MMM GROUP

MEMO

Date: October 27, 2014

To: Project File / Public Record

MMM Project No.: 3277670-000

Subject: Yonge Subway Extension Train Storage Facility
Transit Project Assessment Process
Environmental Project Report (EPR) Addendum (September 2014)

This memo presents updates to the Yonge Subway Extension Train Storage Facility EPR Addendum (September 2014), made in response to comments received during the 30-day public review period for the document. The updates are indicated using yellow highlighting.

Copies of the revised pages are attached.

Section 2.3: Circulation of Draft Environmental Project Report Addendum

The text reading:

> In April 2014 the draft Environmental Project Report Addendum was provided to the Technical Advisory Committee. Distribution occurred by email on April 2, 2014 with subsequent distribution of hardcopies to those requesting a hardcopy. **Appendix K** provides a comment-response table documenting comments received during the review of the draft EPR Addendum and how those comments have been addressed.

is updated as follows:

> In April 2014 the draft Environmental Project Report Addendum was provided to the Technical Advisory Committee. Distribution occurred by email on April 2, 2014 with subsequent distribution of hardcopies to those requesting a hardcopy.
>
> Review feedback was received from the Regional Municipality of York (Transportation Engineering), Toronto and Region Conservation Authority and the Ministry of Environment and Climate Change (MOECC). The majority of the comments received were from MOECC technical reviewers regarding air quality, noise, vibration, contamination, groundwater and stormwater management.
>
> **Appendix K** provides a comment-response table documenting comments received during the review of the draft EPR Addendum and how those comments have been addressed.

Section 5.3.2.2: Construction Impacts

Table 5-3: Summary of Potential Impacts, Mitigation Measures, Future Work, and Contingencies

The text reading:

> Consultation with relevant stakeholders, including any applicable Aboriginal communities, will be initiated in the event that archaeological resources or human remains are discovered.
>
> If cultural heritage resources (such as archaeological sites, artefacts, building and structural remains, and/or human burials) are discovered during excavation, the following procedures will apply[6]:
>
> 1. Work shall be suspended until an assessment has been completed by the Ministry of Tourism, Culture, and Sport; and
> 2. YRRTC / TTC shall perform required measures to mitigate negative impacts on found resources as required by the Ministry of Tourism, Culture, and Sport.
>
> In addition, if human burials are encountered, the Registrar/Deputy Registrar of the Cemeteries Regulation Unit, Ministry of Government and Consumer Services will also be notified.
>
> [6] Toronto Transit Commission Master Specification 05-06-28 – Section 02230, subsection 1.2.2

is revised as follows:

> Consultation with relevant stakeholders~~, including any applicable Aboriginal communities,~~ will be initiated in the event that archaeological resources or human remains are discovered. Where resources or human remains may be of interest to an Aboriginal community, or communities, outreach will occur to engage with the relevant communities.
>
> If cultural heritage resources (such as archaeological sites, artefacts, building and structural remains, and/or human burials) are discovered during excavation, the following procedures will apply[6]:
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> 1. Work shall be suspended until an assessment has been completed by the Ministry of Tourism, Culture, and Sport; and
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> [6] Toronto Transit Commission Master Specification 05-06-28 – Section 02230, subsection 1.2.2

Appendix K: Draft EPR Addendum Comment-Response Table (page 3 of 10)

The text reading:

• It is unclear if the consideration of design criteria (3.1.1) resulted in the alignment configuration alternatives (3.1.2). Provide clarification about the process followed to arrive at the evaluation of alternatives and selection of preferred alignment (3.1.3).	• Text revised accordingly.

Is revised as follows:

• It is unclear if the consideration of design criteria (3.1.1) resulted in the alignment configuration alternatives (3.1.2). Provide clarification about the process followed to arrive at the evaluation of alternatives and selection of preferred alignment (3.1.3).	• Text revisions were made to Section 3.1.2 (Alignment and Configuration Alternatives) to clarify that the alternative TSF alignments were developed to address the requirements identified in Section 3.1.1.

2.3 Circulation of Draft Environmental Project Report Addendum

In April 2014 the draft Environmental Project Report Addendum was provided to the Technical Advisory Committee. Distribution occurred by email on April 2, 2014 with subsequent distribution of hardcopies to those requesting a hardcopy.

Review feedback was received from the Regional Municipality of York (Transportation Engineering), Toronto and Region Conservation Authority and the Ministry of Environment and Climate Change (MOECC). The majority of the comments received were from MOECC technical reviewers regarding air quality, noise, vibration, contamination, groundwater and stormwater management.

Appendix K provides a comment-response table documenting comments received during the review of the draft EPR Addendum and how those comments have been addressed.

2.4 Review of the Environmental Project Report Addendum

In accordance with the Transit Project Assessment Process (Regulation 231/08 under Ontario's Environmental Assessment Act) a Notice of EPR Addendum was issued alongside public release of this EPR Addendum. The notice was distributed in accordance with Section 15(5) of the Regulation.

The Stage 1-2 Archaeological Assessment Report has been submitted to the Ministry of Tourism, Culture and Sport in compliance with Section 65 (1) of the *Ontario Heritage Act* and has been entered into the Ontario Public Register of Archaeological Reports.

5.3.2.2 Construction Impacts

Mitigation Measures

Consultation with relevant stakeholders~~, including any applicable Aboriginal communities,~~ will be initiated in the event that archaeological resources or human remains are discovered. Where resources or human remains may be of interest to an Aboriginal community, or communities, outreach will occur to engage with the relevant communities.

If cultural heritage resources (such as archaeological sites, artefacts, building and structural remains, and/or human burials) are discovered during excavation, the following procedures will apply[6]:

1. Work shall be suspended until an assessment has been completed by the Ministry of Tourism, Culture, and Sport; and
2. YRRTC / TTC shall perform required measures to mitigate negative impacts on found resources as required by the Ministry of Tourism, Culture, and Sport.

In addition, if human burials are encountered, the local police, ~~Registrar/Deputy Registrar of~~ and the Cemeteries Regulation Unit~~,~~ of the Ontario Ministry of Government and Consumer Services will also be notified.

5.3.2.3 Operations and Maintenance Impacts

No cultural material was recovered during the Stage 1-2 Archaeological Assessment and no further archaeological assessment is required. Therefore, no impacts are anticipated during operation and maintenance of the TSF.

5.4 Transportation Network

5.4.1 Transit Network

5.4.1.1 Displacement of Existing Features

There are no permanent displacement impacts associated with the Transit Project. The extension of the underground facility will provide better functionality to the operation of the subway system due to the TSF.

[6] Toronto Transit Commission Master Specification 05-06-28 – Section 02230, subsection 1.2.2

Table 5-3: Summary of Potential Impacts, Mitigation Measures, Future Work, and Contingencies

