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Section 7.0 Monitoring & Commitments for the Undertaking

To ensure that the proposed mitigation measures set out in **Section 5.0** address predicted effects for each discipline, monitoring strategies were developed so that any respective environmental effects can be monitored during construction, operation and maintenance of the vertical expansion of the landfill.

7.1 Environmental Effects Monitoring

Monitoring strategies have been developed for the Preferred Alternative to ensure that:

- Predicted net effects are not exceeded
- Unexpected negative effects are addressed
- Predicted mitigation effects are realized

Table 7.1 below summarizes the potential effects and the proposed monitoring by discipline for the Preferred Alternative.

Table 7.1 Proposed Monitoring

Discipline	Proposed Monitoring
Air Quality & Odour	Daily odour monitoring
	Landfill gas monitoring (gas probes)
Noise	Routine landfill equipment monitoring
Geology & Hydrogeology	Groundwater monitoring
	Leachate monitoring
Surface Water Resources	Surface water monitoring
Land Use	Monitor all major policy reviews (i.e., Official Plan)
Natural Environment	Fencing maintenance – silt fencing for wetland, perimeter fencing for wildlife
	Annual monitoring of wetland for duration of landfill operation

7.1.1 Air Quality & Odour Monitoring

Daily Odour Monitoring

Monitoring of odour on-Site is conducted and documented daily by Brooks Road Environmental staff. This includes observation of weather conditions; wind speed and direction; site operating conditions; odour type and smell (if present); and documentation of any odour complaints received.

Landfill Gas Monitoring

The monitoring network currently consists of six gas probes (nested) installed in three on-Site locations (two gas probes per nest). An additional pair of gas probes will be installed adjacent to the leachate treatment facility following commissioning. Landfill gas monitoring activities are to be conducted monthly from December 1 to April 30 and on a quarterly basis from May through November.

7.1.2 Noise Monitoring

Landfill equipment will be routinely monitored to ensure it is performing within acceptable noise limits. As all residential dwellings are below the 55 dBA noise limit, no additional annual monitoring is recommended.

7.1.3 Geology & Hydrogeology Monitoring

Groundwater Monitoring

The existing groundwater monitoring program will continue and consists of both hydraulic monitoring and water quality monitoring at a network of 29 monitoring wells (21 on-Site and 8 off-Site wells) as shown in **Figure 4.9**. Hydraulic and groundwater quality monitoring are scheduled to take place in May, July, and November. Groundwater levels will continue to be measured at all monitoring locations, when possible, at the time of sample collection. **Table 7.2** summarizes the groundwater monitoring program and includes the monitoring frequency, parameter list, and unit monitored for each groundwater monitoring location. **Table 7.3** outlines the specific analytical parameters to be sampled as part of the monitoring program outlined in **Table 7.2.**

Table 7.2 Groundwater and Surface Water Monitoring Program

	Location	March	May	July	August	November	Unit Monitored
Groundwater [1]	OW1A-06		A	B		A	Basal overburden
	OW1B-06		A	B		A	Shallow overburden
	OW3A-13		A	B		A	Basal overburden
	OW3B-13		A	B		A	Shallow overburden
	OW5A-06		A	B		A	Basal overburden
	OW5B-06		A	B		A	Shallow overburden
	OW8A-06		A	B		A	Basal overburden
	OW8B-06		A	B		A	Shallow overburden
	OW8D-07 (Gypsum Mine)			B			Bedrock
	OW8S-07 (Gypsum Mine)			B			Bedrock
	OW9A-06		A	B		A	Basal overburden
	OW9B-06		A	B		A	Shallow overburden
	MW1-03		A	B		A	Shallow overburden
	MW1A-13		A	B		A	Basal overburden
	MW1B-13		A	B		A	Shallow overburden
	MW1D-07 (Gypsum Mine)			B			Bedrock
	MW1S-07 (Gypsum Mine)			B			Bedrock
	MW2-03		A	B		A	Shallow overburden
	MW2A-01		A	B		A	Basal overburden
	MW2B-07		A	B		A	Shallow overburden
	MW2C-01						Intermediate overburden
	MW2D-07 (Gypsum Mine)			B			Bedrock
	MW2S-07 (Gypsum Mine)			B			Bedrock
	MW3-03		A	B		A	Shallow overburden
	MW4A-09		A	B		A	Basal overburden
	MW5A-09		A	B		A	Basal overburden

