management skills include assembling and coordinating large multi-disciplinary teams, seamless cooperation/coordination with interfacing project teams, preparation of Terms of Reference and Study Designs, schedule control, budget control, public and government stakeholder liaison;
- **Environmental baseline studies** providing accurate and scoped multi-disciplinary data collection and monitoring, customized as needed for impact assessment, mitigation and compensation design, and permitting;
- **Environmental impact assessment**, including integrated multi-disciplinary teamwork, and development of comprehensive impact management and multi-criteria evaluation for transmission facilities and individual EAs;
- **Rural and urban planning**, including development guidelines, official plan and zoning by-law amendments, site plan approvals and planning for greenlands systems;
- **Preparation of applications for environmental approvals and permitting**, including bylaw exemptions, work permits, and provincial and federal approvals and authorizations;
- **Site and route selection** for a wide variety of municipal servicing, transformer stations and power transmission corridors, hydroelectric, pipeline and transportation facilities, tailored to meet specific development objectives and statutory obligations;
- **Geographic Information Systems (GIS)** as a stand-alone computer mapping service and an important tool for data management and analysis in site and route selection;
- **Environmental policy/process analysis and compliance**, including policy review, procedures, environmental audits and third-party evaluations and peer reviews;
- **Development and coordination of public participation programs**, including meetings, workshops, focus groups, newsletters, mitigation/compensation packages and issue resolution that are associated with environmental assessments;
- **Coordination of government review** processes in accordance with federal and provincial legislation;
- **Planning services for First Nations**, including community planning, economic development strategies, infrastructure improvements and construction management;

- **Monitoring studies and environmental inspection during construction** to ensure proper implementation and effectiveness of proposed mitigation; and
- **Expert witness testimony**, including formal legal proceedings, review tribunals and alternative dispute resolution/mediation panels.

Table 4.3-2 provides an example of EA projects conducted by SNC-Lavalin that are relevant to the East-West Tie Line project.

Table 4.3-2 Sample SNC-Lavalin Transmission Projects
Environmental Assessment

PROJECT TITLE	PROVINCE/ EA PROCESS	SUMMARY DESCRIPTION	SERVICES PROVIDED	CLIENT	YEAR OF COMPLETION
Goldcorp Red Lake Gold Mine, 115 kV Power Supply Transmission Line, Harry's Corner to Balmer Complex	Ontario – OEAA	SNC-Lavalin was retained to design a new 115 kV transmission line from Harry's Corner to Goldcorp's Balmer Complex in Balmertown, Ontario.	Environmental baseline studies; alternative routes identification and evaluation; Environmental Impact Assessment; public open house; First Nations engagement; government agency liaison and permitting; GIS mapping.	Goldcorp Canada Ltd.; 15 Mine Road Balmertown, ON P0V 1C0 (807) 735-2077 Mr. Curtis Pedwell	2011
Goldcorp Musselwhite Gold Mine 115 kV Power Supply Transmission Line	Ontario – OEAA	SNC-Lavalin was retained to carry out an Environmental Assessment (EA) for a new 115 kV transmission line to increase capacity at their Musselwhite Mine.	Environmental Baseline Studies; alternative routes identification and evaluation; Environmental Impact Assessment; Public Open House; First Nations engagement; Government agency liaison and permitting; GIS mapping.	Goldcorp Canada Ltd. Musselwhite Mine Box 7500 Thunder Bay, ON PTB 6S8 (807) 928-2200 Ms. Adele Faubert	2010
Victor Diamond Mine Power Supply Project	Ontario CEAA and OEAA	To provide an EA, in accordance with the Class EA process, for an expansion of the existing electrical grid to supply Victor Diamond Mine, located at a remote site in the James Bay lowlands.	Route planning and evaluation, multidisciplinary environmental assessment and impact studies, traditional knowledge studies and community consultation.	De Beers Canada Inc. c/o AMEC Americas Limited Anthony H. Copeland 2020 Winston Park Drive, Suite 700. Tel: (905) 829-5399 Ext. 1 - 2351	2005
Western James Bay Transmission Line Environmental Assessment (Omushkego Ishkotayo)	Ontario CEAA	To provide an EA to meet requirements of the Canadian Environmental Assessment Act for extension of the provincial hydro electric grid system from Moosonto Attawapiskat along the James Bay Lowlands.	Multidisciplinary technical studies and impact studies.	Five Nations Energy Inc. Kyle B. Korneychuk, Acting Manager. Water Management Section Walter Scott Building 3085 Albert St. Tel: 705-737-9170	1998
Environmental Impact Assessment Provincial Road 304 to Berens	Manitoba – CEAA and MEA	SNC-Lavalin, assisted by JDMA, conducted an Environmental Impact Assessment and provided traditional knowledge studies, community engagement	Alternative routes identification and evaluation; Traditional Knowledge Study; Community engagement;	East Side Road Authority Inc. (Government of Manitoba) 200-155 Carlton	2009

PROJECT TITLE	PROVINCE/ EA PROCESS	SUMMARY DESCRIPTION	SERVICES PROVIDED	CLIENT	YEAR OF COMPLETION
River First Nation		(consultation) services, alternative route evaluation, environmental impact analysis and GIS mapping/analysis.	Environmental Baseline Data Collection; GIS Mapping; development of a monitoring and mitigation management plan.	Street; Winnipeg Manitoba R3C 3H8 (204) 945-4900 Ms. Leanne Shewchuk	
North West Ontario Transmission Cost Study	Ontario	SNC-Lavalin was retained to provide estimates for detailed and current unit cost information for the engineering, design, construction and commissioning of new transmission lines and associated connection, protection, switching, and transformation facilities in Northern Ontario including the Far North.	Cost estimate Design, construction, commissioning	Ontario Power Authority. Suite 1600 120 Adelaide Street West Toronto, ON M5H 1T1	2011
Remote Communities study	Ontario	SNC-Lavalin was retained to examine the feasibility of connecting all remaining remote northern First Nations communities to the provincial grid, picking up potential sources of power generation along the route.	Environmental Planning Transmission line route selection Power line design and cost estimating Community leadership engagement Regulatory agency consultation	Nishnawbe Aski Nation Development Fund in association with the Waterpower Working Group Harvey Yesno c/o Nishnawbe Aski Development Fund 106 Centennial Square, 2nd Floor Thunder Bay, ON P7E 1H3 Tel: (807) 623-5397	2009
Musselwhite Mine Long-Term Power Supply Options	Ontario	Results of study indicated that the most economical additional supply was a second connection off the southern part of the utility grid at Valora Junction with a 180 km long, 115 kV single-circuit transmission line.	Load flow analyses, power and energy evaluation of potential hydropower sites, preliminary cost estimates for each supply option, comparative economic analysis.	Goldcorp Canada Ltd. Esteban Figueroa, Musselwhite Mine Energy Coordinator. P.O. Box 7500. Tel: 807-928-2200	2007
Feasibility Study for Hydro Development for Muskrat Dam First Nation - Ontario	Ontario	To conduct feasibility study and environmental impact assessment for the development of a run of the river dam at the Windigo Rapids and a 44 kV transmission line, Muskrat Dam First Nation.	Environmental Baseline Data Collection; alternative route analysis; Environment Impact Assessment; First Nations engagement; GIS mapping.	Muskrat Dam First Nation Gordon Beardy P.O. Box 140 Ontario P0V 3B0. Tel: 807 – 471-2574 & 807-471-2699.	Ongoing

PROJECT TITLE	PROVINCE/ EA PROCESS	SUMMARY DESCRIPTION	SERVICES PROVIDED	CLIENT	YEAR OF COMPLETION
North West Ontario Transmission Study	Ontario	SNC-Lavalin was retained to identify, examine and compare the potential environmental and socio-economic impacts to, as well as partnership and other hydro development opportunities for, Northern Ontario First Nations, in the event of a decision to construct one or another of the four proposed Route Options identified as part of the Clean Energy Transfer Initiative.	Environmental Impact Assessment, infrastructure planning/costing; financial modeling, Community consultation planning.	Ministry of Energy, Chiefs Steering Committee Harvey Yesno c/o Nishnawbe Aski Development Fund 106 Centennial Square, 2nd Floor Thunder Bay, ON P7E 1H3 Tel: (807) 623-5397	2007
Eabametoong First Nation Community Grid Interconnection	Ontario	SNC-Lavalin was retained to identify the best alternative power supply for Eabametoong First Nation Community to meet its current and future power demands. This includes identifying hydro resources to be represented in the analysis, generating load forecasts, determining potential power grid connection points, obtaining base cases for conducting power flow analysis, and gathering data on the subsidies received by the current suppliers of the electricity to remote communities	Load flow analyses, power and energy evaluation of potential hydropower sites, preliminary cost estimates for each supply option, comparative economic analysis.	Eabametoong First Nation c/o Michael Fox, Fox High Impact Consulting P.O. Box 20119 Green Acres P.O. Thunder Bay, ON P7E 6P2	2012
Review and Comparison of Infrastructure/ Utility Corridor Alternatives in Remote Northern Ontario	Ontario	SNC-Lavalin was retained to create a planning framework for all weather road and transmission systems to connect remote First Nations communities. The primary goal was to identify a system developed, owned and operated by the First Nations communities and that improves the living standard of the remote First Nations communities in northern Ontario. The secondary goal was to provide economic development and employment opportunities by facilitating the development of potential resource projects	Environmental Planning Transmission line/ road route selection Power line design and cost estimating Community leadership engagement Regulatory agency consultation	Webequie First Nation and East West Corridor Group c/o Michael Fox, Fox High Impact Consulting P.O. Box 20119 Green Acres P.O. Thunder Bay, ON P7E 6P2	2012
Cliffs Chromite Project	Ontario	SNC-Lavalin was retained to provide overall project	Mining pre-feasibility study	Cliffs Natural Resources Inc.	2011

PROJECT TITLE	PROVINCE/ EA PROCESS	SUMMARY DESCRIPTION	SERVICES PROVIDED	CLIENT	YEAR OF COMPLETION
		management and engineering services for the Cliffs chromite project, located in the McFaulds Lake area, James Bay Lowlands, Ontario, Canada.	Road route selection Environmental constraints analysis Cost estimating	Mr. Joseph A. Carrabba 200 Public Square, Suite 3300 Cleveland, OH 44114-2544 216-694-5700	
McFaulds Lake Project	Ontario	SNC-Lavalin was retained to progress the conceptual design of the underground processing facility, infrastructure and transportation portions of the McFaulds Lake project through to a prefeasibility study level. Included a 210 km long all-weather road between McFaulds Lake and Nakina / Pickle Lake with 90 km of the route operating as an ice road during the winter	Mining pre-feasibility study Road route selection Environmental constraints analysis Cost estimating	Noront Resources Ltd.Paul Semple, Chief Operating Officer 105 Adelaide Street W. Suite 1100 Tel: 416-367-1444 Ext 124. Mark Baker Tel: 416-367-1444 Ext 111	2011
Western James Bay Transmission Project Feasibility Study	Ontario	Feasibility study of a 120 kV transmission line to supply power to three remote communities located west of James Bay in northern Ontario, including an extension of the existing Ontario Hydro grid at Moosonee.	Feasibility study, including load forecasting, generation and transmission planning studies, as well as economic and financial evaluation.	Five Nations Energy Inc. Kyle B. Korneychuk, Acting Manager. Water Management Section Walter Scott Building 3085 Albert St. Tel: 705-737-9170	1998
Omushkego Ishkotayo	Ontario	Transmission network in Northern Ontario, including extension of Moosonee substation, three new 138 kV lines covering 270 km, and two 138-8 kV substations and one 138-4.16 substation.	Turnkey development, including detailed engineering, permits and authorizations, procurement of all materials, construction and commissioning of all facilities, and participation in the financing process.	Five Nations Energy Inc. Kyle B. Korneychuk, Acting Manager. Water Management Section Walter Scott Building 3085 Albert St. Tel: 705-737-9170	2002
East Side Lake Winnipeg Transportation Initiative East Side Road Authority	Manitoba	SNC-Lavalin, assisted by JDMA, was to undertake a strategic planning study to develop a reliable All-Season Transportation system into the highly remote area to the north and east	Traditional Knowledge Study; Community Consultation; Environmental baseline Data Collection; Environmental Screening and Development of a monitoring and mitigation management plan.	East Side Road Authority Inc. (Government of Manitoba) 200-155 Carlton Street Winnipeg Manitoba R3C 3H8 (204) 945-4900 Ms. Leanne	2011

PROJECT TITLE	PROVINCE/ EA PROCESS	SUMMARY DESCRIPTION	SERVICES PROVIDED	CLIENT	YEAR OF COMPLETION
				Shewchuk	
Bathurst Inlet Port and Road Project	Nunavut	The Bathurst Inlet Port and Road Project consists of a marine port on Bathurst Inlet, connected to the mines and mineral deposits in Nunavut and the Northwest Territories by a new all-weather toll road.	Detailed feasibility study, environmental study, financial modeling/advisory.	Nuna Logistics Ltd. Mr. A.J. Keen 340 Park Place 666 Burrard Street Vancouver, BC V6C 2X8	2010
Nunavut-Manitoba Route Selection Study	Nunavut to Manitoba	A two-year multidisciplinary study to determine the best location for a surface transportation route linking the community of Rankin Inlet to the existing all-weather surface transportation network in Manitoba.	Route and alignment study, public consultation.	Government of Nunavut, Manitoba Transportation and Government Services, Kivalliq Inuit Association Melodie Sammurtok, Kivalliq Inuit Association PO Box 340 164-1 Mivvik Avenue Rankin Inlet, NU X0C 0G0	2007
Mining Readiness Strategy for City of Thunder Bay and Fort William First Nation	Ontario	SNC- Lavalin was retained to develop a Mining Readiness Strategy for Thunder Bay to characterize the diverse economy, workforce, emphasize the relations between Thunder Bay and the remote communities and understand the mining situation in Thunder Bay and its region.	Environmental Scan, Mining Forecast Analysis, Economic Impact Analysis, Community Readiness, Communication Plan.	John Mason, Project Manager, Mining Services Thunder Bay Community Economic Development Commission (CEDC) Box 800 Thunder Bay, ON P7C 5K4 Direct line: (807) 625-2480 Office: (807) 625-3960 Fax: (807) 623-3962 Toll Free 1-800-668-9360	Ongoing

4.3.4 Community Consultation

86. Consultation professionals plan and implement consultation programs for AltaLink's projects. AltaLink's External Engagement department is comprised of Consultation, Aboriginal Relations, Government and Community Relations, and Communications. The more than forty professionals that work in the department come from various backgrounds, including oil and gas, government, planning, land, operations, transmission design, geography and social sciences. Nearly all staff has received training from the International Association for Public Participation (IAP2).

87. AltaLink's primary focus is to build trust, respect and long-term relationships though active listening and meaningful dialogue. Team members are well-versed in building relationships with stakeholders and Aboriginal groups in a variety of communities and situations. AltaLink's current service territory ranges from irrigated farmland and wind-rich areas in southern Alberta, to densely populated rural areas with engaged communities on the outskirts of Alberta's major cities of Calgary, Edmonton, Red Deer, Lethbridge and Medicine Hat to sparsely populated Crown lands used primarily by trappers, outfitters, and First Nations and Métis populations.

88. AltaLink ensures that those potentially impacted by a project have an opportunity for consequential input that will help shape and result in a project with the lowest overall impact. AltaLink's consultation programs are also designed to fulfill the regulatory obligations related to consultation associated with the project. This is accomplished by providing easy-to-understand information about projects, listening to and understanding concerns, and obtaining feedback to assist in project planning to identify lowest impact routes.

89. AltaLink is well versed at strategically planning project consultation programs taking the following elements into consideration.

- Incorporating strategies as a result of community feedback to facilitate meaningful consultation;
- Timing in relation to other projects or events;
- Political considerations;

- Project history/lessons learned;
- Being a good corporate citizen – awareness of risks arising from failing to act; and
- Stakeholder confusion and/or fatigue on multiple projects that may overlap or be in proximity to other projects.

90. Table 4.3-3 outlines statistics from a variety of recent projects to demonstrate the size and complexity of the transmission projects AltaLink has consulted on within the past few years. AltaLink has consulted with over 50,000 landowners on some of its larger recent projects; this includes close to 4,500 one-on-one conversations with landowners, over 60 open houses and more than 80 information sessions or community meetings.

Table 4.3-3 Sample Land Acquisition Projects

	WATL	SFTP	RDATD	Foothills 138kV	Langdon to Janet	NFTP
Number of stakeholders notified about the project	25,000+	2,600	22,000 includes postal code drop within City of Red Deer	2,150	620	1,300+
Number of one-on-one meetings with stakeholders (consultations)	Approximately 1,500 over two phases of consultation	770	1,200	400	290	330
Number of open houses	23 attended by more than 2,900 people	9 attended by more than 400 people	12 attended by more than 350 people	6 attended by 70	6 attended by 130 people –	8 attended by over 270 people
Number of days information sessions/ community meetings/ project offices were open to stakeholders	65	None available	Project office open Wednesdays from June 29 to August 31, 2011(closed on Wednesday June 27, 2011 and August 3, 2011)	4	6	6

4.3.5 Completion of the procedural aspects of Crown consultation with First Nations and Métis communities

91. AltaLink has specific experience in completing procedural aspects of Crown consultation with First Nations. For each of its transmission facility projects in Alberta, AltaLink confers with the appropriate government ministry for an identification of First Nations communities with which AltaLink must consult. In Alberta, the government ministry is typically Alberta Environment and Sustainable Resource Development. Once AltaLink's consultation program is completed, Alberta Environment and Sustainable Resource Development reviews the adequacy of AltaLink's Aboriginal consultation program and issues a formal acceptance thereof.

92. The following is a brief overview of AltaLink's experience working with Aboriginal communities.

- To ensure obligations and commitments to Aboriginal communities and people are met, AltaLink has a dedicated Aboriginal Relations team whose collective experience includes provincial policy development, First Nations governance administration, Aboriginal Social Work, executing programs with the Métis Nation of Alberta's regional and provincial offices and with the Métis National Council, development of sustainable First Nations business partnerships, transmission project management, public stakeholder direction, management, specialist roles within transmission, and other core Aboriginal Relations activities.
- AltaLink is represented and actively participates on the CEA Aboriginal Relations Task Group comprised of Aboriginal portfolio leads within the electrical energy industry across Canada.
- AltaLink's service territory includes nineteen First Nations Reserves, two Métis Settlements, and four of the Métis Nation of Alberta's six regions.
- 13 First Nations within AltaLink's service territory have transmission lines on reserve which are maintained and operated by AltaLink.
- AltaLink has engaged in over 50 traditional land use assessments since 2009.
- AltaLink has coordinated over 35 information sessions with Aboriginal communities.
- AltaLink has negotiated options for limited partnership agreements with two First Nations which includes the ability to invest into equity on existing and new AltaLink facilities proposed on the respective reserve lands.

93. As explained in section 10.1.2, Consultation Objectives, AOLP is prepared to enter into a memorandum of understanding with the Ministry of Energy regarding the procedural aspects of the East-West Tie Line consultation.

4.3.6 Construction Environmental Protection Planning

94. AltaLink has established success in Environmental Protection Planning (EPP) execution in construction. AltaLink's EPP has proven successful on multiple large scale transmission projects throughout Alberta's diverse landscapes and will be tailored to the East-West Tie Line. The EPP ensures that potential impacts to environmental and heritage resources are avoided or appropriately mitigated. The

EPP involves the development of detailed mitigations to protect resources determined through the EA process. The EPP also includes the completion of detailed pre-disturbance assessments of biophysical resources (on an individual tower basis) prior to construction start, comprehensive environmental alignment sheets to guide construction, a Construction Environmental Management Plan, and a field inspection program. The EPP ensures that all aspects of construction operations are compliant with pertinent environmental regulations and guidelines.

95. **Species at Risk Management** - large tracks of native grasslands remain in Alberta and this habitat is occupied by federal and provincial species at risk. Within these native grasslands a critical population of species at risk exists. Building transmission lines across sensitive native grassland habitat requires a range of adaptive environmental approaches. AltaLink's Environment Team, alongside third party professional biologists, has developed a menu of mitigative approaches, in consultation with environmental agencies, to reduce potential impacts to species at risk.

96. Depending on the species, restricted activity periods can apply where no construction activities are allowed during certain times (e.g., during early spring/summer breeding periods for migratory birds and many species at risk). Implementing restricted activity periods can be incorporated into construction scheduling, may be required for project approvals and reduces negative interaction with wildlife during critical lifecycle periods. AltaLink shutdown construction on native grasslands during the period of April 1 – July 31 in 2010 and 2011 on two large scale 240 kV transmission line construction projects. This shutdown was completed in an effort to protect species at risk and also to respect the migratory bird nesting period.

97. **Caribou Habitat Management** - AltaLink recognizes the value of minimizing the effects of development of transmission corridors in areas of relatively unaffected caribou habitat. In recognition of the value of reducing footprint and supporting the Government of Alberta's policies towards reducing these impacts, AltaLink has developed a number of mitigation measures for reducing the effect of transmission line development on the natural habitat.

98. AltaLink is currently developing several transmission line projects in the northern region of Alberta within an area recognized as primary habitat for several sensitive species including caribou. Contiguous habitat in this region has been defined through the development of an intact patch analysis model whereby woodland caribou were selected as a representative species to develop buffers around anthropogenic disturbances and identify intact patches of 200 hectares or greater. The intact patch analysis was utilized as a tool in selection of preferred route options for proposed developments in the area. Upon selection of final proposed routes, AltaLink employs habitat selection criteria to the planned right of way to identify areas along the corridor that best represents a balance between focal species (woodland caribou) and right of way management requirements in compliance with NERC reliability standards. In these areas, clearing and vegetation removal is kept to the absolute minimum required for construction along the rights of way, effectively reducing the right of way width to as little as six metres and providing cover for animal passage.

99. AltaLink has engaged Alberta's regulatory staff (Alberta Environment and Sustainable Resource Development, Fish and Wildlife Division) to solicit feedback on proposed design criteria to be applied to all future projects in the area. This feedback will be incorporated into AltaLink's standard EPP for each project and incorporated into long term right of way management.

100. **Heritage (Historical) Resources Management** - AltaLink employs a permanent Archaeologist to facilitate the successful management of archaeological, paleontological, and historical sites in its rights of way.[1] AltaLink adheres to the position that, where possible, avoidance or other means of historical resource preservation through development planning or redesign are preferred options. This position is consistent with the mandate of Alberta's historical resources regulator (Alberta Culture) and Alberta's First Nations.

101. Through consultation with Alberta Culture, AltaLink engages in historical resources management activities in support of new transmission projects, corporate

1 AltaLink's staff archaeologist is qualified to hold the highest level of heritage licensing in Ontario.

operations, and maintenance activities. The approach has included the completion of Historical Resources Impact Assessments and successful consultation with First Nations.

102. AltaLink also engages in continued dialogue with the provincial regulator to not only ensure compliance with Alberta's *Historical Resources Act*, but to devise innovative practices that expedite the permitting process. This was highlighted in a first-of-its-kind regulator engagement meeting with Alberta Culture in May 2012. One of the results of the meeting was a considerable shortening of time required for the issuing of clearance by Alberta Culture. To date, AltaLink's resource management strategies have prevented delays to project schedules due to historical resources constraints.

103. AltaLink is the industry leader in innovative approaches to historical resources management in Alberta. AltaLink incorporates historical resources avoidance requirements in its EPP and includes long-term protection of historical resources through the development of the draft *Historical Resources Avoidance Plan (HRAP)*, currently under provincial regulator review. In essence, the HRAP provides the necessary framework for long-term co-management of historical resources from transmission line construction to decommissioning. When approved, AltaLink's HRAP will result in a major policy shift by Alberta Culture that will preclude the excavation of many archaeological sites in transmission rights of way. The avoidance and long-term protection of historical resources is most certainly consistent with the mandates of the provincial government, Alberta special-interest groups (e.g., Archaeological Society of Alberta), concerned landowners, as well as First Nations. Additionally, historical resource avoidance minimizes the likelihood of project delays due to site excavation and reduces overall project costs.

4.3.7 Operations and Maintenance

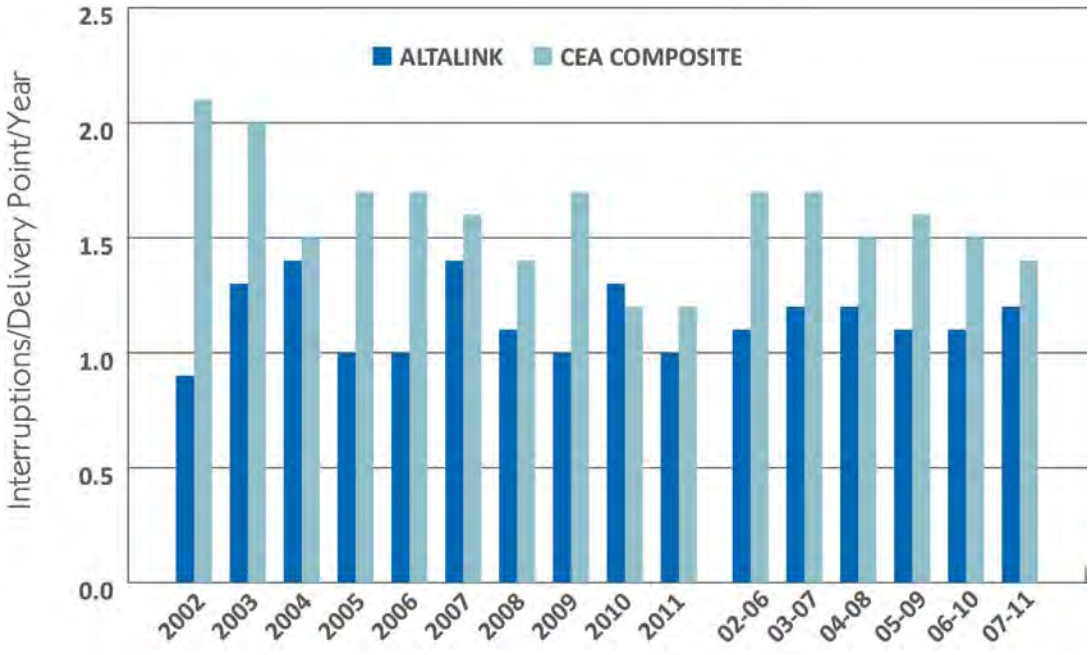
104. AltaLink has demonstrated its capability in owning, operating and maintaining over 12,000 km of transmission line in Alberta ranging in voltages from 69 kV to 500 kV. In addition, AltaLink operates and maintains another 400km of transmission line located on First Nations land ranging in voltages from 69 kV to 240 kV. AltaLink has over 3,200 km of 240 kV lines equating to approximately 4,706 km in circuit length.

105. AltaLink has over 200 office and field employees focused on operating and maintaining its transmission lines, substations, protection and control, SCADA and telecommunications. The employees consist of management, electrical and civil engineers, office and field technologists, journeyman, control centre operators and support staff.

106. AltaLink has extensive experience in operating and maintaining transmission lines and has well developed operating practices, maintenance programs and work procedures to provide safe, reliable and cost effective transmission services in an environmentally responsible manner and comply with all required regulations, codes, and standards. As detailed below, AltaLink is a top performer across Canada in the areas of reliability, safety and cost efficiency when compared to its peers.

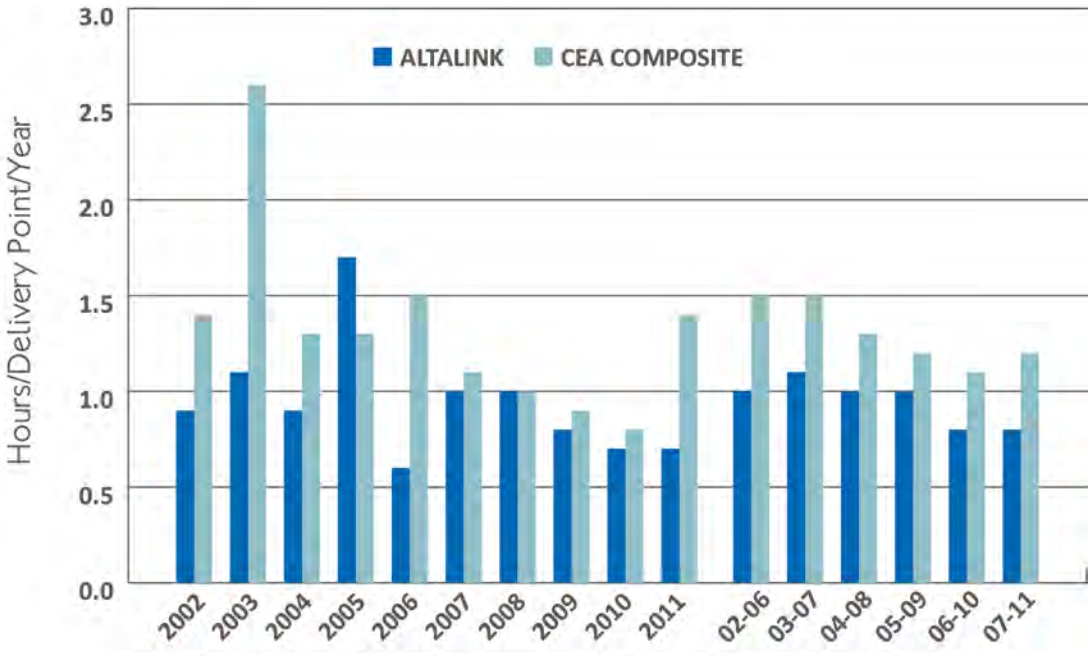
107. As illustrated in Figures 4.3-1 and 4.3-2, AltaLink has a history of strong reliability performance and is regularly a top performer across Canada despite operating in a challenging climate with annual temperature swings from -50C to +40C and wind speeds as high as hurricane category 1.

Figure 4.3-1 AltaLink SAIFI Record



SAIFI - System Availability Interruption Frequency Index is the average number of interruptions per delivery point during a 12-month period.

Figure 4.3-2 AltaLink SAIDI Record



SAIDI – System Availability Interruption Duration Index is the average number of interruption hours per delivery point during a 12-month period.

108. AOLP will incorporate AltaLink's safety programs in the construction and operation of the East-West Tie Line. Safety is a core value at AltaLink which apparent in its top quartile safety performance across Canada. AltaLink was recently awarded silver for the CEA President's Award of Excellence for Employee Safety and a bronze in the transmission and distribution category for the CEA Vice President's Award of Safety Excellence. AltaLink's on-going investment in safety training and equipment is a critical factor in both employee and public safety. AltaLink is faced with high workloads and an increased number of inexperienced employees, but despite these challenges, AltaLink's safety performance remains strong. AltaLink measures its safety performance by the following industry common indices, demonstrated in Figures 4.3-3 to 4.3-3.

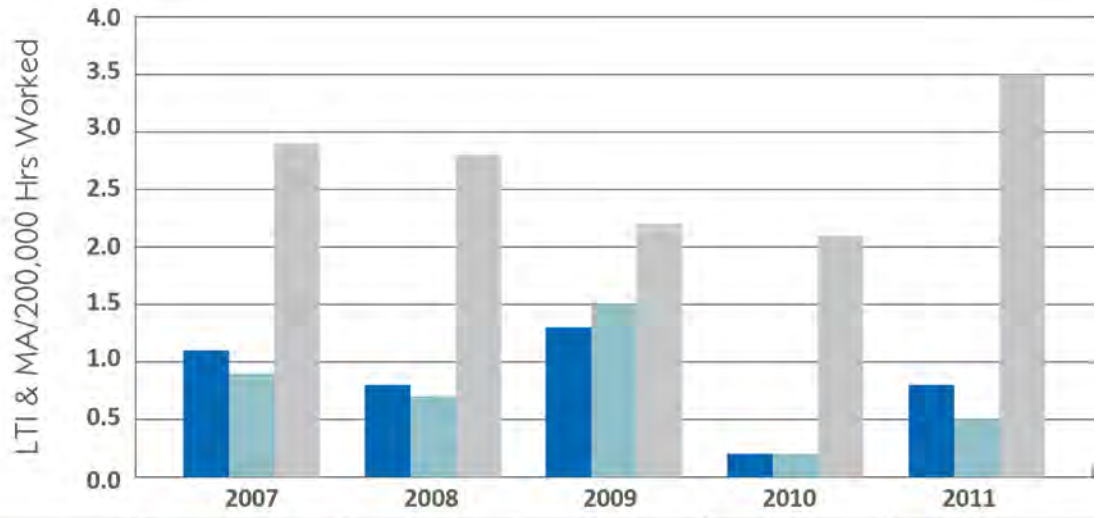
AIFR (All Injury Frequency Rate) = Number of Medical Aid and Lost Time Incidents / Per 200,000 Hrs Worked

LTSR (Lost Time Severity Rate) = Number of Lost Time Days Not Worked / Per 200,000 Hrs Worked

VAFR (Vehicle Accident Frequency Rate) = Number of Vehicle Accidents / Per 1,000,000 Kilometres Driven

109. Figure 4.3-3 represents lost time and medical aids for AltaLink employees and contractors. AltaLink's frequency of medical aids and lost time personal injuries is significantly less than the CEA Transmission composite. Despite a period of unusually high workloads for both staff and contractors, the frequency of medical aids and lost time personal injuries has remained within AltaLink's normal historical range.

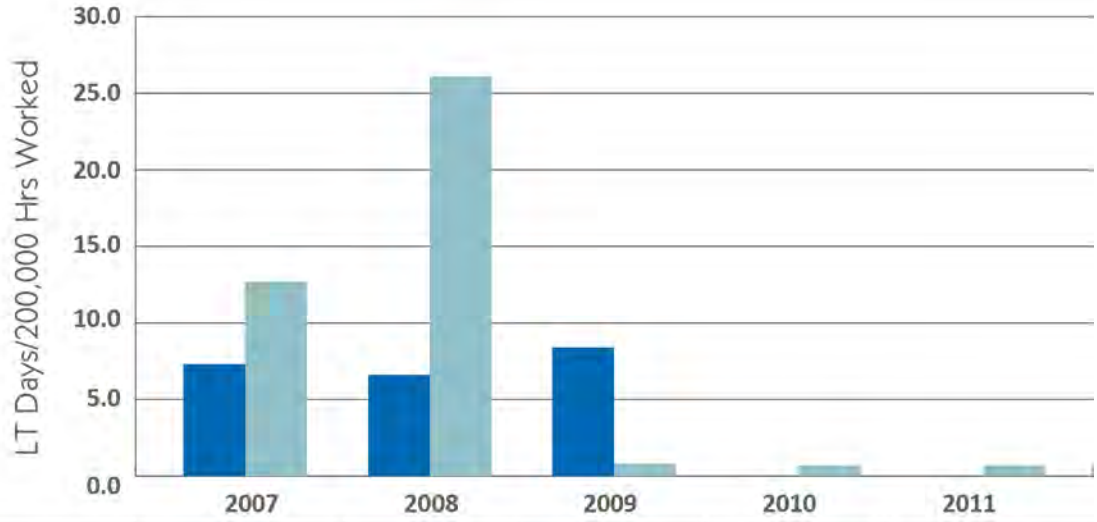
Figure 4.3-3 AltaLink All Injury Frequency Rate (AIFR)



	2007	2008	2009	2010	2011
AltaLink	1.1	0.8	1.3	0.2	0.8
AltaLink Contractors	0.9	0.7	1.5	0.2	0.5
CEA Composite	2.9	2.8	2.2	2.1	3.5

110. Figure 4.3-4 shows AltaLink and CEA Lost Time Severity Rate (LTSR) which measures the degree of injury or the length away from work for the more serious incidents. As demonstrated, AltaLink's LTSR is materially lower than the CEA composite.

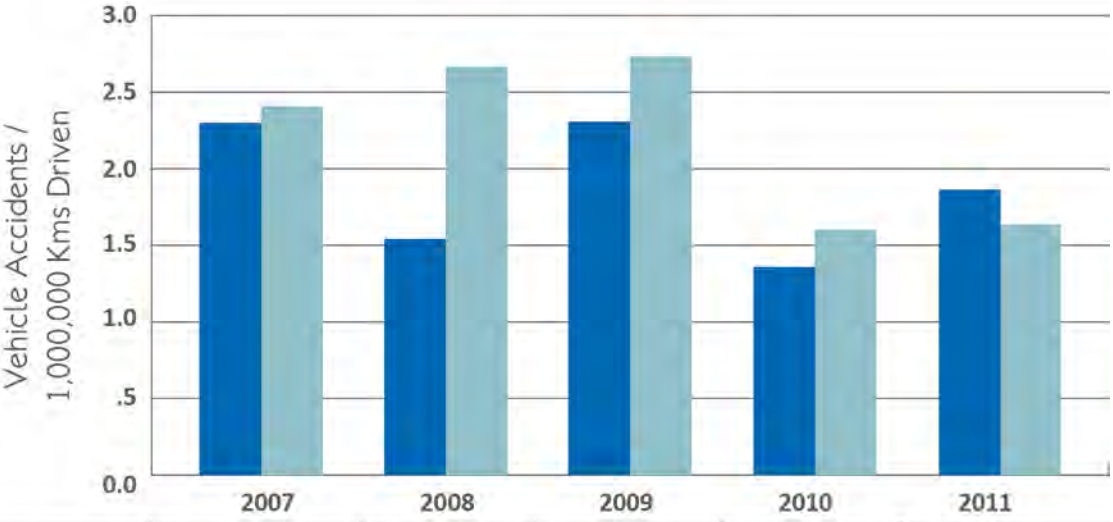
Figure 4.3-4 AltaLink Lost Time Severity Rate (LTSR)



	2007	2008	2009	2010	2011
AltaLink	7.3	6.6	8.4	0.0	0.0
CEA Composite	12.7	26.1	0.8	0.7	0.7

111. AltaLink's Vehicle Accident Frequency Rate (VAFR) is shown in Figure 4.3-5. For the 2007-2011 period, AltaLink's VAFR remained stable, typically below the CEA composite, and within AltaLink's normal historical range.

Figure 4.3-5 AltaLink Vehicle Accident Frequency Rate (VAFR)



	2007	2008	2009	2010	2011
AltaLink	2.3	1.5	2.3	1.3	1.9
CEA Composite	2.4	2.7	2.7	1.6	1.6

112. AltaLink has a strong safety culture and continues to invest to required levels in equipment, tools, training programs and procedures to ensure public and employee safety. AltaLink strives for zero safety incidents through a number of programs, strategies, and initiatives described below.

113. AltaLink has established an Employee Health & Safety (EH&S) Management System designed to manage the risks and liabilities associated with the construction, operation and maintenance of its transmission system.

114. AltaLink's Contractor Safety Management Program provides the due diligence required to meet legislated safety and environmental requirements, ensure a safe work environment for all staff and that the contracted facilities meet AltaLink and industry standards for quality and integrity. Specifically, AltaLink will:

- pre-qualify contractors based on their ability to manage safety, environmental and quality requirements;
- identify EH&S requirements in contract documents;
- assess and mitigate risks through implementation of the Contractor Safe Management Program;
- ensure that contractor workforces are, and remain, competent from the project start through to completion; and
- ensure compliance to contract requirements through evaluation/verifications, worksite observations and post job assessments.

115. AltaLink's Safety Certification strictly defines the required competency and experience for workers required to work on or near AltaLink facilities and to ensure compliance with legislation and AltaLink safety standards. The nature of work dictates the level of training, competency and experience required and is categorized by a specific designated safety certification level. As part of its structured Safety Certification requirements, AltaLink has developed the following safety courses.

- Alberta Occupational Health and Safety Code
- Alberta Electric Utility Code
- Work Planning and Safe Work Planning
- AltaLink Functional Facility Orientation
- AltaLink Safety Standards and Procedures
- Substation Practical Orientation
- Equipotential Bonding and Grounding Transmission
- Equipotential Bonding and Grounding Substations

116. AltaLink employees that drive over 20,000 km/year are required to take defensive driver training to reduce vehicle collisions and injuries. Topics include aggressive

driving, distracted driving, fatigue, winter driving, and vehicle-wildlife collision avoidance, among others.

117. AltaLink also participates in a number of external safety forums as part of its ongoing commitment to employee and public safety. For example, JUST is a joint initiative among AltaLink, the Government of Alberta, ATCO Electric Ltd., ENMAX, EPCOR and FortisAlberta Inc. to change public understanding of, and behaviours toward, electrical safety through ongoing communication. JUST's ultimate goal is to decrease the number of public electrical contacts and injury. Further information on JUST can be found at www.wherestheline.ca.

118. As a result of a new safety management initiative at AltaLink, the company recently undertook a comprehensive review of safety policies and procedures. As an outcome of this review, AltaLink revised its Incident Management Standard and created two new policies titled Observation Standard and Inspections Standards. All three policies define roles and responsibilities, outline a clearly written process, provide new forms for reporting, and require all managers (and above) to complete new training.

119. AltaLink also reviewed and revised the health and safety related responsibilities and duties of a Prime Contractor and expanded the responsibilities and duties of its Field Coordinator. A Field Coordinator is designated as the AltaLink site representative and is accountable for field construction safety during all phases of construction and for all field work activities by AltaLink staff and contractors. The position does not replace or take on the role of supervisor. Rather, the Field Coordinator's focus is to monitor field work activities to ensure compliance with AltaLink safety expectations as well as the *Alberta Occupational Health and Safety Act*, Regulation and Code.

120. AltaLink employs over twenty in-house environmental and heritage resources professionals that have wide-reaching experience in transmission planning, EAs, construction, operations, and reclamation on large scale transmission projects throughout Alberta and western Canada. The team consists of six Registered Professional Biologists, one Registered Professional Forester, an Archaeologist, a sustainability specialist, and multiple seasoned Environmental Planners. AOLP will

provide the collective experience of these environmental professionals to assist in the EA, construction, and operational phases of the East-West Transmission Tie Line.

121. AltaLink also operates an Environmental Management System (EMS) which is compliant with the international standard for environmental management systems, ISO 1400. AltaLink's EMS and associated environmental operational standards and procedures provide direction to field personnel and contractors. As part of its on-going commitment to the environment, AltaLink has implemented several environmental programs and initiatives as outlined below.

- Avian Protection Plans - AltaLink was the first Canadian utility to implement an Avian Protection Plan (APP). The APP is a utility-specific program designed to reduce the operational and avian risks that result from interactions with electric utility facilities. The overall goal of this plan is to reduce avian mortality and improve system reliability. Complementing the APP is AltaLink's active membership in the Avian Power Line Interaction Committee, the Alberta Ferruginous Hawk Recovery Team, and the Raptor Research Foundation. The APP focuses on preventing bird and wildlife electrical contacts via an innovative GREENJACKET™ cover system, preventing bird collisions with conductor wire via bird flight diverters, and protecting bird habitat via the installation of artificial nesting platforms which provide critical habitat for raptors.
- GREENJACKET™ - AltaLink is the first company to use GREENJACKET™ covers to protect wildlife from electrical contacts. GREENJACKET™ is a protective cover that insulates exposed electrical equipment. Between 2006 and 2011, AltaLink outfitted 43 substations with GREENJACKET™ covers. Since then, AltaLink has significantly reduced wildlife caused outages in substations. As part of AltaLink's APP, all new substations are assessed and if there is a potential for electrical contact, GREENJACKET™ covers are installed. Prior to installing GREENJACKET™ substation wildlife covers, 20 per cent of substation outages were attributed to wildlife.
- Wood Pole Line reclamation criteria - wood poles are treated with wood preservative chemicals that can leach into the surrounding soil. Working with Alberta Environment, AltaLink developed a procedure to assess the potential risk associated with these

chemicals. The process is both environmentally sound and cost effective and is applied when a wood pole power line is being decommissioned.

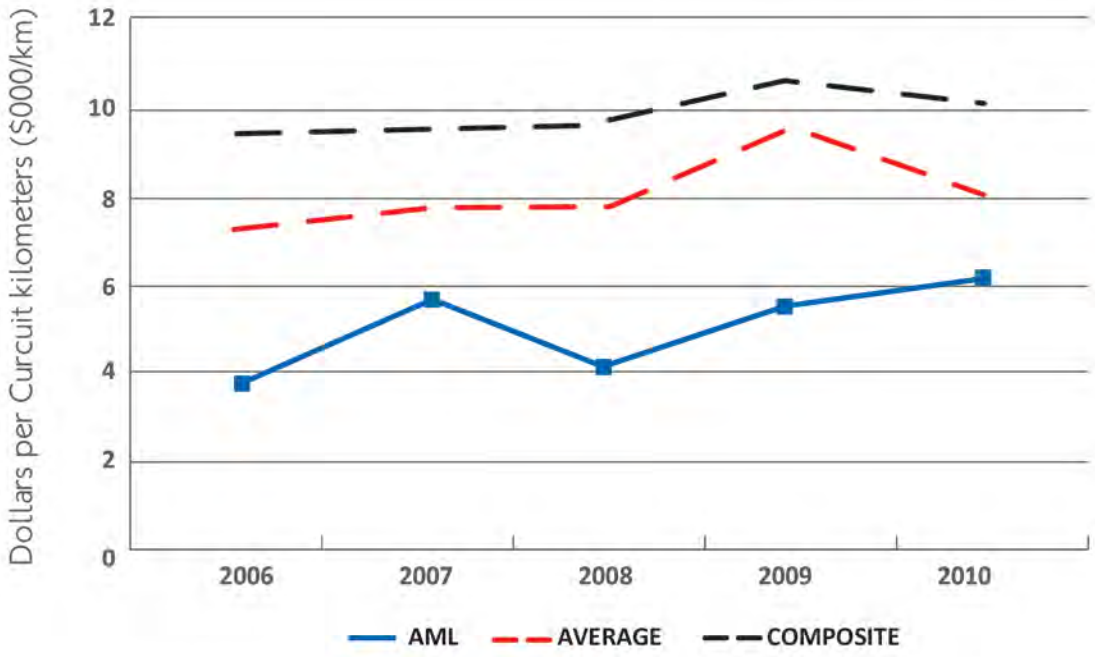
- Wood pole recycling – AltaLink has implemented a wood pole recycling program to address the large number of salvaged poles generated at the time a wood pole power line is being rebuilt or moved. The first tier of the program entails the pole manufacturer removing all poles that are suitable for reconditioning. These poles will become new reconditioned poles to be reused within the electrical industry. The remainder of salvaged wood poles are made available to local landowners for use on farms and ranches.
- PCB Management - even though the manufacturing of PCB was discontinued by 1980, PCBs are still found in electrical equipment. AltaLink has a comprehensive program to manage oil filled equipment, some of which contains trace amounts of PCBs. One example is decontamination and refurbishment of transformer oil that is PCB contaminated. Contaminated oil is removed from transformers and sent to specialized PCB decontamination plants. The oil is processed and then returned to AltaLink for reuse.

122. In addition, AltaLink works closely with all stakeholders such as government agencies, First Nations, Métis and Parks Canada in its operations and practices. For example, AltaLink has transmission line located in heavily forested areas that are provincially designated as Wildfire Management Areas. AltaLink works closely with Alberta Sustainable Resource Development, the local Wildfire Management Area (WMA) representatives and local forestry staff to develop and execute appropriate vegetation management plans in these areas to minimize the risk of wildfires due to transmission line operation. The plans are reviewed and approved by WMA representatives prior to AltaLink completing the work. AltaLink subsequently meets with these agencies on site to review the work once it is completed and ensure it has been performed according to the plan and that any issues such as danger trees have been properly addressed.

123. AltaLink is a member of the CEA's Transmission Committee of Performance Excellence along with several other Canadian companies. This committee, representing more than 80% of the transmission kilometres in Canada, has developed key performance indicators within the member organizations to provide

quantitative performance measures that can be used to indicate performance in respect of overall objectives and in relation to its peers. One of these key performance indicators - operating and maintenance cost per circuit km – is shown in Figure 4.3-6. For the 2006-2010 period, AltaLink was consistently a low cost operator per circuit km.

Figure 4.3-6 Total OMA Cost per Circuit Kilometre



Reproduced from the Canadian Electricity Association, Transmission COPE, 2011 Comprehensive Annual Report.

4.4 Evidence that the applicant's business practices are consistent with good utility practices for the following

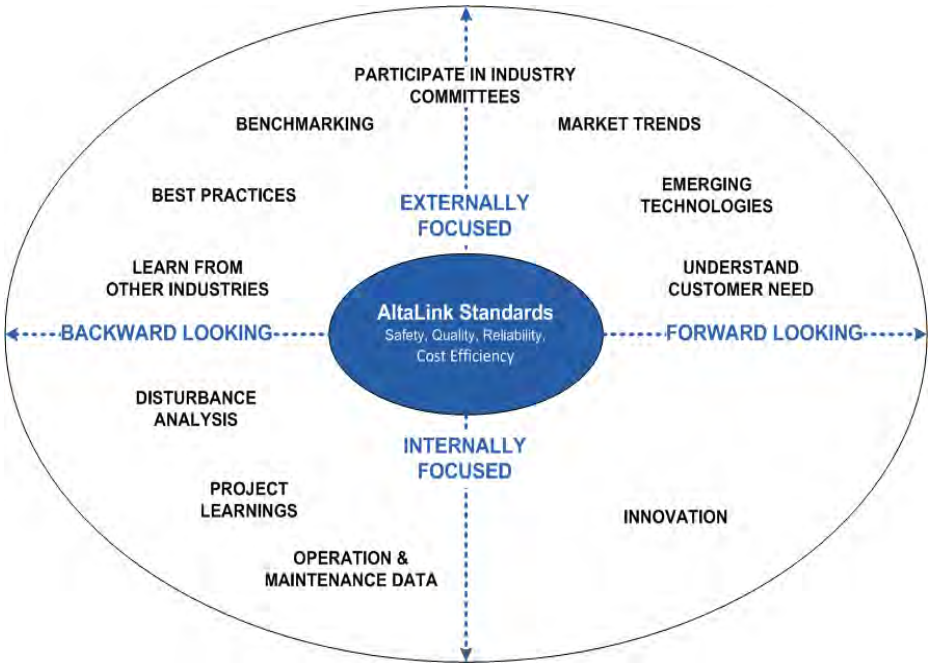
124. AOLP and its affiliates adhere to principles and practices that are consistent with good utility practice including the following aspects of the East-West Tie Line.

4.4.1 Design and Engineering

125. The AltaLink group of companies delivers value design and engineering solutions optimized over the entire asset life from project concept to salvage and decommissioning. Its range of technical expertise includes transmission lines and substations up to 765 kV AC, as well as the full range of associated SCADA, protection and control, and telecommunications systems.

126. AltaLink's design and engineering standards are both well-defined and adaptable to balance standardization with flexibility. Standards are continually tested to ensure they are fit for the intended purpose and do not serve to constrain transmission infrastructure design and innovation. Figure 4.3-7 demonstrates AOLP's approach to monitoring, learning from and renewing its standards, which include Philosophies and Principles, Design Standards, Technical, and Functional/Performance Specifications and Procedures and Approaches.

Figure 4.3-7



127. SNC-Lavalin maintains a set of engineering standards and specifications as part of its processes and procedures implemented through the ISO:9001 accredited Quality Management System. SNC-Lavalin has also established a client specific engineering standards and specifications library, for use in portfolios held by utility-based clients, by utilizing its Project Documentation Management (PDM) system and Item Code Application (ICA) software.

128. There is a single point of contact for management of each client standards. All client standards, specifications and drawings are archived on PDM within the "Released" location. Changes to standards requested by the client (through

Technical Bulletins) are archived in the "Pending" location and are moved to the "Released" location once the impact assessment has been performed. SNC-Lavalin engineering teams are trained to refer to the "Released" location within PDM to ensure that they are utilizing the latest standards. SNC-Lavalin ensures that any changes to the standards are communicated to the engineering teams with an advance notification of changes in the "Pending" stage and, once again when the changes have been accepted and moved to the "Released" location.

129. Specifications for all approved hardware are maintained in ICA. The engineering teams use this database when creating the bill of materials for procurement.

130. In cases where SNC-Lavalin encounters a situation for which a Standard does not exist, this is addressed by applying a provincial, national or international standard of Code of Practice and discussed with the client to determine if a jointly developed standard is required. This jointly developed summary is then used to update the standards library.

4.4.2 Materials and equipment procurement

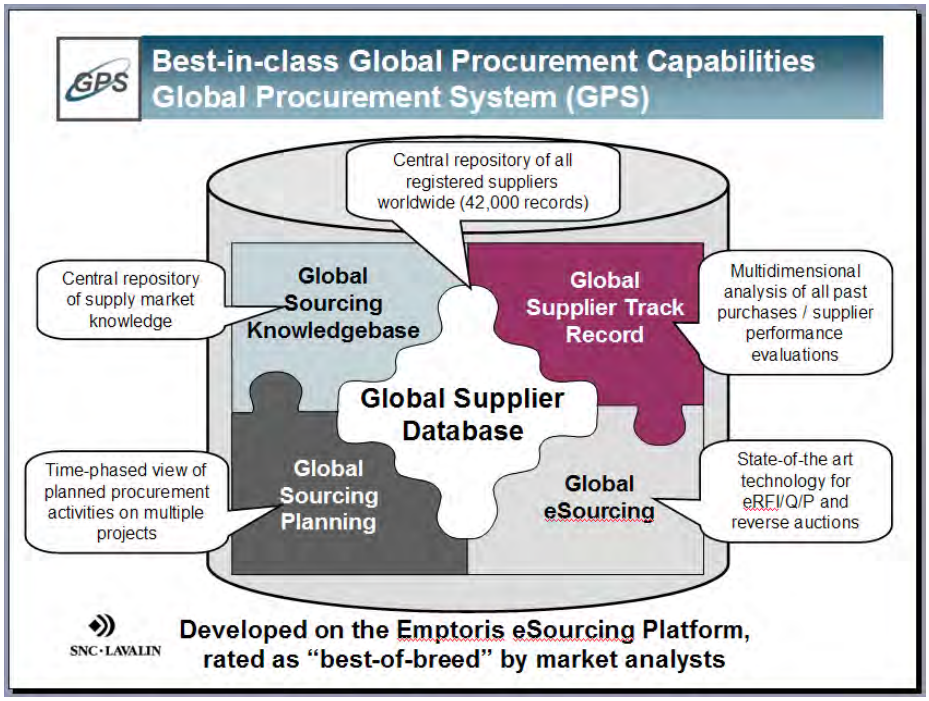
131. SNC-Lavalin will provide material and equipment procurement on the East-West Tie Line project. SNC-Lavalin's Quality Management System is certified to ISO 9001:2008 standards, and all material suppliers and subcontractors are screened for adherence to Quality policies, including thorough Inspection and Test Plan. The Quality Management System is designed to ensure that projects, as with the East-West Tie Line, meet all applicable standards and policies, including those set industry and authoritative government agencies.

132. From a procurement execution standpoint, SNC-Lavalin systematically applies Procurement Best Practices across all projects. This approach includes internal control mechanisms, coordination with Project Management, Engineering, Project Controls, and Construction Management. All areas within the supply chain system, purchasing, contract administration, expediting, quality surveillance and logistics achieve excellence by taking advantage of SNC-Lavalin's Project Procurement Best Practices which have been developed through SNC-Lavalin project experience over many years. Best Practices benchmark project teams throughout the course of the project to ensure optimum project Procurement performance is achieved.

133. The Procurement and Materials Management modules integrated within PM+ support the planning, monitoring, and control requirements of the purchasing, expediting, logistics, material control and contract administration functions. Each module has interdependency on the previous module to ensure full transparency through all process steps. To identify and monitor the productive measurement, a Project Excellence Dashboard has been developed by Global Procurement Services. This dashboard allows project teams to benchmark themselves throughout the course of the project so as to ensure that no key variable influencing project procurement performance is being overlooked, and to develop corrective actions whenever such a situation is identified.

134. Illustrated by Figure 4.4-2, SNC-Lavalin's Global Procurement System has been rated as the Best-of-Breed of eSourcing tools by market expert analysts of Procurement and Sourcing, Supply Chain Technology.

Figure 4.4-2



4.4.3 Right of way and other land use acquisitions

135. AltaLink incorporates its project-based Land Acquisition tracking process to provide a methodical and controlled flow to the Land Acquisition process. Within the process, each tract passes through a number of gates or milestones. At each of these milestones, information is collected to reflect the progress of acquisition. By collecting this information, AltaLink controls overall schedule and financial progress of a land project and can quickly address matters that are delaying acquisitions. The process flow is supported by a tool that documents progress on the following main steps of the acquisition.

- Land Owner Information
- Individual Ownership Plan
- Document Preparation
- Offer 1
- Offer 2
- Final Offer
- Right of Entry

136. Land companies have access to a Land Broker Company Workbook that includes information on all tracts for which they are responsible. The Land Broker Company will add their properties and update the Document Preparation, Offer 1, Offer 2, and Final Offer information as those activities occur. All of the data that is relevant to a particular stage of acquisition is located on the corresponding worksheet.

137. AOLP is able to generate standard reports for ease in understanding and reporting status. Standard reports include: Land Acquisition Status Report, Project Reports and Analysis Reports (comparative reports).

4.4.4 Licensing and permitting

138. The AltaLink group of companies has successfully planned, permitted and constructed numerous transmission facilities in Ontario, Alberta and other jurisdictions. In part, this success is due to full compliance with regulatory requirements regarding the planning and permitting of its facilities and all NERC and

system operator requirements in relation to the construction and operation of its facilities.

139. AltaLink has a proven track record of licensing and permitting in Alberta, where projects of every type, size and scope have been and continue to be licensed and permitted. In 2012 alone, the Alberta Utilities Commission issued over forty favourable decisions granting permits and licences to AltaLink for new transmission facilities or modifications to existing transmission facilities.

140. AOLP will ensure its Leave to Construct application is developed in a responsible manner, aimed at meeting all Board regulatory requirements.

4.4.5 Consultations, both with First Nations and Métis, and other communities

141. Typical components of AltaLink's landowner consultation program include the following:

- development of consultation materials, such as newsletters, mapping products and a variety of brochures;
- open houses, information sessions and/or community meetings;
- one-on-one consultations conducted in-person or over the phone;
- project website, toll-free telephone number and email; and
- radio, newspaper, local media and poster advertisements.

142. Documentation of the feedback received during AltaLink's consultation programs is a critical component of being able to demonstrate AltaLink's understanding of the stakeholder feedback and also as a record of factors to be considered in the project plan. AltaLink has established a rigorous documentation process including standardized forms that guide consultations and ensure comments and concerns are captured and followed up. Recorded information is shared among project team members to aid in project planning.

143. In June 2012, AltaLink commissioned a Stakeholder Follow-Up Survey Assessment to be conducted by an independent research firm. The telephone survey was conducted post-consultation with 1,040 landowners, occupants and renters from 11 projects throughout the province. Overall, 87 per cent of respondents ranked their consultation experience with AltaLink as satisfactory to very positive.

144. AltaLink recognizes Aboriginal peoples as the original and continuing inhabitants of the land and respects the diversity of Aboriginal cultures and the importance of the land to these communities. AltaLink consults with First Nations and Métis communities to identify, avoid or minimize potential impacts to Aboriginal and Treaty rights on Crown lands and reserve lands. AltaLink's focus on long-term relationships with Aboriginal communities is sustained with a collaborative approach with community leaders.

4.4.6 Construction

145. SNC-Lavalin operates a Total Loss Management Plan that provides a comprehensive overview of all health, safety, and environmental policies and procedures, including project-specific information. It is supported through a series of more detailed instructions and forms part of its ISO 9001:2008-certified Quality Management System.

146. The Total Loss Management Plan is implemented for each project and outlines the following project-specific requirements.

- Applicable legislative and industry codes and standards
- Performance objectives
- Principles of safety and environment management
- Responsibilities of corporate and project team individuals
- Orientation and training
- Meetings and communications, including daily tailboard meetings, and weekly safety meetings
- Inspections and audits
- General safety rules and disciplinary processes
- Personal protective items
- Safe work practices, including hazard assessment and safety analysis procedures
- Incident reporting procedures
- Emergency response plans
- Drug and alcohol policies
- Environmental management processes

- Occupational health and first aid services
- Contractor administration
- Safe work practices
- Home office safety

147. SNC-Lavalin's Quality Management System is certified to ISO 9001:2008 standards, and all material suppliers and subcontractors are screened for adherence to its Quality policies, including thorough Inspection and Test Plans. The Quality Management System is designed to ensure that projects meet all applicable standards and policies, including those required by clients, the industry, and applicable government agencies.

148. SNC-Lavalin manages all project and worksite activities so that environmental incidents do not occur. Depending on the mandate, this is accomplished through environmental risk assessments with mitigation plans or through detailed Environmental Management Plans (EMP). Activities identified within the mitigation plan or the EMP are monitored for compliance.

149. SNC-Lavalin's vendor and subcontractor management processes are a part of its Quality Management System, which is certified to ISO 9001:2000 standards. All subcontractors are prequalified on the basis of several factors including commercial qualifications, technical qualifications, experience, safety performance, and environmental performance. Companies that meet SNC-Lavalin's standards in these areas are added to a list of prequalified subcontractors.

150. During project execution, communication between the Construction Manager and the subcontractors is critical to project success. SNC-Lavalin establishes plans in the preliminary construction stages to define responsibilities, obligations, delegation of authorized persons, drawing distribution, schedule, labour relation practices, site layout, equipment lists, overtime procedures, safety program requirements, work rules, site conditions, and change and dispute procedures.

151. Once construction commences, the subcontractor is required to conduct daily tailboard meetings, which the Construction Manager monitors and attends weekly and as dictated by critical construction site activities. The Project Safety, Quality

and Construction Plans define the details, frequency, and accountability for: meetings, reporting, and auditing.

4.4.7 Operation and maintenance

152. AOLP's affiliate, AltaLink, participates in a number of external forums, conferences, committees, workgroups, benchmarking to ensure its operating and maintenance practices are consistent with good utility practices such as CEA, CSA, Cigre and CEATI. AltaLink is also required to comply with mandatory reliability standards in Alberta which are based on, and very similar to, the NERC Reliability Standards. AltaLink was recently externally audited and found to be in compliance with these reliability standards.

4.4.8 Project management

153. SNC-Lavalin employs various Quality Management System tools to provide an ongoing, up-to-date record of the project status and plan including the following key information.

- Project scope, execution plan and staging of work
- Safety
- Project schedule and milestones
- Applicable Quality Management System procedures
- Procurement and subcontract plan
- Total Loss Management plan
- Risk identification and contingency plans
- Outage plan
- Inspection and Test plan and commissioning procedures
- Contact information and responsibilities
- Reporting, meeting, and communication requirements
- Project coding and filing structures
- CADD and standards
- Cost estimate
- Project organization chart

4.4.9 Safety

154. AltaLink's safety record and practices are detailed in section 4.3.7; SNC-Lavalin's safety practices are described below.

155. SNC-Lavalin has a strong safety record which is maintained by defined standards for worker competency and apprentice-to-journeyman ratios. SNC-Lavalin takes a proactive approach to health and safety on all projects by conducting orientations and inspections for all parties involved on construction sites.

156. SNC-Lavalin sets strict organizational safety goals and strives to continuously improve in each recording period. When incidents do occur, they are taken very seriously, and appropriate follow-up and lessons-learned activities are conducted.

157. SNC-Lavalin's commitment to safety is integrated into all activities. Safety is a core value and a cornerstone of SNC-Lavalin's project execution methodology. SNC-Lavalin's management system serves as a means to identifying and then eliminating or mitigating foreseeable hazards and risks.

158. The key principles of SNC-Lavalin's safety culture are:

- presenting strong, visible leadership in the area of safety;
- holding employees to high standards of performance;
- maintaining open lines of communication;
- identifying leading indicators, such as orientations and inspections;
- conducting continuous monitoring;
- responding to issues in a timely manner; and
- maintaining a sense of vulnerability and being aware of hazards and risks.

159. SNC-Lavalin believes that all incidents are preventable, and its goal is to meet and exceed legislated requirements in all phases of execution. To assist in achieving this goal, SNC-Lavalin focuses on training employees so they can integrate safety standards on projects and developing working methods to ensure safety objectives are key quality criteria.

160. SNC-Lavalin's Health and Safety Management System ensures that high standards are met on all work that is delivered. Every employee and subcontractor in SNC-Lavalin plays a role in meeting Health and Safety Management objectives, and has specific responsibilities associated with their project tasks. In particular, SNC-Lavalin's management team, Project Managers, and Construction Managers have significant accountability for successful safety management.

161. The comprehensive Safety Management System is developed and implemented with a goal of achieving the corporate Health and Safety management objectives. The Safety Management System includes the following key program areas.

- Policies, Leadership and Responsibilities
- Hazard Identification, Assessment and Control
- Safe Work Instructions
- Company Rules
- Personal Protective Equipment
- Preventative Maintenance
- Training and Communication
- Worksite Safety Inspections and Audits
- Incident Investigation and Reporting
- Emergency Preparedness
- Subcontractor Management
- Home Office Safety

4.4.10 Environmental compliance

162. SNC-Lavalin has implemented a Code of Ethics, Environmental Policy and Quality Policy which clarifies commitment to sound business practices, environmental protection and quality workmanship. Through these policies, SNC-Lavalin and its employees affirm its commitment to preventing pollution and continuously improving the integration of environmental protection issues into all its activities. As part of its commitment, SNC-Lavalin ensures that all of its activities are in compliance with applicable environmental laws and regulations.

163. SNC-Lavalin regularly reviews government regulations at the federal, provincial, and municipal levels related to the types of activities conducted by SNC-Lavalin across all geographic regions. These legal requirements are incorporated into SNC-Lavalin's projects to ensure that projects meet all the requirements of the law to the best of its ability.

164. SNC-Lavalin understands that a sustainable approach to business is essential to satisfy human needs and improve the quality of life. Development must encompass the efficient and environmentally responsible use of all resources, natural and human, in order to be economically viable. Use of sustainability performance metrics constitutes a logical and understandable framework to assist corporations in achieving and reporting on sustainable operations.

165. SNC-Lavalin's Construction Environmental Management Plan, attached as Appendix 5, outlines specific environmental protection requirements and commitments that must be taken into consideration by SNC-Lavalin and subcontractors during the design and construction phases. These requirements and commitments help reduce the environmental effects that may potentially result from the project and its associated activities.

4.4.11 Regulatory compliance

166. AOLP takes compliance seriously. As an affiliate of AltaLink, a regulated TFO in Alberta, AOLP is subject to AltaLink's Affiliate Code of Conduct. AltaLink is a regulated transmission company; its corporate culture, processes and information systems are in place to support regulatory compliance. AltaLink provides regular and transparent financial and compliance reporting to the regulator in Alberta.

167. AOLP is committed to a similar culture of compliance, meeting all reporting and filing requirements associated with its Ontario business. AOLP will also ensure compliance with all applicable Ontario and North American reliability standards. AOLP considers compliance with reliability standards not only to be good utility practice but essential to the seamless operation of the Ontario electric system. AOLP will also work with the OPA and IESO as required to ensure it fully complies with all applicable legislative, regulatory and standard requirements.

4.5 A description of:

- **the challenges involved in achieving the required capacity and reliability of the East-West Tie line, including challenges related to terrain and weather; and**
- **the plan for addressing these challenges though the design and construction of the line (e.g. number and spacing of towers, planned resistance to failure).**

168. As described below, AOLP has identified the challenges regarding the required capacity and reliability of the East-West Tie Line and provided a preliminary plan to address these challenges through the design and construction of the line.

169. **Terrain** – the terrain in Northern Ontario is irregular including steep hills, valleys, wetlands, rivers, lakes and dense vegetation. Regional elevation varies from 150 metres to 400 metres. The consequent challenges are: accessibility, impact on natural habitats, danger trees, numerous long spans, foundation installation and varying tower heights and clearances. **Plan** – AOLP has studied the entire length of the proposed line and collected terrain data including contour lines, lakes, rivers, roads, and property lines and surrounding transmission line projects. This terrain data was used in the siting stage to determine a suitable and cost-efficient line route. As the project progresses, AOLP will continue to acquire and refine the available datasets in conjunction with field assessments to ensure the most accurate information is available through the final stages of design and into construction.

170. **Weather** – Northern Ontario has a subarctic climate. It experiences long, severely cold winters and short, cool to warm summers with the potential for dramatic temperature changes throughout the year. This regional climate variability presents challenges designing transmission lines to accommodate weather patterns. **Plan** – the AOLP engineering team has experience designing structures and transmission lines in varying climates throughout Canada. AOLP is confident that the environmental loading conditions set out in the Board's Technical Requirements will satisfy the reliability requirements of the East-West Tie Line and has therefore used these requirements in its preliminary structure and line calculations. During detailed design of the East-West Tie Line, AOLP will also take into consideration any areas that experience a micro weather condition. Should AOLP identify circumstances where the Board's Technical Requirements will not meet acceptable

line reliability, AOLP will advise the Board accordingly along with recommended solutions.

171. **Line Crossing** – Line crossings are critical design considerations for the East-West Tie Line. AOLP is proposing to parallel the East-West Tie Line with the existing 230 kV transmission line including ten potential crossovers along the line. Crossing under the existing line poses certain challenges as modified structures will be required to meet clearance criteria for passing under a 230 kV transmission line and the vegetation below. In addition, the East-West Tie Line may cross an existing 115 kV transmission line and numerous 25 kV lines in the area. **Plan** – The two major considerations for designing line crossings are reliability and outages. As higher voltage lines are typically designed to a higher reliability standard than lower voltage lines, AOLP is proposing to cross over all other facilities below 230 kV. The crossings will be designed to limit outages to the existing lines as much as feasible. In order to limit outages and design changes to the existing 230 kV transmission lines, AOLP is proposing to cross under the existing lines using a modified structure design at the crossing locations. However, if during detailed design of the facility, the Board determines that a higher reliability is required at the crossing locations than outlined in the technical documents, AOLP will work the owners and stakeholders to modify the East-West Tie Line facilities and/or the existing facilities to facilitate the additional requirements.

172. **Line Route** – The location and length of the East-West Tie Line in the relatively remote Northern Ontario poses route optimization challenges in terms of line cost, ease of accessibility and construction. The line is approximately 400km long and connects Wawa TS, Lakehead TS and Marathon TS. Since the existing 230 kV transmission line provides an established route connecting all three of these transmission stations in this challenging area, it provides, at least through initial evaluation, the best current route between the three locations. This makes the design of the new line route more challenging. **Plan** – As the project progresses, AOLP will study and analyze the best alternative routes in greater detail and is prepared to modify its route as necessary to optimize cost-efficiency.

173. **Tower Optimization** – Optimization is based on the defined route and terrain and takes into account various types of crossings including those that require a long span, such as when passing a wide river or lake. Since the East-West Tie Line route is prone to changes at this point in the project, the span tower optimization may also need to be modified to best suit the line and terrain. **Plan** – The most economical tangent structure design is based on a consistent ruling span with a narrow range of minimum and maximum span lengths along the route. Based on the number of large crossings of the East-West Tie Line, AOLP considers the most economical design to include a long span tangent structure used specifically for these locations to reduce the weight of the regular tangent tower. The design of both towers will be refined after further structure spotting exercises. AOLP is also proceeding with the design of the angle and deadend towers to meet the line deflection values set out in the Board reference option. However, in other situations, AOLP has determined that it may be beneficial and cost efficient to modify the angle tower deflection limits after initial spotting to optimize the number of light, medium and heavy angle structures that are used on the line. This decision will be made further into the design stage of the project.

174. **Anti-cascading** – To limit restoration time due to a major environmental loading event, the East-West Tie Line must be designed with anti-cascading measures in place. **Plan** – AOLP will design the East-West Tie Line to meet the reliability requirements set out in the Board's Technical Requirements. In addition, AOLP will use anti-cascading measures to reduce the effects of line damage due to environmental loading events that exceed the Board's specifications. Based on initial calculations, it appears the most cost-efficient means to limit tower cascading is to install anti-cascading deadend towers to limit the affected section of line to a maximum 5 km. However, during further tower design and tower spotting, AOLP may determine that the requirement for additional deadend tower placement exceeds the cost of designing broken wire loading into the tangent structures as an alternate means of limiting tower cascading. AOLP will also investigate the benefits of adding broken wire loading to the long span tangent structures.

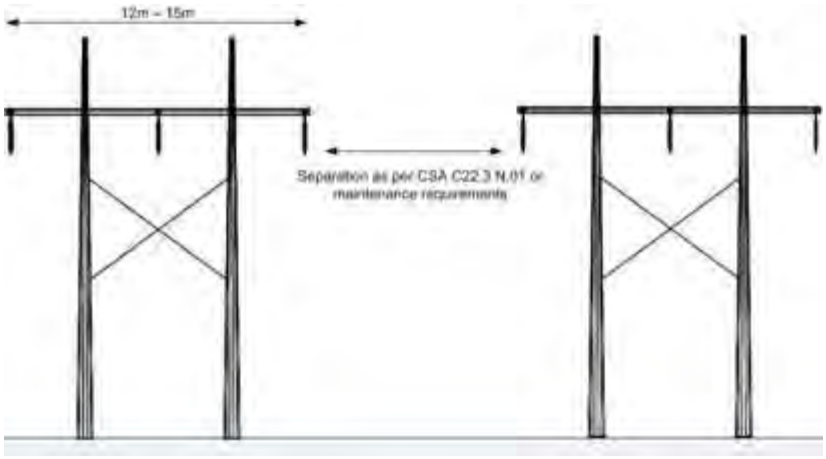
175. **Undefined Sub-bay Change** – As the East-West Tie Line will terminate at the three existing transmission stations (Wawa, Lakehead and Marathon), the sub-bay in all three stations will need to be expanded. It is essential to clarify the location of the expansion as it directly affects the cost and engineering of the East-West Tie Line, as well as having an influence on the number of crossings. **Plan** – AOLP will assess and propose the most reliable direction of the sub-bay expansions to be suitable for the existing facility and the newly designed line.

176. **Conductor Galloping** – Conductor galloping during an environmental icing event can lead to line outages and conductor damage as phase and shield wires may contact each other depending on span length and the severity of the wire motion. **Plan** – In accordance with the Board's Technical Requirements, AOLP's East-West Tie Line tower design incorporates phase and shield wire spacing that meets the galloping requirements of CIGRE Technical Brochure No. 322 State of the Art of Conductor Galloping. This design allows for full single loop galloping of the line to occur without any conductor or shield wire contact. AOLP has also designed a tower family for the East-West Tie Line that does not meet the single loop galloping requirement as further study may determine that only specific sections of the line (if any) are prone to galloping. AOLP has performed these types of studies on the Alberta transmission system to determine regions where special galloping mitigation was installed on the existing system. Galloping in these areas can then be mitigated through the use of interphase spacers or other devices.

H-Frame Structures

177. AOLP has extensive experience with the design and construction of 138 kV-265 kV H-Frame transmission lines and considers that during detailed design it may identify sections of the East-West Tie Line where the use of parallel H-Frame structures as an alternative to lattice towers may be beneficial due to environmental or access constraints. Please refer to conceptual drawing of the structures in Figure 4.5-1. The structures would be approximately 12-15 metres wide and constructed of wood, steel or fibre resin poles with steel or fibre resin crossarms and cross bracing, as determined after further engineering analysis.

Figure 4.5-1



178. This parallel H-Frame option would utilize the same conductor, insulation and shield wires as the Board reference option and meet or exceed all other technical and reliability requirements specified by the Board. The parallel H-Frame option would use shorter spans and require a slightly increased right of way width with the benefit of reduced foundation sizes and access requirements.

179. AOLP has discussed this alternative H-Frame design with the Ontario Independent Electricity System Operator (IESO); the IESO has not raised any objections to the H-Frame option. A copy of the related correspondence is provided in Appendix 6.

5. Financial Capacity

The applicant must demonstrate that it has the financial capability necessary to develop, construct, operate and maintain the line. To that end, the applicant shall provide the following:

180. AOLP and its sponsors offer robust infrastructure financing capabilities that have been demonstrated by the highly successful financing of AltaLink's multi-billion dollar capital investment program. AOLP benefits from the expertise of SNC-Lavalin Capital (SL Capital), a renowned infrastructure investor and financial advisor. Through its strong, liquid balance sheet, SNC-Lavalin provides solid financial sponsorship. SNC-Lavalin has the financial capacity to contribute all of the equity needed to finance the East-West Tie Line project in accordance with the Board's prescribed capital structure for transmission utilities in Ontario.

181. AOLP assumes that the regulatory tariff that will be awarded to the successful developer would be similar in all material respects to the regulatory tariff that is currently awarded to other transmission utilities in Ontario. In particular, AOLP assumes that:

- the regulatory tariff will be determined using a traditional cost of service framework;
- the Board will apply the standalone principle;
- the Board will follow its established practices for determining fair return (including prescribed capital structure and return on equity) and award the successful developer a fair return comparable to other utilities with similar risk;
- the successful developer will be permitted to recover financing costs related to short-term debt, including bank credit, and long-term debt financing; and
- limited partnerships owned by taxable corporations will be permitted to recover income taxes determined as if the regulated utility were a taxable corporation.

5.1 Evidence that it has capital resources that are sufficient to develop, finance, construct, operate and maintain the line

182. AOLP has access to sufficient capital resources to develop, finance, construct, operate and maintain the East-West Tie Line.

183. AOLP is wholly-owned by SNC-Lavalin. With cash and cash equivalents totaling $1.1 billion as of September 30, 2012, SNC-Lavalin is rated BBB+ by S&P and BBB (high)

by DBRS. Please refer to section 5.7 for more details on the extensive infrastructure financing experience and capabilities of SNC-Lavalin. SNC-Lavalin's latest financial statements are available at the following link (http://investors.snclavalin.com/en/).

184. AOLP is a special purpose limited partnership whose sole business purpose would be to develop, build, own, operate and maintain regulated transmission facilities in Ontario. If AOLP is selected as the designated transmitter of the East-West Tie Line, AOLP would implement a capital structure consistent with the Board's approved capital structure for transmission utilities. AOLP assumes that such capital structure would be comparable to the current capital structure of other transmission facility owners in Ontario.

185. The credit ratings of most major transmission facility owners in Ontario and other Canadian jurisdictions are in the "A" category. Several Canadian regulators - notably in Alberta - have found that it is in the best interests of ratepayers for regulated utilities to have "A" category credit ratings. Assuming that AOLP receives regulatory treatment comparable to that of other Ontario transmission facility owners, including the regulated capital structure that AOLP will follow on a standalone basis, AOLP expects to receive credit ratings in the "A" category.

186. AOLP targets a credit rating in the "A" range which typically provides unfettered access to debt capital markets under most capital market conditions. Regulated utilities with "A" category credit ratings have demonstrated their ability to access debt capital markets under most capital market conditions. There are no material differences in credit spreads underlying interest rates paid by regulated utilities in Canada with "A" category credit ratings. By targeting an "A" category credit rating, AOLP intends to arrange debt capital and credit on terms and conditions comparable to Hydro One and other Canadian utilities.

5.2 Evidence of the current credit rating of the applicant, its parent or associated companies

187. SNC-Lavalin's sound financial position and conservative financial risk profile are reflected in its investment grade credit ratings outlined in Table 5.2-1. SNC-Lavalin's ability to finance transmission utilities in the manner contemplated for

AOLP in this Application is demonstrated by the A-level credit ratings of AltaLink, summarized in Table 5.2-2.

Table 5.2-1 SNC-Lavalin Inc. Credit Ratings

SNC-Lavalin	Rating and Outlook	Last Full Report
DBRS Limited	BBB (high) / stable	September 14, 2012
Standard & Poor's	BBB+ / negative	April 20, 2012

Table 5.2-2 AltaLink, L.P. Credit Ratings

AltaLink	Rating and Outlook	Last Full Report
DBRS Limited	A / stable	August 17, 2012
Standard & Poor's	A- /stable	June 15, 2012

188. SNC-Lavalin's credit rating reports from DBRS Limited dated September 14, 2012 and Standard and Poor's, dated April 20, 2012 are provided in Appendix 7. AltaLink's credit rating reports from DBRS Limited dated August 17, 2012 and Standard and Poor's, dated June 15, 2012 are provided in Appendix 8.

5.3 Evidence that the financing, construction, operation, and maintenance of the line will not have a significant adverse effect on the applicant's creditworthiness or financial condition

189. AOLP is a special purpose entity whose sole business purpose is the financing, construction, operation and maintenance of regulated transmission facilities in Ontario. As a standalone entity, AOLP's creditworthiness and financial condition will not be adversely affected by the financing, construction, operation, and maintenance of the East-West Tie Line. The financial structure of AOLP will mirror the capital structure of the standalone regulated utility underlying the cost of capital and tariffs expected to be approved by the Board over the life of the East-West Tie Line. Similarly, the financing, construction, operation and maintenance of the East-West Tie Line would not have a material adverse effect on the creditworthiness or financial condition of SNC-Lavalin or other affiliates, such as AltaLink Investments, L.P., upon which AOLP will be dependent for equity investment and sponsorship.

190. AOLP will implement appropriate ring fencing measures to ensure that the financial health of AOLP is protected from potential credit risk concerns arising elsewhere in

the ownership structure. Some of the ring fencing measures to be implemented or already in place are: creation of a legally separate special purpose entity; separate Board of Directors; separate financial records and books; separate bank accounts, debt and credit ratings; and compliance with regulatory directives such as capital structure and inter-affiliate code of conduct. The ring fencing measures protect the interests of ratepayers by enhancing the financial integrity of AOLP.

5.4 The applicant's financing plan, including

191. The guiding principles that AOLP will apply to provide the optimal financing solution for the East-West Tie Line project include, but are not limited to:

- delivering a financing plan that is consistent with the Board's regulated capital structure and the Board's processes for setting transmission tariffs;
- leveraging the underlying creditworthiness of the Province of Ontario and SNC-Lavalin; and
- obtaining credit ratings comparable to those of Hydro One, AltaLink and other major utility and pipeline companies accessing Canadian debt capital markets.

192. AOLP plans to finance the East-West Tie Line on a standalone basis, with all equity required under the Board's regulated capital structure to be contributed by SNC-Lavalin and its subsidiaries. AOLP believes that its ownership structure and proposed ring fencing measures are supportive of its ability to attain A-level credit ratings and to raise debt financing on terms competitive with its peers.

5.4.1 The estimated proportions of debt and equity

193. In its 2013-2014 rate application, Hydro One's evidence was that its deemed capital structure for rate making purposes is 60% debt and 40% common equity.[2] This capital structure was approved by the Board in Decision EB-2010-002regarding Hydro One's 2011 and 2012 Transmission Revenue Requirement and Rate application and further is consistent with EB-2009-0084 Report of the Board on the Cost of Capital for Ontario's Regulated Utilities. The 60% debt component is comprised of 4% deemed short term debt and 56% long term debt.

[2] EB-2012-0031[3] Application No. 1608711, Alberta Utilities Commission Proceeding ID No. 2044

194. AOLP anticipates that the Board would follow a similar process to determine the deemed capital structure for the designated transmitter of the East-West Tie Line and that the outcome of such would be the approval of a similar, or identical, capital structure. AOLP intends to establish a capital structure that is similar, in all material aspects, to the Board approved deemed capital structure.

195. In doing so, AOLP plans to arrange financing through banks and financial institutions with which SNC-Lavalin and AltaLink have well established working relationship for similar capital structures, such as RBC Capital Markets, TD Securities, The Bank of Nova Scotia, National Bank Financial and BMO Nesbitt Burns.

5.4.2 The estimated cost of debt and equity, including:

- **the use of variable and fixed cost financing**
- **short-term and long-term maturities**
- **a discussion of how the project might impact the applicant's cost of debt**

Equity Ratio

196. Equity will be provided by AILP from additional equity investment in AILP to be provided by SNC-Lavalin through its wholly-owned subsidiaries. Since 2002, AILP and SNC-Lavalin have rigorously followed this approach with respect to the equity requirements of AltaLink's investment in regulated transmission facilities in Alberta, such that AltaLink's capital structure is identical to the capital structure prescribed by the Alberta Utilities Commission in its Generic Cost of Capital decisions, except for non-regulated assets, such as goodwill, which are financed with equity such that all of the debt on AltaLink's balance sheet is attributable to rate base and construction work in progress associated with regulated transmission facilities. In doing so, both AILP and SNC-Lavalin have demonstrated their commitment and financial capacity to provide substantial equity contributions to AltaLink. These equity contributions have been derived primarily from internally generated cash flow and from the significant cash balances reported on SNC-Lavalin's balance sheet ($1.1B as at September 30, 2012). In addition to its ownership of AltaLink, SNC-Lavalin actively invests in other major infrastructure projects. Section 5.7 provides further information on SL Capital and SNC-Lavalin.

Return on Common Equity

197. AOLP anticipates that future tariffs related to the East-West Tie Line will permit AOLP to earn a return on common equity that is comparable to that of other Ontario transmission facility owners.

198. In its 2013-2014 tariff application EB-2012-0031, Hydro One's evidence reflects a return of 9.16% for the test year 2013 and 9.44% for the test year 2014. This is based on the Board's formulaic approach in EB-2009-0084. For 2013, the return on equity calculation is based on the February 2012 Consensus Forecast (12 months out), as well as Bank of Canada data and the change in the spread of A-rated Utility Bond Yields during February. For 2014, the return on equity calculation is based on the February 2012 Global Insight Forecast, as well as Bank of Canada data and the change in the spread of A-rated Utility Bond Yields during February. Hydro One has assumed that the return on equity for each test year will be updated in accordance with EB-2009-0084, upon the final decision in this case. For rates effective January 1, 2013, the Board would determine the ROE for Hydro One based on the September 2012 Consensus Forecasts and Bank of Canada data which would be available in October 2012 and the change in the spread of the A-rated Utility Bond Yield which would be available from Bloomberg LP. For rates effective January 1, 2014, the Board would determine the ROE based upon the September 2013 Consensus Forecasts and Bank of Canada data which would be available in October 2013 and the change in the spread of the A-rated Utility Bond Yield which would be available from Bloomberg LP.

199. On November 15, 2012, the Board issued a letter that updated the cost of capital parameters for 2013 cost of service applications for rates effective January 1, 2013. In that letter, the Board determined that the ROE for rates effective January 1, 2013 would be 8.93%.

Short-Term Debt

200. Based upon Hydro One's 2013-2014 tariff application, AOLP understands that the Board has determined that the deemed amount of short-term debt that should be factored into rate setting be fixed at 4% of rate base. Short-term debt will be provided primarily through credit facilities that will be arranged with major

Canadian banks. Consistent with AltaLink's financing strategy, AOLP intends to issue commercial paper or bankers' acceptance notes during the development and construction of the East-West Tie Line, the cost of which would be capitalized as part of Allowance for Funds Used During Construction (AFUDC). As soon as possible after the completion of construction, AOLP plans to arrange longer-term financing, as described below, to reduce the short-term debt issued during construction and thereafter to maintain short-term debt credit facilities consistent with the deemed short term debt component of the deemed capital structure approved by the Board.

201. The Board has indicated in Appendix D of the December 11, 2009 Cost of Capital Report that, once a year, in January, Board staff will obtain real market quotes from major banks, for issuing spreads over Bankers' Acceptance rates to calculate an average spread. The short term rate will be calculated as the average Bankers' Acceptance rate for the 3 months in advance of the effective date for the rates, plus the average spread obtained as described above. Variable rate debt which pays interest based on the bankers' acceptance rate, has been included as part of the deemed short term debt amount of 4%. For Hydro One, the deemed short-term rate is 2.01% for 2013 using the February 2012 Global Insight Forecast plus a spread of 91 bps, which is based on the spread contained in the Cost of Capital Parameter Updates for 2012 Cost of Service Applications for Rates Effective January 1, 2012, dated November 10, 2011. The deemed short term rate is 2.98% for 2014 using the February 2012 Global Insight forecast plus a spread of 91 bps.

202. For the purposes of this Application, AOLP has assumed that the Board will determine the level and cost of short-term debt in a similar fashion. AOLP assumes that the deemed short term debt rate for each test year will be updated in accordance with the December 11, 2009 Cost of Capital Report.

203. On November 15, 2012, the Board issued a letter that updated the cost of capital parameters for 2013 cost of service applications for rates effective January 1, 2013. In that letter, the Board determined that the Deemed ST Debt rate for rates effective January 1, 2013 would be 2.08%.

Bond Financing

204. In its most recent tariff application, Hydro One provided evidence that the Board had determined that the deemed amount of long-term debt that should be factored into rate setting be fixed at 56% of rate base. As outlined below, AOLP intends to use a similar proportion of long term debt in its capital structure while financing the East-West Tie Line with revolving bank credit and short-term debt maturities during the development and construction phase. After completion of the East-West Tie Line, AOLP intends to refinance the indebtedness incurred during construction with a series of fixed-rate, long-term financing with maturities distributed over the life of the transmission facilities.

205. The long-term financing contemplated by AOLP would be similar in all material respects to the medium term note program in place for AltaLink as well as Hydro One's medium term note program described in its 2013-2014 tariff application. SNC-Lavalin, AILP and AltaLink and their underwriters have extensive infrastructure lending experience. In particular, AltaLink and AILP have successfully arranged approximately $2.5 billion of long-term financing for AltaLink's massive electric transmission facility expansion program. In its most recent General Tariff Application, AltaLink outlined its plans and capabilities to issue a further $2 billion of medium term note financing in 2013 and 2014.[3] As provided in Appendix 9, AltaLink has been able to raise debt financing at very competitive rates and its debt spreads are among the lowest in the industry.

206. In its 2013-2014 tariff application, Hydro One estimated the long-term debt rate to be 4.95% for 2013 and 4.83% for 2014. The long-term debt rate is calculated as the weighted average rate on embedded debt, new debt and forecast debt planned to be issued in the tariff application. AOLP assumes that, in its future tariff applications, the long-term debt rate will be determined in a similar fashion. Consistent with Hydro One's 2013-2014 tariff application, AOLP will provide the Board with appropriate evidence regarding AOLP's plans to issue debt and forecast interest rates consistent with the methodology used for the return on common equity and deemed short term interest rate. AOLP also assumes that long term debt

[3] Application No. 1608711, Alberta Utilities Commission Proceeding ID No. 2044

rates will be updated to reflect, and take into account, the actual issuances of debt since the time of the original application consistent with the Board Decision EB-2010-0002/EB-2011-0268 and changes in the interest rate forecast. AOLP expects that its cost of debt will be determined by the debt capital markets; therefore, the weighted average long term debt rate should also be applied to any notional debt that is required to match the actual amount of long term debt to the deemed amount of long term debt. This is consistent with the treatment in Hydro One's Transmission Rate Application for 2011 and 2012 (EB-2010-0002/EB-2011-0268).

207. On November 15, 2012, the Board issued a letter that updated the cost of capital parameters for 2013 cost of service applications for rates effective January 1, 2013. In that letter, the Board determined that the Deemed LT Debt rate for rates effective January 1, 2013 would be 4.03%.

5.5 If the financing plan contemplates the need to raise additional debt or equity, evidence of the applicant's ability to access the debt and equity markets

208. AOLP will obtain bank credit and access the debt capital markets to issue long-term debt as described in section 5.4. Since 2002, AltaLink (with sponsorship from SNC-Lavalin) has demonstrated its ability to raise billions of dollars of medium-term notes and bank credit facilities on favorable terms. At the time of issuance, each of AltaLink's 2012 medium-term note transactions resulted in the lowest coupons in Canadian corporate history for ten year and thirty year terms.

209. AOLP will benefit from SL Capital's expertise in developing large infrastructure projects and its strong relationships with top-tier Canadian underwriters. In addition to the proven track record of SNC-Lavalin and SL Capital in financing major infrastructure projects, AOLP has provided, in Appendix 9, letters of support from respected financial institutions as evidence of AOLP's ability to successfully finance the East-West Tie Line. Each of these institutions are leading infrastructure bond underwriters with proven track records of closing Canadian infrastructure projects and experience supporting either AltaLink or SNC-Lavalin in past project bids and closings. Further, these top-tier underwriters are financially stable institutions that have reiterated their commitment to the infrastructure sector, particularly in

Canada. AOLP was careful to select only domestic banks to remove all uncertainties related to the current European debt crisis.

210. As indicated in section 5.4, SNC-Lavalin will use its financial strength and liquidity to provide all of the necessary equity financing. AOLP will not be dependent on access to public equity markets to finance the East-West Tie Line project.

5.6 Evidence of the applicant's ability to finance the project in the case of cost overruns, delay in completion of the project and other factors that may impact the financing plan

211. AOLP plans to finance the East-West Tie Line project with bank credit during construction. The risk of cost overruns or delays would be covered by (1) an appropriate cushion in the size of the credit facility and (2) the financial capacity of the owner to inject additional equity, if required. There will be no risk of accessing public equity markets as all equity will be provided from internally generated funds from SNC-Lavalin. AOLP plans to mitigate the risk of delay by (1) extending the maturity date of the bank credit facilities beyond the target completion date and (2) arranging for additional bank credit facilities to finance interest expense and other carrying costs until the East-West Tie Line project is completed. AOLP plans to repay the bank credit facilities with proceeds from the proposed long-term financing.

5.7 Evidence of the applicant's experience in financing similar projects

212. AOLP's sponsors have tremendous experience in financing projects of this magnitude.

213. AltaLink is one of SNC-Lavalin's most successful infrastructure projects, currently in the midst of a multi-billion dollar expansion and reinforcement of Alberta's transmission system. AltaLink has successfully issued approximately $1.9 billion since its inception and plans to issue another $2 billion of debt in 2013 and 2014. AltaLink also maintains $1.5 billion of credit facilities, arranged through most of Canada's major chartered banks, to provide liquidity that meets the guidelines published by credit ratings agencies. AltaLink has a strong working relationship with a broad syndicate of underwriters, has worked effectively with credit rating agencies and the Alberta Utilities Commission to sustain its A-level credit ratings through its significant capital program, and established its capital markets platform with a broad base of institutional debt investors. The debt capital markets have

exhibited strong interest and participation in AltaLink's medium-term note offerings, which are invariably oversubscribed and marketed within minutes of announcing the offerings. AltaLink often receives reverse inquiries from debt investors seeking additional opportunities to invest in AltaLink's medium-term notes for maturities of up to 50 years.

214. SL Capital is the investment and financing arm of SNC-Lavalin, one of the world's largest engineering and construction companies, and the largest in Canada, with some 32,000 employees globally and a history spanning over 100 years. SL Capital is a long standing developer of infrastructure assets having invested in major infrastructure projects since the mid 1980's. SL Capital and SNC-Lavalin understand all aspects of major infrastructure projects, including concept and design, construction and financing. SNC-Lavalin is among a select group of global players capable of offering highly integrated expertise to successfully deliver major infrastructure projects on time and on budget.

215. SNC-Lavalin views investing in infrastructure concessions as the ultimate means to integrate all of its expertise and capabilities in design, construction, project management, risk management, operations and maintenance as well as project financing. As a long-standing developer of infrastructure assets, SNC-Lavalin has a strong record of investing and committing equity investment and has a sound reputation of successfully completing all of its obligations on a given project.

216. SL Capital has a strong record of investing equity in a portfolio with over 20 projects with an estimated fair market value above $3 billion. In addition, during the last decade, SL Capital has served as financial advisor to raise more than $11 billion to finance dozens of projects around the world. Table5.7-1 lists selected projects sponsored by SL Capital, such as the recent issuance of $571 million of bonds to finance the Highway 407 East Extension Project. SL Capital was actively involved in all aspects of the financing, including the competitive process to select the underwriters, negotiating the term sheets and inter-creditor agreement, drafting offering documents, and marketing the transaction to investors.

217. SL Capital has a long and proven track record of successfully providing equity and raising financing for transactions of this magnitude. Some examples are provided in Table 5.7-1.

Table 5.7-1 Selected SL Capital Equity Projects

Ontario	Sector	Project	Project Value	Financing
Ontario	Roads	Highway 407 ETR	$4 billion	$2.6 billion
Quebec	Healthcare	McGill University Health Centre	$2 billion	$1.1 billion
BC	Railways	Canada Line	$1.9 billion	$600 million
Ontario	Roads	Highway 407 Extension	$1.1 billion	$970 million
Alberta	Roads	Southeast Stoney Trail	$523 million	$157 million
Quebec	Social	OSM Concert Hall	$257 million	$230 million

218. With the ability to both invest in and manage infrastructure investments, SL Capital has the financial experience and technical capability to develop infrastructure across a wide range of sectors. Their expertise in project development, project financial advisory and financial modeling will enable the financial success of the East-West Tie Line project.

5.8 The identification of any alternative mechanisms (e.g., rate treatment of construction work in progress) that the applicant is requesting or likely to request

219. No alternative mechanisms (e.g., rate treatment of construction work in progress) are or will be required to develop and finance the East-West Tie Line project. During the development and construction of the East-West Tie Line, AOLP plans to arrange appropriate construction financing supported by the project on its own merits. AOLP does not intend to seek credit ratings and issue long-term debt until the East-West Tie Line project is completed and in rate base. Thus, AOLP's financing plan averts the need for alternative mechanisms (such as Construction Work in Progress in rate base) to maintain targeted credit ratings and protect ratepayers from higher interest rates associated with BBB-rated long-term debt. Consistent with traditional cost of service regulatory accounting, AOLP intends to capitalize the AFUDC until the assets are in rate base.

(B) PLAN FOR THE EAST-WEST TIE LINE

6. Proposed Design

The applicant must provide an overview of its proposed design for the East-West Tie line including:

6.1 A summary description of how the Plan meets the specified requirements for the East-West Tie Line to the extent known at the time of the designation application. This could include the items listed below as well as any other relevant information the applicant may wish to provide. For items that are unknown, the applicant should describe the method and criteria for determination

220. AOLP has established a plan for the East-West Tie Line (Plan) which includes construction of a 230 kV, double-circuit transmission line of approximately 400 km in length running from the Lakehead TS near Thunder Bay to the Wawa TS south east of the Town of Wawa with connection into Marathon TS. Appendix 10 sets out AOLP's detailed *Preliminary Technical Specification, OEB E-W Tie Line (230kV Wawa to Thunder Bay Transmission Line)* (Technical Specifications). AOLP's Technical Specifications meet or exceed the Boards Technical Requirements and industry codes, standards and good utility practice.

6.1.1 Length of the proposed transmission line

221. The length of the double circuit 230 kV transmission line from the Wawa TS to the Marathon TS is approximately 170km. The length of the double circuit 230 kV transmission line from the Marathon TS to the Lakehead TS is approximately 230 km. Where possible, the new line will follow a straight line with minimum impact on the surrounding habitat and wild life. An example of AOLP's intended construction environmental management plan for the East-West Tie Line is attached in Appendix 5.

222. AOLP will give special consideration in the design and construction of all existing transmission line crossings to limit the requirements for outages on the system while ensuring the safety and reliability of these critical line sections.

6.1.2 Number of circuits

223. The East-West Tie Line will be double circuit, single conductor per phase.

6.1.3 Voltage class

224. The voltage class of the East-West Tie Line is 230 kV.

6.1.4 Load carrying capacity

- summer continuous rating (MVA); and
- summer emergency rating (MVA) ;

225. The East-West Tie Line will have a continuous capacity of approximately 465 MVA and an emergency capacity of approximately 600 MVA (per circuit).

6.1.5 Resulting total transfer capability for the East-West Tie line (MW)

226. The new line in conjunction with the existing tie will have total westbound and eastbound capabilities of 650 MW.

6.1.6 Anticipated lifetime of the line

227. The design lifetime of the East-West Tie Line will be least 50 years and will be designed to withstand a 1 in 50 year event as defined by the CSA C22.3 NO.60286 standard.

6.1.7 Structures and conductors

- **number and average spacing of towers;**
- **tower structure types (lattice, monopole, etc.) and composition (wood, steel, concrete, hybrid, etc.);**
- **conductor size and type; and**
- **protection against cascading failure and conductor galloping.**

228. AOLP is adhering to the Board Technical Requirements to use steel lattice towers for the design of the East-West Tie Line with the possibility of using parallel single circuit H-Frame structures in select sections of the line. The steel lattice towers will have an average span of approximately 400-450 metres with a total of approximately 950-1,100 towers. As per the Board Technical Requirements, the conductor will be 1x1192.5 kcmil ACSR 'Grackle'.

229. AOLP is proposing two options for the protection against galloping and has completed preliminary tower designs for each. Consistent with the Board Technical Requirements, Design 1 includes conductor galloping spacing into the tower design following the recommendations of CIGRE Technical Brochure 322. Design 2 does not include the preventative galloping spacing in the tower design, but does allow for

the installation of interphase spacers or other galloping mitigation should the need arise. Hydro One has stated that there have not been any forced outages on the existing East-West Tie lines due to conductor galloping in over twenty years. Preliminary estimates show that the removal of the Board conductor galloping requirement may reduce the overall tangent tower weight by approximately 10%. This would result in a reduction of tower steel and foundation costs in the order of $5 million. In addition, the design of a new family of towers (galloping or not) is based on the assumption that there is no existing Hydro One tower family design that meets the Minimum Technical Requirements. If however, Hydro One does have such a tower design, making that design available to the designated transmitter would eliminate new tower design and testing costs of approximately $3 million.

230. AOLP is proposing the use of anti-cascading structures at a minimum of 5 km intervals to limit the risk of a cascading failure on the transmission line. However, during further tower design and tower spotting, AOLP will determine if the requirement for additional deadend tower placement exceeds the cost of designing broken wire loadings into the tangent structures as an alternate means of limiting tower cascading.

6.1.8 Design assumptions and other relevant transmission facility characteristics

231. AOLP's design assumptions and other relevant transmission facility characteristics are detailed in AOLP's Technical Specifications in Appendix 10.

6.2 Confirmation that the line will interconnect with the existing transformer stations at Wawa and Lakehead, and an indication of whether the line will be switched at the Marathon transformer station

232. AOLP hereby confirms that its Plan includes interconnecting the East-West Tie Line with the existing Wawa TS and Lakehead TS and that the line will be switched at Marathon TS. From a preliminary study of the current substation site arrangement topography and site visits, AOLP would propose the following interconnection plans:

- Wawa TS: western most bay for expansion to north side,
- Marathon TS: western and eastern most bay for expansion to north side; and
- Lakehead TS: northern most bay for expansion to east side.

6.3 A signed affidavit from an officer of the licensed transmitter to confirm:

- **that the line will be designed to meet or exceed the existing NERC, NPCC and IESO reliability standards; and**
- **that the line will be designed to meet or exceed the Board's Minimum Technical Requirements; or documentation of where the applicant seeks to differ from the Minimum Technical Requirements and evidence as to the equivalence or superiority of the proposed alternative option**

233. AOLP has attached, as Appendix 12, a signed affidavit from a director of AltaLink Ontario Management Ltd., on behalf of AOLP, confirming that the East-West Tie Line will be designed to meet or exceed the existing NERC, NPCC and IESO reliability standards and the Board's Technical Requirements.

6.4 An indication as to whether the Plan will be based on the Reference Option for the East-West Tie line. Where the Plan is not based on the Reference Option, the applicant must file:

- **a description of the main differences between the applicant's Plan and the Reference Option**
- **a description of the interconnection of the line with the relevant transformer stations**
- **a Feasibility Study performed by the IESO, or performed to IESO requirements**

234. AOLP's Plan is based on the Reference Option. As described in section 4.5, AOLP may use a mix of H-Frame wood pole structures and steel lattice towers that will reduce the material cost and the impact of access development. No feasibility study regarding the mix of structures is required as the IESO has not raised any objections to the H-Frame option. Please refer the related correspondence in Appendix 6.

6.5 A brief description which highlights the strengths of the Plan, which may include:

6.5.1 Any technological innovation proposed for the line

235. Where possible, AOLP will use an environmentally friendly and cost advantageous alternative with the utilization of screw pile foundations for steel lattice towers. Screw pile foundations have been used by AltaLink throughout Alberta and have significantly reduced the environmental footprint versus typical conventional tower foundations. Screw-piles are groups of 3 – 9 long metal pipes with flanges drilled into the ground until the prescribed torque is reached. Screw-piles can accommodate a broad range of soil types and terrain features. Benefits of screw-

piles include avoiding excessive ground disturbance and the need for heavy cement trucks on the right of way. Screw-piles are quick to install as there is no concrete curing time.

236. Environmental agencies, NGO's and stakeholders are applauding the screw pile approach and these foundations are now installed on AltaLink projects across Alberta.

237. While screw-piles gain the flexibility of increased foundation productivity and reduced surface disturbance, they can also be used in conjunction with crane or helicopter assisted tower erection. In addition, instead of building towers on the right of way, off-site tower assembly yards can be established to pre-assemble towers. Installation of pre-assembled towers installed via helicopter assistance averages the installation of 10-15 steel lattice towers per day. Overall, the combination of screw pile foundations, pre-assembly yards and aerial assisted tower installation significantly reduces environmental footprint, facilitates regulatory approvals, increases productivity and decreases cost. While these components work well together, elements of each can be applied separately depending on project need.

238. AOLP will, where appropriate, construct under frozen ground conditions to minimize impact to native grasslands or other sensitive habitat/terrain is to. This focuses construction efforts during the inactive period for many wildlife species and greatly reduces constructability issues associated with soft ground conditions, drainage crossings, and timing and setback constraints associated with wildlife, plants and their habitat.

239. Adding surface protection to reduce disturbance in sensitive areas (e.g., wetlands and drainages) can extend construction schedules. Access matting is one method AOLP will use to add surface protection; mats can be solid or flexible and built of steel, wood, rubber or plastic depending on project requirements. AltaLink has used large wood mats extensively in sensitive areas with proven success.

6.5.2 Reduction of ratepayer risk for the costs of development, construction, operation and maintenance

240. AOLP's more extensive and recent experience in developing transmission will ultimately result in the lowest cost, highest quality project for Ontario customers. In order to increase the benefit and/or reduce risk to Ontario ratepayers, AOLP is proposing to treat the costs for each stage of the East-West Tie Line project as outlined below.

Development Costs

241. AOLP will not seek recovery of the costs of participating in the designation process up to the date of filing this Application. AOLP's estimated cost of participating in the remainder of the designation process, which is somewhat uncertain, is included in its development costs which are defined to be costs incurred from January 4, 2013 up to filing of the Leave to Construct application. This approach is consistent with instructions in the Board letter of December 20, 2011 wherein the Board stated that development costs "…end when a leave to construct application is submitted." AOLP's estimated cost of developing the project is approximately $18 million ($2012). A detailed breakdown of AOLP's development costs is included in section 8.2.

242. There are two alternatives for dealing with recovery of development costs. The first would be recovery of actual incurred costs on a cost of service basis. That is, AOLP would seek recovery of actual expenditures subject to standard prudency review by the Board. The second alternative would provide some additional protection for ratepayers and would involve a proposal for risk/reward sharing on expenditures above or below the budgeted development costs of $18 million. In this case, AOLP would propose to share, on a 50/50 basis, any over or under expenditures up to 10% of the budgeted development costs ($1.8 million). Expenditures above or below this 10% limit would be dealt with in a traditional cost of service prudence review.

Construction Costs

243. AOLP's estimated cost of constructing the East-West Tie Line is in the range of $425 - $550 million ($2012), exclusive of escalation, interest during construction and contingencies. This range reflects the uncertainties associated with providing a

preliminary estimate at this early stage of project development. Typical uncertainties associated with this preliminary estimate include, but are not limited to:

- design of suitable crossovers with existing transmission/distribution facilities to satisfy reliability criteria and respond to issues related to ownership of the facilities being crossed;
- assumptions related to specific foundation conditions at proposed structure locations along the line route;
- encountering unanticipated environmental conditions or historical and archaeological artifacts;
- potential route changes and other issues that may be raised through the stakeholder consultation process;
- unusually adverse weather conditions; and
- availability of existing access roads including access to and along the existing transmission line right of way.

244. AOLP has carried out a number of critical pre-development activities, as outlined in section 3, in order to reduce the uncertainties in the proposed schedule and cost estimates for development and construction of the East-West Tie Line. Throughout development of the Leave to Construct application, and as detailed construction cost estimates become more certain, AOLP will explore various approaches for managing cost certainty and regulatory treatment of costs in collaboration with the Board.

245. The first option will be the traditional cost of service model by which actual costs are subject to prudency review by the Board and the resulting rate structure based on actual costs and the right to earn a limited, regulated return on capital invested.

246. The second option will be a target price mechanism whereby a target price for construction costs would be negotiated. This would entail a risk/reward sharing mechanism based on 50/50 cost sharing of costs and savings above or below the target price, up to a predetermined cap (potentially in the order of 10% of the construction cost). Any costs in excess of the cap would be subject to prudency review by the Board as in the cost of service alternative. This option has the

benefit of ensuring alignment of interests and providing incentives for innovation and continuous improvement.

247. The third option would be determination of a lump sum fixed price. This approach would transfer all of the cost risk to AOLP and provide price certainty to ratepayers. Each of the target price and lump sum approaches would have associated premiums over the cost of service approach to compensate for the transfer of risk.

Operations and Maintenance Cost

248. AOLP expects the long-term operations and maintenance costs of the East-West Tie Line to be relatively small relative to construction costs. AOLP has estimated operations and maintenance costs to average approximately $1.7 million ($2012) per year. This estimate is based on extensive experience with similar facilities and excludes catastrophic events and customary capital maintenance expenditures. AOLP proposes to treat these costs in the typical regulated cost of service manner.

249. AOLP has also offered to pursue an innovative levelized tariff, as an option to the traditional cost of service tariff, which could provide significant benefits to customers.

250. While AOLP's financing plan assumes that the rate setting mechanism for the East-West Tie Line would follow a traditional cost of service framework, AOLP is fully prepared to consider a more levelized approach to recover its costs of developing and constructing the East-West Tie Line.

251. One of the issues associated with the development of new transmission is that system additions, by their nature, are very large and costly, but once having been completed the network is able to meet the needs of both present and future customers, for many years. While current customers benefit from increased reliability, the capacity added is usually far in excess of that required by current customers since it is primarily required to meet load growth, and is therefore largely to the benefit of future customers. This creates an issue of intergenerational customer fairness, in that there is a mis-match between the customers bearing the bulk of the cost of the line and those receiving the benefits.

252. This issue is exacerbated by the traditional Cost of Service (COS) approach, in which the tariff is the highest in the first year, and declines thereafter over the life of the facility. Under COS, the highest cost to customers occurs when the load is lowest, and assuming the load is growing, the tariffs are lower when there is more load on the system to support the cost of the line.

253. The net result of these two factors is that current customers bear a much higher portion of the total cost of the line, even though future customers derive a similar benefit, but at a much lower cost. This imposes a significant burden on today's customers, and many would argue results in an unfair matching of the costs and benefits of transmission between generations of customers. There is a minor distortion with distribution assets, that can be added more incrementally, but with transmission which must be added in large blocks of capacity and capital, it is a significant distortion.

254. Given that the East-West Tie Line will be a single, large discrete asset to AOLP at least initially, it may well lend itself to an alternate tariff approach which would mitigate this issue, should the Board feel there is value in addressing the concern. Therefore, once designated, AOLP would be pleased to work with the Board to determine whether this innovative approach, which would better align cost and benefit between generations of customers, could be used as an alternative to the traditional COS tariff.

255. Conceptually this would mean utilizing a levelized tariff that, at least in real terms (net of inflation), both current and future customers would pay the same tariff or portion of the cost of the line, given that they would be receiving similar benefits. Under this approach, a long term contract would replace traditional year by year regulation, which would allow structured financing to be used to match the agreed upon tariff shape. In addition to significantly reducing the cost burden on customers in the early years, the need for frequent ongoing regulatory proceedings relating to a single line would be avoided, further reducing costs that would otherwise also be borne by ratepayers. The contract could have periodic reopeners, to the extent that refinancing was necessary, or as required to ensure that ongoing customer interests continued to be satisfied.

256. At this preliminary stage of the East-West Tie Line process, AOLP has not fully researched all of the issues associated with this approach, and understands that there would many business, regulatory and technical details to be identified and resolved, if the Board had an interest in pursuing this option. As such, once designated, AOLP would be prepared to work in close collaboration with the Board staff to further delineate, test and evaluate this proposed approach.

6.5.3 How the plan satisfies the identified need for the line at a lower cost than other options

257. AOLP is proposing the use of an alternate H-Frame structure design along certain areas of the proposed route as well as the use of screw-piles, off-site assembly yards and helicopter erection techniques to set structures. Each of these innovative solutions has the potential to result in cost savings for the East-West Tie Line project and can be implemented safety and effectively.

258. During detailed design of the East-West Tie Line, AOLP will revisit its adherence to the Board's Technical Requirements and if applicable, make recommendations to the Board for changes including low-cost additions that may increase the reliability of the system.

259. AOLP has planned construction sequencing to maximize the efficiencies of similar work for construction contractors to minimize learning curves and the inherent risks in carrying out unfamiliar work. This sequencing will use the "train" work method whereby construction crews are given only one installation to carry out; for example, tower assembly crews will only work on Tangent or Angle towers. Using this method of sequencing ensures that crews quickly become familiar with the method and technique of construction.

260. Due to the volume of work and to reduce overall risk, AOLP plans to divide the project into three sections. Two contractors will work simultaneously on sections 1 and 2. These sections are the geographic areas with the lower overall risks. The contractors will be measured on Key Performance Indicators (KPIs) through the duration of the works in sections 1 and 2. On completion of the initial section each contractor will be measured on KPIs and the winning contractor will be awarded section 3 work.

261. The KPIs will be based on a number of factors weighted to ensure that safety standards, environmental impact, cost and production are the key drivers; other factors such as community relations will also feature as a measure. These KPIs will ensure that the award of the final section is transparent and fair.

262. Further benefits of this plan are that the separation of the project into three sections, two running in parallel, allows the contractors to focus efforts over a smaller geographic area. The logistics of the project can adversely affect production if supervising personnel spend a disproportionate amount of time traveling from location to location to support the construction crews. The separation of the project between contractors also works to reduce overall project risk.

263. AOLP has arranged for SNC-Lavalin to procure materials and equipment for the East-West Tie Line. Having high dollar spend on commodities such as structural steel ($1.8B), HV/MV Transformers ($557M), and wire and cable ($236M) has positioned SNC-Lavalin with a distinct competitive advantage in the market place. Leveraging the overall spend on projects worldwide, SNC-Lavalin has created Supplier of Choice agreements with many world-class suppliers to obtain preferred pricing, reserved production slots, and pre-negotiated terms and conditions. Utilizing these agreements allows for both bottom-line savings on purchases and an overall reduction in man-hours spent on procurement activities.

264. AOLP's competitive financing plan contributes to the lower overall cost of its Plan for the East-West Tie Line. AOLP plans to finance the project on a standalone basis and will implement a capital structure consistent with the Board's approved capital structure for transmission facility owners. All required equity investment will be contributed by SNC-Lavalin and its subsidiaries.

265. AOLP targets a credit rating in the "A" range which typically provides unfettered access to debt capital markets under most capital market conditions. Regulated utilities with "A" category credit ratings have some of the lowest debt spreads in the Canadian corporate world as demonstrated by AltaLink's debt spreads, as demonstrated in Appendix 9. This will enable AOLP to raise debt financing at very competitive rates, which will result in lower capitalized AFUDC and on-going interest costs. Consistent with AltaLink's financing strategy, AOLP intends to issue

commercial paper or bankers' acceptance notes during the development and construction phase of the East-West Tie Line project, which will also result in lower AFUDC, thereby reducing the overall cost of the project and rate payer impact.

6.5.4 Local benefits (e.g. employment, partnerships)

266. AltaLink will work with the Economic Development Committees in Aboriginal communities within the project area to identify employment and contracting opportunities. These could include, but are not limited to, services such as brushing, access construction, security, catering, and environmental work. The Participation Framework that AOLP has developed specifically allows for the following:

> First Nations and Métis communities have clearly signaled the desire to include employment, training and contracting benefits as part of the Aboriginal Participation Framework. AOLP undertakes to facilitate preferential business opportunities for First Nations and Métis including priority employment, training and contracting with local Aboriginal service providers and product suppliers that reflect the appropriate competencies, prices and labour rates.

267. AOLP will be using Land Agents from Ontario, preferably from the areas surrounding the East-West Tie Line, to perform all land acquisition work including accredited appraisers for required appraisal work. AOLP also intends to use local or Ontario-based surveyors to provide survey plans and the registered plan for the East-West Tie Line.

268. AOLP will leverage existing professional relationships with northwestern Ontario forestry contractors in the Thunder Bay area and consultants to support the development of the East-West Tie Line. Furthermore, AOLP intends to contract right of way and construction access to local forestry contractors that have working knowledge of the landscape in Ontario and provide valuable insight into the planning and execution of this phase of the project.

269. In addition, the bulk of the EPC and environmental work will be carried out by Ontario based staff of SNC-Lavalin, under the overall project management of AOLP.

6.5.5 Enhanced reliability for the transmission grid

270. AOLP has the organization and plans in place to operate and maintain the East-West Tie Line to the same standards as AltaLink has demonstrated in Alberta. As described in section 4.3.7, AltaLink leads its peers in key reliability, safety and cost performance operating and maintenance matrices monitored by the CEA.

6.6 An indication as to whether the applicant's present intention is to own and operate the line once the line is in service

271. AOLP intends to own and operate the line and will work closely with Hydro One to develop the appropriate interconnection agreements and operating procedures to outline the responsibilities for each party.

7. Schedule

7.1 A project execution chart showing major milestones for both line development and line construction phases of the project

7.2 For the development phase of the project:

272. AOLP has provided its East-West Tie Line Project Schedule in Appendix 16; the development phase of the project is shown on page 1 of Appendix 16.

7.2.1 A detailed line development schedule identifying significant milestones that are part of the development phase of the project, and estimated dates for completing these milestones

273. Appendix 16 shows AOLP's integrated development and construction schedule. In the preparation of the Leave to Construct (designated "LTC" in Appendix 16) and the EA, a number of development activities will take place, some sequential and some in parallel. AOLP's key activities during project development are outlined on pages 1 through 3 of Appendix 16 and include project management, route selection, environmental studies, public consultation, First Nations and Métis consultation, drafting the LTC and EA, line and structural design, and procurement and construction planning. Each of these activities will have detailed schedules and associated milestones.

7.2.2 Proposed reporting requirements for the development phase

274. AOLP anticipates that the project development phase will continue for 12 – 16 months. AOLP proposes to implement formal progress reporting with the Board on a bi-monthly basis from the point of designation, through to filing of the Leave to Construct.

7.2.3 Proposed consequences for failure to meet the required performance milestones and reporting requirements for the development phase

275. AOLP considers that consequences for failure to meet milestones should be commensurate with the impact on project cost, schedule and quality and must take into account both the circumstances surrounding the failure and AOLP's ability to foresee and/or mitigate same. AOLP would collaborate with the Board to adjust the go-forward schedule as appropriate when/if milestones are not met.

7.2.4 A chart of the major risks to achievement of the line development schedule, indicating the likelihood of the item (e.g. not likely, somewhat likely, very likely) and the severity of its effects on the schedule (e.g. minor, moderate, major)

276. Table 7.2-1 provides AOLP's identification of risks to the East-West Tie Line development and construction schedule and costs along with its planned mitigation strategy.

Table 7.2-1 East-West Tie Line Schedule and Cost Risk Assessment Development and Construction

Risk	Likelihood	Severity of Effects	Strategy to Mitigate or Address the Identified Risk
All approvals may not be received to align with the schedule due to extended consultation with stakeholders.	Somewhat likely	Major risk	AOLP has established a detailed consultation plan and arranged for adequate resources to address stakeholder concerns. AOLP will schedule milestones related to consultation to protect overall schedule. AOLP has established its land acquisition principles and compensation plan. AOLP will undertake early and extensive consultation with stakeholders. AOLP has designed an innovative Aboriginal participation plan.
Delayed Regulatory Approvals	Somewhat likely	Major risk	AOLP will ensure its Leave to Construct application is developed in a responsible manner, aimed at meeting all Board regulatory requirements. Conclude binding agreements will all Aboriginal communities and file these agreements with the Board at the same time AOLP files its Leave to Construct application.
Experience challenges in coordinating 3rd party access and crossings due to delay in responses from 3rd parties or onerous review of procedure.	Somewhat likely	Major risk	AOLP has established a detailed consultation plan and arranged for adequate resources to address stakeholder concerns. AOLP will schedule milestones related to consultation to protect overall schedule. AOLP has established its land acquisition principles and compensation plan. AOLP will undertake early and extensive consultation with stakeholders. AOLP has designed an innovative Aboriginal participation plan.
Weather delays or restrictions due to early breakup, abnormally warm winter, wet summer/ fall or forest fire due to dry conditions.	Somewhat likely	Moderate risk	AOLP will creating a floating schedule with in-service date flexibility, multiple contractors working at the same time, alternate construction methods, extra de-mob point to reduce costs if required. Flexibility in working areas. Use of H-frame wood pole structures as required.
Force Majeure occurrence	Not likely	Major Risk	In the event of a force majeure event, such as a catastrophic weather event, AOLP will prepare a plan for the mobilization of resources to minimize the impact of delay. In the event of other force majeure events, the nature of which cannot be anticipated, AOLP will work with the Board and other parties, as appropriate, to minimize the impact of the event.
Uncover an unknown historical or environmentally sensitive location during construction due to unknown settlement or historical area. Species out of assumed habitat.	Not likely	Moderate risk	Design flexibility to allow routing deviations or span extensions. Dedicated environmental study planned to survey for 'stick nests'. Extensive studies to be undertaken by licensed archeologists to minimize the risk of not identifying sites during the EA stage.
Material and equipment supply chain risk due to resource constraints with manufacturers. Large volume of material, short delivery windows.	Not likely	Moderate risk	AOLP will establish a detailed procurement plan including arranging for quality inspectors at manufacturers' facilities, a materials handling firm to manage main arrival yard, site security to reduce losses and use of multiple manufacturers.

7.2.5 A description of the applicant's strategy to mitigate or address the identified risks

277. Please refer to Table 7.2-1 for AOLP's risk schedule mitigation strategy.

7.3 For the construction phase of the project:

7.3.1 A preliminary line construction schedule identifying significant milestones that are part of the construction phase of the project, and estimated dates for completing these milestones

278. Appendix 16 shows AOLP's integrated development and construction schedule. Once AOLP has received the Leave to Construct and EA approvals, a number of construction activities will take place, some sequential and some in parallel. The key activities during construction include project management, development of the First Nations and Métis participation plan, procurement, construction management and various construction activities including implementation of the construction environmental management plan , right of way preparation, foundation construction, tower assembly and erection, conductor stringing and commissioning and close-out. Each of these activities will have detailed schedules and associated milestones.

7.3.2 Proposed reporting requirements for the construction phase;

279. AOLP anticipates that the project construction phase will continue for 36-42 months. AOLP proposes to implement formal progress reporting with the Board on a bi-monthly basis from receipt of the Leave to Construct and EA approvals through to final commissioning and completion.