Factor	Environmental Issue / Concern	Effect / Impact (During Construction; During Operations)	Mitigation Measures	Monitoring / Future Work / Contingency
Natural Environment				
Terrestrial Habitat	Direct and indirect impacts to terrestrial habitats during construction.	Impacts to terrestrial habitat from construction of the TSF are expected to cause temporary disturbance that can be managed using best practice mitigation and restoration measures. If construction occurs during the bird breeding season, it may interrupt or curtail nesting efforts. No permanent impacts are anticipated to result from the operation and maintenance associated with the TSF.	• Zones to be cleared of vegetation will be clearly delineated to minimize vegetation impacts and avoid incidental impacts from temporary stockpiling, debris disposal and site access. • Vegetation clearing will be conducted outside the breeding bird season (May 1 to July 31) to avoid removal or destruction of active bird nests and remain consistent with the Migratory Birds Convention Act. An avian biologist will conduct a nest survey if vegetation removal is proposed during this period. Wildlife of any species incidentally encountered during construction will not be knowingly harmed. • Where there is provincial or federal interest, all works will be completed in accordance with applicable legislation including, but not necessarily limited to, the *Migratory Birds Convention Act*, the *Endangered Species Act* and the *Species at Risk Act*.	It is possible that additional mitigation measures, monitoring, and commitments may be identified in consultation with relevant provincial and federal agencies during the design/construction phase of the project. Any additional mitigation measures, monitoring, and commitments agreed to will be complied with.
Fish and Aquatic Habitat	Potential impacts to fish and fish habitat	Permanent impacts to fish and aquatic habitat within the Study Area for the TSF are not anticipated. Impacts to fish and aquatic habitat from construction of the TSF are expected to cause temporary disturbances that can be managed using best practice mitigation and restoration measures to be refined based on the final design details. No permanent impacts are anticipated to result from the operation and maintenance associated with the TSF.	No specific mitigation measures for fish and aquatic habitat are required as a result of the TSF. To mitigate potential impacts to fish and aquatic habitat, erosion and sediment impacts from the TSF will be addressed as part of a comprehensive strategy for the entire YSE project developed during detailed design to meet the requirements, guidelines and design standards provided in TRCA's 2006 Erosion and Sediment Control Guidelines for Urban Construction. Where there is provincial or federal interest, all works will be completed in accordance with applicable legislation including, but not necessarily limited to, the Fisheries Act, the *Endangered Species Act* and the *Species at Risk Act*.	It is possible that additional mitigation measures, monitoring, and commitments may be identified in consultation with relevant provincial and federal agencies during the design/construction phase of the project. Any additional mitigation measures, monitoring, and commitments agreed to will be complied with.
Species at Risk	Potential impacts to species at risk	Locally or regionally rare species and Species at Risk are not expected in the Study Area, therefore no there are no anticipated construction impacts to Species at Risk associated with the TSF. No permanent impacts are anticipated to result from the operation and maintenance associated with the TSF. Therefore, potential impacts should be limited to temporary disturbance-related impacts that can be addressed using standard mitigation measures.	Vegetation clearing will be conducted outside the breeding bird season (May 1st to July 31st) to avoid removal or destruction of active bird nests and remain consistent with the *Migratory Birds Convention Act*. An avian biologist will conduct a nest survey if vegetation removal is proposed during this period. Wildlife of any species incidentally encountered during construction will not be knowingly harmed.	It is possible that additional mitigation measures, monitoring, and commitments may be identified in consultation with relevant provincial and federal agencies during the design/construction phase of the project. Any additional mitigation measures, monitoring, and commitments agreed to will be complied with.
Soil and Groundwater	Impacts to soil and groundwater during construction and operation	There are no permanent displacement impacts expected to soils associated with the TSF. All soil impacts are transient and relate to	Dewatering and groundwater inflow measures and contingency plans will be developed through additional investigations, during detailed design and continued consultation with the TRCA and	Ground movement will be monitored by a qualified geotechnical specialist during construction to ensure that existing infrastructure (roads, structures, utilities, etc.) are

Factor	Environmental Issue / Concern	Effect / Impact (During Construction; During Operations)	Mitigation Measures	Monitoring / Future Work / Contingency
		the construction of the TSF Based on currently available information, groundwater impacts are anticipated to be transient and relate to dewatering required for construction of the TSF. Dewatering will likely be required to temporarily reduce the groundwater levels and pressure in the upper and lower aquifers for construction of the TSF structure.	MOECC regulatory agencies. It is anticipated that these measures will adequately mitigate groundwater impacts from the TSF construction. A Permit to Take Water (PTTW) will be obtained from the MOECC for dewatering purposes and groundwater control, prior to the TSF construction. The PTTW will specify the rates and duration of the dewatering program, a monitoring program, and mitigation and contingency measures to be used during dewatering. A Soil Management Strategy Plan will be developed for re-use or disposal of excavated soils (i.e. excess soils), consistent with past TTC practice. This plan will be part of the Excess Materials Management Plan and require that management of excess soils is conducted in accordance with the applicable MOE (now MOECC) recommendations outlined in the documents titled "*Protocol for Analytical Methods Used in the Assessment of Properties"* (MOE, March 2004, amended in July 2011) and *"Management of Excess Soils – A Guide for Best Management Practices"* (MOE, January 2014). Please refer to *Contaminated Properties* for mitigation measures related to contaminated property.	protected. Baseline readings and existing condition reports will completed prior to any construction activities. All construction activities will be conducted in a manner that maintains ground movement/vibration within a specified limit (pre-approved). An environmental inspector will be responsible for ensuring that all environmental mitigation and design measures are properly installed/constructed, implemented and maintained, and appropriate contingency, response plans and remedial measures are in place and implemented if required. A monitoring program will be completed by a dewatering contractor as per conditions of the PTTW. This program will include monitoring dewatering rates and drawdown in monitoring wells and implementing erosion control measures to comply with the conditions imposed by the MOECC in the PTTW.
Drainage and Stormwater Management	Impacts to drainage and stormwater systems	The introduction of the TSF access roadway and employee parking lot will result in a minor increase in impervious area (and therefore a minor increase in stormwater run-off) within the catchment area for the drainage system. Construction of the TSF will be completed by open-cut excavation. Runoff into this excavation zone will require a dewatering system that will pump flow into the local storm sewer system until the proposed box structure is complete. Management of the additional flow to be handled by the local drainage network shall be reviewed in further detail during the detailed design phase of the project. No permanent impacts are anticipated to result from the operation and maintenance associated with the TSF.	In the design of the roadway and parking facility for the TSF, consideration will be given to ensure that run-off is directed away from the residential properties and the rail corridor. General drainage and stormwater management mitigation measures were outlined in the 2009 EPR, including stormwater management design criteria and a conceptual stormwater management plan (to be further defined in the design phase of the project in consultation with the Town of Richmond Hill and TRCA). These same stormwater management design criteria will apply to the works proposed in this EPR Addendum as well, and the design of the stormwater management plan will incorporate the proposed TSF as presented in this EPR Addendum. In addition, subsequent to the approval of the 2009 EPR, the TRCA has developed a Stormwater Management Criteria document. Therefore, in the development of the stormwater management plan (to be completed in the design/construction phase of the project), consideration will be given to implementing recommendations from TRCA's Stormwater Management Criteria, as appropriate, for the works proposed in the EPR Addendum. The detailed design phase will include specifications for sediment and erosion control to be complied with during construction. These specifications will be prepared in accordance with the TRCA's Erosion and Sedimentation	An environmental inspector will be responsible for ensuring that all environmental mitigation and design measures are properly installed / constructed, implemented and maintained, and appropriate contingency, response plans and remedial measures are in place and implemented if required.