	Location	March	May	July	August	November	Unit Monitored
	MW5B-09		A	B		A	Shallow overburden
	MW6A-07		A	B		A	Basal overburden
	MW6B-07		A	B		A	Shallow overburden
	MW7D (Not Installed)						Bedrock
	MW7S (Not Installed)						Bedrock
Surface Water (2)	SW1	C	B		C	B	Surface Water
	SW3	C	B		C	B	Surface Water
	SW4	C	B		C	B	Surface Water
	SW5	C	B		C	B	Surface Water
	SW6	C	B		C	B	Surface Water
	SW7	C	B		C	B	Surface Water
	SW8	C	B		C	B	Surface Water
LCS	Leachate Collection System			B			Leachate
TDS	TDS Pond/ Interim Stormwater Management System (ISWMS)/ Primary Stormwater Management System (PSWMS) Sampling(3)	D	D		D	D	
QA/QC	Groundwater Duplicate		A	B		A	
	Surface Water Duplicate	C	B		C	B	
	Field Blank	C	B	B	C	B	

Notes:

(1) Groundwater levels will be measured at all monitoring wells during the May, July and November sampling events

(2) Surface water levels and flows will be measured during all surface water sampling events at all surface water locations

(3) List E – Trigger parameter samples are collected and reviewed prior to discharging water from the TDS Pond

List A: Indicator parameters (groundwater) (see **Table 7.3**)

List B: Inorganic chemistry, metals, PAHs, VOCs (see **Table 7.3**)

List C: Indicator parameters (surface water) (see **Table 7.3**)

List D: TDS Pond/ISWMS/PSWMS quarterly parameters (see **Table 7.3**)

Table 7.3 List of Parameters to be Analysed – Groundwater and Surface Water Monitoring Program

List	Description	Parameters
A	Indicator Parameters (groundwater)	alkalinity, ammonia, barium, boron, calcium, chloride, conductivity, iron, magnesium, nitrate, pH, sodium, TDS, sulphate, COD, DOC, turbidity
B	Inorganic Chemistry	alkalinity, ammonia, hardness, nitrate, nitrite, TKN, chloride, sulfate, DOC, TDS, suspended solids, phenol, BOD5, COD, pH, total phosphorus, conductivity, turbidity
B	Metals	arsenic, barium, beryllium, boron, cadmium, total chromium, copper, iron, lead, magnesium, manganese, mercury, silver, sodium, zinc, vanadium, thallium, molybdenum, cobalt, nickel, potassium, calcium, aluminum
B	PAHs	naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(j)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(ghi)perylene
B	VOCs	chloromethane, vinyl chloride, bromomethane, chloroethane, trichlorofluoromethane, acetone, 1,1-dichloroethene, dichloromethane, trans-1,2-dichloroethene, methyl-t-butyl ether, 1,1-dichloroethane, methyl ethyl ketone, cis-1,2-dichloroethene, chloroform, 1,2-dichloroethane, 1,1,1-trichloroethane, carbon tetrachloride, benzene, 1,2-dichloropropane, trichloroethene, bromodichloromethane, cis-1,3-dichloropropene, methyl isobutyl ketone, trans-1,3-dichloropropene, 1,1,2-trichloroethane, toluene, 2-hexanone, dibromochloromethane, 1,2-dibromoethane, tetrachloroethene, 1,1,1,2-tetrachloroethane, chlorobenzene, ethylbenzene, m,p,o-xylenes, bromoform, styrene, 1,1,2,2-tetrachloroethane, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,2-dichlorobenzene
C	Indicator Parameters (surface water)	alkalinity, ammonia, chloride, conductivity, iron, nitrate, nitrite, TKN, pH, total phosphorus, TDS, suspended solids, sulphate, BOD5, COD, phenol, turbidity, temperature (field), and dissolved oxygen (field)
D1	TDS Pond Quarterly Parameters	Gen Chem: alkalinity, conductivity, hardness, pH, chloride, sulphate, nitrite, nitrate, ammonia, TSS, TDS, COD, total phosphorus, TKN, BOD_5, phenols Metals: arsenic, barium, boron, cadmium, chromium, copper, iron, lead, mercury, zinc Organics: ethylbenzene, naphthalene, benzo(a)pyrene Field Parameters: conductivity, dissolved oxygen, pH, temperature
D2	ISWMS and PSWMS Stormwater Monitoring Parameters	Gen Chem: alkalinity, conductivity, hardness, pH, chloride, sulphate, nitrite, nitrate, total ammonia as nitrogen, TSS, TDS, COD, total phosphorus, TKN, BOD_5, phenols Metals: arsenic, barium, boron, cadmium, chromium, copper, iron, lead, mercury, zinc Organics: benzo(a)pyrene, ethylbenzene, naphthalene Field Parameters: conductivity, dissolved oxygen, pH, temperature

