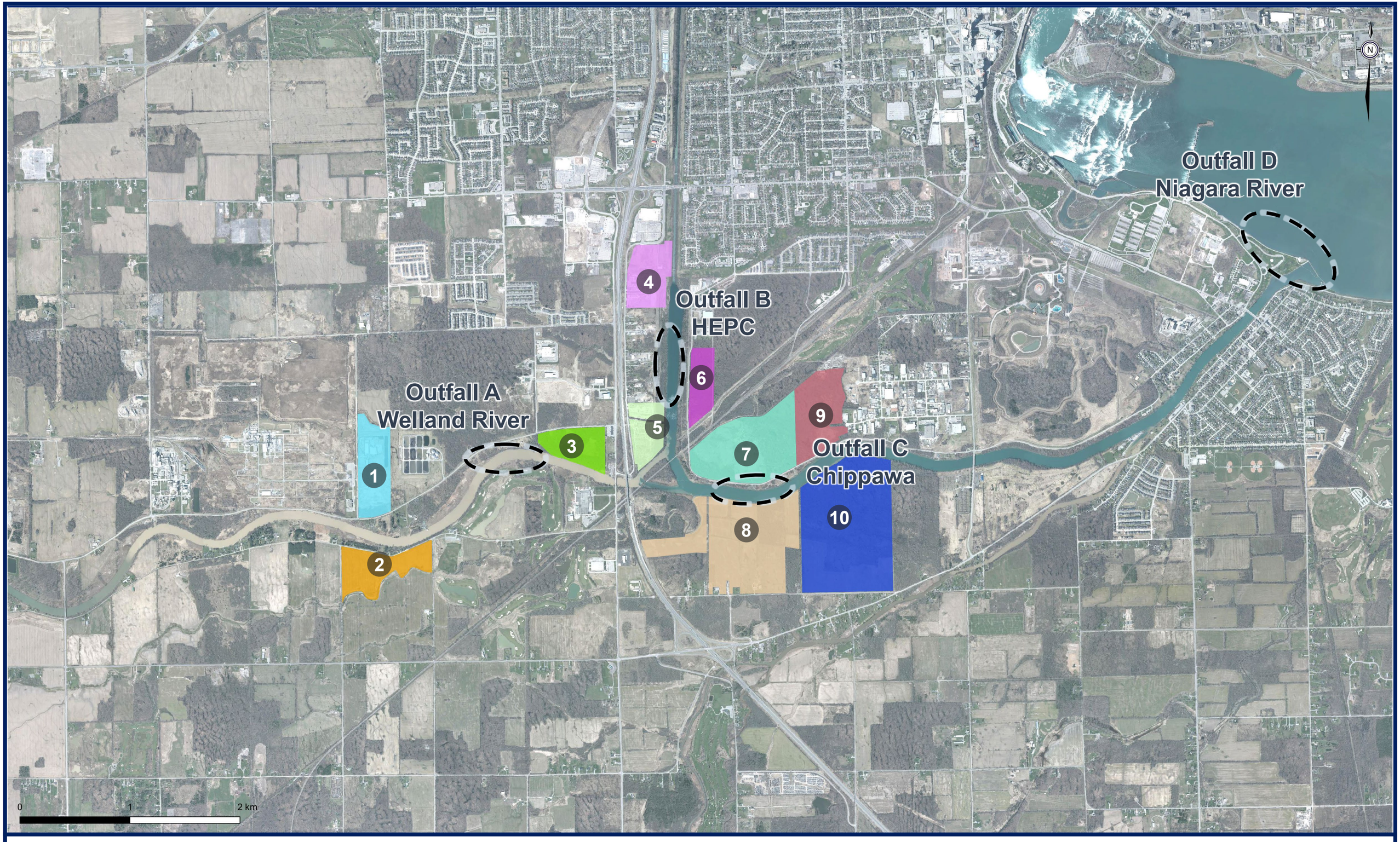
BluePlan ENGINEERING

Niagara Region

REGIONAL MUNICIPALITY OF NIAGARA

SOUTH NIAGARA FALLS WASTEWATER SOLUTIONS

V2.1 – SNF WWTP Sites Long List Alternatives Evaluation



TEAMING FOR NIAGARA'S FUTURE

BluePlan ENGINEERING CIMA+ GOLDER redbrick communications

South Niagara Falls Wastewater Solutions Class EA

Long List of WWTP Sites and Outfall Locations

	Site 1		Site 2		Site 3	Site 4	Site 5	Site 6	Site 7		Site 8		Site 9		Site 10	
	Option 1A (Welland River)	Option 1B (HEPC)	Option 2A (Welland River)	Option 2B (HEPC)	(HEPC)	(HEPC)	(HEPC)	(HEPC)	Option 7A (HEPC)	Option 7B (Chippawa)	Option 8A (HEPC)	Option 8B (Chippawa)	Option 9A (Chippawa)	Option 9B (Niagara River)	Option 10A (Chippawa)	Option 10B (Niagara River)
Environmental	- Receiving waterbody (Welland River) is more environmentally sensitive than Hydro Electric Power Canal (HEPC) and Chippawa Creek - Site has minimal environmental constraints (Environmental Conservation Area [ECA] that is avoidable) reducing potential for siting impact	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site has minimal environmental constraints (ECA that is avoidable) reducing potential for siting impact	- Receiving waterbody (Welland River) is more environmentally sensitive than HEPC and Chippawa Creek - Site has minimal environmental constraints reducing potential for siting impact	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site has minimal environmental features reducing potential for siting impact - Outfall requires crossing of significant environmental features	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site constrained by environmental features including significnat wetland complexes	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site has minimal environmental features reducing potential for siting impact	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site has minimal environmental features reducing potential for siting impact	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site is constrained by environmental features including signficiant wetland complexes and deer wintering	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site is constrained by environmental features including scattered wetland complexes	- Receiving waterbody (Chippawa Creek) is less environmentally sensitive than Welland River - Site is constrained by environmental features including scattered wetland complexes	- Receiving waterbody (Hydro Electric Power Canal) is less environmentally sensitive than Welland River - Site has minimal environmental features reducing potential for siting impact - Outfall requires crossing of significant environmental features	- Receiving waterbody (Chippawa Creek) is less environmentally sensitive than Welland River - Site has minimal environmental features reducing potential for siting impact	- Receiving waterbody (Chippawa Creek) is less environmentally sensitive than Welland River - Site is moderately constrained by environmental features including scattered wetland complexes	- Receiving waterbody (Niagara River) is less environmentally sensitive than Welland River - Site is moderately constrained by environmental features including scattered wetland complexes	- Receiving waterbody (Chippawa Creek) is less environmental sensitive than Welland River - Site is moderately constrained by environmental features including scattered wetland complexes	- Receiving waterbody (Niagara River) is less environmental sensitive than Welland River - Site is moderately constrained by environmental features including scattered wetland complexes
Social / Cultural	- Site is removed from core existing and future development areas - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation	- Site is removed from core existing and future development areas - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation	- Increased potential impact to future residential properties to the east - Receiving waterbody has existing recreational use increasing potential for impact during constriction and operation	- Increased potential impact to future residential properties to the east - Receiving waterbody has existing recreational use increasing potential for impact during constriction and operation	- Site is well buffered by natural features lowing potential impact to surrounding uses - Receiving waterbody has no public access reducing potential for impact during construction and operation	- Increased potential impact to existing residential properties and existing / future commercial / retail