Factor	Environmental Issue / Concern	Effect / Impact (During Construction; During Operations)	Mitigation Measures	Monitoring / Future Work / Contingency
			Guidelines which are based on Provincial and Regional legislation, guidelines and by-laws on the matter.	
Air Quality	Impacts to air quality during construction. Impacts on air quality due to implementation of the TSF.	As with any major construction project, dust concentrations are at times expected to be highly visible in the surrounding area. There are no notable permanent air quality impacts associated with the TSF, and therefore no specific mitigation or monitoring measures have been proposed.	A mitigation plan will be developed during the design / construction phase of the project to reduce the dust emissions generated during construction processes with guidance from Environment Canada's "Best Practices for the Reduction of Air Emissions from Construction or Demolition Activities", 2005.	The 2009 EPR outlines monitoring requirements for air quality construction impacts to ensure that construction operations meet Regulation 419/05 requirements. There are no changes to air quality monitoring requirements as a result of the works proposed in this EPR Addendum.
Contaminated Properties	Impacts to areas of high, moderate and low potential for contamination present within the study area.	A number of broad Areas of Potential Environmental Concern (APECs) were identified in the Contaminant Overview Study Report, however, no APECs with high potential for contamination were identified within close proximity of the TSF. Several areas with *moderate potential* for contamination were identified to be present within the Study Area; however, the only property/area likely to be impacted by construction of the TSF is a CN/GO railway line present to the east of the proposed TSF. There is the potential for soil and/or groundwater contamination to occur as a result of the operation and maintenance of the TSF.	Where there are property acquisitions that will be directly impacted by construction of the TSF (i.e. impacted properties) footprint or in the areas immediately adjacent to the railway line, Phase I and/or Phase II Environmental Site Assessments (in accordance with O.Reg.153/04, as amended) will be completed for these properties. For *moderate* APECs where there are no property impacts, soil contaminant investigation will be completed in areas where excavation may be required, to assess soil quality and soil management options during construction. Some investigations have already been completed through the Contaminant Investigation (**Appendix D**). Where works are required along existing road right-of-ways appropriate management of salt, metal and Petroleum Hydrocarbons impacted soils (and groundwater) may be required with regard to environmental regulations. Soil and groundwater quality will be evaluated for the area where the Train Storage Facility is proposed to be constructed south of Bantry Avenue. This area was not evaluated as part of the Contaminant Investigation due to difficulties in locating a storm sewer. Additional groundwater sampling will be completed in wells MW4 and MW5 and wells to be installed during future investigations in the area south of Bantry Avenue, to provide recommendations for groundwater discharge options during dewatering for the TSF construction. An Excess Materials Management Plan will be implemented to provide a mitigation strategy to effectively manage any contaminated excess materials (both soil and groundwater) encountered during construction. This plan will develop a sampling program to collect soil confirmatory samples for evaluation of options for soil re-use, recycling or disposal, as recommended in the MOE (now MOECC) Guide for Best Management Practices for Soil Management (MOE, 2014) and according to applicable regulations. In addition to managing contaminated materials generated during construction, it is equally important to ensure that off-site	Additional environmental investigations may be required to evaluate the impacts to soil and/or groundwater during operations and maintenance. A monitoring program and a contingency plan to deal with potential spills and releases of contaminants into soil and groundwater will be developed at the detail design stage of the project. A monitoring program will be included in the Soil and Groundwater Management Strategy which will be developed prior to construction. A contingency plan will be developed prior to construction where appropriate.

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			contamination (i.e. contamination outside of the subway corridor excavation area) does not migrate back into the corridor. This may require engineered containment barriers/walls such as grout curtains and sheet piling; and/or hydraulic traps to contain, capture and treat contaminant plumes. These requirements will be integrated into the detailed design of the subway corridor.	
Socio-Economic Environment				
Property	Property impacts for the construction of the YSR.	11 properties will be permanently impacted within the study area (see **Table 5-1**). Temporary property easements will be required at nine properties as noted in **Table 5-2**. Temporary property easements will be required during the construction phase to establish work zones, material laydown areas, equipment maintenance/storage (pocket) and to obtain access for construction activities. Construction activities (e.g. excavation and protection system) may result in potential for ground settlement, and impacts to existing buildings/structures adjacent to construction. No operations and maintenance-related impacts to property ownership are anticipated.	Per the 2009 EPR, if property acquisition is required for this project, it will be undertaken by the Proponent. The acquisition process emphasizes negotiation and the achievement of a mutually satisfactory agreement between the Proponent and the owner. If necessary, in order to protect the ability to proceed with the Project, expropriation may be required to acquire the necessary property. The total property acquisition process and resulting compensation is intended to leave the affected owner "whole" and thereby mitigating the negative impact. The Proponent will negotiate temporary construction easements with property owners on a case-by-case basis following the procedures described in **Section 5.2.1.1**. Following construction, the Proponent will reinstate lands to pre-construction conditions, if feasible.	Prior to the commencement of construction operations, a pre-condition survey will be undertaken to document existing ground elevations and building/structure conditions. During construction, surveys will be undertaken to monitor any movement to existing ground and buildings/structures within 50m of the work zone. Surveys will be undertaken on a weekly basis (minimum). This monitoring schedule is reduced to every three months for up to a year following backfilling. The monitoring program will include review and alert levels. If instrument readings exceed "review" levels, the Proponent and its Contractor will jointly assess the necessity of altering the method, rate or sequence of construction. At "alert" levels, the Proponent can order construction operations to cease until the necessary mitigation measures are undertaken. Following construction, the Proponent and its contractors will arrange for a joint post-construction inspection of buildings/structures and utilities with the respective Owners. The results of these surveys will be compared with the pre-construction surveys. The Proponent will monitor horizontal and vertical movements on a daily basis during active excavation or backfilling. In the event that instrument readings reach "alert" levels, (as to be defined on a structure-specific basis in the construction contract documents), the Proponent site supervisory staff oil order construction operations to cease and take necessary actions to mitigate unacceptable movements, including, but not limited to alternative construction methods or construction equipment and/or additional support/protection measures. In the event that a property owner submits a claim for property damage, the Proponent will conduct further investigations and, if appropriate, will negotiate a settlement.
Noise and Vibration	Temporary noise and vibration impacts during construction.	Based on the TTC requirement for all ancillary equipment to meet 60 dBA at 1 m in all public spaces, no adverse impacts are expected from the HVAC equipment to be located at the surface electrical service building. Vibration levels due to operations are expected to be below the	Should noise emissions or operations vary significantly from those outlined in the Noise and Vibration Assessment (**Appendix C**), noise impacts will be reassessed to assure compliance with all relevant legislative requirements. *Noise*	The Proponent will conduct a noise and vibration study, in accordance with the MOECC protocols. Specifically, this will include additional base line noise and vibration surveys (as required), similar to those already undertaken as part of the Transit Project. Post construction measurement will be undertaken to confirm "no adverse impact" as predicted in the

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		MOECC/TTC guideline limit of 0.10 mm/s root mean square (RMS) at all locations. Therefore, no adverse vibration impacts from normal operations are anticipated. *Noise* Construction noise levels will vary over time as the activities at the site change. Worst-case sound levels from construction activity, at the closest noise-sensitive receptors, will range from: • 75 dBA to 104 dBA, for removal of original surface material (including a +10 dB annoyance penalty applied to the hoe ram / mounted impact hammer). • 73 dBA to 96 dBA, for pile driving. • 74 dBA to 85 dBA, for general excavation and removal of material. These worst-case impacts are expected to occur immediately to the west of the cut-and-cover construction. Noise sensitive areas to the east, across the CN / GO Richmond Hill rail line can expect worst-case sound levels at least 17 dB lower than those outlined above. Stationary noise sources have been assessed cumulatively. Cumulative noise impacts include ventilation noise and noise from HVAC in the mechanical rooms of the electrical and access buildings. Based on the generic sound power emission data and silencer insertion loss data used in this assessment the emergency fire ventilation fans are expected to meet the applicable MOECC NPC-205 guideline limits at all noise sensitive locations. Based on the TTC requirement for all ancillary equipment to meet 60 dBA at 1 m in all public spaces, no adverse impacts are expected from the HVAC equipment to be located at the surface electrical service building. *Vibration* Construction vibration within the City is controlled by By-law 514-2008, which provides limits on maximum allowable vibration levels for construction and demolition activities (Toronto, 2008). The by-law identifies requirements for: g) Preliminary studies of vibration impacts; h) The identification of a “vibration zone of influence”, where such a zone will extend beyond the property line / legal boundary of the construction site; i) The existence within the zone of influence of any buildings that have been designated under the Ontario Heritage Act; j) Pre-construction consultation with property owners within the	Construction noise impacts are temporary in nature, and generally unavoidable. Although construction noise will be noticeable for some periods and types of work, with adequate controls impacts can be minimized. A Construction Code of Practice and the following provisions have been identified to mitigate the potential impacts from construction noise: • Construction should be limited to the time periods allowed by the locally applicable by-laws (0700h to 2300h, except in the case of emergencies). If construction activities are required outside of these hours, the Contractor must seek permits / exemptions directly from the Town of Richmond Hill. • There will be explicit indication that Contractors are expected to comply with all applicable requirements of the contract and local noise by-laws. Enforcement of noise control by-laws is the responsibility of the Municipality for all work done by Contractors. • All equipment will be properly maintained to limit noise emissions. As such, all construction equipment should be operated with effective muffling devices that are in good working order. • The Contract documents will contain a provision that any initial noise complaint will trigger verification that the general noise control measures agreed to, are in effect. • In the presence of persistent noise complaints, all construction equipment will be verified to comply with MOECC NPC-115 guidelines. • In the presence of persistent complaints and subject to the results of a field investigation, alternative noise control measures may be required where reasonably available. In selecting appropriate noise control and mitigation measures, consideration would be given to the technical, administrative and economic feasibility of the various alternatives. • Any blasting works will be designed to meet any applicable overpressure and vibration limits established by the MOECC in Publication NPC-119 and by the Ministry of Transportation Ontario in OPSS 120. • Since the sound levels from the construction activity are anticipated to be quite high during some periods, and the site is located adjacent to public space, construction hoarding/temporary fences are to be used where feasible. *Vibration* The Town of Richmond Hill does not have a by-law addressing construction vibration. Although not directly applicable within Richmond Hill, City of Toronto By-law 514-2008 provides limits on maximum allowable vibration levels for construction and demolition activities (Toronto, 2008). Under the terms of the City of Toronto Vibration By-law, a vibration control form should be	noise and vibration impact analysis undertaken as part of the Transit Project (see **Appendix C** for details).

