



## **APPENDICES**

### **Appendix A**

Net Effects Assessment for the Short List of Alternative Water Reclamation Centre Sites

### **Appendix B**

Odour and Visual Assessment Figures for the Short List of Alternative Water Reclamation  
Centre Sites

### **Appendix C**

Net Effects Assessment for the York Durham Sewage System Modifications Alternative Routes

### **Appendix D**

Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

### **Appendix E**

Comparative Evaluation of the York Durham Sewage System Modifications Alternative Routes



## Appendix C

### Net Effects Assessment for the York Durham Sewage System Modifications Alternative Routes

<i>Appendix C-1</i>	<i>Table C.1</i>	<i>Net Effects Assessment – York Durham Sewage System Modifications Alternative Route A</i>
<i>Appendix C-2</i>	<i>Table C.2</i>	<i>Net Effects Assessment – York Durham Sewage System Modifications Alternative Route B</i>
<i>Appendix C-3</i>	<i>Table C.3</i>	<i>Net Effects Assessment – York Durham Sewage System Modifications Alternative Route C</i>



## **Appendix C-1**

Table C.1  
Net Effects Assessment – York Durham Sewage System Modifications  
Alternative Route A

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Technical	Carbon Dioxide (CO <sub>2</sub> ) Equivalent Footprint	Equivalent CO <sub>2</sub> (CO <sub>2</sub> e) generated in tonnes CO <sub>2</sub> e/year <sup>1</sup>	<ul style="list-style-type: none"> <li>Approximately 207 tonnes CO<sub>2</sub>e /year.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 207 tonnes CO<sub>2</sub>e /year.</li> </ul>
Natural Environment	Effect on groundwater	Temporary and/or long-term change in groundwater quality	<ul style="list-style-type: none"> <li>Temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route along the East Holland River<sup>2</sup>.</li> <li>No long-term change in groundwater quality during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use construction methods such as limiting excavations below the water table, use directional drilling methods where suitable, use groundwater cut-off structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route along the East Holland River would be minimized by using appropriate construction methods.</li> <li>No net effects.</li> </ul>
		Temporary and/or long-term change in groundwater quantity	<ul style="list-style-type: none"> <li>Temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route along the East Holland River<sup>3</sup>.</li> <li>No long-term change in groundwater quantity during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use construction methods such as limiting excavations below the water table, use directional drilling methods where suitable, use groundwater cutoff structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route along the East Holland River would be minimized by using appropriate construction methods.</li> <li>No net effects.</li> </ul>
	Effect on surface water	Temporary and/or long-term change in surface water quality	<ul style="list-style-type: none"> <li>Temporary decrease in surface water quality at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to increased sediment in surface water runoff during construction of the YDSS Modifications Alternative Route.</li> <li>No long-term change in surface water quality during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement an Erosion and Sediment Control Plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) during construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No net effects.</li> </ul>
		Temporary and/or long-term change in surface water quantity	<ul style="list-style-type: none"> <li>Temporary increase in surface water quantity at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to increase in overland flow during construction of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement an Erosion and Sediment Control Plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) during construction.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to increase in overland flow during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>

1. Equivalent CO<sub>2</sub> generated indicator includes direct and indirect emissions (i.e., from electricity generation) of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O. Direct emissions include natural gas, transportation related emissions, process related emissions, equipment related emissions, chemical usage related emissions, and off-site biosolids/residuals decomposition emission. Further details are provided in the Technical Concept Level 2 Document, (CRA et al., February 2013).

2. Due to the expected presence of coarse grained alluvial materials and a high water table, dewatering along Alternative Route A has the potential to be significant.

3. Due to the expected presence of coarse grained alluvial materials and a high water table, dewatering along Alternative Route A has the potential to be significant

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>No long-term change in surface water quantity during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect on aquatic habitat or functions	Area (m <sup>2</sup> ) of temporary or permanent loss of aquatic features or categorical loss of functions by type – including Provincially Significant Wetland, Locally Significant Wetland, watercourses by sensitivity type, and others <sup>4</sup>	<ul style="list-style-type: none"> <li>Temporary loss of aquatic habitat and function at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent loss aquatic habitat or function during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Undertake construction outside of the relevant fish spawning timing window, and in the low-flow, dry summer periods where possible.</li> <li>Implement as appropriate construction Best Management Practices such as dewatering and fish relocation during construction works based on consultations with review agencies.</li> <li>Limit removal of riparian vegetation, especially mature shrubs and trees.</li> <li>Stabilize banks and implement a restoration plan to compensate for temporary loss of aquatic habitat.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No net effects.</li> </ul>
	Effect on stream geomorphology	Change in geomorphic form/function/stability in affected channels	<ul style="list-style-type: none"> <li>Temporary change to channel form, function and stability at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No long-term change in geomorphic form, function or stability during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Limit removal of riparian vegetation.</li> <li>Implement post construction restoration of channel form and function.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form, function and stability at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No net effects.</li> </ul>
	Effect on aquatic species including Species at Risk (species of special concern, threatened, endangered) and species of local concern, native and invasive species	Number and type of aquatic species <sup>5</sup> potentially affected temporarily or permanently <sup>6</sup>	<ul style="list-style-type: none"> <li>Temporary disturbance<sup>7</sup> to aquatic species at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Undertake construction outside of relevant fish spawning timing window, and in the low-flow, dry summer periods where possible.</li> <li>Implement appropriate construction Best Management Practices such as dewatering and fish relocation during construction works.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> </ul>

4. Provincially Significant Wetlands, Locally Significant Wetlands and permanent and intermittent watercourses were avoided during the generation of the long list of potential YDSS Modifications Alternative Routes.

5. Aquatic species include species of local concern, native and invasive species.

6. Refer to the Natural Environment Baseline Conditions Report (CRA et al., February 2013) for detailed information on aquatic species.

7. Temporary disturbance to aquatic species at crossings due to decrease in surface water quality during construction of the YDSS Modifications Alternative Route.

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>No permanent disturbance to aquatic species during operation of the YDSS Modifications Alternative Route.</li> <li>No temporary or permanent disturbance to aquatic Species at Risk during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul>
	Effect on groundwater recharge and discharge areas in relation to aquatic/wetland habitat	Area (m <sup>2</sup> ) of temporary or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>Temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent loss of groundwater recharge and discharge areas as they relate to aquatic/wetland habitat during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use standard construction methods such as limiting excavations below the water table, using groundwater cut-off structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>Direct dewatering discharge back to local watercourse following temperature and clarity control to mitigate temporary loss of baseflow.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by using appropriate construction methods and directing the discharge back to the local watercourse.</li> <li>No net effects.</li> </ul>
	Effect on terrestrial habitat or functions	Area (m <sup>2</sup> ) of temporary and/or permanent loss of natural heritage features by type – including Environmentally Sensitive Areas (ESAs), Areas of Natural and Scientific Interest (ANSIs), wildlife corridors, and others	<ul style="list-style-type: none"> <li>No temporary or permanent loss of ESAs, ANSIs or wildlife corridors during construction and operation of the YDSS Modifications Alternative Route.</li> <li>Temporary and permanent loss of 3.3 ha of meadow, thicket, plantation, forest, marsh and swamp habitat and associated wildlife habitat (in the Wesley Brooks Conservation Area, the Mabel Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek) during construction and operation of the YDSS Modifications Alternative Route<sup>8</sup>.</li> <li>Temporary and permanent loss of 0.13 ha of cultural meadow, shallow marsh and deciduous swamp habitat and associated wildlife habitat (in the Wesley Brooks Conservation Area, the Mabel Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek) from construction of the staging areas<sup>9</sup> for the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>Develop and implement a habitat restoration plan to compensate for loss of vegetation communities based on consultations with agencies.</li> <li>Develop and implement a habitat restoration plan to compensate for loss of vegetation communities based on consultations with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>The temporary and permanent loss of 3.3 ha of meadow, thicket, plantation, forest, marsh and swamp habitat and associated wildlife habitat (in the Wesley Brooks Conservation Area, the Mabel Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek) during construction and operation of the YDSS Modifications Alternative Route would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The temporary and permanent loss of 0.13 ha of cultural meadow, shallow marsh and deciduous swamp habitat and associated wildlife habitat (in the Wesley Brooks Conservation Area, the Mabel Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek) from construction of the staging areas for the YDSS Modifications Alternative Route would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> </ul>