7.3.3 Proposed consequences for failure to meet the required performance milestones and reporting requirements for the construction phase

280. AOLP considers that consequences for failure to meet milestones should be commensurate with the impact on project cost, schedule and quality and must take into account both the circumstances surrounding the failure and AOLP's ability to foresee and/or mitigate same. AOLP would collaborate with the Board to adjust the go-forward schedule as appropriate when/if milestones are not met.

7.3.4 Proposed in-service date for the line (can be 2017 or another date)

281. AOLP is proposing an in-service date of November 2018 for the East-West Tie Line based on the schedule in Appendix 16. Should the Board wish to advance the in-

service date, AOLP would be pleased to work with the Board in order to advance various activities including new tower family design and testing, the geo-technical investigation and early procurement of long-lead time material. AOLP believes that the project schedule can be tightened by as much as 12 months if these activities were to be undertaken in advance of the Leave to Construct approval.

7.3.5 A chart of the major risks to achievement of the construction schedule, indicating the likelihood of the item (e.g. not likely, somewhat likely, very likely) and the severity of its effects on the schedule (e.g. minor, moderate, major)

282. Table 7.2-1 provides AOLP's identification of risks to the East-West Tie Line development and construction schedule along with its planned mitigation strategy.

7.3.6 A description of the applicant's strategy to mitigate or address the identified risks

283. Please refer to Table 7.2-1 for AOLP's risk schedule mitigation strategy.

7.4 Evidence of the applicant's past experience in completing similar transmission line or other infrastructure projects within planned time frames. Such evidence could include a comparison of the construction schedule filed with a regulator when seeking approval to proceed with a transmission line project and the actual completion dates of the milestones identified in the schedule

284. AltaLink's applications to the Alberta Utilities Commission for permits to construct and licences to operate transmission facilities do not specify construction schedules and milestones but do include estimated in-service dates for the proposed facilities. These preliminary in-service dates are identified as being conditional upon several factors, typically regulatory approval dates and approval of AltaLink's preferred route and also assume that the Alberta Electric System Operator will not introduce project change orders. Based on this preliminary schedule for projects completed in 2010, AltaLink came within one month of the estimated in-service date 20% of the time. The remaining projects were delayed as a result of various factors, commonly delays in securing approvals and project scope changes. For example, on the Southwest Transmission Project (90 km of double circuit 230 kV), AltaLink's application was premised on a ten month construction period based on one season of winter construction and one shutdown to mitigate environmental impacts. Delays in securing approvals and an extremely mild winter season led to two environmental shutdowns and an extended construction period of 15 months.

285. Since comparisons of this preliminary schedule with actual in-service dates do not provide a useful view of project execution, AltaLink has recently begun re-setting project construction schedules after receipt of permits and licences. Only three projects to-date have been tracked in this manner, all of which are described in Appendix 3: Heartland Transmission Project, SATR Cassils to Bowmanton and SATR Bowmanton to Whitla. Each of these major projects is on track to be completed by the planned in-service dates.

7.5 Any innovative practices that the applicant is proposing to use to ensure compliance with, or accelerate, the line development and line construction schedules

286. AOLP plans to implement GIS/GPS Field Data Collection Technology to administer project data tracking and environmental management. This suite of technologies is currently being implemented by SNC-Lavalin on its Mina de Cobre EPCM mine development project in Panama and would support AOLP's schedule management for key aspects of the East-West Tie Line, including EA, pre-mobilization planning, clearing, staging, construction and post-construction/operations.

287. SNC-Lavalin's GIS/GPS-based tool will support field data collection activities associated with the EA work by:

- assisting with navigation to pre-established field data collection sites;
- recording field data along with date / time / geographic coordinates; and
- taking geo-referenced photographs that would be linked to monitoring site

288. AOLP will use the technology to verify corridor access locations, staging areas, tower locations and right of way boundaries in relation to identified environmental and other constraints.

289. AOLP will collect construction status information such as clearing, foundations construction, tower erection and line stringing during the construction phase. Regular construction status reports will be generated on demand, allowing for efficient sequencing of construction activities, an important factor given the length of the East-West Tie Line. Permitting, land acquisition, and environmental issues can also be identified to inform the sequencing process.

290. The environmental monitoring/management component during construction will be another active area of use for the GIS/GPS technology. Compliance with specific permits or environmental commitments will be accessible by AOLP field personnel. Sediment and erosion control measures in the vicinity of close-cut areas or near watercourses could be monitored and used as a field delineation and verification tool to ensure vegetative buffers are maintained at watercourse crossings and other sensitive areas as planned.

8. Costs

As part of its Plan, the applicant must file a summary of the total costs associated with the Plan, divided into development costs, construction costs and operation and maintenance costs. In addition, the applicant must file:

291. A summary of AOLP's total estimated Plan cost is shown below; further details are provided in the following subsections.

Development Cost:	$18.18 million
Construction Cost:	$425-$550 million
Operation & Maintenance Cost:	$1.7 million per year

8.1 The amount already spent for preparation of an application for designation, and an estimate of remaining costs to achieve designation.

292. AOLP will not seek recovery of the costs incurred to prepare this Application. AOLP will seek to recover costs incurred from the date of filing this Application through to designation, should it be selected as the designated transmitter of the East-West Tie Line.

293. AOLP's estimate of remaining costs to achieve designation is approximately $200,000; however, as the designation process is untested, these costs should be taken as indicative only.

8.2 The estimated total development costs of the line, broken down by the following categories of cost:

- **Permitting, licensing, environmental assessment and other regulatory approvals;**
- **Engineering and design;**
- **Procurement of material and equipment;**
- **Costs of the acquisition of land use rights, First Nations and Métis participation, and consultations with landowners, municipalities, the public and First Nations and Métis communities;**
- **Contingencies; and**
- **Other significant expenditures.**

294. AOLP's East-West Tie Line development cost estimate is shown in Table 8.2-1.

Table 8.2-1 East-West Tie Line Development Cost Estimate

AOLP - EWT Development Cost Estimate		
Item	**Description**	**Cost**
1	Designation Application	$0
2	Regulatory & Legal for Designation Hearing and LTC Preparation	$425,000
3	Environmental Assessment (Provincial EA)	$3,330,000
4	Project Management	$1,580,000
5	Survey, LIDAR and GIS Services	$1,900,000
6	Transmission Line Routing & Tower Spotting	$3,990,000
7	Engineering & Design	$1,540,000
8	Procure Material & Equipment	$0
9	Land Acquisition	$0
10	Public Consultation	$1,010,000
11	First Nations & Metis Consultation and Participation	$2,150,000
12	Owner's Costs	$600,000
13	**Sub-total**	**$16,525,000**
14	Contingency (10%)	$1,652,500
15	**Total**	**$18,177,500**

Table Notes
(a) Cost based on 2012 dollars and an in-service date of November 2018.
(b) Designation application costs to January 4, 2013 are borne by AOLP.
(c) Designation hearing costs will be recovered as part of development cost if AOLP designated
(d) In-service date can be advanced if some activities are performed prior to LTC approval:
- procurement of long lead time materials; and,
- new tower family design, fabrication and testing.
(e) No land acquisition prior to receipt of LTC approval.
(f) Public consultation includes public, agency, municipal, landowner and other stakeholders.
(g) First Nations and Métis consultation and participation costs:
- AOLP is offering up to 49% equity participation; and,
- brushing, surveying and construction at competitive rates.
(h) Owner's costs for oversight of routing, environmental, project management and engineering.
(i) Contingency at 10 percent.

8.3 The basis for and assumptions underlying the development cost estimates, and a description of how the applicant plans to manage the cost of development

295. AOLP's cost estimate is based on the collective experience of AOLP and its affiliates on similar transmission projects; an estimate of man-hours to complete the various elements of project development; and the work completed in preparation of this Application, including but not limited to, preliminary field reviews; route selection and optimization; EA and consultation plans; and engineering and design; all as further described in Part A of this Application.

8.4 A schedule of development expenditures

296. AOLP has not yet prepared a detailed timeline of development expenditures but expects that the expenditures will be close to level (equal) across the 12-16 month development schedule.

8.5 A chart of the major risks that could lead the applicant to exceed the line development budget, indicating the likelihood of the item (e.g. not likely, somewhat likely, very likely) and the severity of its effects on the budget (e.g. minor, moderate, major), and a description of the applicant's strategy to mitigate or address the identified risks

297. AOLP has provided its East-West Tie Line Schedule and Cost Risk Assessment, Development and Construction in Table 7.2-1.

8.6 A statement as to the allocation between the applicant and transmission ratepayers of risks relating to costs of development. For example:

- **if the costs of development are less than budgeted, does the applicant propose to recover only spent costs, or all budgeted costs (spent and unspent) or spent costs plus a portion of unspent cost (savings sharing)?**
- **if the costs of development exceed budgeted costs, does the applicant plan to seek recovery of the excess costs?**

298. In order to increase the benefit to Ontario ratepayers, AOLP will not seek recovery of the costs of participating in the designation process up to the date of filing this Application. AOLP's estimated cost of participating in the remainder of the designation process, which are somewhat uncertain, is included its development costs which are defined to be costs incurred from January 4, 2013 up to filing of the Leave to Construct application. This approach is consistent with instructions in the Board letter of December 20, 2011 wherein the Board stated that development costs "…end when a leave to construct application is submitted." AOLP's estimated cost of developing the project is approximately $18 million ($2012). A detailed breakdown of AOLP's development costs is included in section 8.2.

299. There are two alternatives for dealing with recovery of development costs. The first would be recovery of actual incurred costs on a cost of service basis. That is, AOLP would seek recovery of actual expenditures subject to standard prudency review by the Board. The second alternative would provide some additional protection for

ratepayers and would involve a proposal for risk/reward sharing on expenditures above or below the budgeted development costs of $18 million. In this case, AOLP would propose to share, on a 50/50 basis, any over or under expenditures up to 10% of the budgeted development costs ($1.8 million). Expenditures above or below this 10% limit would be dealt with in a traditional cost of service prudence review.

8.7 An estimated budget for the construction of the line. This budget and its elements may be expressed as a range. If a range is used, the applicant must provide an explanation for the width of the range

300. As shown in Table 8.7-1, AOLP has estimated the cost of constructing the East-West Tie Line to range from $425 - $550 million ($2012) exclusive of escalation, interest during construction and contingencies. This range is reflective of the uncertainties associated with providing a preliminary estimate at this early stage of project development. Typical uncertainties associated with this preliminary estimate include, but are not limited to:

- design of suitable crossovers with existing transmission/distribution facilities to satisfy reliability criteria and respond to issues related to ownership of the facilities being crossed;
- assumptions related to specific foundation conditions at proposed structure locations along the line route;
- encountering unanticipated environmental conditions or historical and archaeological artifacts;
- potential route changes and other issues that may be raised through the stakeholder consultation process;
- unusually adverse weather conditions; and
- availability of existing access roads including access to and along the existing transmission line right of way.

301. AOLP has carried out a number of critical pre-development activities, as outlined in Part A of this Application, in order to reduce the uncertainties in the proposed schedule and cost estimates for development and construction of the project.

Table 8.7-1 AOLP East-West Tie Line Construction Cost Estimate

AOLP – East-West Tie Line Construction Cost Estimate		
Item	**Description**	**Cost**
1	Other Costs - Project Management, Construction Management, Construction Environmental Management Plan, Engineering & Design, Tower Family Design & Test, Geo-tech Investigation, Public consultation, First Nation and Metis Consultation and Participation, Land Acquisition, Regulatory and Owner's Costs	10%
2	Material Procurement	27%
3	Labour & Equipment - Clearing and Access	9%
4	Labour & Equipment - Foundations	23%
5	Labour & Equipment - Assembly and Erection	21%
6	Labour & Equipment - Stringing	10%
7	**Sub-total**	**100%**
8	Contingency (0%)	$0
9	**Total**	**$425-550 million**

Table Notes
(a) Cost based on 2012 dollars and an in-service date of November 2018.
(b) Cost does not include contingency, escalation or allowance for funds used during construction
(c) In-service date can be advanced if some activities are performed prior to LTC approval:
- procurement of long lead time materials; and,
- new tower family design, fabrication and testing.

8.8 If the Plan is not based on the Reference Option, evidence as to the difference in cost (positive or negative) of work required at the transformer stations to which the line connects, and at any other location identified by the IESO

302. This section is not applicable to AOLP.

8.9 A list of the major risks that could lead the applicant to exceed the line construction budget, and the applicant's strategies to mitigate or address those risks

303. AOLP has provided its East-West Tie Line Schedule and Cost Risk Assessment, Development and Construction in Table 7.2-1.

8.10 Evidence of the applicant's past experience in completing similar transmission line projects within planned construction budgets. Such evidence could include a comparison of the budget filed with a regulator when seeking approval to proceed with a transmission line project and the actual costs of the project

304. AltaLink submits cost estimates with an accuracy range of +20/-10% when filing a facility application for Alberta Utilities Commission approval to construct and operate new transmission facilities. On an annual basis, AltaLink also files

retrospective cost variance information seeking approval of the final cost of energized transmission facilities.

305. In the five year period between 2007 -2011, AltaLink delivered 112 transmission projects with demonstrated cost performance. The total combined final cost of these projects was within 10% of the total estimate including one major project that underwent significant scope changes throughout the project life. For each project, a solid risk assessment process was in place to anticipate project delays and cost impacts.

8.11 A statement as to the allocation between the applicant and transmission ratepayers of the risks relating to construction costs

306. Throughout development of the Leave to Construct application, and as detailed construction cost estimates become more certain, AOLP will explore various approaches for managing cost certainty and regulatory treatment of costs in collaboration with the Board.

307. The first option will be the traditional cost of service model by which actual costs are subject to prudency review by the Board and the resulting rate structure based on actual costs and the right to earn a limited, regulated return on capital invested.

308. The second option will be a target price mechanism whereby a target price for construction costs would be negotiated. This would entail a risk/reward sharing mechanism based on 50/50 cost sharing of costs and savings above or below the target price, up to a predetermined cap (potentially in the order of 10% of the construction cost). Any costs in excess of the cap would be subject to prudency review by the Board as in the cost of service alternative. This option has the benefit of ensuring alignment of interests and providing incentives for innovation and continuous improvement.

309. The third option would be determination of a lump sum fixed price. This approach would transfer all of the cost risk to AOLP and provide price certainty to ratepayers. Each of the target price and lump sum approaches would have associated premiums over the cost of service approach to compensate for the transfer of risk.

8.12 The estimated average annual cost of operating and maintaining the line. This cost may be expressed as a range. If a range is used, the applicant must provide an explanation for the width of the range

310. AOLP expects the long-term operations and maintenance costs of the East-West Tie Line to be relatively small compared with construction costs. AOLP has estimated operations and maintenance costs to average approximately $1.7 million ($2012) per year. This estimate is based on extensive experience with similar facilities and excludes catastrophic events and customary capital maintenance expenditures. AOLP proposes to treat these costs in the typical regulated cost of service manner.

311. The estimated operations and maintenance expense in any given year is expected to range between $1.0 ($2012) and $2.5 million ($2012). This range is explained by the magnitude and timing of the cyclical right of way maintenance work which is expected to account for approximately 85% of annual maintenance expense and has been timed such that costs are spread over multiple years.

312. The estimate includes direct maintenance costs such as line inspections, hardware replacements and vegetation management, as well as indirect costs such as engineering support, supervision and an allocation of administration.

9. Landowner, Municipal and Community Consultation

The applicant must demonstrate the ability to conduct successful consultations with landowners, municipalities and local communities. In addition, the designated transmitter will be required to satisfy environmental and other requirements that are outside the jurisdiction of the Board. As part of its Plan, the applicant must file:

9.1 An overview of:

9.1.1 The rights-of-way and other land use rights, presented by category, that would need to be acquired for the purposes of the development, construction, operation and maintenance of the line

313. In respect of the East-West Tie Line, AOLP has identified, and plans to acquire, the land use rights categorized in Table 9.1-1.

Table 9.1-1 Identification of Required Land Use Rights

Type of Land Use Right	Description	Phase
Crossing Agreements	Pipeline, Railway, Department of Transportation Highway or Secondary Highway, Local Municipality Road	Development, Construction Operations
Easement Agreements	Right of way from private landowners to host facilities or overhang conductors across deeded lands	Development, Construction Operations
Freehold Buyouts	Voluntary if within 75 metres of edge of right of way; mandatory if properties with dwellings within the right of way	Development, Construction
First Nations Agreements		Development, Construction Operations
Crown Land Agreements		Development, Construction Operations

9.1.2 The applicant's plan for obtaining those rights

314. AOLP is committed to being transparent and prudent on all land acquisitions and related costs and, as further described below, has established a plan and compensation principles in respect of securing land use rights for the East-West Tie Line.

315. AOLP will be using land agents to engage in all land acquisition activity for the East-West Tie Line. All land agents representing AOLP will have completed training which will include Project Overview, Key Messages, Land Acquisition Principles, Construction Timelines, Environment Overview and First Nations and Métis

Overview before contacting landowners whose properties have been identified as on or near AOLP's proposed East-West Tie Line route. Land agents' role will be to meet with landowners to present a land acquisition offer and explain the terms and conditions of any related agreements. The landowner will retain a completed copy of the proposed agreement along with the land agent's name and business address and afforded sufficient time to review the offer.

316. AOLP's land use compensation on the East-West Tie Line will be based on fair market value as determined by market value research and a benchmark market value report prepared by an independent Accredited Appraiser Canadian Institute.

317. AOLP's clear preference is to reach a mutually acceptable agreement with all landowners. In the event that AOLP and a landowner are unable to reach terms, AOLP intends to apply to the Board for authority to expropriate land for a work in accordance with s. 99 of the *Ontario Energy Board Act*, S.O. 1998, c.15, Sched. B.

318. In the event a landowner prefers a buyout option, AOLP will be prepared to offer a buyout to primary residences within 75 metres of the outer edge of the transmission line right of way, unless there is an existing transmission line between the new line and the residence. AOLP will have the property or buildings appraised by an accredited appraiser and will make a purchase offer based on 100% of the appraised fair market value plus a 5% disturbance allowance based on value of residence and one acre. In addition, AOLP will pay all reasonable legal fees, relocation costs, reasonable non-agriculture business losses, compensation for equivalent reinstatement and other compensation that would be provided under the *Expropriation Act*, R.S.O. 1990, c- E.26.

319. Landowners that have agreed to a buyout will be given the option to lease premises and will be given ample notice to vacate which, in some cases, may occur prior to energization of the East-West Tie Line.

320. In cases where, as a result of AOLP's buyout, a landowner incurs-non agriculture business loss or equivalent reinstatement costs and AOLP and the landowner are unable to agree on fair on fair value of such amounts, the disputes will be heard by an independent review process. The landowner will have the opportunity to obtain the services of an accredited independent appraiser to provide a report that will be

limited to the fair value of non-agriculture business loss and reinstatement claim costs. AOLP will also retain the services of an accredited appraiser to report on these same items. Both reports will then be referred to a third party accredited independent appraiser who will review each of the reports, ask questions of the appraisers and accept submissions from each before making a final decision. This decision will be limited to selecting one of the two appraisal reports.

321. AOLP will pay reasonable costs incurred by the landowner's appraiser for preparation of the report and participation in the dispute resolution process and will also pay for costs incurred by the third party independent appraiser.

322. AOLP will exercise all Utility Right of Way agreements and pay the balance of all compensation owing to landowners at the time the Ontario Energy Board and Environmental Assessment approvals have been obtained.

9.1.3 A description of any significant issues anticipated in land acquisition or permitting and a plan to mitigate them

323. AOLP does not expect extraordinary land acquisition issues to arise in the development, construction or operation of the East-West Tie Line. Based on its extensive land experience in Alberta, AOLP has identified the following common issues and plan to address those issues.

- **Crossing Agreements** – potential to delay project if all crossing agreements are not secured in a timely fashion. **Plan** – AOLP will employ a survey company to provide appropriate drawings, construction plan and log sheet to track progress of all crossing requests.
- **Easements** – AOLP and private landowners may not come to agreement. **Plan** – AOLP will begin land acquisition early in the development of the East-West Tie Line so that landowners have sufficient time to review and discuss options with AOLP.
- **Crown Land Agreements** - environmental constraints could delay timing of construction. **Plan** – AOLP will initiate the Environmental Assessment process immediately after designation to identify any environmental issues.
- May be unable to find willing buyer for merchantable timber removed from right of way. **Plan** – AOLP will work directly with the Ministry of Natural Resources to determine acceptable disposal methods, which may include mulching, piling and burning, or other options.

9.2 A landowner, municipal and community consultation plan for the line, including:

324. Pursuant to the requirements of the *Environmental Assessment Act*, R.S.O 1990, c-E18, s. 6(1), AOLP has completed both a draft terms of reference and a scope of work for the East-West Tie Line EA including establishing a consultation plan. AOLP's *Draft Terms of Reference to fulfill the requirements of the Provincial Environmental Assessment Act* (ToR) and *Draft Report: Environmental Assessment of the East-West Tie Transmission Tie Line Scope of Work* (EA Scope of Work) are attached as Appendix 13 and Appendix 14. Section 8 of the ToR describes AOLP's consultation plan for landowners, occupants and residents; non-government organizations and interest groups; government agencies, municipalities and communities located along the proposed East-West Tie Line corridor. Section 2.5 of the ToR sets out a preliminary assessment of potential federal, provincial and municipal government agency stakeholders of the East-West Tie Line. Section 6.2.6 of the EA Assessment describes AOLP's planned public and agency consultation and provides detail regarding consultation methods and phases of engagement.

325. AOLP is prepared to initiate the Environmental Assessment process immediately after designation and intends to complete the process within 27 months. The steps required to complete the Environmental Assessment process are described in the ToR in Appendix 13. Detailed work plans, timelines and costs are provided in the EA Scope of Work in Appendix 14.

9.2.1 Identification of the categories of parties to be consulted

326. AOLP has developed a preliminary consultation list of parties for each of the following categories. Where specific parties have not been identified, such as individual landowners/general public, then a mechanism by which the individual parties will be identified has been provided in Appendix 14, EA Assessment Scope of Work, section 6.2.6.

- Landowners and general public - techniques for consulting with landowners and the general public is summarized in Appendix 14, Table 5.
- First Nations and Métis – AOLP's Aboriginal community consultation plan is provided in section 10.1.

- Government agencies (federal, provincial and municipal) have been identified in Appendix 14, Table 2. Details on consultation are provided in Appendix 14, section 6.2.6.
- Non-government organizations will be identified through the Terms of Reference process.

9.2.2 The applicant's plan for consultation for each party or category of party, including method and tentative schedule in relation to the overall project schedule

327. AOLP has provided its landowner, municipal and community consultation plans, including methods and tentative schedule, in its ToR (Appendix 13, section 8) and EA Scope of Work (Appendix 14, section 6).

9.2.3 A description of any significant issues anticipated in consultation and a plan to mitigate them

328. AOLP has identified a general schedule risk arising from the potential for extended consultation with stakeholders. To minimize the risk of such delays, AOLP has defined its land use compensation plan (described in section 9.1.2), plans to undertake early and extensive consultation with stakeholders, arranged sufficient resources to address stakeholder concerns in a timely manner and will schedule consultation milestones to protect overall schedule. As described in section 10, AOLP has also designed an innovative First Nations and Métis participation plan.

9.3 If the applicant has identified a proposed route for the line, the applicant must file a general description of the planned route for the line and may include:

- **Approximate right of way width and**
- **Approximate portion of the route that is: adjacent to the existing corridor (%); or along a new corridor (%)**

329. AOLP has identified its proposed East-West Tie Line route to be adjacent to the existing 230 kV transmission line for the entire line length (100%) subject to detailed design, EAs and stakeholder input. The approximate right of way width for the route is 50 metres widening to 65 metres for the H-frame option. At this time, AOLP expects that any route deviations resulting from detailed design would be minimal (approximately 1% deviation from existing right of way). Environmental assessments and stakeholder feedback could, collectively, amount to approximately 30% deviation from the existing right of way. A detailed description of AOLP's route selection is attached in Appendix 15, *Selection and Optimization of the Preferred Route for the East-West Tie Line Enhancement Project*.

330. The ultimate goal of AOLP's East-West Tie Line route selection process is to identify the best overall routing solution to meet the technical requirements of the project. This is accomplished by assessing potential routing solutions against a variety of factors such as:

- technical constraints and requirements;
- maximization of existing transmission assets and associated property rights;
- location of existing transmission lines;
- line outage requirements;
- socio-economic and environment;
- natural environment;
- cultural environment;
- agricultural environment; and
- cost to rate payers.

331. These and other factors are considered in conjunction with the best available information, feedback from regulatory agencies, landowners and other stakeholders.

Route Overview

332. AOLP defined the study area for the East-West Tie Line project based on the geographic limitations of the Board reference option. For a more detailed description of the development of the study area and subsequent preferred routing option please refer to Appendix 15.

333. AOLP divided the East-West Tie Line study area into two distinct segments. The West segment from Lakehead TS to Marathon TS and the East segment which runs from Marathon TS to Wawa TS.

334. The West segment runs northeast from Thunder Bay until Nipigon where the route turns east towards Marathon TS. From Marathon TS, the East segment runs generally southeast until it reaches the termination at the Wawa TS. The study area corridor boundaries in the West segment between Thunder Bay and Marathon comprise the area between the Lake Superior shoreline inland up to 20 kilometres.

From Marathon TS, the East segment runs generally southeast until it reaches the termination at Wawa TS and in places is up to 95 kilometres wide.

335. AOLP conducted a preliminary assessment of potential routing options within the study area. The purpose of this exercise was to determine a basis for providing an estimated schedule, cost estimate, determine an appropriate scope for the Environmental Assessment and consultation program.

336. The study area was examined for opportunities to parallel existing linear infrastructure. Paralleling existing infrastructure offers several advantages to the proposed project such as, minimizing fragmentation of the landscape and leveraging existing access roads. These existing facilities included gas pipelines, railways, highways and power lines. Due to the nature of the terrain on the north shore of Lake Superior, most of the existing infrastructure follows a winding route. The best opportunity is to parallel the existing 230 kV transmission line.

337. The preferred routing option in the West segment is primarily located to the north side of the Trans-Canada Highway (TCH); however, there are several highway and railway crossings between Terrace Bay and Marathon. Canadian Pacific Railway (CPR) runs parallel to the proposed transmission line for several kilometers between Thunder Bay and Pass Lake and then again for several more kilometers just west of Marathon. The preferred routing option for the East segment is located primarily south of the TCH and traverses Pukaskwa National Park. Both segments cross First Nations reserve land, Pays Plat on the West segment, and Michipicoten on the East segment.

338. Map Books for the preferred routing option can be found as attachments to Appendix 15; the structure numbers referenced in the description are the nearest structure on the existing 230 kV transmission line. The West Segment begins at Lakehead TS. AOLP is proposing to expand the substation fence to the east; this will allow the proposed transmission line to parallel the two existing transmission lines and will not require a line crossing immediately after exiting the substation. The three lines will head north and cross the TCH. The existing 230 kV transmission line turns east and the proposed line will parallel on the south side of the right of way.

339. Being located on the south side of the transmission line is advantageous because it avoids a conflict with the Mackenzie River between structures 518 and 513 and conflict with the CPR railway near structures 502 and 501.

340. Near structure 492 the proposed route crosses the existing transmission line to avoid impacting seasonal residences located on Loon Lake. Being on the opposite side of the existing transmission line will also help mitigate the visual impacts of the proposed transmission line.

341. There are several rural residential properties near Dorion that could potentially create the need to cross the existing transmission line multiple times. These residences will be consulted for their input into the project and their feedback will be incorporated into the routing decisions at this location.

342. The proposed route will remain on the north side of the existing line until structure 449 where it will cross to the south side to avoid impacting an agricultural property. The route will remain on the south side until structure 419 where it will cross to the north side to avoid several residences. The line will cross back to the south side of the existing line near structure 404 to avoid residences and to prepare for a 115 kV crossing near structure 370.

343. The proposed line will cross two existing 115 kV transmission lines and the TCH near structure 364. This will be a long span on severe terrain; it may be necessary to increase the separation to the existing structures at this location. There will be another long span where the proposed line will cross the Nipigon River. Preliminary investigation indicates that it will be possible to clear span the river.

344. After crossing the Nipigon River, the proposed line will switch to the north side at structure 346 to avoid having to install structures in Ruby Lake Provincial Park. The line will remain on the north side of the existing line until it reaches Marathon TS.

345. It may be necessary to reconfigure the existing 115 kV transmission line between structures 98 and 97 and structures 58 and 57 in order to create enough space to install the proposed line.

346. AOLP is proposing that Marathon TS be expanded on the north side to allow the line to enter and exit without creating the need to cross the existing 230 kV transmission line.

347. The East Segment begins where the proposed line exits Marathon TS. Based on information gained during the field visit and what can be determined from the desktop analysis, there would appear to be no reason for the proposed line to cross the existing transmission line. This segment crosses Pukaskwa National Park between structures 319 and 233 and Michipicoten Indian Reservation between structures 64 and 31.

348. The proposed line will remain on the north side of the existing line until it reaches the termination at Wawa TS at Anjigami Lake.

9.3.1 A brief description of the environmental challenges posed by the proposed route

349. Forming part of Appendix 15, Map Book 4 identifies potential environmental constraints within the corridor boundary. Based on its preliminary assessment, AOLP has concluded that no single route avoids all such constraints nor do the identified environmental constraints preclude any specific alignment.

9.3.2 An estimate of ownership by category of lands along the proposed route: Crown (federal or provincial) (%); Private (%); First Nations or Métis (%); and Other (%)

350. Since AOLP's proposed route is adjacent to the existing 230 kV transmission line, AOLP has estimated ownership along its proposed route consistent with that provided by Hydro One along the existing right of way, as shown below.[4]

- Crown – approximately 56.4%
- Private Landowners – approximately 32.3%
- Pukaskwa National Park – approximately 8.7%
- First Nations – approximately 2.4%

9.4 If a proposed route for the line has not been identified, the applicant must file:

- **A list of alternative routes;**
- **An explanation of the method and decision criteria for route analysis and selection; and**

[4] EB-2011-0140, HONI_EWTReport5a_20120628

- **The planned schedule for route selection**

351. This section is not applicable to AOLP.

10. First Nations and Métis Consultation

The applicant must demonstrate the ability to conduct successful consultations with First Nations and Métis communities, as may be delegated by the Crown. As part of its Plan, the applicant must file:

10.1 A proposed First Nations and Métis consultation plan, including:

10.1.1 A list of First Nations and Métis communities that may have interests affected by the project;

352. Table 10.1-1 provides AOLP's list of First Nations and Métis communities that may have interests affected by the East-West Tie Line project.

Table 10.1-1- List of First Nations and Métis Organizations

Animbiigoo Zaagi'igan Anishinaabek First Nation (Lake Nipigon Ojibway)
Biinjitiwaabik Zaaging Anishinaabek First Nation (Rocky Bay)
Bingwi Neyaashi Anishinaabek First Nation (Sand Point)
Fort William First Nation
Ginoogaming First Nation
Long Lake No. 58 First Nation
Michipicoten First Nation
Missanabie Cree First Nation
Ojibways of Batchewana
Ojibways of Garden River
Ojibways of PIC River (Heron Bay First Nation)
Pays Plat First nation
Pic Mobert First Nation
Red Rock Indian Band
Greenstone Métis Council
Red Sky Independent Métis Nation
Superior North Shore Métis Council
Thunder Bay Métis Council
Métis Nation of Ontario (MNO)

10.1.2 An approach for engaging with affected First Nations and Métis communities, along with rationale or other justification for such an approach;

353. AOLP's consultation plan was developed based on discussions with a number of First Nations and Métis communities. Additionally, some communities provided AOLP with Consultation Protocols that they themselves had developed. The information

provided in those protocols has significantly influenced and helped to shape AOLP's consultation plan.

354. As background, AltaLink has successfully engaged Aboriginal communities in a number of Alberta transmission projects by using consultation programs that include the same framework and key components as identified in AOLP's consultation plan.

355. AOLP's preliminary Aboriginal community consultation plan is provided below; AOLP intends that the final consultation plan be developed and agreed to jointly with each of the communities.

AOLP East – West Tie Line

Aboriginal Community Consultation Plan

Consultation Objectives

AOLP's overall objective of its Aboriginal Community Consultation Plan is to meaningfully engage First Nations and Métis communities that will potentially be directly and indirectly affected by the East-West Tie Line project.

This will be achieved partly by creating a forum for dialogue and information exchange and also by fostering an ongoing positive relationship between the AOLP's Project Team and the Aboriginal communities. AOLP also approaches consultation as a collaborative and transparent process, ensuring that its processes, decision-making, and communications are clear, ongoing and comprehensive.

A significant portion of AOLP's proposed route for the East-West Tie Line is on Crown Land. The Crown holds the responsibility of the Duty to Consult with Aboriginal communities but has the ability to delegate procedural aspects of consultation to project proponents. AOLP will work with the Crown and other parties (including the Ontario Energy Board (OEB), Ontario Ministry of Energy (OMOE), Ontario Ministry of Aboriginal Affairs (OMAA), Aboriginal Affairs and Northern Development Canada (AANDC) to ensure that its consultation process upholds the Honour of the Crown and addresses potential short- and long-term concerns relating to the East-West Tie Line project, and where directed by the Crown, includes accommodation approaches related to the project.

In response to the Board's letter of December 11, 2012 concerning the Ministry of Energy's letter regarding the duty to consult with Aboriginal communities, AOLP confirms that it is prepared to enter into a memorandum of understanding (MOU) with the Ministry of Energy in respect of the procedural aspects of the next phase of consultation. AOLP understands that the MOU will set out the respective roles and responsibilities of the

Crown and the designated transmitter of the East-West Tie Line and that the terms and conditions of the MOU will be determined by the Ministry of Energy.

AOLP's fundamental goal is to establish strong relationships with First Nations and Métis communities beyond the life of the East-West Tie Line project. To that end, AOLP will meaningfully engage Aboriginal communities and incorporate their concerns regarding Treaty/Aboriginal Rights and traditional land use into its East-West Tie Line project plans, where appropriate. AOLP appreciates that the protocols of each community are based on a number of considerations that the communities have built into their guiding principles; AOLP will work with Aboriginal communities to define best practices for consultation tailored to their specific community needs.

General Consultation Approach

AOLP will initiate communication with the Aboriginal communities at the front end of the consultation program to ascertain community-specific consultation protocols, needs and preferences in respect of the East-West Tie Line project.

If applicable, AOLP will develop frameworks to perform traditional ecological knowledge studies and traditional land use assessments focused on issues and interests related to the Treaty rights to hunt, trap and fish, and traditional uses within the proposed development area. In this context, traditional use areas may include sites of cultural and historic importance such as burial grounds, gathering areas, ceremonial, archaeological and paleontological sites.

AOLP has identified 14 First Nations and 4 Métis communities that are potentially affected by the East-West Tie Line project. AOLP's consultation plan is intended to avoid adversely impacting First Nations and Métis rights and interests that may result from the construction and operation of the East-West Tie Line. If avoidance is not possible, AOLP may seek ways to mitigate adverse effects that may be associated with the project.

AOLP's consultation approach will include:

- provide a collaborative approach to developing individual consultation plans, including identifying methods to work within individual community protocols and requirements;
- provide adequate and meaningful information to the Aboriginal communities to allow for an accurate understanding of the project, associated timelines, and have an understanding of how the project relates to a community's relationship to the land;
- develop draft engagement protocols with communities as required;
- notify communities of decisions in a timely fashion;

- finalize and reaffirm commitments at various stages in the project lifecycle;
- work with Aboriginal communities to engage in Environmental Assessment (EA) Terms of Reference (TOR) development;
- develop a collaborative approach with Aboriginal communities;
- gather and document issues, concerns, and other feedback from Aboriginal communities and facilitate discussions with AOLP's project team to consider and respond to feedback;
- decision-making rationale in relation to issues raised by Aboriginal communities; and
- respond to issues, concerns, and other feedback from community members, as appropriate. Such responses could include:
  - a commitment from AOLP to modify the project design consistent with regulatory approvals granted to address issues or concerns, whenever possible; and
  - a commitment from the AOLP to apply appropriate mitigation to address issues or concerns.

Community Engagement

AOLP will work with Aboriginal communities in its service area to develop strong relationships outside of the terms of the project, including:

- community investment;
- corporate Aboriginal investment (i.e. scholarships); and
- Aboriginal employment strategies.

AOLP's Aboriginal Community Consultation Plans

AOLP's Aboriginal Community Consultation plan includes the following activities and preliminary schedule.

1. Preparation

- Review applicable government and regulatory First Nations and Métis consultation guidelines; meet with government/regulatory representatives to confirm procedural requirements.

- Identify current community-specific issues and protocols, followed by Aboriginal Awareness training, and project team overview of the Aboriginal consultation strategy.
- Determine preliminary strategies (communications, protocol, environmental mitigations, and schedule) to minimize risks based on the East-West Tie Line potential to adversely affect Aboriginal Treaty Rights.
- Coordinate project communications deliverables (newsletters, maps) and schedule with broader Consultation and Project team, including the EA TOR development. Ensure project information is presented in a way that is culturally sensitive and clear to individuals with both technical and non-technical backgrounds.
- Prepare community-specific correspondence for initial mail out. Check mail lists to include Chief and Council, and other designated consultation contacts.
- Set up consultation records and database.

2. Notification and Project Introduction to First Nations and Métis Communities

- Project information packages distributed by registered mail.
- Follow up phone calls to designated consultation contacts; email project information packages to designated consultation contacts. Confirm receipt of project materials.
- Arrange introductory project meetings.
- Engage local agencies to help disseminate information wherever possible (community newspapers, internet, social media, radio and television).

3. Introductory Meetings and Strategy Collaboration

- Provide First Nations and Métis representatives with overview of the project information.
- Discuss First Nations and Métis consultation protocols; initiate development of relationship agreements, information sharing agreements, MOUs.
- Determine consultation plans and capacity requirements with First Nations and Métis; develop community-specific consultation work plan; ratify proposals.

4. Conduct Project Information Sessions

As a follow-up to the delivery of the Project Specific Information Packages, AOLP will offer to hold information sessions for First Nations and Métis communities to increase awareness and knowledge of the various project components, timelines and the Leave to Construct process; this will also provide an opportunity for the AOLP to answer

project-related questions at the forefront of the consultation process and document preliminary issues and concerns that may arise.

5. Plan and Conduct Consultation

AOLP will work with First Nations and Métis community contacts, and determine the most appropriate process for consultation activities. Where required, a work plan may be developed for each First Nations and Métis community and communicated to community leadership or those designated by the leadership (Chief and Council, Community Consultation Coordinator, Regional President). AOLP's plan will clearly outline consultation activities, schedules and project timelines, including deadlines associated with requests for community input. If appropriate, consultation activities may include Community meetings, Focus Groups Sessions, Elders and Youth meetings, Open Houses, and Traditional Land Use (TLU) site assessments. Guidance on developing TEK plans can be provided as requested by communities.

6. Maintain Communication Records

All communications and consultation events will be carefully documented in Records of Communication (RoC). A database of ROCs will be maintained; however, the level of detail entered into this database will vary at the request of the Aboriginal community and depend on the cultural sensitivity of the information. Consultation activity reports will be generated in preparation for regulatory proceedings.

7. Provide Project Updates and Notice of Regulatory Milestones

This information will be developed and distributed to the Aboriginal communities as required. Various open houses will also be held in relation to the EA TOR development.

8. Leave to Construct Consultation Deliverables

Prepare documents describing AOLP's consultation process and the general nature of the input gathered.

9. Submit relevant regulatory applications for approval pertaining to Aboriginal consultation

10. Coordinate Consultation Commitments with AOLP's Construction Team

- Ensure that construction contractor is aware of agreed mitigations with First Nations and Métis communities.

- Identify strategies for AOLP representative to maintain communication with construction contractor.
- Notify First Nations and Métis of incidents impacting any sites during construction; mitigate as required.
- Provide summary report of construction to First Nations and Métis as required in relation to sites of interest.
- Notify First Nations and Métis of construction completion.

Table 10.1-2 AOLP Preliminary East-West Tie Line
Aboriginal Consultation Activities

Activity	Details/Milestones
Provide Project Information Packages	Project Specific Information Packages including a brochure describing the project, AltaLink's "Good Neighbours" brochure, a "Dialogue on EMF" brochure, a brochure outlining the Ontario Energy Board Leave to Construct application process and information sheet.
Plan and Conduct Consultations	Engage the First Nations and Métis communities to collaborate on an agreed community-specific consultation process.
Conduct Preliminary Tour of the Proposed Project Area	Identified First Nations and Métis communities expressing interest will be provided a tour of key sites in the Project Study Area.
Conduct Information Session	Provide project-related information sessions in the community.
Traditional Knowledge Scoping and Planning	Scope the TK process for the Project and initiate site assessments.
Develop Mitigation Strategies	Outline the protocol or process for AltaLink to develop recommendations for impact mitigation to sites of cultural importance identified during the land use assessment.
Consultation Deliverables	A report on First Nations and Métis community consultation outcomes may be submitted as part of the Leave to Construct application process.
Mitigation Planning Meetings	Review recommendations to avoid or mitigate impacts of the proposed development within the context of the Leave to Construct application.

356. As further described below, and forming an integral part of its Aboriginal Community Consultation Plan, AOLP has also prepared its plan for the Traditional Ecological Knowledge and Traditional Land Use studies for the East-West Tie Line Project.

AOLP East – West Tie Line

Traditional Ecological Knowledge and Land Use Study Plans

Introduction

Traditional Ecological Knowledge (TEK) and Traditional Land Use (TLU) studies related to EAs typically consider two broad types of information. TEK focuses on Aboriginal people's understanding of, and relationships with, traditional lands subject to potential impact by a proposed project. TEK is the knowledge base acquired by Aboriginal peoples over many hundreds of years through their direct contact and relationship with the land. This knowledge includes an intimate and detailed knowledge of plants, animals and natural resources, the development and use of appropriate technologies for their traditional activities such as hunting, fishing, trapping, agriculture and forestry, and a holistic knowledge or “world view". TLU focuses on information about locations of cultural significance in relation to a proposed project (e.g. settlement locations/camps, resource gathering sites/locales, trails and ceremonial areas) and patterns of use, with specific reference to harvesting activities. TLUs are a form of social science investigation that brings together community knowledge to provide clarity on places and values of cultural, economic, heritage or community importance. This is usually accomplished through the recording of oral history and map biographies in interviews with community Elders, knowledgeable land users, and sometimes a larger representative sample of the community.

TEK/TLU studies have the potential to broaden the information base considered in an EIA and provide information about the possible effects of a proposed development on Aboriginal peoples' traditional lands, land-based activities, and rights. In so doing, they can improve planning and land use decision making processes such that Aboriginal peoples' values, needs and goals (individual and community) are considered.

The value of TEK/TLU studies in supporting respectful consultation processes and managing risk in land resource decision-making processes is increasingly being recognized. The potential effects of a proposed development project on traditional lands and use is ultimately of cultural, environmental, social, and economic relevance to Aboriginal peoples because they pertain to the well-being of affected communities (individually and collectively) as well as to the lands to which they belong.

Purpose and Objectives

Aboriginal TEK/TLU will be an important component of AOLP's East-West Tie Line project, and while the ToR will set out general parameters for the TEK/TLU study, the scope, content, structure and nature of study will be determined in consultation with participating Aboriginal peoples. The final work plan will provide specific task details of the work that will be undertaken, consistent with the expected outcome of the assignment.

The key objectives of the TEK Study are to:

- Identify traditional uses (including: trapping, moose and caribou hunting, moose and caribou calving and migration patterns, small game hunting, waterfowl hunting, fishing and fish spawning areas, general wildlife activity, berry picking and other gathering areas, burial/spiritual areas and other cultural areas) which may fall under treaty or Aboriginal rights;
- Identify local information pertinent to the delineation of valued ecological components;
- Seek opinions from community members regarding potential effects of the East-West Tie Line project on their traditional areas of activity and wildlife; and
- Identify the need for specific mitigation measures.

The key objectives of the TLU Study are to:

- Identify past, present, and prospective traditional use values in the Study Area, assess the potential effects of the proposed East-West Tie Line project on both these values and the broader rights and interests of communities in the Study Area. This includes collection of information relating to potential impacts and mitigation of the project on land-use values and interests in the vicinity of the project.
- Assess potential project-specific effects and the East-West Tie Line project's contribution to cumulative effects on traditional land use values, traditional land use opportunities and on the Treaty and Aboriginal rights and interests of the communities in the Study Area.

Guiding Tools

Although the East-West Tie Line project will not be subject to the CEA Act, "Interim Principles"[5] developed under section 16.1 of the CEA Act will be applied to the project. Section 16.1, gives Responsible Authorities conducting EAs the discretion to consider Aboriginal traditional knowledge. In order to provide general assistance on the

[5] Canadian Environmental Assessment Agency, Policy and Guidance – Considering Aboriginal Traditional Knowledge in environmental assessments conducted under the Canadian Environmental Assessment Act – Interim Principles.
http://www.ceaa.gc.ca/default.asp?lang=En&n=4A795E76-1

consideration of TEK/TLU in the EA, the CEA Act established the "Interim Principles" to provide the following guidance:

- Work with the community – this is where TEK/TLU research should be planned and conducted with community members;
- Seek prior informed consent – as only the community can decide if they are will to provide their TEK/TLU;
- Access Aboriginal traditional knowledge with the support of the community – as TEK/TLU belongs to the communities and its members and must be respected;
- Respect intellectual property right – this is when TEK/TLU is kept confidential and is protected;
- Collect Aboriginal traditional knowledge in collaboration – the community must be included in developing methodologies for collecting TEK/TLU; and
- Bring Aboriginal traditional knowledge and western knowledge together – this is when TEK/TLU is incorporated into the EA stage to complement the data presented in the EA with the TEK/TLU.

Study Area

The TEK/TLU Study will be inclusive of all Aboriginal people within the study area as well as those identified by the Board as having a potential interest in the East-West Tie Line project. The following table provides the 14 First Nations communities and 4 Métis organizations that have been identified as having a potential interest in the East-West Tie Line project.

List of First Nations Communities and Métis Organizations in the East-West Tie Study Area

First Nation (FN) Communities	Métis Organizations
• Animbiigoo Zaagi'igan Anishinaabek • Biinjitiwaabik Zaaging Anishinaabek FN • Bingwi Neyaashi Anishinaabek FN • Fort William FN • Ginoogaming FN • Long Lake No. 58 FN • Michipicoten FN • Missanabie Cree FN • Ojibways of Batchewana • Ojibways of Garden River • Ojibways of Pic River • Pays Plat FN • Pic Mobert FN • Red Rock Indian Band (Lake Helen Reserve)	• Greenstone Métis Council • Red Sky Independent Métis Nation • Superior North Shore Métis Council • Thunder Bay Métis Council

Although there are 14 First Nations communities identified, AOLP's preliminary studies indicate that the corridor potentially traverses the two First Nations communities of Pays Plat and Michipicoten, and is in close vicinity to three other First Nations communities:

Red Rock Indian Band, Lake Helen Reserve and Pic River. AOLP will conduct its TEK/TLU Study in all the identified First Nations communities.

Study Approach

Some conventional TEK/TLU studies meet project ToR requirements without taking into consideration differing cultural world views; however such studies often fail to recognize the different interpretations of potential project impacts based on Aboriginal holistic perspectives on the natural world. This study and the study process, in contrast, attempts to recognize the complexity of the interface between different cultural world views. While there is greater recognition of the importance of TEK/TLU studies in supporting a respectful consultation process and promoting more environmentally sustainable land and resources management practices, there nevertheless often remain practical problems with integrating these studies into regulatory processes. These relate to conceptual, communications, and political barriers; to the difficulty in reconciling the observations, procedures, and knowledge claims produced by Traditional Knowledge with those produced by Western science; and to divergent aspirations of Aboriginal communities, industry and various levels of government.

To take these issues into account, the present TEK/TLU study work plan is based on an approach that recognizes the complexity of Aboriginal culture and knowledge and translating this between divergent worldviews. Thus a key element to the Study Approach is to actively engage with both First Nations and Métis organizations, providing opportunities for a meaningful exchange of information about the Project via the Study. This information exchange will serve to ensure that current information is shared with each community and organization about the Project and the study, as well as to ensure that opportunities are provided to identify initial interests and concerns about the Project.

In order to gain valuable TEK/TLU information, it is important to engage with the communities at the outset of the project and to bring awareness about the major components of the Project to the community. This requires rigorous planning to initiate and facilitate community meetings or focus groups within the communities. The TEK/TLU Study will be inclusive and the Project Team will be visiting each of the identified 14 First Nations and representatives of the 4 Métis organizations.

Community meetings with First Nations communities and Métis organizations will be integrated into scheduled meetings for the broader Aboriginal Engagement Program. It is expected that there will be two meetings per community or organization where TEK/TKU studies will be discussed. . The purpose of the first meeting will be to introduce the TEK/TLU Study to community members and explain how TEK/TLU information will be incorporated into the environmental assessment. Afterwards, when community members have had enough time to understand the objectives of the TEK/TLU Study, the Project Team will conduct interviews and administer a survey that will allow participants to fully express their traditional knowledge and their issues and concerns about the Project. The second meeting will take place following the submittal of the EA to describe the results of

the TEK and TLU data, impact analysis (negative or positive) and identification of mitigation measures.

To ensure that it is meaningfully engaging with First Nations and Métis organizations, AOLP will develop and implement a communication strategy that will be applied from commencement to close of the East-West Tie Line project. A communication strategy will aid in ensuring the TEK/TLU study process is transparent, and community members provide their input freely and openly. The communication strategy will allow AOLP to establish a process and system of communicating with the communities, define the information that will be communicated to communities, and how frequently those communications occur.

Aboriginal communities own the intellectual property rights to their traditional ecological knowledge, regardless of recorded documentation. Therefore, AOLP will establish a confidentiality agreement for each participant. These agreements will be between AOLP, the Ontario Power Authority (OPA), local TEK / TLU coordinator, as well as the participants of the study. The agreements will acknowledge that any information provided by the participant may be proprietary and confidential, including, but not limited to, local or community historic knowledge, ideas, perspectives, comments and opinions, traditions, practices, values or belief systems, not previously disclosed to the general public.

TEK/TLU Methodology

AOLP's proposed methods to complete a TEK/TLU study for the East-West Tie Line project include:

- Hiring and training local TEK and TLU Coordinators;
- Information sessions with communities;
- Study scoping process with each of the identified First Nations and Métis Organizations
- Consolidation of survey and interview data and mapping of existing TEK/TLU information collected through previous studies; any existing TLU studies will provide a basis upon which to build;
- Data collection design - interviews and surveys;
- Organization of workshops where approaches for addressing TEK/TLU are discussed;
- Establish a Review Group, a collaborative working group at the community level, to participate in ongoing dialogue with the project team that:
    - Actively solicits Aboriginal community input (First Nations, Métis Organizations, Aboriginal trappers, youth, elders, women, etc.);
    - Provides an opportunity for EIA disciplines to discuss their work plans, methodologies and parameters of study with Aboriginal community representatives and their technical consultants; and

  - Explores options for Aboriginal community involvement in ongoing dialogue related to project planning;
- Review primary data and maps and summary of impacts and concerns identified in existing EIAs; and
- The preparation of TEK/TLU Report describing the Review Group process to date; the information contained in the Report will be supplemented through the ongoing reporting and documentation of the Review Group process.

A Description of Key Tasks for TEK / TLU Study

1. Hiring and Training a TEK Coordinator and TLU Coordinator

A TEK Coordinator / TLU Coordinator will be identified by the First Nations Chief and Council and AOLP First Nations/Métis Liaison for each community. The TEK/TLU Coordinator will be responsible to assist with the logistical planning for the community meetings, conduct TEK interviews, and carry out surveys. The TEK / TLU Coordinators will assist in identifying leaders from within the community that are considered key holders of the community's traditional knowledge (elders, trappers, hunters, etc.) for interviews. The Coordinators will then conduct interviews with the identified community leaders/elders, using the survey form and prepared maps to record answers and comments. The Coordinator will be conducting at most 20 surveys/interviews in their community/organization. If the Coordinators did not complete 20 surveys, they will then conduct workshops with other community members to gather information on what the various land uses are within their traditional territory, including burial sites, social gathering areas, harvest areas for fish, plants and animals, and traditional/historic access routes and trails. The Coordinator will have relevant experience in survey work and will be fluent in the Ojibway.

2. Develop TEK Surveys

The interview guide and survey forms will be prepared with maps of the respective traditional area for geographic depiction of the information provided on the questionnaires. The maps produced will be a basic topographic map of the area at a scale appropriate to demonstrate the full extent of the community's traditional land. Each survey will be accompanied with a map of the area of the Project surrounding their community to show the limits of the different activities performed.

The interview guide and survey will pose questions about their trapping, hunting (moose, caribou, small game, and waterfowl), fishing, berry picking and other gathering areas, burial/spiritual areas and other cultural areas within the community. The survey collects quantitative data, while interview guide collects qualitative data and provides a narrative which supplement's and supports the data collected via interviews.

Survey participants will be asked to indicate the type of animal that was trapped, hunted and fished for and what the financial significance of the animals is to them. Interview and survey participants will also be asked to provide their opinion on what impacts they think the East-West Tie Line project will have on their trapping, hunting, fishing, and cultural areas during construction and operation. Participants will also be given the opportunity to provide any ideas and suggestions for possible mitigation measures.

At the end of the interview and survey participants will be asked to provide their general opinion to help us understand how the proposed transmission line might affect them, their community and surrounding environment.

3. Conduct TEK and TLU Study Information Sessions with the Communities

Information sessions with the communities will be held with each community participating in the TEK/TLU Study. These information sessions will be held as part of a more comprehensive Aboriginal Engagement meeting. The initial sessions will be scheduled at approximately the same time as the first public information centre. During these sessions, AOLP will present to the community members a description and objectives of the TEK/TLU Study and how the results will be incorporated into the EA. This also serves as an opportunity to engage with knowledge holders and can be held in focus groups.

4. Training Sessions for TEK / TLU Coordinators

Immediately after the community meeting, AOLP will arrange a training session to fully prepare the TEK/TLU Coordinators with the necessary training and tools to conduct the surveys. The Coordinator will be provided with 20 copies of the survey with accompanying mapping and all other necessary materials to complete the study.

5. Conduct TEK Interviews

The TEK Coordinator of each community will conduct TEK interviews to complete the required surveys. Survey participants for these one-on-one interviews will be those that have extensive knowledge of the land and natural resources within their traditional territory including, elders, trappers and hunters.

AOLP recognizes that the First Nations and Métis are a valuable local resource and that their talents should be used wherever possible. This enables the communities to become more involved with the East-West Tie Line project, provides skills training, and contributes financially to the communities. In recognition of current protocol, participants of the TEK Study will be paid an honorarium.

6. Compilation and Interpretation of TEK Information

AOLP will compile and evaluate the surveys, interviews and maps upon completion. The TEK/TLU Coordinators will be included in this process to ensure that each survey is interpreted adequately. AOLP will enter the answers provided on the survey into a database for data analysis. This database will not be released to any person, as per confidentiality agreement. A participant code will be provided on each survey to ensure that the participants are anonymous.

During this process, maps will be digitized, where the data will be converted from paper maps to electronic format. Once these maps are in electronic format, they will be checked against the original hardcopy of the maps to ensure that the data presented on

the original maps are accurately represented on the digital maps. The digital maps of each respondent will then be combined into one map to illustrate the aggregation of the geographic information regarding the location of their traditional activities of trapping, hunting, fishing, and cultural areas. Below is a partial list of maps that will be produced:

- Trapping;
- Small game hunting;
- Moose and caribou hunting;
- Moose and caribou calving and migration patterns;
- Waterfowl hunting;
- Fishing and fish spawning areas;
- General wildlife activity;
- Berry picking and other gathering areas;
- Burial/spiritual areas; and
- Other cultural areas.

7. Scoping Process

The TLU study scoping process will require a series of meetings with each of the identified First Nations and Métis Organizations representatives, and a thorough review of TLU studies that have already been carried out within the area.

Traditional land boundaries can be obtained through the communities or from Natural Resources Canada. The maps of traditional land boundaries will be for illustrative purposes only, to help analysts determine the extent of potential impacts and to define the study area for the East-West Tie Line project.

8. Review of Existing TLU studies

With the consent and collaboration of Aboriginal communities, existing information may serve as a foundation upon which to move beyond conventional static inventories of sites and locales in an effort to create a meaningful process for the consideration of Aboriginal needs and interests. A review of existing TLU studies carried out within the area will be conducted and this data will be used to develop a gap analysis to determine the type of TLU data for baseline study and EA that is required.

9. TLU Workshops

The TEK/TLU Coordinators will work with the respective team members to conduct a workshop with other community members that were not part of the one-on-one TEK interviews. This workshop style format has proved to be the most efficient and feasible format for conducting this type of survey. Should a participant request a one-on-one

environment, the team will arrange an appropriate interview time and venue while in the community.

During the workshops, the TLU coordinator will have a large map of the traditional territory for community members to identify traditional land use areas, including:

- Cultural sites (ceremonial sites, areas associated with social gatherings or pilgrimages and other areas with cultural, historical or spiritual significance);
- Harvest areas for fish;
- Harvest areas for plants (medicinal, food, ceremonial);
- Harvest areas for animals (trapping, hunting); and
- Traditional/historic access routes and trails.

10. Ground-Truth Exercise

Following the interviews, field visits will take place with knowledge holders, Elders and interested community members to document general knowledge about the area and specific issues related to the Project.

11. GIS Mapping

Similar to the TEK GIS mapping, the TLU maps will be digitized in the same format. The maps will indicate the ground-truth areas from the field visits with knowledge holders. The maps will indicate important traditional land use areas to the participants, including cultural sites, harvest areas, traditional/historic access routes and trails, and other culturally significant areas.

12. Establish an Aboriginal Review Group

It is suggested that an Aboriginal Review Group be established as a process that can better address Aboriginal concerns and interests and more meaningfully incorporate TEK/TLU into the EIA. The Review Group process can be structured as an ongoing forum that is designed to facilitate two-way dialogue between the AOLP and First Nations and Métis Organizations.

13. Review Data Collected in Interviews and Survey's and Map Data

AOLP will review the information from the maps and questionnaires to ensure consistency. Contradictions between multiple sources of information will be noted for further clarification by the participant.

14. TEK/TLU Report

A final report with a full content analysis of the surveys and a summary of impacts and concerns identified in published environmental assessment documents will be submitted to the Review Group for input and feedback and will then be delivered to the proponent.

The review of the TEK/TLU Report by Review Group members is fundamentally important for ensuring: that the issues and concerns raised in the course of the TEK/TLU study program are appropriately and accurately represented in the text and mapping; and, that the collective discussions are accurately recorded. The review process is also used to ensure that intellectual property rights are respected and that any confidential information is protected in the report.

15. Return of TEK Surveys

Once the TEK/TLU analysis is complete, the TEK Surveys and maps will be returned to the participants, as they own the intellectual property rights to their traditional knowledge.

10.1.3 A description of any significant First Nations or Métis issues anticipated in consultation and a plan to address them;

357. Through AOLP's discussion with many First Nations and Métis communities, it is clear that an opportunity for meaningful involvement in the project is strongly desired by the Aboriginal communities. AOLP considers that its proposed Participation Framework addresses this issue in a comprehensive, inclusive and respectful way.

358. There are First Nations within the project area that have Addition to Reserve Claims pending as well as one First Nation that has an Aboriginal title claim before the courts. However, the East-West Tie consultation may potentially evolve into a broader forum for raising long standing grievances with the Crown that extend well beyond the scope of the Project. AOLP is confident that this situation will be managed effectively by continuing to focus on understanding the specific direct and

indirect impacts of the East-West Tie Line project on traditional land, reserve lands and otherwise on the communities. AOLP will greatly benefit from its own direct experience in engaging and working with First Nations and Métis to arrive at successful agreements to site transmission facilities on reserve land. A recent example of AltaLink's successful Aboriginal consultation approach included the Blood and Piikani First Nations in Alberta. This project involved a double circuit 240 kV transmission line that crossed both First Nations reserve lands and AltaLink and the First Nations were able to agree to mutually acceptable terms.

359. Through its recent outreach to the First Nations and Métis communities, AOLP has come to understand that six of the Aboriginal communities have entered into a Limited Partnership with Hydro One and Brookfield. AOLP made a number of attempts to meet with these six First Nations but ultimately only two accepted its meeting request. While there may be a level of commitment to this existing partnership within these First Nations, AOLP commits to make the extra effort to engage and build relationships with these communities. AOLP trusts that its Participation Framework will preserve those communities' ability for equity participation in the project along with other potential benefits described in the Participation Framework.

10.1.4 An overview of expected outcomes from the proposed consultation plan.

360. Upon completion of its consultation plan, AOLP and all affected First Nations and Métis communities will have a clear understanding of AOLP's East-West Tie Line project and the potential impacts thereof on traditional lands and First Nations Treaty rights and the Aboriginal rights held by the Métis tied to these lands. AOLP and all communities will have developed and agreed to a plan to mitigate these impacts as well as a process for monitoring and follow-up related to the mitigations plan.

10.2 Evidence of experience in undertaking procedural aspects of First Nations and Métis consultation in the development, construction or operation of transmission lines or other large construction projects. If applicable, previous engagement or existing relationships with the First Nations and Métis communities to be engaged.

361. In respect of Ontario experience, AOLP has retained Ishkonigan to assist with Aboriginal consultation on the East-West Tie Line. Ishkonigan does have experience

in working with the First Nations and Métis communities in this area. Senior officials of Ishkonigan have been involved in developing both the legal and political consultation legislation and policies at both the federal and provincial levels.

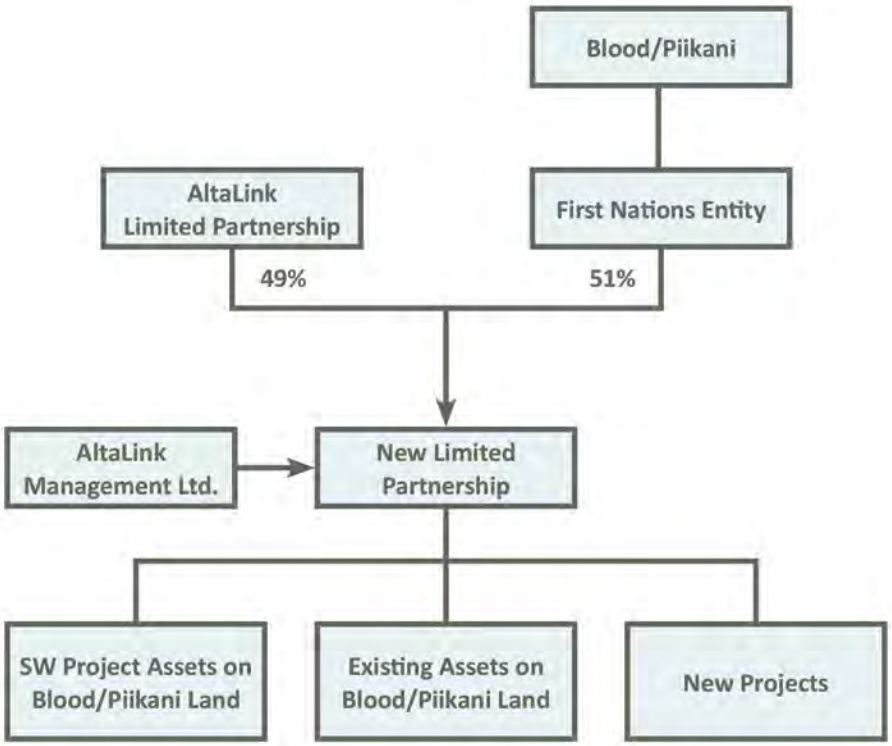
362. AltaLink has long-standing relationships with Aboriginal communities in Alberta. A description of AltaLink's Alberta First Nations partnership is provided hereunder.

363. The Southwest Alberta transmission project is a 90 km double circuit 240 kV transmission line between Pincher Creek and Lethbridge. The line was constructed to reinforce the southern Alberta electrical grid and enable significant development of new wind generation development in the area. A key component of the successful development of this project was establishing a business relationship with the Piikani and Blood First Nations. Of its 90 km length, 26 km is located on Piikani reserve lands and 23 km is located on the Blood reserve.

364. Through the process of siting and seeking regulatory approval of the new line, AltaLink forged strong relationships with both of the participating First Nations and

proposed partnerships with each to allow the Blood and Piikani to invest in the facilities proposed to be located on their lands (illustrated in Figure 10.2-1). This arrangement was critical in facilitating land acquisition for the new right of way. The partnership also established a long-term relationship with the First Nations that will be beneficial for future construction and ongoing operation and maintenance activities. The partnerships also contemplate incorporating existing assets in the future. This unique partnership has facilitated the first transmission line constructed on First Nations lands in many years.

Figure 10.2-1



365. The result of this new relationship was the creation of a separate limited partnership for each First Nations, as shown in Figure 10.2-1. In their respective partnerships, the Blood and Piikani are able to invest to acquire up to a 51% interest in the new facilities located on their land. Each partnership will then become a regulated Transmission Facility Owner in Alberta with AltaLink being the general partner and operator of each.

366. The business arrangements are captured in three main agreements with between each First Nations and AltaLink. The Project Commitment and Option Agreement commits each party to the business arrangements and formally documents the First Nations' option to invest in the assets. The option agreements were executed following receipt of regulatory approval of the project. The form of the limited partnership agreements was negotiated and formed part of the option agreements. The limited partnership agreement is to be executed after exercise of the options. Concurrent with the signing of the option agreements was the signing of a Facilities Operations Accord which outlines communications, consultation and cooperation plans between the parties. This agreement also established a joint committee to review ongoing operations and formally cement the new relationship.

367. Following the agreement of the Blood and Piikani to the specific route location, an EA was completed as a requirement of the Canadian Environmental Assessment Act. Once this was approved, the terms of a Section 28(2) Permit were negotiated with Aboriginal Affairs and Northern Development Canada (formerly Indian and Northern Affairs Canada) and agreed to by the First Nations. This was followed by an application to the Alberta Utilities Commission. With all approvals in place, construction began in the spring of 2009 and the line was placed in service in the fall of 2010.

(C) Other Factors

11. Distinguishing Features of this Application

368. AOLP has completed extensive work in preparation of this Application including Aboriginal consultation and developing a First Nations and Métis Participation Framework, designing its public consultation plan, draft EA and ToRs, field reviews, route selection and optimization, structure design and detailed mapping. A summary of the work completed to date by AOLP is included in Part A, section 3 of this Application.

369. AOLP is fully committed to meaningful and inclusive First Nations and Métis participation in the East-West Tie Line project. AOLP has contacted each of the eighteen Aboriginal communities that may be impacted by the line to varying degrees, and has consulted extensively with willing communities to understand their expectations and interests.

370. AOLP is prepared to make a very high level of equity participation available to First Nations and Métis, up to 49% of the project. This offer is inclusive; each of the fourteen First Nations and four Métis communities will have the opportunity to participate should they choose. AOLP believes that this inclusive approach ensures fairness and will encourage broader benefits and greater acceptance of the East-West Tie Line project by Aboriginal communities. AOLP's First Nations and Métis Participation Framework is detailed in section 3.2.

371. As described in section 4.5, AOLP has completed a preliminary investigation into the use of two parallel single circuit H-Frame structures as an alternative to double circuit lattice towers. The H-Frame design, used in certain sections of the East-West Tie Line, could result in potential construction cost reductions in the order of 5-10% and may also facilitate access in difficult areas.

372. AOLP has identified an alternative to the Board Technical Requirements for conductor galloping that may reduce the overall tangent tower weight by approximately 10% resulting in an approximate $5 million cost savings. Further details on AOLP's structure design are provided in section 6.1.7.

373. AOLP has also identified opportunities to significantly reduce environmental footprints, increase productivity and decrease cost through the use of screw pile foundations for steel lattice towers; off-site tower assembly yards to pre-assemble towers; and crane or helicopter assisted tower erection. Further details on AOLP's structure design are provided in section 6.5.1.

374. AOLP has also offered to pursue, with the Board, the option of a levelized tariff that would result in current and future ratepayers paying tariffs that are proportional to the benefits received. Under this approach, a long-term contract would replace traditional year-by-year regulation and reduce the need for ongoing regulatory proceedings. Further details on this option are provided in Part A, section 5.13.

375. Alternative proposals for dealing with development and construction costs for the protection of ratepayers, as outlined in Part A, sections 5.9 and 5.10, respectively.

376. For the protection of ratepayers, AOLP had identified alternative proposals for managing cost certainty and regulatory treatment of development and construction costs. As described in Part A, sections 5.9 and 5.10 and Part B, sections 8.6 and 8.11, AOLP would be pleased to evaluate these alternative cost recovery approaches in collaboration with the Board.

ALTALINK

ONTARIO LIMITED PARTNERSHIP

APPENDICES

C

List of Appendices

ALTALINK

ONTARIO LIMITED PARTNERSHIP

Appendix 1 – Application Completeness Statement

Appendix 1 – Application Completeness Statement

OEB File: EB-2011-0140

IN THE MATTER OF sections 70 and 78 of the Ontario Energy Board Act 1998, S.O.1998, c.15, (Schedule B);

AND IN THE MATTER OF a Board-initiated proceeding to designate an electricity transmitter to undertake development work for a new electricity transmission line between Northeast and Northwest Ontario: the East-West Tie Line.

STATEMENT OF SCOTT THON

I, Scott Thon, of the City of Calgary, in the Province of Alberta, STATE THAT:

1. I am a Director of AltaLink Ontario Management Ltd.
2. AltaLink Ontario Management Ltd. on behalf of AltaLink Ontario L.P. holds Electricity Transmission Licence ET-2011-0126.
3. AltaLink Ontario Management Ltd. on behalf of AltaLink Ontario L.P. is an applicant in the matter of Ontario Energy Board file EB-2011-0140, *Proceeding to designate a transmitter to carry out development work for the East-West Tie line*.
4. I am responsible for the Application for Designation for the East-West Tie Line to be filed by AltaLink Ontario Management Ltd. on behalf of AltaLink Ontario L.P. on January 4, 2013 with the Ontario Energy Board (the Application).
5. The Application is complete and accurate to the best of my information and belief.

Signed in the City of Calgary, in the Province of Alberta, this 20th day of December, 2012.

Scott Thon

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 2 – Key Management Personnel

Appendix 2 – Key Management Personnel

Name	Entity	Role	Qualifications
Darin Watson **B.E. (Ag)**	AOLP	Engineering, Procurement and Construction	Mr. Watson is AltaLink, L.P.'s Vice-President, Major Projects North, responsible for $2 billion in capital build including all aspects of critical transmission infrastructure, including the Heartland Project and 500 kV HVDC Western Alberta Transmission Line. With over 23 years' experience, Mr. Watson was responsible for the formation of the Capital Projects Group encompassing the siting, capital maintenance and projects division. As a project manager, Mr. Watson has also been responsible for engineering, construction and commissioning, including cost oversight, of multi-million dollar transmission and power production projects and natural gas refining and processing facilities in Canada and in New Zealand. He has also recently advised on the Terms of Reference for the Alberta Department of Energy Cost Oversight Committee.
Renee Marx **LL.B.**	AOLP	Legal and Regulatory Services	Ms. Marx is a senior regulatory lawyer with 12 years practice in the electric and natural gas utility industries. She has extensive experience before the Alberta Utilities Commission, and has appeared before the Alberta Court of Appeal and the Supreme Court of Canada. Ms. Marx has been involved in all aspects of tariff applications for electric and natural gas transmission and distribution. In addition, she is experienced in the permitting and licensing for major electric transmission facilities.

Dennis Walters **C.E.T.**	AOLP	Public and Aboriginal Consultation Services	Mr. Walters is Director, Aboriginal Relations with AltaLink. Mr. Walters has over 30 years' experience in the electric transmission field. He has held leadership positions in consultation, Aboriginal relations, community and government relations, project management, transmission engineering and design, transmission construction and right-of-way planning. He holds a certificate in Public Participation through the International Association of Public Participation, and has led the consultation and Aboriginal engagement activities on a number of large transmission projects.
Justian Wylie **SR/WA R/W-AMC**	AOLP	Land Services	Mr. Wylie is AltaLink L.P.'s Manager of Land and has more than 15 years' experience in land acquisition. His current annual structure payment budget is $6.7 million involving approximately 30,000 structures and 7,000 payees. Over the past five years, he has overseen a land acquisition budget of more than $300 million, including 240 kV and 500 kV projects encompassing from 20 to 400 landowner transactions each. As a licensed Land Man, Mr. Wylie oversees all land employees and contractors, including agents, appraisers and surveyors, and is responsible for development and execution of compensation and annual structure payment principles and best practices. He also acts as a subject matter expert at Surface Rights Board hearings.
Hudson Foley **RPFT**	AOLP	Siting and Permitting Services	Mr. Foley has over 18 years' experience in transmission line siting, right-of-way planning and forestry, as well as wildfire and hazard reduction, most recently as AltaLink, LP's Director of Siting. His

			experience includes oversight of siting on all of AltaLink's transmission projects, preparation and submission of Facility Applications to the regulator, and the coordination and execution of consultation programs. Mr. Foley has acted as an expert witness at Alberta Utilities Commission regulatory hearings, including the 500 kV/240kV AC Heartland Transmission Project in the Edmonton region, and the 500 kV HVDC Western Alberta Transmission Line.
Stephen Lindley MS, MCIP, RPP	SNC-Lavalin Environmental	Environmental Services	Mr. Lindley is corporate Vice President of Aboriginal and Northern Affairs, Director of the SNC-Lavalin Environment Group, and Manager of the Environmental Assessment and Planning Department. Mr. Lindley has over 25 years' experience in the environmental assessment field working with international, domestic and First Nations clients. His technical expertise includes permitting and approvals, multidisciplinary environmental impact assessment, social and economic impact assessment, environmental management planning, resettlement planning, public and regulator consultation, policy development and review, expert testimony, and project management for small and large environmental projects. Mr. Lindley has prepared environmental impact assessments for a number of transmission projects, including the Power Transmission and Distribution from Mtwara to Dar es Salam Project in Tanzania, and several high voltage transmission projects in Canada. He has also prepared environmental impact assessments, or been involved as Environmental Manager on a variety of

			projects, throughout Africa (Botswana, Gambia, Madagascar, South Africa, and Tanzania) for infrastructure and mining projects. Mr. Lindley is very familiar and experienced with IFC and World Bank standards for environmental and social impact assessments, having conducted a number of these on a variety of projects in Africa, Europe, Latin America and India.
Dominic Forest CMA	SNC-Lavalin Capital	Financial	Modeling, at SNC-Lavalin Capital. He has over 20 years' experience in finance including project financing, financial modeling, hedging structures, assessment of the financial viability of a project, acquisitions and sales of companies, and treasury. He has developed the required expertise, knowledge and skills for the negotiation, arrangement and co-ordination of complex financing strategies and structures. He is SNC-Lavalin Capital's advisory team leader, including for P3 transactions. The team is responsible for the development and integration of project financing structures including the selection of the financing strategy, the negotiation with all lenders and advisors, the coordination of the credit rating process, and the execution of the financial close. Mr. Forest is also responsible for developing and maintaining relationships with a wide group of Canadian and international financial institutions.
Paul Mackintosh	SNC-Lavalin T&D	Engineering, Procurement and Construction Services	Mr. Mackintosh is Vice-President, Operations-North America, in SNC-Lavalin Inc.'s Transmission and Development Group. He was previously Vice-President, Commercial and Vice-President, Operations. In his current role, he has initiated a

			strategic growth plan for the company's transmission and distribution activities within North America, brokered relationships with other major utilities, developers and partners for specific and targeted opportunities, and provided support and direction on multiple projects across North America. He has diverse experience in many disciplines in the global market including water, power, pipelines as well as large scale transmission line and substation projects. He has led management teams and is comfortable in the senior role when engaging with culturally diverse groups and multidisciplinary teams. Mr. Mackintosh is also familiar with several contractual models including traditional, partnerships, joint ventures and consortiums, and is experienced with a number of funding agencies such as IBRD, ADB and JBIC.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 3 – Selected Capital Transmission Projects

Appendix 3 – Selected Capital Transmission Projects

Project Name	Estimated Project Life Cost ($M)	Voltage (kV)	Line Length (km)	Line Parameters *	Schedule ** (actual/ *forecast*)		Project Features	Project Description
Heartland Transmission Project ***	621	500	55	double circuit P52A steel lattice 3 x 1590 kcmil Falcon	Project initiation Facility Application submission Permit & License approval Construction start *Construction complete* *In-service Date (ISD)*	Dec-08 Sep-10 Dec-11 Feb-12 *Sep-13* *Sep-13*	- designated Critical Transmission Infrastructure - extensive consultation conducted including successful consultation with multiple Aboriginal groups and completion of extensive traditional land use studies - extended public hearing process - as part of planning, successfully sited two routes within the Capital Region of Edmonton, through over a dozen outlying communities, heavy country residential developments and six different municipalities - of two alternatives filed for consideration, preferred route was approved - design incorporates the largest transmission structures in Alberta - joint partnership with EPCOR	Construct approximately 65km of 500kV double circuit transmission line from Ellerslie 0895 Substation to Heartland 0125 Substation. Construct approximately 22 km of 240kV double circuit transmission line to complete the 240kV Heartland load loop and interconnect the 500kV development to the AIES. Construct a new Heartland 0125 Substation with one bank of single phase 500/240kV autotransformers rated at 400MVA each, four 500kV circuit breakers and three 240kV circuit breakers. Add two 500kV circuit breakers at Ellerslie 0895.
		500	9.5	double circuit MC52ALD steel monopole 3 x 1590 kcmil Falcon				
		240	22	double circuit RC22A steel lattice 2 x 1033 kcmil Curlew				
Western Alberta Transmission Line	1424	500	347	HVDC NSB53A steel lattice 4 x 1590 kcmil Falcon	Project initiation Facility Application submission *Permit & License approval* *Forecost Construction start* *Construction complete* *In-service Date (ISD)*	Sep-09 May-11 Dec-12 *Jan-13* *Apr-15* *Apr-15*	- designated Critical Transmission Infrastructure - extensive consultation conducted including successful consultation with multiple Aboriginal groups and completion of extensive traditional land use studies - extended public hearing process - included a lengthy suspension as a result of a government review of its approach to Critical Transmission Infrastructure projects - large Study Area of over 20,000 km^2 was fully assessed for all potential routing, which included wide variability in terrain, topography and land uses - successfully routed through the most populated and settled areas of Alberta, connecting the two largest urban regions of Edmonton and Calgary, and traversing over a dozen different municipalities	Construct approximately 347km of new 500kV HVDC transmission line in bi-pole configuration between Edmonton (Genesee) and Calgary (Langdon). 50kV HVDC monopole converter stations will be built at both ends. Existing 500kV, 240kV and 138kV lines around Genesee and Langdon will also be reconfigured as per the requirements of this project.

Project Name	Estimated Project Life Cost ($M)	Voltage (kV)	Line Length (km)	Line Parameters *	Schedule ** (actual/ *forecast*)		Project Features	Project Description
SATR - Cassils to Bowmanton	360	240	130	double circuit RB22A steel lattice 2 x 1033 kcmil Curlew	Project initiation Facility Application submission Permit & License approval Construction start *Construction complete* *In-service Date (ISD)*	May-09 Jul-10 Jul-11 Sep-11 *Mar-14* *Mar-14*	- routing on or near native grassland and sensitive coulee areas - environmental seasonal constraints including blackout construction periods - managed impacts on irrigated land during route selection and construction programs through working with landowners - successful consultation with multiple Aboriginal groups, including completion of extensive traditional land use studies - coordination with significant oil and gas facilities within project area - negotiated and developed agreement with CAEPLA regarding landowner compensation and construction activities for the project	Build approximately 130km of 240kV double circuit transmission line 1034L/1035L from Cassils 324S substation to Bowmanton 244S substation. Terminate six 240kV transmission lines from Milo 356S (923L/935L), West Brooks 28S (1051L/1052L) and Bowmanton 244s (1034L/1035L) into Cassils 324S. Construct a new Bowmanton 244S substation in the vicinity of Chappice Lake substation. Build new Cassils switching station 324S southwest of West Brooks substation 28S.
SATR - Bowmanton to Whitla	311	240	110	double circuit RB22A steel lattice 2 x 1033 kcmil Curlew	Project initiation Facility Application submission Permit & License approval Construction start *Construction complete* *In-service Date (ISD)*	May-09 Jul-10 Jul-11 Sep-11 *Mar-14* *Mar-14*	- routing on or near native grassland and sensitive coulee areas - environmental seasonal constraints including blackout construction periods - managed impacts on irrigated land during route selection and construction programs through working with landowners - successful consultation with multiple Aboriginal groups, including completion of extensive traditional land use studies - coordination with significant oil and gas facilities within project area - negotiated and developed agreement with CAEPLA regarding landowner compensation and construction activities for the project	Construct approximately 110 km of new 240kV double circuit transmission line 964L/983L from Bowmanton 244S substation to Whitla 251S substation. Terminate two new 240kV transmission lines 964L/983L into Bowmanton 244S substation and Whitla 251S substation. Build a new 240kV Whitla 251S switching station with six 240kV circuit breakers.

Project Name	Estimated Project Life Cost ($M)	Voltage (kV)	Line Length (km)	Line Parameters *	Schedule ** (actual/ *forecast*)		Project Features	Project Description
FATD - NFTP - FH to SS-65	231	240	52	double and triple circuit RB22A steel lattice Steel pole 2 x 1033 kcmil Curlew	Project initiation Facility Application submission *Permit & License approval* *Forecast Construction start* *Construction complete* *In-service Date (ISD)*	Jun-11 Jul-12 *Aug-13* *TBD* *May-15* *May-15*	- successful consultation with multiple Aboriginal groups, including completion of extensive traditional land use studies - development of new triple-circuit structure in response to land use constraints and stakeholder feedback	Construct approximately 52 km of 240kV double circuit line between Foothills 237S and Enmax No. 65. Construct the Foothills 237S substation with the addition of two 240/138kV, 240/320/400MVA transformers, the reconfiguration of lines at Enmax No. 65 substation and the tie in at the Enmax substation.
FATD - Langdon to Janet (Janet Re-build)	76	240	10.5	double circuit RB22A steel lattice 2 x 1033 kcmil Curlew	Project initiation Facility Application submission *Permit & License approval* *Forecast Construction start* *Construction complete* *In-service Date (ISD)*	Jun-11 Jul-12 *Aug-13* *TBD* *May 15* *Mar-15*	- successful consultation with multiple Aboriginal groups, including completion of extensive traditional land use studies - preferred route on developed agricultural land	Construct approximately 18 km of 240kV double circuit line 1064L/1065L between Langdon 102S and Janet 74S substations. Construct the upgrades to the Janet 74S substation. Reconfigure the 240kV lines at Janet 74S, reconfigure the lines at Langdon 102S/Crossings 511S and the upgrade of the Crossings 511S to accommodate two new 240kV line terminations.
		240	7.5	double circuit Steel pole 2 x 1033 kcmil Curlew				
Hanna Area Transmission – Nilrem	76	240	30	double circuit RA22A steel lattice 2 x 477 kcmil Hawk	Project initiation Facility Application submission Permit & License approval Construction start *Construction complete* *In-service Date (ISD)*	Oct-09 Nov-10 Nov-11 Mar-12 *Sep-13* *Sep-13*	- negotiated and developed agreement with CAEPLA regarding landowner compensation and construction activities for the project	Construct a new substation Nilrem 574S to be connected to the AIES through a new 240kV double circuit transmission line cut in/out of the existing 953S line and through a new 138kV double circuit transmission line to Tucuman 478S. The 574S substation includes two 138/240kV, 240/320/400MVA transformers, the 240kV and 138kV bus work, termination of two 240kV lines 953L/1047L and two 138kV lines 679L/680L, as well as a new control building.
Hanna Area Transmission – Hansman Lake	74	240	20	double circuit RA22A steel lattice 2 x 795 kcmil Drake	Project initiation Facility Application submission Permit & License approval Construction start *Construction complete* *In-service Date (ISD)*	Oct-09 Nov-10 Apr-11 Sep-11 *May-13* *May-13*	- negotiated and developed agreement with CAEPLA regarding landowner compensation and construction activities for the project	Construct a new 240kV double circuit transmission line with one side strung from Hansman Lake 650S to ATCO's substation Pemukan 932S. Install one new 240kV, +/-200MVAR Static VAR Compensator (SVC) at Hansman Lake 650S.
Hanna Area Transmission – Ware Junction	74	240	40	double circuit RA22A steel lattice 2 x 1033 kcmil Curlew	Project initiation Facility Application submission Permit & License approval *Forecast Construction start* *Construction complete* *In-service Date (ISD)*	Oct-09 Apr-11 Feb-12 *Dec-12* *Sep-13* *Sep-13*	- successful coordination and joint siting of routes with competing TFO	Construct a new 240kV double circuit transmission line, one side string from Ware Junction 132S substation to new substation Cassils 324S. Expand Ware Junction 132S substation site, install eight new 240kV breakers and associated switches, and salvage three 240kV breakers. Install one new 240kV breaker and associated switches at Cassils 234S substation.

Project Name	Estimated Project Life Cost ($M)	Voltage (kV)	Line Length (km)	Line Parameters *	Schedule ** (actual/ *forecast*)		Project Features	Project Description
Edmonton Region 240kV Line-De-Bottlenecking	105	240	50	single circuit Steel H-Frame 2 x 1033 kcmil Curlew	Project initiation Facility Application submission Permit & License approval Construction start *Construction complete* *In-service Date (ISD)*	Aug-08 Oct-09 Feb-10 Apr-10 *Mar-13* *Mar-13*	- multi-stage, multi-year rebuild with separate Facility Applications driving project staging requirements - complex execution plan implemented to address significant power system operating constraints - partial routing on First Nations land - completion of extensive traditional land use studies - a number of sub-projects have been completed to date	Construct 12 km of 240kV double circuit line and rebuild 50 km of 240kV double circuit line 1043L. Build a temporary by-pass for 909L. Restring 4.5 km of 240kV line, 908L and 909L at Sundance. Restring 4.1 km of 240kV line, 902L, at Wabamun. Restring 4.4 km of 240kV line, 902L, at Sundance.
		240	12	double circuit RC22A steel lattice 2 x 1033 kcmil Curlew				
K3 System Interconnection	72	500			Project initiation Facility Application submission Permit & License approval Construction start Construction complete In-service Date (ISD)	Dec-08 Jan-09 May-09 Jun-09 Apr-11 May-11	- successful consultation with multiple Aboriginal groups, including completion of extensive traditional land use studies - interconnect new 495 MW coal fired generating facility (began commercial operation in Sep-11)	Construct approximately 1.2km of 240 kV double circuit transmission line 190L/903L. Revise jumper cable configuration to temporarily terminate 909L into Keephills 320P. Re-terminate 190L. Add one 600MVA 240 kV phase shifting transformer (PST) at Keephills substation 320P, including three 240 kV circuit interrupting devices for PST switching. Convert transmission line 1202L from 240 kV to 500 kV operation, including addition of two 500 kV circuit interrupting devices at Keephills substation 320P and two 500 kV circuit interrupting devices at Ellerslie substation 89S.
Castle Rock Ridge Wind Farm Connection	48	240	10	double circuit RA22A steel lattice 2 x 1033 kcmil Curlew	Project initiation Facility Application submission Permit & License approval Construction start Construction complete In-service Date (ISD)	May-10 Oct-10 Nov-11 Nov-11 May-12 May-12	- additional design requirement due to wind load - project includes system and customer elements - interconnect new 76 MW wind farm generation	Construct approximately 10 km of new 240 kV double circuit transmission line 1071L/1072L from Gooselake 103S to Castle Rock Ridge 205S. Construct a new 240 kV Castle Rock Ridge 205S substation located adjacent to ENEL's wind power substation to terminate two new 240 kV circuits. Install new 240 kV switching equipment at Gooselake 103S including five new 240 kV circuit breakers.

Project Name	Estimated Project Life Cost ($M)	Voltage (kV)	Line Length (km)	Line Parameters *	Schedule ** (actual/ *forecast*)		Project Features	Project Description
SouthWest Transmission Development	220	240	93	double circuit Steel Lattice (HW) 2 x 477 kcmil Hawk	Project initiation Facility Application submission Permit & License approval Construction start Construction complete In-service Date (ISD)	Jul-05 Aug-07 May-09 Jul-09 Nov-10 Nov-10	- multi-stage, multi-year project with 7 Facility Applications covering multiple area improvements with additional scheduling coordination efforts - project ISDs in 2006, 2007 and 2010 - extensive consultation conducted including successful consultation with multiple Aboriginal groups and completion of extensive traditional land use studies - partial routing on First Nations land - successful completion of Federal environmental screening assessment - multiple routes fully designed, vetted and filed for consideration - routing on or near native grassland and sensitive coulee areas - environmental seasonal constraints including blackout construction periods	Build a new 240kV double circuit line from Goose Lake substation, 103S, to Peigan substation, 59S. Expand the 240kV bus at 59S to accommodate four new 240kV lines. Re-terminate 911L at 59S. Construct a new 240kV double circuit line from 59S to Lethbridge substation, 370S. Replace the 138/69kV transformers at Pincher Creek 396S, Magrath 225S, Drywood 415S. Make 138kV System changes including 170L & 725L Connection, 66L rebuild to 138kV (820L) and add 138/69kv transformer at Stirling 67S, Salvage Tempest 403S, Fort MacLeod 170W breaker replacement, re-conductor about 2 km of 170L (renaming to 616L) from Kettles Hill 383S tap. Build a new 240/138kV substation 103S, re-terminate 164L, 893L & 170L (616L) into 103S, 138kV tie line (613L) Pincher Creek 396S to 103S.

NOTES:

* Line lengths and parameters reflect **new** construction only.

** Schedule information is best available as at Sep 2012; future dates are subject to change. Dates for projects with multiple sub-projects reflect earliest start and latest completion. ISD reflects final energization.

*** Project jointly owned by AltaLink and EPCOR. All project information is provided on a gross basis.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 4 – Key Technical Personnel

Appendix 4 – Key Technical Personnel

Name	Entity	Biography
Engineering, Procurement and Constructing (EPC)		
Brian Townsend P.Eng.	AOLP	Mr. Townsend is a senior engineer with 7 years engineering experience in transmission line facilities. Mr. Townsend has worked in the design, permitting, construction, operation and maintenance of transmission line facilities in voltages ranging from 69 to 500 kV AC and 500 kV HVDC. He was a member of the Alberta Electric System Operator's Tower Technical Committee and is currently the Vice-Chair of the CEATI Overhead Line Design Issues and Wind and Ice Storm Mitigation Interest Group.
Dale Reso BSc, P.Eng.	AltaLink, L.P.	Mr. Reso is an electrical engineer with 23 years' experience in technical and regulatory aspects of constructing, owning, operating, and maintaining transmission facilities, encompassing lifecycle planning, engineering and maintenance of transmission lines, substations, protection and control, SCADA and telecommunications. As AltaLink's Director-Strategic Asset Management, he has most recently provided leadership on asset management strategies, maintenance programs, sparing philosophies, and engineering standards and specification. Mr. Reso has been directly involved in the development of asset strategies and investment plans to optimize the balance of cost, performance and risk of assets throughout their lifecycles, processes and practices to ensure compliance with mandatory reliability standards, and criteria and requirements for implementing new technologies on AltaLink L.P.'s transmission system.
Wayne Groom PSE	SNC-Lavalin	Mr. Wayne Groom is Manager, Construction with SNC-Lavalin T & D. He has over 28 years' experience in the power industry, including working with EPCM and utility companies across Canada. He is a highly knowledgeable and action-oriented individual who has held numerous leadership positions within the construction and project management fields. Mr. Groom has a penchant for process

		improvement/development and keeps current with the latest high voltage power-related technical and safety requirements. He has built a strong network of industry contacts and seeks to maintain positive working relationships with clients and contractors.
Eugene Limoges P.Eng.	SNC-Lavalin	Mr. Eugene Limoges is an Electrical Engineer with over 40 years of experience in the planning, design and project management of transmission projects. He has detailed engineering knowledge in transmission line design for distribution voltages up to 500 kV and also has significant knowledge in multi-circuit design, optimized conductor selection, structure configuration and route selection. In addition, Mr. Limoges has a solid background in electrical line design focusing on electric and magnetic fields, line insulation and grounding. His vast expertise includes engineering and design of 138 kV underground power circuits and pipeline grounding mitigation caused by impressed voltages from power lines. In his current role, he ensures that projects are well coordinated, technical issues are addressed, and engineering teams are directed to accomplish their work in an expedient manner. His ability to effectively lead projects enables Mr. Limoges to provide project managers with complex technical solutions that meet customers' needs throughout the project. He joined SNC-Lavalin T & D in 2002 and has assumed progressively responsible positions. Mr. Limoges' current role is Chief Engineer in the Lines department. He is fluent in English and French.
Les Molzan Journeyman Power Lineman	SNC-Lavalin	Mr. Les Molzan, Construction Manager, has over 30 years in completing projects that includes over 20 years of comprehensive experience in all facets of the electrical industry. He has extensive experience in both the construction and operation of distribution and transmission facilities. Mr. Molzan entered the electrical industry as a Power Lineman and in the course of seeking out opportunities through promotions or relocations gained an assortment of experience and knowledge. He has constructed and operated facilities up to and including 500 kV. In addition, Mr. Molzan's background includes low voltage oilfield construction and

		maintenance and contracts management in the oil and gas service sector. He is a self-motivated team player who demonstrates cost effective measures and accomplishes schedule success in project construction management. Mr. Molzan's dynamic, results-oriented management style and his facility for interpersonal relationships have served him well on projects.
Magdi Ishac PhD, P.Eng.	SNC-Lavalin	Mr. Magdi Ishac, P. Eng., has 38 years' experience in the areas of nuclear power generation and transmission lines engineering. He has a broad background in analysis, design, construction and maintenance of overhead transmission lines. Mr. Ishac is an active member of IEEE, ASCE, CEA, CIGRE and IEC. He also serves on many technical committees developing standards and guidelines for the design, construction, maintenance and operation of transmission lines. Mr. Ishac joined SNC-Lavalin T & D in 2009 as Principal Lines Engineer. In 2010, he was elected as a Fellow of the American Society of Civil Engineers (F.ASCE) for his continuous service to the society's technical committees and the development of standards and design manuals related to overhead transmission line structures. Mr. Ishac is fluent in English and also speaks French and Arabic.
John Bullock B.Comm.	SNC-Lavalin	Mr. Bullock is a supervisor with 12 years' experience in document and records management in both the private and public sectors. He has expertise in a number of document management software suites and is well-versed in document and records management best practices. Mr. Bullock applies his strong leadership skills and problem solving methods to produce superior results.
Randall Walker B.Sc.	SNC-Lavalin	Mr. Walker is Manager of Health, Safety and Environment in SNC-Lavalin Inc.'s Transmission and Development Group. He has over 20 years' experience in safety and loss control within the high voltage transmission, mining, industrial construction and oil and gas exploration industries. He specializes in organizing and implementing successful safety and loss control, WCB claims management and environmental protection

		management systems. Mr. Walker has worked proactively to recognize and solve problems before they lead to serious negative impacts on human resources, profitability and quality of service, communicating effectively with team members including management, line supervision and labour, and demonstrating strong leadership and management skills when directing employees and contractors. Mr. Walker holds certifications in occupational health and safety and in construction safety.
Alex Lucas **M.Eng., P.Eng.**	SNC-Lavalin	Mr. Lucas is Senior Lines Engineer with SNC-Lavalin Inc.'s Transmission and Distribution Group, responsible for the design of hardware assemblies for a complete suite of 240 kV and 500 kV towers, including full design and testing for a group of 500 kV HVDC towers, part of a $6.5 million project. Mr. Lucas has also acted as project design engineer on a new 126 km double-circuit 240 kV lattice tower and substation project.
Xiaofeng Ma **M.Sc., P.Eng.**	SNC-Lavalin	Ms. Ma is a Senior Lines Engineer in SNC-Lavalin Inc.'s Transmission and Distribution Group, with 10 years of engineering and supervisory experience in the power industry. She has extensive experience in electrical and civil/structural design of overhead and underground power transmission lines at voltages ranging from 138 kV AC to 500 kV AC and ±500 kV DC. Ms. Ma is fluent in English and Chinese.
Ihab Lotfy Ibrahim Awad **B.Sc., PMP**	SNC-Lavalin	Mr. Awad has more than 20 years' experience in managing a variety of industrial, commercial and infrastructure projects. His responsibilities have included project controls, planning and scheduling, cost control, tendering, coordination of numerous disciplines, contract management, change management and claims. Mr. Awad has experience on several industrial projects in front-end studies through to full EPC/EPCM mandates.
Ariel Graza **B.Sc.**	SNC-Lavalin	Mr. Ariel a Civil Engineer with 16 years' experience in the construction of high rise buildings, sewerage and drainage systems, concrete reservoirs, highways, roads and bridges. He has an extensive background in the civil engineering design, material inspection and testing, and project coordination and monitoring. He has successfully completed several

		construction projects in the United Arab Emirates including a well-known man-made island, The Palm Jumeirah, and the Discovery Gardens project. He is currently SNC-Lavalin Inc.'s Transmission and Distribution Group Project Quality Manager, responsible for managing and coordinating the implementation of the quality management system systems, ensuring compliance, conducting audits and implementing corrective actions.
Jigon Varghese **DipME**	SNC-Lavalin	Mr. Varghese has more than 12 years' experience in planning and scheduling of variety of EPC projects involving natural gas processing, compressor stations, pipelines, refineries, petrochemical plants, infrastructure projects, power transmission and distribution. His responsibilities have included planning and scheduling of multiple disciplines, working in Asia, Africa and North America. He is experienced Primavera 6, Primavera 3, and Microsoft Project.
Kevin Wilson **DipEDT**	SNC-Lavalin	Mr. Wilson has over 30 years of experience in the utility industry and is currently Manager, Project Procurement and Contracts at SNC-Lavalin Inc. In addition to acting as an internal ISO auditor, his responsibilities (focused on BC Hydro projects), include negotiating prices, terms, conditions, warranties and schedules with suppliers and contractors, as well as analyzing and recommending potential new suppliers and contractors. He also monitors suppliers and contractors for quality and schedule. Mr. Wilson also creates and implements procurement and contracting strategies on multiple projects.
Alfred Lin **B.Eng.**	SNC-Lavalin	Mr. Lin has more than 18 years' experience in the design and management of a variety of transmission projects involving 35 kV-1,000 kV lines, and is currently a lines technical professional in SNC-Lavalin Inc.'s Transmission & Development Group, leading the design and construction of numerous lines. His responsibilities have included project management, planning, coordination of multiple disciplines, electrical design, civil design and construction supervision. Mr. Lin has played key roles in transmission line projects in Alberta, Ontario, and China, including the 200 km 1,000 kV AC line for National Grid in China, 1,000 km of 35-

		500 kV AC and HVDC lines in China and Canada, as well as two 138 kV transmission lines for AltaLink, L.P., and a 240 kV transmission line for the OEB.
Environmental Services		
Allan Harris **M.Sc.**	Northern Bioscience Ecological Consulting	Mr. Harris is a biologist who has worked in northern Ontario since 1984. After seven years with the Ontario Ministry of Natural Resources, he cofounded Northern Bioscience, an ecological consulting company based in Thunder Bay. He has conducted life science inventory in over 60 protected areas in northern Ontario, prepared 27 wetland evaluations, and was Canadian co-lead on wetland monitoring on the Rainy Lake-Namakan system for the International Joint Commission and at Isle Royale National Park. He is senior author of the *Wetland Ecosystem Classification for Northwestern Ontario* and co-author of *Terrestrial and Wetland Ecosites for Northwestern Ontario* and *Wetland Plants of Ontario*. Mr. Harris has played a significant role in woodland caribou population monitoring, habitat assessment, as well as management guidelines development, for north-western Ontario. He is currently a member of the Committee on the Status of Species at Risk in Ontario (COSSARO).
Luke Dalla Bona **M.A.**	Woodland Heritage Services Limited	Mr. Dalla Bona is President of Woodland Heritage Services with offices in Sault Ste. Marie and New Liskeard, Ontario. Woodland Heritage is a full cultural heritage services firm. Prior to joining Woodland Heritage, Mr. Dalla Bona was a cultural heritage research scientist with the Ontario Ministry of Natural Resources responsible for maintaining, upgrading and refining the Ministry's archaeological predictive modeling program for use in forest management planning, and for the ongoing application and revision of the forest management guidelines for the protection of cultural heritage resources. He is responsible for developing and implementing cultural heritage policy in relation to land use planning, specifically in forest management.

Alan Hayton	SNC-Lavalin Environment Inc.	Alan Hayton is a senior project manager with 37 years' experience in ecology, toxicology, risk assessment, risk communication, regulatory guideline development, project management and environmental assessment. Mr. Hayton has prepared numerous government, industry and peer-reviewed scientific reports and documents on a wide range of environmental and project management topics.
Karola Tóth	SNC-Lavalin Environment Inc.	Karola Tóth is Manager of the Environmental Engineering and Technical Services Group. Ms. Toth is an environmental scientist with over 10 years' experience in all aspects of environmental data analysis and reporting, and eight years' experience in conducting environmental assessments and environmental planning for mining and other infrastructure projects. She has carried out environmental coordination and management for several mining projects during their engineering design phases. Ms. Toth also has considerable experience with environmental permitting and approvals as well as environmental management plan development.
Angela Brooks M.Sc.	SNC-Lavalin Environment Inc.	Ms. Brooks is an environmental planner and aquatic biologist with 14 years' experience in fisheries biology, environmental planning, assessment, permitting and overall project management. Ms. Brooks has an extensive fisheries background enabling her to undertake aquatic and fish habitat assessments as well as the development of fish habitat compensation plans and strategies. Ms. Brooks has also completed species at risk assessments for birds, mammals and fish. She has extensive knowledge of North American birds, can identify by sight and sound, and has conducted breeding bird and point count surveys. Ms. Brooks has contributed to Provincial and Municipal Class Environmental Assessments as well as CEAA environmental assessments for mining, power, transportation and other infrastructure projects. Planning work has involved identification and analysis of alternatives, public consultation, and identification of mitigation measures to address potential adverse environmental effects from developments.

James Harris	SNC-Lavalin Environment Inc.	Mr. Harris is a terrestrial field biologist and a geographic information systems (GIS) analyst. He has 15 years' experience in field biology studies including program design, species inventories for all zones in Ontario, comparative biological analyses and quantitative feature analysis. His experience includes taxonomic field identification and delineation of biological features as well as data compilation and interpretation of biological features for biological analyses and impact assessment. He also has experience in impact mitigation and remediation design, and has served as a liaison with regulatory agencies and project contacts. Mr. Harris has co-authored and authored many environmental assessment reports. His role as a terrestrial biologist is well complemented by his dual role as GIS specialist in the analysis and presentation of spatially-related data.
Shilpa Tiwara	SNC-Lavalin Environment Inc.	Ms. Tiwari is Group Manager, Communities and Social Performance. Ms. Tiwari is a senior social scientist with over 12 years' experience in a variety of domestic and international assignments, including management and coordination of multidisciplinary studies, international environmental and social impact assessments, field studies, impact management, mitigation and stakeholder consultation and resettlement planning, local procurement and workforce development.
Lloyd Torrens M.A., M.CIP., RPP	SNC-Lavalin Environment Inc.	Mr. Torrens is a principal planner with over 35 years' experience in the environmental field. He is responsible for the project management of studies ranging from large multidisciplinary projects through to small environmental assessment studies. Mr. Torrens has been involved in numerous studies throughout Canada and internationally. Mr. Torrens has undertaken route and site selection studies for oil and gas pipelines, power transmission lines, and road and rail projects. He has also managed resource management projects and waste management planning and design studies. He is experienced in coordinating multidisciplinary teams preparing environmental baselines studies, environmental impact assessments, and environmental permitting submissions for various

		resource development projects.
Craig Wallace **B.Es.**	SNC-Lavalin Environment Inc.	Mr. Wallace is a senior environmental planner specialist with 20 years' experience in environmental planning, permitting and environmental inspection during construction. Mr. Wallace has extensive experience in environmental planning and permitting. He has contributed to Provincial and Municipal Class and CEAA environmental assessments for mining, power, transportation and other infrastructure projects. Planning works involve identification and analysis of alternatives, impact assessment, public and agency consultation, and the identification of mitigation measures to address potential adverse environment effects from developments. His fisheries background supports assessments of aquatic systems and the development of fish habitat mitigation and compensation plans. His experience providing environmental inspection construction services includes the supervision of aquatic habitat restoration components of projects, as well as monitoring and assessment of environmental protection and mitigation measures and, where necessary, recommended corrective action to ensure compliance with applicable environmental legislation, approvals, and contract specifications and drawings.
Mary Shea **B.SC., B.A.**	SNC-Lavalin Environment Inc.	Ms. Shea is a senior environmental biologist and planner with 25 years' experience in environmental consulting. Ms. Shea's experience includes management, coordination and participation of multidisciplinary studies, Ontario Environmental Assessment Act and CEAA environmental assessments, field studies, impact management and mitigation, community and agency consultation, and documentation. Ms. Shea has assumed project management responsibility for SNC-Lavalin's Standing Offer with Public Works and Government Services Canada for the majority of its projects over the past 10 years, typically serving as project manager directly or on behalf of other federal agencies including Aboriginal Affairs and Northern Development Canada, Small Crafts and Harbours, Health Canada, Transport Canada, and the Department of

		National Defense. In this capacity, she has prepared more than 50 reports, mostly Canadian Environmental Assessment Act screenings.
Matt Lupp **M.Eng., P.Eng.**	SNC-Lavalin Environment Inc.	Mr. Lupp has 27 years' experience in environmental engineering for both government and industry. His project involvement includes providing water quality expertise to multidisciplinary studies as well as the coordination and management of multidisciplinary project teams. Mr. Lupp has considerable experience with environmental permitting and approvals, and with environmental management plan development.
Ed Lloyd **M.Eng., P.Eng.**	SNC-Lavalin Environment Inc.	Mr. Lloyd is a project engineer with more than 17 years' experience in the management of remedial actions related to contaminated sites. Mr. Lloyd is also experienced in conducting environmental audits of commercial and industrial properties.
Adriana Lafleur **M.Sc.**	SNC-Lavalin Environment Inc.	Ms. Lafleur is a geologist with more than 20 years' experience in environmental projects, nationally and internationally, and has carried out numerous environmental impact assessments in Latin America including El Salvador, Costa Rica, Dominican Republic, Argentina, Peru, Brazil and Chile. Ms. Lafleur has 15 years' experience in international business development in the environmental and engineering fields, dealing with The World Bank, Inter-American Development Bank, North American Development Bank, the Canadian International Development Agency, and Export Development Canada.
Heather Ashbourne **B.A.**	SNC-Lavalin Environment Inc.	Ms. Ashbourne is an environmental planner with three years' experience in international development and environmental management. Her expertise involves socio-economic and environmental impact assessment, specifically in community consultation and site-level data collection processes, baseline preparation, and effects assessment. Ms. Ashbourne's experience includes participation in the execution of the social and economic impact assessment on the Bathurst Inlet Port and Road Project in Cambridge Bay, Nunavut. She was also involved in the social and economic impact assessment for the Gaurani Aquifer Uses project in Montevideo, Uruguay.

Michael Rate **M.Sc.**	SNC-Lavalin Environment Inc.	Mr. Rate is an environmental scientist and biologist with three years' experience in environmental assessment, permitting, and construction inspection. His work has centred on conducting environmental assessments as well as environmental impact statements. He has been a key team member on both field and reporting portions of several larger projects, and participated in the design and implementation of field programs using a wide variety of sampling methods.
Aboriginal Consultation Services		
Phil Fontaine	Ishkonigan Inc.	Mr. Fontaine is former National Chief of the Assembly of First Nations and now owns and operates Ishkonigan Inc., specializing in consulting and mediation services to Indigenous communities, all levels of government, and business. Mr. Fontaine offers an exceptional understanding of the issues, giving the Ishkonigan Inc. team the advantage in promoting strong partnerships to address outstanding treaties and land claims, in the belief that providing greater certainty over rights and responsibilities of land and resources establishes the foundation for economic development and growth. Mr. Fontaine has developed networks and partnerships that reach across every First Nation, Métis and Inuit group in Canada, and increasingly internationally in Australia, South America and Africa. This team brings unparalleled knowledge of Treaties, agreements and land claims, benefits and rights, economic development and community partnerships, together with experience in consultation processes at the highest levels, and in the development of federal and provincial consultation legislation and policy.
Land Services		
James McCorquadale **B.Comm.**	Synergy Land Services Ltd.	Mr. McCorquadale is Vice-President of Synergy Land Services Ltd., with nine years land experience in the electric transmission, energy and telecommunications sectors. His expertise is in coordinating Crown land sales and freehold surface leases, and in stakeholder consultation. Mr. McCorquodale is a Land Man and is certified by the International

		Association of Public Participation. Synergy Land Services Ltd. is a full-service land brokerage providing consultation, land acquisition and right-of-way coordination, with electrical transmission and the pipeline sector being core elements of its business model. SynergyLand Services has or is concurently involved in land sevices on AltaLink L.P.'s Southwest Alberta 240 kV line crossing two First Nations, the Southern Alberta Transmission Redevelopment, and the 500 kV HVDC Western Alberta Transmission Line. Synergy Land Services Ltd. Has expanded into Ontario, most recently successfully negotiationg contentious access agreements with local pipeline landowners.
Siting and Permitting		
Kyle Klages **B.Sc.**	AOLP	Mr. Klages has 10 years' experience in right-of-way siting for transmission projects and forest management. He is an AltaLink, L.P. Manager of Siting, responsible for oversight of right-of-way planning for major transmission projects, preparation of Facility Applications to the Alberta Utilities Commission, coordination of environmental assessment work, consultation with Aboriginal communities, coordination of the right-of-way planner team, and development of siting processes.
Andy Edeburn **B.Sc.**	AOLP	Mr. Edeburn has over 15 years environmental management experience in electrical transmission, forestry and mining. As Director of Environment, he leads AltaLink, L.P.s Environment Group in developing, leading and implementing environmental management programs for a multi-billion dollar capital portfolio comprising new transmission lines, system upgrades and substations, across facility planning, permitting, construction, operations and maintenance, reclamation, and decommissioning, all while meeting rigorous compliance and scheduling requirements. His project management experience also encompasses full development of scopes of work, environmental assessment and contractor coordination, and consultation with Aboriginal groups.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 5 – Construction Environmental Management Plan

AltaLink – Alberta Projects

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP) AltaLink – Alberta Projects

DISTRIBUTION					
AltaLink Management Ltd.		SNC-Lavalin T&D (Contractors and Subcontractors)	X		
SNC-Lavalin Environment	X	SNC-Lavalin T&D (Safety)	X		
SNC-Lavalin T&D (Management)	X	SNC-Lavalin T&D (Quality Assurance)	X		
SNC-Lavalin T&D (Construction)	X				

The undersigned certify that this submittal was prepared in accordance with AltaLink General Project Requirements.

Prepared by:	Peter Ojamaa, B.A.		11-06-01
Approved by:	Sarah Proceviat, Ph.D.		11-06-01
	Name	**Signature**	**Date**

Document No.	062290-0001-CEMP-01	Rev: V3

2011 05 13
Date

Revision Index

Revision	Date (yy/mm/dd)	Description of Changes	Init.

Submissions Tracking

Submission	Responsible	Submission Date	Submitted by

Table of Contents

1.0 INTRODUCTION

The Construction Environmental Management Plan (CEMP) outlines specific environmental protection requirements and commitments that must be taken into consideration by the Contractor (SNC-Lavalin Inc.) and Subcontractors for General AltaLink (Alberta) Project (the 'Project') design and construction phases. These requirements and commitments help reduce the environmental effects that may potentially result from the Project and its associated activities. The environmental management approach adopted by SNC-Lavalin for the Project is consistent with the corporate strategies of its members and is consistent with the intent and requirements of the relevant AltaLink Management Ltd. (AML) Project Environmental Specifications and Requirements (PESR) and Environmental Alignment Sheets.

The contents of this document are to be used exclusively for the works conducted on AML Projects. It encompasses mitigation measures for environmental protection as described in the AML PESR report and Environmental Alignment Sheets, as well as those which have been committed to in the Alberta Utilities Commission (AUC) Facilities Application (FA) (Figure 1). The document does not include information on the environmental constraints or requirements that were not provided by the specified date. If new requirements are identified as the Project progresses, a revised document will be provided to the Subcontractor and unit prices will be required separately.

This plan provides information and details on the following:

- SNC-Lavalin Inc.'s Environmental Policy;
- Roles and Responsibilities of Project staff, as this pertains to environmental compliance;
- Environmental protection measures, related to Project activities and practices allowing for environmental commitments, made to landowners and regulators, to be met;
- Instructions for completing construction activities in a manner that reduces environmental effects, including timing restrictions / scheduling for activities; and
- Reference material to be used for overall environmental compliance; as this assists in the understanding and decision making framework (PESR and Environmental Alignment Sheets, Methods of Environmental Protection).

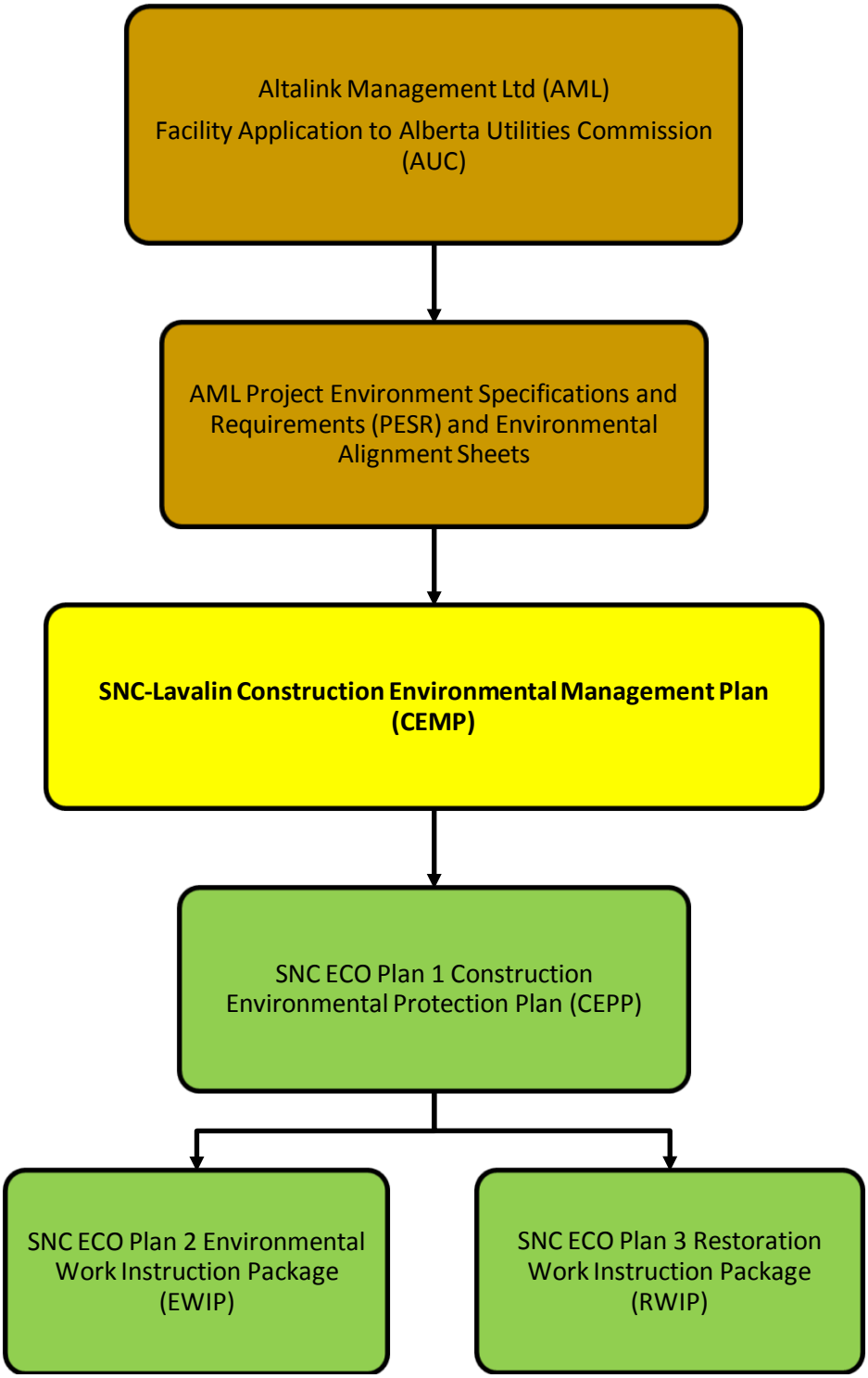


Figure 1: Organization of the Environmental Documentation Required for Project.

2.0 SNC-LAVALIN ENVIRONMENTAL POLICY

The SNC-Lavalin Environmental Policy represents the commitment from senior management, project managers and all employees to ensure that our projects are planned and implemented to meet the intent and requirements of sustainable environmental management. SNC-Lavalin affirms its conviction that sound environmental management is one of their core values. The Board of Directors of SNC-Lavalin adopted a corporate environmental policy in 1994. The current version of our corporate environmental policy was approved by the Board in 1997. Pollution prevention and conformity to all applicable environmental laws and regulations are the cornerstones of this policy, which applies to SNC-Lavalin's activities, worldwide.

- SNC-Lavalin Group Inc. and its subsidiaries ("SNC-Lavalin"), an engineering-construction and manufacturing firm operating worldwide, affirms its conviction that sustainable development can only be achieved through the respectful use of natural resources;
- SNC-Lavalin is committed to helping its clients continuously improve the integration of environmental protection issues into all their activities, both in Canada and abroad;
- As part of its commitment, SNC-Lavalin will ensure that all of its activities are in compliance with applicable environmental laws and regulations;
- SNC-Lavalin will raise the awareness of its employees and its project managers so environmental protection is an integral part of their activities. Project managers will produce reports stating that their projects have been executed in compliance with this environmental policy;
- SNC-Lavalin will produce annual reports confirming that it has respected its environmental protection commitments;
- This policy will be communicated to all employees and made available to the public upon request; and
- The President and Chief Executive Officer of SNC-Lavalin is responsible for implementing and monitoring this policy. All employees and outside consultants working for SNC-Lavalin must share this commitment.

3.0 RESOURCES, ROLES, RESPONSIBILITY AND AUTHORITY

3.1 Project Roles

Roles, responsibilities, and authorities have been established to enable the Project team to achieve the environmental goals, as well as the objectives and targets. Environmental compliance will be achieved on the Project through information sharing, environmental orientations and training, the presence of qualified personnel and through on-site monitoring of activities. Project Team members will take a proactive and adaptive approach in the implementation and monitoring programs.

A summary of each of the key roles are provided in the following sections; and, the relationship between SNC-Lavalin Environment / T & D (SNC) and the Subcontractor is summarized in Figure 2.

3.1.1 AML Project Manager

The AML Project Manager (AML-PM) is the Owner representative for the Project and is the main point of contact for SNC with respect to the Project. The AML-PM is responsible to review and sign-off on any variance (See Section 3.3) to the overall AML Environmental Protection Plan (EPP) which consists of the PESR and Environmental Alignment Sheets as provided by the AML Environmental Lead (AML-EL) and to inform SNC of these changes. The AML-PM has the authority to order a work shut-down at a specific job site where there is an imminent risk of non-compliance to AML's regulatory commitments or where significant environmental damage may occur. In the event the AML-PM is not available, the accountability can be transferred by the AML-PM to others and communicated to the SNC Project Manager (SNC-PM).

3.1.2 SNC Project Manager

The SNC-PM is the Contractor representative for the Project. This individual has overall responsibility for diligent implementation of the CEMP and subsequent documents (i.e. ECO Plans – Construction Environmental Protection Plans (CEPP), Environmental Work Instruction Packages (EWIP) and Reclamation Work Instruction Packages (RWIP). This individual also provides approval authority to the SNC Construction Manager (SNC-CM) for any deviation to prescribed activities, specifications and processes. The SNC-PM has the authority to shut down work at a specific job site where there is an imminent risk of significant environmental damage.

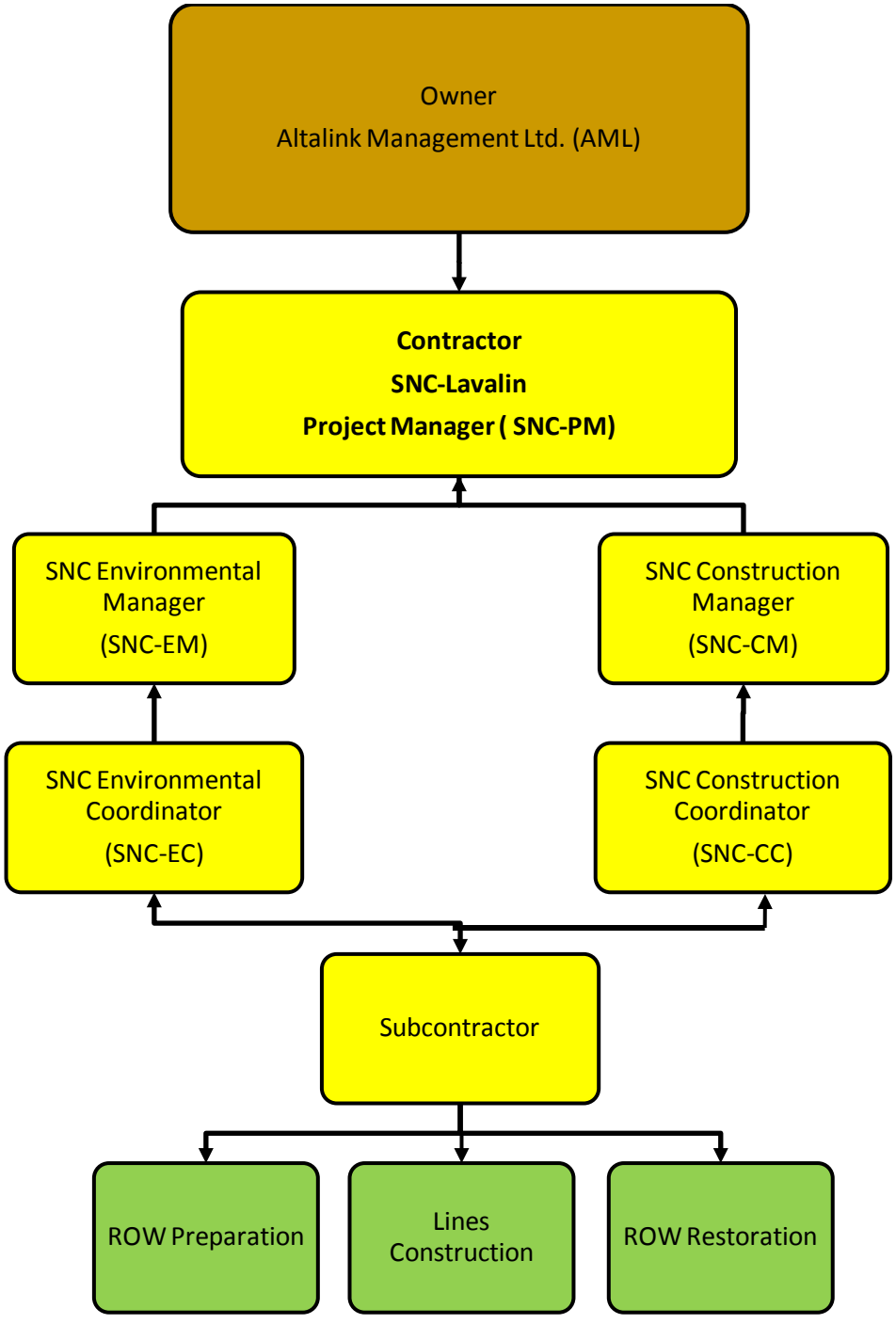


Figure 2. Contractor and Subcontractor Organization .