Factor	Environmental Issue / Concern	Effect / Impact (During Construction; During Operations)	Mitigation Measures	Monitoring / Future Work / Contingency
		zone of influence; k) Pre-construction measurements of ambient background vibration levels, and site inspections; and, l) Development of a monitoring plan and continuous measurements of construction vibration during activities which may affect off-site receptors. The vibration Zone of Influence is identified in the by-law as the area beyond the property line of the construction site where vibration levels may exceed 5 mm/s. Vibration from pile driving and other general construction activities at the TSF could affect buildings on Coburg Crescent. Throughout the Study Area, the track is planned to be approximately 20 m underground. Although train speeds operating through the TSF will be very slow, a future scenario where the subway is extended to 16th Avenue may bring higher speeds through along this section of track. With the conservative assumption of trains travelling of 60 km/h through the TSF, the guideline limit is not expected to be exceeded at any of the sensitive receptors. Therefore, mitigation investigation is not required. Vibration levels due to operations are expected to be below the MOECC/TTC guideline limit of 0.10 mm/s rms at all locations. Therefore, no adverse vibration impacts from normal operations are anticipated. *Human Health and Safety* Local employees and residents as well as TSF construction workers will be potentially affected by construction-related noise, vibration and dust. Another important issue is the health and safety of construction workers.	provided with the Building Permit or Demolition Permit application. Pre-construction consultation, vibration monitoring, and site inspections will likely be required. Care should be taken where structures are located within the zone of influence. *Human Health and Safety* As documented in the 2009 EPR, the Proponent and its contractors will monitor noise, vibration and dust effects during construction. In addition, the proponent will monitor contractor compliance with applicable legislation and regulations.	
Electromagentic Interference	Potential generation of electromagnetic interference	There are no additional Electromagnetic Interference (EMI) impacts as a result of the TSF beyond those identified in the 2009 EPR.	N/A	N/A
Stray Current	Potential impacts from stray current	There are no additional stray current impacts as a result of the TSF beyond those identified in the 2009 EPR.	N/A	N/A
Cultural Environment				
Built Heritage and Cultural Landscapes	Potential for displacement and/or disruption of cultural heritage landscapes and built heritage resources during and after construction. Potential for indirect impacts by	No known built heritage resources or cultural heritage landscapes will be displaced or permanently impacted by the proposed TSF, including those identified in the 2009 EPR.	No mitigation measures are proposed as known built heritage resources or cultural heritage landscapes will not be impacted during construction of the proposed TSF. Should additional property be required outside of the current plan, further cultural heritage assessment may be required.	N/A

Factor	Environmental Issue / Concern	Effect / Impact (During Construction; During Operations)	Mitigation Measures	Monitoring / Future Work / Contingency
	the introduction of physical, visual, audible or atmospheric elements not in keeping with their existing character and, or setting.			
Archaeological Resources	Potential loss of archaeological resources	Based on findings of the Stage 1-2 Archaeological Assessment, no impacts are anticipated during construction, operation and maintenance of the TSF.	Should the boundaries of the Study Area change to include lands outside the current plan, further Stage 2 archaeological assessment is will be completed as warranted. Consultation with relevant stakeholders~~, including any applicable Aboriginal communities,~~ will be initiated in the event that archaeological resources or human remains are discovered. Where resources or human remains may be of interest to an Aboriginal community, or communities, outreach will occur to engage with the relevant communities. If cultural heritage resources (such as archaeological sites, artefacts, building and structural remains, and/or human burials) are discovered during excavation, the following procedures will apply[7]: **1.** Work shall be suspended until an assessment has been completed by the Ministry of Tourism, Culture, and Sport; and **2.** YRRTC / TTC shall perform required measures to mitigate negative impacts on found resources as required by the Ministry of Tourism, Culture, and Sport. In addition, if human burials are encountered, the local police, ~~Registrar/Deputy Registrar of~~ and the Cemeteries Regulation Unit~~,~~ of the Ontario Ministry of Government and Consumer Services will also be notified.	N/A
Transportation Network				
Transit Network	Potential impacts to the transit network	There are no permanent displacement impacts associated with the Transit Project. The extension of the underground facility will provide better functionality to the operation of the subway system due to the TSF. The potential to impact YRT, Viva or GO Transit bus operations during construction is limited as none of their current routes pass through the roadways that will be affected by the construction of the TSF. Construction of the underground TSF will require a protection system for the deep excavation. The protection system will encroach within the CN railway corridor in which GO Transit operates, but will allow for the continued operation of all rail activity. In addition, encroachment will be required for utility relocation work	Encroachment into railway corridor will require CN and Metrolinx approval and supervision to ensure construction is conducted safely and does not impact railway operations. In accordance with CN requirements for facilities to be constructed over or adjacent to CN railways, an agreement with CN Rail will be established prior to initiating construction.	N/A

[7] Toronto Transit Commission Master Specification 05-06-28 – Section 02230, subsection 1.2.2

