



Attachment 4 – Leachate
Treatment Alternatives – Net
Effects Assessment

Net Effects Table - Leachate Treatment Alternative 1: Direct Discharge to Sanitary Sewer						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
NATURAL ENVIRONMENT – BIOLOGICAL						
Potential for effect on aquatic systems during construction and operation.	<ul style="list-style-type: none"> Volume of leachate stored and/or treated on site at any one given time. Proximity to on-site watercourse/aquatic habitat. 	<p>This alternative does not require any changes to the existing leachate collection and storage system.</p> <p>For this alternative the leachate storage tank will remain in its existing location.</p>	<p>Current leachate collection system continuously pumps leachate to on-site tanks and then through an existing forcemain to the BWTLs where it is treated. The current system has the capacity to store approximately 1 day of untreated leachate in the on-site tank. The existing tank has a capacity of 605 m³.</p> <p>The existing leachate storage tank is approximately 50 m from the nearest ditch which takes stormwater to a stormwater pond. Testing is completed prior to the water being released to the Duke Drain north of the site. Habitat in the Duke is of low sensitivity.</p>	<p>This alternative has the potential to release up to 1 day of untreated leachate stored in the on-site tank should a malfunction occur. This reflects a minimal potential for effects on aquatic systems as the volume of stored leachate is minimal and finite and the on-site habitat is managed and is of low sensitivity.</p> <p>No construction related effects are anticipated.</p>	<p>Should issues be detected with the treatment system, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	Construction, operation and post closure: No significant net effect anticipated.
NATURAL ENVIRONMENT – PHYSICAL (GROUND WATER)						
Potential impacts to groundwater quality during construction, operation and post closure.	<ul style="list-style-type: none"> Approximate travel time to Groundwater aquifer. 	<p>This alternative does not require any changes to the existing leachate collection and storage system.</p>	<p>There is more than 30 metres of natural clay under the site. The approximate travel time to the groundwater aquifer should there be an operational upset, spill or leak occur is 3000 years.</p>	<p>Given the significant travel time to the groundwater aquifer, any leachate spill will be able to be addressed and cleaned up with no impact on groundwater.</p> <p>No construction relate effects are anticipated.</p>	<p>Should issues be detected with the treatment system, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for effective clean up and repair. All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	Construction, operation and post closure: No significant net effect is anticipated.

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NATURAL ENVIRONMENT – PHYSICAL (Surface Water)						
Potential impacts to surface water quantity and quality.	<ul style="list-style-type: none"> Volume of leachate stored and/or treated on site at any one given time. Proximity to on-site watercourse. 	<p>This alternative does not require any changes to the existing leachate collection and storage system.</p> <p>For this alternative the leachate storage tank will remain in their existing location.</p>	<p>Current leachate collection system continuously pumps leachate to on-site tanks and then through existing forcemain to the BWTLs where it is treated. The current system has the capacity to store approximately 1 day of untreated leachate in the on-site tank.</p> <p>Ditches in proximity to the existing leachate storage tank take stormwater to a stormwater pond where it is tested before being released to the Duke Drain north of the site.</p> <p>The existing leachate storage tank is approximately 100 m from the nearest ditch/drain.</p>	<p>No construction effects on surface water are anticipated.</p> <p>This alternative has the potential to release up to 1 day of untreated leachate stored in the on-site tank should a malfunction occur.</p>	<p>Should issues be detected with the treatment system, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	Construction, operation and post closure: No significant net effect anticipated.
NATURAL ENVIRONMENT – PHYSICAL (ATMOSPHERIC)						
Potential impacts to air quality during construction and operation.	<ul style="list-style-type: none"> Nitrogen Oxides, Sulphur Dioxide and Carbon Monoxide (together referred to as criteria air contaminants): relative levels of construction as an indicator. Relative amount of energy required to operate facility. 	<p>This alternative involves no construction to impact air quality.</p> <p>The energy required to operate the infrastructure for Alternatives 1 will be relatively minimal.</p>	<p>The energy to operate the current system to pump leachate to the BWTL is minimal.</p>	<p>There is no change to impact in air quality over existing conditions from this alternative as there is no construction and energy use will be the same as current. The landfill expansion will extend the need for energy and associated air quality impacts over time.</p>	<p>Continued implementation of the best management practices plan for fugitive dust.</p>	Construction, operation and post closure: No significant net effect anticipated.
NATURAL ENVIRONMENT – PHYSICAL (CLIMATE CHANGE)						
Potential for greenhouse gas emissions during construction and operation.	<ul style="list-style-type: none"> Relative amount of energy required to operate facility. 	<p>The energy required to operate the infrastructure for Alternatives 1 will be relatively minimal.</p>	<p>The energy to operate the current system to pump leachate to the BWTL is minimal.</p>	<p>There would be no change to GHG emissions from what occurs today will with this alternative. The landfill expansion will extend the need for energy and associated GHG emissions over time.</p> <p>No construction related effects are anticipated.</p>	<p>No mitigation required</p>	Construction, operation and post closure: No significant net effect anticipated.

