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12. Monitoring and Follow-Up

In accordance with the EA Guidelines, the need for a follow-up program was considered for the purpose of determining if the identified environmental effects of the Undertaking and Projects Subject to the Federal EA are as predicted in the EA, as well as to confirm whether the proposed mitigation or compensation measures are effective or whether new mitigation measures will be subsequently required.

As a result, the RAs have determined that the follow-up program developed as part of the 407 East EA (i.e., the Provincial EA) shall include a mitigation and compensation plan as well as a monitoring strategy and schedule that provides the required level of environmental protection and ability to monitor the effectiveness of mitigation and compensation measures. In addition, further specific commitments to mitigation, compensation and monitoring, including commitments to contingency actions necessary should environmental monitoring and/or EA compliance monitoring find that mitigation or compensation measures are not effective, will also be included in the various Federal and Provincial permits and authorizations.

Pursuant to Section 79(1) of SARA the RAs must notify the competent Minister responsible for the listed species, which in this case is the Federal Minister of Environment. Moreover, because Environment Canada is obliged to ensure that effective protection of listed species is provided, the RAs shall endeavour to advise Environment Canada of efforts undertaken by MTO and/or the Province of Ontario to protect the listed species.

12.1 Mitigation and Compensation Plan

As part of the 407 East EA (i.e., the Provincial EA) and this Environmental Screening Report, numerous mitigation and compensation measures have been identified for implementation by MTO. To ensure the implementation of these measures, a mitigation and compensation plan will be established to consolidate, document and provide further details regarding technically and economically feasible mitigation and compensation measures that will be undertaken by MTO to address the likely adverse environmental effects of the Projects subject to Federal EA, including their cumulative effects. This plan will include a summary of all the mitigation and compensation measures identified as part of the Provincial EA process as well as in this Environmental Screening Report, for future implementation and adherence to during the construction and operation of the 407 East Transportation Corridor.

12.2 Monitoring Strategy and Schedule

As part of the 407 East EA (i.e., the Provincial EA), a monitoring strategy and schedule was developed, which includes both environmental effects monitoring activities as well as EA compliance monitoring activities to ensure that the proposed mitigation and compensation measures are implemented and functioning accordingly, as predicted in the 407 East EA and this Environmental Screening Report.

12.2.1 Environmental Effects Monitoring

A monitoring strategy and schedule was developed to describe the type and frequency of environmental effects monitoring to be carried out in relation to the mitigation and compensation measures that were previously identified, to ensure the following:

- That the likely adverse effects are not exceeded;
- That the unexpected adverse effects are addressed; and
- That the predicted benefits are realized.

Table 12-1 summarizes the type and frequency of environmental effects monitoring in relation to each of the environmental components.

Table 12-1 Summary of Monitoring Requirements Associated with the Undertaking and Projects Subject to the Federal EA

Environmental Component	Monitoring Requirements
Air Quality and Climate	▶ No specific monitoring requirements identified.
Noise	▶ No specific monitoring requirements identified.
Surface and Subsurface Geology and Soils	▶ No specific monitoring requirements identified.
Groundwater	▶ Monitor stream flow upstream and downstream of the crossing depending upon the requirements of Permit To Take Water. ▶ Monitor nearby private wells prior to, during, and following construction for both groundwater quality and quantity.
Surface Water	▶ Monitoring during construction will be undertaken as per the Environment Management Plan (EMP).
Vegetation and Vegetation Communities	▶ Monitor the success of transplants and/or grafts for a period of time (e.g., 5 years) to ensure survival of the Butternut trees. The timeline will be specified in the ESA permit issued by MNR. Where transplants and/or grafts are not successful, a suitable response / action will be identified (e.g., replacement plantings). A replacement plan for failing stock will be part of the ESA permit requirements. ▶ Monitor restoration objectives to ensure the success of the program (i.e., invasive species management, forest/plantation thinning and planting, etc.). Monitoring will vary depending on the program being monitored and in terms of parameters, duration and outcome (i.e., to direct adaptive management, trigger the required replacement of dead planted material, etc.). The actual vegetation restoration monitoring programs will be developed in greater detail during subsequent design phases.
Wetlands	▶ Monitor wetlands where warranted based on the potential for temporary and/or permanent groundwater level lowering to adversely affect wetland vegetation communities. An appropriate monitoring program will be developed during subsequent design phases in order to detect wetland vegetation stress. Where appropriate, wetlands will be closely monitored during water-taking activities associated with the construction of bridge structures to document changes in groundwater elevation (undertaken by project hydrogeologists) and visual signs of vegetation stress (undertaken by an ecologists/botanists). This information will be used by the project hydrogeologists to determine the cause of any identified groundwater fluctuations, assess impacts of groundwater fluctuations, and trigger the implementation of a contingency plan, if necessary.
Fish and Fish Habitat	▶ Monitoring during construction will be conducted by a Qualified Environmental Inspector at all locations and/or a Fisheries Contract Specialist where a Fisheries Act Authorization is required.
Wildlife and Wildlife Habitat	▶ Monitor the use of wildlife passage structures with approaches, responsibilities and duration to be determined, in consultation with the agencies, during subsequent design phases. Monitoring approaches would include decisions on the degree of post-construction monitoring and the number of passageways to be monitored. Preferably, a minimum of several small and several larger passageways throughout the project area would be monitored. The purpose of monitoring wildlife passage structures is to determine the effectiveness of the structures. This is done in order to identify needed alterations to the structures (e.g., add more funnel fencing, remove materials in underpasses etc.) and to determine which species or groups use the structures. Monitoring of this nature will provide information on the design and construction effectiveness of passage structures that can benefit future projects.