Factor	Environmental Issue / Concern	Effect / Impact (During Construction; During Operations)	Mitigation Measures	Monitoring / Future Work / Contingency
		which may involve jack and bore/tunneling work and/or directional drilling.		
Pedestrian and Cycling Network	Relocation of existing sidewalks in the study area.	There are no permanent displacement impacts associated with the Transit Project. Proposed closure of Bantry Avenue for 12-16 months for the construction of the underground TSF will impact cyclists and pedestrians using the existing sidewalk and bike route. Proposed construction adjacent to Beresford Drive and Coburg Crescent will require the temporary reduction of roadway traffic to one lane and potentially a shift of the existing boulevard and sidewalk closer to the existing residential properties.	At the Bantry Avenue road closure, detour signing will be provided to direct cyclists and pedestrians to use facilities along High Tech Road. All construction work adjacent to Coburg Crescent and Beresford Drive will be carried out in a manner as to ensure the least interference with pedestrians and cyclists and shall include fencing and lighting as required to provide a safe environment.	N/A
Existing Roadway Network	Reduction in the road capacity available for automobile movements. Changes to traffic movements.	There are no permanent displacement impacts associated with the Transit Project. A permanent access road to the TSF building and parking lot will be constructed within the open space next to the railway corridor (adjacent to Coburg Crescent) which will connect to the existing road network at Beresford Drive. The implementation of the roadway will require minor modifications to Beresford Drive at the intersection with the proposed site access road. This intersection is expected to result in no significant impacts. Construction of the TSF by 'open cut' necessitates the removal and subsequent reconstruction of a significant portion of the existing Bantry Avenue between Red Maple Road and Ellesmere Road. At Bantry Avenue, the proposed construction conflicts with the existing west abutment/pier, therefore the roadway will have to be closed for 12-16 months and local traffic diverted. This will result in the displacement of approximately 610/590 vehicles per hour in the AM/PM Peak Hours. A preliminary assessment of future traffic volumes indicates that there will be sufficient capacity on the parallel alternative roadways (16th Avenue and High Tech Road) to accommodate the traffic displaced by the temporary closure of Bantry Avenue. It is expected that, per the YSE conceptual design study, access to the construction site for construction vehicles will be via Yonge Street, and either Bantry Avenue or Beresford Drive. On Yonge Street, the addition of trucks to remove the excavated material is considered a negligible increase in truck traffic. In addition, the underground TSF is in close proximity to Beresford Drive and Coburg Crescent. In order to construct the required protection system to complete the required deep excavation, the roadways will be reduced to one lane of traffic. Access will be maintained to all residences in the area throughout the duration of construction.	No significant long-term operational impacts to existing roadways are expected, and therefore no associated mitigation measures are proposed. During detailed design and implementation process, the Proponent and their consultants/contractors will work with York Region and the Town of Richmond Hill to develop an acceptable Traffic Management Plan (TMP) to be applied during construction. Truck haul routes will be identified during detail design as part of constructor's TMP. For the study area, trucks hauling materials associated with the YSE will be restricted from entering residential areas through contract provisions to the extent feasible. The Proponent will ensure that the contractor is following the approved Traffic Management Plan (TMP). In the event that the contractor proposes a deviation from the Plan, the contractor will be required to submit a revised TMP for review by York Region and the Town of Richmond Hill.	N/A

Factor	Environmental Issue / Concern	Effect / Impact (During Construction; During Operations)	Mitigation Measures	Monitoring / Future Work / Contingency
		In addition to these roadways, temporary property easements will be required during construction to establish work zones, material laydown areas, equipment maintenance/storage and to obtain access for construction activities. Construction for the TSF will be a very large earth moving exercise, with an overall length of approximately 830 m and a depth of approximately 22 m. In order to facilitate the removal of this material, construction vehicle access will be required from several locations along the existing road network. The magnitude of the traffic generated by the operation of the TSF, however, is marginal and is not expected to result in any significant impacts on the existing road network. All maintenance activities associated with the access road will be undertaken by the transit authority. Given the minor increase in traffic along Beresford Drive, no mitigation measures are required.		
Utilities	Impacts to utilities in study area	Within the Study Area, utilities will be impacted along the east side of Coburg Crescent and Beresford Drive as well as the proposed crossing under Bantry Avenue. A thorough review of existing and proposed future utilities plans, as well as all necessary relocations or modifications will be undertaken during detailed design of this Transit Project to determine permanent relocation requirements. The existing trunk storm sewer running parallel with (and directly on top of) the proposed underground TSF will require relocation prior to construction. All other utilities described in **Section 4.5** can be relocated either prior to or during construction depending on the proposed relocation strategy. Utility impacts and relocation strategies will be confirmed during the detailed design phase of the project.	Minor utilities that are not in direct conflict with the TSF will be supported and protected during construction where possible. Any utilities that are in direct conflict with the TSF will require relocation. Services will be maintained to the extent possible during relocation and notice of planned service interruptions will be provided to service users prior to interruptions. The location of all plant, potential conflicts and the relocation strategy will be confirmed with service providers during design. Any utilities requiring relocation within the CN railway corridor will be undertaken in accordance with York Region and CN's requirements. For all utilities that will be relocated, relocation plans and construction activities will be undertaken in accordance with the Road Rights of Way Act and with the Town's requirements for the Installation of Services within the Town of Richmond Hill Road allowance. The Proponent will pursue the necessary crossing permits required from any affected utilities during the detailed design phase of this study.	An appropriate monitoring plan will be developed during the detailed design phase of this project.

APPENDIX K
Draft EPR Addendum
Comment-Response Table

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
Regional Municipality of York Transportation Engineering	Steve Mota Program Manager – Transportation Engineering	April 17, 2014	• I have no further comments on this latest version of the Train Storage Facility EPR Addendum. Thanks for circulating this.	• Comment noted. No revisions required.
TRCA	Suzanne Bevan Senior Planner, Environmental Assessment Planning Planning and Development	June 10, 2014	• Staff understands further geotechnical and hydrogeological site specific investigations will be undertaken, especially at the southern half of the Train Storage Facility due to the thicker water-bearing aquifer units were encountered from the preliminary studies. This follows the recommendations from both the hydrogeology and geotechnical reports circulated with this submission.	• Noted.
			• It is understood that impact assessment and mitigation will be on-going as the project proceeds to detailed design. The main area of ecological concern will be related to erosion and sediment control along with management of groundwater dewatering. The Addendum has identified that consultation with TRCA and other agencies will be on-going and will include a Dewatering Needs Assessment and Environmental Management Plan (EMP).	• Noted.
			• Please note that the EMP will also need to address management and mitigation of dewatering discharges for the protection of surface water resources as well as protection of the groundwater resources as noted in the commitments to future work (section 6.3).	• Commitment updated to include dewatering discharges for the protection of surface water resources.
			• Please note that since the 2009 EPR, TRCA has produced the Stormwater Management Criteria document, provide criteria to meet stormwater management quantity, quality, erosion, and water balance targets for all watersheds. Please consider incorporating the recommendations from this document into the designs for the surface components for all impervious areas being improved, and not only the new impervious surfaces (Section 5.1.5.1).	• TRCA's Stormwater Management Criteria were developed subsequent to completion of the 2009 EPR. Consideration will be given to implementing recommendations from TRCA's stormwater management in the development of the stormwater management plan (during the design/construction phase of the project), as appropriate.
MOE (now MOECC)	Lorna Zappone Special Project Officer, Environmental Approvals Branch	June 6, 2014	**General Comments**	
			• When referring to locations ensure the associated figures include the referenced features. For example, streets should be illustrated/labeled when discussed specifically (see Section 1.4.2).	• Comment noted.
			• Ensure summaries of technical reports provided as appendices are presented in the main report at a level of detail appropriate to the discussion (see appendices I and F).	• Details from Appendix I are reflected in the EPR Addendum. The EPR Addendum has been revised to include references to Appendix I. • Please see the response below re: Appendix F. The EPR Addendum has been updated to reflect the findings of the Groundwater Assessment Report (Appendix F).
			• The paper copy of the EPR Addendum included the appendices on a CD however, not all appendices in the table of contents are on the CD.	• Noted. As indicated in the Table of Contents, Appendix F was yet to be circulated and was not available at the time of printing. Appendix F was subsequently distributed to the Technical Advisory Committee through the project Tempo (ftp) site.