List	Description	Parameters
E1	TDS Pond Trigger Parameters	Gen Chem: total suspended solids, pH
E2	ISWMS Pond Trigger Parameters	Gen Chem: total suspended solids, pH
E3	PSWMS Pond Trigger Parameters	Gen Chem: un-ionized ammonia, pH Metals: arsenic, boron
F	ISWMS Trigger Parameters	Gen Chem: TSS, pH, un-ionized ammonia, iron, total phosphorus, zinc, boron, toluene, fluorene, napthaleneField Parameters: conductivity, dissolved oxygen, pH, temperature
F	Leachate Treatment Facility (LTF) - Effluent Objective Parameters	Gen Chem: CBOD5, total suspended solids, total ammonia nitrogen, total phosphorus, phenols Metals: zinc Organics: ethylbenzene
F	LTF - Effluent Limits Parameters	Gen Chem: CBOD5, total suspended solids, total ammonia nitrogen, total phosphorus, pH Toxicity: daphnia magna, rainbow trout
E	Leachate Storage Tank Monthly Parameters	Gen Chem: CBOD5, total suspended solids, total ammonia as nitrogen, total phosphorous, pH, phenols Metals: zinc Organics: ethylbenzene
E	Leachate Storage Tank Quarterly Parameters	Gen Chem: chlorides, nitrate as nitrogen Metals: arsenic, barium, boron, chromium, copper, iron, lead Organics: benzo(a)pyrene, napthalene, benzene, toluene
E	LTF - Effluent Monitoring Parameters	Gen Chem: CBOD5, total suspended solids, total ammonia as nitrogen, total phosphorus, pH, phenols Metals: zinc, arsenic, barium, boron, chromium, copper, iron, lead Organics: ethylbenzene, benzo(a)pyrene, napthalene, benzene, toluene Toxicity: rainbow trout, daphnia magna
	Leachate Storage Tank Parameters	Gen Chem: alkalinity, conductivity, hardness, pH, chloride, sulphate, nitrite, nitrate, ammonia, TSS, TDS, COD, total phosphorus, TKN, BOD5, DOC, phenols Metals: arsenic, barium, boron, cadmium, chromium, copper, iron, lead, mercury, zinc Organics: 1,4-dichlorobezene, benzene, dibromomethane, ethylbenzene, toluene, vinyl chloride, benzo(a)pyrene, naphthalene Field Parameters: conductivity, dissolved oxygen, pH, temperature

Leachate Monitoring

The existing leachate monitoring program at the Site includes leachate quality monitoring. Leachate quality samples are currently collected directly from the leachate collection system. Leachate hydraulic monitoring will commence upon commissioning of the new leachate treatment facility. As part of Site development and progressive closure, leachate monitoring wells will be installed within the waste mound so that further leachate characterization and hydraulic monitoring can be accomplished.