3.1.3 SNC Construction Manager

The SNC-CM) is the senior contractor representative on site. This individual is accountable for implementing the site-specific ECO Plans (EWIPs) provided by the SNC Environmental Manager (SNC-EM). The SNC-CM normally manages all day to day Subcontractor activities in the field and issues all required directives. Based on approval received from the SNC-PM, this individual may provide approval authority to the SNC Construction Coordinator (SNC-CC) for any deviation to prescribed activities, specifications and processes. The SNC-CM has the authority to shut down work at a specific job site where there is an imminent risk of significant environmental damage.

3.1.4 SNC Construction Coordinator

The SNC-CC provides "ROW preparation complete" certification prior to initial entry by Subcontractor on any portion of the ROW. Part of their contract administration duties includes the enforcement of the CEMP and ECO Plans with the Subcontractor as required. This individual is to report incidents by following the incident reporting process and practices to the SNC-EM and to SNC-CM.

3.1.5 SNC Environmental Manager

The SNC-EM is the Contractor contact point with the SNC Environmental Coordinator (SNC-EC) on all environmental matters. The SNC-EM is subordinated to the SNC-PM. The SNC-EM applies the directives stipulated in the CEMP and ECO-Plans in conjunction with updated Pre-Disturbance Assessments (PDAs) and produces the site-specific ECO Plans (EWIP / RWIP). The SNC-EM provides advice to the SNC-CM with respect to environmental requirements and works with the Subcontractor to ensure understanding and compliance. The SNC-EM may request the SNC-CM to stop work at a specific work site if conditions warrant. If the SNC-CM is not available and there is imminent risk of significant environmental damage, the SNC-EM can order crews to stop work. The SNC-EM is accountable for overseeing all environmental protection activities on the project and is required to report incidents by following the incident reporting process and practices.

The SNC-EM ensures that all construction crews have the environmental package (GIS based) associated with a site prior to entering an area. This individual will audit daily environmental tailboard meetings and employee environmental training certification. All environmental infractions (e.g., failure to adhere

to approved trails, etc.) are investigated by the SNC-EM and Incident Reports prepared by the Subcontractor. Additional inspection duties include:

- Consultation with subcontractors for all environmental related issues;
- Controlling delivery of the CEMP and ECO Plans (CEPP, EWIP, RWIP);
- Assisting the Safety Manager in delivering orientation and training to field forces;
- Maintaining a log of trainees and training sessions;
- Initiating and monitoring restoration activities;
- Enforcing compliance with the PESR, CEMP and ECO Plans;
- Initiating review of operations in cases of changed conditions;
- Reporting rare / endangered species sightings;
- Reporting "found resources";
- Initiating review of silt control requirements as required;
- On-going communication with the Environmental Coordinator(s);
- Reporting incidents by following the incident reporting process and practices;
- Review work practices with subcontractors to allow early identification of potential issues; and
- Controlling the dissemination of Project-specific environmental document.

3.1.6 SNC Environmental Coordinator

The SNC-EC is responsible for ensuring that all environmental commitments, undertakings and conditions of authorizations are adhered to and that works are completed in compliance with the PESR, CEMP, ECO Plans, as well as regulations, in the most effective and efficient way possible. The SNC-EC has the right to inspect all worksites to ensure compliance with the approved mitigation plans and shut-down work where there is risk of imminent environmental damage. The responsibilities of the SNC-EC include:

- Site walk-abouts;
- Photographic documentation of site activities;
- Written documentation; and
- Communication with on-site supervisors.

3.1.7 AML Right of Way (ROW) Coordinator

The AML-ROW Coordinator is an AML employee accountable for the maintenance of the company's long-term relationship with the landowner(s). This individual conducts all field communication with the landowner(s). If approached by the landowner or others claiming to represent the landowner, field personnel shall respectfully refer any questions to the AML-ROW Coordinator and offer and / or arrange for a call-back.

The AML-ROW Coordinator is responsible for the following:

- Negotiating on all on- and off-ROW access and temporary workspace requirements including access trail routing and grading;
- Ensuring all commitments made to the landowner(s) are communicated to field personnel via the alignment sheets;
- Monitoring for conformance to landowner commitments; and
- Negotiating settlements for damages and other field operations issues (i.e. disposal of fill, restoration requirements, etc.).

3.1.8 AML Field Construction Engineer

The Field Construction Engineer (FCE) is the AML site construction representative responsible to work with the AML-ROW Coordinator, the AML-EL and through the SNC-CM to ensure that access and environmental matters which may affect construction progress are dealt with in a timely manner and ensure that these issues are managed proactively.

3.1.9 AML Environmental Lead

The AML-EL reports to the AML-PM and is accountable for ensuring SNC implements AML's environmental requirements. The AML-EL is responsible for developing and updating the overall Project EPP (PESR and Environmental Alignment Sheets). The AML-EL provides the interpretation of the Project EPP, coordinates the PDA surveys and provides the update to SNC. The AML-EL also manages Quality Assurance Personnel and Discipline Specific Specialists required to follow through on the Project EPP requirements (e.g. Monitors, Biologists, Archeologists, Paleontologists, Terrain and Restoration Specialists, etc.). These Specialists report directly to the AML-EL. In the event of a variance (Section 3.3) to the Project EPP the AML-EL will consult with the SNC-EM and provide the changes for sign-off by

the AML-PM. The AML-EL is the lead environmental contact in any interface with government agencies regarding the Project EPP and all other matters relating to environmental permits / authorizations and / or environmental requirements. In the event the AML-EL is not available, the accountability can be transferred by the AML-EL to others and communicated to the AML-PM.

3.1.10 Subcontractor

The Subcontractor is hired by the Contractor to conduct specified tasks for carrying out the construction of the Project. They report directly to the SNC-CM and will implement activities (i.e. mitigation measures) as directed by SNC. In order to ensure that the Subcontractor crews are fully informed about each work site, a tailboard meeting shall be held prior to each work day to ensure that all employees are aware of the environmental setting, expectations required and potential human – environment interactions. Subcontractors are expected to report any incidents by following the incident reporting process and practices. The Subcontractors' site foremen are expected to highlight any potential procedural variances that may differ from those outlined in this document. Such variances will be discussed with the SNC-CM and SNC-EM, who will in turn, then discuss with the AML-EL. Variance-approval is required in writing, from the AML-PM. The AML-ROW Coordinator will communicate with all landowners / occupants and the Subcontractor will request the presence of this individual, if approached on-site. The Subcontractor takes their direction (for implementation) from the SNC-CM. There shall be no requests or directives from AML directly to the Subcontractor.

3.2 Conditions for Restart of Work after Shutdown

During extended adverse conditions where work modification will no longer minimize disturbances, a weather shutdown may result. Direction for restart after a shutdown will be from the SNC-CM. Conditions for restart will be defined in consultation with the SNC-EM.

3.3 Conditions for Environmental Variance

A variance is defined as a procedure, process, method or application of a mitigation which conflicts with the Projects regulatory approvals or AML's environmental requirements. Throughout the duration of construction, it may be necessary to modify or create new procedures that have not previously been addressed in the Project EPP (PESR, Environmental Alignment Sheets) or CEMP. The variance allows for site conditions or documentation, not anticipated in advance, to be accounted for. If a variance is required, the Subcontractor shall contact the SNC-CM and the SNC-EM who will contact and consult

with the AML-EL. The AML-EL will complete and submit the documentation to the AML-PM for sign-off and approval. Once approved by the AML-PM, the variance will be forwarded to the SNC-PM; the signed / approved document indicates that the variance to the standard operating procedures has been authorized.

4.0 ENVIRONMENTAL COMMITMENTS AND SCHEDULING

Project-specific mitigation measures which have been committed to through AML, by the specified date, are detailed in the PESR and how these will be achieved are incorporated into Sections 5 - 19. A summary of these FA and PESR commitments are also detailed in Section 4.

4.1 PESR – General Information

- *Water Ac*t Approval conditions, if required, must be implemented;
- All biological surveys must be conducted using protocols acceptable to AML;
- All biological surveys must be conducted by a qualified Wildlife Biologist or Aquatic Specialist under the direction of a Professional Biologist;
- Bird markers will be installed in areas of high risk for avian collisions in accordance with the AML *Standard for Installing Bird Markers on New Transmission Lines* as specified on the Environmental Alignment Sheets or by AML;
- Alberta Sustainable Resource and Development's (ASRD) *Recommended Land-Use Guidelines for Protection of Selected Wildlife Species and Habitat within Grassland and Parkland Natural Regions of Alberta* (2010) will apply as specified by AML;
- Biological surveys during the migratory bird nesting period can allow construction to occur if no nests are found, to AML's satisfaction. If an active nest of a migratory bird is found during nest searches, a setback distance for the species must be applied and no construction activities will occur within this setback area until confirmation that nesting has concluded or the timing restriction expires;
- Biological surveys involving nest searches are valid for up to 10 days from the date of the search. If construction activities do not occur within the 10 days, or if construction activities stop for 10 or more consecutive days, a new search must be completed for the area; and

- A Post-Construction Restoration Plan is to be developed prior to the start of construction. The plan will be based on AML specifications and may be updated throughout the Project to reflect the actual construction conditions.

4.2 PESR – Environmental Sensitivities, Commitments and Scheduling

The Environmental Alignment Sheets provide information on the extent of the Project footprint, located within environmentally sensitive lands. This information is to be used for scheduling construction activities during times when it would be anticipated that environmental impacts could be minimized and for developing contingency plans (construction and schedules).

Table 1 provides a summary of the identified environmental sensitivities noted on the Environmental Alignment Sheets, as well as associated timing restrictions, recommendations and mitigation measures as provided in the PESR (Appendix 1). Revisions to the Environmental Alignment Sheets will be provided as a result of ongoing PDA's. This table also provides the distance of ROW impacted by each of the currently identified environmental sensitivities.

Table 1. Environmental Sensitivities, PESR Commitments and Restricted Activity Periods

ENVIRONMENTAL ASPECT	RESTRICTIONS	MITIGATION MEASURES	RECOMMENDATIONS	AREA ALONG ROW
Migratory Birds				
Wildlife				
Species at Risk				
Bird Markers				
Watercourse Crossings				
Wetlands (General)				
Wetlands (*Water Act* Approval)				
Vegetation (Rare Plants)				
Native Prairie / Grasslands				

5.0 GENERAL ENVIRONMENTAL PROTECTION MEASURES

The general protection measures will be incorporated into all activities, for the duration of construction, at any location within the AML Project footprint (i.e. ROW, substation pad-sites, lay-down yards, etc.). These protective measures provide Construction Best Management Practices and address many of the Standing Mitigation Measures for Transmission Projects provided in the PESR.

5.1 Site Orientation

- No individual and / or group will be authorized to enter the ROW or project-related facilities until they have completed the Environmental Orientation and have retained a certification card / sticker indicating completion of the orientation. Individuals and / or groups who have not completed the orientation can access the ROW or associated facilities if accompanied by someone who has completed the orientation and is in possession of the certification card / sticker.

5.2 Tailboard Discussion

- Tailboard meetings will be held prior to work at any site within the Project ROW. This is to review Project issues and mitigation measures, site-specific mitigation measures, contingency plans, rules and regulations. This is also to allow for outstanding concerns to be addressed.

5.3 Work Period

- Workdays will typically extend between 0700hrs to 2000hrs during construction as to limit the length of time surrounding residents are impacted by construction noise. Exceptions may be allowed in specific areas and habitat-types or to allow for work in frozen conditions, but must be cleared with the SNC-CM and SNC-EM prior to proceeding.

5.4 Firearms

- Project personnel will not be permitted to have firearms, fireworks or domestic animals in Project vehicles, on the ROW or approved access or at associated Project facilities.

5.5 Access and Crossings

- Rig mats or cinch gates are the preferred method of crossing foreign, underground lines. Consultation with the land or utility-owner is required and will be completed by the AML-ROW Coordinator;
- Approaches will be constructed out of granular material (placed on geotextile when temporary) where the depth of the road allowance ditch requires the construction of an approach and alternative access cannot be gained;
- Whenever possible, existing access trails and crossings will be utilized;

- Temporary workspaces will be permitted, surrounding the tower locations. Attempts will be made to place these outside of environmentally sensitive areas;
- Access types and workspace locations will be provided on the Construction Route Sheets and noted on the Environmental Alignment Sheets; and
- Restricted access to areas and conditions related to these areas are provided in Section 4.2 and on the Environmental Alignment Sheets.

5.6 Staging Areas and Materials Yards

- Staging areas (i.e. lay-down yards) and off-ROW storage facilities shall not be located within 100m of the high-water-mark, of any designated wetland or watercourse;
- Staging areas (i.e. lay-down yards) and off-ROW storage facilities will be located in previously disturbed sites, when possible.

5.7 Environmental Shut-down

- All project personnel have a responsibility to recognize and prevent impacts and damages to the Project ROW;
- To protect topsoil from damage and activities associated with compaction, excessive rutting and soil admixture, work shall be completed under adequately dry and / or frozen conditions. In the event that high-moisture levels exist within the soil and project area at the time of construction, the consideration by the SNC-EM and / or SNC-CM for shutdown or work modification will occur when the topsoil is being rutted to a maximum of 80% of its depth or through the sod layer, in native grasslands;
- During adverse conditions, work can be modified as to prevent or delay a full environmental shut-down. This may include the implementation of the following: Traffic Control Protocol; alteration of work and / or location; alternative work hours (i.e. early morning / evening) and, partial shutdown; and
- If rutting and / or compaction occur, it will be repaired through topsoil replacement and vegetation restoration. Specific methodology will be detailed in the ECO Plan RWIP, in consultation with the landowner.

5.8 Snow Removal

- In the event that snow removal is required, it can be completed using a variety of techniques and / or equipment. A 3-5 inch buffer (of snow) shall be retained as to ensure that the ground vegetation is left intact. No vegetative scalping is permitted, however in the event is should occur, restoration of the disturbed area is required.

6.0 SURFACE WATERBODY MANAGEMENT (WETLANDS AND WATERCOURSES)

- Provide appropriate distances between equipment and watercourses, as well as wetlands identified as specific areas of concern (see Environmental Alignment Sheets);
- Minimize the operational footprint as is practical or alter direction of temporary workspaces;
- Where feasible, parking areas, temporary workspaces lay-down areas, etc. shall not be located within 100m of the high-water-mark of any designated wetland or watercourse;
- Potential wetland disturbance will be minimized adjacent to, and as may be required, within the ROW footprint. Sedimentation controls will be placed along the edges of wetlands;
- All reasonable precautions will be taken to prevent the release of deleterious substances into watercourses / wetlands (i.e. installation of sediment and erosion control measures);
- Equipment shall be refueled and serviced in areas where spills or wash water will not enter any watercourse / water-body. Where possible, fueling or maintenance of equipment shall not take place within 100m of water- or other environmentally sensitive areas;
- Equipment operating within 100 m of any watercourse will be free of external grease and oil. Appropriate precautions will be taken in order to satisfy regulatory requirements when working adjacent to watercourses and water-bodies;
- The contractor shall clean equipment after it has been used in weedy areas before moving into wetland or riparian areas. Particular attention will be paid to areas on the equipment where grease and oil collect;
- Washing of vehicles and / or equipment within 100m of watercourses or water-bodies is strictly prohibited;
- Produced water from dewatering activities or other operations cannot be discharged directly into a watercourse or water-body;
- Equipment and / or vehicles will not ford water-bodies during construction activities. If the crossing of a water-body is required, it will be done according to the *Alberta Operational*

Statement for Overhead Line Construction (FOC 2006) and the *Code of Practice for Watercourse Crossings* (AENV 1999c);

- Surface water drainages and contours must be retained or re-established post-construction;
- Access must be according to conditions within *Water Act* Approvals, or under conditions designated in Section 4.2 and on the Environmental Alignment Sheets (i.e. frozen conditions, use of mats and /or LGP equipment); and
- It is the responsibility of the Contractor and Subcontractor to ensure proper procedures are followed to protect watercourses and wetlands from potential impacts. The SNC-EC, or delegate thereof, will monitor the procedures and field activities to ensure compliance.

7.0 GROUNDWATER MANAGEMENT

- If flowing artesian conditions are encountered, geo-technical test holes must be sealed to prevent release of groundwater to the surface. The use of bentonite as a sealant is recommended, with drill cuttings used as an overlay, in order to backfill to surface;
- If previously unidentified flowing groundwater conditions (i.e. seeps, springs, artesian conditions, etc.), the SNC-EM must be notified immediately;
- Any groundwater encountered during the construction activities (e.g. drilling) must be disposed of under controlled conditions; and
- Test holes (i.e. boreholes) must be backfilled with drill cuttings when the investigation is complete.

8.0 VEGETATION CLEARING, ESTABLISHMENT AND MANAGEMENT

8.1 Vegetation Clearing and General Vegetation Maintenance

- Delineate clearing areas with fences or stakes prior to construction;
- Tree removal, mowing and other vegetation clearing activities (e.g. via hydro-axe) must leave sufficient vegetation cover to preserve soil stability and prevent erosion;
- Fell trees so as to avoid damaging other standing vegetation or structures, if applicable. Tree or brush disposal is to be specified by AML prior to works;
- Fell trees away from watercourses. Only selective clearing is permitted within 45m of watercourses or wetlands, unless specified in *Water Act* Approvals;

- No shrubs will be cleared within 45m of a watercourse or wetlands, unless necessary and specified in *Water Act* Approvals;
- Alberta Fish and Wildlife have recommended that measures to decrease the line of sight down the ROW's should be considered. Examples would be to top, not clear trees, leaving young trees that are short, adding curves or elbows to access trails, etc.;
- Dispose of non-salvageable material through hauling to a waste disposal or recycling facility. Burning is not allowed within the Project area;
- Establish temporary water erosion controls on any steeply sloped ground. These will remain in place until the area has been restored or permanent controls are put in place. Vegetation should be sufficiently well established to prevent erosion before the controls are removed;
- Clearing and brushing will be avoided during the migratory bird breeding period (April 15 – July 31 (grasslands); May 1 – July 31 (parklands)) as recommended by the Canadian Wildlife Service and ASRD;
- Vegetation removal will occur within the footprint of the proposed substations. Within the transmission line ROW, vegetation removal will only occur at areas where transmission structures or site preparation (i.e. grading) is required;
- Residual vegetation will be maintained, to the extent possible, as to minimize habitat disturbance. Invasive species will be controlled and the Project area will be re-vegetated to complement the surrounding landscape;
- Vehicle traffic outside of staked access trails, ROW or designated work areas is prohibited. Vehicles and equipment are confined to the footprint of the proposed substations, access trails, and temporary workspaces. Where possible, temporary workspaces or lay-down yards will be located on previously disturbed lands;
- Construction should occur under suitably dry or frozen conditions. If work is conducted in wet and / or unfrozen conditions, approved materials (i.e. rig- or access mats, gravel on geotextile) and vehicles / equipment with LGP tires or wide-pad tracks, will be used;
- A 10m buffer will be staked around identified rare plant areas, in the field. Ice / snowroads (i.e. frozen conditions) or matting will be required for access within the buffer. Alternative mitigation measures (i.e. transplanting, seed salvage) may be permitted and locations where

these measures may be implemented will be defined on the Environmental Alignment Sheets or by AML; and

- If previously unidentified rare plants or rare plant areas are identified within the project area during construction, activity in the immediate area will be halted until the appropriate mitigation measure can be applied.

8.2 Vegetation Establishment

- The Subcontractor will ensure that where required, topsoil material shall be uniformly spread over the prepared areas to facilitate seeding and landscaping;
- Re-vegetate disturbed areas as soon as possible to stabilize soils and prevent erosion;
- Utilize approved seed mixtures for vegetation establishment;
- Seed mixes will be screened for invasive species, including invasive agricultural species. All seed used for re-vegetation will meet the requirements of the *Native Plant Revegetation Guidelines* for Alberta and will be approved by the SNC-CM;
- SNC-EM shall determine the seeding method (conventional seeding or hydro-seeding) and will specify within RWIPs
- SNC will prevent personnel from driving on recently seeded or established vegetation to prevent further disturbance; and
- Areas that have been restored will be protected from grazing by fencing during the vegetation establishment period, where feasible.

8.3 Weed Control

- All areas of known weed infestation, located on the ROW or within workspaces, will be staked and identified on Environmental Alignment Sheets;
- Weed control conducted by the Subcontractor shall comply with the operating standards and practices of the Industrial Vegetation Management Association of Alberta and shall have a service approval agreement from Alberta Environment (AENV) and AML;
- Activity within a clubroot infected area must follow the AML Clubroot Management Procedure. Clubroot infected areas will be indicated on the Environmental Alignment Sheets;

- All vehicles / equipment must be steam cleaned in an approved area (e.g. shop or storage yard) prior to initially being moved on to any work site, upon returning to the project area or prior to crossing township / county boundaries;
- Washing must not occur on access trails or work areas;
- Drivers / operators must visually inspect their vehicles / equipment to ensure they are free of soil, weeds or any other vegetation prior to entering the ROW or work areas. Subcontractors are required to maintain a cleaning log for each vehicle or piece of equipment;
- The SNC-EC, or delegate thereof, will monitor for the presence of noxious and restricted weeds as identified under the *Weed Control Act;*
- Discovery of noxious or other invasive weeds will result in mitigative action by the Subcontractor, under direction by SNC-EM;
- Weed control methods will include cultivation, seeding (including hydro-seeding), and spraying or a combination thereof;
- Weed removal may involve manual removal (by hand), mechanical removal (tillage, etc.) or chemical treatment (herbicides);
- All herbicide application will be carried out by licensed applicators, and will be conducted in accordance with the policies, rules and regulations of AENV;
- Chemicals are not to be sprayed within 30m of an open water-body, wetland, on native grasslands or where rare plants are anticipated;
- Only chemicals approved by the appropriate regulatory agency for general industrial spraying will be used;
- All weed control methods will take into account wind directions and velocities;
- Subcontractors will provide signs and the AML-ROW Coordinator will provide notices to residents affected by the work prior to the application of chemicals for weed control, as applicable; and
- All signs and notifications shall follow policies and procedures set by the appropriate regulatory authority, which includes installing signage at a minimum 100m interval and at all entry points, corridors and walkways adjacent to the ROW.

9.0 WILDLIFE MANAGEMENT

9.1 General Wildlife and Livestock

- If a previously unidentified animal nest or den (general and / or species at risk) is discovered or suspected within or close to (sight distance) the ROW, access trail or work area, work will be stopped and the SNC-EM will be notified immediately;
- Alter the route of the access trails and / or temporary workspaces in order to ensure avoidance of any identified animal nest or den;
- If wildlife (general and / or species-at-risk) and / or livestock are found (dead or alive) on any areas associated with project activity, work will be stopped immediately, and the SNC-EM or SNC-EC will assess and direct accordingly;
- Wildlife or livestock will not be harassed;
- All animals including birds will be allowed to passively disperse from roads, the ROW, and work areas;
- When driving, vehicles will be stopped and engines shut-off, until wildlife and / or livestock has moved away;
- The AML-ROW Coordinator will be contacted if removal of livestock is required;
- Subcontractors will install fencing around open excavations and hazards where appropriate to prevent wildlife and / or livestock from entering the work area;
- Where livestock are grazing, and gates are required, fence posts will be braced before cutting, and the fences will be equipped with temporary gates. Gates will be kept closed, except during the passage of vehicles;
- Activities must be scheduled following wildlife restrictions and conditions provided in Section 4.2 and on Environmental Alignment Sheets;
- Active bird nests must not be disturbed. Active nests are those that are under construction by the adults, has eggs or young birds in it, or near it. Any disturbance to an inactive bird nest must receive clearance from the AML-EL;
- At particular times of the year, bird nests that are in conflict with safe transmission operations may be relocated under the guidance of the AML-EL, while adhering to AML Standard AL-1902 - Nest Management Procedure;

- Markers will be installed on overhead shield wires, in areas with a high-risk of bird collisions. Markers will be installed, following AML Protocols and Procedures;
- Anti-perch devices and / or wildlife cover-ups in substations may be installed, while adhering to AML Protocols and Procedures; and
- Vegetation will be maintained, to the extent possible, as to minimize habitat disturbance.

9.2 Species at Risk and / or Migratory Birds

- All previously identified areas containing migratory birds or species at risk, located within the ROW and work areas, will be clearly marked with white stakes. These locations will be detailed on the Environmental Alignment Sheets;
- Appropriate setbacks / buffers will be applied to all staked areas (current and historical known occurrences) (ASRD, 2010);
- Access trails and / or temporary workspaces will be modified as required in order to ensure avoidance of identified species at risk and / or migratory birds;
- Activities must be scheduled following wildlife restrictions and conditions provided in Section 4.2 and on Environmental Alignment Sheets;
- Qualified Wildlife Biologists will be onsite during construction activities, when these are scheduled to occur during the restricted activity periods (as detailed in Section 4.2);
- If a suspected migratory bird, species at risk, nest, den or eggs are found during activities, the onsite SNC-EM or SNC-EC will take immediate action and apply pre-determined mitigation measures and
- Active bird nests must not be disturbed. Active nests are those that are under construction by the adults, has eggs or young birds in it, or near it.

10.0 SOIL MANAGEMENT PLAN

10.1 Soil Conservation and Stockpiles

In accordance with the requirements of the PESR, construction activities will avoid causing soil compaction, excessive rutting and soil admixture, within the project footprint. To meet these requirements, SNC requires that activities be completed as follows:

- Ensure all areas which require grading during construction are stripped and graded as per AML Standard TA-1536 Site Grading and Preparation;

- Provide temporary stabilization of exposed soils (e.g. temporary cover, surface roughening) where wind erosion (dust) or water erosion or both could contribute sediment to off-site areas, including water-bodies, roadways, public property and private property;
- Ensure stockpiles, including those in place for less than one growing season, are properly stabilized and contained in order to prevent any off-site impacts;
- Locate stockpiles in flat, contained areas of the Site, or other areas as approved by the SNC-CM and SNC-EM;
- Maintain a 1.0m separation between topsoil and subsoil stockpiles and take care to prevent mixing of topsoil and subsoil during stripping. All storage stockpile locations shall be recorded and this information shall be available at the site;
- Subsoil will not be stored or placed directly on top of topsoil or vegetation;
- Topsoil will not be used for roadbed material;
- Topsoil will be stripped and conserved, for future site restoration activities;.
- Control weeds on exposed soils before they can set seed, in order to reduce the likelihood of spread;
- Ensure equipment moving from areas with weeds or non-native species into natural areas is clean and free of weeds;
- Identify areas that can only be constructed under frozen conditions; and
- Work should be completed under adequately dry and / or frozen conditions; however, in the event that high-moisture levels exist within the soil and project area at the time of construction, no rutting past 80% of topsoil depth or through sod layer is permitted.

10.2 Topsoil Handling, Storage and Replacement

- Salvage depths will be determined in the field by a Soils Specialist based on color and suggested depths provided in the site-specific EWIPs;
- The topsoil (the A-horizon) must be removed separately from the subsoil (B-horizon). Depths will be determined prior to construction and provided in the site-specific EWIPs;
- Soil stockpiles must be located within the work area unless instructed otherwise by the SNC-CM and / or SNC-EM;
- Ensure that soil stockpiling areas are delineated prior to beginning soil stripping and marked on the as-built drawings;

- When possible, topsoil will be stripped during dry ground conditions as to minimize effects such as rutting and / or compaction;
- Care will be taken not to over strip into the subsoil unless specifically directed to do so by the SNC-EM;
- Where topsoil layer is shallow, the sod and topsoil can be salvaged together to retain the root structure and seed bed. Some subsoil may be lifted simultaneously, when the topsoil layer is shallow;
- Grading or excavation required within the temporary work areas on native grassland will require that the seed bed sod layer be salvaged and stockpiled separately from the lower topsoil for use in restoration;
- If grading or excavation is required within the temporary work areas, topsoil will be salvaged and stockpiled separately from subsoil or spoil material to prevent loss and mixing due to grading and excavation operations. All topsoil will be used for restoration of the site and final grades will be consistent with local contours;
- Grading or excavation required within the temporary work areas on cultivated lands will require that topsoil be stripped and stored separately from subsoil or spoil material. All topsoil will be used for restoration of the site and final grades will allow for operation access, as required;
- At the substation site, topsoil which is not removed from site will be stored in the areas delineated on the site plan. These will be consistent with the local contours and will not impact local drainage systems. Excess subsoil and / or spoil material will be removed from site and disposed of at an approved location;
- Imported fill or topsoil material must be received from a source approved by the SNC- EM; it must be screened and weed / pathogen free.
- No burial or sale of topsoil materials salvaged during the construction period of the Project will be allowed without the prior approval of the SNC-EM and landowner as communicated through the AML-ROW Coordinator;
- Topsoil will be distributed evenly over designated areas once construction and excavation have been completed;
- Weed control will be implemented for stockpiles left for periods longer than three months during the growing season to minimize additional seed deposition in the stockpiles;

- Equipment and general traffic on the soil stockpiles will be minimized; and
- If excavated materials are potentially contaminated, it will be handled following regulatory guidelines. If contaminated materials are encountered, contact the SNC-EM immediately.

10.3 Recycled and Imported Fill Material

All fill material brought onsite will meet criteria outlined in AENV's *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* – (February 2009) for the designated land use or adjacent land use whichever is the more stringent (e.g. residential vs. commercial) and will be tested to ensure that it is weed / pathogen free. Documentation supporting the above, including the source location of the material will be supplied by the Subcontractor and submitted to the SNC-EM or SNC-EC prior to the material being brought on site.

A copy of the most recent version of AENV's *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* will be kept in the field office and be available at all times.

10.4 Offsite Disposal of Excavated Soil or Material

If any material intended for off-site disposal or reuse does not meet criteria outlined in AENV's *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* – (February 2009) for the intended land use at the disposal or deposit location, it shall be disposed of at a provincially approved facility as directed by the SNC-EM.

11.0 SOIL DISTURBANCE

- Avoid causing soil compaction, excessive rutting and soil admixture, within the project footprint. In the event that high moisture levels exist within the soil and project area at the time of construction, direction will be provided whereby rutting can occur to 80% of the depth of the topsoil (A- horizon) or through the sod layer. If these maximum limits of threshold are encountered, the Subcontractor must stop work and notify the SNC-CM and / or SNC-EM;
- If work is conducted in wet and / or unfrozen conditions, approved materials (i.e. rig or access mats, gravel on geotextile) or vehicles / equipment with LGP tires or wide-pad tracks, can be used. Mats must be cleaned prior to installation; and, gravel must be certified as being free of weed and / or noxious species seeds;

- Work sites can be accessed by use of alternative methods when conditions require (e.g. Heavy / tracked vehicles to stabilize larger equipment, LGP equipment, working alternative hours, etc.);
- If a vehicle or piece of equipment is rutting the soil to 80% of the depth of the topsoil or through the sod layer, it should be removed from the problem area immediately, if possible. If removal will cause further rutting, the vehicle / equipment must be left in place until soils are dry enough to prevent further rutting. Alternatively, rig or access mats may be used to facilitate the removal of a vehicle or piece of equipment;
- Driving or working in rutted, wet and / or soft areas will trigger the Wet Weather Contingency Plan;
- Under wet weather or thawing conditions a partial or complete work shutdown may be required until changes in technique, equipment and / or conditions can be made; or, only the work that does not impact soils can be completed, or as advised by the SNC-CM and /or SNC-EM;
- All attempts should be made to prevent soil admixture. If admixing occurs, restoration of the area is required; and
- All drilled geo-technical test holes must be backfilled using the drill cuttings. Do not use off-site soil to backfill test holes.

12.0 EROSION AND SEDIMENT CONTROL (ESC)

- Properly install erosion and sediment control (ESC) measures in exposed soil areas to prevent erosion from surface runoff onto surrounding lands;
- ESC measures may include: silt fences; earth berms; diversion trenches; erosion control matting; and, straw bales;
- Topsoil stockpiles will be seeded with a representative seed mix to control erosion and mitigate weed establishment, if the topsoil is not used for restoration immediately following construction;
- On non-cultivated land re-vegetate disturbed areas as soon as is practical, following topsoil replacement;
- Implement, maintain and monitor measures to stabilize disturbed soil until sufficient vegetation has been established;
- Discharge areas and methods must be approved by the SNC-EM or SNC-EC prior to conducting any dewatering activities;

- Water from dewatering activities must be discharged under controlled conditions. Controlled conditions would be to release the water to surface by spraying it into a well vegetated area. A well vegetated area is an area that will not erode when water is discharged into it. The discharge area must also have straw bales, silt fences or some other approved ESC measures in place. Do not discharge water into areas with exposed soils, sparse vegetation, or on to hillsides;
- If any discharged water from dewatering activities directly enters a watercourse or a water-body without appropriate preventative measures, notify the SNC-EM or SNC-EC immediately;
- Avoiding soil handling during very windy and / or rainy conditions, unless otherwise permitted;
- Stabilize stockpiles in place for an extended period against erosion using appropriate methods as identified in Section 12; and
- Leave non-active construction sites vegetated or apply temporary measures as identified in Section 12 as appropriate.

12.1 Temporary Measures

Temporary measures for water erosion may include:

- Silt fencing / erosion socks
- Inlet protection devices
- Slope texturing
- Hydro-seeding
- Biodegradable erosion control matting

Temporary wind erosion measures may include:

- Spraying water over the surfaces
- Spraying polymer soil stabilizers
- Spraying tackifier

SNC-EC will inspect and monitor Subcontractor ESC measures for proper installation and maintenance periodically. If any outstanding environmental concerns are noted by the SNC-EC, the Subcontractor may be required to install additional ESC measures.

13.0 WASTE MANAGEMENT PLAN

In order to manage waste produced as a result of the Project, the Subcontractors are responsible for the following:

- Provide appropriate on-site collection containers for debris and waste and remove materials regularly form the work site;
- Dispose of waste material (including excess from the Project to disposal sites designated for the appropriate material);
- Ensure all proposed waste disposal sites are approved licensed landfills;
- Do not burn or bury materials or waste on the work site;
- Do not dispose of material or waste into waterways; storm and sanitary sewers;
- Leftover concrete or concrete washings must not be dumped on the work area, access roads or public roads. Excess concrete may be disposed of in a lined pit (located on-site) and allowed to dry prior to off-site disposal. Concrete trucks or vessels must not be washed out on the ROW, access trails or work areas. Washing areas must be defined prior to hauling;
- Identify opportunities to reuse excavated fill on the site for the Project, subject to the approval of the SNC-EM, SNC-CM and landowners; and
- Properly dispose of non-construction related waste off-site.

14.0 SPILL PREVENTION AND EMERGENCY RESPONSE PLAN (SPERP)

Contractors and Subcontractors are required to prepare and implement a Spill Prevention and Emergency Response Plan (SPERP) that addresses regulatory and institutional requirements relating to spill reporting and other spill / emergency management requirements.

This ensures that SPERP's to prevent chemical, fuel, lubricant and other hazardous substance releases on or around the site are implemented by all sub-/contractors. Documentation SPERPs will be reviewed by the SNC-EM and / or SNC-EC for compliance with the following, as well as task-specific aspects that will be identified as the design and construction plans are finalized:

14.1 Containment, Release Reporting and Cleanup

- Each SPERP will require a list of key contacts and phone numbers for reporting spills and other incidents;

- In the event of a spill or release, workers must stop, contain and clean up the spill or release if reasonable and safe to do so;
- All spills and releases within the project limits (including sediment laden water into surface water-bodies and / or wetlands) must be reported to SNC-EM when release reporting is required within 24 hours of the occurrence;
- Adequate quantities of appropriate absorbent material must be readily available (i.e. in reasonable proximity to the potential hazard, vehicle or equipment) for spill containment;
- Subcontractors must contain, remove and remedy a spill or release in accordance with the SNC-Lavalin procedures and law;
- Subcontractors must provide, to the SNC-EM and Health and Safety Site Representative, documentation concerning the containment and remedy of any spill or release and the management and disposal of contamination or hazardous materials in accordance with applicable legislation;
- For incidents involving unexpected releases or spills, the contractor will follow-up to confirm, either by visual observation or sampling (if necessary), that the spill or release has been cleaned up; and the results of the follow-up will be relayed to the SNC-EM, who will document it in the monthly inspection report. Follow-up inspection will include photo documentation of the affected area.

15.0 SITE MANAGEMENT PLAN

In accordance with Best Management Practices (BMP's) and the specifications found within the PESR and Environmental Alignment Sheets, SNC will develop site-specific EWIP's and RWIP's (for implementation by the Subcontractor) that attempt to minimize the disturbance and impacts caused by the day to day activities associated with the construction of the Project. These documents will be updated as plans are completed / updated.

15.1 Environmental Management

As per the respective site-specific packages, Subcontractors will:

- Suitably locate, secure and label chemical, fuel and lubricant storage areas to prevent and minimize the impact of any releases or contamination on-site or offsite;
- Locate fuel storage tanks no less than 100m of a surface water-body or water well;

- Ensure that for all hazardous material there is impervious secondary containment with a capacity of 110% of the largest container plus 10% of the aggregate capacity of all other containers as well as a cover to prevent precipitation from entering the secondary containment;
- Ensure that all oil-containing transformers required for the substation components of the project have 110% containment, due to the proximity of the project footprint to a surface water-body and drainage system;
- Ensure that all fuel storage tanks are double-walled with the space between the two walls being able to contain 10 % more volume than the storage capacity of the tank;
- Ensure hazardous materials on the Site are managed appropriately;
- Take all reasonable measures to control dust within the work site, including, but not limited to Township and Range-Roads, for the duration of the work;
- Promptly remove all mud, dirt, debris and other materials deposited by construction during the construction and rehabilitation period and dispose of such material appropriately;
- Keep the work site free from accumulations of debris or waste;
- Conduct litter clean up as soon as possible;
- Ensure storage of waste and material is controlled to prevent off-site migration from the work site;
- Minimize the idling of vehicles and equipment not essential for performance of the work;
- Limit disturbance to the specified project footprint and, if possible, to previously disturbed lands. Disturbance to the native grasslands located outside of the project footprint is not permitted;
- Locate equipment staging areas and / or lay-down yards on previously disturbed lands, where possible;
- Take all reasonable measures to suppress wildfire within the project footprint, but not limited to the surrounding areas, for the duration of the work,
- Fire response plans must be developed and implemented especially during dry conditions; and
- Immediately inform the SNC-EM who, in turn, will promptly notify the SNC-PM in writing should any previously unidentified or unmarked paleontological or historical resources be discovered during construction activities, as outlined in Section 31 of the *Historical Resources Act.*

15.2 Fuelling and Fuel Storage

- Fuel storage shall not be located within 100m of a watercourse, within a watercourses flood plain, or where there is a potential for any spilled fuel to enter a watercourse or groundwater;
- Fuel storage facilities shall be located on flat or gently sloping ground and shall be contained to hold at least 110% of the total capacity of the storage containers;
- Containment systems shall be constructed of impermeable material or lined to ensure that petroleum products cannot escape;
- Automatic shut-off nozzles shall be installed on all dispensing units over 250L capacities;
- All small fuel storage containers, such as 45gal (200L) drums, used as a fuel cache shall be installed on a device capable of capturing at least 110% of the total capacity of the storage container(s);
- A cover, such as a tarp, shall be placed over the top of the fuel cache to prevent accumulation of precipitation in the containment device;
- Fueling requirements outlined in the Alberta Fire Code and other legislation shall be followed (e.g. prohibit smoking, labeling);
- Fueling procedures shall be communicated to all onsite personnel involved in the fueling or maintenance operations;
- Where feasible, fueling or maintenance of equipment shall not take place within 100m of waterways including storm sewer system or environmentally sensitive areas unless a written standard operating procedure is developed and approved by the SNC-EM;
- Onsite fueling and lubrication of equipment shall also be conducted as far as possible from detention and sediment control facilities;
- Subcontractor personnel shall be present at the transfer point during fueling operations and for the duration of the fueling process;
- Spill kits or drip pads shall be present at location during refueling;
- No servicing or repair of machinery may occur within 100m of an environmentally sensitive area or water body unless authorized by the AML PM;
- Servicing shall be conducted at designated sites that are properly protected and approved by the SNC-EM;

- Refuse generated during the servicing of equipment (e.g., air and oil filters, hydraulic fluids, petroleum products) shall be collected and disposed of in an environmentally acceptable location and manner;
- The dumping of oil or other deleterious materials on the ground or in any watercourse is strictly prohibited; and
- The Subcontractor shall provide a means of catching and retaining drained oil or other deleterious materials and shall properly dispose of these materials.

16.0 AIR QUALITY AND DUST CONTROL PLAN

Potential air quality effects will be limited to the immediate vicinity of the Project footprint; however, due to the proximity of the corridor to surrounding sensitive areas, dust and wind erosion control measures will be an important part of the construction process. Air quality effects in any particular location will usually be temporary because construction will progress in sections. Air quality and dust control will be managed by adhering to the following:

- Operate equipment at optimum rated loads;
- Follow equipment manufacturer specifications relating to equipment maintenance and servicing;
- Ensure all original equipment emissions and pollution control equipment is in place and functional;
- Turn off equipment when not in use;
- Position necessary stationary emission sources away from sensitive receptors;
- Dust control measures may include wind fencing placed at selected locations, water spraying, hydro-spraying tackifier on exposed soil surfaces, etc;
- Regularly watering heavy use unpaved traffic lanes to limit loss of fine particulate matter;
- If water is used as a dust control agent, consider proximity to water bodies, storm drains and other sensitive areas;
- Cover fine grained materials when transporting them (to prevent or mitigate loss of material through wind exposure);
- Monitor the need for, and the effectiveness of, dust suppression measures;

- Comply with posted speed limits and, as appropriate, further reduce speed when travelling on unpaved surfaces to reduce dust creation; and
- Implement contingency plans should dust become a problem (for example, if heavy winds cause an increase in dust above acceptable levels, work shall be shut down and additional dust control measures shall be implemented such as wind fencing, water spraying, etc.).

17.0 TRANSPORTATION OF MATERIALS

The following are minimum requirements that will be adhered to throughout the duration of the Project:

- Use equipment and containers that are capable of safely transporting petroleum products and / or hazardous materials in compliance with Federal *Transport of Dangerous Goods Regulations;*
- Trucks carrying loose materials shall be covered and restraints shall be used to prevent materials from blowing or falling from vehicles; and
- Collect and remove any litter deposited by vehicles and equipment along access routes during construction-related activities, including dirt and mud deposited from truck tires on municipal roadways.

18.0 TRADITIONAL LAND-USE AREAS

- All previously identified historical / archaeological and TLU resources located within the ROW and work areas will be clearly staked and outlined on the Environmental Alignment Sheets;
- A 2.0m setback will be staked around all sensitivities; and.
- If a suspected historical or TLU resource is found, work will be stopped and information reported to the SNC-CM and / or SNC-EM.

19.0 VEHICLES, EQUIPMENT AND TRAFFIC

- Do not exceed posted speed limits;
- Observe a 30km/h speed limit on the Project ROW and access roads;
- Vehicle traffic outside of staked access trails, ROW or designated work areas is prohibited;
- Vehicles and equipment are confined to the project footprint and if possible, to previously disturbed lands;

- Off-ROW access may be permitted to avoid sensitive features. Specific agreements and approvals must be obtained before use, from the landowner;
- Vehicle traffic is limited to one primary access trail and a secondary trail, used only during stringing activities. Off-trail or ROW access will only be permitted with authorization from the AML-ROW Coordinator, SNC-CM, SNC-EM and with landowner consent;
- By using the closest possible approved access to the work area and / or ROW, limit the length of ROW that is travelled by vehicles and / or equipment;
- Approved access points will be indicated on the Construction Route Sheets and Environmental Alignment Sheets, to be provided prior to construction;
- Traffic must adhere to safety and road closure regulations, as indicated by the SNC-CM;
- In wet conditions, equipment type, construction techniques, and work hours may be altered to allow access to ROW. This may include, but is not limited to, the use of tracked vehicles or LGP equipment to stabilize or move other vehicles / equipment within the ROW.
- In sensitive areas and times, the access trail may be routed to avoid low areas, problem soils, weeds and other features identified on the Construction Route Sheets or Environmental Alignment Sheets;
- Mufflers must be used on all construction equipment to control noise at all times;
- Personal vehicles are prohibited from all access trails, work areas and the ROW;
- Equipment staging areas and / or lay-down yards should be located on previously disturbed lands, where possible; and

  If helicopter use is anticipated, it will be limited to daylight hours and will avoid congregations of wildlife.

20.0 CONTAMINATED SITE MANAGEMENT

If contaminated sites (specifically PCBs) have been, or are, identified in the Project area, the following will be adhered to:

- AML will provide SNC with the results of a contamination investigation. Once the results of this investigation are in hand, SNC will prepare a TSMP that will be operative for the Project;
- Disposal of contaminated soils is the responsibility of the contractor and must be disposed of appropriately by means of an AltaLink approved waste management contractor;

- Measures to prevent the release of all PCBs and hydrocarbons to the environment must be implemented;
- Oil or equipment known or suspected to be contaminated with greater than 50ppm PCBs must be sent to an authorized facility for storage or destruction within 30 days after the day on which those PCBs are no longer processed or used;
- If a contractor will be handling (i.e. draining) >2 ppm PCB contaminated equipment on site prior to transport, these activities must conform to the TSMP approved by AML;
- An independent lab test must be done on all units with oil sample records older than 60 days for the purpose of determining transportation and disposal requirements. If sampling is not possible (e.g. sealed equipment), manage units older than 1983 as contaminated with PCBs ≥50ppm until tests show otherwise for the purpose of transportation only. Test results must be submitted to the AML-EL before the oil is sent for disposal;
- All PCB contaminated oil ≥2ppm that is taken out of service must be tracked with records sent to the AML-EL to ensure the PCBs were managed appropriately;
- For oil between 2-49ppm PCBs, the location the oil is shipped to must be recorded with records sent to the AML-EL;
- For oil contaminated with≥ 50 ppm PCBs, the AML-EL must be sent the "Certificate of Destruction" once the oil has been destroyed;
- All oil-filled equipment contaminated with PCBs≥2 ppm must be transported in secondary containment. The equipment must be secured in a secondary containment pan, with the pan secured in the truck, and the equipment tarped-in to prevent a potential release of hydrocarbons or PCBs to the environment. There must also be an appropriate spill response kit within the truck transporting the oil-filled equipment or within a pilot vehicle;
- All PCB contaminated equipment ≥2 ppm that is taken out of service must be tracked to ensure the equipment is managed appropriately. Records on disposal must be available on request from the AML-EL; and
- PCB contaminated equipment must be decontaminated below 2ppm PCBs prior to being shipped to a metal recycling company, or be sent to a facility that is capable of decontaminating the equipment below 2ppm, or be sent to an authorized facility for destruction. AML must receive a "Certificate of Destruction" once equipment ≥50ppm has been destroyed.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 6 – IESO Acceptance H-Frame Structures

Appendix 6 – IESO Acceptance H-Frame Structures

From: Falvo, Mike [mailto:mike.falvo@ieso.ca]
Sent: Monday, November 05, 2012 9:38 AM
To: Hodgkinson, Steve
Cc: 'Cliff Monar'; Drury, Peter; Burns, Stephen
Subject: RE: OEB East-West Tie Designation Process

Steve we have reviewed your request below and we agree with your interpretation that the use of alternate structures does not trigger the need for an IESO feasibility study.

We understand that you are considering the possibility of using two H-Frame structures in place of a lattice tower in areas where it may be difficult to construct the towers. I our view, using two single-circuit structures in place of a double-circuit lattice tower along various parts of the right of way will not introduce any more limiting contingencies, will not reduce the transfer capability of the line and is not expected to change the requirements for voltage control or other facilities associated with the line.

Therefore, provided the H-frame structures can satisfy the other technical requirements and design criteria, I agree that an IESO feasibility study is not required for this change.

I recognize that there is a bit of an inconsistency in the OEB's two documents however it does not change our conclusion that an IESO study is not needed in this case.

Let me know if this answers your question and is sufficient for your records.

Michael Falvo | office 905.855.6209 mobile 905.301.2998
Manager - Market Facilitation, IESO | Station A, Box 4474, Toronto, Ontario, M5W 4E5

From: McMillen, Heather [mailto:Heather.McMillen@AltaLink.ca] **On Behalf Of** Hodgkinson, Steve
Sent: October 26, 2012 3:48 PM
To: Falvo, Mike
Cc: 'Cliff Monar'
Subject: OEB East-West Tie Designation Process

Mr. Mike Falvo
Manager, Market Facilitation, IESO

Thank you for speaking with my colleague (Cliff Monar) on the phone earlier this week and for considering the matter outlined in this email.

AltaLink is a licensed transmitter in Ontario and is actively engaged in the OEB's "East-West Tie Designation Process" (EB-2011-0140). Pursuant to section 6.4 of the OEB's "Filing Requirements for Designation Applications", an applicant must file a feasibility study performed by the IESO, or performed to IESO requirements, where the applicant's plan is not based on the OEB Reference Option.

AltaLink is investigating the possibility of using two parallel H-Frame structures as an alternative to the double circuit steel lattice tower specified in the OEB's "Minimum Design Criteria for the Reference Option of the E-W Tie Line" dated November 9, 2011. Alternative structures are considered in the OEB's "Minimum Technical Requirements for the Reference Option of the E-W Tie Line" dated November 9, 2011 but not in the Minimum Design Criteria. The parallel H-Frames would potentially be used in areas where it may be difficult to construct lattice towers due to environmental or access constraints.

2

Please refer below to a conceptual drawing of the H-Frame structures which would be approximately 12 to 15 meters wide and constructed of either wood, steel or fiber resin poles with steel or fiber resin cross-arms and cross-bracing.

The parallel H-Frame structures would utilize the same conductor, insulation and shield wires specified in the OEB Reference Option and would meet or exceed all other technical and reliability requirements identified in the OEB's Minimum Technical Requirements and Minimum Design Criteria.

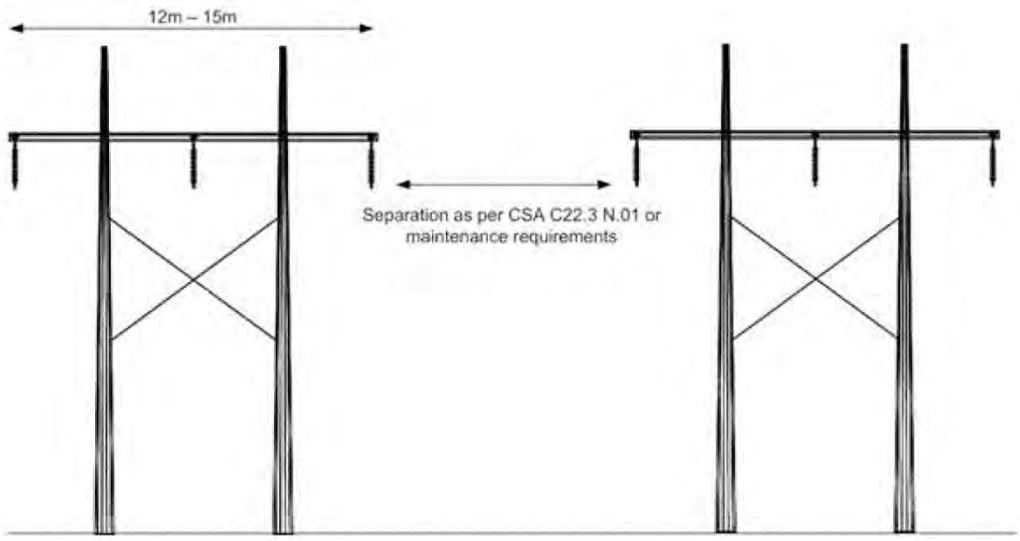
AltaLink does not interpret the use of alternative structures as triggering the need for the IESO to perform a feasibility study, however, since this is a deviation from the OEB's Minimum Design Criteria, we thought it best to confirm that the IESO shares AltaLink's view on this matter.

Thanks again for your attention to this matter and I look forward to your response.

Regards,

Steve Hodgkinson
VP Corporate Development & Business Partnerships
P: (403) 267-4273
C: (403) 998-0739
E: steve.hodgkinson@altalink.ca

AltaLink
2611 - 3rd Avenue SE
Calgary, Alberta, T2A 7W7
www.altalink.ca



ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 7 – SNC-Lavalin Credit Rating Reports

Appendix 7 – SNC-Lavalin Credit Rating Reports

Rating Report

Report Date:
September 14, 2012
Previous Report:
September 16, 2011

DBRS
Insight beyond the rating.

SNC-Lavalin Group Inc.

Analysts
Kam Hon
+1 416 597 7543
khon@dbrs.com

Greg Pau
+1 416 597 7376
gpau@dbrs.com

The Company
SNC-Lavalin Group Inc. is a leading global engineering and construction company and the largest in Canada. The Company is broadly diversified, with offices globally and expertise across several industries. SNC also invests in infrastructure concessions, which typically include maintenance contracts.

Recent Actions
March 28, 2012
Trend Change

February 28, 2012
Under Review with Developing Implications

September 1, 2011
Trend Change

February 11, 2011
Comments on AltaLink Investment

July 29, 2010
Confirmed

Rating

Debt	Rating	Rating Action	Trend
Senior Debentures	BBB (high)	Confirmed	Stable

Rating Rationale

DBRS has confirmed the senior debentures rating of SNC-Lavalin Group Inc. (SNC or the Company) at BBB (high) with a Stable trend. The rating action reflects DBRS' view that (1) SNC's financial profile is still acceptable for the current rating despite the much weaker-than-expected operating results recently, (2) the Company has taken appropriate actions to address the weaknesses in its internal control over financial reporting and should be able to prevent the recurrence of these deficiencies and associated losses and (3) SNC will be able to stabilize its operating performance in the second half of 2012 and meet its revised 2012 net income target of $325 million to $340 million.

The Company has faced a number of unexpected challenges in the first half of 2012. DBRS placed SNC Under Review with Developing Implications (see press release dated February 28, 2012) following its announcement of an independent investigation of the facts and circumstances surrounding $35 million of payments documented to construction projects to which they did not relate. The rating was subsequently confirmed (see press release dated March 28, 2012) based on DBRS's view that (1) SNC should be able to maintain its strong financial risk profile and liquidity in light of the relatively moderate impact of the reported payments and related expenses and (2) the recent developments should not materially affect SNC's business capability. However, the trend was changed from Positive to Stable due to significant challenges facing the Company, reducing the likelihood of the rating being upgraded in the near term. Findings of the Independent Review and an internal evaluation have identified material weaknesses in internal control over financial reporting. SNC has begun to implement the recommended remedial measures. DBRS views the actions taken by the Company to be appropriate and would monitor the implementation of these remedial measures and take negative rating actions if progress is lacking according to plan. The recent appointment of a new CEO has also removed another management distraction. SNC also faces a number of shareholder law suits related to the deficiency in corporate governance and internal control. DBRS notes that these legal actions generally take a long time to resolve and the potential impact on SNC is difficult to ascertain at this time. The confirmation has not taken into account any potential impact on SNC. (Continued on page 2.)

Rating Considerations

Strengths
(1) Expertise across several industries
(2) Leading engineering/construction services business
(3) Global diversification provides stability
(4) Ability to structure the financing of projects
(5) Strong liquidity position and equity base

Challenges
(1) Fixed-price contracts increase cost-overrun risks
(2) Counterparty, credit and political risk
(3) Sensitivity to commodity market conditions
(4) Equity investments in concessions pose risk
(5) Risks associated with potential acquisitions

Financial Information

	6 months to	6 months to	LTM	For the year ended December 31					
($ millions, where applicable)	Jun 30/12	Jun 30/11	Jun 30/12	2011	2010	2010	2009	2008	2007
Sales	3,694	3,312	7,592	7,210	5,994	6,315	6,102	7,107	6,731
EBITDA	224	278	579	633	769	864	733	631	290
Earnings after taxes	65	127	223	285	410	433	367	321	81
Gross interest coverage – EBIT (1)	13.5	19.9	8.6	11.8	17.1	20.6	24.8	46.2	7.6
% debt-to-total capital (2)	15%	15%	15%	16%	16%	17%	24%	9%	13%
Cash flow/total debt (2)(3)	1.07	1.28	0.99	1.08	1.65	1.49	1.16	3.01	0.00
Cash flow/total debt (2)(3)(4)	0.54	0.73	0.50	0.54	0.93	0.85	0.74	0.89	0.07
Return on equity	3.4%	6.8%	11.5%	15.4%	22.6%	27.5%	29.1%	31.9%	8.8%

Boxed results based on Canadian GAAP (1) Excludes interest on non-recourse debt and earnings from concessions (which are financed partly with non-recourse debt; includes DBRS estimates).
(2) Excludes non-recourse debt (3) Adjusted to exclude cash flow or earnings (where applicable) from concessions (includes DBRS estimates) (4) Adjusted for operating leases

1 Corporates: Engineering & Construction

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

Rating Rationale (Continued from page 1.)

The Company's operating results have been disappointing, suffering sequential declines in the first six months of 2012 despite higher revenue, and most business segments reported lower operating income compared to the same year ago period. Power, Infrastructure/Environmental (IE) and Hydrocarbon & Chemicals (HC) segments suffered notable deteriorations. Higher selling and administrative expenses and cost overruns were the key negative factors. Cost reforecast on a major project in Tunisia and a fixed-price services project in Russia led to poor performances at Power and HC, respectively. Despite these setbacks, SNC remained reasonably profitable. The Company still has a healthy backlog totalling near $10.7 billion, and it expects a meaningful improvement in the last half of 2012 with full year net income in the $325 million to $340 million range. Achieving the forecast would signal that the Company has stabilized its profitability and is back on track with performance commensurate with its current rating.

The current rating is supported by the Company's above-average business profile. The Company has scale, solid technical expertise and geographic diversity. In addition, the Company has a balanced business mix with a sizeable operations and management business that helps to moderate earnings volatility. SNC has a good track record in controlling project costs. DBRS views the large cost reforecast on the two problem projects to be one-offs and not likely to recur, and the Company's risk management process remains sound. The Company's financial risk profile is still compatible with the current rating despite a decline in profitability. All debt coverage ratios remained above average among industry peers. Moreover, the Company continues to maintain a strong liquidity position with cash on hand (cash net of infrastructure concession investments (ICI) cash) in excess of recourse debt) by about $723 million. Furthermore, DBRS believes that the realizable value of SNC's investment in ICI projects is well in excess of their book value, especially the Highway 407 investment, which has a nil book value. Most of these investments can be monetized adding to SNC's financial flexibility. The Company has ample financial capacity to support its operations and to weather the current weaker performance.

DBRS expects the Company to turn around its operating performance in the last half of 2012 and meet its stated goal of net income between $325 million to $340 million. Nevertheless, the Company still faces some challenges in regaining its profit momentum, including (1) a slowing global economy that is likely to intensify the competitive conditions in the industry, pressuring project margins; and (2) more unexpected losses caused by the known internal control weakness and from still unidentified weaknesses. The failure to meet the lower revised net income target could trigger another assessment of SNC and may lead to negative rating actions depending on the nature of the factors impeding the Company's ability to return to a more acceptable profitability level. Furthermore, SNC has a good track record on project management and meaningful project losses are infrequent historically. The sizeable cost readjustment on two projects recently does not bode well for the Company. DBRS has given SNC the benefit of the doubt and treated recent negative occurrences as isolated cases. However, further meaningful negative cost readjustment would signal that the project control process may not be operating as effectively as intended and may also lead to negative rating actions.

Rating Considerations Details

Strengths

(1) SNC has significant engineering expertise and experience in a variety of industries, including infrastructure/environment, chemicals/petroleum, power generation/transmission and metallurgy/mining, among others. The Company's well-diversified and large revenue base reduces the impact of weakness in a particular end-market and adds a degree of stability to earnings. SNC is currently working on over 10,000 projects and employs 28,100 people.

(2) SNC is a global provider of a full range of engineering, procurement, construction and management services, with a world-class reputation and loyal client base. Services include engineering, feasibility studies and planning, detailed design, contractor evaluation and selection, construction management and commissioning. These services provide a competitive advantage for SNC relative to companies with a construction-only focus, particularly those that rely almost exclusively on subcontractors with limited ability to self-perform projects. In addition, the Company's strong franchise and reputation promotes repeat business and provides an intangible benefit during the project bidding process versus lesser-known companies. The Company's revenues are well diversified by Services (34% in 2011 based on IFRS), Packages (40%), Operations & Maintenance (OM) (19%) and ICI (7%).

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

(3) SNC is well diversified geographically, which reduces reliance on a particular region for sales and earnings. Canada has accounted for roughly 50% of sales over the past several years, and has been a source of steady growth for the Company. In addition, SNC has an established presence outside of Canada, with projects and provisioning of services in Africa, the Middle East, Europe and Latin America. These emerging markets have provided an important source of growth and profitability, and SNC's global presence has led to new contract opportunities that would not otherwise be available to companies with a predominantly domestic-market focus. SNC's large presence in Canada helps to reduce its overall risk exposure relative to countries with lower credit profiles. That said, the Company has maintained a presence in various emerging markets for several decades and has not experienced any significant issues to date (save for the recent disruption in Libya).

(4) The Company's strong financial position enables the ability to structure the financing of projects, and allows it to occasionally take an equity ownership in certain projects. While equity investments can be deemed risky depending on the profile of the project involved, the ability to provide project financing and equity gives SNC a competitive advantage when bidding on new business opportunities. The Company also has the clout to demand more stringent contract requirements with clients as a means to reduce its risk exposure relative to companies that are smaller or have less expertise. Importantly, SNC's equity investments have been very successful, with the market value of its ownership stakes in concessions significantly above its original investments, and have generated complementary engineering/construction and operations/maintenance contracts.

(5) SNC has a strong liquidity position. Total cash is consistently in excess of $1 billion, and freehold cash (i.e., cash not committed for operations or ICI projects) was roughly $600 million at June 30, 2012. In addition, the Company's equity base has steadily increased to about $1.9 billion (from under $800 million in 2005), which reduces financial risk in the event of project losses. Furthermore, SNC has significant saleable assets, most notably its interest in Highway 407 and AltaLink, L.P. (AltaLink). The book value of the Company's concession investments is about $1.4 billion – well below the market value of over $2 billion.

Challenges

(1) SNC faces a relatively high degree of business risk, largely related to its exposure to the construction industry through its Packages business. Despite recent growth in services and operations and management businesses, in the first six months of 2011, Packages still account for over 40% of consolidated revenues, over 50% of its backlog (which is highly correlated with future sales), and are typically structured as fixed price contracts. As such, while the Company's business mix is well diversified by business and end-market, its exposure to potential cost overruns on projects could lead to a material impact on its financial position.

(2) SNC is subject to a wide range of risks, including event, counter-party, credit and political risk, largely as a result of its business exposure to projects that are considered highly specialized/technical, its presence in emerging markets (although the Company has maintained a long-term presence in many developing regions), and its use of subcontractors.

(3) SNC is exposed to cyclical and commodity market trends, which generally dictate business activity in many of the industries it serves. As such, a sharp decline in commodity prices and/or materially weaker macroeconomic conditions could have a negative impact on the earnings and cash flow contributions from its larger commodity-focused business (i.e., chemicals/petroleum, mining/metallurgy).

(4) The Company has invested in large concession projects and companies through equity ownership stakes (e.g., Highway 407, AltaLink). SNC's equity investments to date have been largely successful, particularly its investment in Highway 407. However, future significant concession investments, depending on the nature, size and ability to liquidate its position, could increase SNC's exposure to potential equity losses.

(5) SNC has historically been highly acquisitive, although investments in other companies have been modest in scale and funded from cash as opposed to debt. The Company issued debentures (on a recourse basis) in 2009 and a portion of the proceeds could fund acquisitions. Investments that are well in excess of the scale of past takeovers could pose integration risks and potentially weaken SNC's financial profile.

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

Earnings

(CAD millions)	6 months to Jun 30/12	6 months to Jun 30/11	LTM Jun 30/12	For the year ended December 31 2011	2010	2010	2009	2008	2007
Revenues	3,694	3,312	7,592	7,210	5,994	6,315	6,102	7,107	6,731
EBITDA	224	278	579	633	769	864	733	631	290
Operating profit (EBIT)	148	217	425	495	642	731	603	501	177
Net income (pre-extra. items)	100	178	300	379	477	437	359	313	69
Return on equity	3.4%	6.8%	11.5%	15.4%	22.6%	27.5%	29.1%	31.9%	8.8%
EBIT margin	4.0%	6.5%	5.6%	6.9%	10.7%	11.6%	9.9%	7.0%	2.6%
Net margin (pre-extra items)	2.7%	5.4%	4.0%	5.3%	8.0%	6.9%	5.9%	4.4%	1.0%

Boxed results based on Canadian GAAP

Segmented Results

Revenue (CAD millions)	6 months to Jun 30/12	6 months to Jun 30/11	LTM Jun 30/12	For the year ended December 31 2011	2010	2010	2009	2008	2007
Power	632.0	312.4	1,213.7	894.1	496.6	760.2	921.9	1,176.2	1,616.3
Infrastructure/Environment (IE)	928.1	887.5	1,985.7	1,945.1	1,807.1	1,796.7	1,602.6	1,700.4	1,757.2
Hydrocarbons & Chemicals(HC)	394.5	579.3	890.8	1,075.6	888.7	905.1	829.4	1,416.7	1,256.6
Mining/Metallurgy (MM)	643.2	410.8	1,254.4	1,022.0	683.8	683.8	764.7	859.0	448.9
Operations/Maintenance (OM)	676.6	708.5	1,367.3	1,399.2	1,330.5	1,330.5	1,297.9	1,225.0	1,058.4
Infrastructure & Concessions (ICI)	241.4	230.5	512.3	501.4	472.3	523.6	380.3	347.0	311.3
Other	178.4	183.3	367.6	372.5	315.0	315.1	305.0	382.7	283.3
Total Revenue	3,694.2	3,312.3	7,591.8	7,209.9	5,993.9	6,315.0	6,101.7	7,107.0	6,732.0

* Boxed results based on Canadian GAAP

Operating Income ** (CAD millions)	6 months to Jun 30/12	6 months to Jun 30/11	LTM Jun 30/12	For the year ended December 31 2011	2010	2010	2009	2008	2007
Power	21.3	53.5	87.4	119.6	96.8	93.5	88.0	-24.4	-267.3
Infrastructure/Environment (IE)	-4.3	15.9	26.6	46.8	221.3	236.7	212.9	113.1	93.0
Hydrocarbons & Chemicals(HC)	22.2	42.3	13.6	33.7	21.8	18.1	21.0	104.4	126.4
Mining/Metallurgy (MM)	28.3	16.5	92.4	80.6	59.5	59.5	72.2	117.0	68.1
Operations/Maintenance (OM)	12.1	21.2	41.0	50.1	39.4	39.4	32.5	25.4	29.5
Infrastructure & Concessions (ICI)	55.6	66.1	120.7	131.2	108.8	56.8	36.9	37.2	25.1
Other	15.6	19.9	38.9	43.2	38.6	38.6	40.6	46.7	18.8
Total Operating Income	150.8	235.4	420.8	505.4	586.3	542.6	504.1	419.4	93.6

Boxed results based on Canadian GAAP. **After net interest & capital taxes from ICI, income taxes from ICI, and pre-tax non-controlling interest

Operating Margin	6 months to Jun 30/12	6 months to Jun 30/11	LTM Jun 30/12	For the year ended December 31 2011	2010	2010	2009	2008	2007
Power	3.4%	17.1%	7.2%	13.4%	19.5%	12.3%	9.5%	-2.1%	-16.5%
Infrastructure/Environment (IE)	-0.5%	1.8%	1.3%	2.4%	12.2%	13.2%	13.3%	6.6%	5.3%
Hydrocarbons & Chemicals(HC)	5.6%	7.3%	1.5%	3.1%	2.4%	2.0%	2.5%	7.4%	10.1%
Mining/Metallurgy (MM)	4.4%	4.0%	7.4%	7.9%	8.7%	8.7%	9.4%	13.6%	15.2%
Operations/Maintenance (OM)	1.8%	3.0%	3.0%	3.6%	3.0%	3.0%	2.5%	2.1%	2.8%
Infrastructure & Concessions (ICI)	23.0%	28.7%	23.6%	26.2%	23.0%	10.8%	9.7%	10.7%	8.1%
Other	8.7%	10.9%	10.6%	11.6%	12.3%	12.2%	13.3%	12.2%	6.6%
Total Operating Income	4.1%	7.1%	5.5%	7.0%	9.8%	8.6%	8.3%	5.9%	1.4%

Boxed results based on Canadian GAAP

Revenue Mix	6 months to June 30 2012	2011	For the year ended December 31 2011	2010	2010	2009	2008	2007
Services	39%	32%	34%	34%	32%	36%	32%	26%
Packages	36%	40%	40%	36%	38%	36%	45%	54%
Operations & Maintenance	18%	21%	19%	22%	21%	21%	17%	16%
ICI	7%	7%	7%	8%	8%	6%	5%	5%

Boxed results based on Canadian GAAP

Backlog ($ million)	6/30/2012	12/31/2011	12/31/2010	12/31/2009	12/31/2008	12/31/2007
Services	2,348.1	2,226	1,411	1,465	1,545	1,557
Packages	5,988.3	5,483	5,572	4,198	3,508	4,457
Operations & Maintenance	2,357.3	2,379	2,733	2,596	2,196	2,514
ICI	n/a	n/a	2,950	2,579	2,343	2,095
	10,693.7	10,088	12,666	10,837	9,592	10,623

4 Corporates: Engineering & Construction

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

Summary

- Operating income declined modestly in 2011 compared to 2010 despite higher revenue.
- Higher activities boosted revenue in all businesses and the acquisition of Atomic Energy of Canada Limited (AECL) in June 2011 further boosted overall revenue at Power.
- Operating income rose in all business segments, except IE, supported partly by stronger revenue, though some segments (such as Power and MM) experienced some margin pressure.
- Unfavourable business mix due to lower margin of AECL business led to lower margins at Power.
- Shutting down activities in Libya as a result of the civil war was a major factor for the sharp decline in operating income at IE.
- Operating performance was disappointing in 2012, especially in the second quarter. Despite higher revenue, operating income declined sharply in the first half of 2012 compared to the same prior period (reporting under IFRS has made comparison to pre-2010 performance less meaningful).
- Momentum in revenue growth remained in most businesses in the first half of 2012, except for OM, which was essentially flat. Higher level of activity was the primary reason.
- Margin pressure led to lower operating income in most businesses.
- Higher selling, general and administrative expenses were a key factor.
- Other negative impacts included cost reforecast at a major package project in Tunisia for Power and a major fixed-price service project in Russia for HC.

Outlook

- Despite weaker performance in the first half of 2012, the backlog remains strong.
- The Company expects MM and ICI to be major contributors to profit in the last half of 2012; however, operations at HC and IE will remain challenging.
- Nevertheless, SNC expects a sharp improvement in the second half and the full year net income to be between $325 million and $340 million, despite a net income of only $100 million in the first half. DBRS deems the target credible but aggressive.
- DBRS does not expect any more sizeable cost reforecasts, which would boost second half profits.
- Risk remains that the backlog may experience lower-than-anticipated margins due to increased competitiveness in the project bidding environment.

Financial Profile

	6 months to	6 months to	LTM	For the year ended December 31					
(CAD millions)	Jun 30/12	Jun 30/11	Jun 30/12	2011	2010	2010	2009	2008	2007
EBITDA	224	278	579	633	769	864	733	631	290
Income before extra. items/equity earnings	65	127	223	285	410	433	367	321	81
Depreciation/amortization	77	61	154	138	127	133	130	130	113
Deferred taxes	-1	17	62	81	118	67	89	-19	-120
Dividends from ICIs & other	86	36	124	74	64	28	60	24	39
Cash flow from operations	227	242	563	578	719	661	646	456	113
Less: dividend	-66	-63	-130	-127	-103	-103	-91	-72	-54
Less: capex	-432	-251	-793	-613	-448	-465	-307	-240	-350
Free cash flow pre-work. capital	-271	-73	-360	-162	168	93	249	144	-291
Net changes in working capital	1	-40	382	342	-189	-146	-248	-157	9
Net free cash flow	-271	-113	22	180	-21	-53	1	-13	-282
Net acquisitions/investments	-94	-98	-451	-454	45	48	-149	-65	99
Other items	-1	-26	-4	-29	-110	-618	-73	5	16
Cash flow before financing	-366	-237	-433	-304	-86	-622	-221	-72	-168
Net change in debt	377	131	563	317	153	742	464	2	184
Net change in equity	-1	-18	-1	-17	-24	-24	-13	-30	-33
Net change in cash	10	-124	130	-4	44	96	230	-100	-18
Net cash, excluding restricted cash (2)	$893	$756	$893	$883	$887	$979	$765	$878	$954
% debt-to-total capital (2)	15%	15%	15%	16%	16%	17%	24%	9%	13%
% debt-to-total capital (includes non-recourse debt)	57%	51%	57%	54%	51%	66%	64%	66%	69%
Gross interest coverage – EBIT (1)	13.5	19.9	8.6	11.8	17.1	20.6	24.8	46.2	7.6
Cash flow/total debt (2)(3)	1.07	1.28	0.99	1.08	1.65	1.49	1.16	3.01	0.00
Cash flow/total debt (2)(3)(4)	0.54	0.73	0.50	0.54	0.93	0.85	0.74	0.89	0.07
Debt/EBITDA (2)(3)	0.78	0.63	1.46	1.19	0.66	0.55	0.85	0.25	1.22
Debt/EBITDA (2)(3)(4)	1.51	1.07	2.52	2.15	1.13	0.96	1.29	0.83	2.56

Boxed results based on Canadian GAAP (1) Excludes interest on non-recourse debt and earnings from concessions (which are financed partly with non-recourse debt; includes DBRS estimates).
(2) Excludes non-recourse debt (3) Adjusted to exclude cash flow or earnings (where applicable) from concessions (includes DBRS estimates) (4) Adjusted for operating leases

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

Summary

- Cash flow from operations declined in 2011, in-line with earnings but was not enough to cover the much higher capital spending.
- Capital expenditures rose sharply mostly due to the planned spending (about $546 million) at AltaLink, a wholly owned subsidiary rated "A" and R-1 (low) by DBRS, to expand its transmission projects.
- Despite a significant improvement in working capital, SNC still incurred a deficit in cash flow before financing due to a substantial investment outlay partly offset by proceeds from disposals
- SNC spent about $229 million to acquire the remaining 23.08% interest in AltaLink, $140 million in miscellaneous tucked in acquisitions and another $101 million investment in various ICI projects.
- The deficit was primarily funded by non-recourse borrowing at AltaLink.
- Leverage increased modestly on a consolidated basis but, more importantly, the leverage, excluding non-recourse debt, which DBRS deems to be a more appropriate measure for SNC, was little changed.
- Weak earnings led to a sharp decline in cash flow from operations in the first half of 2012.
- Ongoing high planned capital spending on transmission projects at AltaLink led to another cash flow deficit and a further increase in non-recourse debt.
- Again, excluding the non-recourse debt, SNC's leverage and all debt coverage ratios remained well within the current rating range.
- The Company actually generated positive free cash flow, excluding capital spending on ICI projects, in 2011 and the first half of 2012.

Outlook

- Capital spending at AltaLink is expected to remain elevated as AltaLink continues to expand its transmission network, but capital spending on other activities to remain relatively modest.
- Cash flow from operations is expected to rise in-line with the Company's forecast of a stronger earnings outlook.
- SNC remains active in acquisitions to strengthen its business and technical expertise.
- Net investment is not expected to be substantial and should be covered by internally generated cash.
- On a consolidated basis, SNC is expected to incur another deficit in free cash flow in light of the heavy spending at AltaLink.
- Additionally, DBRS expects the Company to generate positive cash flow before financing, excluding capital spending at AltaLink and other ICI projects.
- The Company has also renewed its share repurchase program and may buy up to three million shares.
- SNC is committed to maintaining a recourse debt-to-capital ratio of 30% and DBRS expects the Company to continue to be judicious in executing its share buyback.
- DBRS expects the Company's balance sheet (excluding non-recourse debt) to remain moderately leveraged.
- The Company's liquidity remains strong with net cash (gross cash net of recourse debt and cash at ICI) of about $723 million and sufficient to fund all its operating (excluding ICI) needs.
- Additionally, the fair value of ICI investments far exceeds its book value. The equity holding in Highway 407 is estimated to be worth about $1.5 billion (based on a transaction in October 2010), but has a nil net book value at June 30, 2012. These assets can be monetized, which adds to the Company's already significant liquidity.

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

Debt and Liquidity

SNC's debt maturity schedule is favourable, with the bulk of debt being non-recourse and maturing beyond 2016. Annual repayment requirements at December 31, 2011, are listed below (in $ millions):

	2012	2013	2014	2015	2016	Thereafter
Recourse	-	-	-	-	-	350.0
Non-Recourse	327.4	340.2	3.9	49.1	154.3	1,026.2
Total	327.4	340.2	3.9	49.1	154.3	1,376.2

Note: The above includes unamortized deferred financing costs and unamortized discounts.

The Company will have no recourse debt due until after 2016. SNC's debt securities outstanding as of December 31, 2011, are listed below (in $ millions):

At December 31, 2011 ($ millions)

Recourse Debt		Non-Recourse Debt (ICI-related)	
Debentures, 7.70%, due in July 2019	348.4	AltaLink	1,736.2
		Okanagan Lake Concession	141.3
		Other	11.3
		Total non-recourse long-term debt	1,888.8
		Less: current portion	327.4
		Non-recourse long-term debt	1,561.4

At December 31, 2011, the Company had access to committed long-term revolving lines of credit with banks totalling $590 million, upon which it may either issue letters of credit or borrow at variable rates not exceeding the prime rate plus 0%. As at December 31, 2011, $145.9 million of these lines of credit remained unused, while the balance of $444.1 million was exclusively used for the issuance of letters of credit. In addition, the Company has other lines of credit specifically available for the issuance of letters of credit. All of the above-mentioned lines of credit are unsecured and subject to negative pledge clauses.

Liquidity is not an issue for SNC, in view of over $1.2 billion (about $1.1 billion excluding ICI) in cash and equivalents as at June 30, 2012, and $161 million of unused credit and significant saleable equity stakes in concession investments (with estimated market values well in excess of maturing non-recourse debt).

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

Company Profile

SNC is a leading global engineering and construction company and the largest in Canada. The Company is broadly diversified, with offices in 30 countries and expertise across several industries. SNC is a key player in the ownership and management of infrastructure, with revenues generated from a mix of contract and concession businesses across a variety of industries.

SNC's operations are segmented into four primary business categories across several industries and geographic regions: Services, Packages, OM and ICI. A brief description of each is provided below:

Services (34% of revenues in 2012)
Services includes contracts to provide engineering services, feasibility studies, planning, detailed design, contractor evaluation and selection, procurement management, construction management and commissioning. Services revenues are derived primarily from cost-plus reimbursable contracts.

Packages (40% of revenues)
Packages includes contracts in which SNC, in addition to providing one or more of the Services activities listed above, acts as principal when undertaking procurement and/or construction activities. Packages revenues are derived primarily from fixed-price contracts.

OM (19% of revenues)
OM includes contracts to provide operations, maintenance and logistics solutions for real estate, power plants, water supply and treatment systems, postal services, broadcasting facilities, highways, light rail transit systems, military camps and ships. OM revenues are derived primarily from costs reimbursable with fixed-fee contracts and fixed-price contracts.

ICI (7% of revenues)
SNC makes selective investments in concessions, particularly where its technical, engineering and construction, project management and operations and maintenance expertise, along with its experience in arranging project financing, provide opportunities for additional advantages. Revenues are received from dividends from investments or from all or a portion of the investments' net results (depending on the accounting method).

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

SNC-Lavalin Group Inc.

Balance Sheet (C$ millions)	Jun 30	Dec 31	Dec 31			Jun 30	Dec 31	Dec 31
Assets	**2012**	**2011**	**2010**	**Liabilities & Equity**		**2012**	**2011**	**2010**
Cash and deposits	1,241	1,231	1,235	Amounts payable		1,483	1,520	1,275
Restricted cash	47	39	39	Downpayments		354	317	423
Accounts receivable	1,161	1,156	1,274	Deferred revenue / others		1,426	1,350	1,150
Contracts in progress	642	557	608	Debt due in 1 yr - recourse		528	327	39
Inventories/other	579	563	410	Debt due in 1 yr - non-recourse		0	0	0
Total Current Assets	3,671	3,546	3,566	**Total Current Liab's**		3,790	3,514	2,887
Net fixed assets – concessions	2,978	2,638	2,073	LT debt (recourse)		348	348	348
Net fixed assets – other	183	160	115	LT debt (non-recourse)		1,736	1,561	1,529
Goodwill	634	639	542	Other liabilities		1,134	1,047	940
Other assets/investments	1,487	1,371	1,224	Common equity		1,945	1,883	1,817
Total Assets	8,953	8,354	7,521	**Total Liab's & Equity**		8,953	8,354	7,521

Balance Sheet Ratios	6 months to	6 months to	LTM	For the year ended Dec 31					
	Jun 30/12	Jun 30/11	Jun 30/12	2011	2010	2010	2009	2008	2007
Current ratio	1.0	1.2	1.0	1.0	1.2	1.4	1.2	1.1	1.1
Receivable turnover (days)	65	72	56	61	90	91	94	82	72
Gross interest coverage – EBIT (1)	13.5	19.9	8.6	11.8	17.1	20.6	24.8	46.2	7.6
Gross interest coverage – EBITDA (1)	20.5	25.5	10.9	13.4	18.9	22.6	28.2	53.7	13.5
% debt-to-total capital (includes non-recourse debt)	57.3%	51.4%	57.3%	54.3%	51.3%	66.1%	64.4%	66.0%	69.4%
% net debt-to-total capital (includes non-recourse debt)	40.5%	31.7%	40.5%	33.9%	26.1%	50.0%	47.8%	49.5%	49.5%
% debt-to-total capital (2)	15.2%	15.2%	15.2%	15.6%	16.1%	16.9%	24.0%	9.2%	12.7%
% debt-to-total capital (2) (4)	28.8%	25.2%	28.8%	29.5%	26.4%	27.6%	34.6%	27.3%	29.8%
Cash flow/total debt (2)(3)	1.07	1.28	0.99	1.08	1.65	1.49	1.16	3.01	0.00
Cash flow/total debt (2)(3)(4)	0.54	0.73	0.50	0.54	0.93	0.85	0.74	0.89	0.07
Cash flow/total debt (includes non-recourse debt)	0.09	0.12	0.22	0.26	0.38	0.20	0.25	0.22	0.05
Asset coverage	1.68	1.92	1.68	1.77	1.92	1.54	1.58	1.51	1.43
Debt/EBITDA (2)(3)	0.78	0.63	1.46	1.19	0.66	0.55	0.85	0.25	1.22
Debt/EBITDA (2)(3)(4)	1.51	1.07	2.52	2.15	1.13	0.96	1.29	0.83	2.56
Net cash, excluding restricted cash (2)	$893	$756	$893	$883	$887	$979	$765	$878	$954
				0	0				

Income Statement	6 months to	6 months to	LTM	For the year ended Dec 31					
(C$ millions)	Jun 30/12	Jun 30/11	Jun 30/12	2011	2010	2010	2009	2008	2007
Sales	3,694.2	3,312.3	7,591.8	7,209.9	5,993.9	6,315.0	6,101.7	7,106.9	6,731.5
EBITDA	224.1	278.3	578.9	633.1	768.9	864.4	733.3	630.9	289.7
Depreciation and amortization	76.5	61.5	153.5	138.5	126.5	133.4	130.1	130.0	112.6
Operating earnings (EBIT)	147.6	216.8	425.4	494.6	642.4	731.0	603.3	500.9	177.0
Interest expense	62.7	54.0	126.4	117.7	108.2	180.0	146.3	113.9	116.5
Other (expense)	2.6	0.4	4.6	2.5	(2.9)	5.1	18.1	19.4	44.0
Pre-tax income	87.4	163.3	303.6	379.4	531.3	556.1	475.0	406.4	104.5
Tax	22.1	36.4	80.6	94.9	120.8	123.4	108.1	85.1	23.7
Other (expense)	34.3	51.4	77.2	94.3	66.2	4.4	(7.5)	(8.8)	72.3
Net income to SNC	99.6	178.3	300.2	378.8	476.7	437.0	359.4	312.5	153.2
Free Cash Flow (C$ millions)									
Net income (pre-equity earnings)	65.3	126.9	223.0	284.5	410.5	432.7	366.9	321.3	80.9
Depreciation and amortization	76.5	61.5	153.5	138.5	126.5	133.4	130.1	130.0	112.6
Deferred taxes	(1.3)	17.2	62.2	80.7	118.4	66.9	89.1	(19.1)	(120.2)
Dividends from equity investments & other	86.1	36.0	124.2	74.2	63.7	27.9	59.9	24.1	39.4
Cash flow from operations	226.6	241.7	562.9	577.9	719.1	660.8	646.0	456.3	112.8
Less: capital expenditure	431.5	251.4	793.2	613.0	448.0	464.7	306.5	239.8	349.8
Less: dividends	66.5	63.4	129.9	126.8	102.7	102.7	90.6	72.5	54.5
Free cash flow pre-w/capital	(271.4)	(73.1)	(360.1)	(161.8)	168.4	93.4	248.9	144.0	(291.5)
Changes in working capital	0.6	(39.6)	381.9	341.8	(189.5)	(145.9)	(247.6)	(156.6)	9.1
Free cash flow	(270.8)	(112.7)	21.8	179.9	(21.1)	(52.5)	1.3	(12.6)	(282.4)
Acquisitions/ disposals	(94.2)	(97.9)	(450.5)	(454.3)	45.0	47.9	(149.3)	(64.5)	98.7
Net Share (repurchases) issued	(0.9)	(17.7)	(0.6)	(17.3)	(23.6)	(23.6)	(13.2)	(30.4)	(33.2)
Change in debt	377.0	130.9	563.2	317.1	153.4	742.1	464.2	1.9	183.7
Other	(0.7)	(26.4)	(3.8)	(29.4)	(110.0)	(617.7)	(73.0)	5.2	15.6
Change in cash	10.4	-123.7	130.0	-4.0	43.7	96.1	230.0	-100.4	-17.6
Profitability Ratios									
EBITDA margin	6.1%	8.4%	7.6%	8.8%	12.8%	13.7%	12.0%	8.9%	4.3%
Operating margin	4.0%	6.5%	5.6%	6.9%	10.7%	11.6%	9.9%	7.0%	2.6%
Net margin (pre-extra. items)	2.7%	5.4%	4.0%	5.3%	8.0%	6.9%	5.9%	4.4%	1.0%
Return on equity	3.4%	6.8%	11.5%	15.4%	22.6%	27.5%	29.1%	31.9%	8.8%

Boxed results under Canadian GAAP; (1) Excludes interest on non-recourse debt and earnings from concessions (which are financed partly with non-recourse debt; includes DBRS estimates).

(2) Excludes non-recourse debt (3) Adjusted to exclude cash flow or earnings (where applicable) from concessions (includes DBRS estimates) (4) Adjusted for operating leases

SNC-Lavalin Group Inc.

Report Date:
September 14, 2012

Rating

Debt	Rating	Rating Action	Trend
Senior Debentures	BBB (high)	Confirmed	Stable

Rating History

	Current	2011	2010	2009	2008	2007
Senior Debentures	BBB (high)	BBB (high)	BBB (high)	BBB (high)	BBB (high)	BBB (high)

Note:
All figures are in Canadian dollars unless otherwise noted.

STANDARD &POOR'S

Global Credit Portal®
RatingsDirect®

April 20, 2012

Research Update:

SNC-Lavalin Group Inc. Outlook Revised To Negative From Stable On Concerns About Competitive Position

Primary Credit Analyst:
Jatinder Mall, Toronto (1) 416-507-2544;jatinder_mall@standardandpoors.com

Secondary Contact:
Arthur C Wong, Toronto (1) 416-507-2561;arthur_wong@standardandpoors.com

Table Of Contents

Research Update:

SNC-Lavalin Group Inc. Outlook Revised To Negative From Stable On Concerns About Competitive Position

Overview

- Standard & Poor's is revising its outlook on SNC-Lavalin Group Inc. to negative from stable.
- At the same time, we are affirming our 'BBB+' long-term corporate credit rating on the company.
- The outlook revision reflects our concerns regarding a potential impact on the company's competitive position, which we have historically considered to be strong, following the company's disclosure of the results of an voluntary independent review regarding certain payments relating to projects.

Rating Action

On April 20, 2012, Standard & Poor's Ratings Services revised its outlook on SNC-Lavalin Group Inc. to negative from stable. At the same time, Standard & Poor's affirmed its 'BBB+' long-term corporate credit rating on the company.

The outlook revision reflects our concerns regarding a potential impact on SNC's competitive position, which we have historically considered to be strong, following the company's disclosure of the results of a voluntary independent review regarding certain payments relating to projects.

Rationale

We consider the company's business risk profile as satisfactory at present and supported by a proven track record of engineering and project financing capabilities in a variety of industry sectors and countries. However, as we have indicated above, we are uncertain of how recent events could affect SNC's reputation, but expect that there could be a potential impact on its competitive position.

As we understand, SNC and its peers in the engineering and construction (E&C) sector typically hire agents in various countries that have local expertise to assist with the completion of projects and procurement of supplies in these jurisdictions. The company has indicated that these agents are paid under "agency agreements" and although E&C companies do not typically provide detailed disclosure of payments to agents in the financial notes, we understand that these payments are generally included as part of operating expenses. According to the company, an internal accounting review recently

identified information with respect to agency agreements documented to construction projects to which they did not appear to relate. Payments related to these presumed agency agreements were reported to include payments in the amount of US$33.5 million and US$22.5 million. While SNC's board of directors has appeared to be proactive in dealing with this matter, having initiated a voluntary independent review and adopting measures recommended by the independent review committee, the company has also publicly stated that it could face potential sanctions. The result of a voluntary independent review led in part to the company reporting material weaknesses in its internal controls over financial reporting. On March 26, 2012, SNC reported the departure of its chief executive officer. The company has also announced that the World Bank has temporarily suspended the rights of a subsidiary to bid on new World Bank projects.

While the company's current backlog at C$10 billion is strong, in our opinion, we expect it could decline in the near-to-medium term as SNC is either unable to bid on contracts or loses contracts to competition. Furthermore, we expect operating margins (which have been higher relative to those of peers) could decline because SNC would likely have to bid more aggressively to win potential contracts. Historically, the company's strong competitive position has allowed it to acquire relatively higher value-added and low-risk service contracts and to avoid underbidding for the more price-competitive construction contracts.

The ratings are supported by what we consider SNC's earnings and operating margin stability resulting from its sectoral and geographic diversity, engineering focus, proportion of cost-plus business, and stable revenue in its infrastructure concession investments (ICIs). These attributes, we believe, have contributed to steady revenue growth and operating margin, in spite of the company's exposure to the cyclical and competitive E&C industry and its more volatile fixed-price business. We continue to view SNC's financial risk profile as intermediate, characterized by its low company-level debt and ample financial flexibility.

The sectoral diversity in SNC's E&C business has, in our view, reduced its overall volatility in its E&C earnings and operating margin. This is because demand for E&C activities in the resources-based sectors is driven by commodity price cycles, while demand in the power and infrastructure sectors is determined mainly by government spending. As these demand drivers are largely unrelated, weakness in an individual segment is often offset by strength in the others, resulting in SNC's relatively more stable overall EBITDA margin, which historically has averaged between 4.0%-7.0%, and was 6.5% in 2011. Given the reputational concerns for the company, we expect margins could be under pressure in 2012-2013. SNC's geographical diversity also helps reduce its exposure to economic conditions and risks in any particular country. The turmoil in Libya has led the company to remove nearly C$1 billion from its backlog. However, Libya only accounted for 7% of total revenues. Canada accounts for about 56% of revenues, followed by Africa at 16%, Europe at 9%, and the Middle East at 5%.

In our opinion, SNC's operating and maintenance contracts and the ICIs, which focus on sectors supported by regulated or contracted earnings under long-term concessions or contracts, add further diversification to the company's earning streams. These sectors include power and gas transmissions, toll roads, mass transit systems, and power generation. The company's key investments in ICI include 100% ownership of AltaLink L.P. (A-/Stable/--) and 407 International Inc. (A/Stable/--). As more ICIs are commissioned and become earnings accretive, we expect the importance of their operating income and equity value to increase over time.

Despite SNC's segmental diversity, we believe the company's business risk profile remains constrained by its participation in the cyclical and competitive E&C business and the lessening, but still significant, contribution from higher-risk, fixed-price contracts. Despite SNC's strong performance and delivery record, we believe that the company is still exposed to counterparty risks beyond its control. The possibility of cost overruns or underperformance by suppliers or subcontractors in fixed-price contracts, together with the company's E&C business' comparatively thin operating margins, imply that material problems in one particular project could have a material impact on SNC's overall profitability and business cash flow, as indicated in the problems the company faced with the Goreway project in 2007.

SNC's intermediate financial risk profile is characterized by low company-level debt and ample financial flexibility. Based on Standard & Poor's analytical framework, we don't consider total reported debt on a consolidated basis an appropriate indicator of the company's credit or default risk because all but C$350 million of its consolidated long-term debt is nonrecourse. The about C$1.9 billion in nonrecourse debt is related to AltaLink and 407 International Inc., both of which are rated investment-grade and have begun generating steady project cash flow to service their debt. Given their low default risk and SNC's stated policy of not providing financial support to service nonrecourse debt, we view the exclusion of this nonrecourse debt as a more appropriate approach in assessing the company's credit standing.

Standard & Poor's believes that SNC operates under conservative financial policies, which avoid the use of recourse debt to finance equity investments in ICIs, provide a modest dividend payment (as 25%-30% of net income), and maintain strong liquidity. Excluding the nonrecourse debt, SNC's financial measures are within our expectations for the rating level, with adjusted funds from operations to total debt of 63% and total debt to EBITDA of 2.1x as of Dec. 31, 2011. However, placing a constraint on our assessment of SNC's business risk profile is the company's free cash flow generation, which we view as weak compared with that of SNC's rated peers. The company uses much of its cash flow to support capex spending for its ICI investments, which have begun generating what we believe are highly stable cash flows. However, we do not believe this completely offsets the relative weakness of SNC's cash flow metrics.

Liquidity

SNC's liquidity is strong based on Standard & Poor's liquidity criteria. Company-level cash and cash equivalent (excluding consolidated ICIs) was about C$1.2 billion at Dec. 31, 2011. In addition, the company has about C$146 million available under its committed revolving credit facilities. All of these credit facilities are unsecured and subject to negative pledge clauses.

Other factors affecting our assessment of SNC's liquidity include:

- Our expectation that liquidity sources will exceed uses by at least 1.5x in the next one-to-two years;
- An expectation that liquidity sources will continue to exceed uses even if EBITDA declines by 30%;
- The company has well-established and solid relationships with banks, in our assessment, and generally high standing in credit markets; and
- The company's very prudent financial risk management, in our view.

SNC's debt maturity profile is favorable, with no significant debt maturities in the medium term. Standard & Poor's expects that the company would be able to derive additional financial flexibility from monetizing part of its ICIs, whose fair values SNC estimates to be significantly higher than reported book value, when required.

Outlook

The negative outlook reflects our concerns regarding a potential impact on the company's competitive position, which we have historically considered to be strong, following the company's disclosure of the results of a voluntary independent review regarding certain payments relating to projects. While we expect credit metrics to remain stable in 2012 given the existing backlog and stable earnings from the ICI business, we believe the backlog could decline in the near term. We could lower the rating if additional governance-related events further impact the company's competitive position or if leverage were to be above 2.5x on a sustained basis. We also believe that downward pressure on the rating could result from a material increase in the frequency of loss-making projects, the acquisition of what we consider higher risk operations, or significant diminution of SNC's liquidity. Given recent events, a positive rating action in the near term is unlikely.

Related Criteria And Research

- Project Diversity And Order Backlogs Help Most Engineering And Construction Firms Continue Their Slow Recovery, Feb. 9, 2012
- 2008 Corporate Criteria: Analytical Methodology, April 15, 2008

Ratings List

SNC-Lavalin Group Inc.

Outlook Revised To Negative

	To	From
Corporate credit rating	BBB+/Negative/--	BBB+/Stable/--

Rating Affirmed

Senior unsecured debt	BBB+

Complete ratings information is available to subscribers of RatingsDirect on the Global Credit Portal at www.globalcreditportal.com. All ratings affected by this rating action can be found on Standard & Poor's public Web site at www.standardandpoors.com. Use the Ratings search box located in the left column.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 8 – AltaLink, L.P. Credit Rating Reports

Appendix 8 – AltaLink, L.P. Credit Rating Reports

Rating Report

Report Date:
August 17, 2012

Previous Report:
May 22, 2012

DBRS
insight beyond the rating

AltaLink, L.P.

Analysts

James Jung, CFA, FRM, CMA
+1 416 597 7577
jjung@dbrs.com

Chenny Long
+1 416 597 7451
clong@dbrs.com

Andy Thi
+1 416 597 7337
athi@dbrs.com

The Partnership
AltaLink, L.P. is a regulated transmission utility in Alberta, serving approximately 85% of the province's population. It is wholly owned by AltaLink Investments, L.P. (AILP; rated BBB). AILP is indirectly owned by SNC-Lavalin Group Inc. (100%; rated BBB (high)).

Commercial Paper Limit
$400 million

Rating

Debt	Rating	Trend
Commercial Paper	R-1 (low)	Stable
Senior Secured Bonds and Medium-Term Notes (Secured)	A	Stable

Rating Update

The credit quality of AltaLink, L.P.'s (ALP or the Partnership) ratings are based on its low-risk regulated transmission business, a supportive regulatory environment in Alberta and the Partnership's adequate financial profile. ALP's regulated transmission business in Alberta accounts for 100% of total earnings and assets.

Regulation in Alberta has remained supportive for ALP. The Alberta Utilities Commission (AUC) is expected to continue to allow the Partnership to maintain adequate coverage, cash flow and leverage ratios, due to the Alberta government's commitment to meet the continued high growth of electricity consumption and renewable energy developments in the province without compromising reliability. This report assumes that ALP's transmission revenue base will continue to grow favourably to support a high level of capital expenditure (capex), which is expected to far exceed depreciation. Alberta's growth in electricity consumption exceeds average national electricity demand growth. The projected execution risk is expected to be manageable, despite escalating costs in Alberta, as the Partnership has a good track record of successfully completing large projects on time and within budget.

As a result of the ongoing high investment commitment, DBRS expects a temporary weakening of ALP's coverage and cash flow ratios in the 2012-2014 period. However, these ratios are expected to gradually recover when substantial capex projects are completed. For the six months ended June 30, 2012 (H1 2012), the Partnership spent $380 million on capex and generated a free cash flow deficit of $292 million funded through both debt issuances and equity injections from its indirect owner, SNC-Lavalin Group Inc. (SNC; rated BBB (high) with a Stable trend). DBRS expects the Partnership to continue to fund any significant cash flow deficits in a prudent manner. As a result, leverage is expected to remain relatively stable and better than the prescribed regulatory debt level of 63% on a longer-term basis. As liquidity requirements are expected to increase over the next few years, largely driven by capex, the ratings assume that the Partnership will increase credit facilities to maintain its financial flexibility.

Rating Considerations

Strengths
(1) Low business risk
(2) Adequate financial profile
(3) Supportive regulatory environment

Challenges
(1) High level of planned capital expenditure
(2) Project construction risk
(3) Significant external financing requirements

Financial Information

	IFRS	IFRS	IFRS	IFRS	IFRS	CGAAP	CGAAP	CGAAP
AltaLink, L.P.	6 mos. Jun. 30		12 mos. Jun. 30	For the year ended December 31				
(CA$ millions where applicable)	2012	2011	2012	2011	2010	2009	2008	2007
EBIT gross interest coverage (times)	2.46	2.09	2.67	2.51	2.31	1.94	1.84	1.78
Total debt in capital structure (1)	57.5%	57.2%	57.5%	57.2%	56.5%	54.7%	62.3%	62.3%
Cash flow/Total debt	13.2%	8.0%	13.9%	11.8%	13.5%	14.2%	13.9%	12.7%
(Cash flow-distributions)/Capex (times)	0.22	0.13	0.23	0.21	0.27	0.31	0.67	0.36
Net income before non-recurring items	48	35	105	92	73	53	40	38
Cash flow from operations	100	46	210	157	139	114	113	101

(1) Including operating leases.

AltaLink, L.P.

Report Date:
August 17, 2012

Rating Considerations

Strengths

(1) **Low business risk.** ALP's regulated transmission business accounts for 100% of consolidated earnings and assets. ALP has the ability to recover all prudently incurred operating costs (subject to forecasting risk) and approved capital project costs within a reasonable time frame, which is typical under a cost-of-service framework.

(2) **Adequate financial profile.** ALP's current financial profile remains adequate, given its level of operating business risk. This is despite increased free cash flow deficits caused by its elevated capital expenditure program, which is expected to continue over the medium term. Credit metrics (for the 12 months ended June 30, 2012) remain reasonable for the ratings, with a debt-to-capital ratio of 57.5%, EBIT gross interest coverage of 2.67 times and cash flow-to-total debt ratio of 13.9%.

(3) **Supportive regulatory environment.** Political and regulatory risk associated with future transmission revenue increases is relatively low due to: (a) government commitment to meet demand growth without compromising reliability; (b) the expected minimal impact of ALP's future revenue growth on consumer bills (transmission costs account for only approximately 10% of total electricity cost); and (c) ALP's low operating costs relative to its peers.

Challenges

(1) **High level of planned capital expenditure.** Potential significant capex is expected to put pressure on ALP's financial and credit profile in the near to medium term. In order to preserve the credit profile of the Partnership, the AUC approved significant credit relief measures proposed by ALP in 2011, including the continuation of the future income tax method used in the calculation of the federal component of income taxes (rather than the flow-through income tax method) and the approval of construction work in progress (CWIP) in rate base for AESO assigned projects.

(2) **Project construction risk.** The Partnership is or will be subject to construction risk over the medium term. ALP is or will be required to demonstrate the ability to manage construction risks, including cost overruns, construction delays and refinancing of debt, during the build-out period. DBRS notes that ALP is experienced in managing projects of this nature and is focused on mitigating the risk of cost overruns.

(3) **Significant external funding requirements.** Significant external funding is required to finance the potentially sizable free cash flow deficits expected over the near to medium term. ALP is committed to financing the deficits through debt issuances and equity injections from its owner, depending on the timing and scale of the projects. Maintaining adequate access to the public debt markets (term and commercial paper) is critical to the Partnership during this key build-out phase. DBRS believes the owner has the financial capability and the commitment to fund the equity portion of ALP's projects.

AltaLink, L.P.

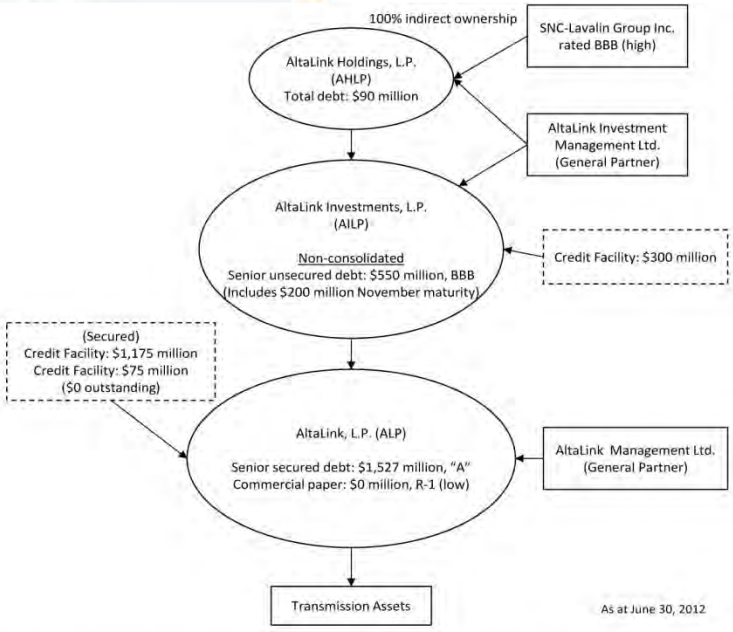
Report Date:
August 17, 2012

Major Projects (Potential and Under Construction)

- **Heartland Region (Heartland):** ALP's share of the estimated cost is approximately $400 million. The facilities application was approved on November 1, 2011, and the project is currently under construction. The project is expected to be completed in late 2013.
- **Southern Alberta Transmission Reinforcement Project:** The AUC approved the Alberta Electric System Operator's (AESO) Need Application for the Southern Alberta Transmission Reinforcement project, which would connect planned wind-generation facilities in southern Alberta over the next ten years. This project will be constructed in stages, with Stage 1 and Stage 2 estimated to cost $2.5 billion. AltaLink is currently under construction on elements of Stage 1.
- **Western Alberta Transmission Line:** This is a high-voltage direct current transmission line estimated to cost approximately $1.4 billion. The majority of capex is expected to be spent in 2013 and 2014.

Project	Transmission Line (Kilometres)	ALP's Estimated Cost ($ millions)	Spent as of June 30, 2012 ($ millions)	In-Service Target Date
Heartland Region	88	400	88	Late 2013
Southern Alberta Transmission Reinforcement Project	Approximately 545 km across multiple projects	2,500	461	Staged 2014 to 2016
Western Alberta Transmission Line	350	1,400	92	2015

Organizational Chart



- The following legal and regulatory ring-fencing conditions are considered positive factors in assessing the ALP credit:
  - No downward-flowing cross-default between ALP and AILP, which wholly owns ALP.
  - No additional indebtedness shall be issued at ALP if it is reasonable to anticipate that new debt issuance would result in actual debt in the regulated entity being higher than deemed debt in the capital structure.

AltaLink, L.P.

Report Date:
August 17, 2012

Earnings and Outlook

(CA$ millions where applicable)	IFRS 6 mos. Jun. 30 2012	IFRS 6 mos. Jun. 30 2011	IFRS 12 mos. Jun. 30 2012	IFRS 2011	IFRS 2010	CGAAP 2009	CGAAP 2008	CGAAP 2007
				For the year ended December 31				
Net sales	189	161	394	366	318	251	231	210
EBITDA	130	102	275	247	207	162	153	140
EBIT	81	61	174	154	120	83	78	72
Gross interest expense	33	29	65	61	52	43	42	41
Earning before taxes	48	35	105	92	73	53	40	38
Net income before non-recurring items	48	35	105	92	73	53	40	38
Reported net income	49	34	100	86	67	57	41	38
Return on equity	9.0%	8.4%	10.4%	10.1%	9.8%	8.9%	8.0%	8.2%

2011 Summary

- Net income before non-recurring items has continued to improve over the past five years, primarily due to ALP's increased regulatory asset base, driven by high ongoing capex spending.

2012 Outlook

- Net income before non-recurring items increased to $48 million in H1 2012 from $35 million in H1 2011. The increase was primarily due to a higher asset base that was driven by the increase in investments to expand and reinforce the reliability of the transmission system.
- Net income before non-recurring items for fiscal 2012 is expected to be higher than in 2011, due to continued growth in rate base.
- ALP's net income before non-recurring items is expected to continue to increase as proposed capital projects are added to the rate base.

AltaLink, L.P.

Report Date:
August 17, 2012

Financial Profile

(CA$ millions where applicable)	IFRS 6 mos. Jun. 30 2012	IFRS 6 mos. Jun. 30 2011	IFRS 12 mos. Jun. 30 2012	IFRS 2011	IFRS 2010	CGAAP 2009	CGAAP 2008	CGAAP 2007
				For the year ended December 31				
Net income before non-recurring items	48	35	105	92	73	53	40	38
Depreciation & amortization	49	41	101	93	87	79	72	65
Deferred income taxes and other	3	(30)	5	(28)	(21)	(17)	2	(2)
Cash flow from operations	100	46	210	157	139	114	113	101
Distributions	(18)	(16)	(33)	(31)	(28)	(23)	(22)	(22)
Capital expenditures	(380)	(231)	(760)	(611)	(413)	(294)	(136)	(218)
Free cash flow (bef. working cap. changes)	(298)	(200)	(583)	(485)	(302)	(202)	(45)	(139)
Changes in non-cash work. cap. items	5	27	29	51	(8)	82	20	(7)
Net Free Cash Flow	(292)	(173)	(554)	(435)	(310)	(121)	(25)	(145)
Acquisitions & long-term investments	0	0	0	0	0	0	0	0
Short-term investments	0	0	0	0	0	0	0	0
Proceeds on asset sales	3	0	3	1	0	4	1	0
Net equity change	100	45	200	145	89	141	0	45
Net debt change	196	116	374	294	227	(14)	24	101
Other	(2)	0	(4)	(2)	(3)	(1)	(0)	(1)
Change in cash	4	(13)	19	3	4	8	0	(0)
Total debt	1,518	1,146	1,518	1,323	1,030	804	819	794
Cash and equivalents	19	0	19	15	13	8	0	0
Total debt in capital structure	57.1%	56.8%	57.1%	56.7%	56.0%	54.1%	61.7%	61.9%
Total debt in capital structure (1)	57.5%	57.2%	57.5%	57.2%	56.5%	54.7%	62.3%	62.3%
Cash flow/Total debt	13.2%	8.0%	13.9%	11.8%	13.5%	14.2%	13.9%	12.7%
Cash flow/Total debt (1)	12.9%	7.9%	13.6%	11.6%	13.2%	13.9%	13.5%	12.5%
EBIT gross interest coverage (times)	2.46	2.09	2.67	2.51	2.31	1.94	1.84	1.78
EBIT gross interest coverage (times) (1)	2.48	2.10	2.68	2.52	2.33	1.97	1.88	1.80
Distribution payout ratio	36.8%	43.9%	31.8%	33.8%	38.2%	43.3%	55.1%	57.6%

(1) Including operating leases.

2011 Summary

- Cash flow from operations is strong and has improved over time due to the increase in rate base. However, the continued significant capex program has resulted in free cash flow deficits over the past five years.
- High capex mainly stemmed from the expansion and improvement of the transmission network, which is necessary to meet customer growth in the province and interconnect renewable energy developments.
- Distributions have increased modestly over the past four years. However, the Partnership's distribution payout ratio has decreased significantly over the past five years as a result of higher earnings.
- ALP has financed cash flow deficits with a combination of incremental debt issuances and equity injections from the parent, as such reducing its debt-to-capital ratio from 62% in 2008 to 57% in 2011.

2012 Outlook

- In H1 2012, cash flow from operations increased to $100 million from $46 million in H1 2011 due principally to higher rate base. However, free cash flow decreased significantly as a result of higher capex. This was mainly funded through debt issuances and equity injections from its parent. As a result, credit metrics remained relatively stable.
- Cash flow from operations is expected to continue to grow over the medium to long term, predominately driven by growth in the regulatory asset base, as well as the inclusion of CWIP in rate base for AESO assigned projects.
- ALP's proposed capital expenditure program is expected to remain high in the near to medium term and will likely result in significant free cash flow deficits during the build-out period; these deficits are expected to be financed with debt and timely equity injections from the parent.
- According to ALP's 2013-2014 GTA, total long-term debt issuance in 2012 is forecasted to be approximately $575 million, $300 million of which was issued in June 2012.
- ALP's management remains committed to targeting a lower debt-to-capital ratio than the prescribed regulatory level (63%) on a longer-term basis.

AltaLink, L.P.

Report Date:
August 17, 2012

Long-Term Debt Maturities and Bank Lines

Long-Term Debt	Coupon	Maturity	Total
Series 03-2	5.43	2013	325
Series 2006-1	5.25	2036	150
Series 2008-1	5.24	2018	202
Series 2010-1	5.38	2040	125
Series 2010-2	4.87	2040	150
Series 2011-1	4.46	2041	275
Series 2012-1	3.99	2042	300
			1,527
Less: current portion			(325)
Less: deferred financing fees			(9)
Long-term debt			**1,193**

As of June 30, 2012

Repayment Schedule	
Maturity	CA$ millions
2013	325
2014	-
2015	-
2016	-
2017	-
2018 and thereafter	1,200
Total	1,525

Credit Facility

(CA$ millions)	Committed	Drawn/LCs/CP	Avail.	Maturity*
CP back-up facility (secured)	$ 1,175	0	1,175	Dec-13
Operating Credit Facility (secured)	$ 75	0	75	Dec-13
Total	$ 1,250	0	1,250	

* Including term-out options

Summary

- In anticipation of its proposed capital build-out, ALP extended its commercial paper backup facility to December 28, 2013, and increased it to $1,175 million in Q2 2012 from $850 million in Q1 2012. This facility backstops its $400 million commercial paper program ($0 million outstanding as at June 30, 2012).
- The operating credit facility was also increased to $75 million in Q2 2012 from $50 million in Q1 2012.
- In January 2012, ALP repaid the $85 million Series 3 subordinated 8% debenture from AILP.
- On June 29, 2012, the Partnership issued $300 million of Secured Series 2012-1 medium-term notes under its $1.3 billion Short Form Base Shelf Prospectus ($725 million of total issuances under the prospectus as at June 30, 2012).
- Liquidity requirements are expected to increase over the next few years to accommodate higher capital expenditures, working capital requirements and maturing long-term debt.
- ALP's continued access to the capital markets through its commercial paper program and medium-term note program is critical during this build-out period.

AltaLink, L.P.

Report Date:
August 17, 2012

Regulation

- ALP is a regulated electric utility under the jurisdiction of the AUC.
- ALP provides transmission services to the AESO, which provides transmission access to, and receives tariffs from, transmission users.
- Over 90% of ALP's revenues are from the AESO, significantly reducing counterparty risk since the AESO is established and supported by the Government of Alberta.
- Under the cost-of-service methodology, ALP is provided a reasonable opportunity to recover its forecast costs, including operating expenses, depreciation, costs of debt and taxes.
- ALP faces the risk of not recovering forecast operating expenses, if actual expenses exceed forecast expenses, but this risk is considered manageable by DBRS.
- ALP has no exposure to either commodity price risk or volume risk.
- ALP filed an application with the AUC on July 30, 2012 requesting approval of its 2013-2014 General Tariff Application.

2011-2013 General Tariff Application Summary

- In November 2011, the AUC issued Decision 2011-453 on ALP's 2011-2013 General Tariff Application (GTA), which was generally positive. However, the AUC only approved the revenue requirement for 2011 and 2012, stating that it was unwilling to approve the 2013 application due to the magnitude and uncertainty of the forecast revenue requirement, largely driven by proposed capex.
- The AUC approved the continuation of the future income tax method (rather than the flow-through income tax method) in the calculation of deemed federal income taxes and the approval of CWIP in rate base for all direct assigned capital projects. The AUC stated that these two measures should have a positive impact in supporting ALP's credit metrics during the forecast capital build-out.
- In a 2011 Generic Cost of Capital decision, the AUC increased ALP's equity thickness from 36% to 37% and set the generic ROE for 2011 and 2012 at 8.75%, down from 9.00%.

2013-2014 General Tariff Application Summary

- ALP requested approval of its forecasted revenue requirements of $500.5 million for 2013 and $655.5 million for 2014.
- ALP requested approval for the continued use of the Future Income Tax (FIT) method to calculate the federal component of income taxes included in ALP's revenue requirement and to begin using this method to calculate the provincial component of taxes included in ALP's revenue requirement.
- The Company requested the continued use of CWIP in rate base in respect of all AESO direct assigned projects and the approval of a temporary increase of 2% in the deemed common equity ratio to 39% for 2013 and 2014.

AltaLink, L.P.

Report Date:
August 17, 2012

Balance Sheet and Financial Ratios

AltaLink, L.P.

Balance Sheet (CA$ millions)	IFRS Jun. 30 2012	IFRS Dec. 31 2011	IFRS Dec. 31 2010		IFRS Jun. 30 2012	IFRS Dec. 31 2011	IFRS Dec. 31 2010
Assets				**Liabilities & Equity**			
Cash & equivalents	19	15	13	S.T. borrowings	0	19	0
Accounts receivable	62	41	32	Accounts payable	191	192	124
Prepaid expenses & other	24	34	13	Current portion L.T.D.	325	85	0
				Other current liab.	50	40	24
Total Current Assets	105	90	57	**Total Current Liab.**	566	336	148
Net fixed assets	2,978	2,638	2,073	Long-term debt	1,193	1,219	1,030
Goodwill & intangibles	338	307	287	Other L.T. liab.	648	593	499
Investments & others	125	121	69	Shareholders' equity	1,139	1,009	809
Total Assets	3,546	3,157	2,486	**Total Liab. & SE**	3,546	3,157	2,486

Balance Sheet & Liquidity & Capital Ratios	IFRS 6 mos. Jun. 30 2012	IFRS 6 mos. Jun. 30 2011	IFRS 12 mos. Jun. 30 2012	IFRS For the year ended December 31 2011	IFRS 2010	CGAAP 2009	CGAAP 2008	CGAAP 2007
Current ratio	0.19	0.18	0.19	0.27	0.39	0.23	0.42	0.27
Total debt in capital structure	57.1%	56.8%	57.1%	56.7%	56.0%	54.1%	61.7%	61.9%
Total debt in capital structure (1)	57.5%	57.2%	57.5%	57.2%	56.5%	54.7%	62.3%	62.3%
Cash flow/Total debt	13.2%	8.0%	13.9%	11.8%	13.5%	14.2%	13.9%	12.7%
Cash flow/Total debt (1)	12.9%	7.9%	13.6%	11.6%	13.2%	13.9%	13.5%	12.5%
(Cash flow-distributions)/Capex (times)	0.22	0.13	0.23	0.21	0.27	0.31	0.67	0.36
Distribution payout ratio	36.8%	43.9%	31.8%	33.8%	38.2%	43.3%	55.1%	57.6%
Coverage Ratios (times)								
EBIT gross interest coverage	2.46	2.09	2.67	2.51	2.31	1.94	1.84	1.78
EBITDA gross interest coverage	3.93	3.48	4.22	4.02	3.99	3.79	3.60	3.44
Fixed-charges coverage	2.44	2.06	2.65	2.48	2.28	2.06	1.86	1.82
EBIT gross interest coverage (1)	2.48	2.10	2.68	2.52	2.33	1.97	1.88	1.80
Profitability Ratios								
EBITDA margin	68.7%	63.5%	69.8%	67.6%	65.0%	64.7%	66.2%	66.7%
EBIT margin	43.0%	38.1%	44.2%	42.1%	37.7%	33.2%	33.9%	34.4%
Profit margin	25.4%	22.0%	26.5%	25.1%	23.0%	21.0%	17.3%	17.8%
Return on equity	9.0%	8.4%	10.4%	10.1%	9.8%	8.9%	8.0%	8.2%
Return on capital	6.4%	6.2%	7.3%	7.2%	7.0%	6.2%	6.0%	6.1%

(1) Including operating leases.

AltaLink, L.P.

Report Date:
August 17, 2012

Ratings

Debt Rated	Rating	Trend
Commercial Paper	R-1 (low)	Stable
Senior Secured Bonds and Medium-Term Notes (Secured)	A	Stable

Rating History

Debt Rated	Current	2011	2010	2009	2008
Commercial Paper	R-1 (low)	R-1 (low)	R-1 (low)	R-1 (low)	R-1 (low)
Senior Secured Bonds and Medium-Term Notes (Secured)	A	A	A	A	A

Note:
All figures are in Canadian dollars unless otherwise noted.

STANDARD &POOR'S

Global Credit Portal®
RatingsDirect®

June 15, 2012

AltaLink L.P.

Primary Credit Analyst:
Gavin MacFarlane, Toronto (1) 416-507-2545; gavin_macfarlane@standardandpoors.com

Secondary Contact:
Dylan Singh, Toronto; dylan_singh@standardandpoors.com

Table Of Contents

AltaLink L.P.

Major Rating Factors

Strengths:

- Supportive regulation and favorable market framework
- Predictable cash flow
- Monopoly electricity transmission assets

Weaknesses:

- Weak credit metrics
- Large, ongoing capital program
- Large equity requirements

Corporate Credit Rating
A-/Stable/--

Rationale

The ratings on Alberta based AltaLink L.P. (AltaLink or ALP) reflect Standard & Poor's Ratings Services' opinion of the company's excellent business risk profile and significant financial risk profile. In our view, supportive regulation, predictable cash flows and monopoly electricity transmission assets, with a favorable market framework for transmission companies in the Province of Alberta (AAA/Stable/A-1+) support the ratings. We believe AltaLink's weak credit metrics for the ratings, a large capital program, and large equity requirements from the ultimate owner offset these strengths.

AltaLink is a regulated transmission company wholly owned by AltaLink Investments L.P. (AILP; BBB-/Stable/--). Legal and structural ring-fencing measures permit the ratings on AltaLink to be separated somewhat from those on its parent, but the ratings remain linked. We believe these measures and regulatory oversight restrict AILP's ability to significantly increase cash distributions from AltaLink, and, in the event of an AILP default, provide a significant measure of protection to the operating company. Our ratings methodology begins with a notional consolidated credit quality assessment of 'bbb' at AILP. Based on the strength of the ring-fencing measures neither rating can be more than 1-2 notches from the notional consolidated credit quality assessment, and the ratings on AILP and ALP cannot be separated by more than one rating category (three notches). A change in the ring-fencing measures could reduce the ratings separation, but we expect the ratings to remain separated by one rating category. The ratings on ALP and AILP must also be consistent with their stand-alone credit quality. In our view, therefore, a material change in the risk profile of AltaLink, AILP, or AILP on a notional consolidated basis would affect the ratings on both entities. As of March 31, 2012, ALP reported about C$1.4 billion of debt outstanding.

