



Attachment 3 – Landfill Gas
Management Alternatives – Net
Effects Assessment

Net Effects Table - Landfill Gas Management Alternative 1: Flaring						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
NATURAL ENVIRONMENT – PHYSICAL – ATMOSPHERIC						
Potential for impacts to air quality during construction and operation.	<ul style="list-style-type: none"> Relative levels of construction as an indicator of the generation of air contaminants from equipment exhaust (nitrogen oxides, sulphur dioxide and carbon monoxide). 	<p>Minor construction will be required for additional flares (two [2] construction periods approximately 1-2 weeks each).</p> <p>Future gas quality will be similar to existing given similar waste characteristics for expanded landfill.</p>	Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be required over the duration of the expansion.	There is minor construction on-site (two (2) construction periods approximately 1-2 weeks each) to install new flares and impact to air quality is expected to be minimal.	Construction best practices.	Construction: No significant net effect anticipated.
	<ul style="list-style-type: none"> Relative amount of energy required to operate facility. 	Operation of additional flares will not require significantly more energy than is currently used.	Two (2) flares are already operational and a third flare is included within the existing approval. Energy use for the existing flares is minimal.	No change to air quality is expected from the operation of this alternative.	Use of high efficiency equipment to the extent possible.	Operation and post closure: No significant net effect anticipated.
NATURAL ENVIRONMENT – PHYSICAL – CLIMATE CHANGE						
Potential for reduction of greenhouse gas (GHG) emissions during construction and operation.	<ul style="list-style-type: none"> Qualitative assessment of the potential for GHG emissions reduction as a result of landfill gas alternatives. 	<p>Flares will be added to manage additional volume of gas as landfill expands.</p> <p>The effectiveness of flares at managing GHG emissions will remain constant.</p>	<p>Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be required over the duration of the expansion.</p> <p>Existing and future flares will effectively reduce greenhouse gas emissions.</p>	<p>No change to the degree of reduction in GHG emissions is expected from this alternative.</p> <p>No impact to GHG anticipated as a result of construction.</p>	No mitigation required.	Construction, operation and post closure: No significant net effect anticipated.
SOCIAL						
Potential for noise as a result of landfill gas management facility construction and operation.	<ul style="list-style-type: none"> Number of households in the study area who may experience noise or other disturbance. 	<p>Two flares will be added to manage additional volume of gas as landfill expands. New flares will be in the same location as the existing flares which are buffered from view by the landfill and berms.</p> <p>New flares will meet operational noise requirements.</p> <p>Limited construction is involved with this alternative (two (2) construction periods approximately 1-2 weeks each).</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>No noise complaints related to the operation of the flares are documented in Annual Monitoring Reports from 2007 to 2018.</p>	With limited construction and the flares being shielded by the landfill and site berms, none of the households in the landfill vicinity are expected to experience noise or other disturbance different than existing conditions.	No mitigation beyond the berms included in the landfill design required.	Construction, operation and post closure: No significant off-site noise net effect anticipated.