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SOCIAL						
Potential for noise/vibration impacts on residents during construction and operation.	<ul style="list-style-type: none"> Number of households in the study area who may experience noise/vibration impacts as a result of leachate treatment facility construction and operation. 	<p>No construction is required for this alternative.</p> <p>Operation of the existing pump and forcemain will continue. The leachate pump will continue to be enclosed.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>Screening berms have been built to control noise generated at the landfill and the existing leachate pumps are enclosed. The site is currently in compliance with respect to noise.</p> <p>There is no vibration as a result of current leachate treatment.</p>	<p>There will be no facility construction noise.</p> <p>Operational noise is expected to be minimal and as experienced since the forcemain connection was completed in 2002.</p> <p>There is no vibration effects as a result of this alternative.</p>	<p>Extension of the landfill berms.</p> <p>Enclosure of the pump equipment.</p> <p>Maintenance of equipment.</p>	<p>Construction, operation and post closure: No significant net effect on residents as a result of noise and vibration are anticipated.</p>
Potential for odour during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources from leachate treatment facility construction and operation; relative significance of odour sources and relative distance of odour sources to discrete receptors. 	<p>No construction is required for this alternative.</p> <p>Leachate odour sources could include seeps, and the storage tank/ overflow.</p>	<p>Leachate seeps are corrected immediately upon detection. Based on the 2017 Annual Report, there has been no evidence of leachate seeps since the installation of the leachate collection system in the Old Landfill and no seeps have been observed in the West Landfill, indicating that the leachate collection system is performing as designed.</p> <p>Should the tank level rise above maximum level, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for transferring the tank content.</p>	<p>There will be no facility construction odour.</p> <p>This alternative does not add any new odour sources. No change to existing conditions for operating lifespan of proposed expansion.</p>	<p>No mitigation required.</p>	<p>Construction, operation and post closure: No significant net effect on residents as a result of odour are anticipated.</p>
Potential for landfill traffic effect on residents during construction and operation.	<ul style="list-style-type: none"> Number of trucks during construction and number of trucks required for chemicals and disposal of residue during operation. 	<p>No construction is required for this alternative.</p> <p>This alternative continues to convey untreated leachate via the existing forcemain to the BWTLs.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>Currently no trucking of leachate is carried out and no chemical delivery or residue disposal is required.</p> <p>There are approximately 200 trucks per day delivering waste to the site and this will continue as long as the site is in operation.</p>	<p>There will be no trucking for facility construction or operation.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>No mitigation required for regular operation.</p> <p>Should contingency trucking be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	<p>Construction, operation and post closure: No significant net effect on residents as a result of traffic are anticipated.</p>

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Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
ECONOMIC						
Potential for effect on businesses during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources and relative significance of odour sources. Number of leachate trucks during operation and number of trucks required for chemicals and disposal of residue during operation. 	<p>No construction is required for this alternative.</p> <p>Leachate odour sources could include seeps, and the storage tank/ overflow.</p> <p>This alternative continues to convey untreated leachate via the existing forcemain to the BWTLs.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>Leachate seeps are corrected immediately upon detection. Based on the 2017 Annual Report, there has been no evidence of leachate seeps since the installation of the leachate collection system in the Old Landfill and no seeps have been observed in the West Landfill, indicating that the leachate collection system is performing as designed.</p> <p>Should the tank level rise above maximum level, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for transferring the tank content.</p> <p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>No trucking of leachate is carried out and no chemical delievery or residue disposal is required.</p> <p>There are approximately 200 trucks per day delivering waste to the site and this will continue as long as the site is in operation.</p>	<p>There will be no facility construction odour or trucking.</p> <p>This alternative does not add any new odour sources. No change to existing conditions for operating lifespan of proposed expansion.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>No mitigation required during regular operation.</p> <p>Should contingency trucking be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	<p>Construction, operation and post closure: No significant net effects on businesses are anticipated.</p>
Cost of facility.	<ul style="list-style-type: none"> Approximate cost of leachate treatment facility alternative. 	<p>No facility construction required no construction cost to be incurred.</p>	<p>Waste Connections pays the Municipality of Chatham-Kent for the treatment of landfill leachate.</p>	<p>No potential effect</p>	<p>No mitigation required</p>	<p>Construction, operation and post closure: No significant net effect related to cost is anticipated.</p>

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CULTURAL						
Potential effects to archaeological resources as a result of construction.	<ul style="list-style-type: none"> Area of undisturbed land affected by the on-site component of the leachate treatment alternative. 	This alternative involves no construction or change in location for leachate storage or pumping.	The lands in the vicinity of the current leachate storage and pump location have been identified as having no archaeological potential.	No potential effect.	No mitigation required. Should unexpected archaeological finds be discovered during construction, the Ministry of Culture, Tourism and Sport will be notified.	Construction, operation and post closure: No significant net effect on archaeological resources is anticipated.
BUILT						
Potential effects on existing transportation infrastructure and transportation operation.	<ul style="list-style-type: none"> Anticipated number of trucks required. 	<p>No construction is required for this alternative.</p> <p>This alternative continues to convey untreated leachate via the existing forcemain to the BWTLs.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>No trucking of leachate is carried out and no chemical delivery or residue disposal is required.</p>	<p>There will be no trucking for facility construction or operation.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>No mitigation required for regular operation.</p> <p>Should contingency trucking be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	Construction, operation and post closure: No significant net effect on infrastructure is anticipated.
Ease to implement/construct and maintain/operate.	<ul style="list-style-type: none"> Anticipated complexity of construction and operation. 	<p>No facility construction required.</p> <p>Continuation of existing operation.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs. This system is straightforward to operation and has been working successfully for 14 years.</p>	No potential effect.	<p>Ongoing maintenance of the collection system, storage and pumps as required.</p> <p>Ongoing liaison with the Municipality of Chatham-Kent.</p>	Construction, operation and post closure: No significant net effect is anticipated.