Ongoing supportive regulation is the key influence on the ratings. Key features of the regulatory environment include the long established approach to regulation that uses a cost-of-service methodology that allows full cost recovery with negligible disallowances. AltaLink is not exposed to volume or commodity price risk. The market framework eliminates the company's direct exposure to the credit profile of end use customers since the Alberta Electric System Operator, an agent of the Province of Alberta (AAA/Stable/A-1+), pays ALP its approved annual regulated revenue requirement in equal monthly installments.

We believe AltaLink's credit profile continues to benefit from the company's position as a low-risk, monopoly

service provider with what we expect is very limited bypass risk.

We expect cash flows to remain stable. Funds from operations (FFO) consist primarily of two components: the return on equity (ROE) and depreciation. The nominal return on equity is determined by multiplying the rate base by the equity thickness (37%) and the 8.75% ROE. The regulator establishes and reviews periodically both the equity thickness and ROE. For tax purposes, the company receives stand-alone treatment from the regulator, allowing the company to collect income tax in its revenue requirement. Given its organizational structure as a limited partnership, AltaLink does not pay tax but its owners do. We expect the company to effectively manage its balance sheet during the period of rapid growth.

Forecast credit metrics have limited headroom at the current ratings. Forecast credit metrics for 2012 are 11%-12% adjusted funds from operations (AFFO)-to-debt, but drop to about 10% in 2013. The downward pressure is primarily the result of large amounts of capital spending, in particular higher levels of construction work in progress (CWIP) in the rate base. We have assumed gross capex of C$900 million-C$950 million in 2012 and C$1.4 billion-C$1.8 billion in 2013. We base our lower capital assumption on historical precedent. Beyond 2013, credit metrics improve somewhat, because large CWIP balances have a more moderate effect on credit metrics.

The large capital program could increase the rate base threefold by 2017. This is placing additional pressure on credit metrics and has led to additional regulatory support. In the most recent General Tariff Application (GTA) decision, the regulator provided additional support to credit metrics by providing CWIP in the rate base and favorable tax support. CWIP in the rate base allows AltaLink to earn a cash return on most of its rate-base investments before project completion. The decision also allows ALP to continue to recover federal taxes using the FIT method, which increases the taxes it includes in its revenue requirement. While CWIP in the rate base provides significant cash flow support, the company will only begin to collect depreciation as projects are completed.

The ratings on AltaLink rely heavily on ultimate unitholder SNC-Lavalin Group Inc.'s (BBB+/Negative/--) continued willingness and ability to inject cash equity into AILP in a timely manner. The large capital program will require significant equity investments from SNC-Lavalin to maintain its deemed regulatory capital structure (37% equity). The total equity requirement from the unitholder could reach C$700 million-C$800 million in the next five years. Given this reliance on the ultimate owner, a decline in our ratings on SNC-Lavalin below the notional consolidated credit quality assessment of AILP would likely affect the ratings on both AILP and ALP.

Key assumptions we have incorporated into our ratings include the following:

- We include in our forecasts regulatory approval of both ongoing CWIP in the rate base and the FIT method of tax calculation for the period of high growth.
- SNC-Lavalin's credit strength will not deteriorate significantly and it continues to provide equity injections on a timely basis and AltaLink's leverage remains in line with the deemed regulatory structure. We also assume the partnership continues to 100% equity-fund goodwill on the balance sheet.
- The company will continue collecting income tax in its revenue requirement but does not pay taxes at ALP or AILP.
- Allowed depreciation rates will remain steady.
- The allowed ROE and deemed equity content the regulator uses to determine ALP's revenue requirement will remain about in line with current levels to support credit metrics, and we expect the partnership to continue to earn its allowed ROE or better.

Liquidity

We believe ALP has "adequate" liquidity as per our criteria. Our assessment incorporates the following expectations and assumptions:

- We expect the company's sources of liquidity, including available capacity on its committed credit lines, to exceed its uses more than 1.2x.
- We expect sources to remain positive, even in the unlikely scenario that EBITDA declines more than 15%.
- We expect AltaLink to continue to have sound relationships with its banks, satisfactory standing in credit markets and maintain its prudent approach to financial risk management.
- The company has no debt maturities within the next 12 months, with the next maturity of C$325 million due in June 2013.

Liquidity sources include about C$900 million of committed credit facilities, of which about C$725 million was available at March 31, 2012; FFO of about C$200 million; and equity injections from the parent (which have a track record of being provided quarterly) that we expect to increase commensurate with the level of growth in the capital program. Uses of liquidity consist primarily of capital expenditure, which we estimate at C$800 million-C$850 million (net of customer contributions).

Outlook

The stable outlook reflects our expectation of timely equity injections from AltaLink's ultimate unit-holder SNC-Lavalin sufficient to maintain the deemed regulatory structure. Any change in SNC-Lavalin's ability or willingness to provide equity injections could result in a negative rating action. Given this reliance on the ultimate owner, a decline in our ratings on SNC-Lavalin below 'BBB' could affect the ratings on both AILP and ALP. While we don't expect it, if we forecast credit metrics below the 10% AFFO-to-debt threshold we associate with the ratings during the period of high capital spending, we could take a negative rating action. An unfavorable regulatory decision negatively affecting AltaLink's business risk profile would also negatively affect the rating. We believe a positive rating action is highly unlikely given the company's weak credit metrics, large capital program, and ownership structure.

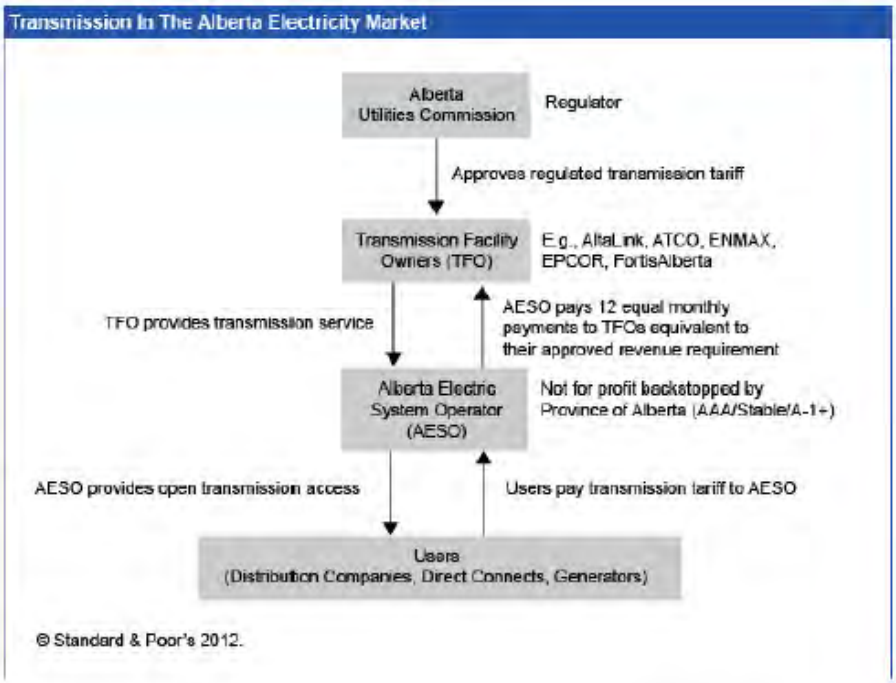
Ownership Structure

AltaLink is wholly owned by AILP. It is in turn ultimately owned by SNC-Lavalin, which has a 100% ownership interest.

SNC-Lavalin's exclusive 10-year engineering, procurement, and construction contract with AltaLink expired in April 2012 and has been replaced with a five-year nonexclusive contract with SNC-Lavalin and another contractor. We believe that SNC-Lavalin's support of AltaLink is independent of the contract.

Business Description

AltaLink is a transmission facility owner. The company owns, is responsible for, and constructs transmission assets within its service area in Alberta (see chart).



AltaLink's assets consist of approximately 12,000 kilometers (km) in high-voltage transmission lines and 280 substations, serving 85% of Alberta's population and covering about 212,000 square km. The company's assets also include right-of-way corridors, easement rights, and a telecommunications and control center system that it uses solely for transmission operations.

Rating Methodology: Ring Fencing Insulates AltaLink

AILP's ultimate unitholder SNC-Lavalin has taken steps to substantially insulate AltaLink from changes in the financial health of its weaker parent. The steps include:

- A structure at AltaLink that reflects a single-purpose entity;
- Covenants that restrict the company's activities to electricity transmission within Alberta;
- An independent trustee;
- A requirement for AltaLink to maintain its own accounting system, separate from AILP;
- A debt covenant package that includes a negative pledge and the absence of cross-default or acceleration rights between AltaLink and AILP;
- The pledging of AltaLink's assets to its bondholders; and
- A nonconsolidation legal opinion regarding the likelihood of the parent's creditors gaining access to the company's assets in a bankruptcy situation.

Excellent Business Risk Profile

Profitability: Returns are generally predictable

Despite modest ROEs, we expect net income to increase significantly during the next five years due to AltaLink's expanding rate base. We expect long-term returns to be generally predictable given supportive cost-of-service regulation and relatively low risk operations.

Annual profitability is not exposed to volume or price risk. It is primarily a function of the rate base size, deemed equity layer and the allowed ROE. The AUC, in its December 2011 generic cost of capital (GCOC) decision, approved a relatively low allowed return (8.75%) on a deemed equity layer of 37% for 2011 and 2012. AltaLink had received in its GTA an ROE of 9% and equity layer of 36%, however ROE's for the sector were lowered in the GCOC. To offset the lower ROE, the GCOC gave AltaLink a slightly higher equity layer so that it could earn an amount consistent with its last GTA decision.

Enhancing profitability are income taxes that the company collects in its revenue requirement but does not pay at the operating company (AltaLink) level. For tax purposes, the company receives stand-alone treatment from the regulator, allowing it to collect income tax in its revenue requirement. Given its organizational structure as a limited partnership, AltaLink does not pay tax, but its owners do.

Management can apply to recoup unexpected operating costs deemed outside its control (for instance, high-impact and low-probability weather events).

Regulation supports stable cash flows

The regulatory regime governing the company's transmission operations supports stable cash flows. The AUC regulates AltaLink's transmission assets on a traditional cost-of-service methodology. The company receives a return on capital employed based on a deemed capital structure. Supporting credit quality is a regulatory framework that provides the company with 12 equal monthly payments for its services, removing any monthly revenue volatility due to weather or electricity consumption patterns. Its revenue counterparty is a government agency, which greatly reduces credit risk.

The AUC's regulatory regime is transparent and generally consistent in its application of cost-of-service regulation to transmission operators in the province. Regulatory lag continues to be a concern. Further supporting the ratings is a level of regulatory oversight that requires AltaLink to seek approval for most material transactions, including issuance of debt or equity, material change in ownership, or disposal of significant assets.

The company's revenue requirement is based on a relatively low allowed ROE compared with those of global peers, but consistent with the AUC's GCOC decision. A July 2004 ruling provided for annual formula-driven adjustments to AltaLink's ROE until 2009. The AUC's generic, annual-adjustment mechanism was valid within a 7.6%-11.6% range. The regulator assigned a 9.00% allowed ROE in 2009-2010 and 8.75% in 2011-2012 while considering its approach to setting ROE. It remains unclear if the next review will result in the reintroduction of a formula based approach to ROE.

As expected, the November 2011 GTA decision allows AltaLink to include CWIP in the rate base for the majority of its capital spending in 2011-2012. Since the revenue requirement is based on forward-looking information, putting

CWIP in the rate base facilitates recovering the cost of capital in cash each year on almost all forecast construction spending, no matter whether the project is completed in that year. This significantly reduces the impact of large capital projects with long construction periods on cash-based credit metrics. However the company does not collect a cash depreciation allowance on CWIP in the rate base until projects are complete and move into the base. This produces some downward pressure on credit metrics. In general, Canadian regulation includes an allowance for funds used during construction (equity and debt) that does not allow for cash recovery of the cost of capital during the construction period. AltaLink recovers related cash during the asset's life but recovery begins only after the project is completed.

Also in the decision, the company continues to receive ongoing stand-alone treatment (see Profitability section).

Performance-based regulation is coming to Alberta, but it is too early to tell what impact, if any, it will have on credit quality. To the extent that this regulation increases the volatility of cash flows, it increases the overall risk profile. Performance-based regulation will first be introduced to distribution companies.

Markets: Operations in Canada's wealthiest province

Alberta is the wealthiest province in Canada, with the highest per capita income and the lowest overall personal and business tax burden. The energy sector's solid performance has allowed the provincial economy to frequently outperform the Canadian economy in the past five years. The international prices of its main traded goods, such as crude oil, natural gas, petrochemicals, and agricultural and food products greatly influence Alberta's export-oriented economy, however. We expect long-term growth in the province's electricity consumption to average about 3% per year, illustrating the need for major transmission infrastructure investment.

Operations: Transmission growth is key

Alberta has previously identified several large critical transmission upgrades required to support long-term provincial growth Furthermore, the AESO has identified more than 50 regional projects. Accordingly, we believe AltaLink will continue its period of major asset-base growth. Subject to regulatory approval, in the period ending in 2017, expenditures could increase the company's rate base threefold. A key credit risk related to the building is cost disallowances on projects that are completed over budget. However, the regulator has historically allowed recovery of cost overruns, subject to a prudency test. To our knowledge, their have been no material cost disallowances. We do not view delays in project approval as a credit risk, given that their do not appear to be any material penalties for project delays.

Competitiveness: Natural monopoly position

The AESO's system planning responsibility and the AUC's regulatory oversight mitigate the risk of stranding AltaLink's assets, in our view. Exposing the company to stranded asset risk would weaken its business risk profile, and be a departure from what we view as a relatively low-risk environment for regulated utilities in Alberta.

Competitors can pursue dedicated merchant transmission lines for export from or import to the province, but these lines must gain regulatory approval from the AUC before construction.

Alberta transmission legislation, which took effect in August 2004, supports AltaLink's natural monopoly position. The company does not need to compete for new, noncritical infrastructure developments within its own service area. The AESO generally defines the need for new transmission investment within the province. Once it has identified a need for new delivery capability, it applies to the AUC for need approval and the necessary expansion of the

infrastructure is direct-assigned to the appropriate TFO. The regulator preapproves capital investments and the transmission company then incorporates them into its regulated rate base once they are in service.

The Electric Statutes Amendment Act of 2009 established the need for certain critical transmission infrastructure (CTI) projects. Legislation establishes the need for facilities designated as CTI and they no longer require AUC approval. The facility application process, which includes the AUC's siting and environmental review, is unchanged for CTI.

Competition for new projects may be introduced in the next few years. The government has affirmed its desire to implement competition for a future large capital program; however obstacles remain. The AUC ruled that the AESO's proposed competitive process required improvement in several areas. None of AltaLink's projects under development or seeking approval are affected. A competitive bid project has the potential to increase credit risk, although it is premature to conclude what impact, if any, this might have on our analysis.

Significant Financial Risk Profile

Accounting

AltaLink prepares its audited financial statements in accordance with International Financial Reporting Standards. Before Jan. 1, 2011, the company prepared its financial statements in accordance with Canadian generally accepted accounting principles.

AltaLink's balance sheet lists about C$3.2 billion in assets as of Dec 31, 2011. Approximately C$200 million of this is goodwill relating to its purchase several years ago. We expect goodwill to become less important in the long term as the company's rate base increases.

Table 1

Reconciliation Of AltaLink L.P. Reported Amounts With Standard & Poor's Adjusted Amounts (Mil. C$)

	--Fiscal year ended Dec. 31, 2011--								
AltaLink L.P. reported amounts	**Debt**	**Shareholders' equity**	**Revenues**	**EBITDA**	**Operating income**	**Interest expense**	**Cash flow from operations**	**Cash flow from operations**	**Dividends paid**
Reported	1,323.2	1,008.6	365.6	247.2	154.1	62.4	159.9	159.9	31.0
Standard & Poor's adjustments									
Operating leases	30.8	N/A	N/A	1.5	1.5	1.5	2.5	2.5	N/A
Postretirement benefit obligations	2.6	0.3	N/A	0.1	0.1	0.1	(0.1)	(0.1)	N/A
Capitalized interest	N/A	N/A	N/A	N/A	N/A	0.8	(0.8)	(0.8)	N/A
Reverse changes in working-capital	N/A	N/A	N/A	N/A	N/A	N/A	N/A	14.5	N/A
Debt--accrued interest not included in reported debt	10.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total adjustments	43.6	0.3	0.0	1.7	1.7	2.4	1.5	16.1	0.0
Standard & Poor's adjusted amounts	**Debt**	**Equity**	**Revenues**	**EBITDA**	**EBIT**	**Interest expense**	**Cash flow from operations**	**Funds from operations**	**Dividends paid**
Adjusted	1,366.8	1,009.0	365.6	248.8	155.7	64.7	161.5	176.0	31.0

N/A--Not applicable.

Significant financial policy

AltaLink's financial risk profile is broadly in line with those of other transmission companies in Canada, because it targets to maintain total debt-to-total capital at a lower level than the regulator-deemed capital structure of 63%. The lower level is attributable to management targeting a reported debt-to-capital ratio consistent with the regulatory deemed capital structure after accounting for C$200 million of goodwill which is financed with 100% equity. As the rate base increases, the impact of the C$200 million on capital structure ratios will diminish.

Cash flow adequacy

Funds from operations consist primarily of two components: the return on equity and depreciation. To a lesser extent, the company collects income taxes but does not pay them, given its organizational structure as a limited partnership (its owners are responsible for that). As a result, key credit metric sensitivities are those that influence material movements in these items or the level of debt AltaLink issues. We expect the company to effectively manage its balance sheet during the period of rapid growth.

Given that essentially all of AltaLink's cash flows and payment obligations are in Canadian currency, its foreign exchange exposure is immaterial. The company has no direct exposure to energy commodity prices. The regulatory compact largely offsets interest-rate exposure because the cost of debt is generally included as part of AltaLink's regulated cost of service.

Table 2

AltaLink L.P.--Peer Comparison

Industry Sector: Electric Utility

(Mil. C$)	AltaLink L.P.	AltaLink Investments L.P.	Hydro One Inc.	CU Inc.	Fortis Inc.
Rating as of June 15, 2012	A-/Stable/--	BBB-/Stable/--	A+/Negative/A-1	A/Stable/A-1	A-/Stable/--
	--Average of past three fiscal years--				
Revenues	314.0	313.8	5,113.0	1,629.4	3,682.7
EBITDA	210.3	210.5	1,703.7	750.3	1,162.0
Net income from continuing operations	69.8	55.0	567.3	273.4	330.3
Funds from operations (FFO)	148.1	130.5	1,042.6	516.9	715.0
Capital expenditures	436.6	482.2	1,475.9	799.0	978.6
Free operating cash flow	(297.6)	(359.4)	(354.9)	(295.9)	(246.9)
Discretionary cash flow	(324.9)	(369.5)	(482.9)	(324.3)	(436.2)
Cash and short-term investments	12.2	13.0	133.3	54.8	94.3
Debt	1,130.5	1,441.8	8,844.1	3,445.0	6,818.5
Equity	833.1	524.5	5,223.8	2,314.8	3,835.0
Adjusted ratios					
EBITDA margin (%)	67.0	67.1	33.3	46.0	31.6
EBITDA interest coverage (x)	3.6	2.9	3.6	3.6	2.9
EBIT interest coverage (x)	2.2	1.8	2.4	2.5	1.9
Return on capital (%)	7.0	7.1	8.1	9.2	7.1
FFO/debt (%)	13.1	9.1	11.8	15.0	10.5
Free operating cash flow/debt (%)	(26.3)	(24.9)	(4.0)	(8.6)	(3.6)
Debt/EBITDA (x)	5.4	6.9	5.2	4.6	5.9
Total debt/debt plus equity (%)	57.6	73.3	62.9	59.8	64.0

Table 3

AltaLink L.P.--Financial Summary

Industry Sector: Electric Utility

	--Fiscal year ended Dec. 31--				
(Mil. C$)	2011	2010	2009	2008	2007
Rating history	A-/Stable/--	A-/Stable/--	A-/Stable/--	A-/Stable/--	A-/Stable/--
Revenues	365.6	325.5	251.1	230.9	210.4
EBITDA	248.8	208.8	173.4	157.5	144.8
Net income from continuing operations	85.8	67.2	56.5	40.7	37.6
Funds from operations (FFO)	176.0	146.7	121.6	110.7	101.5
Capital expenditures	614.9	408.0	287.0	147.0	213.5
Dividends paid	31.0	28.0	22.8	22.0	21.6
Debt	1,366.8	1,069.1	955.5	889.0	855.3
Preferred stock	0.0	0.0	0.0	0.0	0.0
Equity	1,009.0	809.6	680.8	506.3	487.0
Debt and equity	2,375.8	1,878.7	1,636.2	1,395.2	1,342.3
Adjusted ratios					
EBITDA margin (%)	68.1	64.1	69.1	68.2	68.8
EBIT interest coverage (x)	2.4	2.2	1.8	1.8	1.7
FFO interest coverage (x)	3.6	3.5	3.0	3.2	3.1
FFO/debt (%)	12.9	13.7	12.7	12.4	11.9
Discretionary cash flow/debt (%)	(35.4)	(28.8)	(19.0)	(3.9)	(16.6)
Net cash flow/capex (%)	23.6	29.1	34.4	60.3	37.4
Debt/debt and equity (%)	57.5	56.9	58.4	63.7	63.7
Return on capital (%)	7.3	6.9	6.7	6.2	6.3
Return on common equity (%)	9.4	8.1	7.2	7.0	6.7
Common dividend payout ratio (unadjusted; %)	36.1	41.7	40.4	54.0	57.5

Related Criteria And Research

- Methodology and Assumptions: Liquidity Descriptors For Global Corporate Issuers, Sept. 28, 2011
- Key Credit Factors: Business And Financial Risks In The Investor-Owned Utilities Industry, Sept. 18, 2008
- Ring-Fencing A Subsidiary, Oct. 19, 1999

Ratings Detail (As Of June 15, 2012)	
AltaLink L.P.	
Corporate Credit Rating	A-/Stable/--
Senior Secured	A-
Corporate Credit Ratings History	
03-Mar-2005	A-/Stable/--
11-Aug-2004	A-/Negative/--
15-May-2003	A-/Stable/--
Business Risk Profile	Excellent
Financial Risk Profile	Significant

Ratings Detail (As Of June 15, 2012) **(cont.)**

Related Entities

AltaLink Investments L.P.

Issuer Credit Rating	BBB-/Stable/--
Senior Unsecured	BBB-

*Unless otherwise noted, all ratings in this report are global scale ratings. Standard & Poor's credit ratings on the global scale are comparable across countries. Standard & Poor's credit ratings on a national scale are relative to obligors or obligations within that specific country.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 9 – Financial Institutions and Support Letters

Appendix 9 – Financial Institutions and Support Letters

RBC Capital Markets

RBC Capital Markets' parent company is Royal Bank of Canada, one of the 15th largest banks globally and the largest financial institution in Canada. It is rated Aa3 / AA- / AA by Moody's, S&P, and Fitch, respectively. In addition, it has been recognized by Global Finance as the safest bank in North America. As of October 31st, 2012, it had total assets of $825.1 billion and a market capitalization of $82.3 billion. RBC Capital Markets has over 6,500 employees and operates in 15 countries. It has received numerous awards, among them the Best Investment Bank in Canada and ranked among the largest investment banks worldwide (12th as per Bloomberg 2011 league table and 11th as per Thomson Reuters'). In Canada, it has been the undisputed Canadian debt capital markets leader since 1999 (Bloomberg Corporate Bond Underwriter) with a market share close to 30%.

RBC Capital Markets has a long time business relationship with AltaLink and has participated in various bond issuances in the Utilities/Power sector. It is therefore intimately familiar with the investor base most interested in transmission projects.

North American Power Project Finance

Selected RBC Capital Markets bond financing experience:

Issuer	Amount ($)	Description	Role	Date
Ontario Power Generation	700,000,000	Multiple bond financing	Agent	2012/2011
MCV	US560,000,000	Midland Cogeneration Venture	Joint bookrunner	2011/08

Selected RBC lending experience:

Issuer	Amount ($)	Description	Role	Date
Pattern	US469,000,000	Ocotillo Wind Energy	Joint Bookrunner Joint Lead Arranger	2012/10
Cogentrix	US105,000,000	Portsmouth Genco, LLC	Left Lead Arranger	2012/09

		(power plant)	Joint Bookrunner	
Tenaska	US476,000,000	CSOLAR IV South Project	Joint Bookrunner Joint Lead Arranger	2012/04
Lonestar	US386,600,000	CREZ Transmission Project (Texas)	Joint Bookrunner Joint Lead Arranger	2011/11
Invenergy	US422,100,000	Bishop Hill Wind Project	Syndicate Lender	2011/11

TD Securities

TD Securities is a leading Canadian debt capital market player that combines team members with both project finance and corporate issuance experience. Its parent company, the Toronto-Dominion Bank, is listed on the Toronto stock exchange and as of October 31st, 2012, it had total assets of $811.1 billion and a market capitalization of $74.4 billion. It is among the few banks in the world rated Aaa by Moody's and also has an AA- credit rating by both S&P and Fitch. The Toronto-Dominion Bank has close to 79,000 full time employees.

More specifically, TD Securities' debt capital markets franchise has led or co-led over $9.0 billion of energy and power & utility debt offerings since 2009 (ranked #2 for the period 2012 YTD) and participated in 93% of transactions (by debt volume) in the utility space in 2012 to date. This gives TD Securities a unique and deep perspective on the requirements of investors in this space.

Selected TD Securities bond experience:

Issuer	Amount ($)	Description	Role	Date
National Grid	$400,000,000	2.90% Medium Term Notes, due 2019	Joint Lead Agent and Bookrunner	2012/11
AltaGas	$350,000,000	3.72% Medium Term Notes, due 2021	Joint Lead Agent and Bookrunner	2012/09
National Grid	$750,000,000	2.730% Medium Term Notes, due 2017	Joint Lead Agent and Bookrunner	2012/09
Power Stream	$200,000,000	3.958% Senior Unsecured	Co-Manager	2012/07

		Notes, due 2042		
Inter Pipeline	$400,000,000	3.776% Notes due 2022	Joint Lead Agent and Bookrunner	2012/05
Ontario Power Generation	$225,000,000	Lower Mattagami Energy Limited Partnership (OPG) 4.175% due 2052	Co-Manager	2012/04
Nova Scotia Power	$250,000,000	4.15% Notes, due 2042	Joint Lead Agent	2012/03
Hydro One	$300,000,000	3.2% Notes, due 2022	Joint Lead Agent and Bookrunner	2012/01
Toronto Hydro Corporation	$300,000,000	3.54% Notes, due 2021	Sole Lead	2011/11

TD Securities is also a major player in the lending field. Year to date (as of the third quarter of 2012), TD Securities ranks first in energy, utilities and pipelines syndication franchise with approximately US$14.4 billion of arranged transactions, and has ranked first for two of the last three years. TD Securities has a history of supporting numerous clients by providing bridge facilities to facilitate timely closings before the implementation of more permanent financing.

The table below demonstrates TD Securities unparalleled lending experience with Canadian Power & Utilities companies (including Toronto Hydro, Hydro One and Ontario Power Generation):

Selected TD Securities lending experience:

Issuer	Amount ($)	Description	Role	Date
Toronto Hydro Corporation	$600,000,000	Revolving Facilities	Co-Lead Arranger & Syndication Agent	2012
Enbridge	$4,250,000,000	Revolving Facilities	Co-Lead Arranger & Administration Agent	2012

Capital Power L.P.	$1,200,000,000	Revolving Facilities	Co-Lead Arranger & Administration Agent	2012
Hydro One	$1,250,000,000	Revolving Facility	Co-Lead Arranger & Co-Syndication Agent	2012
Ontario Power Generation	$1,000,000,000	Revolving Facilities	Co-Lead Arranger & Syndication Agent	2012
Epcor	$400,000,000	Revolving Facility	Lead Arranger & Administration Agent	2012
AltaGas	$600,000,000	Revolving Facility	Co-Lead Arranger & Co-Syndication Agent	2012
TransCanada	$2,000,000,000	Revolving Facility	Lead Arranger & Administration Agent	2012

The Bank of Nova Scotia

The Bank of Nova Scotia is one of North America's premier financial institutions and Canada's most international bank, with over 81,000 employees worldwide. As of October 31st, 2012, it had $668.0 billion in total assets and a market capitalization of $64.3 billion. It trades on the Toronto (BNS) and New York Stock Exchanges (BNS). The Bank of Nova Scotia's credit ratings are Aa1, AA- and AA- by Moody's, Standard and Poor's and Fitch respectively. Through its Global Infrastructure Finance group, BNS has supported numerous projects in Canada, the United States, Europe and Latin America. The two tables below demonstrate its experience in the North American power and infrastructure field:

Selected Bank of Nova Scotia bond financing experience:

Issuer	Amount ($)	Description	Role	Date
Fortis Alberta	$125,000,000	40-year bond issue	Sole lead and bookrunner	2012/10
Altalink LP	$300,000,000	30-year bond issue	Joint-lead and	2012/06

			Bookrunner	
TransPower	$250,000,000	5-year Maple bond issue	Sole-lead and bookrunner	2012/03
Altalink LP	$275,000,000	30-year bond issue	Joint-lead and bookrunner	2011/11
Hydro One	$300,000,000	30-year bond issue	joint-lead and bookrunner	2011/09
Hydro One	$250,000,000	4-year bond issue	joint-lead and bookrunner	2011/01

Selected Bank of Nova Scotia lending experience:

Issuer	Amount ($)	Description	Role	Date
Emera Inc.	700,000,000	Credit facility	Lead arranger and sole bookrunner	2012/08
Lower Mattagami Energy LP	US275,000,000	Credit facility	Participant	2012/08
AltaLink	1,175,000,000	Credit facility	Co-lead arranger and co-bookrunner	2012/06
Hydro One	1,250,000,000	Credit facility	co-lead arranger and co-documentation agent	2012/05
Ontario Power Generation	1,000,000,000	Credit facility	Participant	2012/05
Fortis Inc.	1,000,000,000	Credit facility	Co-lead arranger and sole bookrunner	2012/05
Shartland Utilities	US667,000,000	Construction loan and LC facility	Bookrunner	2011/06

National Bank Financial

National Bank Financial is a wholly-owned subsidiary of National Bank of Canada (NBC), rated Aa2 / A / A+ by Moody's, S&P, and Fitch, respectively. NBC is listed on the Toronto Stock Exchange and, as of October 31st, 2012, it had total assets of $178.0 billion and a market capitalization of $12.4 billion. As the sixth largest bank in Canada by assets, NBC provides financial services to consumers, small and medium-sized enterprises, and large corporations in Canada, the United States, Europe, and internationally. It offers a range of banking services, including corporate and investment banking, securities brokerage, insurance and wealth management, mutual fund, and retirement planning services. As shown in the table below, National Bank Financial has led or joint-led numerous transactions for a wide array of power and utilities issuers.

Selected National Bank Financial experience:

Issuer	Amount ($)	Description	Role	Date
Hydro Québec	2,380,000,000	7 bonds issues	Sole Lead Underwriter	2012/2011
Pembina	450,000,000		Joint-Lead & Bookrunner	2012/09
AltaGaz	350,000,000		Joint-Lead & Bookrunner	2012/09
AltaLink	300,000,000		Co-Manager	2012/06
Hydro One	425,000,000	2 tranches	Joint Lead Underwriter and Bookrunner	2012/05
Enbridge	500,000,000	2 tranches	Joint-Lead & Bookrunner	2012/02
Hydro One	100,000,000	"super longs"	Sole Lead & Bookrunner	2011/12

National Bank of Canada has experience lending to the transmission industry with exposures in the following bank facilities:

Selected National Bank of Canada lending experience:

Issuer	Total Size of Facility ($)
AltaLink	1,725,000,000
HydroOne	1,250,000,000
Hydro-Québec	2,000,000,000
Emera Inc.	700,000,000
Toronto Hydro	600,000,000
Fortis	1,200,000,000
Nova Scotia Power Inc.	500,000,000
TransAlta	1,500,000,000

BMO Nesbitt Burns and parent company Bank of Montreal

BMO Nesbitt Burns is a strong supporter of infrastructure procurement in Ontario having worked as advisors to Ontario Infrastructure and Lands Corporation (OILC) and private sector bidders on several transactions. The firm's commitment to the Canadian Infrastructure sector is evidenced by its dedicated infrastructure group and participation in some of Canada's largest infrastructure transactions. BMO Nesbitt Burns was responsible for bringing Canada's two largest infrastructure borrowers to market: 407 International Inc. (407 International) and Greater Toronto Airport Authority (GTAA); the 407 International and the GTAA are Canada's largest infrastructure borrowers. BMO Nesbitt Burns structured and continues to lead the majority of bond issuances for both, and is therefore intimately familiar with the investor base most interested in transportation projects. BMO Nesbitt Burns' parent company is the Bank of Montreal, a highly diversified North American financial services provider which is rated Aa2, A+ and AA- by Moody's, Standard and Poor's and Fitch respectively. As of October 31st, 2012, it had total assets of $525.0 billion and a market capitalization of $38.4 billion. Bank of Montreal provides a broad range of retail banking, wealth management and investment banking products and solutions.

Selected BMO Nesbitt Burns Securities bond experience:

Issuer	Amount ($)	Description	Role	Date
Lower Mattagami River Hydroelectric	900,000,000	Project bonds	Co-lead and Co-Bookrunner	
407 East Extension	571,000,000	Project bonds	Co-lead underwriter	2012

RBC CAPITAL MARKETS
Fourth Floor, Royal Bank Plaza
200 Bay Street
Toronto, ON M5J 2W7

November 30, 2012

AltaLink Ontario Management Ltd
5700, 100 King Street West
Toronto, ON M5X 1C7

Re: East-West Tie Line Project

Dear Mr. Forest,

RBC Capital Markets ("RBC") understands that AltaLink Ontario Management Ltd. ("AOLP"), on behalf of AltaLink Ontario LP, has registered with the Ontario Energy Board to participate in the designation process for the East-West Tie Line project (the "Project"). The purpose of this letter is to confirm AOLP's proven ability to source cost-effective funding for large-scale transmission projects through both the Canadian bank loan market, Canadian commercial paper market and Canadian investment grade bond market.

RBC, through its role as (i) syndication agent, co-lead and co-bookrunner on AltaLink LP's C$1.425 billion revolving credit facility; (ii) sole lead, sole bookrunner and syndication agent on AltaLink Investments LP's C$300 million revolving credit facility; and (iii) bookrunner on four of AltaLink's last five offerings of notes in the Canadian debt capital markets, can attest to AltaLink's ability to efficiently raise large sums of debt funding in both Canadian bank and bond markets (Exhibit A).

Exhibit A – Overview of RBC's Relationship with AltaLink

Credit Facilities		*Capital Markets*	
ALTALINK *AltaLink L.P.*	ALTALINK INVESTMENTS, L.P. *AltaLink Investments L.P.*	Nov 2010 - Present ALTALINK *AltaLink L.P.*	Jun 2012 ALTALINK INVESTMENTS, L.P. *AltaLink Investments L.P.*
C$1,425,000,000	**C$300,000,000**	**C$700,000,000**	**C$200,000,000**
Revolving Credit Facility	Revolving Credit Facility	Senior Secured Notes	Senior Unsecured Bond
RBC Capital Markets®	RBC Capital Markets®	RBC Capital Markets®	RBC Capital Markets®
Syndication Agent, Co-Lead and Co-Bookrunner	*Syndication Agent, Sole Lead and Sole Bookrunner*	*Bookrunner*	*Sole Bookrunner*

The AOLP management team has considerable experience structuring financing arrangements, undertaking investor marketing initiatives in support of bond offerings, managing credit rating agency relationships and working with investment dealers, including RBC, to source bank funding and execute bond transactions in the Canadian debt capital markets. AltaLink has placed in excess of $2.4 billion of term debt among more than 125 institutional investors since 2003 (Exhibit B) and is widely considered a reliable and stable transmission facility operator. The

strength of AltaLink LP's credit profile and strong base of institutional investor demand has translated into record-low coupons on recent offerings. For example, AltaLink's 30-year transaction in May represented the lowest-ever long-dated coupon in the Canadian corporate market at the time (3.99%) while its 10-year offering in November marked the lowest 10-year non-financial coupon on record (2.978%).

Exhibit B – Summary of AOLP Debt Issuance (2003-2012)

Price Date	Size	Term	Coupon	New Issue Spread
AltaLink L.P.				
28-May-03	200	10	5.430%	+83
28-May-03	100	5	4.450%	+53
24-Nov-03	125	10	5.430%	+53
18-Sep-06	150	30	5.249%	+99
22-May-08	100	10	5.243%	+146
11-May-09	100	9	5.243%	+190
22-Mar-10	125	30	5.381%	+133
09-Nov-10	150	30	4.872%	+132
03-Nov-11	275	30	4.462%	+162
26-Jun-12	300	30	3.990%	+166
22-Nov-12	275	10	2.978%	+115
Total	**1,900**			
AltaLink Investments L.P.				
16-Nov-05	200	7	5.019%	+100
10-Dec-09	150	7	5.207%	+225
31-May-12	200	7	3.674%	+220
Total	**550**			
Grand Total	**2,450**			

The Canadian debt capital markets remain highly supportive of issuance by regulated utilities. New issue supply by regulated gas and electric issuers has amounted to approximately C$5.0 billion year-to-date, marking the most active year on record (Exhibit C). Against the uncertain macro economic backdrop and European sovereign debt crisis, Canadian institutional bond investors have gravitated to defensive, recession-resilient sectors, including utilities, helping support new issue volume and encouraging price tension. Tight credit spreads, coupled with historically-low interest rates, have contributed to record-low debt funding costs for high-grade utility issuers (Exhibit D).

Exhibit C – Canadian Utility Sector Debt Issuance History (Source: RBC Capital Markets)

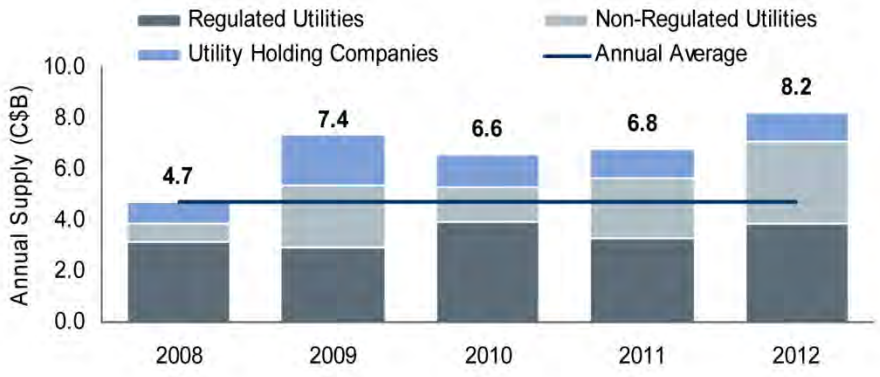
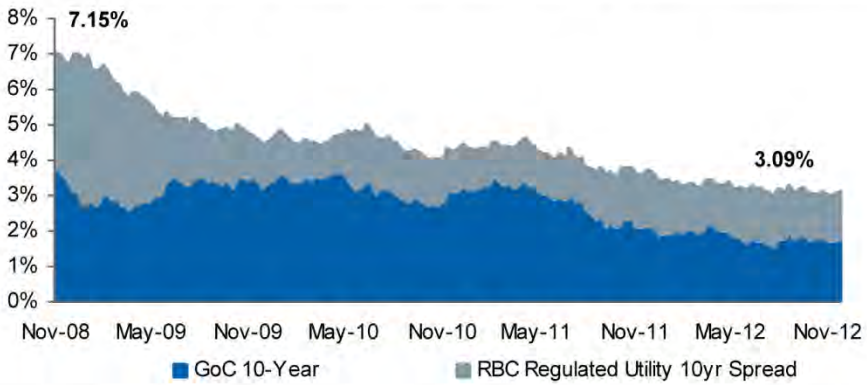


Exhibit D – Canadian Utility 10yr Funding Costs (Source: RBC Capital Markets)



RBC Capital Markets is part of a leading provider of financial services, Royal Bank of Canada. Operating since 1869, Royal Bank of Canada is one of the top 15 largest banks in the world and the fifth largest in North America, as measured by market capitalization. With a strong capital base and consistent financial performance, we are amongst a small group of highly rated global banks. RBC Capital Markets is a premier investment bank that provides a focused set of products and services to corporations, institutional investors, and governments around the world. With over 6,500 professionals, we operate out of 70 offices in 15 countries across North America, the U.K., Europe, and Asia-Pacific.

In Canada, RBC Capital Markets has the unique advantage of being ranked the number one dealer in providing bank debt, corporate and government debt issuance, and aftermarket support to Canadian issuers.

- Both Bloomberg and Loan Pricing Corporation rank RBC as the top underwriter of syndicated loans (Exhibit E)
- Bloomberg has ranked RBC as Canada's top debt underwriter for the past thirteen years
- RBC's corporate market share of 30.2% year-to-date as measured by Bloomberg is 1.8x our next-closest competitor (Exhibit F)
- RBC is a leader in structuring and financing capital markets transactions for utility issuers (Exhibit G)

Exhibit E – Canadian Syndicated Loans Leadership

Bloomberg - Underwriter (2011)

Canadian Syndicated Loans - 2011				
Rank	Underwriter	Amount (US$ MM)	Market Share	Deal Volume
1	RBC Capital Markets	41,114	21.5%	97
2	TD Securities	32,551	17.0%	96
3	CIBC World Markets	31,042	16.3%	102
4	Scotia Capital	22,631	11.9%	85
5	BMO Capital Markets	19,552	10.2%	66
6	National Bank Financial	11,654	6.1%	72
7	JP Morgan	5,724	3.0%	24
8	Bank of America - ML	3,668	1.9%	24
9	Morgan Stanley	3,345	1.8%	6
10	HSBC Banking Group	2,331	1.2%	11
	Other	17,334	9.1%	109
	Total	190,946	100.0%	692

Source: Bloomberg

Loan Pricing Corp – Bookrunner (2011)

Canadian Syndicated Loans - 2011				
Rank	Underwriter	Amount (US$ MM)	Market Share	Deal Volume
1	RBC Capital Markets	34,396	20.0%	95
2	TD Securities	29,787	17.3%	96
3	CIBC World Markets	28,933	16.8%	100
4	Scotia Capital	23,802	13.8%	93
5	BMO Capital Markets	20,863	12.1%	76
6	National Bank Financial	11,730	6.8%	70
7	JP Morgan	3,825	2.2%	14
8	Morgan Stanley	2,750	1.6%	2
9	Citi	2,307	1.3%	6
10	HSBC Banking Group	1,807	1.1%	5
	Other	11,820	6.9%	56
	Total	172,020	100.0%	613

Source: Loan Pricing Corporation

Exhibit F – Canadian Corporate Debt Underwriting Leadership

Bloomberg – Corporate (2011)

	Dealer	Market Share (%)	Amount (C$MM)	Issues
1.	**RBC Capital Markets**	**32.2**	**14,519**	**74**
2.	TD Securities	21.3	9,586	56
3.	Scotia Capital	14.8	6,692	39
4.	CIBC World Markets	11.5	5,183	45
5.	BMO Capital Markets	11.3	5,096	31
6.	Bank of America Merrill Lynch	2.6	1,164	9
7.	National Bank Financial	2.3	1,026	9
8.	HSBC Bank PLC	1.2	534	4
9.	Credit Suisse	0.7	329	3
10.	GMP Securities LP	0.4	200	1
Grand Total		100	45,065	280

Bloomberg – Corporate (Jan 2012 – Nov 20, 2012)

	Dealer	Market Share (%)	Amount (C$MM)	Issues
1.	**RBC Capital Markets**	**30.2**	**13,917**	**91**
2.	TD Securities	16.6	7,647	59
3.	BMO Capital Markets	14.0	6,450	41
4.	Scotiabank	12.3	5,644	35
5.	CIBC	11.8	5,446	38
6.	National Bank Financial	5.3	2,452	19
7.	Bank of America Merrill Lynch	2.4	1,106	8
8.	HSBC Bank	2.2	1,008	9
9.	GMP Securities LP	1.4	625	3
10.	Desjardins Capital Markets	1.0	452	5
Grand Total		100	46,057	161

Exhibit G – Canadian Utility Sector Debt Underwriting Leadership[(2)] *(Jan 2012 – Nov 30, 2012)*

	Dealer	Market Share (%)	Amount (C$MM)	Issues
1.	**RBC Capital Markets**	**3,185**	**27.0**	**19**
2.	CIBC	2,346	20.1	16
3.	TD Securities	1,600	13.7	10
4.	BMO Capital Markets	2,041	17.5	17
5.	Scotiabank	1,413	12.1	9
6.	National Bank Financial	1,079	9.3	9
Total		**11,663**	**100%**	**47**

(2) Includes Energy Transactions

This leadership in new issuance and aftermarket support provides RBC with unparalleled insight into the dynamics of the bank and bond markets and we believe that AOLP has the ability to raise debt capital to support its submission.

Yours truly,

Rob Nicholson, Managing Director

TD Securities
TD Securities Inc.
Ernst & Young Tower
222 Bay Street, 7th Floor
Toronto, Ontario M5K 1A2

December 6, 2012

AltaLink Ontario L.P.
5700, 100 King Street West
Toronto, ON M5X 1C7

Re: Transmission Infrastructure: East-West Tie Line (EB-2011-0140)

To whom it may concern,

We are pleased to submit this support letter in connection with AltaLink Ontario L.P. (the "Developer") bid, under the sponsorship of SNC-Lavalin Capital, to develop, build, own, operate and maintain a 400km, 230kV double circuit electricity transmission line from Wawa to Marathon to Thunder Bay, referred to as the East-West Tie Line (the "Project").

TD Securities Inc. ("TD" or "we") understands that the Developer may elect to raise financing through either bank financing or the debt capital markets if it is selected as the designated transmitter for the Project. TD hereby expresses its strong interest in assisting the Developer in this regard.

TD is an active participant in the debt capital markets having consistently ranked #1 or #2 in Canada since 2004, per league tables compiled by Bloomberg. TD is also a top-ranked arranger of syndicated loans in Canada, and has been ranked #1 or #2 over the past several years, per league tables compiled by Bloomberg.

Specifically, TD has extensive experience financing infrastructure projects, spanning a wide range of sectors and procurement models spanning utility, transmission, pipeline, power generation and public-private-partnerships. We have specific experience with affiliates of the Developer through our commitment to the Altalink LP credit facility.

Following is a summary of recent debt capital markets and syndicated loan experience, including notable transactions led during the course of 2012:

Utility

- TD is active in the transmission space having most recently led the inaugural Canadian bond issuance for National Grid Electricity Transmission plc, an international electricity and gas company providing energy to millions of customers across Great Britain and the Northeast US:
  - $750 million 5-year bonds for National Grid Electricity Transmission plc (September 2012). The bonds were rated A-/A3/A. TD acted as co lead and co bookrunner on the offering.
  - $400 million 7-year bonds for National Grid Electricity Transmission plc (November 2012). The bonds were rated A-/A3/A. TD acted as co lead and co bookrunner on the offering.
- In the broader utility sector, TD has participated in 93% of transactions (by debt volume) in 2012, giving TD a unique and deep perspective on the requirements of investors in this space. This experience includes the following lead mandates:
  - $300 million 10-year bonds for Hydro One (January 2012). The bonds were rated

TD Securities

A(high)/A+/Aa3. TD acted as co lead and co bookrunner on the offering.

- $250 million 30-year bonds for Nova Scotia Power Inc. (March 2012). The bonds were rated A(low)/BBB+. TD acted as co lead and co bookrunner on the offering.

- TD is active in the pipeline sector having participated in every debt capital markets issuance in 2012 year-to-date, including the following lead mandates:
  - $350 million split issue between 5-year bonds ($300 million) and 10-year bonds ($50 million) for Veresen Inc. (March 2012). The bonds were rated BBB(high)/BBB. TD acted as co lead and co bookrunner on the offering.
  - $400 million 10-year bonds for Inter Pipeline Fund (May 2012). The bonds were rated BBB(high)/BBB+. TD acted as co lead and co bookrunner on the offering.
  - $350 million 10-year bonds for AltaGas Ltd. (September 2012). The bonds were rated BBB/BBB. TD acted as co lead and co bookrunner on the offering.
- The Toronto-Dominion Bank is also a leading arranger of syndicated loans including lead roles during the last several months with many companies who have transmission projects, such as Atlantic Power Corporation, EPCOR Utilities Inc., and Hydro One Inc. The Toronto-Dominion Bank also has lead roles with other power, utility, and infrastructure companies, such as Altagas Ltd., Bruce Power Limited Partnership, Capital Power Corporation, Enbridge Inc., Inter Pipeline (Corridor) Inc., Ontario Power Generation, Toronto Hydro Corporation, TransCanada Corporation, and Veresen Inc.

Project Financing

- In the public-private-partnership sector, TD arranged or participated in approximately $6.8 billion in bond financing in support of 14 successfully closed AFP/P3 transactions since 2007, including the following lead mandates in 2012:
  - $73 million ~32-year senior bonds for the Interior Heart and Surgical Centre Project (June 2012). The bonds were not rated. TD acted as sole lead and sole bookrunner on the offering.
  - $56 million ~4-year revolver bank facility for the Pan Am Aquatics Centre Project (June 2012). The bank facility was not rated. TD acted as financial advisor and sole lead on the offering.
- In the generation sector, TD brought MPT Hydro LP, a wholly owned subsidiary of Capstone Infrastructure Corporation, to market raising $100 million of bonds by way of a Canadian private placement to finance a portfolio of four hydro facilities located in BC and Ontario. The transaction is notable in that it accommodates significant merchant risk and involves multiple stakeholder groups including First Nations, government agencies and third party operator:
  - $100 million ~28-year senior bonds for MPT Hydro LP (June 2012) split between a senior secured tranche ($80 million) and a subordinated tranche ($20 million). The bonds were not rated. TD acted as sole lead and sole bookrunner on the offering.

We have worked with the affiliates of the Developer, including Altalink LP and SNC-Lavalin Capital, on previous transactions and have full confidence in their experience and ability to deliver on important projects of this nature.

For clarity, it should be noted that this letter is provided to the Developer, without reviewing any detailed information regarding the procurement process or Project. This letter represents an expression of interest and does not constitute a legally binding obligation whether to act as arranger, underwriter, placement agent or lender for the proposed financings or otherwise. Commitment of any funding will be dependent

on the completion of all necessary due diligence and following which, TD will be able to determine, in its sole discretion whether or not it will ultimately participate in the financing of the Project.

This letter is also rendered solely for your use in connection with the Project and does not confer any rights or remedies on any party, including any other party to the Project or any other financing sources for the Project. This letter shall not create any obligation of or any liability of TD or its affiliates to the Developer, the addressee of this letter or any other person (whether by contract, in tort, in equity or otherwise), including, but not limited to, any liability for special, indirect, consequential, exemplary or punitive damages. Except as otherwise required by law, or unless TD has otherwise consented in writing thereto, the addressee is not authorized to disclose this letter, or the contents hereof, to any other person or entity.

Should you have any additional questions, please do not hesitate to contact us.

Yours faithfully,
TD Securities Inc.

Name: Michael Wolff
Title: Managing Director, Head of Infrastructure
Tel: (416) 983-8634
E-mail: michael.wolff@tdsecurities.com

Name: Patrick Scace
Title: Managing Director
Tel: (416) 308-2172
E-mail: patrick.scace@tdsecurities.com

Name: Paul Archer
Title: Managing Director
Tel: (514) 289-1558
E-mail: paul.archer@tdsecurities.com

The Bank of Nova Scotia
Scotia Plaza, 62nd Floor
40 King Street West
Toronto, Ontario M5W 2X6

GLOBAL BANKING AND MARKETS

Scotiabank

December 6, 2012

AltaLink Ontario L.P.
5700, 100 King Street West
Toronto, ON M5X 1C7

Dear Sirs:

RE: East-West Tie Line Project

Further to our discussions in connection with the development of a new electricity transmission line between Northeast and Northwest Ontario: the East-West Tie Line (the "**Project**"), as set out in the Ontario Energy Board proceeding No. EB-2011-0140, we understand that AltaLink Ontario L.P. ("**AOLP**"), under the sponsorship of SNC-Lavalin Capital ("**SNC**"), will be submitting an application to the Ontario Energy Board in respect of the Project. We are providing this letter as an expression of interest in supporting AltaLink in its application for the Project.

Given our understanding of the Project and our familiarity with AOLP, we are confident that AOLP has the ability to prepare a competitive application and successfully carry out all elements of the design, construction, and financing of the Project.

Scotiabank agrees to be identified to the Ontario Energy Board in AOLP's application as a potential financier in respect of the Project.

As an experienced power and project finance lender and bond underwriter, we have provided debt financing to support borrowers in connection with a number of power and infrastructure transactions in North America, including:

Lending Experience

- Emera Inc.'s C$700 MM credit facility as sole lead arranger and sole bookrunner (August 2012);
- Lower Mattagami Energy LP's US$275 MM credit facility as participant (August 2012)
- Altalink's C$1,175 MM credit facility as co-lead arranger and co-bookrunner (June 2012);
- Hydro One's C$1,250 MM credit facility as co-lead arranger and co-documentation agent (May 2012);
- Ontario Power Generation's C$1,000 MM credit facility as participant (May 2012);
- Fortis Inc.'s C$1,000 MM credit facility as co-lead arranger and sole bookrunner (May 2012); and
- Sharyland Utilities US$667 MM construction loan and LC facility as bookrunner (June 2011).

Bond Financing Experience

- Fortis Alberta's C$125 MM 40-year bond issue as sole lead and bookrunner (October 2012);
- Altalink LP's C$300 MM 30-year bond issue as joint-lead and bookrunner (June 2012);
- TransPower's C$250 MM 5-year Maple bond issue as sole-lead and bookrunner (March 2012);
- Altalink LP's C$275 MM 30-year bond issue as joint-lead and bookrunner (November 2011);
- Hydro One's C$300 MM 30-year bond issue as joint-lead and bookrunner (September 2011); and
- Hydro One's C$250 MM 4-year bond issue as joint-lead and bookrunner (January 2011).

Our organization possesses the experience and expertise required to carry out the financial, legal and technical due diligence that will be necessary to provide committed financing to AOLP.

The Bank of Nova Scotia
Scotia Plaza, 62nd Floor
40 King Street West
Toronto, Ontario M5W 2X6

GLOBAL BANKING AND MARKETS

Scotiabank

This letter is not intended to constitute a commitment to provide financing to AOLP in connection with the Project. We reserve all rights to conduct full due diligence and shall have sole discretion as to whether or not we will support AOLP or any other organization in connection with the Project.

We are, however, interested in continuing our communications with AOLP and evaluating the possible role we may play as a potential financial provider for the Project in the future as the Project advances through the designation process.

Kind regards,

Peter Kinkartz
Managing Director
Global Infrastructure Finance
Scotiabank Global Banking and Markets

NATIONAL BANK FINANCIAL MARKETS

Altalink Ontario L.P.
5700, King Street West
Toronto, Ontario
M5X 1C7

December 7, 2012

Re: Letter of Support in respect of the East-West Tie Line Project (EB-2011-0140)

Dear Sir/Madam,

National Bank of Canada (the "Bank") and its affiliate National Bank Financial ("NBF") are delighted to respond to the request of AltaLink Ontario L.P. ("AOLP") under the sponsorship of SNC-Lavalin Capital Inc. ("SLCI") to provide this letter of support regarding their bid for the East West Tie Line Project in Northern Ontario (the "Project"). We understand the Project is being procured by the Ontario Energy Board and will entail developing, building, owning, operating and maintaining a 400km, 230kV double circuit electricity transmission line from Wawa to Marathon to Thunder Bay in Ontario.

We possesses the experience and expertise required to carry out the financial, legal and technical due diligence that will be necessary to provide advisory services and/or underwriting of bonds or bank loans for the Project. We have acted as both advisor and underwriter on a wide variety of projects, some of which have received widespread industry recognition. We have also worked with the Proponents, alone or with other local or international partners, in a number of successful transactions in the infrastructure and power sectors. We acknowledge that the Proponents are sophisticated entities with outstanding technical and financial capabilities to bid and work on national and international tenders and are capable of obtaining financing for a project of the size and nature of the East West Tie Line Project.

As an experienced underwriter of project finance bonds, NBF has provided bond underwriting to support borrowers in connection with a number of Project Finance transactions, including:

(i) St. Isadore Solar Project in Ontario (November 2012) – Joint-Underwriting of $80 million senior secured bonds
(ii) North East Anthony Henday Drive in Edmonton, Alberta (May 2012) – Joint-Underwriting of $535 million senior secured bonds
(iii) Eoliennes de L'Erable Wind Project in Quebec (May 2012) – Joint Underwriting of $250 million senior secured bonds
(iv) New Oakville Hospital (July 2011) – Joint-Underwriting of $544 million senior secured bonds
(v) St. Joseph's Health Care London/St. Thomas (March 2011) – Joint-Underwriting of $212 million senior secured bonds

In addition, NBF has relevant experience in underwriting and lending to transmission companies, including:

(i) Hydro Quebec (2011 & 2012) – Sole Lead Underwriter of Bonds for 7 issues totalling more than $2Bn
(ii) Altalink (November 2012) – Co-Manager of $275 million of bonds
(iii) Altalink (June 2012) – Co-Manager of $300 million of bonds
(iv) Hydro One (May 2012) – Joint Lead Underwriter and Bookrunner of $425 million of bonds

NATIONAL BANK FINANCIAL MARKETS

(v) Enbridge (February 2012) – Joint Lead Underwriter of $500 million of bonds

As an experienced project finance lender, the Bank has provided debt financing to support borrowers in connection with a number of Project Finance transactions including:

(i) Highway 407 East Development (June 2012) – Bank Lender
(ii) Air Rail Link Spur Project (December 2011) – Financial Advisor, Bank Lender
(iii) New Oakville Hospital (July 2011) – Bond Underwriter, Bank Lender
(iv) St. Thomas Consolidated Courthouse (June 2011) – Financial Advisor, Arranger (narrowly marketed, unrated, private placement), Bank Lender
(v) St. Joseph's Regional Mental Health Care London/St. Thomas (March 2011) – Bank Lender
(vi) Mental Health Centre Penetanguishene (January 2011) – Financial Advisor, Arranger (narrowly marketed, unrated, private placement), Bank Lender

The Bank is an active lead and lender to the power sector and has experience lending to the transmission industry with exposures in the following bank facilities:

(i) AltaLink LP / AltaLink Investments LP – $1,725 million
(ii) HydroOne – $1,250 million
(iii) Hydro-Quebec - $2,000 million
(iv) Emera Inc – $700 million
(v) Toronto Hydro – $600 million
(vi) Fortis Inc / Fortis BC / Fortis Alberta - $1,200 million
(vii) Nova Scotia Power Inc. – $500 million
(viii) TransAlta – $1,500 million

Although this letter does not represent a commitment to provide financing for this project, we are pleased to confirm its interest in potentially providing financial support to the Project. We are highly confident in our abilities to demonstrate once again our capabilities in structuring a comprehensive financing package in support of the bid and to allocate experienced and motivated staff to the Project at all times.

For the avoidance of doubt, this letter does not constitute an offer of finance on our part and may not be relied upon by any party. Credit committee approval will be required and, therefore, financial support will be subject to our usual internal credit approval process.

We look forward to draw on our extensive project finance skills, infrastructure related experience and financial strength to working with you on this exciting project.

Yours faithfully,

NATIONAL BANK OF CANADA

By:
Name: Ian Gillespie
Title: Managing Director

NATIONAL BANK FINANCIAL

By:
Name: Sean St. John
Title: Executive Vice President, Co-Head and Managing Director, Fixed Income

The Exchange Tower
130 King Street West
4th floor Podium, Suite 400
Toronto ON M5X-1J9

BMO | A part of BMO Financial Group

December 6, 2012

AltaLink Ontario L.P.
5700, 100 King Street West
Toronto, ON M5X 1C7

RE: Project for Development of New 400 km, 230kV Electricity Transmission Line from Wawa to Marathon to Thunder Bay in Ontario (EB-2011-0140)

BMO Capital Markets ("we" or "BMOCM") are pleased to provide this letter of support to AltaLink Ontario L.P. ("AOLP"), under the sponsorship of SNC-Lavalin Capital ("SNC") in connection with its participation in the proposed East-West Tie Line (E-W Tie) which is a project for developing, building, owning, operating and maintaining a 400km, 230kV double circuit electricity transmission line from Wawa to Marathon to Thunder Bay in Ontario (the "Project").

It is our understanding that AOLP intends to submit a proposal for the development, construction, operation and maintenance of the E-W Tie.

As an experienced lender and bond dealer, we have provided debt financing to support borrowers in connection with a number of Infrastructure and Power & Utilities transactions in Canada including, but not limited to the following:

1) Transportation and Social Infrastructure
   - Co-lead Arranger on $300 million construction facility, and Co-lead underwriter on $571 million of project bonds for the 407 East Extension P3 project in Toronto, Ontario
   - Mandated lead arranger to Hospital Infrastructure Partners on the $400 million senior secured credit facility on the New Oakville Hospital AFP project in Oakville, Ontario
   - Arranger to Dundee Kilmer on the $600 million senior secured credit facility on the 2015 Pan/Parapan American Games Athletes' Village Project AFP project in Toronto, Ontario
   - Financial advisor to a Carillion led consortium, sole bank arranger on $115 million construction loan, and sole underwriter on $190 million project bonds for the Forensic Services and Coroner's Complex P3 project in Toronto, Ontario
   - Advisor to the successful bidding consortium for Highway 407 ETR and lead placement agent on approximately $9.2 billion in financing for 407 International, including the $1.0 billion debt IPO;
   - Structured the capital markets platform for the Greater Toronto Airports Authority and led placement of over $11.7 billion in financing including the $950 million debt IPO

2) Power and Utilities
   - Co-advisor to Ontario Power Generation, Co-lead arranger on a $700 million bank facility, and Co-lead and Co-Bookrunner on $900 million of project bonds for the financing of the Lower Mattagami River Hydroelectric Complex in Ontario
   - Co-lead on aggregate total of $900 million of bond issuance for CU Inc. in 2012
   - Co-lead on recent 10 year, $200 million bond offering for Canadian Utilities Limited
   - Lead on 30 year, $103 million inaugural bonds for Windsor Canada Utilities, a regulated LDC
   - Lead on 30 year, $200 million inaugural bond offering for PowerStream Inc., a regulated LDC
   - Co-lead on recent 30 year, $300 million bond issue for AltaLink LP
   - Lead on recent $100 million bond issue for Enbridge Pipelines Inc.

BMO | A part of BMO Financial Group

We wish to inform you that SNC-Lavalin and AltaLink, L.P. are important clients of ours. We have collaborated with SNC on other occasions including the recently closed financing for 407 East Extension project undertaken by an SNC-led consortium. Our relationship with AltaLink, L.P. includes BMOCM providing corporate loan facilities and leading capital markets issuance. They are highly regarded by us and have an outstanding market reputation in terms of their technical ability to lead an operation of this magnitude and nature. In our opinion, the sponsors have the financial capacity to obtain, in the capital and financial markets, the funds needed to finance a Project of this size and nature, both in terms of equity and debt.

Although this letter does not represent a commitment to provide funds, BMOCM is pleased to confirm its interest in providing financial support to AOLP should they become designated as a result of the OEB's designation process. For the avoidance of doubt, this letter does not constitute an offer of finance on our part and may not be relied upon by any party. Credit committee approval will be required and will be subject to our internal credit approval process, final documentation, market conditions prevailing at financial close and the absence of any adverse material change.

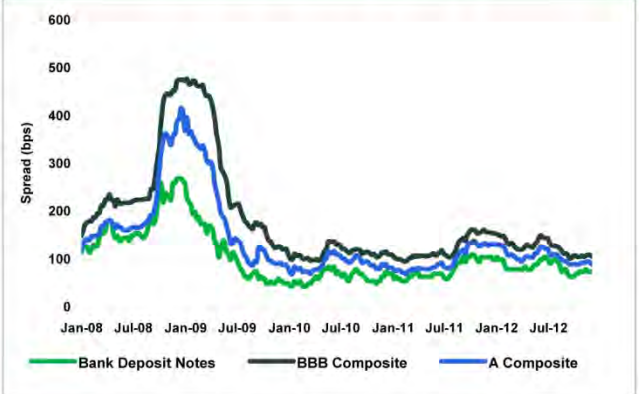
Kind regards,

Laith Qamheiah
Director
BMO Capital Markets
100 King Street West
T: 416.359.4449
F: 416.359.4404
E: laith.qamheiah@bmo.com

Canadian Debt Capital Market Update

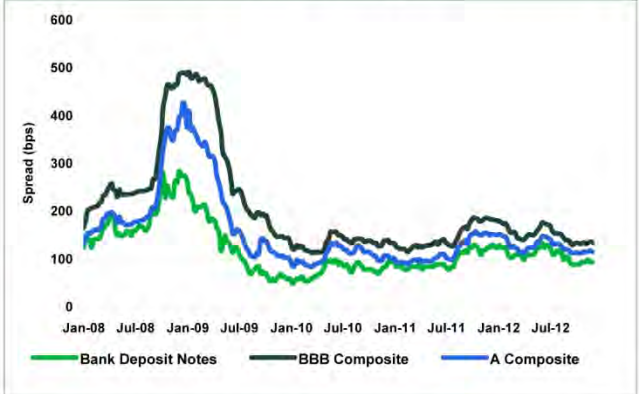
Week Ending November 30, 2012

3 Year New Issue Spreads



Bank Deposit Notes:	BBB Composite:	A Composite:
75 bps	107 bps	90 bps

5 Year New Issue Spreads



Bank Deposit Notes:	BBB Composite:	A Composite:
95 bps	135 bps	116 bps

Bank Deposit Notes - TD

Term	Spread vs. GOC	All-in Yield	Swap Spread	Swap Yield	Spread vs. BA's
3 year	75 bps	1.929%	27.75 bps	1.433%	BA+ 50 bps
5 year	95 bps	2.276%	33.25 bps	1.640%	BA+ 64 bps
10 year	125 bps	3.027%	43.75 bps	2.160%	BA+ 87 bps
30 year	165 bps	3.961%	22.75 bps	2.538%	BA+ 142 bps

Corporate New Issues

Issue Date	Issuer	Ratings	Amount ($mm)	Coupon	Maturity	Spread (vs. curve)
26-Nov-12	Reliance LP	BBB/BBB	$375	4.574	15-Mar-17	+325 bps
26-Nov-12	Reliance LP	BBB/BBB	$325	4.187	15-Mar-19	+370 bps
26-Nov-12	OMERS Realty Corp	A(high)	$210	3.040	5-Dec-17	+170 bps
26-Nov-12	OMERS Realty Corp	A(high)	$210	3.666	5-Dec-22	+196 bps
27-Nov-12	**Enbridge Pipelines Inc.**	**A/A-**	**$150**	**2.930**	**30-Nov-22**	**+113 bps**
27-Nov-12	**First Capital Realty Inc.**	**BBB(high)/B**	**$150**	**3.950**	**30-Nov-22**	**+225 bps**
27-Nov-12	Hydro One	A(high)/A+/A1	$50	FRN	3-Dec-16	+37 bps
28-Nov-12	Westcoast Energy Inc.	A(low)/BBB+	$250	3.120	3-Dec-22	+135 bps
28-Nov-12	Manulife Bank of Canada	A(high)/A+	$250	FRN	3-Dec-14	+53 bps
28-Nov-12	Algonquin Power Co.	BBB(low)/BB	$150	4.820	15-Feb-21	+325 bps
29-Nov-12	Cominar Real Estate Investment Trust	BBB(low)	$200	4.230	4-Dec-19	+273 bps
29-Nov-12	Paramount Resources Limited	B/Caa1	$300	7.625	4-Dec-19	+617 bps
29-Nov-12	**Enbridge Inc.**	**A(low)/A-**	**$350**	**4.230**	**5-Dec-22**	**+143 bps**

*** Bold Indicates TD Securities Lead / Co-Lead**

Total 2012 YTD Corporate Issuance: $81.6 billion

Government of Canada Yield Curve

Term	Interpolated Yield	Bonds	Term	Interpolated Yield	Bonds
2 year	1.087%	2.25% August 2014 2.50% June 2015	**10 year**	1.777%	2.75% June 2022 1.5% June 2023
3 year	1.185%	1.50% August 2015 1.25% February 2016	**15 year**	2.069%	8.00% June 2023 5.75% June 2029
5 year	1.328%	1.50% September 2017 4.25% June 2018	**30 year**	2.311%	4.00% June 2041

Canadian Debt Capital Market Update

Week Ending November 30, 2012

Indicative Corporate New Issue Spreads

Levels shown are indicative spreads of where issuers could issue in the Canadian market. Spreads are vs the Government of Canada yield curve.

	Ratings		Term			
	DBRS	S&P	3	5	10	30
Cable / Telco						
Bell Aliant Regional Communications LP	BBB (high)	BBB	140	170	225	375
Bell Canada Inc.	A (low)	BBB+	95	125	175	230
Manitoba Telecom Services Inc.	BBB	BBB	120	150	205	280
Rogers Communications Inc.	BBB	BBB	100	130	185	260
Shaw Communications Inc.	BBB	BBB-	140	170	240	360
TELUS Corp.	A(low)	BBB+	90	120	170	225
Utilities						
AltaGas Ltd.	BBB	BBB	110	140	185	255
Altalink LP	A	A-	55	80	120	150
AltaLink Investments LP	BBB	BBB-	165	185	228	270
BRP Finance ULC	BBB (high)	BBB	150	180	235	345
Capital Power LP	BBB	BBB-	225	270	340	430
CU Inc.	A (high)	A	55	80	120	150
CU Ltd	A	A	75	100	140	170
Emera Inc.	BBB (high)	BBB	105	125	168	210
Enbridge Gas Distribution Inc.	A	A-	55	80	115	147
Enbridge Inc.	A(low)	A-	80	100	143	185
Enbridge Pipelines Inc.	A	A-	55	80	115	147
Enbridge Income Fund	BBB(high)	-	150	180	235	320
EPCOR Utilities Inc.	A(low)	BBB+	75	95	138	180
FortisAlberta Inc.	A (low)	A-	55	80	120	150
FortisBC Inc.	A(low)	-	70	95	135	165
FortisBC Energy Inc. (Terasen Gas)	A	-	55	80	120	150
Fortis Inc.	A(low)	A-	80	100	143	185
Gaz Metro Inc.	-	A-	65	90	130	160
Hydro One Inc.	A (high)	A+	55	80	115	150
Nova Scotia Power Inc.	A (low)	BBB+	100	125	165	200
National Grid Electricity Transmission plc (Maple	-	A-	65	90	130	160
Toronto Hydro Corp.	A (high)	A	60	85	120	155
TransAlta Corp.	BBB	BBB-	260	305	363	460
Union Gas Ltd.	A	BBB+	65	90	125	160
Westcoast Energy Inc.	A (low)	BBB+	75	100	135	170
Pipeline						
Alliance Pipeline LP	A(low)	BBB+	120	150	195	240
Inter Pipeline Fund	BBB (high)	BBB+	105	135	180	225
Inter Pipeline (Corridor) Inc.	A	A	75	105	150	195
Pembina Pipeline	BBB	BBB	120	150	195	240
TransCanada PipeLines Ltd.	A	A-	60	90	130	165
Veresen Inc.	BBB (high)	BBB	145	185	235	285
Oil & Gas						
BP Capital Markets plc	A	-	80	110	160	NA
Cameco Corp.	A (low)	BBB+	125	155	205	275
Canadian Natural Resources Ltd.	BBB(high)	BBB+	100	130	180	220
Canadian Oil Sands Ltd.	BBB	BBB	170	200	250	290
Cenovus Energy Inc.	A (low)	BBB+	85	115	165	205
Nexen Inc.	BBB	BBB-	95	125	175	215
Encana Corp.	BBB	BBB	150	180	230	270
Husky Energy Inc.	A (low)	BBB+	125	155	205	245
Suncor Energy Inc.	A (low)	BBB+	95	125	175	215
Talisman Energy Inc.	BBB (high)	BBB	140	170	220	260
Total Capital Canada Ltd.	AA	AA-	65	85	135	155
Financials						
American Express Canada	A (high)	A-	85	105	160	N/A
Banks (deposit notes)	AA	AA-	75	95	125	165
Banks (sub-debt)	AA (low)	A	115	135	165	205
Banks (covered bond)	AAA	AAA	65	85	115	155
Caisse Centrale Desjardins	AA	AA-	80	100	130	170
Capital Desjardins Inc.	AA (low)	A+	N/A	145	175	215
Caterpillar Financial Services Ltd.	A	A	85	105	135	175
Citigroup Finance Canada	A	A-	150	170	220	N/A
GE Capital Canada Funding Company	-	AA+	90	125	170	200
HSBC Bank of Canada	AA	AA-	90	110	140	180
IGM Financial Inc.	A(high)	A+	140	170	215	275
John Deere Credit Inc.	A	A	80	100	130	N/A
National Bank of Canada (sub-debt)	A (high)	A-	N/A	145	175	N/A
Power Corporation of Canada	A(high)	A	160	190	235	295
Wells Fargo Canada Corp.	AA	A+	90	115	155	N/A

Canadian Debt Capital Market Update
Week Ending November 30, 2012

Indicative Corporate New Issue Spreads

Levels shown are indicative spreads of where issuers could issue in the Canadian market. Spreads are vs the Government of Canada yield curve.

	Ratings		Term			
	DBRS	S&P	3	5	10	30
Insurance						
Empire Life Insurance Company (sub opco)	A (low)	-	135	170	220	290
Fairfax Financial Holdings Ltd.	BBB	BBB-	260	290	365	N/A
Great-West LifeCo Inc. (senior holdco)	AA(low)	A+	65	100	150	220
Great-West Life Assurance (sub opco)	AA(low)	AA-	80	115	165	235
Industrial Alliance Insurance Inc. (sub opco)	A	A	160	195	245	315
Intact Financial Corporation	A (low)	-	75	110	160	255
Manulife Financial Corp. (senior holdco)	A(high)	A-	125	160	210	280
Manulife Financial Corp. (sub holdco)	A	BBB+	190	225	275	345
Manufacturers Life Insurance Co. (sub opco)	A(high)	A+	140	175	225	295
Sun Life Financial Inc. (senior)	AA(low)	A	100	135	185	255
Sun Life Financial Inc. (sub holdco)	A(high)	A-	165	200	250	320
Auto Issuers						
Honda Canada Finance Inc.	A (high)	A+	85	105	140	N/A
BMW Canada Inc.	-	A	85	105	160	N/A
Ford Credit Canada Inc.	BBB(low)	BB+	185	215	270	N/A
Toyota Credit Canada Inc.	AA(low)	AA-	70	90	125	N/A
VW Credit Canada Inc.	-	A-	85	105	160	N/A
Daimler Canada Finance Inc.	A(low)	A-	100	120	175	N/A
Maple Issuers						
Australian Bank Covered Bond	AAA	AAA	N/A	95	170	N/A
ANZ National Bank Ltd	AA	AA-	N/A	130	205	N/A
Commonwealth Bank of Australia	AA	AA-	N/A	120	195	N/A
National Australia Bank Ltd.	AA	AA-	N/A	125	200	N/A
Westpac Banking Corp.	AA	AA-	N/A	120	195	N/A
Rabobank	AAA	AA	N/A	135	210	N/A
Nordea Bank AB	-	AA-	N/A	145	220	N/A
Lloyds TSB Bank Plc.	AA(low)	A	N/A	195	240	N/A
MetLife Global Funding (GIC)	-	AA-	110	125	N/A	N/A
New York Life Global Funding (GIC)	-	AA+	90	105	N/A	N/A
The Goldman Sachs Group, Inc.	A (high)	A	185	205	275	N/A
Morgan Stanley	A (high)	A-	245	265	335	N/A
Bank of America Corporation	A-	A	145	185	225	N/A
JPMorgan Chase & Co.	A (high)	A	135	160	200	N/A
Citigroup Inc.	A	A-	N/A	185	235	N/A
Deutsche Bank	-	A+	130	155	195	N/A
The Royal Bank of Scotland	A(high)	A	N/A	205	250	N/A
Consumer Products / Retail / Info Services/Other						
407 International Inc.	A	A	65	90	120	155
Anheuser-Busch InBev Worldwide Inc. (Maple)	-	A	70	90	140	215
British Columbia Ferry Services Inc.	A	A+	85	110	140	175
Brookfield Asset Management Inc.	A(low)	A-	150	180	235	345
Brookfield Infrastructure Finance	-	BBB+	170	200	255	365
Canadian Tire Corporation Ltd.	BBB(high)	BBB+	90	120	170	280
EnerCare Solutions Inc.	A (low)	A-	250	290	265	N/A
Canadian Pacific Railway Company	BBB	BBB-	130	160	195	265
Finning International Inc.	A (low)	BBB+	110	130	180	245
George Weston Limited	BBB	BBB	100	130	180	305
AIMIA	BBB	BBB-	260	300	375	N/A
Greater Toronto Airports Authority	A	A	65	90	120	155
Loblaw Companies Limited	BBB	BBB	90	120	170	280
Molson Coors International LP (Maple)	BBB	BBB-	115	145	195	270
Metro Inc.	BBB	BBB	70	100	150	260
NAV Canada	AA (low)	AA-	50	75	115	145
Shoppers Drug Mart Corporation	A(low)	BBB+	65	95	145	220
Sobeys Inc.	BBB	BBB-	110	140	190	310
Thomson Reuters Corp	A (low)	A-	80	110	160	235
REIT						
RioCan REIT	BBB(high)	BBB-	125	160	225	N/A
First Capital Realty Inc.	BBB(high)	-	125	160	225	N/A
Calloway REIT	BBB	-	145	180	245	N/A
Boardwalk REIT	BBB	-	125	160	225	N/A
H&R REIT	BBB	-	160	195	260	N/A
Cominar REIT	BBB (low)	-	205	240	305	N/A
Pension Funds						
CDP Financial Inc.	AAA	AAA	55	80	115	145
Cadillac Fairview Corp.	AAA	AAA	55	80	115	145
OMERS	AAA	AAA	60	85	120	145
OPB Finance Trust	AA (high)	AAA	60	85	120	145
bcIMC	AA	-	70	105	145	170
Composites						
A Composite			90	116	155	194
BBB Composite			107	135	184	255

Appendix 10 – AOLP Preliminary Transmission Line Technical Specification

OEB E-W Tie Line

Appendix 10 – AOLP Preliminary Transmission Line Technical Specification

OEB E-W Tie Line

Appendix 10

AOLP
PRELIMINARY TRANSMISSION LINE TECHNICAL SPECIFICATION
OEB E-W TIE LINE
(230kV Wawa to Thunder Bay Transmission Line)

Prepared by:

Brian Townsend P.Eng

Reviewed by:

Magdi Ishac P.Eng

Dec 12, 2012

Contents

General Information

The Ontario Power Authority (OPA) identified the need to expand the bulk transmission system in Northern Ontario. The OPA identified a Reference Case which consists of the construction of a new 230 kV double-circuit line between Wawa TS and Lakehead TS, with intermediate terminations into Marathon TS. The solution was identified based on feasibility, flexibility, and technical considerations.

The proposed East-West Tie Line will consist of a 400 km, 230 kV, double circuit transmission line between Wawa TS, Marathon TS, and Lakehead TS. This document presents the preliminary technical requirements and design concept for engineering of the East-West Tie Line.

Environmental Conditions

Summer Ambient Air Temperature: 30°C

Winter Ambient Air Temperature: 10°C

Average Elevation: 720m

Line Direction: East-West

Power System Conditions

System Frequency	60 Hz
Nominal System Voltage	230 kV
Fault current	Wawa TS: 30 kA, Marathon TS: 30kA, Lakehead TS: 40kA Duration: 12 Cycles (for Breaker Fail)

Conductor Selection

The facility estimate is based on the OEB reference design using 1x1192.5 kcmil ACSR 'Grackle' conductor. However, based on preliminary conductor evaluations it may be cost-effective to move to the area equivalent trapezoid (Grackle/TW) as an alternative conductor pending further evaluation and approval from the OEB and IESO. For a 3-5% cost increase over traditional round wire ACSR, the 1192.5 kcmil ACSR/TW wire can provide the same electrical properties with an 8% decrease in conductor diameter. The smaller conductor size may result in reduced tower loading and tower weight which would also reduce the tower and foundation costs.

Reference Conductor

Conductor	1192.5 kcmil ACSR 'Grackle'
Number / Phase	1
RTS	186.3 kN
Outside Diameter	33.9 mm
Cross section area	680.8 mm²
Unit weight	22.3 N/m
Strand	54/19

Alternate Conductor

Conductor	1192.5 kcmil ACSR/TW 'Grackle/TW'
Number / Phase	1
RTS	186.3 kN
Outside Diameter	31.0 mm
Cross section area	680.8 mm²
Unit weight	22.3 N/m
Strand	38/19

Lightning Protection and Grounding

Adequate lightning, line grounding, and fault current protection shall be provided for the line. Two over head shield wires (One (1) x OPGW + One (1) x OHSW) shall be installed and carried thru to the substation. The shielding angle for lightning requirements shall not exceed 15° at D/C structure and 20° at S/C structure and the shield wire shall be bonded with the lattice steel structures. Final shielding angles will be determined based on a ground resistivity study and detailed tower design to reach the circuit performance values as specified in the OEB Minimum Design Criteria.

Overhead shield wire shall be dead-ended with a ceramic insulator to the station entrance structure. An insulated down-lead cable shall be provided to connect the overhead ground wire to the station ground grid.

Shield wire Selection

Ground Wire type	7#5 Alumoweld*
RTS	120.2 kN
Outside Diameter	13.87 mm
Cross section area	150.87 mm²
Unit weight	7.66 N/m
Strands	7
OPGW	AFL(DNO-8632), SFPCO(J-5874) or similar*
Number of fibers	48
RTS	~97kN
Outside Diameter	~13.4mm
Type	Single Mode

*OHSW and OPGW types to be finalized during detailed design.

Line Insulation

Minimum BIL	1050 kV
Minimum CIFO	1155 kV
Minimum Leakage distance	3.98 m
Material	Porcelain or Glass
Minimum Strength Requirement	As per design

Airgaps

Table 1 – Airgap Requirements

	Steady State*	**CSA C22.3 No.1-06**	**5 yr Gust**	**Moderate Wind**
Wind Pressure (Pa)	45	230	350	230
Wire Temp (°C)	4	4	4	-30

Air Gap (mm)	2100	1586	600 (ph-gnd) 1020 (ph-ph)	1200

*Steady State condition is not included in the OEB Minimum Design Criteria document. It has been calculated based on IEEE 1313.2 "IEEE Guide for the Application of Insulation Coordination".

Environmental Loadings

Table 2 – Environmental Loading Requirements

	CSA C22.3 No.1-06	Cold Temperature	50 yr Wind	Static Ice	Maintenance*
Ice (mm)	12.5	0.0	0.0	25	0.0
Ice Density (kg/m3)	900	N/A	N/A	900	N/A
Conductor Wind (Pa)	400	0	770	0	45
Tower Wind (Pa)	1200	0	2110	0	135
Temperature (°C)	-20	-50	10	0	-30

*Maintenance condition is not included in the OEB Minimum Design Criteria document and is based on AltaLink safe practices. This condition includes the conductor tie-down load.

Design Load and Strength Factors

Table 3 - Reliability Based Design – Strength Factors

	SF Tangent	SF Angle	SF Deadend
Metal Structures	1.0	0.9	0.9
Wood Structures	0.75	0.75	0.75
Support Hardware	1.0	1.0	0.9
Insulators	0.8	0.8	0.8

Table 4 - Deterministic Based Design (CSA C22.3 N01-06) – Grade 2 – Overload Factors

	Vertical	Transverse	Longitudinal
Steel Towers	1.15	1.1	1.1
Steel Poles Strs	1.15	1.1	1.1
Wood Pole Strs	1.5	1.3	1.3
Insulators	2	2	2

Conductor and Shield Wire Tension Criteria

Table 5 - Phase Conductor Tension Criteria

	Temperature (°C)	UTS (%)	Condition
OEB Vibration Limit	-30.0	25	Initial
CSA Vibration Limit	3.0	35	Initial
CSA Vibration Limit	3.0	25	Final
CSA Loading	-20.0	60	Final
OEB Tech Requirement*	15.0	20	Final

*Based on clause 3.5.1 of the OEB Minimum Technical Requirements. It does not appear in the Appendix A: Minimum Design Criteria.

Table 6 - Shield Wire Tension Criteria

	Temperature (°C)	UTS (%)	Condition
OEB Vibration Limit	-30.0	25	Initial
CSA Vibration Limit	3.0	20	Initial
CSA Vibration Limit	3.0	15	Final
CSA Loading	-20.0	60	Final

Ground Clearance

Minimum safe clearances must be provided between the transmission line conductors and ground, trees, railways, waterways, buildings, other overhead lines and other installations. Design clearances shall apply at the weather/thermal condition that produces the maximum conductor sag.

Table 7 – Ground Clearance Requirements

	Code	Clearance	Design SF	Total Design Clearance
Roads and Alleys	CSA	6.1	1.2	7.3
Pipelines	CSA	6.1	1.2	7.3
Agricultural	CSA	6.1	3.9	10.0
Highways	CSA	7.9	1.2	9.1
HLC	OEB			11.5
EHLC	OEB			15.3
Railway	CSA	9.0	0.6	9.6

When in close proximity to or crossing of railways, airport, navigable water-ways, pipelines, highways, roads, etc. special clearances or other requirements as established by the owners or governing authority of those facilities may be required. These clearances or other requirements shall be adhered to in the design and construction of the transmission line.

Vibration Dampers

Stockbridge type vibration dampers will be installed on full tension spans of 100m of greater for the conductor and OHSW. Damper quantity and placement per span will be calculated in conjunction with the damper manufacturer's recommendations.

OPGW vibration damping type, quantity and placement will be determined in partnership with the OPGW and damper manufacturers. Stockbridge dampers are not recommended on certain OPGW wires.

Conductor Galloping

As per the requirements of the OEB, the AOLP East-West Tie towers will be designed to meet the galloping requirements of CIGRE Technical Brochure No. 322 “State of the Art of Conductor Galloping”. However, AltaLink has extensive experience designing for and mitigating against galloping in our Alberta system. Based on this experience, as well as indications from Hydro One that galloping has not typically been an issue in this area we believe that adding the galloping criteria into the design of the tower as a preventative measure may not be the most cost-effective means to protect against the phenomena. In the existing AML transmission system, we have successfully installed interphase spacers on the small portions of our 240kV system where galloping is known to occur as a cost effective means to mitigate the issue without building a preventative cost into the towers of the entire line. Based on this experience, AOLP has also undertaken the preliminary design for a tower family that does not meet the CIGRE galloping criteria. AOLP is open to either option as well as a number of hybrid solutions and we are willing to provide any additional information requested by the OEB.

The inclusion of the galloping criteria adds approximately 5.5m to the width of the structure and 4m to the height. In addition to reducing the size, weight and cost of the towers (as well as the resulting foundations), the removal of the galloping criteria may result in a decrease in the size of right-of-way required for the facility. This may further reduce the cost and environmental impact of the project.

The following figure outlines preliminary tower dimensions for a non-galloping designed (EW22A) and galloping designed (EW22AG) tower, with the coloured ellipses representing the conductor galloping as per the CIGRE calculations.

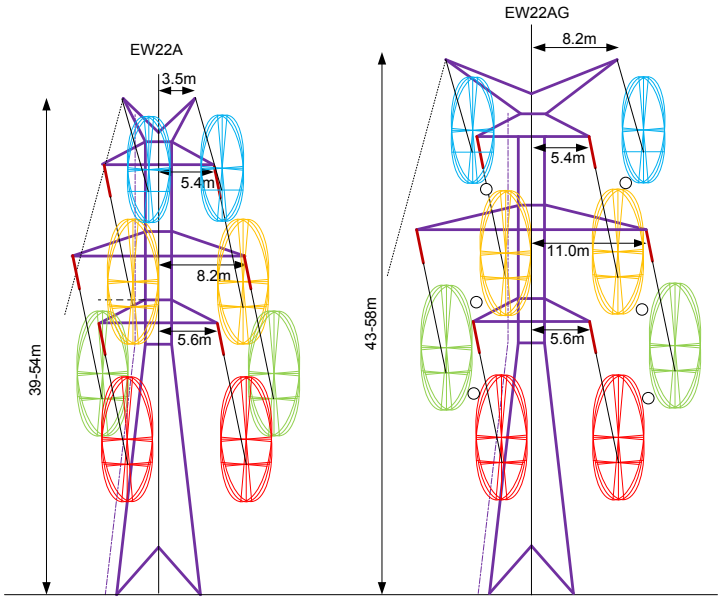


Figure 1 – Tower Comparison

Structure Types

Table 7 - Galloping Tower Design

Name	Structure Type	Configuration	Typical RS (m)	Comments
EW22AG	Steel Tower	Self supporting	400-450	D/C Tangent (0-1°)
EW22BG	Steel Tower	Self supporting	400-450	D/C Light Angle (1°-5°)
EW22CG	Steel Tower	Self supporting	400-450	D/C Medium Angle (5°-15°)
EW22EG	Steel Tower	Self supporting	400-450	D/C 45° Angle (0°-45°)
EW22FG	Steel Tower	Self supporting	400-450	D/C Dead-end (0°-90°)

Table 8 - Non-Galloping Tower Design

Name	Structure Type	Configuration	Typical RS (m)	Comments
EW22A	Steel Tower	Self supporting	400-450	D/C Tangent (0-1°)

EW22B	Steel Tower	Self supporting	400-450	D/C Light Angle (1°-5°)
EW22C	Steel Tower	Self supporting	400-450	D/C Medium Angle (5°-15°)
EW22E	Steel Tower	Self supporting	400-450	D/C 45° Angle (0°-45°)
EW22F	Steel Tower	Self supporting	400-450	D/C Dead-end (45°-90°)

Long Span Tower

AOLP is currently planning on designing a separate long span tangent structure for major crossings that exceed the EW22A criteria. Designing a separate tower will reduce the weight requirement and cost of the typical tangent.

Table 9 – Long Span Tower

Name	Structure Type	Configuration	Typical RS (m)	Comments
EW22LS	Steel Tower	Self supporting	800-1500	D/C Tangent (0-1°)

H-Frame Design

AOLP has (and will continue) to investigate the use of a parallel single circuit H-Frame design to be used as an alternative to the D/C steel towers.

Table 10 – H-Frame Structure

Name	Structure Type	Configuration	Typical Span(m)	Comments
EW21AH	H-Frame	Self supporting	240	S/C Tangent (0°-1°)

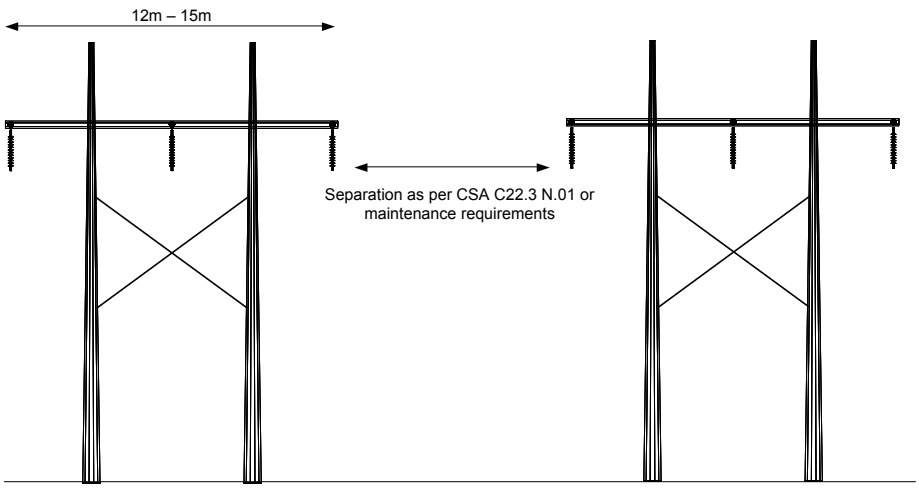


Figure 2 – Parallel H-Frame Design

230kV Crossing Structures

For crossing under the existing 230kV transmission line AOLP is proposing to use single-circuit deadend H-Frame structures. These locations may also be used as transposition points as determined by a study during detailed design.

Table 11 – Crossing Structure

Name	Structure Type	Configuration	Typical Span(m)	Comments
EW21FU	H-Frame	Self supporting	120-160	S/C Deadend (0°-60°)

Foundations

Structure foundation including guy anchors shall be designed to meet structure load requirements for soil conditions at the structure locations. Under no circumstances shall frozen backfill be used. Designs are required for firm setting in various soil types including swamp, wet or low bearing soils, rock, muskeg, and most consider scour protection. The foundation shall be designed for the full capacity of the structure type, with a foundation overload factor of 1.2.

Ground bearing and shear strength will be confirmed through basic soil investigations. Foundation type shall be concrete auger/caisson or pad and chimney footings in clay soil, and rock anchor or grillage in rocky terrain.

For the excavated foundations (pad and chimney type), since the excavated soil may not be suitable for re-compaction, imported fills will be considered.

Anti-Cascading Structures

Based on initial calculations, it appears the most cost-efficient means to limit tower cascading is with the installation of anti-cascading deadend towers to limit the affected section of line to at most 5km. However, during further tower design and tower spotting, it may be determined that the requirement for additional deadend tower placement exceeds the cost of designing a broken wire condition (RSL loading) into the tangent structures as an alternate means of limiting tower cascading. We will also be further investigating the benefits of adding RSL loading to the long span tangent structures.

Aerial Markers

Towers, conductors and/or shield wires will be marked at highway, railway, pipeline, transmission line and/or navigable water crossings as per industry and 3rd party requirements and AOLP standards.

Aerial marker boards will be installed on the structures outside the substations and on every 10th structure.

Grounding and Bonding

The grounding requirements for line structure will depend on the soil resistivity along the line route. Overhead ground wire shall be connected to a down lead ground wire on the structure. Bonding is required between all metallic hardware and all metallic components of the structure, overhead ground wire, and structure grounds.

Each line structure shall be grounded to achieve a resistance of 20 ohm or less (based on lightning study), measured without the overhead ground wire connected to the structure. This is typically achieved though a ground wire and ground rods although alternate arrangements such as counterpoises may be required.

Environmental Legislation and Compliance

All work shall be executed in accordance with the Environmental Assessment Report and all commitments made during the Environmental Assessment, planning, and construction of the project.

All work shall comply with the following legislation, as well as all other applicable legislation, by-laws, etc to minimize the potential for any significant, adverse environmental effects and associated liability, fines or charges during construction.

Table 12 - Legislation

Legislation	Administering Agency
Federal Legislation	
Aeronautical Act	Transport Canada
Canada Transportation Act	Transport Canada
Explosives Act	Natural Resources Canada
Fisheries Act	Fisheries and Oceans Canada/Conservation Authority
Migratory Birds Convention Act	Environment Canada
Navigable Waters Protection Act	Transport Canada
Railway Safety Act	Transport Canada
Species at Risk Act	Environment Canada
Transportation of Dangerous Goods Act	Transport Canada
Provincial Legislation	
Conservation Authorities Act	Conservation Authorities
Crown Forest Sustainability Act	Ministry of Natural Resources
Endangered Species Act	Ministry of Natural Resources
Environmental Protection Act	Ministry of the Environment
Fish and Wildlife Conservation Act	Ministry of Natural Resources
Forest Fire Prevention Act	Ministry of Natural Resources
Lakes and Rivers Improvement Act	Ministry of Natural Resources
Niagara Escarpment Planning and	Niagara Escarpment Commission

Development Act	
Ontario Heritage Act	Ministry of Culture
Ontario Water Resources Act	Ministry of Environment
Planning Act	Ministry of Municipal Affairs and Housing
Provincial Highways Act	Ministry of Transportation
Public Lands Act	Ministry of Natural Resources

Monitor environmental conditions during construction and restoration on a daily basis, or as committed to in the Environmental Assessment Report, conditions of Environmental Assessment approval, or any other commitments made during the planning phase of the project to ensure compliance with legislation and associated regulations are required.

Codes and Standards

Following standards and procedures shall be followed for the transmission line design:

Ontario Energy Board "Minimum Technical Requirements for the Reference Option of the E-W Tie Line"

Ontario Energy Board Appendix A "Minimum Design Criteria for the Reference Option of the E-W Tie Line"

CSA C22.3 No. 1, "Overhead Systems"

CSA C22.3 No. 3, "Electrical Coordination"

CSA C22.3 No. 6, "Principles and Practices of Electrical Coordination Between Pipelines and Electric Supply Lines"

CSA C22.3 No. 60286, "Design Criteria of Overhead Transmission Lines"

CSA O15-90, "Wood Utility Poles and Reinforcing Stubs"

CSA O80 SERIES-08 – "Wood Preservation"

CSA C108.3.1, "Limits and Measurement Methods of Electromagnetic Noise from AC Power Systems, 0.15-30 MHz"

CAN/CSA-C411.1-10 – "AC Suspension Insulators"

CSA C411.4-10, "Composite Suspension Insulators for Overhead Lines > 75 kV"

CSA C57-98 (R2006), “Electric Power Connectors for Use in Overhead Line Conductors”

CSA C83-96 (R2005), “Communication and Power Line Hardware”

CAN/CSA-C61089:03, “Round Wire Concentric Lay Overhead Electrical Stranded Conductors”

CAN/CSA-C60888:03, “Zinc-coated Steel Wires for Stranded Conductors”

CAN/CSA-C60889:03, “Hard Drawn Aluminum Wire for Overhead Line Conductors”

CSA G12, “Zinc-Coated Steel Wire Strand”

CSA-C49.2-10, “Compact Round Aluminum Conductors Steel Reinforced (ACSR)”

CSA-G164, “Hot Dip Galvanizing of Irregularly Shaped Articles”

G40.20-04/G40.21-04 (R2009) – “General Requirements for Rolled or Welded Structural Quality Steel/ Structural Quality Steel”

ASME-BPVC-SEC 2C-2010 - Section 2 - Materials - Part C – “Specifications for Welding Rods, Electrodes, and Filler Metals”

ASCE 10-97, “Design of Latticed Steel Transmission Structures”

ASCE 48-05, “Design of Steel Transmission Pole Structures”

ASCE 74, “Guidelines for Electrical Transmission Line Structural Loading”

ASTM A394, “Standard Specification for Steel Transmission Tower Bolts, Zinc-Coated and Bare

ASTM A572, “Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel

IEEE 751, “Trial Use Design Guide for Wood Transmission Structures”

IEC 61897, “Requirements and Tests for Stockbridge Type Aeolian Vibration Dampers”

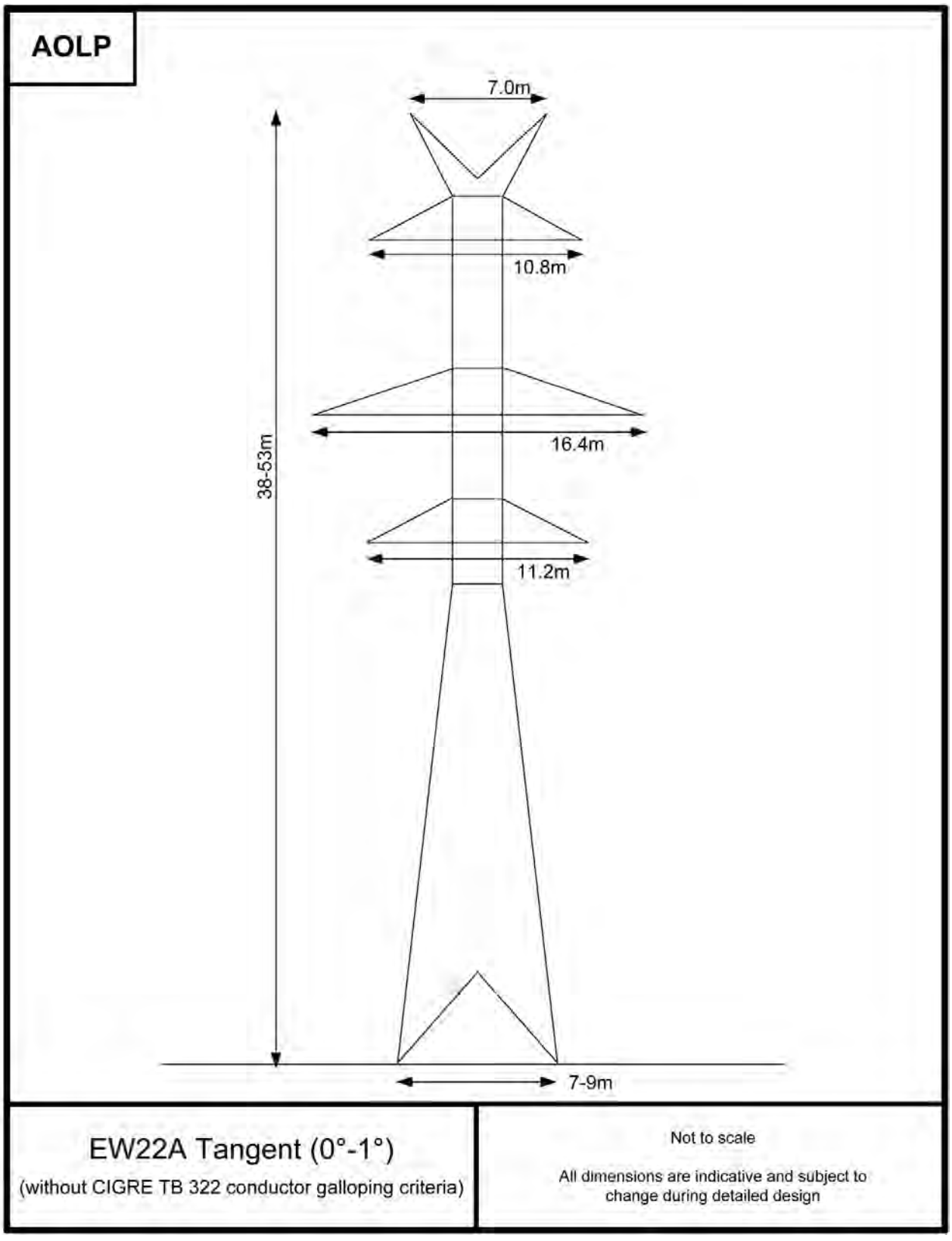
IEEE 1313.2 “IEEE Guide for the Application of Insulation Coordination”

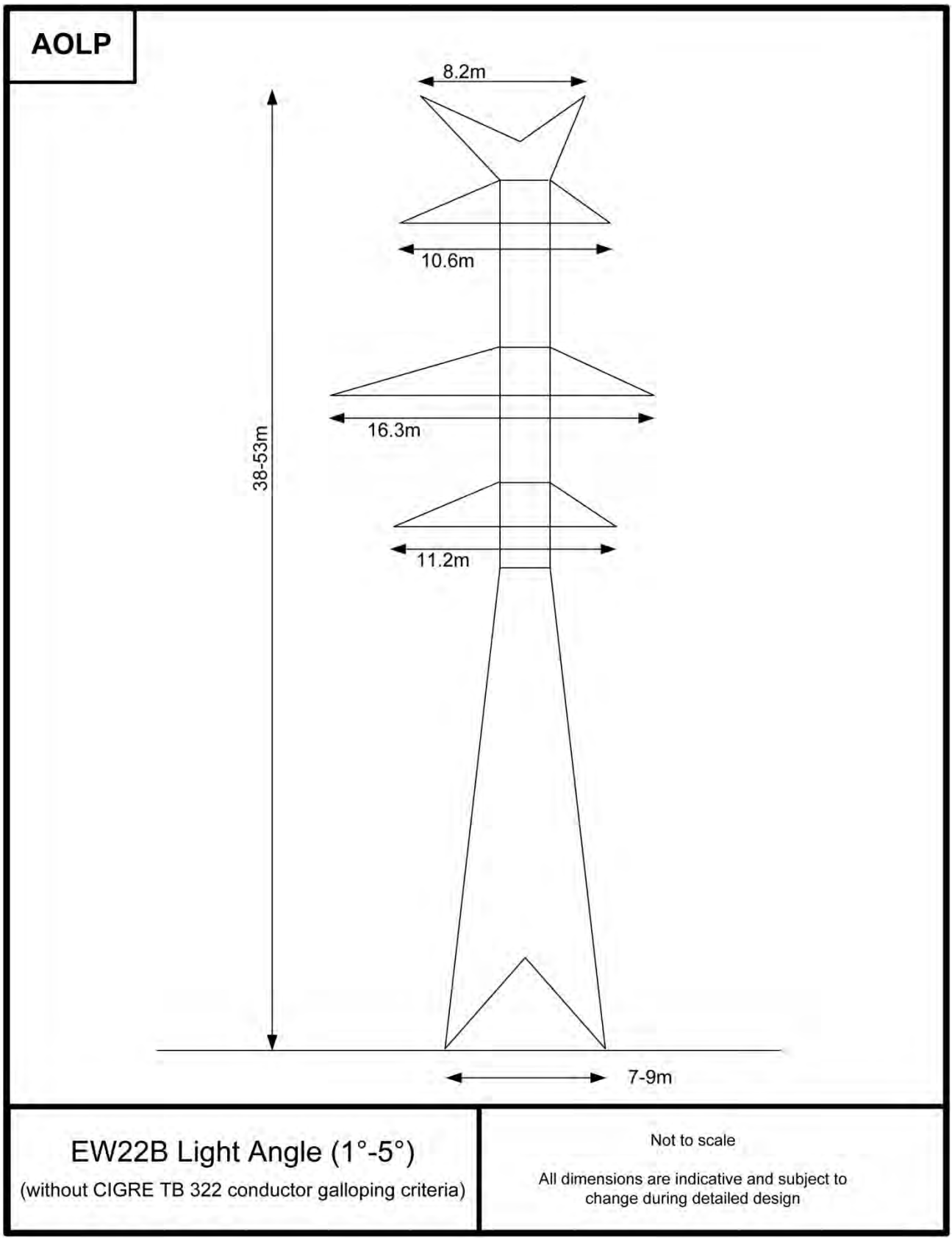
CIGRE Technical Brochure 322 “State of the Art of Conductor Galloping”

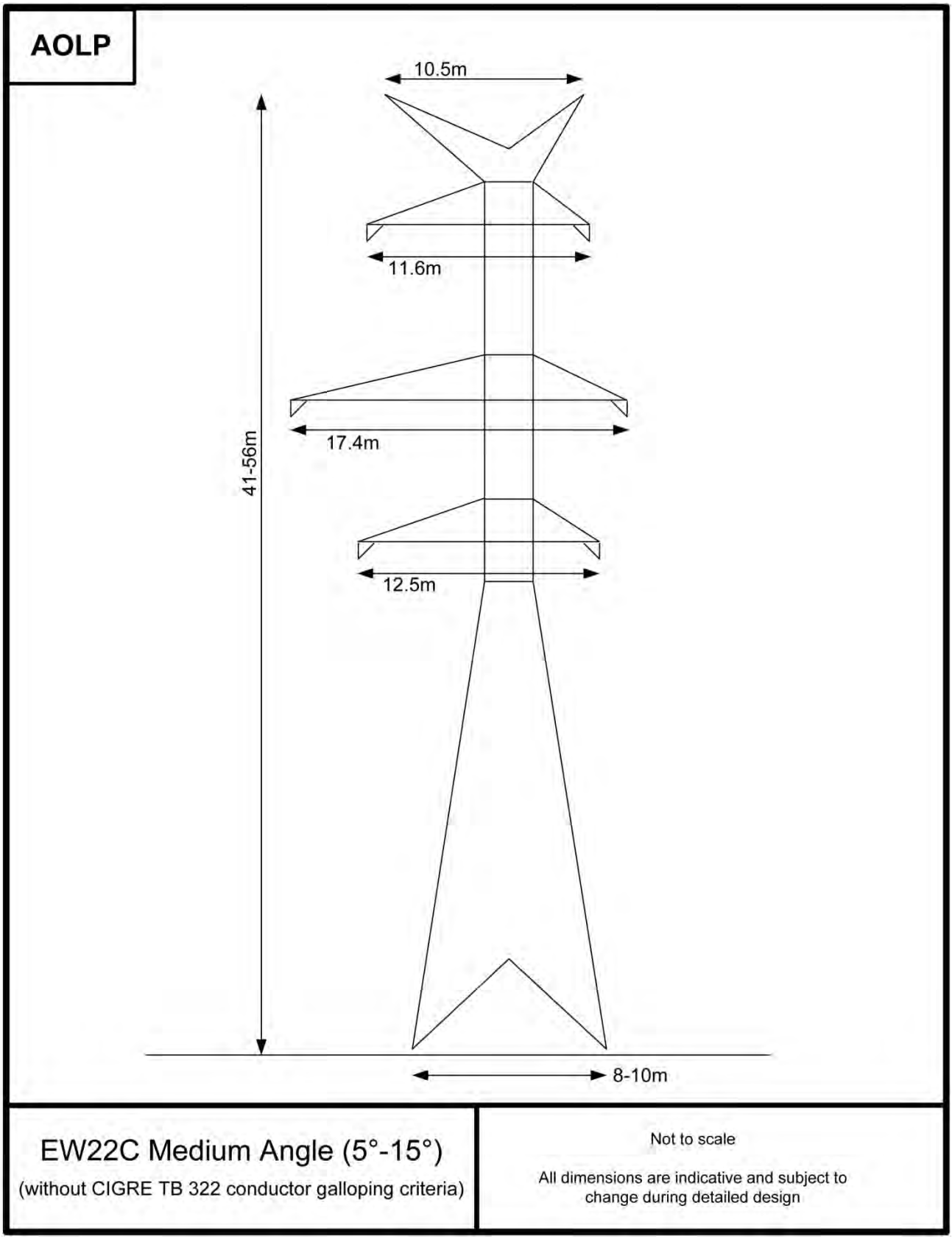
ALTALINK
ONTARIO LIMITED PARTNERSHIP

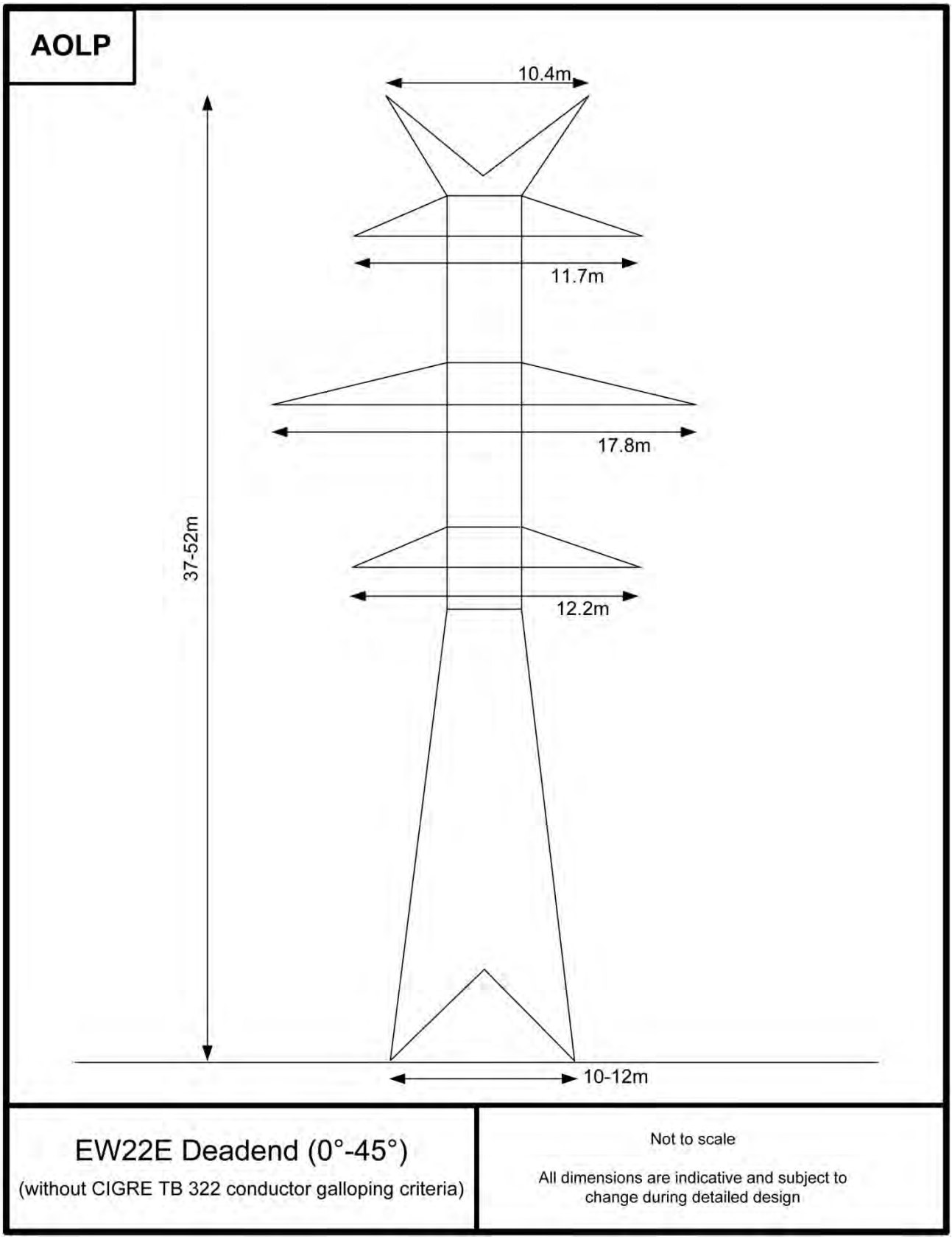
Appendix 11 – East-West Tie Towers

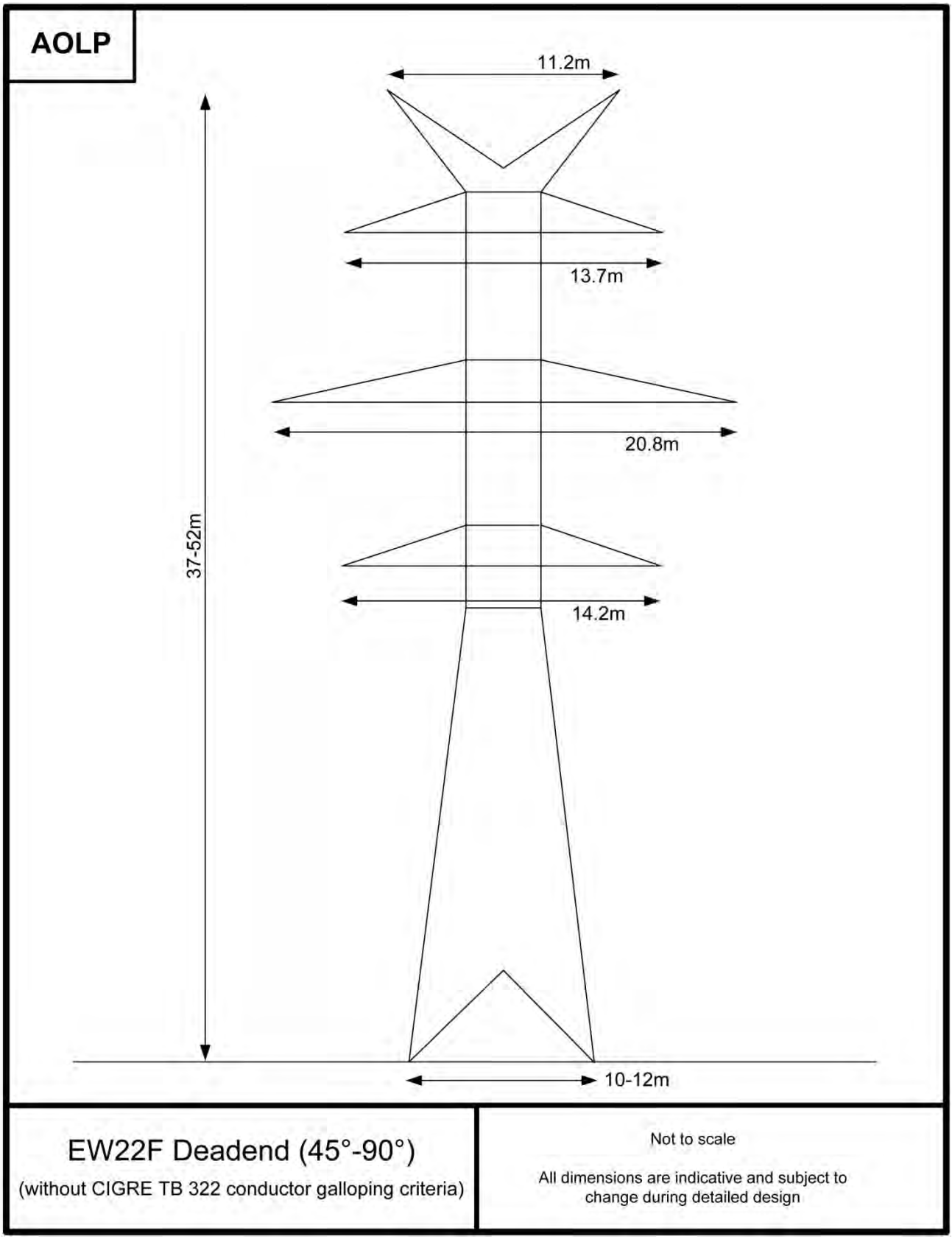
Appendix 11 – East-West Tie Towers

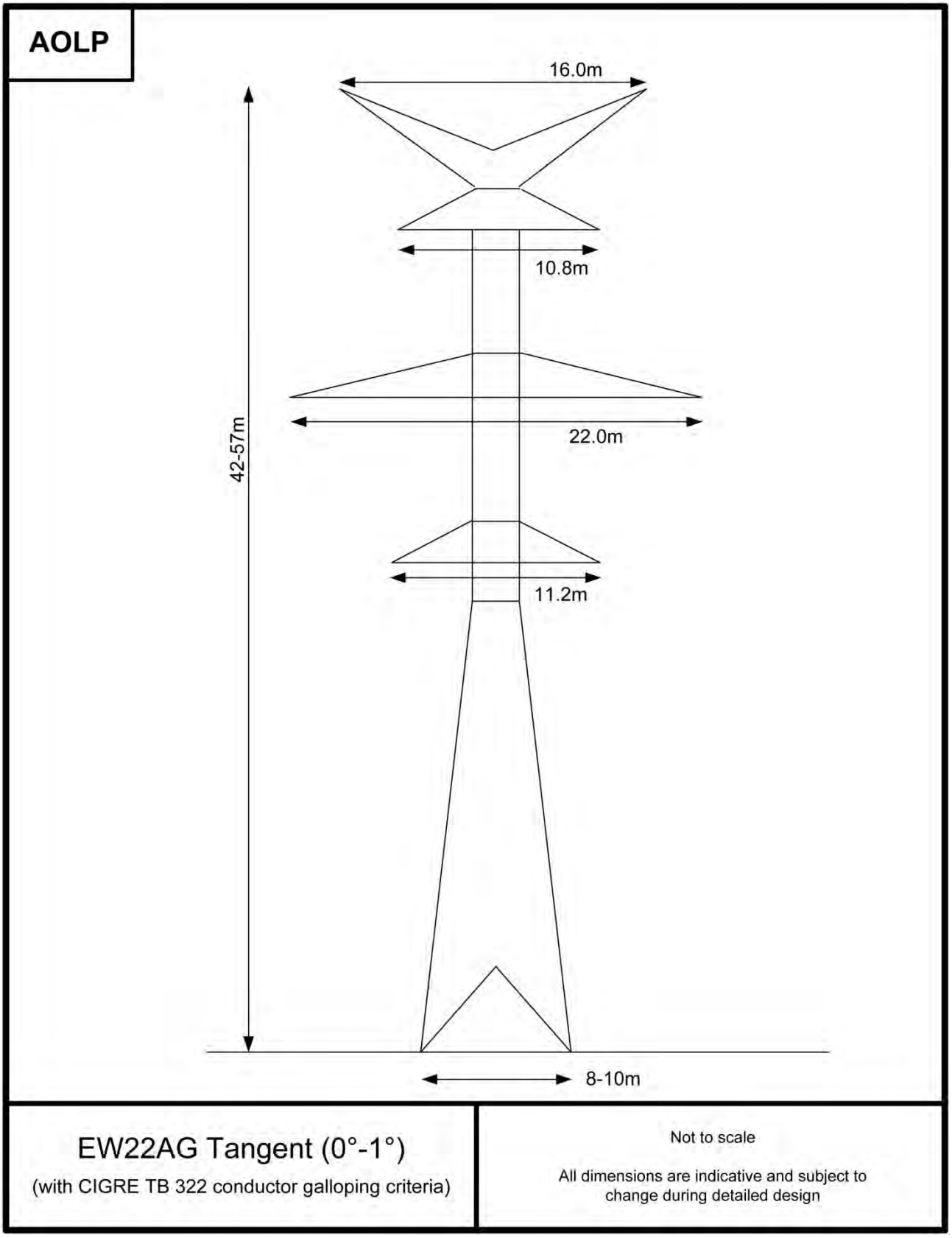


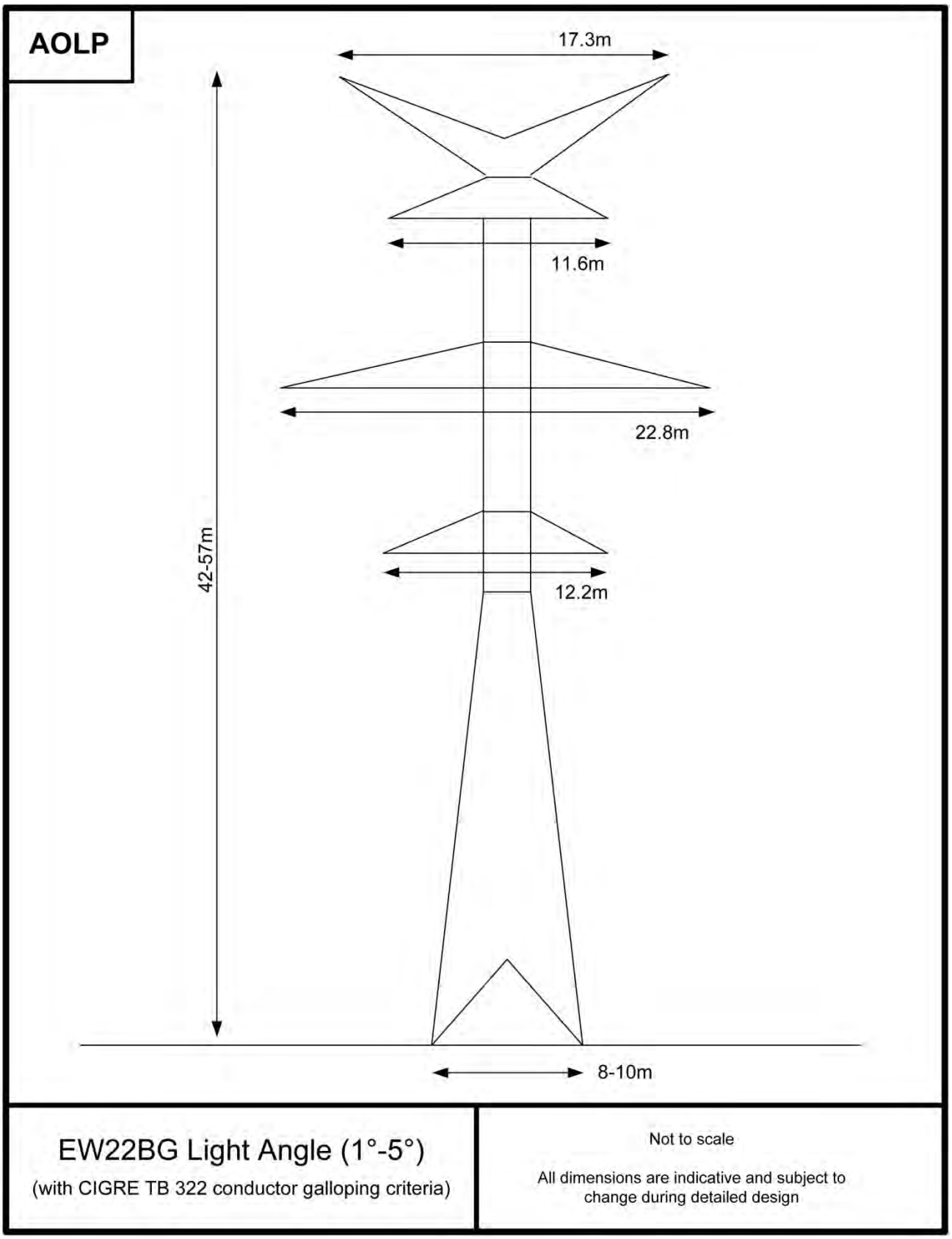

AOLP
8.2m
10.6m
16.3m
11.2m
38-53m
7-9m
EW22B Light Angle (1°-5°)
(without CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design

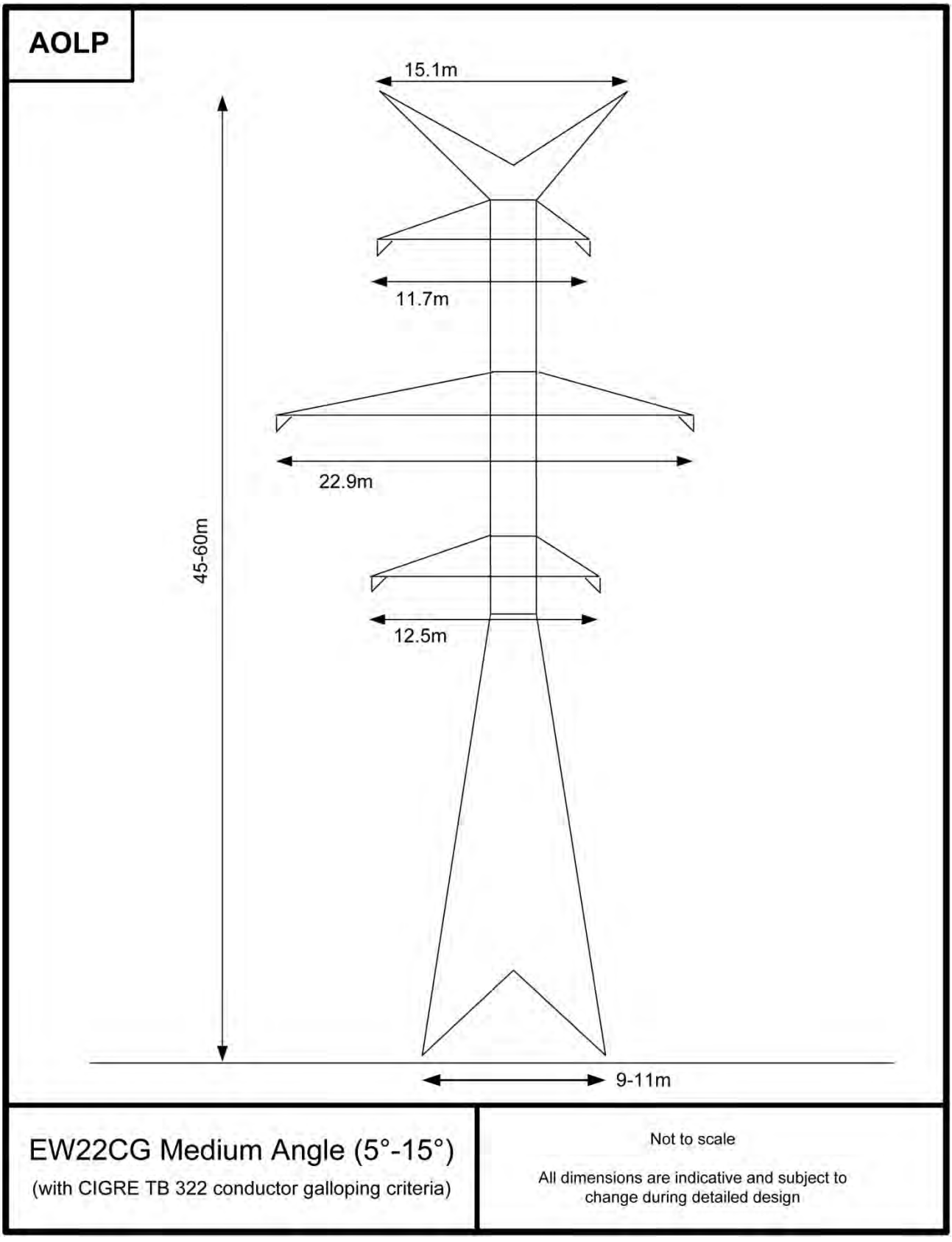

AOLP
10.5m
11.6m
17.4m
12.5m
41-56m
8-10m
EW22C Medium Angle (5°-15°)
(without CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design


AOLP
10.4m
11.7m
17.8m
12.2m
37-52m
10-12m
EW22E Deadend (0°-45°)
(without CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design


AOLP
11.2m
13.7m
20.8m
14.2m
37-52m
10-12m
EW22F Deadend (45°-90°)
(without CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design


AOLP
16.0m
10.8m
22.0m
11.2m
42-57m
8-10m
EW22AG Tangent (0°-1°)
(with CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design


AOLP
17.3m
11.6m
22.8m
42-57m
12.2m
8-10m
EW22BG Light Angle (1°-5°)
(with CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design

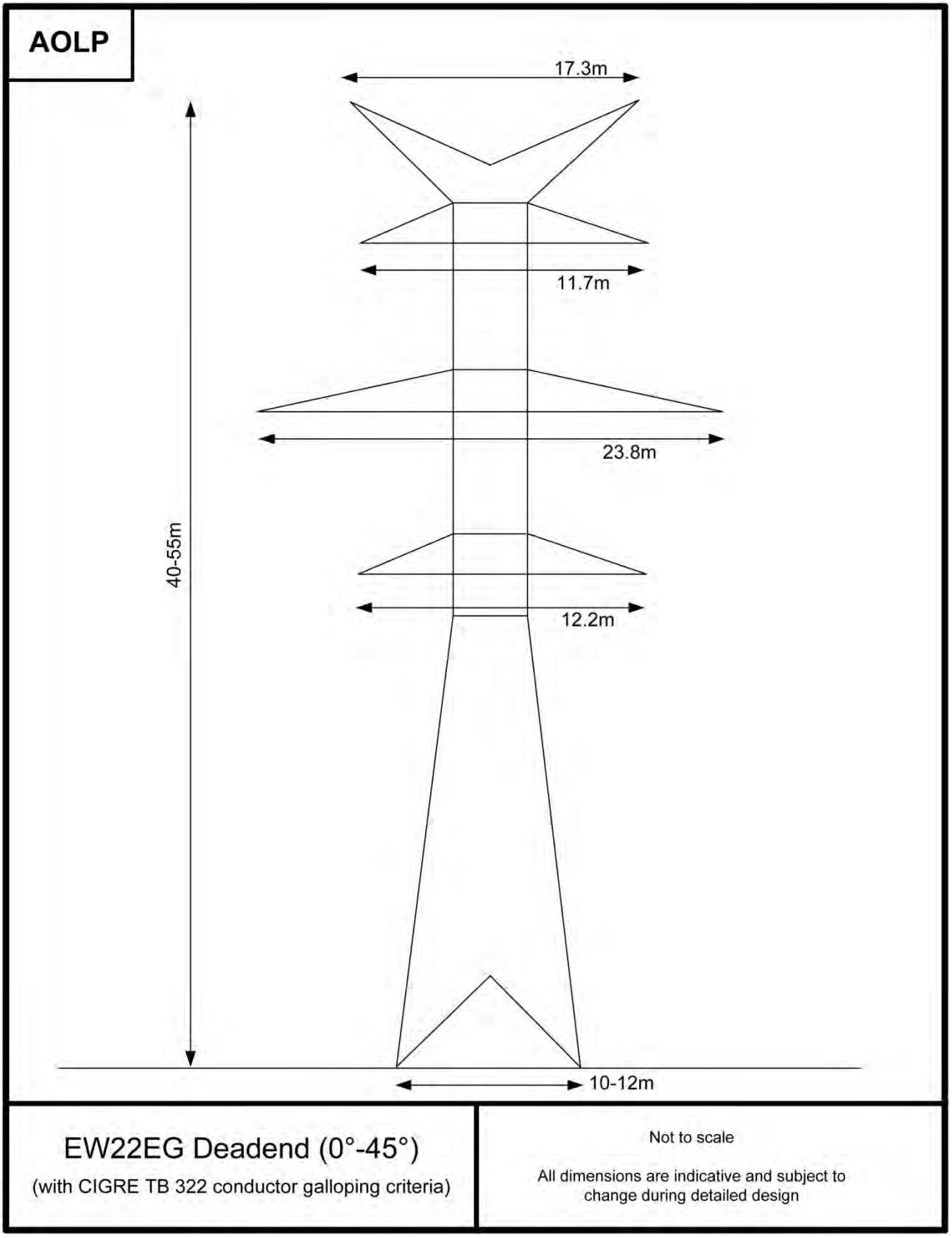


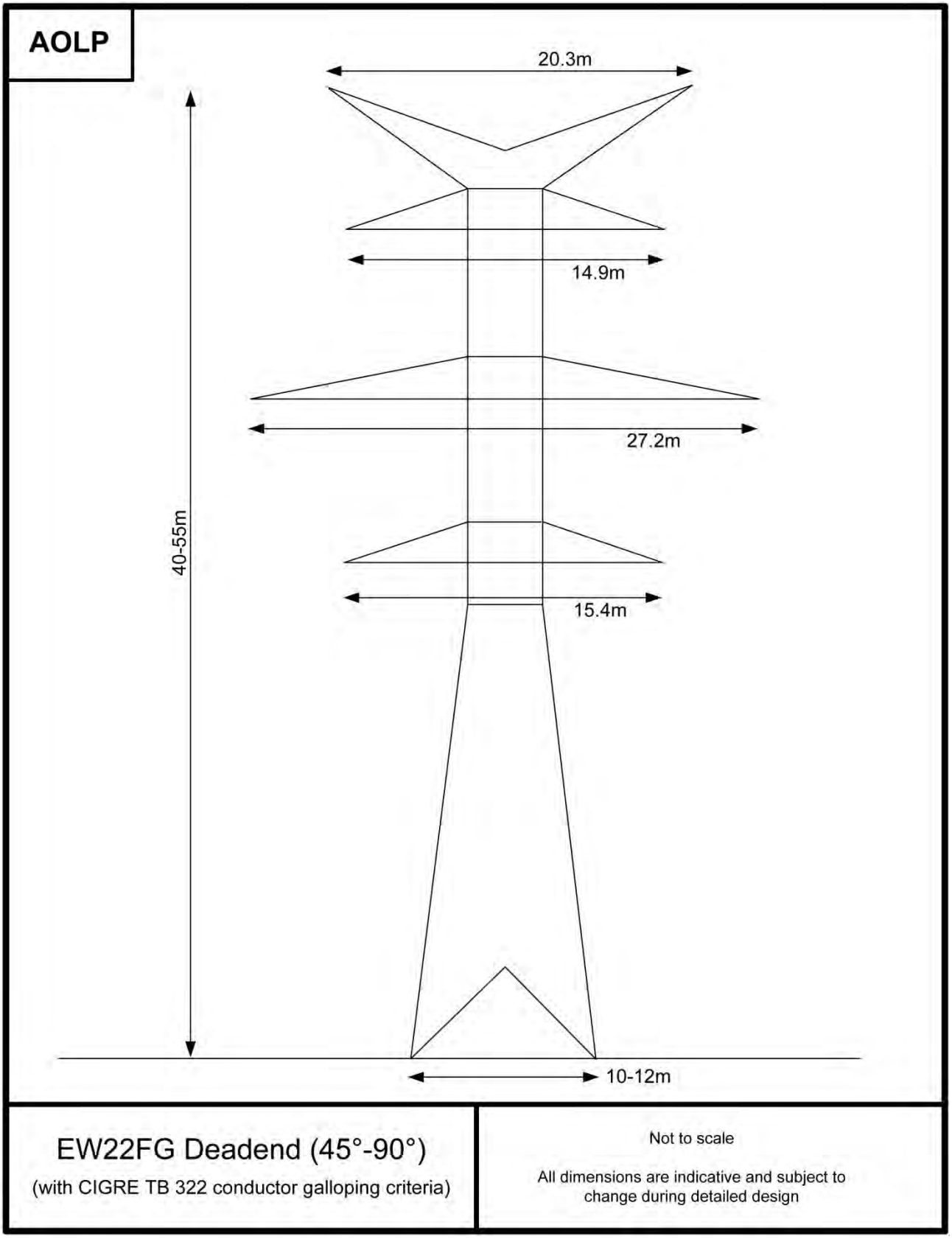
EW22CG Medium Angle (5°-15°)

(with CIGRE TB 322 conductor galloping criteria)

Not to scale

All dimensions are indicative and subject to change during detailed design


AOLP
17.3m
11.7m
23.8m
12.2m
40-55m
10-12m
EW22EG Deadend (0°-45°)
(with CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design


AOLP
20.3m
14.9m
27.2m
15.4m
40-55m
10-12m
EW22FG Deadend (45°-90°)
(with CIGRE TB 322 conductor galloping criteria)
Not to scale
All dimensions are indicative and subject to change during detailed design

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 12 – Affidavit of Scott Thon

Appendix 12 – Affidavit of Scott Thon

OEB File: EB-2011-0140

IN THE MATTER OF sections 70 and 78 of the Ontario Energy Board Act 1998, S.O.1998, c.15, (Schedule B);

AND IN THE MATTER OF a Board-initiated proceeding to designate an electricity transmitter to undertake development work for a new electricity transmission line between Northeast and Northwest Ontario: the East-West Tie Line.