Table 12-1 Summary of Monitoring Requirements Associated with the Undertaking and Projects Subject to the Federal EA

Environmental Component	Monitoring Requirements
Species at Risk	▶ Monitoring will be undertaken as part of the SAR/ESA permits
Socio-Economic Environment	▶ No specific monitoring requirements identified.
Cultural Environment	▶ No specific monitoring requirements identified for built heritage effects. ▶ Monitor the effectiveness of Stage 4 avoidance and protection measures prior to and during construction for applicable archaeological sites.
Contaminated Sites & Waste Management	▶ Monitoring leachate may be required depending upon the conditions of approval associated with obtaining Section 27 and Section 46 approvals under the EPA.

12.2.2 EA Compliance Monitoring

Similar to environmental effects monitoring, a monitoring strategy and schedule was developed for ensuring the commitments made during the 407 East EA are fulfilled during the construction, operation, and maintenance of the new transportation corridor. MTO has made a number of commitments based on the environmental effects assessments carried out and in response to issues raised and comments received during the Provincial EA process for the 407 East EA.

As a result, the mitigation, compensation and monitoring requirements previously identified and described in the 407 East EA (i.e., the Provincial EA), and in this Environmental Screening Report have not been translated directly into corresponding commitments. Rather, a commitment has been made under each of the environmental component headings in **Table 12-2** that the proposed mitigation and compensation measures and monitoring requirements will be transferred into an Environmental Management Plan during subsequent design phases.

As a result, **Table 12-2** includes a list of these commitments along with the following information:

- The source of the commitment; and
- How the commitment will be monitored for compliance (i.e., fulfilled).

Environmental Management Plans

Environmental Management Plans (EMPs) will be prepared that will detail the preceding commitments, monitoring requirements, and approval conditions associated with each of the construction contracts for the Recommended Design of the new Transportation Corridor. The EMPs will act as a reference document for use by MTO and/or their agent during the construction of the Recommended Design.

