Screening Summary Sheet

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)	Poor (1)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely meets minimum expectations.	Option fails to meet basic requirements of the criterion.

Option Number		1	2	3	4	4a	5	6
Option Description		Anaerobic Digestion + Dryer + Gas Scrubbing and Nutrient Recovery	Anaerobic Digestion + Dryer No Gas Scrubbing or Nutrient Recovery	Dryer Residual Solids	Anaerobic Digestion / Dewatered Solids / Biocell	Anaerobic Digestion / Dewatered Solids / Biocell	Dewatered Residual Solids / Biocell	Thermal Destruction Residual Solids
Economic Criteria								
EC-01 **Capital Costs** Construction costs including both direct and indirect costs in 2016 dollars.	Total Capital Cost of option	**Capital Cost of Option:** **$ 267 million**	**Capital Cost of Option:** **$ 224 million**	**Capital Cost of Option:** **$ 188 million**	**Capital Cost of Option:** **$ 166 million**	**Capital Cost of Option:** **$ 144 million**	**Capital Cost of Option:** **$ 104 million**	**Capital Cost of Option:** **$ 224 million**
EC-02 **Whole Life Cycle Costs** Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.	Whole Life Cycle Cost of Option	**Whole Life Cycle Cost of Option: $ 314 million**	**Whole Life Cycle Cost of Option: $ 287 million**	**Whole Life Cycle Cost of Option: $ 257 million**	**Whole Life Cycle Cost of Option: $ 207 million**	**Whole Life Cycle Cost of Option: $ 185 million**	**Whole Life Cycle Cost of Option: $ 159 million**	**Whole Life Cycle Cost of Option: $ 275 million**
EC-03 **Schedule of Completion**	Estimated Service Commencement Date Impacts included in the schedule assumption: • Timing needed for zoning and permitting requirements (e.g., development permit) • Environmental permitting requirements • Construction complexity • Commissioning	**Evidence:** Estimated Service Commencement Date: December 31st, 2020 **Final Acceptance:** December 31, 2020	**Evidence:** Estimated Service Commencement Date: December 31st, 2020 **Final Acceptance:** December 31, 2020	**Evidence:** Estimated Service Commencement Date: December 31st, 2020 **Final Acceptance:** December 31, 2020	**Evidence:** Estimated Service Commencement Date: December 31st, 2020 **Final Acceptance:** December 31, 2020	**Evidence:** Estimated Service Commencement Date: December 31st, 2020 **Final Acceptance:** December 31, 2020	**Evidence:** Estimated Service Commencement Date: December 31st, 2020 **Final Acceptance:** December 31, 2020	**Evidence:** Estimated Service Commencement Date: December 31st, 2022 extended due to additional time required for regulatory permitting **Final Acceptance:** December 31, 2022

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Environmental Criteria								

EN-01
Carbon Footprint
Net carbon dioxide equivalent (eCO_2) during the construction and operation of the facility (tonnes/year).
	• Construction carbon footprint
	• Operations carbon footprint;
	• Pumping and other conveyance impacts to carbon footprint
		Evidence:
		• Estimated carbon footprint for construction (one time) 9,760 tonnes
		• Power (treatment only) 913 tonnes/year
		• Fugitive gas emission 267 tonnes/year
		• Residual trucking fuel carbon 90 tonnes/year
		• Carbon offsets:
		  ○ Gas collection, utilization and sale offset 6,199 tonnes/year
		  ○ Struvite production offsets 189 tonnes/year
		• Annual Operating Net carbon credit: (5,118) tonnes/year
		Conclusion: Very Good
			Evidence:
			• This option produces gas which can be used for digester heating, hot water system, boilers and could be connected to landfill gas system at Hartland for power generation. No gas sale for revenue.
			• Estimated carbon footprint for construction (one time) 9,242 tonnes
			• Power (treatment only) 696 tonnes/year
			• Fugitive gas emission 267 tonnes/year
			• Residual trucking fuel carbon 90 tonnes/year
			• Carbon offsets:
			  ○ Gas collection, utilization and sale offset 6,199 tonnes/year
			• Annual Operating Net carbon credit: (5,147) tonnes/year
			Conclusion: Good
				Evidence:
				• This option requires external landfill gas for drying but will produce a dry product which has fuel value.
				• Estimated carbon footprint for construction (one time) 6,878 tonnes
				• Power (treatment only) 547 tonnes/year
				• Residual trucking fuel carbon 177 tonnes/year
				• Net carbon credit: 723 tonnes/year
				Conclusion: Average
					Evidence:
					• This option produces gas which can be used for digester heating, hot water system, boilers and could be connected to landfill gas system at Hartland for power generation.
					• Estimated carbon footprint for construction (one time) 7,741 tonnes
					• Power (treatment only) 598 tonnes/year
					• Fugitive gas emission 832 tonnes/year
					• Residual trucking fuel carbon 7 tonnes/year for onsite Biocell.
					• Carbon offsets:
					  ○ Gas collection, utilization and sale offset 6,199 tonnes/year
					• Annual Operating Net carbon credit: (4,762) tonnes/year
					Conclusion: Good
						Evidence:
						• This option produces gas which can be used for digester heating, hot water system, boilers and could be connected to landfill gas system at Hartland for power generation.