Net Effects Table - Landfill Gas Management Alternative 1: Flaring						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
Potential for odour during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources; relative significance of odour sources (if characterization is possible), distance of odour sources to discrete receptors. 	<p>Flares will be added to manage additional volume of gas as landfill expands.</p> <p>New flares will be in the same location as the existing flares and do not add a new odour source or change the distance to receptors.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>There have been odour complaints at the landfill. Waste Connections works with neighbours to address complaints that are raised.</p>	<p>With no new odour sources, none of the households in the landfill vicinity are expected to experience odour attributed to flaring during regular operation.</p> <p>Construction will not result in odour effects.</p>	<p>Back-up and contingency plans would be in place to deal with any upset condition to prevent or mitigate the escape of fugitive landfill gas.</p>	<p>Construction, operation and post closure: No significant net effect anticipated.</p>
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 (if characterization is possible), distance of odour sources to discrete receptors. 	<p>Flares will be added to manage additional volume of gas as landfill expands.</p> <p>New flares will be in the same location as the existing flares and do not add a new odour source or change the distance away from businesses.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>There have been odour complaints at the landfill. Waste Connections works with neighbours to address complaints that are raised.</p>	<p>With no new odour sources, none of the businesses in the landfill vicinity are expected to experience odour attributed to the flaring during regular operation.</p> <p>Construction will not result in odour effects.</p>	<p>Back-up and contingency plans would be in place to deal with any upset condition to prevent or mitigate the escape of fugitive landfill gas.</p>	<p>Construction, operation and post closure: No significant net effect anticipated.</p>
	<ul style="list-style-type: none"> Number of businesses in the study area who may experience noise or other disturbance. 	<p>Flares will be added to manage additional volume of gas as landfill expands. New flares will be in the same location as the existing flares.</p> <p>New flares will meet operational noise requirements.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>No noise complaints related to the operation of the flares are documented in Annual Monitoring Reports from 2007 to 2018.</p>	<p>With limited construction and the flares being shielded by the landfill and site berms, none of the businesses in the landfill vicinity are expected to experience noise or other disturbance different than existing conditions.</p>	<p>No mitigation beyond the berms included in the landfill design required.</p>	<p>Construction, operation and post closure: No significant off-site noise net effect anticipated.</p>
Cost of facility	<ul style="list-style-type: none"> Approximate cost of landfill gas recovery facility. 	<p>Waste Connections is familiar with the capital and operating costs associated with flares.</p>	<p>Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be needed over the duration of the expansion.</p>	<p>Minimal cost effects anticipated.</p>	<p>No mitigation required.</p>	<p>Construction, operation and post closure: No significant net effect anticipated.</p>

Net Effects Table - Landfill Gas Management Alternative 1: Flaring						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
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 landfill gas management alternative. 	Flares will be added to manage additional volume of gas as landfill expands. New flares will be in the same location as the existing flares.	The lands in the vicinity of the existing flares have been identified as having no archaeological potential.	No archaeological effects anticipated.	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 anticipated.
BUILT						
Ease to implement/construct and maintain/operate.	<ul style="list-style-type: none"> Anticipated complexity of construction and operation. 	Waste Connections is familiar with the construction and operation of flares. This alternative is easy to implement and maintain/operate.	Two (2) flares are already operational and a third flare is included within the existing approval. Two additional flares will be needed over the duration of the expansion.	Minimal potential for unexpected complexities related to implementing/constructing or maintaining/operating the flares.	No mitigation required.	Construction, operation and post closure: No significant net effect anticipated.

Net Effects Table - Landfill Gas Management Alternative 2: Gas Utilization – Renewable Natural Gas						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
NATURAL ENVIRONMENT – PHYSICAL – Atmospheric						
Potential for impacts to air quality during construction and operation.	<ul style="list-style-type: none"> Relative levels of construction as an indicator of the generation of air contaminants from equipment exhaust (nitrogen oxides, sulphur dioxide and carbon monoxide). 	<p>Future gas quality will be similar to existing given similar waste characteristics for expanded landfill.</p> <p>Additional flares will still be needed requiring minor construction (two [2] construction periods approximately 1-2 weeks each).</p> <p>On-site construction would be minimal limited to compressing, treating and pumping gas to an off-site facility (approximately 1-2 weeks).</p>	Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be required over the duration of the expansion.	There is minor construction on-site for infrastructure to pump landfill gas to an off-site facility (approximately 1-2 weeks) in addition to the construction for the back-up flares (two [2] 1-2 week construction periods). No change to air quality is expected from the construction of this alternative.	Construction best practices.	Construction: No significant net effect anticipated.
	<ul style="list-style-type: none"> Relative amount of energy required to operate facility. 	<p>Operation of the additional flares that are still needed for this alternative will not require significantly more energy than is currently used.</p> <p>The extent of energy required to pump the gas to an off-site RNG facility will be minimal.</p>	Two (2) flares are already operational and a third flare is included within the existing approval. Energy use for the existing flares is minimal.	Low potential for impact to air quality due to anticipated amount of energy used. It is noted that this cannot be confirmed without a clearly defined project.	Use of high efficiency equipment to the extent possible.	Operation and post closure: No significant net effect anticipated.
NATURAL ENVIRONMENT – PHYSICAL – Climate Change						
Potential for reduction of greenhouse gas (GHG) emissions during construction and operation.	<ul style="list-style-type: none"> Qualitative assessment of the potential for GHG emissions reduction as a result of landfill gas alternatives. 	<p>Flares will be still be needed as a contingency to pumping gas to an RNG facility.</p> <p>The flares and the RNG plant are effective at managing GHG emissions.</p>	<p>Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be required over the duration of the expansion.</p> <p>Existing and future flares will effectively reduce greenhouse gas emissions.</p>	<p>This alternative will effectively reduce GHG emissions.</p> <p>This alternative has the potential for a positive impact on climate change from the offset of the use of traditional fuels.</p> <p>No impact to GHG anticipated as a result of construction.</p>	No mitigation required.	<p>Construction: No construction net effect anticipated.</p> <p>Operation and post closure: Positive net effect in as this alternative will offset the use of traditional fuels.</p>