8. It has been assumed that the YDSS Modifications Alternative Route will disturb a 20 m width over the entire length of Alternative Route A within the Tannery Creek Valley. It has also been assumed that construction of the YDSS Modifications Alternative Route will be conducted using open cut construction methods rather than less invasive methods such as directional drilling. This likely has led to an over estimation of the area of terrestrial habitat affected, as many areas within the Tannery Creek Valley are planned to be constructed using less invasive directional drilling, wherever practical.

9. The area disturbed during construction of the staging areas has been estimated assuming that land clearing will be required for directional drilling and staging under all major stream crossings and at approximately 400 m intervals within the Tannery Creek Valley along YDSS Modifications Alternative Route A.

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect on terrestrial species including Species at Risk, (species of special concern, threatened, endangered) species of local concern, native and invasive species, and area-sensitive species	Number and type of terrestrial species <sup>10</sup> potentially affected temporarily and/or permanently <sup>11</sup>	<ul style="list-style-type: none"> <li>▪ Temporary and permanent disturbance<sup>12</sup> to terrestrial species in the Wesley Brooks Conservation Area, the Mabel Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek during construction and operation of the YDSS Modifications Alternative Route and associated staging areas.</li>   <li>▪ Temporary disturbance to terrestrial species within the north-south wildlife corridor along Tannery Creek during construction of the YDSS Modifications Alternative Route.</li>   <li>▪ Temporary disruption to Savannah Sparrow bird species during construction of the YDSS Modifications Alternative Route.</li>   <li>▪ No temporary or permanent disturbance to Species at Risk during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use construction methods such as timing/noise restrictions to protect nesting birds, wildlife, and amphibians.</li> <li>▪ Provide tree protection and delineation of work adjacent to natural areas.</li> <li>▪ Relocate amphibian species during construction works, if required.</li>   <li>▪ Use construction methods such as tree protection, delineated setbacks from natural areas and timing/noise restrictions to protect terrestrial species.</li>   <li>▪ Conduct pre-construction bird surveys to determine habitat use.</li> <li>▪ Use construction Best Management Practices such as tree protection, delineated setbacks from natural areas and timing/noise restrictions to protect nesting bird species and wildlife.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary and permanent disturbance to terrestrial species in the Wesley Brooks Conservation Area, the Mabel Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek during construction and operation of the YDSS Modifications Alternative Route and associated staging areas would be minimized by using appropriate construction methods, providing tree protection and delineation or work adjacent to natural areas and relocating amphibian species, as required</li> <li>▪ The temporary disturbance to terrestrial species within the north-south wildlife corridor along Tannery Creek during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>▪ The temporary disruption to Savannah Sparrow bird species during construction of the YDSS Modifications Alternative Route would be minimized by conducting pre-construction bird surveys to determine habitat use and using construction Best Management Practices.</li> <li>▪ No net effects.</li> </ul>
	Effect on groundwater recharge and discharge areas in relation to terrestrial habitat	Area (m <sup>2</sup> ) of temporary and/or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>▪ No temporary or permanent loss of groundwater recharge and discharge areas in relation to terrestrial habitat during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>

10. Terrestrial species include species of local concern, native and invasive species and area-sensitive species.

11. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on terrestrial species.

12. Disturbance refers to construction-related activities (i.e., noise, vibration, dust, etc.)

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Built Environment	Effect on agricultural operations and capital investment related to agriculture	Approximate area (ha) of active agricultural operations <sup>13</sup> affected	<ul style="list-style-type: none"> <li>No temporary or permanent loss of active agricultural operations during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
		Extent of disruption of active agricultural operations such as: <ul style="list-style-type: none"> <li>Fragmentation of agricultural fields</li> <li>Disturbance to artificial drainage systems and agricultural drains</li> <li>Removal and/or disturbance of farm fences, entrances and paddocks</li> <li>Disruption of agricultural-related businesses</li> <li>Disruption of normal external haul routes for farm machinery movements</li> </ul>	<ul style="list-style-type: none"> <li>No temporary or permanent disruption to active agricultural operations during construction or operation of the YDSS Modifications Alternative Route as it is located within an Urban Area.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect on existing residences, businesses, and/or community, institutional, and recreational facilities <sup>14</sup>	Number and type of residences displaced  Number and type of residences temporarily or permanently disrupted <sup>15</sup>	<ul style="list-style-type: none"> <li>No displacement of residences during construction and operation of the YDSS Modifications Alternative Route.</li> <li>Temporary disruption to driveway access for approximately 41 private residences during construction of the YDSS Modifications Alternative Route, including:               <ul style="list-style-type: none"> <li><b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> – 29 private residences with 29 driveway accesses:                   <ul style="list-style-type: none"> <li>28 private residences each with 1 access off of Bayview Parkway</li> <li>1 private residence with 1 access off of Bayview Parkway and 1 undisrupted access off of Heman Street</li> </ul> </li> <li><b>Section of Route from Davis Drive to Water Street</b> – 9 private residences with 9 driveway accesses off of Charles Street.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>Provide temporary driveway access and arrangements for waste collection to affected residences and notify residences of alternate arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>The temporary disruption to driveway access for approximately 41 private residences during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements.</li> </ul>

13. Active agricultural land removed refers to the area being ploughed (i.e., excludes barns, buildings etc).

14. Information regarding existing residences and businesses is accurate as of May, 2012.

15. Disruption to residences has been applied with respect to driveway accesses (including waste collection). Disruption that relates to odour, noise and vibration are considered in the respective indicators below.



