

**Risk Management Matrix
Fill Importation
Former Holt Pit**

	Risk Identification	Potential Cause	Potential Consequence	Control Measures Implemented (in place today)	Action for Risk Mitigation	Notification
FILL RELATED	Confirmatory Soil Sampling Reveals fill of Unacceptable Quality	a. Inadequate screening and inspection of soils at the gate and as it is placed. b. Soils from source site not fully characterized and not reviewed by Reviewing Qualified Professional. c. Loading error, a destination error or another cause such as residential materials (asphalt from a previous load) residing in truck bed.	a. Placement of soils of unacceptable quality at the Site that could potentially be an adverse effect to human health and the environment. b. Temporary suspension of fill operations. c. Revocation of Site Alteration Permit. d. Record of Site Condition (RSC) cannot be filed for Site.	Adherence to site protocol and inspection of trucks at the gate and as it is placed to ensure only fill of acceptable quality enters the site.	a. All unacceptable fill will be located using the site log and locational tracking grid. b. Recovered fill will be stockpiled for further assessment. c. Importation of fill from source site is suspended until confirmatory sampling indicates fill is acceptable. d. If fill quality unacceptable, Operator to ensure that all unacceptable fill has been removed from site. e. Record of action taken together with any applicable documentation (eg. testing and analysis and or shipment off site) with respect to the unacceptable material will be kept in the site log.	The Operator, Site haulage company and the source site. Town of to be notified through Incident Report issue of unacceptable testing results and follow up actions taken.
	Suspected contaminated fill arrives on site	a. Loading error, a destination error or another cause such as residential materials (asphalt from a previous load) residing in truck bed. b. Mis-characterization of source site.	a. Placement of soils of unacceptable quality at the Site that could potentially be an adverse effect to human health and the environment. b. Temporary suspension of fill operations. c. Revocation of Site Alteration Permit	Adherence to site protocol and inspection of trucks at the gate and as it is placed to ensure only fill of acceptable quality enters the site.	a. Review source supplier and haulage company that delivered fill material to ensure future compliance. b. If fill quality unacceptable, Operator to ensure that all unacceptable fill has been removed from site. c. Record of action taken together with any applicable documentation (eg. testing and analysis and or shipment off site) with respect to the unacceptable material will be kept in the site log.	The Operator, Site haulage company and the source site. Town to be notified through Incident Report issue of matter and actions taken by Operator.
	Unapproved fill arrives on site	a Loading error or a destination error.	If not monitored in accordance with protocol: a. Placement of soils of unacceptable quality at the Site that could potentially be an adverse effect to human health and the environment. b. Temporary suspension of fill operations. c. Revocation of Site Alteration Permit	Strict adherence to site protocol confirmation testing. Monitoring of incoming trucks to ensure only approved fill enters the site.	a. Review source supplier and haulage company that delivered fill material to fill is from approved source site. b. Operator to ensure that all unacceptable fill has been removed from site and returned to source site. c. Record of action taken together with any applicable documentation (eg. testing and analysis and or shipment off site) with respect to the unacceptable material will be kept in the site log.	The Operator, Site haulage company and the source site. Town to be notified through Incident Report issue of matter and actions taken by Operator.
	Deleterious or unacceptable materials discovered in load of fill	a. Inadequate screening and inspection of soils at the gate and as it is placed. b. Soils from source site not fully characterized and not reviewed by Reviewing Qualified Professional. c. Loading error, a destination error or another cause such as residential materials (asphalt from a previous load) residing in truck bed.	If not monitored in accordance with protocol: a. Placement of soils of unacceptable quality at the Site that could potentially be an adverse effect to human health and the environment. b. Temporary suspension of fill operations. c. Revocation of Site Alteration Permit	Adherence to site protocol and inspection of trucks at the gate and as it is placed to ensure only fill of acceptable quality enters the site.	a. If the quantity of deleterious or unacceptable materials is minimal it can be hand sorted and disposed of off site. b. If the quantity is excessive, the entire load is to be isolated and removed from site.	The Operator, Site haulage company and the source site.