AFFIDAVIT OF SCOTT THON

I, Scott Thon, of the City of Calgary, in the Province of Alberta, MAKE OATH AND SAY THAT:

1. I am a Director of AltaLink Ontario Management Ltd.
2. AltaLink Ontario Management Ltd. on behalf of AltaLink Ontario L.P. holds Electricity Transmission Licence ET-2011-0126.
3. AltaLink Ontario Management Ltd. on behalf of AltaLink Ontario L.P. is an applicant in the matter of Ontario Energy Board file EB-2011-0140, *Proceeding to designate a transmitter to carry out development work for the East-West Tie line*.
4. I am responsible for the Application for Designation for the East-West Tie Line to be filed by AltaLink Ontario Management Ltd. on behalf of AltaLink Ontario L.P. on January 4, 2013 with the Ontario Energy Board (the Application).
5. I confirm that the East-West Tie Line will be designed to meet or exceed the existing North American Electric Reliability Corporation standards, the existing Northeast Power Coordinating Council standards, and the existing Ontario Independent Electricity System Operator standards.
6. I confirm that the East-West Tie Line will be designed to meet or exceed the Ontario Energy Board's "Minimum Technical Requirements for the Reference Option of the E-W Tie Line", dated November 9, 2011.

7. I make this Affidavit in support of a decision and order by the Ontario Energy Board designating AltaLink Ontario Management Ltd. on behalf of AltaLink Ontario L.P. as the transmitter to carry out development work for the East-West Tie Line.

SWORN BEFORE ME at the City of)
Calgary, in the Province of Alberta)
this 20th day of December, 2012)

Scott Thon

A Notary Public in and for the
Province of Alberta
Renée S. Marx
Barrister & Solicitor

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 13 – DRAFT REPORT: Terms of Reference to Fulfill the Requirements of the Provincial Environmental Assessment Act

Draft Report: Terms of Reference to fulfill the requirements of the Provincial Environmental Assessment Act

PREAMBLE

It is assumed that Designation date for the East-West Tie Transmission Line Enhancement (hereafter referred to as the "EWT" or the "Project" is approximately April 1, 2013 (subject to change depending on OEB timelines). It is the intent of the Proponent to be prepared to immediately proceed with the Project following the timelines provided in this document.

The Project will be subject to the Ontario Environmental Assessment Act. The "Guide to Environmental Assessment Requirements for Electricity Projects" lists transmission lines over 115 kV and 50 km in length as "Category C", major projects with known significant environmental effects.

The Project does not appear to be a "designated project" subject to the CEAA (2012) (See section 2.2.1). Nevertheless, the Proponent will consult with CEA Agency staff for confirmation through informal submission of a document that can serve as a "Project Description". If the Project is subject to CEAA, the Proponent will be prepared to meet the requirements of both the CEAA and the Ontario EA Act using the approach described in Section 2.2.2.

The Ontario EA Act requires an initial consultation period to prepare and obtain approval of the Terms of Reference (ToR). The ToR is prepared in consultation with the Ontario Ministry of Environment as well as the public and other stakeholders. The ToR sets out the framework for the planning and decision-making process to be followed by the proponent during the preparation of the environmental assessment. It represents the proponent's work plan for what is going to be studied. The environmental assessment must be prepared according to the terms of reference. Approval of the ToR by the Minister of the Environment triggers the environmental assessment process

The Proponent has prepared a preliminary draft of the ToR based on the "Codes of Practice for Preparing and Reviewing Terms of Reference" (OMOE 2009). The draft ToR will be a starting point for the consultation process. On average, proponents take from six to nine months to prepare the ToR (OMOE 2009). By preparing a draft ToR at this stage, the proponent demonstrates knowledge of all components of the EA from the initial consultation stage to completion and approval of the EA. With the draft ToR as a starting point for the consultation process, it is expected that the ToR can be prepared for formal submission in approximately four months, potentially reducing the approval process time by two to five month.

In preparing the ToR (Section 6 of the EA Act) proponents are required to:

- Consult with OMOE Environmental Assessment and Approvals (EAA) Branch staff to discuss preparation, consultation and submission requirements;
- Identify government ministries and agencies, municipalities, members of the public, Aboriginal communities, and other persons who may have an interest in their proposal;

- Engage in meaningful consultation with all interested persons to identify and respond to needs and concerns;
- Establish reasonable time frames for feedback and review during the consultation process;
- Ensure that issues and concerns are identified and considered early in the planning process before irreversible decisions are made;
- Document the results of the consultation process;
- Prepare the Terms of Reference in consultation with the ministry, other government ministries and agencies, municipalities and all interested persons, including Aboriginal peoples.

In addition to meeting the requirements of section 6 of the EA Act, it is expected that the ToR discuss the following elements, as applicable:

- Identification of the proponent;
- Indication of how the environmental assessment will be prepared;
- Purpose of the study or undertaking;
- Description of and rationale for the undertaking;
- Description of and rationale for alternatives;
- Description of the existing environment and potential effects of the undertaking;
- Assessment and evaluation;
- Commitments and monitoring;
- Consultation plan for the environmental assessment;
- Flexibility to accommodate new circumstances;
- Other approvals required.

Lastly, there is no “cook book” approach for the preparation of ToR. Any information that the regulator or other stakeholders request, or the proponent feels may assist in the EA process can be included in the ToR.

Table of Contents

List of Tables

List of Figures

1. INTRODUCTION

The Ontario Power Authority (OPA) has determined that the East-West Tie transmission line that connects northwestern Ontario to the rest of the Province's transmission network from Thunder Bay through Wawa is frequently constrained because of limited capacity and it no longer meets reliability standards. Enhancement of the East-West tie transmission corridor along the shore of Lake Superior is an option identified by OPA to ensure transmission reliability, enable capacity for new energy resources and provide cost-effective long term supply to the northwest into the future.

The enhancement project of the East-West Tie includes construction of a 230 kV, double-circuit transmission line of approximately 400 km in length (~388 km based on the reference option), running from the Lakehead Transformer Station (TS) near Thunder Bay to the Wawa TS with connection into Marathon TS. This project represents an addition to the continued operations of the existing East-West transmission line.

Before this project can be built, a number of approvals are required, including those from the Ontario Energy Board (OEB) under the Ontario Energy Board Act 1998 (OEB Act) and the Ontario Ministry of the Environment (OMOE) under Ontario's Environmental Assessment Act (EA Act) in accordance with Ontario Regulation (O. Reg.) 116/01, the Electricity Projects Regulation. The Electricity Projects Regulation requires that this project follow the process set out in the EA Act. The EA Act requires submission of an application (consisting of a Terms of Reference (ToR) and an EA document) for approval by the Minister of Environment.

The ToR sets out in detail the requirements for the preparation of the EA document for the East-West Tie Transmission Line Enhancement. The Proponent, AltaLink Ontario L.P., will develop this project consistent with Provincial direction and all relevant legislative requirements, policies and guidelines. The ToR is prepared in accordance with the Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario (OMOE 2009).

1.1 Background on the Electricity Sector in Ontario

In October 1998, the Ontario legislature enacted the *Energy Competition Act* authorizing the restructuring of Ontario Hydro with the aim of introducing competition in the wholesale and retail electricity markets in Ontario. On April 1, 1999, in accordance with the *Energy Competition Act,* Ontario Hydro was restructured principally into three separate entities: Ontario Power Generation Inc. (OPG), responsible for the generation and sale of electricity in Ontario; Ontario Hydro Services Company Inc., later renamed Hydro One Inc., whose subsidiary, Hydro One Networks Inc., responsible for planning, construction, operation, and maintenance of its transmission and distribution system; and,

the Independent Electricity Market Operator later renamed the Independent Electricity System Operator (IESO), responsible for managing Ontario's electricity system and operating the wholesale electricity market.

Subsequent to this restructuring of Ontario Hydro, the Ontario Power Authority (OPA) was established by the *Electricity Restructuring Act*, 2004. This statute made three changes in the institutional arrangements of the electricity sector in Ontario with respect to long-term planning. In this legislation:

- The OPA was given the mandate to develop an Integrated Power System Plan (IPSP) and address the looming supply–demand imbalance in Ontario through conservation and generation procurements. O. Reg. 276/06 designates and exempts the IPSP from the EA Act. Undertakings resulting from this planning process, however, are required to complete an EA if they would otherwise be required to do so;
- The Government was given the discretion to determine the future "supply mix" for the Province as a starting point for the IPSP; and
- The Ontario Energy Board was given the authority to review and approve the IPSP.

The IPSP will serve as both a focused implementation plan for the near term and a road map for the longer term. These changes to the electricity sector in Ontario have implications for compliance with *EA Act* requirements. Historically, Ontario Hydro was responsible for all aspects of project planning and undertaking the EA process, including establishing the need and defining alternatives to meet it. Currently, the OPA is responsible for establishing the need for new transmission facilities.

In 2010, the OEB released its policy Framework for Transmission Project Development Plans EB 2010-0059 dealing with transmission project development to accommodate the connection of renewable energy generation. The Policy described a process to designate a licensed transmitter to undertake development work on any transmission network expansions or enabler lines identified by the OPA as necessary to connect renewable generation. The designation process was intended to allow transmitters to move ahead on development work in a timely manner; to encourage new entrants to transmission in Ontario bringing additional resources for development work; and to support competition in transmission in Ontario to drive economic efficiency for the benefit of ratepayers.

1.2 Background to the East-West Tie Line Transmission Enhancement

Background information on the East-West Tie Line Transmission Enhancement is available in OEB and OPG documents and will be provided in detail in the final ToR.

1.2.1 Environmental Considerations in Assessment of Transmission Options

The OPA examined a number of alternative paths to deliver needed upgrades to the East-West Tie Transmission Lines and concluded that an option is a new line that, in conjunction with the existing line, will provide total eastbound and westbound capabilities in the East-West corridor on the order of 650 MW. It should have a lifetime of at least 50

years and target in-service date of 2017. This is referred to as their Reference Option and is one possible proposal for the East-West Tie Line. It is not the default position of the OEB but is used for comparative purposes during the designation process.

The proponent has undertaken a "quick" review of transmission capacity, constraints and reliability and possible innovative solutions to address the OEBs concerns and concluded that none presents itself as an apparent choice with distinct advantages over the Reference Option. Until further study and consultation takes place as part of the EA process, the OEB Reference Option is the only option that meets the overall requirements identified by the OPA.

In the initial selection process of a preferred corridor and alternatives within the OEB Reference Option, a number of criteria have been used.

Specifically, the criteria applied were:

The following government policies and directives were applied:

1. Consistency with Provincial Land Use Policy re: Use of Existing RoWs:

- Provincial Policy Statement (PPS) issued in 2005 under Section 3 of the Planning Act recommends making best use of existing infrastructure before proposing new Greenfield developments.
- The PPS is consistent with long-standing government direction originally given to Ontario Hydro to make best use of existing rights of way before seeking approval for new rights of way.
- In 1980, for example, the Royal Commission on Electric Power Planning, after extensive public consultation, commended Ontario Hydro's efforts "to upgrade existing transmission facilities and improve the use of existing rights of way" and recommended a continuing program aimed at optimizing the use of existing rights of way.
- Similarly, in its 1988 response Ontario Hydro's Draft Demand Supply Planning Strategy, the Ontario Government recommended: "In planning transmission facilities, Ontario Hydro should take full account of Provincial Land Use policies. Wherever it is feasible to upgrade existing transmission lines or corridors, this option should be evaluated before seeking approvals for new corridors."

These government policies and directives reflect a clear understanding that, in general, use of existing corridors has less environmental impact than greenfield development. In the case of the East-West Tie Line, these benefits are reflected in several ways:

- The width of an expanded RoW along an existing RoW is at least 20% smaller than a new RoW, yielding a substantially smaller footprint.
- Utilizing the existing RoW requires fewer new or upgraded access roads and stream crossing, less forest clearing and land acquisition and provides other benefits that effectively reduce the total environmental impact.
- The existing RoW may have optimized technical, economic and environmental considerations which will apply to the expanded RoW.

    - With increasing land use, it is increasingly difficult to find new rights of way that do not cause significant disruption.
- The larger footprint of a new right of way would translate into greater potential effects on the natural and socio-economic environment, property owners and Aboriginal interests.
- Without being explicitly stated, it is implied that shorter transmission line routes are preferred as they will have a smaller footprint, and likelihood of fewer environmental, landowner and other stakeholder impacts and cost.

2. Impact on Delivery Capacity for Renewable Power from Northern Ontario

The Province has committed to phase out coal-fired generation and, to the maximum extent possible, to replace that source with renewable power. This commitment is expected to deliver major environmental benefits. Renewable resources tend to be concentrated well away from major markets. There is major hydro-electric (renewable) power potential in northern Ontario.

3. Approval Timelines

Avoiding options where there appear to be major environmental hurdles to overcome is preferable from several environmental perspectives:

- Earlier construction and ability to bring into service new non-emitting and renewable power supplies;
- Enhanced ability to achieve off-coal targets and increased prospect of reducing importation of electricity produced by coal fired stations in the United States

While detailed studies of the various options have not been undertaken, the criteria cited above provide strong environmental support to restrict the options being considered. However, extensive consultation will be undertaken and consideration will be given to any other reasonable options that could meet the need identified with equal or lower environmental effects.

1.3 Proponent

AltaLink Ontario L.P. (AOLP) is an Ontario electricity transmission company and is a wholly owned subsidiary of AltaLink Investments, L.P. (AILP), which is the sole limited partner of AltaLink, L.P. AOLP's general partner, AltaLink Ontario Management Ltd., is a wholly owned subsidiary of AltaLink Investment Management Ltd., which is the general partner of AILP.

More information will be added in the final ToR on AOLP, its affiliation with SNC-Lavalin and the combined experience of AOLP and affiliates.

1.4 Purpose of the Undertaking

The purpose of the Undertaking is to increase the reliability and capacity of the East-West Tie Line corridor to provide total eastbound and westbound capabilities on the order of 650 MW. Additional information will be provided in the final ToR from OPA documents.

1.5 Outline of the Terms of Reference

This ToR sets out the detailed requirements for the preparation of the EA document for the East-West Tie Line in accordance with the requirements of the EA Act. If the ToR is approved by the Minister of the Environment, the EA is then prepared in accordance with the detailed requirements set out in the approved ToR.

The ToR details the key issues and activities to be addressed in the EA. In addition to the introductory chapter, this ToR provides information on the following:

- EA framework (Section 2);
- Overview of EA requirements for the East-West Tie Line (Section 3);
- Purpose and description of the undertaking (Section 4);
- Existing environmental conditions in the study area (Section 5);
- Identification and evaluation of the alternative methods (Section 6);
- Commitments and monitoring (Section 7); and,
- Consultation and engagement plan for the EA (Section 8).

Taken together, Sections 3 to 8 fulfill the requirements in section 6(2) (c) of the EA Act and set out in detail the requirements for the EA for the East-West Tie Line.

2. ENVIRONMENTAL ASSESSMENT FRAMEWORK AND OTHER REGULATORY REQUIREMENTS

2.1 Ontario Environmental Assessment Act

In Ontario, new and expanded transmission lines are subject to the EA Act. Ontario's Electricity Projects Regulation (O. Reg. 116/01), made under the EA Act which stipulates the EA requirements for electricity projects in Ontario on the basis of the project type (e.g., transmission lines, transformer stations, power generation plants, etc.) and, in the case of transmission lines, the voltage level and distance traversed. Based on the "Guide to Environmental Assessment Requirements for Electricity Projects", transmission lines exceeding 115 kV and 50 km in length are considered as "Category C", major projects with known significant environmental effects. The ToR is to be prepared

in accordance with the Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario (OMOE 2009). This requires that an application be prepared and submitted under s.5 of the EA Act to the Minister of the Environment for approval. There are two key documentation requirements for the application:

- The development, submission, review and approval of the ToR; and,
- The preparation, submission, review and approval of the EA document in accordance with the steps and methodology set out in the OMOE approved ToR

Under the EA Act, an EA can proceed under section 6.1(2) which includes an assessment of "alternatives to" the undertaking and "alternative methods" of carrying out the undertaking or it can proceed in accordance with subsections 6(2)(c) and 6.1(3) of the EA Act which allow focusing of the EA.

The reason for proceeding to the designation stage of this undertaking has been established by the OPA and the OEB and is documented in several board submissions.

The OPA/OEB has concluded that the Reference Option in the East-West Tie line Enhancement is one practical transmission solution to meet the stated goals, but does not make any conclusions regarding other alternatives. Since the ToR proposes that the EA be prepared in accordance with subsections 6(2)(c) and 6.1.(3) of the EA Act, further discussion is required with stakeholders and government agencies on requirements for: need for the Project, "alternative methods" and "alternatives to", before the ToR can be finalized.

According to OMOE (2009), alternatives to for energy undertakings could include: transmission of energy, new generation and conservation (reduction in demand for energy). Alternative methods for a transmission line could include: different locations or alignments, line voltages, tower design and ancillary facilities.

The rationale for the undertaking will be more fully developed in the EA document including an assessment of advantages and disadvantages relative to the null alternative as well as alternatives ways and alternatives to. The EA will not assess the OPA process and recommendations.

2.2 Government of Canada: Canadian Environmental Assessment Act

On April 26, 2012, the Federal Government introduced Bill C-38, the 2012 Budget Bill. Part 3 of this Bill contained significant changes to the federal legislative regime, including a complete overhaul of the *Canadian Environmental Assessment Act* (CEAA) 1992 (S.C. 1992, c. 37). This Bill received Royal Assent on June 29, 2012, and CEAA 2012 (S.C. 2012, c. 19, s. 52) came into force on July 6, 2012 under an order from federal cabinet, thus repealing CEAA 1992. CEAA 2012 applies to projects described in the *Regulations Designating Physical Activities* (the "Regulations") (SOR/2012-147) and to projects designated by the federal Minister of the Environment.

The Regulations were made effective July 6, 2012, and were officially registered in the Canada Gazette on July 18, 2012. New proposals for projects which do not meet the criteria laid out in the Regulations will not require a federal environmental assessment (EA).

According to CEAA 2012, an “environmental assessment” is defined to mean an assessment of the “environmental effects” of a “designated project” that is conducted in accordance with CEAA 2012.

2.2.1 Application of CEAA 2012 to this Project

The Regulations set out the physical activities that constitute "designated projects" that may require an EA under CEAA 2012. According to the Regulations, “designated projects” include, among other things, the following activities:

- Section 1(a) - The construction, operation, decommissioning and abandonment, in a wildlife area or migratory bird sanctuary, of…an electrical transmission line.
- Section 5 - The construction, operation, decommissioning and abandonment of an electrical transmission line with a voltage of 345 kV or more than is 75 km or more in length on a new right of way.

With regards to the Project:

- The voltage is 230kV (below the critical voltage threshold of 345kV);
- The transmission corridor is not within any wildlife areas as set out in Schedule 1 to the Wildlife Area Regulations (C.R.C., c. 1609); and
- The transmission corridor is not within any Migratory Bird Sanctuaries as set out in the schedule to the Migratory Bird Sanctuary Regulations (C.R.C., c. 1036).

The Proponent is of the opinion that the Project does not trigger a federal EA under CEAA 2012. As noted above, the federal Minister of the Environment has the authority under CEAA 2012 to require a CEAA assessment for non-listed projects.

The Canadian Environmental Assessment Agency (the “Agency”) held an introductory teleconference on August 15, 2012, during which a request was made to participants for informal submission of draft Project Descriptions. Unless directed otherwise by the OMOE, the Proponent will submit a draft Project Description for the Project via email (and not official submission online) to obtain confirmation of our assessment that the Project is not subject to an EA under CEAA 2012. We intend to use the content of the draft provincial EA Terms of Reference (ToR) for our draft Project Description submission to the Agency, as the ToR will provide substantially the same information as a draft Project Description required under CEAA.

2.2.2 Where both Provincial and Federal EA Acts Apply

The federal Minister of the Environment must allow a provincial process to substitute for a federal environmental assessment if requested to do so by the province and if the Minister is of the opinion that the provincial environmental

assessment process would be an appropriate substitute for a CEAA 2012 assessment. The federal Minister may only approve the substitution if the Minister is satisfied that (section 34, CEAA 2012):

- There is confidence that factors to be considered under CEAA 2012 will be considered under the provincial process;
- The public will be given an opportunity to participate in the assessment;
- The public will have access to records in relation to the assessment to enable meaningful participation;
- At the end of the assessment, a report will be submitted to the responsible authority;
- The report will be made available to the public; and
- Any other conditions that the federal Minister establishes have been or will be met.

Note that if the federal Minister feels that the provincial process meets all of the above conditions for substitution, the Minister may recommend to the Governor in Council that a designated process be exempted from the application of CEAA 2012 (section 37, CEAA 2012).

2.3 Other Acts and Approvals

The Proponent will identify all necessary approvals that may be required during project planning and construction. Listed below are a number of potential approval requirements that have already been identified.

Where practical, the Proponent will begin preparation of construction-related applications concurrent with the EA process. It will be necessary to initiate some permit and approval activities or applications during the EA process including any required consultation activities with members of the public, municipalities, agencies, and Aboriginal communities and groups. It should be noted that some permits and approvals for construction typically rely on more detailed engineering and design information than is available during the EA process. In this event, the Proponent will carry out required studies necessary to support those approvals prior to start of construction.

2.3.1 Ontario Energy Board Act

The East-West Tie Line requires OEB approval. The OEB regulates Ontario's natural gas and electricity industries and is responsible for ensuring construction and operation of proposed transmission facilities are in the public interest. The OEB's role is to review a transmission project's effect on consumers with respect to prices, reliability and quality of electricity service.

The OEB operates as an adjudicative tribunal and carries out its functions through oral or written public hearings. Proponent will file the following two applications with the OEB related to this undertaking:

- Leave to Construct - The Project is subject to "Leave to Construct" approval under section 92 of the OEB Act. The OEB review of Proponent's application for Leave to Construct approval examines technical aspects and consumer protection related to a project proposal and also includes provisions for engagement/consultation; and

- Early Access to Land (subsection 98 (1.1) of the OEB Act) – Early access allows proponent's employees and representatives to access private properties affected by the proposed project and undertake a limited number of activities (including biological and archaeological field studies, data collection, legal surveys and soil testing) while the section 92 approval is under consideration at OEB.

2.3.2 The Expropriation Act

The Proponent's primary intent is to negotiate easement rights with landowners, to the extent practicable, for the portion of properties to be utilized for the transmission line. In some cases, it will be necessary to purchase entire properties where current uses are incompatible with a transmission corridor e.g., a permanent structure or residence under a transmission line.

The Proponent intends to apply for expropriation of all properties under the Ontario Expropriations Act, 1990. Chapter E.26 outlines the conditions and restrictions under which a claim for expropriation can be submitted, and the rights of residents facing the claim. The expropriation plan must be approved and registered under both the OEB Act and the Expropriations Act prior to commencement of construction of the new line.

2.3.3 Other Provincial and Federal Acts, Approvals, Permits and Guidelines

Based on current information, a number of permits, licences and approvals under Provincial legislation may be required. In some cases, a final determination cannot be made until the detailed design phase for the Project. These include but are not limited those included in Table 1

Table 1: Acts and Regulations that may apply to the Project

Jurisdiction	Act	Description
Provincial	*Aggregate Resources Act*	• This Act is administered by the Ministry of Natural Resources (MNR); its purpose is to govern management of Ontario's aggregate resources, aggregate operations on Crown and private lands, rehabilitation of land from which aggregate is excavated and minimize the environmental impact of aggregate operations. • On licensed sites, all significant changes to licence conditions and all major site plan amendments must be circulated to municipalities and posted on Ontario's Environmental Registry.
Provincial	*Conservation Authorities Act*	• Project to be subject to permitting requirements of Lakehead Region Conservation Authority for alterations to shoreline during construction and operation. Both of the Ontario Regulations state that the relevant conservation authority may grant permission for certain developments if it is of the opinion that the development will not affect the control of flooding, erosion, dynamic beaches, pollution or conservation of land.

Jurisdiction	Act	Description
Provincial	*Lakes and Rivers Improvement Act*	• Approval under the *Lakes and Rivers Improvement Act* (LRIA) may be required for the Project. The LRIA is administered by the MNR and exists to provide for, among other things, the management, protection, preservation and use of the waters of the lakes and rivers of Ontario and the land under them. •
Provincial	*Fire Protection and Prevention Act*	• Compliance with Fire Code made under Part IV (O. Reg. 388/97) respecting requirements for the storage and handling of fuels (flammable and combustible liquids).
Provincial	*Fish and Wildlife Conservation Act, 1997*	• A license to collect fish may be required (O. Reg. 664/98) • This Act is amended by Ontario's budget Bill 55. For instance, the amendments allow persons to hunt or trap certain wildlife without a license in the circumstances prescribed by regulations.
Provincial	*Occupational Health and Safety Act*	• Notice of Project filing before construction commences • The main purpose of this Act is to ensure that workers on the job are well-protected against health and safety measures. It outlines the responsibilities and rights of employers and employees, as well as procedures for dealing with workplace hazards.
Provincial	*Ontario Heritage Act*	• O. Reg. 9/06 made under the Act outlines criteria for determining cultural heritage value or interest. If the criteria are met, a property might be designated as having cultural heritage value or interest. An archaeological assessment is required to obtain Ministry of Culture clearance
Provincial	*Ontario Water Resources Act*	• Purpose of this Act is to provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use. • . • Dewatering activities during construction will require a Category 3 Permit Application. A Category 3 application is usually required for activities that have greater potential to cause adverse environmental impacts. These are subject to additional application requirements (e.g. detailed ecological/ hydrological/ hydrogeological study) and greater scrutiny by the Ministry. • Category 2 and 3 applications have a greater potential to cause adverse environmental impact or interference. Category 2 and 3 applications are subject to additional application requirements and greater scrutiny by the ministry.
Provincial	*Forest Fires*	• Work permit controls at all times of the year for clearing within 300 m of a forest

Jurisdiction	Act	Description
	Prevention Act	of woodland (from MNR Forest Management Branch
Provincial	*Public Health Act*	• Permit under the Ontario Water Resources Act (section 53) for water taking or discharge, dewatering, storm water management and spill containment; and, • Approvals under the Environmental Protection Act (section 9) on airborne releases.
Provincial	*Endangered Species Act*	• The Act aims to protect species at risk and their habitats and commit to recovery of species and effective enforcement under the Act. For instance, the Act prohibits the damage or destruction of any species listed on the Species at Risk in Ontario List as an endangered, threatened or extirpated species. • Ontario's budget bill C-55 proposes several exemptions to the existing Act, in addition to extending certain deadlines and increasing the Minister's discretion. For instance, the deadline with regards to submission of plans outlining how to proceed with the recovery of most endangered species will be removed.
Provincial	*Pesticides Act*	• There are processes to be followed in case pesticides must be during construction and/or operation of the pumped storage facility or any ancillary features, including possibly having to obtain a licence to operate pesticide application equipment or apply by any other means. (O. Reg. 63/09) • The OMOE also regulates the sale, use, transportation, storage and disposal of pesticides in Ontario.
Provincial	*Public Transportation and Highway Improvement Act*	• Any owner or occupant of land, who collects water upon his land, and turns or allows such water to flow upon the highway, is liable for all damage to the highway, gutters or drains occasioned thereby. • A permit from the Ministry is required to place a building, structure, entrance or any road within 45 m of the limit of any highway, 180 m of the centre point of any intersection.
Provincial	*Public Lands Act*	• This Act governs the administration of Ontario's Crown land and essentially gives the Minister of Natural Resources charge over the management, sale and disposition of public lands and forests. • If the transmission line crosses Crown Lands, a permit may be required under section 14 of the *Public Lands Act*. • Work permits may also be required for construction of any roads, trails or water crossings on public land, for removal of aquatic vegetation, for construction of docks and for dredging or filling of shore lands. This would include any clearing of unwanted vegetation from road rights of way. • A form of tenure (e.g., licence, permit or easement) must be obtained from MNR

Jurisdiction	Act	Description
		if the development of the transmission line occupies Crown Lands.
Federal	*Transportation of Dangerous Goods Act*	• No person may transport or handle any dangerous goods (including explosives, flammable/combustible liquids, toxic and infectious substances etc.) unless they comply with safety and security requirements, are accompanied by the required documents, and use the appropriate means of containment, all prescribed by regulation. • An Explosives Transportation Permit may be required when transporting explosives by road in loads that are greater than 2000 kg. These permits are issued by Transport Canada's Dangerous Goods Directorate.
Federal	*Explosives Act*	• A license is required from Natural Resources Canada to store blasting explosives or any other type of industrial explosives for use if the quantity store for private use exceeds 75 kg or 100 detonators or the period of storage for any quantity exceeds 90 days
Provincial	*Crown Forest Sustainability Act, 1994*	• This Act provides for governance over forest management planning, relevant licenses, forest resource agreements, and revenue collection, among other things. For instance, if cutting of Crown timber is required for the transmission line right-of-way, a Forest Resource License is required.
Provincial	*Endangered Species Act*	• The Act aims to protect species at risk and their habitats and commit to recovery of species and effective enforcement under the Act. For instance, the Act prohibits the damage or destruction of any species listed on the Species at Risk in Ontario List as an endangered, threatened or extirpated species. • Ontario's budget bill C-55 proposes several exemptions to the existing Act, in addition to extending certain deadlines and increasing the Minister's discretion. For instance, the deadline with regards to submission of plans outlining how to proceed with the recovery of most endangered species will be removed.
Federal	*Fisheries Act*	• This Act has been amended by Bill C-38. The former *Fisheries Act* prohibited any work/undertaking that would result in harmful alteration, disruption or destruction of fish habitat. The amended *Fisheries Act* only prohibits any work/undertaking that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. As well, the fisheries' minister now has vast decision-making power.
Federal	*Migratory Birds Convention Act*	• This Act provides for the protection and conservation of migratory birds. Its regulations ban all activities that are harmful to migratory birds, their eggs or their nests. • A permit must be obtained for all activities that affect migratory birds, with some prescribed exceptions. For instance, a Damage Permit must be obtained from Environment Canada, which will not issue a permit for economic activities, such as the construction proposed on this Project, that involve the "incidental take" of

Jurisdiction	Act	Description
		migratory birds (disturbance, destruction or taking of nests).
Federal	*Navigable Waters Protection Act*	• This Act aims to ensure public access to and efficient use of Canada's waterways; it balances the public right to navigate with the need to build works such as bridges or dams in navigable waters. It is administered by Transport Canada, and its approvals are granted under the authority of the Minister of Transport. • Construction in navigable waters must be authorized by an approval document. The approval process involves submission of engineering design drawings for review and approval. • Approval refers to an approval document authorizing construction in navigable waters. Additionally, the proponent is required to place an advertisement (Canada Gazette and local papers) of the work so that the public can comment on the project's potential impacts on navigation and on the environment.
Federal	*Species at Risk Act*	• Prohibits the killing, harming, harassing, capturing or taking of species at risk listed under Schedule 1 of the Act, including the destruction of their critical habitat or residence. • This Act has been amended by Bill C-38. For instance, while the Act used to restrict industrial activity in critical natural habitat, the amended Act now allows the Minister of the Environment to approve more exemptions.
Federal	*Canada Transportation Act, Aeronautics Act and Railway Safety Act*	Acts related to safety and efficiency of various forms of transportation in Canada. Administered under Transport Canada

Other relevant provincial policies and legislation may include, but are not limited to:

- Provincial Policy Statement [Ministry of Municipal Affairs and Housing (MMAH), 2005};
- Water Management Policies and Guidelines (OMOE), Policy 1 and 2;
- Places to Grow Act (2006); and
- Nutrient Management Act (OMAFRA, 2002).
- requirement to seal off old gas wells for public safety from the MNR Land and Water Branch under the Plugging Code

Other relevant federal legislation and policies regarding species and habitat protection include:

- Policy on Wetland Conservation;
- Canadian Biodiversity Strategy;

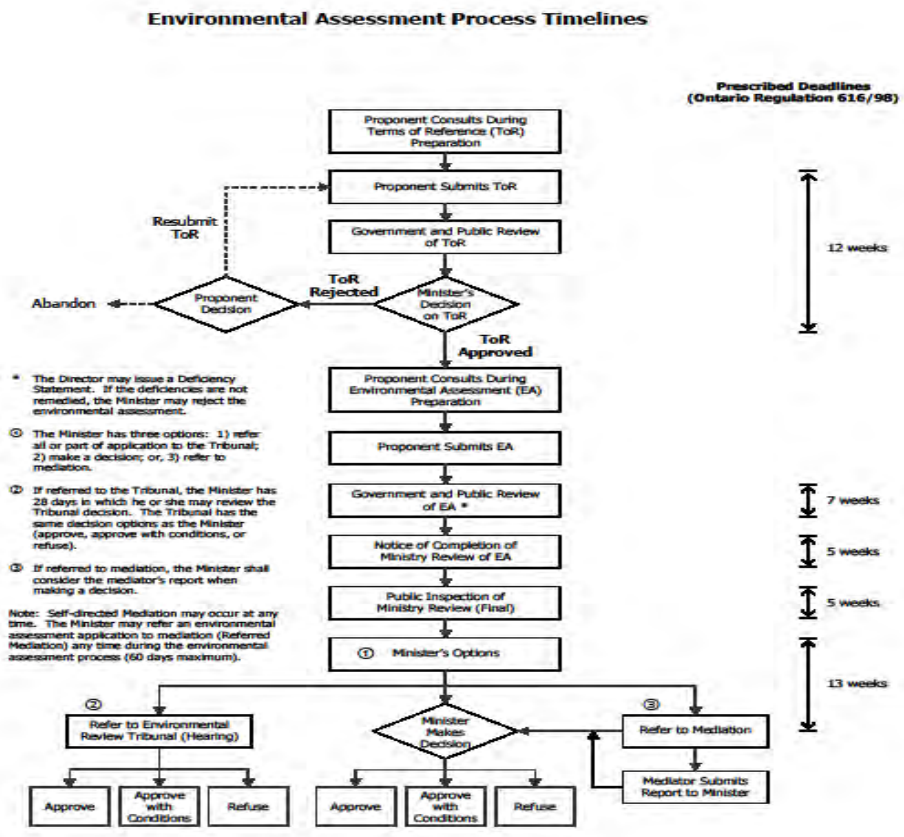
- Convention on Biological Diversity; and
- Wildlife Policy for Canada.

All approvals that are necessary for the Project to proceed will be outlined in the EA document. It may not be practicable to complete all required surveys in relation to other approvals prior to submission of the EA document, but the proponent will commit to continue and complete all required surveys before construction.

2.4 Environmental Assessment Process Timelines

Ontario Environmental Assessment process timelines (Figure 1) are regulated under Ontario Regulation 616/98. The proponent consults with government and public prior to preparing the Terms of Reference (ToR). Approval takes 12 weeks, unless revisions are required. Assuming that the ToR is approved, then the proponent can prepare the EA. Government and public review, notice of completion and public the final EA take a further 17 weeks. The Minister of the Environment has 13 weeks to make a decision to approve, approve with conditions, or reject the Project. Additional steps involving mediation or review tribunal are possible. Total government/public review/approval process is 42 weeks.

Figure 1



Following is a best estimate of the timelines (subject to change) for the EA process assuming no major hurdles. Also see Table 3.

1. Initiation of Public Consultation Process (April 2013 – ongoing)
2. Draft Terms of Reference for the Environmental Assessment (April 2013 – August 2013)
3. Formal Submission of Terms of Reference (Triggers EA process) (August 2013 - October 2013)
4. Undertake EA Field Studies (April 2013 – July 2014)
5. Draft EA Document – October 2013 – July 2014
6. Submit Draft EA for Government and Review (August 2014 – September/October 2014)
7. Formal Submission of EA Document (October 2014)
8. Government and Public Review of EA (ending November 2014 - December 2014)
9. Proponent to address comments (January 2015)
10. Notice of EA Completion and Ministry Review (February 2015 - March 2015)
11. Proponent to address any issues (March/April 2015)
12. Public Inspection of Ministry Review (April 2015)
13. Recommendation to Minister and Ministerial Decision (July 2015)
    * Any regulatory time period may be extended if the information submitted to the regulator is considered to be inadequate

2.5 Preliminary Assessment of Stakeholders

As part of the EA process, agency consultation is required. The purpose of the agency consultation is to:

- Identify concerns and collect information related to the project;
- Identify issues related to the project, and where appropriate, proposed mitigation;
- Facilitate the development of a list of all required approvals, licenses or permits;
- Identify relevant guidelines, policies and standards; and,
- List all the commitments/obligations and responsibilities of the proponent.

Table 3 presents a list of potential federal, provincial and municipal government agency stakeholders of the Project. A full list of the relevant government stakeholders will be delineated through consultation with the OMOE prior to formal submission of the ToR and also as part of the EA process.

Table 2: Potential Federal and Provincial Agency Stakeholders

Jurisdiction	Agency
Federal	Canadian Environmental Assessment Agency
	Canadian Council of Ministers of the Environment
	Canadian Transportation Agency
	Environment Canada

Jurisdiction	Agency
	Parks Canada
	Fisheries and Oceans Canada
	Health Canada
	Aboriginal Affairs and Northern Development Canada
	Industry Canada
	National Energy Board
	Natural Resources Canada
	Public Works and Government Services Canada
	Transport Canada
	Any other potential federal funding agencies
Provincial	Ministry of Aboriginal Affairs
	Ministry of Agriculture, Food and Rural Affairs
	Ministry of Community and Social Services
	Ministry of Community Safety and Correctional Services
	Ministry of Culture
	Ministry of Energy
	Ministry of the Environment – Northern Region
	Ministry of Government Services
	Ministry of Health and Long-Term Care
	Ministry of Municipal Affairs and Housing
	Ministry of Natural Resources
	Ministry of Northern Development and Mines
	Ministry of Public Infrastructure Renewal
	Ministry of Tourism
	Ministry of Transportation
	Ontario Energy Board
	Ontario Realty Corporation
Municipal	City of Thunder Bay
	Dorion
	Nipigon
	Red Rock
	Schreiber
	Terrace Bay
	Marathon
	Wawa
	White River
	Single upper and lower tier municipalities (e.g. planning, public works, public health, emergency services departments)

Jurisdiction	Agency
	Planning boards
	School boards
	Utilities (e.g., gas, telephone, cable, hydro)
	Local Architectural Conservation Advisory Committees
	Lakehead Region Conservation Authority
Others	Friends of Pukaskwa
	Woodland Caribou Steering Committee

Table 3 Project Timelines – Request for Filing to EA Approval

Task	2012			2013				2014				2015	
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
OEB Request for Filing													
Prepare submission for Filing													
OEB designates a Transmitter March 1, 2013													
Ontario Individual Environmental Assessment (IEA)													
Preparation of Draft Terms of Reference (ToR)													
Public Consultation													
Send Draft ToR to government for comments													
Undertake EA Field Studies													
Formal Submission of ToR													
Government and Public Review of ToR													
Minister of Environment makes decision on ToR													
Prepare Draft IEA document													
Submit Draft IEA for government review													
Formal IEA submission for Government and public review													
Address reviews from Government and public													
Notice of IEA completion and Ministry review													
Address any outstanding issues													
Public inspection of Ministry review													
Government Recommendation to Minister and subsequent Ministerial decision													

3. OVERVIEW OF THE EA REQUIREMENTS FOR THE PROPOSED PROJECT

The EA study will comply with requirements set out in the EA Act. The proponent will submit the EA for review and approval to the Minister of the Environment, following an extensive engagement/consultation process. The EA will consist of the following components:

- Description and purpose of the Undertaking based on the recommendations and decisions of the OPA (need has been established and therefore will not be examined as part of the EA);
- Description of and statement of the rationale for the Undertaking;
- Description and rationale for the Do Nothing alternative (i.e. only alternative to the undertaking);
- Description and rationale of alternative methods of carrying out the Undertaking (e.g. design configurations and route refinements);
- Description of the environment that will be affected, or might reasonably be expected to be affected directly or indirectly by the Undertaking and the alternative methods considered;
- Description of the advantages and disadvantages that will be caused or might reasonably be expected to be caused to the environment as a result of the Undertaking, and the alternative methods of carrying out the Undertaking;
- Description of the actions necessary or that may be reasonably expected to be necessary to prevent, change, remedy or mitigate any effects;
- Description of the advantages and disadvantages of the alternative methods, the Undertaking and the Do Nothing alternative;
- Description of the public, agency and stakeholder consultations and Aboriginal communities and groups engagement and consultation undertaken during the EA process;
- Pre- and post- development environmental monitoring plan (as necessary); and,
- Any supporting documents, maps, etc., as required under the EA Act and its regulations.

4. DESCRIPTION OF THE UNDERTAKING

This section presents a technical overview of the East-West tie line and defines the project study area.

4.1 Technical Overview of the Undertaking

The OPA Report identifies a specific solution as its preferred option but acknowledges that other options could be proposed provided they meet the other project scope criteria.

The IESO has studied the feasibility of the OPA's preferred option, which it called the reference case, and an alternative case. The OEB considers the OPA's preferred solution together with the IESO's reference case as the "Reference Option". The Reference Option is one possible, specific solution for the East-West Tie Line.

- The East-West Tie Line will be a new double-circuit 230 kV overhead transmission line with a continuous capacity of approximately 465 MVA and an emergency capacity of approximately 600 MVA (per circuit);
- The East-West Tie Line will be switched at Marathon TS.

Based on the Reference Option and reasonable assumptions, the Undertaking is to design, construct and operate a new electricity transmission line between Northeast and Northwest Ontario: the East-West Tie line, a 230 kV transmission line between Thunder Bay and Wawa, switching at Marathon. The length of the line depends on the route. The preferred corridor is ~388 km and the longest alternative corridor is ~521 km. In service date is expected to be 2017. The Ontario Energy Board assigned the File No. EB-2011-0059.

Additional information on the process can be found in the Ontario Energy Board Staff Submission EB-2011-0140, Proceeding to designate a transmitter to carry out development work for the East-West Tie line.

The East-West Tie Line for the purposes of designation is:

- A new line that, in conjunction with the existing line, will provide total eastbound and westbound capabilities in the East-West corridor on the order of 650 MW, while respecting all North American Electric Reliability Corporation, North East Power Coordinating Council and Independent Electricity System Operator reliability standards.
- The East-West Tie Line should be designed to have a lifetime of at least 50 years.
- The East-West Tie Line target in-service date is 2017.
- The East-West Tie Line is to be considered 2 segments: one running from Wawa TS to Marathon TS and one running from Marathon TS to Lakehead TS.
- The demarcation points of each segment of the East-West Tie Line are the first transmission line structures outside the fence of the Wawa TS, Marathon TS and Lakehead TS, but within 250 metres of that fence.
- The East-West Tie Line segments will dead-end on the structures that are the demarcation points with a mid-span opener for non-compensated lines.
- If the proposal involves series compensated AC line or DC lines, the East-West Tie Line will include the protection system, associated communications, and line isolation breaker(s).
- The project definition for the purposes of designation assumes that the East-West Tie Line between the demarcation points will be owned and operated by the designated transmitter.

4.2 Study Area

4.2.1 Regional Study Area Boundaries

The Regional Study is a broad area that should encompass the preferred option and all of the alternative options. Based on the Reference Option defined by the OEB, broad economic and environmental considerations and criteria, the transmission line should lie within the corridor boundaries described below. These boundaries are used in the early study stages to identify major environmental constraints, to reduce the size of the area that will be studied and to select a preferred corridor and alternative corridors.

The Regional Study area that is used here and will be used in the EA is a broad area between Lakehead TS and Wawa TS ranging in width from 20 km to 95 km. The Regional study area corridor is divided into 2 sections: Lakehead TS to Marathon TS; and, Marathon TS to Wawa TS.

Regional Study Area Corridor - Lakehead TS to Marathon TS

The regional study area corridor boundaries are the area between the Lake Superior shoreline inland up to 20 km (ignoring the presence of Sibley and Black Bay Peninsulas). This corridor encompasses most of the east-west infrastructure (i.e., the existing 230 kV transmission line, existing 115 kV transmission lines, Trans-Canada Highway, railway lines, gas lines). It is unlikely that the transmission lines would lie outside this corridor, as this corridor meets the generic criteria listed in Section 1.2.1. It represents minimum transmission length, potential multiple use of existing access points and potential multiple use of existing or expanded rights of way.

Regional Study Area Corridor - Marathon TS to Wawa TS

The existing 230 kV transmission line between Marathon TS and Wawa TS was built prior to the Environmental Assessment process and was likely built to minimize costs without taking into consideration environmental concerns. The corridor does not parallel other infrastructure (highways, pipelines, rail lines, etc.) and may have been selected primarily on length. Environmental considerations may preclude building the new line adjacent to this line for the entire length of the route. For this reason, the regional study area corridor is expanded to encompass several potential alternate routes that meet some of the criteria listed in Section 1.2.1.

The regional study area corridor boundaries between Marathon TS and Wawa TS include the area from the Lake Superior shoreline to the Trans-Canada highway and beyond to include to a corridor option that parallels the CP railway between White River and Franz and the Algoma Central Railway between Franz and Wawa TS. The expansion of the regional study area corridor to include a corridor between White River, Franz and Wawa TS was originally proposed in a previous study (Golder 2007).

4.2.2 Preferred Corridor Boundaries

After the initial stage of selecting a preferred alignment and alternatives, narrower study area boundaries will be established based on specific indicators and will encompass expected impact zones or zones of influence. These boundaries will be refined and finalized during the EA with input from the public, government agencies, Aboriginal communities and other stakeholders to ensure that areas potentially affected by the Project are identified and studied. This is expected to occur early in the EA process. The study area for various indicators will vary in size. Minimum study area will consist of the proposed right of way. Potential effects on the natural, socioeconomic, cultural, and

agricultural environment in the study area will be analyzed and measures will be considered to eliminate, avoid, or mitigate negative effects or enhance positive effects.

Selection of Route

Some or the entire route could parallel the existing 230 kV and (or) the 115 kV transmission lines between Thunder Bay to Wawa by widening the existing right of way by approximately 50 to 65 m (165 to 215 feet) depending on tower type.

It is expected that the preferred alignment will parallel the existing 230 kV transmission line and/or one or more of the existing 115 kV transmission lines, with local refinements as additional environmental and engineering studies are completed and more information becomes available.

Constraint maps will be developed to document major constraints, a preferred alignment and alternatives will be selected for detailed study.

After review of constraint maps and discussions with the AOLP transmission design team, a decision will be made on a preferred corridor and subsequently a preferred alignment within the corridor. Decision will be based on technical constraints including connection points, the location of existing transmission lines, need for line outages, maximization of existing property rights, minimization of crossovers and related economic considerations as well as socioeconomic, natural, cultural and agricultural environment criteria.

The final alignment for the transmission line will be determined during the EA process. Local refinements may be made to the preferred alignment to mitigate potential environmental effects and address stakeholder issues (e.g. if an alternative alignment will result in significant benefits, all factors considered). Any local refinements, if required, will be based on all available field data, environmental criteria/measures and will be made in consultation with agencies, local officials, interested Aboriginal communities and groups, and local land owners.

5. EXISTING ENVIRONMENTAL CONDITIONS IN THE STUDY AREA

The purpose of this section of the ToR is to briefly describe the environmental baseline conditions in the study area. A more comprehensive description of the baseline conditions in the study area will be provided as part of the EA.

Field studies will commence soon after Designation. Field studies will be carried out during four seasons where practicable and necessary. The Proponent may file an Early Access to Land application with the OEB to facilitate site-specific surveys that include environmental baseline information acquisition.

The EA will include an assessment of quality and quantity of information upon which the EA was prepared and assess any risks to the quality and completeness of EA documentation. The purpose of the field studies is to confirm available information and fill any identified gaps in that information (i.e. needed to assess potential effects, identify and evaluate mitigation options and for the comparison of alternatives). The EA will also document any associated risks to project decisions including effects prediction and determination of mitigation measures. To reduce risks, the EA will rely on measures including:

- Evaluation of published data sources;
- Aerial photo interpretation;
- Roadside and field surveys;
- Use of qualified environmental scientists;
- Review of historical monitoring data;
- Stakeholders' and communities' input;
- Aboriginal groups input including the results of Traditional Environmental Knowledge and Traditional Land Use studies; and
- Implementation of conservative mitigation strategies.

If some uncertainty exists around the presence of an environmental, social and/or cultural feature, then a conservative mitigation measure will be developed that assumes the feature is present. An example of such measures is if, during field surveys, habitat for a particular Species at Risk (SAR) is identified but not the species itself, the proponent will develop mitigation measures that assume that this species is present.

Qualified scientists will begin field studies as soon as practicable after Designation and Early Access approval and field studies will continue along the preferred corridor concurrent with EA preparation, submission, and review, as required. The proponent will continue with necessary field assessments until commencement of construction, if required.

Due to schedule, cost and access constraints, field work will be limited to the immediate vicinity of the preferred RoW, potential access roads and route refinement RoW which offer significant potential advantages. Field studies will be undertaken in areas where the Project may have identifiable impacts beyond the immediate RoW (e.g., migration routes, contiguous habitat) where potential impacts are identified.

The results of any continuing field work (i.e. conducted after EA submission) will be considered in preparation of environmental specifications, development of detailed mitigation plans and project permitting. Although not anticipated, should new findings affect the evaluation of alternatives, prediction of effects or mitigation recommendations, the proponent will notify the OMOE and all interested/affected parties. If these findings are deemed significant, they may lead to amendments to the EA document.

If, during engagement/consultation, reasonable requests for additional studies are received, the Proponent will consider these requests. All information collected will be used to assess potential effects and develop mitigation measures.

5.1 Natural Environment

This section describes the baseline natural environment conditions in the study area.

Published and unpublished information including geographical displayed data regarding significant natural features, plant and wildlife species diversity and species at risk will be collected and reviewed. A partial list of sources is given below. A partial list of databases is provided in Table 4:

Significant Natural Features

- Environmentally Significant Areas;
- Wetland Evaluation Records, provided by various MNR Districts;
- Areas of Natural and Scientific Interest(ANSIs), provided by various MNR Districts; and
- Natural Heritage Information Centre (NHIC, 2005a) database.

Plant and Wildlife Species

- Ontario Herpetofaunal Summary Atlas (Oldham and Weller, 2000) which illustrates known occurrences of herpetile species in Ontario;
- Atlas of Mammals of Ontario (Dobbyn, 1994) which documents the known ranges
- of the mammals of Ontario;
- Ontario Breeding Bird Atlas (OBBA, 2001-2005), which identifies possible or confirmed breeding bird species

Species at Risk

- NHIC (2005b) database;
- Species at Risk Act (SARA) Schedule SAR web mapping application (Environment Canada, 2007);
- Conservation Authorities and MNR; and
- Wetland Evaluation Records, provided by various MNR Districts, which summarize significant species found in associated natural areas.

Table 4: Partial list of databases to be reviewed for natural features.

Title	Source	Description
ANSI - Areas of Natural and Scientific Interest	OGDE	ANSI's (Areas of Natural and Scientific Interest) are polygon features that represent lands and waters containing important natural landscapes or features that are important for natural heritage, protection, appreciation, scientific study or education.

Title	Source	Description
		Different ANSI types collected by the Natural Resources Values Information System (NRVIS) include: • ANSI, Earth Science • ANSI, Life Science
Surficial Geology of Northern Ontario	OGDE	To provide a broad overview of the distribution and character of the surficial materials of northern Ontario and associated attributes available to the land-use planning, consulting, mineral exploration, oil and gas, aggregate/industrial mineral industries and resource development community, as well as, government geoscientists, resource scientists, conservation authorities, land-use planners and academic researchers.
Provincial Landcover	OGDE	The Ontario Land Cover Data Base, Second Edition (2000) provides a classification of 27 broad land cover types north of the southern boundary of the Canadian Shield, within the province of Ontario. The land cover classes consist of vegetation types (such as forest, wetlands, and agricultural crops or pasture) and categories of non-vegetated surface (such as waterbodies, bedrock outcrops, or settlements). These classes reflect the nature of the land surface rather than actual or potential land use.
Species Observation, Provincially Tracked	OGDE	Species Observation Provincially Tracked contains observations for species listed by MNR as provincially tracked by the NHIC. Provincially tracked species (in this context only) include: • species listed as species at risk under Canada's Species at Risk Act or Ontario's Endangered Species Act, • other species that are rare in Ontario, or that are of conservation concern, • Provincially Tracked Species not included in this layer are: • wildlife concentration areas like heronries, colonial waterbird colonies, bat hibernacula, and waterfowl, shorebird and winter raptor concentration areas, and • plant communities.
Existing Transmission Line Alignments	Compiled from various hardcopy sources	115kV and 230 kV transmission lines
Various base map layers	http: //geogratis	These include populated areas, roads, pipelines, railways, watercourses, waterbodies, Provincial Parks, National

Title	Source	Description
	.cgdi.gc.ca/geogratis/en/index.html)	Parks, power stations, Compiled from various open access datasets available through the Natural Resources Canada (NRCAN) GeoGratis website
Environmentally Sensitive Area - Retired	OGDE	An Environmentally Sensitive Area is a polygon feature that identifies an area with values which are identified to be of local interest and is designated and managed by a municipality. It may represent the habitat of vulnerable, threatened or endangered species. Note: This data class is no longer available or used by MNR.
Significant Ecological Area		A Significant Ecological Area is a polygon feature that identifies an area of interest to the Ministry that is ecologically significant, and warrants special consideration, excluding ANSI's, parks, reserves or ESA's. Different Significant Ecological Area types collected by the Natural Resources Values Information System (NRVIS) include: • Significant Valley • Significant Woodland • No-Cut Area • Designated Old Growth Forest • Old Growth Forest • Significant Ecological Community
Conservation Areas	OGDE	Conservation Areas are lands which are considered to be regionally significant, such as valleys, or environmentally sensitive areas, and are best managed by a public agency to retain their natural characteristics. These areas are designated within a Conservation Authority's jurisdiction and are managed by the Authority.
Conservation Reserve Regulated	OGDE	Land set aside under the Provincial Parks and Conservation Reserves Act, 2006: • To permanently protect representative ecosystems, biodiversity and provincially significant elements of Ontario's natural and cultural heritage and to manage these areas to ensure that ecological integrity is maintained • To provide opportunities for ecologically sustainable land uses, including traditional outdoor heritage activities and associated economic benefits. • To facilitate scientific research and to provide points of reference to support monitoring of ecological change on the broader landscape.

Title	Source	Description
Wintering Area	OGDE	A Wintering Area is a polygon feature that identifies an area in which a species habitually winters. Different Wintering Area types collected by the Natural Resources Values Information System (NRVIS) include: • Bat Hibernaculum • Caribou Wintering Area • Deer Wintering Area (Stratum 2) • Deer Wintering Area (Stratum 1) • Elk Wintering Area • Moose Early Wintering Area • Moose Late Wintering Area • Snake Hibernaculum • Waterfowl Winter Concentration Area
Calving Fawning area	OGDE	A Calving Fawning Site is a polygon feature that identifies an area to which a particular species habitually migrates to give birth. Different Calving Fawning Site types collected by the Natural Resources Values Information System (NRVIS) include: • Caribou Calving Site • Deer Fawning Site • Elk Calving Site • Moose Calving Site
Aquatic Feeding Area	OGDE	An Aquatic Feeding Area is a polygon feature that identifies a species-specific area that contains aquatic vegetation on which the species feeds. Different Aquatic Feeding Area types collected by the Natural Resources Values Information System (NRVIS) include Moose Aquatic Feeding Area
TransCanada Trail	Website	Existing and Proposed Trans Canada Trail
Fish Species at risk	Lakehead Region Conser-vation Authority	Fish species at risk in Lakehead Region Conservation Authority jurisdiction
Snowmobile trails	Website	Ontario Federation of Snowmobile Clubs trail system in northern Ontario

5.1.1 Physical Characteristics of the Study Area

The general physical characteristics of the study area will be documented as part of the EA. This section provides an overview of the physical and natural setting in the study area, and outlines the more detailed information that will be provided in the EA.

Climate

The EA will provide climatic data for all regions within the study area, as well as mean monthly and annual temperature, precipitation and wind data for representative meteorological stations in the study area.

Air Quality

OMOE air quality stations are located in Thunder Bay, Sudbury and Sault Ste. Marie. Regional ambient air quality information will be provided in the EA for the OMOE air quality monitoring stations near or in the study area.

Sound/noise is a component of the air environment. The major sources of noise in the rural environment are road traffic, railway traffic. The EA will characterize baseline or background noise conditions, based on published information or noise surveys, as required.

Geology/Physiography

The study area is in the Cambrian Shield (often referred to as the Canadian Shield). It is dominated by shallow soils and granite bedrock that stretch from the northern end of the Great-Lakes St. Lawrence forests through to the Hudson Bay Lowlands. There are two portions to the shield. One is estimated to be over 2.5 billion years old, formed during the Archean Era. The other found in the Lake Nipigon and also in the Sudbury-to-Kemptville area) was formed in the Proterozoic Era, is over 680 million years old and covers 11% of the province. Combined, these two areas account for 66% of Ontario's area. They contain approximately 86% of Ontario's productive forests.

Surficial geology maps and data indicate the majority or dominant soil types existing within each zone. Variations can occur in the region. There are three major sources of soils data that will be used to describe soils:

- The Canadian (Ontario) Land Inventory (OLI), based on 1:250,000 inventories conducted in the early 1970s;
- The Northern Ontario Engineering Terrain Study (NOEGTS), surficial geology & soils data, based on detailed air photo interpretation conducted in the late 1970s; and
- The Surficial Geology of Southern Ontario, based on Geological Survey of Canada data.

The EA will provide mapping and a description of the geological formations traversed by the Project.

The EA also will provide a description of the effects of glaciation and drift thickness based on Ontario Geological Survey mapping the above information.

Surface and Groundwater Hydrology

The EA will map the watersheds including their tributaries, as well as discharge and water quality data from the Water Survey of Canada, the OMOE and Lakehead Region Conservation Authority. As part of the EA, the Proponent will work with Lakehead Region Conservation Authority and MNR District offices to collect available site-specific information for all watercourses that will be crossed by the proposed preferred alignment. This information will be included and mapped in the EA.

Basic hydrologic and surface water parameters will be measured and recorded on-site as described in a later section. Surficial sediment type will also be recorded as described in a later section. The hydrologic data will be provided in the post-EA applications for watercourse crossing permits.

The EA will also provide a description of groundwater resources including groundwater levels, yields and quality based on OMOE well records and published information. A questionnaire will be provided which requests information on the location of any wells near the construction areas. Consultation will include information on construction activities which will take place on each individual property. This site-specific information will be used to augment the information provided by the OMOE in their wells database.

Environmentally Significant Areas

Provincially Significant Wetlands (PSWs), Areas of Natural and Scientific Interest (ANSIs), Regional Environmentally Sensitive Areas (ESAs) and significant woodlands, valley lands, and wildlife habitat, may be traversed by or be adjacent to the preferred alignment. The RoW and possibly access roads will also affect a number of designated natural areas.

The EA will map the environmentally significant and natural areas within the study area. Existing published information will be mapped to assist in identifying natural areas and delineating boundaries of provincially and regionally significant features, such as wetlands and ANSIs. A description of each area will be provided based on the MNR Natural Heritage Information Centre (NHIC) database, published information, unpublished information received through discussions with the MNR, Lakehead Region Conservation Authority, municipalities, and naturalist groups and field studies. Boundaries will be confirmed, as well as status, particularly for Regionally Sensitive Areas. Wetland evaluations will be conducted, where appropriate, to delineate previously unevaluated wetlands and confirm PSW boundaries within the study area.

The EA will summarize hydrological data (where available), and surface water and wetland resources as part of the EA process. The level of detail required for permitting will be discussed with the regulatory authorities.

(Lakehead Region Conservation Authority**:** boundaries correspond to those of its eight participating municipalities; encompassing an area of over 2700 sq. km, extending along 200 km of Lake Superior shoreline (to Dorion to the east)).

Vegetation and Forest Resources

The study area lies in the Ontario Shield Ecozone and spans 3 ecoregions: Pigeon River to the west; Lake Nipigon in the centre; and, Lake Abitibi to the east. The study area has two forest regions: the Great Lakes – St. Lawrence Forest region to the east and west; and, the Boreal Forest region in the centre. (Forest Resources of Ontario 2011). The study area is predominantly forested (~75%), with lesser proportions of treed bog/fen, and wetlands. Marginal agricultural land is present in limited, localized to the western portion of the region and represents less than 1%.

Ontario's Crown forest is divided into geographic planning areas, known as management units, for the purposes of forest management. Most of these management units are managed by individual forest companies under a Sustainable Forest Licence (SFL). The SFL holder is responsible for carrying out the following activities subject to Ministry of Natural Resources regulations and approvals:

- Forest management planning;
- Harvest;
- Access road construction;
- Forest renewal and maintenance; and
- Monitoring and reporting.

Prior to developing the detailed vegetation and forest resources study plan the information listed in Section 5.1 will be reviewed and information listed below will be taken into account:

- Hydro One site specific data;
- High Resolution Aerial Photography;
- Fly-over DVD of the entire route;
- Windshield survey of accessible sections of the corridor/alignment; and
- Forest Management Unit data provided by MNR and the SFL.

All areas identified as having significant natural features, species at risk and other areas identified through the agency, public and aboriginal consultation process will be sampled. Other areas to be considered for sampling will be based on the following criteria:

- Representative forest/ecosystem type
- River valley (top land to top land) associated with significant watercourses
- Riparian vegetation at water crossings

- Accessibility

Field work will be conducted throughout the year along selected areas of the preferred alignment and other areas based on criteria described above. Vegetation inventories will be conducted in (potentially significant and sensitive habitats or habitats that have the potential to support SAR) spring/early summer and late summer/fall. Studies will follow the protocol established for Forest Ecological Classification in the "Manual" and include additional information as identified through agency, public and aboriginal consultation. All areas identified for sampling will be visited in at least one season (provided that land access is granted). Ecological Land Classification (ELC) or equivalent classification system for northern Ontario will be used by qualified biologists during field studies to characterize the vegetation communities within the study area. This information will be used to confirm aerial photography and published data and boundaries of natural features.

Incidental wildlife surveys will be conducted during all vegetation surveys. During winter, wildlife surveys will be undertaken.

Additional field visits may be conducted in potentially significant and sensitive habitats or habitats that have the potential to support SAR. Field surveys including the following information: date, weather conditions, number of field personnel, location or feature of interest and the map tile on which the feature can be found. Site locations and timing rationales for each survey will be provided, along with rationales for determining which surveys were appropriate for this level of study.

The EA will describe and map vegetation communities and delineate plant species in natural areas, such as ESA's, ANSI's, wetlands, valley lands and wildlife habitat, based on the NHIC database, published information, and field studies.

Field surveys will be undertaken at selected areas along the preferred alignment. Areas selected for detailed study will be identified from aerial photographs, as well as all locations designated as potential temporary crossings or where there are potential impacts from erosion/sedimentation, and construction lay-down areas.

Field studies will be conducted within the study area, including environmentally significant areas, designated natural areas, and the route of proposed new access roads. Detailed surveys also will be also conducted on natural features in the vicinity of towers, access roads, and watercourse crossings. These surveys will facilitate identification of potentially endangered or threatened species (e.g., sedge), and significant wildlife habitat.

Wildlife and Habitat

Lands within the study area provide woodland, wetland and riparian habitat for wildlife.

The EA will identify the mammal, breeding bird and herpetofauna species present in the study area based on published information and available databases. Any significant or specialized wildlife habitat will be mapped and described. The EA will also identify migration corridors, as well as feeding and resting areas, where practicable.

During the vegetation surveys, any significant or specialized wildlife habitat will be identified and any casual observations of wildlife species recorded. If previously unidentified significant habitats or features are identified during site visits, this information will be documented in the EA. Regionally and locally rare species will be considered as an indicator for the EA, based on information obtained from NHIC, MNR, other sources and field observation.

The EA document will also map the general locations of species at risk, endangered and threatened species, and species of special concern in the study area. This information will be based on the MNR's "Species at Risk in Ontario List", the Committee on the Status of Endangered Wildlife in Canada list, Environment Canada species at risk search tool (hhtp://www.speciesatrisk.gc.ca), and Environment Canada, CWS and NHIC databases, as well as known locations based on published and unpublished information and personal communications. All general locations within the study area that would be directly affected by construction activities will be field inspected to confirm the presence/absence of any species at risk (if practicable) and evaluate habitat potential to support species at risk.

Particular attention will be given to woodland caribou and their distribution and abundance within the study area and MNR management plans for this species. Early stage consultation will be undertaken with MNR, CWS and other interested stakeholders to identify concerns and develop mitigation and enhancement plans.

Water Bodies, Fish Habitat and Aquatic Ecosystems

Based on a preliminary analysis of Regional Study area boundaries, there are:

- 18,918 km of watercourses;
- 322 named watercourses (3,116 km);
- 71 wetlands (6,852 ha);
- 101,997 ha of lakes, excluding Lake Superior; and
- 936 named lakes (61,504 ha).

Given the large number of watercourses and waterbodies within the Regional Study area boundary, sampling of waterbodies, fish habitat and aquatic ecosystems will be restricted mainly to those that directly intersect with the Project. Select other waterbodies may be sampled based on the following criteria:

- Direct intersection with the project;
- Type of fish habitat (i.e., critical, important, marginal or no fish use);
- Size of drainage/watercourse;
- Fish community based on background data search;

- Distance to larger waterbody with known sport fish species (possible use as spawning habitat);
- Perceived risk (e.g., coldwater trout streams) and sensitivity to temporary stream crossing during transmission line construction or routine vegetation management; and
- Other factors identified in pre-field research and consultation with MNR and DFO.

Hydrologic and surface water parameters will be measured and recorded on-site. Surficial sediment type will also be recorded. The hydrologic data will be provided in the post-EA applications for watercourse crossing permits.

Most of the larger watercourses within the study area provide spawning, nursery and adult habitat for species such as rainbow trout, brook trout (including coasters), lake sturgeon, walleye, pike, suckers and others. Species at risk with a range overlapping the project area are listed in Table 5. The EA will map watercourses, as well as list fish species present in the watercourses in the study area based on MNR Field Collection Records, Lakehead Region Conservation Authority database, DFO data, published information, and field surveys. Any significant fish habitat (e.g., Sanctuary Areas) will be identified and described. Several recreationally important salmonid species are present throughout the study area. Distribution and habitat for these species will be identified and described based on published information and field studies.

Table 5: Species at risk with ranges overlapping the project area.

Common Name	Scientific Name	COSEWIC[A]	SARA[B]	SARO[C]
Aurora trout	*Salvelinus fontinalis timagamiensis*	Non-active	Endangered, Schedule 1	Endangered
Blackfin cisco	*Coregonus nigripinnis*	Data deficient	Threatened, Schedule 2	No status
Deepwater sculpin, Great Lakes population	*Myoxocephalus thompsonii*	Non-active	Threatened, Schedule 2	No status
Upper Great Lakes Kiyi	*Coregonus kiyi kiyi*	Special concern	Special concern, Schedule 1	Special concern
Lake Sturgeon, Great Lakes - Upper St. Lawrence populations	*Acipenser fulvescens*	Threatened	No status	Threatened
Northern brook lamprey	*Ichthyomyzon fossor*	Non-active	Special concern, Schedule 3	Special concern
Short-jawed cisco	*Coregonus zenithicus*	Threatened	Schedule 2, Threatened	Threatened
Silver lamprey	*Ichthyomyzon unicuspis*	Special concern	No status	No status

A: Committee on the Status of Endangered Wildlife in Canada, B: Species at Risk Act, C: Species at Risk Ontario

The Proponent will use the Ministry of Transportation (MTO) Protocol for Fish and Fish Habitat (MTO 2009) in assessments. Detailed assessments for crossing location will be conducted as part of the permitting process. Based on criteria described above, selected potentially impacted waterbodies (crossed by temporary construction or permanent maintenance access roads, near construction laydown areas, impacted through deforestation, erosion, sedimentation or impoundment) will be field inspected prior to construction to confirm presence/absence of fish habitat and fish species present..

All information collected as part of the natural environment field programs will be used in the EA to identify potential effects and practicable mitigation measures, and to fine tune the locations of towers, access roads and water crossings (where appropriate). Information will also be used for any DFO and or MNR approvals that may be required prior to construction.

5.2 Socio-economic, Cultural and Agricultural Environment

The following section describes the socio-economic, cultural, and agricultural environment in the study area.

Existing and designated land uses within the study area will be studied e.g., settlements, land use patterns, key areas of future development, proximity to towns and villages, and aboriginal communities and land use types traversed by the line. The existing transmission line has been in place for decades and land use practices have adjusted to its presence.

Factors relevant to the Socio-economic study that must be documented in the Environmental Assessment and evaluated with regard to potential impacts include:

- Forestry
- Mining
    - Active mines
    - Active mine claims
    - Pending mine claims
- Agriculture
- Industrial
- Aboriginal land ownership, existing and traditional land use
- Other Land use
    - Settlement Areas (Urban areas)
        - Housing
        - Commercial (shops, services, etc.)
        - Municipal facilities
            - educational facilities
            - health facilities
            - retirement homes
            - places of worship
            - recreational features

        - camp grounds
        - location and coverage of emergency services
    - Land ownership
        - Settlement Areas
        - Crown Leased land
        - Rural residences
        - Cottaging areas
    - Commercial/Industrial Land Uses
        - Commercial
        - Industrial
        - Trapper cabins
    - Infrastructure
        - Roads
        - Railways
        - Airports
        - Existing transmission lines
        - Natural gas pipelines
        - Communications towers
        - Utility sites
        - Utilities (water, sewer, cable, etc.)
    - Recreational Land Use
        - Major recreational trails
        - Tourism establishment areas
        - Trail segments
        - Camp recreation
        - Designated canoe routes
        - Campsites
        - Portages
        - Tourism water bodies
        - Snowmobile trails
    - Aesthetics (Landscape and Visual)
        - Vistas/views
            - Views of major remote lakes,
            - Viewsheds of Lake Superior
            - Scenic points and vistas
            - Trans-Canada Trail
            - Historical views e.g. Terry Fox Memorial

Following information on the Economy will also be required

- General socio-economic conditions in local and regional study areas
    - Population and community distribution and density
    - Proximity of the project to affected communities
    - Population parameters (age groups, employment etc.)
    - Local and regional economies – workforce and employment
    - Available labour supply and rates of employment in surrounding communities and region
- Land uses and Values
    - Past, current and planned land uses of the study area or beyond that may be impacted by the project
    - Existing land-based infrastructure that is likely to be affected by the Project

  - Estimates of current and projected value of recreational and tourist industry
  - Current and proposed future local, regional or provincial land use or urban development policies, programs and plans
- Land based transportation
  - Existing conditions of proposed modes and routes of transportation used throughout development
  - Existing types and volumes of traffic
  - Areas through which trucks will travel (residential, school, etc.)
- Human Health
  - Current health profiles of the communities likely to be affected
  - Aspects of human health defined by the WHO – physical health and well-being and associated emotional, social, cultural, and economic aspects
  - Population health of the communities or of the region that could be affected
  - Community and public health services available to people that are likely to be affected
  - Electromagnetic radiation concerns
- Physical and Cultural Heritage Resources

5.2.1 Existing Land Use and Approved Developments

The study area crosses through the Districts of Thunder Bay and Algoma and numerous municipalities and two First Nations communities. Forestry, mining and recreation are the dominant land uses in the rural areas, but other land uses occur within the study area, including residential, commercial, industrial and institutional and government uses.

The EA will map all land use designations from Official Plans and draft approved plans of all municipalities within the study area and confirmed through consultation with officials. Plans for development in these municipalities will be identified through discussions with planners and municipal officials.

The Proponent will identify potentially contaminated lands in the study area by conducting a modified Phase 1 Environmental Site Assessment (searching various published databases including the OMOE June 1991 Waste Disposal Site Inventory Report and Records of Site Condition as per O. Reg. 153/04 under Ontario's Environmental Protection Act, for information on known contaminated sites) and by consulting with local municipalities and landowners. Any identified contaminated lands in the study area will be noted and mapped in the EA, and will be considered in tower siting and construction activities. If waste disposal sites are identified, any appropriate approvals will be sought.

5.2.2 Commercial Activities

The study area for the Project, with the exception of the City of Thunder Bay is largely wilderness and rural, interspersed with small population clusters, including municipalities and towns such Dorion, Shuniah, Schreiber, Terrace Bay and Wawa. The only major commercial/industrial activities are associated with the forestry industry and mining industry. There may be several small pockets of agricultural activity. The EA will document the commercial/industrial activities in the study area.

5.2.3 Community Profile

The Project will involve the widening of the existing corridor in some areas and possibly building new corridors in other areas. The EA will identify the existing and approved residential development within 500 m of the proposed RoW corridors through consultation with municipal planners and review of secondary sources such as municipal plans and zoning information. A screening criterion in the *Guide to EA Requirements for Electricity Projects* (Ontario Regulation 116/01, Appendix C) requires an assessment of potential negative effects on residential, commercial or institutional land uses within 500 metres of the site.

The EA will document properties, land uses and social features within the study area. The EA will characterize the communities potentially affected by the undertaking.

5.2.4 Community and Regional Infrastructure

The EA will identify and map community infrastructure in the study area such as roads, railways, airports and major recreational trails, through reconnaissance and/or from secondary sources. The project team will consult with municipal officials and utilities to obtain information on pipelines, mains, drains, etc that are within the study area.

5.2.5 Community Services

The EA will identify and map community services and facilities in the study area such as educational facilities, health facilities, retirement homes, places of worship, recreational features, camp grounds, and the location and coverage of emergency services, etc.

5.2.6 Landscape and Visual Assessment

During the EA will describe landscape characteristics within the study area, identifying landscape settings and features of importance. This assessment will focus on vistas valued by the public and those identified by the project team as contributing to the aesthetic character of an area (e.g., ESA's and river valleys).

5.2.7 Traditional/Aboriginal Land Use

First Nations communities within the study area include Lake Helen 53A, Pays Plat 51, Pic River, Gros Cap 49, Red Rock 53 and Pic Mobert North. Up to 14 First Nations communities have been identified as having potential interests in the study area (Table 6). These communities will be engaged throughout the planning process. First Nations may have an interest in potential project effects on traditional land use, including hunting, fishing, trapping, public safety, aesthetics and existing and future land claims. A separate program is being developed by the Proponent.

Four Métis organizations have also been identified as having a potential interest in the study area (Table 6). These organizations will be engaged throughout the planning process.

Table 6: List of First Nation Communities and Métis Organizations in the East-West Tie Study Area

First Nation (FN) Communities	Métis Organizations
• Animbiigoo Zaagi'igan Anishinaabek FN • Binjitiwaabik Zaaging Anishinaabek FN • Bingwi Neyaashi Anishinaabek FN • Fort William FN • Ginoogaming FN • Long Lake No. 58 FN • Michipicoten FN • Missanabie Cree FN • Ojibways of Batchewana • Ojibways of Garden River • Ojibways of Pic River • Pays Plat FN • Pic Mobert FN • Red Rock Indian Band (Lake Helen Reserve)	• Greenstone Métis Council • Red Sky Independent Métis Nation • Superior North Shore Métis Council • Thunder Bay Métis Council

Based on consultation with the Aboriginal communities and groups, the EA will document concerns and issues raised. The EA will also describe how the proponent proposes to address these concerns. The EA document will describe Aboriginal communities and groups, their traditional uses of the land and their established and asserted claims. Formal studies will be undertaken on "Traditional Land Use" and Traditional Environmental Knowledge.

Aboriginal Affairs and Northern Development Canada, Ontario Ministry of Aboriginal Affairs and Ontario Ministry of the Attorney General will be contacted to identify any other potentially affected Aboriginal communities and assess the Aboriginal interests in the study area.

5.2.8 Cultural Environment

To describe and assess potential effects on heritage resources and archaeology in the study area, the EA will draw upon the results of archaeological assessments and cultural heritage studies. Aboriginal communities will be engaged in the archaeological studies.

A Stage I archaeological study will be conducted, with follow-up studies undertaken as necessary. Results from these studies will be incorporated into EA decision-making and construction planning.

A background historical study will be undertaken of the municipalities along the transmission route to describe their development history and the transmission route development history. Existing cultural heritage resources conditions will be documented.

Built heritage resources and cultural landscape resources that could potentially be affected by the proposed corridor will be identified. If human remains are identified during the EA study or during the construction phase of the Project, the proponent will cease work in the immediate area, notify the Ministry of Culture as required under the Cemeteries Act and simultaneously notify Aboriginal communities with an interest in the area.

Archaeological and Built Heritage Studies

From an archaeological perspective, the proposed corridor will traverse the range of archaeological knowledge in the north. In the west between Thunder Bay and Nipigon, the proposed corridor is in an area with a high concentration of archaeological sites and features representing the earliest period of Ontario's human history. Further east, archaeological knowledge is less well known, only because very little archaeological work has been done in the area. What is known indicates that the full range of human history is extant in this area including several features unique to Canada in the Pukaskwa Park area. Pit features known as Pukaskwa Pits are found on remnant beach ridges of Lake Superior. The area is also well known for pictographs and the range of commonly encountered first nations camp sites/settlements.

In the more recent past, we can expect to find examples of early logging history (camps, mills, river drives), railway history, World War 1 and World War 2 prisoner of war camps and even features related to the building of the highways in the middle part of the 20th century. Ministry of Tourism, Culture and Sport (MTCS) requires archaeologists to consider any features predating 1950 – including homesteads, cabins and any other physical feature that may have historical value to local communities.

Archaeological Studies will be undertaken to meet the requirements of the *Ontario Heritage Act*, the *Environmental Assessment Act* and *Planning Act* as well as the Standards and Guidelines for conducting Archaeological Assessments in Ontario as set out by the MTCS.

Stage 1 Archaeological study will be undertaken to provide an evaluation of archaeological potential on and around the proposed transmission corridor to determine whether the property requires archaeological assessment. A Stage I Assessment has two primary components: the Background Study and the Property Inspection.

Background Study

A background study is a detailed documentary research of the archaeological and land use history and present condition of a property. It is not a stage of archaeological field work in itself, but it is a required component of Stage 1

evaluations of archaeological potential. The objective of the background study is to provide information about a property's geography, history, previous archaeological fieldwork and current land condition, to support determinations of archaeological potential in Stage 1 and choice of survey methods in Stage 2. The Stage 1 review leads to an evaluation of the property's potential to contain archaeological resources. If the review indicates that it is possible that archaeological resources exist anywhere on the property, a Stage 2 assessment must be done to confirm it.

When making an evaluation and subsequent recommendations, it will be necessary to account for all features present on the property that can affect a determination of archaeological potential. As a starting point, the *Checklist for Determining Archaeological Potential*, developed by the Ministry of Tourism, Culture and Sport for non-specialists, summarizes these features as follows:

- The presence of known archaeological sites within 250 metres of the property;
- The presence of a water source (primary, secondary, ancient) within 300 metres of the property;
- Elevated topography (e.g., knolls, drumlins, eskers, plateaux);
- Pockets of sandy soil in a clay or rocky area;
- Unusual land formations (e.g., mounds, caverns, waterfalls);
- Proximity to a resource-rich area (concentrations of animal, vegetable or mineral resources);
- Evidence of early Euro-Canadian (non-Aboriginal) settlement (e.g., monuments, cemeteries) on the property;
- Proximity to historic transportation routes (e.g., road, rail, portage);
- The property is protected under the Ontario Heritage Act;
- Local knowledge of archaeological sites on the property or of the property's heritage value

Property Inspection Study

Stage 1 requirements are specific. With regards to a property inspection, MTCS has approved a modification in the requirements when faced with projects that cover large areas or long corridors – in this case approximately 400km in length. A low altitude helicopter reconnaissance is an acceptable alternative with detailed locational photography aimed at confirming designations of archaeological potential.

Areas that have a high archaeological potential will require Stage 2 investigations if those same areas will be negatively impacted by the Project. For example, if an area of high archaeological potential has been identified within 150m on each side of a water crossing and a tower pad is proposed within the area of potential, then a Stage 2 assessment would be required for any area that would be disturbed by the pad construction (including roads, trails, laydown areas etc). If the tower pad could be moved outside the area of high potential, then no Stage 2 assessment would be required.

Should a Stage 2 assessment confirm the location of an archaeological site and the Project will directly impact that site, then Stage 3 and (likely) Stage 4 investigations would be required. These more detailed levels of investigation seek to recover all archaeological knowledge from the site prior to its being impacted by the development. Once again, if the site can be avoided through planning, then these more detailed investigative stages could also be avoided.

The purpose of the Stage 1 assessment is to make specific statements about the potential of the project area to contain archaeological sites. This also includes making an inventory of known/registered archaeological sites and sites of historical/cultural interest to local communities. This information is used to guide Stage 2 archaeological investigations. MTCS recommends First Nations consultation during the Stage 1 and 2 processes. First Nations consultation is required for Stage 3 and 4 assessments. We recommend consultation from the very beginning of the archaeological process to engage First Nations in the archaeological work. We recommend sharing archaeological information and encourage a bilateral process of sharing and arriving at agreed-to modes of protection/mitigation should the situation arise. The use of First Nations assistants in any Stage 2 work will be promoted.

Agriculture

Except for isolated pockets, agricultural activity in the study area is limited. The EA will analyze the most recent Statistics Canada Census of Agriculture data for agricultural land use, number and type of farms, farm operation arrangements, agricultural systems, livestock capabilities and gross farm receipts. Agricultural land use data will be confirmed/updated and farming infrastructure will be identified by surveys. If identified, specific farming activities and special requirements will be determined by landowner questionnaires.

The EA also will map the Canada Land Inventory (CLI) agricultural soil capability within the study area. The extent and type of artificial tile drainage and municipal drains on properties directly affected by the Project will be determined through discussions with landowners, the OMAFRA, the OFA, other identified agricultural groups, and readily available secondary source mapping.

The EA will consider municipal Official Plans to identify designated prime agricultural areas, and the study team will consult with municipal officials on these designations, where appropriate.

A preliminary a review of Land Cover data and flyover video identified small pockets of agricultural land north of Dorion and Hurkett in the western portion of the study area.

6. ALTERNATIVE METHODS

The alternative methods that will be considered in the EA relate to minimizing or avoiding significant negative effects of the undertaking. The EA document will provide a description and rationale for the alternative methods. The alternative methods to be considered are:

Category 1 – Refinements to the preferred alignment: These comprise diversions around sensitive features and locations of potential crossover points or adjoining transmission lines. These alternative methods will be considered in detail where there are potentially significant environmental advantages relative to the preferred alignment which are consistent with technical, cost and schedule requirements. The assessment will consider input from the Aboriginal groups, the public and other stakeholders, and will use Table 7 for preliminary listing of sensitive features. "Significance" will be assessed based on the value of the resource, the magnitude of predicted changes, the geographic extent, duration and frequency, irreversibility and ecological and social context of the prediction.

Category 2 – Project design considerations: Some issues that are raised by affected landowners or stewards of the land can be resolved through design, construction and (or) timing. Where a regulatory permit is required, design considerations will be assessed in cooperation with appropriate regulatory agencies. This assessment may require selection of appropriate criteria/indicators from Table 7. Alternative design considerations available to mitigate potential effects may include:

- Span length between the towers to avoid environmental features (such as ANSIs, ESAs, hazard lands, or crossing water bodies);
- Tower type and height to avoid environmental features;
- Tower siting and placement for specific applications to minimize aesthetic effects on the local public and the traveling public or disturbances to other land uses.
- Access road specifics, including alignment, location, and removal or possible retention after construction is complete; and
- Construction timing (seasonal) and staging along the RoW to minimize potential effects on the natural environment and specific land uses.

The Proponent will evaluate each alternative method considering avoidance or minimization of negative environmental effects and enhancement of positive effects where practical. For the purposes of the EA, the term “environment” reflects the definition in the EA Act, which includes natural, socio-economic, cultural including built heritage and archaeological resources and agricultural features.

The Proponent will seek opportunities to enhance those environmental components which may have been affected during the course of the Project including re-establishing habitat for terrestrial or aquatic species or implementing tree planting and replacement programs and other activities as identified through the EA and consultation processes.

Table 7: Preliminary Environmental and Technical Considerations during Project Planning

Component	Feature/ Consideration
Natural Environment	• Wetlands, Areas of Natural and Scientific Interest (ANSIs) • Environmentally Significant Areas (ESAs) • Species at Risk (Endangered ,Threatened or of special concern) • Water bodies, fisheries and aquatic ecosystems • Forests, woodlots, vegetation • Significant wildlife habitat, woodlands, and valley lands • Hazard lands
Socio-economic Environment	• Existing and approved land uses (reference to Official Plans) • Approved developments • Commercial activities • Mineral and aggregate resources • Forest resources • Community profile (including effects on landowners) • Community services • Community infrastructure • Landscape and visual assessment • Parks • Conservation areas • Recreational facilities • Traditional/Aboriginal Land Use including hunting, fishing and gathering
Cultural environment	• Historical • Built heritage resources • Cultural heritage sites and landscapes • Archaeological • Churches and cemeteries and other human burial sites
Agricultural lands	• Agricultural soil capability • Crop and livestock production • Agricultural capability • Agricultural infrastructure • Agricultural land use
Technical and cost considerations	• Safety, compliance with codes • Compatibility with the transmission network • Utilization of existing infrastructure corridors (e.g., roads and ROWs) • Minimize changes in transmission line directional heading (angles) • Shortest length of line • Soil stability for transmission towers, including depth of water table

	• Suitable terrain • Good access for line maintenance • Positive effects on the local and provincial economy • Minimizing other transmission circuit crossings • Minimizing effects on other utilities (e.g., pipelines, railways)

6.1 Evaluation of Alternative Methods

During the EA process, reasons to refine the preferred alignment in localized areas may be identified, as described above. There are technical and economic reasons why the new transmission line cannot switch from one side of the existing corridor to the other in multiple locations. However, where Aboriginal, public and stakeholder consultation, effects assessment or field investigations identify issues which merit consideration, local refinements to the preferred alignment will be considered.

The Proponent will consult on these proposed local refinements and conduct an evaluation which is clear, logical and fully documented. The process will include input from engagement/consultation programs with agencies, municipalities, Aboriginal communities and groups, and the general public. This approach will provide a clear presentation of the trade-offs between various evaluation factors, criteria and measures, and the reason why the reference route or route refinement is preferred over others. This may be supplemented with a quantitative comparison using weighted criteria especially where the differences among options is small.

The following general principles will be applied by the proponent during the EA process in the evaluation of alternative methods:

- Maximizing use of existing infrastructure;
- Minimizing the affected land area;
- Minimizing negative effects on existing and designated land uses;
- Minimizing negative effects on agricultural lands and operations;
- Minimizing negative effects on natural systems, with particular emphasis on natural features, functions and communities (including treed lots and vegetation);
- Minimizing negative effects on built-up areas that provide a cultural, recreational, social and economic benefit;
- Minimizing negative effects on businesses, farmers and landowners; and,
- Maximizing opportunities to enhance positive effects on the environment.

These principles for evaluating alternative methods are intended to minimize significant environmental effects. Modifications to the project design will occur throughout the project planning in conjunction with discussions with stakeholder and Aboriginal communities and groups. Evaluation methodologies will be fully documented within the EA.

6.1.1 Local Refinements of the Preferred Alignment

The project team in consultation with affected/interested persons, will highlight specific areas where the preferred alignment could be refined if an alternative will result in potentially significant benefits after all factors are considered.

The evaluation will examine the differences in net effects and costs associated with local alignment configurations. After engagement/consultation with landowners, agencies, municipalities, Aboriginal communities and groups, and any other interested parties, the project team may refine the preferred alignment. The proponent acknowledges that consideration of local refinements may require additional and timely notification of new potentially affected landowners. The decision-making process will be clearly documented and presented to stakeholders' for input and comment to ensure that issues have been addressed.

When route refinements are being considered, a local study area will be established. Data will be collected and mapped for environmental features within the study area to identify the preferred location for the final route alignment. Effects will be described qualitatively or quantitatively according to the preliminary list of criteria and indicators shown in Table 7. These criteria are intended to assist in determining the overall effect of the RoW alignment on the environment and to develop appropriate mitigation measures. Evaluation criteria and indicators may be modified during the EA process based on study findings and other criteria e.g., cost, technical considerations and provincial policy.

Route refinement selection will be evaluated in a comparative manner by different factor groups (natural environment, agricultural, socio-economic, technical); criteria (human and natural components of the environment that potentially could be affected by the Project); and indicators (direct quantitative measures that can be used to represent the measurements of potential effects for each criterion). Data sources will be identified for each indicator. For consistency and reliability, data sets will be limited to secondary source data readily available to the proponent, for example, in a consistent Geographic Information System (GIS) format for the various options. Some examples of indicators to be used for each criterion include the following:

- Natural Environment (proximity to known Species At Risk);
- Socio-economic Criteria (number of properties crossed); and
- Technical and Cost Criteria (total route distance and area).

Other factors will be considered depending on stakeholder and Aboriginal input.

For consistency and reliability, data sets will rely on secondary source data readily available to the Proponent, supplemented, as appropriate, by primary data collected from interest groups, agencies, utilities, members of the

public, Ministries, Aboriginal communities and field studies. Published secondary source data for the evaluation of alternative methods, such as aerial photos and GIS data, will be obtained from agencies and municipal Official Plans.

The analysis and results of the methodology described above will be prepared and documented in the EA and its appendices.

6.1.2 Design Considerations

The Project will enhance safety, security and reliability of electrical supply in the northern Ontario and design considerations will be evaluated consistent with this purpose. Alternative methods involving span length, tower height, alignment of access roads, timing of construction and tower design will be evaluated based on site-specific environmental and technical considerations and landowner and review agency input. The criteria and principles defined above will also be used to evaluate design considerations. Changes to project design will be made to accommodate landowner concerns if it is practicable to do so without negatively affecting other landowners, environmental features or significantly negatively affecting overall project costs. The Proponent will document landowner issues, how these decisions were made, and the results.

6.2 Effects Evaluation and Mitigation Measures

Table 7 lists the preliminary environmental and technical considerations that will be applied in the evaluation of potential environmental effects will be identified. Preliminary criteria and indicators have been developed for the effects evaluation utilizing the general principles detailed in Section 6.1. A more detailed description of the criteria and indicators is provided prior to formal submission of the ToR.

Mitigation measures will be developed to minimize negative effects due to construction and operation of the Project with due consideration of cost, safety, feasibility and technical standards. The EA will recommend pre- and post-operational monitoring programs designed to verify effects prediction, the effectiveness of mitigation measures and the need for any remedial measures, should they be necessary.

6.2.1 Evaluation of Effects on the Natural Environment

As indicated in Section 4.1, the East-West Tie Line will be a new double-circuit 230 kV overhead transmission line with a continuous capacity of approximately 465 MVA and an emergency capacity of approximately 600 MVA (per circuit) . At least part, and possibly most of the RoW will be adjacent to an existing RoW which will reduce potential negative effects on environmental features (i.e. by reducing ROW widening requirements relative to a Greenfield ROW by at least 20%). Construction activities associated with the Project that may have an effect on the natural environment include:

- Brushing, clearing and grading;
- Staging and stockpiling areas;
- Construction of access roads including stream crossings;
- Delivery of equipment and materials;
- Auguring and pouring tower foundations;
- Delivery, assembly and installation of new towers;
- Stringing of conductors; and,
- Rehabilitation/restoration.

Potential negative effects of the proposed undertaking on the natural environment, e.g., soils, surface water and groundwater resources, vegetation, wildlife, fisheries resources and environmentally significant areas, will be assessed and appropriate redesign, mitigation/remedial measures will be recommended to reduce or eliminate those effects.

Significant effects on groundwater are not anticipated. It may be necessary to construct some tower foundations below groundwater tables. In these circumstances, appropriate mitigation will be proposed to avoid groundwater effects including potential effects on well water supplies.

Transmission towers will not be constructed in streams, rivers, etc. Similarly, no dewatering, filling in, and/or relocating of watercourses are anticipated. Efforts will be made to prevent any short term stream flow interference (i.e. culvert crossing installations) which could cause adverse effects. The construction plan will minimize or avoid any direct works in water bodies and most construction will occur at appropriate setbacks from water bodies. The potential for these effects will be addressed in the EA and on a site specific basis, through the appropriate permitting processes.

The Proponent will consider opportunities for habitat improvements including streamside buffers within the proposed reference route including any selected route refinements. This will be done in consultation with affected property owners, interested Aboriginal communities and groups, conservation authorities, provincial ministries and affected municipalities.

The issue of soil compaction and measures to mitigate effects on soil permeability, drainage and hydraulic balance will be addressed in the EA. Dust and noise from construction are controlled with appropriate mitigation measures and environmental best management practices (Cheminfo, 2005). Sediment and erosion control measures will be identified and addressed in the EA document. This includes identification of areas where soil or other factors could affect the effectiveness of those measures.

Potential effects due to construction are as follows: soil compaction and erosion; loss of vegetation from clearing and associated loss of wildlife habitat; displacement of wildlife or effects to nesting birds and species at risk; habitat

fragmentation; incidental spills of oil, gasoline and other chemicals; water quality and fish habitat degradation due to temporary stream crossings; and degradation of environmentally significant areas. Agricultural infrastructure can be affected by changes to site drainage.

Potential effects due to operation are related to maintenance access and vegetation management (approximately 7-year cycles. To reduce or eliminate potential negative environmental effects associated with the construction and operation of the proposed facilities, proven environmentally sound guidelines and best management practices (BMPs) will be implemented using documents and practices proposed to be used by the Proponent. Practices currently in use by HON1 will be reviewed for suitability. Some of these are referred to in the Bruce to Milton Terms of Reference (HON1 2008) but are not readily available.

In addition, all other relevant environmental requirements and policies will be identified and taken into account in the EA, e.g., Ontario Ministries of Municipal Affairs and Housing, Environment and Natural Resources, Department of Fisheries and Oceans and Lakehead Region Conservation Authority plans and policies.

The Proponent will assign an environmental specialist to support construction and to advise on environmental requirements. Pre-construction monitoring will be completed to delineate boundaries of natural features, flag the limits of work areas, and identify stick nests for removal prior to breeding bird season. Construction-phase monitoring will be undertaken to confirm compliance, to ensure that mitigation is implemented according to plan and is effective, and to ensure that appropriate post-construction restoration is carried out.

As a standard requirement, the Proponent will prepare an “Environmental Specification” for the Project, detailing how project environmental protection will be achieved by describing all project commitments, government legislation and special mitigation procedures to be implemented. As appropriate, the Proponent will use Hydro One policies for similar projects in Ontario. The Environmental Specification will take into account the environmental guidelines and Best Management Practices listed above to control the effect that the Project may have on the environment. It will also take into account commitments made during the EA and conditions of approval for licences and permits.

The Environmental Specification will delineate appropriate construction procedures and associated mitigation measures for:

- Brushing and clearing;
- Access road construction and removal;
- Construction noise and nuisance dust control;
- Erosion and sediment control;
- Watercourse crossings;
- Environmentally significant areas;
- Site cleanup and restoration to pre-construction conditions;

- Spills and spill reporting; and
- Waste management practices.

The widened RoW could cross a number of environmentally significant areas. The Proponent is committed to proceeding with the work in a manner that avoids or minimizes environmental effects wherever practicable, including within wetlands and watercourses. Some of these may be avoided by alignment of access roads off-RoW and/or by tower placement on either side of an environmentally significant area. Pre-construction surveys of these areas will be completed to:

- Identify vegetation communities and inventory flora directly affected;
- Clearly identify and flag the limits of working areas, adjacent to important environmental features;
- Identify flow regime across the working area at wetland locations and flag preferred surface water control zones as required:
- Identify any stick nests for removal prior to the breeding season; and
- Clearly mark the limits of vegetation clearing.

As indicated in Section 5, all known and general species at risk locations in the study area will be ground-truthed to confirm presence/absence of any species at risk (if practicable) and/or evaluate habitat potential to support species at risk. Protection/mitigation measures would be developed, as necessary, including alignment of access roads or transmission towers, transplantation, and/or habitat compensation. When practicable, selected cutting will be timed to avoid the breeding bird season. Otherwise a bird nesting survey will be undertaken to identify, prior to construction, the presence of any migratory bird nests.

In addition to the implementation of appropriate construction procedures and associated mitigation measures for site cleanup and restoration to pre-construction conditions, The Proponent will identify opportunities for habitat enhancement in environmentally significant areas.

Finally, an “Environmental Emergency Preparedness and Response Plan” will be prepared prior to the start of any field construction work. The plan will clearly identify project specific emergency contacts and accountabilities.

6.2.2 Evaluation of Effects on the Socio-economic Environment

Socio-economic impacts can be positive or negative; and can occur at various units of social order: individuals, businesses, communities, economic sectors; however, the overall objective of the Project is to provide an overall benefit to the Province of Ontario, in particular, northern Ontario.

The Project will provide positive effects to the province and communities due to supply of electrical services and commercial industrial benefits e.g., steel production, tower frame manufacturing, equipment manufacturing, local hospitality industry, etc.

The socio-economic impact assessment will identify positive and negative effects of the Project locally and to the Province. The key indicators for this study are:

- Displacements of business, property and residents;
- Displacements of social features (e.g. institutional, recreational, etc);
- Disruption to business, property and residents;
- Disruption of social features;
- Community and neighbourhood effects (e.g. community character, cohesion, function);
- Changes to land use patterns, including existing and planned development;
- Displacement or disruption to farm infrastructure and type;
- Displacement or disruption to mineral and aggregates resources;
- Displacement or disruption to parks, conservation and recreational areas;
- Displacement or disruption to community services and infrastructure;
- Disruption to traditional/Aboriginal land use;
- Changes to the existing landscape, visual character (i.e. visual attractiveness and scenic values);
- Economic benefits to the local communities (e.g., commercial activity); and,
- Economic benefits to the Province (e.g., industrial production, manufacturing, commercial activity and technical services).

Data Collection

Socio-economic information will be collected from the following sources:

- Secondary published sources;
- Windshield surveys;
- PIC comments and input;
- Stakeholder consultation (to be defined as project planning progresses but may include municipalities, ratepayer groups, business community, agricultural community); and
- Consultation with potentially affected community residents.

The socio-economic impact assessment will include:

- An assessment of the socio-economic character and profile of the area potentially affected by the Project;
- An evaluation of the alternatives including identification of issues and concerns;
- The identification and assessment of effects on the socio-economic environment by indicator; and,
- The identification of protective or mitigation measures.

Potential effects of the proposed undertaking on the socio-economic features identified will be assessed and appropriate mitigation/remedial measures will be recommended to reduce or eliminate the significant negative effects.

The Project may have potential effects on businesses, community services, infrastructure and facilities. It may also affect potential development plans in those communities. Construction activities associated with the Project will also

be assessed at a broad level due to the potential to displace and affect access to properties, businesses and community features. Other potential effects due to construction that will be considered are road diversions/detours, and nuisance effects such as dust and noise during construction activities.

The assessment of effects will be based on data collected from primary and secondary sources. A broad assessment of potential socio-economic considerations of the alternative methods both during and after construction on existing land use, potential development, businesses and community features shall be prepared and will identify proposed mitigation measures. The data collected as part of the baseline environmental description will be provided in the EA document and will form the basis for measuring effects of the Project. This includes data from supporting technical studies, surveys and environmental inventories collected from within the study area.

To reduce or eliminate potential environmental effects associated with the construction and operation of the proposed facilities, proven environmentally sound guidelines and best management practices (BMPs) will be implemented.

Effects on Traditional/Aboriginal Land Use

Aboriginal communities and groups may have an interest in a project in addition to or apart from any potential effects on Aboriginal interests and treaty rights. Through discussions with Aboriginal communities and groups, the Proponent will attempt to determine the extent and nature of any interests in the Project as well as any potential effects on Aboriginal interests and treaty rights.

The Proponent, together with Ishkonigan Inc., is currently in consultation with First Nations communities and Métis organizations. This process will continue throughout the entire EA process. It is not clear at this time the extent of any potential effects on Aboriginal interests. There is potential interest in project archaeological studies, e.g. funerary objects and human burials, as well as effects on the natural environment, e.g. hunting and fishing) and treaty rights for these groups or any of the others which have been identified for engagement in the project area.

As part of the EA process, the Proponent will provide to Aboriginal communities and groups who wish to receive it, species information which is gathered from the field studies. the Proponent will also consider any information Aboriginal communities and groups provide on protection of plant and animal species which have traditional value. This information will be used in developing indicators and measures for effect on traditional/Aboriginal land use where relevant.

Effects on the Cultural Environment

The study area consists of previously disturbed lands in the immediate vicinity of existing transmission corridors and relatively undisturbed lands with increasing distance from the existing corridors or in areas designated for local refinement. The Project could potentially have effects on:

- Areas of archaeological potential;
- Built heritage;
- Cultural heritage landscape;
- Churches and cemeteries; and
- Other cultural uses.

To assess the potential effects of the Project on heritage, archaeology and cultural resources, the EA will draw upon the results of a Stage 1 archaeological study (and future archaeological work, as required) and cultural and heritage assessments. Information and data will also be obtained from Municipal Heritage Groups, heritage planners, Aboriginal communities and groups, secondary source information, and discussions during the engagement/consultation process.

Effects on the Agricultural Environment

Effects on the agricultural environment are expected to be minimal as there is little agricultural activity in the study area. The Proponent will consult with the Ontario Ministry of Agriculture Food and Rural Affairs (OMAFRA), the Ontario Federation of Agriculture and the Christian Farmers Federation of Ontario (CFFO) and farmers regarding effects on the agricultural environment.

Construction and pre-construction (including archaeological assessments and surveying) activities associated with the Project that may have an effect on the agricultural environment include:

- Brushing and clearing;
- Construction of access roads;
- Delivery of equipment and materials;
- Auguring and pouring foundations;
- Delivery, assembly and installation of new towers;
- Stringing of conductors; and
- Soil and drainage restoration.

Potential effects of the proposed undertaking on the agricultural environment, e.g., artificial drainage systems, surface and subsurface improvements, agricultural structures (farms, laneways, etc.), agricultural capability of the land (surface and subsurface soil characteristics), removal of land from active production through placement of towers, surface water and groundwater resources, etc., will be assessed and appropriate mitigation/remedial measures will be recommended to reduce or eliminate potentially significant effects.

Potential effects due to construction may include fugitive dust, noise emissions, topsoil/subsoil mixing, damage to drainage systems, soil compaction and erosion, crop clearing, incidental spills of oil, gasoline and other liquids, degradation of water quality, and degradation of soil productivity. To reduce or eliminate potential significant

agricultural effects, construction and operation of the proposed facilities would be subject to proven, environmentally sound guidelines and BMPs. Additional detail regarding construction techniques and BMPs will be provided in the EA, and will be available for comment at that time. Mitigation measures will be developed based on site-specific conditions, in consultation with stakeholders and individual landowners. In addition, all other relevant requirements and policies will be identified and taken into account in the EA.

As indicated in Section 6.3.1, The Proponent will prepare an "Environmental Specification" document for the Project. The Environmental Specification will take into account standard environmental guidelines and BMPs to ensure that the Project will have minimal effect on the agricultural environment. All Hydro One staff and their Contractors will follow the Specification for the Project.

Pre-construction surveys of agricultural lands to be affected by the Project will be completed to identify extent and type of agricultural operations; and clearly identify and flag the limits of working areas, with consideration for adjacent agricultural operations, tile drainage systems and soil.

6.3 Other Issues

6.3.1 Property Values

During the consultation process, potential effects on property values will be discussed with landowners. Contacts will be initiated with all landowners who may be directly affected by the project crossing their property or in close proximity. Compensation will be available to those whose property will be crossed. For all other properties which are directly affected by the proposed ROW widening, independent appraisals will be conducted and offers to landowners for an easement will be based on market value in the area.

The Proponent is committed to fair, open and consistent treatment of all affected landowners. The Proponent will consult with municipal stakeholders as part of our efforts to minimize any inconveniences caused by the project and will consult with municipalities to understand and address their concerns.

6.3.2 Electric and Magnetic Fields

Electric and magnetic fields (EMF) are invisible lines of force produced by the flow of electricity in a wire or electrical device. The strength of these fields rapidly weakens away from their source. Everyone is exposed daily to EMF from many sources, including household wiring, power lines and appliances.

The Proponent recognizes the public concerns over potential health effects from exposure to EMF and, in consultation with other agencies including Hydro One, will appropriately address and communicate the scientific data/developments on this issue. Therefore, the Proponent will though a consultation process with other agencies:

- Communicate accurate and timely information to potentially affected individuals;
- Provide, upon request, EMF measurement services at no cost to individuals and/or organizations whose property is adjacent to the transmission facilities;
- Monitor worldwide scientific research, judicial decisions and regulatory requirements relating to EMF, and make necessary adjustments to its policies, programs and practices.

The issue of EMF will be addressed in the EA document. In addressing potential health issues, the Proponent looks to the scientific expertise of Health Canada (and to a lesser extent, Hydro One) to assess the scientific studies and provide advice and guidance. As part of its mission to set public health policy, Health Canada continues to monitor the scientific research on EMF and human health.

6.3.3 Cost and Technical Considerations

Cost and technical considerations associated with this project will be provided in the Submission and will be included in a subsequent draft of the ToR.

7. COMMITMENTS AND MONITORING

The proponent is committed to environmental protection and responsible environmental management. This project will be carried out in compliance with environmental legislation, corporate policies, BMPs, and corporate environmental procedures.

Facilities will be designed, constructed and operated in a manner that makes efficient use of resources, prevents pollution and reduces environmental effects to the extent that is reasonably achievable. The Proponent strives for the continual improvement in its management system, processes, activities and services. Therefore the Proponent will:

- Identify, assess and manage potentially significant environmental risks and integrate
- Environmental considerations into decisions;
- Identify, anticipate and report potentially significant environmental effects in accordance with reporting protocols. The emphasis will be on prevention of environmental incidents and significant negative effects;
- Train employees and contractors so that they understand their roles, responsibilities and the Proponent's environmental requirements and have the skills, knowledge and resources necessary to perform their duties;
- Promote continual improvement by setting environmental objectives and targets, monitoring performance and taking corrective and preventive actions when required;
- Work cooperatively with governments, customers, suppliers and other stakeholders to develop programs that contribute to the achievement of the Proponent's environmental objectives and targets; and
- Support the investigation and use of new methods of environmental protection that will help achieve Hydro One's business objectives.

An Environmental Specification will be prepared to guide project construction. An environmental specialist will be assigned to support and monitor construction activities. As noted, pre- and post-operational studies will be carried out to confirm project compliance, the accuracy of environmental effects predictions, the effectiveness of mitigation measures and the need for any remedial action.

7.1 EA Document Preparation and Submission

The EA will be consistent with the requirements on the EA Act described in Section 3. As described in the OMOE's Code of Practice on Preparing and Reviewing Environmental Assessments in Ontario, the EA will include:

- An Executive Summary;
- List of studies and reports;
- Terms of Reference requirements;
- Identification of the proponent;
- Commitments and monitoring;
- Other approvals;
- Consultation summary; and
- Appendices.

In addition, commitments to post approval actions including project notification, remedial action plans, etc. will also be described. The EA will document need, the purpose for the undertaking, alternative methods and their rationale, engagement/consultation undertaken, a description of and rationale for the Undertaking, environmental baseline, environmental effects and proposed mitigation measures associated with the Undertaking, commitments to compliance monitoring, and future commitments to be satisfied at subsequent design stages. Further information will be included if warranted.

In addition to the EA, reference reports will be prepared at appropriate stages of the EA to document technical work that is undertaken to support the decision-making process. These reference reports will be included as technical appendices to the EA as described in the Code of Practice.

A draft EA will be made available to the public, federal and provincial government agencies, municipalities and Aboriginal communities and groups for review prior to formal submission to the OMOE. The documentation will be available at government offices, public libraries and on the project web site.

Subsequent to the pre-submission review and consideration of any comments received, the EA will be formally submitted to the OMOE for an approval decision.

The EA will provide a comprehensive list of all relevant commitments made during the preparation of the ToR and the EA to guide future environmental work and engagement/consultation as well as effects and compliance monitoring. All monitoring will be consistent with OMOE requirements.

