

## APPENDIX G

### Mitigation Measures and Commitments

The Project is being designed to meet applicable codes, standards and specifications that define loads, performance, materials, and quality requirements. Environmental design features and BMPs will help to minimize potential adverse environmental effects from the Project. BMPs will be used wherever possible to reduce the release of air contaminants, pollutants and GHG emissions. Buffer zones and scheduling of construction activities to avoid sensitive ecological periods will also reduce environmental impacts. An EPP will be developed for the Project, and will include BMPs and specific mitigation commitments made by CN in the regulatory approval process. An Environmental Monitor will monitor compliance with the EPP, particularly during the Construction phase of the Project, and ensure that follow-up monitoring is conducted.

Chapter 6 of this EIS identified various mitigation measures for the Project. These were developed to avoid or reduce the environmental effects of the Project on each applicable VC considered in this EIS. The effects analysis concluded there would be no significant adverse residual effects on any of the VCs assessed in this EIS. As such, no additional specific mitigation measures are required to address residual effects.

Chapter 9 of the EIS identified a follow-up and monitoring program for the Project, which outlines commitments to verify the accuracy of predicted effects and effectiveness of proposed mitigation measures.

The following table provides a complete list of the mitigation measures, follow-up and monitoring program commitments CN will implement through the construction and operation of the Project.

#### Project Mitigation Measures, Follow-up and Monitoring Commitments

Air Quality
BMPs to reduce CAC, HAP and GHG emissions will be incorporated into Project design wherever possible.
Construction and Terminal equipment will be properly tuned and maintained and will use ultra-low sulphur fuel when available.
Dust will be controlled through the use of dust suppressants, minimizing the area of activity, minimizing activities that generate large quantities of dust during high winds, covering truck-loads of materials which could generate dust (as necessary), and paving areas as required.
Materials stored on-site will be covered or wetted to prevent blowing dust, where practicable.
Site specific ambient baseline air quality monitoring will continue until July 2016 to capture local measurements and seasonal fluctuations in air quality parameters. The results of this supplemental data collection will be compared with the assumptions made in the EIS to confirm the accuracy of the predictions made in the assessment.

## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

Implementation of monitoring fugitive dust (PM<sub>2.5</sub>) levels at selected off-site locations during the construction phase will be completed. The monitoring program will be based on appropriate guidelines and in consultation with government regulators.

### **Noise and Vibration**

Berms will be constructed around the Terminal to mitigate noise effects during operation. These berms will be created during on-site grading activities.

Construction during night time hours and on weekends will be avoided, where practicable

During construction nearby residents will be advised of significant noise-causing activities and these will be scheduled to create the least disruption to receptors.

If noise complaints occur, they will be logged and investigated to assess whether they are linked with Project activities.

During construction, 50 m setbacks will be maintained from cultural heritage structures. Where disturbance (i.e. grading) is required less than 50 m from these structures, vibration monitoring will be implemented.

Internal combustion engines on construction equipment and Terminal equipment will be fitted with appropriate muffler systems and maintenance schedules will be followed.

Acoustic monitoring of ambient noise will be conducted during the first four weeks of the construction phase and equipment siting, operations, auditing, and reporting consistent with Canadian Transportation Agency methodologies.

### **Light**

Lighting will be reduced in areas that are not being used for construction or operational activities, using a centralized lighting control system that is able to selectively turn off lighting where it is not required.

Terminal lighting will be as efficient as possible, while providing enough light to make the site safe and secure.

If nighttime construction is required, lighting will be directed at the specific construction location.

Perimeter lighting will be directed inward towards the Terminal to minimize light trespass to the environment and surrounding areas as much as possible.

Where permissible under safety requirements, outdoor lights (i.e. Terminal light standards) will be shielded to minimize light spillage beyond the required areas.

### **Groundwater**

As part of the baseline measurements, monitoring is being conducted for an overall period of one year (June 2015 to June 2016) so as to capture seasonal fluctuations in groundwater levels and quality.



## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

<b>Surface Water</b>
During operations, monitoring of water quantity and quality and channel stabilization will occur. Water quantity and quality will be measured at Tributary A and Indian Creek quarterly and will be used to determine effluent discharge from SWM Pond 1 and SWM Pond 2 against applicable regulatory standards, for 3 years post construction. A three year post construction monitoring period is planned for channel stabilization to confirm that installed channel features are stable and that no excessive erosion is occurring throughout the Project reach and assess vegetation establishment and propagation of native species.
<b>Vegetation and Soils</b>
Minimize the extent of grubbing, stripping and removal of understory vegetation (e.g., shrubs, grasses and forbs) during construction.
Avoid vegetation clearing, cutting or maintenance in areas proposed for restoration and naturalization.
Minimize disturbance of intact vegetation during operations (e.g., confine storage of materials to areas within the Terminal; do not dump rock and other materials on vegetated restoration and enhancement areas).
Reduce grubbing near watercourses and water bodies, and other wet areas to facilitate the restoration of shrub communities.
Plan construction activities to avoid or minimize the extent and duration of watercourse diversions required during the realignment of Indian Creek and Tributary A.
Properly install and maintain all culverts to minimize erosion and maintain proper drainage.
Re-establish vegetation on disturbed areas as soon as practicable.
Prevent erosion through the implementation of an Erosion and Sediment Control Plan.
During construction, ensure all equipment brought on site is thoroughly cleaned (e.g., remove dirt from other work sites that has accumulated on the tracks, undercarriage, tires) prior to arrival.
Avoid using imported fill from known sites of invasive plant infestation.
Where practicable, buffer wetland and riparian areas by 30 m.
Plan the landscape and culvert installation to maintain drainage to and from wetlands.
Reduce grubbing near watercourses and water bodies, and other wet areas, to facilitate the restoration of shrub communities.
<b>Wildlife and Wildlife Habitat</b>
Avoid all unnecessary vegetation clearing around the facility and roads, where feasible.
Implement speed limits for vehicles on internal roads.
Provide employees with sensitivity education for on-site wildlife encounters.
Minimize the size and extent of disturbed soil and vegetation during construction, including brushing, pruning and clearing activities, and preserve existing habitat conditions wherever and whenever possible.

## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

Sounding of horn upon sighting of animal on rail right-of-way, where practicable.
<b>Migratory Birds</b>
Provide employees with sensitivity education for on-site wildlife encounters.
Schedule construction activities during daylight hours whenever practicable to minimize the need for staging lights.
During construction, the use of site flood lighting during the migration periods (i.e., April to May and late August through October) will be limited.
Avoid construction activities with the potential to remove migratory bird habitat during the breeding season (end of March to end of August). Should vegetation clearing activities be unavoidable during this window, a program will be implemented to reduce and avoid effects on migratory birds and their nests.
Implement speed limits for vehicles on internal roads.
Pre-treat water run-off before discharge to SWM ponds using oil grit separators.
Implement a Spill Response Plan to contain contamination, including shut-off valves on SWM ponds in the event of an accidental spill to protect the downstream environment. In the event a SWM pond becomes contaminated with a spill, bird deterrents will be implemented to prevent use of the pond until cleanup measures have been completed.
Retain natural habitat features such as wildlife trees; vegetation will be retained wherever practicable to provide nesting opportunities for cavity-dependent birds.
Wherever practicable, unnecessary vegetation clearing around the Terminal, access roads and rail will be avoided.
Where practicable, wetlands will be enhanced or new ones created to improve breeding opportunities for wetland birds.
Create or protect off-site grassland habitat as an offset for loss of grassland habitat.
Demarcate construction work areas to avoid incidental encroachment into adjacent areas.
Maintain construction and Terminal equipment in good working order (e.g., mufflers on vehicles).
<b>Fish and Fish Habitat</b>
A Habitat Compensation Plan will be implemented to compensate for the loss of freshwater fish habitat in anticipation of a requirement for the authorization of a harmful alteration, disruption or destruction of fish habitat under section 35(2) of the <i>Fisheries Act</i> .
Construction activities near water should be carried out following standard guidance (e.g., DFO Measures to Avoid Causing Harm to Fish and Fish Habitat [DFO 2013b]) that reduce effects on fish and fish habitat.
Before the commencement of in-water activity, the Contractor will ensure that all necessary equipment and materials are available and are on-site, including contingency equipment and materials.



## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

The new channel associated with Indian Creek and Tributary A will be constructed in the dry, while leaving earthen plugs in the connection points. Any in-water work associated with channel realignment activities will be conducted outside the RAP.
Stream diversions and culvert installation will be conducted in isolation of stream flows (e.g., dam and pump, flume, diversion).
Apply natural channel design principles to appropriately design and dimension the realigned channels, including incorporating natural bed morphology (pools, riffles) and planform geometry.
Design the channel realignments such that they do not excessively aggrade or degrade, convey existing flows such that flood elevations are not increased and bankfull frequency is maintained, downstream channel morphology is not altered and to limit barriers to fish migration.
Provide aquatic and riparian habitat that is functional over a range of flows with an increase in diversity of habitat types.
Improved water quality through the removal of the on-line agricultural pond and construction of a SWM system.
Ensure water and pump intakes reduce or avoid disturbance of the watercourse bed and are screened in accordance with DFO's Freshwater Intake End-of-Pipe Fish Screen Guideline (DFO 1995).
Project personnel are not permitted to fish on the work site.
The Contractor shall notify CN 72 hours before construction of any watercourse or water body crossing or diversions to ensure fish salvage operations are conducted, where required.
Conduct fish salvages prior to dewatering areas for instream work.
Conduct fish salvages by a qualified aquatic biologist, where required, in accordance with permit conditions. Release captured fish to areas within the same watercourse, outside of the work, where suitable habitat exists.
Establish and clearly identify a riparian buffer before the start of clearing activities. Restrict disturbance in this area to activities associated with realignment, restoration and naturalization.
When clearing vegetation to accommodate channel realignment, fell trees away from watercourses and water bodies. Immediately remove trees, debris or soil inadvertently deposited below the high watermark of a watercourse.
Install erosion and sediment control at appropriate locations adjacent to all watercourses and/or water bodies, or as directed by the Environmental Monitor(s). Appropriate temporary erosion and sediment control structures shall be installed, maintained and monitored through all phases of construction.
Ensure water from flumes, dam and pumps, diversion or other methods do not cause erosion or introduce sediment into the channel.
Restrict grubbing, stripping and grading on approach slopes to watercourses and water bodies to the amount required to allow safe passage of equipment and completion of the relevant work.

## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

Delay grading of the primary banks of watercourses and water bodies until immediately before construction of temporary crossings and watercourse realignment, where practicable.
Complete dewatering in a manner that does not cause erosion or allow sediment to re-enter a watercourse or water body through the use of appropriate sediment control devices.
Collect and treat all stormwater run-off from the Terminal prior to release to Indian Creek or Tributary A.
The Contractor shall develop a detailed site specific mitigation plan that meets all applicable requirements and submit the plan to CN prior to initiating any watercourse or water body crossing activities not already approved as part of channel realignments.
Do not permit fording of watercourses or water bodies unless approved by the applicable regulatory authority.
Designated refueling areas will be established for yard equipment and will be a safe distance (30 m setback minimum distance from top of bank) from fish habitat.
Concrete pours will be protected from rainfall with an impermeable cover for a minimum 48 hours, or until the concrete cures, in order to prevent high pH run-off.
Instream cast-in-place concrete will be isolated from fish-bearing waters until the concrete has properly cured (minimum of 48 hours). Conversely, pre-fabricated concrete will be used for culverts.
Where appropriate, accelerants will be used to shorten curing times.
Open bags of concrete mix will be stored in a protected dry area.
Concrete wastewater and wash waters will be contained and treated to meet PAL criteria before they are discharged.
A CO <sub>2</sub> tank with regulator, hose, and diffuser will be available onsite during concrete work to neutralize pH levels.
Wastewater and wash waters will be treated to PAL criteria (between pH 6.5 and 9.0) and the turbidity will be less than 25 NTU above background when it is discharged.
Spill containment kits must be present on site in designated locations where risk of spill is deemed the greatest (e.g., refueling areas).
Regularly monitor instream turbidity levels and sediment control measures during construction, particularly following major storm events.
Conduct fisheries monitoring for three years following the completion of channel construction in order to demonstrate that offsetting measures are functioning and that productivity has been maintained or enhanced.
Fish collection to determine habitat usage and productivity, post-construction once per year (in the late spring/early summer), performed by qualified fisheries biologists.



G.6

## Project Mitigation Measures, Follow-up and Monitoring Commitments

<b>Species at Risk</b>
Clearing of vegetation within habitat of Bobolink, Eastern Meadowlark or Barn Swallow will occur outside of the breeding season (end of March to end of August) (Environment Canada 2014).
Provide employees with sensitivity education for on-site wildlife encounters.
Implement speed limits on internal roads.
Conduct turtle rescues to relocate Snapping Turtles before in-water works occur in their habitat. Install exclusionary fencing to prevent individuals from re-entering until construction is complete.
Permanent exclusionary fencing will be placed around retained/enhanced turtle habitat to avoid interactions with turtles and Project vehicular traffic.
All unnecessary vegetation clearing will be avoided around the Terminal, access roads and rail, wherever and whenever practicable.
Demarcate construction work area to avoid incidental encroachment into adjacent areas.
Spill containment kits must be present on site in designated locations where risk of spill is deemed the greatest (e.g., refueling areas).
Create/protect off-site grassland habitat as offsets for loss of Bobolink and Eastern Meadowlark residences.
<b>Socio-economic Conditions</b>
Prior to initiating construction activities, CN will communicate the location and schedule of construction activities to the community and stakeholders.
CN will work with the Town of Milton towards the construction of the underpass at Lower Base Line.
To mitigate the loss of agricultural land as a result of Terminal activities, CN will work with local farmers for agricultural lease opportunities where they may exist.
As per Project design, berms will be constructed in key locations around the PDA and will be vegetated to provide quality experience for land and resource users.
CN will seek collaboration with Halton Region to install a signalized intersection, as necessary, on Britannia Road with a turning lane for trucks entering the terminal from the east to manage vehicle movements and the safety of other road users, including motor vehicle operators, cyclists and pedestrians.
A new two-lane private roadway will be built in the PDA to accommodate truck queuing on CN property.
Prior to construction and as a condition of the Project proceeding, CN will obtain necessary development approvals.
<b>Archaeology and Heritage Resources</b>
A Stage 3 and if necessary, Stage 4, will be completed prior to construction to ensure all archaeological artefacts have been carefully logged and removed prior to construction.
No development related disturbance should occur to archaeological sites or areas where archaeological sites might be present without the prior notification of the MTCS.

## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

Disturbance of Archaeological and Heritage Resources should be avoided wherever practicable. Avoidance options would also require the installation of a protective barrier around the site and a buffer zone. If avoidance and protection of archaeological resources is not feasible then controlled salvage excavations of the archaeological resources, or parts thereof as applicable, will be required.
An Archaeological Resources Protection Plan will be implemented.
Areas in proximity to known archaeological resources will be monitored during construction.
Given the determination of indirect effects related to potential vibration effects, the use of fencing around protective buffer-zones has been recommended. For the direct effects to the shed, mitigation in the form of relocation or documentation and salvage has been recommended.
If an archaeological resource is discovered during the construction phase, all construction will cease within a 20 m radius of the archaeological resource. In the event of a discovery, CN will stop work immediately and inform MTCS prior to the implementation of procedures and mitigation. A licensed archaeologist will be retained by CN and a Stage 2 Archaeological Assessment will be conducted with the participation of any interested Aboriginal communities.
Any human remains encountered during construction will be treated with respect and all construction around the area will cease immediately, the police or coroner, Registrar or Deputy Registrar of the Cemeteries Regulations Section of the Ontario Ministry of Government and Consumer Services, and the Archaeology Programs Unit will be contacted. Work will not resume until they have cleared the site.
<b>Traditional Land and Resource Use</b>
CN is committed to ongoing consultation with the four Aboriginal communities identified by CEAA, and to provide meaningful and effective opportunities for them to engage in the environmental assessment process.
Archaeological monitoring will be conducted prior to construction activities to avoid damage or loss of artefacts or resources. Each Aboriginal community will be notified in advance of Stage 3 and 4 AA activities and invited to participate as archaeological monitors.
Copies of the EIS Summary will be provided to each Aboriginal community for review.
Provide Aboriginal communities with regular updates on activities and progress of the Project.
<b>Effects of the Environment on the Project</b>
Terminal planning, design and operation procedures will consider both normal and extreme physical environmental conditions for the operational setting.
Outdoor work will be stopped at the discretion of the Project Manager or Site Supervisor when extreme weather events create unsafe working conditions.



## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

<b>Accidents and Malfunctions</b>
The Hazardous Materials Action Plan and CN Emergency Response Plan will be created, where necessary, to accommodate the Project. These plans will be in place during construction and operations and will include the location of spill equipment on site, methods to prevent containerized material spills from spreading and for recovering the materials in the water. The plan will also identify any sensitive habitats to best direct response efforts.
A Spill Response & Contingency Plan will be developed and implemented during the construction phase.
An Emergency Response Plan will be developed and implemented during the construction phase.
Regular maintenance of all transfer equipment (reach stackers, rail transfer equipment) will be conducted to avoid potential equipment malfunction.
Spill containment kits must be present on site in designated locations where risk of spill is deemed the greatest (e.g., refueling areas).
Construction management plans will include hazardous materials storage and handling procedures.
The SWM system will be equipped with oil grit separators and shut off valves will be installed on the SWM pond outlets.
Storage of hazardous materials will be restricted to designated areas with proper containment and in accordance with appropriate safety procedures and requirements.
Safe and proper handling and storage of hazardous materials, and implementation of spill contingency procedures, will follow CN standards.
Intermodal containers will be properly handled within the Terminal.
Designated refueling areas for yard equipment will be a safe distance from fish habitat.
Equipment will be inspected and properly maintained to avoid potential malfunction. Infrastructure will be regularly maintained as per Transport Canada requirements.
National and international engineering codes and standards will be followed including the Manual for Railway Engineering.
Proper construction and maintenance of access roads will be undertaken and speed limits will be established.
<b>Waste Management</b>
On-site water recycling and capture will be implemented where possible.
Sanitary wastewater will be collected and stored in a holding tank onsite. The contents of the tank will be pumped out and taken to a licensed disposal facility offsite.
All solid waste produced at the Terminal will be collected, stored and disposed according to all applicable regulations.

## **Project Mitigation Measures, Follow-up and Monitoring Commitments**

The amount of solid waste will be tracked and an emphasis will be placed on reduction, reuse and recycling of all solid waste materials.

There will be no burning of waste materials on site.

Hazardous wastes produced during the operation of the Terminal will be collected, transported, stored and disposed of according to all applicable legislation.

All waste will be disposed at an approved disposal facility in accordance with CN corporate policy.



G.10