Table 12-2 EA Commitments and Compliance Monitoring

Environmental Components	EA Commitment	Source of Commitment	EA Compliance Monitoring
General	▶ Prepare Environmental Management Plans (EMPs) to ensure mitigation / compensation measures and monitoring requirements are employed, inspected and maintained during construction and operation.	▶ 407 East EA Report	▶ Confirm EMPs have been prepared prior to start of construction.
	▶ Retain an Environmental Officer (MTO and/or their agent) during construction.	▶ 407 East EA Report	▶ Confirm an Environmental Officer has been retained prior to start of construction.
	▶ Carry out ongoing consultation with stakeholders during subsequent design phases and construction.	▶ 407 East EA Report	▶ Document ongoing consultation carried out during subsequent design phases and construction.
	▶ Further develop and finalize for implementation the 407 East Community Value Plan in consultation with municipalities and First Nations communities. Preliminary measures include gateway treatments, landscape screening, architectural and local heritage treatments, dedicated wildlife crossings, wetland restoration and universal measures.	▶ 407 East EA Report	▶ Confirm Recommended Community Value Plan measures are incorporated into contract drawings.
	▶ Carry out ongoing engagement with First Nations communities, in accordance with the 407 East First Nations protocol, during subsequent design phases and construction.	▶ 407 East EA Report	▶ Document ongoing engagement carried out during subsequent design phases and construction.
	▶ Notify First Nations of the opportunity to be involved in all Stage 3 and Stage 4 Archaeological Assessments related to Aboriginal finds prior to their initiation.	▶ 407 East EA Report	▶ Document notification and involvement of First Nations in Stage 3 and Stage 4 archaeological assessments.
	▶ Finalize the proposed 407 East Greenbelt Strategy for implementation.	▶ 407 East EA Report	▶ Confirm a Final Greenbelt Strategy has been developed.
	▶ During subsequent design phases, confirm and finalize the stormwater management design, including pond designs and storm sewer system requirements.	▶ 407 East EA Report	▶ Confirm stormwater management design finalized.
Air Quality and Climate	▶ Transfer all air quality mitigation measures (e.g., implementing dust control measures (such as water, calcium chloride), restriction on heavy equipment idling times, and maintaining equipment in good working order, etc.) into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable.	▶ Air Quality Impact Assessment Report (Reference Document #9)	▶ Review each EMP to ensure all applicable mitigation measures are captured.
Noise	▶ Transfer all noise mitigation measures into the EMPs. Current measures, such as restricting the timing for certain operations, abiding by municipal by-laws and ensuring construction equipment is in good working order, and Best Management Practices available at the time of construction should be implemented where applicable.	▶ Noise Impact Assessment Report (Reference Document #8)	▶ Review each EMP to ensure all applicable mitigation measures are captured.
	▶ Build the three recommended noise barriers as close to the start of construction as possible so that acoustical screening is provided for construction activities.	▶ Noise Impact Assessment Report (Reference Document #8)	▶ Confirm the three recommended noise barriers are constructed as close to the start of construction of the recommended design.
Surface Water	▶ Transfer all surface water mitigation measures into the EMPs.	▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5)	
Groundwater	▶ Transfer all hydrogeology mitigation/compensation measures and monitoring requirements into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable.	▶ Natural Environment (Hydrogeology) Impact Assessment Report (Reference Document #7)	▶ Review each EMP to ensure all applicable mitigation/compensation measures and monitoring requirements are captured.
	▶ Acquire all necessary hydrogeology permits / approvals.	▶ Natural Environment (Hydrogeology) Impact Assessment Report (Reference Document #7)	▶ Confirm permits / approvals are obtained prior to start of construction.
	▶ During subsequent design phases, explore the use of clay or a geomembrane for lining stormwater management ponds, highway ditching and outlet channels in areas where high permeability soils exist at surface.	▶ Natural Environment (Hydrogeology) Impact Assessment Report (Reference Document #7)	▶ Confirm use of lined stormwater management facilities explored for noted areas.
	▶ During subsequent design phases, explore the use of permeable sub-base material and groundwater equalization drains for raised fill for the highway through sensitive wetland areas and unconfined aquifers such as the Harmony-Farewell Iroquois Beach Wetland and Maple Grove Wetland Complexes.	▶ Natural Environment (Hydrogeology) Impact Assessment Report (Reference Document #7)	▶ Confirm use of permeable sub-base material explored for noted areas.
	▶ Keep the highway profile at or above grade where high permeability soils are present at surface to avoid potential adverse effects to groundwater.	▶ Natural Environment (Hydrogeology) Impact Assessment Report (Reference Document #7)	▶ Confirm highway profile at or above grade where high permeability soils are present at surface.
	▶ During subsequent design phases, where permanent sidewall drainage is required in deep highway cuts, explore the possibility of collecting cold groundwater seepage and discharging it into receptor streams.	▶ Natural Environment (Hydrogeology) Impact Assessment Report (Reference Document #7)	▶ Confirm opportunity to collect cold groundwater seepage explored.
Vegetation and Vegetation Communities	▶ Transfer all landscape mitigation measures into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable.	▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6)	▶ Review each EMP to ensure all applicable mitigation measures are captured.
	▶ Apply a minimum 2-year warranty to all planted landscape material.	▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6)	▶ Confirm a 2-year landscaping warranty is included in all construction contract documents.
	▶ Transfer all terrestrial mitigation/compensation measures and monitoring requirements into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable.	▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6)	▶ Review each EMP to ensure all applicable mitigation/compensation measures and monitoring requirements are captured.
	▶ Acquire all necessary terrestrial permits / approvals.	▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6)	▶ Confirm permits and approvals are obtained prior to construction.
	▶ During subsequent design phases, develop and finalize edge management designs in consultation with MNR.	▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6)	▶ Confirm edge management designs are incorporated into contract drawings at the noted locations.
	▶ Further develop and implement the 407 East Butternut Tree Strategy, including the following measures: <ul style="list-style-type: none"> • Continue consultation with MNR during subsequent design phases. • Undertake additional field visits to complete a health assessment of Butternut trees on properties where access was not permitted or where there were subsequent design changes that now encroach into vegetation units with Butternut trees not previously assessed. • Review the potential to minimize the number of Butternut trees removed during construction in the affected vegetation units. • Develop approaches with MNR and the Forest Gene Conservation Association to mitigate the effects of Butternut tree removal. • Submit an application to MNR for permission to remove retainable Butternut trees under the Endangered Species Act. 	▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6)	▶ Confirm the 407 East Butternut Tree Strategy has been developed in accordance with MNR permit requirements.