7.2 Project Effects Monitoring

During the later stages of the EA process, a monitoring program will be developed. The program (to be included in the EA) will describe the project environmental management system that will ensure compliance with the commitments set out in this assessment plus other environmental requirements (e.g., terms and conditions of EA approval and other legislation).

Pre- and post-operational monitoring will identify actual effects, assess the effectiveness of the mitigation/restoration/enhancement measures to reduce or eliminate these effects, and evaluate the need for any additional action to ensure commitment realization.

Appropriate commitments to compliance monitoring will be reflected in study documentation. The duration of the monitoring and follow-up programs will vary and will depend on the conditions of permits and approvals granted by regulatory agencies.

7.3 EA Process Monitoring

During the planning and design processes, compliance with EA process commitments will be reviewed prior to project implementation. External notification and engagement/consultation will be consistent with EA commitments.

8. CONSULTATION

8.1 Consultation Plan for the ToR

A Record of Consultation document for preparation of the ToR will be part of the ToR submission. This Record will describe the engagement/consultation methods utilized, and include a summary of the issues and concerns raised during the engagement/consultation activities, the response to these issues and how concerns were addressed in the development of the ToR. A Record of Consultation will also be part of the EA submission.

8.2 General Consultation Plan for the EA

The EA Act s. 5.1 requires consultation to be undertaken during the preparation of an EA. The various consultation activities that will take place during the preparation of the EA need to be outlined in the ToR, and should include consultation with:

- The general public;
- Government agencies; and
- People who declared an interest in the proposed undertaking during the ToR stage.

This Consultation Plan outlines the general consultation methods proposed for the EA including:

- A description of the plan objectives;
- Identification of who will be consulted and the methods to be used to obtain input from interested persons; and
- The delineation of key decision-making milestones during the preparation of the EA where consultation will occur; and provision of an issues resolution strategy.

The objectives of the consultation plan are to:

- Consult with all potentially affected and interested stakeholders;
- Provide sufficient information in a user-friendly format;
- Provide opportunities for input before decisions are made;
- Provide appropriate, flexible and convenient opportunities for consultation that meet the needs of stakeholders;
- Be responsive by listening to comments, giving them careful consideration, making changes where appropriate and providing a rationale where no change is made;
- Document the consultation program as well as the issues raised by stakeholders and provide written responses to key issues; and,
- Evaluate the effectiveness of the program on an ongoing basis and make changes for improvement.

8.2.1 Stakeholder Identification

There are a wide range of project interests and stakeholders. The following stakeholders will be consulted:

- Owners and occupants (tenants) of property within the RoW;
- Residents within 500 m of the widened RoW;
- Non-government organizations and groups with an interest in the project;
- Representative farming groups, e.g. OFA;
- Agencies with an interest in the project including the Government Review Team; and
- Municipalities affected by the project.

In addition to the specific consultation activities planned for each group (public and agency), several on-going consultation activities have been initiated and will continue throughout the EA process. The following on-going consultation activities are planned for the project:

- Web Site – The web site will continue to be updated throughout the EA process and will offer visitors the opportunity to comment on the proposal. The purpose of the web site is to provide a widely accessible venue for a large number of stakeholders to obtain and download a wide range of information in a timely manner throughout the life of the project. However, internet access is not universally available and thus, alternative options for obtaining information will be available.
- Hot-Line – The project hot-line, will provide 24 hour voice mail access throughout the life of the project. This will give stakeholders another opportunity to leave comments or request information regarding the project.
- Frequently Asked Questions (FAQs) – A list of FAQs has been posted to the project web site and will be updated periodically to reflect new issues and concerns.
- Media – Media will be provided with project information, including a letter, contact card, newsletter, FAQs and technical briefings if needed.
- Documents Distributed and Posted in Public Places – Draft and final EA documents will be distributed to agencies, key interest groups, and municipal officials and staff of affected communities. Hydro One will make documents available at local libraries and at municipal offices for review by members of the public.
- Documents will also be available for download from the project web site for those with internet access.

8.3 Public Consultation Plan

This section of the ToR presents consultation activities that are planned for the EA.

8.3.1 Public Consultation Plan and Methods

A formal public consultation program is mandatory. It must be initiated as early in the process as possible. Detailed records of consultation must be kept and submitted with the ToR and the EA document. The public consultation program is to include:

- Record of Consultation;
- Public and agency consultation; and
- Public and Private Sector representation.

The full list of the relevant stakeholders in the project will be identified through the initial EA review and planning stage (as part of the Terms of Reference submission process under the provincial EA process). Once these stakeholders have been identified, the Proponent will formally establish a public consultation program. The aim of the public consultation process is to inform stakeholders of the project, gather feedback, respond to stakeholder comments and questions; and incorporate the outcome of this process through the development of the project.

The public consultation program will be fully documented in the EA, and a summary of the stakeholder issues, concerns, comments and interests related to the project will be presented. Additionally, documentation on how each of these items was addressed will also be included as part of the EA submission.

A preliminary list of stakeholders was described earlier in the Draft ToR, however, this list will need to be confirmed and updated through the EA process to ensure that it is complete.

List of Specific Consultation Activities Associated with the Consultation Process

Specific consultation activities are listed below:

- Notice of Commencement of EA – After ToR approval the Notice will announce the initiation of the EA. The Notice will be published in local newspapers, and will include a brief explanation of the project, key contact information and notification of upcoming Public Information Centres. This activity is a mandatory requirement of the EA process.

- Newsletter – Newsletters will continue to be produced at each key decision point to keep stakeholders up to date on the progress of the EA. Newsletters will be made available on the project web site and will be mailed to directly affected property owners within 500 m of the RoW and others on the mailing list.
    - Initiation of the EA – providing information on upcoming public consultation activities including the second round of PIC; details on the EA phase of the EA process; and information on how the public can comment and get involved in the process;
    - Draft EA Document – providing information on the third round of PICs where the draft document can be reviewed and how to comment and participate in the process; and
    - Final Submission of the EA – providing information on where the final document is available for review; how to comment and participate in the process; and what to expect if the EA is approved.

- Issues Workshops – Workshops provide an opportunity for interested members of the public to assist in the EA process. Workshops may be held as appropriate with property owners to confirm and develop design alternatives, apply evaluation criteria and establish the relative importance of criteria. If specific issues are identified during the EA process, workshops may be utilized to address the issues.

- Public Information Centres (PICs) – The purpose of the PICs will be to provide an opportunity for face-to-face discussion among affected property owners, interested individuals and the project team. Two series of up to seven PICs are proposed during the EA; one during the EA preparation, and another once the draft EA document is available for review. Each of the two series of PICs will be held in up to seven different locations along the corridor recognizing the large size of the study area and the diversity of interests. Comment Forms will be distributed at the PICs to acquire responses to specific questions and to allow an opportunity for participants to provide further comments on the proposal. PIC panels and any handouts available at the PICs will also be posted on the project web site for review by those unable to attend the PICs. The first series of EA PICs will be scheduled shortly after the EA is initiated. This series of PICs will allow members of the public to provide input on

design (towers design and location, access road location and construction), mitigation and effect management. The second series will provide an overview of the draft EA document.

- Meetings with Property Owners – Property agents and EA team members will meet with directly affected property owners where environmental effects have been identified to provide updated information on the project, identify issues and discuss the property acquisition process. This will provide another opportunity for affected property owners to meet face-to-face with project staff and identify any outstanding issues and concerns. Property owners will also be notified directly of upcoming PICs and that the draft EA document is available for review through a mailing. The mailings will include a project newsletter informing effected landowners of dates and locations of scheduled PICs and where and when they can review the draft EA document.

- Interest Group Meetings – Meetings will be held with agencies and key interest groups to identify issues and discuss options for resolution of issues at EA initiation and as issues arise during the EA process. In addition, agencies and key interest groups may request meetings with the project team during the EA process. Agencies and key interest groups will also be provided with a copy of the draft EA document for review. Project staff will call these groups to set up meetings to review the draft document and to identify any outstanding or emerging issues. Input from these meetings will be incorporated into the draft document before it is finalized.

- Public Notice of Submission of EA to OMOE – The Proponent will notify affected property owners and others on the mailing list by mail, and residents and businesses within 500 m of the widened RoW by ad mail that the EA document has been submitted to the Minister of the Environment for approval. The Notice will be published in local newspapers along the route. The Notice will also indicate:
    - That a government and public review has been initiated and the length of the minimum review period; and
    - The date that comments are to be submitted to the OMOE EAAB contact.

8.4 Aboriginal Communities and Groups Engagement and Consultation Plan

The purpose of the Aboriginal communities and groups engagement and consultation plan is to identify Aboriginal concerns and issues related to the project, and determines appropriate action. The Proponent will advise the relevant Crown representatives/agencies of the results of the ongoing engagement with the Aboriginal communities and groups and will work cooperatively with all involved to reach appropriate solutions.

The courts have established that the constitutional duty to consult rests with the Crown. However, government can delegate some of the procedural aspects of the duty to consult upon project proponents. Also, government may coordinate consultation activities of agencies and proponents. Project proponents are obliged under the EA Act to consult with all interested parties. In addition, the public consultation process is also open to the Aboriginal communities and groups.

The Proponent is committed to working closely with the Crown to ensure that the duty to consult Aboriginal communities and groups is fulfilled. The Proponent will develop an engagement and consultation plan for executing its responsibilities during the course of the Environmental Assessment and other processes undertaken by the Crown.

The Proponent recognizes the importance of engaging the Aboriginal communities and groups regarding the Project. As noted earlier, up to 14 First Nations and 4 Métis organizations have been identified as having being potentially affected by the Project, or have a potential interest in the project.

The Proponent's process for Aboriginal communities and groups is designed to provide information on the project to the Aboriginal communities and groups in a timely manner and to respond to and address issues, concerns or questions raised by the Aboriginal communities and groups in a clear and transparent manner throughout the completion of the regulatory approval processes (e.g., the EA process). The process with Aboriginal communities and groups will:

- Provide project-related information which is comprehensive and accessible to assist Aboriginal communities and groups to effectively identify their concerns, and any possible effects of the project on their existing or asserted treaty or Aboriginal rights;
- Advise of the various provincial approvals that may be required;
- Seek information from the Aboriginal communities and groups that may be applicable to the study area, including information on Aboriginal interests and treaty rights including archaeological sites, and sacred sites and burial grounds;
- Seek input from Aboriginal communities and groups on all environmental studies to be conducted by The Proponent in the course of the project ;
- Offer information centers or meetings with Aboriginal communities and groups to provide project-related information and to address any concerns, issues or questions about the project;
- Provide information, where requested, on the OEB regulatory process and the EA process regarding the project;
- Address all issues and concerns raised by Aboriginal communities and groups and to how the project may affect these interests;
- Consider any potentially affected interests, and clearly communicate the results; and,
- Record all forms of engagement with Aboriginal communities and groups, including the creation of a list of concerns and issues raised regarding the project and The Proponent's responses.

The Proponent will provide information to Aboriginal communities and groups identified as having a potential interest in the Project. The Proponent will provide draft engagement protocols to the First Nations communities. Meetings will be held to further discuss these protocols.

The Proponent will offer to meet with all Aboriginal communities and groups identified in this ToR, identified in aforementioned consultations with Ontario Ministry of Aboriginal Affairs, Office of the Attorney General and Indian

and Northern Affairs Canada or who have expressed interest in this project. The Proponent will continue to offer to meet and will continue to circulate information packages and notifications to these groups throughout project.

The Proponent has contacted all identified Aboriginal groups. Preliminary meetings and discussions have taken place with many of these and will continue through the Designation process. Meetings and communications are continuing as part of the project planning process.

8.5 Agencies Consultation Plan

The purpose of the agency consultation is to:

- Identify concerns and collect information related to the project;
- Identify issues related to the project, and where appropriate, proposed mitigation;
- Facilitate the development of a list of all required approvals, licences or permits;
- Identify relevant guidelines, policies and standards; and
- List all the commitments/obligations and responsibilities of the proponent.

Following the Notice of Commencement of the EA, an agency consultation package will be sent to all agency stakeholders from the federal, provincial and municipal governments and conservation authorities soliciting their input and feedback on the Proponent's initiative. The consultation package will include a letter describing the project, a map of the project area and a feedback form for completion.

Follow-up communications will occur with those agencies that request further meetings/involvement to discuss their input. The Proponent will be available to meet with agencies regularly to discuss issues that arise and provide progress reports as requested. The feedback forms would capture general comments, while the meetings if necessary would allow probing of specific issues in greater detail. Agencies will also be notified when the draft EA is available for review.

Other agency consultation activities are as follows:

- Newsletter – Newsletters will be made available on the project web site and will be mailed to all agency stakeholders. Proposed contents of each newsletter are described under Section on Public Consultation Plan and Methods.

- Issues Workshops – Workshops may be held as appropriate with agencies, interest groups and municipal staff to confirm and develop design alternatives, apply evaluation criteria and establish the relative importance of criteria. If specific issues are identified during the EA process, workshops may be utilized to address the issues.

- Municipal Advisory Group (MAG) – If appropriate, the Proponent will arrange to meet the MAG to discuss the draft ToR. Depending on the outcome, the Proponent will invite designated members to participate in regular

MAG meetings. The MAG will meet during the draft EA document preparation and review phases of the process. Members will receive briefings on the project and will be notified of key issues and how they have been addressed. They will also have an opportunity to provide further advice on the process and notify project staff of any other outstanding issues they may have identified.

- Notice of Submission of EA to OMOE – the Proponent will notify agencies by mail that it has submitted the EA to the Minister of Environment for approval. Aside from the arranged meetings/interviews, agency consultations will also dovetail with PIC events as avenues for further input to the process. Engagement with the various stakeholders is expected to be ongoing throughout the EA and into the project implementation process. All agency submissions and meetings will be documented and included in the Record of Consultation.

8.6 Documentation and Issues Resolution Strategy

Consultation/engagement with the various stakeholders and Aboriginal communities and groups is expected to be on-going throughout the EA and into the project implementation phase. All comments and input received throughout the EA from the public and review agencies will be documented in a summary table and included in the EA document. The summary table will provide a response to each issue. Where resolution of issues has not been possible, this will be noted along with a record of all attempts to resolve the issue. The Proponent will develop an issues resolution strategy for the EA. The EA will also include consultation summary and a detailed record of comments received, and their resolutions, as well as materials and documentation distributed to stakeholders.

9.0 REFERENCES

Dobbyn, J. 1994. Atlas of Mammals of Ontario. Federation of Ontario Naturalists. 25pp.

Environment Canada Environment Canada 2007. Schedule SAR web mapping application. http://atlas.nrcan.gc.ca/site/english/maps/environment/ecology/threats/speciesatrisk

Golder and Associates (2007). East-West Tie Transmission Line Enhancement. Corridor Level Environmental Assessment. Report Submitted to Ontario Power Authority. 47pp.

HON1. 2008. Bruce to Milton Transmission Reinforcement Project Terms of Reference. Reference 196pp

MTO 2009. Environmental Guide for Fish and Fish Habitat. Ontario Ministry of Transportation. 581 pp.

OBBA 2001-2005 (Second Atlas). Atlas of Breeding Birds of Ontario 2001-2005. 700pp.

Oldham, M.J. and W.F. Weller. 2000. Ontario Herpetofaunal Atlas. Natural Heritage Information Centre, Ontario Ministry of Natural Resources. http://nhic.mnr.gov.on.ca/MNR/nhic/herps/ohs.html (updated 15-01-2010).

OMOE 2009. Code of Practice Preparing and Reviewing Terms of Reference. Ontario Ministry of the Environment. 63pp.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 14 – DRAFT REPORT: Environmental Assessment of the East-West Transmission Tie Line

Scope of Work

DRAFT REPORT: Environmental Assessment of the East-West Transmission Tie Line

Scope of Work

Table of Contents

List of Tables

List of Attachments

1.0 PROJECT DESCRIPTION

The Ontario Power Authority (OPA) has determined that the East-West Tie transmission line that connects northwestern Ontario to the rest of the Province's transmission network from Thunder Bay through Wawa is frequently constrained because of limited capacity and it no longer meets reliability standards. Enhancement of the East-West tie transmission corridor along the shore of Lake Superior is an option identified by OPA to ensure transmission reliability, enable capacity for new energy resources and provide cost-effective long term supply to the northwest into the future.

The enhancement Project of the East-West Tie includes construction of a 230 kV, double-circuit transmission line of approximately 400 km in length (~388 km based on the OEB reference option), running from the Lakehead Transformer Station (TS) near Thunder Bay to the Wawa TS with connection into Marathon TS. This Project represents an addition to the continued operations of the existing East-West transmission line.

Before this Project can be built, a number of approvals are required, including those from the Ontario Energy Board (OEB) under the Ontario Energy Board Act 1998 (OEB Act) and the Ontario Ministry of the Environment (MOE) under Ontario's Environmental Assessment Act (EA Act) in accordance with Ontario Regulation (O. Reg.) 116/01, the Electricity Projects Regulation. The Electricity Projects Regulation requires that this Project follow the process set out in the EA Act. The EA Act requires submission of an application (consisting of a Terms of Reference (ToR) and an EA document) for approval by the Minister of Environment.

1.1 Background on the Electricity Sector in Ontario

In October 1998, the Ontario legislature enacted the *Energy Competition Act* authorizing the restructuring of Ontario Hydro with the aim of introducing competition in the wholesale and retail electricity markets in Ontario. On April 1, 1999, in accordance with the *Energy Competition Act,* Ontario Hydro was restructured principally into three separate entities: Ontario Power Generation Inc. (OPG), responsible for the generation and sale of electricity in Ontario; Ontario Hydro Services Company Inc., later renamed Hydro One Inc., whose subsidiary, Hydro One Networks Inc., responsible for planning, construction, operation, and maintenance of its transmission and distribution system; and, the Independent Electricity Market Operator later renamed the Independent Electricity System Operator (IESO), responsible for managing Ontario's electricity system and operating the wholesale electricity market.

Subsequent to this restructuring of Ontario Hydro, the Ontario Power Authority (OPA) was established by the *Electricity Restructuring Act*, 2004. This statute made three changes in the institutional arrangements of the electricity sector in Ontario with respect to long-term planning. In this legislation:

- The OPA was given the mandate to develop an Integrated Power System Plan (IPSP) and address the looming supply–demand imbalance in Ontario through conservation and generation procurements. O. Reg. 276/06 designates and exempts the IPSP from the EA Act. Undertakings resulting from this planning process, however, are required to complete an EA if they would otherwise be required to do so;
- The Government was given the discretion to determine the future "supply mix" for the Province as a starting point for the IPSP; and
- The Ontario Energy Board was given the authority to review and approve the IPSP.

The IPSP will serve as both a focused implementation plan for the near term and a road map for the longer term. These changes to the electricity sector in Ontario have implications for compliance with *EA Act* requirements. Historically, Ontario Hydro was responsible for all aspects of project planning and undertaking the EA process, including establishing the need and defining alternatives to meet it. Currently, the OPA is responsible for establishing the need for new transmission facilities.

In 2010, the OEB released its policy Framework for Transmission Project Development Plans EB 2010-0059 dealing with transmission project development to accommodate the connection of renewable energy generation. The Policy described a process to designate a licensed transmitter to undertake development work on any transmission network expansions or enabler lines identified by the OPA as necessary to connect renewable generation. The designation process was intended to allow transmitters to move ahead on development work in a timely manner; to encourage new entrants to transmission in Ontario bringing additional resources for development work; and to support competition in transmission in Ontario to drive economic efficiency for the benefit of ratepayers.

1.2 Background to the East-West Tie Line Transmission Enhancement

Background to the East-West Tie Line Transmission Enhancement is provided in OEB documents and has not been included here.

1.2.1 Environmental Considerations in Assessment of Transmission Options

The OPA examined a number of alternative paths to deliver needed upgrades to the East-West Tie Transmission Lines and concluded that an option is a new line that, in conjunction with the existing line, will provide total eastbound and westbound capabilities in the East-West corridor on the order of 650 MW. It should have a lifetime of at least 50 years and target in-service date of 2017. This is referred to as their

Reference Option and is one possible proposal for the East-West Tie Line. It is not the default position of the OEB but is used for comparative purposes during the designation process.

The Proponent has undertaken a "quick" review of transmission capacity, constraints and reliability and possible innovative solutions to address the OEBs concerns and concluded that none presents itself as an apparent choice with distinct advantages over the Reference Option. Until further study and consultation takes place as part of the EA process, the OEB Reference Option is the only option that meets the overall requirements identified by the OPA.

In the initial selection process of a preferred corridor and alternatives within the OEB Reference Option, a number of criteria have been used.

Specifically, the criteria applied were:

The following government policies and directives were applied:

1. Consistency with Provincial Land Use Policy re: Use of Existing RoWs:

    - Provincial Policy Statement (PPS) issued in 2005 under Section 3 of the Planning Act recommends making best use of existing infrastructure before proposing new Greenfield developments;
    - The PPS is consistent with long-standing government direction originally given to Ontario Hydro to make best use of existing rights of way before seeking approval for new rights of way;
    - In 1980, for example, the Royal Commission on Electric Power Planning, after extensive public consultation, commended Ontario Hydro's efforts "to upgrade existing transmission facilities and improve the use of existing rights of way" and recommended a continuing program aimed at optimizing the use of existing rights of way; and
    - Similarly, in its 1988 response Ontario Hydro's Draft Demand Supply Planning Strategy, the Ontario Government recommended: "In planning transmission facilities, Ontario Hydro should take full account of Provincial Land Use policies. Wherever it is feasible to upgrade existing transmission lines or corridors, this option should be evaluated before seeking approvals for new corridors."

These government policies and directives reflect a clear understanding that, in general, use of existing corridors has less environmental impact than Greenfield development. In the case of the East-West Tie Line, these benefits are reflected in several ways:

- The width of and expanded RoW along an existing RoW is generally at least 20% smaller than a new RoW, yielding a substantially smaller footprint;

- Utilizing the existing RoW requires fewer new or upgraded access roads and stream crossing, less forest clearing and land acquisition and provides other benefits that effectively reduce the total environmental impact;
- The existing RoW may have optimized technical, economic and environmental considerations which will apply to the expanded RoW;
- With increasing land use, it is increasingly difficult to find new rights of way that do not cause significant disruption;
- The larger footprint of a new right of way would translate into greater potential effects on the natural and socio-economic environment, property owners and Aboriginal interests; and
- Without being explicitly stated, it is implied shorter transmission line route are preferred as they will have a smaller footprint, and likelihood of fewer environmental, landowner and other stakeholder impacts and cost.

2. Impact on Delivery Capacity for Renewable Power from Northern Ontario

The Province has committed to phase out coal-fired generation and, to the maximum extent possible, to replace that source with renewable power. This commitment is expected to deliver major environmental benefits. Renewable resources tend to be concentrated well away from major markets. There is major hydro-electric (renewable) power potential in northern Ontario.

3. Avoiding options where there appear to be major environmental hurdles to overcome is preferable from several environmental perspectives:

- Earlier construction and ability to bring into service new non-emitting and renewable power supplies; and
- Enhanced ability to achieve off-coal targets and increased prospect of reducing importation of electricity produced by coal fired stations in the United States.

While detailed studies of the various options have not been undertaken, the criteria cited above provide strong environmental support to restrict the options being considered. However, extensive consultation will be undertaken and consideration will be given to any other reasonable options that could meet the need identified with equal or lower environmental effects.

1.3 The Proponent

AltaLink Ontario L.P. (AOLP) is an Ontario electricity transmission company and is a wholly owned subsidiary of AltaLink Investments, L.P. (AILP), which is the sole limited partner of AltaLink, L.P. AOLP's general partner, AltaLink Ontario Management Ltd., is a wholly owned subsidiary of AltaLink Investment Management Ltd., which is the general partner of AILP.

More information will be added in the final ToR on AOLP, its affiliation with SNC-Lavalin and the combined experience of AOLP and affiliates.

2.0 REGULATORY REQUIREMENT FRAMEWORK

2.1 Province of Ontario: Environmental Assessment Act

In Ontario, new and expanded transmission lines are subject to the EA Act. Ontario's Electricity Projects Regulation (O. Reg. 116/01), made under the EA Act which stipulates the EA requirements for electricity projects in Ontario on the basis of the project type (e.g., transmission lines, transformer stations, power generation plants, etc.) and, in the case of transmission lines, the voltage level and distance traversed. Based on the "Guide to Environmental Assessment Requirements for Electricity Projects", transmission lines exceeding 115 kV and 50 km in length are considered as "Category C", major projects with known significant environmental effects. The ToR is to be prepared in accordance with the Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario July 2007. This requires that an application be prepared and submitted under s.5 of the EA Act to the Minister of the Environment for approval. There are two key documentation requirements for the application:

- The development, submission, review and approval of the ToR; and
- The preparation, submission, review and approval of the EA document in accordance with the steps and methodology set out in the MOE approved ToR.

Under the EA Act, an EA can proceed under section 6.1(2) which includes an assessment of "alternatives to" the undertaking and "alternative methods" of carrying out the undertaking or it can proceed in accordance with subsections 6(2)(c) and 6.1(3) of the EA Act which allow focusing of the EA.

The reason for proceeding to the designation stage of this undertaking has been established by the OPA and the OEB and is documented in several Board submissions (Reference).

The OPA/OEB has concluded that the Reference Option in the East-West Tie line Enhancement is one practical transmission solution to meet the stated goals, but does not make any conclusions regarding other alternatives. Since the ToR proposes that the EA be prepared in accordance with subsections 6(2)(c) and 6.1.(3) of the EA Act, decisions will have to be made and studies undertaken before the ToR are finalized regarding need for the project, "alternative ways" and "alternatives to".

The rationale for the undertaking will be more fully developed in the EA document including an assessment of advantages and disadvantages relative to the null alternative as well as alternatives ways and alternatives to. However, the EA will not assess the OPA process and recommendations.

2.2 Government of Canada: Canadian Environmental Assessment Act

On April 26, 2012, the Federal Government introduced Bill C-38, the 2012 Budget Bill. Part 3 of this Bill contained significant changes to the federal legislative regime, including a complete overhaul of the *Canadian Environmental Assessment Act* (CEAA) 1992 (S.C. 1992, c. 37). This Bill received Royal Assent on June 29, 2012, and CEAA 2012 (S.C. 2012, c. 19, s. 52) came into force on July 6, 2012 under an order from federal cabinet, thus repealing CEAA 1992. CEAA 2012 applies to projects described in the *Regulations Designating Physical Activities* (the "Regulations") (SOR/2012-147) and to projects designated by the federal Minister of the Environment.

The Regulations were made effective July 6, 2012, and were officially registered in the Canada Gazette on July 18, 2012. New proposals for projects which do not meet the criteria laid out in the Regulations will not require a federal environmental assessment (EA).

According to CEAA 2012, an "environmental assessment" is defined to mean an assessment of the "environmental effects" of a "designated project" that is conducted in accordance with CEAA 2012.

2.2.1 Application of CEAA 2012 to this Project

The Regulations set out the physical activities that constitute "designated projects" that may require an EA under CEAA 2012. According to the Regulations, "designated projects" include, among other things, the following activities:

- Section 1(a) - The construction, operation, decommissioning and abandonment, in a wildlife area or migratory bird sanctuary, of an electrical transmission line; and
- Section 5 - The construction, operation, decommissioning and abandonment of an electrical transmission line with a voltage of 345 kV or more than is 75 km or more in length on a new right of way.

With regards to the Project:

- The voltage is 230kV (below the critical voltage threshold of 345kV);
- The transmission corridor is not within any wildlife areas as set out in Schedule 1 to the Wildlife Area Regulations (C.R.C., c. 1609); and
- The transmission corridor is not within any Migratory Bird Sanctuaries as set out in the schedule to the Migratory Bird Sanctuary Regulations (C.R.C., c. 1036).

The Proponent is of the opinion that the Project does not trigger a federal EA under CEAA 2012. As noted above, the federal Minister of the Environment has the authority under CEAA 2012 to require a CEAA assessment for non-listed projects.

The Canadian Environmental Assessment Agency (the "Agency") held an introductory teleconference on August 15, 2012, during which a request was made to participants for informal submission of draft Project Descriptions. Unliess directed otherwise by the OMOE, the Proponent will submit a draft Project Description for the Project via email (and not official submission online) to obtain confirmation of our assessment that the Project is not subject to an EA under CEAA 2012. We intend to use the content of the draft provincial EA Terms of Reference (ToR) for our draft Project Description submission to the Agency, as the ToR will provide substantially the same information as a draft Project Description required under CEAA.

2.3 Where both Provincial and Federal EA Acts Apply

The federal Minister of the Environment must allow a provincial process to substitute for a federal environmental assessment if requested to do so by the province and if the Minister is of the opinion that the provincial environmental assessment process would be an appropriate substitute for a CEAA 2012 assessment. The federal Minister may only approve the substitution if the Minister is satisfied that (section 34, CEAA 2012):

- There is confidence that factors to be considered under CEAA 2012 will be considered under the provincial process;
- The public will be given an opportunity to participate in the assessment;
- The public will have access to records in relation to the assessment to enable meaningful participation;
- At the end of the assessment, a report will be submitted to the responsible authority;
- The report will be made available to the public; and
- Any other conditions that the federal Minister establishes have been or will be met.

Note that if the federal Minister feels that the provincial process meets all of the above conditions for substitution, the Minister may recommend to the Governor in Council that a designated process be exempted from the application of CEAA 2012 (section 37, CEAA 2012).

The Project is not expected to be subject to the CEA Act. If the Federal Minister of the Environment at his or her discretion designates the Project under the Act, then the proponent will be prepared to proceed under a harmonized process. Timelines for the Federal EA process are less rigid than the Ontario EA

process, which could result in minor alteration to the overall project schedule. Expectations in terms of consultation and environmental studies are similar for both processes and should not result in any significant delays. The Proponent considers potential delays from the harmonized process to be manageable.

2.4 Acts and Regulations

The Proponent will identify all necessary approvals that may be required during project planning and construction. Listed below are a number of potential approval requirements that have already been identified.

Where practical, the Proponent will begin preparation of construction-related applications concurrent with the EA process. It will be necessary to initiate some permit and approval activities or applications during the EA process including any required consultation activities with members of the public, municipalities, agencies, and Aboriginal communities and groups. It should be noted that some permits and approvals for construction typically rely on more detailed engineering and design information than is available during the EA process. In this event, the Proponent will carry out required studies necessary to support those approvals prior to start of construction.

2.4.1 Ontario Energy Board Act

The East-West Tie Line requires OEB approval. The OEB regulates Ontario's natural gas and electricity industries and is responsible for ensuring construction and operation of proposed transmission facilities are in the public interest. The OEB's role is to review a transmission project's effect on consumers with respect to prices, reliability and quality of electricity service.

The OEB operates as an adjudicative tribunal and carries out its functions through oral or written public hearings. Proponent will file the following two applications with the OEB related to this undertaking:

- Leave to Construct - The Project is subject to "Leave to Construct" approval under section 92 of the OEB Act. The OEB review of the Proponent's application for Leave to Construct approval examines technical aspects and consumer protection related to a project proposal and also includes provisions for engagement/consultation; and
- Early Access to Land (subsection 98 (1.1) of the OEB Act) – Early access allows proponent's employees and representatives to access private properties affected by the proposed Project and undertake a limited number of activities (including biological and archaeological field studies, data collection, legal surveys and soil testing) while the section 92 approval is under consideration at OEB.

2.4.2 The Expropriation Act

The Proponent's primary intent is to negotiate easement rights with landowners, to the extent practicable, for the portion of properties to be utilized for the transmission line. In some cases, it will be necessary to purchase entire properties where current uses are incompatible with a transmission corridor e.g., a permanent structure or residence under a transmission line.

Proponent intends to apply for expropriation of all properties under the Ontario Expropriations Act, 1990. Chapter E.26 outlines the conditions and restrictions under which a claim for expropriation can be submitted, and the rights of residents facing the claim. The expropriation plan must be approved and registered under both the OEB Act and the Expropriations Act prior to commencement of construction of the new line.

2.4.3 Other Provincial and Federal Acts, Approvals, Permits and Guidelines

Based on current information, a number of permits, licences and approvals under Provincial legislation may be required. In some cases, a final determination cannot be made until the detailed design phase for the project. These include but are not limited those included in Table 1.

Table 1: Acts and Regulations that may apply to the Project

Jurisdiction	Act	Description
Provincial	*Aggregate Resources Act*	• This Act is administered by the Ministry of Natural Resources (MNR); its purpose is to govern management of Ontario's aggregate resources, aggregate operations on Crown and private lands, rehabilitation of land from which aggregate is excavated and minimize the environmental impact of aggregate operations. • On licensed sites, all significant changes to licence conditions and all major site plan amendments must be circulated to municipalities and posted on Ontario's Environmental Registry.
Provincial	*Conservation Authorities Act*	• Project to be subject to permitting requirements of Lakehead Region Conservation Authority for alterations to shoreline during construction and operation. Both of the Ontario Regulations state that the relevant conservation authority may grant permission for certain developments if it is of the opinion that the development will not affect the control of flooding, erosion, dynamic beaches, pollution or conservation of land.
Provincial	*Lakes and Rivers Improvement Act*	• Approval under the *Lakes and Rivers Improvement Act* (LRIA) may be required for the Project. The LRIA is administered by the MNR and exists to provide for, among other things, the management, protection, preservation and use of the waters of the lakes and rivers of Ontario and the land under them.

Jurisdiction	Act	Description
		•
Provincial	*Fire Protection and Prevention Act*	• Compliance with Fire Code made under Part IV (O. Reg. 388/97) respecting requirements for the storage and handling of fuels (flammable and combustible liquids).
Provincial	*Fish and Wildlife Conservation Act, 1997*	• A license to collect fish may be required (O. Reg. 664/98) • This Act is amended by Ontario's budget Bill 55. For instance, the amendments allow persons to hunt or trap certain wildlife without a license in the circumstances prescribed by regulations.
Provincial	*Occupational Health and Safety Act*	• Notice of Project filing before construction commences • The main purpose of this Act is to ensure that workers on the job are well-protected against health and safety measures. It outlines the responsibilities and rights of employers and employees, as well as procedures for dealing with workplace hazards.
Provincial	*Ontario Heritage Act*	• O. Reg. 9/06 made under the Act outlines criteria for determining cultural heritage value or interest. If the criteria are met, a property might be designated as having cultural heritage value or interest. An archaeological assessment is required to obtain Ministry of Culture clearance
Provincial	*Ontario Water Resources Act*	• Purpose of this Act is to provide for the conservation, protection and management of Ontario's waters and for their efficient and sustainable use. • Dewatering activities during construction will require a Category 3 Permit Application. A Category 3 application is usually required for activities that have greater potential to cause adverse environmental impacts. These are subject to additional application requirements (e.g. detailed ecological/ hydrological/ hydrogeological study) and greater scrutiny by the Ministry. • Category 2 and 3 applications have a greater potential to cause adverse environmental impact or interference. Category 2 and 3 applications are subject to additional application requirements and greater scrutiny by the ministry. • Separate approvals would be required for temporary settling ponds and cofferdams requiring pump outs.
Provincial	*Forest Fires Prevention Act*	• Work permit controls at all times of the year for clearing within 300 m of a forest of woodland (from MNR Forest Management Branch
Provincial	*Public Health Act*	• Permit under the Ontario Water Resources Act (section 53) for water taking or discharge, dewatering, storm water management and spill

Jurisdiction	Act	Description
		containment; and, • Approvals under the Environmental Protection Act (section 9) on airborne releases.
Provincial	*Pesticides Act*	• There are processes to be followed in case pesticides must be during construction and/or operation of the pumped storage facility or any ancillary features, including possibly having to obtain a licence to operate pesticide application equipment or apply by any other means. (O. Reg. 63/09) • The MOE also regulates the sale, use, transportation, storage and disposal of pesticides in Ontario.
Provincial	*Public Transportation and Highway Improvement Act*	• Any owner or occupant of land, who collects water upon his land, and turns or allows such water to flow upon the highway, is liable for all damage to the highway, gutters or drains occasioned thereby. • A permit from the Ministry is required to place a building, structure, entrance or any road within 45 m of the limit of any highway, 180 m of the centre point of any intersection.
Provincial	*Public Lands Act*	• This Act governs the administration of Ontario's Crown land and essentially gives the Minister of Natural Resources charge over the management, sale and disposition of public lands and forests. • If the transmission line crosses Crown Lands, a permit may be required under section 14 of the *Public Lands Act*. • Work permits may also be required for construction of any roads, trails or water crossings on public land, for removal of aquatic vegetation, for construction of docks and for dredging or filling of shore lands. This would include any clearing of unwanted vegetation from road rights of way. • A form of tenure (e.g., licence, permit or easement) must be obtained from MNR if the development of the transmission line occupies Crown Lands.
Federal	*Transportation of Dangerous Goods Act*	• No person may transport or handle any dangerous goods (including explosives, flammable/combustible liquids, toxic and infectious substances etc.) unless they comply with safety and security requirements, are accompanied by the required documents, and use the appropriate means of containment, all prescribed by regulation. • An Explosives Transportation Permit may be required when transporting explosives by road in loads that are greater than 2000 kg. These permits are issued by Transport Canada's Dangerous Goods Directorate.

Jurisdiction	Act	Description
Federal	*Explosives Act*	• A license is required from Natural Resources Canada to store blasting explosives or any other type of industrial explosives for use if the quantity store for private use exceeds 75 kg or 100 detonators or the period of storage for any quantity exceeds 90 days
Provincial	*Crown Forest Sustainability Act, 1994*	• This Act provides for governance over forest management planning, relevant licenses, forest resource agreements, and revenue collection, among other things. For instance, if cutting of Crown timber is required for the transmission line right-of-way, a Forest Resource License is required.
Provincial	*Endangered Species Act*	• The Act aims to protect species at risk and their habitats and commit to recovery of species and effective enforcement under the Act. For instance, the Act prohibits the damage or destruction of any species listed on the Species at Risk in Ontario List as an endangered, threatened or extirpated species. • Ontario's budget bill C-55 proposes several exemptions to the existing Act, in addition to extending certain deadlines and increasing the Minister's discretion. For instance, the deadline with regards to submission of plans outlining how to proceed with the recovery of most endangered species will be removed.
Federal	*Fisheries Act*	• This Act has been amended by Bill C-38. The former *Fisheries Act* prohibited any work/undertaking that would result in harmful alteration, disruption or destruction of fish habitat. The amended *Fisheries Act* only prohibits any work/undertaking that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery. As well, the fisheries' minister now has vast decision-making power.
Federal	*Migratory Birds Convention Act*	• This Act provides for the protection and conservation of migratory birds. Its regulations ban all activities that are harmful to migratory birds, their eggs or their nests. • A permit must be obtained for all activities that affect migratory birds, with some prescribed exceptions. For instance, a Damage Permit must be obtained from Environment Canada, which will not issue a permit for economic activities, such as the construction proposed on this Project, that involve the "incidental take" of migratory birds (disturbance, destruction or taking of nests).
Federal	*Navigable Waters Protection Act*	• This Act aims to ensure public access to and efficient use of Canada's waterways; it balances the public right to navigate with the need to build works such as bridges or dams in navigable waters. It is administered by Transport Canada, and its approvals are granted under the authority of the Minister of Transport. • Construction in navigable waters must be authorized by an approval document. The approval process involves submission of engineering

Jurisdiction	Act	Description
		design drawings for review and approval. • Approval refers to an approval document authorizing construction in navigable waters. Additionally, the proponent is required to place an advertisement (Canada Gazette and local papers) of the work so that the public can comment on the Project's potential impacts on navigation and on the environment.
Federal	*Species at Risk Act*	• Prohibits the killing, harming, harassing, capturing or taking of species at risk listed under Schedule 1 of the Act, including the destruction of their critical habitat or residence. • This Act has been amended by Bill C-38. For instance, while the Act used to restrict industrial activity in critical natural habitat, the amended Act now allows the Minister of the Environment to approve more exemptions.
Federal	*Canada Transportation Act, Aeronautics Act and Railway Safety Act*	• Acts related to safety and efficiency of various forms of transportation in Canada. Administered under Transport Canada

Other relevant provincial policies and legislation may include, but are not limited to:

- Provincial Policy Statement [Ministry of Municipal Affairs and Housing (MMAH), 2005};
- Water Management Policies and Guidelines (MOE), Policy 1 and 2;
- Places to Grow Act (2006);
- Nutrient Management Act (OMAFRA, 2002); and
- Requirement to seal off old gas wells for public safety from the MNR Land and Water Branch under the Plugging Code.

Other relevant Federal policies regarding species and habitat protection include:

- Policy on Wetland Conservation;
- Canadian Biodiversity Strategy;
- Convention on Biological Diversity; and
- Wildlife Policy for Canada.

All approvals that are necessary for the Project to proceed will be outlined in the EA document. It may not be practicable to complete all required surveys in relation to other approvals prior to submission of the EA

document, but the Proponent will commit to continue and complete all required surveys before construction.

3.0 PRELIMINARY ASSESSMENT OF STAKEHOLDERS

As part of the EA process, agency consultation is required. The purpose of the agency consultation is to:

- Identify concerns and collect information related to the Project;
- Identify issues related to the Project, and where appropriate, proposed mitigation;
- Facilitate the development of a list of all required approvals, licenses or permits;
- Identify relevant guidelines, policies and standards; and
- List all the commitments/obligations and responsibilities of the proponent.

Table 2 presents a list of potential federal, provincial and municipal government agency stakeholders of the Project. A full list of the relevant government stakeholders will be delineated through consultation with the MOE prior to formal submission of the ToR and also as part of the EA process.

Table 2: Potential Federal and Provincial Agency Stakeholders

Jurisdiction	Agency
Federal	Canadian Environmental Assessment Agency
	Canadian Council of Ministers of the Environment
	Canadian Transportation Agency
	Environment Canada
	Parks Canada
	Fisheries and Oceans Canada
	Health Canada
	Aboriginal Affairs and Northern Development Canada
	Industry Canada
	National Energy Board
	Natural Resources Canada
	Public Works and Government Services Canada
	Transport Canada
	Any other potential federal funding agencies
Provincial	Ministry of Aboriginal Affairs
	Ministry of Agriculture, Food and Rural Affairs
	Ministry of Community and Social Services
	Ministry of Community Safety and Correctional Services
	Ministry of Culture

Jurisdiction	Agency
	Ministry of Energy
	Ministry of the Environment – Northern Region
	Ministry of Government Services
	Ministry of Health and Long-Term Care
	Ministry of Municipal Affairs and Housing
	Ministry of Natural Resources
	Ministry of Northern Development and Mines
	Ministry of Public Infrastructure Renewal
	Ministry of Tourism
	Ministry of Transportation
	Ontario Energy Board
	Ontario Realty Corporation
Municipal	City of Thunder Bay
	Dorion
	Nipigon
	Red Rock
	Schreiber
	Terrace Bay
	Marathon
	Wawa
	White River
	Single upper and lower tier municipalities (e.g. planning, public works, public health, emergency services departments)
	Planning boards
	School boards
	Utilities (e.g., gas, telephone, cable, hydro)
	Local Architectural Conservation Advisory Committees
	Lakehead Region Conservation Authority
Others	Friends of Pukaskwa
	Woodland Caribou Steering Committee

4.0 FIRST NATIONS AND MÉTIS PARTICIPATION

Details of First Nations and Métis Participation are provided under separate cover to meet to OEB filing requirements.

5.0 SCOPE OF WORK

A preliminary draft of the ToR was prepared based on "Codes of Practice for Preparing and Reviewing Terms of Reference" (OMOE 2007) and modeled after ToR for similar projects. Collectively these documents were used to assess the requirements and the level of effort required to develop the EA.

As described in other documents, the Project will trigger a Category C Individual EA under the provincial EA Act. It is unlikely that the Project will be designated under CEAA 2012.

Following is an overview of the individual steps required to initiate, prepare and complete the Environmental Assessment process. The individual study components of the EA are then described. Each component describes the scope of work. Man-power requirements and cost estimates are provided elsewhere in this submission. Timelines for the studies assume "Designation" on April 1, 2013 although this is subject to change.

5.1 Overview of Processes and Components of the EA

5.1.1 Public Consultation

A formal public consultation program is mandatory. It must be initiated as early in the process as possible. Detailed records of consultation must be kept and submitted with the ToR and the EA document. The public consultation program is to include:

- Record of Consultation;
- Public and agency consultation; and
- Public and Private Sector representation.

The full list of the relevant stakeholders in the Project will be identified through the initial EA review and planning stage (as part of the Terms of Reference submission process under the provincial EA process). Once these stakeholders have been identified, the Proponent will formally establish a public consultation program. The aim of the public consultation process is to inform stakeholders of the Project, gather feedback, respond to stakeholder comments and questions; and incorporate the outcome of this process through the development of the Project. Information distribution and consultation may be conducted through such means as:

- Public meetings
- Open houses;
- Meetings with interested parties;

- Media attention about the Project, including:
  - Publication in local magazines and community newspapers;
  - Interviews on local radio and television; and
- Participation in community events.

The public consultation program will be fully documented in the EA, and a summary of the stakeholder issues, concerns, comments and interests related to the Project will be presented. Additionally, documentation on how each of these items was addressed will also be included as part of the EA submission.

A preliminary list of stakeholders was previously identified in the Draft ToR, however, this list will need to be confirmed and updated through the EA process to ensure that it is complete.

List of Major Activities Associated with the Consultation Process

1. Initial Consultation with stakeholders (Public, Aboriginal Communities and Government Agencies) as identified by the Ministry through the ToR review process
2. Second Community Consultation
   a. Presentation of summary report, mapping, environmental and socio-economic impact evaluation and mitigation measures; create database to record attendance, comments and follow-up.
3. Third Community Consultation
   a. Presentation of summary report, mapping, environmental and socio-economic impact evaluation and mitigation measures; create database to record attendance, comments and follow-up
4. Consultation with Aboriginal Communities (Provided under separate cover)
5. Consultation with Elected Officials in Community
6. Prepare Consultation Materials for Project Internet Site (optional)

5.1.2 Preliminary Review and Planning

After Designation, the following preliminary activities will be undertaken:

1. Compilation of a detailed Work Plan and team meeting
2. Consult with Environmental Assessment and Approvals Branch for direction
3. Commence Record of Consultation
4. Prepare Public Consultation Program
5. Prepare a Notice of Commencement of Terms of Reference
6. Preliminary Data Compilation and Review

7. Prepare Base Mapping
8. Develop alternatives analysis process / criteria
9. Identification of environmental and socioeconomic factors impacting alternatives
10. Initial Consultation with Public, Aboriginal Communities and Government Agencies to fulfill the requirements of the ToR
11. Preparation of a Draft ToR for the EA in accordance with the Code of Practice: Preparing and Reviewing Terms of Reference for Environmental Assessments in Ontario (MOE 2009).
12. Prepare a Terms of Reference Summary Form and Notice of Submission of ToR
13. Government and Public Review of ToR
    a. Consultations relating to the Government and Public Review of the ToR, formal identification of Project stakeholders.
14. Amend (finalize) Terms of Reference
    a. Formal Submission of Terms of Reference (the submission of which triggers provincial EA process)
15. Prepare and distribute Notice of Commencement of EA

5.1.3 Collection and Analysis of Baseline Information

1. Baseline Study
    a. Site Visit with Design Team
    b. In-depth research and literature review of the study area from various sources including those identified in the ToR and Potential Effects Matrix (Attachment A);
    c. Gap Analysis to identify areas that require further study
2. Physical Environment Studies
    a. Terrain, geology, soil characteristics
    b. Hydrology, sediment and water quality
        i. water quality and quantity analysis from published sources and government agencies
    c. Hydrogeology
        i. Desktop analysis to assess potential for drawdown of local wells
3. Biological Environment Reporting
    a. Field surveys for aquatic organisms and habitats
    b. Terrestrial field survey for mammal, birds and habitats
    c. Vegetation survey
4. Social and Economic Baseline Data Collection
    a. Conduct archaeological and heritage resource assessment of transmission corridor
    b. Assess local economic base
5. Consultation with engineering design team
    a. Consultation with design team

b. Discuss design option alternatives, environmental restrictions on design, and measures to mitigate Project environmental impacts

6. Prepare Baseline Summary

5.1.4 EA Report Preparation

1. Data Management, analysis, interpretation
2. Baseline Reporting/ Existing Environment
3. GIS Mapping
4. Public Consultation documentation
5. Traditional Ecological Knowledge (TEK) Report
6. Traditional Land Use (TLU) Report
7. Alternatives Assessment Reporting
8. Impact and Mitigation Reporting
    a. EA and Study Methodology
    b. Physical environment
    c. Biological environment
    d. Socio-economic environment
    e. Environmental Management Plan
        i. Environmental management System
        ii. Erosion and Sediment Control plan
        iii. Water Management Plan
        iv. Construction Environmental Protection Plan
        v. Community and Social Engagement Plan
9. Draft Report Production
    a. Prepare Notice of Submission of Environmental Assessment
    b. Prepare Environmental Assessment Summary Form
10. Final Report Production
    a. Final EA document preparation will address any EA issues and comments as identified through the Draft EA review process.

5.2 Individual EA Components

5.2.1 Aquatic and Terrestrial Baseline Study

Approach

SNC-Lavalin Environment (SLE) will conduct a comprehensive assessment that will effectively characterize aquatic and terrestrial environments traversed by the proposed transmission line ROW, including provision of critical aquatic and terrestrial habitat sensitivity, species at risk, important vegetation communities and fish community information to facilitate a more efficient EA process. Specifically our approach will include the following:

- An exhaustive review of available aquatic and terrestrial environment information including:
    - Those water bodies traversed by the proposed ROW, particularly as it relates to fish communities, fish habitat, regional policies for fish/fish habitat protection, and currently accepted mitigation practices and/or impact assessment methods for linear development;
    - Documentation of existing environmental conditions within the study area will be interpreted utilizing aerial photography to delineate recognizable terrestrial habitats, and determine their association to terrain features. Field investigations will be used to further describe the structure and species composition of the habitats delineated and boundaries adjusted as required.
    - Species observed and habitats defined will be assessed for significance and environmental function.
- Identification of any aquatic and terrestrial species listed as endangered, rare or threatened or of special concern under provincial and federal regulations that may inhabit water bodies traversed by the proposed ROW or are within the broader study area;
- Implementation of a reconnaissance level survey for all water crossings along the proposed ROW as the basis for the development of a strategic approach to prioritizing and monitoring representative habitats;
- Identification and description of fish habitat/fish species of water bodies traversed by the proposed ROW through a comprehensive fish survey of representative water bodies, which will also include an evaluation of potential net effects of ROW construction and maintenance on available fish habitat;
- Vegetation communities will be assessed at a number of points along the proposed route at an approximate spacing of every 100 m.
- Breeding bird surveys following Ontario Breeding Bird Atlas protocols;
- Incidental observations of mammals utilizing tracks, scat, trails and other sign;
- Herpetofauna observations including egg mass surveys, anuran call surveys as well as other incidental observations noted through active searches;
- Preparation of a comprehensive aquatic and terrestrial environment baseline study report which will:
    - Characterize the various habitats encountered and relate this information to life history requirements identified through the literature review and/or during the field survey;
    - State the importance of the available aquatic and terrestrial habitat types regionally, and
    - Identify any fisheries management goals for the watershed which may have implications for the Project; and
- Preparation of an impact assessment for the proposed undertaking which identifies potential effects associated with the Project, considers mitigation measures, identifies potential residual effects and rates the significance of any residual effects, if required.

The overall goal of this approach is to ensure that any potential environmental effects of the transmission line construction/maintenance on aquatic and terrestrial resources are identified and receive careful consideration as early as possible during the planning stages to allow the protection of potentially sensitive environments and/or facilitate a more efficient EA process. This comprehensive approach and

SLE's integrated consideration of subsequent Project needs, detailed in the following sections, will form the basis for reporting and for obtaining key approvals for the proposed transmission line Project.

Acquisition and Review of Existing Information

The objective of this component will be to acquire all available information on fisheries values of water bodies traversed by the proposed ROW as well as FRI mapping and any existing Habitat Suitability Indices. A summary of this material will not only assist with the development of a field survey approach, but to also supplement data collected during the field survey. This information will be used to ensure a very thorough characterization of regional water bodies and the fisheries potential associated with these habitats. Specific data targeted during the literature search may include the following:

- Identification of fisheries resources within the major watersheds and/or at specific water bodies traversed by the proposed ROW, including available information regarding fish species composition, relative abundance, general life history requirements (ie. habitat requirements for different life stages, delineation of spawning periods) etc, and information regarding types, quality, quantity and/or availability (ie. documented barriers to fish passage/migration) of critical or sensitive habitats in water bodies potentially affected by ROW construction/maintenance;
- Forest Resource Inventory mapping;
- Habitat Suitability Indices for Woodland Caribou, Moose and other key species;
- identification of any species at risk listed under the federal *Species at Risk Act* (SARA) and the Ontario *Endangered Species Act* that may be found within water bodies traversed by the ROW and/or in the vicinity of the study area; and
- Identification of any fisheries management plans, policies, objectives and/or protection goals for water bodies within or near the study area;

All of this information outlined above will be gathered from the following sources:

- Fisheries and Oceans Canada (DFO) – historical fish collection data, species at risk (SAR) occurrence;
- Ontario Ministry of Natural Resources (OMNR) – historical fish collection data, thermal regime classification, species at risk (SAR) occurrence, habitat sensitivity classification, wetland evaluation records, species at risk, bald eagle nest locations;
- Ontario Ministry of Northern Development and Mines (OMNDM);
- Ontario Ministry of the Environment (OMOE);
- Environment Canada – species at risk (SAR) occurrence;
- Federal and Provincial parks – species occurrence, habitat information, management plans;
- Lakehead Region Conservation Authority;
- Local conservation groups e.g., Thunder Bay Field Naturalists;
- Other knowledgeable individuals e.g., anglers, adjacent lodge owners, canoeists, etc.;

- Aboriginal Traditional Knowledge (ATK) e.g., Ojibways of Pic River First Nation, Michipicoten First Nation, Fort William First Nation;
- Forest Management Plans;
- Natural Resources and Values Information System (NRVIS) data layers e.g., outposts, access points, stick nests, etc.;
- Soils, quaternary geology and physiographic maps;
- Geological maps and accompanying Ontario Geologic Survey (OGS) reports;
- Ontario Land Inventory (OLI) and Ontario Peatland Inventory (OPI) maps;
- Landform-Vegetation (LV) type thematic layer;
- Life and earth science checksheets, reports and maps for surrounding protected areas;
- Life Science Site Region report and Life science inventories for parks and reserves; and
- Species at Risk (SAR) status reports (OMNR, COSEWIC).

Spatial Analyses (GIS)

Existing spatial datasets will be integrated in a GIS environment to permit spatial analysis prior to fieldwork to coarsely type vegetation units, identify potential sensitivities, plan the sampling program and generate maps for field verification. These include but are not limited to:

- Landsat imagery, classified Land cover 2000 thematic layer;
- Ontario Base Mapping;
- MNR digital elevation model (DEM);
- MNR Thematic mapping (Mammal Wintering Areas, Wildlife Staging Areas,Wildlife Nursery Areas, Wildlife Travel Corridor, Significant Ecological Area, Wetland, Frequent Fire Disturbance Area, Conservation Reserve, Conservation Area, Calve or Fawn Area, Aquatic Feeding Area, Breeding Area, National Park, Provincial Park, Evaluated Wetland, Environmentally Sensitive Area (ESA), Area of Natural and Scientific Interest (ANSI), Crown Management Area, Habitat Planning Range);
- Orthophotos, if available;
- Forest Resource Inventory (FRI);
- Digital Northern Ontario Engineering Geology Terrain Study Maps (NOEGTS); and
- Disturbance shapefiles (Forestry Canada) e.g., logging, wind throw, fire, insect pest, drought.

Aerial photo interpretation will play a significant role in identifying terrestrial features such as terrestrial and wetland eco-sites and potential wildlife habitat. Initially it will be used to delineate recognizable terrestrial habitats and determine their association to terrain features. Aerial photo interpretation and GIS

analyses will also be used to permit stratification of sampling sites and help target potential high priority areas for fieldwork e.g., sensitive areas, species at risk (SAR) habitat.

Aquatic Field Survey Design and Implementation

The objective of the aquatic baseline field investigations will be to characterize fish habitat and fish communities of water bodies traversed by the transmission line ROW. Based on the life history requirements of fish species observed at each study site, the sensitivity of aquatic environments to ROW construction/maintenance will be gauged taking into account, and with particular emphasis on, the protection of fish habitat as identified by any regional fisheries management goals.

SLEs proposed approach for the field survey will include a desktop general habitat evaluation and categorization of all water bodies traversed by the proposed transmission line ROW. A low level helicopter flight conducted prior to any field work will be conducted to further refine and select which watercourses and water bodies and/or habitats that will be included in the Detailed Field Survey. Through the habitat categorization process, fish community composition, fish habitat quality and relative quantity, and the sensitivity of these habitats as discerned from detailed evaluations, can be ascribed to other water bodies on a broader regional scale. Due to the remote location of this Project, access is very difficult. For this reason, the field program will rely heavily on access by helicopter and all-terrain-vehicles (ATVs). Our proposed approach will be based on sound scientific principles that will not only provide representative, scientifically defensible data, but will also provide the most cost effective approach to obtaining these data. Specifically, our proposed approach to the field investigation will include two components:

1. Preliminary water body identification and categorization;
2. Rapid stream assessment survey; and
3. Detailed field survey of representative water bodies.

The details of this approach are outlined below.

Preliminary Water Body Identification and Categorization

Aerial photo interpretation and GIS analyses will be used to map and quantify aquatic habitat to permit stratification of sampling sites, and help target potential high priority areas for fieldwork e.g., sensitive sites, species at risk (SAR) habitat. Background data from interviews and reports will be incorporated into the GIS with other spatial data such as watersheds, surficial geology and base data layers. Aerial photographs will be used to help identify broad habitat types and specific features such as waterfalls, rapids, and access points.

Based on a preliminary GIS analysis of Ontario Base Map (OBM) data, within the Project buffer zone there are:

- 18,918 km of watercourses;
- 322 named watercourses (3,116 km);
- 71 wetlands (6, 852 ha);
- 101,997 ha of lakes, excluding Lake Superior; and
- 936 named lakes (61,504 ha).

Given the large number of watercourses and water bodies each water body will be categorized according to stream order and watershed. It is important to separately list water bodies by major watershed to ensure that during detailed field sampling, fish habitat/communities from each watershed are represented proportionately.

The categorization process will include the following steps:

a. Identify major watersheds and water bodies traversed by the proposed ROW;
b. Approximate number of streams per order in each watershed as well as approximate number of wetland crossings in each watershed;
c. For each crossing; identify location, stream type (erosional/depositional) and general characteristics;
d. Group habitat types according to stream order, stream vs. wetland, erosional vs. depositional;
e. Select streams/wetlands to be sampled as representatives for each habitat group to compile a detailed assessment of fish resources;
f. Detailed characterization of fish community and habitat, water quality and sediment quality for each selected stream or wetland;
g. Compile all data collected during background searches and field surveys; and
h. Prepare the Aquatic Baseline Study Report.

Rapid Stream Assessment Survey

All identified water bodies traversing the proposed ROW will undergo an assessment utilizing the Rapid Stream Assessment Methodology as outlined in the *Ontario Stream Assessment Protocol* (Stanfield et al., 2010). The rapid stream assessment will include collection of GPS coordinates, *in situ* water quality measurements of temperatures, dissolved oxygen, pH and conductivity using a portable YSI meter. Physical features (stream width, depth etc.), brief habitat descriptions (*i.e.*, substrate type and relative proportion, flow characteristics, bank condition, aquatic and riparian vegetation type and/or coverage, available cover types and relative proportions etc.) and photo documentation of each water body.

Detailed Field Survey

Certain habitat within the study area is more likely to provide valuable habitat to fish than others. In order to maximize resources, focus will be on assessing fish habitat with a high likelihood of being valuable to fish. The federal government has determined guidelines for classifying fish habitat as Critical, Important, Marginal or No Fish Use (DFO, 2010) as defined below:

- Rare – the most highly sensitive including species at risk;
- Highly Sensitive;
- Moderately Sensitive;
- Low Sensitivity; and
- Not Fish Habitat – the least sensitive extreme represents areas that are not considered fish habitat.

The attributes for assessing the sensitivity of fish and fish habitat include:

1. Species sensitivity;
2. Species dependence on the habitat;
3. Rarity; and
4. Habitat resiliency.

Preliminary classification will be based on desktop information, and will be further refined based on field work. Assessing fish communities in critical or important fish habitat will be prioritized.

Fisheries assessment will be stratified based on the following:

- Direct intersection with the Project along;
  - Transmission corridor
  - Access roads
  - Construction laydown areas, storage areas, etc.;
- Type of fish habitat (i.e., critical, important, marginal or no fish use);
- Size of drainage/watercourse;
- Fish community based on background data search;
- Distance to larger water body with known sport fish species (possible use as spawning habitat);
- Perceived risk (e.g., cold water trout streams) and sensitivity to temporary stream crossing during transmission line construction or routine vegetation management; and
- Other factors identified in pre-field research and consultation with OMNR and DFO.

This categorization process will ultimately assist with the selection of representative water bodies for the detailed field survey. Through the use of this categorization process we will be able to consider the range

of habitats present and thus provide information on the aquatic resources within all the various habitat types without detailed sampling at all crossings. This will allow for consideration of the role these habitats provide relative to life history requirements of key fish species, fisheries management goals and identified Valued Ecosystem Components (VECs).

The Detailed Field Survey will include:

1. Detailed habitat characterization;
2. Fish community sampling; and,
3. Supporting *in situ* water quality measurements.

Habitat characterization conducted at each detailed field survey area will include a variety of measurements and/or observations which will vary slightly depending on whether lentic or lotic habitat is sampled. The level of detail employed during the habitat characterization will provide information sufficient to satisfy provincial EA requirements as well as to document potential harmful alteration, disruption or destruction (HADD) of fish habitat, support mitigation planning and support *Fisheries Act* Section 35(2) Letter of Advice or Authorization and/or any requirements under the CEAA. The evaluation of lotic (flowing water) habitat will involve the characterization of channel features, bed and bank characteristics, riparian features and other in-stream fish habitat features. The evaluation of lotic (still water) habitat will involve the characterization of dimensions, wetted features, riparian features and other fish habitat features. Specific requirements of prominent fish species will be noted, such as spawning habitats and the likelihood of actual use of adequate habitat relative to barriers and other impediments will also be determined.

Fish habitat assessment will follow the general methods and procedures outlined in the *Ontario Stream Assessment Protocol* (Stanfield et al., 2010). Information recorded includes:

- Watercourse size, flow (permanent/intermittent/ephemeral) and thermal regime (cold water/warm water);
- Physical channel dimensions – width and depth, including bankful and wetted widths and depths;
- Physical habitat characteristics – substrate type, in-stream/overhead cover opportunities (e.g., woody debris, undercut banks, vegetation), bank stability/erosion, channel morphology, groundwater seepage/upwelling areas and riparian vegetation;
- Fish habitat potential - presence of water, presence of fish or aquatic plants in the channel, evidence of past water levels, proximity to confluence with nearest watercourse;
- Physical barriers to fish movement;
- Identification of potential critical or specialized habitat areas or features i.e., potential spawning or nursery areas; and

- Observations of habitat alterations/land use - channel modification, potential pollutant sources.

Fish Community Sampling

At watercourses chosen for the detailed habitat assessment, we will characterize the fish community to establish baseline conditions, identify sensitive species and species at risk. A fish species presence/absence survey of a 100 m segment or 500 seconds at the ROW will be completed using a backpack electrofisher for watercourses that are wadeable. For very large watercourses and water bodies, fish community assessment will be based on published data.

The fish community will be characterized using a variety of sampling techniques and the selection of equipment will be dependent on the habitat conditions. Sampling equipment used to assess the fish community may include standard minnow traps, seine nets, gill nets, hoop nets and backpack electrofisher.

For each sampling method, information regarding sample site characteristics (i.e. depth of net set, sediment and vegetation types present etc.) will be recorded. All captured fish will be identified to species, enumerated and subsequently released at the location of capture. Based on fish size for each respective species encountered, life stage (i.e. young-of-the-year, juvenile, adult) will also be estimated to allow for an evaluation of habitat use by various size classes. Finally, fishing effort and catch for each sampling method will be used to calculate catch-per-unit-effort, which will allow standardized comparison of catches among areas and/or habitat types. All fish collections will be conducted under appropriate Licences to Collect Fish for Scientific Purposes issued through the MNR.

Field data collection methods will involve both documented information and a photographic record. Collection of data will facilitate the determination of watercourse sensitivity relative to potential construction disturbance and serves as the basis for determining appropriate mitigation such as avoidance, timing of in-stream access construction, etc.

Terrestrial and Wildlife Field Survey Design and Implementation

Fieldwork will be conducted concurrent with aquatic studies from late spring to late summer. Vegetation sampling and wildlife monitoring techniques will follow standardized protocols so that the data can be used as a baseline for future monitoring. All survey locations will be geo-referenced (tracks and/or waypoints) using handheld GPS and provided as ESRI Arcview shapefiles (UTM Zone 15, NAD83 format).

Opportunistic surveys and incidental encounters of all wildlife during the vegetation survey will be carefully documented, including time, GPS coordinates and description of habitat. Field surveys will focus on specific components of the terrestrial ecosystem, as described below in the following subsections.

Vegetation Surveys

The level of effort will be related to the significance of the natural features and processes, as well as potential for adverse effects from power line development. Due to the remote location of this Project, access is very difficult. For this reason, the field program will rely heavily on access by helicopter and all-terrain-vehicles (ATVs). Terrestrial field sampling will be conducted at the aquatic survey locations as well as at selected sample locations, within reasonable travel distance by foot or ATV, within representative vegetation types identified during the preliminary typing exercise. The identified sites will be assessed using the following steps:

- Provisionally identified sample sites will be surveyed to ensure the full range of conditions is assessed along the study corridor;
- At each sample location, the species composition of canopy and sub-canopy trees, understorey shrubs and tree regeneration, as well as dwarf shrubs and herbaceous vegetation, and moss cover will be surveyed;
- Community structure including canopy height, and percent cover will be recorded;
- Basal area will be calculated using a bitterlicht lens with a factor of 2 to estimate density of trees along the alignment;
- Surface soils will be sampled and recorded using hand augers to a maximum depth of 120 cm;
- Vegetation surveys and other field observations will be used to ground-truth initial mapping based on Forest Resource Inventory (FRI) and refine the delineation of terrestrial vegetation units, each of which will be classified according to Forest Ecosystem Classification1 (FEC) V-type; and
- Habitat for significant species and community types will be assessed.

Mammals

Effort will be focused on those species most vulnerable to potential impacts along the proposed corridor or those that have been identified as keystone species. Particular efforts will be focused on the taxa/components described in the following subsections.

Woodland Caribou

Woodland caribou (*Rangifer tarandus caribou*) are designated as Threatened on Schedule 1 of the federal *Species at Risk Act* and the provincial *Endangered Species Act*. Caribou are one of the values potentially affected by the proposed development. Impacts on caribou need to be considered at the

landscape level given their large range size and migration patterns. Woodland caribou data for the study area and surrounding areas will be summarized. OMNR data sources include offices of Sioux Lookout and Ignace, Northwest Region Science and Information offices, Centre for Northern Forest Ecosystem Research (CNFER) and the Natural Heritage Information Centre (NHIC). Interviews of selected resource management staff will also provide caribou habitat values. This information will be used to identify caribou migration corridors, winter habitat, calving areas and to assess the significance of the study area for woodland caribou populations. Known and potential sensitive habitat features that could be altered by the proposed development will be identified and mapped using ecosite data in the Forest Resource Information database.

Moose Aquatic Feeding Areas (MAFA) and Mineral Licks

Aerial photograph interpretation will be used to verify and update MAFAs in the proposed corridor using the methodology outlined in the OMNR's *Selected Wildlife and Habitat Features: Inventory Manual* (Ranta 1998) MAFAs are identified and ranked based on preferred vegetation and relationship to water bodies and local topography. They are assessed as one of the following ranks:

0 No potential: Areas of lakes, creeks and rivers with no aquatic vegetation

1 Low potential: Bog lakes or areas to which moose would have substantial difficulty in accessing e.g., due to high cliffs or development

2 Moderate potential: Some aquatic plants are available. The area is usually <1 ha in size, or if larger, coupled with some limiting factor such as steep cliffs or development that would likely inhibit, but not prohibit use by moose. Larger acceptable areas dominated by graminoids are likely a "2", as are sites where the shoreline is primarily black spruce or jack pine.

3 High potential: At least 1 ha in size with < 50% of the aquatic vegetation comprised of preferred species or more than 50% graminoids. Due to their limited lifespan, beaver ponds should not be ranked higher than a "3". Otherwise suitable areas with difficult terrain typically rank "3" rather than a "4".

4 Very high potential: Large (> 1 ha, typically much larger in northwestern Ontario), with >50% preferred species, <25% graminoids, suitable shoreline forests and no access limitation.

Potential mineral licks in the study corridor will be identified and field-verified where possible.

Furbearers

Information on furbearers will be summarized using OMNR harvest records linked to trap line areas in a GIS. Trapping information does not provide accurate population information since fur returns are often based on current price for fur, ease of trapping certain species as opposed to others, and individual bias and preference for certain furbearers. However, trapping records do give a good estimate of the presence

of furbearers across a large geographic region, as well as change in presence along geographic gradients, such as north south occurrence or presence along water courses or upland versus lowland and wetland areas

Average catches for all species for each trap line will be calculated and presented in tabular and map format. Of particular interest are records of wolverine (*Gulo gulo*), a species of special concern according to COSEWIC and listed as threatened on the provincial *Endangered Species Act*.

Beavers (*Castor canadensis*) are widely regarded as keystone species, since the mosaic of habitat conditions they create leads to increased species richness of plants and animals. Observations of active beaver lodges during fieldwork will be recorded and mapped.

Birds

Incidental breeding and migrating bird observations will be collected concurrently with other field work according to methods established by *Ontario Breeding Bird Atlas* program. Waterfowl nesting and migration stopovers will be noted on water bodies and wetlands within the study corridor. Nests and eggs of all wild birds (except American crow, brown-headed cowbird, common grackle, and house sparrow, red - winged blackbird and European starling) are protected from disturbance and/or destruction (including *incidental take*) by either the federal *Migratory Birds Convention Act* or the provincial *Fish and Wildlife Conservation Act*, *1997*. Surveys will involve active searches for evidence of nests within the study area.

Herpetofauna

Time-constrained visual encounter survey will be conducted in suitable habitat for reptile and amphibian species using survey techniques modified from Kendell (2002). Incidental observations of reptiles and amphibians will be made while conducting habitat assessment and other field work throughout the field season. The location and general conditions of each site will be recorded. When a reptile or amphibian is found in the field, photographs will be taken if possible, and notes on the extent of the occurrence will be made. Adults will be identified in the field using Collins et al (1998) and MacCulloch (2002).

Old Growth Forest

FRI will be used to identify and map any old-growth forest along the study corridor based on the provincial old growth definitions (Uhlig et al., 2001). An increment borer will be used in the field to confirm the age of significant stands.

Habitat Mapping

Aerial photo interpretation and *Forest Resource Inventory* (FRI) data will play a significant role in identifying terrestrial features such as terrestrial and wetland ecosites and potential wildlife habitat. Initially it will be used to delineate recognizable terrestrial habitats, and determine their association to terrain features. Aerial photo interpretation and GIS analyses will also be used to permit stratification of sampling sites and help target potential high priority areas for fieldwork e.g., sensitive areas, species at risk (SAR) habitat.

Following the field program GIS maps will be generated to further describe the structure and species composition of the habitats delineated adjust boundaries as required, and quantify these terrestrial habitats, Vegetation units will be defined using North West Ontario Forest Ecosystem Classification system (FEC) V-types.

FEC V-types will be linked with habitat suitability matrices for any *Species at Risk* identified in the study area to provide maps of their potential habitat. Aerial photographs (1:6000) will be used as well to help delineate terrestrial and wetland habitats.

Species at Risk (SAR) and Significant Species

Preliminary investigation has identified ten (10) fish species (Table 3) and twenty-five (25) terrestrial species (Table 4) that have been identified provincially or federally as sensitive species with a range overlapping the study area.

Preliminary species lists have been compiled based on the current listings of COSEWIC, SARA and SARO and corresponding range maps of the species of interest. This list will be further refined based on specific habitat types found within the Project area, background information, contacts and interviews.

Field surveys for Species at Risk (SAR) will be conducted along the study corridor in conjunction with other fieldwork. Ecosite (habitat) will be noted for each species observation. Where possible, significant ecological features and species observed during field surveys will be photographed.

Target species include provincially and regionally rare vascular plants, birds, mammals, herpetofauna (reptiles and amphibians), butterflies and odonates (dragonflies and damselflies). Observations of significant fauna and flora will be recorded in field notebooks and GPS waypoints taken for transfer to a digital database. Significant species and communities include those:

Significant species include those:

- Tracked by NHIC or ranked S1-S3;
- Ranked by COSSARO or COSEWIC;
- Regionally rare;

- Local feature species by OMNR;
- Species of special management concern;
- Species near the limits of their range;
- Species that have low reproductive capacity and/or are sensitive to disturbance;
- Significant concentrations or sensitive habitat;
- Significant concentrations or sensitive habitat e.g., staging areas, calving areas, bat or snake hibernacula; and
- Species that have low reproductive capacity and/or are sensitive to disturbance.

Table 3: Aquatic Species at Risk with a Range Overlapping the Project Area.

Common Name	Scientific Name	COSEWIC[A]	SARA[B]	SARO[C]
Aurora trout	*Salvelinus fontinalis timagamiensis*	Non-active	Endangered, Schedule 1	Endangered
Blackfin cisco	*Coregonus nigripinnis*	Data deficient	Threatened, Schedule 2	No status
Deepwater sculpin, Great Lakes population	*Myoxocephalus thompsonii*	Non-active	Threatened, Schedule 2	No status
Upper Great Lakes Kiyi	*Coregonus kiyi kiyi*	Special concern	Special concern, Schedule 1	Special concern
Lake Sturgeon, Great Lakes - Upper St. Lawrence populations	*Acipenser fulvescens*	Threatened	No status	Threatened
Northern brook lamprey	*Ichthyomyzon fossor*	Non-active	Special concern, Schedule 3	Special concern
Short-jawed cisco	*Coregonus zenithicus*	Threatened	Schedule 2, Threatened	Threatened

Common Name	Scientific Name	COSEWIC[A]	SARA[B]	SARO[C]
Silver lamprey	*Ichthyomyzon unicuspis*	Special concern	No status	No status

A: Government of Canada, 2002 B: Government of Canada, 2011; C: OMNR, 2009

Table 4: Terrestrial Species at Risk with Ranges Overlapping the Project Area

	Common Name	Scientific Name	COSEWIC	SARA	SARO
Birds	Bald eagle	*Haliaeetus leucocephalus*	Not at risk	No status	Special concern
	Barn swallow	*Hirundo rustica*	Threatened	No status	Threatened
	Black tern	*Chlidonias niger*	Not at risk	No status	Special concern
	Bobolink	*Dolichonyx oryzivorus*	Threatened	No status	Threatened
	Canada warbler	*Wilsonia canadensis*	Threatened	Schedule 1, Threatened	Special concern
	Chimney swift	*Chaetura pelagica*	Threatened	Schedule 1, Threatened	Threatened
	Common nighthawk	*Chordeiles minor*	Threatened	Schedule 1, Threatened	Special concern
	Loggerhead shrike	*Lanius ludovicianus*	Endangered	Schedule 1, Endangered	Endangered
	Olive-sided flycatcher	*Contopus cooperi*	Threatened	Schedule 1, Threatened	Special concern

	Common Name	Scientific Name	COSEWIC	SARA	SARO
	Peregrine falcon	*Falco peregrinus anatum/tundrius*	Special concern	Schedule 1, Special concern	Threatened
	Rusty blackbird	*Euphagus carolinus*	Special concern	Special concern, Schedule 1	No status
	Short-eared owl	*Asio flammeus*	Special concern	Special concern, Schedule 1	Special concern
	Whip-poor-will	*Caprimulgus vociferus*	Threatened	Schedule 1, Threatened	Threatened
	Yellow rail	*Coturnicops noveboracensis*	Special concern	Special concern, Schedule 1	Special concern
Insects	Monarch	*Danaus plexippus*	Special concern	Special concern, Schedule 1	Special concern
	Pygmy snaketail	*Ophiogomphus howei*	Special concern	Special concern, Schedule 1	
Mammals	Eastern cougar	*Puma concolor*	No status	No status	Endangered
	Little brown bat	*Myotis lucifugus*	Endangered	No status	No status
	Northern myotis	*Myotis septentrionalis*	Endangered	No status	No status
	Wolverine, western	*Gulo gulo*	Special concern	No status	Threatened

	Common Name	Scientific Name	COSEWIC	SARA	SARO
	population				
	Woodland caribou	*Rangifer tarandus caribou*	Threatened	Schedule 1, Threatened	Threatened
Plants	Pitcher's thistle	*Cirsium pitcheri*	Special concern	Endangered, Schedule 1	No status
	Showy goldenrod	*Solidago speciosa*	Threatened	No status	No status
	Small flowered lipocarpha	*Lipocarpha micrantha*	Endangered	Endangered, Schedule 1	Threatened

Aquatic and Terrestrial Environment Baseline Report

Following completion of the Detailed Field Surveys an aquatic and terrestrial environment baseline report will be prepared. Summaries of all relevant background information regarding habitat features, fish community assemblages, vegetation survey data, incidental mammal observations, breeding bird survey as well as any other incidental observations of herpetofauna will be presented as part of an initial summary. Detailed habitat descriptions will be provided for all areas, highlighting any individual or particularly sensitive environments of concern for the Project.

Aquatic and Terrestrial Environment Impact Assessment

The objective of the aquatic and terrestrial environment impact assessment will be to identify any potential effects that the proposed transmission line will have on fish habitat/communities, other aquatic biota including vegetation, wildlife, birds and herpetofauna. Mitigation measures will be indentified that may be employed to offset any potential adverse effects. The impact assessment will include the following:

- Identification and description of potential impacts associated with the Project to aquatic and terrestrial habitats and communities;
- Identification and description of mitigation measures that may be used to prevent, avoid and/or minimize impact to aquatic and terrestrial habitat/communities associated with the Project;
- Evaluation and description of potential residual effects following proper mitigation efforts;
- Identification and securing required permits and approvals; and,

- Preparation of an Impact Assessment Report.

The impact assessment will identify potential effects of the preferred routing (and refinement options) for the transmission line on the natural features and processes identified in the fisheries and terrestrial baseline study report. The impact assessment will include the following main steps (discussed in more detail in the following sub-sections):

1. Description of activities related to the Project;
2. Description of environmental attributes;
3. Identification of Project-environment interactions;
4. Prediction of environmental impacts related to the Project;
5. Description of environmental impacts;
6. Identification of mitigation measures; and
7. Assessment of the significance of any residual effects.

Description of Project Activities

Activities associated with the construction (e.g., clearing of ROW, water crossings), operation, maintenance (e.g., vegetation management), and eventual decommissioning of the transmission line associated right-of-way will be identified and described. The geographic extent, nature, and duration of activities will be described. Specific activities and/or locations that have the greatest risk for adverse environmental impacts will be identified.

Description of Environmental Attributes

Environmental attributes include features and processes within the proposed study area, and will be summarized from the fisheries baseline study report. Particular focus will be on Valued Ecosystem Components (VECs) such as:

- Species at risk (SAR) (lake sturgeon, woodland caribou, bald eagle, wolverine etc);
- Species at the edge of their range (ie. arctic-alpine disjuncts);
- Sensitive species with low reproductive capacity and/or sensitive to disturbance;
- Wetlands and other areas of high biological diversity;
- Critical habitat (ie. spawning habitats, breeding grounds, hibernacula, travel corridors, MAFAs); and,
- Fragile ecosystems and sensitive habitat (ie lakes with self-sustaining brook trout populations and relict prairies).

Identification of Project-Environment Interactions

A systematic approach will be used to identify potential interactions between the transmission line development and the aquatic and terrestrial environment. Both the local environment and larger landscape level interactions will be addressed where appropriate (ie. woodland caribou). A matrix approach will identify potential interactions, both positive and negative, between Project components (e.g., temporary access road building, pole installation, vegetation management) and various environmental components. GIS overlays and professional opinion will also be used to help identify interactions and define their possible spatial extent.

Prediction of Environmental Impacts

Once Project environment interactions have been identified, we will predict resulting environmental effects by assessing how, when and where the interactions occur. This will include both direct and indirect effects. Professional judgment, case studies and other qualitative methods will be used to predict effects. Cumulative effects i.e., net effects from multiple direct and/or indirect effects from the Project will also be predicted. Cumulative effects arising from the other activities in the adjacent landscape such as forestry, the road corridor, recreation, and resource harvesting will be considered. The impact of cumulative effects on critical population thresholds or carrying capacity will be discussed for relevant taxa and their habitats. This is particularly true for species at low or declining numbers in the study area, and those whose habitat may be limiting. Local changes along the proposed corridor that could potentially affect populations in the surrounding regional landscape will also be evaluated. They will be compared to wider population levels and trends in the surrounding landscape to evaluate their significance.

Emphasis will be on avoiding the harmful alteration, disruption or destruction (HADD) of fish habitat, where fish habitat is defined in the *Fisheries Act* as “spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly and indirectly to carry out their life processes”. HADD’s are prohibited unless authorized by the department of Fisheries and Oceans (DFO) pursuant to Section 35(2) of the *Fisheries Act*. In keeping with DFO’s *Policy for the Management of Fish Habitat*, no such authorizations are issued unless acceptable measures for the habitat loss are developed and implemented by the proponent. Therefore the EIA will identify permitting and approval requirements from provincial and federal agencies with management responsibility for fisheries and fish habitat (e.g., OMNR, DFO).

Description of Environmental Impacts

Predicted environmental impacts will be clearly described to allow for identification of suitable mitigation measures where possible. For each predicted impact, the following will be described:

- Direction (neutral, positive, negative);
- Nature (direct, indirect, cumulative);
- Duration (short or long-term period);
- Timing (during which phase of Project life; immediate or delayed; seasonality)
- Frequency (intermittent or continuous);
- Magnitude (level of effect, loss of function);
- Scale (local, regional);
- Spatial extent (location where effect occurs);
- Likelihood of occurrence (level of risk, uncertainty, confidence in prediction);
- Reversibility (extent to recover and length of time required to recover, if ever);
- Ecological context (% of population affected, importance of population, implications for other taxa);
- Socio-economic and cultural context (importance to local community or First Nations); and
- Other relevant factors.

Quantitative descriptions of environmental effects will be made where possible. Of particular focus, will be describing the extent and significance of predicted environmental impacts on valued ecosystem components such as species at risk, sensitive species and habitats, and ecological processes. The effect of habitat loss or degradation caused by the different Project components and any sub-routing options of the line within the study area will be assessed.

Identification of Mitigation Measures

Mitigative measures will be identified to eliminate, reduce, or control negative environmental impacts of the proposed transmission line. Identification of such measures before the Project is fully designed and implemented will help potential environmental impacts be avoided or minimized before they occur. We will:

- Identify the characteristics (e.g. extent, timing) of any environmental effects that are of concern and require mitigation;
- Identify appropriate, technically and economically feasible measures or solutions that will minimize or avoid the specific characteristic of concern of the environmental effect. Detailed prescriptions will be given to indicate the measures should be undertaken;
- Predict residual adverse environmental impacts after mitigation measures have been factored into the analysis; and
- Analyze any potential effects of the mitigation measures themselves may have had on the environment.

Preference will be for mitigative and protection measures that avoid adverse environmental effects, followed by those that minimize negative effects, with compensation as a last resort. Avoidance measures could potentially include selection of modified construction techniques, alternative water crossing locations, timing restrictions, or design changes. Minimization measures could potentially include the use of erosion and sediment control barriers and techniques to reduce siltation into watercourses, wetlands and water bodies. If necessary, compensation will be considered and could involve the use of engineered solutions (e.g., creating spawning habitat if limiting) to compensate for lost or degraded habitat.

Generally accepted measures that are technically and economically feasible will be used, with modification where necessary for local conditions. Mitigation measures will be appropriate to the size and scale of the Project as well as the nature and scale of the environmental effects.

Assessment of Residual Effects

Residual environmental effects will be identified and their significance evaluated in order to verify that the recommended mitigation measures can adequately minimize the predicted adverse environmental effects. Net residual effects will be evaluated to determine if they are significant or not, and their likelihood of occurrence. Significance will depend on a number of criteria such as magnitude, extent, duration, and reversibility of residual effects. The following factors will also be considered:

- Any recognized environmental standards or guidelines;
- Statistical significance;
- Ecological importance; and
- Socio-cultural context.

Likelihood will be based on both the probability of occurrence and scientific uncertainty about the residual effects.

If significant adverse environmental effects still remain and are likely, then additional mitigation measures or design changes will be identified. Rationale for decisions regarding significance of effects will be clearly explained and document.

5.2.3 Physical Environment

Subject to approval of the ToR, consultation with stakeholders and other steps in the approval process, it is expected that the description of the Physical Environment will be restricted to a “desk-top evaluation” of existing information. Site-specific studies may be required for air quality, background noise levels and

groundwater. However, these studies cannot be scoped until more detailed information is available on specific construction methods, locations and timing.

Following is a brief overview of the physical environment study requirements of the EA.

Climate

The EA will provide climatic data for all regions within the study area, as well as mean monthly and annual temperature, precipitation and wind data for representative meteorological stations in the study area.

Air Quality

OMOE air quality stations are located in Thunder Bay, Sudbury and Sault Ste. Marie. Regional ambient air quality information will be provided in the EA for the OMOE air quality monitoring stations near or in the study area.

Sound/noise is a component of the air environment. The major sources of noise in the rural environment are road traffic, railway traffic. The EA will characterize baseline or background noise conditions, based on published information. Noise surveys may be undertaken, as required.

Geology/Physiography

The study area is in the Cambrian Shield (often referred to as the Canadian Shield). It is dominated by shallow soils and granite bedrock that stretch from the northern end of the Great-Lakes St. Lawrence forests through to the Hudson Bay Lowlands. There are two portions to the shield. One is estimated to be over 2.5 billion years old, formed during the Archean Era. The other found in the Lake Nipigon and also in the Sudbury-to-Kemptville area) was formed in the Proterozoic Era, is over 680 million years old and covers 11% of the province. Combined, these two areas account for 66% of Ontario's area. They contain approximately 86% of Ontario's productive forests.

Surficial geology maps and data indicate the majority or dominant soil types existing within each zone. Variations can occur in the region. There are three major sources of soils data that will be used to describe soils:

- The Canadian (Ontario) Land Inventory (OLI), based on 1:250,000 inventories conducted in the early 1970s;
- The Northern Ontario Engineering Terrain Study (NOEGTS), surficial geology & soils data, based on detailed air photo interpretation conducted in the late 1970s; and
- The Surficial Geology of Southern Ontario, based on Geological Survey of Canada data.

The EA will provide mapping and a description of the geological formations traversed by the Project.

The EA also will provide a description of the effects of glaciation and drift thickness based on Ontario Geological Survey mapping the above information.

Surface and Groundwater Hydrology

The EA will map the watersheds including their tributaries, as well as discharge and water quality data from the Water Survey of Canada, the OMOE and Lakehead Region Conservation Authority. As part of the EA, the Proponent will work with Lakehead Region Conservation Authority and MNR District offices to collect available site-specific information for all watercourses that will be crossed by the proposed preferred alignment. This information will be included and mapped in the EA.

Basic hydrologic and surface water parameters will be measured and recorded on-site as part of the Fisheries Baseline Study. Surficial sediment type will also be recorded. The hydrologic data will be provided in the post-EA applications for watercourse crossing permits.

The EA will also provide a description of groundwater resources including groundwater levels, yields and quality based on OMOE well records and published information. A questionnaire will be provided which requests information on the location of any wells near the construction areas. Consultation will include information on construction activities which will take place on each individual property. This site-specific information will be used to augment the information provided by the OMOE in their wells database and to decide if additional site-specific information is required.

It is unlikely that the actual transmission towers and line will have an impact on groundwater resources. However, activities associated with access and construction, such as cement plants, laydown areas, etc. may require specific site-specific studies.

5.2.4 Specific Archaeological Requirements

The purpose of this component is to undertake a Stage 1 Archaeological Assessment of the proposed EWT transmission line corridor that will meet the legal requirements of the Ontario Heritage Act, the Environmental Assessment Act and Planning Act as well as the Standards and Guidelines for conducting Archaeological Assessments in Ontario as set out by the Ministry of Tourism, Culture and Sport (MTCS).

Study Objective

The objective of the work is to conduct an archaeological/heritage assessment of the Project area. As well, the Project will require MTCS archaeological clearance. Under regulations three copies of a final report must be sent to MTCS, which will allow MTCS to issue a Project clearance letter.

- To evaluate in detail the property's archaeological potential (i.e. the likelihood that the property contains archaeological resources); and

- To recommend appropriate strategies for future assessment, protection and/or mitigation.

Stage 1 Assessment

The Stage 1 work will be undertaken by experts with Province of Ontario Archaeological Licences. The assessment will provide the MTCS report reviewers with information about the known and potential cultural heritage resources within the study area.

Stage 1 is a comprehensive review of the geographic and historical features of the proposed corridor and its surroundings. It can replace a determination of archaeological potential by provincial or municipal approval authorities, to determine whether the property requires archaeological assessment and to recommend efficient and cost-effective assessment strategies.

The Stage 1 Assessment has two primary components:

- Background Study;
- Property Inspection.

Background Study

A background study is a detailed documentary research of the archaeological and land use history and present condition of a property. It is not a stage of archaeological fieldwork in itself, but it is a required component of Stage 1 evaluations of archaeological potential. It is also a required component of Stage 2 assessments if Stage 1 was not done for the property.

The objective of the background study is to provide information about a property's geography, history, previous archaeological fieldwork and current land condition, to support determinations of archaeological potential in Stage 1 and choice of survey methods in Stage 2.

Information Sources

Not all of the following information sources will be available or relevant to all properties. The sources listed under *Standards* must be researched. The sources listed under *Guidelines* may be researched when available and relevant.

Guideline sources are optional for Stage 2 but must be researched in Stage 1 if the report includes recommendations for a customized assessment strategy that will not follow the *standards* and *guidelines* in later stages.

Standards

Research the following information sources:

- The most up-to-date listing of sites from the MTCS archaeological sites database for a radius of one kilometre around the property or wider radius where the property warrants it;
- Topographic maps:
  - At 1:10,000 (recent and historic), or most detailed scale available, for Stage 1
  - At 1:25,000 (recent and historic), or most detailed scale available, for Stage 2
- Historic settlement maps (e.g. historic atlas);
- Municipal archaeological master plan or other potential mapping; and
- Commemorative plaques or monuments.

Guidelines

1. Research the following information sources as available and relevant to the property:
   a. Reports of previous archaeological fieldwork within a radius of one kilometre radius around the property or wider radius where the property warrants it
   b. Aerial photographs (both recent and historic)
   c. Geotechnical studies (e.g. soil studies, hydrogeological studies)
   d. Land titles or records, land registry documents
   e. Historical land use and ownership records (e.g. assessment rolls, census records, commercial directories)
   f. Aboriginal communities for information on traditional use areas, sacred and other sites.
   g. Individuals with oral or written information about the land use of the property and area (e.g. proponent, professional and avocational archaeologists, municipal heritage planners, local residents)
   h. Organizations with oral or written information about the land use of the property and area (e.g. local museums, archaeological or historical societies)
   i. Primary historic documentary sources (e.g. diaries, manuscripts)
   j. Secondary historic documentary sources (e.g. local and regional histories, academic research).
2. In addition to the above, for urban and brownfield properties, research the following specialized information sources as available:
   a. Municipal engineering studies and maps
   b. Municipal planning studies
   c. Insurance and fire studies and maps.

Property Inspection

The objective of the property inspection is to evaluate in detail the property's archaeological potential (i.e. the likelihood that the property contains archaeological resources) and to recommend appropriate strategies for future assessment.

An inspection consists of a visit to the property to gain first-hand knowledge of the property's geography, topography and current condition, to support the background study findings, and to evaluate and map the potential for archaeological resources.

There is no excavation or artifact collecting at this stage. Property inspection is not an equivalent to a Stage 2 Property Survey.

Information Requirements

Not all of the following information requirements will be relevant to all properties. Requirements listed under *Standards* must be undertaken. Requirements listed under *Guidelines* may be undertaken when relevant.

Standards

1. Conduct an on-site inspection of the complete property and its periphery. The inspection may be systematic (e.g. every 20, 50, 75 metres) or random spot-checking. Coverage must be sufficient to identify the presence or absence of features of archaeological potential if making recommendations for assessment strategies that will not follow the standards and guidelines.
2. Conduct the property inspection when weather conditions permit good visibility of land features. Do not conduct inspections when weather conditions may reduce the chance of finding features of archaeological potential (e.g. snow covered surface, frozen ground, excessive rain or drought).
3. The inspection must include:

Confirmation that features of archaeological potential are present where previously identified, e.g.:

- Watercourses are present where mapped, and are not artificial or altered;
- Land formations are natural and not artificial. Identification and documentation of additional features of archaeological potential not visible on mapping, e.g.,
    - Knolls, ridges or plateaux too small to show on large-scale topographic maps;
    - Relic water channels;
    - Glacial shorelines;
    - Patches of well-drained soils in areas of heavy soil;
    - Slightly elevated areas in low and wet areas.

Identification and documentation of features that will affect assessment strategies, e.g.:

- Woodlots;
- Small bogs, swamps or permanently wet areas;
- Steeper grade than indicated on maps;

- Overgrown vegetation that does not allow ploughing;
- Heavier soils than anticipated; and
- Recent land disturbances such as regrading, fill deposit or vegetation clearing.

The inspection may include: identification and documentation of structures and built features not noted in documentation, e.g.:

- Heritage structures or landscapes;
- Cairns, monuments, or plaques; and
- Cemeteries.

Analysis: Evaluating Archaeological Potential

The Stage 1 review leads to an evaluation of the property's potential to contain archaeological resources. If the review indicates that it is possible that archaeological resources exist anywhere on the property, a Stage 2 assessment must be done to confirm it.

When making an evaluation and subsequent recommendations, it will be necessary to account for all features present on the property that can affect a determination of archaeological potential. As a starting point, the *Checklist for Determining Archaeological Potential*, developed by the MTCS for non-specialists, summarizes these features. Also consider factors such as integrity of the archaeological resources and the impact of the proposed development.

Features Indicating Archaeological Potential

1. Previously identified archaeological sites.
2. A water source: It is important to distinguish types of water and shoreline, as well as distinguishing natural from artificial water sources, as these affect site locations and types to different degrees:
    a. Primary water sources (lakes, rivers, streams, creeks)
    b. Secondary water sources (intermittent streams and creeks, springs, marshes, swamps)
    c. Features indicating past water sources (e.g. glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges; relic river or stream channels indicated by clear dip or swale in the topography; shorelines of drained lakes or marshes; cobble beaches)
    d. Accessible or inaccessible shoreline (e.g. high bluffs, swamp or marsh fields by edge of lake, sandbars stretching into marsh).
3. Elevated topography (e.g. eskers, drumlins, large knolls, plateaux).
4. Pockets of well-drained sandy soil, especially around heavy soil or rocky ground.

5. Distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, promontories and their bases. There may be physical indicators of their use such as burials, structures, offerings, rock paintings or carving.
6. Resource areas, including:
    a. Food or medicinal plants (e.g. migratory routes, spawning areas, prairie)
    b. Scarce raw materials (e.g. outcrops of chert, quartz, minerals such as copper or ochre)
    c. Early Euro-Canadian industry (e.g. logging, prospecting, mining).
7. Areas of early Euro-Canadian settlement. This includes places of early military or pioneer settlement (e.g. pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches and early cemeteries. There may be commemorative markers of their history such as local, provincial or federal monuments or heritage parks.
8. Early historic transportation routes (e.g. trail, pass, road, rail, portage route).
9. Property designated under the Ontario Heritage Act.
10. Local history or local informants identify the property with possible archaeological sites, historic events, activities or occupations.

Archaeological Potential Removed

The entire property or portions of it have been subjected to extensive and deep land alterations that have severely damaged the integrity of any archaeological resources. Examples include:

- Quarrying
- Major landscaping involving grading below topsoil
- Building footprints
- Sewage and infrastructure development.

Activities such as agricultural cultivation, gardening, minor landscaping and grading do not necessarily affect archaeological potential. In urban or brownfield contexts with documented potential for deeply buried intact archaeological resources beneath land alterations, archaeological potential is not removed.

Final Report

This phase consists of consolidating, analyzing and synthesizing all the information gathered in the previous phases into a draft final report. The technical content of the report will adhere to 0. Reg. 881 of the Ontario Heritage Act. The format of the report will follow MTCS's “2011 Report Writing Standards and Guidelines for Consultant Archaeologists (Stages 1-3).”

Identification and analysis of archaeological remains will be carried out and summarized in appropriate sections of each report in the format and detail currently in use by the Ministry. Recovered archaeological materials for each site will be labelled, properly packaged for long-term storage in accordance with the terms of our license.

Project Specific Notes

Stage 1 requirements are quite specific. With regards to a property inspection, MTCS has approved a modification in the requirements when faced with projects that cover large areas or long corridors – in this case approximately 400 km in length. A low altitude helicopter reconnaissance is an acceptable alternative with detailed locational photography aimed at confirming designations of archaeological potential.

From an archaeological perspective, the proposed corridor will traverse the range of archaeological knowledge in the north. In the west between Thunder Bay and Nipigon, the proposed corridor is in an area with a high concentration of archaeological sites and features representing the earliest period of Ontario's human history. As we travel further east, archaeological knowledge is less well known, only because very little archaeological work has been done in the area. What is known indicates that the full range of human history is extant in this area including several features unique to Canada in the Pukaskwa Park area. Pit features known as Pukaskwa Pits are found on remnant beach ridges of Lake Superior. The area is also well known for pictographs and the range of commonly encountered first nations camp sites/settlements.

In the more recent past, we can expect to find examples of early logging history (camps, mills, river drives), railway history, World War 1 and World War 2 prisoner of war camps and even features related to the building of the highways in the middle part of the 20th century. Please note that MTCS requires archaeologists to consider any features predating 1950 – including homesteads, cabins and any other physical feature that may have historical value to local communities.

The purpose of the Stage 1 assessment is to make specific statements about the potential of the Project area to contain archaeological sites. This also includes making an inventory of known/registered archaeological sites and sites of historical/cultural interest to local communities. This information is used to guide Stage 2 archaeological investigations.

Areas that have a high archaeological potential will require Stage 2 investigations IF those same areas will be negatively impacted by the proposed Project. For example, if an area of high archaeological potential has been identified within 150m on each side of a water crossing AND a tower pad is proposed within the area of potential, then a Stage 2 assessment would be required for any area that would be disturbed by the pad construction (including roads, trails, laydown areas etc). Concurrently, if Project planners could move the tower pad outside the area of high potential, then no Stage 2 assessment would be required.

Should a Stage 2 assessment confirm the location of an archaeological site AND the proposed Project will directly impact that site, then Stage 3 and (likely) Stage 4 investigations would be required. These

more detailed levels of investigation seek to recover all archaeological knowledge from the site prior to its being impacted by the development. Once again, if the site can be avoided through planning, then these more detailed investigative stages could also be avoided.

MTCS recommends First Nations consultation during the Stage 1 and 2 processes. First Nations consultation is required for Stage 3 and 4 assessments. Consultation with First Nations will be initiated at the beginning of the process, prior to undertaking and field work or reconnaissance. We recommend consultation from the very beginning of the archaeological process to engage First Nations in the archaeological work. Archaeological information will be shared and a bilateral process of sharing and arriving at agreed-to modes of protection/mitigation will be developed should the situation arise. The use of First Nations assistants in any Stage 2 work will be encouraged.

The final result of the Stage 1 assessment is a report that details the archaeological knowledge of the proposed corridor. The report will identify known archaeological sites, sites of cultural interest to local communities and, areas of high archaeological potential based upon accepted methods of determining archaeological potential.

This report is submitted to the MTCS for review. Under normal circumstances, it is not necessary to meet with other regulators and if so, correspondence should be a satisfactory manner of communication.

5.2.5 Construction Environmental Management Plan

As part of the EA study an Environmental Management Plan will be developed for the construction phase of the Project (CEMP). The CEMP will be modified as necessary based on additional expectations and commitments required by the EA.

The purpose of the CEMP will be to examine the environmental regulations applicable to this phase of the Project and to describe the routine and specific procedures and measures to be implemented during Project construction in order to prevent, minimize and/or mitigate adverse effects on the natural environment and the diversity of ecological systems in and around the Project. The CEMP will be included in corresponding bidding and contract documents for the construction phase of the Project and will be enforced on-site by the Proponent's personnel.

The CEMP will also describe the organization available to ensure their implementation, including the roles and responsibilities of the main parties involved in this Project phase, the reporting requirements and the environmental training to be provided to Project personnel. The CEMP will be composed by individual plans that will be updated as the Project progresses and more detailed information on engineering designs and execution plans become available.

According to the construction activities described previously, it is anticipated that the CEMP will include the following individual plans:

- Water Management Plan;
- Soils Management Plan;
- Flora and Fauna Management Plan
- Air Quality and Noise Management Plan;
- Waste Management Plan;
- Hazardous Materials Management Plan;
- Monitoring Plan;
- Archaeological and Cultural Heritage Management Plan;
- Incidents and Complaints Management Plan; and
- Environmental Emergency Response Plan

The CEMP will be implemented in the field by the Proponent's Environmental team, which will be composed by an Environmental Manager (responsible to the Construction Manager) and Environmental Coordinators and Technician who will provide either day-to-day supervision or periodic auditing of all main working fronts.

Each of these plans is briefly described in the sections below. Plans will include sections common to all of them, such as: roles and responsibilities; monitoring; reporting; and procedures for corrective actions in cases of non-compliances.

Water Management Plan

The objectives of this plan are to provide appropriate, specific and clear procedures for handling surface and ground water resources during construction activities in such a way that will ensure protection of potential natural and ecological receptors. This will be achieved by:

- Complying with Project's effluent discharge limits and applicable regulations;
- Ensuring that construction sites surface runoff is conveyed, collected, treated, if required, and discharged in a controlled manner;
- Redirecting clean surface water away from the construction sites;
- Maximizing the reuse of runoff water collected to the extent possible; and
- Minimizing any impact on local groundwater resources.

This plan will include information on Best Management Practices (BMPs) to follow as references or implementation during activities such as watercourses crossing and fording, culverts installation, etc.

The release of soils to surface watercourses is a potential source of contamination during construction, therefore sedimentation and erosion control procedures will be addressed in the Soils Management Plan.

Soils Management Plan

The objectives of this Plan are to describe the necessary steps and procedures to ensure that soils in the Project area are properly handled and protected from contamination and degradation, and that soil erosion is prevented or mitigated to the extent possible; the plan will also include procedures for handling soils that could be potentially contaminated by accidental spills of hydrocarbons or other hazardous materials. Some general soil management objectives include:

- Salvaging and stockpiling soils for potential use during reclamation activities;
- Preventing the degradation of soils through compaction and erosion;
- Preventing the degradation of soil quality; and
- Development of erosion and sediment control measures and procedures to minimize the amount of soils released into local watercourses.

Sketches with typical BMPs to control erosion and sediments releases will be included as part of this Plan.

Flora and Fauna Management Plan

This Plan will establish the procedures to be implemented to prevent or mitigate potential impacts to vegetation, wildlife, and wildlife habitat as a result of construction activities, as well as managing species of concern and wildlife, and preventing the incursion of invasive species on the construction areas.

The greatest potential impact to flora and fauna is anticipated to occur during the construction phase, due to vegetation clearing for the development of Project facilities.

Air Quality and Noise Management Plan

The objectives of this Plan are to ensure that air and noise emissions are managed and controlled in ways that allow achieving acceptable levels of impact to the natural environment and communities directly impacted by construction activities. The Plan will also include measures and procedures for controlling dust that can be generated by access road construction activities, such as excavations, road grading and fills placements and compactions.

Waste Management Plan

This Plan will include procedures to ensure that the collection, storage, transportation and disposal of all wastes generated will be conducted in a safe, efficient and environmentally compliant and sound manner.

The Plan will identify potential waste streams that might be generated during construction of the Project and establish consistent and efficient roles and responsibilities to be undertaken by the various site construction contractors personnel. The intent is to afford a high degree of control over the handling of waste which ultimately will help to minimize adverse environmental effects.

The objectives and targets of the Plan are to:

- Comply with applicable and Project policies and procedures;
- Support waste minimization through reduction, reuse, recycling and recovery practices;
- Prevent or eliminate potential health and safety hazards; and
- Provide procedures for adequate storage, transport and disposal of all wastes.

Since this Plan will likely include several parties involved in key components of waste management such as source separation, collection, transportation, disposal, etc., the roles and responsibilities of each party will be clearly defined to avoid overlaps or gaps. Wastes chain of custody will be controlled through tools such a waste manifest.

Hazardous Materials Management Plan

This Plan will describe the necessary steps to ensure that procurement, transportation, storage, handling, and disposal of hazardous materials for the Project are conducted in a safe, efficient and environmentally sound manner. The Plan will be followed by all construction contractors' personnel performing activities that involve handling hazardous materials.

The following are objectives of this Plan:

- Ensuring that hazardous materials management complies with local, provincial and federal legislation, and applicable Project's policies;
- Protecting all site Project personnel and the public from unnecessary exposure to hazardous materials;
- Establishment of safe work environment for Project personnel, and the surrounding environment and communities; and
- Provide framework to ensure that personnel handling hazardous materials and wastes have been provided with appropriate educational, safety and technical training.

Monitoring Plan

The main objective of the monitoring plan is to obtain information on the quality of emissions created by construction of the Project as well as on the biophysical conditions of the receiving natural environment in order to evaluate anticipated Project impacts and identify unanticipated effects to the environment.

This plan will include aspects such as internal and regulatory monitoring requirements, list of parameters to be measured, monitoring locations and frequencies. Construction-related emissions and environmental components expected to be monitored include effluents quality, flora and fauna, surface water quality, noise levels, etc.

Routine monitoring and inspection activities such as slopes stability, handling of wastes, dust emissions, etc. will be included in each of the corresponding individual management plans.

Archaeological and Cultural Heritage Management Plan

This Plan will be developed to provide actions to be carried out by all Project personnel to ensure that all archaeological and cultural heritage resources are protected during the Project construction phase in order to manage and prevent potential adverse effects on such values.

The objective of this Plan is to ensure that cultural heritage and archaeological resources that could be impacted by construction activities associated with the Project are protected, and to ensure the proper documentation of management of previously identified values or chance findings of archaeological and cultural heritage sites. The main focus of this Plan is to preserve any archaeological and cultural heritage resources that could be found during construction phase activities.

Incidents and Complaints Management Plan

The purpose of this Plan is to reinforce and endorse the importance of all interactions with members of the local communities and other stakeholders as both positive and respectful in order to help minimize incidents and complaints from those communities.

This plan will also describe the ways in which environmental incidents and complaints from the communities are to be handled by the Project to ensure that those communities are not disturbed or interfered with. All contractors will ensure that their employees, who are representing the Project, respect the environments, properties, cultures, customs, traditions and practices of members of local communities.

In addition, the Plan will aim to ensure incidents and complaints are addressed in an efficient and timely manner, and to provide mechanisms for managing and tracking the complaints received with respect to site activities during the construction phase.

Environmental Emergency Response Plan

The objective of this Plan is to provide a predetermined course of actions, responsible personnel and tools necessary to respond to emergency situations arising from environmental incidents, defined as the accidental discharge of solids, liquids or gases that are potentially harmful to the environment.

In the event of an incident, the health and safety of people is the most important consideration and takes precedence over all other considerations. Personnel responding to an environmental incident must first ensure their personal safety and that of others present at the work site.

Anticipated key components of this Plan are:

- Classification of Environmental Incidents;
- Individual roles and responsibilities of all response personnel and organizations;
- Training to be provided to response personnel;
- Response actions and procedures to be followed;
- Internal and external communications;
- Post-Incident Activities such as:
  - Clean-up and Management of Contaminated Materials
  - Incident Reporting; and
  - Root Cause Analysis and Post-Incident Assessment.

5.2.6 Public and Agency Consultation

Introduction

Consultation with interested members of the public and agencies is a fundamental part of the Project planning process. Ontario's *Environmental Assessment Act (*OEAA*)* (R.S.O. 1990, CHAPTER E.18) requires proponents to submit to the Ministry of the Environment (the "Ministry") proposed ToR governing the preparation of an EA for the proposed Project (OEAA, section 6(1)). The OEAA requires proponents to consult with "such persons as may be interested" when preparing the proposed ToR and the EA (OEAA, section 5.1).

The OEAA also requires that the proposed ToR be accompanied by a description of all consultations undertaken by the proponent in preparing the document, and the results of these consultations (OEAA, section 6(3)). Once a ToR has been approved, the proponent can begin preparing an EA in accordance with the approved ToR. A record of consultation must be submitted as part of the ToR. The EA must include a description of any consultation conducted with regards to the proposed Project and report the results of this consultation (OEAA, section 6.1(2)(e)).

The Crown has a common law duty to consult with Aboriginal communities. For the proposed Project, public and agency consultation constitutes a separate line of work, distinct from consultation with First Nations and Métis communities.

This document explains the planned public and agency engagement initiatives for the development of the proposed Project. This Plan excludes First Nations and Métis consultation. A separate and distinguished consultation plan will cover the approach to engaging First Nations and Métis for consultation on the proposed Project.

Purpose and Objectives

The goals of this Plan are as follows:

- Provide meaningful opportunities for the early involvement of interested parties (see definition below) in order to ensure their continued participation throughout all stages of the proposed Project;
- Use a variety of user-friendly methods to provide information, receive feedback, and engage with participants in a consistent and transparent manner;
- Be flexible such that it can be revised in response to issues and concerns that are expressed;
- Incorporate feedback received through consultation activities into decision-making with respect to Project routing, design and schedule, and to help avoid or minimize potential adverse effects and maximize Project benefits; and
- Document consultation (Record of Consultation) and demonstrate how the input of interested parties was used to shape the Project EA.

"Interested parties" generally refers to Aboriginal communities, government agencies, non-governmental organizations (NGOs), chambers of commerce, municipalities, members of the general public, and other public bodies such as conservation authorities. Other interested parties are also likely to come forth and identify themselves throughout the planning and development stages of the Project.

Planned Phases of Engagement

Engagement of interested parties will occur in six phases, assuming a two-year time period from initiation of consultation activities to approval of the EA by the Ministry. Designation of a licensed transmitter is assumed to occur in April, thereby initiating the process. These phases can be characterized as follows:

- Phase 1: Drafting ToR;
- Phase 2: Submission of ToR;
- Phase 3: Commencement of EA;
- Phase 4: Mid-EA update;
- Phase 5: Preparation of EA report; and
- Phase 6: EA submission.

The six phases outlined above will require that the following activities be undertaken at different points in time, utilizing the consultation methods listed in Table 5.

Methods

A variety of tools are available for the sharing of information with interested parties. Table 5 provides a summary of the consultation methods contemplated by the Plan.

Table 5: Consultation Methods

Method	Description of Techniques
Notices	• Notices will be sent to establish and maintain contact with parties who are identified on the stakeholder distribution list as being potentially interested in the Project, as well as to the general public. These include the Notice of Commencement of ToR and Notice of Commencement of EA. • Project Notification Letters will be sent to appropriate provincial and federal government agencies to solicit interest in reviewing the ToR and eventually the EA, and to determine which government agencies are required to review the EA.
Public Information Centre	• Public Information Centres (PICs) will be organized in each of the communities within the study area. Five rounds of PICs will be organized (see details below). These are intended to provide information and opportunities for feedback to a wide range of interested parties. • Five communities are on the preferred route, and it is anticipated that PICs will be held in each community: Thunder Bay, Nipigon, Terrace Bay (Schreiber is ~15 minutes away), Marathon and Wawa. White River is not on the preferred route, but it may be depending on the position taken by Parks Canada on Pukaskwa National Park. If on the preferred route, White River will have to be added to the list of PIC locations.
Display Board Exhibits	• Display Board Exhibits such as maps and text boards will be utilized as a visual presentation aid during PICs and agency meetings to aid in information exchange.
Newspapers	• Announcements in local newspapers are an important means of communicating with the public in small, rural municipalities. Public Announcements (including with respect to Notice of Commencement of EA) and notifications of PICs will be publicized in local/regional media, including: o Marathon Mercury (Marathon) o Nipigon-Red Rock Gazette (Nipigon) o The Algoma news (includes Wawa and White River) o The Chronicle-Journal (Thunder Bay)

Method	Description of Techniques
	o The Terrace Bay – Schreiber News (includes Terrace Bay and Schreiber)
Printed Material	• Newsletters, Project description fact sheets, comment sheets, and other printed notification material will be distributed during PICs. As well, the printed material will be sent to all stakeholders on the initial stakeholder distribution list as well as to stakeholders who register their interest at any later stage.
Radio Stations	• Local radio stations will be used to notify the public of milestone events, such as notification of EA commencement and notification of submission of EA. The following radio stations could be used: o CBC Radio One (Marathon) – CBLM – 1090 AM o CBC Radio One (Nipigon) – CBQY-FM – 98.9 FM o CBC Radio One (Schreiber) – CBLB – 1340 AM o CBC Radio One (Terrace Bay) – CBEH – 1010 AM o CBC Radio One (Thunder Bay) – CBQT-FM – 88.3 FM o CBC Radio One (Wawa) – CBLF-FM – 88.3 FM
Established Communication Channels	• A contact email address, telephone, and fax number will be provided for interested parties to use for communicating feedback or soliciting Project information.
SustainNet – Staketracker tool	• Enables Project team to maintain and manage a repository of information with regards to stakeholders and generate consultation reports at different points in the EA process.
SustainNet - Engagement HQ (Website)	• An Internet website will be developed so that all interested parties will be able to access Project information, updates, schedules, and other relevant data. Interested parties will also be able to submit comments and feedback with respect to the Project on the website. • A discussion forum will be included where stakeholders may freely and openly participate in dialogue with regards to specific Project issues.

Phase 1: Drafting Terms of Reference (April – June 2013)

Under OEAA, a ToR will be prepared and submitted to the Ministry before an EA is undertaken. The ToR is essentially a document setting out the Project proponent's work plan for how it intends to address OEAA requirements. Once it is approved by the Ministry, the EA must be prepared in accordance with the approved ToR. The ToR must comply with the requirements of OEAA, one of which is that the ToR must be accompanied by a record of consultation undertaken with the public and governmental agencies.

Stakeholder Distribution List

Upon designation of a licensed transmitter by the OEB, the Project team will develop an initial stakeholder distribution list of interested parties using its knowledge of the Thunder Bay and surrounding areas, background research, advice from regulators and local chambers of commerce, and local knowledge. This list is a living document and will be added to as consultation on the Project moves forward and additional parties come forth to identify their interest in the Project.

Agency Consultation Package

A consultation package will accompany the request to the appropriate federal, provincial and municipal governments and conservation authorities for input on the stakeholder distribution list. The package will also contain a Project description, information on the main route and alternate routes, approximate timelines, and the proponent's contact information. Sending this initial package and requesting input on the Project as well as the stakeholder distribution list will initiate dialogue with government agencies that will be sustained through emails, letters and phone calls. As well, the proponent will organize multi-agency meetings on a regular basis in order to receive government input and to ensure that government agencies' knowledge of the Project development process is kept updated throughout the EA process.

Notice of Commencement of ToR

Upon receipt of feedback/input from government agencies, a Notice of Commencement of ToR will be distributed to everyone on the updated stakeholder distribution list. The Notice will contain information including:

- Proponent name, contact person, address, phone number, fax number, e-mail address;
- Brief description of the purpose of the EA study (opportunity being examined);
- Statement identifying whether undertaking is in the ToR or the EA stage;
- Study area map; and

- How members of the public, government agencies, and other interested persons could participate in the Project planning process, including an invitation to submit comments through a Project website.

An invitation will also be provided to attend PIC #1, accompanied by event details.

Invitation to PIC #1

In addition to the notification provided in the Notice of Commencement of ToR, information on PIC #1 will also be published in the newspapers mentioned in Table 5 above. Invitations to consultation events will include the following information:

- Proponent name, contact person, phone number, fax number;
- A brief description of the proposed undertaking and where possible, how it relates to or is part of the existing development in the area;
- Purpose/objective of the consultation event;
- Location(s) and time(s) of the consultation event; and
- A map that identifies/locates consultation event and the study area, where possible.

PIC #1

As previously mentioned, PICs will be held in the 5 or 6 communities that would be potentially impacted by development of the Project, depending on the route chosen. Five rounds of PICs are being contemplated at this point. The format for PIC #1 will be as follows:

- PowerPoint presentation by the Project team that will:
  - Describe the proposed Project;
  - Present the preferred route and alternate routes;
  - Solicit public feedback/input and questions on the route and the alternatives; and
  - Outline next steps in the Project development and public consultation process;
- Question and answer session to give interested parties the opportunity to comment or make enquiries with regards to the Project;
- Open house where interested parties may view display boards and maps which present information on the Project and enable discussion with the Project team on the EA process.

Comment sheets will also be distributed at the PIC registration desk to be filled out at the PIC or to be sent in by mail, email or fax at a later date.

Following PIC #1, a summary report will be written that records information about the PIC, such as the names of the Project team members who attended, purpose of the PIC, method of notification used,

format of the meeting (e.g. sign-in, comment form provided, Project information displayed, whether attendees were able to ask questions of the Project team members present, participation levels, summary of comments received, discussion of next steps etc.). Following PIC #1, the Project team will also work collaboratively to respond to public comments in a timely fashion.

Prepare Draft ToR

The draft ToR will then be prepared in accordance with the requirements of *OEAA* and other guidance documents. While the OEAA does not provide detailed guidance on what is to be included in the ToR, the Ministry expects the ToR to discuss the following matters, as applicable:

- Proponent's identity;
- How the EA will be prepared;
- Purpose of the undertaking;
- Description of and rationale for the undertaking;
- Description of and rationale for alternatives;
- Description of the existing environment and potential effects of the undertaking;
- Assessment and evaluation;
- Comments and monitoring;
- Consultation plan for the EA;
- Flexibility to accommodate new circumstances; and
- Any other approvals required.

While drafting the ToR, discussions will take place with the Ministry Project Officer assigned to the Project in order to get feedback.

Newsletter #1

Interested persons will be consulted during ToR preparation. This will be accomplished by sending a Newsletter to everyone on the updated stakeholder distribution list. Newsletter #1 will provide a summary of the subject matter covered at PIC #1, notify interested parties of upcoming PIC #2 (see section immediately below for information that must be included in invitations to consultation events), and include a copy of the draft ToR along with details on how to submit comments on the draft.

Invitation to PIC #2

In addition to notification provided in Newsletter #1, information on PIC #2 will also be published in the newspapers mentioned in Table 5 above.

Invitations to consultation events will include the following information[2]:

- Proponent name, contact person, phone number, fax number;
- A brief description of the proposed undertaking and where possible, how it relates to or is part of the existing development in the area;
- Purpose/objective of the consultation event;
- Location(s) and time(s) of the consultation event; and
- A map that identifies/locates consultation event and the study area, where possible.

Phase 2 : Submission of Terms of Reference (August – November 2013)

PIC #2

As previously mentioned, PICs will be held in the 5 or 6 communities that would be potentially impacted by development of the Project, depending on the route chosen. Five rounds of PICs are being contemplated at this point. The format for PIC #2 is as follows:

- PowerPoint presentation that will:
  - Outline the Project scope of work and timing;
  - Reiterate the preferred route and alternate routes;
  - Potential issues and concerns;
  - Solicit public feedback/input and questions on the route, the alternatives and the draft ToR; and
  - Outline next steps in the Project development and public consultation process;
- Question and answer session to give interested parties the opportunity to comment or make enquiries with regards to the Project; and
- Open house where interested parties may view display boards and maps which present information on the Project and enable discussion with the Project team on the EA process.

Comment sheets will also be distributed at the registration desk to be filled out at the PIC or to be sent in by mail, email or fax. As was the case for PIC #1, a summary report will be prepared to document PIC #2.

[2] *Code of Practice, Consultation in Ontario's Environmental Assessment Process* (June 2007), pg. 18.

Over the days following PIC #2, members of the Project team will work collaboratively to respond to comments received at and in the days following PIC #2.

Agency Meeting

At this point, a multi-government agency meeting will be organized in order to solicit feedback on route refinements and evaluation methods used in the routing process. This meeting will likely be held in Thunder Bay and it is anticipated that both AOLP and SNC-Lavalin employees will be present at this meeting in order to present information to and engage in discussion with the agencies.

Newsletter #2

Newsletter #2 will be sent to everyone on the stakeholder distribution list at this point. Newsletter #2 will summarize the subject matter covered at PIC #2, provides notification of upcoming PIC #3 (see section immediately below for information that must be included in invitations to consultation events) and, if the agency-wide meeting has already taken place at this point, will mention potential route refinements for the transmission line.

Invitation to PIC #3

In addition to notification provided in Newsletter #2, information on PIC #3 will also be published in the newspapers mentioned in Table 5 above.

Invitations to consultation events will include the following information:

- Proponent name, contact person, phone number, fax number;
- A brief description of the proposed undertaking and where possible, how it relates to or is part of the existing development in the area;
- Purpose/objective of the consultation event;
- Location(s) and time(s) of the consultation event; and
- A map that identifies/locates consultation event and the study area, where possible.

Submission of ToR

The Ministry Project Officer will be notified at least three weeks before the Project team intends to formally submit the ToR; this allows for a firm submission date to be established. Based on public and agency feedback received, the ToR shall be finalized and submitted to the Ministry in both hard copy format and electronic format. It shall include a cover letter addressed to the Director of the Environmental Assessment and Approvals Board (EAAB) stating that the proposed ToR is being formally submitted, as

well as a ToR Summary Form. Copies of the proposed ToR will be distributed by the Ministry Project Officer to the Ministry's technical review team and interested Aboriginal communities.

The ToR submission includes the Record of Consultation undertaken (in a separate volume), including consultation undertaken with Aboriginal communities. If submitted as one document and not as separate volumes, the cover letter to the EAAB Director should clearly state that it is only the ToR that is being submitted for the Minister's approval. The Record of Consultation will:

- Identify all persons consulted during the ToR preparation (personal names not required) and how they were identified;
- Describe the consultation activities which took place (methods, schedule of events, notification that was given about the activity and materials used);
- Describe how interested Aboriginal communities were identified and how they were consulted;
- Clearly and accurately summarize the comments made by all interested persons during the preparation of the ToR;
- Describe the proponent's response and how concerns were considered in the development of the ToR;
- Describe any outstanding concerns;
- Include minutes of any meetings held with interested persons; and
- Include copies of written comments received from interested persons.