Net Effects Table - Leachate Treatment Alternative 2: On-site Pre- treatment Prior to Discharge to Sanitary Sewer						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
NATURAL ENVIRONMENT – BIOLOGICAL						
Potential for effect on aquatic systems during construction and operation.	<ul style="list-style-type: none"> Volume of leachate stored and/or treated on site at any one given time. Proximity to on-site watercourse/aquatic habitat. 	<p>This alternative involves the addition of a pre-treatment facility. Construction will be removed from surface water.</p> <p>Leachate will continue to be collected and stored as it is today and sent via existing forcemain to the BWTLs.</p> <p>This alternative will have 2-3 days storage capacity of untreated leachate and leachate undergoing treatment.</p> <p>The pretreatment facility would be located near the leachate storage tank, approximately 100 m from the nearest ditch/drain.</p>	<p>Current leachate collection system continuously pumps leachate to the on-site tank and then through an existing forcemain to the BWTLs where it is treated. The current system has the capacity to store approximately 1 day of untreated leachate in the on-site tank. The existing tank has a capacity of 605 m³.</p> <p>The existing leachate storage tank is approximately 50 m from the nearest ditch which takes stormwater to a stormwater pond. Testing is completed prior to the water being released to the Duke Drain north of the site. Habitat in the Duke is of low sensitivity.</p>	<p>This alternative has the potential to release up to 1 day of untreated leachate stored in the on-site tank as well as additional leachate r being treated in the proposed facility (likely 1-2 days of pumping capacity) should a malfunction occur. This reflects a minimal potential for effects on aquatic systems as the volume of stored leachate is minimal and finite and the on-site habitat is managed and is of low sensitivity.</p> <p>No construction effects are anticipated.</p>	<p>Should issues be detected with the treatment system, leachate pumps would be cycled off and the landfill could contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	<p>Construction: No construction related net effects are anticipated.</p> <p>Operation and post closure: Leachate is being handled multiple times and being treated on-site, there is potential for a malfunction that could cause a release to the environment of either untreated leachate or partially treated leachate.</p>
NATURAL ENVIRONMENT – PHYSICAL (GROUND WATER)						
Potential impacts to groundwater quality during construction, operation and post closure.	<ul style="list-style-type: none"> Approximate travel time to groundwater aquifer. 	<p>This alternative involves the addition of a pre-treatment facility. Construction will be removed from surface water.</p> <p>Leachate will continue to be collected and stored as it is today and sent via existing forcemain to the BWTLs.</p> <p>This alternative will have 2-3 days storage capacity.</p>	<p>There is more than 30 meters of natural clay under the site. The approximate travel time to the groundwater aquifer should there be an operational upset, spill or leak occur is 3000 years.</p>	<p>Given the significant travel time to the groundwater aquifer, any leachate spill will be able to be addressed and cleaned up with no impact on groundwater.</p> <p>No construction effects are anticipated.</p>	<p>Should issues be detected with the treatment system, leachate pumps would be cycled off and the landfill could contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	<p>Construction, operation and post closure: No significant net effect is anticipated.</p>

Net Effects Table - Leachate Treatment Alternative 2: On-site Pre- treatment Prior to Discharge to Sanitary Sewer						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
NATURAL ENVIRONMENT – PHYSICAL (SURFACE WATER)						
Potential impacts to surface water quantity and quality.	<ul style="list-style-type: none"> Volume of leachate stored and/or treated on site at any one given time. Proximity to on-site watercourse. 	<p>Construction will be removed from surface water.</p> <p>This alternative involves the addition of a pre-treatment facility. Leachate will continue to be collected and stored as it is today and sent via existing forcemain to the BWTLs.</p> <p>This alternative will have 2-3 days storage capacity for untreated leachate and leachate undergoing treatment.</p> <p>The pretreatment facility would be located near the leachate storage tank, approximately 100 m from the nearest ditch/drain.</p>	<p>Current leachate collection system continuously pumps leachate to on-site tanks and then through existing forcemain to the BWTLs where it is treated. The current system has the capacity to store approximately 1 day of untreated leachate in the on-site tanks.</p> <p>Ditches in proximity to the existing leachate storage tank take stormwater to a stormwater pond where it is tested before being released to the Duke Drain north of the site.</p>	<p>This alternative has the potential to release up to 2-3 days of untreated leachate and partially treated leachate stored in the on-site tank should a malfunction occur. This reflects a minimal potential for effects on surface water quantity and quality as a limited volume of leachate is stored on-site at any one time.</p> <p>No construction related effects are anticipated.</p>	<p>Should issues be detected with the treatment system, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	<p>Construction: No construction related net effects are anticipated.</p> <p>Operation and post closure: Leachate is being handled multiple times and being treated on-site, there is potential for a malfunction that could cause a release to surface water of either untreated leachate or partially treated leachate.</p>
NATURAL ENVIRONMENT – PHYSICAL (ATMOSPHERIC)						
Potential impacts to air quality during construction and operation.	<ul style="list-style-type: none"> Nitrogen Oxides, Sulphur Dioxide and Carbon Monoxide (together referred to as criteria air contaminants): relative levels of construction as an indicator. Relative amount of energy required to operate facility. 	<p>This alternative involves no significant amount of construction to impact air quality as pre-treatment equipment would be delivered to the site in self-contained skids.</p> <p>The energy required to operate the infrastructure for Alternative 2 will be relatively minimal.</p>	<p>The energy to operate the current system to pump leachate to the BWTL is minimal.</p>	<p>The minimal amount of construction for this alternative (4-6 weeks) will not significantly impact in air quality over existing conditions. This alternative will require additional energy for pre-treatment however it will not be a significant energy consumer. The landfill expansion will extend the need for energy and associated air quality impacts over time.</p>	<p>Continued Implementation of the best management practices plan for fugitive dust.</p>	<p>Construction, operation and post closure: No significant net effect anticipated.</p>