Table 12-2 EA Commitments and Compliance Monitoring

Environmental Components	EA Commitment	Source of Commitment	EA Compliance Monitoring
Vegetation and Vegetation Communities	<ul style="list-style-type: none"> ▶ During construction, carry out invasive non-native plant species management at the identified vegetation units. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm invasive plant species management carried out for noted vegetation units during construction.
	<ul style="list-style-type: none"> ▶ Carry out the salvage of regionally rare plant species where they are confirmed to occur within the ROW. ▶ Carry out field investigations during subsequent design phases to confirm the locations of other regionally rare plants in order to determine their location relative to the ROW. If they are present in the ROW, carry out salvage. ▶ MTO and/or their agents will provide opportunities for Durham Region, MNR, CLOCA, GRCA and TRCA to access the right-of-way in advance of construction so the agencies can salvage vegetation material. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm salvage of regionally rare plant species carried out in advance of construction.
	<ul style="list-style-type: none"> ▶ Further develop vegetation restoration plans to offset vegetation removals, including the following: <ul style="list-style-type: none"> • An initial approach for permanent forest and wetland vegetation removals/habitat loss at a 1:1 ratio. Continue to work with MNR and the Conservation Authorities to identify priority areas for habitat replacement and develop/finalize the approach to offset the impacts to vegetation communities/habitat features that adequately reflect the ecological functions that will be lost. • Prepare post-construction restoration plans for major valley crossings and forest blocks that will be disturbed during construction to offset vegetation removals. • Re-stabilize and re-vegetate all exposed surfaces as soon as possible following construction, using native vegetation seed mixes and plantings or other appropriate cover. • Continue to explore opportunities for developing additional restoration plans during subsequent design phases, as appropriate and feasible. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm vegetation restoration plans developed.
	<ul style="list-style-type: none"> ▶ During subsequent design phases, review opportunities to minimize encroachment into vegetation units containing Provincially Significant Wetland, as well as those within the East Duffins Creek Valley, West Lynde Creek Valley, Wilmot Creek valley (adjacent to the highway and associated facilities). ▶ For valley locations, potential opportunities could include bridge design and construction techniques that minimize construction impacts. ▶ Wherever possible, ensure the transitway right-of-way is left in its natural state until such time as the transitway is implemented. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Document opportunities assessed during subsequent design phases to minimize encroachment into the noted vegetation units.
	<ul style="list-style-type: none"> ▶ Prepare access management plan(s), prior to construction, for the following valleys: <ul style="list-style-type: none"> • Oshawa Creek East valley, • Tributary to Oshawa Creek East valley, • West Lynde Creek valley, • East Duffins Creek valley, • Farewell Creek valley, • Wilmot Creek valley. ▶ Construction access roads in to the valleys along the mainline should be located under the centreline of the proposed bridge and where this is not feasible, on the north side of the proposed bridge. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm access management plans prepared for the noted valley crossings.
	<ul style="list-style-type: none"> ▶ During subsequent design phases, carry out additional field investigations to explore opportunities to minimize localized removals of more sensitive vegetation species/communities at stormwater management outfall locations. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm additional field investigations undertaken to minimize localized removal of vegetation at SWM outfall locations
Wetlands	<ul style="list-style-type: none"> ▶ Transfer all wetlands mitigation measures into the EMPs. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Review each EMP to ensure all applicable mitigation/compensation measures and monitoring requirements are captured.
	<ul style="list-style-type: none"> ▶ Carry out wetland seedbank salvage in the northern portion of CGAR-5 if a suitable and appropriate receiving site is available (e.g., stormwater management facility). 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm salvage of regionally rare plant species carried out in advance of construction.
	<ul style="list-style-type: none"> ▶ Transfer all terrestrial mitigation/compensation measures and monitoring requirements into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Review each EMP to ensure all applicable mitigation/compensation measures and monitoring requirements are captured.
Fish and Fish Habitat	<ul style="list-style-type: none"> ▶ Transfer all fisheries mitigation/compensation measures and monitoring requirements into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Review each EMP to ensure all applicable mitigation/compensation measures and monitoring requirements are captured.
	<ul style="list-style-type: none"> ▶ Acquire all necessary fisheries permits / approvals. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm permits and approvals are obtained prior to construction.
	<ul style="list-style-type: none"> ▶ During subsequent design phases, undertake a geomorphologic assessment of channel sections affected by multi-span structures to determine the need for and the type/design of measures that can best achieve the ultimate objective of providing long-term channel stability, with minimum instream hardening/fixing and intrusion into the stream channels. ▶ This assessment should be integrated with a detailed understanding of the specific fish habitat elements that may be affected and the site specific susceptibility of the channel to erosion. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm geomorphologic assessment undertaken during subsequent design phases.