Net Effects Table - Landfill Gas Management Alternative 2: Gas Utilization – Renewable Natural Gas						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
SOCIAL						
Potential for noise as a result of landfill gas management facility construction and operation.	<ul style="list-style-type: none"> Number of households in the study area who may experience noise or other disturbance. 	<p>Flares will still be needed as a contingency to pumping gas to an RNG facility and new flares will be added. New flares will be in the same location as the existing flares which are buffered by the landfill and berms.</p> <p>On-site construction would be required for additional flares and the infrastructure to pumping gas to an off-site facility.</p> <p>New flares and pumping equipment will meet operational noise regulations.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>No noise complaints related to the operation of the flares are documented in Annual Monitoring Reports from 2007 to 2018.</p>	<p>The 24 residences, particularly those closes to the site may experience some temporary construction disruption may occur given need to construct additional flares and the pumping infrastructure to pump gas to an off-site RNG facility.</p> <p>The landfill and site berms will shield the infrastructure associated with this alternative and minimize noise.</p> <p>Operation of the flares and pumps is not anticipated to result in noticeable off-site noise.</p>	<p>Berms as included in the landfill design.</p> <p>Containment of on-site pumping infrastructure within a building with appropriate noise dampening equipment.</p> <p>Construction best management practices related to equipment maintenance and timing.</p>	Construction, operation and post closure: No significant off-site noise net effect anticipated.
Potential for odour during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources; relative significance of odour sources (if characterization is possible), distance of odour sources to discrete receptors. 	<p>Flares will still be needed as a contingency to pumping gas to an RNG facility and new flares will be added. Both the new flares and the RNG pumping station will be in the same location as the existing flares and do not add a new odour source or change the distance to receptors.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>There have been odour complaints at the landfill. Waste Connections works with neighbours to address complaints that are raised.</p>	<p>With no new odour sources, none of the 24 households in the landfill vicinity are expected to experience odour attributed to the flaring during regular operation.</p> <p>Construction will not result in odour effects.</p>	<p>Back-up and contingency plans would be in place to deal with any upset condition to prevent or mitigate the escape of fugitive landfill gas.</p>	Construction, operation and post closure: No significant net effect anticipated.
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 (if characterization is possible), distance of odour sources to discrete receptors. 	<p>Flares will still be needed as a contingency to pumping gas to an RNG facility and new flares will be added.</p> <p>New flares and the RNG pumping station will be in the same location as the existing flares and do not add a new odour source or change the distance away from businesses.</p> <p>New flares and pumping equipment will meet operational noise regulations.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>There have been odour complaints at the landfill. Waste Connections works with neighbours to address complaints that are raised.</p>	<p>With no new odour sources, none of the businesses in the landfill vicinity are expected to experience odour attributed to the flaring during regular operation.</p> <p>Construction will not result in odour effects.</p>	<p>Back-up and contingency plans would be in place to deal with any upset condition to prevent or mitigate the escape of fugitive landfill gas.</p>	Construction, operation and post closure: No significant net effect anticipated.