						• Estimated carbon footprint for construction (one time) 7,086 tonnes
						• Power (treatment only) 598 tonnes/year
						• Fugitive gas emission 832 tonnes/year
						• Residual trucking fuel carbon 7 tonnes/year for onsite Biocell.
						• Carbon offsets:
						  ○ Gas collection, utilization and sale offset 6,199 tonnes/year
						• Annual Operating Net carbon credit: (4,762) tonnes/year
						Conclusion: Good
							Evidence:
							• Carbon footprint is amongst highest as there is no significant gas or energy production and emissions from raw sludge are higher.
							• Estimated carbon footprint for construction (one time) 4,876 tonnes
							• Power (treatment only) 420 tonnes/year
							• Fugitive gas emission 2,154 tonnes/year
							• Residual trucking fuel carbon 12 tonnes/year for onsite Biocell.
							• Annual Operating Net carbon credit: 2,586 tonnes/year
							Conclusion: Poor
								Evidence:
								• This option has the ability to generate minor amounts of electrical power from raw solids alone.
								• Estimated carbon footprint for construction (one time) 7,560 tonnes
								• Power (treatment only) 852 tonnes/year
								• Residual trucking fuel carbon 12 tonnes/year
								• Annual Operating Net carbon: 864 tonnes/year
								Conclusion: Average

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EN-02 **Exceeds Regulatory Requirements**	• Degree to which the treatment process exceeds current regulatory requirements	**Evidence:** • This Option will produce Class A biosolids which is suitable for a range of beneficial reuse options. • The Option will produce pipeline quality methane which can be sold to displace fossil fuels. • This Option will produce phosphorous fertilizer which is suitable as agricultural fertilizer. **Conclusion: Very Good**	**Evidence:** • This Option will produce Class A biosolids which is suitable for a range of beneficial reuse options. This option will produce pellets suitable for use as a fuel substitute. **Conclusion: Good**	**Evidence:** • This Option will produce Class A biosolids which is suitable for a range of beneficial reuse options including fuel substitute and/ or soil amendment. **Conclusion: Good**	**Evidence:** • This Option will produce Class A biosolids which is suitable for a range of beneficial reuse options. It is also stabilized and can be used for landfill cover or stored in a biocell. • The option produces biogas which is suitable for internal use for digestion process • The biocell is likely only a temporary measure if approved by Ministry of Environment **Conclusion: Good**	**Evidence:** • This Option will produce Class A biosolids which is suitable for a range of beneficial reuse options. It is also stabilized and can be used for landfill cover or stored in a biocell. • The option produces biogas which is suitable for internal use for digestion process • The biocell is likely only a temporary measure if approved by Ministry of Environment **Conclusion: Good**	**Evidence:** • This option produces un-stabilized biosolids with very limited disposal options and is likely only a temporary measure if approved by Ministry of Environment. **Conclusion: Poor**	**Evidence:** • This option thermally destructs raw solids and can produce energy. **Conclusion: Average**
Criteria and Description	**Considerations**							
EN-03 **Redundancy** Does Option meet the Reliability criteria specified in the Municipal Wastewater Regulations?	• Table 1 — Component and Reliability Requirements for Wastewater Facilities from the BC Municipal Wastewater Regulations • The remaining capacity with the largest unit process out of service must be at least 50% of the design maximum flow	**Evidence:** • Option has redundancy features that meet regulatory requirements. Option is reliant on third party for disposal of dried fuel. **Conclusion: Good**	**Evidence:** • Option has redundancy features that meet regulatory requirements. Option is reliant on third party for disposal of dried fuel. **Conclusion: Good**	**Evidence:** • Option has redundancy features that meet regulatory requirements. Option is reliant on third part for disposal of dried fuel. **Conclusion: Good**	**Evidence:** • Option has redundancy features that meet regulatory requirements. • Disposal to landfill under control of CRD **Conclusion: Good**	**Evidence:** • Option has redundancy features that meet regulatory requirements. • Disposal to landfill under control of CRD **Conclusion: Good**	**Evidence:** • This is an interim solution. Thickening and dewatering can be designed with redundancy. **Conclusion: Fair**	**Evidence:** • Facility can be designed with redundancy for critical components. Back up in the event of failure would be landfill. **Conclusion: Average**

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EN-04 **Resource Recovery Beneficial Reuse** Do recovered resources have flexibility for beneficial reuse	• Type of resources that will be recovered by this Option (i.e. biosolids, phosphorous, energy) • Quantities of resources that will be recovered by this Option	**Evidence:** • This Option will produce 6,970 (wet) tonnes (wet) per year of Class A biosolids at 90% solids as feedstock for the IRM process train • This Option can utilized surplus landfill gas for plant heating • This Option will produce 272 tonnes of food grade phosphorous which is suitable as agricultural fertilizer. Potential revenue is estimated at ~$50,000/year • The cleaned biogas and landfill gas can be sold as a fuel for use in vehicles and to heat buildings. **Conclusion: Very Good**	**Evidence:** • This Option will produce 6,970 (wet) tonnes per year of Class A biosolids at 90% solids as feedstock for the IRM process train • This Option can create electricity from surplus landfill gas and biogas for the BC Hydro grid, **Conclusion: Good**	**Evidence:** • This Option will produce 12,090 (wet) tonnes per year of dried pellets (Class A biosolids) at 90% solids as feedstock for the IRM process train **Conclusion: Average**	**Evidence:** • This Option will produce 25,090 (wet) tonnes per year of Class A biosolids at 25% solids as feedstock for the IRM process train • This Option can create electricity from surplus landfill gas and biogas for the BC Hydro grid, **Conclusion: Good**	**Evidence:** • This Option will produce 25,090 (wet) tonnes per year of Class A biosolids at 25% solids as feedstock for the IRM process train • This Option can create electricity from surplus landfill gas and biogas for the BC Hydro grid. **Conclusion: Good**	**Evidence:** • This option produces un-stabilized biosolids and is likely only a temporary measure if approved by Ministry of Environment. • There will be gas recovered as landfill gas but the quantity of recovery is not possible to estimate. • This Option will yield 43,520 (wet) tonnes/year @ 25% of un-stabilize biosolids as feedstock for the IRM process train **Conclusion: Fair**	**Evidence:** • This option will recover heat from the thermal process but the quantity/quality of heat will depend on the technology selected. **Conclusion: Average**
