Submitted by:

DILLON CONSULTING

NOISE BARRIERS AND ENGINE GROUND RUN-UP ENCLOSURE ENVIRONMENTAL SCREENING REPORT

Canada Port Authority Environmental Assessment Regulations (CPA EA Regs)

October 2011

Toronto Port Authority,
Billy Bishop Toronto City Airport

Toronto Port Authority

Billy Bishop Toronto City Airport (BBTCA)

Proposed Noise Barriers and Engine Ground Run-Up Enclosure

Environmental Screening Report

Canada Port Authority Environmental Assessment Regulations

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Dillon Consulting Limited

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ENVIRONMENT SCREENING REPORT

A. PROJECT IDENTIFICATION	
Project Name/Title:	Billy Bishop Toronto City Airport Proposed Noise Barriers and Engine Run-Up Enclosure
Project Location:	City of Toronto, Ontario
Project Proponent:	Toronto Port Authority
CEAA Trigger:	Project Proponent (under the Canada Port Authority EA Regulations)
B. CONTACTS	
Name:	Ken Lundy
Title:	Director, Infrastructure, Planning and Environment Toronto Port Authority
Address:	60 Harbour Street, Toronto, Ontario
Phone:	416-863-2040
Email:	klundy@torontoport.com
Name:	Don McKinnon
Title:	Environmental Planner
Address:	235 Yorkland Blvd, Toronto, Ontario
Phone:	416-229-4647 ext. 2355
Email:	dpmckinnon@dillon.ca

EXECUTIVE SUMMARY

The Toronto Port Authority (TPA) is proposing to construct two noise barriers and a groundside engine run-up enclosure ("the project") at the Billy Bishop Toronto City Airport (BBTCA). The purpose of these barriers would be to reduce noise levels to the surrounding community from groundside airport operations. This is part of the TPA's effort to address community concerns about noise related to airport activity. The TPA is conducting the environmental screening of the project pursuant to the requirements of the *Canada Port Authority Environmental Assessment Regulations*, made under the Canadian Environmental Assessment Act.

The noise barriers would be acoustic walls built along certain lengths of the northern and eastern edges of the Airport. The engine run-up enclosure (GRE) would be a semi-circle/half-moon noise barrier facility for an aircraft, of size similar to Bombardier's Dash 8, Q400 series, to sit while they complete engine run-up maintenance inspections. As part of the regular inspection and maintenance of aircraft, aircraft engines require testing at high power levels to ensure their proper operation and safety to the travelling public. While necessary for safety, these engine run-up operations can be a disturbance to area residents.

The environmental screening determines the environmental effects of the project on the existing natural (biophysical) and socio-economic environments. The effects assessment included both the short-term project construction impacts and the longer-term effects from the operation of the project. Baseline environmental conditions have been described in Section 4, which represent existing conditions (i.e., before the project). For construction effects, it was assumed that construction would commence in the Fall of 2011 and take two up to three months to complete.

The results of the assessment are that **some minor, localized and short-term project construction related nuisance effects are expected. Once constructed, there would be no effects from the project.** The use of the noise barriers and GRE facilities would reduce existing noise levels in the surrounding communities. The results of the assessment of the project on each of the environmental factors included in this environmental screening are presented in Section 5 (Environmental Effects and Mitigation) of the report.

The screening predicts that there would be no significant adverse effects on the environment as a result of the project.

To minimize the short-term construction related effects, a number of mitigation measures are recommended that would be implemented by the TPA if a decision were made to proceed with the project.

1 PROJECT

1.1 Project Description

The name of the project is the **Billy Bishop Toronto City Airport Proposed Noise Barriers and Engine Run-Up Enclosure** (referred to as the Project). The Toronto Port Authority (TPA) is the Project proponent. The Project includes the construction of noise barriers and an engine ground run-up enclosure (GRE) that would manage noise levels from aircraft groundside activity at the BBTCA.

The noise barriers would be acoustic walls built along certain lengths of the northern and eastern edges of the Airport. The purpose of these barriers is to reduce noise levels to the surrounding community from groundside airport operations (see **Figure 1**).

The GRE is a semi-circle/half-moon noise barrier facility for an aircraft, of size similar to Bombardier's Dash 8, Q400 series, to sit while they complete engine run-up maintenance inspections. As part of the regular inspection and maintenance of aircraft, aircraft engines require testing at high power levels to ensure their proper operation and safety to the travelling public. While necessary for safety, these engine run-up operations can be a disturbance to area residents. The proposed GRE would reduce these sound disturbances. **Figure 1** shows the proposed location of the GRE.

The locations and heights of the proposed noise barriers and GRE are subject to approval from NAV Canada. Figure 1 illustrates the proposed locations which have been reviewed and approved by NAV Canada. While it was hoped that noise barriers could have been installed at other locations, NAV Canada has limited the location of the barriers to the two proposed locations.

1.2 Project Purpose

In 2010, the TPA had Jacobs Consultancy Canada Inc. complete a *Noise Management Study* for the BBTCA. The TPA had this study done as part of the TPA's commitment to be a responsive and responsible partner in Toronto's harbour community and address community concerns about noise related to airport activity. The report included a number of recommendations for the TPA to engage in to manage noise impacts that result from the BBTCA activities. Included in the recommendations were:

> *TCCA* [Toronto City Centre Airport previous name of the BBTCA] *to assess and potentially develop designated engine run-up areas, including a maintenance run-up area (i.e. end of Runway 33)…*

TPA to assess the potential of implementing noise control barriers at or near any proposed aircraft engine run-up areas or pads

The Project is being proposed in response to these recommendations. This environmental screening has been completed to assess the environmental effects of the Project.

This screening has been completed under the *Canada Port Authority Environmental Assessment Regulations* (CPA EA Regs).

1.3 Project Location

The proposed Project would be located on the BBTCA lands. The noise barriers would be located along the Western Channel and the Toronto Harbour. **Figure 1** illustrates the proposed locations of the noise barriers and the engine run-up enclosure.

Figure 1 – Project Location

Proposed location of Noise Barriers

Proposed location of Engine Ground Run-Up Enclosure

Proposed location of runway extension to GRE

2 CANADA PORT AUTHORITY EA REGULATIONS AND APPROVALS

In accordance with the *Canada Port Authority Environmental Assessment Regulations* (the "CPA EA Regulations"), which were made under the *Canadian Environmental Assessment Act* (the "CEAA"), the TPA is conducting this Screening Level Environmental Assessment (EA) for the Project, which is considered to be a "physical work" being proposed by the TPA.

Although Transport Canada owns small portions of land at the BBTCA at the east and west extremities, the location and length of the proposed noise barriers would not extend onto Transport Canada property. Transport Canada has reviewed the Project and has advised the TPA that no federal approvals or permits are required from Transport Canada.

The Department of Fisheries and Oceans has also indicated that approvals (under the Fisheries Act) for the Project are not expected to be required.

In addition to this screening, but not as a requirement of the screening approval, a Land Use Proposal was submitted to NAV Canada. This is required for proposals that involve construction proposals on an airport with Control Tower Services, Weather Services, Localizer or other navigational aids. NAV Canada's evaluation of land use proposals and construction proposals neither constitutes nor replaces any approvals or permits by Transport Canada. NAV Canada has provided feedback on the Land Use Proposal and has agreed to the project components in this screening.

3 SCOPE OF THE PROJECT

3.1 Project Components

The Project would include the following components:

- Two acoustic barrier walls with a nominal height of 6 to 8 metres above grade.
    - The walls would consist of a series of steel columns with noise barrier panels in-between the columns/posts. The steel columns/posts would be spaced to accommodate the panel length and not exceed 25mm of the panel length.
    - The height of individual barrier segments would be randomized using a pseudo-random sequence to provide visual break of the crest line. The maximum variation shall be +0.5m and -0.25m.

- Individual noise barrier elements would have surface patterns and some possible artistic reliefs providing an architectural façade, rather than a simple wall (this will require several design concepts for consideration).

- Barriers would be a modular design that is resistant to water, moisture, vibration, moderate prop-wash and wind loadings, and are non-corrosive and non-conductive.

- Tops of the barriers would be fitted with appropriate fittings to discourage bird nesting and alighting.

- Mounting of navigation/warning lights would be included as required by NAV Canada. Detailed locations will be determined in consultation with the regulatory authority.

- One Engine Ground Run-Up Enclosure (GRE)

  - Proposed location is at the west side of the airport lands (see Figure 1) to maximize distance from residential areas to the north and southeast.

  - Would include an area sufficiently large enough to accommodate an aircraft, similar in size to a Bombardier Dash 8, Q400 to taxi into the proper position to conduct required engine run-up activities.

  - The GRE would consist of a paved asphalt apron/area surrounded by a semi-circle/half-moon soil berm noise barrier that would be constructed for aircraft to sit while undertaking engine run-ups.

  - A taxi-lane extension from the west side of Runway 15-33 (see Figure 1) to the GRE would be constructed.

3.2 Project Activities

Table 1 contains a list of Project activities for the purpose of conducting the screening. Subject to completion of the screening, and other matters that the TPA would need to complete to proceed with the Project, construction initiation could be expected in Fall 2011, with completion anticipated within two, up to three, months.

Table 1: Detailed Project Activities

Project Component	Project Component Description	Physical Works and Activities
Construction Activities for Noise Barriers		
Steel columns /posts	Steel columns/posts with footings, nominal height of 6 to 8 metres above grade, that would be securely anchored in the ground.	• Transport of steel columns/posts (pre-constructed) and construction equipment across the Western Channel to the BBTCA. This would be done using the exiting BBTCA ferry that crosses the Western Channel. • Drilling/vibratory pile-driving of the columns securely into the ground with footings, spaced to accommodate the barrier panels.
Panels	Placement of panels with a nominal height of 6 to 8 metres in-between steel columns/posts. *(Exact design to be confirmed in screening)*	• Transport of panels (pre-constructed) and construction equipment across the Western Channel to the BBTCA. • Machinery (mobile crane) to place panels securely between the steel columns. • Surface and stormwater management system to mitigate panels impeding surface water run-off.
Electrical System	Electrical systems for navigation / warning lights and visibility (as directed by NAV Canada).	• Placement of electrical connection for warning lights and closed circuit cameras. • Mounting of warning lights and cameras.
Bird Management	Tops of the barriers would be fitted to discourage bird nesting and alighting.	• Placement of fittings to discourage bird nesting.
Construction Activities for Engine Ground Run-Up Enclosure (GRE)		
Paved area for aircrafts inside the GRE	Paved asphalt area for aircrafts to stand while completing engine run-ups.	• Transport of materials and construction equipment across the Western Channel to the BBTCA. • Clearing, grading and paving of the area. • Surface and stormwater management system to mitigate surface water run-off.

Project Component	Project Component Description	Physical Works and Activities
Taxi-Lane from Runway 15-33	Paved area for aircraft to taxi or be towed into the GRE.	• Transport of materials and construction equipment across the Western Channel to the BBTCA. • Clearing, grading and paving of the area. • Surface and stormwater drainage system to mitigate surface water run-off.
Run-up Enclosure	The initial proposed design is a semi-circle/half-moon soil and concrete berm, H-pile design, with rippled concrete treatment on inside to reduce and deflect noise. Approximately 10 metres high from ground level.	• Transport of materials (soil) and construction equipment across the Western Channel to the BBTCA. • Construction of berm using soil brought to the site and shaped using a grader or front-end loader. • Sprayed “shot-crete” or alternative protective application onto inside of half-moon berm.
Stormwater/ Drainage Collection	A drainage system for the GRE.	• Surface and stormwater management system to mitigate surface water run-off.
Operation Activities		
Surface water management	Drainage monitoring and management for GRE.	• Continued programs for monitoring sufficient drainage in the GRE.
Other than maintaining visual appeal (paint touch-ups) of noise barriers, no other operational activities are anticipated.		
Decommissioning Activities		
No decommissioning activities are planned, but at the appropriate time in the future, decommissioning would be expected to occur in compliance with airport policies and any applicable federal regulations.		

3.3 Scope of Assessment

Subsection 10 (2) of the *CPA EA Regulations* identifies the factors that must be considered in an EA, which have been and will be considered in this EA.

10(2) ***Every screening of a project shall include a consideration of the following factors:***

(a) the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out;

(b) the significance of the effects referred to in paragraph (a);

(c) comments from the public that are received as part of an assessment process, if any; and

(d) technically and economically feasible measures that would mitigate any significant adverse environmental effects of the project.

"**Environment**" means the components of the Earth, and includes:

(a) land, water and air, including all layers of the atmosphere;

(b) all organic and inorganic matter and living organisms; and

(c) the interacting natural systems that include components referred to in paragraphs (a) and (b).

"**Environmental effect**" means, in respect of a project:

(a) any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of the *Species at Risk Act*;

(b) any effect of any such change referred to in paragraph (a) on

(i) health and socio-economic conditions,

(ii) physical and cultural heritage,

(iii) the current use of lands and resources for traditional purposes by aboriginal persons, or

(iv) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance, or

(c) any change to the project that may be caused by the environment, whether any such change or effect occurs within or outside Canada.

Subsection 10 (3) of the CPA EA Regulations requires the TPA to determine the scope of the factors to be considered under paragraphs 10 (2) (a), (b) and (d) [which are included above].

This environmental screening includes consideration of the environmental effects of the Project and other factors as required by the CPA EA Regulations, including the environmental effects of malfunctions or accidents that may occur in connection with the Project, and cumulative environmental effects that are likely to result from the Project in combination with other approved projects or activities that have been or will be carried out; the significance of the environmental effects and cumulative effects; comments from the public that are received; and technically and economically feasible measures that would mitigate any significant adverse effects of the Project.

The spatial boundaries for the effects assessment of the Project are focused on the lands in the vicinity of the Project which include lands along and adjacent to the proposed barrier locations and GRE at the BBTCA.

The temporal boundaries of the Project include:

1. **Construction** (the period from initial site preparation to the completion of construction and site restoration – expected to be about 3-4 weeks), and

2. **Operations** (the facilities are expected to last in excess of 15 years).

No decommissioning activities are anticipated at this time, which is typical for this type of project. Decommissioning would be required to comply with applicable laws at the relevant time.

3.4 Scope of Factors

Environmental Factors

This environmental screening includes consideration of the effects caused by the Project during the short-term construction period and longer-term operations period. The screening includes consideration of the following environmental factors (even though it may not need to because, for example, the Project would not be expected to cause a particular effect, especially during the operations phase), as appropriate and necessary:

- Biophysical
    - Noise
    - Air Quality

- Groundwater
- Surface Water Quality and Quantity (drainage, hydrology, hydraulics and flooding)
- Soils & Sediments
- Terrain & Topography
- Vegetation and Wildlife
- Fish & Fish Habitat
- Migratory Birds
- Species at Risk

While not expressly or necessarily required to be assessed unless an environmental biophysical effect is anticipated to result in a socio-economic effect, the screening includes consideration of the effects of the Project on the following:

- Socio-economic
  - Economics/Businesses
  - Aboriginal Use of Traditional Lands(TL)/Resources(R)
  - Heritage & Archaeological Features
  - Land Use and Communities (existing and planned)
  - Social & Visual
  - Transportation
  - Navigation
  - Human Health (e.g., due to noise/vibration, air quality)

The effects assessment also considers the potential for the environment to effect the Project if the Project were to proceed. This is focused on how extreme changes in weather and climate may impact the Project. The assessment includes:

- Effects of the Environment on the Project
  - Flooding due to extreme and/or prolonged weather events
  - Earthquakes
  - Climate Change

3.5 Potential Effects and Significance

To determine the potential environmental effects as a result of the Project and the significance of the effects, the following assessment criteria were considered:

- What are the environmental effects of the Project?
- Are the identified effects positive or negative?
- Can the predicted negative effects be avoided or mitigated?
- After mitigation of negative effects, are there residual effects?
- Will other projects or activities cause negative effects that could combine cumulatively with effects of the Project?
- Taking into consideration any cumulative effects, what are the magnitude, geographic extent, duration and frequency of negative residual effects or positive effects?
- Are the residual negative effects reversible?
- Is the ecological setting of the undertaking sensitive?

3.6 Cumulative Effects

As indicated, this environmental screening includes assessment of the environmental effects of the Project, as required by the CPA EA Regulations, including an assessment of cumulative environmental effects.

Activities and projects that exist, or will reasonably be expected to exist before/during construction of the Project, are included in the description of the baseline environmental conditions.

The consideration of cumulative effects requires that there must first be an effect resulting from the Project. Where there are Project effects, the screening includes consideration of such effects in combination with the effects of other applicable projects and activities to determine whether there would be cumulative effects. The cumulative effects assessment includes consideration of effects from projects or activities where there is a reasonable expectation for the project or activity to occur (such as a commitment to develop a project) and there is potential for effect overlap with the Project in terms of time and space.

4 BASELINE ENVIRONMENTAL CONDITIONS

Section 4 provides a description of existing environmental conditions in the Project area. The Project area includes the lands (and the areas adjacent to these lands) that the Project components would be located on at the BBTCA. See **Figure 2.** For some environmental components such as social-visual and noise, existing conditions of the communities located north of the Western Channel and Lake Ontario (Inner Harbour) are also described as these waterfront communities could be affected by the project.

Figure 2: Project Area

Project Area

4.1 Biophysical Environment

4.1.1 Noise

The proposed Project is being considered in order to reduce noise impacts to surrounding communities from the ground level aircraft activity at the BBTCA. The sound environment in the Project area is typical of an airport, with the predominant sound levels generated from groundside and airside aircraft activities. In addition, due to the Project area's proximity to Downtown Toronto, a level of background noise or "urban hum" is present, which is primarily generated from traffic on the Gardiner Expressway and nearby roadways such as Lake Shore Boulevard, Queens Quay, Bathurst Street, and Eireann Quay.

There are no sensitive noise receptors located in the Project area. The buildings and current activities in the Project area are all related to airport activities (hangars, terminal, administration, etc.). There are no outdoor recreation areas in the Project area, no residences, and no community use buildings that would be considered sensitive receptors to noise.

Sensitive noise receptors are located on the mainland on the north side of the Western Channel and Inner Harbour. A review of monthly Noise Comment Summary data published by the TPA show that the majority of noise complaints come from the Bathurst and Queens Quay community, which is situated directly north of the airport. This community experiences noise from the BBTCA as well as from road and rail traffic on the north side of the community, including from the Gardiner Expressway, Lake Shore Boulevard and rail corridor running parallel to the expressway. The BBTCA is in compliance with the NEF noise levels generated from airside traffic. There are no applicable sound limits for groundside air traffic which can involve short burst of loud aircraft related noise. It is this noise that is the source of resident's complaints.

The 2010 Jacobs *Noise Management Study* assessed the noise conditions in the communities surrounding the BBTCA and Project area. The study found that the Bathurst Quay community (on the north side of Western Channel across from the BBTCA) experienced sound level ranging between 48 and 61 decibels[*] on an average day (5:30am to 9pm). The study notes that these are typical sound levels found in urban areas, which usually range from 50 to 70 decibels (in comparison, the sound level at a rock concert is 110 decibels and in a residential area at night is 40 decibels). The higher sound levels experienced in the Bathurst Quay community were documented as resulting from traffic on the Gardiner Expressway, local roads traffic, and aircraft take-offs and landings at the BBTCA. The study also found that the York Quay community

[*] A decibel is a logarithmic measure of the magnitude of sound,

(northeast of the BBTCA on the Toronto Waterfront) experienced sound levels ranging between 54 and 69 decibels on an average day (4:30am to 10pm). The higher sound level (69) experienced in the York Quay community was documented as being from outdoor music, kids playing, and a turboprop aircraft take-off at the BBTCA. Other higher sound levels in this area were noted as coming from traffic on the Gardiner Expressway and Queens Quay. Noise monitoring in the Toronto Island residential community on Wards Island, east of the BBTCA, was also completed in the Jacobs study. The results stated that sound levels were experienced between 48 and 57 decibels; the higher levels resulting from turboprop aircraft take-offs and landings at the BBTCA as well as overhead aircrafts.

A number of recommendations were made in the Jacobs report to mitigate and manage noise experienced in surrounding communities from the BBTCA aircraft activities, including the installation of noise barriers and a GRE at the BBTCA. More information on noise conditions in those areas outside the Project area can be viewed in the Jacobs report:

http://www.torontoport.com/PortAuthority/media_content.asp?id=433&SearchType=ExactPhrase&terms=Jacobs

4.1.2 Air Quality

The dominant sources of airborne emissions in the Project area are aircraft at the BBTCA. Road traffic from the Gardiner Expressway, Lake Shore Boulevard, Queens Quay and other local roadways on the mainland side of the Western Channel are also primary contributors to airborne emissions in the Project area. Other contributors include rail activity on the mainland running parallel to the Gardiner Expressway, long-range transport from Hamilton and the U.S. and marine activity (recreational and commercial boating and the Island Ferries). There are no significant industrial air pollution sources in the Project area. There are also no sensitive receptors to air emissions in the Project area. The buildings and current activities in the Project area are all related to airport activities and are highly regulated to comply with airport operations, security and safety. There are no outdoor recreation areas in the Project area, no residences, and no community use buildings that would be considered sensitive receptors.

Airport activity (ground side and airside) would also contribute to air contaminates in the surrounding communities north of the BBTCA. Carbon monoxide and oxides of nitrogen (nitrogen dioxide and nitrogen oxide) are the emissions of interest for aircraft that would contribute to air quality in the surrounding communities.

To provide the baseline air quality conditions in the Project area and surrounding communities, air quality data from the most recent air quality study in the area of the BBTCA has been considered (RWDI air quality study, 2011). The RWDI Air Quality Study was commissioned by the TPA to understand air quality conditions in the Bathurst Quay community on the north side

of the Western Channel across from the BBTCA. The RWDI study found that the modelled concentration of carbon monoxide in the Bathurst Quay area in 2011 was 2,903 µg/m^3 which is below the Ministry of Environment's (MOE) maximum Ambient Air Quality concentration level for carbon monoxide (see **Table 2**). The study also found that the nitrogen dioxide concentration level was 125 µg/m^3 which is also below the MOE's maximum Ambient Air Quality concentration level for nitrogen dioxide (see **Table 2**).

The Ontario Ministry of Environment's (MOE) ambient air quality criteria (AAQC) are presented to compare the results of the modelled air emission levels. The MOE AAQC represents the maximum desirable ambient air pollutant levels and are used for reference. The 2011 modelled levels are well below applicable air quality criteria maximums.

Table 2

Summary of AAQC and 2011 Emissions Levels from Combined Roadway, Ferry and Airport Emissions

	Averaging Period	Current (µg/m^3)	AAQC - Criterion (µg/m^3)
Carbon Monoxide (CO)	1 Hour	2, 903	36,200
	8 Hour	1, 268	15,700
Nitrogen Dioxide (NO_2)	1 Hour	125	400 [200]
Inhalable Particulate Matter (PM_{10})	24 Hour	14	50*
Respirable Particulate Matter ($PM_{2.5}$)	24 Hour	3.2	30† [25]

[ ] World Health Organization Guideline Standard
† Canada Wide Standard (CWS) by year 2010 based on the 98th percentile ambient measurement annually, averaged over 3 consecutive years.
* Interim Ambient Air Quality Criterion.

4.1.3 Groundwater

For the TPA's Environmental Screening for the Proposed Pedestrian/Services Tunnel and Perimeter Project (completed March 2011), SPL Consultants Limited completed a *Factual Data Report on Supplementary Geotechnical and Hydrogeological Investigation* (February 2011). This report included data on groundwater conditions at the BBTCA, which included lands in the Project area. The observed depth to groundwater during the SPL geotechnical investigations was approximately 1.8 to 2.2 metres below ground surface (mbgs). This depth is equivalent to the elevation of Lake Ontario (water table) and the flow direction is inferred to be towards the Lake.

The effective hydraulic conductivity measured during SPL's investigation indicates that groundwater would potentially be encountered during the construction of the noise barrier walls. This would be as a result of the depth for the footings for the steel columns/posts. There is

potential for the footings to go below groundwater levels in order to be below the frost line; only some of the footings would need to go to this depth. The effects and management of this are discussed in Section 5.

4.1.4 Surface Water

There are no surface water features within the BBTCA lands. The BBTCA is bordered by Lake Ontario, the Western Gap and the inner Toronto Harbour. The water quality in the Western Gap is generally poor, quite similar to the water quality in the Inner Harbour. The Toronto and Region Remedial Action Plan (RAP) and Aquatic Habitat Toronto are charged with improving water quality in the Toronto waterfront area. The Toronto RAP report, *Moving Forward: 2007 RAP Progress Report*, was published in 2009 and describes current water quality conditions. There have been concentrations of nutrients and fecal coliform bacteria along the entire Toronto Waterfront that are above Provincial Water Quality Objectives. Within the Harbour, heavy metals and organics are particularly common. The harbour is negatively affected by the contaminated waters from the combined loadings of the Don River and the numerous storm and combined sewer outfalls, as well as point sources of contaminants such as the shipping channel at the Toronto Port Lands.