Net Effects Table - Leachate Treatment Alternative 2: On-site Pre- treatment Prior to Discharge to Sanitary Sewer						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
NATURAL ENVIRONMENT – PHYSICAL (CLIMATE CHANGE)						
Potential for greenhouse gas emissions during construction and operation.	<ul style="list-style-type: none"> Relative amount of energy required to operate facility. 	The energy required to operate the infrastructure for Alternative 2 will be relatively minimal.	The energy to operate the current system to pump leachate to the BWTL is minimal.	There would be a slight increase in GHG emissions resulting from the 4-6 week construction and the additional energy to operate the pre-treatment plan. The landfill expansion will extend the need for energy and associated GHG emissions over time.	No mitigation required	Construction, operation and post closure: No significant net effect anticipated.
SOCIAL						
Potential for noise/vibration impacts on residents during construction and operation.	<ul style="list-style-type: none"> Number of households in the study area who may experience noise/vibration impacts as a result of leachate treatment facility construction and operation. 	<p>This alternative will require a construction duration of 4 to 6 weeks for equipment installation.</p> <p>Operation of the existing pump and forcemain would continue.</p> <p>The leachate pump and pre-treatment infrastructure will continue to be enclosed.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>Screening berms have been built to control noise generated at the landfill and the existing pump is enclosed.</p> <p>The site is currently in compliance with respect to noise. There is no vibration as a result of current leachate treatment.</p>	<p>There is the potential for temporary noise during construction. However it is anticipated to be intermittent as much of the pre-treatment infrastructure to be constructed is pre-assembled.</p> <p>Operational noise from the pump and pre-treatment is expected to be minimal.</p> <p>There is no vibration effects as a result of this alternative.</p>	<p>Extension of the landfill berms.</p> <p>Enclosure of the pump and pre-treatment equipment.</p> <p>Maintenance of equipment.</p> <p>Limit construction time to work days and normal business hours.</p>	Construction, operation and post closure: No significant net effect on residents as a result of noise and vibration are anticipated.

Net Effects Table - Leachate Treatment Alternative 2: On-site Pre- treatment Prior to Discharge to Sanitary Sewer						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Potential for odour during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources from leachate treatment facility construction and operation; relative significance of odour sources and relative distance of odour sources to discrete receptors. 	<p>This alternative will require a construction duration of 4 to 6 weeks for the installation of equipment. This construction would be in the same location as the existing leachate storage tank or in available space in the southeast segment of the property. Leachate odour sources could include seeps, and the pre-treatment facility/storage tank overflow. Biological treatment processes are not expected to be used for pre-treatment. Pre-treatment will be in a fully contained system with odour control.</p>	<p>Leachate seeps are corrected immediately upon detection. Based on the 2017 Annual Report, there has been no evidence of leachate seeps since the installation of the leachate collection system in the Old Landfill and no seeps have been observed in the West Landfill, indicating that the leachate collection system is performing as designed. Should the pretreatment facility or tank level rise above maximum level, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for troubleshooting of the pretreatment facility or transferring the tank content.</p>	<p>There will be no facility construction odour. This alternative adds the pre-treatment facility as a possible new odour source. However, given that pre-treatment will be in a fully contained system odour during normal operation is not anticipated. There is some potential for odour to occur during an upset however it is not anticipated that the pre-treatment would include biological processes which are the greatest potential source of odour.</p>	<p>Include odour control on pre-treatment building as required.</p>	<p>Construction: No odour effects are anticipated during construction. Operation and post closure: There is some potential for odour effects in the event of an upset as leachate will remain on-site for longer to be pre-treated.</p>
Potential for landfill traffic effect on residents during construction and operation.	<ul style="list-style-type: none"> Number of trucks during construction and number of trucks required for chemicals and disposal of residue during operation. 	<p>This alternative will require up to 2 construction trucks over a duration of 4 to 6 weeks. The type of pre-treatment required will depend on future regulations and the treatment need identified. It is assumed that pre-treatment could require up to 2 trucks per day for the delivery of chemicals and the removal of residue. Pre-treated leachate will be pumped via the existing forcemain to the BWTLs. Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day. Some chemical delivery may be required for this alternative.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs. Currently no trucking of leachate is carried out and no chemical delivery or residue disposal is required. There are approximately 200 trucks per day delivering waste to the site and this will continue as long as the site is in operation.</p>	<p>There will be minimal trucking for facility construction or operation and up to 2 trucks per day for operation. This number is negligible given the approximately 200 trucks per day that would continue to bringing waste to the site. Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>Construction traffic will be required to follow designated routes. For the delivery of chemicals and removal of residue and contingency trucking should it be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	<p>Construction, operation and post closure: No significant net effect on residents as result of traffic are anticipated.</p>