**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of Route from Water Street to Mullock Drive</b> – 3 private residences with 3 driveway accesses and 2 private residences whose access is only by Cotter Street:               <ul style="list-style-type: none"> <li>▪ 2 private residences each with 1 access off of Cotter Street</li> <li>▪ 1 private residence with 1 access off of Cotter Street and 1 undisrupted access off of Second Street</li> </ul> </li> <li>▪ <b>Section of Route from Mullock Drive to Connection to Existing Gravity Sewer</b> – No residences</li> <li>▪ Temporary disruption to road access for 2 private residences that can only be accessed by Cotter Street (section of route from Water Street to Mullock Drive) during construction of the YDSS Modifications Alternative Route.</li> <li>▪ Temporary disruption to small portions of 4 private residences (including 1 multi-unit residential complex) where staging areas are constructed within these properties, and disruption to 1 multi-unit residential complex owned by York Region where the YDSS Modifications Alternative Route is constructed.</li> <li>▪ <b>Section of Route from Davis Drive to Water Street</b> –2 multi-unit residential complexes (1 private property and 1 property owned by York Region), where the YDSS Modifications Alternative Route will be constructed within the properties but will not disrupt accesses off of Timothy Street</li> <li>▪ <b>Section of Route from Water Street to Mullock Drive</b> – 1 private residence where the staging area will be constructed within the property but will not disrupt driveway access off of Second Street</li> <li>▪ <b>Staging Sites at Cotter Street and Bogart Pumping Station (Bogart Route)</b> – 2 private residences where the staging areas will be constructed within the properties but will not disrupt driveway access off of Second Street and Hamilton Street</li> <li>▪ No permanent disruption to residences during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary access for local roads and arrangements for waste collection to affected residences and notify residences of alternate arrangements.</li> <li>▪ Provide compensation in accordance with York Region’s policies.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to road access for 2 private residences that can only be accessed by Cotter Street during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and notifying residents of the alternative arrangements.</li> <li>▪ The temporary disruption to small portions of approximately 4 private residences (including 1 multi-unit residential complex) where staging areas are constructed within the properties, and 1 multi-unit residential complex owned by York Region where the YDSS Modifications Alternative Route is constructed would be compensated for (as necessary) in accordance with York Region’s policies.</li> <li>▪ No net effects.</li> </ul>

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
		Number and characteristics of businesses displaced <sup>16</sup>	<ul style="list-style-type: none"> <li>No displacement of businesses during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
		Number and characteristics of businesses temporarily or permanently disrupted <sup>17,18</sup>	<ul style="list-style-type: none"> <li>Temporary disruption to approximately 12 driveway accesses for 14 businesses during construction of the YDSS Modifications Alternative Route<sup>19</sup>, including: <ul style="list-style-type: none"> <li><b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> – 2 businesses with 3 driveway accesses, as well as 1 business with 1 driveway access and construction of YDSS Modifications Alternative Route within property: <ul style="list-style-type: none"> <li>1 business with 1 access off of Bayview Parkway</li> <li>1 business with 2 accesses off of Bayview Parkway</li> <li>1 business with 1 access off of Bayview Parkway and 1 undisrupted access off of Davis Drive</li> </ul> </li> <li><b>Section of Route from Davis Drive to Water Street</b> - 11 businesses with 8 driveway accesses: <ul style="list-style-type: none"> <li>3 businesses each with 1 access off of Charles Street</li> <li>2 businesses each with 2 accesses off of Charles Street</li> <li>6 businesses that share 1 access off of Charles Street and 1 undisrupted access off of Davis Drive</li> </ul> </li> <li><b>Section of Route from Water Street to Mulock Drive</b> – No businesses</li> </ul> </li> <li>Temporary disruption to small portions of 3 private businesses where the YDSS Modifications Alternative Route and/or staging areas are constructed within the business properties, including: <ul style="list-style-type: none"> <li><b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> <ul style="list-style-type: none"> <li>1 business with 1 access off of Bayview Parkway and 1 undisrupted access off of Davis Drive (included above)</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Provide temporary driveway access and access signage, arrangements for waste collection to affected businesses and notify businesses of alternative arrangements.</li> <li>Provide compensation in accordance with York Region's policies.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 12 driveway accesses for 14 businesses during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> <li>The temporary disruption to small portions of 3 private businesses where the YDSS Modifications Alternative Route and/or staging areas are constructed within the business properties would be compensated for (as necessary) in accordance with York Region's policies.</li> </ul>

16. Does not include agricultural businesses. Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

17. Does not include agricultural businesses. Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

18. Disruption to businesses has been applied with respect to driveway accesses, which considers customer access, deliveries and waste collection, etc. Disruption that relates to odour, noise and vibration are considered in the respective indicators below.

19. See the Land Use Baseline Conditions Report (CRA et al., April 2013) for descriptions and characteristics of businesses.

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of Route from Mulock Drive to Connection to Existing Gravity Sewer</b> – 2 businesses with construction of YDSS Modifications Alternative Route and/or staging areas within the properties but undisturbed driveway accesses off of Mulock Drive</li> <li>▪ <b>Staging Sites at Cotter Street and Bogart Pumping Station (Bogart Route)</b> – No businesses</li> <li>▪ No permanent disruption to businesses during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>
		Number and characteristics of community, institutional, and recreational facilities displaced	<ul style="list-style-type: none"> <li>▪ No displacement of community, institutional, and recreational facilities during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>
		Number and characteristics of community, institutional, and recreational facilities temporarily or permanently disrupted	<ul style="list-style-type: none"> <li>▪ Temporary disruption to 7 driveway accesses for 5 community, institutional and recreational facilities (including Tom Taylor Trail, George Richardson Park, Lake Simcoe Region Conservation Authority, York Region Community Service Housing Department, and Newmarket Recreation Youth Centre and Sk8park) during construction of the YDSS Modifications Alternative Route.</li> <li>▪ <b>Section of route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> - 2 facilities with 2 driveway accesses and 2 facilities with 3 driveway accesses: <ul style="list-style-type: none"> <li>▪ 2 recreational facilities, including Tom Taylor Trail and George Richardson Park each with 1 access off of Bayview Parkway.</li> <li>▪ 2 community/institutional facilities, including the Lake Simcoe Region Conservation Authority with 2 accesses off of Bayview Parkway and the York Region Community Service Housing Department with 1 access off of Bayview Parkway.</li> </ul> </li> <li>▪ <b>Section of Route from Davis Drive to Water Street</b> – 1 recreational facility, the Newmarket Recreation Youth Centre and Sk8park, with 2 accesses off of Charles Street.</li> <li>▪ Temporary disruption to portions of 9 community, institutional and recreational facilities where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary driveway access and access signage, arrangements for waste collection to affected community, institutional, and recreational facilities and notify facilities of alternative arrangements.</li> <li>▪ Provide compensation in accordance with York Region's policies.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to 7 driveway accesses for 5 community, institutional and recreational facilities (including Tom Taylor Trail, George Richardson Park, Lake Simcoe Conservation Authority, York Region Community Service Housing Department, and Newmarket Recreation Youth Centre and Sk8park) during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> <li>▪ The temporary disruption to portions of 9 community, institutional and recreational facilities (including Tom Taylor Trail, Lake Simcoe Conservation Authority, York Region Community Service Housing</li> </ul>



**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> - 1 facility with no driveway accesses where the YDSS Modifications Alternative Route will be constructed within the property, and 2 facilities with 3 driveway accesses where the YDSS Modifications Alternative Route will be constructed within the property:               <ul style="list-style-type: none"> <li>▪ 1 recreational facility with no accesses, Mabel Davis Conservation Area where the YDSS Modifications Alternative Route will be constructed within the property</li> <li>▪ 2 community/institutional facilities, including the Lake Simcoe Region Conservation Authority with 2 accesses off of Bayview Parkway and the York Region Community Service Housing Department with 1 access off of Bayview Parkway, where the YDSS Modifications Alternative Route will be constructed within the properties (included in the totals above)</li> </ul> </li> <li>▪ <b>Section of Route from Davis Drive to Water Street</b> –2 facilities where the YDSS Modifications Alternative Route will be constructed within the properties:               <ul style="list-style-type: none"> <li>▪ 1 recreational facility, Tom Taylor Trail, where the YDSS Modifications Alternative Route will be constructed within the property but will not disrupt accesses off of Timothy Street</li> <li>▪ 1 institutional facility, the York Regional Police District 1 Headquarters, where the YDSS Modifications Alternative Route will be constructed within the property but will not disrupt accesses off of Prospect Street and Water Street</li> </ul> </li> <li>▪ <b>Section of Route from Water Street to Mullock Drive</b> – 1 facility, Fairy Lake Park, where the YDSS Modifications Alternative Route will be constructed within the property but accesses off of Water Street and Cane Parkway are undisrupted</li> <li>▪ <b>Section of Route from Mullock Drive to Connection to Existing Gravity Sewer</b> – 2 recreational facilities, the Bailey Ecological Park and St. Andrew's Valley Golf Club, where the YDSS Modifications Alternative Route will be constructed within the properties but accesses are undisrupted</li> </ul>		<p>Department, Mabel Davis Conservation Area, York Regional Police District 1 Headquarters, Fairy Lake Park, Bailey Ecological Park, St. Andrew's Valley Golf Club, and College Manor Park) where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties would be compensated for (as necessary) in accordance with York Region's policies.</p>