Water level conditions in the Western Channel are influenced by 1) the levels in the Inner Harbour and the Lake, 2) wind (due to the channel's east-northeast, west-southwest orientation, which provides an exposure to the frequent winds) and 3) to a small extent by local runoff draining into the channel. Studies conducted by the Toronto Harbour Commissioners showed that moderate to strong westerly winds prevailing over a sufficiently long time can cause inflow through the Western Gap and outflow through the Eastern Gap. Winds from the northeast or southeast reverse the trend causing an inflow through the Eastern Gap and the outflow through the Western Gap. The wind data recorded at the BBTCA indicate that the winds from the northwest and southwest directions persist more strongly and frequently than from the northeast and southeast directions. This tends to promote inflow through the Western Gap and outflow through the Eastern Gap.

4.1.5 Soils & Sediments

The geotechnical investigations done by SPL in 2010 for the proposed BBTCA Pedestrian/Services Tunnel and Perimeter Road, as well as the following documents were used to describe the regional physiography and expected local geology/hydrogeology in the Project area.

- The Physiography of Southern Ontario, Chapman and Putnam, 1984.
- Quaternary Geology of Toronto and Surrounding Area, Southern Ontario. Map 2204, Ontario Geological Survey, 1980.

- Bedrock Geology of Ontario, Southern Sheet, Ontario Geological Survey, 1991.

Chapman and Putnam describe the Site as being in the Iroquois Plain physiographic region. The Iroquois lake plain consists of clay till deposits and sand deposits as a result of deposition from glacial Lake Iroquois.

Bedrock geology mapping for the Project area indicates that the area is underlain by bedrock of Upper Ordivician age Georgian Bay Formation, which consists of shale, limestone, dolostone and siltstone. The results of the SPL geotechnical investigations completed describe the overburden and bedrock to consist of approximately 0.5 metres of fill, followed by 11 m of silty sand (hydraulic fill) to sand, underlain by bedrock of the Georgian Bay Formation, which is primarily shale with interbeds of siltstone and limestone. It is suspected that the fill was placed during historic filling of Lake Ontario with hydraulically dredged material during the Toronto Harbourfront development in the 1950s. The proposed Project would be within the fill and silty sand (no deeper than 3 metres for the footings of the steel columns/pillars). No combustible gas was reported during geotechnical investigations.

4.1.6 Terrain & Topography

The Project area is relatively flat, with a faint relief on both the mainland and at the BBTCA sloping towards the Western Gap. The Western Gap is approximately 120 metres wide, with a concrete seawall (dockwall) along shoreline of the BBTCA.

Investigations of the dockwall indicate that the dockwall in the Project area (south side of the Western Channel) is in fairly good condition and has been reconstructed in the last 20-25 years. The dockwall consists of timber cribs with concrete superstructure.

The terrain for the lands on which the noise barriers and GRE would be situated is flat and has been landscaped for airport activities. The noise barriers are proposed on lands that are primarily paved for airport activities. The GRE is proposed on what is currently grass/lawn on the west side of the airport lands.

4.1.7 Vegetation and Wildlife

The vegetation and wildlife in the area of the Project is minimal. The lands for the noise barriers have been paved and developed for the Airport. A small area of grass exists at the western end of Barrier 1 (see Figure 1) which is maintained by the BBTCA. The vegetation and wildlife in the area of the GRE comprises some natural conditions that have not been paved for the Airport activities but are manicured by BBTCA.

The shoreline of the Western Channel and Lake Ontario where the noise barrier walls are proposed is hardened with no natural shoreline habitat existing. The wildlife that has been observed in the area of the noise barriers consisted of mallards, Canada geese, rock doves, American robin and ring-billed gulls (birds in the Project area are discussed further in section 4.1.8 Migratory Birds). Residents have reported observing a number of bird/waterfowl species in the Western Channel.

The vegetation and wildlife in the area of the GRE consists of manicured grass and very little wildlife. West of the proposed GRE location is an area that has been assessed and classified through the Ecological Land Classification in Ontario process for previous environmental screenings (including the most recent screening for the Proposed Pedestrian/Services Tunnel and Airport Perimeter Road). The Ecological Land Classification for this area west of the GRE (leading to the edge of Lake Ontario) is Mineral Shrub Shoreline. The Mineral Shrub Shoreline is a pioneer community. The community is too young to have a true tree canopy but the sub-canopy is dominated by Eastern Cottonwood, American Elm (*Ulmus americana*) and Freemans Maple (*Acer freemanii*). The ground layer is dominated by Beachgrass (*Ammophila breviligulata*) and Canada Wild Rye (*Elymus canadensis*).

The soils in Mineral Shrub Shoreline beach community consist of well drained medium sand. During previous field investigations in 2010 for the Pedestrian/Services Tunnel and Perimeter Road Environmental Screening, the water table was not encountered, nor were mottles or grey-coloured soils. The moisture regime of this community was classified as 0 (Dry).

In total for the vegetation in the area of the GRE, three tree species, one shrub species and ten ground layer species were previously observed in the Mineral Shrub Shoreline. Four birds and one butterfly were observed during the incidental wildlife surveys conducted for a previous environmental screening. The only species of note is the Monarch butterfly. The number of Monarchs seen was few and the area would not qualify as a migratory butterfly stopover area. Monarchs are common in Ontario.

4.1.8 Migratory Birds

In the vicinity of the GRE some bird habitat does exist. However, the lands that may be affected by the GRE and the noise barrier walls provide limited to no bird habitat. The area for the proposed GRE is not considered as prime bird habitat (it is maintained grass), but the adjacent lands do provide potential migratory bird habitat. The following provides a summary of birds and bird habitat in a larger area that extends beyond the Project area. The consideration of the larger area allows for any potential that birds could be affected by the Project to be captured,

although effects to migratory birds as a result of the Project are not anticipated. Details of wildlife and wildlife habitat in the Project Area are documented in Section 4.1.7.

The following provides a summary of birds and bird activity in an area that includes virtually the entire Toronto waterfront and Island system including the Leslie Street Spit:

- 300 species of birds have been reported in this area, with 220 to 225 species expected to be present regularly each year, whereas 75 to 80 species would only be present on an irregular basis;
- 90 species would be found nesting each year in Toronto waterfront areas;
- Most nesting species would be in very small numbers; only 3 to 5 species are present in large numbers, and one species in very large numbers; and
- While most species are non-breeding visitors, some are present in substantial numbers as migrants, and some remain through the winter in large numbers. At any time of year, a significant number of individual birds may be found in the vicinity of the BBTCA. Two species, Canada Goose and Ring-billed Gull are found in particular abundance.

Further to the above, the following describes some of the more abundant birds found in the area:

Double-Crested Cormorant

The Double-crested Cormorant is an abundant species from mid April to mid November, but is rare to absent in winter. About 3,000 pairs nest in Tommy Thompson Park, with birds flying low within this area, and swimming in the Western Channel much of the year. The number of birds present nearly doubles in the summer as the young leave nests. Most would likely stay out of the inner harbour, but they readily perch on piers and docks, and could be in the immediate vicinity of the proposed Project

Black-Crowned Night-Heron

More than 1,000 pairs nest in Tommy Thompson Park. Being partially nocturnal, they fly about the harbour area from April to November at almost any time of day or night. Again, numbers may double through the summer as the young leave nests. They readily perch on buildings and fences and may be in close proximity to the proposed Project.

Waterfowl

Waterfowl, including ducks, geese, and swans are numerous all year. Between 20,000 and 35,000 waterfowl are likely to be present during mid winter. Five species make up the majority of these wintering birds, including Long-tailed Duck (7,000 to 11, 000), Canada Goose (4,000 to

10, 000), Greater Scaup (2,000 to 6,000), Mallard (1,000 to 6,000), and Common Goldeneye (1,000 to 2,000). Another 1,000 to 4,000 waterfowl are regularly present including Redhead, Bufflehead, American Black Duck, Gadwall, Common Merganser, and Red-breasted Merganser. Less predictably, hundreds of scoters may add to these numbers.

During summer, waterfowl are at their lowest numbers in this area, as most have dispersed to other areas for the breeding season. However, several hundred pairs of those that do remain, principally Canada Geese and Mallards, and their broods of young, are often found directly in the path of any activities by people, both on land and in the water. Hundreds of additional waterfowl generally return to this area by mid summer to molt.

Throughout the spring and autumn migration periods, thousands of additional waterfowl stop temporarily on their movements to and from nesting and wintering areas. Some 29 species regularly contribute varying numbers to this flow of waterfowl. The northward movement begins in March and continues at least into early June. Birds are returning by late August, with passing birds lingering for various periods of time through the next four months.

Canada Geese

Canada Geese are of concern apart from other waterfowl. They are undoubtedly one of the two most significant species in the Toronto waterfront. They are abundant year round and nest in hundreds in the waterfront lands. As many as 3,000 birds could be expected in mid-summer in the vicinity of the proposed Project. By mid-winter, numbers of Canada Geese have increased to between 4,000 and 10,000 birds. They are tolerant of human activity, noise and disturbance, and wander or fly into many places, including airports, where they represent a potential nuisance. Control efforts have been undertaken for a number of years. Geese are rounded up when flightless and shipped to places where they are less numerous.

Raptors

Each autumn thousands of birds of prey (raptors) of 14 species (including osprey, harrier, hawks, eagles, falcons) migrate over Toronto along the north shore of Lake Ontario. The Turkey Vulture, although no longer considered a diurnal raptor, is generally also included with this group. From the beginning of their movements in late August, until the last few pass in early November, about 16, 000 to 17, 000 raptors could be expected. Numbers are variable from day to day, depending upon weather conditions. They fly at varying heights, depending upon the species, most moving relatively high overhead. However, some species regularly move through the trees, and in passing westward from the Toronto Islands would cross the Project area. Most are generally wary and reluctant to approach people, but are less wary around machines, even if noisy.

Shorebirds

Most shorebirds will occur as migrants in the Toronto Harbour and generally in relatively small numbers (fewer than 100). Sixteen species can be expected as regular migrants, and another 9 species are possible. Most shorebirds will fly high and right over southern Ontario during migration. However, on occasion, weather may interfere, and larger numbers will land for a short stay. As many as 3,000 Whimbrel have been seen at one time, for example, in Tommy Thompson Park. Typically they choose more remote shorelines to forage on, but any beach offering open spaces, even in close proximity to the airport, may be used. The grasslands near the proposed Project have been resting places for several plover species, and a few other sandpipers

Gulls and Terns

The most numerous is the Ring-billed Gull with between 50,000 and 60,000 pairs nesting in Tommy Thompson Park each spring. When their young are flying in late summer and autumn, there could be more than 200,000 Ring-billed Gulls in the Greater Toronto waterfront area. Current population levels are such that there is a continual presence in the vicinity of the Project area.

Herring Gulls also nest in colonies on Tommy Thompson Park with more than 100 pairs in recent years. With the influx of more northerly nesting birds passing southward on migration, numbers climb to more than 1,000 birds by early winter, many of which remain for the winter. Although fewer in numbers than Ring-billed Gulls, Herring Gulls may also regularly fly close to or frequent the Project area. In winter they will be joined by smaller numbers of Atlantic and arctic-nesting gulls.

In the past, Common Terns were formerly more abundant but now have about 300 nesting pairs in Tommy Thompson Park. An additional 50 pairs nest on the west end of the Toronto Islands south of the BBTCA. Through the spring and summer months they forage in waters of the Toronto waterfront, and frequently pass through the Western Channel and Inner Harbour.

Song Birds

Just over 100 species of songbirds (passerine birds) are/would be regularly expected close to the Project Area during the course of a year. Some are present all year, and others are both migrants and breeders. There are significantly more migrants than breeders. During the summer season about 45 species of songbirds can be expected as breeding birds in the area. At least six of those species are/will be common to abundant, while the rest will be uncommon to rare.

4.1.9 Fish & Fish Habitat

There is no fish habitat within the BBTCA. The Western Gap and Lake Ontario surround the BBTCA. Using the data from the 2011 *Pedestrian/Services Tunnel and Perimeter Road Environmental Screening*, and based on a review of background data from the Ministry of Natural Resources (MNR, 1994) and the Toronto and Region Conservation Authority (TRCA, 1997–2002), the primary composition of fish species in the surrounding water bodies includes: white sucker (*Catostomus commersoni*), common carp (*Cyprinus carpio*), and northern pike (*Esox lucius*). Other species include yellow perch (*Perca flavescens*), rock bass (*Ambloplites rupestris*), largemouth bass (*Micropterus salmoides*), gizzard shad (*Dorosoma cepedianum*), pumpkinseed (*Lepomis gibbosus*), brown bullhead (*Ameiurus nebulosus*) and alewife (*Alosa pseudoharengus*) (MNR, 1994).

Past electrofishing studies in the Western Channel usually resulted in very low abundances throughout the growing season (Rick Portis, TRCA, *personal communication* during the Pedestrian/Service Tunnel and Perimeter Road screening). The most common fish species surveyed in nearby Spadina Quay (approximately 440m east of the Western Gap) from 2005 to 2009 included alewife, northern pike, emerald shiner (*Notropis atherinoides*), spottail shiner (*Notropis hudsonius*), pumpkinseed and common carp.

According to mapping of Fisheries and Oceans Canada (DFO) and Conservation Ontario (2009), two species at risk were identified in water bodies adjacent to the BBTCA. Atlantic salmon (*Salmo salar*, Lake Ontario population) is mapped along the Toronto shoreline extending from Humber Bay through Brigantine Cove, across the Toronto Harbour to the Don River. Currently, Atlantic salmon are considered *Extirpated* at the provincial and federal level (Ministry of Natural Resources, 2011; and, Government of Canada, 2010) but they have been listed as a priority species to be assessed and classified by the Committee on the Status of Species at Risk in Ontario (COSSARO). The shoreline of the entire Toronto Island including the Western Gap has been deemed habitat for the American eel (*Anguilla rostrata*) which has been designated *Endangered* provincially and *Special Concern* federally.

Aquatic habitat resources along the BBTCA side of the Western Channel are relatively homogeneous exhibiting little variation in water depth, substrate type, underwater structure and shoreline variability. The channel sides are steel sheet pilings with the bottom at a depth of 10 m at the shoreline. Substrates are hard packed sand. One small area of fine sand occurs tight in against the sheet piled wall. A previous substrate survey showed that sediments along this alignment consist of approximately 65% sand over bedrock and 35% bare bedrock. As an aside, and further to other investigations completed, no aquatic plants were observed here during 1996 field work.

The Western Gap provides migratory access for fish from the Harbour and the lagoons at the Toronto Islands westward to the Ontario Place shoreline where more favourable fish habitat characteristics exist (i.e., shallower shorelines or littoral zones for cover, aquatic plant beds, forage, and spawning and nursery areas). Sheltered embayments, such as the Toronto harbour, provide thermal habitat, significant areas of aquatic vegetation, various shoreline configurations and important centres of biological organization. Water currents between embayments and open areas attract forage fish, providing a concentrated feeding area for predator species (Aquatic Habitat Toronto, 2002). Further, the conditions of the Western Gap and connecting harbour and channels have been impacted by maintenance dredging.

4.1.10 Species at Risk

There are no Species at Risk in the Project area. The lands that would be affected by the proposed noise barriers are highly degraded and contain no valued natural wildlife habitat. The lands that would be affected by the proposed GRE are manicured lawn and do not contain valued natural wildlife habitat.

4.2 Socio-Economic Environment

4.2.1 Economics/Businesses and Community Facilities

There are a number of businesses located on the island at the BBTCA. These include:

- BBTCA Administration and Business Offices
- Porter Airlines
- Air Canada/Sky Regional Airline Inc.
- Canada Border Services Agency
- Ministry of Health/ORNGE (plans to relocate)
- Airborne Sensing Corporation (aerial photographers);
- Business Wings Air Charter;
- Cameron Air Services;
- Canadian Flyers Flight Training and Charters;
- Canadian Helicopters;
- The Helicopter Co.;
- Flight Executive;
- Eagle Aircraft Inc.;
- Island Airlink Corporation;

- Island Air Flight School;
- J.A. Spears and Assoc.;
- Nav Canada / Control Tower;
- Flight Information Centre;
- Tourism Toronto;
- Trans Capital Air/Stolport Corporation;
- Trans Capital FBO;
- Druxy's.

None of the businesses located in the Project area are on the lands proposed for the location of the noise barriers or GRE.

4.2.2 Aboriginal Claims/Traditional Use of Lands/Resources

On May 29, 2010, the Mississaugas of the New Credit First Nation voted in favour of a land claims settlement with the federal government pertaining to land in Toronto and Burlington Ontario. The land claim and agreement is known as the *Toronto Purchase and Brant Tract Specific Claim Settlement Agreement and Trust Agreement.* The settlement resolves two land claims: the Brant Tract purchase of 1797, and the Toronto purchase of 1805, which include lands in the Project area, stretching from present day Etobicoke Creek in the west to Ashbridge's Bay in the east, and from the Toronto Islands to north of the city limits. The settlement does not affect ownership of any of the land for the proposed Project, as indicated by the Department of Indian and Northern Affairs Canada (http://www.ainc-inac.gc.ca/ai/mr/nr/j-a2010/23312bkg-eng.asp). We are not aware of any other land claim within the Project area or any traditional uses by Aboriginals of relevant land or resources. Further detail regarding contact made with First Nation communities is discussed in the Consultation section, **Section 6.0**.

4.2.3 Heritage and Archaeological Features

A review of historic maps of the Toronto Islands indicates that the original shoreline lies between 600 and 700 metres north of the Western Channel. Although various wharves were built along the Lake Ontario shoreline, none of the wharves fall in the immediate area of the proposed Project. The most notable nineteenth century wharf in the area was Queens Wharf, built in 1833. This wharf followed a similar alignment to Bathurst Street south of Fort York, but did not extend past the area of present Lake Shore Boulevard. The shallow Lake Ontario foreshore was infilled extensively during the latter decades of the nineteenth and early decades of the twentieth century to accommodate larger lake-going vessels. The current Western Channel reflects this vastly altered shoreline. The physical separation of the potentially affected lands

from the historic shoreline of Fort York and the associated wharves and harbour facilities, together with the disturbed nature of the infill, results in the area proposed for the pedestrian tunnel being of inconsequential archaeological resource potential.

To consider the archaeological potential of the Project area a review of *The Archaeological Master Plan for the Central Waterfront, City of Toronto, Ontario* (2003) was completed. The Toronto Islands, including the airport lands, were created by the confluence of easterly sand-bearing currents, westerly winds and the outflow of the Don River along the Toronto central waterfront. **Figure 3** illustrates the archaeological classification of the Project area. The yellow highlighted area depicts the original shape and location of the islands. The yellow also indicates the portion of the Project area that is classified in the City's report as a Level 1 Archaeological Potential Zone.

Figure 3 Archaeological Potential Classification

According to the City's Report, Level 1 Archaeological potential zones "comprise those lands where archaeological potential has been confirmed to exist on the basis of the results of this and

other studies"[†]. The archaeological potential in the Project area relates to precontact aboriginal potential, potential of burial sites, temporary encampments, military settlement, historic cottages, and the potential for the 1809 lighthouse and lighthouse keeper's cottage.[‡] However, the Archaeological Master Plan report does state that it is unlikely, given the massive disturbance to the original Gibralter Point area (in particular, the construction of the Toronto Island Airport, now known as the BBTCA), that any evidence of the York military settlement still exists.[§]

The City's Archaeological Master Plan report recommends that impacts within Level 1 zones be preceded by a Stage 1 and 2 archaeological resource assessment. For the proposed Project the locations of the GRE and noise barriers are not on the lands identified as Level 1 Archaeological Potential Zone and therefore a Stage 1 and 2 archaeological resource assessment is not required.

Built heritage features in the Project area consist of two structures at the BBTCA: the original Toronto Island Air Passenger Terminal and a brick hangar. The Toronto Island Air Passenger Terminal (referred to as the Administration Building) was designated as a national historic site in 1989. The building no longer functions as an airport terminal but is part of the operating airport and has been used for various commercial and administrative purposes in more recent years. It is surrounded by airport related infrastructure including for example: runways, hangars, the current terminal building and other support buildings. The formal National Historic Site of Canada recognition consists of the building on its footprint. The proposed noise barriers and GRE are not within close proximity of the building or its footprint.

4.2.4 Land Use

Land use in the Project area consists entirely of uses related to the BBTCA including runways, the terminal building, the Ferry Passenger Transfer Facility, hangars, parking lots, and other administrative buildings. The TPA is responsible for planning and managing the lands in the Project area.

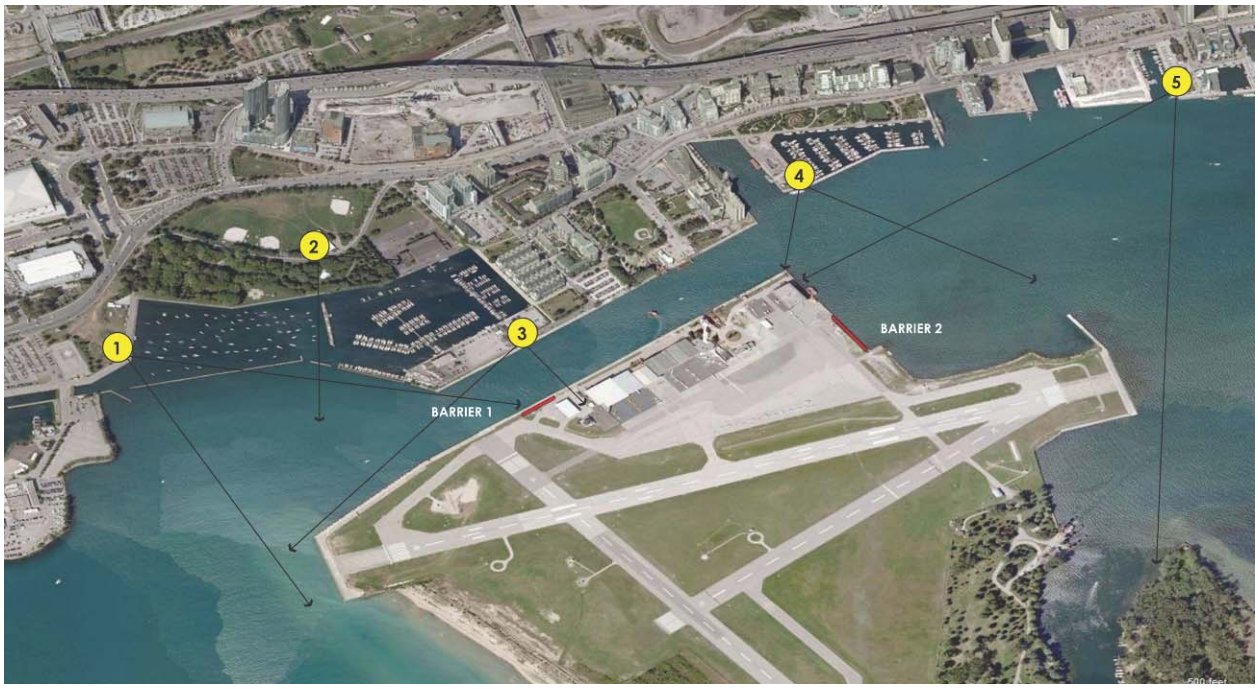
4.2.5 Social and Visual

The Project area consists only of functions and activities related to the airport and therefore there are no notable social conditions. Social conditions would include parks, recreational spaces, leisure areas, entertainment facilities, schools, residences, etc. North of the Project area, surrounding communities do contain social conditions. The Bathurst Quay and York Quay neighbourhoods include Little Norway Park, Ireland Park, the Harbourfront Community Centre,

[†] Archaeological Services Inc., *The Archaeological Master Plan for the Central Waterfront, City of Toronto, Ontario*. 2003. pg. 64.
[‡] Ibid, pg. 63.
[§] Ibid, pg. 63.

the Waterfront School, City School, Toronto Music Garden, HTO Park, waterfront trails and bicycle paths, the National Yacht Club, various sailing and water sports clubs, York Quay Centre, Ann Tindal Park, an outdoor amphitheatre (Sirius Stage), Harbourfront Centre, the Radisson Hotel, and Enwave Theatre.

For the visual conditions, in February 2011, Todhunter Associates completed a visual assessment of the Project area. The existing visual condition in the Project area provides views of the airport, Western Channel and Lake Ontario (including the inner harbour), and the mature vegetation of the Toronto Islands south and east of the BBTCA. The views considered were:



Views of the Project area from the mainland consist of the following:

Viewpoint 1: View from Remembrance Drive at Ontario Place east entrance (northwest of the Project area) shows the mature vegetation of the Toronto Islands.