Leachate quality monitoring will be conducted in accordance with the ECA. Leachate samples are currently collected from the leachate collection system on an annual basis in July and are analyzed for inorganic chemistry parameters, metals, PAHs, and VOCs

7.1.4 Surface Water Resources Monitoring

Surface water monitoring will continue to include both water quality monitoring and surface water flow measurements. The surface water monitoring network currently consists of seven surface water monitoring stations (two on-Site and five off-Site), **as shown in Figure 4.14**, and these stations will be maintained. An eighth monitoring station (SW-2) will be added following the construction of the on-Site stormwater management pond. The following provides a brief description of each surface water monitoring station:

- SW-1 is located at the culvert on the west-side of Brooks Road approximately 265 m north of the intersection of Brooks Road and the former railway (north of the site).
- SW-2 has not been established to date. SW-2 will be located on Site at the outlet from the on-Site stormwater management pond.
- SW-3 is located downstream of the southwest corner of the Site in the drainage ditch located on the east side of Brooks Road.
- SW-4 is located at the upstream end at the double culvert beneath Highway No. 3, approximately 200 m east of the intersection of Brooks Road and Highway No. 3.
- SW-5 is located in an existing pond located in the southeastern portion of the Site. This portion of the Site including the pond will be maintained "as is", i.e., it will be excluded from the Site development activities.
- SW-6 is located in an off-Site pond located approximately 30 m south of the Site. During heavy storm events and/or during spring snow melt, this pond may be hydraulically connected to the on-Site pond monitored at SW-5.
- SW-7 is located in an off-Site pond approximately 24 m south of the Site and approximately 130 m west of SW6 monitoring location. This pond does not appear to receive surface water run-off from the Site.
- SW-8 is located in an off-Site pond approximately 230 m south of the Site and approximately 310 m east of Brooks Road. This pond is not hydraulically connected to the Site and, due to its distance from the Site and Brooks Road, water quality in this pond is

considered as a background for assessing surface water quality on and in the vicinity of the Site.

Water quality monitoring and surface water flow measurements at all of the current seven surface water stations will take place on a quarterly basis in March, May, August, and November. The measurements are also correlated with rain fall events. As such, the John C. Munro Hamilton International Airport in Mount Hope, ON (Hamilton Airport), located approximately 24 km to the north, is often used to schedule surface water monitoring events.

A summary of the surface water monitoring program is included in **Table 7.2**.

7.1.5 Land Use Monitoring

From a land use perspective, the primary concern would be to ensure that new sensitive land uses are not established within 500 m of the landfill site. As described in the Haldimand County Official Plan (2009), when a development is proposed within 500 m of either a former or existing site for waste disposal purposes, in addition to other pertinent policies, the following is to occur:

- The appropriate agencies shall be consulted regarding actions necessary to identify and mitigate any potential adverse environmental affects.
- A study may be required by the proponent to provide information on soil and groundwater quality; potential human health concerns such as noise, odour, traffic and dust; potential for the rehabilitation of the development site where necessary to meet appropriate Federal, Provincial and County standards; procedures and timing of site rehabilitation where necessary; the possibility of on-site soil rehabilitation of contaminated sites rather than the removal of contaminated soil; and test for leachate and/or combustible gas migration.

New development within 30 m of a non-operating waste disposal site shall generally be discouraged, according to the Official Plan.