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Staging Sites at Cotter Street and Bogart Pumping Station (Bogart Route)</b> – 1 recreational facility, College Manor Park, where the staging area will be constructed within the property but will not disrupt the access off of College Manor Drive</li> <li>▪ No permanent disruption to community, institutional, and recreational facilities during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>
	Effect of vibration on existing buildings	Number of existing buildings affected and extent and duration of adverse effects <sup>20</sup>	<ul style="list-style-type: none"> <li>▪ Temporary increase in vibration levels at approximately 118 adjacent<sup>21</sup> buildings (including 87 residences, 16 businesses and 15 community/ institutional/ recreation facilities) during construction of the YDSS Modifications Alternative Route.</li> <li>▪ Structural damage to historic buildings potentially sensitive to noise and vibration<sup>22</sup> in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route.</li> <li>▪ No permanent increase in vibration levels during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Implement Best Management Practices for vibration reduction to minimize temporary construction-related effects, including measures such as: <ul style="list-style-type: none"> <li>▪ Staged construction so demolition, earth-moving and ground-impacting activities do not occur at the same time.</li> <li>▪ Relocate heavy equipment travel routes away from sensitive buildings.</li> <li>▪ Limit heavy construction to daytime hours.</li> <li>▪ Use specialized drilling equipment and methods (avoid sheet piling, jack hammer, vibratory rollers, etc.).</li> </ul> </li> <li>▪ Establish minimum setback distances between the YDSS Modifications Alternative Route and historic buildings (e.g., built heritage resources etc.).</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary increase in vibration levels at approximately 118 adjacent buildings (including 87 residences, 16 businesses and 15 community/ institutional/ recreation facilities) during construction of the YDSS Modifications Alternative Route would be minimized by implementing Best Management Practices for vibration reduction (i.e. staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</li> <li>▪ The structural damage to historic buildings potentially sensitive to noise and vibration in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route would be mitigated by establishing a minimum safe setback distance between the YDSS Modifications Alternative Route and sensitive buildings.</li> <li>▪ No net effects.</li> </ul>
	Effect on property	Number and extent of properties affected and ownership	<ul style="list-style-type: none"> <li>▪ No property acquisition required during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects</li> </ul>

20. Effect will depend on proximity to construction activity, building construction and subsurface soil conditions.

21. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction-related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

22. The locations of historic buildings potentially sensitive to noise and vibration within the UYSS EA study area were identified in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).



**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ Permanent modification to existing easement<sup>23</sup> within approximately 24 properties during operation of the YDSS Modifications Alternative Route:               <ul style="list-style-type: none"> <li>▪ <b>Section of Route from Newmarket Pumping Station to Heman Street</b> <ul style="list-style-type: none"> <li>▪ Potential extension of existing easement to the east of the existing forcemain within 2 properties owned by the Town of Newmarket.</li> </ul> </li> <li>▪ <b>Section of Route along Bayview Avenue from to Heman Street to Davis Drive</b> <ul style="list-style-type: none"> <li>▪ Potential extension of existing easement to the west of the existing forcemain within 1 property owned by the Lake Simcoe Region Conservation Authority, 1 property owned by York Region and 1 private property (multi-unit business complex).</li> </ul> </li> <li>▪ <b>Section of Route along Queen Street</b> <ul style="list-style-type: none"> <li>▪ Potential extension of existing easement to the north of the existing easement within 2 property owned by the Lake Simcoe Region Conservation Authority and 2 properties owned by the Town of Newmarket.</li> </ul> </li> <li>▪ <b>Section of Route from Queen Street to Water Street</b> <ul style="list-style-type: none"> <li>▪ Potential extension of existing easement to the east of the existing easement within 1 property owned by the Town of Newmarket, 1 private property (multi-unit residential complex), and 2 properties owned by York Region (1 Police Station and 1 multi-unit residential complex).</li> <li>▪ Potential extension of existing easement to the west of the existing easement within 1 property owned by the Town of Newmarket.</li> </ul> </li> <li>▪ <b>Section of Route from Water Street to Mulock Drive</b> <ul style="list-style-type: none"> <li>▪ Potential extension of existing easement to the east of the existing easement within 4 properties owned by the Town of Newmarket, and 1 property owned by Lake Simcoe Region Conservation Authority.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Compensate for acquisition of permanent easement on private property in accordance with standard Regional procedures and policies.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The permanent modification to existing easement within approximately 24 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul>

23. Exact extent of easement required to be determined during detailed design.

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of Route from Mulock Drive to Existing Gravity Sewer</b></li> <li>▪ Potential extension of existing easement to the east of the existing easement within 1 property owned by Lake Simcoe Region Conservation Authority, 3 private properties (1 business, 1 vacant, 1 recreational), and 1 hydro corridor owned by Hydro One.</li> </ul>		
		Total area of property acquisition required (ha)	<ul style="list-style-type: none"> <li>▪ No property acquisition during construction or operation of the YDSS Modifications Alternative Route.</li> <li>▪ Permanent acquisition of existing easement<sup>24</sup> within approximately 24 properties (listed above) during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> <li>▪ Compensate for acquisition of permanent easement on private property in accordance with standard Regional procedures and policies.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> <li>▪ The permanent acquisition of existing easement within approximately 24 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul>
Effect on existing roadway/utility infrastructure	Number of roadways and type affected and extent and duration of adverse effects		<ul style="list-style-type: none"> <li>▪ Temporary disruption to 10 roadways, where the alternative route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route: <ul style="list-style-type: none"> <li>▪ Bayview Parkway (Town Minor Collector Road) and access to Heman Street (Town Local Road) to accommodate closures of some lanes on Bayview Parkway for up to 4 months</li> <li>▪ Charles Street (Town Local Road) and access to Granby Place (Town Local Road) to accommodate closure of the west lane of Charles Street for up to 1 month</li> <li>▪ Queen Street (Town Minor Collector Road) to accommodate crossing at Concession Street for 2 weeks</li> <li>▪ Concession Street (Town Local Road) to accommodate closure of the west lane for up to 2 months</li> <li>▪ Water Street (Town Primary Collector Road) to accommodate crossing of Water Street</li> <li>▪ Cotter Street (Town Local Road) to accommodate closure of all lanes for approximately 12 months</li> <li>▪ Mulock Drive (Region Arterial Road) to accommodate crossing of Mulock Drive.</li> <li>▪ Davis Drive (Region Arterial Road) to accommodate crossing of Davis Drive</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Prepare and implement a traffic management plan describing detours for road closures and/or lane closures during construction of the YDSS Modifications Alternative Route and provision of temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to 10 roadways, where the Alternative Route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route would be minimized by implementing a traffic management plan and providing temporary access, as required to the following: <ul style="list-style-type: none"> <li>▪ Bayview Parkway (Town Minor Collector Road) and access to Heman Street (Town Local Road) to accommodate closures of some lanes on Bayview Parkway for up to 4 months</li> <li>▪ Charles Street (Town Local Road) and access to Granby Place (Town Local Road) to accommodate closure of the west lane of Charles Street for up to 1 month</li> <li>▪ Queen Street (Town Minor Collector Road) to accommodate crossing at Concession Street for 2 weeks</li> <li>▪ Concession Street (Town Local Road) to accommodate closure of the west lane for up to 2 months</li> <li>▪ Water Street (Town Primary Collector Road) to accommodate crossing of Water Street</li> <li>▪ Cotter Street (Town Local Road) to accommodate closure of all lanes for approximately 12 months</li> <li>▪ Mulock Drive (Region Arterial Road) to accommodate crossing of Mulock Drive.</li> </ul> </li> </ul>