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
			• Ensure accuracy when cross-referencing sections, figures and tables. For example, page 4-11 references Sections 5.1.2.2; 5.2.2.2; and 5.3.2.2 as being related to noise and vibration however two of those sections refer to construction impacts related to fish and aquatic habitat and archeological resources. See also Figure 3-5 and cross-references to Figure 5-2.	• Noted. Cross-references will be confirmed prior to finalizing the EPR Addendum.
			• It is unclear if works associated with the existing and proposed future utilities plans, including the relocations or modifications referred to in Section 4.5, are being proposed as part of the YSE. Review the definition of 'transit project' as described in the Transit Regulation and provide clarification about the EA requirements, revising the text as appropriate.	• No changes are proposed. Section 4.5 only discusses the existing utility plant in the study area and does not discuss any work required as a result of the proposed changes to the approved project. Impacts and mitigation measures are addressed in Section 5.4.4.
			• Provide a definition for the acronym 'USF' (see page 5-6).	• Reference revised to TSF.
			EPR Addendum - Introduction	
			• It is difficult to follow the description of the YSE as outlined in Section 1.2.1. Provide maps and identify the five stations.	• Figure 1-1 has been updated to better illustrate the proposed YSE alignment and station locations.
			• Details about the considerations for siting the train storage facility (TSF) reflected in figure 1-3 are not clearly legible. Provide better quality figure.	• The figure has been presented in a larger format to improve the readability.
			• Recent revisions to the Provincial Policy Statement (PPS) are in effect from April 30, 2014. Review the PPS and the EPR Addendum, ensuring changes are made and discussed in the EPR, as appropriate.	• Text has been added to Section 1.3 regarding the PPS, 2014.
			• Figure 1-4 appears to illustrate two study areas. Provide clarification in the figure, including map orientation, and the description provided in Section 1.4.1.	• Figure 1-4 illustrates only the EPR Addendum study area, labelled "Study Area". Figure 1-4 has updated to clarify map orientation.
			• Reasons for the proposed change have not been provided in Section 1.4 as indicated in Section 1.5.1. Provide details or revise accordingly.	• Reference updated to Section 3.0.
			• It would be appropriate to include *evaluation* when referring to the assessment of impacts of the changes (see first bullet, page 1-9).	• Text revised accordingly.
			• The EPR Addendum process and the Minister's authority regarding issuance of notices are not accurately represented in Section 1.5.3. Review Ontario Regulation 231/08 (Transit Regulation), Section 15, and revise accordingly.	• Text revised accordingly.
			EPR Addendum - Outline of Study Consultation Process	
			• Ensure the final EPR Addendum provides clarification/confirmation that consultation and notification were undertaken in accordance with Section 15.(5) of the Transit	• Text revised accordingly.

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
			Regulation.	
			• Ensure a summary table of issues raised during the review of the draft EPR Addendum is included in Section 2.3 of the final EPR Addendum, as appropriate.	• The full comment-response table will be included in the final EPR Addendum as **Appendix K**, and a brief summary of the key comments/responses will be included in **Section 2** of the main report.
			EPR Addendum – Alternatives Considered and Features of the Recommended Transit Project	
			• The third bullet in 3.1 requires clarification about what is meant by '…additional YSE…'.	• Text revised accordingly.
			• It is unclear if the consideration of design criteria (3.1.1) resulted in the alignment configuration alternatives (3.1.2). Provide clarification about the process followed to arrive at the evaluation of alternatives and selection of preferred alignment (3.1.3).	• Text revisions were made to Section 3.1.2 (Alignment and Configuration Alternatives) to clarify that the alternative TSF alignments were developed to address the requirements identified in Section 3.1.1.
			• Provide additional details about the three alternatives described in 3.1.2 to identify whether all or part of the alignment is above and/or below ground.	• Text revised accordingly.
			• Additional details are required in Table 3-1 in order to determine the assessment undertaken to identify potential impacts of the alternatives and subsequently the evaluation of the impacts to identify the preferred alignment.	• No changes proposed. The table presents the entirety of the analysis undertaken by the proponent to identify the preferred alternative. No further detail is available.
			• Figure 3-5 is missing from the EPR Addendum (see 3.2.2).	• Figure 3-5 was included in the PDF of the draft Addendum and should have been included in the hard copies circulated as well.
			• The proposed parking lot either does not appear or is not labeled in Figure 3-5B (see 3.2.3).	• Noted. An additional Figure 3-5C will be prepared to present the layout of the surface works more clearly.
			EPR Addendum – Study Area Conditions	
			• Appendix K is cross-referenced under topography (4.1.4.1), yet no such appendix is provided. Review and revise accordingly.	• Text revised accordingly.
			EPR Addendum – Detailed Assessment of the Impacts, Proposed Mitigation, and Monitoring of the Transit Project	
			• An EPR Addendum is prepared under Section 15 of the Transit Regulation. Revise accordingly.	• Text revised accordingly.
			• The information should be organized in a manner that demonstrates the identification and assessment of potential impacts, including the identification of proposed mitigation and monitoring, has been conducted for all phases of the project	• Comment noted.

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
			and for all of the proposed project changes: the subway alignment extension, underground train storage facility and surface facilities.	
			• In accordance with the Transit Regulation, the EPR Addendum is to include a description of proposed measures to mitigate potential impacts the changes may have on the environment. It is not sufficient to identify no change to the mitigation measures proposed in the 2009 EPR.	• Noted. Relevant commitments from the 2009 EPR will be re-stated in the EPR Addendum as appropriate, in **Section 6**.
			• It is recommended to present in table format the impacts, mitigation and monitoring for each environmental component (natural environment, cultural, etc.), for each project element during each of the three phases of the project (displacement of existing features, construction impacts, and operation and maintenance impacts).	• Comment noted. A table will be prepared to summarize the impacts, mitigation measures proposed, and associated monitoring processes.
			EPR Addendum – Commitments to Future Work	
			• Review the Transit Regulation and revise text in Section 6.9 accordingly. For example, only changes to the EPR proceed through the Addendum process.	• Text revised accordingly.
			• The EPR Addendum process does not require notices of Commencement or Completion.	• Text revised accordingly.
			• When referring to a process outlined in the Transit Regulation it is prudent to refer back to the Transit Regulation rather than a section within this EPR Addendum.	• Text revised accordingly.
MOE (now MOECC)	Rudolf Wan, P. Eng. Supervisor, Approval Services (Team 3) Environmental Approvals Branch (EAB)	May 22, 2014	**Construction Air Quality Assessment, Yonge Subway Extension, Train Storage and Maintenance Facility**	
			• EAB air engineers do not review air quality assessments for construction activities	• Noted.
			Yonge Street Subway Extension Project, Train Storage and Maintenance Facility, Environmental Noise and Vibration Assessment	
			• It is not the area of expertise of EAB air engineers. Indeed comments on the document have already been provided by Thomas Shevlin, P. Eng Senior Noise Engineer	• Noted.
			Yonge Subway Extension, Transit Project Assessment Process, Train Storage Facility, Environmental Project Report Addendum	
			• This addendum seems on the 14-car Train Storage Facility c/w service facilities (section 3.2.2 and 3.2.3), in section 5.1.6.1 it indicates that “there are no permanent air quality impacts associated with the TSF”. And in section 6.1 (8), it indicates that “Certificates of Approval for noise and air quality related impacts resulting from vent shafts, stations and parking lots from MOE” would be obtained. These 2 sections do	• Text revised to read “no *notable* permanent” impacts.

