Hwy 101 Twinning Three Mile Plains to Falmouth – Highlights of the EA May 17, 2017

Transportation and Infrastructure Renewal

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Valued Components (VCs)

- Atmospheric Environment

- Groundwater Resources

- Aquatic Environment

- Terrestrial Vegetation

- Wetlands

- Wildlife and Wildlife Habitat

- Land Use

- Archaeological and Heritage Resources

Evaluation of Effects on VCs

1. Potential Effects & Interactions

- By phase – Construction & Operation/Maintenance
- Accidents & Malfunctions
- Direct & Indirect Effects

2. Identify Mitigation Measures

3. Residual Effects (after mitigation)

- By phase – Construction & Operation/Maintenance
- Accidents & Malfunctions
- Direct & Indirect Effects

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Standard Organization of EA

1. Introduction
2. Project Description
3. Consultation
4. EA Scope & Methods
5. Environmental Impact Assessment
   5.1 Valued Components
6. Other Undertakings in the Area
7. Accidents and Malfunctions
8. Summary and Conclusions

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Standard Organization of EA (2)

1. **Valued Component #1**

    1.1   Regulatory and Policy Setting

    1.2   Boundaries

    1.3   Significance Definition

    1.4   Description of Existing Environment

    1.5   Potential Environmental Effects

    1.6   Mitigation

    1.7   Residual Environmental Effects

    1.8   Monitoring and Follow-up

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Boundaries for VCs

- Spatial and temporal boundaries are those areas, and time periods, that VCs are likely to interact with, or be influenced by the Project.

- Each VC will have its own relevant spatial and temporary boundary.

- Consideration of timing/scheduling of work activities, known natural variations, information gathered about current and traditional uses, and recovery time from an environmental effect.

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Project Development Area (PDA)

➢ **Defined as the footprint of physical disturbance arising from Project construction and operation activities.**

➢ **PDA remains the same for all VCs.**

Assessment Area

➢ **Extends beyond the PDA and is the area that environmental effects may extend.**

➢ **Each VC has unique area.**

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Significance Determination

- Each VC includes threshold criteria or standards for determining significance.

- Definition based on scoping of relevant issues, available information, existing standards or regulations, and professional judgement.

- Other key factors include sustainability of biological populations, rarity of species, and critical habitats.

- Effect significance predicted after impact mitigation is applied.

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Mitigation

- **Measures that the proponents and their contractors use to reduce or eliminate potential environmental effects.**

- **Includes detailed design, modelling, timing, habitat compensation, industry standards, best management practices (BMPs), CLCs, contractor environmental control plans, and contingency plans for spills, failure of control measures and other accidents.**

- **Continuous inspection & follow-up monitoring to confirm success and facilitate adaptive management.**

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VC#1 – Atmospheric Environment

- Layer of air from ground to ~10 km.

- 3 features: air quality, sound, climate.

- Residual effects predictions for air quality and sound are not significant.

- Greenhouse gas (GHG) emissions will be temporary, short in duration, small in magnitude, and mitigated by standard practices.

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Groundwater Resources

- **Source of potable/drinking water and provides baseflow to streams/wetlands.**

- **Consideration of wells, water quality and quantity, and surficial/bedrock geology.**

- **Residual effects predictions are not significant. Well repair and/or replacement will occur as required.**

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Aquatic Environment

- **All biota and habitat as per DFO definitions & CRA fisheries concerns.**

- *Assessment focus on change in 'fish' habitat quality and use.*

- **Residual effects predictions are not significant.**

- *Proviso* – aboiteau design to meet DFO requirements for fish passage.

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Vegetation

- **All plants and their habitat but focus on Species of Conservation Interest.**

- **SOCI are plants listed under NS ESA and federal SARA as endangered, threatened, vulnerable or of special concern, or identified by COSEWIC.**

- **Residual effects predictions are not significant.**

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Wetlands

- **Provincial and federal legislation and policies to protect, manage and restore land commonly referred to as a marsh, swamp, fen or bog (and biota therein).**

- **>2 ha impact on Windsor salt marsh, a Wetland of Special Significance (WSS).**

- **Residual effects prediction <u>significant</u> because of impact on a WSS. Salt marsh compensation proposed plus further on-site monitoring.**

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Wildlife and Wildlife Habitat

- Birds, mammals, and herpetiles but a focus on SOCI and species diversity.

- Assessment area (~20 km^2) mapped and 82% within 4 land types (32% Ag, 21% forest, 16% urban, 9% highway, 4% freshwater wetland).

- Residual effects predictions are not significant.

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Land Use

- **Consideration for changes in land use or traditional Mi'kmaq use.**

- **Assessment focus on agricultural marsh bodies protected under the _Agricultural Marshland Conservation Act_ & current use of lands and resources (terrestrial and freshwater) by Aboriginal persons.**

- **Residual effects predictions are not significant.**

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Archaeological & Heritage Resources

- **Consideration for physical remnants found on top of and/or below ground surface that inform us about past human use and interaction with the physical environment.**

- **Desktop & limited sub-surface testing under terms of NS Heritage Research Permit.**

- **Residual effects predictions are not significant.**

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Summary & Conclusions

Given implementation of proposed mitigation including design and compensation, and follow-up monitoring, the project will not create significant adverse residual effects for most VCs. Residual effects on wetlands are predicted to be significant, and in particular impact on the Windsor salt marsh. Compensation to offset the loss has already been completed and the proponents have committed to additional on-site salt marsh compensation as well as post-construction monitoring of both salt marsh and CRA fisheries.

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