The policies in the County's Official Plan may be sufficient to prevent approval of such uses; however, Brooks Road will be proactive in ensuring that any development proposals in the area will not impact negatively on their operations. Monitoring of any changes in plans and by-laws will be undertaken on a regular basis to ensure that any related to waste disposal operations are not overlooked.

As noted in **Section 4.5.2**, restrictions and controls on land use in the vicinity of operating and non-operating landfills are described in the MOECC's Guideline D-4[1]. The Ministry will normally recommend against proposals for sensitive land use adjacent to operating landfills. No land use

[1] D-4 Land Use On or Near Landfills and Dumps. MOECC, 1994.

may take place within 30 m of the perimeter of a fill area and, as such, all landfills must have an on-site operational/maintenance buffer area identified in their ECA. Under Guideline D-4, it is the responsibility of operators and/or owners of operating landfills to comply with the Environmental Protection Act and O. Reg. 347 (Waste Management) requirements for the control of adverse effects caused by these facilities. The onus is on both the land use development proponent to implement and monitor proper control measures associated with new, sensitive developments and the local municipal authority to ensure the implementation and monitoring of said control measures.

7.1.6 Natural Environment Monitoring

Natural Environment Monitoring will include:

- Routine inspections of the integrity of the perimeter silt fence. Inspections should be conducted at a regular frequency (e.g., minimum quarterly monitoring). Inspection reports should be prepared and maintained on-Site. Incidental observations of silt fence disrepair should be reported immediately to the Site Operations Manager and addressed in a timely fashion.
- Routinely evaluate the extent of the heavy-duty silt fence and 5 m north Subject Land vegetated buffer. Extend the silt fence and vegetated buffer east along the north Subject Land boundary when disturbance of the temporarily vegetated portion of the stockpile is scheduled.
- Routine inspections of the integrity and effectiveness of the sites chain link fence for any evidence of wildlife attempting to enter the site. Any disrepair should be reported immediately to the Site Operations Manager and addressed in a timely fashion
- Monitoring and Report any observations of Species At Risk that may enter the site. Photos of Species At Risk in the area of the site will be kept within the office at the site. Photos will be taken of any Species At Risk on site by landfill staff and documented in the annual monitoring report. Follow-up calls to MNRF will be undertaken should Species At Risk be encountered
- Monitoring of the wetland to the north of the site will occur for the duration of receipt of waste at the landfill. Monitoring will review effectiveness of mitigation measures put in place to ensure no effects to wetland, i.e. silt fence is in working order, utilize monitoring data from groundwater wells to demonstrate no offsite impacts beyond the perimeter of the site, etc.

7.2 Development of Best Management Practice Plans

BMP Plans will be developed by Brooks Road following the approval of the undertaking by the Minister and prior to construction. The BMPs will include a description of the proposed mitigation and monitoring measures for the relevant disciplines.

BMP Plans are tools by which Brooks Road and/or Brooks Road's agent(s) can demonstrate how the EA commitments, monitoring requirements and approval conditions have been addressed through subsequent design phases and construction. They will also act as a reference document for use by Brooks Road and/or Brooks Road's agent(s) during the construction of the approved Undertaking.

7.3 Commitments & Fulfillment

The commitments made in this EA by Brooks Road Environmental that are related to the construction, operation and maintenance of the undertaking are outlined in **Table 7.4**. Specifically, this shows the following:

- **Category**
  Discipline or topic to which the commitment applies (e.g., Consultation, Air Quality & Odour, Noise, etc.)
- **EA Report Section**
  Section of the EA Report where the commitment is made
- **EA Commitment**
  Specific commitment made in the EA
- **Commitment Timing**
  Appropriate phase of the undertaking during which commitment is to be implemented (e.g., pre-implementation, ongoing)

If the proposed undertaking is approved by the Minister of the Environment and Climate Change under the *EA Act*, then Brooks Road Environmental will prepare an EA Compliance Monitoring Program, which will include all of the commitments outlined in **Table 7.4**, as well as any *EA Act* conditions of approval.