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ENVIRONMENTAL/ESC	Machine or truck has a fuel or hydraulic leak	a. Improper maintenance of equipment. b. Improper inspection of equipment prior to operation. c. Leakage of truck not detected by the gate keeper.	a. Contamination of fill placed at site. b. Remediation of contaminated fill from spill. c. Potential impairment of groundwater quality.	a. Operator to prepare spill management plan. b. Operator to ensure that appropriate spill kits are on site in accordance with Spill Management Plan.	a. Operator to contact MECP Spills Action Centre and the Town. b. Operator to undertake clean up contaminated soils. Contaminated soil to be placed in permanently located, chemical absorbent material bin located on Site. Contaminated soil to be removed to MOECP approved disposal site. c. Follow up measures to be recorded on Incident Report to document issue has been addressed.	a. Operator. b. MOECP Spill or Emergency hotline 1-800-268-6060. c. Town.
	Hydrogeological well testing results reveals contamination	a. Placement of soils of unacceptable quality at the Site. b. Contamination originating from an upgradient source. c. Originating from a spill at the Site.	a. Impairment of potable groundwater supply for adjacent residences. b. MOECP/Town inspection and issue of MOECP order. c. Clean-up of groundwater. d. RSC cannot be filed for Site.	Strict adherence to soil management plan and well monitoring/testing plans.	a. Determine the source of the groundwater contamination. b. If determined to be from placement of fill at the Site, cross reference non-compliant soil that was delivered to site and determine the location. c. Undertake subsurface investigations (i.e., drilling) to confirm source. Undertake remedial action or risk management measures. d. Town to be notified through Incident Report issue of matter and actions taken by Operator. e. If deemed serious, fill operations may be suspended until matter is addressed.	a. Operator. b. Town.
	Drainage scars occur	a. Improper or no placement of erosion control measures. b. Inadequate maintenance of erosion control measures. c. Inadequate inspection of erosion control measures.	Sedimentation runoff and accumulation on road or adjacent neighbour property.	a. Ensure appropriate sloping is graded per approved site alteration/grading plan and site is maintained with cross tracking processes. b. Certified Inspector of Sediment and Erosion Control (CISEC) to undertake periodic ESC reviews of site, recommend to implement Best Management Practices (BMP's), and circulate to the Town, copies of reporting and recommendations.	a. Redirect overland flow from scar area. b. Review scar area to assess if more robust erosion controls are required. c. Through ESC reviews, CISEC to document and follow up on ESC measures undertaken. d. On-going ESC review and reporting. Follow up on any additional requirements identified by the Town after reviewing ESC reports.	a. Operator b. Town
	Major single or continuous storm events			Ensure Best Management Practices (BMP's) are in place and functioning to prevent any off site sediment impacts.	Site to be closed prior to mud tracking becoming a concern. Additional BMP's to be implemented if	a. Operator b. Town
PROTOCOL DEVIATION	Deviation of Protocols	a. Operator staff not properly trained. b. Operator staff not aware of protocols.	a. Placement of soils of unacceptable quality at the Site that could potentially be an adverse effect to human health and the environment. b. Temporary suspension of fill operations. c. Revocation of Site Alteration Permit	Strict adherence to protocol confirmation testing, soil management plan, well monitoring/testing plans and dust control measures plan.	a. Deviation to be identified, either through Operator or documented through Town. b. Implement/review training program and implement a process documenting training of staff. c. Operator to prepare and issue Incident Report outlining details of deviance and actions taken by Operator to correct.	a. Operator b. Reviewing Qualified Professional c. Town