24. Exact extent of easement required to be determined during detailed design.

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ Timothy Street (Town Local Road) to accommodate crossing of Timothy Street</li> <li>▪ Pearson Street (Town Local Road) to accommodate crossing of Pearson Street</li> <li>▪ No permanent disruption to roadways during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Davis Drive (Region Arterial Road) to accommodate crossing of Davis Drive</li> <li>▪ Timothy Street (Town Local Road) to accommodate crossing of Timothy Street</li> <li>▪ Pearson Street (Town Local Road) to accommodate crossing of Pearson Street</li> <li>▪ No net effects.</li> </ul>
		Number and type of utilities affected and extent and duration of adverse effects <sup>25</sup>	<ul style="list-style-type: none"> <li>▪ Temporary disruption to 4 major utilities (York Region Water and Wastewater Bayview Operations Centre, Canadian National rail corridor, hydro corridor and Bogart Pumping Station) located adjacent to the YDSS Modifications Alternative Route during construction.</li> <li>▪ Temporary disruption to the watermain, sanitary sewer, local gas, local hydro, local cable and local telephone utilities on Cotter Street between Water Street and 100 m south of Second Street for up to 4 months during construction of the YDSS Modifications Alternative Route.</li> <li>▪ No permanent disruption to utilities during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Locate utilities based on consultations with utility providers and relocate utilities if required.</li> <li>▪ Locate utilities based on consultations with utility providers and relocate utilities if required.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to 4 major utilities (York Region Water and Wastewater Bayview Operations Centre, Canadian National rail corridor, hydro corridor and Bogart Pumping Station) during construction of the YDSS Modifications Alternative Route would be mitigated by locating utilities based on consultations with utility providers and relocating if required.</li> <li>▪ The temporary disruption to watermain, sanitary sewer, local gas, local hydro, local cable and local telephone utilities on Cotter Street between Water Street and 100 m south of Second Street would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>▪ No net effects.</li> </ul>

25. Distances are accurate within 50 m.



**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Social Environment	Effect on wells	Number of wells and type affected, extent and duration and nature (water quality/quantity) of adverse effects.	<ul style="list-style-type: none"> <li>No temporary or long-term change to groundwater wells during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect of noise on sensitive receptors <sup>26</sup>	Number of sensitive receptors affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>Temporary increase in noise levels at approximately 87 adjacent<sup>27</sup> residences (including 2 multi-unit complexes) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent increase in noise levels during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Adhere to Ministry of the Environment (MOE) Urban (NPC-205) and Rural (NPC-232) noise limits.</li> <li>Adhere to Town of East Gwillimbury's Noise By-law (2004-80) limits.</li> <li>Implement Best Management Practices for noise reduction to minimize temporary construction-related nuisance effects (i.e., operators limit impact noise from tailgate, use of construction equipment that meets the requirements of the MOE Construction Equipment Publication (NPC-115)).</li> <li>Develop complaint resolution procedure for responding to complaints resulting from construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 87 adjacent residences (including 2 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul>
	Effect of perceptible vibration levels on sensitive receptors	Number of sensitive receptors <sup>28</sup> affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>Temporary increase in vibration levels at approximately 87 residences (including 2 multi-unit complexes) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent increase in vibration levels during operation of the YDSS Modifications Alternative Route</li> </ul>	<ul style="list-style-type: none"> <li>Adhere to MOE vibration limits as set out in NPC-207 Publication (NPC 207 Impulse Vibration in Residential Buildings).</li> <li>Implement Best Management Practices for vibration reduction to minimize temporary construction-related nuisance effects during daytime, including: <ul style="list-style-type: none"> <li>Staged construction so demolition, earth-moving and ground-impacting activities do not occur at the same time</li> <li>Relocate heavy equipment travel routes away from sensitive buildings.</li> <li>Limit heavy construction to daytime hours.</li> <li>Use specialized drilling equipment and methods (avoid sheet piling, jack hammer, vibratory rollers, etc.).</li> </ul> </li> <li>Develop complaint resolution procedure for responding to complaints resulting from construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 87 residences (including 2 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's vibration limits as set out in the NPC-207 Publication, implementing Best Management Practices for vibration reduction, and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul>

26. As defined by the Ministry of the Environment (MOE) in NPC-205, a sensitive "point of reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of approval of new sources of noise, including verifying compliance with Section 9 of the Environmental Protection Act, the point of reception may be located on any of the following existing or zoned for future use premises: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and noise sensitive buildings such as schools and places of worship.

27. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

28. Sensitive receptors from a vibration perspective include permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, campgrounds and vibration sensitive buildings.

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect of odour sensitive receptors from current conditions <sup>29</sup>	Number of sensitive receptors impacted and extent and duration of impacts	<ul style="list-style-type: none"> <li>No temporary or permanent increase in odour during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
<b>Economic Environment</b>	Effect on approved/planned land uses	Number, extent, and type of approved/planned land uses affected	<ul style="list-style-type: none"> <li>No effects on approved/planned land uses during construction or operation of the YDSS Modifications Alternative Route, as there will be no permanent above ground structures associated with YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect on agricultural soil resources	<p>Approximate area (ha) of Class 1, Class 2, and Class 3 soils removed (priority in that order).</p> <p>Approximate area (ha) of Specialty Cropland removed, and/or area of agricultural soils disturbed, and/or area of active agricultural land removed</p>	<ul style="list-style-type: none"> <li>No removal of Class 1, Class 2 and Class 3 soils along the route during construction or operation of the YDSS Modifications Alternative Route.</li> <li>No removal of Specialty Cropland, no disturbance to agricultural soils and no removal of active agricultural land during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul>
<b>Cultural Environment</b>	Effects on known or potential significant archaeological resources	<p>Number and type of potentially significant, known archaeological sites affected.</p> <p>Area (ha) of archaeological potential (i.e., lands with potential for the presence of significant archaeological resources) affected.</p>	<ul style="list-style-type: none"> <li>No known archaeological sites affected during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
			<ul style="list-style-type: none"> <li>Disturbance of 1.57 ha with archaeological potential during construction of the YDSS Modifications Alternative Route.</li> <li>No disturbance to lands with archaeological potential during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Complete a Stage 2 Archaeological Assessment to determine the presence of archaeological sites within the alternative route alignment.</li> <li>If warranted, undertake a Stage 3 Archaeological Assessment for any archaeological sites discovered during the Stage 2 Archaeological Assessment. A Stage 4 Archaeological Assessment (i.e., avoidance or salvage excavation) will be completed, if required, following the Stage 3 Archaeological Assessment. At these sites, appropriate consultations with Aboriginal communities will be undertaken in accordance with Ministry of Tourism Culture and Sport guidelines.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The disturbance to 1.57 ha with archaeological potential during construction of the YDSS Modifications Alternative Route would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and if warranted during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul>

29. Sensitive receptors include residences, child care facilities, health care facilities, senior citizens' residence, long-term care facilities schools, and for this assessment, businesses have been included as well.