Table 7.4 Recommendations & Commitments

Category	EA Report Section	EA Commitment	Commitment Timing
BMP Plans	Section 5.0 & Section 7.2	Prepare BMP Plans following approval of the undertaking by the Minister of the Environment and Climate Change and prior to vertical expansion of the Site. The BMP Plans will include a description of proposed mitigation measures, monitoring requirements, and commitments. The BMP Plans will ensure these mitigation measures, monitoring requirements, and commitments are implemented during construction, operation, closure, and post-closure of the Site.	Pre-implementation of the undertaking
Consultation	Section 6.0	Continue to facilitate the ongoing function of the PLC as per Conditions 86 and 87 of ECA No. A110302 for the existing Brooks Road Landfill Site.	Ongoing
Consultation	Section 6.0	Ongoing consultation and engagement, as requested by the public, agencies, County, PLC and First Nations/ Aboriginal communities associated with ECA amendment(s) and other regulatory approvals required at the Site.	Ongoing
Air Quality & Odour	Section 5.0	Fugitive Dust Best Management Plan will be implemented to reduce roadway emission by a minimum of 90 percent. This may include watering and sweeping of roadways and temporary monitoring of particulate matter to confirm that the mitigation measures implemented are effective.	Pre-implementation of the undertaking, Ongoing
	Section 5.0	Development of standard operating procedure (SOP) for odour to include odour mitigation measures that would be implemented to ensure that odour complaints are investigated and the condition that resulted in the odour complaint is mitigated.	Pre-implementation of the undertaking, Ongoing
	Section 5.0	Implementation of an Odour Best Management Plan including the continuation and modification of the following odour control measures: • Daily odour monitoring • Minimizing exposed waste through the application of cover material • Limit exposed areas of the leachate collection system • When not in use, ensure blind flanges are placed on leachate collection	Pre-implementation of the undertaking, Ongoing

Category	EA Report Section	EA Commitment	Commitment Timing
		system cleanouts and sump risers • Application of odour control granules and liquid spray • Community outreach to identify any impacts at neighbouring residences Maintain the leachate collection system under negative pressure may also be included as an Odour BMP.	
Noise	Section 5.0 & Section 7.0	Implementation of a Noise Best Management Plan to minimize noise impacts from the Site. BMPs may include barriers and/or berms at the landfill perimeter, as required, administrative controls that limit on-Site landfilling activities, and routine monitoring of landfill equipment to ensure it is performing within acceptable noise limits.	Pre-implementation of the undertaking, Ongoing
Geology & Hydrogeology	Section 7.0	Continuation of the existing groundwater monitoring program, consisting of both hydraulic monitoring and water quality monitoring at a network of 29 monitoring wells.	Ongoing
	Section 7.0	Continuation of the existing leachate quality monitoring program.	Ongoing
Surface Water Resources	Section 7.0	Continuation of the existing surface water monitoring program, consisting of water quality monitoring and surface water flow measurements.	Ongoing
	Section 7.0	An eighth monitoring station (SW-2) will be added following the construction of the on-Site stormwater management pond. SW-2 will be located on-Site at the outlet from the on-Site stormwater management pond.	Pre-implementation of the undertaking
Stormwater Management	Section 5.0	Implementation of a stormwater management infrastructure operation, maintenance, and inspection plan, including regular sediment level monitoring (recommended annually under stabilized post closure conditions) to estimate the portion of the permanent pool that is filled by sediment, sediment removal activities (once accumulation reaches approximately 1/3 of the available permanent pool volume), annual inspection of sediment accumulation within the vegetated swales, and maintenance activities if conveyance capacities are reduced significantly and/or if bare soil areas are present.	Pre-implementation of the undertaking, Ongoing