Viewpoint 2: View from Remembrance Drive at Community Pavilion (northwest of the Project area) shows the mature vegetation of the Toronto Islands, particularly the trees of Hanlon Park.

Viewpoint 3: View from Terminus of Stadium Road at National Yacht Club Entrance (north of Project area) shows a view of airport maintenance operations and facilities.

Viewpoint 4: View from the Waterfront Terrace at Harbourfront Centre's Marina Quay West (northeast of the Project area) shows airport functions and the mature vegetation of the Toronto Islands, including the woodlot associated with Hanlon Park.

Viewpoint 5: View from West Plaza at Toronto Marine Police Building along Robertson Crescent (northeast of the Project area) shows airport functions and the mature vegetation of the Toronto Islands, including the woodlot associated with Hanlon Park.

4.2.6 Transportation and Navigation

Transportation and navigation in the Project area primarily relates to aircraft movement. Aircraft movements and air transport are governed by the Tri-partite Agreement which is instituted at the BBTCA by the TPA. There is minimal pedestrian activity and some automobile activity.

Air Navigation

NAV Canada regulates the airport navigations for flights departing and arriving at the BBTCA. Air traffic into and out of the BBTCA is controlled by the BBTCA with approaches and departures routed over the lake away from residential areas. With one 1,212 metre long (4,000 feet) runway and two 909 metre (3,000 feet) runways, the BBTCA can accommodate most regional scheduled airlines and general aviation aircraft. Turboprops are the most frequent type of aircraft utilizing the airport. Helicopters also use the airport and there is a seaplane base located just east of the main apron. Traffic from Turbofan jet engines is prohibited at the BBTCA except in emergencies.

The proposed location for noise barrier “Barrier 2” (see Figure 1) is just north of the seaplane base on the eastern edge of the BBTCA. The proposed location, size and design (including lights for navigation) have been reviewed with NAV Canada and approved to not impede navigations for any type of aircraft using the airport. The location, size and design of noise barrier “Barrier 1” (see Figure 1) is proposed to be located east of Runway 15/33 on the northern edge of the BBTCA and has also been reviewed and approved with NAV Canada to ensure the barrier does not impede air navigations.

The BBTCA presently accommodates commuter airlines and is popular as a training base for civilian pilots. It ranks yearly among Canada's busiest airfields. The record for aircraft movements --240,339-- was set in 1967. In recent times the airport has experienced annual movements of 100,000 to 160,000. The current number of landings and take-offs at the BBTCA is 120,000 annually.

Water Navigation

The locations for the proposed noise barriers are adjacent to the Western Channel and Inner Harbour. The noise barriers are proposed on BBTCA land and will not interact with the surrounding water bodies. As of June 2002, the Western Channel has been closed to vessels with a draft greater than 3.6 metres. The channel provides a link between the Inner harbour and Lake Ontario that is used by recreational boats. Based on past surveys, as many as 45,000 vessels pass through the channel on an annual basis. The ferry service operates on the following schedule and takes approximately 90 seconds to cross the channel.

From Mainland	From Airport
05:30	05:37
05:45	05:52
06:00	06:07
06:15	06:22
06:30	06:37
... every 15 minutes...	
22:45	22:52
23:00	23:07
23:15	23:22
23:30	23:37
23:45	24:00

Pedestrian and Automobile

Pedestrian and automobile access to the BBTCA from the mainland is by ferry from the foot of Eireann Quay. There is a limited amount of parking space available in the Project area at the BBTCA, approximately 220 parking spaces. The only pedestrian or automobile activities currently occurring on the land where the noise barriers and GRE are proposed is related to airport maintenance, aircraft operation and/or security at the BBTCA. There are no other pedestrian or auto related activities in these areas.

5 ENVIRONMENTAL EFFECTS AND MITIGATION

This section describes the potential environmental effects of the proposed Project, taking into account the Project's physical works/activities and the baseline environmental conditions as presented in Section 4.0. Effects may be positive or negative.

Table 3 outlines the potential Project components/environmental feature interactions that the assessment was based on.

In assessing construction-related effects, it was assumed that construction of the noise barriers and GRE would be initiated in the Fall 2011 and last for approximately two, up to three, months.

The effects assessment describes how the conditions in the Project area would change with the Project in place (i.e., compared to the baseline conditions). Both construction and operational periods were considered. Activities during the operation period would be related mostly to the actual use of the GRE. This would include routine cleaning and maintenance of the area.

For each of the identified environmental components, the following sections describe the assessment of (i) the potential for effect, (ii) the significance of the effect, and (iii) proposed mitigation, as necessary and appropriate. **Table 4** (located at the end of the discussion) summarizes the potential environmental effects (including the significance) and the recommended mitigation measures.

Appendix B provides a summary table of the adverse environmental effects and the proposed mitigation measures to minimize effects of the Project.

Table 3 - Project Components/Environmental Feature Interactions

Environmental Component Note: ✓ = Potential interaction X = no interaction	Noise	Air Quality	Ground Water	Surface Water	Soils & Sediments	Terrain & Topography	Vegetation / Wildlife	Migratory Birds	Fish & Fish Habitat	Species at Risk	Economics	Aboriginal Use of Traditional Land /Res.	Heritage & Archaeological	Land Use	Social-Visual	Transportation & Navigation	Human Health / Safety**
Construction Activities for Noise Barriers																	
Steel columns /posts	✓	✓	✓	✓	✓	X	✓	✓	X	X	X	X	X	X	✓	✓	X
Panels	✓	X	X	✓	✓	X	✓	✓	X	X	X	X	X	X	✓	✓	✓
Electrical System	X	X	X	X	X	X	X	X	X	X	X	X	X	X	✓	✓	X
Bird Management	X	X	X	X	X	X	✓	✓	X	X	X	X	X	X	X	X	X
Construction Activities for GRE																	
Paved area for aircrafts inside the GRE	✓	✓	X	✓	✓	X	✓	X	X	X	X	X	X	X	X	✓	✓
Taxi-Lane from Runway 15-33	✓	✓	X	✓	✓	X	✓	X	X	X	X	X	X	X	X	✓	✓
Run-up Enclosure	✓	✓	X	✓	✓	X	✓	✓	X	X	X	X	X	X	X	✓	✓
Stormwater/ Drainage Collection	X	X	X	✓	✓	X	X	X	X	X	X	X	X	X	X	X	X
Operations																	
Surface water management	X	X	X	✓	X	X	X	X	X	X	X	X	X	X	X	X	X
Aesthetic Maintenance of Noise Barriers	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Decommissioning or Abandonment																	
Would be completed in compliance with applicable laws in the future.																	

** Human Health/Safety is in regards to how effects on other environmental conditions may in turn interact with human health or safety. E.g.: Effects to air quality may effect human health; or, effects to transportation and navigation may effect safety.

5.1 Effects and Mitigation for the Biophysical Environment

5.1.1 Noise

Noise Construction Effects and Mitigation

Effects

The use of construction equipment during the construction of the noise barriers and GRE would result in temporary noise effects. The waterfront communities on the north side of the Western Channel may experience some construction related noise during the 3-4 week construction period. Due to the flight navigations and operating safety restrictions at the BBTCA, some of the construction of the barriers and GRE may have to occur at night. This would depend on the weather and would occur to ensure that there are no safety risks for flight take-offs and landings or for construction workers building these facilities.

The construction of the noise barriers involves assembling the steel posts/pillars and the panels for the insert walls that go between the posts using a mobile crane. Noise would be generated from the drilling/vibratory pile-driving of the columns securely into the ground with footings, spaced to accommodate the barrier panels. Noise would also be generated from the operation of machinery. The materials for the barriers are manufactured off-site, only the assembly of the noise barriers that will occur on-site. The posts and walls would be brought over to the BBTCA on the ferry.

The GRE location is well removed from surrounding communities. GRE construction activities would include clearing, grading and paving of the areas for the GRE and the taxi-way extension required to allow aircraft to access the GRE. To construct the GRE berm would require using soil brought to the site and shaped by a grader or front end loader and then sprayed with “shot-crete” or an alternative protective application would be applied to the inside of the half-moon berm. The machinery to complete this would generate noise. The soil required for the berm would be obtained from surplus material at the BBTCA from other works and/or transferred to the site on the ferry.

Mitigation

Although the overall construction period for the noise barriers will be two to three months, this includes off-site manufacturing of the panels. During the physical installation period of 3-4 weeks, the contractors will be required by the TPA to minimize noise from machinery and construction activities, which it would do, for example, by keeping the idling of construction equipment to a minimum, and maintaining equipment in good working order, with effective

muffling devices. The construction would be completed as quickly as possible to limit disturbances to surrounding communities. Noise complaints, if any, would be addressed as with any similar work, depending on the circumstance. The TPA should establish a monitoring, reporting and response program to deal with all aspects of construction, including complaints regarding noise.

Noise Operation Effects and Mitigation

The Project would reduce current noise levels experienced by the local community from groundside aircraft activity. Acoustical performance testing indicated that sound levels in the Bathurst Quay area (north side of the Western Channel) could be reduced by 3 to 9 decibels with Barrier 1 in place when an airplane taxis to and takes-off on runway 15-33. Barrier 2 would reduce sound levels to the Harbourfront and York Quay community by 5 to 10 decibels during maintenance work that occurs on the east side of the terminal building. The barriers would be most effective for activities that occur directly behind them. As the barriers do not run the entire length of the airport, the barriers would not reduce all of the groundside noise resulting from taxiing and takeoffs. Barrier 1 would provide a reduction in the length of time the noise is experienced; Barrier 2 would block most of the maintenance and taxiing related noise occurring on the east side of the terminal building. The barriers would be effective independently of one another. The acoustical performance of either barrier is not dependant on the other being in place. This is also true for the GRE; the effectiveness of the barriers is not dependant on the GRE being in place and the GRE acoustical performance is not dependant on the noise barriers being in place.

The acoustical performance of the noise barriers and GRE would also be a result of the design of and materials used for the Project, which would be confirmed through more detailed design should the proposed Project proceed. Materials that would be used for the noise barriers would include concrete and steel for the posts and sound absorptive recyclable materials (where possible) for the panels. Sound absorption may be achieved by a perforated facing sheet and suitably packed and protected sound absorbing material in the interior of the panels. Alternatively, surface porosity of the panels may provide sound absorption. The GRE will be made of a soil berm sprayed with shot-crete on the inside that will absorb sound and significantly reduce sound levels experienced from groundside engine run-ups. Surrounding communities will experience a reduction of 6 to12 dB in sound levels related to engine run-up maintenance. It is possible that some receptors (in the Bathurst Quay and York Quay areas) would no longer detect noise associated with engine ground run-up maintenance activity with the GRE in place.

Noise Effects Significance

Construction related noise effects would be temporary, with construction management and monitoring plans to minimize short-term effects. By using standard practices and the temporary nature of the construction, construction noise effects would not be significant. The Project, once constructed, is expected to result in positive effects through the reduction of sound levels to the surrounding communities. As such, the Project is not expected to result in a significant adverse noise impact.

5.1.2 Air Quality

Air Quality Construction Effects and Mitigation

Effects

The use of construction equipment during the construction of the noise barriers and GRE would result in air quality effects from machinery emissions and dust. Air emissions are anticipated to be localized. However, in cases of strong wind levels from the south, waterfront communities on the north side of the Western Channel may experience construction related air effects, but they are anticipated to be rare and minimal.

Mitigation

During the physical installation period of 3-4 weeks, it is recommended that the TPA require the contractors to follow standard construction practices in order to mitigate air quality effects, including:

- Use well-maintained equipment and machinery, preferably where feasible, fitted with muffler/exhaust system baffles and engine covers;
- Comply with operating specifications for equipment and machinery;
- Minimize operation and idling of gas-powered equipment and vehicles, in particular, during smog advisories;
- Minimize vehicular traffic on exposed soils;
- Avoid drilling/vibratory pile-driving and other construction activities that will release airborne particulates during windy and prolonged dry periods;
- Cover or otherwise contain stock piled soil for the GRE berm and any loose construction materials that will release airborne particulates during transport, installation or removal;
- Spray water to manage the release of dust from gravel, paved areas and exposed soils. Use chemical dust suppressants only where necessary; and
- Restore disturbed areas as soon as feasible to minimize the duration of soil exposure.

Truck traffic would use the ferry to deliver construction equipment and materials to the project site. Limited truck traffic would occur for delivery only as required. Machinery for the Project would be parked at the BBTCA until construction was complete.

Air Quality Operation Effects and Mitigation

There would not be any air emission from the Project once it is constructed.

Air Quality Effects Significance

Construction related air quality effects would be localized and temporary, with mitigation and monitoring plans to manage (and thus minimize) short-term effects. By using standard practices, construction effects would not be significant. There will be no air emissions from the noise barriers or GRE once constructed. As such, the Project is not expected to have a significant adverse impact on air quality.

5.1.3 Groundwater

Groundwater Construction Effects and Mitigation

Effects

As identified in the baseline conditions, hydraulic and geotechnical investigations indicate that groundwater would likely be encountered during the construction of the noise barriers if the footings for the steel columns were at a depth greater than 1.8 metres (or below the frost line – how deep the frost penetrates). It is anticipated that not all of the columns would need to go to such a depth; rather a scattered few would be deeper than 1.8 metres to act as anchors. Groundwater infiltration is anticipated to be minimal due to the limited need for a depth of more than 1.8 metres to be achieved.

As in any construction project, groundwater supplies could potentially be affected by spills of hazardous materials (e.g. fuels, lubricants). Spills of hazardous materials at the Project site are not expected.

Mitigation

It is recommended that the construction specifications include a monitoring program for addressing any groundwater infiltration that may be encountered.

Spills of hazardous materials at the Project site are not expected, but if a spill were to occur, it would likely be small and have no impact on the environment. These materials would be

handled in compliance with legal requirements, and in the event of a spill, it is reasonable to expect that cleanup procedures would be undertaken in accordance with standard construction practices. The construction specifications should include the following standard measures to manage/prevent/respond to potential spills:

- Prevent debris from construction, fabrication and landscaping activity, including concrete, steel, sawdust, topsoil, compost, and any chemicals or waste materials from entering surrounding water bodies (Western Channel and Inner Harbour);
- Equipment refuelling, maintenance, etc. and handling/storage of toxic materials (e.g., fuel, lubricants, paints, solvents, form oils, chemicals, etc.) should be carried out away from the Western Channel and Inner Harbour using procedures to avoid contamination of soils, groundwater and surface waters; and
- Minimize impacts of accidental spills (adequate supply of clean-up materials on site and construction crew trained on their use), including preparation of contingency plans to ensure timely and effective responses to spill incidents.

Groundwater Operation Effects and Mitigation

The Project once constructed would have minimal effects on groundwater. Groundwater would not be affected by the existence of the noise barriers. The GRE would include a surface water management system that would collect water in the GRE (from rainfall or maintenance/cleaning) in a catchment which could be pumped out and properly disposed of. The system may also include an oil separation/filtering system to separate out potential oils and fuels (e.g. from oil dripping from the aircraft). This system would prevent contamination of groundwater from engine run-ups during the use of the GRE.

Groundwater Effects Significance

The significance of the groundwater supply in the Project area is considered to be low as it is not used as a potable water supply. Spills prevention and contingency measures would be implemented to prevent groundwater impacts during the construction period. Once the project is constructed, groundwater would not be affected by the noise barriers and the surface water management system that would be in place for the GRE would mitigate potential oil or fuel contamination from engine-run ups in the GRE. Therefore there are no anticipated groundwater effects that would result from the Project.

5.1.4 Surface Water

Surface Water Construction Effects and Mitigation

Effects

Potential water quality impacts from the construction of the Project relate primarily to the potential for sediment transport/deposition into the Western Channel and Lake Ontario. Sediment/deposition into the Western Gap and Lake Ontario from the noise barriers construction may occur during rainfall events. Sediment transport/deposition during the construction of the GRE is unlikely to reach Lake Ontario as construction activities would be well removed from these areas.

Mitigation

To manage potential construction related sediment/deposition into the Western Gap and Lake Ontario during rainfall events, measures such as the provision of a silt fence in appropriate locations around construction areas would be considered as part of the construction plan and management program. As stated, sediment transport/deposition during the construction of the GRE is unlikely to reach Lake Ontario; however, to be conservative, during the construction of the GRE, installation and maintenance of silt fences downstream of the construction area to trap any sediment would be considered as part of the construction plan and management program.

As part of detailed design, drainage design concepts would be developed (including drainage area plan, design flow rates, water quality management measures, and sediment and erosion control practices), for the GRE, including the paved area for aircraft inside the GRE and the extended taxi-way from Runway 15-33. These would include relevant drawings such as a plan of Best Management Practices (silt fences, mud mats, etc.). For guidance, consideration could be given to: the *Ontario MOE Stormwater Management Planning and Design Manual (2003)*; the *Ontario Provincial Standards and Specifications (OPSS 518 & 577)*; the *Ontario MOE Stormwater Pollution Prevention Handbook (Part I) and the Part II – Pollution Prevention and Flow Reduction Measures Fact Sheets*; the O*ntario MNR Guidelines on Erosion Control for Urban Construction Sites (1989*), the *MNR Technical Guidelines- Erosion and Sediment Control (1989)*, and the *City of Toronto Wet Weather Flow Master Plan 2003*.

To provide source controls and prevent/minimize impacts on adjacent lands and the channel, the following drainage mitigation should be undertaken:

- Minimize disturbance of existing vegetation where clearance, grading and paving are required;

- Minimize time exposure of unvegetated soils;
- Maximize length of overland flow through to points where storm water leaves the site;
- Use of in-line erosion control measures such as an erosion blanket thereby mitigating high flow velocities and excessive erosion/sedimentation;
- Any stockpiled materials (particularly for the GRE soil berm) should be stored and stabilized away from the open water;
- Materials and equipment used for the purpose of site preparation and the completion of any work should be operated and stored in a manner that prevents any deleterious substance from entering the water;
- Refuelling and handling of potential hazardous substances should be done away from the open water;
- Sediment and erosion control measures should be left in place until all disturbed areas have been stabilized;
- The sediment control plan should be designed and implemented to mitigate impacts associated with construction of the Project, to prevent suspended sediment, mud, debris, fill, rock dust, etc. from entering the channel or the lake (even though this is very unlikely, particularly from the GRE construction area given the distance). Silt fences/curtains, sediment traps should be installed as necessary and appropriate;
- Measures should be in place to minimize mud tracking by construction vehicles and to ensure timely cleanup of any tracked mud, dirt and debris along access routes and areas outside of the immediate work area where the above sediment controls would not be in place;
- Work should be suspended if excessive flows of sediment discharges occur and any appropriate action should be taken to reduce sediment loading; and,
- Temporary mitigation measures should be installed prior to commencement of any site clearing, pile-driving or grading works and maintained on a regular basis, prior to and after runoff events. Accumulated material should be cleaned out during maintenance and prior to removal (this would be minimal and related to the installation of the steel columns for the noise barriers). Disturbed areas at the BBTCA should be restored to natural conditions and should be re-vegetated as soon as conditions allow, thus preventing erosion. Mitigation measures should be kept in place until vegetation has been re-established to a sufficient degree so as to provide adequate erosion protection to disturbed work areas.

Surface Water Operation Effects and Mitigation

For the noise barriers, the storm sewer catch basins around the BBTCA would trap sediment and prevent it from flowing into the Western Channel and Inner Harbour. The noise barriers would be constructed so that the current flow patterns are not disrupted and there would be no source of contamination.

The paved areas required for the GRE and the taxi-way extension to it would consist of impermeable surfaces and would reduce ground infiltration rates (although minimal in the context of the larger airport). This could contribute to an increased concentration of surface flows and result in some potential for contamination from aircraft use of this facility (e.g. from oil dripping from the aircraft). The taxi-way extension and paved airplane pad inside the GRE would be developed slightly above the surrounding grade. Cross culverts would be installed at appropriate locations to allow the transfer of surface water run-off from the upstream side (closer to the runways) to the downstream side (closer to the lake). Grassed ditches would be required in sections along the upstream side to collect water in advance of the cross culverts. The stormwater management system would convey runoff from the taxi-way/GRE to appropriate surrounding catchments, ditches and drainage swales. The surface water management system would also include an oil filtration system for potential drips from airplane engines. The oil separation would allow for maintained surface water quality. This system would be designed to avoid contamination and/or erosion from the use of the GRE.

Grassed ditches have historically been associated with rural drainage and constructed primarily for stormwater conveyance. Grassed ditches would occur around the GRE and be used to filter, detain, and infiltrate storm water runoff to promote sedimentation and water quality enhancement. The water quality benefits associated with grassed ditches depends on the contact area between the water and the swale, and the swale slope. The design of the grassed swales around the GRE and extended runway/taxi-way could take into consideration, and would likely be consistent with, the Ontario Ministry of Environment's (MOE) Stormwater Management Planning and Design Manual, 2003 for water quality control. The longitudinal gradient of new ditches would be very flat and would meet the minimum velocity requirement for effective sedimentation. The introduction of temporary straw bale flow checks and silt fence barriers would promote control of sedimentation during construction activities and before new vegetative cover would be established in areas which would have been disturbed by grading operations.

Surface Water Effects Significance

Construction effects would be short term, approximately 3-4 weeks, and with the recommended mitigation in place, there would be minimal to no impact on surface water features in the project area. There would be minimal effects during operations based on the use of the GRE. Potential oil or fuel drippings from aircrafts using the GRE would be mitigated through a surface water management system that would provide filtration and oil separation. Implementation of recommended mitigation measures would prevent, or at least minimize (to the point of being negligible) effects on surface water during construction and operation. As such, effects on surface water resources are therefore not expected to be significant.

5.1.5 Soils and Sediments

Soils and Sediments Construction Effects and Mitigation

Effects

During construction activities, particularly with respect to grading and soil berm shaping for the GRE and drilling/vibratory pile driving for steel columns for the noise barriers, there is the potential for erosion and sedimentation entering the Western Channel and/or Lake Ontario. In addition, soils could potentially be impacted through the improper handling of fuel and oil for construction equipment.

Mitigation

The possible mitigation measures for erosion and sedimentation are addressed within the Surface Water section. These include standard measures such as the use of silt curtains/fences and an oil separation system at the GRE.

To mitigate potential spills, a fuel management/clean-up contingency plan, as referenced under the Groundwater section, should be implemented.

Soils and Sediments Operation Effects and Mitigation

There is potential for sedimentation and/or erosion during precipitation events. This is previously addressed in the Surface Water Operations section.

Soils and Sediments Effects Significance

Potential effects to soils from the Project could occur during precipitation events (from erosion) during both the construction and operation periods. These effects are expected to be minimal and would be mitigated by the recommended mitigation measures described herein. As such, significant adverse effects are not expected.

5.1.6 Terrain and Topography

Terrain and Topography Construction Effects and Mitigation

There would be minimal terrain alteration during the construction of the Project. The noise barriers would be constructed on the existing terrain and topography. The paved areas of the GRE, and associated taxi-way/ runway extension would be kept low and consistent with existing paved runways at the BBTCA.

Terrain and Topography Operation Effects and Mitigation

There would be no operations effects to terrain and topography.

Terrain and Topography Effects Significance

Construction of the Project would result in minimal terrain alteration associated with the paved areas of the GRE. The noise barriers would not result in an effect to terrain and topography. Due to the nature and uses of lands in the Project area, including the use of the BBTCA as an airport, the Project would not result in significant effects to the existing terrain and topography.

5.1.7 Vegetation and Wildlife

Vegetation and Wildlife Construction Effects and Mitigation

Effects

The construction of the Project is expected to result in minor localized impacts on the terrestrial environment. The Project area consists of an airport and there is almost no natural vegetation that could provide wildlife habitat. Wildlife and wildlife habitat that were identified during field studies for previous environmental screenings would not be affected, including because these areas are outside the construction area and Project area.

Mitigation

The noise barriers would be located on existing paved areas at the BBTCA and set-back from the water. For the construction of the GRE and associated taxi-way/runway extension, the paved areas would be on lands that are currently maintained grass. The lands do not support natural habitat and any construction activities would be well set back from the natural areas of the surrounding Toronto Islands south of the BBTCA. Seeding of construction areas would occur where required (to maintain grass).

Vegetation and Wildlife Operation Effects and Mitigation

The noise barriers once constructed would have no effects on vegetation or wildlife. The use of the GRE facility by aircraft would have no effect on vegetation through the appropriate management of run-off as previously described. The use of the GRE would generate noise levels that could disturb wildlife in the surrounding area. This noise is similar to current noise generated at the Airport and is not considered to be an additional disturbance. Any wildlife in the area is assumed to be accustomed to airport generated noise.