**Table C.1: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route A**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effects on built heritage resources and cultural heritage landscapes.	Number and type of built heritage resources and cultural heritage landscapes displaced <sup>30</sup> or disrupted <sup>31</sup>	<ul style="list-style-type: none"> <li>▪ Disruption to 6 cultural heritage resources during construction of the YDSS Modifications Alternative Route: <ul style="list-style-type: none"> <li>▪ Newmarket Canal at 4 intersection points between Mulock Drive and St. John's Sideroad and within the Wesley Brooks Conservation Area</li> <li>▪ Bailey Ecological Park</li> <li>▪ Wesley Brooks Conservation Area</li> <li>▪ Open space located between former rail corridor and Prospect Street, north of Timothy Street</li> <li>▪ Former Toronto Transit Commission electric railway corridor, north of Heman Street</li> <li>▪ George Richardson Park</li> </ul> </li> <li>▪ Displacement of 1 cultural heritage resource<sup>32</sup> (543 Timothy Street; Factory Complex designated under the Ontario Heritage Act) during construction of the YDSS Modifications Alternative Route.</li> <li>▪ No disruption or displacement to cultural heritage resources during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Undertake detailed heritage evaluation and analysis to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration; avoidance of tree and fence removals, post-construction landscaping; documentation prior to alteration, commemoration etc.).</li> <li>▪ Undertake detailed heritage evaluation and analysis to develop appropriate mitigation measures (e.g. commemoration, salvage, and/or documentation prior to resource removal).</li> <li>▪ Undertake a site-specific heritage evaluation to develop appropriate mitigation measures prior to resource removal (e.g., relocation, partial retention, adaptive re-use, commemoration, salvage, and/or documentation).</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The disruption to 6 cultural heritage resources during construction of the YDSS Modifications Alternative Route would be minimized through a detailed heritage evaluation to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration; avoidance of tree and fence removals, post-construction landscaping; documentation prior to alteration, commemoration etc.) <ul style="list-style-type: none"> <li>▪ Newmarket Canal (at 4 intersection points)</li> <li>▪ Bailey Ecological Park</li> <li>▪ Wesley Brooks Conservation Area</li> <li>▪ Open Space (north of Timothy Street)</li> <li>▪ Former Transit Toronto Commission electric railway</li> <li>▪ George Richardson Park</li> </ul> </li> <li>▪ The displacement of 1 cultural heritage resource (543 Timothy Street; Factory Complex designated under the Ontario Heritage Act) during construction of the YDSS Modifications Alternative Route would be addressed through preparation of a detailed heritage evaluation to develop appropriate mitigation measures (i.e. commemoration, salvage, and/or documentation prior to resource removal).</li> <li>▪ No net effects.</li> </ul>
<b>Financial</b>	50-year Net Present Worth Costs	50-year present net worth costs associated with the capital investment, land acquisition, and operating and maintenance of the infrastructure, systems and equipment	<ul style="list-style-type: none"> <li>▪ \$ 89,230,000<sup>33</sup></li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ \$ 89,230,000</li> </ul>

30. Displacement is indicated by removal or loss of heritage attributes of the cultural heritage resource at a scale where its heritage significance is no longer conserved and/or communicated. Pre-mature deterioration refers to construction-related effects such as vibration that could result in deterioration and ultimately a displacement of cultural heritage resources.

31. Disruption to cultural heritage resources refers to partial modification of cultural heritage resources.

32. Refer to 583 Timothy Street Factory Complex (CHR 507) in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

33. Alternative Methods of Carrying Out the Undertaking – Cost Estimates Report (CRA et al., February 2013).



## **Appendix C-2**

### Table C.2

#### Net Effects Assessment – York Durham Sewage System Modifications Alternative Route B

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Technical	Carbon Dioxide (CO <sub>2</sub> ) Equivalent Footprint	Equivalent CO <sub>2</sub> (CO <sub>2</sub> e) generated in tonnes CO <sub>2</sub> e/year <sup>1</sup>	<ul style="list-style-type: none"> <li>Approximately 235 tonnes CO<sub>2</sub>e /year.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 235 tonnes CO<sub>2</sub>e /year.</li> </ul>
Natural Environment	Effect on groundwater	Temporary and/or long-term change in groundwater quality	<ul style="list-style-type: none"> <li>Temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route through the Tannery Creek valley.<sup>2</sup></li> <li>No long-term change in groundwater quality during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use construction methods such as limiting excavations below the water table, use directional drilling methods where suitable, use groundwater cut-off structures to where appropriate to minimize the amount of temporary dewatering required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route through the Tannery Creek Valley would be minimized by using appropriate construction methods.</li> <li>No net effects.</li> </ul>
		Temporary and/or long-term change in groundwater quantity	<ul style="list-style-type: none"> <li>Temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route through the Tannery Creek valley<sup>3</sup>.</li> <li>No long-term change in groundwater quantity during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use construction methods such as limiting excavations below the water table, use directional drilling methods where suitable, use groundwater cutoff structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route through the Tannery Creek valley would be minimized by using appropriate construction methods.</li> <li>No net effects.</li> </ul>
	Effect on surface water	Temporary and/or long-term change in surface water quality	<ul style="list-style-type: none"> <li>Temporary decrease in surface water quality at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to increased sediment in surface water runoff during construction of the YDSS Modifications Alternative Route.</li> <li>No long-term change in surface water quality during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement an Erosion and Sediment Control Plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) during construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No net effects.</li> </ul>
		Temporary and/or long-term change in surface water quantity	<ul style="list-style-type: none"> <li>Temporary increase in surface water quantity at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to increase in overland flow during construction of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement an Erosion and Sediment Control Plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) during construction.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to increase in overland flow during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>

1. Equivalent CO<sub>2</sub> generated indicator includes direct and indirect emissions (i.e., from electricity generation) of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Direct emissions include natural gas, transportation related emissions, process related emissions, equipment related emissions, chemical usage related emissions, and off-site biosolids/residuals decomposition emission. Further details are provided in the Technical Concept Level 2 Document, (CRA et al., February 2013).

2. Due to the expected presence of coarse grained alluvial materials and a high water table, dewatering along Alternative Route B has the potential to be significant.