EN-05 **Flexibility for Integrated Resource Management with Municipal Solid Waste** Suitability of the solids treatment process to integrate with Integrated Resource Management (IRM) system	• The potential for Integrated Resource Management via the Biosolids Management Strategy • The ability of the option to accommodate an IRM planning process either now or in the future (e.g., future retrofits to accommodate different uses for waste products).	**Evidence:** • This option produces a dried Class A biosolids which can be used for a range of beneficial uses including fuel and other products. • Option includes gas and nutrient recovery. **Conclusion: Very Good**	**Evidence:** • This option produces a dried Class A biosolids which can be used for a range of beneficial uses including fuel and other products. • Gas recovery only for internal use. • No nutrient recovery **Conclusion: Good**	**Evidence:** • This option produces a dried Class A biosolids which can be used for a range of beneficial uses including fuel and other products. External gas source required to run drier. **Conclusion: Average**	**Evidence:** • This option produces a dewatered Class A biosolids which can be used for a range of beneficial uses including landfill cover or a biocell. **Conclusion: Average**	**Evidence:** • This option produces a dewatered Class A biosolids which can be used for a range of beneficial uses including landfill cover or a biocell. **Conclusion: Average**	**Evidence:** • This option produces dewatered raw sludge which can only be stored in biocell likely an interim basis. **Conclusion: Fair**	**Evidence:** • This option produces ash which can be disposed of in landfill. **Conclusion: Fair**

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EN-06 **Permitting Requirements** Complexity of permitting and approvals processes.	• Does this Option comply with the approved Liquid Waste Management Plan (LWMP)? • Does this Option require an amendment to the approved Solid Waste Management Plan (SWMP)? • Environment Impact Study (EIS) required? • Does this option comply with Federal/Provincial regulatory requirements? • Air Emissions Permit required? • Anticipated public support/opposition to technology.	**Evidence:** • This Option is consistent with the LWMP Amendment #10 • This Option does not require an amendment to the SWMP • EIS has been completed for this Option • This Option will meet all Federal/Provincial regulations **Conclusion: Very Good**	**Evidence:** • This Option is consistent with the LWMP Amendment #10 • This Option does not require an amendment to the SWMP • EIS has been completed for this Option • This Option will meet all Federal/Provincial regulations . **Conclusion: Very Good**	**th exice:** • This Option is consistent with the LWMP Amendment #10 • This Option does not require an amendment to the SWMP • This option will meet all Federal/Provincial regulations • There are no raw biosolids dryers in BC so permitting may be more extensive. **Conclusion: Average**	**Evidence:** • This Option is consistent with the digestion component of the LWMP Amendment #10 • This Option does not require an amendment to the SWMP • This Option will meet all Federal/Provincial regulations • Additional permitting will be required for biocell. **Conclusion: Good**	**Evidence:** • This Option is consistent with the digestion component LWMP Amendment #10 • This Option does not require an amendment to the SWMP • This Option will meet all Federal/Provincial regulations • Additional permitting will be required for biocell. **Conclusion: Good**	**Evidence:** • **This Option will require a LWMP amendment.** • This Option does not meet all Federal/Provincial regulations • Option is only an interim measure and will require conditional approval from Ministry of Environment. **Conclusion: Fair**	**Evidence:** • This Option will require a LWMP amendment. • Intensive permitting process is required for thermal destruction projects including EIS and air shed modeling. • This technology could face public opposition. **Conclusion: Fair**
EN-07 **Energy recovery** Does the process recover reusable energy – biogas / methane / syngas or heat?	**Evidence:** • Energy balance o Gross energy recovery (biogas/heat) o Process energy consumption o Surplus biogas sale for revenue	**Evidence:** • Energy recovered from digester gas, • Digester gas for digestion heating, biosolids drying, boilers, plant wide and individual hot water systems • Surplus biogas for upgrade and sale to natural gas system for revenue. • Dried biosolids could potentially be used as fuel. **Conclusion: Very Good**	**Evidence:** • Energy recovered from digester gas, • Digester gas for digestion heating, biosolids drying, boilers, plant wide and individual hot water systems • No biogas upgrade, thus no surplus biogas sale for revenue. • Dried biosolids could potentially be used as fuel. **Conclusion: Good**	**Evidence:** • No digestion process, thus no energy recovered from digester gas, • Significant heat demand from solids drying, thus landfill gas and natural gas will be required. • No biogas upgrade, thus no surplus biogas sale for revenue. • Dried biosolids could potentially be used as fuel. **Conclusion: Fair**	**Evidence:** • Energy recovered from digester gas, • Digester gas for digestion heating, boilers, plant wide and individual hot water systems • No biogas upgrade, thus no surplus biogas sale for revenue. • No dried biosolids • Surplus biogas can be used for co-generation **Conclusion: Average**	**Evidence:** • Energy recovered from digester gas, • Digester gas for digestion heating, boilers, plant wide and individual hot water systems • No biogas upgrade, thus no surplus biogas sale for revenue. • Surplus gas can be used for co-generation • No dried biosolids **Conclusion: Average**	**Evidence:** • No digestion process, thus no energy recovered from digester gas, • Landfill gas and natural gas will be required for plant operation and head demand. • No biogas upgrade, thus no surplus biogas sale for revenue. • No dried biosolids **Conclusion: Fair**	**Evidence:** • Sludge being used as fuel to generate stream and thus electricity through turbine generator. • Residual heat being recovered to reduce the gas temperature for cleaning and discharging. • Sludge alone is not likely to sustain incineration operation. Combined MSW is likely required. **Conclusion: Fair**