Vegetation and Wildlife Effects Significance

Given that the vegetation to be removed for the Project is of low quality and is not designated for protection (manicured grass), vegetation effects are not expected to be significant. Given that the Project area and construction areas are well removed from any natural areas or wildlife habitat, it is not anticipated that there would be any significant effects on wildlife.

5.1.8 Migratory Birds

Migratory Construction Effects and Mitigation

The limited vegetation in the Project area is not known to serve as valued habitat for migratory birds. There are two wildlife species of regional concern located in the adjacent natural areas beyond the BBTCA property boundary. These are the Caspian Tern (*Hydroprogne caspia*) and the Monarch Butterfly. Although not likely required, to manage their protection, works and staging areas should be set outside of these natural areas. The construction sites are unlikely to host nesting birds in the breeding season, and it is expected that there would not be adverse effects on breeding birds.

Migratory Birds Operation Effects and Mitigation

It is not anticipated that migratory birds would be affected during operations. Use of the GRE is not expected to impact wildlife, as the project location is sufficiently removed (in the order of 150 metres) from wildlife habitat. There is potential for migratory birds to enter into the airport property during the use of the GRE facility; however this would be at a low frequency as the Airport property does not included any notable wildlife habitat. Further, the noise barriers would include design elements so that there would be no potential for bird nesting opportunities on them.

Migratory Birds Effects Significance

The Project is not anticipated to affect migratory birds as the area does not support migratory bird habitat. Further, the Airport's bird control program (for aircraft safety reasons) would reduce the likelihood of migratory birds entering the Project area.

5.1.9 Fish and Fish Habitat

Fish Habitat Construction Effects and Mitigation

Effects

Project activities are restricted to on-shore areas and are not anticipated to not result in effects to fish or fish habitat. Fish habitat has the potential to be affected by erosion/runoff from near shore noise barrier construction activity. Surface water runoff during construction of the GRE is unlikely to reach fish habitat as construction activities would be well removed from areas of fish habitat. Spillage of soil materials into the Western Channel or Inner Harbour could raise turbidity and have effects on fish and fish habitat.

Mitigation

The construction areas for the noise barriers would be set back 2 to 3 metres from the dock wall. As is outlined in the Surface Water subsection, erosion and sediment control measures would be in place during construction to protect any potential fish in the Western Channel and Lake Ontario. To be vigilant, and as is outlined in the Surface Water subsection, standard erosion and sediment control measures would be in place during construction to protect any potential for fish habitat effects.

The GRE would be set-back approximately 150 metres from the water's edge. To be conservative and account for any possibility of impacts, the Surface Water section discusses mitigation plans to avoid runoff and sedimentation effects. It is anticipated that with mitigation in place for Surface Water, the GRE, and associated taxi-way/runway extension, construction activities would not have effects on fish habitat.

In regards to the potential for spillage of soil materials into the Western Channel or Inner Harbour, the placement of soil would be monitored to avoid this.

Fish Habitat Operation Effects and Mitigation

Fish habitat would not be impacted during use of the Project.

Fish Habitat Effects Significance

It is not anticipated that the Project would result in effects to fish habitat, and as such no adverse significant effects are expected.

5.1.10 Species at Risk

The Project would not be expected to affect any species at risk. There are no species of concern or species at risk in the Project area

5.2 Effects and Mitigation for the Socio-Economic Environment

5.2.1 Economic and Business Activity

Economic and Business Activity Construction Effects and Mitigation

Short-term nuisance-type effects that may result from construction activity would not likely cause effects to BBTCA businesses. Businesses at the BBTCA would not likely experience delays in accessing the BBTCA, and the ferry would continue operating to service the airport. The ferry would be used to transport construction materials and supplies to the BBTCA, this is not expected to disrupt access to the BBTCA and affect businesses.

Economic and Business Activity Operation Effects and Mitigation

No negative adverse effects to economic and business activity would be expected from the use of the facility.

Economic and Business Activity Effects Significance

The short-term nature of construction effects would not be expected to significantly affect business activity. No significant adverse effects during the operations period are expected.

5.2.2 Aboriginal Use of Traditional Lands/Resources

The Project area is not known to be used by any First Nations for traditional uses, and as such no adverse effects would be expected.

5.2.3 Heritage and Archaeological

Heritage and Archaeological Construction Effects and Mitigation

The area that would be disturbed by construction activities for the Project is not considered to have a significant potential for the discovery of archaeological resources, as the area is primarily disturbed fill. As such, effects on archaeological resources are not expected. In the unlikely event that archaeological features are discovered during construction, standard procedures should be followed to protect cultural resources.

Heritage effects as a result of the Project construction are not anticipated. Construction areas would not be in close proximity to the historic Toronto Island Airport Terminal Building (referred to as the Administration Building) at the BBTCA and no impacts to this building as a result of the Project are expected.

Heritage & Archaeological Operational Effects and Mitigation

No effects on heritage and archaeological features are expected during use of the Project.

Heritage and Archaeological Effects Significance

The Project would not impact heritage or archaeology at the BBTCA, including the built heritage feature (referred to as the Administration building); no significant effects are anticipated.

5.2.4 Land Use

Land Use Construction Effects and Mitigation

Construction of the proposed Project would not have effects on the use of land, including development activity, as the lands are currently being used for airport purposes, and would continue to be used for the same purpose. Storage of machinery for construction may utilize minimal paved area (potentially a few parking spaces taken up) at the BBTCA. This would be temporary and not result in a significant effect.

Land Use Operation Effects and Mitigation

The Project would have no operation effects on land use.

Land Use Effects Significance

The Project would not impact land uses in the Project area and as such, would have no significant effects on land use.

5.2.5 Social & Visual

Social and Visual Construction Effects and Mitigation

Effects

There would be no removal of social features (e.g. recreation space) as a result of construction of the Project as there are no social features located on the BBTCA. The current activities at the BBTCA and also on the mainland on the north side of the Western Channel would be able to

continue but some noise and air quality effects may be experienced on the mainland during construction. Outdoor activities could be temporarily affected, particularly during pile driving for the steel columns for the noise barriers, and use of outdoor space may be reduced during construction. If construction were required to occur during night time hours, daytime activities would not be affected.

Effects on visual conditions in the Project area as a result of construction would occur during the construction of the Project. Construction of the noise barriers would be visible in the Project area and from the mainland on the north side of the Western Channel. The construction activities would be temporary. The visual disturbance is anticipated to be minimal.

Mitigation

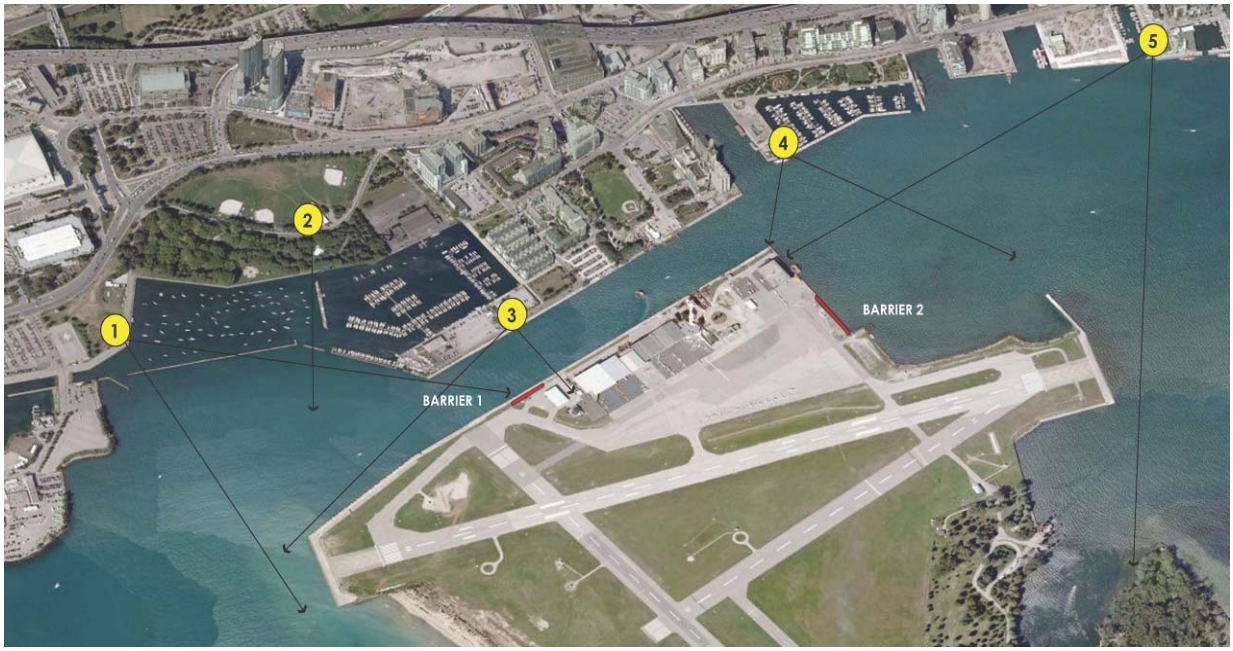
Refer to the Noise and Air Quality Construction Effects sections for mitigation.

Social and Visual Operation Effects and Mitigation

Effects

There are no social features or land uses on the BBTCA. The use of the GRE facility would not result in any effects on social features. The proposed location of the GRE is minimally visible from the mainland and in an area where current airport operations (runways) already exist. The addition of the GRE would be consistent with airport facilities. No visual effects are therefore expected with the GRE in place.

The noise barriers would obstruct some views from the mainland of the Airport and some mature vegetation at the Toronto Islands, including the woodlot at Hanlon's Point. The viewpoints discussed in the baseline conditions for Social and Visual (section 4.2.5) would be altered as depicted in the following images. The views considered were:



Viewpoint 1: View from Remembrance Drive at Ontario Place east entrance (northwest of the Project area) shows that the noise barrier would screen the airport service area and firehall.

Viewpoint 2: View from Remembrance Drive at Community Pavilion (northwest of the Project area) shows that the noise barrier would screening the airport service area and firehall.

Viewpoint 3: View from Terminus of Stadium Road at National Yacht Club Entrance (north of Project area) shows that the noise barrier would screen views of the airport maintenance operations and would have limited impact on views of mature woodlots, which are located well in the distance and are low along the horizon.

Viewpoint 4: View from the Waterfront Terrace at Harbourfront Centre's Marina Quay West (northeast of the Project area) shows that the noise barrier would screen some airport functions with minimal visual impact on viewing opportunities related to native tree cover given the short distance of the barrier structure.

Viewpoint 5: View from West Plaza at Toronto Marine Police Building along Robertson Crescent (northeast of the Project area) shows that the noise barrier would screen airport maintenance facilities and functions and have no impact on visibility of Island vegetation.

Mitigation

To minimize the visual effects, the noise barriers would be designed in a manner that is architecturally pleasing. This could include neutral panel colours or the appearance of vegetation and staggered heights across the tops of the panels (to a maximum height of 8.5 metres) to break-up the appearance of a wall.

Further, included in the design of the barriers would be aircraft navigation lighting which is a requirement of NAV Canada. The lighting would be consistent with the current navigation lights at the BBTCA and would be kept to a minimum so as to not disturb communities on the north side of the Western Channel. The detailed design of the barriers would include consideration of visual effects (lighting and materials) and may be reviewed with members of the local surrounding communities, via the TPA's Community Consultative Committee, to address visual concerns.

Social and Visual Effects Significance

There would be no significant social effects as a result of the construction and/or use of the Project. Noise and air quality could be affected during construction which may impact social conditions in the surrounding communities. These would be mitigated to the full extent possible and be temporary in nature. Refer to the Noise and Air Quality Effects Significance sections for more information.

The GRE would be minimally visible from the mainland and in an area where current airport operations (runways) already exist. The GRE would be consistent with airport facilities. No significant effects are therefore expected with the GRE in place.

The noise barriers would result in some changes to views of the Island/BBTCA from the mainland. Portions of the Airport and of some Island vegetation would be blocked from views from some mainland viewer locations. The barrier walls would be designed in a manner to make them aesthetically pleasing as much as possible. Given the nature of the existing views (the BBTCA), the addition of the noise barriers is not considered to be a significant change to the visual character of the area. The GRE is not to result in any significant visual effects.

5.2.6 Transportation and Navigation

Transportation and Navigation Construction Effects and Mitigation

Effects

The construction of the proposed Project would have minimal impact on existing air, automobile, boat or pedestrian (airport staff) transportation patterns. Construction of the proposed Project would occur in coordination with BBTCA management to ensure that airport operations (including airplane traffic, take-offs and landings) are not affected.

Due to the small size of the proposed Project and the minimal materials and construction equipment required to be delivered to the site, there would not be noticeable effects on the ferry transportation. Some minor delays could occur but efforts would be made to minimize disruption to ferry service for passenger access to the BBTCA.

In regards to boat navigation in the Western Gap, works would be conducted on land and would not result in obstruction to boat traffic.

Mitigation

The delivery of materials and equipment for the construction of the Project would be done via the existing ferry from the foot of Erieann Quay. To address potential minor delays in ferry operations, it is recommended that the TPA establish a process through which complaints about any transportation effects from the Project (although not expected) may be filed and appropriately addressed by the TPA.

Transportation and Navigation Operation Effects and Mitigation

NAV Canada has reviewed the proposed Project plans and indicated that the barriers and GRE would not impede navigational requirements for safe airport operations. The use of the GRE for engine run-ups would be managed by the BBTCA and operate in compliance with airport management requirements in order to complete the safety inspections of operating aircrafts. Navigation lighting would be established on the noise barriers. These would be consistent with current navigation lighting at the Airport. Boating navigations in the Inner Harbour and through the Western Gap would not be affected by the noise barriers. Site lines for the safe operation of water vessels would be maintained. The Project would operate in compliance with NAV Canada requirements and would not limit transportation.

Transportation and Navigation Effects Significance

The Project is not anticipated to significantly affect transportation or navigation in the area. Air navigation lighting will be installed on the noise barriers as required by NAV Canada.

5.2.7 Human Health

Human Health Construction Effects and Mitigation

Effects

Construction activities of the Project have the potential to effect human health, as a result of air emissions and noise. During the construction of the proposed Project, there would be an increase in airborne particulates (dust) and emissions from diesel engines. These effects would be typical of a construction site, and would be localized and temporary. While some noise disturbance effects are possible, the levels would not be significant enough to result in human health effects.

Mitigation

As outlined in the Air Quality section, standard mitigation measures to minimize dust and emissions should be applied. It is expected that such mitigation measures would be effective, and in any event, the effects would be temporary.

Human Health Operation Effects and Mitigation

There would be no negative effects on human health from the Project. The noise barriers and GRE would reduce noise effects on the surrounding communities and therefore result in positive effects for residents and visitors. The use of the GRE would be done in compliance with the BBTCA's health and safety procedures at the airport to limit any potential safety issues for staff and pilots using the GRE.

Human Health Effects Significance

The Project is not expected to result in significant adverse effects to human health.

5.3 Mitigation Plans

It is expected that the Project would result only in minor temporary construction related nuisance effects. Once constructed, the only noted effect would be in some changes to views of the BBTCA and the Island from some mainland locations. Mitigation is expected to be effective to reduce the visual effect. Benefits of the project include reduce noise levels in the local community. Section 5.2 included mitigation measures that would be beneficial during construction, and which could assist in avoiding disturbance, managing risk and avoiding (or minimizing) potential minor effects such as noise from construction. These recommendations are standard construction practices and would be supported by the TPA if the Project were to proceed.

5.4 Accidents and Malfunctions

During Construction

There is limited potential for environmental effects as a result of accidents or malfunctions during construction. The potential for spills of construction equipment fuels, oils and hydraulic fluids is described in Section 5.1.3 (Groundwater) of this report. These spills could result in soil, groundwater and surface water contamination. If a spill occurs, it would be of minimal magnitude (as low volumes of these materials are typically handled) and spill contingency plans of the contractor would be followed. It is reasonably assumed that these clean-up practices would be effective in managing these events and as a result, these types of accidents are not expected to result in significant effects on the environment.

For the construction and use of the facilities, only authorized personnel at the BBTCA will have access to the noise barriers and GRE. The contractors of the construction work would be required to produce a health and safety policy for completing the construction. This would be done in compliance with BBTCA health and safety policies for construction activity at the airport. There are no anticipated risks associated with accidents and malfunctions related to the Project construction activities.

During Operation

For operations, the GRE would only be accessed by authorized personnel who are trained in working in and around the GRE and who would not likely have any material risk associated with accidents and malfunctions related to the GRE operation. This would be enforced by the BBTCA.

Accidents and malfunctions could also occur as a result of changes in the environment, such as extreme weather events or natural disasters. The potential effects of changes in the environment on the Project are discussed in section 5.5.

5.5 Effects of the Environment on the Project

This environmental screening also considers “any change to the project that may be caused by the environment”. Through the potential for climate change there is a potential for a change in rainfall patterns and amounts. Excessive rainfall, perhaps as a result of climate change, could result in increased water levels within the Western Channel and Lake Ontario, but this is not anticipated to result in issues related to the Project that would not be able to be managed. The project is not considered to be susceptible to flooding or extreme weather events.

5.6 Cumulative Effects

The potential for effects from the Project to combine with the effects of other likely projects and activities in the Project Area was considered in this EA screening. For cumulative effects to occur there must be an overlap of effects in both time and space. As previously described, while the project is expected to result in some short term construction effects, no material longer term operations related effects are anticipated as the visual effects would not limit all views of the Toronto Islands and would be counter-balanced by the positive noise reduction effects. As such, the focus of the cumulative effects assessment was on the short term construction period. The only possible future project that could occur in the Project area and might result in cumulative effects would be the Pedestrian/Services Tunnel and Perimeter Road project (referred to as the Ped Tunnel and Road Project) for which an environmental screening was recently completed. The Ped Tunnel and Road Project is anticipated to begin construction at the end of 2011, early 2012, once the tender and contracting and final design are confirmed and awarded. Such a timeline would not coincide with the construction of the noise barriers and GRE as these would be complete by Fall 2011. Operation of the Project would also not interact with the Ped Tunnel and Road Project. The GRE would be located sufficiently east of the perimeter road so as to easily avoid interaction between the GRE and the perimeter road planned as part of the Ped Tunnel and Road Project. Further, as TPA is the proponent of both projects, the TPA would be responsible to ensure the management and execution of construction and operation of the projects do not conflict or result in negative cumulative effects, particularly in relation to safety during airport operations.

There are no other anticipated projects in the Project area that would result in cumulative effects with the noise barriers and GRE.

5.7 Other Matters

No other matters of relevance to the screening were identified

5.8 Environmental Effects Summary Checklist

Table 4 provides a summary checklist of potential adverse environmental effects of the Project, whether any identified effects can be mitigated and identifies any potential residual (lasting) effects that would continue after all mitigation plans are applied. This takes into consideration all project phases.

Table 4 – Environmental Effects Checklist

Environmental Component	Potential Project Effects				Residual Effects	
	Potential Adverse Effect?		Can It Be Mitigated?		Is it Significant?	
	Yes	*No*	*Yes*	*No*	*Yes*	*No*
Noise	✓		✓			✓
Air Quality	✓		✓			✓
Groundwater	✓		✓			✓
Surface Water	✓		✓			✓
Soils and Sediments	✓		✓			✓
Terrain and Topography		✓				
Vegetation and Wildlife		✓				
Migratory Birds		✓				
Fish and Fish Habitat		✓				
Species at Risk		✓				
Economics		✓				
Aboriginal Use of Traditional Lands/Resources		✓				
Heritage and Archaeology		✓				
Land Use		✓				
Social and Visual	✓		✓			✓
Transportation and Navigation	✓		✓			✓
Human Health	✓		✓			✓
Accidents and Malfunctions	✓		✓			✓
Effects of Environment on the Project		✓				

6 CONSULTATION

As with other environmental assessments that have been conducted related to the BBTCA, consultation has been undertaken as part of this screening. The Canada Port Authority EA Regulations include requirements for public consultation where the Port Authority is aware of any special circumstances of the Project that would make the Project of interest to the public. In such a case, the TPA would be required to give the public notice of the screening, an opportunity to participate in the screening and to examine and comment on the screening report and on any record filed in the public registry established with respect to the Project. The proposed Project is part of the TPA's effort to work with the community to improve local noise related experiences from airport activities. Under these circumstances the TPA has consulted with the public for the Project as this is being done in the interest of the public. The public has been able to examine and comment on documents prepared for the screening (described below), and had the opportunity to comment on the draft screening report released at the beginning of May 2011.

In February 2011 the TPA established a Community Consultative Committee made up of members of the public, residents groups, interest groups, the City and businesses. The committee was established to provide input on various TPA activities/projects and meets on a monthly basis. The consultative committee group was consulted for this Project, given various draft documents to review, and provided comments and input on the Project.

In addition to consultations that are described elsewhere in this report, consultation for this Project included:

- Project notice (Notice of Commencement) on the TPA's website and Canadian Environmental Assessment Agency public registry (as of March 24, 2011);
- Project notice sent to stakeholders, agencies, and the TPA contact list for the public;
- Draft Project Description distributed to the members of the Community Consultative Committee to provide input and comment prior to public release of the Project Description;
- Notice of the Project Description and Draft Environmental Screening Report available for public review and comment on the TPA's website and emailed to the Project contact list;
- Notice of a public meeting on the TPA's website, emailed to stakeholders and the TPA contact list, and provided to the Community Consultative Committee. This notice included information on how to access the Draft Screening Report;

- Public Meeting held on May 12, 2011 to discuss and answer questions about the proposed Project and Draft Screening Report;
- Documents available on the TPA's website, including Notice of Commencement, Project Description, public meeting documents, Draft Environmental Screening Report, notices of public consultation events, Final Environmental Screening Report;
- Responding to enquiries from the public, agencies and other interested persons;
- Communications with the Canadian Environmental Assessment Agency, NAV Canada, Transport Canada, Navigable Waters Protection Agency, and the Department of Fisheries and Oceans;
- Notification letters dated April 29, 2011 to the Mississaugas of the New Credit First Nation and the Mississaugas of Scugog Island First Nation, which provided information about the proposed Project and the May 12, 2011 public meeting. Follow-up phone calls were placed to discuss the proposed Project;
- Communications with interested persons (e.g., stakeholders, residents groups, Community Consultative Committee) regarding the Project, which included providing information and obtaining comments.

The Project notice, information regarding the May 12, 2011 public meeting and the Project Description and Draft Environmental Screening Report were distributed to the government agencies described below and the Project Description and Draft Screening Report were made available for review and consideration to First Nations, non-government organizations, local residents, businesses, schools, boating clubs and community facilities, and the general public. Government departments and agencies that the Draft Environmental Screening Report and project information was provided to include:

- Canadian Environmental Assessment Agency
- Environment Canada
- Department of Fisheries and Oceans Canada
- Transport Canada
- Navigable Waters Protection Agency
- NAV Canada
- City of Toronto (Deputy City Manager/CAO, local councillors, Waterfront Secretariat, Community Planning)
- Toronto and Region Conservation Authority

- Waterfront Toronto
- Aquatic Habitat Toronto

The public and stakeholders were encouraged to attend the May 12, 2011 public meeting and email comments or questions to ea-comments@torontoport.com. There were approximately 20 attendees at the public meeting. Comments and questions received during the screening included three comment forms filled out at the public meeting on May 12; three emails with comments from the public; one email with comments from Porter Airlines which is a commercial air carrier located at the airport; one email with comments from Stolport Corporation which is a company located at the airport; one letter from the York Quay Neighbourhood Association (YQNA); and one letter from the local councillor, Councillor Pam McConnell. The comments received and responses to each comment are included in **Appendix A – Consultation Summary Report.**

Comments and questions received that were related to the screening were in regards to:

- Size and location of the noise barriers and GRE;
- Visual appeal/look of the noise barriers;
- Potential impacts on wildlife habitat;
- Effectiveness of the noise barriers and GRE, particularly related to which communities and residents benefit from the noise barriers and what the benefit is;
- Construction schedule; and,
- Construction activities.

A number of questions and comments were raised related to topics outside the scope of the Project and the screening, these included:

- Current and future projected noise conditions in the community;
- How noise is measured;
- Future airport activities and the number of slots at the airport;
- Previous TPA studies completed;
- Cost of the barriers and GRE; and
- Alternatives considered.

Where appropriate, the environmental screening report was revised to address/clarify comments heard from the public, stakeholders and agencies related to the Project. NAV Canada provided input on the location and dimensions of the barriers and provided approval of these. The

Navigable Waters Protection Agency confirmed that they have no interest in the Project given that there are no water works and no barge is being used. The Department of Fisheries and Oceans Canada confirmed that they have no interest in the Project based on a review of the Project Description. Communication with the federal agencies is attached in Appendix A – Consultation Summary Report.