Notice of Submission of ToR

A Notice of Submission shall be distributed to everyone on the stakeholder distribution list and shall also be published in the local newspapers mentioned in Table 5.

For Notifications of Submission (ToR or EA), minimum information that proponents must include are:

- Proponent name, contact person, address, phone number, fax number, and e-mail address;
- Ministry and Branch name, Branch contact person, phone number;
- Listing of public record locations and available times for the public to review either the ToR or the EA, which in this case are as follows:
  - EAAB – It is the EAAB that solicits input on the ToR from government agencies and thus coordinates Ministry review of the ToR.
    - Floor 12A, 2 St. Clair Ave West, Toronto, ON M4V 1L5
  - Ministry of the Environment - Thunder Bay District Office
    - Suite 331, 435 James Street South, Thunder Bay, ON P7E 6S7
  - Nipigon Public Library
    - 52 Front Street, Box 728, Nipigon, ON P0T 2J0

- Schreiber Public Library
  - 314 Scotia Street, Schreiber, ON P0T 2S0
- Terrace Bay Public Library
  - 13 Selkirk Avenue, Terrace Bay, ON P0T 2W0
- Thunder Bay City Hall
  - 500 Donald St. E., Thunder Bay, ON P7E 5V3
- Thunder Bay Municipal Office
  - 3rd Floor, 500 Donald Street East, Thunder Bay, ON P7C 5K4
- Waverley Resource Library
  - 285 Red River Road, Thunder Bay, ON P7B 1A9
- Wawa Public Library
  - 40 Broadway Ave., P.O. Box 1730, Wawa, ON P0S 1K0
- Marathon Public Library
  - 22 Peninsula Road, P.O Box 400, Marathon, ON P0T 2E0

- A brief description of the purpose of the EA study (identify the opportunity being examined). Where appropriate, also include a brief description of the Project and how it relates to or is part of the existing development in the area;
- A map that identifies or locates the study area;
- Statements indicating that:
  - An application for approval under the OEAA has been made to the Ministry;
  - A government and public review has been initiated and the length of the review period;
  - The date that comments are to be submitted to the Branch contact.
  - Where concerns have not been adequately addressed, requests for mediation may be made.
  - All records held by the ministry are subject to the public right of access (complying with Freedom of Information and Protection of Privacy Act requirements).
  - A brief statement that indicates that any submission from interested persons, including Aboriginal communities and government agencies, including any personal information contained therein, will be maintained as part of a record available to the public.

The Notice will also specify how the public might comment on the ToR.

Phase 3: Commencement of Environmental Assessment (November 2013)

Notice of Commencement of EA, Newsletter #3

The Ministry will make its decision to approve or reject the ToR within 12 weeks of receiving the ToR (O. Reg. 616/98). After this has taken place, a Notice of Commencement of EA will be published in the local newspapers listed in Table 5 and through radio announcements on the stations detailed in Table 5.

As with the Notice of Commencement of ToR, minimum information that must be provided in the Notice of Commencement of EA is as follows:

- Proponent name, contact person, address, phone number, fax number, and e-mail address;
- A brief description of the purpose of the EA study (identifying the opportunity being examined);
- Statement identifying whether undertaking is in the ToR or EA stage; and
- A study area map.

In addition to placements in newspapers and radio advertisements, this Notice will also be sent to everyone on the stakeholder distribution list along with Newsletter #3, which will mention the preceding ToR approval and upcoming PIC #3, which has already been advertised in local newspapers and Newsletter #2).

PIC #3

As previously mentioned, PICs will be held in the 5 or 6 communities that would be potentially impacted by development of the Project, depending on the route chosen. Five rounds of PICs are contemplated. The format for PIC #3 is as follows:

- PowerPoint presentation that will:
  - Reiterate Project scope of work;
  - Provide an update on Project status and timelines;
  - Reiterate preferred route and alternate routes;
  - Present potential issues/concerns;
  - Present findings from environmental studies conducted to date;
  - Solicit public feedback/input and questions on the proposed transmission corridor; and
  - Outline next steps in the Project development and public consultation process;
- Question and answer session to give interested parties the opportunity to comment or make enquiries with regards to the Project; and
- Open house where interested parties may view display boards and maps which present information on the Project and enable discussion with the Project Team on the EA process.

Comment sheets will also be distributed at the registration desk to be filled out at the PIC or to be sent in by mail, email or fax. As was the case for PICs #1 and #2, a summary report will be prepared to document PIC #3.

Over the days following PIC #3, members of the Project team will work collaboratively to respond to comments received at and following PIC #3.

Phase 4: Mid-environmental Assessment Update (February 2014)

Newsletter #4

Newsletter #4 will be sent to everyone on the stakeholder distribution list, and will again discuss ToR approval and commencement of the EA, as well as summarize the results of PIC #3, and provide details on the upcoming PIC #4 (see section immediately below for information that must be included in invitations to consultation events).

Invitation to PIC #4

In addition to notification provided in Newsletter #4, information on PIC #4 will also be published in the newspapers mentioned in Table 5 above.

Invitations to consultation events will include the following information:

- Proponent name, contact person, phone number, fax number;
- A brief description of the proposed undertaking and where possible, how it relates to or is part of the existing development in the area;
- Purpose/objective of the consultation event;
- Location(s) and time(s) of the consultation event; and
- A map that identifies/locates consultation event and the study area, where possible.

PIC #4

As previously mentioned, PICs will be held in the 5 or 6 communities that would be potentially impacted by development of the Project, depending on the route chosen. Five rounds of PICs are contemplated. The format for PIC #4 is as follows:

- PowerPoint presentation that will:
  - Provide an update on Project status and timelines;
  - Present findings on environmental studies done to date;
  - Present route refinement options;
  - Present information on preliminary access roads and tower locations;
  - Solicit public feedback/input and questions on the route refinement and proposed infrastructure locations; and
  - Outline next steps in the Project development and public consultation process;
- Question and answer session to give interested parties the opportunity to comment or make enquiries with regards to the Project; and

- Open house where interested parties could view display boards and maps which present information on the Project and enable discussion with the Project Team on the EA process.

Comment sheets will be distributed at the registration desk to be filled out at the PIC or to be sent in by mail, email or fax. As was the case for PICs #1, #2, and #3, a summary report will be prepared to document PIC #4.

Over the days following PIC #4, members of the Project team will work collaboratively to respond to comments received at and following PIC #4.

Newsletter #5

Newsletter #5 will then be sent to everyone on the stakeholder distribution list; this publication will present a Project update, the results of PIC #4, information on land acquisition matters, and details of upcoming PIC #5 (see section immediately below for information that must be included in invitations to consultation events).

Invitation to PIC #5

In addition to notification provided in Newsletter #5, information on PIC #5 will also be published in the newspapers mentioned in Table 5 above.

Invitations to consultation events will include the following information:

- Proponent name, contact person, phone number, fax number;
- A brief description of the proposed undertaking and where possible, how it relates to or is part of the existing development in the area;
- Purpose/objective of the consultation event;
- Location(s) and time(s) of the consultation event; and
- A map that identifies/locates consultation event and the study area, where possible.

Phase 5: Preparation of Environmental Assessment Report (August 2014)

PIC #5

As previously mentioned, PICs will be held in the 5 or 6 communities that would be potentially impacted by development of the Project, depending on the route chosen. Five rounds of PICs are contemplated. The format for PIC #5 is as follows:

- PowerPoint presentation that will:
  - Provide an update on Project status and timelines;

  - Present update on EA findings, effects and mitigation steps;
  - Provide update on land and property acquisition, approvals and next steps;
  - Solicit public feedback/input and questions on the information presented; and
  - Outline next steps in the Project development and public consultation process;
- Question and answer session to give interested parties the opportunity to comment or make enquiries with regards to the Project; and
- Open house where interested parties could view display boards and maps which present information on the Project and enable discussion with the Project Team on the EA process.

Comment sheets will be distributed at the registration desk to be filled out at the PIC or to be sent in by mail, email or fax. As was the case for all preceding PICs, a summary report will be prepared to document PIC #5.

Over the days following PIC #5, members of the Project team will work collaboratively to respond to comments received at and following PIC #5.

Draft EA

An EA draft document will be prepared that will essentially outline the Project, alternatives identified by the proponent, evaluation of these alternatives including their environmental effects, impact mitigation and management measures, and the consultation record. The results of environmental studies and public comments will be integrated into the draft EA document and will also be incorporated as part of the Project planning process. Some comments will involve revising text in the draft EA while others will not require such revision. Where public concerns are not incorporated, an explanation will be written and included as part of the consultation record. Either way, the EA document will detail how issues and concerns identified by the public and agencies were considered in the completion of the EA or how the issues would be addressed in any subsequent licensing processes.

In addition to documenting the proponent's planning process, the EA will include other elements, such as:

- Executive Summary (Brief summary of main points of document);
- List of Studies and Reports;
- Approved ToR Requirements;
- Identification of the Proponent;
- Commitments and Monitoring (Monitoring framework that will be carried out if Project is approved by Minister, including compliance monitoring, which is an assessment of whether the Project has been constructed, implemented and/or operated in accordance with EA commitments and approval);

- Other Approvals;
- Consultation Summary; and
- Appendices.

Notably, the Consultation Summary will include:

- Comprehensive description of consultation activities undertaken (including methods used, schedule of events, notification provided, and materials used);
- Identification of all persons consulted with during EA preparation (personal names not required) and how they were notified;
- Description of how interested Aboriginal communities were identified and consulted with;
- Summary of comments and concerns raised during consultation events and during EA preparation in general – in table format, organized by subject matter;
- Description of proponent's response to comments and how concerns were considered during EA preparation – in table format, organized by subject matter;
- Description of outstanding concerns;
- Minutes from meetings held with interested persons; and
- Copies of written comments received from interested persons.

The EA may also include a plan for ongoing consultation during construction, operation and/or decommissioning/closure, if appropriate.

Phase 6: Submission of Environmental Assessment (September 2014 – April 2015)

EA Submission and Notification to Public

The Ministry Project Officer will be notified at least three weeks before the Project team intends to formally submit the EA; this allows for a firm submission date and review period start date to be established. After the allotted period, the Project team will submit the EA to the Ministry for formal public and government review, and ultimately a decision with regards to approval of the Project. This submission will be made in both hard copy and electronic format, and will include a cover letter addressed to the Director of the EAAB stating that the EA is being formally submitted and an EA Summary form.

Within two weeks of the Ministry receiving the EA, the Project team will notify the public of EA submission (O. Reg. 616/98); such Notice will be sent to everyone on the stakeholder distribution list. As well, this notification will be published in the newspapers mentioned in Table 5 above.

As was the case with the ToR, minimum information that proponents must provide with regards to the Notice of Submission of EA includes:

- Proponent name, contact person, address, phone number, fax number, and e-mail address;
- Ministry and Branch name, Branch contact person, phone number;
- Listing of public record locations and available times for the public to review either the ToR or the EA, in this case including:
  - EAAB
    - Floor 12A, 2 St. Clair Ave West, Toronto, ON M4V 1L5
  - Ministry of the Environment - Thunder Bay District Office
    - Suite 331, 435 James Street South, Thunder Bay, ON P7E 6S7
  - Nipigon Public Library
    - 52 Front Street, Box 728, Nipigon, ON P0T 2J0
  - Schreiber Public Library
    - 314 Scotia Street, Schreiber, ON P0T 2S0
  - Terrace Bay Public Library
    - 13 Selkirk Avenue, Terrace Bay, ON P0T 2W0
  - Thunder Bay City Hall
    - 500 Donald St. E., Thunder Bay, ON P7E 5V3
  - Thunder Bay Municipal Office
    - 3rd Floor, 500 Donald Street East, Thunder Bay, ON P7C 5K4
  - Waverley Resource Library
    - 285 Red River Road, Thunder Bay, ON P7B 1A9
  - Wawa Public Library,
    - 40 Broadway Ave., P.O. Box 1730, Wawa, ON P0S 1K0
- A brief description of the purpose of the EA study (identify the opportunity being examined). Where appropriate, also include a brief description of the proposed undertaking and how it relates to or is part of the existing development in the area;
- A map that identifies or locates the study area;
- Statements indicating that:
  - An application for approval under the Environmental Assessment Act has been made to the ministry.
  - A government and public review has been initiated and the length of the review period.
  - The date that comments are to be submitted to the Branch contact.
  - Where concerns have not been adequately addressed, requests for mediation may be made.
  - All records held by the ministry are subject to the public right of access (complying with Freedom of Information and Protection of Privacy Act requirements).

- A brief statement that indicates that any submission from interested persons, including Aboriginal communities and government agencies, including any personal information contained therein, will be maintained as part of a record available to the public.

The Notice will also specify how interested parties might comment on the ToR.

Public Comment

The Ministry is tasked with coordinating review of this document. The public has seven weeks (O. Reg. 616/98) to comment on the EA document and the Project team may revise the EA anywhere during this time before the Ministry review is complete.

Ministry Review

After this step, Ministry staff writes a review of the EA document (the "Ministry Review"). Among other things, the Ministry Review includes an assessment of all public, Aboriginal community, and government comments submitted during the seven-week comment period, as well as the proponent's response to said comments. The Ministry Review will also discuss how the proponent has complied with its approved ToR and satisfied the requirements of the OEAA. The Ministry Review must be published in five weeks (O. Reg. 616/98). The Ministry will issue a Notice of Completion of Ministry Review to inform the public that the Ministry's review has been completed; this Notice may be published in local newsletters or distributed via mail. The Notice provides the public with one last chance to comment on the proposed Project, the EA, and the Ministry Review.

Public Review of Ministry Review

The public and government agencies will have five weeks to inspect and comment on the Ministry Review (O. Reg. 616/98). Anyone, including the Proponent, may write to the Ministry identifying outstanding issues and suggestions for resolution or request a hearing.

Ministry Decision

The Minister has thirteen weeks (O. Reg. 616/98) to make a decision after the five-week comment period ends on the Ministry Review, and will consider all comments before making a decision. The Minister may refer the Project to mediation, refer it to the environmental review tribunal for a hearing, or make a decision to approve, approve with conditions, or refuse the EA.

Newsletter #6

At this time, Newsletter #6 will be sent to everyone on the stakeholder distribution list; this publication will provide an update on and summary of the EA and the Notice of Completion of EA, which will be prepared by the EAAB Project Officer and signed by the EAAB Director.

5.2.7 Socio-Economic

Purpose

The East West Tie will contain a socio-economic environment component to the study. The purpose of the socio-economic component is to understand the current social and economic conditions in the East West Tie Project area. Based on the current characteristics, the socio-economic environment study will contain an effects assessment to evaluate any potential effects the Project may have on the socio-economic environment.

Below is a description of our approach to the socio-economic environment study and key task associated with the study.

Approach to Data Collection

Socio-economic information for different spatial levels will be gathered - local, regional, and provincial. Information on the local setting is essential to ascertain the site-specific impacts of the proposed developments. Meanwhile, information on the regional and provincial development context allows for consideration of the wider economic and social impacts, for example contribution to regional economic development, improvement in labour forces skills, effect on population structure and impact on demand for services.

Information will be collected through desk-based research. This includes research, review, and documentation of existing and available information from publicly available sources such as government databases (e.g., Statistics Canada and Ontario Stats); published literature; and public and unpublished reports. Data were also gathered from various government agencies (federal, provincial, and municipal), regional and community organizations, and individuals through their respective websites or by phone. GPS coordinates will be collected of key facilities, service areas, and infrastructure such as roads, railways, airports and recreations trails and mapped. These maps in combination with secondary data will feed into the socio-economic baseline study and utilized for an assessment of Project related impacts.

Socio-economic Data Components

When describing the baseline socio-economic conditions of a study area, numerous elements are considered to capture the inter-dependent nature of its social and economic aspects. The East-West Tie

Transmission Line ToR provides a detailed overview of factors to be examined within the socio-economic study, while Table 6 summarizes key elements considered during data collection.

Table 6: Key Elements during Data Collection

Information Component	Description
Geo-historical Context	Location, history, and other relevant information pertaining to study communities.
Cultural Context	Cultural aspect of a community and societal values
Population	Population profile including demographics and migration patterns
Governance	Governance structure and political context
Economy and Employment	Local and regional economies, economic drivers, and trends. Labour force, including employment and unemployment rates, employment sectors, and challenges to employment
Land	This will cover an analysis of types of land use: commercial, industrial, Aboriginal land, settlement areas, recreational, agriculture, settlements A review of historical land use in comparison to present day use, proposed future use of land
Education	Education levels, literacy levels, educational institutions, programs, and services and associated issues/gaps/challenges
Human Health	Human Health indicators, including fertility and mortality rates, life expectancy, and recorded occurrences of various illnesses/diseases, such as diabetes, tuberculosis, influenza, sexually transmitted diseases/infections, and suicide. Overview of health issues and services within the community (there is often a relationship between social and health issues, as well as between the quality/availability of services and the number/severity of reported issues).
Social indicators	Social indicators including substance misuse, domestic and peer violence, crime, vandalism, dangerous and anti-social behaviors, and associated potential years of life lost (PYLL). Overview of social issues and services within the community.
Community and Intuitional Services	Infrastructure such as health, education, social, and municipal services and programs, including areas of demand and gaps in existing services within each community.
Emergency and Protection	Police, fire, ambulance, and other protective services available to the communities.
Infrastructure	Utilities, transportation, and communication infrastructure and systems available to the community, including housing quantity, quality, and costs

Data Limitations

The socio-economic baseline study contains data limitations outside the control of the study. These include:

- Statistics tend to rely on one source: census data from Statistics Canada for 2001 and 2006. Ontario Stats and other provincial, municipal, and private sources of data use Statistics Canada Census data for analyses.
- Census statistical information is sometimes limited, especially for the smaller, rural communities and reserves because of confidentiality clauses around published data on personal information.
- Local Health Areas (LHAs) are the smallest government generated data aggregate of analysis. These aggregates usually represent multiple communities. Additionally, LHA data were often not available for small study communities. Because of the small size of most study communities and related confidentiality concerns, most of the socio-economic data available have been rounded, aggregated, and/or masked. As a result, differences between the communities may be either over- or under-estimated.
- Data that are not current. For instance, the Ontario economy has changed significantly over the past five to ten years. There has been significant economic uncertainty with the global market downturn in the fall of 2008.
- Variance in geographical and statistical definitions across information sources.
- Data inconsistency within regional subdivisions of the province.

Key Tasks

Develop Community Profiles

Community profiles shall be developed to describe current social, economic, political and cultural conditions and climate of each of the 15 First Nation communities in consideration of all direct and indirect impacts of the Project. These community profiles will be a desktop study that will draw upon various secondary information sources such as Federal and Provincial government sources as well as community websites to obtain current social and economic conditions of the communities.

Review and Mapping of Community and Regional Services and Infrastructure

Thorough a review of secondary documentation we will generate a list of all community services facilities, and infrastructure available locally and regionally. We will confirm locations of these services and facilities on subsequent field visits and then create maps that have all key locations marked.

Inventory and Mapping of Existing Land Use and Approved Developments

An inventory of all types of land use will be developed based on available secondary data, a review of approved and draft Official Plans, consultation with key officials, field visits, and a review of existing maps. Information collected in through the TEK/TLU study will also be incorporated into the inventory. Once an inventory is complete all land use designations will be mapped.

Economic Analysis and Modeling

An economic analysis will be conducted and will be directly related to the socio-economic baseline study. Modeling will be conducted to determine the impact of a number of scenarios would have on the communities in the Study Area. The modeling exercise will predict possible socio-economic impacts from which the Project Team will evaluate negative impacts and benefits of the proposed development.

Monitoring and Following-Up Program

Monitoring and following-up programs will be developed based on the mitigation measures prescribed for potential environmental impacts as a result of the Project. These programs will compare pre-Project baseline conditions to projected or predicted conditions as a result of construction and operation of the Project.

6.0 ENVIRONMENTAL ASSESSMENT SCHEDULE

Table 7: Environmental Assessment Schedule

Task	2012			2013				2014				2015	
	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun
OEB Request for Filing													
Prepare submission for Filing													
OEB designates a Transmitter March 1, 2013													
Ontario Individual Environmental Assessment (IEA)													
Preparation of Draft Terms of Reference (ToR)													
Public Consultation													
Send Draft ToR to government for comments													
Undertake EA Field Studies													
Formal Submission of ToR													
Government and Public Review of ToR													
Minister of Environment makes decision on ToR													
Prepare Draft IEA document													
Submit Draft IEA for government review													
Formal IEA submission for Government and public review													
Address reviews from Government and public													
Notice of IEA completion and Ministry review													
Address any outstanding issues													
Public inspection of Ministry review													
Government Recommendation to Minister and subsequent Ministerial decision													

7.0 REFERENCES

Collins, J., Conant, R., Peterson, R., Conant, I. 1998. A field guide to reptiles and amphibians: Eastern and Central North America. Fourth Edition. Houghton Mifflin Harcourt: USA

Fisheries and Oceans Canada (DFO). 2010. Guide to the Risk Management Framework for DFO Habitat Management Staff Practitioners. Version 1.0. 26 pp.

Government of Canada. 2011. Species at Risk Public Registry. http://www.sararegistry.gc.ca Accessed: August, 2012

Kendell, K. 2002. Survey protocol for the northern leopard frog. Alberta Species at Risk Report #43. Edmonton, Alberta. 30 pp

MacCulloch, R. 2002. The ROM field guide to amphibians and reptiles of Ontario. McClelland and Stewart: Canada

Ontario Ministry of Natural Resources. 2009. Species at Risk in Ontario (SARO) List. 2009. http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/276722.html (Accessed: August, 2012)

Ontario Ministry of Natural Resources. 2010. Ontario Biodiversity Explorer.

https://www.biodiversityexplorer.mnr.gov.on.ca/nhicWEB/mainSubmit.do (Accessed: August 2012)

Stanfield, L. (editor). 2010. Ontario Stream Assessment Protocol. Version 8.0. Fisheries Policy Section. Ontario Ministry of Natural Resources. Peterborough, Ontario. 376 pp

Ranta, W.B. 1998. *Selected Wildlife and Habitat Features: Inventory Manual.* Ont. Min. Nat. Res., Queens Printer for Ontario. Toronto ON., 215 pp.

Uhlig, P., A. Harris, G. Craig, C. Bowling, B. Chambers, B. Naylor and G. Beemer. 2001. Old growth forest definitions for Ontario. Ont. Min. Nat. Res., Queens Printer for Ontario. Toronto, On. 53 p.

8.0 OUR PROJECT TEAM

The Environmental Assessment process will be managed by SLI (Environment Division) and undertaken in coordination with technical support SLI Transmission and Distribution. All team members are experienced in working as a team. The experience and capabilities of key team members are provided elsewhere in the submission. Detailed CVs are available on request.

Stephen Lindley — **Project Director/Principal**

Stephen Lindley is corporate Vice President of Aboriginal and Northern Affairs, Director of the SNC-Lavalin Environment Group, and Manager of the Environmental Assessment and Planning Department. Mr. Lindley has over twenty years of experience in the environmental field working with international, domestic and First Nations clients. His technical expertise includes permitting and approvals, multidisciplinary environmental assessment, environmental management planning, public and regulator consultation, policy development/review, expert testimony and project management for small and large environmental projects.

Alan Hayton — **Senior Project Advisor**

Mr Alan Hayton is a Senior Project Manager with 37 years experience in ecology, toxicology, risk assessment, risk communication, regulatory guideline development, project management and environmental assessment. Alan has prepared numerous government, industry and peer reviewed scientific reports and documents on a wide range of environmental and project management topics.

Karola Tóth — **Study Coordinator and Environmental Management Plans**

Ms. Karola Tóth is the Manager of the Environmental Engineering and Technical Services Group. Ms. Toth is an Environmental Scientist with over 10 years of experience in all aspects of the environmental data analysis and reporting and 8 years' experience in conducting environmental assessments and environmental planning for mining and other infrastructure projects. She has carried out environmental co-ordination and management for several mining projects during their engineering design phases. Ms. Toth has also considerable experience with environmental permitting and approvals and environmental management plan development.

Angela Brooks — **Natural Environment Study Coordinator**

Angela Brooks is an Environmental Planner/Aquatic Biologist with 14 years of experience in fisheries biology, environmental planning, assessment, permitting and overall project management. Ms. Brooks has an extensive fisheries background that is used to undertake aquatic and fish habitat assessments and the development of fish habitat compensation plans/strategies. Ms. Brooks has also completed species-at-risk assessments for birds, mammals and fish. In addition, she has extensive knowledge of North American birds and can identify by sight and sound and has conducted breeding bird and point count surveys. Ms. Brooks has contributed to Provincial and Municipal Class EAs and Federal EAs for mining, power, transportation and other infrastructure projects. Planning work has involved identification

and analysis of alternatives, public consultation, and identification of mitigation measures to address potential adverse environmental effects from developments.

James Harris — **Terrestrial and GIS Study Coordinator**

James Harris is a Terrestrial Field Biologist and a Geographic Information Systems (GIS) Analyst. He has considerable experience in Field Biology studies with 15 years' experience in field program design, species inventories (all zones in Ontario), comparative biological analyses and quantitative feature analysis. His experience includes taxonomic field identification and delineation of biological features and data compilation and interpretation of biological features for biological analyses and impact assessment. He also has experience in impact mitigation and remediation design, and has served as a liaison with regulatory agencies and client contacts. He has co-authored/authored many EIA reports. His role as a terrestrial biologist is often well complemented by his dual role as Geographical Information Systems (GIS) Specialist in the analysis and presentation of spatially-related data. He previously served this dual function as terrestrial ecologist and GIS analyst for the Western James Bay Transmission Line Corridor EA for Five Nations Energy Inc.

Shilpa Tiwari — **Manager, Community and Social Services**

Shilpa Tiwari is Group Manager, Communities and Social Performance. Ms. Tiwari is a Senior Social Scientist with over 12 years' experience in a variety of domestic and international assignments, including management/coordination of multidisciplinary studies, international ESIAs, field studies, impact management, mitigation and stakeholder consultation and resettlement planning, local procurement and workforce development.

Luke Dalla Bona (Contractor –Woodland Heritage Services) — **Archaeology and Built Heritage**

Luke Dallabona is President – Woodland Heritage Services (Sault Ste. Marie, New Liskeard, Ontario) – a full cultural heritage services firm. Prior to joining Woodland Heritage, he was a Cultural Heritage Research Scientist with the Ontario Ministry of Natural Resources responsible for maintaining, upgrading and refining the MNR's archaeological predictive modeling program for use in forest management planning; responsible for the ongoing application and revision of the Forest Management Guidelines for the Protection of Cultural Heritage Resources. He is responsible for developing and implementing cultural heritage policy in relation to land use planning – specifically in forest management.

Allan G. Harris (Contractor – Northern Biosciences) — **Aquatic Biology, SAR and Caribou Biology**

Al Harris is a biologist working in northern Ontario since 1984. After spending seven years as a biologist with Ontario Ministry of Natural Resources, he co-founded Northern Bioscience, an ecological consulting company based in Thunder Bay, Ontario.

He has conducted life science inventory in over 60 protected areas in northern Ontario, 27 wetland evaluations, and was Canadian co-lead on wetland monitoring on the Rainy Lake – Namakan system for the International Joint Commission and at Isle Royale National Park. He is senior author of the *Wetland Ecosystem Classification for Northwestern Ontario* and co-author of *Terrestrial and Wetland Ecosites for Northwestern Ontario* and *Wetland Plants of Ontario*.

Al has also been heavily involved in woodland caribou population monitoring, habitat assessment, and management guidelines development in northwestern Ontario. He is currently a member of the Committee on the Status of Species at Risk in Ontario (COSSARO).

Attachment A

Criteria		Project Component: Transmission Line – Construction	Project Component: Transmission Line – Operations and Maintenance	Project Component: Transmission Line – Decommission	Comments Rationale	Work Activities
General Natural Environment Considerations						
Air Quality	Dust	✓	✓			- document relevant legislation and guidelines for air quality, such as the Canada Wide Standards (CWS) for fine particulate matter (PM10 and PM2.5); - compile BMPs for dust management during construction; - consult with design team to determine specifications of required equipment and suggest alternatives or mitigation measures, as necessary
	GHG	✓				- document relevant legislation and guidelines for air quality; - develop GHG budget; - consult with design team to determine specifications of required equipment and suggest alternatives or mitigation measures, as necessary
Water	Surface Water Quality	✓	✓			- desktop analysis of Provincial Water Quality Monitoring Network (PWQMN) data; - review and compile surface water quality data from MNR, Lakehead Region Conservation Authority (LRCA); - collect basic water quality data at select sites (access road crossings, corridor intersection)
	Surface Water Quantity	?			Unlikely to be any effects	
	Ground Water Quality	✓				- review of the Provincial Groundwater Monitoring Network (PGMN) data on ambient (baseline) groundwater levels and quality; - review of well records from the MOE Well Water Information System (WWIS) - consult with and review Lakehead Region Conservation Authority groundwater studies
Soils and sediment quality		✓			Potential for elevated TSS releases to local water bodies as a result of construction-related activities	

					(see also "Erosion and Sedimentation").	
Noise		✓		✓		- compile applicable legislation, standards and guidelines with respect to mandatory and suggested noise limits; - coordinate with design team to review noise specifications of equipment to be used during construction and operations at the site; - develop noise mitigation measures, if necessary
Vibration		✓			Most likely limited to blasting/drilling activities, helicopters, heavy vehicles.	- compile applicable legislation, standards and guidelines with respect to mandatory and suggested limits; - coordinate with design team to review specifications of equipment to be used during construction and operations at the site; - develop vibration mitigation measures, if necessary
Light		✓			Light pollution from construction activities, if working at night. Impacts minor	- develop mitigation measures, if necessary
Species at Risk and their habitat		✓	✓	✓	Potential for species at risk/ habitat to exist in the Project Area (e.g., woodland caribou, several species of fish).	- review of Natural Heritage Information Centre (NHIC) database and the Species at Risk Public Registry to identify Species at Risk and their habitat in the project area; - field survey to identify Species at Risk in the project area; - compile of relevant legislation, including the federal *Species at Risk Act* (SARA); - consultation with relevant regulatory agencies, such as Environment Canada, Committee on Status of Endangered Wildlife in Canada (COSEWIC), the Ontario Ministry of Natural Resources (MNR), LRCA; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications
Terrestrial wildlife (including numbers, diversity and movement of resident or migratory species)		✓	✓			- literature review to identify terrestrial wildlife in the project area; - compile applicable legislation, including the *Migratory Birds Convention Act* (1994); - field survey to identify terrestrial wildlife and habitat areas that may potentially be affected by the project; - consultation with relevant regulatory agencies, such as Environment Canada, COSEWIC, the MNR, LRCA - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications - consult with appropriate agencies/stakeholders
Natural vegetation and terrestrial habitat linkages		✓	✓		Construction of access roads, ancillary facilities and towers and ongoing	- literature review to identify terrestrial wildlife in the project region; - field survey to identify terrestrial wildlife and habitat areas that may potentially be affected by the project; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if appropriate

					maintenance may affect terrestrial habitat, potentially fragment habitat.	
Significant earth or life science features		✓	✓			- review of NHIC database; - consultation with MOE and LRCA
Land subject to natural or human-made hazards		✓	✓		low probability of seismic events; rock slides, ices build-up	- seismic issues to be dealt with by engineering design team
Significant natural heritage features and areas		✓				- review of NHIC database; - consultation with the MOE and LRCA
Aquatic and Riparian Ecosystem Considerations						
Shoreline dependent species		?				- literature, NHIC database review; - conduct field survey; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if appropriate
Wetland dependent species		✓				- literature, NHIC database review; - compile relevant legislation and guidelines (Federal Policy on Wetland Conservation (Environment Canada 1991) etc.); - conduct field survey; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if appropriate
Fish Habitat		✓			Potential to affect water quality, water levels and sediment quality	- literature, NHIC database review; - conduct field survey; - consultation with the local Conservation Authorities and Department of Fisheries and Oceans (DFO); - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if appropriate
Fish Migration		✓			Presence of migratory fish species in medium and large-size watercourses	- literature, NHIC database review; - conduct field survey; - consultation with the local Conservation Authorities and DFO; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if appropriate
Fisheries		✓			Presence of resident and or migratory species	- literature, NHIC database review; - conduct field survey; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if appropriate

Erosion and Sedimentation		✓			Potential for elevated TSS releases to local waterbodies as a result of construction-related activities	- compile BMPs for management of erosion and sediment control (ESC) during construction; - consult with design team to identify areas of high erosion potential for all construction areas; - identify potential sensitive receptors and appropriate site-specific ESC measures to be implemented, as necessary
Fish Injury or mortality		✓			Not a major concern. May be an issue only where a Permit to Take Water (PTTW) is used for cement operations, or if temporary diversions or crossings are required.	- literature, NHIC database review; - conduct field survey; - consultation with the local Conservation Authorities and DFO; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if necessary
Water levels, flows and movement (surface or groundwater)		✓				- desktop analysis - consultation with the local Conservation Authorities and DFO; - consultation with design team and biologists to identify appropriate mitigation measures such as design alternatives and modifications, if necessary
Drainage, Flooding and Drought patterns		?			Not anticipated to have a significant impact on regional drainage, flooding and drought patterns.	- conduct literature review of regional drainage, flooding and drought patterns; - conduct desktop analysis to identify potential impacts; - coordinate with design team to identify mitigation measures, if necessary.
Water Temperature		✓	✓		Clearing canopy may result in greater water temperature fluctuations than normal	- modify initial corridor preparation, maintenance methods - consultation with design team to mitigate effects to water temperature, if necessary
Aboriginal Community Considerations						
First Nation reserves or other Aboriginal communities		✓	✓	✓		- consultation with Aboriginal Affairs and Northern Development Canada (AANDC and Ontario Ministry of Aboriginal Affairs (OMAA)to identify potential stakeholders, and identify next steps, if any

Spiritual, ceremonial, cultural, archaeological, or burial sites		✓			.	- consult with First Nations and Métis communities (TLU studies) - undertake necessary archaeological studies as required - consult with AANDC to identify potential stakeholders, and identify next steps, if any
Traditional land or resources used for harvesting activities		✓			See comment above.	- consult with First Nations and Métis - undertake TLU studies consultation with AANDC and OMAA to identify potential stakeholders, and identify next steps, if any
Employment		✓	✓	✓	See comment above.	- Work with identified Aboriginal communities to determine opportunities.
Lands subject to land claims		✓			See comment above.	- consult with First Nations groups - consultation with AANDC and OMAA to identify potential stakeholders, and identify next steps, if any - consult the Reporting Centre on Specific Claims at http://pse4-esd4.aincinac.gc.ca/SCBRI/Main/ReportingCentre/External/ExternalReporting.aspx?lang=eng.
Economic Development		✓	✓	✓	See comment above.	- Work with identified Aboriginal communities to determine opportunities.
Land and Resource Use Considerations						
Access to inaccessible areas (land or water)		✓	✓	✓	Lands continue to be privately owned with restricted access.	-land registry information -consult with MNR, private landowners, HONI, First Nations municipalities, industries
Navigation		✓			Structures crossing navigable waters.	-compile regulatory requirements -consult with Transport Canada
Aeronautics		✓			Structures near airports, flight paths, etc.	-compile regulatory requirements -consult with Transport Canada
Riparian rights or privileges		✓			Supplementary water source(s) TBD. Requirements for Permit to Take Water (PTTW) TBD.	- compile regulatory requirements; - consultation with design team and establish long-term water budget for the project; - determine requirements for PTTW
Recreational use – (land or water) including Angling and		✓	✓	✓	Recreation, hunting, fishing opportunities may be increased to	-consult with MNR, HONI regarding use of access roads and methods to minimize public access if desirable

Hunting opportunities					the detriment of fish and wildlife	
Trapping activities		✓	✓		Existing status TBD but not expected to be likely.	-review MNR data on traplines -consult with First nations -consult with individual trapline rights holders
Baitfish harvesting activities		✓			Status unknown	-review MNR database to confirm degree activity
Views or aesthetics			✓		Potential impact towers and of tree clearing in transmission corridor.	- assess viewscapes and viewing opportunities
Protected areas			✓		Corridor passes through several parks and reserves; corridor may be considered incompatible with protected area mandate	- consultation with the MNR, Parks Canada -establish committees to evaluate and mitigate impacts -develop long-term adaptive management strategies
Archaeological and Cultural Heritage Resource Considerations, including buildings and landscapes		✓			Highly likely to be present. Any building pre-1950 may be considered as heritage resource	- consult with First Nations -review requirements to meet Ministry of Culture and Tourism regulations -conduct archaeological and heritage resource assessment of entire corridor
Social and Economic Considerations						
The Location of people, businesses, institutions, or public facilities		✓	✓			- conduct inventory of housing, businesses, institutions, and public facilities; - review land use plans
Community character, enjoyment of property, or local amenities		✓	✓			- assess local economic base; - consult with general public, business and municipal organizations -consult with First Nations; undertake TLU studies

Employment		✓	✓	✓	Construction and maintenance to create employment opportunities.	- assess local economic base; - consult with general public, business and municipal organizations
Public health and/or safety		✓	✓	✓	Transmission lines pose public health and safety risk	- conduct risk assessment of activities that may occur along the corridor
Local, regional, or provincial economies		✓	✓	✓	Infusion of money to local economy.	- assess local economic base; - consult with general public, business and municipal organizations
Water supply		?			Unlikely to be issue as relatively little water is used and over short period	- inventory water users in the area; - consultation with LRCA; - desktop analysis to determine any projected drawdown in local wells; monitoring of water levels in local wells, if necessary; - public consultation
Aesthetic image of the surrounding area		✓	✓		Development may result in changes to aesthetic value of some properties and activities	- consultation with design team and client

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 15 – Selection and Optimization of the Preferred Route for the East-West Tie Line Enhancement Project

Draft Report: Selection and Optimization of the Preferred Route for the East-West Tie Line Enhancement Project

Table of Contents

Attachments

1. Map Book 1 - Regional Study area corridor boundaries and Environmental constraints (ESAs, ANSIs, parks, reserves, etc.)
2. Map Book 2 - Surficial Geology
3. Map Book 3 - Land cover and watercourses

4. Map Book 4 - Preferred Route and Optimization Options

1. INTRODUCTION AND BACKGROUND

The Ontario Power Authority (OPA) has determined that the East-West Tie transmission line that connects northwestern Ontario to the rest of the Province's transmission network from Thunder Bay through Wawa is frequently constrained because of limited capacity and it no longer meets reliability standards. Enhancement of the East-West tie transmission corridor along the shore of Lake Superior is an option identified by OPA to ensure transmission reliability, enable capacity for new energy resources and provide cost-effective long term supply to the northwest into the future.

The OPA examined a number of alternative paths to deliver needed upgrades to the East-West Tie Transmission Lines and concluded that an option is a new line that, in conjunction with the existing line, will provide total eastbound and westbound capabilities in the East-West corridor on the order of 650 MW. It should have a lifetime of at least 50 years and target in-service date of 2017. This is referred to as their Reference Option and is one possible proposal for the East-West Tie Line. It is not the default position of the OEB but is used for comparative purposes during the designation process.

The enhancement project of the East-West Tie includes construction of a 230 kV, double-circuit transmission line of approximately 400 km in length (388 km based on the reference option), running from the Lakehead Transmission Station (TS) near Thunder Bay to the Wawa TS south east of the Town of Wawa with connection into Marathon TS. This project represents an addition to the continued operations of the existing East-West transmission line.

The East-West Tie Line for the purposes of designation is:

- A new line that, in conjunction with the existing line, will provide total eastbound and westbound capabilities in the East-West corridor on the order of 650 MW, while respecting all North American Electric Reliability Corporation, North East Power Coordinating Council and Independent Electricity System Operator reliability standards.
- Designed to have a lifetime of at least 50 years.
- Target in-service date of 2017.
- Considered in 2 segments: one running from Lakehead TS to Marathon and one running from Marathon to Wawa TS.
- The demarcation points of each segment of the East-West Tie Line are the first transmission line structures outside the fence of the Wawa TS, Marathon TS and Lakehead TS, but within 250 metres of that fence.
- The East-West Tie Line segments will dead-end on the structures that are the demarcation points with a mid-span opener for non-compensated lines.
- If the proposal involves series compensated AC line or DC lines, the East-West Tie Line will include the protection system, associated communications, and line isolation breaker(s).

- The project definition for the purposes of designation assumes that the East-West Tie Line between the demarcation points will be owned and operated by the designated transmitter.

Prior to Designation the Proponent has undertaken a number of activities that

- Demonstrate that the Proponent has undertaken a preliminary evaluation of:
  - Technical;
  - Logistical;
  - Environmental including socio-economic; and,
  - Regulatory issues.
- Permit the selection of a preferred route for the transmission line that is optimized from both engineering and environmental perspectives.

2. PRE-DESIGNATION ACTIVITIES

In order to meet OEB requirements and ensure that after designation the Project proceeds quickly and efficiently, the following major tasks were undertaken:

1. Review all readily available information on the project (OEB Documents, OPG and HON1 documents and policies, EWT documents provided through the OEB, Consultants Reports).
2. Undertake a drive-through field survey of accessible sections of the potential routes and to identify potential environmental constraints or opportunities
3. Establish criteria for selecting a preferred route for the EWT
4. Establish Regional Study area boundaries. Regional Study area boundaries are the geographical limits that should encompass all reasonable options.
5. Undertake a preliminary analysis of various datasets (e.g., Ontario Geospatial Data Exchange (OGDE)) to document environmental constraints along potential routes and prepare constraint maps
6. Develop the preferred route with potential refinements and alternate route alignments
7. Develop an optimized route for the EWT Expansion Project
8. Preparation of Draft Terms of Reference (under separate cover) to be used as a starting point in the consultation process with the regulator and stakeholders.

The remainder of this report is dedicated to the processes used to select and optimize a preferred route for the EWT Expansion Project.

3. DEVELOPMENT OF PREFERRED ROUTE FOR THE EWT

3.1 Criteria used to develop preferred route for EWT

1. Regional study area boundaries were established based on geographical limitations for the OEB Reference Option.

2. Potential environmental constraints were superimposed on this broad corridor to identify areas that should be avoided, or where significant mitigation measures would be required.
3. Potential routes within the Regional study area boundaries were evaluated relative to a set of government policies and directives.
4. Lastly, a set of general environmental principles and engineering constraints were used initially to select and then to optimize the preferred route.

3.2 Government Policies and Directives

The following government policies and directives were applied:

Consistency with Provincial Land Use Policy re: Use of Existing Right of Ways (RoW):

- Provincial Policy Statement (PPS) issued in 2005 under Section 3 of the Planning Act recommends making best use of existing infrastructure before proposing new Greenfield developments.
- The PPS is consistent with long-standing government direction originally given to Ontario Hydro to make best use of existing rights of way before seeking approval for new rights of way.
- In 1980, for example, the Royal Commission on Electric Power Planning, after extensive public consultation, commended Ontario Hydro's efforts "to upgrade existing transmission facilities and improve the use of existing rights of way" and recommended a continuing program aimed at optimizing the use of existing RoWs.
- Similarly, in its 1988 response Ontario Hydro's Draft Demand Supply Planning Strategy, the Ontario Government recommended: "In planning transmission facilities, Ontario Hydro should take full account of Provincial Land Use policies. Wherever it is feasible to upgrade existing transmission lines or corridors, this option should be evaluated before seeking approvals for new corridors."

These government policies and directives reflect a clear understanding that, in general, use of existing corridors has less environmental impact than Greenfield development. In the case of the East-West Tie Line, these benefits are reflected in several ways:

- The width of and expanded RoW along an existing RoW is at least 20% smaller than a new RoW, yielding a substantially smaller footprint.
- Utilizing the existing RoW requires fewer new or upgraded access roads and stream crossing, less forest clearing and land acquisition and provides other benefits that effectively reduce the total environmental impact.
- The existing RoW may have optimized technical, economic and environmental considerations which will apply to the expanded RoW.
- With increasing land use throughout the province, it is increasingly difficult to find new RoWs that do not cause significant disruption.
- The larger footprint of a new RoW would translate into greater potential effects on the natural and socio-economic environment, property owners and Aboriginal interests.

- Without being explicitly stated, it is implied that shorter transmission line route are preferred as they will have a smaller footprint, and likelihood of fewer environmental, landowner and other stakeholder impacts and cost.

3.3 General Environmental Principles

These following general principles were applied to select and optimize a preferred alignment from an environmental perspective:

- Maximize use of existing infrastructure;
- Minimize the affected land area;
- Minimize negative effects on existing and designated land uses;
- Minimize negative effects on agricultural lands and operations;
- Minimizing negative effects on natural systems, with particular emphasis on natural features, functions and communities;
- Minimize negative effects on built-up areas that provide a cultural, recreational, social and economic benefit;
- Minimize negative effects on businesses, farmers and landowners;
- Maximize opportunities to enhance positive effects on the environment (natural social environment, cultural and agricultural)
- Minimize transportation route and other infrastructure crossings (e.g., highways, roads, railway lines, other transmission lines)
- Avoid private lands, defined resource areas, existing or planned build-up areas.

3.4 Engineering Constraints

Optimization from an engineering perspective was based on minimizing crossings (roads, rail lines) and transmission line crossovers (230kV and 115kV). The proposed route and refinements are to be considered a “first cut” subject to change after environmental, social and engineering cost-benefit analyses are undertaken post-designation, during the EA process. Site-specific optimization of the preferred route is described later.

4 STUDY AREA

4.1 Regional Study Area Corridor Boundaries,

The Regional Study area that is used here and will be used in the EA is a broad area between Lakehead TS and Wawa TS ranging in width from 20 km to 95 km. The Regional study area corridor is divided into 2 sections: Lakehead TS to Marathon TS; and, Marathon TS to Wawa TS

4.1.1 Regional Study Area Corridor - Lakehead TS to Marathon TS

The regional study area corridor boundaries are the area between the Lake Superior shoreline inland up to 20 km (ignoring the presence of Sibley and Black Bay Peninsulas). This corridor encompasses most of the east-west infrastructure (i.e., the existing 230 kV transmission line, existing 115 kV transmission lines, Trans-Canada Highway, railway lines, gas lines). It is unlikely that the transmission lines would lie outside this corridor, as this corridor meets the criteria and principles described in Section 3.2 and 3.3. It represents minimum transmission length, potential multiple use of existing access points and potential multiple use of existing or expanded RoWs.

4.1.2 Regional Study Area Corridor - Marathon TS to Wawa TS

The existing 230 kV transmission line between Marathon TS and Wawa TS was built prior to the enactment of Provincial or Federal Environmental Assessment legislation and was likely built with overall cost the priority rather than the environment. For part of the route, the corridor does not parallel other infrastructure (highways, pipelines, rail lines, etc.) and may have been selected primarily on length. Environmental considerations may preclude building the new line adjacent to this line for the entire length of the route. For these reason, the regional study area corridor is expanded to encompass several potential alternate routes that meet some of the criteria and principles listed in Sections 3.2 and 3.3.

The regional study area corridor boundaries between Marathon TS and Wawa TS include the area from the Lake Superior shoreline to the Trans-Canada highway and beyond to include to a corridor option that parallels the CP railway between White River and Franz and the Algoma Central Railway between Franz and Wawa TS. The expansion of the regional study area corridor to include a corridor between White River, Franz and Wawa TS was originally proposed in documents provided by the OEB.

4.2 Selection of Preferred and Alternate Routes within the Regional Study Area Corridor

OGDE and other datasets (Table 1) were superimposed on Regional Study area corridor map. Several map books were produced each displaying a subset of the data (Attachments 1-4):

Map Book 1 - Regional Study area corridor boundaries with Environmental constraints (ESAs, ANSIs, parks, reserves, etc.)
Map Book 2 - Surficial Geology
Map Book 3 - Land cover and watercourses
Map Book 4 - Environmental constraints (ESAs, ANSIs, parks, reserves, etc.)

Some datasets that were evaluated are not included in these map books.

Table 1: Datasets Used to Develop Environmental Constraints Map

Title	Source	Description
ANSI - Areas of Natural and Scientific Interest	OGDE	ANSI's (Areas of Natural and Scientific Interest) are polygon features that represent lands and waters containing important natural landscapes or features that are important for natural heritage, protection, appreciation, scientific study or education. Different ANSI types collected by the Natural Resources Values Information System (NRVIS) include... ▪ ANSI, Earth Science ▪ ANSI, Life Science
Surficial Geology of Northern Ontario	OGDE	To provide a broad overview of the distribution and character of the surficial materials of northern Ontario and associated attributes available to the land-use planning, consulting, mineral exploration, oil and gas, aggregate/industrial mineral industries and resource development community, as well as, government geoscientists, resource scientists, conservation authorities, land-use planners and academic researchers.
Provincial Landcover	OGDE	The Ontario Land Cover Data Base, Second Edition (2000) provides a classification of 27 broad land cover types north of the southern boundary of the Canadian Shield, within the province of Ontario. The land cover classes consist of vegetation types (such as forest, wetlands, and agricultural crops or pasture) and categories of non-vegetated surface (such as waterbodies, bedrock outcrops, or settlements). These classes reflect the nature of the land surface rather than actual or potential land use.
Species Observation, Provincially Tracked	OGDE	Species Observation Provincially Tracked contains observations for species listed by MNR as provincially tracked by the NHIC. Provincially tracked species (in this context only) include: ▪ species listed as species at risk under Canada's Species at Risk Act or Ontario's Endangered Species Act, ▪ other species that are rare in Ontario, or that are of conservation concern, ▪ Provincially Tracked Species not included in this layer are: ▪ wildlife concentration areas like heronries, colonial waterbird colonies, bat hibernacula, and waterfowl, shorebird and winter raptor concentration areas, and ▪ plant communities.
Existing Transmission Line Alignments	Compiled from various	115kV and 230 kV transmission lines

	hardcopy sources	
Various base map layers	http://geogratis.cgdi.gc.ca/geogratis/en/index.html)	These include populated areas, roads, pipelines, railways, watercourses, waterbodies, Provincial Parks, National Parks, power stations, Compiled from various open access datasets available through the Natural Resources Canada (NRCAN) GeoGratis website
Environmentally Sensitive Area - Retired	OGDE	An Environmentally Sensitive Area is a polygon feature that identifies an area with values which are identified to be of local interest and is designated and managed by a municipality. It may represent the habitat of vulnerable, threatened or endangered species. Note: This data class is no longer available or used by MNR.
Significant Ecological Area		A Significant Ecological Area is a polygon feature that identifies an area of interest to the Ministry that is ecologically significant, and warrants special consideration, excluding ANSI's, parks, reserves or ESA's. Different Significant Ecological Area types collected by the Natural Resources Values Information System (NRVIS) include: ▪ Significant Valley ▪ Significant Woodland ▪ No-Cut Area ▪ Designated Old Growth Forest ▪ Old Growth Forest ▪ Significant Ecological Community
Conservation Areas	OGDE	Conservation Areas are lands which are considered to be regionally significant, such as valleys, or environmentally sensitive areas, and are best managed by a public agency to retain their natural characteristics. These areas are designated within a Conservation Authority's jurisdiction and are managed by the Authority.
Conservation Reserve Regulated	OGDE	Land set aside under the Provincial Parks and Conservation Reserves Act, 2006: ▪ To permanently protect representative ecosystems, biodiversity and provincially significant elements of Ontario's natural and cultural heritage and to manage these areas to ensure that ecological integrity is maintained ▪ To provide opportunities for ecologically sustainable land uses, including traditional outdoor heritage activities and associated economic benefits. ▪ To facilitate scientific research and to provide points of reference to support monitoring of ecological change on the broader

		landscape.
Wintering Area	OGDE	A Wintering Area is a polygon feature that identifies an area in which a species habitually winters. Different Wintering Area types collected by the Natural Resources Values Information System (NRVIS) include... ▪ Bat Hibernaculum ▪ Caribou Wintering Area ▪ Deer Wintering Area (Stratum 2) ▪ Deer Wintering Area (Stratum 1) ▪ Elk Wintering Area ▪ Moose Early Wintering Area ▪ Moose Late Wintering Area ▪ Snake Hibernaculum ▪ Waterfowl Winter Concentration Area
Calving Fawning area	OGDE	A Calving Fawning Site is a polygon feature that identifies an area to which a particular species habitually migrates to give birth. Different Calving Fawning Site types collected by the Natural Resources Values Information System (NRVIS) include... ▪ Caribou Calving Site ▪ Deer Fawning Site ▪ Elk Calving Site ▪ Moose Calving Site
Aquatic Feeding Area	OGDE	An Aquatic Feeding Area is a polygon feature that identifies a species-specific area that contains aquatic vegetation on which the species feeds. Different Aquatic Feeding Area types collected by the Natural Resources Values Information System (NRVIS) include... Moose Aquatic Feeding Area
TransCanada Trail	Website	Existing and Proposed Trans Canada Trail
Fish Species at risk	Lakehead Region Conser-vation Authority	Fish species at risk in Lakehead Region Conservation Authority jurisdiction
Snowmobile trails	Website	Ontario Federation of Snowmobile Clubs trail system in northern Ontario

Map Book 1 shows that there are numerous potential environmental constraints within the corridor boundary and there is no route can avoid all constraints. However, at this high-level assessment, none of the environmental constraints appear to preclude any specific alignment.

Potential routes were selected for evaluation. These are described in Table 2 along with a summary of whether or not they meet government policies and directives and other criteria. Only one option is available for the Lakehead TS to Marathon TS section of the route. Three options are given for Marathon TS to Wawa TS.

Table 2: Potential preferred EWT route and high-level evaluation

Description of Corridor	Criteria met	Environmental Constraints	Comments
Lakehead TS to Marathon TS			
Parallel the existing 230kV line for the entire distance (only option for this portion of the route).	Meets most criteria. potential to parallel other infrastructure (e.g., 115 kV line, Highway, rail line)	Major rivers, Agricultural land, provincial parks and reserves, First Nations community, woodland caribou	Only viable option. Refinements and optimization of route can mitigate most impacts
Marathon TS to Wawa TS			
Option 1: Parallel the existing 230kV line directly through Pukaskwa Park to Wawa TS	Meets most criteria. Logical option, but could be significant issues and opposition related to Parks and First Nations Land	Major rivers, National and Provincial parks and nature reserves, First nations community, woodland caribou	Despite the environmental constraints, this option with or without refinement may be best option
Option 2: Parallel the TransCanada highway through the Town of White River, then parallel the existing 230kV line south of Wawa to the WawaTS	Several potential environmental constraints identified between White River and Wawa	Major rivers, provincial parks and nature reserves, ANSIs, Greenfield development for much of the route	Potential significant environmental impacts. Low probability of mitigating impacts
Option 3: Paralleling the Trans Canada highway from Marathon to the Town of White River, then parallel the Canadian Pacific and Algoma Central railway lines to the Wawa TS	Highest economic and environmental costs	Major rivers, provincial parks. Greenfield development	Significantly higher cost. Low probability of mitigating impacts due to Greenfield development and need for access roads

Between Marathon TS and Wawa TS, a high-level preliminary assessment indicated that Option 1 (paralleling the existing line through Pukaskwa National Park) in this preliminary high-level assessment is the preferred option, despite the presence of a number of potentially significant environmental constraints, (e.g., one First Nations community, Pukaskwa National Park, several provincial parks and nature reserves and several large rivers). Environmental issues for Option 2 appear to be no greater than those associated with Options 2 and 3.

After review of constraint maps, aerial photographs, EWT flyover video provided by HON1 and discussions with the Transmission Design Team, the preferred route was confirmed as paralleling the existing 230 kV line for the entire route

4.3 Route Optimization

A further evaluation was undertaken to identify potential refinements that can be used to optimize the route. The process and outcome are described below. Optimization of the route near or through First Nations lands will not be undertaken until later in the consultation process with First Nations communities.

Specific environmental (including socio-economic) and engineering constraints were identified and plotted (Map Book 4) and an initial assessment was made of the optimum positioning of the preferred route (north, south, diversions or alternate alignment). Options for positioning the transmission line were based on both environmental and engineering considerations. Environmental issues included the general environmental principles described previously. Refinements to optimize the route were based on technical constraints such as extended spans over highways, railways and watercourses, connection points at Lakehead TS, Marathon TS and Wawa TS, and the location of existing transmission lines. Where there were conflicts (between environmental and engineering optimization), options are listed along with the consequences. Specific environmental issues and engineering considerations are provided in “text boxes” on Map Book 4.

Preferred route and optimization options are first provided below in point form followed by a summary description of the entire optimized route from west to east. Based on optimizing for environmental or engineering considerations, ranges for specific interactions are given below:

- Railway crossings 16
- Highway crossings 15 + 1 (hwy 627)
- 115kV Transmission line crossings – 10
- 230kV Transmission line crossovers – 10 maximum, 4 minimum
- Alternate Route Option between T-99* and Marathon TS
- Optional Divergence to avoid waterbody between T-15 and T-14
- Houses/buildings to be expropriated or moved (estimate) between 3 – 8

(T-99 refers to HON1 numbering system for their tower structures as shown on Map Book 4)

The final alignment for the transmission line will be determined during the EA process. Local refinements may be made to the reference route to mitigate potential environmental effects and address stakeholder issues (e.g. if an alternative alignment will result in significant benefits, all factors considered). Any local refinements, if required, will be based on all available field data, environmental criteria/measures and will be made in consultation with agencies, local officials, interested Aboriginal communities and groups, and local land owners.

4.4 Preferred route and optimization options from Lakehead TS to Wawa TS

4.4.1 Lakehead TS and Marathon TS

Figures 1-6 (Map Book 4: (one crossover is required either at the exit from TS or at Loon Lake)

Maximum crossovers 1, Minimum crossovers 1

Start on SOUTH

- Exit the Lakehead TS on east side to eliminate need to crossover existing lines.
- Remain on the south side of the corridor to west side of Loon Lake to avoid construction in Mackenzie River
- Crossover 1 to NORTH west of Loon Lake to avoid impinging on cottage properties on north side of Loon Lake and to minimize viewscape issues with towers.
- North side avoids waterbody crossing at T-484

Figure 6-10

Maximum crossovers 3, minimum crossovers 1 (+1 required in Figure 11)

Start on NORTH (mandatory)

Environmental (including socio-economic) optimization is 3 crossovers. Option 1 is to remain on the north side (no crossovers) and accept environmental risk of points 1 and 3 below – 4 houses, viewscape. Option 2 is to crossover twice and accept environmental risk of point 3 – 2 houses, buildings. Option 2 may eliminate the need for a crossover after Nipigon River to avoid several issues including Ruby Lake Provincial Park – because north side preferred for significant distance.

- Potential crossover at T-449 to avoid (SOUTH)
  - Two houses, one barn, old shed and viewscape at Eagle Canyon
- Potential crossover at T-424 to avoid (NORTH)
  - Four houses between T-424 and T-405
- Potential crossover at T-405 to avoid (SOUTH)
  - Two houses, Mobile trailer buildings, outbuildings
  - And for ease of crossing 115kV at T-379

Figure 11-25

Minimum crossovers 1, maximum (to avoid 1 house) 3

Start on SOUTH (option 2 above is to start of NORTH to reduce crossovers by 2)

Environmental issues are on the south side. The south side might not be an acceptable option considering the environmental risks associated with provincial park and buffer. Assume EWT starts on North side, or there is an immediate crossover to the north side. Except for house at T-203, environmentally optimized side is north past Terrace Bay/Tunnel Bay all the way to the point where the existing 230kV and 115kV converge at T-98

- Potential crossover at before T-347 to avoid (NORTH)
  - Having any towers in Ruby Lake Provincial Park
  - Riparian buffer strip for Lake Superior at T-312
  - 115kV at T-265

- Potential crossover at or before T-203 to avoid semi-obscured house near McLean Lake. Since north side is preferred to the east, economically, north side may be preferred resulting in the expropriation of house. Alternative is 2 crossovers to avoid house and get back to north side.

NOTE: At T-99 there is an issue where the existing 230kV and 115 kV lines converge but do not cross. This occurs a second time at T-58. There is not enough room for the EWT to pass between the two. At T-99 there is the potential to crossover the existing 115kV line and parallel it for most of the remaining distance to Marathon TS. Distance remains approximately the same but there are 4 fewer rail and 2 fewer highway crossings. It would also reduce the number of 115kV crossovers approaching the Marathon TS. Furthermore, there is no need to cross the Lake Superior bay near Ripple.

Figure 25-30

Maximum crossovers 2, minimum 1

Start on NORTH

Environmental issues are relatively minor between here and Marathon TS. Issues relate to crossing between the adjacent 230kV and 115kV corridors and running parallel to the rail line. As noted above, the alternate route proposed above may be better from an engineering point of view. There are 4 few rail, 2 fewer highway crossing and the corridor does not run parallel and close to the rail line.

- Potential crossover at T-99 to avoid the 115kV line
- Potential crossover approaching Marathon TS

All issues are engineering. Number of crossovers will be engineering dependent and preferred entry location to the Marathon TS. No 230kV crossovers.

Crossings between Lakehead and Marathon TS

Railway crossings 14

Highway crossings 12

115kV crossings – 7

230kV crossovers – 9 maximum, 4 minimum

Alternate Route Option between T-99 and Marathon

Railway crossings -4

Highway crossings -2

115kV crossings +1 or +2

230kV crossovers -1 or -2

4.4.2 Marathon TS and Wawa TS

Figure 30-51

Between Marathon and Wawa TS, there is little difference between the north and south sides of the existing corridor. Assuming that the EWT exits from the TS on the north side, it can remain there for the entire distance. There may be minor issues associated with a quarry and autowreckers on the north side and downhill skiing area on the south side. Otherwise there is no preference. Crossovers will be based solely on engineering considerations. One issue may arise at T-15 and T-14. There is a broad waterbody which likely cannot be spanned. EWT will have to cross over to the south side of the existing corridor or divert to the north side or the waterbody. Options will be at the discretion of the engineering design team.

Minimum crossovers 0, maximum 1

Rail crossings 2

Highway crossings 3 + 1 (hwy 627)

115kV crossings 3

230 kV crossings minimum 0, maximum 1 (at T15-14)

Crossings and Divergences - Total for entire route

Railway crossings 16

Highway crossings 15 + 1 (hwy 627)

115kV crossings – 10

230kV crossovers – 10 maximum, 4 minimum

Alternate Route Option between T-99 and Marathon TS

Optional Divergence between T-15 and T-14

4.5 Optimized Route Summary and Overview

Route Description – West Segment

West Segment begins at the Lakehead TS. The Proponent is proposing to expand the substation fence to the east; this will allow the proposed transmission line to parallel the two existing transmission lines and will not require a line crossing immediately after exiting the substation. The three lines will head north and cross the Trans Canada Highway (TCH). The existing 230kv transmission line turns east and the proposed line will parallel on the south side

of the RoW. Being located on the south side of the transmission line is advantageous because it avoids a conflict with the MacKenzie River between T-518 and T-513 and conflict with the CPR railway near T-502 and T-501.

Near structure T-492 the proposed route crosses the existing transmission line to avoid impacting seasonal residences located on Loon Lake. Being on the opposite side of the existing transmission line will also help mitigate the visual impacts of the proposed transmission line.

There are several rural residential properties near Dorion that could potentially create the need to cross the existing transmission line multiple times. These residences will be consulted for their input into the project and their feedback will be incorporated into the routing decisions at this location.

The proposed route will remain on the north side of the existing line until T-449 where it will cross to the south side to avoid impacting an agricultural property. The route will remain on the south side until T-419 where it will cross to the north side to avoid several residences. The line will cross back to the south side of the existing line near T-404 to avoid residences and to prepare for a 115kV crossing near T-370.

The proposed line will cross two existing 115 kV transmission lines and the TCH near T-364. This will be a long span on severe terrain; it may be necessary to increase the separation to the existing structures at this location. There will be another long span where the proposed line will cross the Nipigon River. Preliminary investigation indicates that it will be possible to clear span the river.

After Crossing the Nipigon River, the proposed line will switch to the north side at T-346 to avoid having to install structures in Ruby Lake Provincial Park. The line will remain on the north side of the existing line until it reaches the Marathon TS.

There may be the need to reconfigure the existing 115kV transmission line between T-98 and T-97 and T-58 and T-57 in order to create enough space to install the proposed line.

The Proponent is proposing that the Marathon TS be expanded on the north side to allow the line to enter and exit without creating the need to cross the existing 230kV transmission line.

Route Description – East Segment

The East Segment begins where the proposed line exits the Marathon TS. As discussed above the Proponent is proposing that the substation be expanded to the north to eliminate the need to cross the existing line.

Based on information gained during the field visit and what can be determined from the desktop analysis, there would appear to be no reason for the proposed line to cross the existing transmission line. This segment crosses Pukaskwa National Park between T-319 and T-233 and Gros Cap Indian Reservation between T-64 and T-31.

The proposed line will remain on the north side of the existing line until it reaches the termination at Wawa TS at Anjigami Lake.

5 POTENTIAL ALTERNATIVE ROUTING

In the event that the Proponent cannot come to agreement supporting routing on any of the Pays Plat First Nation, the Gros Cap First Nation or Pukaskwa National Park, the Proponent will purse alternative routing around these locations. The Alternative routing will be pursued according the route selection principles described earlier in section 3.1 and 4.2.

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Map Book 1

Regional Study area corridor boundaries and Environmental constraints

(ESAs, ANSIs, parks, reserves, etc.)

Silver Falls Provincial Park
East Bay Conservation Reserve
Barclay Bog
Kaministiquia
Lappe
Toimela
Hazelwood Lake Conservation Area
Millar
Stepstone
Wishart Conservation Area
Murillo
Jelly
Carters Corners
Cascades Conservation Area
Rosslyn Village
Wild Goose
Loon
Loon Lake
Northern Wood Preservers Marsh
Silver Harbour Conservation Area
Amethyst Harbour
Pass Lake
Thunder Bay
FORT WILLIAM INDIAN RESERVE NO. 52
Joeboy Lake Wetland
Sleeping Giant Provincial Park
Russel Point-Minong Forland
Le Pate Provincial Nature Reserve
Silver Islet
Edward Island Provincial Park
Thomson Island Provincial Nature Reserve
Spar Island
Porphyry Island Provincial Park

This map is intended for internal AOLP use only.

Key Map
Lake Superior

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #1

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Shook Lake Conservation Reserve
Albert Lake Mesa Provincial Nature Reserve
Black Sturgeon River Provincial Park
Old Growth White Pine
Eagle Mountain
Harvais - Barcley Orchid Reserve
Harvais-Barclay Orchid Reserve
Cavern Lake Provincial Nature Reserve
Ouimet Canyon Provincial Park
Loon
Loon Lake
Pass Lake
Pass Lake
Knudsens Corner
Pearl
Johnsons
Landing
Dorion
Dorion Landing
Hurkett
Hurkett Cove
Conservation Area
Granite Point Conservation Area
Shesheeb Bay Provincial Nature Reserve
Black Bay Bog Conservation Reserve
Black Bay Peninsula Peatland
Black Bay Peninsula
Puffi Island
Provincial Nature Reserve
Paradise Island
Bowman Island
Coppin
Everard
Ruby Lake
Provincial Park
Red Rock
Nipigon
LAKE HELEN INDIAN
RESERVE NO. 53A

Key Map
Lake Superior

This map is intended for internal AOLP use only.

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #2

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Farlinger
ROCKY BAY INDIAN RESERVE NO. 1
Macdiarmid
Orient Bay
Nipigon Palisades Conservation Reserve
Pine Portage
East McKirdy
Nipigon River Conservation Reserve
Seahorse Lake Conservation Reserve
Gravel River Conservation Reserve
Cameron Falls
Kama Cliffs Conservation Reserve
RED ROCK INDIAN RESERVE NO. 53
Carlotta-Lloyd Lake
Kama Hills Provincial Nature Reserve
LAKE HELEN INDIAN RESERVE NO. 53A
Kama Hill
Gravel River Provincial Nature Reserve
Lake Superior North Shore Conservation Reserve
Nipigon
Cavers
Ruby Lake Provincial Park
Red Rock
Everard
Coughlin
Dunmore Island & SW point Simpson Island
Hurkett
Black Bay Bog Conservation Reserve
Black Bay Peninsula Peatland
Bowman Island
Hurkett Cove Conservation Area
Paradise Island
Dorion
Dorion Landing
Black Bay Peninsula
Puff Island Provincial Nature Reserve
Granite Point Conservation Area
Shesheeb Bay Provincial Nature Reserve

Key Map
Lake Superior

This map is intended for internal AOLP use only.

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

N E S W

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #3

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Three Mile Narrows Conservation Reserve
Steel River Provincial Park
Gravel River Conservation Reserve
Fishnet Lake Conservation Reserve
Gravel River Provincial Nature Reserve
PAYS PLAT INDIAN RESERVE NO. 51
Cavers
Rainbow Falls Provincial Park
Rossport
Schreiber
Terrace Bay Kettle Holes
Little Santoy Lake Kettle Holes
Schreiber Channel Provincial Nature Reserve
Terrace Bay
Lake Superior North Shore Conservation Reserve
Aguasabon Falls
Rossport Formation
Cobinosh Island
Dunmore Island & SW point Simpson Island
Slate Islands Provincial Park

Key Map

Lake Superior

This map is intended for internal AOLP use only.

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

N W E S

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #4

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Killala Lake Conservation Reserve

Killala Lake - Provincial Lake Trout Sanctuary

Steel River
Provincial Park

Southeast and Northeast
Campcot Lakes - Aurora Trou

Wiley Lake - Pickeral Sanctuary

Borealis Lake Aurora Trout Sanctuary

Fishnet Lake
Conservation Reserve

Red Sucker Point
Provincial Nature Reserve

Mink Creek Falls

Ripple

Neys

Coldwell

Marathon

Craig's Pit Provincial
Nature Reserve

Heron Ba

PIC RIVER I
RESERVE N

Pic River

Prairie River Mouth
Provincial Nature Reserve

Neys Provincial Park

Little Santoy
Lake Kettle Holes

Terrace Bay

Slate Islands Provincial Park

Key Map

Lake Superior

This map is intended for internal AOLP use only.

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

N W E S

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #5

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Kwinkwaga Ground Moraine Uplands Conservation Reserve

PIC MOBERT RESERVE SOUTH

Regan

Mobert

White Lake Provincial Park

Trudeau

Isko Dewabo Lake Complex Conservation Reserve

Pan Lake Fen Provincial Park

Hemlo

Mink Creek Falls

Red Sucker Point Provincial Nature Reserve

Heron Bay

PIC RIVER INDIAN RESERVE NO. 50

Marathon

Craig's Pit Provincial Nature Reserve

Coldwell

Pic River

Neys Provincial Park

Key Map

Lake Superior

This map is intended for internal AOLP use only

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

N E S W

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #6

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Kwinkwaga Ground
Moraine Uplands
Conservation Reserve

Kakakiwibik Esker
Conservation Reserve

Kakakiwibik Esker

Amyot

White River

PIC MOBERT RESERVE SOUTH

Regan

Mobert

White Lake Provincial Park

Trudeau

Pokei Lake/white River Wetlands Provincial Park

White River Wetland

Bremner River Wetland

Obatanga Provincial Park

Pukaskwa River Provincial Park

Widgeon Lake Moraine
Conservation Reserve

PUKASKWA
NATIONAL PARK

Key Map

Lake Superior

This map is intended for internal AOLP use only.

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

N E S W

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #7

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Kakakiwibik Esker Conservation Reserve
Kakakiwibik Esker
Amyot
Goudreau
Wetlands Provincial Park
White River Wetland
Magpie Mine
Josephine
Hawk
Obatanga Provincial Park
Magpie
Minong Delta
Magpie River Terraces Conservation Reserve
Firesand Creek
Helen Mine
Mcleod Mine Hill
Pukaskwa River Provincial Park
Wawa
Wawa Lake Spherulitic & Fiamme Structures
Jimmy Kash River
Magpie River/Terraces
Makwa River
GROS CAP INDIAN RESERVE NO. 49
Michipicoten
Michipicoten River
Michipicoten Harbour
Michipicoten Provincial Park
South Michipicoten River-Superior Shoreline Conservation Reserve
Widgeon Lake Moraine Conservation Reserve
Nimoosh Provincial Park
Key Map
Lake Superior
This map is intended for internal AOLP use only.

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

N E S W

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #8

AOLP SNC·LAVALIN

Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

Dalton Mills

WINDERMERE GOLDIE LAKE CONSERVATION RESERVE

Goudreau

Josephine

Hawk Junction

Potholes Provincial Nature Reserve

Magpie

JACK PINE RIVER FORESTED DUNES

Minong Delta

Magpie River Terraces Conservation Reserve

Firesand Creek

Helen Mine

Mcleod Mine Hill

Wawa

Wawa Lake Spherulitic & Fiamme Structures

Magpie River Terraces

Michipicoten

Michipicoten River

Michipicoten Harb

Michipicoten Provincial Park

South Michipicoten River-Superior Shoreline Conservation Reserve

Mi Hwood

Lake Superior Provincial Park

Gargantua

Key Map

Lake Superior

This map is intended for internal AOLP use only.

Legend

- City
- Community/Town
- Project Buffer Zone
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Pipeline
- Woodland Caribou Continuous Distribution
- First Nation Community
- Areas of Natural and Scientific Interest (ANSI)
- Environmentally Sensitive Area
- Builtup Area
- Provincial Park
- National Park
- Significant Ecological Area
- Conservation Area
- Conservation Reserve
- Wintering Area
- Calve/Fawn Area
- Aquatic Feeding Area
- Wetland
- Waterbody

Mining Potential

- Producing Mine
- Past Producing Mine
- Developed Prospect
- Prospect
- Discretionary Occurance
- Occurrence

N E S W

0 2.5 5 km

Scale: 1:270,000

East West Tie Transmission Line

Figure #9

AOLP SNC·LAVALIN

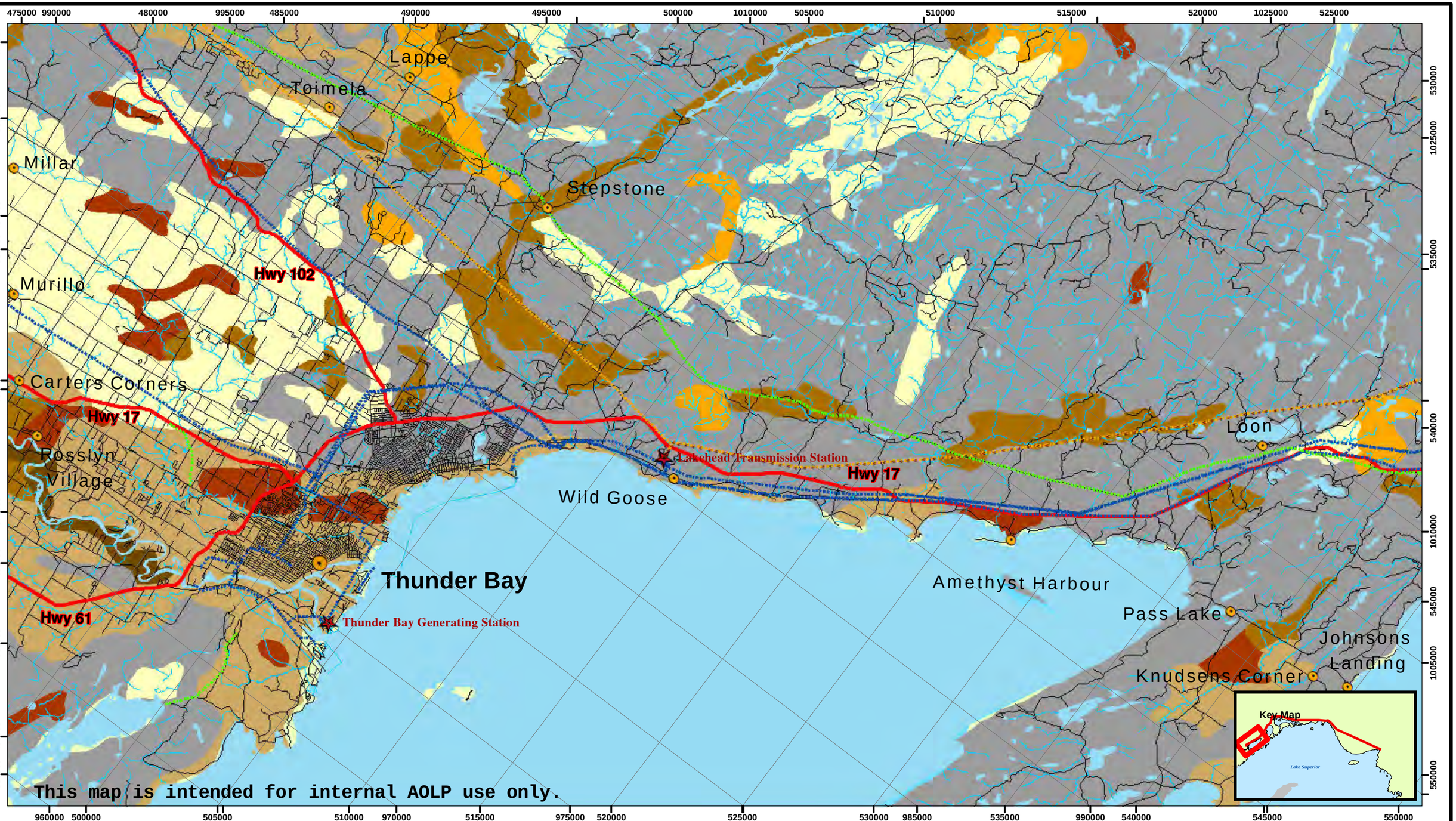
Projected coordinate system name: Canada_Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index1.mxd

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Map Book 2

Surficial Geology



Legend

- Hydro One Tower
- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Watercourse
- Waterbody

Geology

- Fluvial Deposits
- Glaciofluvial Outwash Deposits
- Glaciofluvial Ice-contact Deposits
- Glacioacustrine Deposits
- Glaciomarine and Marine Deposits
- Lacustrine Deposits
- Organic Deposits
- Till
- Bedrock

3.5 1.75 0 3.5 Kilometers

Scale: 1:170,000

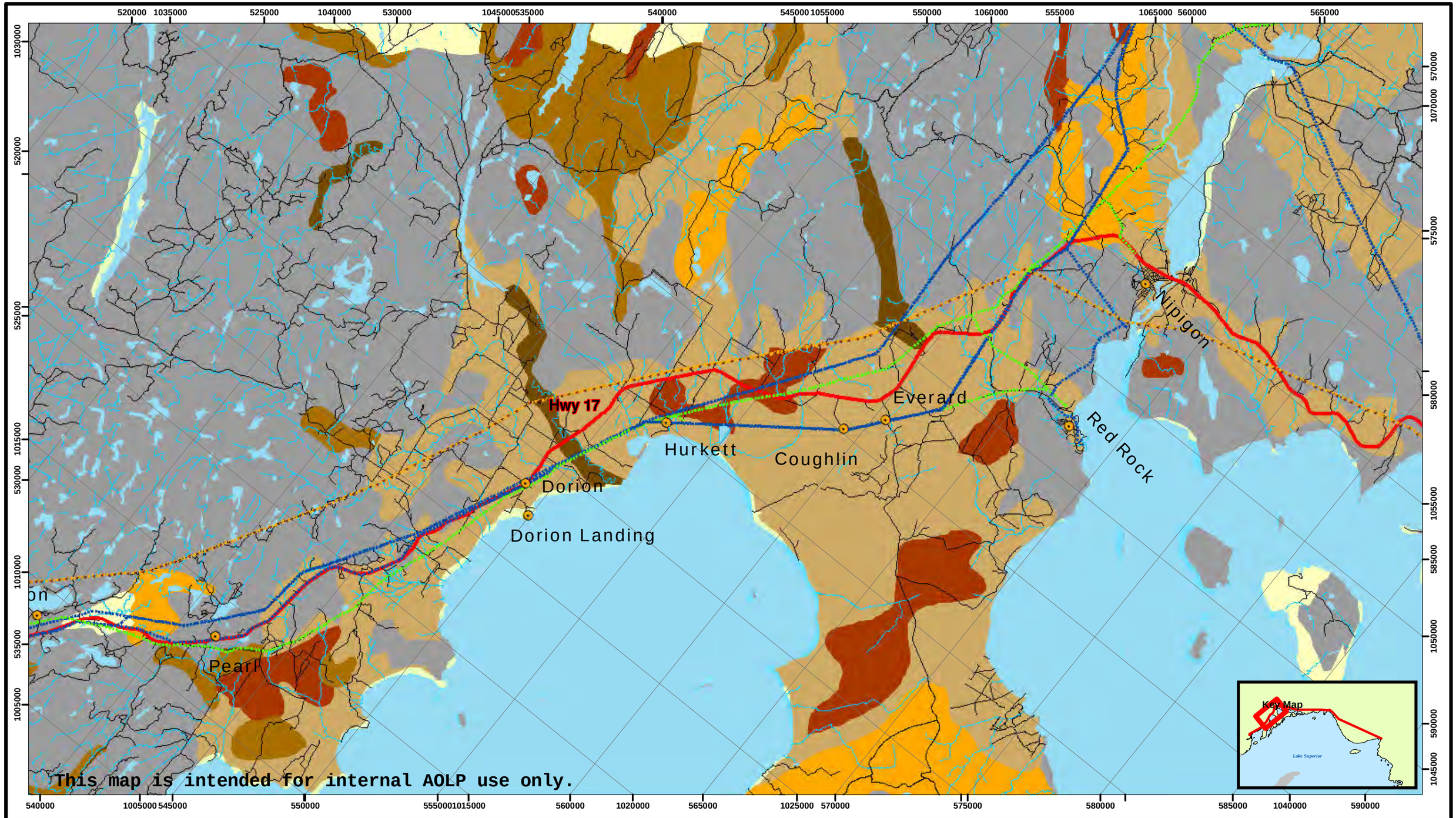
Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

East West Tie Transmission Line Geology

Figure #1

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index4_Geology.mxd



Legend

- Hydro One Tower
- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Watercourse
- Waterbody

Geology

- Fluvial Deposits
- Glaciofluvial Outwash Deposits
- Glaciofluvial Ice-contact Deposits
- Glacioacustrine Deposits
- Glaciomarine and Marine Deposits
- Lacustrine Deposits
- Organic Deposits
- Till
- Bedrock

3.5 1.75 0 3.5 Kilometers

Scale: 1:170,000

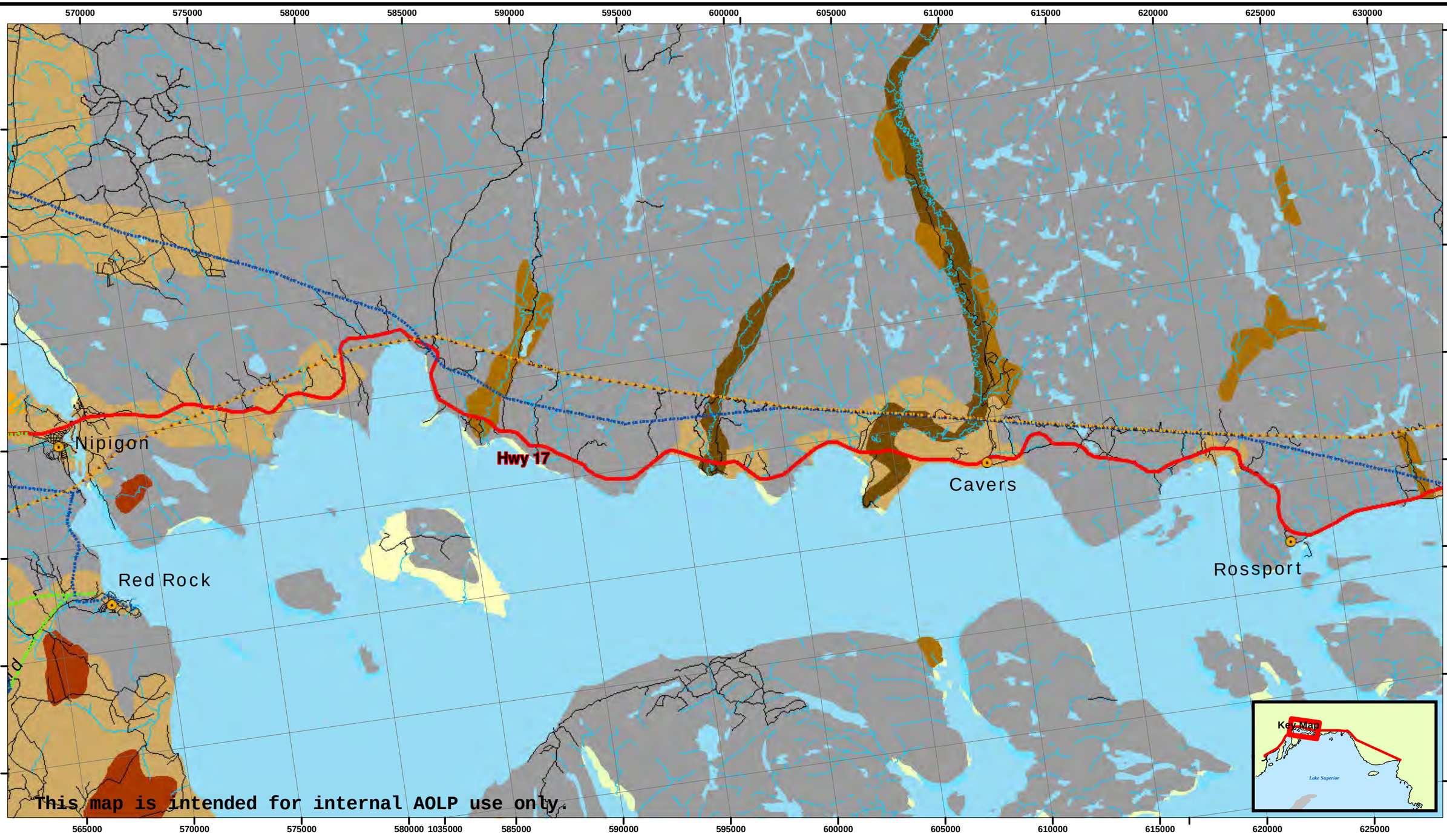
Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

East West Tie Transmission Line Geology

Figure #2

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index4_Geology.mxd



Legend

- Hydro One Tower
- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Watercourse
- Waterbody

Geology

- Fluvial Deposits
- Glaciofluvial Outwash Deposits
- Glaciofluvial Ice-contact Deposits
- Glacioacustrine Deposits
- Glaciomarine and Marine Deposits
- Lacustrine Deposits
- Organic Deposits
- Till
- Bedrock

3.5 1.75 0 3.5 Kilometers

Scale: 1:170,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

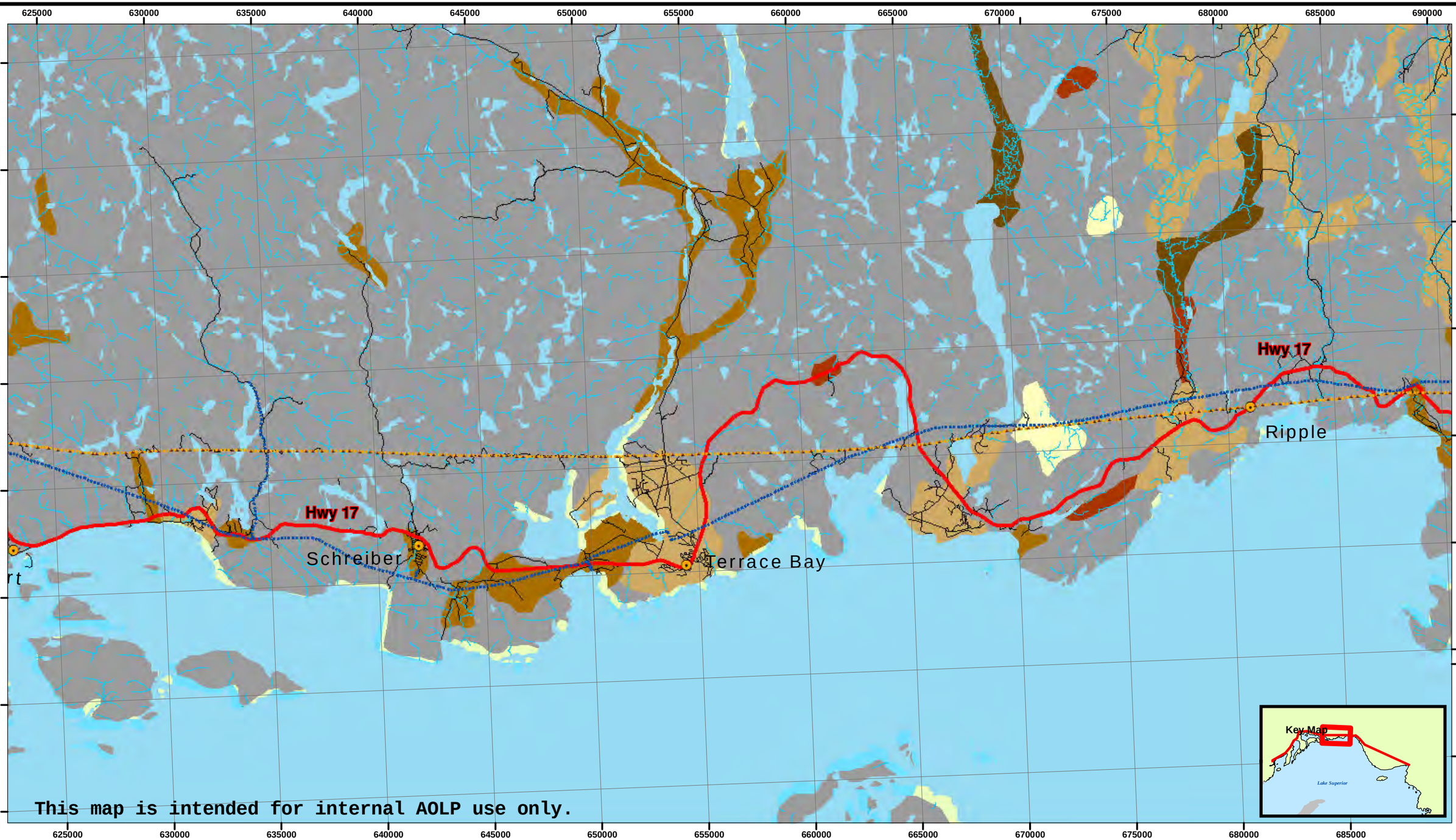
N W E S

East West Tie Transmission Line Geology

Figure #3

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index4_Geology.mxd



Legend

- Hydro One Tower
- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Watercourse
- Waterbody

Geology

- Fluvial Deposits
- Glaciofluvial Outwash Deposits
- Glaciofluvial Ice-contact Deposits
- Glacioacustrine Deposits
- Glaciomarine and Marine Deposits
- Lacustrine Deposits
- Organic Deposits
- Till
- Bedrock

3.5 1.75 0 3.5 Kilometers

Scale: 1:170,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

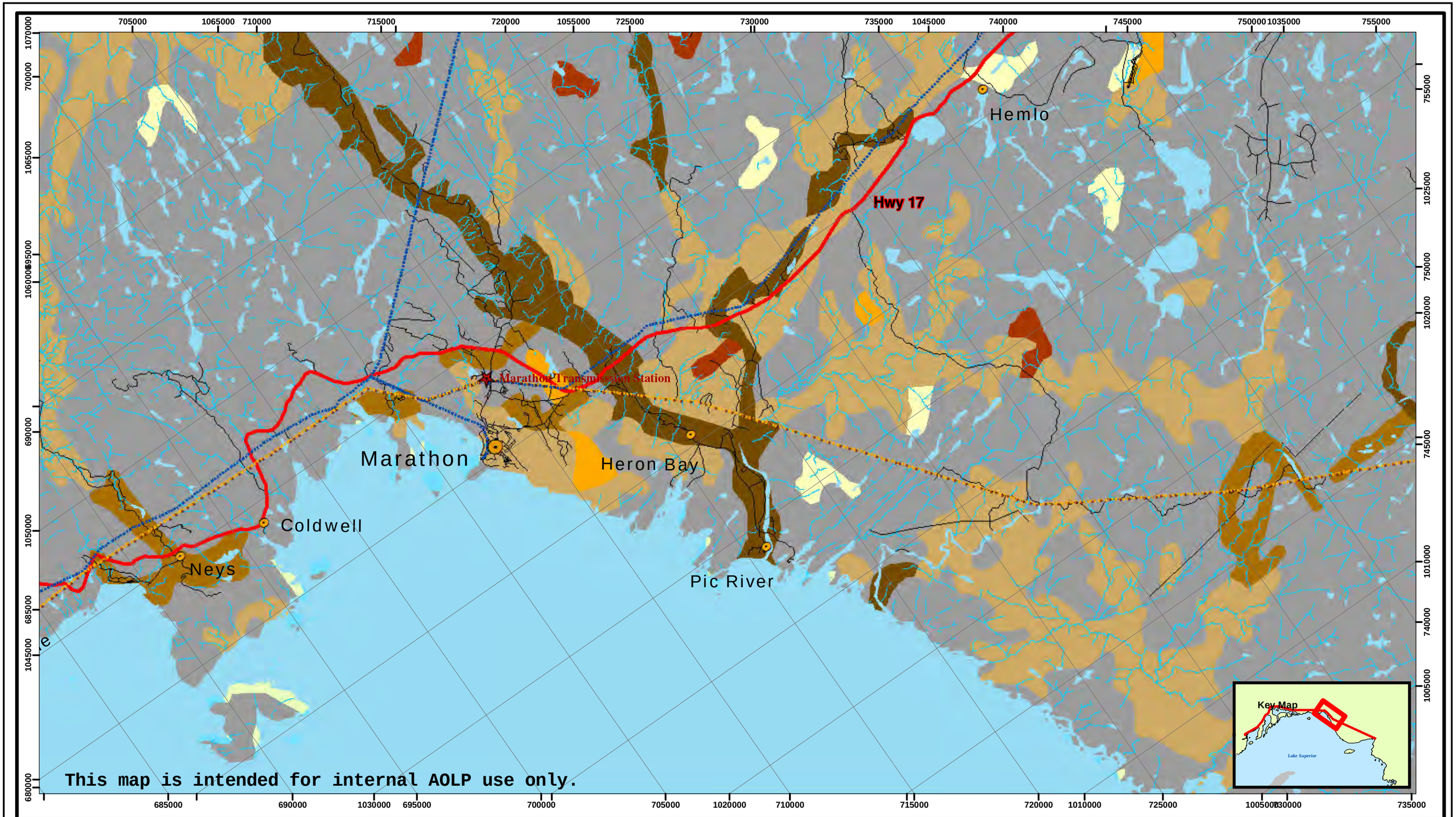
N W E S

East West Tie Transmission Line Geology

Figure #4

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index4_Geology.mxd



Legend

- Hydro One Tower
- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Watercourse
- Waterbody

Geology

- Fluvial Deposits
- Glaciofluvial Outwash Deposits
- Glaciofluvial Ice-contact Deposits
- Glacioacustrine Deposits
- Glaciomarine and Marine Deposits
- Lacustrine Deposits
- Organic Deposits
- Till
- Bedrock

3.5 1.75 0 3.5 Kilometers

Scale: 1:170,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

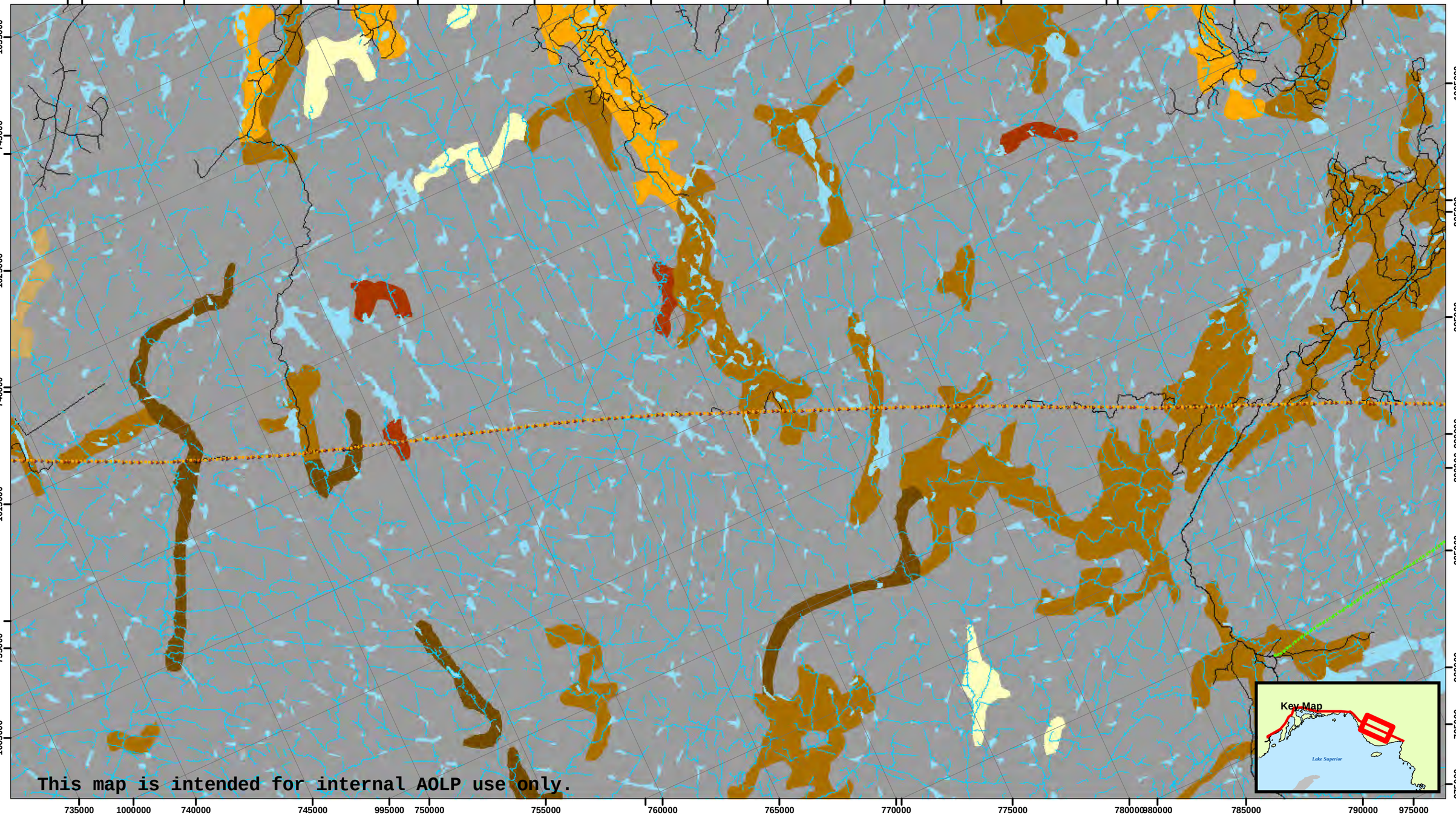
N E W S

East West Tie Transmission Line Geology

Figure #5

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index4_Geology.mxd



Legend

- Hydro One Tower
- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Watercourse
- Waterbody

Geology

- Fluvial Deposits
- Glaciofluvial Outwash Deposits
- Glaciofluvial Ice-contact Deposits
- Glacioacustrine Deposits
- Glaciomarine and Marine Deposits
- Lacustrine Deposits
- Organic Deposits
- Till
- Bedrock

3.5 1.75 0 3.5 Kilometers

Scale: 1:170,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

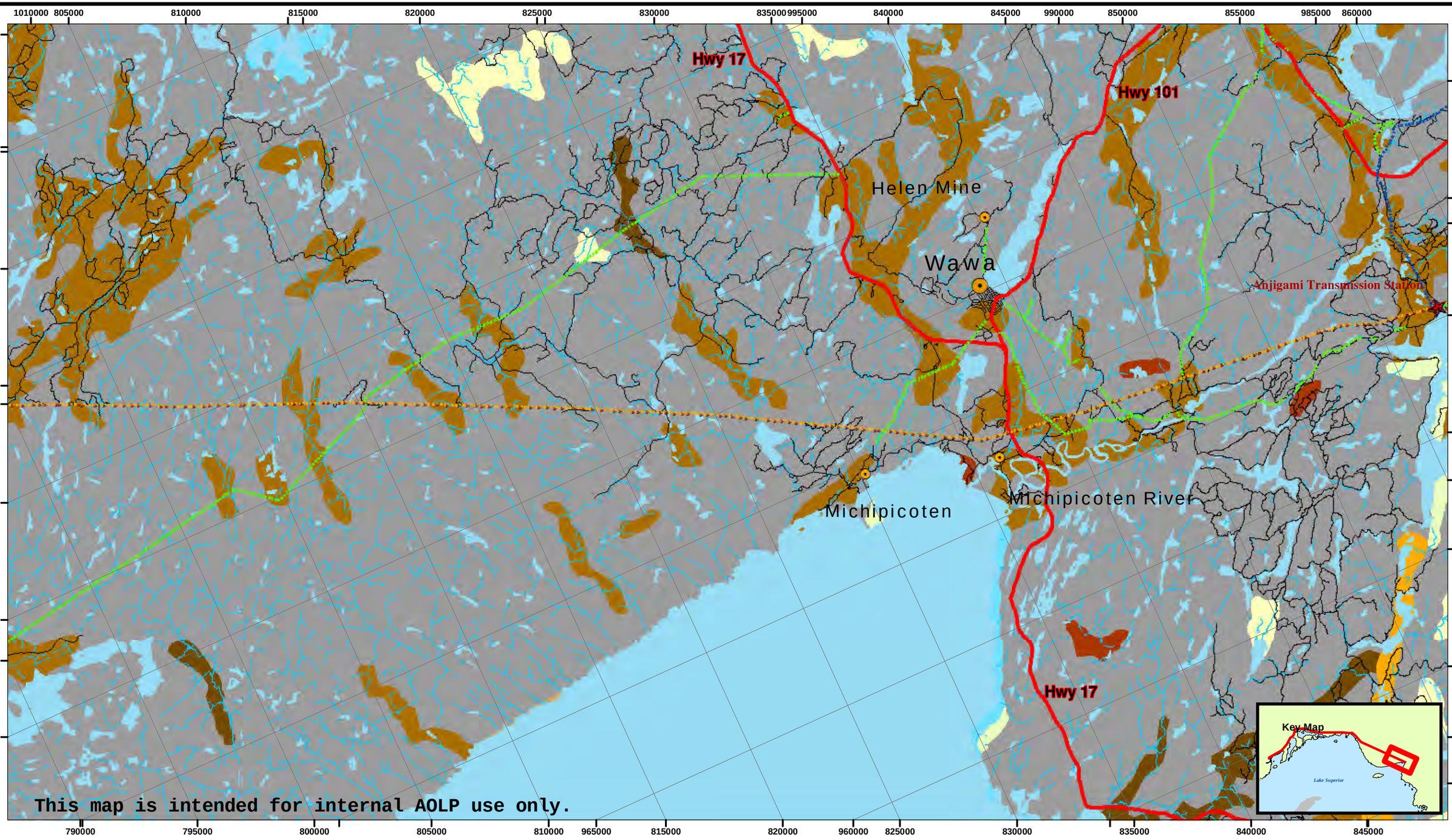
N E S W

East West Tie Transmission Line Geology

Figure #6

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index4_Geology.mxd



Legend

- Hydro One Tower
- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Watercourse
- Waterbody

Geology

- Fluvial Deposits
- Glaciofluvial Outwash Deposits
- Glaciofluvial Ice-contact Deposits
- Glacioacustrine Deposits
- Glaciomarine and Marine Deposits
- Lacustrine Deposits
- Organic Deposits
- Till
- Bedrock

3.5 1.75 0 3.5 Kilometers

Scale: 1:170,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

N E S W

East West Tie Transmission Line Geology

Figure #7

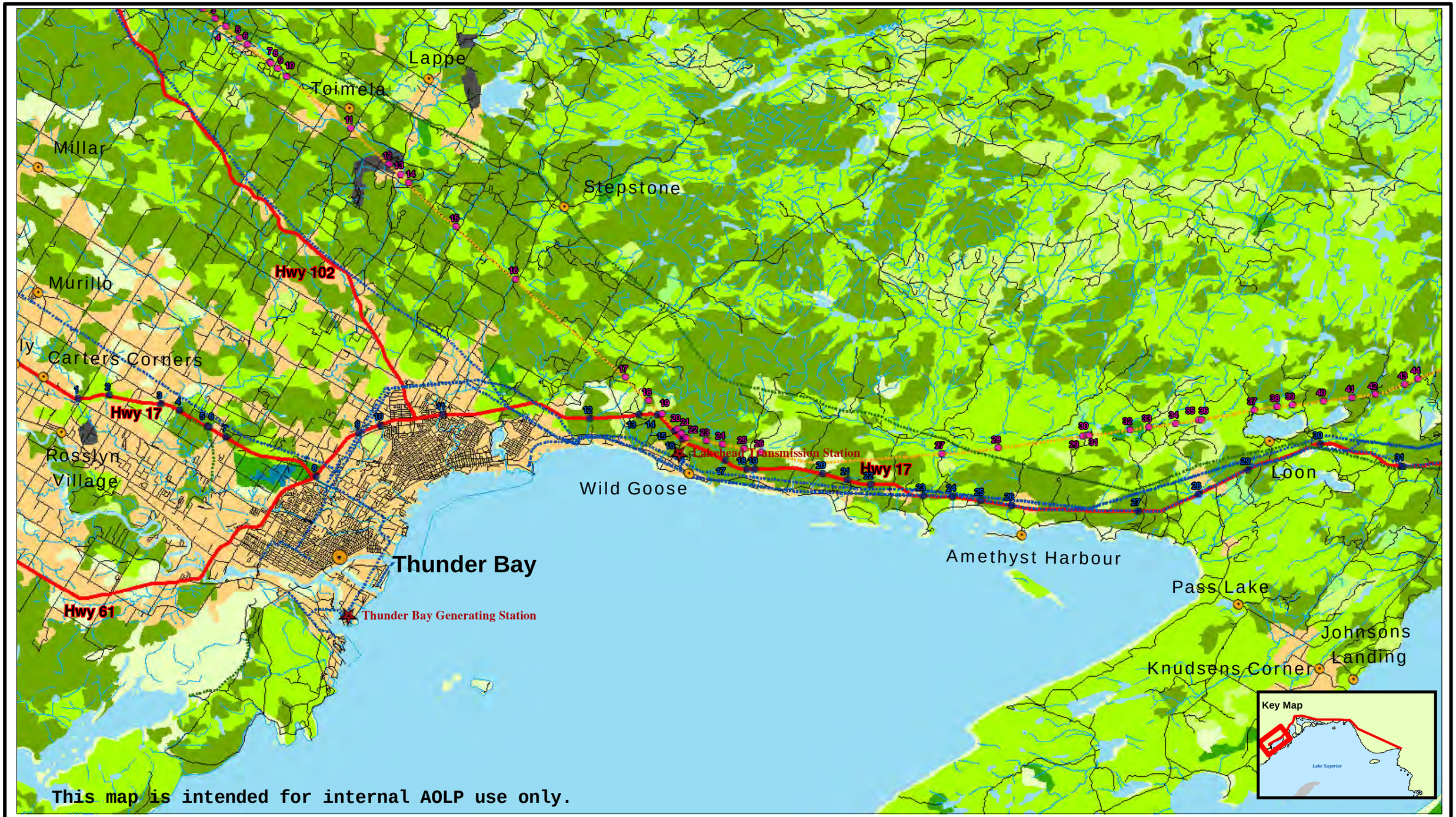
AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index4_Geology.mxd

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Map Book 3

Land Cover and Watercourses



Legend

- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road

Land Cover Classification

- Dense Coniferous Forest
- Dense Deciduous Forest
- Mixed Forest
- Successional Forest
- Early Successional Forest
- Sparse Forest
- Mine Tailings,Quarries, Bedrock, Outcrop,Mud Flats
- Marshes
- Open Wetlands
- Treed Wetlands
- Water
- Settlement and Developed Land
- Agriculture
- Tundra Heath
- Watercourse
- Wetland

4 2 0 4 Kilometers

Scale: 1:165,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

East West Tie Transmission Line
Landcover and Watercourse Crossings

Figure #1

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index5_Landcover.mxd

Hwy 17

Dorien

Hurkett

Coughlin

Everard

Red Rock

Nipigon

Dorion Landing

Loon

Pearl

Lake Superior

Key Map

This map is intended for internal AOLP use only.

Legend

- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road

Land Cover Classification

- Dense Coniferous Forest
- Dense Deciduous Forest
- Mixed Forest
- Successional Forest
- Early Successional Forest
- Sparse Forest
- Mine Tailings,Quarries, Bedrock, Outcrop,Mud Flats
- Marshes
- Open Wetlands
- Treed Wetlands
- Water
- Settlement and Developed Land
- Agriculture
- Tundra Heath
- Watercourse
- Wetland

4 2 0 4 Kilometers

Scale: 1:165,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

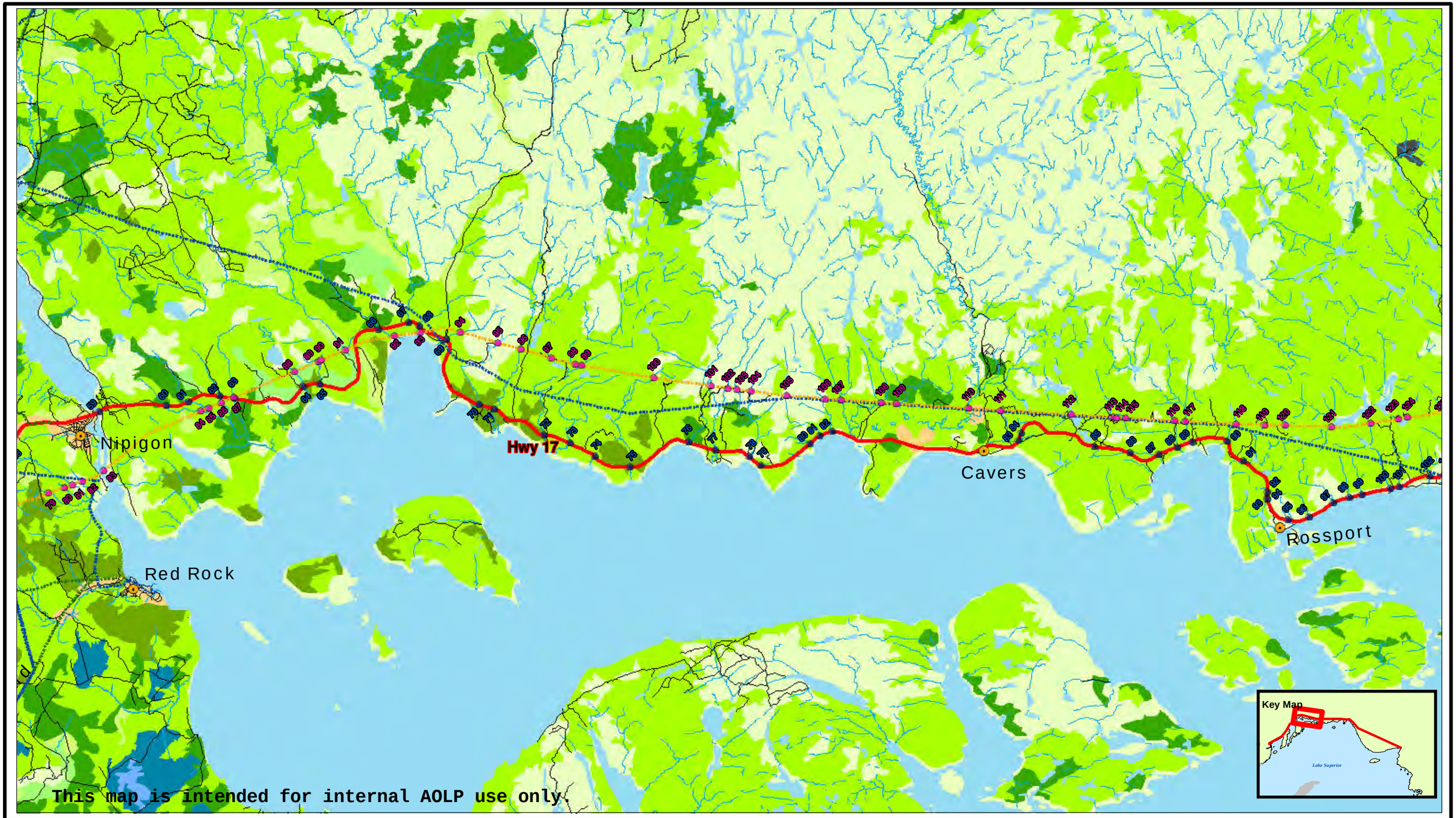
N W E S

East West Tie Transmission Line
Landcover and Watercourse Crossings

Figure #2

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index5_Landcover.mxd



Legend

- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road

Land Cover Classification

- Dense Coniferous Forest
- Dense Deciduous Forest
- Mixed Forest
- Successional Forest
- Early Successional Forest
- Sparse Forest
- Mine Tailings,Quarries, Bedrock, Outcrop,Mud Flats
- Marshes
- Open Wetlands
- Treed Wetlands
- Water
- Settlement and Developed Land
- Agriculture
- Tundra Heath
- Watercourse
- Wetland

4 2 0 4 Kilometers

Scale: 1:165,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

N W E S

East West Tie Transmission Line
Landcover and Watercourse Crossings

Figure #3

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index5_Landcover.mxd

Hwy 17

Rossport

Schreiber

Terrace Bay

Ripple

Key Map

Lake Superior

This map is intended for internal AOLP use only.

Legend

- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road

Land Cover Classification

- Dense Coniferous Forest
- Dense Deciduous Forest
- Mixed Forest
- Successional Forest
- Early Successional Forest
- Sparse Forest
- Mine Tailings,Quarries, Bedrock, Outcrop,Mud Flats
- Marshes
- Open Wetlands
- Treed Wetlands
- Water
- Settlement and Developed Land
- Agriculture
- Tundra Heath
- Watercourse
- Wetland

4 2 0 4 Kilometers

Scale: 1:165,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

N W E S

East West Tie Transmission Line
Landcover and Watercourse Crossings

Figure #4

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index5_Landcover.mxd

Legend

- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road

Land Cover Classification

- Dense Coniferous Forest
- Dense Deciduous Forest
- Mixed Forest
- Successional Forest
- Early Successional Forest
- Sparse Forest
- Mine Tailings,Quarries, Bedrock, Outcrop,Mud Flats
- Marshes
- Open Wetlands
- Treed Wetlands
- Water
- Settlement and Developed Land
- Agriculture
- Tundra Heath
- Watercourse
- Wetland

4 2 0 4 Kilometers

Scale: 1:165,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

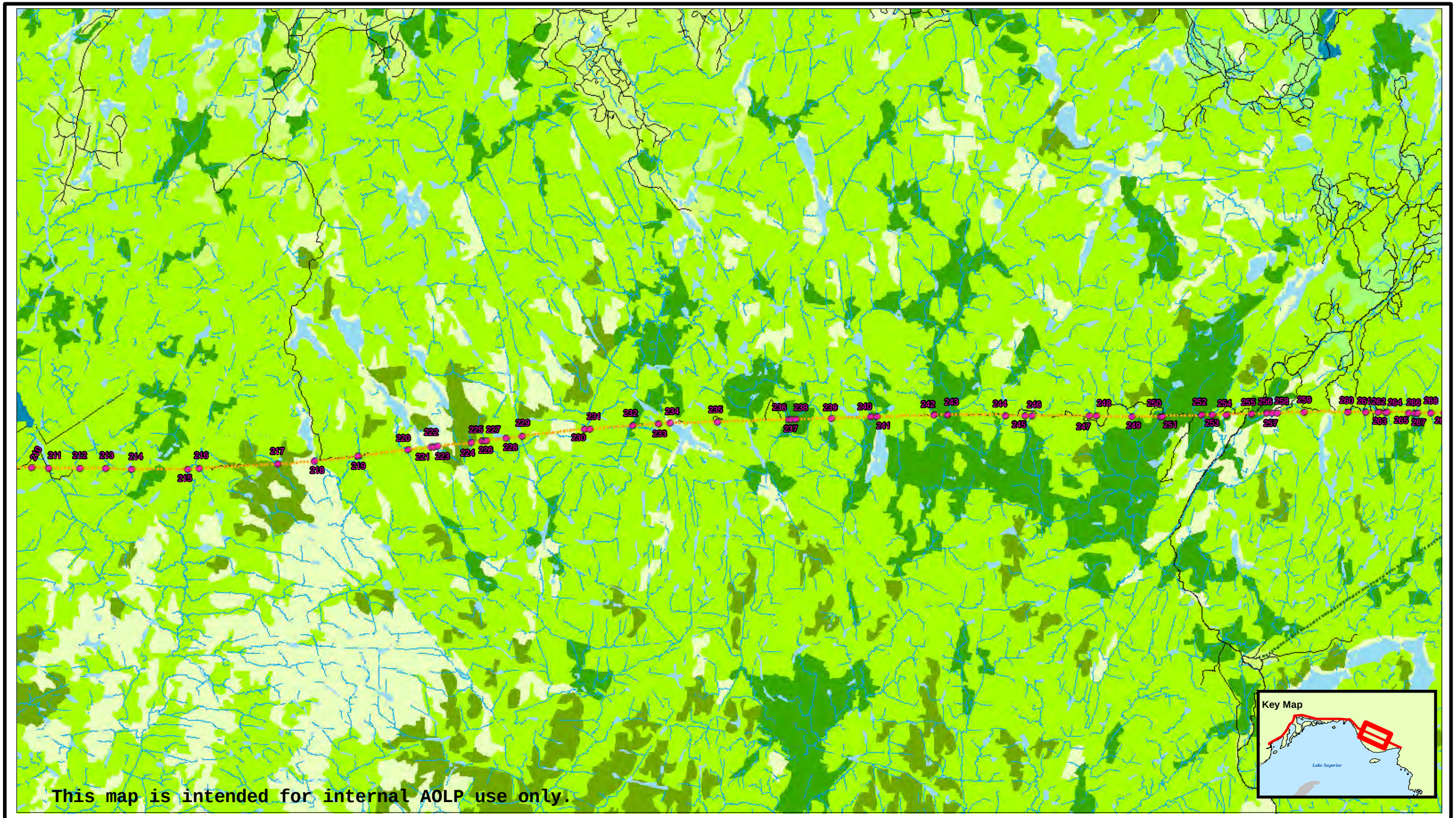
N E W S

East West Tie Transmission Line
Landcover and Watercourse Crossings

Figure #5

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index5_Landcover.mxd



Legend

- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road

Land Cover Classification

- Dense Coniferous Forest
- Dense Deciduous Forest
- Mixed Forest
- Successional Forest
- Early Successional Forest
- Sparse Forest
- Mine Tailings,Quarries, Bedrock, Outcrop,Mud Flats
- Marshes
- Open Wetlands
- Treed Wetlands
- Water
- Settlement and Developed Land
- Agriculture
- Tundra Heath
- Watercourse
- Wetland

4 2 0 4 Kilometers

Scale: 1:165,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

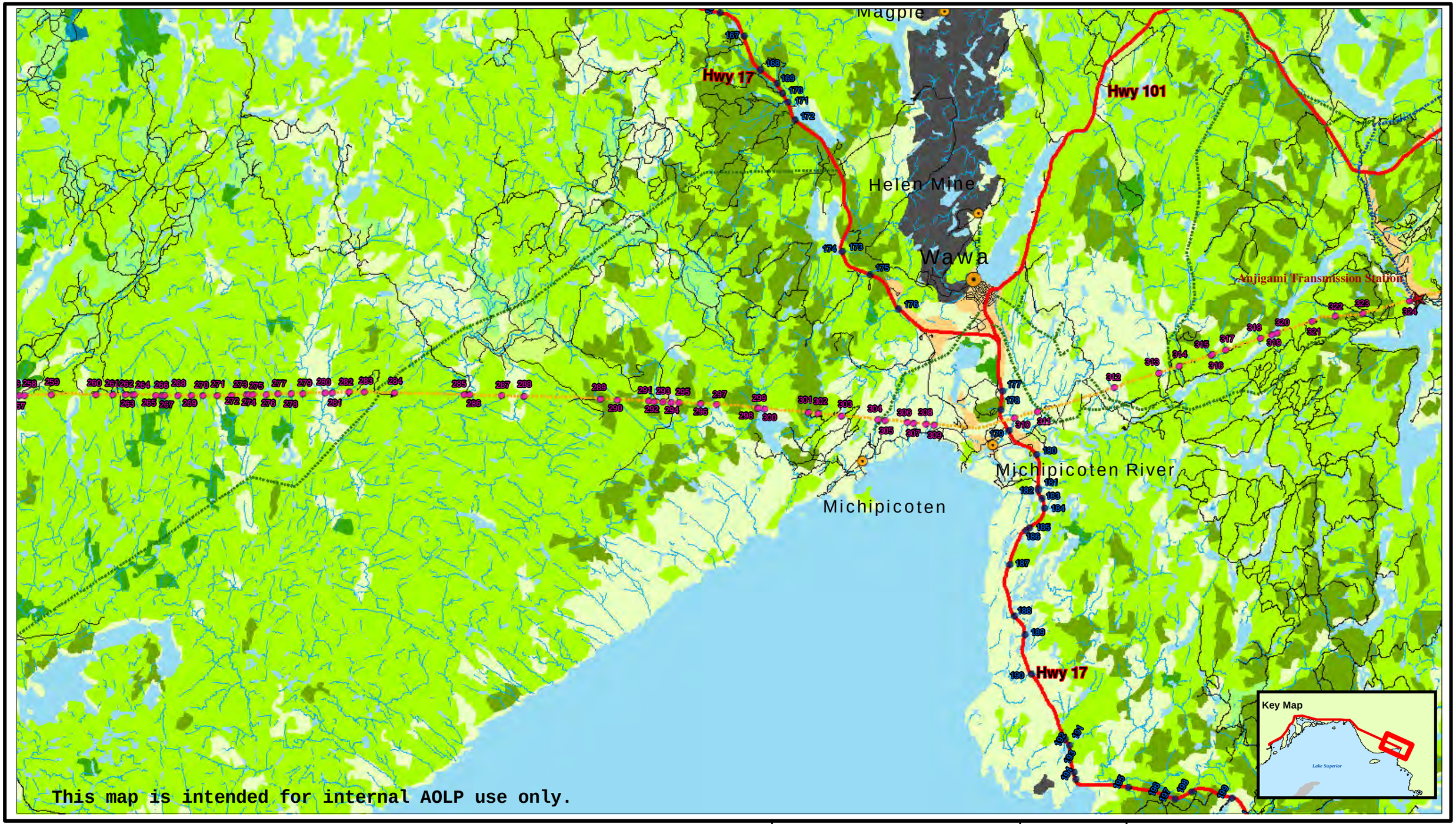
N E S W

East West Tie Transmission Line
Landcover and Watercourse Crossings

Figure #6

AOLP SNC·LAVALIN

Path: E:\Atalink_Transmission_Line\MXD\East_West_Tie_Index5_Landcover.mxd



Legend

- Transmission Stations
- City
- Community/Town
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road

Land Cover Classification

- Dense Coniferous Forest
- Dense Deciduous Forest
- Mixed Forest
- Successional Forest
- Early Successional Forest
- Sparse Forest
- Mine Tailings,Quarries, Bedrock, Outcrop,Mud Flats
- Marshes
- Open Wetlands
- Treed Wetlands
- Water
- Settlement and Developed Land
- Agriculture
- Tundra Heath
- Watercourse
- Wetland

4 2 0 4 Kilometers

Scale: 1:165,000

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

N E W S

East West Tie Transmission Line
Landcover and Watercourse Crossings

Figure #7

AOLP SNC·LAVALIN

Path: E:\Atalink_TransmissionLine\MXD\East_West_Tie_Index5_Landcover.mxd

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Map Book 4

Preferred Route and Optimization Options

This map is intended for internal AOLP use only.