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EN-08 **Leachate/Wastewater Production** Degree that the Option produces leachate or wastewater which must be treated.	• Quantity and quality of leachate generated by this Option • Quantity and quality of wastewater generated by this option.	**Evidence:** • This Option could yield 3.7 ML/d of process wastewater/ day from solids dewatering. • All liquid waste by-product streams will be conveyed to the liquid treatment wastewater plant(s) for treatment with landfill leachate. **Conclusion: Average**	**Evidence:** • This Option could yield 3.7 ML/d of process wastewater/ day from solids dewatering. • All liquid waste by-product streams will be conveyed to the liquid treatment wastewater plant(s) for treatment with landfill leachate. **Conclusion: Average**	**Evidence:** • This Option could yield 3.7 ML/d of process wastewater/ from solids dewatering. • All liquid waste by-product streams will be conveyed to the liquid treatment wastewater plant(s) for treatment with landfill leachate. **Conclusion: Average**	**Evidence:** • This Option will produce additional landfill leachate. • This Option could yield 3.7 ML/d of process wastewater/ from solids dewatering. • All liquid waste by-product streams will be conveyed to the liquid treatment wastewater plant(s) for treatment with landfill leachate. **Conclusion: Fair**	**Evidence:** • This Option will produce additional landfill leachate. • This Option could yield 3.7 ML/d of process wastewater/ from solids dewatering. • All liquid waste by-product streams will be conveyed to the liquid treatment wastewater plant(s) for treatment with landfill leachate. **Conclusion: Fair**	**Evidence:** • This option will produce additional landfill leachate. • This Option could yield 4.8 ML/d of process wastewater/ day from solids dewatering. • All liquid waste by-product streams will be conveyed to the liquid treatment wastewater plant(s) for treatment with landfill leachate. **Conclusion: Fair**	**Evidence:** • This Option could yield 4.8 ML of process wastewater/ day from solids dewatering. • All liquid waste by-product streams will be conveyed to the liquid treatment wastewater plant(s) for treatment with landfill leachate. **Conclusion: Average**
EN-09 **Environmental Controls (Air)** Does process require advanced air emission or odour controls?	• Complexity of environmental emissions control for the option under consideration	**Evidence:** This Option will require odour control for thickening and dewatering process. **Conclusion: Good**	**Evidence:** This Option will require odour control for thickening and dewatering process **Conclusion: Good**	**Evidence:** • This option will require odour and emissions control from raw sludge dryer. **Conclusion: Fair**	**Evidence:** • This Option will require odour control for thickening and dewatering process. **Conclusion: Average**	**Evidence:** • This Option will require odour control for thickening and dewatering process. **Conclusion: Average**	**Evidence:** • Odour control from raw sludge biocell at this scale will be difficult to control. **Conclusion: Fair**	**Evidence:** • This Option will process raw solids and will require additional odour control for thickening and dewatering process. • This Option will require advanced air emissions controls. **Conclusion: Fair**
EN-10 **Track Record of Performance** Does process have a proven track record of performance as specified in the draft P3 Canada agreement?	• Does the Option meet the P3 Canada requirement of 5 years of continuous operation under similar operating conditions?	**Evidence:** • Yes, many similar installations **Conclusion: Very Good**	**Evidence:** • Yes, many similar installations **Conclusion: Very Good**	**Evidence:** • Yes, more limited number of installations **Conclusion: Average**	**Evidence:** • Yes for digestion, limited number of biocells. Many cases where digested solids landfilled. **Conclusion: Good**	**Evidence:** • Yes for digestion, limited number of biocells. Many cases where digested solids landfilled. **Conclusion: Good**	**Evidence:** • CRD is currently landfilling raw solids from Saanich Peninsula and Sooke plant on an interim basis. **Conclusion: Fair**	**Evidence:** • There are a number of municipalities across North America which use thermal destruction. **Conclusion: Good**

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EN-11 **Terrestrial Impacts** Impact that a given site would have on existing terrestrial habitat.	• Impact on the vegetation and habitat for terrestrial areas of the site during construction • Degree of mitigation required for terrestrial environment.	**Evidence:** • No material difference in how the options meet the criterion. **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • Biocells occupy a significant footprint **Conclusion: Average**	**Evidence:** • Biocells occupy a significant footprint **Conclusion: Average**	**Evidence:** • Biocell occupy a significant footprint, raw solids will require additional area. **Conclusion: Fair**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**
Social Criteria (Including Health and Safety)	**Considerations**							