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
			not seem to match.	
MOE (now MOECC)	Thomas Shevlin, P. Eng Senior Noise Review Engineer Environmental Approval Services Section	May 7, 2014	• I have reviewed the noise and vibration aspects of the document "Yonge Subway Extension, Transit Project Assessment Process, Train Storage Facility, Environmental Project Report Addendum, Draft Technical Advisory Committee Review", dated April 2014 and prepared by MMM Group. This office has no noise or vibration related comments regarding this document at this time.	• Noted.
MOE (now MOECC)	Nisha Shirali Environmental Resource Planner & EA Coordinator – Air Pesticides and Environmental Planning	May 23, 2014	**Water Quality and Quantity**	
			• No Comments	• Noted.
			Air Quality – Exposure Limits	
			• Section 6.1 of the Air Quality Assessment (AQA) Report stipulates the following: "There are no regulated exposure limits for dust generated due to construction activities within the Province of Ontario. Therefore the evaluation focused on assessing the relative change between pre-mitigation and post-mitigation maximum ground-level concentrations as predicted by the dispersion model". The first sentence in the above quote is partially true; however, there are guidelines recommended by the ministry which can be used in environmental assessments (EAs). These are referred to as Ambient Air Quality Criteria (AAQC). Although construction is not regulated under the local Air Regulation 419/05, the AAQC can be used for comparison purposes. For this reason, the AQA Report should also highlight that there is a daily AAQC for total suspended particulate of 120 µg/m3.	• The AAQC can be used for comparison purposes; however, exceeding these limits due to construction activities would not constitute a failure of Ontario regulations. The Air Quality Assessment Report has been revised to highlight the 120 µg/m^3 standard, with the caveat that it is only for comparative reasons and an exceedance of this level does not constitute a failure under Ontario Regulation 419/05.
			Air Quality – Emission Rates	
			• The US EPA AP-42 methodology noted in section 6.2 of the AQA Report follows ministry guidance for estimating emissions from material handling, storage piles and paved roads. However, it is important to note that the conversion of Total Suspended Particulate Matter (TSP) with diameter < 30 um to a diameter < 44 um, which corresponds to the TSP diameter stipulated under the AAQC, is not typically done in EAs. Although this conversion is conservative, the ministry cannot comment on the methodology used since it is not typically done in most applications.	• Noted.
			Air Quality – Dispersion Modelling	
			• The AQA Report modelled construction activities as sources using AERMOD version 8.0.5 (U.S. EPA version 12060) which is an acceptable model recommended by the ministry. Based on supporting documentation provided, it appears that the emissions and modelling follow the ministry's guidance. However, the ministry cannot comment on the validity of the results without reviewing the input and output modelling files.	• The requested sample files were provided to MOE on June 13, 2014. The sample files provided were the files use for the 75% reduction model. On June 28, 2014 the Ministry requested additional supporting documentation. After clarifying the supporting documentation request, the requested files were provided on July 2, 2014. For review feedback and corresponding responses please refer to the July 8,

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
			Please provide a sample input and output file for our review.	2014 comments tracked below.
			Air Quality – Assessment of Results	
			• The AQA Report for the Yonge Subway Extension Addendum focused primarily on construction activities sources which are typically considered the highest sources of mitigable emissions for transit and transportation applications. However, it is not clear if the vehicle emissions from the construction equipment were also assessed via dispersion modelling since Section 6.2 notes that "…Vehicle emissions were estimated using the emission rates from diesel engines of typical construction vehicles (Road Construction, Caterpillar)." Please clarify if the particulate levels generated from the construction vehicles were also assessed.	• The assessment considered particulate matter emissions generated from: material handling and processing, re-suspended particulate from the roadway/construction area (fugitive emissions) and tailpipe emissions from the construction vehicles. Emissions from all three of these sources were included in the air dispersion modelling. Note that when assessing a 75% reduction in emissions due to best practices, tailpipe emissions were not reduced as mitigative measures such as chemical suppressants will have no effect on tailpipe particulate matter emissions.
			• In addition, the AQA Report should clarify if the traffic vehicular emissions during construction of the subway extension were addressed in the original Yonge Subway Extension submission.	• Introductory text for the both the EPR Addendum and the corresponding Air Quality Assessment Report addresses the context of the current scope of assessment.
			• The assessment was performed with and without mitigation to illustrate the improvements in ground level dust concentrations that can be attained. This approach is acceptable for this specific amendment. However, we recommend that Section 6.3 include the rationale for not conducting the base case (current conditions) versus future scenario analysis which is typically the approach recommended by the ministry when dealing with air quality impacts assessments in support of EAs.	• The following has been added to the Air Quality Assessment Report: A comparison between base case and future impacts was not performed, as is typical in an Environmental Assessment, due to the nature of the project. The storage facility will be underground, with little emissions predicted under normal operations. Upon completion, there is not expected to be a significant change in the air quality around the study area due to the maintenance and storage facility. • It is Novus' opinion that modelling base case should be typically done when assessing long-term operational improvements and not short-term construction activities.
			• In Section 8, "Results", of the AQA Report, the maximum predicted TSP concentrations at the worst-case sensitive receptor with and without mitigation are illustrated in Table 4 "Maximum Predicted TSP Concentrations". Please clarify whether the maximum predicted concentrations in Table 4 are hourly or daily TSP concentrations.	• The Air Quality Assessment Report has been revised to indicate that the presented concentrations are based on a 24-hour averaging period.
			• Also, it is recommended that Section 8 specify whether the maximum concentrations are the absolute maximum predictions, the ninth highest if hourly, or second highest if daily concentrations as recommended by the ministry guidance document for reporting predicted concentrations under O.Reg. 419/05. Please note that although construction is exempt under local air regulation, the guidance document can be applied when assessing impacts.	• The Air Quality Assessment Report has been revised to reflect that these impacts are the highest predicted daily concentrations without exclusions.
			Air Quality - Conclusions	
			• The assessment was performed with and without mitigation to illustrate the improvements in ground level dust concentrations that can be attained. This is an acceptable approach for this specific amendment. However, we recommend that	• Please see the corresponding previous response above.

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
			Section 6.3 include the rationale for not doing the base case (current conditions) versus future scenario which is typically the approach recommended by the ministry when dealing with air quality impacts assessments in support of EAs.	
			• We recommend that the AQA Report include a statement that depending on the activities and source types, the proposed storage and maintenance facility will require an Environmental Compliance Approval (ECA) or an Environmental Activity and Sector Registry (EASR) submission for air and noise.	• The Air Quality Assessment Report has been revised accordingly.
			• Given the fact that construction will generate high dust levels, construction impacts are highly dependent on the meteorological conditions present at the time and the construction mitigation measures in place. We recommend that the proponent follow the dust mitigation measures as stipulated in the AQA Report. These can minimize offsite dust impacts at the most impacted receptor.	• Section 5.1.6.2 of the EPR Addendum includes the following: Environment Canada "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" document provides guidance for mitigation techniques, not only for dust but for other pollutants such as carbon monoxide and oxides of nitrogen as well (Environment Canada, 2005). Common best practices for these emission sources include reformulated fuels, emulsified fuels, catalysts and filtration technologies, and cleaner engine repowers. • Section 5.1.6.2 and Section 6.3 of the EPR Addendum include the following commitment: Prepare a mitigation plan to reduce the dust emissions generated during construction processes with guidance from Environment Canada's *"Best Practices for the Reduction of Air Emissions from Construction or Demolition Activities", 2005.*
			• We recommend that the proponent add a commitment in the EA where dust mitigation measures should be implemented by the contractor. These measures should follow the Environment Canada (2005) guidance document entitled "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities."	• The specific location of dust suppression requirements will be determined by the constructor at the time of construction. Section 5.1.6.2 of the EPR Addendum includes mitigation linked to Environment Canada's "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" document. This commitment has been reiterated in Section 6.3 of the EPR Addendum.
			Comments from York Durham District Office	
			• The Contamination Overview Study dated March 2014 was reviewed. The study has not identified any known groundwater or soil contamination at the site. The APECs (Areas of Potential Environmental Concern) are reasonable and reflect current site uses. They are unlikely to have direct impacts on the proposed project with the exception of the adjacent rail line, soils and ballast, which are unlikely to meet generic soil standards for industrial/commercial use along the 800 m length of the proposed site.	• Noted.
			• There is at least one Record of Site Condition (RSC) along Yonge Street in existence in addition to those identified in the report. However, as the RSC sites along Yonge Street are at the periphery of the study area, they are unlikely to affect the conclusions of the report.	• Noted.
			• The Groundwater Assessment Report dated April 2014 has considered groundwater quality in relation to storm and sanitary sewer discharge criteria. While this is an important consideration for the discharge of groundwater for dewatering,	• The Groundwater Assessment Report includes the following recommendations: o Additional hydrogeological/groundwater investigations are required to better