South side to avoid crossover

Hwy crossing

Rail Road

Lakehead Transmission Station

560 559 558 557 556 555 554 553 552 551 550 549 548 547 546 545 544 543 542 541 540

561 562 563

1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5

0.0 0.5

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

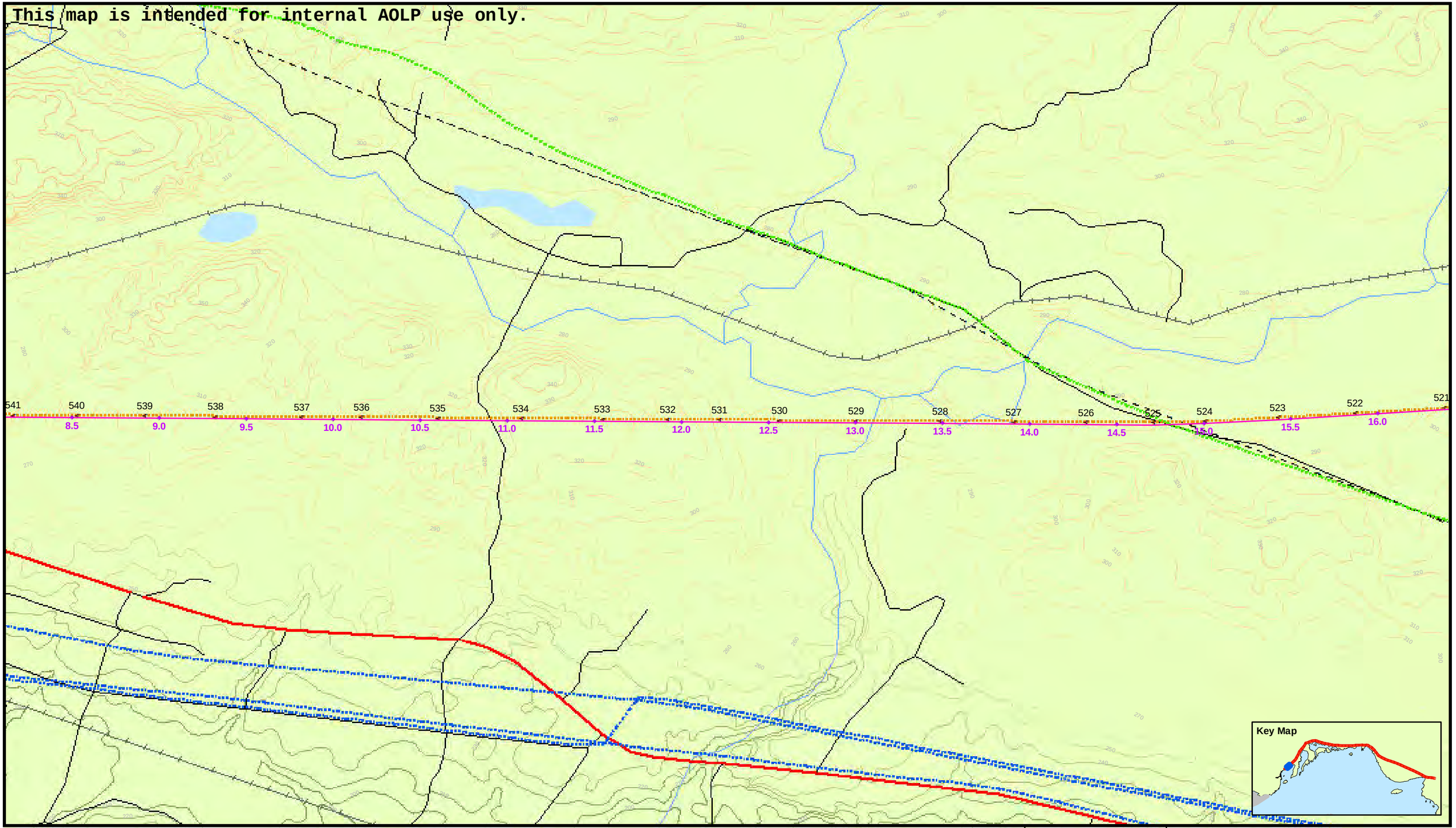
East West Tie Transmission Line
Proposed Line
Figure #1

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #2

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aslink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

521 520 519 518 517 516 515 514 513 512 511 510 509 508 507 506 505 504 503

16.0 16.5 17.0 17.5 18.0 18.5 19.0 19.5 20.0 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0

South side to avoid MacKenzie River

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #3

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

South side to avoid Rail line

Rail Road

Potential Corssover before 492

North side to minimize vewscape riparian and landowner impacts

North side to avoid watercourse

503 24.0 502 24.5 501 25.0 500 25.5 499 26.0 498 26.5 497 27.0 496 27.5 495 28.0 494 28.5 493 29.0 492 29.5 491 30.0 490 30.5 489 31.0 488 31.5 487 32.0 486 485 484 483

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

W N S E

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #4

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

North side to avoid watercourse

484 483 482 481 480 479 478 477 476 475 474 473 472 471 470 469 468 467 466 465 464 463

32.0 32.5 33.0 33.5 34.0 34.5 35.0 35.5 36.0 36.5 37.0 37.5 38.0 38.5 39.0 39.5

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #5

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

House

Old barn
Agricultural land

Barn shed

463 462 461 460 459 458 457 456 455 454 453 452 451 450 449 448 447 446 445 444

39.5 40.0 40.5 41.0 41.5 42.0 42.5 43.0 43.5 44.0 44.5 45.0 45.5 46.0 46.5 47.0 47.5

Potential crossover
to avoid buildings

South preferred
to minimize landowner impacts

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #6

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Eagle Canyon Adventures

Agricultural land

Agricultural land

Potential corossover

House

Barn shed

444 443 442 441 440 439 438 437 436 435 434 433 432 431 430 429 428 427 426 425 424

47.5 48.0 48.5 49.0 49.5 50.0 50.5 51.0 51.5 52.0 52.5 53.0 53.5 54.0 54.5 55.0 55.5

South side preferred
to minimize Eagle Canyon viewscape
and landowner impacts

South side preferred
to minimize landowner impacts

House

Agric

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N S E Z

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #7

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Alalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

North side preferred
to minimize landowner impacts

North side preferred
to minimize landowner impacts

North side preferred
to minimize landowner impacts

Potential cr
to avoid buil

House

House

House

Agricultural land

424 423 422 421 420 419 418 417 416 415 414 413 412 411 410 409 408 407 406 405 404

55.5 56.0 56.5 57.0 57.5 58.0 58.5 59.0 59.5 60.0 60.5 61.0 61.5 62.0 62.5 63.0

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #8

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Potential crossover to avoid buildings

Shed

Mobile Trailer Buildings

House

Buildings

Large house

South side preferred to minimize landowner impacts

Scrap cars

Remain on south side for 115kV crossover to east

404 403 402 401 400 399 398 397 396 395 394 393 392 391 390 389 388 387 386 385

63.0 63.5 64.0 64.5 65.0 65.5 66.0 66.5 67.0 67.5 68.0 68.5 69.0 69.5 70.0 70.5 71.0

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #9

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

385 384 383 382 381 380 379 378 377 376 375 374 373 372 371 370 369 368 367 366

71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5 76.0 76.5 77.0 77.5 78.0 78.5 79.0

South side preferred
for easier crossing of 115kV
(double tower - lower height to south)

Key Map

Legend

Transmission Stations
Hydro One Tower
City

Voltage

Unknown Voltage Power Line
115 kV Power Line
230 kV Power Line

Major Road
Road
Railway

Watercourses
Waterbody
Wetland

Proposed Line Chainage (in km)
Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #10

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Alalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

High tower long span

Hwy and 115kV

Shed

2 rail road crossings

115kV crossing

Long span
with Marker Balls

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #11

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

North preferred
to avoid Provincial Park

Possible crossover

Rail Road

No towers in the park

Hwy crossing

348 347 346 345 344 343 342 341 340 339 338 337 336 335 334 333 332 331 330

87.0 87.5 88.0 88.5 89.0 89.5 90.0 90.5 91.0 91.5 92.0 92.5 93.0 93.5 94.0 94.5 95.0

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #12

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlantic_Transmission\Line\MXD\East West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Hwy crossing

Rail Road

Riparian buffer
- Prefer noth side

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #13

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Hwy crossing

Low 115kV

Rail Road

Steep incline to Kama Hills

Jackpine River

Steep decline

Riparian buffer - Prefer noth side

310 309 308 307 306 305 304 303 302 301 300 299 298 297 296 295 294 293 292

103.5 103.0 104.0 104.5 105.0 105.5 106.0 106.5 107.0 107.5 108.0 108.5 109.0 109.5 110.0 110.5

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

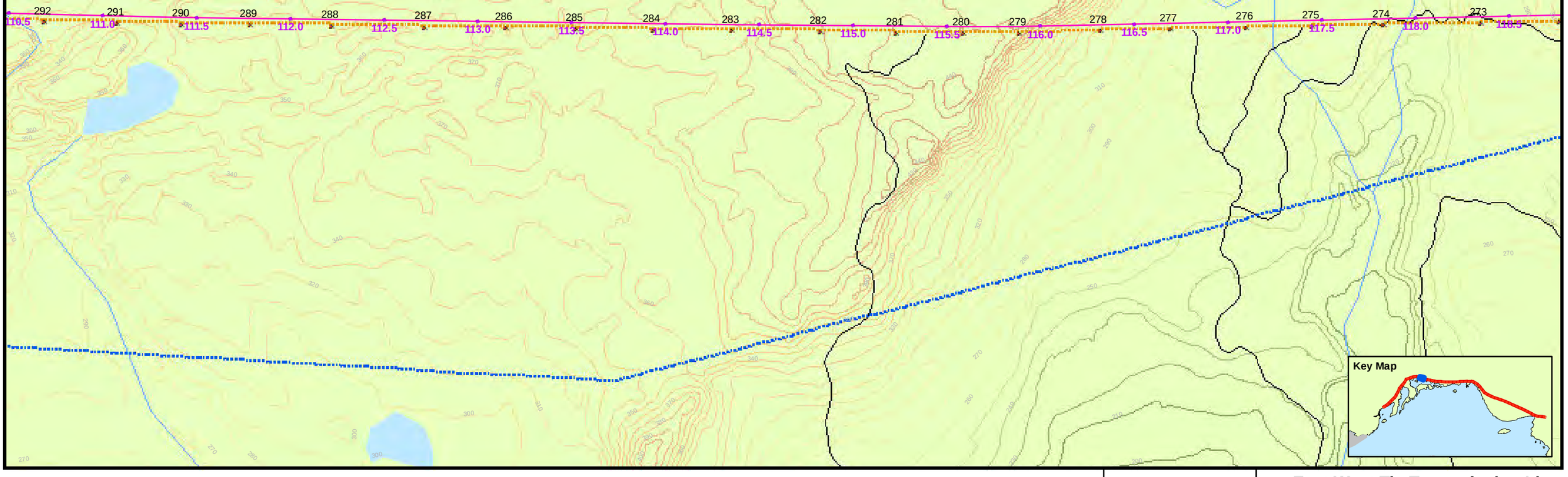
East West Tie Transmission Line
Proposed Line
Figure #14

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Alalink_TransmissionLine\MXD\East_West_Tie_PreposedLine.mxd

This map is intended for internal AOLP use only.



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

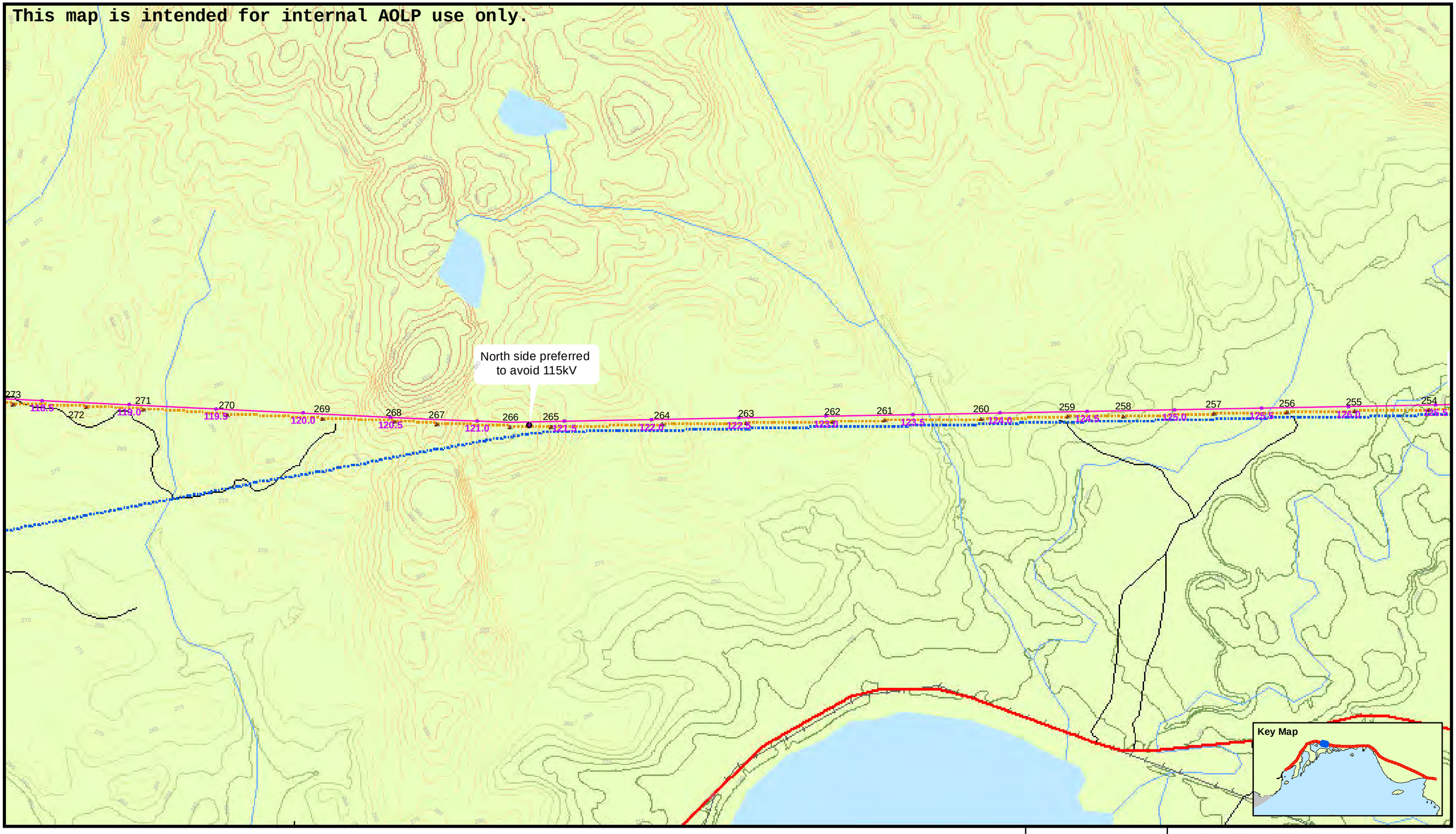
East West Tie Transmission Line
Proposed Line
Figure #15

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #16

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlantic_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Tiles with poles 252-212 not provided
- Assume north side

254 253 252 251 250 249 248 247 246 245 244 243 242 241 240 239 238 237

126.5 127.0 127.5 128.5 128.4 129.0 129.5 130.0 130.5 131.0 131.5 132.0 132.5 133.0 133.5 134.0

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

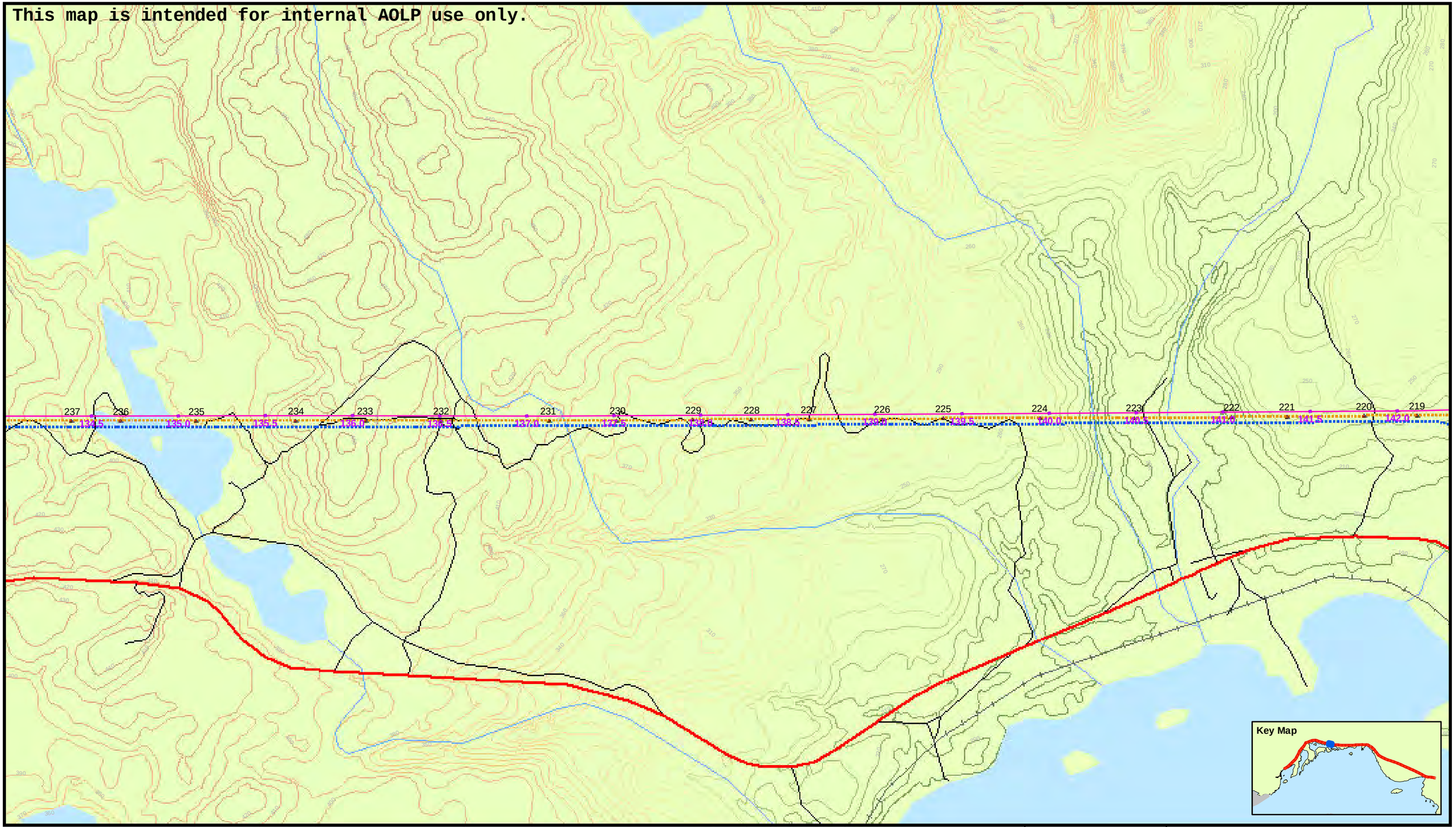
East West Tie Transmission Line
Proposed Line
Figure #17

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlantic_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

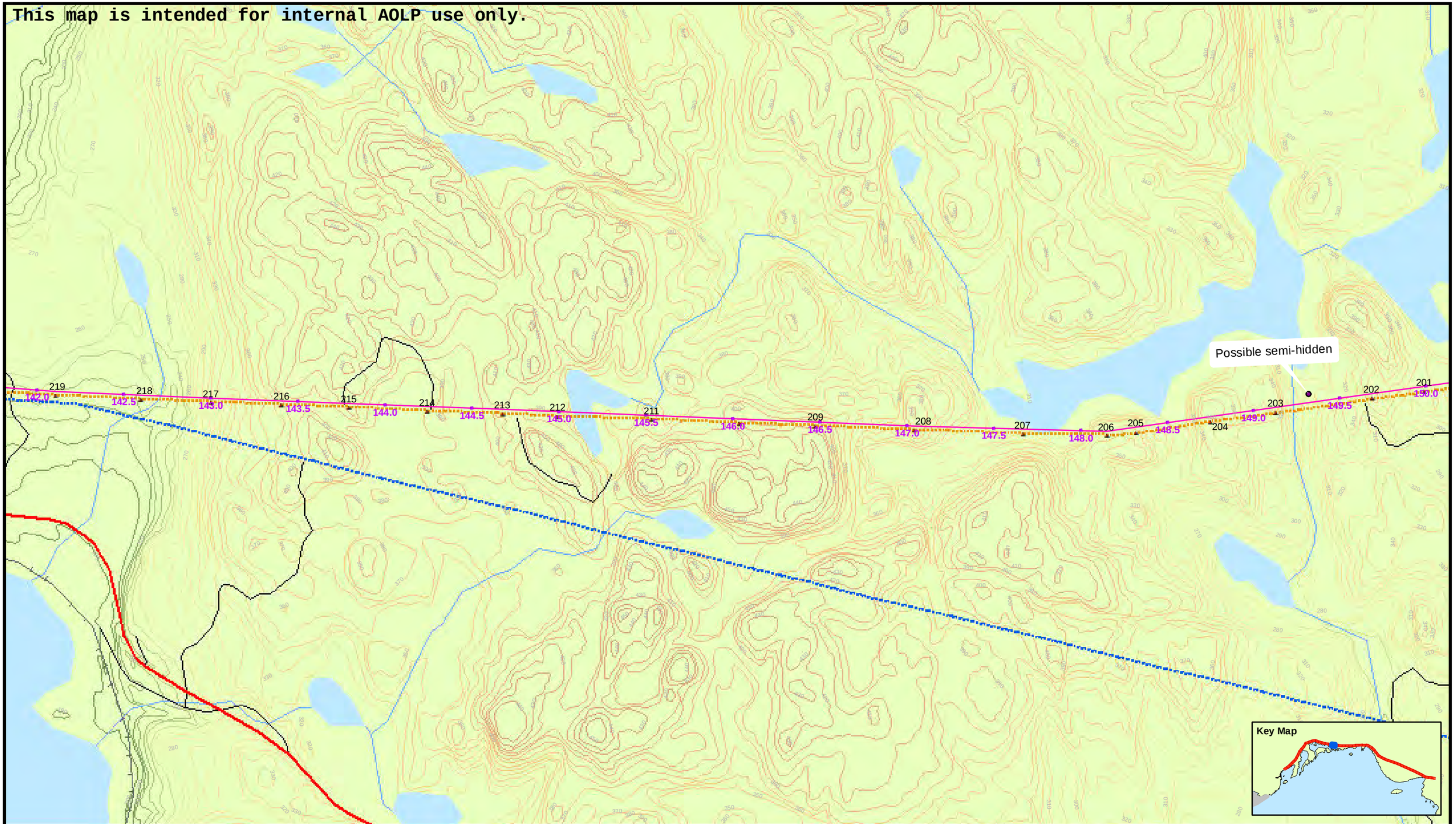
East West Tie Transmission Line
Proposed Line
Figure #18

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

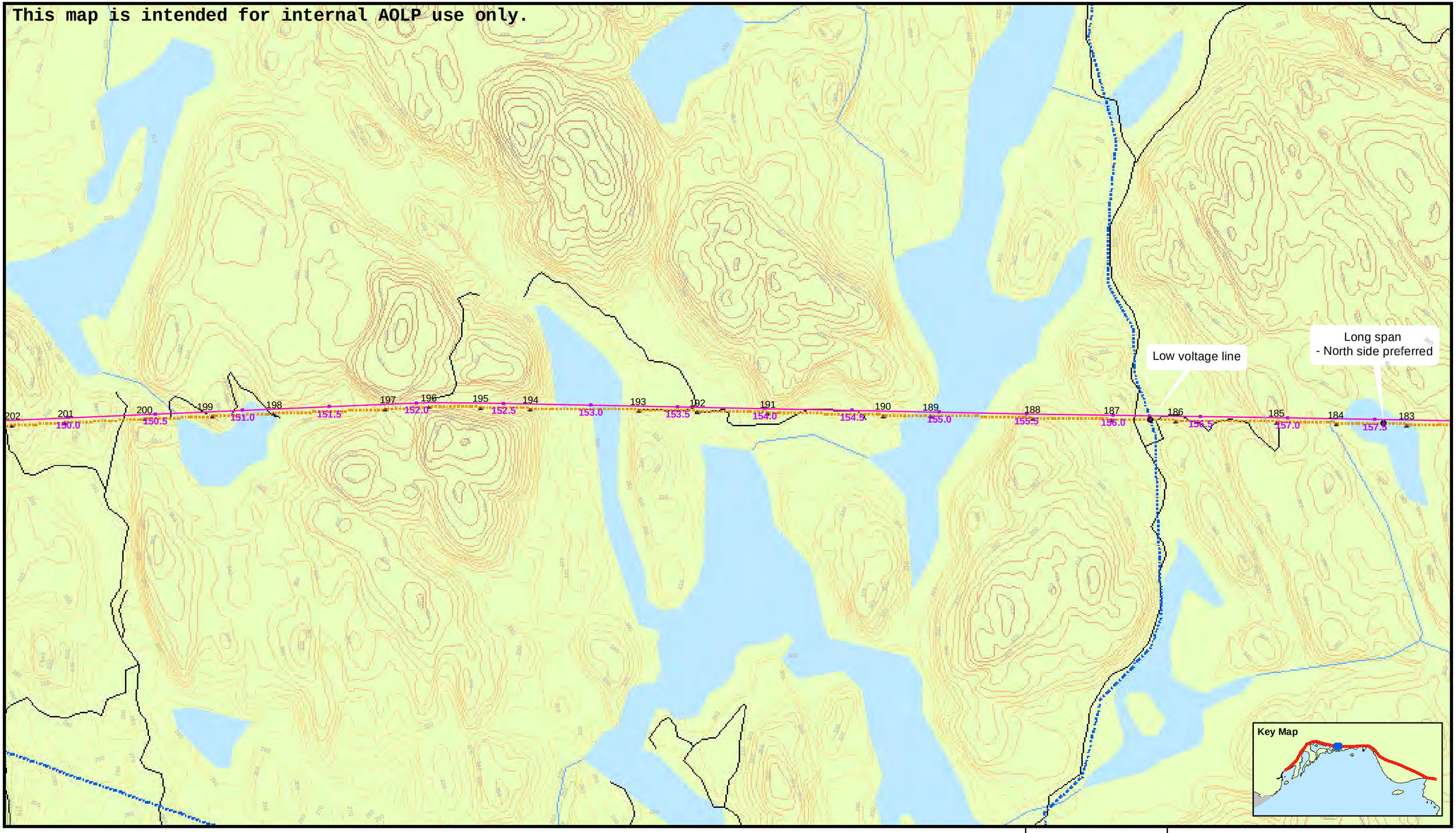
East West Tie Transmission Line
Proposed Line
Figure #19

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalnk_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #20

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

span
e preferred

North side preferred
to avoid waterbody

183 182 181 180 179 178 177 176 175 174 173 172 171 170 169 168 167 166 165 164 163

157.5 158.0 158.5 159.0 159.5 160.0 160.5 161.0 161.5 162.0 162.5 163.0 163.5 164.0 164.5 165.0 165.5

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #21

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

ide preferred
d waterbody

163 165.5 | 162 166.0 | 161 166.5 | 160 167.0 | 159 | 158 167.5 | 157 168.0 | 156 168.5 | 155 169.0 | 154 | 153 169.5 | 152 170.0 | 151 170.5 | 150 171.0 | 149 | 148 171.5 | 147 172.0 | 146 | 145 172.5 | 144 173.0 | 143 173.5

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #22

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlantic_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Hwy crossing

Marker balls on line
- Terrace Bay Airport 400m South

143 142 141 140 139 138 137 136 135 134 133 132 131 130 129 128 127 126 125

173.5 174.0 174.5 175.0 175.5 176.0 176.5 177.0 177.5 178.0 178.5 179.0 179.5 180.0 180.5 181.0

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #23

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Long shallow valley

Low height 115kV

Rail Road

Hwy crossing

North side preferred
to avoid Lake Superior

Rail Road

Rail Road
Not shown on the map

125 181.5 124 182.0 123 182.5 122 183.0 121 183.5 120 184.0 119 184.5 118 185.0 117 185.5 116 186.0 115 186.5 114 187.0 113 187.5 112 188.0 111 188.5 110 189.0 109 108 107

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #24

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Abitibi_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Rail Road

May not be space at convergence for new transmission line
Further Engineering Required

107 189.0
106 189.5
105 190.0
104 190.5
103 191.0
102 191.5
101 192.0
100 192.5
99 193.0
98 193.5
97 194.0
96 194.5
95 195.0
94 195.5
93 196.0
92 196.5
91 197.0
90
89

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

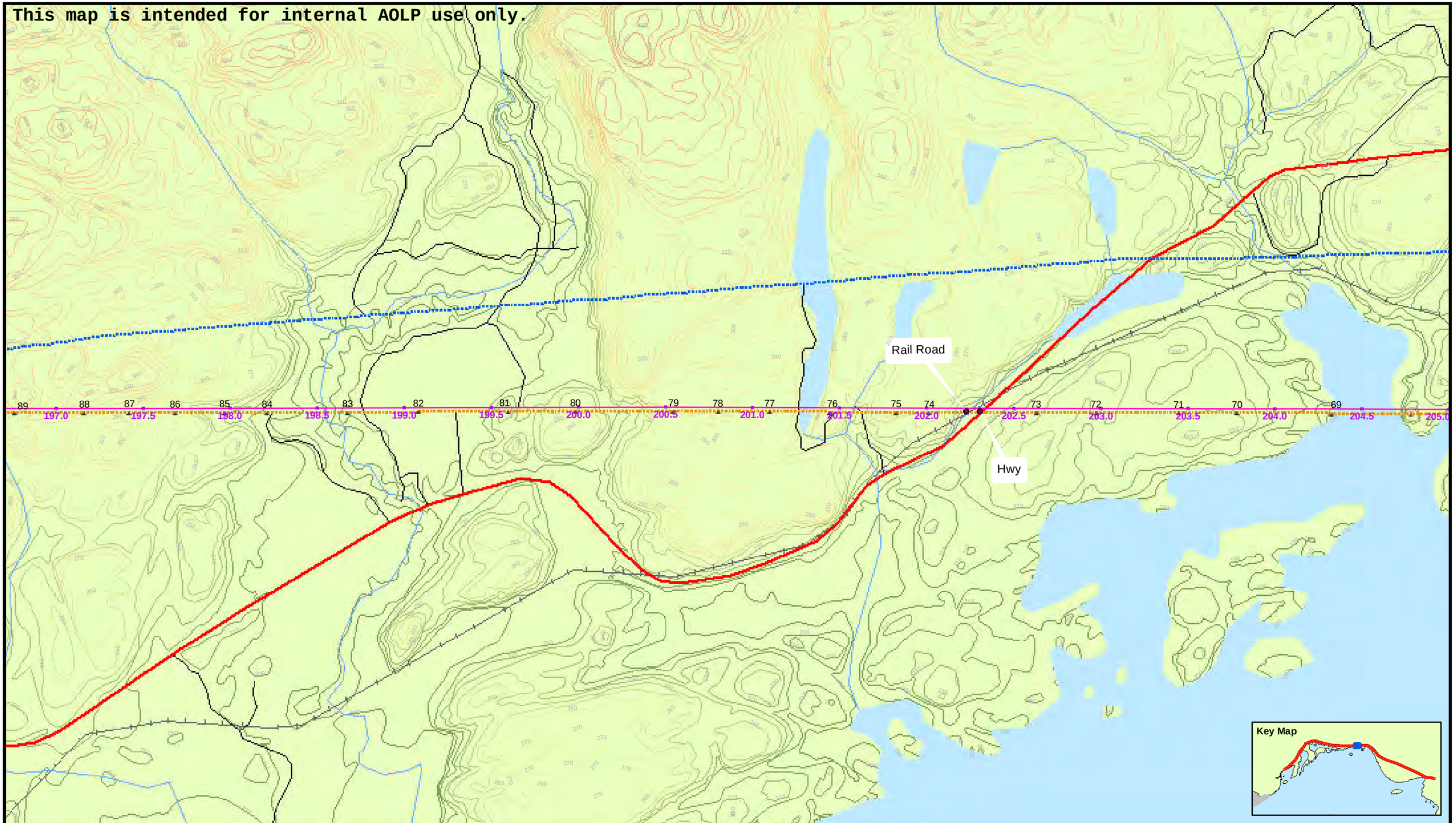
East West Tie Transmission Line
Proposed Line
Figure #25

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #26

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

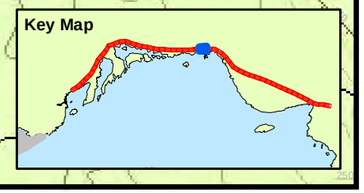
This map is intended for internal AOLP use only.

May not be space at convergence for new transmission line
Further Engineering Required

Steep drop

Hwy crossing

Rail Road



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #27

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlantic_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29

212.5 213.0 213.5 214.0 214.5 215.0 215.5 216.0 216.5 217.0 217.5 218.0 218.5 219.0 219.5 220.0 220.5

Hwy crossing

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #28

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Alaska_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Rail Road

115kV crossing

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #29

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Marathon Transmisssion Station

North side preferred to avoid 115kV

Dwellings

Hwy crossing

Quarry

Hwy crossing

Auto wreckers

Marathon Downhill Skiing

115kV crossover

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #30

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Hwy 627

Rail Road

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

0 250 500 m

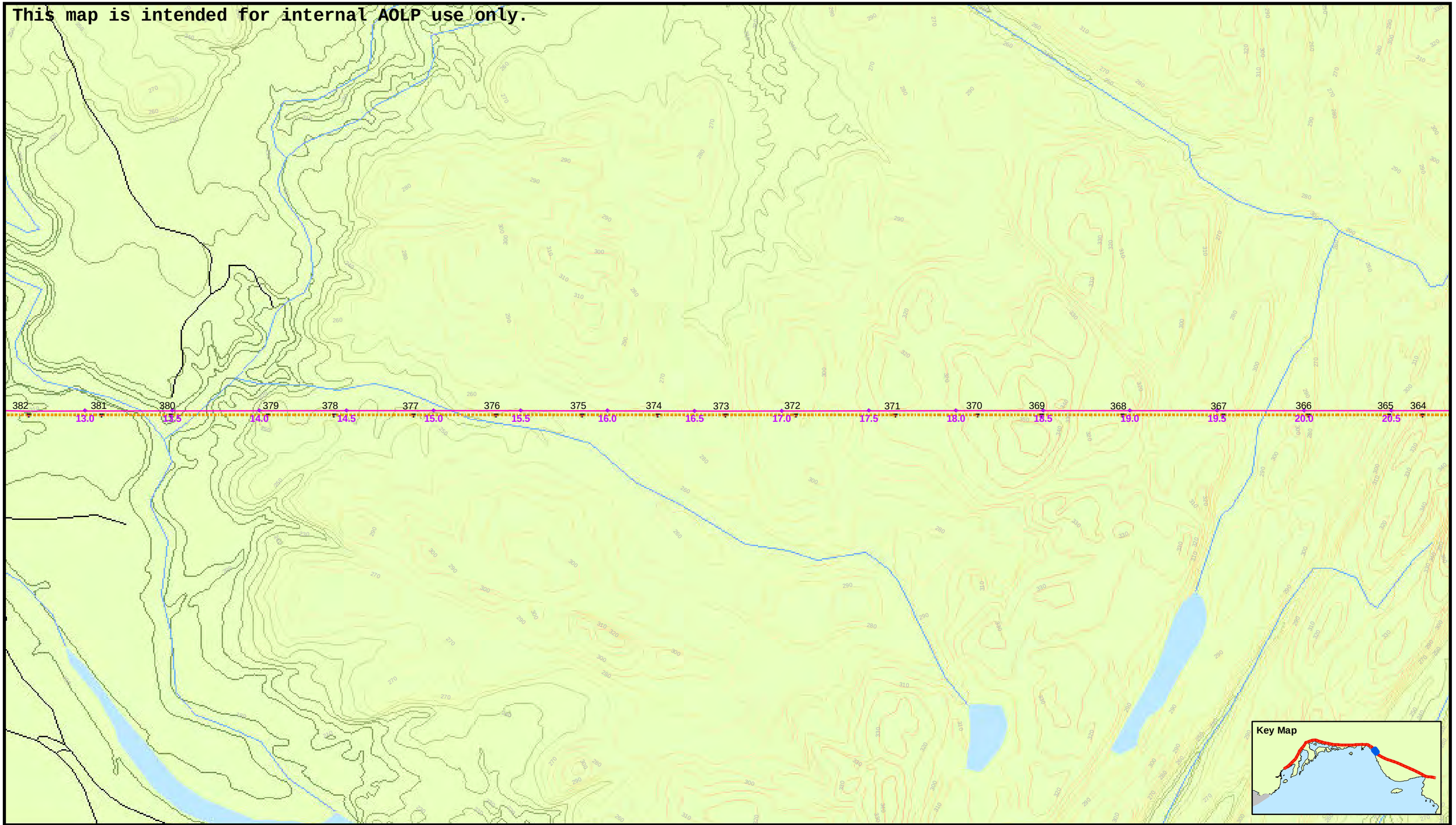
East West Tie Transmission Line
Proposed Line
Figure #31

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #32

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Alalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Deep valley
- Long span

364 20.5
363 21.0
21.5
361 22.0
360 22.5
359 23.0
358
357 23.5
356 24.0
355 24.5
354 25.0
353 25.5
352
351 26.0
350 26.5
349
348 27.0
347 27.5
346
345 28.0
344 28.5

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

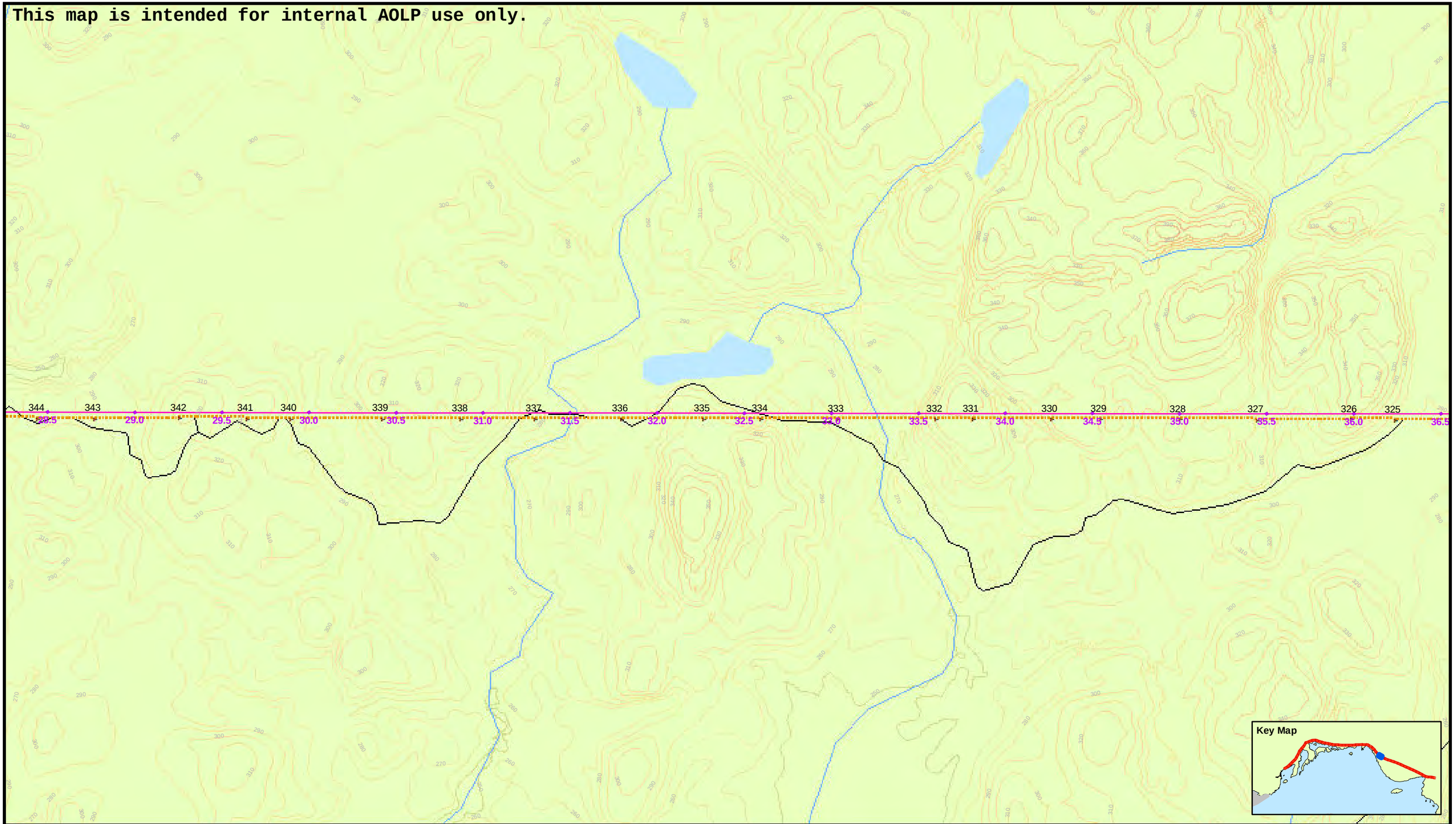
East West Tie Transmission Line
Proposed Line
Figure #33

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlantk_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

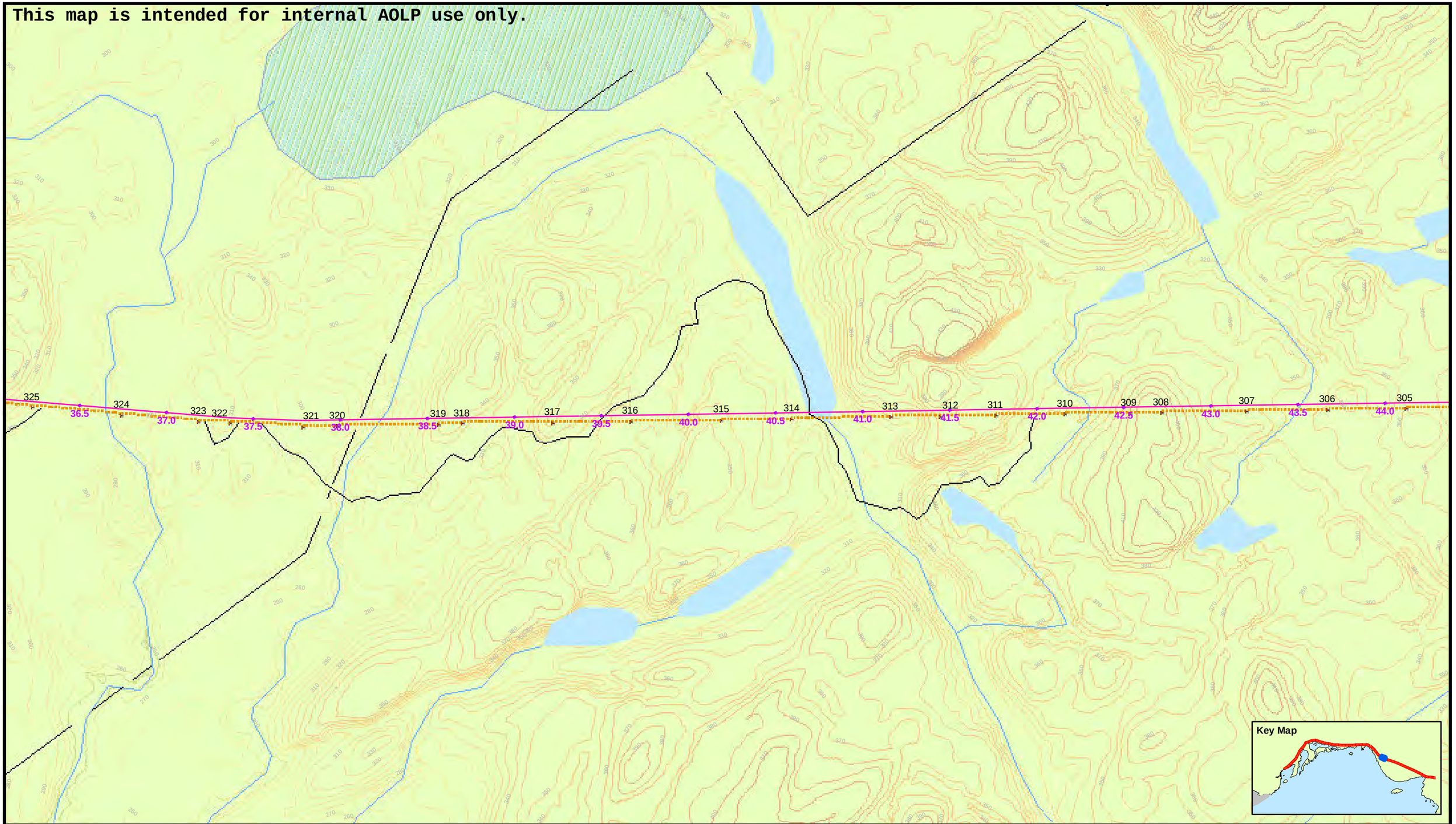
East West Tie Transmission Line
Proposed Line
Figure #34

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

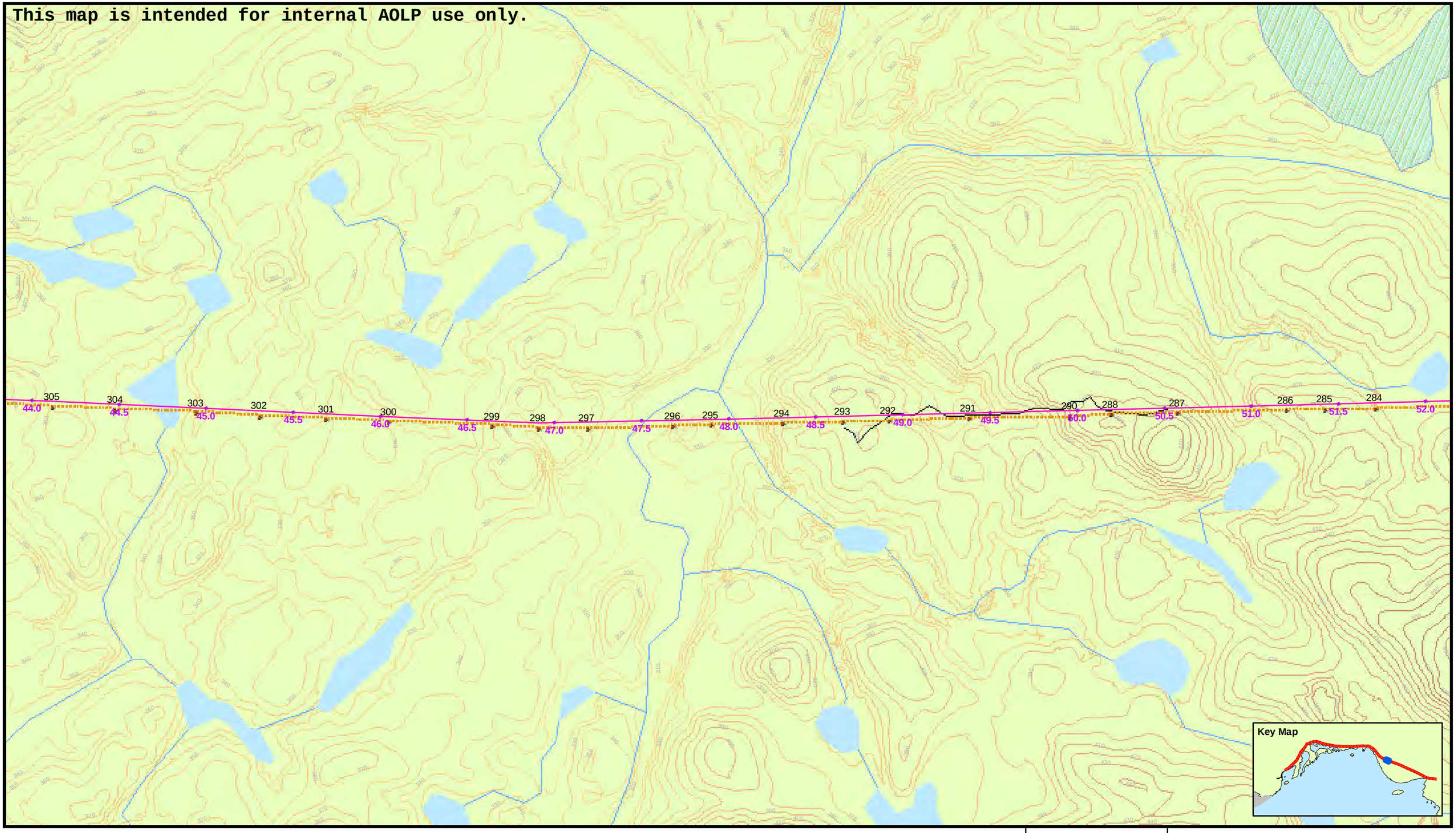
East West Tie Transmission Line
Proposed Line
Figure #35

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

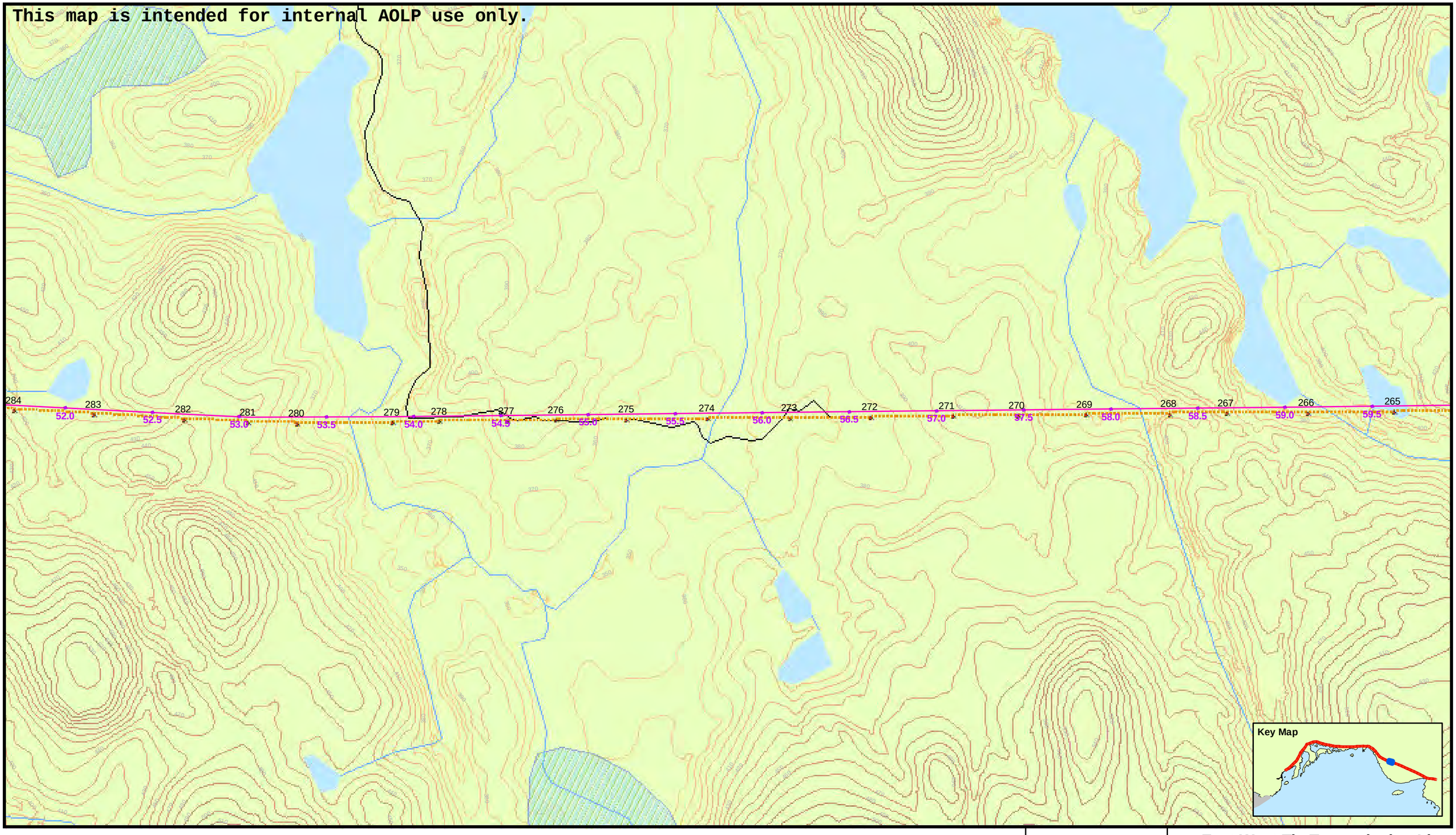
East West Tie Transmission Line
Proposed Line
Figure #36

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

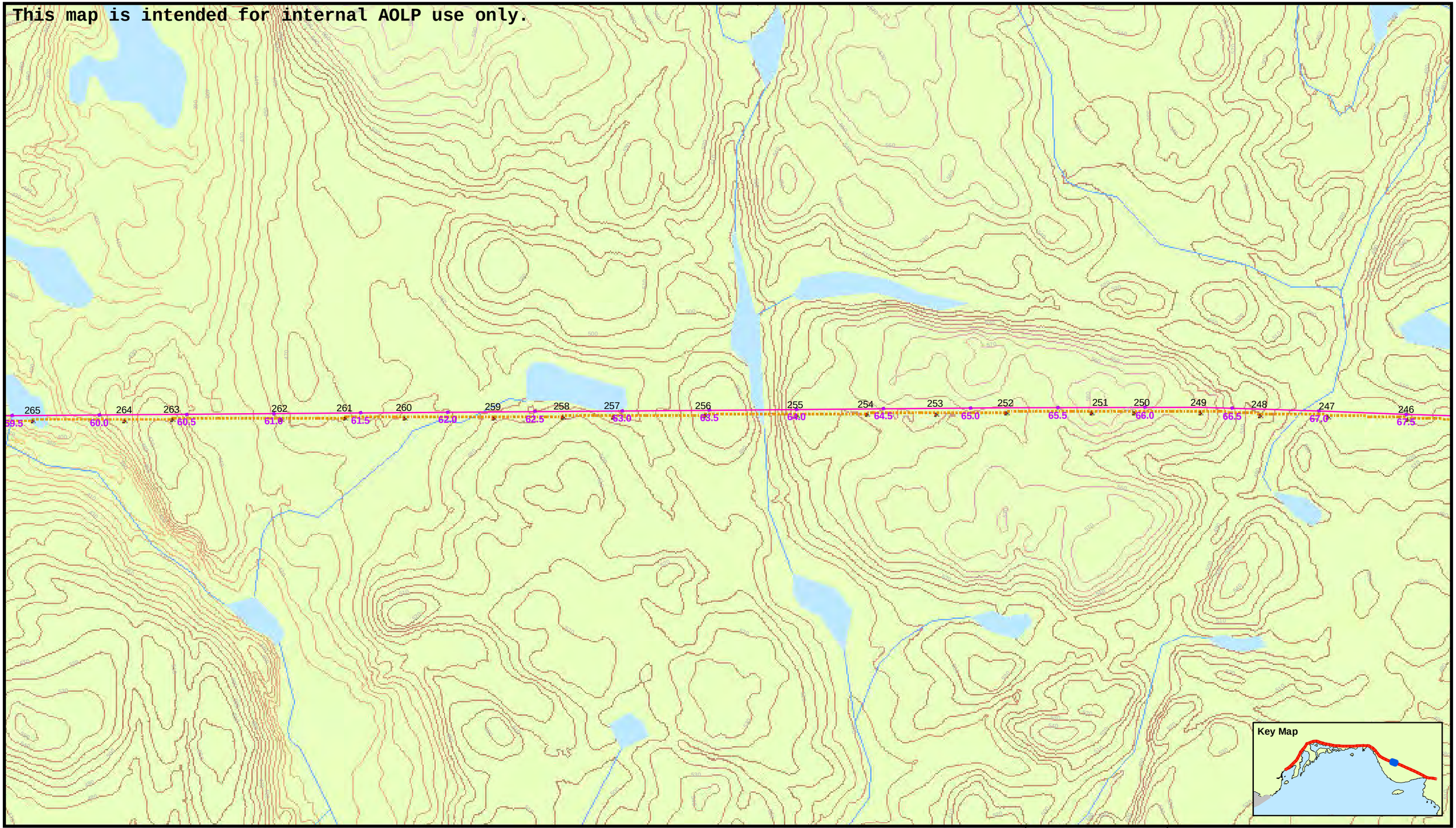
East West Tie Transmission Line
Proposed Line
Figure #37

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalnk_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #38

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

North side preferred
- Wet area

North side preferred
- Long span

246 245 244 243 242 241 240 239 238 237 236 235 234 233 232 231 230 229 228 227

67.5 68.0 68.5 69.0 69.5 70.0 70.5 71.0 71.5 72.0 72.5 73.0 73.5 74.0 74.5 75.0 75.5

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

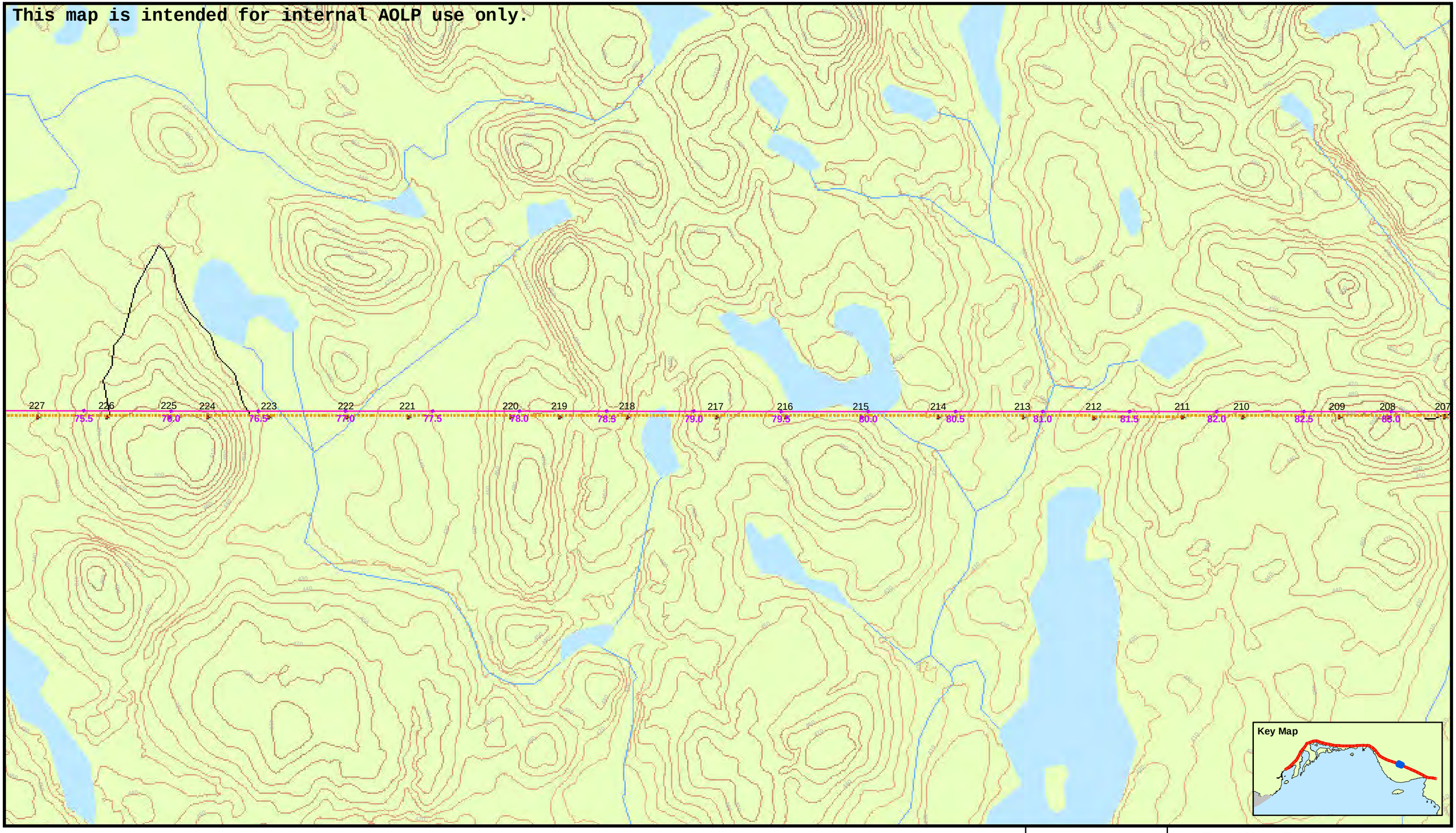
East West Tie Transmission Line
Proposed Line
Figure #39

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalnk_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

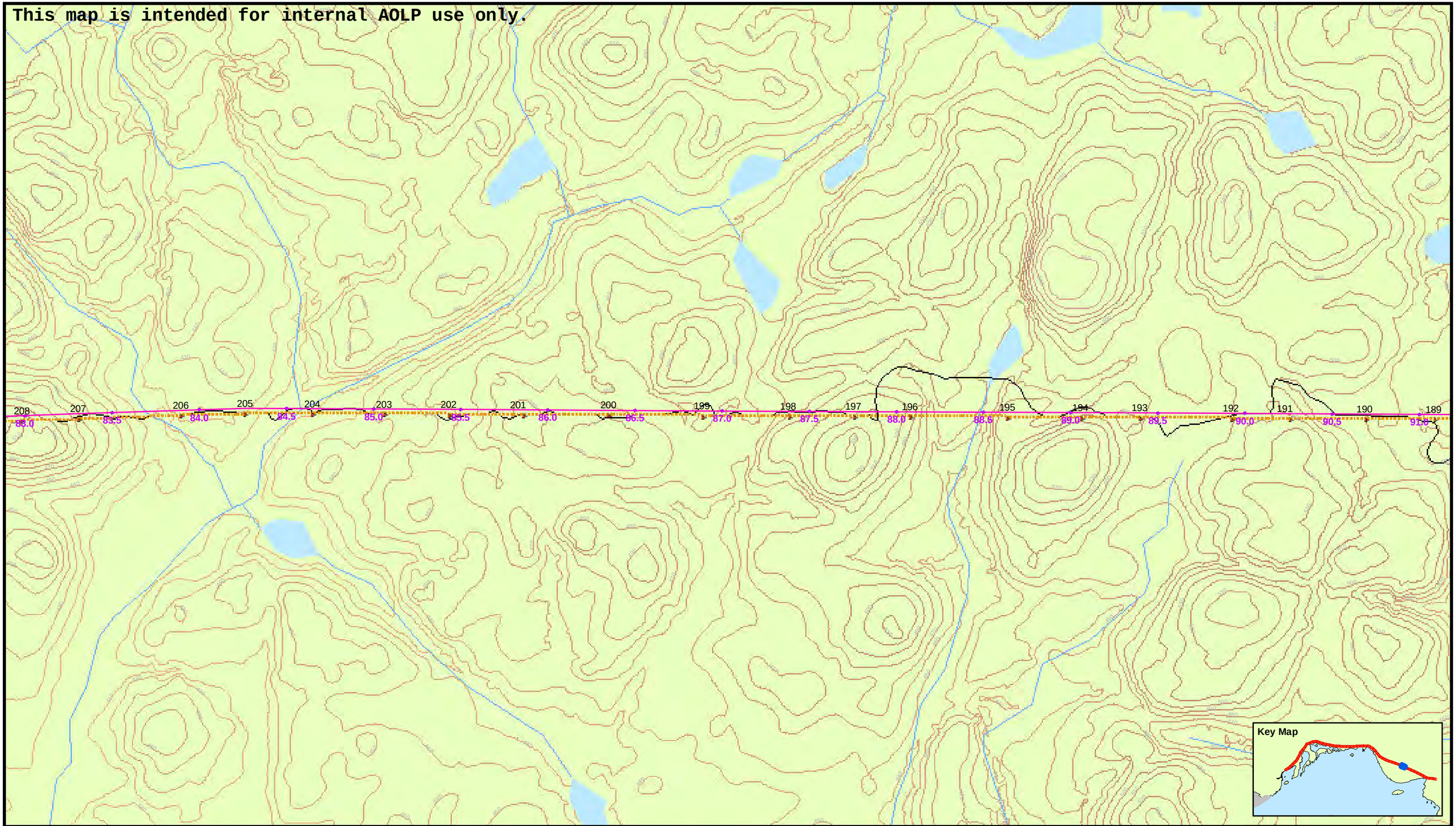
East West Tie Transmission Line
Proposed Line
Figure #40

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

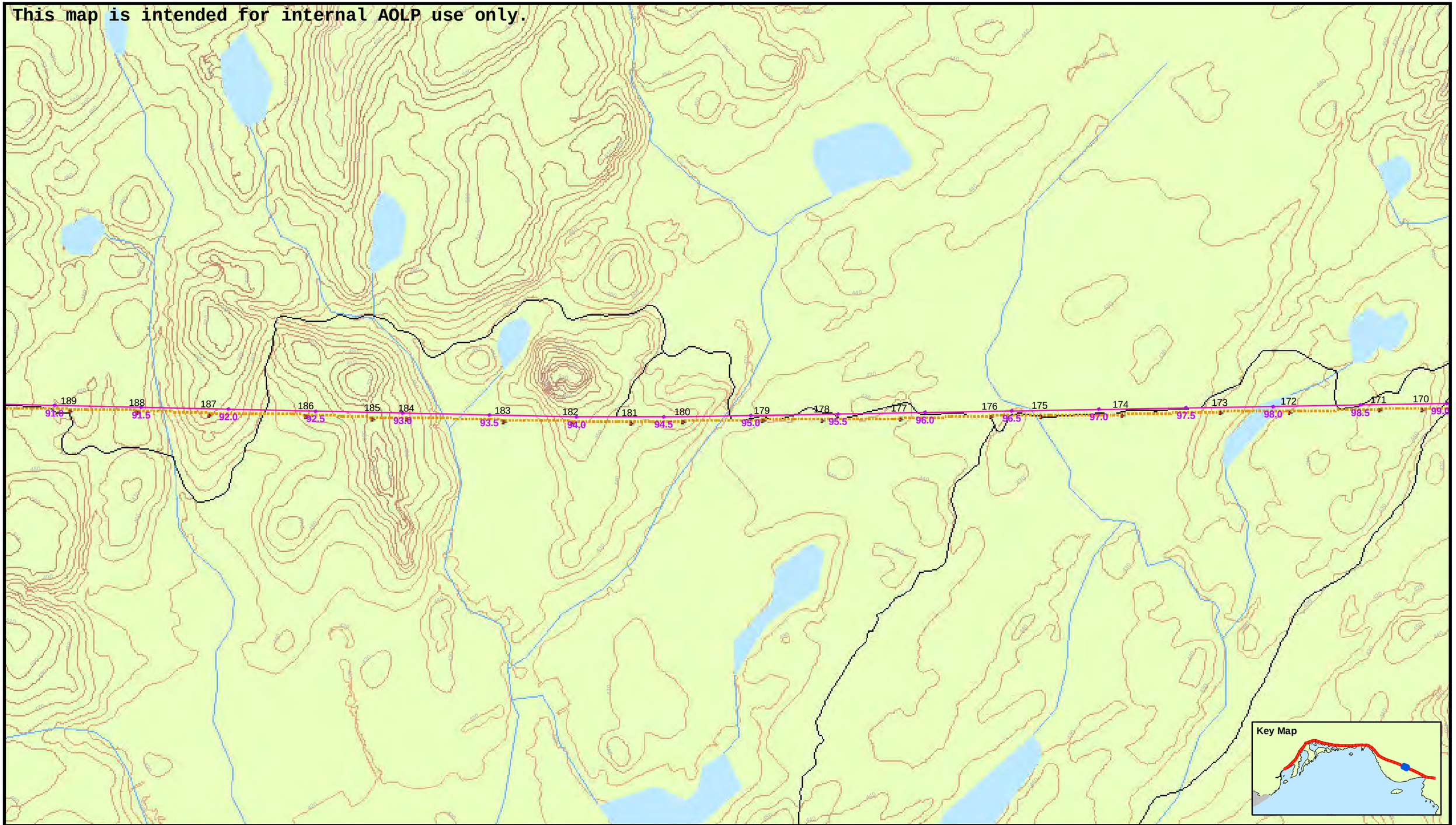
East West Tie Transmission Line
Proposed Line
Figure #41

AOLP SNC•LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atiamk_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

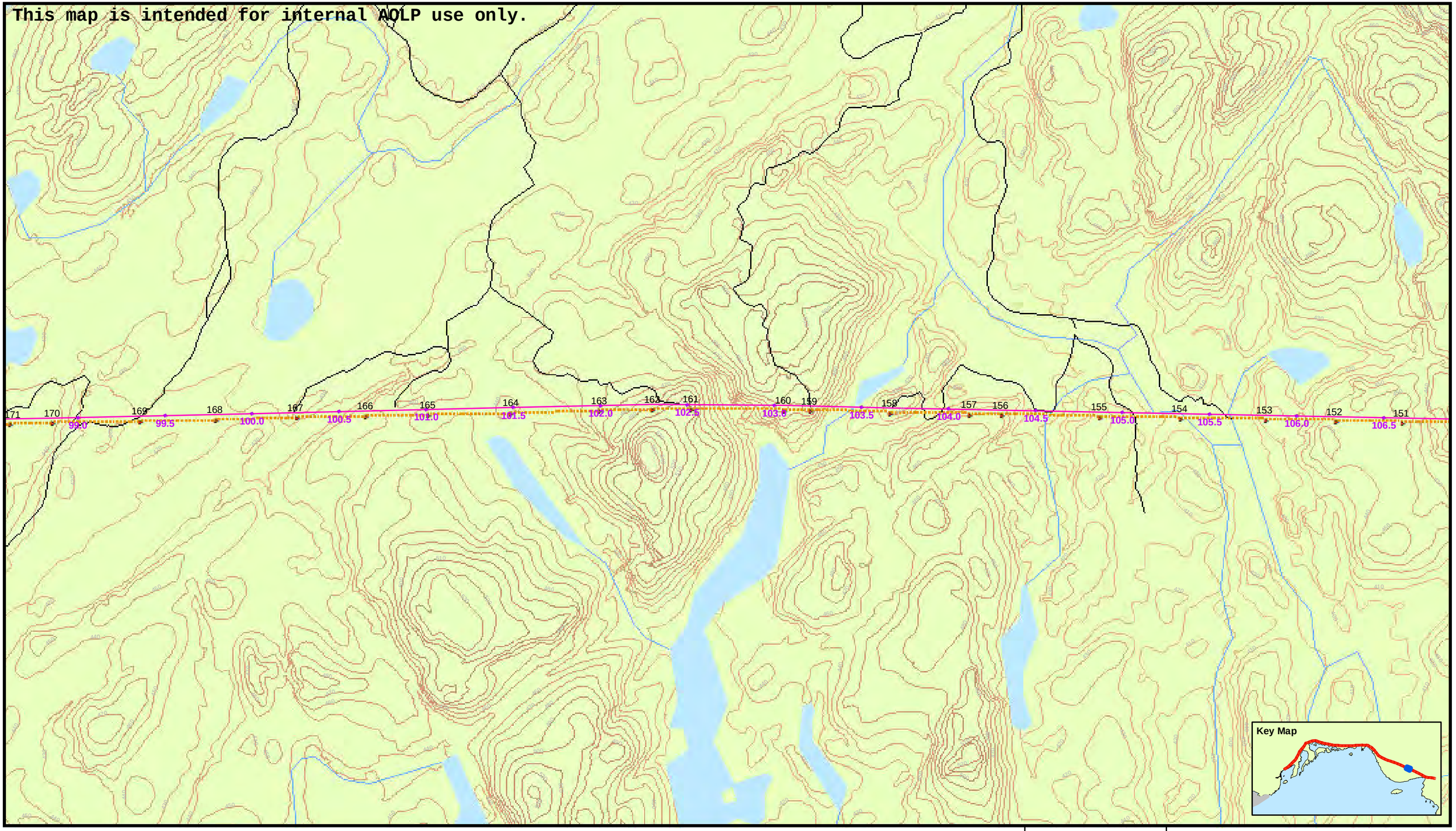
East West Tie Transmission Line
Proposed Line
Figure #42

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #43

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

151 106.5 — 150 107.0 — 149 107.5 — 148 108.0 — 147 — 146 108.5 — 145 109.0 — 144 109.5 — 143 110.0 — 142 — 141 110.5 — 140 111.0 — 139 111.5 — 138 112.0 — 137 112.5 — 136 113.0 — 135 113.5 — 134 114.0 — 133 — 132 114.5

Key Map

Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

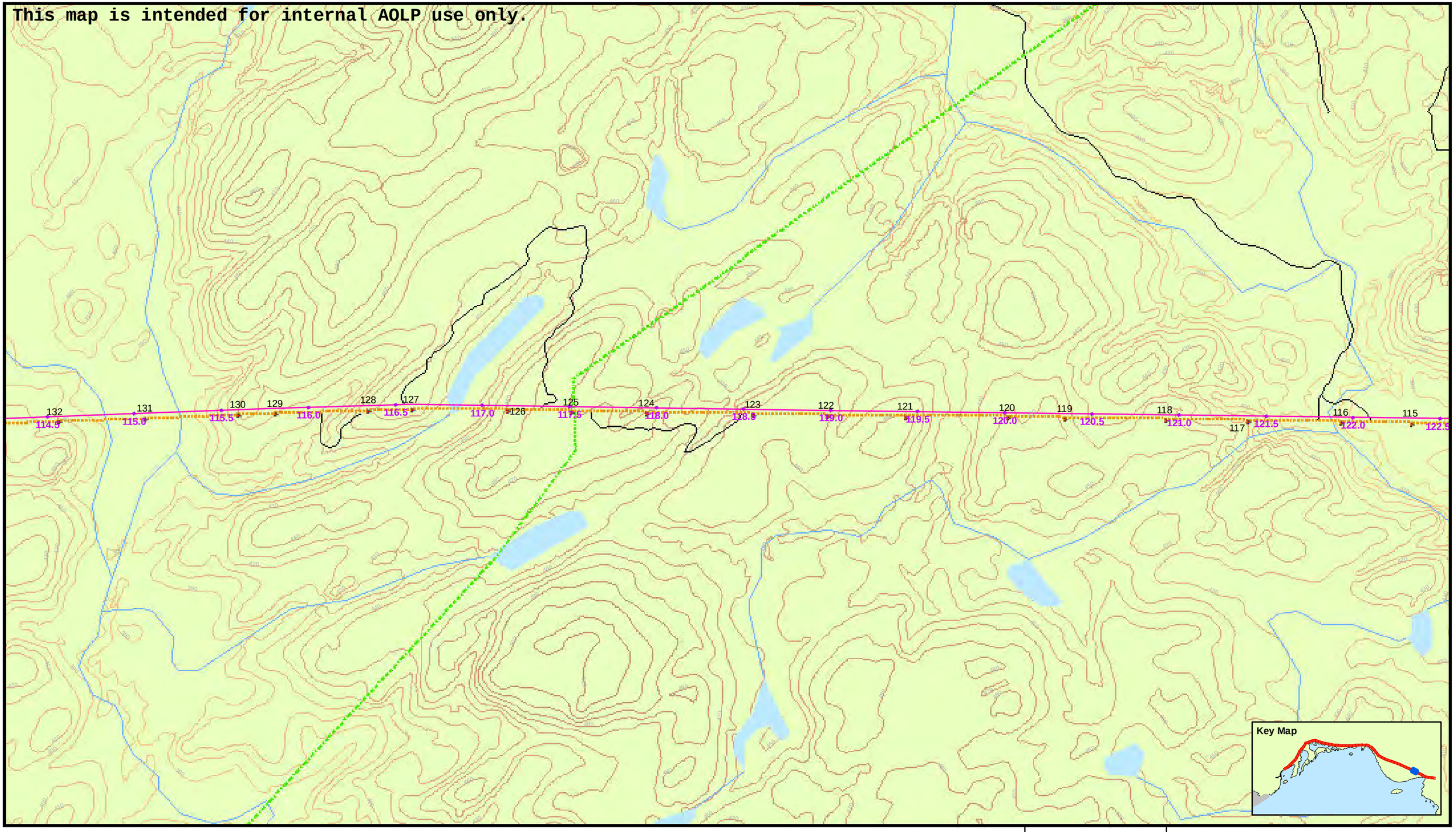
East West Tie Transmission Line
Proposed Line
Figure #44

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

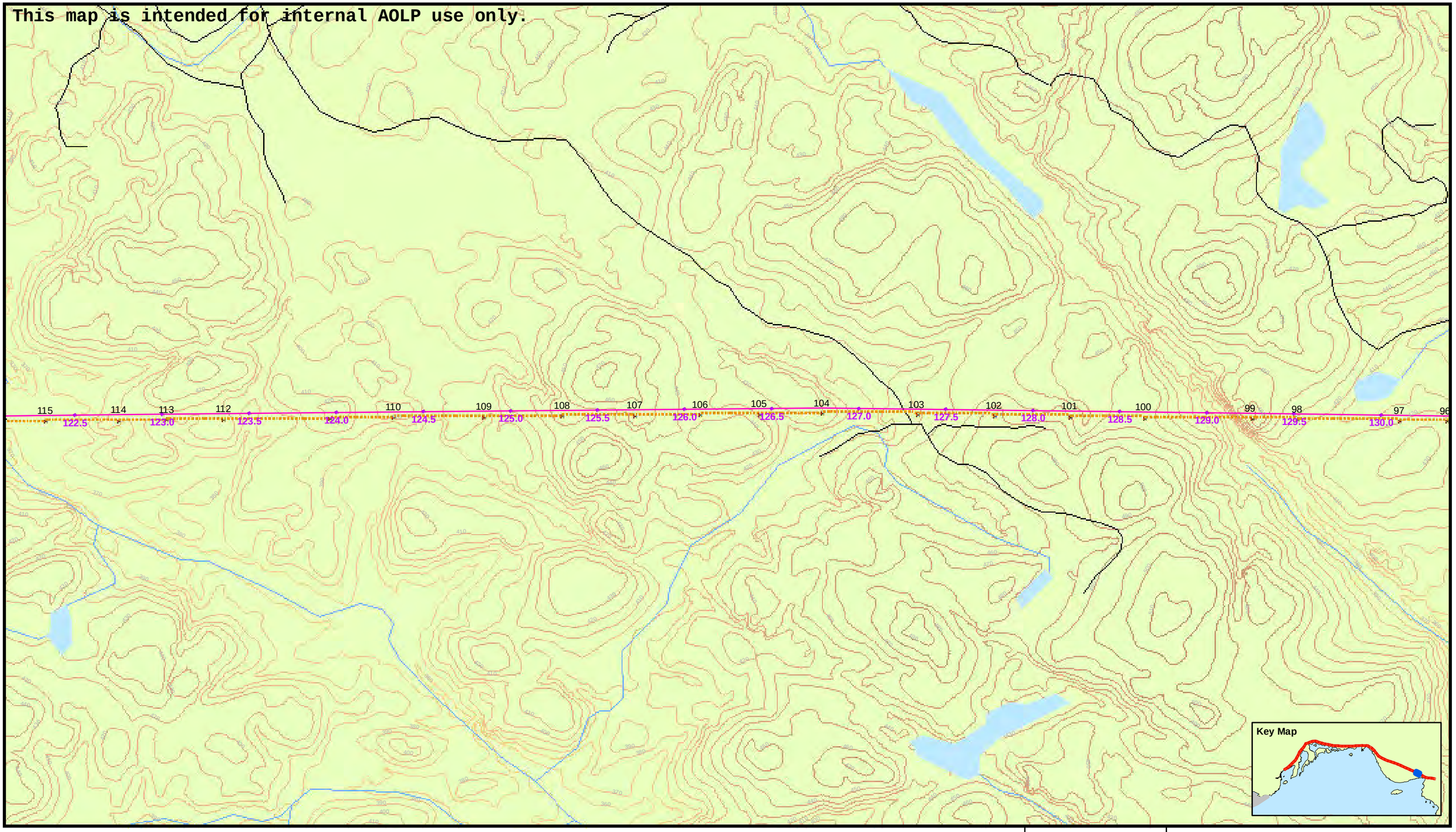
East West Tie Transmission Line
Proposed Line
Figure #45

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

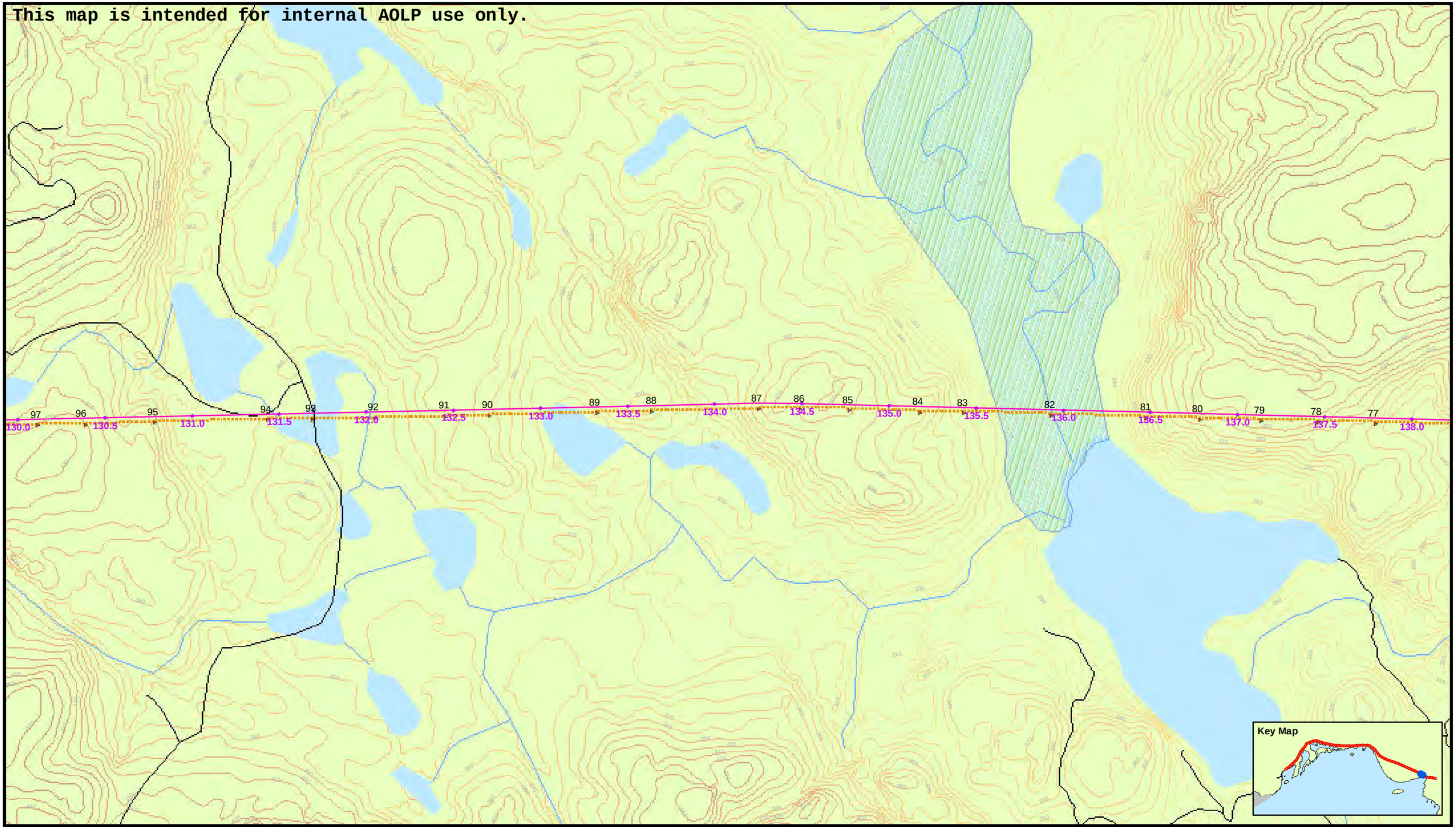
East West Tie Transmission Line
Proposed Line
Figure #46

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

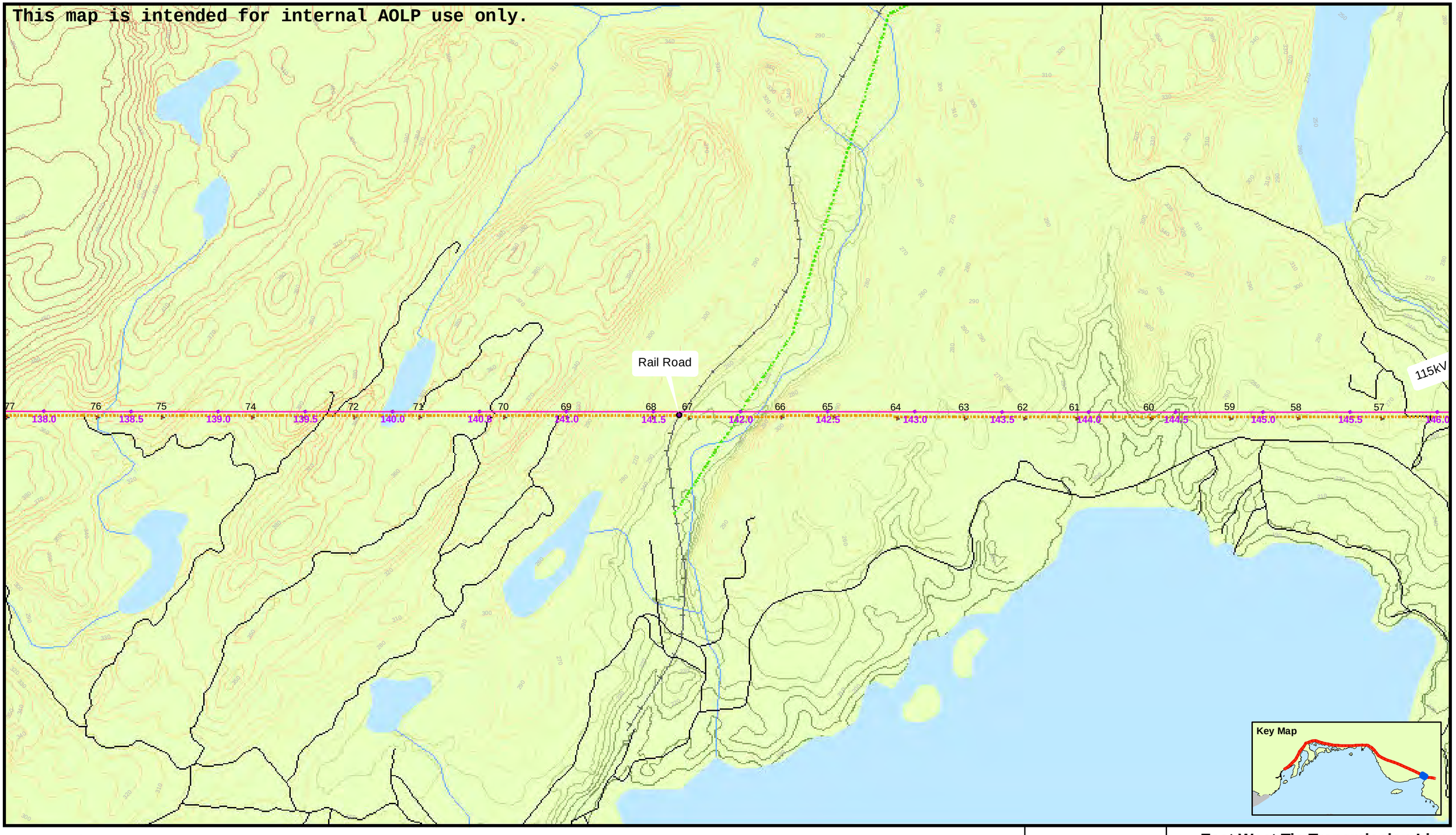
East West Tie Transmission Line
Proposed Line
Figure #47

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atlalink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.



Legend

- Transmission Stations
- Hydro One Tower
- City

Voltage

- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line

- Major Road
- Road
- Railway

- Watercourses
- Waterbody
- Wetland

- Proposed Line Chainage (in km)
- Proposed Line

N E S W

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #48

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Atalink_Transmission\Line\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

115kV crossing

115kV not shown

Low voltage line

Hwy crossing

57 56 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38

146.0 146.5 147.0 147.5 148.0 148.5 149.0 149.5 150.0 150.5 151.0 151.5 152.0 152.5 153.0 153.5

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #49

AOLP SNC·LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20

153.5 154.0 154.5 155.0 155.5 156.0 156.5 157.0 157.5 158.0 158.5 159.0 159.5 160.0 160.5 161.0 161.5

Key Map

Legend

Transmission Stations
Hydro One Tower
City

Voltage

Unknown Voltage Power Line
115 kV Power Line
230 kV Power Line

Major Road
Road
Railway

Watercourses
Waterbody
Wetland

Proposed Line Chainage (in km)
Proposed Line

N
W E
S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #50

AOLP SNC•LAVALIN

Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Aldrik_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

This map is intended for internal AOLP use only.

Optional divergence - long span
- need to be on south side

20 161.5 19 162.0 18 162.5 17 163.0 16 15 163.5 14 164.0 13 12 164.5 11 165.0 10 9 165.5 8 166.0 7 166.5 6 167.0 5 167.5 4 3 168.0 2 168.5 1 168.9

Wawa Transmission Station at Anjigami Lake

Key Map

Legend

Voltage

- Transmission Stations
- Hydro One Tower
- City
- Unknown Voltage Power Line
- 115 kV Power Line
- 230 kV Power Line
- Major Road
- Road
- Railway
- Watercourses
- Waterbody
- Wetland
- Proposed Line Chainage (in km)
- Proposed Line

N W E S

0 250 500 m

East West Tie Transmission Line
Proposed Line
Figure #51

AOLP SNC·LAVALIN

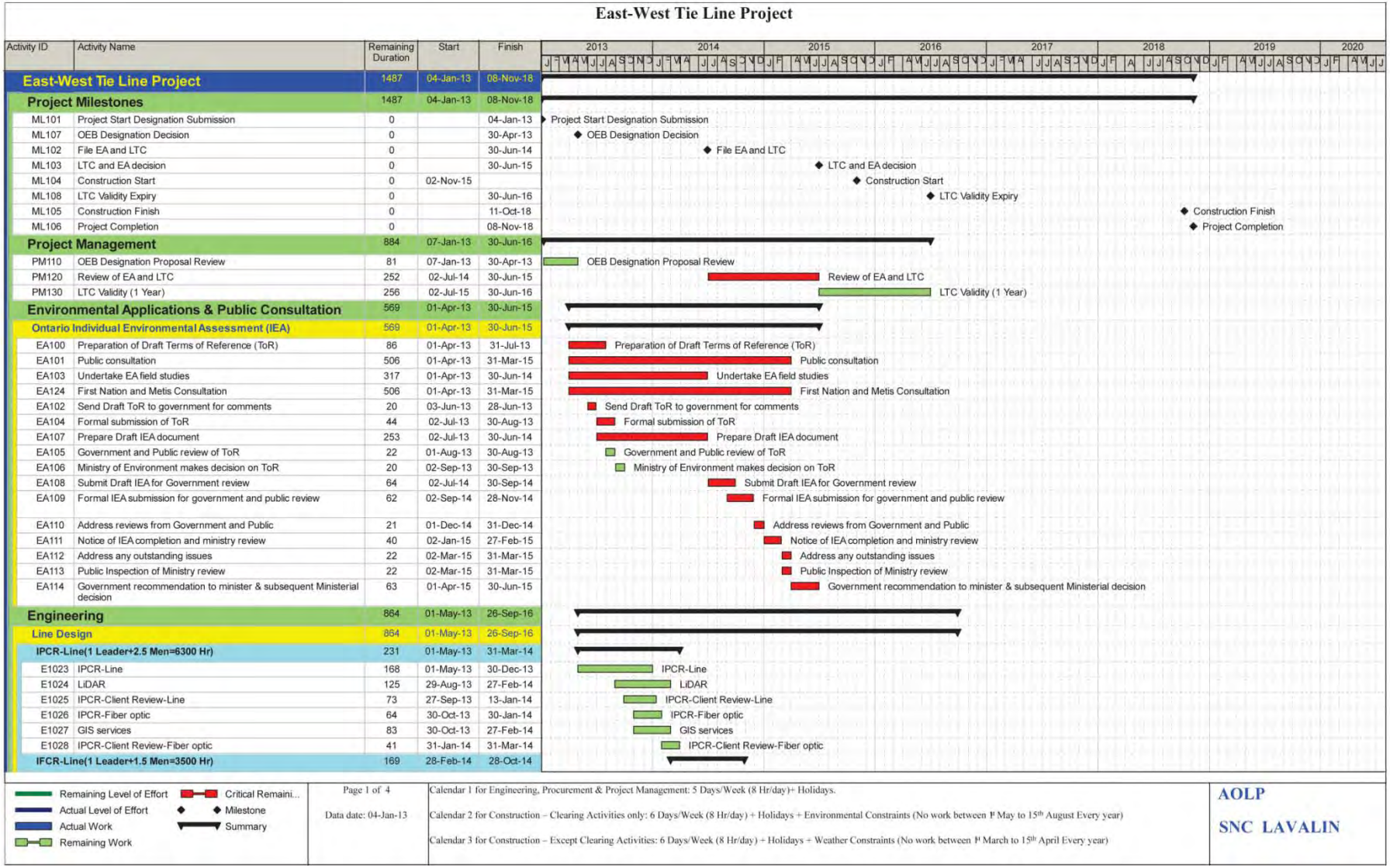
Projected coordinate system name: Canada Lambert Conformal Conic
Geographic coordinate system name: GCS North American 1983

Path: Z:\Alstink_TransmissionLine\MXD\East_West_Tie_ProposedLine.mxd

ALTALINK
ONTARIO LIMITED PARTNERSHIP

Appendix 16 – East-West Tie Line Project Bid Schedule

Appendix 16 – East-West Tie Line Project Bid Schedule



Activity ID	Activity Name	Remaining Duration	Start	Finish
East-West Tie Line Project		1487	04-Jan-13	08-Nov-18
Project Milestones		1487	04-Jan-13	08-Nov-18
ML101	Project Start Designation Submission	0		04-Jan-13
ML107	OEB Designation Decision	0		30-Apr-13
ML102	File EA and LTC	0		30-Jun-14
ML103	LTC and EA decision	0		30-Jun-15
ML104	Construction Start	0	02-Nov-15	
ML108	LTC Validity Expiry	0		30-Jun-16
ML105	Construction Finish	0		11-Oct-18
ML106	Project Completion	0		08-Nov-18
Project Management		884	07-Jan-13	30-Jun-16
PM110	OEB Designation Proposal Review	81	07-Jan-13	30-Apr-13
PM120	Review of EA and LTC	252	02-Jul-14	30-Jun-15
PM130	LTC Validity (1 Year)	256	02-Jul-15	30-Jun-16
Environmental Applications & Public Consultation		569	01-Apr-13	30-Jun-15
Ontario Individual Environmental Assessment (IEA)		569	01-Apr-13	30-Jun-15
EA100	Preparation of Draft Terms of Reference (ToR)	86	01-Apr-13	31-Jul-13
EA101	Public consultation	506	01-Apr-13	31-Mar-15
EA103	Undertake EA field studies	317	01-Apr-13	30-Jun-14
EA124	First Nation and Metis Consultation	506	01-Apr-13	31-Mar-15
EA102	Send Draft ToR to government for comments	20	03-Jun-13	28-Jun-13
EA104	Formal submission of ToR	44	02-Jul-13	30-Aug-13
EA107	Prepare Draft IEA document	253	02-Jul-13	30-Jun-14
EA105	Government and Public review of ToR	22	01-Aug-13	30-Aug-13
EA106	Ministry of Environment makes decision on ToR	20	02-Sep-13	30-Sep-13
EA108	Submit Draft IEA for Government review	64	02-Jul-14	30-Sep-14
EA109	Formal IEA submission for government and public review	62	02-Sep-14	28-Nov-14
EA110	Address reviews from Government and Public	21	01-Dec-14	31-Dec-14
EA111	Notice of IEA completion and ministry review	40	02-Jan-15	27-Feb-15
EA112	Address any outstanding issues	22	02-Mar-15	31-Mar-15
EA113	Public Inspection of Ministry review	22	02-Mar-15	31-Mar-15
EA114	Government recommendation to minister & subsequent Ministerial decision	63	01-Apr-15	30-Jun-15
Engineering		864	01-May-13	26-Sep-16
Line Design		864	01-May-13	26-Sep-16
IPCR-Line(1 Leader+2.5 Men=6300 Hr)		231	01-May-13	31-Mar-14
E1023	IPCR-Line	168	01-May-13	30-Dec-13
E1024	LiDAR	125	29-Aug-13	27-Feb-14
E1025	IPCR-Client Review-Line	73	27-Sep-13	13-Jan-14
E1026	IPCR-Fiber optic	64	30-Oct-13	30-Jan-14
E1027	GIS services	83	30-Oct-13	27-Feb-14
E1028	IPCR-Client Review-Fiber optic	41	31-Jan-14	31-Mar-14
IFCR-Line(1 Leader+1.5 Men=3500 Hr)		169	28-Feb-14	28-Oct-14

Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaini...
Milestone
Summary

Page 1 of 4

Data date: 04-Jan-13

Calendar 1 for Engineering, Procurement & Project Management: 5 Days/Week (8 Hr/day)+ Holidays.

Calendar 2 for Construction – Clearing Activities only: 6 Days/Week (8 Hr/day) + Holidays + Environmental Constraints (No work between 1st May to 15th August Every year)

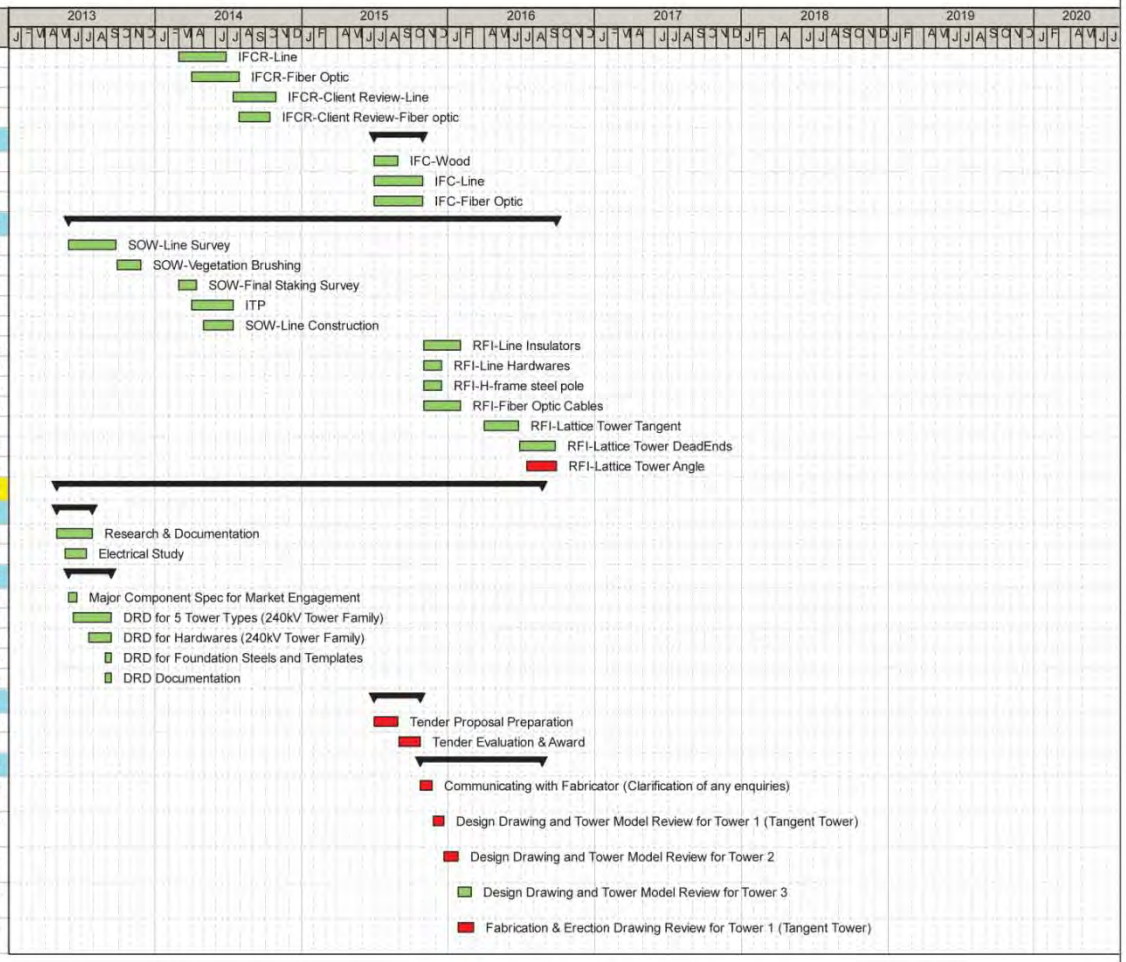
Calendar 3 for Construction – Except Clearing Activities: 6 Days/Week (8 Hr/day) + Holidays + Weather Constraints (No work between 1st March to 15th April Every year)

AOLP

SNC LAVALIN

East-West Tie Line Project

Activity ID	Activity Name	Remaining Duration	Start	Finish
E1029	IFCR-Line	84	28-Feb-14	26-Jun-14
E1030	IFCR-Fiber Optic	84	01-Apr-14	29-Jul-14
E1031	IFCR-Client Review-Line	75	14-Jul-14	28-Oct-14
E1032	IFCR-Client Review-Fiber optic	52	30-Jul-14	13-Oct-14
IFC-Line(1 Leader+1.5 Men=3500 Hr)		85	02-Jul-15	30-Oct-15
E1033	IFC-Wood	42	02-Jul-15	28-Aug-15
E1034	IFC-Line	85	02-Jul-15	30-Oct-15
E1035	IFC-Fiber Optic	85	02-Jul-15	30-Oct-15
Procurement Support(1 Leader+1.5 Men=3500 Hr)		845	29-May-13	26-Sep-16
E1036	SOW-Line Survey	85	29-May-13	26-Sep-13
E1043	SOW-Vegetation Brushing	41	27-Sep-13	25-Nov-13
E1041	SOW-Final Staking Survey	32	28-Feb-14	14-Apr-14
E1047	ITP	73	01-Apr-14	14-Jul-14
E1037	SOW-Line Construction	51	01-May-14	14-Jul-14
E1038	RFI-Line Insulators	65	02-Nov-15	02-Feb-16
E1039	RFI-Line Hardwares	33	02-Nov-15	16-Dec-15
E1042	RFI-H-frame steel pole	32	02-Nov-15	15-Dec-15
E1048	RFI-Fiber Optic Cables	64	02-Nov-15	01-Feb-16
E1044	RFI-Lattice Tower Tangent	61	31-Mar-16	24-Jun-16
E1045	RFI-Lattice Tower DeadEnds	62	29-Jun-16	23-Sep-16
E1046	RFI-Lattice Tower Angle	53	14-Jul-16	26-Sep-16
Structural Design		839	01-May-13	22-Aug-16
Conceptual Stage (up to Design Criteria) [4 men + 1 Lead]		62	01-May-13	29-Jul-13
E1001	Research & Documentation	62	01-May-13	29-Jul-13
E1000	Electrical Study	37	22-May-13	12-Jul-13
Functional Stage (up to DRD stage)		75	29-May-13	12-Sep-13
E1002	Major Component Spec for Market Engagement	15	29-May-13	18-Jun-13
E1003	DRD for 5 Tower Types (240kV Tower Family)	65	12-Jun-13	12-Sep-13
E1005	DRD for Hardwares (240kV Tower Family)	39	19-Jul-13	12-Sep-13
E1004	DRD for Foundation Steels and Templates	10	29-Aug-13	12-Sep-13
E1006	DRD Documentation	10	29-Aug-13	12-Sep-13
Function Stage - DRD Tendering (Up to Tender Award)		79	02-Jul-15	22-Oct-15
E1007	Tender Proposal Preparation	42	02-Jul-15	28-Aug-15
E1008	Tender Evaluation & Award	37	31-Aug-15	22-Oct-15
Function Stage - Drawing and Model Review		213	23-Oct-15	22-Aug-16
E1009	Communicating with Fabricator (Clarification of any enquiries)	22	23-Oct-15	23-Nov-15
E1010	Design Drawing and Tower Model Review for Tower 1 (Tangent Tower)	21	24-Nov-15	22-Dec-15
E1011	Design Drawing and Tower Model Review for Tower 2	22	23-Dec-15	25-Jan-16
E1012	Design Drawing and Tower Model Review for Tower 3	24	26-Jan-16	26-Feb-16
E1013	Fabrication & Erection Drawing Review for Tower 1 (Tangent Tower)	29	26-Jan-16	04-Mar-16



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaini...
Milestone
Summary

Page 2 of 4

Data date: 04-Jan-13

Calendar 1 for Engineering, Procurement & Project Management: 5 Days/Week (8 Hr/day)+ Holidays.

Calendar 2 for Construction – Clearing Activities only: 6 Days/Week (8 Hr/day) + Holidays + Environmental Constraints (No work between 1st May to 15th August Every year)

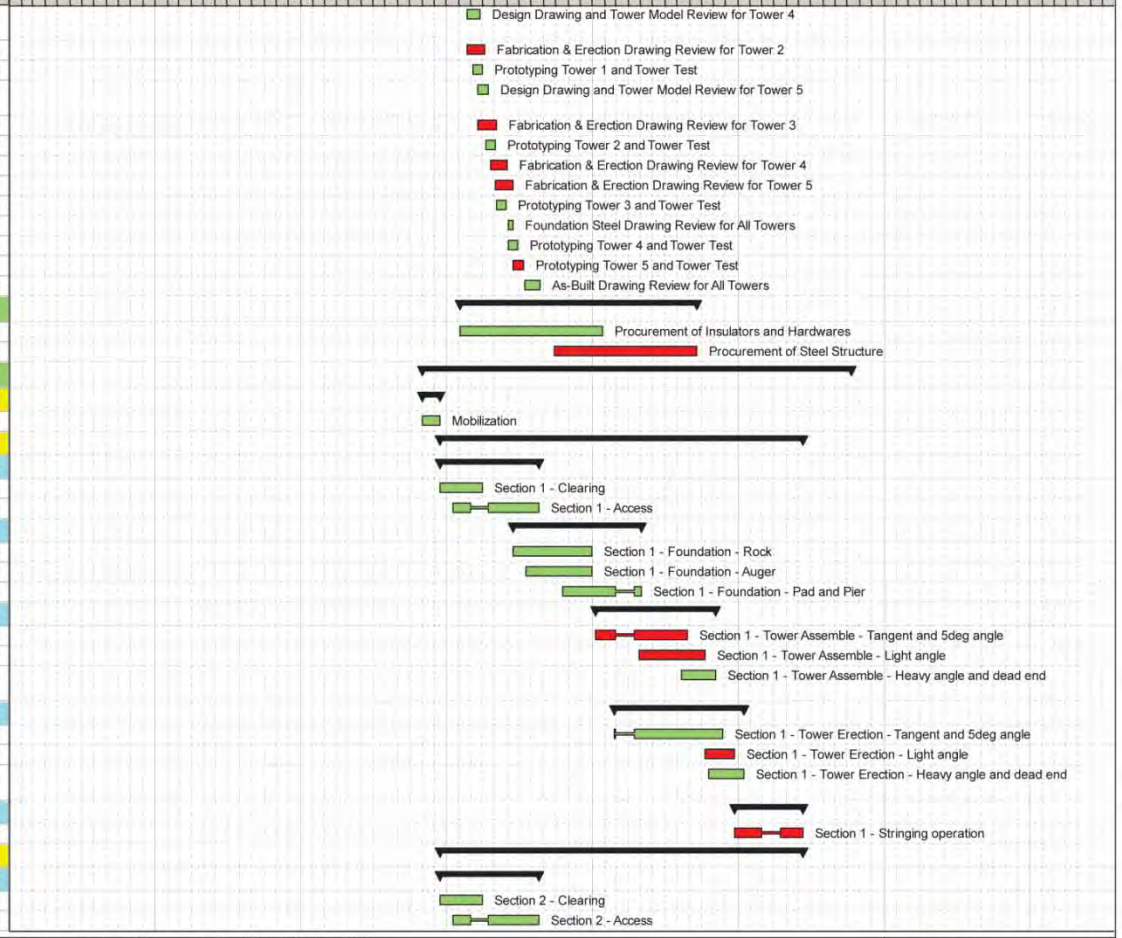
Calendar 3 for Construction – Except Clearing Activities: 6 Days/Week (8 Hr/day) + Holidays + Weather Constraints (No work between 1st March to 15th April Every year)

AOLP

SNC LAVALIN

East-West Tie Line Project

Activity ID	Activity Name	Remaining Duration	Start	Finish
E1014	Design Drawing and Tower Model Review for Tower 4	24	23-Feb-16	25-Mar-16
E1015	Fabrication & Erection Drawing Review for Tower 2	32	23-Feb-16	07-Apr-16
E1018	Prototyping Tower 1 and Tower Test	18	07-Mar-16	30-Mar-16
E1016	Design Drawing and Tower Model Review for Tower 5	19	18-Mar-16	14-Apr-16
E1017	Fabrication & Erection Drawing Review for Tower 3	33	18-Mar-16	04-May-16
E1058	Prototyping Tower 2 and Tower Test	18	08-Apr-16	03-May-16
E1019	Fabrication & Erection Drawing Review for Tower 4	32	20-Apr-16	02-Jun-16
E1020	Fabrication & Erection Drawing Review for Tower 5	32	04-May-16	16-Jun-16
E1068	Prototyping Tower 3 and Tower Test	18	05-May-16	30-May-16
E1021	Foundation Steel Drawing Review for All Towers	10	03-Jun-16	16-Jun-16
E1078	Prototyping Tower 4 and Tower Test	18	03-Jun-16	28-Jun-16
E1088	Prototyping Tower 5 and Tower Test	18	17-Jun-16	13-Jul-16
E1022	As-Built Drawing Review for All Towers	28	14-Jul-16	22-Aug-16
Procurement		419	03-Feb-16	20-Sep-17
PR100	Procurement of Insulators and Hardwares	252	03-Feb-16	25-Jan-17
PR110	Procurement of Steel Structure	252	27-Sep-16	20-Sep-17
Construction		753	02-Nov-15	11-Oct-18
Mobilization		32	02-Nov-15	15-Dec-15
MOB100	Mobilization	32	02-Nov-15	15-Dec-15
Section 1		636	16-Dec-15	12-Jun-18
Clearing and Access		174	16-Dec-15	19-Aug-16
C1000	Section 1 - Clearing	88	16-Dec-15	31-Mar-16
C1001	Section 1 - Access	143	16-Jan-16	19-Aug-16
Foundation		229	17-Jun-16	02-May-17
C1002	Section 1 - Foundation - Rock	167	17-Jun-16	31-Dec-16
C1003	Section 1 - Foundation - Auger	141	19-Jul-16	31-Dec-16
C1004	Section 1 - Foundation - Pad and Pier	125	19-Oct-16	02-May-17
Tower Assembly		215	10-Jan-17	06-Nov-17
C1005	Section 1 - Tower Assemble - Tangent and 5deg angle	154	10-Jan-17	25-Aug-17
C1006	Section 1 - Tower Assemble - Light angle	139	29-Apr-17	10-Oct-17
C1007	Section 1 - Tower Assemble - Heavy angle and dead end	74	11-Aug-17	06-Nov-17
Tower Erection		234	25-Feb-17	16-Jan-18
C1008	Section 1 - Tower Erection - Tangent and 5deg angle	191	25-Feb-17	23-Nov-17
C1009	Section 1 - Tower Erection - Light angle	63	11-Oct-17	22-Dec-17
C1010	Section 1 - Tower Erection - Heavy angle and dead end	73	20-Oct-17	16-Jan-18
Stringing		103	23-Dec-17	12-Jun-18
C1011	Section 1 - Stringing operation	103	23-Dec-17	12-Jun-18
Section 2		636	16-Dec-15	12-Jun-18
Clearing and Access		174	16-Dec-15	19-Aug-16
C2000	Section 2 - Clearing	88	16-Dec-15	31-Mar-16
C2001	Section 2 - Access	143	16-Jan-16	19-Aug-16



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaini...
Milestone
Summary

Page 3 of 4

Data date: 04-Jan-13

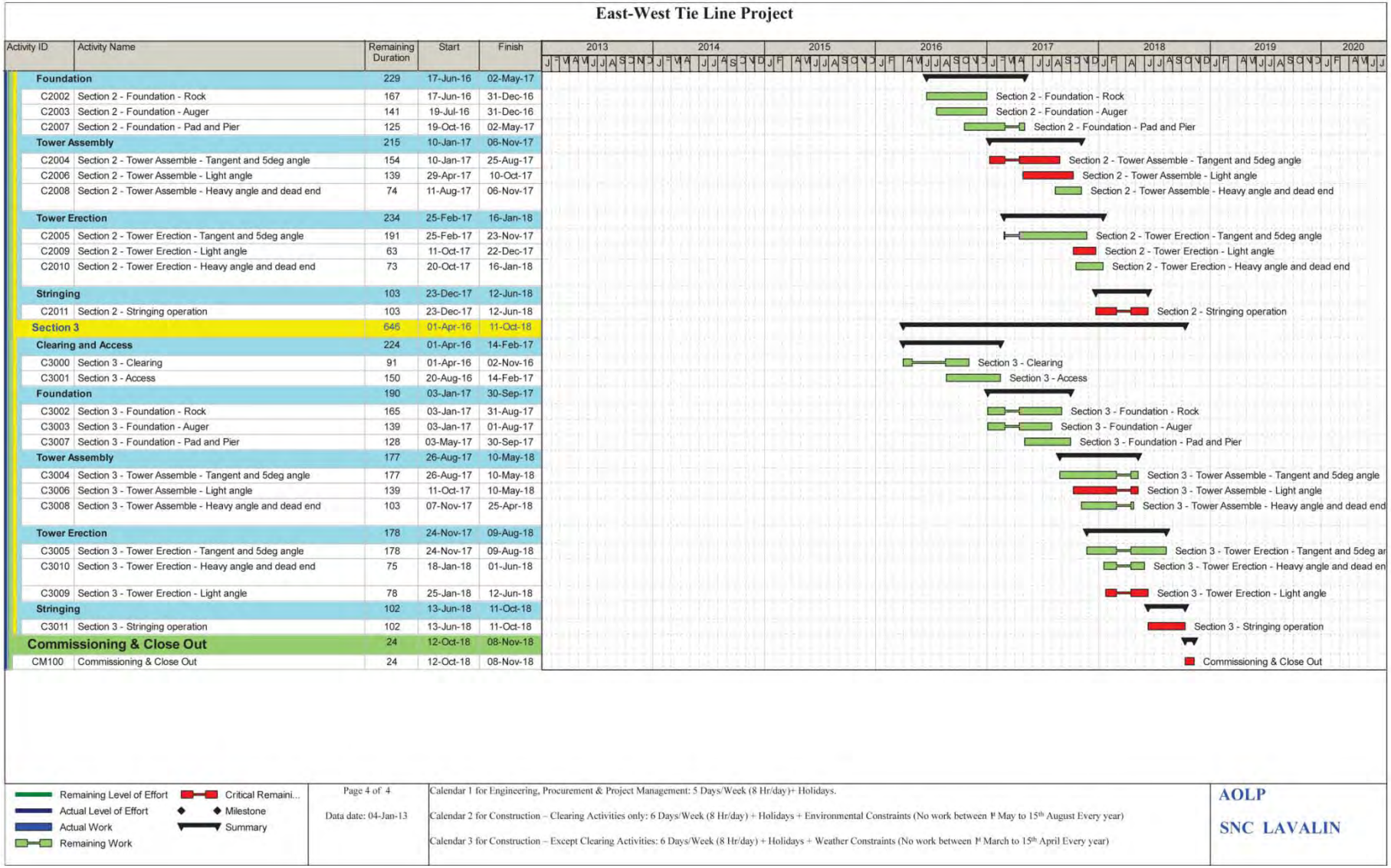
Calendar 1 for Engineering, Procurement & Project Management: 5 Days/Week (8 Hr/day)+ Holidays.

Calendar 2 for Construction – Clearing Activities only: 6 Days/Week (8 Hr/day) + Holidays + Environmental Constraints (No work between 1st May to 15th August Every year)

Calendar 3 for Construction – Except Clearing Activities: 6 Days/Week (8 Hr/day) + Holidays + Weather Constraints (No work between 1st March to 15th April Every year)

AOLP

SNC LAVALIN


East-West Tie Line Project
Activity ID
Activity Name
Remaining Duration
Start
Finish
2013
2014
2015
2016
2017
2018
2019
2020
Foundation 229 17-Jun-16 02-May-17
C2002 Section 2 - Foundation - Rock 167 17-Jun-16 31-Dec-16
C2003 Section 2 - Foundation - Auger 141 19-Jul-16 31-Dec-16
C2007 Section 2 - Foundation - Pad and Pier 125 19-Oct-16 02-May-17
Tower Assembly 215 10-Jan-17 06-Nov-17
C2004 Section 2 - Tower Assemble - Tangent and 5deg angle 154 10-Jan-17 25-Aug-17
C2006 Section 2 - Tower Assemble - Light angle 139 29-Apr-17 10-Oct-17
C2008 Section 2 - Tower Assemble - Heavy angle and dead end 74 11-Aug-17 06-Nov-17
Tower Erection 234 25-Feb-17 16-Jan-18
C2005 Section 2 - Tower Erection - Tangent and 5deg angle 191 25-Feb-17 23-Nov-17
C2009 Section 2 - Tower Erection - Light angle 63 11-Oct-17 22-Dec-17
C2010 Section 2 - Tower Erection - Heavy angle and dead end 73 20-Oct-17 16-Jan-18
Stringing 103 23-Dec-17 12-Jun-18
C2011 Section 2 - Stringing operation 103 23-Dec-17 12-Jun-18
Section 3 646 01-Apr-16 11-Oct-18
Clearing and Access 224 01-Apr-16 14-Feb-17
C3000 Section 3 - Clearing 91 01-Apr-16 02-Nov-16
C3001 Section 3 - Access 150 20-Aug-16 14-Feb-17
Foundation 190 03-Jan-17 30-Sep-17
C3002 Section 3 - Foundation - Rock 165 03-Jan-17 31-Aug-17
C3003 Section 3 - Foundation - Auger 139 03-Jan-17 01-Aug-17
C3007 Section 3 - Foundation - Pad and Pier 128 03-May-17 30-Sep-17
Tower Assembly 177 26-Aug-17 10-May-18
C3004 Section 3 - Tower Assemble - Tangent and 5deg angle 177 26-Aug-17 10-May-18
C3006 Section 3 - Tower Assemble - Light angle 139 11-Oct-17 10-May-18
C3008 Section 3 - Tower Assemble - Heavy angle and dead end 103 07-Nov-17 25-Apr-18
Tower Erection 178 24-Nov-17 09-Aug-18
C3005 Section 3 - Tower Erection - Tangent and 5deg angle 178 24-Nov-17 09-Aug-18
C3010 Section 3 - Tower Erection - Heavy angle and dead end 75 18-Jan-18 01-Jun-18
C3009 Section 3 - Tower Erection - Light angle 78 25-Jan-18 12-Jun-18
Stringing 102 13-Jun-18 11-Oct-18
C3011 Section 3 - Stringing operation 102 13-Jun-18 11-Oct-18
Commissioning & Close Out 24 12-Oct-18 08-Nov-18
CM100 Commissioning & Close Out 24 12-Oct-18 08-Nov-18
Section 2 - Foundation - Rock
Section 2 - Foundation - Auger
Section 2 - Foundation - Pad and Pier
Section 2 - Tower Assemble - Tangent and 5deg angle
Section 2 - Tower Assemble - Light angle
Section 2 - Tower Assemble - Heavy angle and dead end
Section 2 - Tower Erection - Tangent and 5deg angle
Section 2 - Tower Erection - Light angle
Section 2 - Tower Erection - Heavy angle and dead end
Section 2 - Stringing operation
Section 3 - Clearing
Section 3 - Access
Section 3 - Foundation - Rock
Section 3 - Foundation - Auger
Section 3 - Foundation - Pad and Pier
Section 3 - Tower Assemble - Tangent and 5deg angle
Section 3 - Tower Assemble - Light angle
Section 3 - Tower Assemble - Heavy angle and dead end
Section 3 - Tower Erection - Tangent and 5deg ar
Section 3 - Tower Erection - Heavy angle and dead en
Section 3 - Tower Erection - Light angle
Section 3 - Stringing operation
Commissioning & Close Out
Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaini...
Milestone
Summary
Page 4 of 4
Data date: 04-Jan-13
Calendar 1 for Engineering, Procurement & Project Management: 5 Days/Week (8 Hr/day)+ Holidays.
Calendar 2 for Construction – Clearing Activities only: 6 Days/Week (8 Hr/day) + Holidays + Environmental Constraints (No work between 1st May to 15th August Every year)
Calendar 3 for Construction – Except Clearing Activities: 6 Days/Week (8 Hr/day) + Holidays + Weather Constraints (No work between 1st March to 15th April Every year)
AOLP
SNC LAVALIN