Table 12-2 EA Commitments and Compliance Monitoring

Environmental Components	EA Commitment	Source of Commitment	EA Compliance Monitoring
Fish and Fish Habitat	<ul style="list-style-type: none"> ▶ During subsequent design phases, develop and implement a 407 East Redside Dace Strategy including the following: <ul style="list-style-type: none"> • Additional assessment work in consultation with recognized experts and agency staff in locations where Redside Dace are present. • Further detailed site-specific assessment (both fluvial geomorphologic and fish habitat aspects) at Spring Creek (Site 8), Tributaries A and B of Carruthers Creek (Sites 11 and 12), and Lynde Creek Tributaries H and I (Sites 20 and 21). This assessment will determine the susceptibility of vegetated pools that support Redside Dace that may undergo secondary changes as a result of the anticipated long term loss or die-back of vegetation under structures. Ensure all further detailed site-specific assessments extend beyond the structure and ROW limits wherever access is permitted, to assess pool representation along the reach, and to identify opportunities for enhancement of existing pool habitat or creation of new pool habitat (or other habitat elements as may be relevant). • Explore opportunities for collaboration with the recognized experts and agency staff on post-construction monitoring activities as feasible. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm Redside Dace Strategy developed and implemented.
	<ul style="list-style-type: none"> ▶ Undertake a detailed assessment to confirm whether or not specific physical channel measures are warranted at high sensitivity crossings that support salmonid spawning and rearing habitat at the following locations: Brougham Creek Tributary B (Site 7); East Duffins Creek crossings (Site 9); West Lynde Creek (Site 19); Oshawa Creek East and Tributary E (Sites 35 and 38) and moderate sensitivity crossings that support Northern Pike rearing and potential spawning habitat at Lynde Creek Tributary A (Site 51). <ul style="list-style-type: none"> • The assessment will integrate both fluvial geomorphologic and site-specific fish habitat functions, with specific consideration of the potential for lateral widening to affect specific habitat elements (e.g., salmonid spawning riffles, refuge and rearing pools). • The potential susceptibility of channel form and morphology to erosion and associated changes as a result of the loss of bank vegetation anticipated under structures in the long term will be assessed further during subsequent design phases to confirm whether or not specific channel stabilization measures are warranted to maintain morphological elements. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm detailed assessment undertaken to confirm need to specific physical channel measures at noted high sensitivity crossings.
	<ul style="list-style-type: none"> ▶ Develop and implement natural channel designs to re-instate the relocated channel sections at those watercourses where required, to maintain natural fluvial processes, with specific attention to re-instatement or enhancement of morphology, substrates and cover. <ul style="list-style-type: none"> • All designs are to be prepared by appropriate technical experts. • A multi-disciplinary review of the designs at High and Moderate Sensitivity crossings including Lynde Creek (Site 24) and Oshawa Creek West (Site 28). • Support the design work by additional detail field investigations (biological and fluvial geomorphologic and hydrogeologic) and integrated analysis and design to ensure all existing habitat elements and functions are maintained, and where possible enhanced. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm natural channel designs developed and incorporated into contract documents at applicable locations.
	<ul style="list-style-type: none"> ▶ Finalize the preliminary/comprehensive assessments as per the MTO/DFO/MNR Protocol. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm preliminary risk assessment completed.
	<ul style="list-style-type: none"> ▶ Retain a Fisheries Contract Specialist where a Fisheries Act Authorization is required to ensure that the designs are properly implemented and can be field-refined where necessary during construction. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm Fisheries Contract Specialist retained for applicable watercourse crossings prior to start of construction.