use - Receiving waterbody has no public access reducing potential for impact during construction and operation	- Increased potential impact to future residential properties and existing / future commercial / retail use - Impact to existing use as holiday park / recreational use - Receiving waterbody has no public access reducing potential for impact during construction and operation	- Increased potential impact to future residential properties - Receiving waterbody has no public access reducing potential for impact during construction and operation	- Increased potential impact to future residential properties - Receiving waterbody has no public access reducing potential for impact during constriction and operation	- Increased potential impact to future residential properties - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation	- Increased potential impact to future commercial properties - Receiving waterbody has no public access reducing potential for impact during construction and operation	- Increased potential impact to future commercial properties - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation	- Increased potential impact to future residential properties and existing / future commercial / retail use - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation	- Increased potential impact to future residential properties and existing / future commercial / retail use - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation	- Increased potential impact to future commercial properties - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation	- Increased potential impact to future commercial properties - Receiving waterbody has existing recreational use increasing potential for impact during construction and operation
Legal / Jurisdictional	- Suitable existing, future and surrounding land use (industrial) - Sensitive receiving waterbody increasing permitting and approval requirements	- Suitable existing, future and surrounding land use (industrial)	- Suitable existing and future land use (open space) - Sensitive receiving waterbody increasing permitting and approval requirements	- Suitable existing and future and use (open space)	- Existing land use constrained by environmental features - Significant environmental constraints increasing permitting and approval requirements	- Existing land use includes mixed commercial properties and would require several property acquisitions for siting purposes - Suitable future land use (mostly commercial, some industrial)	- Existing land includes a holiday park that has seasonal recreation - Suitable future land use (mostly commercial, some industrial)	- Future land use (residential) is not compatible for siting purposes - Significant environmental constraints increasing permitting and approval requirements	- Future land use (residential) is not compatible for siting purposes - Significant environmental constraints increasing permitting and approval requirements	- Future land use (residential) is not compatible for siting purposes - Significant environmental constraints increasing permitting and approval requirements	- Existing land is being used for agriculture - Suitable future land use (commercial)	- Existing land is being used for agriculture - Suitable future land use (commercial)	- Future land use (residential) is not compatible for siting purposes	- Future land use (residential) is not compatible for siting purposes	- Suitable existing and future land use (commercial) - Significant environmental constraints increasing permitting and approval requirements	- Suitable existing and future land use (commercial) - Significant environmental constraints increasing permitting and approval requirements
Technical	- Complex treatment needed to meet effluent criteria objectives due to more sensitive receiving waterbody - Short outfall to reach receiving waterbody - Inefficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Long outfall required to reach receiving waterbody - Inefficient collection strategy	- Complex treatment needed to meet effluent criteria objectives due to more sensitive receiving waterbody - Short outfall to reach receiving waterbody - Difficult collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Long outfall required to reach receiving waterbody - Difficult collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Limited land availability for future phasing due to environmental constraints - Inefficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Short outfall to reach receiving waterbody - Facilitates long-term