Net Effects Table - Leachate Treatment Alternative 2: On-site Pre- treatment Prior to Discharge to Sanitary Sewer						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
ECONOMIC						
Potential for effect on businesses during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources and relative significance of odour sources. Number of leachate trucks during operation and number of trucks required for chemicals and disposal of residue during operation. 	<p>This alternative will require up to 2 trucks per day over a construction period of 4 to 6 weeks for the installation of equipment. This construction would be in the same location as the existing leachate storage tank or in available space in the southeast segment of the property.</p> <p>Leachate odour sources could include seeps, and the pre-treatment facility/storage tank overflow.</p> <p>Pre-treatment will be in a fully contained system with odour control. The type of pre-treatment required will depend on future regulations and the treatment needs identified. It is assumed that pre-treatment could require up to 2 trucks per day for the delivery of chemicals and the removal of residue.</p> <p>Pre-treated leachate will be pumped via the existing forcemain to the BWTLs.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day. Some chemical delivery may be required for this alternative.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>Leachate seeps are corrected immediately upon detection. Based on the 2017 Annual Report, there has been no evidence of leachate seeps since the installation of the leachate collection system in the Old Landfill and no seeps have been observed in the West Landfill, indicating that the leachate collection system is performing as designed.</p> <p>Should the pretreatment facility or tank level rise above maximum level, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for to allow for troubleshooting of the pretreatment facility or transferring the tank content.</p> <p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>Currently no trucking of leachate is carried out and no chemical delivery or residue disposal is required.</p> <p>There are approximately 200 trucks per day delivering waste to the site and this will continue as long as the site is in operation.</p>	<p>There will be no odour associated with construction</p> <p>This alternative adds the pre-treatment facility as a possible new odour source. However, given that pre-treatment will be in a fully contained system, odours during normal operation are not anticipated.</p> <p>There is some potential for odour to occur during an upset however it is not anticipated that the pre-treatment would include biological processes which are the greatest potential source of odour.</p> <p>Minimal construction trucking (up to an additional 2 trucks per day) or trucking during operation (up to 2 trucks per day) is anticipated. This number is negligible given the approximately 200 trucks per day that would continue to bringing waste to the site.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>Include odour control on pre-treatment system as required.</p> <p>Construction traffic will be required to follow designated routes.</p> <p>For the delivery of chemicals and removal of residue and contingency trucking should it be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	<p>Construction: No significant effect on businesses from traffic or odour during construction.</p> <p>Operation and post closure: There is some potential for odour effects on neighboring businesses in the event of an upset as leachate will remain on-site for longer to be pre-treated .</p> <p>No significant net effect on businesses as a result of traffic during operation or post closure are anticipated.</p>

Net Effects Table - Leachate Treatment Alternative 2: On-site Pre- treatment Prior to Discharge to Sanitary Sewer						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Cost of facility.	<ul style="list-style-type: none"> Approximate cost of leachate treatment facility alternative. 	Construction costs for a pre-treatment facility would be in the order of \$3-5 million.	Waste Connections pays the Municipality of Chatham-Kent for the treatment of landfill leachate.	This alternative results in significant additional costs to Waste Connections.	No mitigation available.	Construction, operation and post closure: Significant net effect related to cost is anticipated.
CULTURAL						
Potential effects to archaeological resources as a result of construction.	<ul style="list-style-type: none"> Area of undisturbed land affected by the on-site component of the leachate treatment alternative. 	This alternative will require installation of equipment in an area approximately 100 m ² in the same location as the existing leachate storage tank or in available space in the southeast segment of the property.	The lands in the vicinity of the current leachate storage and pump location and the southeast segment of the property have been identified as having no archaeological potential.	No potential effect.	No mitigation required. Should unexpected archaeological finds be discovered during construction, the Ministry of Culture, Tourism and Sport will be notified.	Construction, operation and post closure: No significant net effect on archaeological resources is anticipated.
BUILT						
Potential effects on existing transportation infrastructure and transportation operation.	<ul style="list-style-type: none"> Anticipated number of trucks required. 	<p>This alternative will require a construction duration of 4 to 6 weeks which will require 2 trucks per day during the construction period.</p> <p>It is assumed that pre-treatment could require up to 2 trucks per day for the delivery of chemicals and the removal of residue.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>Currently, no trucking of leachate is carried out and no chemical delivery or residue disposal is required.</p>	<p>Minimal construction trucking (up to an additional 2 trucks per day) or trucking during operation (up to 2 trucks per day) is anticipated. This number is negligible given the approximately 200 trucks per day that would continue to bringing waste to the site.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>Construction traffic will be required to follow designated routes.</p> <p>For the delivery of chemicals and removal of residue and contingency trucking should it be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	Construction, operation and post closure: No significant net effect on infrastructure is anticipated.

Net Effects Table - Leachate Treatment Alternative 2: On-site Pre- treatment Prior to Discharge to Sanitary Sewer						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Ease to implement/construct and maintain/operate.	<ul style="list-style-type: none"> Anticipated complexity of construction and operation. 	<p>This alternative will require installation of pre-treatment equipment.</p> <p>The type of pre-treatment required will depend on future regulations. This alternative will continue to use the existing forcemain to pump pre-treated leachate to the BWTLs.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs. This system is straightforward to operation and has been working successfully for 14 years.</p>	<p>A pre-treatment system would be a new operation on-site outside of the current expertise of Waste Connections staff although it would likely be relatively straightforward to operate.</p>	<p>Ongoing maintenance of the collection system, storage and pumps as required.</p> <p>Operator training required.</p> <p>Ongoing liaison with the Municipality of Chatham-Kent.</p>	<p>Construction: No significant net effect associated with construction.</p> <p>Operation and post closure: This alternative adds some complexity to Waste Connection’s operations.</p>