	<ul style="list-style-type: none"> ▶ Retain an acceptable natural channel design contractor with demonstrated experience to construct all watercourse realignments. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm acceptable natural channel design contractor retained for applicable watercourse realignments.
	<ul style="list-style-type: none"> ▶ Ensure that, where feasible, construction sequencing considers the relocation and/or the realignment of fisheries channels in advance of structural works. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm opportunity to realign fisheries channels in advance of structural works explored.
	<ul style="list-style-type: none"> ▶ During subsequent design phases, undertake additional field investigations to confirm the location and orientation of SWM pond outlets into high sensitivity fisheries watercourses. ▶ Opportunities to refine the stormwater management facilities to reflect and integrate current measures and 'Best Management Practices' for thermal and sediment treatment will also be considered. 	<ul style="list-style-type: none"> ▶ Natural Environment (Fisheries) Impact Assessment Report (Reference Document #5) 	<ul style="list-style-type: none"> ▶ Confirm additional field work was undertaken during subsequent design phases to confirm location of SWM pond outlets at high sensitivity fisheries watercourses.
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> ▶ Transfer all wildlife and wildlife habitat mitigation measures into the EMPs. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Review each EMP to ensure all applicable mitigation/compensation measures and monitoring requirements are captured.
	<ul style="list-style-type: none"> ▶ Build six dedicated wildlife passage structures at the locations specified on the Recommended Design Plates in addition to the watercourse crossings. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm dedicated wildlife passage structures included in contract drawings.
	<ul style="list-style-type: none"> ▶ Carry out additional field investigations during subsequent design phases to: <ul style="list-style-type: none"> • Confirm vegetation composition and wildlife use, assess anticipated effects and develop mitigation measures for vegetation units not accessed during the 407 East EA. • Further assess the habitat for Blanding's Turtle (Wilmot Creek Valley) and Golden-winged Warbler in support of an Endangered Species Act (ESA) permit, should one be required. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm additional field investigations carried out for noted areas during subsequent design phases.
Species at Risk	<ul style="list-style-type: none"> ▶ Transfer all Species at Risk mitigation measures and monitoring requirements for Redside Dace into the EMPs. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Review each EMP to ensure all applicable mitigation measures and monitoring requirements are captured.
	<ul style="list-style-type: none"> ▶ Transfer all Species at Risk mitigation measures and monitoring requirements for the Butternut Tree into the EMPs. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Review each EMP to ensure all applicable mitigation measures and monitoring requirements are captured.
	<ul style="list-style-type: none"> ▶ In situations where Redside Dace are present, a specific assessment program shall be developed and implemented, in consultation with the recognized experts and appropriate agency staff and in accordance with the Endangered Species Act (ESA) process. Opportunities for collaboration on post-construction monitoring activities shall also be explored and implemented as feasible. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm that a specific assessment program is developed to address instances where Redside Dace are identified on site.
	<ul style="list-style-type: none"> ▶ Undertake additional actions if required to achieve an overall benefit to the Butternut species. These could include removing competing species around Butternut trees that are retained in situ, and/or providing the cut logs to the MNR to sell with the proceeds going to the Butternut Recovery Fund. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm that additional actions are implemented, if required.
	<ul style="list-style-type: none"> ▶ Where transplants and/or grafts for Butternut are not successful, a suitable response / action will be identified (e.g., replacement plantings). A replacement plan for failing stock will be part of the ESA permit requirements. 	<ul style="list-style-type: none"> ▶ Natural Environment (Terrestrial) Impact Assessment Report (Reference Document #6) 	<ul style="list-style-type: none"> ▶ Confirm that a replacement plan for failing stock is developed, if required.