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PUBLIC/EXTERNAL	Mud tracking occurs on McCowan Road	a. Inadequate truck washing system in place b. Inadequate maintenance of truck washing facility.	a. Public complaints. b. Strained public relations c. Excessive mud tracking may result in truck stoppage until dust issues are sufficiently addressed.	a. Ensure that extended mud mat and steel shaker racks are maintained and accessible at all times and ensure all trucks exiting the site pass through b. Sweeping and flushing will take place as needed on Friday evenings after last truck has left the site, after significant rainfall events, and after receiving complaints of excessive mud from this site c. Address reports of mud tracking immediately during business hours or when the site opens if complaint is received after hours	a. Refer to road dust and mud control plan. b. On site trucks to be directed to mud mat and steel shaker racks prior to exiting the site. c. Town to visit site to ensure Operator has sufficiently addressed mud tracking concerns per road dust and mud control plan, and confirm satisfaction with compliance.	Operator to undertake items outlined in dust control measures response plan.
	Dust complaints	a. Inadequate dust control measures in place b. Inadequate spraying of access roads within Site.	a. Public complaints. b. Strained public relations c. Excessive dust may result in truck stoppage until dust issues are sufficiently addressed.	a. Apply water throughout day to haul roads, material stockpiles (where possible), and other areas being actively worked b. Monitor dust regularly throughout the day and reapply water as necessary to suppress dust c. Address reports of dust immediately during business hours or when the site opens if complaint is received after hours	a. Refer to road dust and mud control plan. b. Increase frequency and use of water truck. c. Town to visit site to ensure Operator has sufficiently addressed dust concerns per road dust and mud control plan, and confirm satisfaction with compliance.	Operator to undertake items outlined in dust control measures response plan.
	Traffic complaints to the Town	a. Inadequate traffic control measures in place. b. Not adhering to traffic control plan.	a. Public complaints. b. Strained public relations c. May result in truck stoppage until traffic issues are sufficiently addressed.	See Traffic Control Plan	a. Operator to review inbound truck tickets and truck volumes for day of complaint to determine if there is an issue and how best to mitigate. b. Should trucks not follow approved routes Town to document, issue and notify Operator to prepare Incident report to record matter. c. Follow up measures to be recorded on Incident Report to document issue has been addressed. If concern is related to haulage company not using approved routes, haulage company to be notified and measures to be taken that may include suspension of truck company from Site.	Operator to provide feedback and follow up with Town.
	Noise complaint received by the Town	a. Inadequate noise control measures in place. b. Equipment not operating properly resulting in excessive noise.	a. Public complaints. b. Strained public relations c. May result in temporary suspension of operations until source of excessive noise is sufficiently addressed.	a. It is not anticipated that the site will generate noise impacts beyond the confines of the fill site. b. As the fill site progresses in elevations closer to the surface, Operator to more frequently monitor for noise emitting operations and mitigate. c. Strict compliance to Town noise by-law, unless as required to comply with The Ministry of Labour.	a. Locate source of excessive noise and determine appropriate mitigation which may include replacement of equipment, installation of noise suppression devices, etc. b. As the fill site progresses, a strict no tailgate banging policy will be put into effect by Operator. Signage to this effect will be posted at various locations throughout the fill site. c. If there have been up to two complaints of a driver, not adhering to this policy, they will be asked to leave the Site, refused future entry to the Site and their employer notified that the driver will not be permitted to enter the Site. d. Town to document issue and notify Operator to prepare Incident Report to record matter.	Haulage companies to be notified of strict no tailgate banging policy in writing.
	Tree Damage	a. Improper or no placement of tree protection measures. b. Inadequate maintenance of tree protection measures. c. In adequate inspection of tree protection measures.	a. Damage or destruction of trees on-Site b. Unnecessary removal of trees on-Site.	a. Ensure tree protection measures are installed before any site grading activities per approved site alteration/grading plan. b. Clearly mark trees for removal c. Clearly mark limits of work area and avoid operating heavy machinery outside of contract areas. d. Operator undertake routine inspections of trees on site and tree protection	a. Minimize work near tree protection measures. b. Review tree damage area to assess if more robust tree protection controls are required. c. On-going review and inspection of tree protection measures.	a. Operator ISA Certified Arborist c. Town b.

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	Compromised or missing traffic control signage	a. Vandalism b. Inadequate inspection of signage.	a. Public complaints. b. Strained public relations c. May result in temporary suspension of truck traffic until sign is replaced.	Operator undertake routine inspections of traffic control signage within the site and along truck traffic routes.	Impaired or missing traffic control signs to be re-instated or replaced.	Operator

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