Category	EA Report Section	EA Commitment	Commitment Timing
Terrestrial & Aquatic Environment	Section 5.0	Implementation of a Terrestrial & Aquatic Environment Best Management Plan. BMPs for continued operation of the landfill may include: • Notify Site operators and delivery contractors of the presence of reptiles and amphibians in the surrounding areas. This includes visual identification tools for species at risk (SAR) common to the area. • Any wildlife incidentally encountered during Site operation activities will not be knowingly harmed and will be allowed to move away from the area on its own if at all possible. • In the event that an animal encountered during Site operation activities does not move from the area, or is injured, the Site Supervisor will be notified. • In the event that the animal is a known or suspected SAR, the Site Supervisor will contact MNRF SAR biologists for advice. • Silt fence is recommended to be added to all perimeter Site fencing as an enhanced effort to minimize human-wildlife interactions on Site. • Erosion and sediment controls shall be maintained until all disturbed areas of the Site, including the pond and swales, have fully stabilized and vegetated areas have achieved 70 percent of the native background density of growth. The condition of all swales, culverts, vegetation, infiltration basin outlet, and outflow channels leading to the Brooks Road drainage ditch and off Site will be noted at regular intervals.	Ongoing
	Section 7.0	Annual monitoring of wetland for duration of landfill operation	Ongoing
Archaeology & Cultural Heritage	Section 5.0	The *Cemeteries Act*, R.S.O. 1990 c. C.4 and the *Funeral, Burial and Cremation Services Act*, 2002, S.O. 2002, c.33 (when proclaimed in force) require that any person discovering human remains must notify the police or coroner and the Registrar of Cemeteries at the Ministry of Consumer Services.	Ongoing
Transportation	NA	No specific commitments identified	NA

Category	EA Report Section	EA Commitment	Commitment Timing
Land Use	Section 5.0, Section 7.0	Monitor land use applications, plans, and/or policies, including Official Plan, Zoning By-Law, Community Development Plans, plans of subdivision, site plans, and OMB decisions, for the following: • To determine any potential effects on the undertaking; • To provide comments to Haldimand County, as necessary, in relation to the above; and • To take further action, as required, in relation to the above, including appeals.	Ongoing
	Section 5.0	Nuisance related effects to off-Site recreational resources within 500 m of landfill footprint and the two residential properties within 500 m of the landfill footprint will be mitigated through the implementation of Site Design and Operation BMPs included in the Amended Site D&O Report for the Amended ECA (see **Site Design & Operations**, below).	Pre-implementation of the undertaking, Ongoing
Agriculture, Soils, & Mining	Section 5.0	Nuisance related effects to surrounding agricultural operations will be mitigated through the implementation of Site Design and Operation BMPs included in the Amended Site D&O Report for the Amended ECA (see **Site Design & Operations**, below).	Pre-implementation of the undertaking, Ongoing
Site Design & Operations	Section 5.0	The Amended Site D&O Report for the Amended ECA will include BMPs to be implemented by Brooks Road Environmental to maximize operational flexibility and may include the following: • Tarping vehicles transporting waste to and around the Site, as required, to prevent litter from blowing out of the vehicle. • Applying daily cover to exposed waste to confine light weight material. • Ensuring that cover material is readily available to allow the working face to be fully covered at the end of each operating day. • Minimizing the area of exposed waste at the working face. • Adjusting the location of the working face, as required, to provide shelter from prevailing winds, if possible.	Pre-implementation of the undertaking, Ongoing