Organization	Reviewer	Date	Comment	Response
			groundwater quality at the site and potential impacts on construction activities or long-term use and operation of the facility have not been directly evaluated. The proponent should ensure that site-specific soil and groundwater management plans are developed to provide: • Appropriate soil and groundwater quality criteria for construction and post-development use of the site. • Excess soils management measures to control dust and prevent tracking of soil from the UTS property. • On-site management including placement of materials for stockpiling on designated areas, with liners and covers, berming, fencing, runoff and access controls as needed. • Procedures to characterize excess soils and ground water. • Record keeping to document the identification, storage, and on- and off-site management or disposal of these materials.	understand the hydrogeological conditions present in the Study Area, especially in the southern portion where productive aquifers may potentially be present. These studies should be completed at the detail design stage of the project, when details of the TSF design are confirmed. Conclusions whether permanent dewatering measures are required to be used during operation of the TSF should be provided once hydrogeology of the Study Area is well understood and design of the TSF is confirmed. The EPR Addendum has been updated to reflect the findings of the Groundwater Assessment Report. • The following commitments for future mitigation plan development are included in the EPR Addendum: o Section 5.1.4.2 (Construction Impacts): As outlined in the 2009 EPR, a Soil Management Strategy Plan will be developed for re-use or disposal of excavated soils (i.e. excess soils), consistent with past TTC practice. This plan will require that management of excess soils is conducted in accordance with the applicable MOE recommendations outlined in the documents titled "*Protocol for Analytical Methods Used in the Assessment of Properties"* (MOE, March 2004, amended in July 2011) and *"Management of Excess Soils – A Guide for Best Management Practices"* (MOE, January 2014). o Section 5.1.4.3 (Operations and Maintenance Impacts); As outlined in the 2009 EPR, a Soil Management Strategy Plan will be developed for disposal of excavated material, consistent with past TTC practice. As no permanent impacts to soil are anticipated after the construction of the facility, no further mitigation measures are recommended. o Section 5.1.7.2 (Construction Impacts): An Excess Materials Management Plan will be implemented to provide a mitigation strategy to effectively manage any contaminated excess materials (both soil and groundwater) encountered during construction. o Section 5.1.6.2 (Construction Impacts): Prepare a mitigation plan to reduce the dust emissions generated during construction processes with guidance from Environment Canada's *"Best Practices for the Reduction of Air Emissions from Construction or Demolition Activities", 2005*. Those plans will be prepared in advance of construction. Commitment to preparation of those plans is also noted in Section 6.3 of the EPR Addendum.
MOE	Yuefeng Zhang, P.Eng, Ph.D, PMP Senior Wastewater Engineer Approval Services Section – Team 1 Environmental Approvals Branch (EAB)	May 27, 2014	**Section 5.1.4 – Soil and Groundwater**	
			• Section 5.1.4, it is mentioned that dewatering will be required to temporarily reduce the groundwater levels. Approval might also be required depending on volume of groundwater to be discharged and the requirements of discharge criteria for water quality control.	• Section 5.1.4.2 text regarding the need for a PTTW has been updated to match the Groundwater Assessment Report: o A Permit to Take Water (PTTW) will be obtained from the MOE for dewatering purposes and groundwater control, prior to the TSF construction. The PTTW will specify the rates and duration of the dewatering program, a monitoring program, and mitigation and contingency measures to be used during

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
				dewatering.
			• Section 5.1.4, the report indicates that potential soil and groundwater contamination may exist with the Study Area. In this case, groundwater shall be investigated for any contamination before being discharged to surface water courses. If the groundwater is contaminated, treatment might be required before it is discharged and approval need be obtained.	• Section 5.1.7 (Contaminated Property) addresses the corresponding mitigation. References have been added to Section 5.1.4 (Soil and Groundwater) to direct readers to Section 5.1.7 for mitigation measures related to contaminated property.
			Section 5.1.5 – Stormwater Management	
			• Section 5.1.5, the collection, treatment and disposal of stormwater run-off from all surface facilities listed in 3.2.3 (such as utility building, staff parking lot etc.) shall be included into the engineering design. If it is intended to use the municipality's existing storm sewer and stormwater management facilities for servicing all the new surface facilities, pre-consultation with the municipality is recommended on the feasibility of this approach. The municipality might require lot level and conveyance controls (referred to as low impact development including bioswales, oil and grit separators etc.) before draining stormwater to the municipal sewer system. Approval will be required to install any such new stormwater management works (e.g. storm sewer, swales, infiltration galleries, underground storage tanks, oil and grit separators etc.)	• The 2009 EPR included a commitment to develop a detailed stormwater management plan during the design/construction phase of the assignment, in consultation with (among others) the Town of Richmond Hill and the TRCA. This commitment will be reiterated in the EPR Addendum as it applies to the drainage resulting from the TSF and associated facilities.
			• Section 5.1.5, temporary erosion and sedimentation control measures shall be installed and maintained during construction.	• A commitment to develop a construction erosion and sediment control plan prior to construction was included in Section 5.1.5.1, and has been moved to Section 5.1.5.2, and was already committed to in Section 6.3 of the EPR Addendum.
			Section 6.1 – Permit and Approval	
			• Section 6.1, Approvals might be required for groundwater discharged by the dewatering system and any new stormwater management works.	• Section 6.1 identifies that a Permit to Take Water will be required from the MOE, and that approvals will be required from Richmond Hill and York Region for sewer works, as appropriate.
			General Comment	
			• It is expected that more details will be provided in the final EA and during the ECA application period and all the above issues will be addressed as part of the detailed pre-application consultation with the Ministry.	• Noted. Please see corresponding response above.
MOECC	Nisha Shirali Environmental Resource Planner & EA Coordinator - Central Region, Technical Support Section	July 8, 2014	**Air Quality Assessment**	
			• We have reviewed the AERMOD input and output file for the 75 reduction scenario provided for the Yonge Subway Extension Transit EA. Based on the supporting documentation provided, the model inputs followed the ministry's guidance documents (ADMGO guideline). However, the particle densities used for PM2.5,	• The rationale for using one density was based on estimates of when worst-case emission would occur. The highest emission rates were predicted to be due to pavement removal. During pavement removal, the majority of particulate would be asphalt dust. Therefore the assessment applied the density for asphalt to represent

Yonge Subway Extension Train Storage Facility Draft Environmental Project Report Addendum - Technical Advisory Committee Review Feedback				
Organization	**Reviewer**	**Date**	**Comment**	**Response**
			PM10 and TSP were all set to 2.3 g/cm3. Typically, the densities vary among materials. Please provide a rationale as to why all particle sizes were set to the same particle density.	all of the particle sizes as it was assumed that all emissions would be homogeneous.
			• In addition, please note that the proponent must commit to implement dust mitigation measures as stated in our initial comments on the EA. The dust control measures should follow the Best Practices for the Reduction of Air Emission from Construction and Demolition Activities (Cheminfo, 2005 - Environment Canada Report) as recommended in the Construction Air Quality Assessment prepared by Novus Environmental and dated March 2014. Implementation of such dust control measures will serve to minimize off-site dust impacts at the worst impacted sensitive receptors.	• Section 5.1.6.2 of the EPR Addendum includes the following: Environment Canada "Best Practices for the Reduction of Air Emissions from Construction and Demolition Activities" document provides guidance for mitigation techniques, not only for dust but for other pollutants such as carbon monoxide and oxides of nitrogen as well (Environment Canada, 2005). Common best practices for these emission sources include reformulated fuels, emulsified fuels, catalysts and filtration technologies, and cleaner engine repowers. • Section 5.1.6.2 and Section 6.3 of the EPR Addendum include the following commitment: Prepare a mitigation plan to reduce the dust emissions generated during construction processes with guidance from Environment Canada's *"Best Practices for the Reduction of Air Emissions from Construction or Demolition Activities", 2005.*