SO-01 **Operations Traffic** The impact of the traffic during the operations period of the option has on local communities.	• Number of trucks per month • Classification of local community, e.g., residential, industrial, or commercial properties • Number, and types, of schools along the access route • Types of roads; for example, residential, arterial	**Evidence:** • Daily traffic for staff access estimated at 8 to 10 vehicle movements per day • Access road to the site is a rural residential road. • Anticipate delivery of bulk chemicals up to twice per month • Monthly truck traffic for biosolids disposal is estimated to be 30 trucks/month **Conclusion: Good**	**Evidence:** • Daily traffic for staff access estimated at 8 to 10 vehicle movements per day • Access road to the site is a rural residential road. • Anticipate delivery of bulk chemicals up to twice per month • Monthly truck traffic for biosolids disposal is estimated to be 30 trucks/month **Conclusion: Good**	**Evidence:** • Daily traffic for staff access estimated at 8 to 10 vehicle movements per day • Access road to the site is a rural residential road. • Anticipate delivery of bulk chemicals up to twice per month • Monthly truck traffic for biosolids disposal is estimated to be 65 trucks/month **Conclusion: Average**	**Evidence:** • Daily traffic for staff access estimated at 8 to 10 vehicle movements per day • Access road to the site is a rural residential road. • Anticipate delivery of bulk chemicals up to twice per month • Monthly truck traffic for biosolids disposal is estimated to be 155 trucks/month **Conclusion: Fair**	**Evidence:** • Daily traffic for staff access estimated at 8 to 10 vehicle movements per day • Access road to the site is a rural residential road. • Anticipate delivery of bulk chemicals up to twice per month • Monthly truck traffic for biosolids disposal is estimated to be 155 trucks/month **Conclusion: Fair**	**Evidence:** • Daily traffic for staff access estimated at 8 to 10 vehicle movements per day • Access road to the site is a rural residential road. • Anticipate delivery of bulk chemicals up to twice per month • Monthly truck traffic for biosolids disposal is estimated to be 282 trucks/month **Conclusion: Poor**	**Evidence:** • Daily traffic for staff access estimated at 8 to 10 vehicle movements per day • Access road to the site is a rural residential road. • Anticipate delivery of bulk chemicals up to twice per month • Monthly truck traffic for ash disposal is estimated to be 3 trucks/month **Conclusion: Very Good**
SO-02 **Operations Impacts on local community** Potential for operational noise, dust and vibration impacts on the local community during operation of the treatment facility.	• Impact of noise, dust and vibration on local community • Classification of local community (e.g., residential or industrial) • Distance of neatest neighbour to source of noise and vibration (e.g., 25 m)	**Evidence:** • All mechanical equipment designed to minimize vibration and noise • All mechanical equipment contained inside buildings • Plant designed for limited vibration and noise levels. • Hartland site is remote from community **Conclusion: Good**	**Evidence:** • All mechanical equipment designed to minimize vibration and noise • All mechanical equipment contained inside buildings • Plant designed for limited vibration and noise levels. • Hartland site is remote from community **Conclusion: Good**	**Evidence:** • All mechanical equipment designed to minimize vibration and noise • All mechanical equipment contained inside buildings • Plant designed for limited vibration and noise levels. • Hartland site is remote from community **Conclusion: Good**	**Evidence:** • All mechanical equipment designed to minimize vibration and noise • All mechanical equipment contained inside buildings • Plant designed for limited vibration and noise levels. • Hartland site is remote from community **Conclusion: Good**	**Evidence:** • All mechanical equipment designed to minimize vibration and noise • All mechanical equipment contained inside buildings • Plant designed for limited vibration and noise levels. • Hartland site is remote from community **Conclusion: Good**	**Evidence:** • All mechanical equipment designed to minimize vibration and noise • All mechanical equipment contained inside buildings • Plant designed for limited vibration and noise levels. • Hartland site is remote from community **Conclusion: Good**	**Evidence:** • All mechanical equipment designed to minimize vibration and noise • All mechanical equipment contained inside buildings • Plant designed for limited vibration and noise levels. • Hartland site is remote from community **Conclusion: Good**

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Criteria and Description	**Considerations**							
SO-03 **Odour Impacts on Local Community** Impact of nuisance odours on the local community. This criterion assumes that the following design parameters have been followed: • Covered processes • Machines in buildings • Use of scrubbers • Requirement for no odour at the property line during normal operations	• Proximity to local community (e.g., 25m) and classification of local community (e.g., commercial, industrial, residential) • Potential odour due to fugitive emission • Degree of omission containment • Degree of odour control equipment • Dispersion specs and impact nearest residences	**Evidence:** • Nearest residential property is 1,000 metres from the site. • All unit processes contained in buildings. • Plant designed to stringent odour control requirements. Odour control systems include biofilters and activated carbon filters. • Emission modeling has ensured low odour numbers at property boundaries. • Due to the distance between the facilities and nearby residences, there is a low probability of complaints relating to fugitive odour emissions. **Conclusion: Good**	**Evidence:** • Nearest residential property is 1,000 metres from the site. • All unit processes contained in buildings. • Plant designed to stringent odour control requirements. Odour control systems include biofilters and activated carbon filters. • Emission modeling has ensured low odour numbers at property boundaries. • Due to the distance between the facilities and nearby residences, there is a low probability of complaints relating to fugitive odour emissions. **Conclusion: Good**	**Evidence:** • Nearest residential property is 1,000 metres from the site. • All unit processes contained in buildings. • Plant designed to stringent odour control requirements. Odour control