Net Effects Table - Landfill Gas Management Alternative 2: Gas Utilization – Renewable Natural Gas						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
	<ul style="list-style-type: none"> Number of businesses in the study area who may experience noise or other disturbance. 	<p>Flares will still be needed as a contingency to pumping gas to an RNG facility and new flares will be added.</p> <p>New flares and the RNG pumping station will be in the same location as the existing flares.</p> <p>On-site construction would be required for additional flares and the infrastructure to pumping gas to an off-site facility.</p> <p>New flares and pumping equipment will meet noise regulations.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>No noise complaints related to the operation of the flares are documented in Annual Monitoring Reports from 2007 to 2018.</p>	<p>The 2 businesses may experience some temporary construction disruption given the need to construct additional flares and the pumping infrastructure to pump gas to an off-site RNG facility.</p> <p>The landfill and site berms will shield the infrastructure associated with this alternative and also minimize noise.</p> <p>Overall noise impacts are anticipated to be minimal and temporary.</p>	<p>Berms as included in the landfill design.</p> <p>Containment of on-site pumping infrastructure within a building with appropriate noise dampening equipment.</p> <p>Construction best management practices related to equipment maintenance and timing.</p>	<p>Construction, operation and post closure: No significant off-site noise net effect anticipated.</p>
Cost of facility.	<ul style="list-style-type: none"> Approximate cost of landfill gas recovery facility. 	<p>Waste Connections is familiar with the capital and operating costs associated with flares.</p> <p>This alternative requires an agreement with a third party to purchase the landfill gas. There is currently no agreement in place.</p> <p>If an agreement was in place it is assumed that the cost to build the infrastructure would be offset through the resulting sale of RNG.</p>	<p>Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be needed over the duration of the expansion.</p> <p>Waste Connections is not in the business of manufacturing, marketing and selling renewable natural gas.</p> <p>Waste Connections would not be able to use the amount of renewable natural gas that would be generated on site and has not been able to identify a third party who could use the electricity.</p>	<p>The cost of this facility cannot be determined without a third party agreement and a defined project. However, Waste Connections would only enter an agreement if it was financially viable so it is reasonable to assume that the potential effect of this alternative is neutral.</p>	<p>No mitigation required.</p>	<p>Construction, operation and post closure: The potential for effect depends on the third party agreement reached to purchase landfill gas.</p>

Net Effects Table - Landfill Gas Management Alternative 2: Gas Utilization – Renewable Natural Gas						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
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 landfill gas management alternative. 	Flares and infrastructure to pump gas to an off-site RNG facility would be in the same location as the existing flares or in another area that has been cleared.	The lands in the vicinity of the existing flares have been identified as having no archaeological potential.	No archaeological effects anticipated.	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 anticipated.
BUILT						
Ease to implement/construct and maintain/operate.	<ul style="list-style-type: none"> Anticipated complexity of construction and operation. 	Waste Connections is familiar with the construction and operation of flares. This alternative has the complexity of working with a third party to establish an agreement associated with the sale of landfill gas.	Waste Connections currently operates the existing flares.	This alternative involves a complex agreement for the sale of landfill gas to a third party. Landfill gas management operation would also be complex as it would need to be integrated with the RNG facility and include contingency processes to manage LFG in the event that there were problems at the RNG facility.	Effective communication processes between Waste Connections and the RNG operator. Back-up and contingency measures to manage LFG in the event that there is an upset at the RNG facility.	Construction, operation and post closure: Even with mitigation this alternative is complex.