7 CONCLUSION

The **Proposed Noise Barriers and Engine Ground Run-Up Enclosure** has been assessed for potential environmental effects should the Project proceed. The results of the assessment indicate that the noise barriers and engine ground run-up enclosure (GRE) would manage noise levels from aircraft groundside activity at the BBTCA, reduce surrounding community noise experiences from groundside aircraft activity, and have no significant effects on the environment.

The noise barriers would reduce noise levels to the surrounding community from groundside airport operations and the GRE facility would reduce the sound disturbances to surrounding communities from necessary aircraft engine run-up maintenance inspections.

The TPA would commit to the mitigation recommendations in this report should the Project proceed. The TPA would also keep local community members and stakeholders informed during the construction period and would be willing to meet with local stakeholders, such as the Bathurst Quay Neighbourhood Association and the York Quay Neighbourhood Association, to hear their concerns and suggestions in regards to the Project throughout the construction and operation life of the Project.

APPENDIX A

CONSULTATION SUMMARY REPORT

CONSULTATION SUMMARY REPORT

The Noise Barriers and Ground Engine Run-Up Enclosure Environmental Screening included consultation as part of the screening process. This Consultation Summary Report consists of the following documents which were generated through consultation:

- Notice of Commencement
- Project Commencement Letters to Agencies, Stakeholders and First Nations
    - A copy of the Project Description sent with the Project Commencement Letters
- Slides presented at the Public Meeting and provided as handouts
- Correspondence with Agencies
- Comments-Response Table of all comments from the public and stakeholders, and responses generated by the project team and the TPA.

Where necessary, identities and personal information of individuals who submitted comments have been covered to maintain privacy.

Notice of Commencement

&

Project Commencement Letters and the Project Description

Notice of Commencement for Environmental Assessment Screening Proposed Noise Barriers and Engine Run-Up Enclosure Billy Bishop Toronto City Airport

The Toronto Port Authority ("TPA") is commencing an environmental assessment (EA) screening to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport ("BBTCA"). This EA screening is being completed under the *Canada Port Authority Environmental Assessment Regulations* and is part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with ground level aircraft activity. This notice confirms the commencement of the EA screening.

The noise barriers would be acoustic walls built along certain lengths of the water's edge of the BBTCA to reduce noise impacts to the mainland community from groundside airport operations (see figure below for proposed locations subject to NAV Canada approval).

The engine ground run-up enclosure would be a noise barrier facility to hold aircraft (size similar to Bombardier's Dash 8 Q400 series) while they complete engine run-up maintenance inspections. As part of the regular inspection and maintenance of aircrafts, aircraft engines require testing at high power levels to ensure their proper operation and the safety of the travelling public.

Project Location

▪▪▪ Proposed location of Noise Barriers

◎ Proposed location of Engine Run-Up Enclosure

The TPA will release the Draft Screening Report and present the findings at a future public event anticipated in May, 2011. To obtain information or submit comments on the proposed project or the EA screening, please email at **ea-comments@torontoport.com** or write to:

Suzanna Birchwood, Director Public Affairs, Toronto Port Authority
Phone: 416-863-2036, Fax: 416-863-0495, Email: sbirchwood@torontoport.com

Toronto Port Authority / Administration Portuaire de Toronto

News Release

Public Meeting on Noise Barriers EA Set for May 12

On May 12, the Toronto Port Authority (TPA) will be holding a public meeting at the Harbourfront Community Centre, from 6:30 p.m. to 8:30 p.m., to review the preliminary findings of an environmental assessment for building noise barriers at the Billy Bishop Airport.

The proposed noise barriers are one of several commitments the TPA made to mitigate noise at the airport. Findings in the Environmental Screening Draft report indicate that there are minor potential environmental effects of building the noise barriers, all of which could be mitigated.

The noise barriers will be designed to minimise noise from aircraft ground operations and engine run-ups. The Port Authority is proposing two noise "walls" on the east and northern side of the airport, and an engine run-up facility on the south side. The proposed locations are set out on page 2 of the Project Description, which can be found at www.torontoport.com

The Draft Environmental Screening Report is also available for review at: http://www.torontoport.com/corporate_noisebarrierEA.asp

In line with the TPA's previously published timetable, comments from the public will be accepted until May 25.

Please contact ea-comments@torontoport.com with questions or comments.

May 2, 2011

Ms. Haya Finan
Transport Canada
Environmental Officer, Environment and Engineering
4900 Yonge Street
North York, ON M2N 6A5

Attention: Ms. Haya Finan
CC: Linda Beaulieu, Mike Stephenson, Tim Meisner, Brigita Gravis-Beck

Re: Billy Bishop Toronto City Airport: Proposed Noise Barriers and Engine Ground Run-Up Enclosure - Environmental Screening

Dear Ms. Finan,

The Toronto Port Authority (TPA) is initiating an environmental screening under the Canada Port Authority Environmental Assessment Regulations (CPA EA Reg) to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport (BBTCA). This is being proposed as part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with groundside aircraft activity. Details are available in the attached Project Description. Dillon Consulting Limited (Dillon) has been retained by TPA to conduct this screening.

Although not expressly required, the TPA will be conducting public consultation for this project, including to obtain comments and information from interested stakeholders, such as government agencies, First Nations, non-government organizations and the public about the.

The TPA is the proponent of the project, and as such is the designated Responsible Authority (RA) for the purpose of the environmental screening. We ask that you please review the attached Project Description (PD) to confirm, as soon as possible, whether your agency or department has any interest in participating in the screening. We would like to hear from you before May 16, 2010.

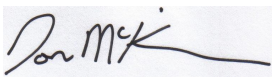
We are currently working with NAV Canada to confirm the locations, extent and design of the barriers. A Land Use Proposal has been submitted to NAV Canada and is under review.

We will follow up within the next week, and if you would like to have a meeting to discuss this, please let us know as soon as possible. You are also welcome to contact Ken Lundy, Director, Billy Bishop Toronto City Airport, Toronto Port Authority (60 Harbour Street, Toronto, ON., M5J 1B7) or via email at klundy@torontoport.com.

The attached project commencement notice provides some project background information and includes notice of the public meeting that you may wish to attend. If you have any questions or concerns, please contact the undersigned.

Yours sincerely,

DILLON CONSULTING LIMITED



Don McKinnon
Environmental Assessment Screening Coordinator
Encl.
Our File: 114453

DILLON CONSULTING

235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

Dillon Consulting
Limited

May 2, 2011

Ms. Kelly Thompson
Navigable Waters Protection Agency
NWPA Officer
100 Front Street South
Sarnia, ON N7T 2M4

DILLON CONSULTING

235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

Re: Billy Bishop Toronto City Airport: Proposed Noise Barriers and Engine Ground Run-Up Enclosure - Environmental Screening

Dear Ms. Thompson,

The Toronto Port Authority (TPA) is initiating an environmental screening under the Canada Port Authority Environmental Assessment Regulations (CPA EA Reg) to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport (BBTCA). This is being proposed as part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with groundside aircraft activity. Details are available in the attached Project Description. Dillon Consulting Limited (Dillon) has been retained by TPA to conduct this screening.

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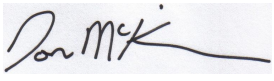
Yours sincerely,

DILLON CONSULTING LIMITED



Don McKinnon
Environmental Assessment Screening Coordinator
Encl.
Our File: 114453

Dillon Consulting Limited

May 2, 2011

Chief Tracy Gauthier
Mississaugas of Scugog Island
22521 Island Road
Port Perry, ON
L9L 1B6

DILLON CONSULTING

235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

RE: Toronto Port Authority: Proposed Noise Barriers and Engine Run-Up Enclosure – Environmental Screening

Dear Chief Gauthier,

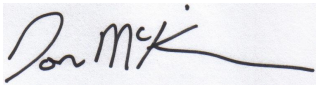
The Toronto Port Authority (TPA) is initiating an environmental assessment screening under the Canada Port Authority Environmental Assessment Regulations to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport (BBTCA). This is being proposed as part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with groundside aircraft activity. Dillon Consulting Limited (Dillon) has been retained by TPA to conduct this screening, which will include public consultation. The Project Description and Notice of Commencement are attached, for your information.

Representatives of the TPA and Dillon are available to consult with First Nations about this project and to learn about your interests or concerns, if any. Please contact me at your convenience to set up a meeting or phone conference to discuss this, or provide us with information that you believe should be considered as part of the EA process. I will also follow-up with a phone call to you in the coming weeks. We have also sent a copy of this letter to Indian and Northern Affairs Canada and the Canadian Environmental Assessment Agency for their consideration and input.

If you have questions about the project, please do not hesitate to contact me directly at 416-229-4646 or via e-mail at dpmckinnon@dillon.com.

Yours sincerely,

DILLON CONSULTING LIMITED



Don McKinnon
Environmental Assessment Screening Coordinator

Encl.
Our File: 114453

Dillon Consulting Limited

May 2, 2011

Chief Bryan LaForme
Mississaugas of the New Credit First Nation
2789 Mississauga Rd.
R.R. #6
Hagersville, ON
NOA 1HO

DILLON CONSULTING

235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

RE: Toronto Port Authority: Proposed Noise Barriers and Engine Run-Up Enclosure – Environmental Screening

Dear Chief LaForme,

The Toronto Port Authority (TPA) is initiating an environmental assessment screening under the Canada Port Authority Environmental Assessment Regulations to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport (BBTCA). This is being proposed as part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with groundside aircraft activity. Dillon Consulting Limited (Dillon) has been retained by TPA to conduct this screening, which will include public consultation. The Project Description and Notice of Commencement are attached, for your information.

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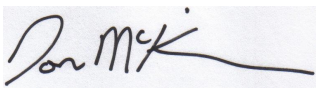
If you have questions about the project, please do not hesitate to contact me directly at 416-229-4646 or via e-mail at dpmckinnon@dillon.com.

Yours sincerely,

DILLON CONSULTING LIMITED



Don McKinnon
Environmental Assessment Screening Coordinator

Encl.
Our File: 114453

May 2, 2011

Mei Ling Chen, Environment Officer
Environmental Assessment Coordination
Indian and Northern Affairs Canada – Ontario Region
25 St. Clair Avenue East
Toronto, ON M4T 1M2

CC: Don Boswell, Ontario Research Team Lead
INAC, Specific Claims Branch

RE: Billy Bishop Toronto City Airport: Proposed Noise Barriers and Engine Ground Run-Up Enclosure – Environmental Screening

Dear Ms. Chen,

The Toronto Port Authority (TPA) is initiating an environmental screening under the Canada Port Authority Environmental Assessment Regulations (CPA EA Reg) to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport (BBTCA). This is being proposed as part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with groundside aircraft activity. Dillon Consulting Limited (Dillon) has been retained by TPA to conduct this screening, which will include public consultation.

The attached notice of commencement and Project Description provides background information about the noise barriers and engine run-up enclosure, and includes information about the consultation event on May 16, 2011.

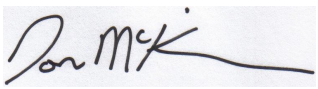
The TPA is open to consulting with First Nations that may have an interest in this project. In 2010, during the EA for the TPA's pedestrian tunnel, letters were sent to the Mississaugas of the New Credit First Nation and the Mississaugas of Scugog Island First Nation to inform them of that project. The TPA met with the Mississaugas of the New Credit First Nation. No other responses were received during the EA from these First Nations.

We have sent a letter to the same First Nations for the proposed noise barriers and engine run-up enclosure, a copy of which is attached for your information. We have also sent a copy of a similar letter to this to the Canadian Environmental Assessment Agency, for its information (and input), as well as the Department of Fisheries and Oceans, Transport Canada and NAV Canada. Although there is currently no need for a federal approval from those government agencies, we are in the process of confirming that with them.

If you have any additional information as to which aboriginal communities should be informed of this project, please contact me. We would like to receive a response by May 12, 2011. I can be reached at the above address or by email to dmckinnon@dillon.ca.

Yours sincerely,

DILLON CONSULTING LIMITED



Don McKinnon
Environmental Assessment Screening Coordinator

Encl.

Our File: 114453

DILLON CONSULTING

235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

Dillon Consulting Limited

May 2, 2011

Mr. Dan Thompson
Department of Fisheries and Oceans Canada
Habitat Team Leader, Ontario - Great Lakes Area
3027 Harvester Rd, Unit 304
Burlington, ON L7R 4K3

Attention: Mr. Dan Thompson
CC: Jenie Lapierre

Re: Billy Bishop Toronto City Airport: Proposed Noise Barriers and Engine Ground Run-Up Enclosure - Environmental Screening

Dear Mr. Thompson,

The Toronto Port Authority (TPA) is initiating an environmental screening under the Canada Port Authority Environmental Assessment Regulations (CPA EA Reg) to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport (BBTCA). This is being proposed as part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with groundside aircraft activity. Details are available in the attached Project Description. Dillon Consulting Limited (Dillon) has been retained by TPA to conduct this screening.

Although not expressly required, the TPA will be conducting public consultation for this project, including to obtain comments and information from interested stakeholders, such as government agencies, First Nations, non-government organizations and the public about the.

The TPA is the proponent of the project, and as such is the designated Responsible Authority (RA) for the purpose of the environmental screening. We ask that you please review the attached Project Description (PD) to confirm, as soon as possible, whether your agency or department has any interest in participating in the screening. We would like to hear from you before May 16, 2010.

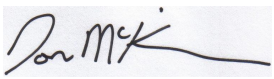
We are currently working with NAV Canada to confirm the locations, extent and design of the barriers. A Land Use Proposal has been submitted to NAV Canada and is under review.

We will follow up within the next week, and if you would like to have a meeting to discuss this, please let us know as soon as possible. You are also welcome to contact Ken Lundy, Director, Billy Bishop Toronto City Airport, Toronto Port Authority (60 Harbour Street, Toronto, ON., M5J 1B7) or via email at klundy@torontoport.com.

The attached project commencement notice provides some project background information and includes notice of the public meeting that you may wish to attend. If you have any questions or concerns, please contact the undersigned.

Yours sincerely,

DILLON CONSULTING LIMITED



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Encl.
Our File: 114453

DILLON CONSULTING

235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

Dillon Consulting
Limited

May 2, 2011

Ms. Louise Knox
Attn. Linda Boeheim
Canadian Environmental Assessment Agency
Regional Director
55 St. Clair Ave. East, 9th Floor
Toronto, ON M4T 1M2

Attention: Ms. Linda Boeheim
CC: Ms. Louise Knox, Mark Bowler

Re: Billy Bishop Toronto City Airport: Proposed Noise Barriers and Engine Ground Run-Up Enclosure - Environmental Screening

Dear Ms. Knox,

The Toronto Port Authority (TPA) is initiating an environmental screening under the Canada Port Authority Environmental Assessment Regulations (CPA EA Reg) to construct and operate noise barriers and an engine run-up enclosure at the Billy Bishop Toronto City Airport (BBTCA). This is being proposed as part of TPA's efforts to address sound levels from the BBTCA. The proposed noise barriers and run-up enclosure would assist in managing potential noise levels associated with groundside aircraft activity. Details are available in the attached Project Description. Dillon Consulting Limited (Dillon) has been retained by TPA to conduct this screening.

Although not expressly required, the TPA will be conducting public consultation for this project, including to obtain comments and information from interested stakeholders, such as government agencies, First Nations, non-government organizations and the public about the.

The TPA is the proponent of the project, and as such is the designated Responsible Authority (RA) for the purpose of the environmental screening. We ask that you please review the attached Project Description (PD) to confirm, as soon as possible, whether your agency or department has any interest in participating in the screening. Further, we have also attached the letter sent to INAC regarding First Nations consultation. We would like to hear from you before May 16, 2010.

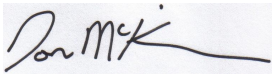
We are currently working with NAV Canada to confirm the locations, extent and design of the barriers. A Land Use Proposal has been submitted to NAV Canada and is under review.

We will follow up within the next week, and if you would like to have a meeting to discuss this, please let us know as soon as possible. You are also welcome to contact Ken Lundy, Director, Billy Bishop Toronto City Airport, Toronto Port Authority (60 Harbour Street, Toronto, ON., M5J 1B7) or via email at klundy@torontoport.com.

The attached project commencement notice provides some project background information and includes notice of the public meeting that you may wish to attend. If you have any questions or concerns, please contact the undersigned.

Yours sincerely,

DILLON CONSULTING LIMITED



Don McKinnon
Environmental Assessment Screening Coordinator

Encl.
Our Project #: 114453

DILLON CONSULTING

235 Yorkland Blvd.
Suite 800
Toronto, Ontario
Canada
M2J 4Y8
Telephone
(416) 229-4646
Fax
(416) 229-4692

Dillon Consulting
Limited

Toronto Port Authority

Billy Bishop Toronto City Airport (BBTCA)

Proposed Noise Barriers and Engine Ground Run-Up Enclosure

Project Description

Canada Port Authority Environmental Assessment Regulations

(CPA EA Regs)

April, 2011

Dillon Consulting Limited

Table of Contents

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1 Background

1.1 Project Name and Nature of the Project

The name of the project is the **Billy Bishop Toronto City Airport Proposed Noise Barriers and Engine Run-Up Enclosure** (referred to as the Project). The Toronto Port Authority (TPA) is the Project proponent. The Project includes the construction of noise barriers and an engine ground run-up enclosure (GRE) that would manage noise levels from aircraft groundside activity at the BBTCA.

The noise barriers would be acoustic walls built along certain lengths of the northern and eastern edges of the airport. The purpose of these barriers is to reduce noise levels to the mainland community from groundside airport operations (see **Figure 1**).

The GRE would be a semi-circle/half-moon noise barrier facility for aircraft (size similar to Bombardier's Q400 series) to sit while they complete engine run-up maintenance inspections. As part of the regular inspection and maintenance of aircraft, aircraft engines require testing at high power levels to ensure their proper operation and the safety of the travelling public. While necessary for safety, these engine run-up operations can be a disturbance to area residents. The proposed GRE would reduce these sound disturbances. **Figure 1** shows the proposed location of the GRE.

The locations and heights of the proposed noise barriers and GRE are subject to approval from NAV Canada. Figure 1 illustrates the proposed locations which are being reviewed by NAV Canada.

This screening is being completed under the *Canada Port Authority Environmental Assessment Regulations* (CPA EA Regs).

1.2 Project Location

The proposed noise barriers and the engine run-up enclosure would be located on the BBTCA lands, located along the Western Channel and the Toronto Harbour. **Figure 1** illustrates the proposed locations of the noise barriers and the engine run-up enclosure (which are under review with NAV Canada). The locations of the barriers have been determined based on initial reviews from NAV Canada. Longer barriers were initially proposed for the maximum reduction of ground level noise impacts to the main land communities. However, NAV Canada stated that the longer barriers would block certain site lines and needed to be shorter for safe navigations.

Figure 1 – Project Location

▪▪▪▪ Proposed location of Noise Barriers ◎ Proposed location of Engine Ground Run-Up Enclosure :::: Taxi-way to GRE

1.3 Distribution of Project Description

This Project Description (PD) will be distributed to the government agencies described below and made available for review and consideration to First Nations, non-government organizations, local residents, businesses, school, and community facilities, and the general public.

Government departments and agencies that the PD will be provided to include:

- Canadian Environmental Assessment Agency
- Environment Canada
- Department of Fisheries and Oceans Canada
- Transport Canada
- NAV Canada
- City of Toronto (Deputy City Manager/CAO, local councillors, Waterfront Secretariat)
- Toronto and Region Conservation Authority
- Waterfront Toronto

As indicated, the Project Description will be made available for public review and comment. The PD can be accessed on the TPA's website (www.torontoport.com), through email request to ea-comments@torontoport.com and in the EA screening report that will be prepared.

1.4 Related Environmental Assessment Requirements

Other than the federal environmental assessment (EA) screening being conducted under CPA EA Regulations, there are no other EA requirements applicable to the Project.

1.5 Federal Involvement and Approvals

The Project proponent is the TPA, and as such an environmental screening under the CPA EA Regulations is being completed. Although Transport Canada owns small portions of land on the airport at the east and west extremities, the location and length of the proposed barriers does not extend onto Transport Canada property.

It is not anticipated that any federal agencies will be required to sign-off on the screening. This will be confirmed with Transport Canada, DFO, Environment Canada and the Canadian Environmental Assessment Agency. In the event that there is any other federal approval required, the environmental screening being completed would be available to satisfy the obligations of any Responsible Authority.

In addition to this screening, but not as a requirement of the screening approval, a Land Use Proposal has been submitted to NAV Canada. This is required for proposals that involve construction proposals on an airport with Control Tower Services, Weather Services, Localizer or other navigational aids. NAV Canada's evaluation of land use proposals and construction proposals neither constitutes nor replaces any approvals or permits by Transport Canada.

2 Description of Project Components

2.1 Project Components

The Project would include the following components:

- Two acoustic barrier walls with a nominal height of 8.00 metres above grade.
    - The walls would consist of a series of steel columns with noise barrier panels in-between the columns/posts. The steel columns/posts would be spaced to accommodate the panel length and not exceed 25mm of the panel length.
    - The height of individual barrier segments would be randomized using a pseudo-random sequence to provide visual break of the crest line. The maximum variation shall be +0.5m and -0.25m.
    - Individual noise barrier elements would have surface patterns and some possible artistic reliefs providing an architectural façade, rather than a simple wall (this will require several design concepts for consideration).
    - Barriers would be a modular design that is resistant to water, moisture, vibration, moderate prop-wash and wind loadings, and are non-corrosive and non-conductive.
    - Tops of the barriers would be fitted with appropriate fittings to discourage bird nesting and alighting.

- Mounting of navigation/warning lights would be included as required by NAV Canada. Detailed locations will be determined in consultation with the regulatory authority.

- One Engine Ground Run-Up Enclosure (GRE)

  - Proposed location is at the west side of the airport lands (see Figure 1) to maximize distance from residential areas to the north and southeast.

  - Would include an area sufficiently large enough to accommodate a Q400 aircraft to taxi into the proper position to conduct required engine run-up activities.

  - A paved asphalt area would be constructed for aircraft to sit while undertaking engine run-ups, inside the GRE.

  - A taxi-lane extension from the west side of Runway 15-33 (see Figure 1) to the GRE would be constructed.

2.2 Project Activities

Table 1 contains a list of Project activities for the purpose of conducting the screening. Subject to completion of the screening, and other matters that the TPA would need to complete to proceed with the Project, construction initiation could be expected in Summer 2011, with completion anticipated within three months of that.

Table 1: Detailed Project Activities

Project Component	Project Component Description	Physical Works and Activities
Construction Activities for Noise Barriers		
Steel columns /posts	Steel columns/posts with footings, nominal height of 8.00 metres above grade, that would be securely anchored in the ground	• Transport of steel columns/posts (pre-constructed) and construction equipment across the Western Channel to the BBTCA. • Drilling/vibratory pile-driving of the columns securely into the ground with footings, spaced to accommodate the barrier panels.

Project Component	Project Component Description	Physical Works and Activities
Panels	Placement of panels with a nominal height of 8.00 metres in-between steel columns/posts. *(Exact design to be confirmed in screening)*	• Transport of panels (pre-constructed) and construction equipment across the Western Channel to the BBTCA. • Machinery (mobile crane) to place panels securely between the steel columns. • Surface and stormwater management system to mitigate panels impeding surface water run-off.
Electrical System	Electrical system for navigation / warning lights and visibility (as directed by NAV Canada)	• Placement of electrical connection for warning lights and closed circuit cameras. • Mounting of warning lights and cameras.
Bird Management	Tops of the barriers would be fitted to discourage bird nesting and alighting.	• Placement of fittings to discourage bird nesting.
Construction Activities for Engine Ground Run-Up Enclosure (GRE)		
Paved area for aircrafts inside the GRE	Paved asphalt area for aircrafts to stand while completing engine run-ups	• Transport of materials and construction equipment across the Western Channel to the BBTCA. • Clearing, grading and paving of the area. • Surface and stormwater management system to mitigate surface water run-off.
Taxi-Lane from Runway 15-33	Paved area for aircrafts to taxi or be towed into the GRE	• Transport of materials and construction equipment across the Western Channel to the BBTCA. • Clearing, grading and paving of the area. • Surface and stormwater drainage system to mitigate surface water run-off.
Run-up Enclosure	The initial proposed design is a semi-circle/half-moon soil and concrete berm, H-pile design, with rippled concrete treatment on inside to reduce and deflect noise. Approximately 10 metres high from ground level.	• Transport of materials (soil) and construction equipment across the Western Channel to the BBTCA. • Construction of berm using a grader or front-end loader. • Sprayed “Shot-crete” or alternative protective application onto inside of half-moon berm.