systems include biofilters and activated carbon filters. • Emission modeling has ensured low odour numbers at property boundaries. • Due to the distance between the facilities and nearby residences, there is a low probability of complaints relating to fugitive odour emissions. **Conclusion: Fair**	**Evidence:** • Nearest residential property is 1,000 metres from the site. • All unit processes contained in buildings. • Plant designed to stringent odour control requirements. Odour control systems include biofilters and activated carbon filters. • Emission modeling has ensured low odour numbers at property boundaries. • Due to the distance between the facilities and nearby residences, there is a low probability of complaints relating to fugitive odour emissions. **Conclusion: Average**	**Evidence:** • Nearest residential property is 1,000 metres from the site. • All unit processes contained in buildings. • Plant designed to stringent odour control requirements. Odour control systems include biofilters and activated carbon filters. • Emission modeling has ensured low odour numbers at property boundaries. • Due to the distance between the facilities and nearby residences, there is a low probability of complaints relating to fugitive odour emissions. **Conclusion: Average**	**Evidence:** • Nearest residential property is 1,000 metres from the site. • All unit processes contained in buildings. • Plant designed to stringent odour control requirements. Odour control systems include biofilters and activated carbon filters. • Emission modeling has ensured low odour numbers at property boundaries. • Due to the distance between the facilities and nearby residences, there is a low probability of complaints relating to fugitive odour emissions. **Conclusion: Fair**	**Evidence:** • Nearest residential property is 1,000 metres from the site. • All unit processes contained in buildings. • Plant designed to stringent odour control requirements. Odour control systems include biofilters and activated carbon filters. • Emission modeling has ensured low odour numbers at property boundaries. • Due to the distance between the facilities and nearby residences, there is a low probability of complaints relating to fugitive odour emissions. **Conclusion: Fair**
SO-04 **Health and Safety - Workplace and Public** Potential workplace and public health and safety issues.	• Sewage and untreated biosolids may contain bacteria, fungi, parasites, and viruses that can cause various illnesses and infections • Biological agents that are capable of causing disease and that are considered the greatest threat are called pathogens. • Pathogens may be	**Evidence:** • There is no potential of landfill operations staff or the community being exposed to wind or water borne pathogens from this Option. • The biosolids processing equipment is generally enclosed and there is minimal potential to wastewater operators	**Evidence:** • There is no potential of landfill operations staff or the community being exposed to wind or water borne pathogens from this Option. • The biosolids processing equipment is generally enclosed and there is minimal potential to wastewater operators	**Evidence:** • There is some potential of landfill operations staff or the community being exposed to wind or water borne pathogens from this Option. • The raw solids processing is not enclosed and there is greater potential to wastewater operators	**Evidence:** • There is some potential of landfill operations staff or the community being exposed to wind or water borne pathogens from this Option. • Biosolids have been stabilized via digestion process • The biosolids processing is not	**Evidence:** • There is some potential of landfill operations staff or the community being exposed to wind or water borne pathogens from this Option. • Biosolids have been stabilized via digestion process • The biosolids processing is not	**Evidence:** • There is greater potential of landfill operations staff or the community being exposed to wind or water borne pathogens from this Option. • The raw solids have not been stabilized • The raw solids processing is not enclosed and there	**Evidence:** • There is some potential community being exposed to harmful emissions. • The raw solids processing equipment is generally enclosed and there is minimal potential to wastewater operators to be exposed to airborne pathogens. • For activities that

Option Number		1	2	3	4	4a	5	6
Option Description		Anaerobic Digestion + Dryer + Gas scrubbing and nutrient recovery	Anaerobic Digestion + Dryer No gas scrubbing or nutrient recovery	Dryer Residual Solids	Anaerobic Digestion / Dewatered Solids / Biocell	Anaerobic Digestion / Dewatered Solids / Biocell	Dewatered Residual Solids / Biocell	Thermal Destruction Residual Solids
	dispersed into the workplace and surrounding community by water or wind. • Potential health risks and illnesses may include, but are not limited to: o Gastroenteritis - characterized by cramping, stomach pains, diarrhea and vomiting o Weil's disease - a flu-like illness with persistent and severe headache, transmitted by rat urine. Damage to liver, kidneys and blood may occur and the condition can be fatal. o Occupational asthma - resulting in attacks of breathlessness, chest tightness and wheezing, and produced by the inhalation of living or dead organisms. o Infection of the skin or eyes • Rarely, allergic alveolitis (inflammation of the lung) with fever, breathlessness, dry cough, and aching muscles and joints.	