Net Effects Table - Landfill Gas Management Alternative 3: Gas Utilization – Electricity Generation						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
NATURAL ENVIRONMENT – PHYSICAL – ATMOSPHERIC						
Potential for impacts to air quality during construction and operation.	<ul style="list-style-type: none"> Relative levels of construction as an indicator of the generation of air contaminants from equipment exhaust (nitrogen oxides, sulphur dioxide and carbon monoxide). 	<p>Additional flares will still be needed requiring minor construction (two (2) construction periods approximately 1-2 weeks each).</p> <p>Future gas quality will be similar to existing given similar waste characteristics for expanded landfill.</p> <p>Converting gas to electricity requires some on-site construction (approximately 4-6 weeks).</p>	Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be required over the duration of the expansion.	There is minor construction (approximately 4-6 weeks) on-site for additional flares and infrastructure to convert landfill gas to electricity and no change to air quality is expected from the construction of this alternative.	Construction best practices.	Construction: No significant net effect anticipated.
	<ul style="list-style-type: none"> Relative amount of energy required to operate facility. 	<p>Operation of the additional flares that are still needed for this alternative will not require significantly more energy than is currently used.</p> <p>The extent of energy required to convert landfill gas to electricity would be minimal.</p>	Two (2) flares are already operational and a third flare is included within the existing approval. Energy use for the existing flares is minimal.	Low potential for impact to air quality due to anticipated amount of energy used. It is noted that this cannot be confirmed without a clearly defined project.	Use of high efficiency equipment to the extent possible.	Operation and post closure: No significant net effect anticipated.
NATURAL ENVIRONMENT – PHYSICAL – CLIMATE CHANGE						
Potential for reduction of greenhouse gas (GHG) emissions during construction and operation.	<ul style="list-style-type: none"> Qualitative assessment of the potential for GHG emissions reduction as a result of landfill gas alternatives. 	<p>Flares will be still be needed as a contingency to pumping gas to an RNG facility.</p> <p>The flares and the conversion of gas to electricity are effective at managing GHG emissions.</p>	<p>Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be required over the duration of the expansion.</p> <p>Existing and future flares will effectively reduce greenhouse gas emissions.</p>	<p>This alternative will effectively reduce GHG emissions.</p> <p>This alternative has the potential for a positive impact on climate change from the offset of the use of traditional fuels.</p> <p>No GHG impact as a result of construction.</p>	No mitigation required.	<p>Construction: No construction net effect anticipated.</p> <p>Operation and post closure: Positive net effect in as this alternative will offset the use of traditional fuels.</p>

Net Effects Table - Landfill Gas Management Alternative 3: Gas Utilization – Electricity Generation						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
SOCIAL						
Potential for noise as a result of landfill gas management facility construction and operation.	<ul style="list-style-type: none"> Number of households in the study area who may experience noise or other disturbance. 	<p>Flares will still be needed as a contingency to conversion to electricity and new flares will be added. New flares will be in the same location as the existing flares which are buffered by the landfill and berms.</p> <p>On-site construction would be required for additional flares and the infrastructure to convert landfill gas to electricity.</p> <p>New flares and electricity conversion infrastructure will meet operational noise requirements.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>No noise complaints related to the operation of the flares are documented in Annual Monitoring Reports from 2007 to 2018.</p>	<p>The 24 residences, particularly those closest to the site may experience some temporary construction disruption given need to construct additional flares and the electricity conversion infrastructure.</p> <p>The landfill and site berms will shield the infrastructure associated with this alternative and minimize noise.</p> <p>Operation of the flares and electricity generation are not anticipated to result in noticeable off-site noise.</p>	<p>Berms as included in the landfill design.</p> <p>Containment of on-site electricity conversion infrastructure within a building with appropriate noise dampening equipment.</p> <p>Construction best management practices related to equipment maintenance and timing.</p>	<p>Construction, operation and post closure: No significant off-site noise net effect anticipated.</p>
Potential for odour during construction and operation.	<ul style="list-style-type: none"> Number of potential odour sources; relative significance of odour sources (if characterization is possible), distance of odour sources to discrete receptors. 	<p>Flares will still be needed as a contingency to converting gas to electricity and new flares will be added. Both the new flares and the electricity conversion infrastructure will be in the same location as the existing flares and do not add a new odour source or change the distance to receptors.</p>	<p>There are twenty-four residences within 1 km of the property boundary.</p> <p>There have been odour complaints at the landfill. Waste Connections works with neighbours to address complaints that are raised.</p>	<p>With no new odour sources, none of the 24 households in the landfill vicinity are expected to experience odour attributed to flaring or electricity generation during regular operation.</p> <p>Construction will not result in odour effects.</p>	<p>Back-up and contingency plans would be in place to deal with any upset condition to prevent or mitigate the escape of fugitive landfill gas.</p>	<p>Construction, operation and post closure: No significant net effect anticipated.</p>
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 (if characterization is possible), distance of odour sources to discrete receptors. 	<p>Flares will still be needed as a contingency to converting gas to electricity and new flares will be added.</p> <p>New flares and the electricity conversion infrastructure will be in the same location as the existing flares and do not add a new odour source or change the distance away from businesses.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>There have been odour complaints at the landfill. Waste Connections works with neighbours to address complaints that are raised.</p>	<p>With no new odour sources, none of the businesses in the landfill vicinity are expected to experience odour attributed to the flaring during regular operation.</p> <p>Construction will not result in odour effects.</p>	<p>Back-up and contingency plans would be in place to deal with any upset condition to prevent or mitigate the escape of fugitive landfill gas.</p>	<p>Construction, operation and post closure: No significant net effect anticipated.</p>