Project Component	Project Component Description	Physical Works and Activities
Stormwater/ Drainage Collection	A drainage system for the GRE	• Surface and stormwater management system to mitigate surface water run-off.
Operation Activities		
Surface water management	Drainage monitoring and management for GRE	• Continued programs for monitoring sufficient drainage in the GRE.
Other than maintaining visual appeal (paint touch-ups) of noise barriers, no other operational activities are anticipated.		
Decommissioning Activities		
No decommissioning activities are planned, but at the appropriate time in the future, decommissioning would be expected to occur in compliance with airport policies and any applicable federal regulations.		

2.3 Resources/Material Requirements

General

The Project would reduce sound levels in the community that can be experienced as a result of aircraft ground activities at the BBTCA. Materials would be pre-constructed and brought to the site. It is anticipated that for the GRE, new paved areas would be constructed and soil would be required for the half-moon berm which would from the shape and size of the GRE.

Materials, including pre-constructed steel columns, acoustic panels, cement, and soil would be transported across the Western Channel over to the site by the BBTCA Ferry.

Soil

As indicated above, there may be impacted soils in the upper layers as a result of the; steel columns and footings for the noise barriers; and the grading and paving of the extended taxi lane and the paved area for the GRE. A soils management program would be developed for construction, which would ensure compliance with applicable laws.

Surface Water

As indicated above, there may be impacted surface water as a result of the paved extended run-way and the paved area for the GRE. A surface water and drainage

management program would be developed for construction and operation, which would ensure compliance with applicable laws.

3 Project Site Information

3.1 Environmental Features

There is little to no natural habitat in the area proposed for the noise barriers and engine run-up enclosure. Environmental features in the study area, including fish, birds, vegetation, soil, surface and groundwater, will be documented in the screening report. The screening will assess the potential for adverse effects on the bio-physical environment, in addition to other potential effects.

3.2 Land Use

The existing land use in the vicinity of the Project consists of green space and the BBTCA. There are no other uses on the site other than for airport operations and activities (terminals, warehouses, runways, etc).

3.3 Fish, Fish Habitat and Navigable Waters

There are no anticipated effects to fish, fish habitat or navigable waters.

4 Contacts

The Project proponent is the Toronto Port Authority (TPA). To obtain more information please contact:

Project Proponent: Ken Lundy, P.Eng. Director, Infrastructure, Planning & Environment Toronto Port Authority 60 Harbour Street, Second Floor Toronto, ON M5J 1B7 416-863-2040 KLundy@torontoport.com	**Project Contact: Don McKinnon** Project Manager Dillon Consulting Limited 235 Yorkland Blvd, Suite 800 Toronto, ON M2J 4Y8 416-229-4647 extension 2355 dpmckinnon@dillon.ca

Slides Presented at the Public Meeting and Provided as Handouts

Noise Barriers

at Billy Bishop

Toronto Port Authority

Noise Barriers Public Meeting
May 12, 2011

Who's Here

- Toronto Port Authority
- Dillon Consulting Limited
- Aercoustics

Agenda

- 6:30 – 7:15 – Presentations
- 7:15 – 8:00 p.m. – Q&As

Why Are We Proposing This Project?

- Part of the TPA's commitment to meet noise management concerns
- To fulfill the recommendations that came out of the 2010 Jacobs Consultancy *Noise Management Study.*
- EA a standard element for construction project

Project Components

- Noise Barrier and GRE Locations and Constraints
  - Height restrictions
  - Navigations
  - Safety

Location

Environmental Assessment

Screening, Assessment, Results

The Process

- The Canada Port Authority Environmental Assessment Regulations (under Canadian Environmental Assessment Act) are being followed

What We Looked At

- Existing natural (biophysical) environment
- Existing socio-economic environment

What We Found (screening results)

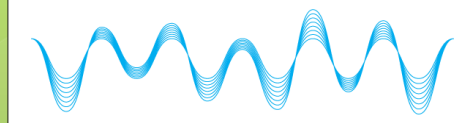
- Minor, localized, short-term construction related nuisance effects
- Once constructed, there would be no effects from the project
- Conclusion
  No adverse significant effects are anticipated from the project.

Construction-Related Effects

- Temporary increase in noise & dust
- Possible minor surface water runoff effects
- No effects to natural features

Mitigation Plans

- Noise & dust control
- Stormwater management
- Monitoring of construction equipment and materials over island



Acoustical Assessment

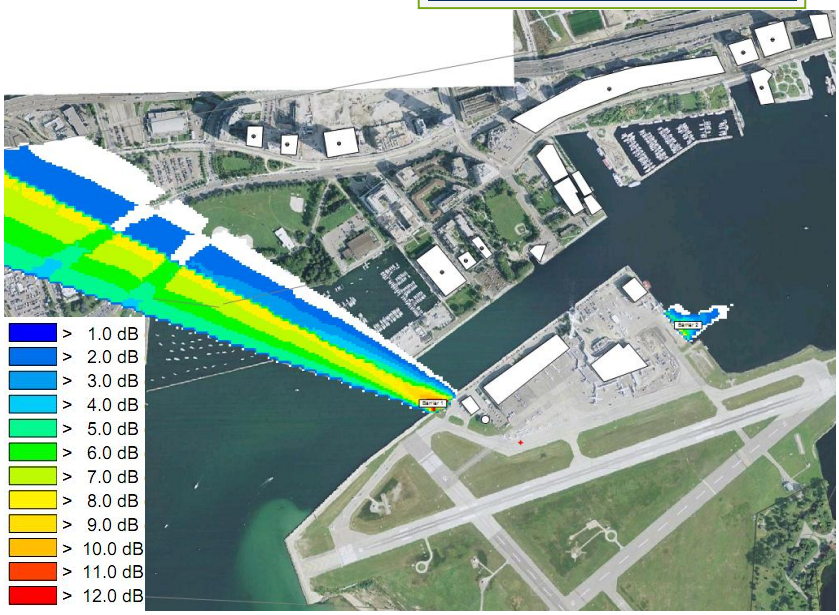
Analysing the sound

Acoustical Assessment

- Mandate:
  - To determine effectiveness of barriers
- Results:
  - Will reduce the sound at lower levels

Acoustical Assessment

Sound Level Change dB(A)	Perception Rating
1 – 3	Insignificant
3 – 5	Noticeable
5 – 10	Significant
>10	Very Significant



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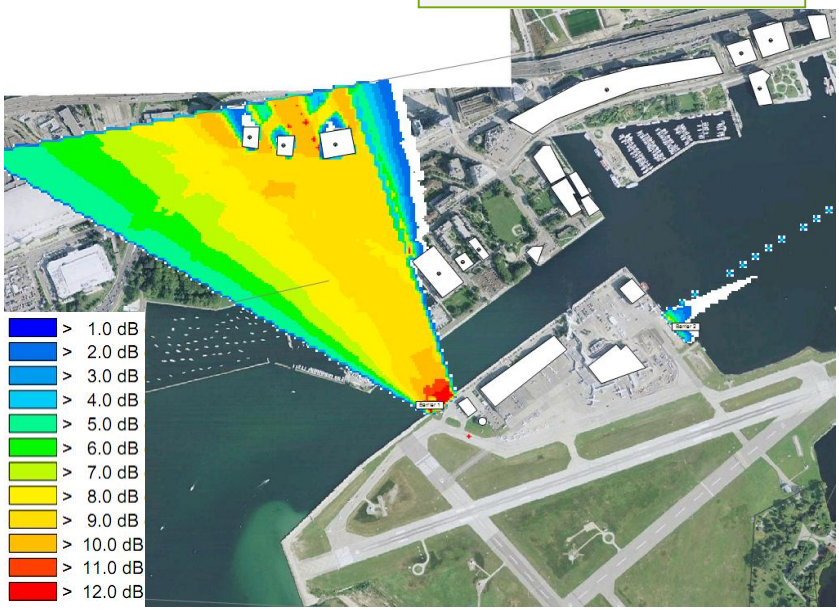
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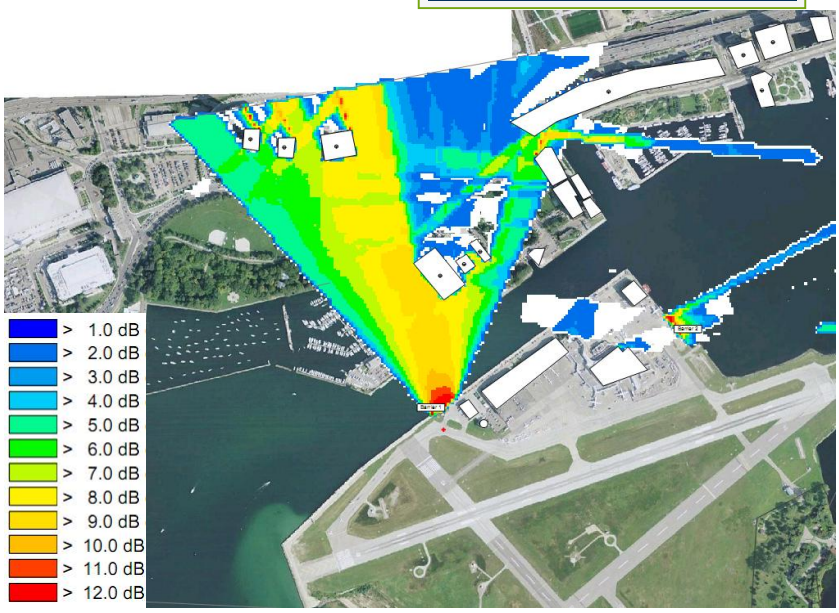
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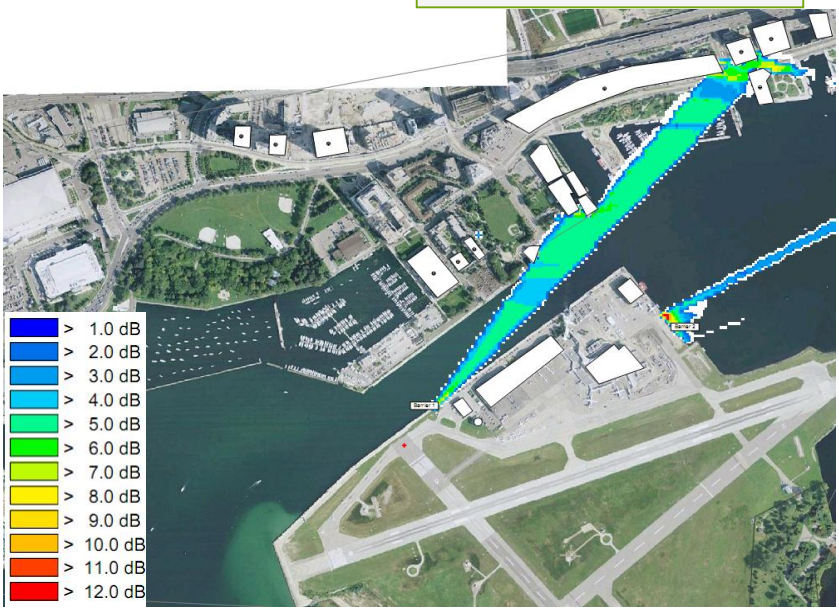
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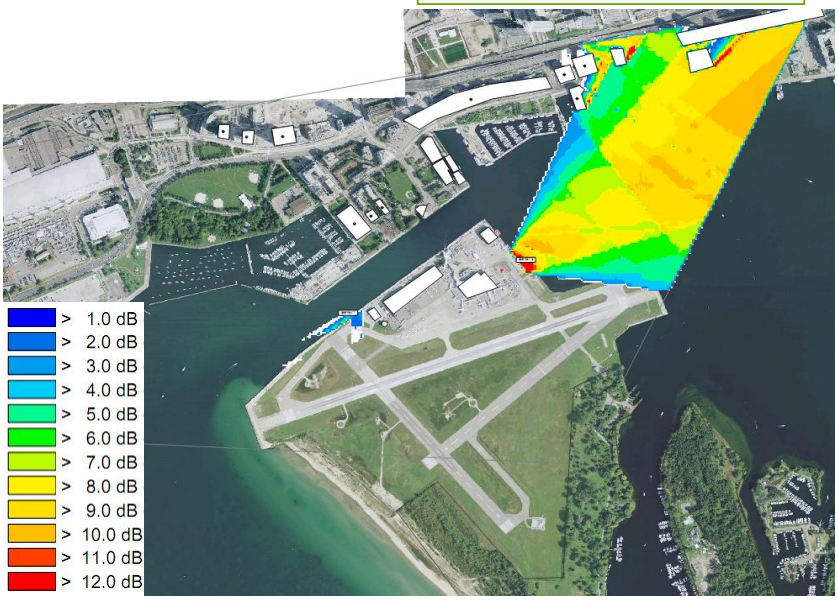
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The Plans

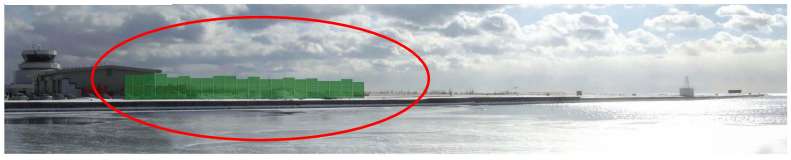
What does all this mean?

What the Barriers Might Look Like

VIEWPOINT 3

Viewing distances - Barrier 1: 119m - 133m

Before



After

Figure 3: Terminus of Stadium Road at National Yacht Club Entrance

VIEWPOINT 4

Viewing distances - Barrier 2: 262m - 314m
Start Location: Easting 629566, Northing 4832322
End Location: Easting 629617, Northing 4832252

Before

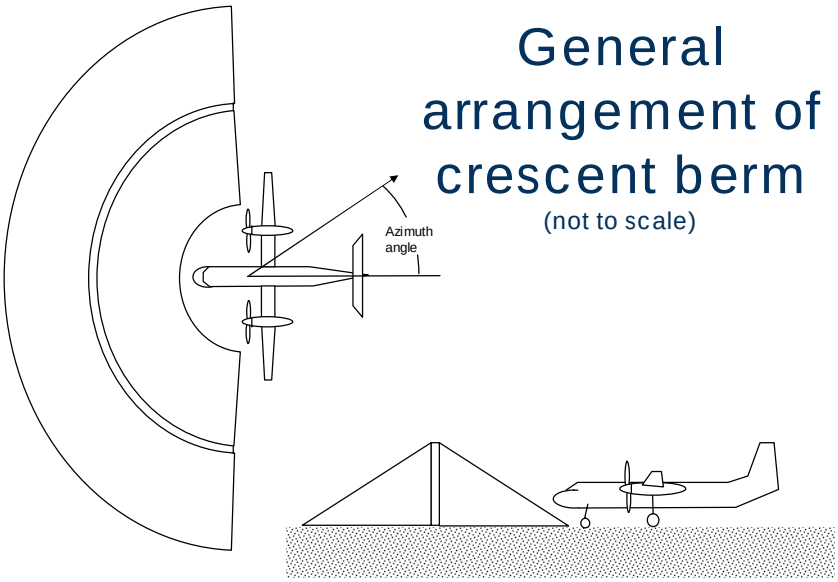
After

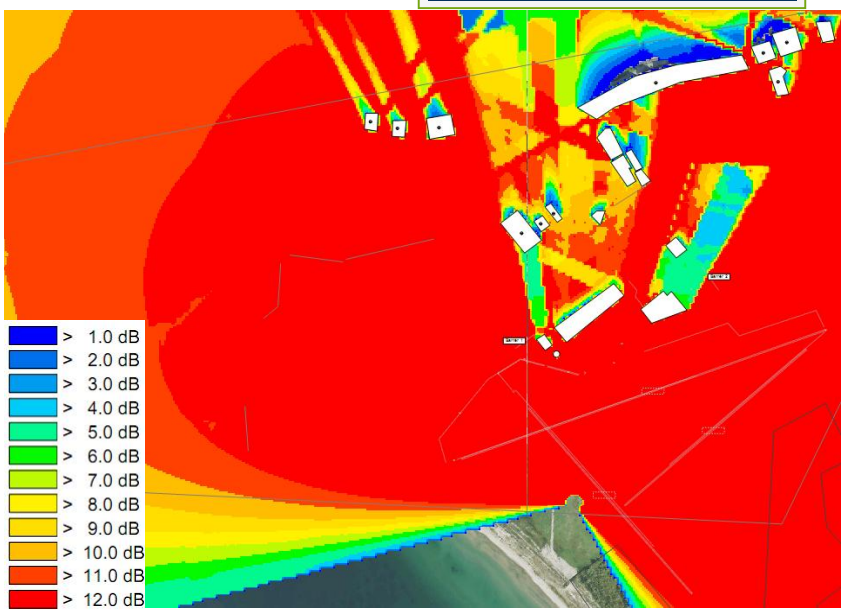
Figure 4: Waterfront Terrace at Harbourfront Centre's Marina Quay West

Run-up Barrier

General arrangement of crescent berm

(not to scale)





Q&A

- Direct all questions through the facilitator, Irene
- Introduce yourself, state where you live/the organization you're with before your question or comment
- Two questions per person (two-minute time limit) to allow a chance for everyone who wants to be heard
- Please do not interrupt the response to your question
- Please do not interrupt a speaker who has the floor; the person with the microphone has the floor
- One speaker/discussion at a time

Tell us your thoughts…

To submit written comments please fill in a comment sheet OR e-mail:

ea-comments@torontoport.com

Comment DEADLINE: May 27, 2011

Next Steps

Billy Bishop Airport

Timetable for Noise Barriers Environmental Assessment*

March 31 EA for Barriers Announced → April 12 Feedback Deadline → Week of April 25 Draft Report Released → Week of May 9 Public Meeting → May 27 Comments Deadline → Week of June 6 Report Release

*timetable subject to change; check www.torontoport.com for latest information

Consultative Committee

- May 25, 2011
- More detailed design to be discussed
- Discussion of Screening Report results and comments heard

Correspondence with Agencies

[redacted]

Subject: RE: Toronto Port Authority - Noise Barriers Environmental Screening

Good Morning

As there is no work planned to take place in the water, the Navigable Waters Protection Program does not have an interest in this project.

Please feel free to contact this office should you require any additional comments.

Regards

[redacted]
A/Manager
Navigable Waters Protection / Protection des eaux navigables
TransportCanada / Transports Canada
[redacted]
100 Front Street South / 100 rue Front S.,
Sarnia, Ontario, N7T 2M4 [redacted]
[redacted]
www.tc.gc.ca/navigablewaters-eauxnavigables

[redacted]

Subject: Toronto Port Authority - Noise Barriers Environmental Screening

Good Afternoon Ms. Thompson,

Please see the attached letter and documents regarding noise barriers and an engine run-up enclosure proposed for the Billy Bishop Toronto City Airport. We have also informed the following people at Transport Canada: Haya Finan, Linda Beaulieu, Michael Stephenson, Tim Meisner, and Brigita Gravitis-Beck.

If you have any questions please contact: [redacted]

Kind Regards

DILLON CONSULTING
[redacted]

Please consider the environment before printing this email

[redacted]

Subject: RE: Toronto Port Authority - Noise Barriers Environmental Screening

Hi [redacted]

Thank you for circulating us the project description. The information has been reviewed and its been determined that our department is not likely to require an environmental assessment of the project under section 5 of the Act.

Please refer to our file # BU-11-1009 for future correspondence regarding this project, if needed. Thanks.

[redacted]
A/Fish Habitat Biologist | A/Biologiste de l'Habitat du Poisson
Fisheries and Oceans Canada | Pêches et Océans Canada
Ontario - Great Lakes Area | Secteur de l'Ontario et des Grands Lacs
304-3027 Harvester Rd | chemin Harvester
Burlington, ON L7R 4K3
[redacted]
Web site | site Web: http://www.dfo-mpo.gc.ca/habitat
Government of Canada | Gouvernement du Canada

[redacted]

Subject: Toronto Port Authority - Noise Barriers Environmental Screening

Good Afternoon,

Please see the attached letter and documents regarding noise barriers and an engine run-up enclosure proposed for the Billy Bishop Toronto City Airport.

If you have any questions please contact: [redacted]

Kind Regards

DILLON CONSULTING
[redacted]

Please consider the environment before printing this email

Comments-Response Table

Introduction

The comments submitted to the TPA regarding the noise barriers and GRE pertained to two separate assessments:

1.) the environmental screening assessment
2.) the assessment of barriers and GRE effectiveness.

This distinction is important as the environmental screening does not consider the assessment of effectiveness as a component of the screening. The environmental screening assesses the impact of the construction and operation of the project, not the effectiveness of the project. However, in working with the community and attempting to mitigate sound levels generated from airport activities, the TPA determined that there was benefit in illustrating the effectiveness of the barriers and GRE for the community. The following comments-response table addresses comments and responses submitted regarding the screening and the effectiveness of the barriers.

	Comment	***Response***
	Comments from the Filled in Comment Sheets at the May 12 Meeting	
1	Hours of operation are 6:45 to 23:00. The community needs a guarantee that no construction materials/equipment disrupt our community before or after your hours of operation and also to guarantee non of these vehicles travel west on Queens Quay west of Bathurst nor on Stadium Road if you do in fact decide to build this not very useful to the neighbourhood ugly fence.	Project construction on the island may need to occur, in a very small number of cases, after 23:00 and before 6:45. This will only occur if the weather conditions or aircraft navigations limit the ability to work during airport operating hours. The TPA will work with the contractors to make sure that construction occurring outside operating hours is only considered after determining all other options for construction times. There will be minimal truck traffic generated as a result of this project. The truck route will be determined by the TPA and contractors. The route for truck travel will make every effort not to use Stadium Road or Queens Quay W. west of Bathurst. The TPA will do what it can to manage trucks related to the Project; however, the TPA does not manage truck travel on these roads, many trucks using these roads are not related to the TPA or BBTCA.
2	Have noise walls and this run-up barrier been used at any other airport? Have they been effective?	Noise walls or sound screens are used frequently at airports. One example is the Camel Road Sound Screen at London City Airport. Earth berms are not as common however the acoustical engineering

	Comment	***Response***
		properties for this application are appropriate.
3	Why does your executive summary say "size similar to Bombardier Q-400"? Is this just more "modeling" or was real noise actually measured?	The reference to size of an aircraft is for physical measurement relationships, e.g. wing span, propeller height, turning radius etc.
4	As these barriers only seem to mitigate some noise is astonishingly short sighted and a seeming waste of time and money.	Comment noted, we will consider this in the decision of whether to proceed.
5	I do not believe these noise barriers will mitigate the [noise] for the neighbours. The berms are in the wrong location. This is particularly true of barrier #2. The biggest problem of noise is created in take-offs and landings. The barriers will not mitigate that noise.	The noise barriers will reduce sound levels experienced by mainland communities as a result of ground operations, including aircraft taxiing and maintenance. Your comment has been noted, we will consider this in the decision of whether to proceed.
6	Engine run-ups are the biggest problem. They should be banned from the Island Airport. The berm GRE will do little to reduce the noise.	The engine ground run-up enclosure will reduce the sound levels experienced by mainland communities. This reduction will be experienced by those on the ground level and up to 5 stories in the buildings. The reductions will be between 5 and 12 dB which will be noticeable and, in some cases, mainland communities will no longer hear the maintenance run-ups. The barriers will not reduce all sound levels for all residents but will address as much as possible given the constraints of navigation and safe operation of the airport.
7	Is there going to be an EA on air pollution?	The proposed project (the noise barriers), once constructed will not impact on air quality in the project area. The construction equipment required for the project would result in minor, localized and temporary air emissions.
	Comments from Emails	
8	As a directly affected stakeholder, I am pleasantly surprised by the interest shown in reviewing existing community noise mitigation alternatives, and to documenting and resolving noise concerns in a comprehensive manner for given future horizon years and operating conditions. YQNA is not aware of the need for the TPA to make every effort to rush the noise barrier process through this spring. Trying to rush something through is	The TPA has been working on the noise barriers and GRE environmental screening since late September 2010. It is now October 2011. The TPA does not consider this process to be rushed. The construction has been deferred to the fall of 2011 as the TPA works on communication with the community regarding the implementation of this project and noise concerns raised by the community.

	Comment	***Response***
	loaded with negative optics. There has been no outcry from residents in YQNA or in Windward Coop demanding immediate implementation of potentially ugly noise barriers. However, there has remained a hunger for information and resolution of long standing concerns. Accordingly, the more immediate and urgent effort by the TPA for this Spring needs to be on communication not on construction. There has only been one community meeting on airport noise to date on Feb 17, 2010, during which it was confirmed that additional explanation - in a public meeting format - is definitely required in order to establish confidence. There is a variety of concerns amongst waterfront users, property owners and residents which need to be acknowledged first prior to making final decisions. Given that the evolution of noise characteristics in the community remains a highly sensitive topic, and that this is a complex issue inter-twined with directly and indirectly related concerns, all matters pertaining to airport noise study and mitigation must be dealt with in a sequence which is not conducive to rushing and is conducive to consensus building, starting from a macro level and working down to the mitigational alternatives that could be implemented. These alternatives could likely, but may not necessarily include, or be limited to, noise barriers.	The TPA has established the Community Liaison Committee and will continue to work with this committee to address noise concerns and mitigation options.
9	What is the cost of the proposed noise barriers and who will underwrite it? Is there any scenario in which taxpayers' dollars will at some future time have to pay for the whole or part of its construction? From the meeting, I am guessing the budget will be over $1,000,000. If the airport fails within a few years, who will pay off the remaining debt?	As mentioned in the meeting [May 12, 2011], the cost for the two acoustic walls is approximately $400,000. The cost for the earth berm Ground Run-up Enclosure has not been developed at this stage. The project is fully funded through the Airport Improvement Fee which is applied to each out-going commercial passenger The airport has proven itself to be an important economic generator to the City of Toronto and surrounding region. Passenger levels have increased significantly over the last five years even in the midst of a poor economic global climate.