to be exposed to airborne pathogens. • For periodic activities that require workers to contact contaminated equipment, workers will be trained in Safe Work Practices and will use Personal Protective Equipment (PPE) such as gloves and masks to avoid any direct contact with untreated waste. **Conclusion: Good**	to be exposed to airborne pathogens. • For periodic activities that require workers to contact contaminated equipment, workers will be trained in Safe Work Practices and will use Personal Protective Equipment (PPE) such as gloves and masks to avoid any direct contact with untreated waste. **Conclusion: Good**	to be exposed to airborne pathogens • For activities that require workers to contact contaminated equipment, workers will be trained in Safe Work Practices and will use Personal Protective Equipment (PPE) such as gloves and masks to avoid any direct contact with untreated waste. **Conclusion: Average**	enclosed and there is greater potential to wastewater operators to be exposed to airborne pathogens • For periodic activities that require workers to contact contaminated equipment, workers will be trained in Safe Work Practices and will use Personal Protective Equipment (PPE) such as gloves and masks to avoid any direct contact with untreated waste. **Conclusion: Average**	enclosed and there is greater potential to wastewater operators to be exposed to airborne pathogens • For periodic activities that require workers to contact contaminated equipment, workers will be trained in Safe Work Practices and will use Personal Protective Equipment (PPE) such as gloves and masks to avoid any direct contact with untreated waste. **Conclusion: Average**	is greater potential to wastewater operators to be exposed to airborne pathogens. • For activities that require workers to contact contaminated equipment, workers will be trained in Safe Work Practices and will use Personal Protective Equipment (PPE) such as gloves and masks to avoid any direct contact with untreated waste. **Conclusion: Fair**	require workers to contact contaminated equipment, workers will be trained in Safe Work Practices and will use Personal Protective Equipment (PPE) such as gloves and masks to avoid any direct contact with untreated waste. **Conclusion: Average**
SO-05 **Construction Impacts (Solids Conveyance)** Construction impacts to the community along the conveyance route	• Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**

Option Number		1	2	3	4	4a	5	6
Option Description		Anaerobic Digestion + Dryer + Gas scrubbing and nutrient recovery	Anaerobic Digestion + Dryer No gas scrubbing or nutrient recovery	Dryer Residual Solids	Anaerobic Digestion / Dewatered Solids / Biocell	Anaerobic Digestion / Dewatered Solids / Biocell	Dewatered Residual Solids / Biocell	Thermal Destruction Residual Solids
	residential and commercial) • Interruption of "quiet enjoyment" of private property owners • Impacts to vegetation and property, including any costs of remediation • Possible damage to property(consider causes, e.g., blasting or vibration) • Pipeline is small diameter 250 mm and impacts are not anticipated to be significant							
SO-06 **Construction Impacts (Treatment Facilities)** Construction impacts to the community	• Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) • Impacts to environmentally sensitive areas • Interruption of "quiet enjoyment" of private property owners • Impacts to vegetation and property, including any costs of remediation • Possible damage to property (consider causes, e.g., blasting or vibration) • Daily construction truck traffic	**Evidence:** • Excavated material will be disposed on site. • Due to the remoteness of the facilities there is a low risk of significant dust, vibration, and noise impacts to the neighbours. • Daily traffic volumes from construction activities could be 100 vehicles movements/day for 36 months. • Concrete trucking to site will be up to 30 trucks/day over 24 months. **Conclusion: Good**	**Evidence:** • Excavated material will be disposed on site. • Due to the remoteness of the facilities there is a low risk of significant dust, vibration, and noise impacts to the neighbours. • Daily traffic volumes from construction activities could be 100 vehicles movements/day for 36 months. • Concrete trucking to site will be up to 30 trucks/day over 24 months. **Conclusion: Good**	**Evidence:** • Excavated material will be disposed on site. • Due to the remoteness of the facilities there is a low risk of significant dust, vibration, and noise impacts to the neighbours. • Daily traffic volumes from construction activities could be 100 vehicles movements/day for 36 months. • Concrete trucking to site will be up to 30 trucks/day over 18 months. **Conclusion: Good**	**Evidence:** • Excavated material will be disposed on site. • Due to the remoteness of the facilities there is a low risk of significant dust, vibration, and noise impacts to the neighbours. • Daily traffic volumes from construction activities could be 100 vehicles movements/day for 36 months. • Concrete trucking to site will be up to 30 trucks/day over 18 months. **Conclusion: Good**	**Evidence:** • Excavated material will be disposed on site. • Due to the remoteness of the facilities there is a low risk of significant dust, vibration, and noise impacts to the neighbours. • Daily traffic volumes from construction activities could be 100 vehicles movements/day for 36 months. • Concrete trucking to site will be up to 30 trucks/day over 18 months. **Conclusion: Good**	**Evidence:** • Excavated material will be disposed on site. • Due to the remoteness of the facilities there is a low risk of significant dust, vibration, and noise impacts to the neighbours. • Daily traffic volumes from construction activities could be 100 vehicles movements/day for 36 months. • Concrete trucking to site will be up to 30 trucks/day over 12 months. **Conclusion: Good**	**Evidence:** • Excavated material will be disposed on site. • Due to the remoteness of the facilities there is a low risk of significant dust, vibration, and noise impacts to the neighbours. • Daily traffic volumes from construction activities could be 100 vehicles movements/day for 36 months. • Concrete trucking to site will be up to 30 trucks/day over 30 months. **Conclusion: Good**

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Option Description		Anaerobic Digestion + Dryer + Gas scrubbing and nutrient recovery	Anaerobic Digestion + Dryer No gas scrubbing or nutrient recovery	Dryer Residual Solids	Anaerobic Digestion / Dewatered Solids / Biocell	Anaerobic Digestion / Dewatered Solids / Biocell	Dewatered Residual Solids / Biocell	Thermal Destruction Residual Solids