3. Due to the expected presence of coarse grained alluvial materials and a high water table, dewatering along Alternative Route B has the potential to be significant.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>No long-term change in surface water quantity during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect on aquatic habitat or functions	Area (m <sup>2</sup> ) of temporary or permanent loss of aquatic features or categorical loss of functions by type – including Provincially Significant Wetland, Locally Significant Wetland, watercourses by sensitivity type, and others <sup>4</sup>	<ul style="list-style-type: none"> <li>Temporary loss of aquatic habitat and function at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent loss to aquatic habitat or function during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Undertake construction outside of the relevant fish spawning timing window, and in the low-flow, dry summer periods where possible.</li> <li>Implement as appropriate construction Best Management Practices such as dewatering and fish relocation during construction works based on consultations with review agencies.</li> <li>Limit removal of riparian vegetation, especially mature shrubs and trees.</li> <li>Stabilize banks and implement a restoration plan to compensate for temporary loss of aquatic habitat.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No net effects.</li> </ul>
	Effect on stream geomorphology	Change in geomorphic form/function/stability in affected channels	<ul style="list-style-type: none"> <li>Temporary change to channel form, function and stability at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No long-term change in geomorphic form, function or stability during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Limit removal of riparian vegetation.</li> <li>Implement post construction restoration of channel form and function.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form, function and stability at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No net effects.</li> </ul>
	Effect on aquatic species including Species at Risk (species of special concern, threatened, endangered) and species of local concern, native and invasive species	Number and type of aquatic species <sup>5</sup> potentially affected temporarily or permanently <sup>6</sup>	<ul style="list-style-type: none"> <li>Temporary disturbance<sup>7</sup> to aquatic species at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Undertake construction outside of relevant fish spawning timing window, and in the low-flow, dry summer periods where possible.</li> <li>Implement appropriate construction Best Management Practices such as dewatering and fish relocation during construction works.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> </ul>

4. Provincially Significant Wetlands, Locally Significant Wetlands and permanent and intermittent watercourses were avoided during the generation of the long list of potential YDSS Modifications Alternative Routes.

5. Aquatic species include species of local concern, native and invasive species.

6. Refer to Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on aquatic species.

7. Temporary disturbance to aquatic species at crossings due to decrease in surface water quality during construction of the YDSS Modifications Alternative Route.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>No permanent disturbance to aquatic species during operation of the YDSS Modifications Alternative Route.</li> <li>No temporary or permanent disturbance to aquatic Species at Risk during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul>
	Effect on groundwater recharge and discharge areas in relation to aquatic/wetland habitat	Area (m <sup>2</sup> ) of temporary or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>Temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent loss of groundwater recharge and discharge areas as they relate to aquatic/wetland habitat during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use standard construction methods such as limiting excavations below the water table, using groundwater cut-off structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>Direct dewatering discharge back to local watercourse following temperature and clarity control to mitigate temporary loss of baseflow.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by using appropriate construction methods and directing the discharge back to the local watercourse.</li> <li>No net effects.</li> </ul>
	Effect on terrestrial habitat or functions	Area (m <sup>2</sup> ) of temporary and/or permanent loss of natural heritage features by type – including ESAs, ANSIs, wildlife corridors, and others	<ul style="list-style-type: none"> <li>No temporary or permanent loss of ESAs, ANSIs or wildlife corridors during construction and operation of the YDSS Modifications Alternative Route.</li> <li>Temporary and permanent loss of 2.8 ha of meadow, thicket, plantation, forest, marsh and swamp habitat (in the Bailey Ecological Park and within the flood plain of Tannery Creek) during construction and operation of the YDSS Modifications Alternative Route<sup>8</sup>.</li> <li>Temporary and permanent loss of 0.08 ha of cultural meadow and shallow marsh habitat (in the Bailey Ecological Park and within the flood plain of Tannery Creek) from construction of the staging areas<sup>9</sup> for the YDSS Modifications Alternative Route</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>Develop and implement a habitat restoration plan to compensate for loss of vegetation communities based on consultations with agencies.</li> <li>Develop and implement a habitat restoration plan to compensate for loss of vegetation communities based on consultations with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>The temporary and permanent loss of 2.8 ha of meadow, thicket, plantation, forest, marsh and swamp habitat and associated wildlife habitat (in the Bailey Ecological Park and within the flood plain of Tannery Creek) during construction and operation of the YDSS Modifications Alternative Route would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The temporary and permanent loss of 0.08 ha of cultural meadow and shallow marsh habitat (in the Bailey Ecological Park and within the flood plain of Tannery Creek) from construction of the staging areas for the YDSS Modifications Alternative Route would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> </ul>

8. It has been assumed that the YDSS Modifications Alternative Route will disturb a 20 m width over the entire length of Route B within the Tannery Creek Valley. It has also been assumed that construction of the YDSS Modifications Alternative Route will be conducted using open cut construction methods rather than less invasive methods such as directional drilling. This likely has led to an over estimation of the area of terrestrial habitat affected, as many areas within the Tannery Creek Valley are planned to be constructed using less invasive directional drilling, wherever practical.

9. The area disturbed during construction of the staging areas has been estimated assuming that land clearing will be required for directional drilling and staging under all major stream crossings and at approximately 400 m intervals within the Tannery Creek valley south of Mulock Drive along YDSS Modifications Alternative Route B.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect on terrestrial species including Species at Risk, (species of special concern, threatened, endangered) species of local concern, native and invasive species, and area-sensitive species	Number and type of terrestrial species <sup>10</sup> potentially affected temporarily and/or permanently <sup>11</sup>	<ul style="list-style-type: none"> <li>▪ Temporary and permanent disturbance<sup>12</sup> to terrestrial species in the Bailey Ecological Park and within the flood plain of Tannery Creek during construction and operation of the YDSS Modifications Alternative Route and associated staging areas.</li> <li>▪ Temporary disturbance to terrestrial species within the north-south wildlife corridor along Tannery Creek during construction of the YDSS Modifications Alternative Route.</li> <li>▪ Temporary disruption to Savannah Sparrow bird species during construction of the YDSS Modifications Alternative Route.</li> <li>▪ No temporary or permanent disturbance to Species at Risk during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use construction methods such as timing/noise restrictions to protect nesting birds, wildlife, and amphibians.</li> <li>▪ Provide tree protection and delineation of work adjacent to natural areas.</li> <li>▪ Relocate amphibian species during construction works, if required.</li> <li>▪ Use construction methods such as tree protection, delineated setbacks from natural areas and timing/noise restrictions to protect terrestrial species.</li> <li>▪ Conduct pre-construction bird surveys to determine habitat use.</li> <li>▪ Use construction Best Management Practices such as tree protection, delineated setbacks from natural areas and timing/noise restrictions to protect nesting bird species and wildlife.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary and permanent disturbance to terrestrial species in the Bailey Ecological Park and within the flood plain of Tannery Creek during construction and operation of the YDSS Modifications Alternative Route and associated staging areas would be minimized by using appropriate construction methods, providing tree protection and delineation or work adjacent to natural areas and relocating amphibian species, as required.</li> <li>▪ The temporary disturbance to terrestrial species within the north-south wildlife corridor along Tannery Creek during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>▪ The temporary disruption to Savannah Sparrow bird species during construction of the YDSS Modifications Alternative Route would be minimized by conducting pre-construction bird surveys to determine habitat use and using construction Best Management Practices.</li> <li>▪ No net effects.</li> </ul>
	Effect on groundwater recharge and discharge areas in relation to terrestrial habitat	Area (m <sup>2</sup> ) of temporary and/or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>▪ No temporary or permanent loss of groundwater recharge and discharge areas in relation to terrestrial habitat during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>

10. Terrestrial species include species of local concern, native and invasive species and area-sensitive species.

11. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on terrestrial species.