	Comment	***Response***
10	The barriers will be approx 25 feet tall and possibly concrete grey in colour. Has any consideration been given to the fact that this is a busy waterway which is used by thousands of boats for recreational purposes? What will this do to their sought-after marine retreat?	The TPA has engaged a landscape architect to assist with the visual aspects of the walls.
11	It was stated that the noise barrier will only reduce noise for the first 5 stories of buildings on the mainland. I understood it will not reduce noise for the more than 20,000 people living directly on the harbour. It will not reduce noise along the Central Waterfront. Do I understand correctly? Will concerts in the Music Garden be affected by the noise once the barrier is in place? To what extent will such concerts be affected?	Bathurst Quay is the primary area that will benefit from the walls, with the central waterfront experiencing significant reduction to ground noise from apron activity. The noise barriers will not reduce sound levels for all waterfront residents and are only effective in reducing sound up to a certain height but will address as much as possible given the constraints of navigation and safe operation of the airport.
12	From the meeting, I understood that there is no planned follow-up to see exactly the results of such a barrier. And, I understand that there is no "Plan B" if this does not work. Am I correct here?	Noise barrier walls are well recognized for their effectiveness. The selection of locations was based on the aviation navigation constraints and the objective of providing an effective and feasible solution given these constraints.
13	If a follow-up shows that the noise is not improved along the Waterfront, or if, indeed, it turns out to increase noise levels for residents, will the wall be taken down?	As mentioned at the meeting, the walls would not increase the noise levels existing in the community. Noise barrier walls or the type proposed are well recognized for their effectiveness.
14	Suzanna Birchwood mentioned twice at the meeting that the number of slots allocated for this airport is 202. Can you confirm this?	That is correct. The 202 slots was developed from a comprehensive analysis which evaluated all key factors impacting airport operations, including: the 1983 Tripartite Agreement; noise guidelines; hours of operation at the BBTCA [including the impact of early morning and late evening flights on the neighbouring community]; terminal, runway and passenger ferry infrastructure limitations; the availability of parking and transportation options to and from Eireann Quay; mix and types of commercial, private and leisure aircraft; and helicopter and MEDEVAC flights.

	Comment	***Response***
15	What is the impact of the noise on the birds in the sanctuary? Do you have studies and if so, are they available to interested parties?	The proposed noise mitigation structures are well recognized for their effectiveness. The walls would not increase the noise levels.
16	Am I correct that the eastern barrier will be approximately the width of the silos? It looks to me that the width is also roughly the width of the western gap. I did not say in the meeting but it also occurs to me that a very large bland wall of no historic significance will dwarf the internationally significant Ireland Park. Roughly fourteen million people visit the waterfront every year. This wall will become a dominant feature of the waterfront - Toronto's potentially most important tourist destination.	The proposed length of the eastern barrier is approximately 86 metres with its northern edge about 270 metres from Ireland Park. For comparison, Hangar One is approximately 48 metres long. The north south length of the Silos is about 106 metres which, of course, is adjacent to the Park.
17	It is important when trying to understand the noise reduction value of these concrete walls that we understand the noise levels associated with the commercial aircraft traffic, at a minimum on a current per aircraft basis but preferably on a projected flight volume basis. I expressed my dismay that your acoustics expert was either not able or not willing to divulge the noise from the aircraft when asked from the floor. His answer was, to me, clearly stonewalling. Therefore, I request that the TPA publicize the range of noise levels from the operation of, for example, the Q400. The disclosure should be for different operations – take-off, landing, taxing, engine rev up prior to take-off, prop noise generated by deceleration (sorry I don't know the technical term), etc. I also request the information for different residential heights and distances from the airport. You can also show the effects of wind and cloud or state you are reporting under, for example, a no wind and clear sky situation.	One of the main objectives of Aercoustics' work was to identify the effectiveness of the proposed barriers. The reduction in sound provided by the barriers will occur irrespectively of the aircraft. If a 10 dB reduction was expected for a Q400 it would also provide a 10 dB reduction for a smaller aircraft given the same position. Actual noise monitoring was conducted as part of the Jacobs Noise Management Report and can be found at http://www.torontoport.com/reports/BBTCA-NoiseMgmtInterimReport-Feb2010.pdf
18	I understand logarithmic scales. I agree that a 10dB reduction in noise represents a reduction in sound intensity to $1/10^{th}$. In one sense that is significant as the presentation chart indicated. I also understand that combining two sounds of the same intensity results in a higher intensity than the originals. Thus, cumulative sounds add to the perceived problems experienced by residents. My point was that reducing sound 10dB from the	Human response to sound is a function of loudness which is not directly related to sound pressure levels measured by sound level meters. A 10dB change in sound level is perceived by the average person as a doubling, or halving, of the sound's loudness. A sound at 70dB would seem to be half as loud as a sound at 80dB.

	Comment	***Response***
	level of, for example, a diesel truck at 10 metres to a motorcycle at 10 metres is not enough. However, I will stand corrected if the run-up sounds we are experiencing will change, from for example 80dB to 70dB – that level would start be in the bearable range.	
19	I also would like to reiterate the unanswered question: What is the cost of this "cost effective" noise reduction initiative? Why was the answer not shared? Is the cost not known? One way or another, either tax payers or travelling citizens will have to pay. The cost of the one proposed solution must be divulged.	As mentioned in the meeting, the cost for the two acoustic walls is approximately $400,000. The cost for the earth berm Ground Run-up Enclosure has not been developed at this stage.
20	What approaches to reduce the noise have been investigated? I think I heard that there was a better solution costing about $2 million more – hardly anything compared the 10's of millions that are being proposed for improving the few minutes it takes to cross the Western Gap. The other approaches studied, in full or at a high level should be shared.	Many factors are considered during a planning exercise. One of the objectives is to develop effective solutions while achieving good value for money. Several options were considered with the proposed structures and their locations being the most suitable when considering the airport operation, effectiveness and cost.
21	Then there is the solution to some noise issues represented by sending engine maintenance to an airport in an industrial zone rather than in a residential and tourist zone.	The Port Authority undertook a comprehensive noise management study. The study identified several opportunities for reducing airport noises effectively while minimizing impacts to airport and community stakeholders. Two of these recommendations address the installation of noise barriers and ground run-up enclosure. Aircraft maintenance is a fundamental part of an airport. Engine Maintenance Run-ups are for aviation safety and considered to be any operation of aircraft engines for the purpose of assessing engine performance before, during and after maintenance and/or repairs. Depending on the type of maintenance, there are regulatory requirements for conducting a run-up. These generally involve revving the engines to high power for several minutes with thorough inspection. The BBA limits these operations to undertaken at a designated location and prohibits them between 10pm and 6:45am The environmental assessment process is a procedure to predict the

	Comment	***Response***
		environmental effects of proposed initiatives before they are carried out by identifying possible environmental effects; proposing measures to mitigate adverse effects identified; and, predicting whether there will be significant adverse environmental effects, even after the mitigation is implemented.
	Comments from Porter Airlines Inc. Billy Bishop Toronto City Airport	
22	The study indicates that typical barrier heights are 2 metres – 8 metres. I am concerned that the barrier along Delta taxiway could affect the ILS 26 glideslope beam. Have all of the barrier specifications been forwarded to Nav Canada Land Use for assessment?	All of the various proposed barriers have been reviewed by NavCanada under their Land Use process. Two locations were identified that did not impact the flight navigation systems at the airport. One along the north shore, immediately east of Runway 15 and a second one along the east shore immediately north of the Seaplane Ramp.
23	I am concerned that the proposed barrier along the eastern sea wall (behind the new small aircraft run-up pad) could affect the Tower Controllers line of sight to the MEZ – has this been assessed?	We have reviewed the east barrier with Tower personnel and only a minor segment of the MEZ might be impacted. If there visual impact was encountered then a camera on the top of the wall looking out to the MEZ would be a suitable solution.
24	What is the proposed height of the barriers along Alpha and Delta taxiways – I am concerned that if they are too high, aircraft could be affected by gusty/shifting winds during the flare to land. Are there any examples in North America where a similar noise barrier has been erected so close to the runway centreline?	Both the east and north barriers are proposed to be nominally 8 metres in height. About the same as the Firehall or Hangar 1. The north barrier, east of Runway 15 with west most point about the Holdline to Runway 15, is about 240 metres from the centre line of Runway 08/26 and about 90 metres from the threshold centre line of Runway 15.
25	I understand from TP 312 that there is a minimum allowable distance from the runway centreline to any structures on the airport surface. Is the noise barrier considered a structure and if so, can you confirm that it is compliant with TP 312?	Yes the barrier is considered a structure. The location and heights have been review and are compliant with TP 312

	Comment from Councillor McConnell letter	
26	I am writing in regards to the 12 May 2011 Environmental Assessment public meeting on proposed noise barriers and engine run-up enclosure at the Island Airport. Although I appreciate the time and effort that has gone into finding ways to mitigate the impact of aircraft noise, I am disappointed that these efforts have fallen short of their goals. The proposed barriers are limited in their size and effect, managing the noise in only a small area and only for those on the bottom five floors of the neighbouring buildings. More troubling was the cavalier attitude from the consultants, that somehow residents of the upper floors should be satisfied and simply retreat to the ground floor to receive the full benefits of the barriers. I doubt that the consultants would be as nonchalant if it was suggested that they leave their homes at certain periods of the day. I am also very concerned by the concept for the proposed run-up barrier. This berm is not sufficient to mitigate the run-up noise for those on the upper floors of our waterfront buildings, and it does nothing to buffer noise for those on the wrong side of the berm, either enjoying the water or on Hanlan's Beach. At the meeting, the consultants were asked if a hush house had been considered for engine run-ups, and the residents were told that such a structure was not an option because it would increase the project cost between $2 million and $3 million. I am very disturbed that the Board would reject maximizing the mitigation efforts due to a small increase in cost – especially after the Port Authority has spent about $5 million on a new ferry and is proposing to spend almost $40 million on a pedestrian tunnel. This prioritization does not simply weigh the value of community interests in terms of dollars, but it puts a far greater emphasis on airline passenger convenience than on the liveability in the community. I urge you and the Board to revisit the noise mitigation measures. Specifically, I strongly encourage you to invest in a hush house to properly protect the Island and waterfront residents and visitors. I also ask that you explore other options to increase the benefits of the other barriers. I believe that a greater effort needs to be demonstrated to reach out and address the legitimate needs in the immediate area of the airport.	The primary goal of the proposed noise barriers is to reduce the noise impact on the surrounding community in an effective and feasible manner. The positioning and height of the proposed barriers has taken numerous parameters and constraints into consideration to ensure compliance with safe and efficient operation of the airport. Numerous studies have concluded that there will be positive result from the installation of the proposed run-up barrier in reducing the level of sound from existing engine run-up noise source. Although not every member of the community will get the same benefit, the run-up barrier will have a distinct benefit to many. The TPA has made a concerted effort to present an option that will reduce sound disturbances while also meeting the safety and navigational regulations to operate the airport. The TPA is mandated to operate the airport in an efficient and businesslike manner which requires alternatives to be assessed for their effectiveness in comparison to their life-cycle cost.

	Comments from Stolport Corporation/Trans Capital Air Limited	
27	The barriers are too high.	The proposed height of noise barrier between 6 and 8 metres is considered to be effective and operationally feasible.
28	The façade of barriers facing the city add *asthetic degredation* to the view of the airport.	The TPA has engage a landscape architect to assist with the visual aspects of the wall.
29	Would the addition of the Sound Barriers create a 'Echo Effect' by the sounds bouncing off the Terminal/Hangar?	The proposed walls will utilize absorptive properties to reduce noise and will have some sound absorbtion properties.
30	Barrier No. 2 poses a safety issue with aircraft wing tip and tail clearance for Q400, Dash 7 and Dash 8 (100, 200, 300) airplanes.	Walls in the vicinity of aircraft maneuvering will be positioned to maintain regulatory clearance requirements.
31	The report does not reflect noise impacts from the reving engines of aircraft in a north/south position prior to taxing for the area between Hangar 1 and the Terminal (Bathurst Quay and Canada Malting Site).	The positioning and height of the proposed barriers has taken numerous parameters and constraints into consideration to ensure compliance with safe and efficient operation of the airport and to be as effective as possible.
32	The length of Barrier 1 is too short at 70 meters. The ideal length should be *82 meters* or more to be most effective. Barrier 1 is in a good location but needs to be longer. This location is the nosiest part of the Airport (Alpha Taxiway Area (1533 Runway). The TPA is putting the shortest barrier at the noisiest point.	Comment noted. The west end of wall is limited by navigation and pilot sight lines. This is regulated by Nav Canada.
33	The side of Barrier 1 facing the city should have artistic expression/appeal (mural, complimenting design, etc.).	The TPA has engage a landscape architect to assist with the visual aspects of the wall.
34	For Barrier 2, we have safety concerns for aircraft parking and taxi push-outs against the barrier for Q400, Dash 7 and Dash 8 (100,200,300) aircraft. The proposed 12ft from Seawall – could impact air plane maneouvering.	Walls in the vicinity of aircraft maneuvering will be positioned to maintain regulatory clearance requirements.
35	Could barrier 2 be installed at 6ft-8ft from the seawall or on a *Barge Installation* on the water, anchored and connected to the Seawall? The Barge Installation of the barrier would be the least obstructive to airplane maneouvring. The Barge Installation allows flexibility to adjust location for any future noise re-alignment.	Wall locations need to consider the adequacy of foundations and impact on existing structures and the environment. The placement of noise barriers in the water was not considered to be desirable for a variety of reasons. See Response 26.
36	We have concern with respect to Aircraft Wing Clearances of Barrier 2. The barrier is too high:	Walls in the vicinity of aircraft maneuvering will be positioned to maintain regulatory clearance requirements.

	Dash 7 – 4.6 meters (15') (wing); 7.98 (26'-2") meters (Tail) vs 8.5 meters (+/-27'-10 5/8") Height of Barrier C130 Herc - 4.9 meters (16') (wing); 11.7 (38'-5")meters (Tail) vs 8.5 meters (+/-27'-10 5/8") Height of Barrier Q400 Wing Height – 3.92 meters(12'-10") (wing); 7.8 meters (25'-7")(Tail) vs 8.5 meters (+/-27'-10 5/8") Height of Barrier	
37	The sound source (Q400 Engines) at rev up on East Side of terminal is reduced or minimised by Barrier 2. The sound travels between the Terminal and Hangar 1 when the planes are in position for taxing. The Bathurst Quay/Canada Malting Site is still affected.	The positioning and height of the proposed barriers has taken numerous parameters and constraints into consideration to ensure compliance with safe and efficient operation of the airport and to be as effective as possible.
38	Could the Barrier be moved at a later date Or have provisions been provided for future relocation?	Decommissioning is not anticipated at this time, but at the appropriate time in the future, decommissioning would be expected to occur in compliance with airport policies and any applicable federal regulations.
39	The line of sight for the Sea-Plane Operation is cut-off by the barrier. This reduces the customer service we are able to provide our tennants by not being able to see if a Sea-plane has landed.	The positioning and height of the proposed barriers has been reviewed with Nav Canada for impacts on visibility and navigation.
40	Regarding the Engine Run-Up facility, could this be made more durable such as a concrete structure?	The primary goal of the proposed noise barriers is to reduce the noise impact on the surrounding community in an effective and feasible manner.
41	The Berm Run-up Area should be a rigid finished base and mune not be a loose surface. Regular Maintenance of the area has to be done to avoid any such FOA damage to aircraft engines.	Comment noted.
	Comments from YQNA letter May 30	
42	It was acknowledged that residents in towers experience higher magnitudes of noise than those living at ground level due to the unobstructed pathways for the noise coming from the airport. The analysis presented for the run-up barrier cross-section as proposed does not appear to benefit the majority of the affected waterfront residents. The proposed perimeter barriers benefit towers up to a maximum of 5 storeys, whereas, full abatement of run-up 10 noise could benefit all tower residents. The reduced scale of the project does not appear to meet intentions of the recommendations.	The proposed barriers and GRE benefit the maximum number of mainland communities possible based on considerations of airport functions and the effective, safe operation of the airport. In determining the location and size of the barriers and GRE, several options were considered. One objective was to have barriers and a GRE that would be the most suitable for reducing sound levels as a result of airport activities while also considering airport operations, effectiveness and safety.

43	Can the TPA revise the run-up barrier design cross-section so that it benefits all waterfront residents, not just a minority?	Although not every member of the community will get the same benefit, the run-up barrier will have a distinct benefit to many. The TPA is mandated to operate the airport in an efficient and businesslike manner which requires alternatives to be assessed for their effectiveness in comparison to their life-cycle cost.
44	The layouts of proposed barriers do not appear to be situated to address complaints logged by Waterfront residents. A summary of noise complaints logged by residents dating back 4 years is not appended to the study. The aircraft 20 movements and locations as determined by the times given in the complaint information does not appear to have been referenced in reviewing the layouts of the proposed barrier alternatives. It appears the past concerns logged by residents from ground level to 5th storey will still not be addressed by the proposed non-continuous barrier alignments.	The barriers will not mitigate all sound generated from airport activities. The proposed barriers are the best alternative to mitigate as much sound as possible given the need to meet navigational and technical requirements set out by Nav Canada.
45	Barrier alternatives situated to address noise escaping in a northerly direction from the east site limit do not appear to have been reviewed in a fulsome manner. Eastern barrier alternatives would also be needed to protect the same residential areas from the same noise sources to be absorbed by the proposed western barrier alternatives. It appears the same residential areas protected from runway and taxiway activities by the proposed western noise barrier would still be impacted due to absence of an effective eastern barrier, undermining the success of the proposed western barrier.	There are two noise barriers proposed. One on the north side of the airport and one on the east side of the airport. These barriers represent the longest and most covering barriers that could be achieved to reduce noise experienced on the mainland based on Nav Canada reviews. Barriers could not be placed where flight navigation and sight-lines could be at risk. Furthermore, the existing buildings at the airport act as sound barriers. These barriers benefit communities in the Bathurst Quay, York Quay and Harbourfront communities.
46	Barriers alternatives located in water to protect the residents and public spaces were apparently not reviewed due to otherwise straightforward procedural issues re navigable waters or else due to costs which were not ballparked.	The placement of noise barriers in the water was not considerable to be desirable for a variety of reasons. First and foremost, the further that the barriers are removed from the source of ground side noise, the less effective they would be. There would also be significant approvals challenges including navigable waters, water recreation impacts, and fish and fish habitat impacts. The cost to do this is also expected to be significant.
47	We note that the draft Jacobs report dated Feb 2011 does not recommend perimeter noise barriers (see Recommendation No.4). The motivation for the TPA to include perimeter barriers under the Noise Barrier EA study is	The environmental screening process that the TPA is required to follow does not require the considerations or assessment of alternatives. The noise barriers proposed meet the Jacobs

	not clear given the few barrier alternatives analyzed. Given the scant volume of alternatives review information available, the optics are such that the locations of the short lengths of perimeter barriers proposed by the TPA are primarily motivated to benefit the TPA and not the waterfront residents.	recommendations in section IV (pages IV-2 and IV-3) to consider addressing sound generated from aircraft taxing and engine run-ups, which includes "implementing noise control barriers". The placement and design of the noise barriers has been influenced by the requirements of Nav Canada so that the barriers do no impeded aircraft navigation.
48	The proposed barriers appear to be situated to lower the ground level noise volumes in certain areas frequented by visitors to the Waterfront, to result in ground-level non-residents experiencing noise that would be significantly reduced from that continued to be experienced by the vast majority of Waterfront residents at higher elevations.	Bathurst Quay is the primary area that will benefit from the noise barriers; this includes benefits to residents, with the central waterfront experiencing significant reduction to ground noise from apron activity. The barriers will not benefit residents living at higher levels of taller buildings. However they are the most effective sound reduction option based on constraints and considerations of effectiveness, safety, regulations, and cost.
49	Can the TPA provide further details as to the benefits and disbenefits of all noise barrier configurations reviewed on the eastern portion of site?	The TPA considered barriers along all possible locations of the eastern edge of the airport to reduce sound impacts to mainland communities. The proposed barriers are the most extensive possible given float plane docking on the eastern edge, navigational restrictions and site line safety requirements.
50	Noise barriers generally do not block low frequencies. Can the TPA forward information as to what extent frequencies will be blocked by the proposed barriers?	The barriers will have a nominal surface density of 20kg/m2, which is the requirement for an acoustic barrier.
51	From the available information, the least costly project alternatives were presented and apparently studied in greater detail as opposed to alternatives focused on noise abatement effectiveness or cost effectiveness. Relative and absolute costs for various alternatives reviewed and proposed were not provided; verbal information was not clear. A $400,000 amount was verbally noted for all barriers. A $2M amount for an originally proposed run-up hush-house was mentioned. The costs noted are a fraction of the billions in revenues and profits to be earned through the facility over the short and long term.	As mentioned in the meeting [May 12, 2011], the cost for the two acoustic walls is approximately $400,000. The cost for the earth berm Ground Run-up Enclosure has not been developed at this stage.
52	The cost of unmitigated noise damages is being placed on the waterfront property owners and residents, including limitations to residential uses imposed by airport related activities and the associated reductions to real	The project is fully funded through the Airport Improvement Fee which is applied to each out-going commercial passenger The airport has proven itself to be an important economic generator to the City of

	property assessments.	Toronto and surrounding region. Passenger levels have increased significantly over the last five years even in the midst of a poor economic global climate. The airport existed prior to most residences on the waterfront and residences continue to develop even with the continued operation of the airport.
53	The projects do not appear to have been ballparked prior to reducing project scope. Some alternatives were eliminated early on due to cost concerns which were not ballparked.	Cost analysis is not a consideration of an environmental screening. As mentioned in the meeting [May 12, 2011], the cost for the two acoustic walls is approximately $400,000. The cost for the earth berm Ground Run-up Enclosure has not been developed at this stage.
54	The presentation graphics were hard to understand. Geographic and built form details were hard to discern. A north arrow was not included.	Comment noted. The graphics used to illustrate the effectiveness of the barriers were done for the community to show the reduction in sound those mainland communities would experience. The TPA will work to improve graphics in the future.
55	The presentation graphics showed only the theoretical percentage change in noise magnitude from the proposed airport operation with and without the proposed alternatives. Neither the horizon year being presented nor the elevation analyzed was shown. No precedent information was included for any location on the waterfront, showing either the change or the 70 increase from ambient/ pre-existing to existing noise, and from existing to future noise.	In assessing the effectiveness of the barriers this does not need to be done in relation to current or future noise levels; the reduction would be the same. The effectiveness illustrates the number of decibels that the barriers would block/absorb. Should the barriers be in place the reduction illustrated (whether it would be 4dB or 12 dB) would still result in that same reduction regardless of the baseline noise level considered at the airport and in the surrounding community.
56	The graphics left the impression that noise effects magnitudes would actually be reduced in the coloured areas, which is not correct depending on the horizon year. The increase in intensity, duration, and frequency of the noise magnitudes being reduced by the proposed alternatives was not depicted or discussed for the proposed operation for any specific horizon year.	Sound levels experienced in mainland communities from groundside aircraft activities will be reduced as a result of the noise barriers and GRE. See response 35 (above).
57	It is not clear if the increased effects of the projected airport operations were included in the presentation of noise barrier reduction benefits. It appears the changes to noise magnitudes to result from noise barriers as presented to the public for the various residential areas do not take into account the existing or projected increased airport operations. Can the TPA clarify?	Projected airport operations were not considered in assessing the effectiveness of the noise barriers and GRE. See response 35.