Net Effects Table - Leachate Treatment Alternative 3: On-Site Full Treatment Prior to Discharge to Surface Water						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
NATURAL ENVIRONMENT – BIOLOGICAL						
Potential for effect on aquatic systems during construction and operation.	<ul style="list-style-type: none"> Volume of leachate stored and/or treated on site at any one given time. Proximity to on-site watercourse/aquatic habitat. 	<p>This alternative involves the construction of a full treatment plant on-site likely in the southeast section of the property, physically removed from surface water. Treated leachate would be directed to a drain.</p> <p>This alternative will have 3-4 days storage capacity for untreated leachate and leachate undergoing treatment.</p>	<p>Current leachate collection system continuously pumps leachate to on-site tanks and then through existing forcemain to the BWTLs where it is treated. The current system has the capacity to store approximately 1 day of untreated leachate in the on-site tanks. The existing tank has a capacity of 605 m³.</p> <p>The existing leachate storage tank is approximately 50 m from the nearest ditch which takes stormwater to a stormwater pond. Testing is completed prior to the water being released to the Duke Drain north of the site. Habitat in the Duke is of low sensitivity.</p>	<p>This alternative has the potential to release up to 1 day of untreated leachate stored in the on-site tank as well as additional leachate being treated in the proposed facility (likely 2-3 days) should a rupture or malfunction occur.</p> <p>The volume of stored leachate for this alternative is more significant and could have a negative impact on the existing low quality aquatic habitat in the Duke Drain.</p> <p>No construction specific to this leachate alternative is needed within the Duke Drain.</p>	<p>Should issues be detected with the treatment system, leachate pumps would be cycled off and the landfill could contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	<p>Construction: No significant net effects are anticipated.</p> <p>Operation and post closure: Leachate is being handled multiple times and being treated on-site, there is potential for a malfunction that could cause a release to the environment of either raw leachate or partially treated leachate.</p>
NATURAL ENVIRONMENT – PHYSICAL (GROUND WATER)						
Potential impacts to groundwater quality during construction, operation and post closure.	<ul style="list-style-type: none"> Approximate travel time to groundwater aquifer. 	<p>This alternative involves the construction of a full treatment plant on-site likely in the southeast section of the property. Treated leachate would be directed to a drain.</p> <p>This alternative will have 3-4 days storage capacity for untreated leachate and leachate undergoing treatment.</p>	<p>There is more than 30 metres of natural clay under the site. The approximate travel time to the groundwater aquifer should an operational upset, spill or leak occur is about 3000 years.</p>	<p>Given the significant travel time to the groundwater aquifer, any leachate spill will be able to be addressed and cleaned up with no impact on groundwater.</p> <p>No construction effects on groundwater are anticipated.</p>	<p>Should issues be detected with the treatment system, leachate pumps would be cycled off and the landfill could contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p>	<p>Construction, operation and post closure: No significant net effect is anticipated.</p>

Net Effects Table - Leachate Treatment Alternative 3: On-Site Full Treatment Prior to Discharge to Surface Water						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
NATURAL ENVIRONMENT – PHYSICAL (SURFACE WATER)						
Potential impacts to surface water quantity and quality.	<ul style="list-style-type: none"> Volume of leachate stored and/or treated on site at any one given time. Proximity to on-site watercourse. 	<p>This alternative involves the construction of a full treatment plant on-site in the southeast section of the property physically removed from surface water.</p> <p>Treated leachate would be directed to a drain.</p> <p>This alternative will have 3-4 days storage capacity for untreated leachate and leachate undergoing treatment.</p> <p>The full treatment facility would be located near the existing storage tank, approximately 100 m from the nearest ditch/drain.</p>	<p>Current leachate collection system continuously pumps leachate to on-site tanks and then through existing forcemain to the BWTLs where it is treated. The current system has the capacity to store approximately 1 day of untreated leachate in the on-site tanks.</p> <p>Ditches in proximity to the existing leachate storage tank take stormwater to a stormwater pond where it is tested before being released to the Duke Drain north of the site.</p>	<p>This alternative has the potential to release up to 3-4 days of untreated leachate and leachate undergoing treatment should a malfunction occur.</p> <p>This alternative will increase the quantity of water in the Duke Drain all year round.</p> <p>The volume of stored leachate for this alternative is more significant and could have a negative impact on the quality of surface water in the Duke Drain should an upset or spill occur.</p> <p>Construction effects are anticipated to be minimal.</p>	<p>Should issues be detected with the treatment system, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for effective clean up and repair.</p> <p>All alternatives include a contingency to use a licensed hauler to truck leachate to the Chatham-Kent Waste Water Treatment Plant.</p> <p>Best management practices will be implemented during construction to minimize the potential for sedimentation.</p>	<p>Construction: No significant construction effects anticipated.</p> <p>Operation and post closure: Leachate is being handled multiple times and being treated on-site, there is potential for a malfunction that could cause a release to surface water of either untreated leachate or partially treated leachate.</p> <p>This alternative will also change the surface water quantity in the drain as treated leachate will be discharged year round.</p>
NATURAL ENVIRONMENT – PHYSICAL (ATMOSPHERIC)						
Potential impacts to air quality during construction and operation.	<ul style="list-style-type: none"> Nitrogen Oxides, Sulphur Dioxide and Carbon Monoxide (together referred to as criteria air contaminants): relative levels of construction as an indicator. Relative amount of energy required to operate facility. 	<p>This alternative involves the construction of a full treatment plant over 6-9 months.</p> <p>The extensive treatment required for Alternative 3 will require significant energy.</p>	<p>The energy to operate the current system to pump leachate to the BWTL is minimal.</p>	<p>There will be significant construction and energy use during operation and this alternative has the potential for some impact on air quality.</p> <p>The landfill expansion will extend the need for energy and associated air quality impacts over time.</p>	<p>Continued implementation of the best management practices plan for fugitive dust.</p>	<p>Construction: Construction air quality impacts will be short term.</p> <p>Operation and post closure: The operation of a full treatment plant requires significantly energy and has the potential to result in some air quality impact.</p>