SO-07 **Ease of Operations** Complexity of technology to maintain operational performance	• Is the treatment technology robust and will respond favourably to changing feedstock conditions • Does the treatment technology require frequent operator monitoring and intervention	**Evidence:** • Anaerobic Digestion is a stable process that will perform well without operator oversight during periods of unattended operation • Biosolids dewatering using centrifuge technology use high speed rotating elements and are normally only utilized when operators are onsite. • Solids dewatering or thickening utilizes polymers which require frequent monitoring and adjustment based on biosolids characteristics. • Drying technology uses indirect heat and is typically only operated when operators are onsite. Unattended operated is not recommended. • Based on historical operating experience, drying technology requires significant maintenance. **Conclusion: Average**	**Evidence:** • Anaerobic Digestion is a stable process that will perform well without operator oversight during periods of unattended operation • Biosolids dewatering using centrifuge technology use high speed rotating elements and are normally only utilized when operators are onsite. • Solids dewatering or thickening utilizes polymers which require frequent monitoring and adjustment based on biosolids characteristics. • Drying technology uses indirect heat and is typically only operated when operators are onsite. Unattended operated is not recommended. • Based on historical operating experience, drying technology requires significant maintenance. **Conclusion: Average**	**Evidence:** • Undigested solids dewatering requires additional equipment using centrifuge technology with high speed rotating elements and are normally only utilized when operators are onsite. • Solids dewatering or thickening utilizes polymers which require frequent monitoring and adjustment based on solids characteristics. • Drying technology uses indirect heat and is typically only operated when operators are onsite. Unattended operated is not recommended. • Based on historical operating experience, drying technology requires significant maintenance. **Conclusion: Average**	**Evidence:** • Anaerobic Digestion is a stable process that will perform well without operator oversight during periods of unattended operation • Biosolids dewatering using centrifuge technology use high speed rotating elements and are normally only utilized when operators are onsite. • Solids dewatering or thickening utilizes polymers which require frequent monitoring and adjustment based on biosolids characteristics. **Conclusion: Good**	**Evidence:** • Anaerobic Digestion is a stable process that will perform well without operator oversight during periods of unattended operation • Biosolids dewatering using centrifuge technology use high speed rotating elements and are normally only utilized when operators are onsite. • Solids dewatering or thickening utilizes polymers which require frequent monitoring and adjustment based on biosolids characteristics. **Conclusion: Good**	**Evidence:** • Undigested solids dewatering requires additional equipment using centrifuge technology with high speed rotating elements and are normally only utilized when operators are onsite. • Solids dewatering or thickening utilizes polymers which require frequent monitoring and adjustment based on solids characteristics. • More difficulty handling raw sludge **Conclusion: Average**	**Evidence:** • Undigested solids dewatering requires additional equipment using centrifuge technology with high speed rotating elements and are normally only utilized when operators are onsite. • Solids dewatering or thickening utilizes polymers which require frequent monitoring and adjustment based on solids characteristics. **Conclusion: Good**
SO-08 **Compatibility with Official Community Plan** Degree of planning activity to amend OCP, zoning and Development Permitting	• Compatibility with existing Official Community Plan • Requirement for rezoning or variance on zoning, including risk of receiving	**Evidence:** • Solids processing is a permitted use. • Rezoning not required for this Option. • OCP has been amended for the	**Evidence:** • Solids processing is a permitted use. • Rezoning not required for this Option. • OCP has been amended for the	**Evidence:** • Solids processing is a permitted use. • Rezoning not required for this Option. • OCP has been amended for the	**Evidence:** • Solids processing is a permitted use. • Rezoning not required for this Option. • OCP has been amended for the	**Evidence:** • Solids processing is a permitted use. • Rezoning not required for this Option. • OCP has been amended for the	**Evidence:** • Solids processing is a permitted use. • Rezoning not required for this Option. • OCP has been amended for the	**Evidence:** • Solids processing is a permitted use. • This option may require rezoning • This option will require extensive

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	variance in a timely manner • Development permitting process, including risk of achieving DP in a timely manner • Anticipated opposition to rezoning by host municipality or impacted property owners	approved zoning. • Development Permit (DP) may be required. **Conclusion: Average**	approved zoning. • Development Permit (DP) may be required. **Conclusion: Average**	approved zoning. • Development Permit (DP) may be required. **Conclusion: Average**	approved zoning. • Development Permit (DP) may be required. **Conclusion: Average**	approved zoning. • Development Permit (DP) may be required. **Conclusion: Average**	approved zoning. • Development Permit (DP) may be required. **Conclusion: Average**	public consultation **Conclusion: Poor**
SO-09 **Archeological Findings** Risk of discovering archeological items during construction	• Consider archeological studies completed to date	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Good**
SO-10 **Impact to Local First Nations** How the option impacts local First Nations, either by providing benefits, or lack of consultation	• Can the option accommodate First Nation interests? • Has the local First Nations been consulted on the proposed sites? • Are there opportunities for the local First Nations to benefit through the development of the option?	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**
SO-11 **Cultural and Heritage Impacts** Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	• How the option respects and incorporates existing cultural or heritage structures, site, or artifacts	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**	**Evidence:** • No material difference in how the options meet the criterion **Conclusion: Average**