planning and phasing - Efficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Short outfall to reach receiving waterbody - Facilitates long-term planning and phasing - Relatively efficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Short outfall to reach receiving waterbody - Inefficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Short outfall to reach receiving waterbody - Inefficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Short outfall to reach receiving waterbody - Inefficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Facilitates long-term planning and phasing - Efficient collection strategy	- Reduced treatment complexity needed to meet effluent criteria objectives - Facilitates long-term planning and phasing - Efficient collection strategy	- Short outfall to reach receiving waterbody - Limited land availability for future phasing due to environmental constraints - Difficult collection strategy	- Long outfall required to reach receiving waterbody - Limited land availability for future phasing due to environmental constraints - Difficult collection strategy	- Short outfall to reach receiving waterbody - Limited land availability for future phasing due to environmental constraints - Relatively efficient collection strategy	- Long outfall required to reach receiving waterbody - Limited land availability for future phasing due to environmental constraints - Relatively efficient collection strategy
Financial	- Increased costs associated with treatment and inefficient collection strategy	- Increased costs associated with length of outfall required and inefficient collection strategy	- Increased costs associated with treatment, length of outfall required and difficult collection strategy	- Increased costs associated with length of outfall required and difficult collection strategy	- Reduced costs associated with short outfall - Increased costs associated with inefficient collection strategy	- Reduced costs associated with short outfall and efficient collection strategy	- Reduced costs associated with short outfall and efficient collection strategy	- Reduced costs associated with short outfall - Increased costs associated with inefficient collection strategy	- Reduced costs associated with short outfall - Increased costs associated with inefficient collection strategy	- Reduced costs associated with short outfall - Increased costs associated with inefficient collection strategy	- Increased costs associated with length of outfall required - Reduced costs associated with efficient collection strategy	- Reduced costs associated with short outfall required and efficient collection strategy	- Reduced costs associated with short outfall required - Increased costs associated with difficult collection strategy	- Increased costs associated with length of outfall required and difficult collection strategy	- Reduced costs associated with short outfall required and relatively efficient collection strategy	- Increased costs associated with length of outfall required and relatively efficient collection strategy
Site Differentiator	***Concern with effluent discharge to Welland River and environmental implications.***	***Carried forward primarily because of compatible land use and opportunity to discharge to HEPC.***	***Concern with effluent discharge to Welland River and environmental implications. Difficult and costly collection strategy.***	***Difficult outfall strategy to HEPC. Difficult and costly collection strategy.***	***Insufficient land due to environmental constraints.***	***Efficient location based on existing infrastructure and proximity to HEPC.***	***Relatively efficient collection strategy in proximity to HEPC.***	***Inefficient collection system strategy. Environmental and planning constraints.***	***Inefficient collection system strategy. Environmental and planning constraints.***	***Inefficient collection system strategy. Environmental and planning constraints.***	***Suitable land use and efficient collection strategy including areas south of Chippawa Creek. Alternative was not carried forward as Chippawa Creek presents favourable Site 8 options.***	***Suitable land use and proximity to Chippawa Creek. Efficient collection strategy including areas south of Chippawa Creek.***	***Difficult collection strategy. Land availability constrained.***	***Difficult collection strategy. Land availability constrained.***	***Increased environmental constraints.***	***Increased environmental constraints.***
Feasibility	✗	✓	✗	✗	✗	✓	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