Net Effects Table - Leachate Treatment Alternative 3: On-Site Full Treatment Prior to Discharge to Surface Water						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
NATURAL ENVIRONMENT – PHYSICAL (CLIMATE CHANGE)						
Potential for greenhouse gas emissions during construction and operation.	<ul style="list-style-type: none"> Relative amount of energy required to operate facility. 	The extensive treatment required for Alternative 3 will require significant energy.	The energy to operate the current system to pump leachate to the BWTL is minimal.	<p>There will be significant energy use during operation resulting in the potential for GHG emissions.</p> <p>The landfill expansion will extend the need for energy and associated GHG emissions over time.</p> <p>There will be significant construction and energy use during operation and this alternative has the potential for some impact on GHG emissions.</p>	No mitigation required	<p>Construction: Construction GHG impacts will be short term.</p> <p>Operation and post closure: The operation of a full treatment plant requires significant energy and has the potential to result in increased GHG emissions.</p>
SOCIAL						
Potential for noise/vibration impacts on residents during construction and operation.	<ul style="list-style-type: none"> Number of households in the study area who may experience noise/vibration impacts as a result of leachate treatment facility construction and operation. 	<p>This alternative will require a construction period of 6 to 9 months for a building approximately of 1500m². Including storage tanks. Treated leachate would be pumped to the Duke Drain.</p> <p>The forcemain would be no longer be used.</p> <p>The full treatment facility would be enclosed within a building.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>Screening berms have been built to control noise generated at the landfill and the existing pump is enclosed. The site is currently in compliance with respect to noise.</p> <p>There is no vibration as a result of current leachate treatment.</p>	<p>There is the potential for noise during the 6 to 9 month building construction duration.</p> <p>Operational noise is expected to be minimal and as full treatment will be fully contained within a building.</p> <p>There is no vibration effects as a result of this alternative.</p>	<p>Extension of the landfill berms.</p> <p>Enclosure of the full treatment in a building.</p> <p>Maintenance of equipment.</p> <p>Limit construction time to work days and normal business hours.</p>	<p>Construction: The extended construction period of 6-9 months has the potential for temporary noise impacts to residents.</p> <p>Operation and post closure: No significant noise effects from operation are anticipated. There will be no noise once landfill is closed.</p>

Net Effects Table - Leachate Treatment Alternative 3: On-Site Full Treatment Prior to Discharge to Surface Water						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Potential for odour during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources from leachate treatment facility construction and operation; relative significance of odour sources and relative distance of odour sources to discrete receptors. 	<p>This alternative will require construction period of 6 to 9 month duration for construction. This construction would be located in the available space in the southeast segment of the property. Leachate odour sources could include seeps, and the full treatment facility/storage tank overflow.</p> <p>Full treatment will be in a fully contained building with odour control.</p>	<p>Leachate seeps are corrected immediately upon detection. Based on the 2017 Annual Report, there has been no evidence of leachate seeps since the installation of the leachate collection system in the Old Landfill and no seeps have been observed in the West Landfill, indicating that the leachate collection system is performing as designed.</p> <p>Should the treatment facility or tank level rise above maximum level, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for troubleshooting of the treatment facility or transferring the tank content.</p>	<p>There will be no odour associated with the construction of the facility.</p> <p>This alternative adds the full treatment facility as a possible new odour source. The full treatment equipment will be in a fully contained in a building and odours are not anticipated during normal operation.</p> <p>There is some potential for odour to occur during upset or abnormal conditions (e.g. prolonged heat wave) however it is not anticipated that the pre-treatment would include biological processes which are the greatest potential source of odour.</p>	<p>Include odour control on full treatment building, however malfunction or treatment process upset is still a potential.</p>	<p>Construction: No significant net effects are anticipated.</p> <p>Operation and post closure: There is potential for odour effects in the event of an upset or abnormal conditions as leachate will remain on-site for longer to be treated.</p>
Potential for landfill traffic effect on residents during construction and operation.	<ul style="list-style-type: none"> Number of trucks during construction and number of trucks required for chemicals and disposal of residue during operation. 	<p>This alternative will require 5 to 10 trucks per day for construction over a 6-9 month construction period. Full treatment could require up to 2-5 trucks per day for the delivery of chemicals and the removal of residue.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day. Some chemical delivery may be required for this alternative.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>Currently no trucking of leachate is carried out and no chemical delivery or residue disposal is required.</p> <p>There are approximately 200 trucks per day delivering waste to the site and this will continue as long as the site is in operation.</p>	<p>There will be some construction related trucking over the 6-9 month construction period (5-10 trucks per day) and 2-5 trucks per day during operation. This number is negligible given the approximately 200 trucks per day that would continue to bring waste to the site.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>Construction traffic will be required to follow designated routes.</p> <p>For the delivery of chemicals and removal of residue and contingency trucking should it be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	<p>Construction, operation and post closure: No significant net effect on residents as result of traffic are anticipated.</p>