Net Effects Table - Landfill Gas Management Alternative 3: Gas Utilization – Electricity Generation						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
	<ul style="list-style-type: none"> Number of businesses in the study area who may experience noise or other disturbance. 	<p>Flares will still be needed as a contingency to converting gas to electricity and new flares will be added.</p> <p>New flares and the electricity conversion infrastructure will be in the same location as the existing flares and will meet operational noise requirements.</p> <p>On-site construction would be required for additional flares and the infrastructure to convert gas to electricity.</p>	<p>There are 2 businesses in the vicinity of the site.</p> <p>No noise complaints related to the operation of the flares are documented in Annual Monitoring Reports from 2007 to 2018.</p>	<p>The 2 businesses may experience some temporary construction disruption given the need to construct additional flares and the electricity conversion infrastructure.</p> <p>The landfill and site berms will shield the infrastructure associated with this alternative and also minimize noise.</p> <p>Operation of the flares and electricity conversion infrastructure is not anticipated to result in noticeable off-site noise.</p>	<p>Berms as included in the landfill design.</p> <p>Containment of on-site electricity conversion infrastructure within a building with appropriate noise dampening equipment.</p> <p>Construction best management practices related to equipment maintenance and timing.</p>	<p>Construction, operation and post closure: No significant off-site noise net effect anticipated.</p>
Cost of facility.	<ul style="list-style-type: none"> Approximate cost of landfill gas recovery facility. 	<p>Waste Connections is familiar with the capital and operating costs associated with flares.</p> <p>This alternative requires an agreement to sell electricity to the provincial grid or to a third party. There is currently no agreement in place.</p> <p>If an agreement was in place it is assumed that the cost to build the infrastructure would be offset through the resulting sale of electricity.</p>	<p>Two (2) flares are already operational and a third flare is included within the existing approval. Additional flares will be needed over the duration of the expansion.</p> <p>Waste Connections is not in the business of electricity generation, marketing and sales.</p> <p>The provincial government currently has no program to pay for landfill gas generated electricity.</p> <p>Waste Connections would not be able to use the amount of electricity that would be generated on site and has not been able to identify a third party who could use the electricity.</p>	<p>The cost of this facility cannot be determined without a third party agreement and a defined project.</p> <p>However, Waste Connections would only enter an agreement if it was financially viable so it is reasonable to assume that the potential effect of this alternative is neutral.</p>	<p>No mitigation required.</p>	<p>Construction, operation and post closure: The potential for effect depends on the third party agreement reached to purchase electricity.</p>

Net Effects Table - Landfill Gas Management Alternative 3: Gas Utilization – Electricity Generation						
Environmental Component/Criteria	Indicators	Key Design Considerations and Assumptions	Baseline Considerations and Assumptions	Potential Effects	Mitigation	Net Effect
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 landfill gas management alternative. 	Flares and infrastructure to convert gas to electricity would be in the same location as the existing flares or in another area that has been cleared.	The lands in the vicinity of the existing flares have been identified as having no archaeological potential.	No archaeological effects anticipated.	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 anticipated.
BUILT						
Ease to implement/construct and maintain/operate.	<ul style="list-style-type: none"> Anticipated complexity of construction and operation. 	Waste Connections is familiar with the construction and operation of flares. This alternative has the complexity of adding electricity generating equipment and working with a third party to establish an agreement associated with the sale of electricity.	Waste Connections currently operates the existing flares.	This alternative involves a complex agreement for the generation of electricity with third party. Landfill gas management operation would also be complex as it would need to be integrated with the generation facility and include contingency processes to manage landfill gas in the event that there were problems at the generation facility.	Effective communication processes between Waste Connections and the third party purchaser of electricity. Back-up and contingency measures to manage landfill gas in the event that there is an upset associated with the conversion of gas to electricity.	Construction, operation and post closure: Even with mitigation this alternative is complex.