58	The operational noise constraints assumed in the noise barrier analyses were not provided for a given horizon year 80 e.g. a limit of 3 takeoffs and no landings in first 15 minutes of the day.	Horizon years were not considered, nor needed to demonstrate effectiveness of the barriers. See response 35.
59	The actual noise magnitudes being reduced by the alternatives were not shown. It was not clear if the changes/ reductions shown were to peak magnitudes or average noise magnitudes. The verbal presentation and responses from the residents gave the impression that peak values were to be reduced by the given percentages, though TPA has typically shown only averages. It appears the residents were left with the assumption that the overall benefits of the barriers would be better, than if the reductions were applied to the averages as typically shown by TPA. Can the TPA clarify?	A reduction is the change in the value i.e. it applies both to the peak or to the average. The effectiveness of the barriers is in the reduction of sound intensity or power. A change in power ratio by a factor of 10 is a 10 dB change. A change in power ratio by a factor of two is approximately a 3 dB change.
60	The graphics did not show the reductions to noise magnitude by frequency range. The breakdown of which specific noise frequency ranges will be reduced in magnitude by the proposed noise barriers and materials was not discussed. Noise barriers normally are not effective in blocking the low frequencies which are mainly the ones bothering the residents.	The barriers will have a nominal surface density of 20kg/m2, which is the requirement for an acoustic barrier to effectively work at lower frequencies.
61	Airport noise effects worsen during overcast conditions. The statistical impact of cloud cover impacts to noise magnitudes on a seasonal basis were not discussed. Climate change will make matters worse in coming years.	This environmental screening has been done to determine the effects of constructing and operating the noise barriers, it does not assess the airport noise effects as this is not an effect of the project. The assessment of the effectiveness of the barriers and GRE considers the effectiveness of the noise barriers if they were built. It did not, nor were we required to, assess airport noise effects as the effectiveness of the barriers would be the same regardless of the baseline noise level considered (see response 35).
62	The impact of marine environments distorting the Tripartite and other noise contours have never been discussed. These impacts have and will result in higher noise levels in certain locations than would otherwise be determined from typical modelling. This will in turn lower the anticipated reductions shown in the Noise Barrier Study at locations further removed from the source of noise generation. No information is publicly available showing how the noise contours are so influenced for various noise frequency ranges.	Noise studies completed by the TPA are available on the TPA website at www.torontoport.com
63	The use of dBA as a measurement unit is not appropriate for the very high magnitudes of noise volumes being discussed.	A reduction is the change in sound level and as such, for this specific application, the dB and dBA change are interchangeable.

64	The use of dBA as a measurement unit is not appropriate for the low noise frequency ranges of specific concern to residents.	A reduction is the change in sound level and as such, for this specific application, the dB and dBA change are interchangeable.
65	dBA is a forecasting unit to measure 'likely perceived noise effects' from a human perspective. The results to date show that this forecasting measure has been under-forecasting the noise magnitudes predicted around the island airport at all elevations, with respect to observed human reactions.	The assessment of the effectiveness of the barriers and GRE was completed using an industry standard noise modelling tool to demonstrate how sound levels would be reduced with the barriers and GRE in place.
66	The degree to which the 'very significant' existing noise effects will be addressed by the proposed mitigation/ abatement measures (noise barriers) versus the incremental future effects was not quantified separately.	See response 41.
67	Visual affects of the proposed barriers to be reviewed with City tourism staff. The enormity of the barriers will make them a significant visual presence at the Western Gap in conjunction with the Canada Malting Silos. None of the depictions shown in the report provided a full scope of visual effects.	The visual effects section of the screening report (section 5.2.5) provides visualizations of the proposed noise barriers. The City has been notified of the proposed project and given the Draft Screening Report. This was sent to the Mayor's office, local Councillors, Waterfront Secretariat, and the Community Planning department. The Waterfront Secretariat coordinates with other City departments.
68	'Cumulative effects' is normally considered as 'pre-existing' plus 'existing' plus 'projected incremental' effects from all sources including airport or not. Per Noise Barrier Study assessment information, residents are currently experiencing 'very significant' cumulative noise effects from the airport prior to the design of the noise barriers.	Comment noted. The consideration of cumulative effects requires that there must first be an effect resulting from the Project. Where there are Project effects, the screening includes consideration of such effects in combination with the effects of other applicable projects and activities to determine whether there would be cumulative effects. The Project has minor effects during construction of the barriers which will be mitigated. There are no operational effects of the project and thus there would be no cumulative effects.
69	Based on presentation information concerning noise change effects of the proposed alternatives, the cumulative noise effects described as 'very significant' are currently being experienced by residents i.e. the difference between existing noise levels when compared to ambient or pre-existing is very significant. This information was not disclosed during past planning processes	The screening assessment does not describe cumulative noise effects as 'very significant'. This screening addresses the effects of the proposed Project (the noise barriers). We are unclear about you comment on "previous planning processes".
70	The future projected incremental noise effects generated by the airport will have a higher duration, intensity and frequency of occurrence than previously experienced to date. The incremental increases in projected operational noise effects magnitude, relative to existing effects, have not	See response 41 and response 48.

	been clearly or explicitly shown and do not appear to have been included in the cumulative effects assessment.	
71	It is not clear from any documentation to date that the proposed solutions can address the cumulative effects, as experienced today and in the future at any elevation.	The barriers will reduce sound levels experienced by mainland communities as a result of the airport. The barriers will not reduce all sound levels for all residents but will address as much as possible given the constraints of navigation and safe operation of the airport.
72	Absolute magnitudes of noise at critical receptor locations along the waterfront were not shown for various horizon years. This includes a comparison of past and projected cumulative noise levels for the 1983, 2001, 2005, 2010, '202 slot' and 'post-tunnel' horizon years.	This is not a requirement of the screening. Should the community like this to be done it should be requested and discussed with the TPA outside of this screening process.
73	The community is concerned that the absolute magnitudes of the existing and projected future noise as received by residents have not been documented. Can the TPA forward this information? Does the TPA acknowledge that this is the first step in confirming both magnitude and significance of 'cumulative effects' for any EA project?	Actual noise monitoring was conducted as part of the Jacobs Noise Management Report and can be found at http://www.torontoport.com/reports/BBTCA-NoiseMgmtInterimReport-Feb2010.pdf. Another noise study of current and future (2016) conditions was completed in 2010 by RWDI. The results of which are available at: http://www.torontoport.com/EAforms/BBTCA_Noise_Assessment.pdf Regarding cumulative effects, see response 48.
74	Given the existing high magnitude of airport noise effects to be mitigated by noise barriers, can the TPA forward future assumed noise data together with location plan, documenting future conditions, and include this in a large appendix to a revision to the draft Noise Barrier report?	Future noise conditions were document in the 2010 RWDI report (see response 53). The location plan of the noise barriers and GRE are available in the Environmental Screening report, section 1.3, figure 1.
75	Given the vague presentation of noise change effects shown under the draft Noise Barrier Study, can the TPA forward a plan showing the grid tick of future noise volumes as interpolated from modelled data for the various elevations?	See response 54. Unsure as to what "grid tick" is referring to. (*Aercoustics?)* The May 12 presentation provided as series of visuals illustrating the reductions in noise as a result of the barriers and GRE. These are available in Appendix A.
76	Normally, a report such as the Noise Barrier Study would be prepared in response to the detailed work compiled under an overall comprehensive airport noise study. A comprehensive study of noise regarding the Island Airport does not yet exist. (There does currently exist a draft report prepared by Jacobs Consultancy dated Feb 2010 which is not of appropriate	Comment noted. The responses here pertain to the noise barrier screening which has been completed in accordance with the CPA EA Regulations. Comments regarding other studies should be raised with the TPA separately.

	scope for Toronto's waterfront and contains significant technical gaps forwarded to the TPA in Feb 2010 which remain unacknowledged.)	
77	The operational limitations of the airport site with respect to community noise have never been studied by any federal agency to date.	Comment noted. The Tripartite Agreement governs the operation of the airport.
78	There is no available documentation summarizing community concerns in engineering terms.	Not sure what this refers to. The final design and engineering plan for the noise barriers and GRE would be completed if the screening is approved and the TPA decides to proceed with the project.
79	Cumulative noise effects surrounding airport remain unknown to any stakeholder including the TPA, for pre-existing, existing, future horizon years e.g. noise magnitudes and noise frequencies, intensity, frequency, and 150 duration of discharges etc. are not quantified or summarized.	See response 41, response 48 and response 52.
80	No complete record of pre-existing and existing noise levels for specific monitoring locations has been compiled.	Not sure what is meant by recording pre-existing noise levels. Existing noise levels have been recorded for specific mainland locations. See response 53.
81	It is not possible to trace the effects or changes with respect to noise effects anticipated in the Tripartite Agreement through to the analyses presented to date.	The question raised in this comment is unclear to us. The airport operates in compliance with the Tripartite Agreement.
82	It is not evident in the 1983Tripartite Agreement if future noise monitoring would only be done at ground elevation. The construction of the noise barriers without pre-existing or existing ground level noise data will permanently alter the administration of the Agreement, possibly necessitating signed approvals in perpetuity from designated buildings for the TPA to access rooftops in order to collect data which has never yet been collected. We are unaware that the TPA has commenced this process. It is possible that some buildings will be reluctant to grant permission for noise collection to avoid perceptions in the real estate market place that there are noise problems being experienced. This could lead to an incomplete noise effects for future monitoring around the waterfront.	The Tripartite Agreement noise restrictions relate to in-air aircraft noise only. The limits are defined by the NEF contours. There are no limits with respect to ground based aircraft noise sources/levels. Existing ground level noise has been monitored. See response 53 for the documentation on existing noise levels. The assessment of the noise barriers and GRE shows that if the barriers were in place, existing sound levels would be reduced by up to 12 dB in some areas. The sound level reductions were illustrated for the May 12 presentation and are available in Appendix A.
83	Precedent Study Issues: The Noise Barrier EA Study appears to rely on the results of the following precedent documentation. Please advise if there are any other precedent documents on which the noise barrier study is relying.	The noise barriers and GRE environmental screening references data and information from the following: - Canada Port Authority Environmental Assessment Regulations (CPA EA Regulations) - Canadian Environmental Assessment Act

	Draft Noise Management Study by Jacobs Consultancy dated Feb 2010 *Tripartite Agreement dated 1983* There remain an accumulating list of concerns not yet responded to by the TPA regarding the above precedent documents and noise management in general. A sampling of these previously forwarded concerns have been selected below as they relate to the Noise Barrier study. The TPA has issued reports over the past year which vaguely discuss noise matters along the Waterfront. Each report contains several unacknowledged, unaddressed, and unresolved community concerns, most of which could otherwise be anticipated. The reports also contain unique sets of technical concerns and gaps which have material effect on the outcomes of the reports. The TPA has not responded to date to requests by the community for more fulsome documentation or discussion concerning the specifics contained and not contained in the noise reports it has prepared to date.	- Noise Management Study by Jacobs Consultancy, February 2010 - Tripartite Agreement, 1983 - Air Quality Study by RWDI, 2010 - Environmental Screening for the Proposed Pedestrian/Services Tunnel and Perimeter Project, the TPA, March 2011 - Factual Data Report on Supplementary Geotechnical and Hydrogeological Investigation by SPL Consultants Limited, February 2011 - Moving Forward: 2007 RAP Progress Report by Toronto Remedial Action Plan and Aquatic Habitat Toronto, 2009 - Data from the Ministry of Natural Resources, Department of Fisheries and Oceans, Conservation Ontario, and the Toronto and Region Conservation Authority for fish and aquatic habitats - Data from the Ministry of the Environment's Ambient Air Quality Criteria and guidelines - Data from the Department of Indian and Northern Affairs and from the *Toronto Purchase and Brant Tract Specific Claim Settlement Agreement and Trust Agreement* - The Archaeological Master Plan for the Central Waterfront by the City of Toronto, 2003 - NAV Canada review and input regarding the proposed noise barriers and GRE Comments regarding other studies and outstanding concerns of the community need to be discussed separately with the TPA. This screening was completed for the noise barriers and GRE using data from published documents and government agencies.

Comments submitted regarding other studies have not been presented or addressed here. This comment-response table addresses the questions and comments regarding the Noise Barriers and GRE Environmental Screening. Questions regarding other studies should be brought up with the TPA separately. The TPA has established a Community Consultative Committee to discuss matters pertaining to the airport and that committee would be an excellent place for comments and questions regarding other studies to be posed.

APPENDIX B

SUMMARY TABLE OF ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
Biophysical Environment				
Noise	<u>Construction</u> Drilling/vibratory pile-driving of the columns for the noise barriers and use of construction equipment would result in temporary noise effects. Grader and/or front end loader to create GRE may result in noise effects. <u>Operation</u> No effects that would require or benefit from mitigation.	Contractors will be required by the TPA to minimize noise from machinery and construction activities, keep the idling of construction equipment to a minimum, and maintain equipment in good working order, with effective muffling devices. Construction to be completed as quickly as possible to limit disturbances. The TPA should establish a monitoring, reporting and response program to deal with all aspects of construction, including complaints regarding noise. Not required	Minimal None	Noise effects during the construction period will be temporary and mitigation measures to reduce noise levels are expected to be effective. Effects are not expected to be significant. None
Air Quality	<u>Construction</u> During construction increases in machinery emissions and dust could impact residences and businesses located in the vicinity of the Project.	Standard mitigation options to reduce dust levels include: • Use well-maintained equipment and machinery, preferably where feasible, fitted with muffler/exhaust system baffles and engine covers; • Comply with operating specifications for equipment and machinery; • Minimize operation and idling of gas-powered equipment and	Minimal	Air quality effects (dust, exhaust) during the construction period will be temporary, localized and mitigation measures to reduce dust levels are expected to be effective. Effects are not expected to be significant.

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
		vehicles, in particular, during smog advisories; • Minimize vehicular traffic on exposed soils; • Avoid drilling/vibratory pile-driving and other construction activities that will release airborne particulates during windy and prolonged dry periods; • Cover or otherwise contain stock piled soil for the GRE berm and any loose construction materials that will release airborne particulates during transport, installation or removal; • Spray water to manage the release of dust from gravel, paved areas and exposed soils. Use chemical dust suppressants only where necessary; and • Restore disturbed areas as soon as feasible to minimize the duration of soil exposure.		
	<u>Operation</u> No effects	Not required	None	None
Groundwater	<u>Construction</u> Potential for some minimal infiltration of groundwater during construction of noise barriers. Potential for contamination of groundwater resulting from spills during construction.	Construction plans and methods would monitor groundwater and minimize that amount of groundwater infiltration. Standard construction practices (e.g. defined fuel storage locations, spill control devices available on-site) would be	Minimal	It is expected groundwater supplies would not be significantly impacted given the expected relatively minor amount of infiltration (low magnitude of effect). Significant environmental effects are not expected.

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
		implemented to minimize effects from spills. In the event of a spill, it would be properly managed through the contractors spill contingency plans.		
	<u>Operation</u> No affects from Noise Barriers that would require or benefit from mitigation. Potential for operation of the GRE to effect groundwater due to potential oil and fuel drippings from aircrafts during run-ups.	Not Required The GRE would include a surface water management system that would collect water in the GRE (from rainfall or maintenance/cleaning) in a catchment which could be pumped out and properly disposed of. The system may include an oil separation/ filtering system to separate out potential oils and fuels.	Minimal	The surface and groundwater management system planned for the GRE would prevent contamination of groundwater from engine run-ups during the use of the GRE. Significant environmental effects are not expected.
Surface Water	<u>Construction</u> Exposed soil during the construction period could result in increased sediment transport/deposition into the storm sewer system, channel and surrounding water body of the Island during storm events. Spills of hazardous construction materials (e.g.	Surface water Best Management Practices would be put in place to prevent/reduce sediment loadings in channel/water bodies and storm sewer system. These include controlling runoff, putting down silt fences where required, appropriately storing stock-piled materials, following guidance documents, and minimizing time exposure of unvegetated soils. Standard construction practices (e.g. defined fuel storage	Minimal	Mitigation measures would be effective and would minimize effects on surface water quality during the construction period. Construction effects would be short-term and of low magnitude.

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
	fuels, hydraulic fluids) could affect surface water quality.	locations, spill control devices available on-site) would be implemented to minimize effects from spills. In the event of a spill, it would be properly managed through the contractors spill contingency plans.		
	<u>Operation</u> Increase in impermeable surfaces from the paved GRE and taxi-way extension would reduce groundwater infiltration rates, which could contribute to an increased concentration of surface flows and result in potential for contamination from aircraft use of this facility.	The taxi-way extension and paved pad inside the GRE would be slightly above the surrounding grade. Cross culverts would be installed at appropriate locations to allow the transfer of surface water run-off from the upstream side (closer to the runways) to the downstream side (closer to the lake). Grassed ditches would be required in sections along the upstream side to collect water in advance of the cross culverts. The stormwater management system would convey runoff from the taxi-way/GRE to appropriate surrounding catchments, ditches and drainage swales. The surface water management system would also include an oil filtration system for potential drips from airplane engines. The oil separation would allow for maintained surface water quality.	Minimal	Mitigation measures would be effective and would minimize effects on surface water quality during operations. No significant surface water effects are expected.

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
Soils and Sediments	<u>Construction</u> Grading and soil berm shaping for the GRE and drilling/vibratory pile driving for noise barriers has the potential for erosion and sedimentation entering surrounding water bodies (Lake Ontario). Soils could potentially be impacted through the improper handling of fuel and oil for construction equipment. <u>Operation</u> Potential for sedimentation and/or erosion during precipitation events; previously addressed in the Surface Water operations section.	Mitigation to minimize erosion is addressed under the Surface Water component. A fuel management/clean-up contingency plan, as referenced under the Groundwater section, should be implemented. Mitigation to minimize sedimentation/erosion is addressed under the Surface Water component.	Minimal Minimal	See Surface Water and Groundwater components. No significant adverse environmental effects would be expected with mitigation measures in place. See Surface Water operations section. No significant adverse environmental effects would be expected with mitigation measures in place.
Terrain and Topography	<u>Construction</u> Minimal terrain alteration during the construction of the paved areas of the GRE, and associated taxi-way/ runway extension. <u>Operation</u> No effects that would require or benefit from mitigation.	Terrain alteration would be kept low and consistent with existing paved runways at the BBTCA. Not required	None None	None None

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
Vegetation and Wildlife	<u>Construction</u> The construction of the Project would have minor localized impacts on vegetation but would not result in the removal of any natural vegetation. Wildlife and wildlife habitat would not be affected. <u>Operation</u> No effects that would require or benefit from mitigation.	Noise barriers would be located on existing paved and set-back from the water. Paved areas of the GRE and associated taxi-way/runway extension would be on lands that are currently maintained grass and set back from natural vegetation and wildlife areas. Seeding of construction areas would occur where required. Not Required	None None	None (*The loss of some maintained grassed areas at the BBTCA property is not considered to be significant.)* None
Migratory Birds	<u>Construction</u> There is no migratory bird habitat in the construction areas. Construction sites are unlikely to host nesting birds in the breeding season, and it is expected that there would not be adverse effects on breeding birds. <u>Operation</u> No effects anticipated as the area is not habitable for migratory birds.	Not required For precaution, the noise barriers would include design elements so that there would be no potential for bird nesting opportunities on them.	None None	None None
Fish and Fish Habitat	<u>Construction</u> Fish habitat would not be removed as a result of the Project. Fish habitat has the potential to be affected by	As outlined in the Surface Water section, erosion and sediment control measures could be used during construction to protect	Minimal	As outlined in the Surface Water section, mitigation measures would be in place for run off/sedimentation from near shore construction. Therefore no

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
	runoff/sedimentation from near shore construction activity which could raise turbidity and have effects on fish and fish habitat.	water quality and fish habitat in the Channel/Lake Ontario. The construction areas for the noise barriers would be set back 2 to 3 metres from the dock wall, the GRE would be set back 150 metres for the water's edge.		significant adverse environmental effects to fish and fish habitat would be expected with those mitigation measures in place.
	<u>Operation</u> No effects that would require or benefit from mitigation.	Not required	None	None
SOCIAL & ECONOMIC				
Economic and Business Activity	<u>Construction</u> During the construction period, it is unlikely that businesses in the area would be negatively affected. Access to the BBTCA would be maintained – Island based businesses would not be affected.	Not required beyond measures to manage/minimize nuisance-type noise and air quality effects in the local area.	Minimal	None
	<u>Operation</u> No effects that would require or benefit from mitigation.	Not required	None	None
Aboriginal Use of Traditional Lands/ Resources	<u>Construction</u> No effects to First Nations traditional use of lands/resources.	None	None	None
	<u>Operation</u> No effects expected		None	None

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
Heritage and Archaeo-logical Features	<u>Construction</u> Effects on heritage and archaeological resources are not expected. <u>Operation</u> No effects that would require or benefit from mitigation.	In the unlikely event that archaeological features are discovered during construction, standard procedures should be followed to protect cultural resources. Not Required	None None	None None
Land Use	<u>Construction</u> The Project would not affect land uses, including planned land development activity. Storage of machinery for construction may utilize minimal paved area (potentially a few parking spaces taken up) at the BBTCA. <u>Operation</u> No effects that would require or benefit from mitigation.	Potential parking spaces used for construction activity would be minimal and temporary. None	Minimal None	None None
Social and Visual	<u>Construction</u> Potential effects on social features (outdoor activities) as a result of Project construction could include noise during pile driving and air quality construction effects. This would be during a short duration and temporary.	Mitigation measure for noise and air quality effects are presented in the Noise and Air Quality sections.	Minimal	There would be no significant social effects as a result of the construction and operation of the Project. Noise and air quality could be affected during construction which may impact social conditions on the mainland. These would be mitigated to the full extent possible and be temporary in nature. Refer to the Noise and Air Quality sections for more information. With the

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
	Noise barriers construction would impact visual conditions of the airport from the mainland. The construction activities would be temporary and the visual disturbance is anticipated to be minimal.			mitigation measures in place, effects are not expected to be significant.
	<u>Operation</u> The proposed location of the GRE is minimally visible from the mainland and located where current airport operations (runways) already exist. The GRE would be consistent with airport facilities. No operational visual effects are expected with the GRE. The noise barriers would obstruct some views from the mainland of the Airport and some mature vegetation at the Toronto Islands, including the woodlot at Hanlon's Point.	To minimize visual effects, the noise barriers would be designed in a manner that is architecturally pleasing. This could include neutral panel colours or the appearance of vegetation on the panels and staggered heights across the tops of the panels (to a maximum height of 8.5 metres) to break-up the appearance of a wall. The lighting would be consistent with the current navigation lights at the BBTCA and would be kept to a minimum so as to not disturb communities on the north side of the Western Channel. The detailed design of the barriers would include consideration of visual effects (lighting and materials) and may be reviewed with members of the local mainland communities.	Minimal	The noise barriers would result in some changes to views of the Island/BBTCA from the mainland. The barrier walls would be designed in a manner to make them aesthetically pleasing as much as possible. Given the nature of the existing views (the BBTCA), the addition of the noise barriers is not considered to be a significant change to the visual character of the area. The GRE is not to result in any significant visual effects.

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
Transportation & Navigation	<u>Construction</u> There is potential for minimal impacts on existing air, automobile, boat or pedestrian (airport staff) transportation patterns. Construction of the Project would occur in coordination with BBTCA management to ensure that airport operations (including airplane traffic, take-offs and landings) and, mainland traffic, and ferry operations are not affected. Construction works would be conducted on land and would not result in obstruction to boat traffic. <u>Operation</u> The barriers and GRE would not impede navigational requirements for safe airport operations. Site lines for the safe operation of water vessels would be maintained. The Project would operate in compliance with NAV Canada requirements and would not limit transportation or navigation.	The delivery of materials and equipment for construction would be done via the existing ferry from the foot of Eireann Quay. To address potential minor delays in ferry operations, it is recommended that the TPA establish a process through which complaints about any transportation effects from the Project (although not expected) may be filed and appropriately addressed by the TPA. Navigation lighting would be established on the noise barriers.	Minimal None	Minor delays to transportation in order to get construction materials and equipment to the construction areas are not considered to result in significant effects; delays would be temporary. None
Human Health	<u>Construction</u> Noise and air quality impacts on nearby residential areas during the construction period of the Project may occur.	Air quality impacts would be minimized by the use of mitigation measures as previously described under the Air Quality section.	Minimal	Given that mitigation measures are expected to be effective and that the effects would be temporary, air quality and noise effects on human health

NOISE BARRIERS AND GRE – ADVERSE ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES				
Environmental Component	**Description of Environmental Effects**	**Description of Recommended Mitigation Measures**	**Likelihood of Residual Effects**	**Significance of Residual Effects**
	While some noise disturbance effects are possible, the levels would not be significant enough to result in human health effects.	Through the use of these mitigation measures, effects would be minimized.		during construction are not expected to be significant.
	<u>Operations</u> There would be no negative effects on human health from the operation of the barriers. The noise barriers and GRE would reduce noise effects on the mainland communities and therefore result in positive effects for residents and visitors. The use of the GRE could present possible safety issues for staff using the GRE.	The use of the GRE would be done in compliance with the BBTCA's health and safety procedures at the airport to limit any potential safety issues for staff and pilots using the GRE.	None	None