Net Effects Table - Leachate Treatment Alternative 3: On-Site Full Treatment Prior to Discharge to Surface Water						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
ECONOMIC						
Potential for effect on businesses during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources and relative significance of odour sources. Number of leachate trucks during operation and number of trucks required for chemicals and disposal of residue during operation. 	<p>This alternative will require on average, 5 to 10 construction trucks over a duration of 6 to 9 months for an approximately 1500m² building as well as additional storage. This construction would be in the available space in the southeast segment of the property.</p> <p>Leachate odour sources could include seeps, and the pre-treatment facility/storage tank overflow.</p> <p>Full treatment will be in a fully contained building with odour control. Full treatment could require 2-5 trucks per day for the delivery of chemicals and the removal of residue.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day. Some chemical delivery may be required for this alternative.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>Leachate seeps are corrected immediately upon detection. Based on the 2017 Annual Report, there has been no evidence of leachate seeps since the installation of the leachate collection system in the Old Landfill and no seeps have been observed in the West Landfill, indicating that the leachate collection system is performing as designed.</p> <p>Should the treatment facility or tank level rise above maximum level, leachate pumps can be cycled off and the landfill can contain leachate for a significant period of time to allow for troubleshooting of the treatment facility or transferring the tank content.</p> <p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>Currently no trucking of leachate is carried out and no chemical delivery or residue disposal is required.</p> <p>There are approximately 200 trucks per day delivering waste to the site and this will continue as long as the site is in operation.</p>	<p>There will be no odour associated with the construction.</p> <p>This alternative adds the full treatment facility as a possible new odour source. Given that full treatment will be in a fully contained building odours are not anticipated under regular operating conditions.</p> <p>There is some potential for odour to occur during upset or abnormal conditions (e.g. prolonged heat wave) however it is not anticipated that the pre-treatment would include biological processes which are the greatest potential source of odour.</p> <p>There will be construction related trucking over the 6-9 month construction period and some trucks during operation (2-5 trucks per day). However, this number is negligible given the approximately 200 trucks per day that would continue to bring waste to the site.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>Include odour control on full treatment building as required.</p> <p>Construction traffic will be required to follow designated routes. For the delivery of chemicals and removal of residue and contingency trucking should it be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	<p>Construction: No significant net effects on businesses from odour or traffic are anticipated during construction.</p> <p>Operation and post closure: There is some potential for odour effects on businesses in the event of an upset or abnormal conditions as leachate will remain on-site for longer to be treated.</p> <p>No significant net effect on businesses as result of traffic during operation are anticipated.</p>
Cost of facility.	<ul style="list-style-type: none"> Approximate cost of leachate treatment facility alternative. 	<p>Construction costs for a full treatment facility would be in the order of \$15 to 20 million.</p>	<p>Waste Connections pays the Municipality of Chatham-Kent for the treatment of landfill leachate.</p>	<p>This alternative results in very significant additional capital and operating costs to Waste Connections.</p>	<p>No mitigation available.</p>	<p>Construction, operation and post closure: The additional cost associated with this facility is a very significant effect.</p>

Net Effects Table - Leachate Treatment Alternative 3: On-Site Full Treatment Prior to Discharge to Surface Water						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
CULTURAL						
Potential effects to archaeological resources as a result of construction.	<ul style="list-style-type: none"> Area of undisturbed land affected by the on-site component of the leachate treatment alternative. 	This alternative will require temporary construction of an approximately 1500m ² building as well as additional storage. This construction would likely be in available space in the southeast segment of the property.	The lands in the southeast segment of the property have been identified as having no archaeological potential.	No potential effect.	No mitigation required. Should unexpected archaeological finds be discovered during construction, the Ministry of Culture, Tourism and Sport will be notified.	Construction, operation and post closure: No significant net effect on archaeological resources is anticipated.
BUILT						
Potential effects on existing transportation infrastructure and transportation operation.	<ul style="list-style-type: none"> Anticipated number of trucks required. 	<p>This alternative will require a construction duration of 6 to 9 months which will require 5 to 10 trucks per day on average over the construction duration.</p> <p>It is assumed that full treatment could require 2-5 trucks per day for the delivery of chemicals and the removal of residue.</p> <p>Trucking of leachate is identified should a contingency leachate treatment be required. If required this would result in approximately 14 tanker truck trips/day.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs.</p> <p>Currently, no trucking of leachate is carried out and no chemical delivery or residue disposal is required.</p>	<p>There will be construction related trucking over the 6-9 month construction period and some trucks during operation (2-5 per day). However, this number is negligible given the approximately 200 trucks per day bringing waste to the site.</p> <p>Should trucking of leachate be required the addition of 14 tanker trucks/day is not anticipated to be significant in the context of the 200 waste trucks per day.</p>	<p>Construction traffic will be required to follow designated routes.</p> <p>For the delivery of chemicals and removal of residue and contingency trucking should it be required, only licensed haulers would be used and they would be required to use identified truck routes.</p>	Construction, operation and post closure: No significant net effect on infrastructure is anticipated.

Net Effects Table - Leachate Treatment Alternative 3: On-Site Full Treatment Prior to Discharge to Surface Water						
Environmental Component / Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation Measures	Net Effects
Ease to implement/construct and maintain/operate.	<ul style="list-style-type: none"> Anticipated complexity of construction and operation. 	<p>This alternative will require a construction duration of 6 to 9 months for an approximately 1500m² building as well as additional storage.</p> <p>A full treatment facility is not something that Waste Connections currently has experience with and will require a full staff compliment of licensed operators to maintain/operate. Permits will be required to discharge treated effluent to the environment.</p>	<p>Since 2002 the on-site leachate collection system has been connected to a forcemain which takes the untreated leachate to the BWTLs. This system is straightforward to operation and has been working successfully for 14 years.</p>	<p>A full treatment plant is complex to construct and operate requiring new full time staff at the site with skills and experience not currently available within Waste Connections.</p>	<p>Ongoing maintenance of the collection system, storage and pumps as required.</p> <p>An extensive training program will be required to train new staff in the operation of this complex facility.</p>	<p>Construction, operation and post closure: This alternative is complex and will result in a significant effect to Waste Connections operations.</p>