Category	EA Report Section	EA Commitment	Commitment Timing
		• Using portable litter fences around the working face to capture litter. • Collecting litter on an as-needed basis, both from the Site and, if required, from the adjacent lands and roadway. • Operating on-Site equipment in a manner such that noise impacts are minimized, wherever possible. • Ensuring that all landfill construction equipment associated with the development, operation, or closure of the Site comply with the noise levels outlined in applicable MOECC guidelines and technical standards. • Vegetating the berm on the western Site boundary and/or on-Site plantings, as required, to attenuate visual and noise impacts. • Compacting waste immediately after placement and spreading. • Vector and vermin are controlled, as required. • Maintaining the comprehensive monitoring and maintenance program to address all aspects of landfill operation, including waste inspection and monitoring of landfill odour. • Site haul roads are constructed to minimize mud trackout and dust mitigation measures are employed on an as-needed basis.	
Socio-Economic	Section 5.0	Views of the Site from the west and southwest will be minimized by planting trees or shrubs on top of the berm along the western property boundary and/or introducing additional on-Site plantings, as required.	Ongoing (as required)
	Section 5.0	Nuisance related effects to the 11 residences within the Local Study Area will be mitigated through the implementation of Site Design and Operation BMPs included in the Amended Site D&O Report for the Amended ECA (see **Site Design & Operations**, above).	Pre-implementation of the undertaking, Ongoing

Category	EA Report Section	EA Commitment	Commitment Timing
Contingency Plans	Section 7.3	Prepare Contingency Plans following approval of the undertaking by the Minister of the Environment and Climate Change and prior to vertical expansion of the Site. The Contingency Plans will include a description of proposed contingency measures, monitoring requirements, and commitments. The Contingency Plans will ensure these contingency measures, monitoring requirements, and commitments are implemented, if required, during construction, operation, closure, and post-closure of the Site.	Pre-implementation of the undertaking

7.4 Contingency Plans

Contingency plans are developed to proactively identify measures or a process for taking action on unexpected problems resulting from landfill operations. Brooks Road has committed to developing plans for contingency measures. The plans will include actions to be taken, timing, and roles and responsibilities. The contingency plans will be outlined in EPA documentation (i.e., the amended Design and Operation Report for the Site). **Table 7.5** describes some of the contingency plans to be developed.

Table 7.5 Contingency Plans

Contingency Plan	Contingency Plan Details
Contaminated Stormwater	• If confined to a local area, close off ditch and sump out contaminated water into tanker truck for treatment in an on-site leachate treatment plant or haul to off-site sewage treatment plant. • If stormwater pond is contaminated, do not permit discharge. Pump out and pump or truck for treatment to an on-site leachate treatment plant or haul to an off-site sewage treatment plant.
Contingency and Emergency Response Plan (to include): • Spill Response – Waste Truck on Public Road • Spill Response – Liquids on Public Road • Leachate Seeps/ Leachate System Failure • Landfill Gas Migration/ Fires and Explosions • Surface Water and Groundwater Contamination • Storms and Inclement Weather • Accidents and Injuries	A Contingency and Emergency Response Plan will be developed as part ofthe amended Design and Operation Report for the Site and will include the following information: • List of persons responsible for the Site, including contact information • List of emergency phone numbers for applicable emergency entities • Description of fire protection, control system, and emergency procedures • Description of safety devices and maintenance procedures • Training of Site personnel • Site plan including location of all emergency equipment The Contingency and Emergency Response Plan will be kept in a central location at all times. Training will be provided for personnel in all CERP procedures. General elements of the Contingency and Emergency Response Plan may include: • Have crew trained on notification and clean-up procedures so personnel and equipment can attend to local waste spill. • Cooperate with local officials (e.g., police, road crews, environment officials, etc.). • Prevent contact with ditches and watercourses and retrieve from vulnerable locations. • Clean-up spilled material into roll off or appropriate containers and remove to landfill. • Clean-up liquid or solids into appropriate leak-proof containers, such as drums or lugger boxes.

Contingency Plan	Contingency Plan Details
	• Dispose to proper facility. • Assemble appropriate protective equipment and containment equipment. • Contain spill with absorbent material, ponds and berms. • Ditch, berm or excavate sump as required to contain spill. • Should impacts to the groundwater from landfilling operations be detected, hydraulic containment will take place through the installation and pumping of groundwater extraction wells. Impacted groundwater would be extracted from the wells by pumping, treated and discharged or transported for off-Site disposal, as required.