Table 12-2 EA Commitments and Compliance Monitoring

Environmental Components	EA Commitment	Source of Commitment	EA Compliance Monitoring
Socio-economic Environment	▶ Transfer all agricultural mitigation measures and monitoring requirements into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable.	▶ Socio-Economic Impact Assessment Report (Reference Document #11)	▶ Review each EMP to ensure all applicable mitigation measures and monitoring requirements are captured.
	▶ Give priority for remnant land parcels to remain in agricultural use.	▶ Socio-Economic Impact Assessment Report (Reference Document #11)	▶ Confirm opportunities for remnant land parcels to remain in agricultural use explored.
Cultural Environment	▶ Complete Stage 2, Stage 3 and Stage 4 archaeological assessments, as appropriate.	▶ Archaeology Impact Assessment Report (Reference Document # 14)	▶ Confirm Stage 2, 3 and 4 archaeological assessments are completed, as appropriate, with required documentation submitted to Ministry of Culture.
	▶ Acquire all necessary archaeological approvals.	▶ Archaeology Impact Assessment Report (Reference Document # 14)	▶ Confirm approvals are obtained prior to start of construction.
	▶ In the event that deeply buried archaeological remains are found during construction activities, the Heritage Operations Unit of the Ontario Ministry of Culture will be notified immediately. ▶ In the event that human remains are encountered during construction, both the Ministry of Culture, and the Registrar or Deputy Registrar of the Cemeteries Regulation Unit of the Ministry of Government Services, Consumer Protection Branch at (416) 326-8404 or toll-free at 1-800-889-9768 should be contacted immediately.	▶ Archaeology Impact Assessment Report (Reference Document # 14)	▶ Confirm notifications occurred, if applicable.
	▶ Explore opportunities to place signage on sites of significance to First Nations heritage and to display artefacts found through Stage 3 and Stage 4 Archaeological Assessments.	▶ Archaeology Impact Assessment Report (Reference Document # 14)	▶ Confirm opportunities to place signage and display artefacts explored.
	▶ During subsequent design phases, complete Cultural Heritage Evaluation Reports for all directly affected properties to determine heritage value and specific mitigation measures	▶ Built Heritage Impact Assessment Report (Reference Document # 15)	▶ Confirm Cultural Heritage Evaluation Reports prepared.
	▶ Develop a 407 East Built Heritage Relocation Strategy in subsequent design phases.	▶ Built Heritage Impact Assessment Report (Reference Document # 15)	▶ Confirm Built Heritage Relocation Strategy developed.
	▶ During subsequent design phases, complete Settlement History Reports for all potentially affected roadways.	▶ Built Heritage Impact Assessment Report (Reference Document # 15)	▶ Confirm Roadscapes Report prepared.
	▶ Transfer all built heritage mitigation measures into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable.	▶ Built Heritage Impact Assessment Report (Reference Document # 15)	▶ Review each EMP to ensure all applicable mitigation measures are captured.
	▶ Acquire all necessary built heritage approvals.	▶ Built Heritage Impact Assessment Report (Reference Document # 15)	▶ Confirm approvals are obtained prior to start of construction.
	Contaminated Sites and Waste Management	▶ Complete Site Screening for remaining properties and Phase I and II Environmental Site Assessments (ESAs), as appropriate, for properties identified as having the potential for contamination and site remediation, if necessary.	▶ Waste Management and Contamination Impact Assessment Report (Reference Document #13)
▶ Transfer all waste management mitigation measures and monitoring requirements into the EMPs. Current measures and Best Management Practices available at the time of construction should be implemented where applicable. In addition, explore opportunities to minimize waste generation through salvage and reuse of material during subsequent design phases.		▶ Waste Management and Contamination Impact Assessment Report (Reference Document #13)	▶ Review each EMP to ensure all applicable mitigation/compensation measures and monitoring requirements are captured.
▶ Acquire all necessary waste management permits / approvals, including Section 27 and Section 46 approvals for the Certificate of Approval sites.		▶ Waste Management and Contamination Impact Assessment Report (Reference Document #13)	▶ Confirm permits and approvals are obtained prior to construction.