12. Disturbance refers to construction-related activities (i.e., noise, vibration, dust, etc.)



**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Built Environment	Effect on agricultural operations and capital investment related to agriculture	<p>Approximate area (ha) of active agricultural operations<sup>13</sup> affected</p> <p>Extent of disruption of active agricultural operations such as:</p> <ul style="list-style-type: none"> <li>Fragmentation of agricultural fields</li> <li>Disturbance to artificial drainage systems and agricultural drains</li> <li>Removal and/or disturbance of farm fences, entrances and paddocks</li> <li>Disruption of agricultural-related businesses</li> <li>Disruption of normal external haul routes for farm machinery movements</li> </ul>	<ul style="list-style-type: none"> <li>No temporary or permanent loss of active agricultural operations during construction or operation of the YDSS Modifications Alternative Route.</li> <li>No temporary or permanent disruption to active agricultural operations during construction or operation of the YDSS Modifications Alternative Route as it is located within an Urban Area.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul>
	Effect on existing residences, businesses, and/or community, institutional, and recreational facilities <sup>14</sup>	<p>Number and type of residences displaced</p> <p>Number and type of residences temporarily or permanently disrupted<sup>15</sup></p>	<ul style="list-style-type: none"> <li>No displacement of residences during construction and operation of the YDSS Modifications Alternative Route.</li> <li>Temporary disruption to approximately 145 driveway accesses for 149 private residences during construction of the YDSS Modifications Alternative Route, including: <ul style="list-style-type: none"> <li><b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive –</b> 29 private residences with 29 driveway accesses: <ul style="list-style-type: none"> <li>28 private residences each with 1 access off of Bayview Parkway</li> <li>1 private residence with 1 access off of Bayview Parkway and 1 undisrupted access off of Heman Street</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>Provide temporary driveway access and arrangements for waste collection to affected residences and notify residences of alternate arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>The temporary disruption to approximately 145 driveway accesses for 149 private residences during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway accesses, arrangements for waste collection and notifying residents of the alternative arrangements.</li> </ul>

13. Active agricultural land removed refers to the area being ploughed (i.e., excludes barns, buildings etc).

14. Information regarding existing residences and businesses is accurate as of May, 2012.

15. Disruption to residences has been applied with respect to driveway accesses (including waste collection). Disruption that relates to odour, noise and vibration are considered in the respective indicators below.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of Route along Davis Drive from Bayview Parkway to Prospect Street and Prospect Street from Davis Drive to Water Street</b> – 61 private residences with 58 driveway accesses, as well as 5 private residences that can only be accessed by Prospect Street:               <ul style="list-style-type: none"> <li>▪ 48 private residences each with 1 access off of Prospect Street</li> <li>▪ 1 private residence with 1 shared access with a business off of Prospect Street<sup>16</sup></li> <li>▪ 1 retirement residence with 1 access off of Prospect Street</li> <li>▪ 8 private residences with 4 shared accesses off of Prospect Street</li> <li>▪ 1 private residence with 2 accesses off of Prospect Street</li> <li>▪ 1 private residence with 1 access off of Prospect Street and 1 undisrupted access off of Wellington Street</li> <li>▪ 1 private residence with 1 access off of Prospect Street and 1 undisrupted access off of Timothy Street</li> <li>▪ 3 private residences that can only be accessed by Skelton Street (off of Prospect Street)</li> <li>▪ 2 private residences that can only be accessed by Poplar Lane (off of Prospect Street)</li> </ul> </li> <li>▪ <b>Section of Route along Prospect Street from Water Street to Mullock Drive</b> – 59 private residences with 58 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 43 private residences each with 1 access off of Prospect Street</li> <li>▪ 1 low rise apartment property with 1 access off of Prospect Street</li> <li>▪ 1 low rise apartment property with 1 access off of Prospect Street and 1 undisrupted access off of Cotter Street</li> <li>▪ 1 private residence with 1 access off of Prospect Street and 1 undisturbed access off of Second Street</li> <li>▪ 1 private residence with 2 accesses off of Prospect Street</li> </ul> </li> </ul>		

16. Note: Accesses are counted under both of the following indicators: "Number and characteristics of businesses temporarily or permanently disrupted" and "Number and type of residences temporarily or permanently disrupted".

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ 2 properties with 1 shared access off of Prospect Street</li> <li>▪ 1 private residence with 2 accesses off of Bayview Avenue</li> <li>▪ 4 private residences with 2 shared accesses off of Prospect Street</li> <li>▪ 2 private residences each with 1 shared access with 2 businesses off of Bayview Avenue</li> <li>▪ 1 private residence with 1 access off of Bayview Avenue and 1 undisrupted access off of College Street</li> <li>▪ 2 Pickering College private residences each with 1 access off of Bayview Avenue</li> <li>▪ <b>Section of Route along Mulock Drive from Bayview Avenue to the East Holland River – No private residences</b></li> <li>▪ <b>Section of Route from Mulock Drive to Connection to Existing Gravity Sewer – No private residences</b></li> <li>▪ Temporary disruption to road access for approximately 5 private residences that can only be accessed by Prospect Street (section of route along Davis Drive from Bayview Parkway to Prospect Street and Prospect Street from Davis Drive to Water Street) during construction of the YDSS Modifications Alternative Route.</li> <li>▪ Temporary disruption to a small portion of 1 private residence due to construction of the staging area within a portion of the property. <ul style="list-style-type: none"> <li>▪ <b>Staging Sites at Prospect Street and Bogart Pumping Station (Bogart Route)</b> – 1 private residence where the staging areas will be constructed within the property but will not disrupt driveway access off of Hamilton Street</li> </ul> </li> <li>▪ No permanent disruption to residences during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary access for local roads and arrangements for waste collection to affected residences and notify residences of alternate arrangements.</li> <li>▪ Provide compensation in accordance with York Region's policies.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to road access for approximately 5 private residences that can only be accessed by Prospect Street during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and notifying residents of the alternative arrangements.</li> <li>▪ The temporary disruption to a small portion of 1 private residence due to construction of the staging area within a portion of the property would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>▪ No net effects.</li> </ul>
		Number and characteristics of businesses displaced <sup>17</sup>	<ul style="list-style-type: none"> <li>▪ No displacement of businesses during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>

17. Does not include agricultural businesses. Agricultural businesses are included under the following evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
		Number and characteristics of businesses temporarily or permanently disrupted <sup>18,19</sup>	<ul style="list-style-type: none"> <li>▪ Temporary disruption to approximately 28 driveway accesses for 73 businesses during construction of the YDSS Modifications Alternative Route<sup>20</sup>, including:               <ul style="list-style-type: none"> <li>▪ <b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> – 1 business with 2 driveway accesses, as well as 2 businesses with 2 driveway accesses and construction of YDSS Modifications Alternative Route within property:                   <ul style="list-style-type: none"> <li>▪ 1 business with 1 access off of Bayview Parkway and where the YDSS Modifications Alternative Route will be constructed within the property</li> <li>▪ 1 business with 2 accesses off of Bayview Parkway</li> <li>▪ 1 business with 1 access off of Bayview Parkway and 1 undisrupted access off of Davis Drive and where a staging area will be constructed within the property</li> </ul> </li> <li>▪ <b>Section of Route along Davis Drive from Bayview Parkway to Prospect Street and Prospect Street from Davis Drive to Water Street</b> – 20 businesses with 13 driveway accesses, as well as 1 business that can only be accessed by Prospect Street:                   <ul style="list-style-type: none"> <li>▪ 4 businesses each with 1 accesses off of Prospect Street</li> <li>▪ 1 business with 1 shared access with a private residence off of Prospect Street<sup>21</sup></li> <li>▪ 6 businesses with 1 shared access off of Prospect Street</li> <li>▪ 2 businesses with 2 shared accesses off of Prospect Street</li> <li>▪ 2 businesses with 1 shared access with an institution facility off of Prospect Street</li> <li>▪ 2 businesses with 1 shared access off of Prospect Street and 1 undisrupted shared access off of Queen Street</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary driveway access and access signage, arrangements for waste collection to affected businesses and notify businesses of alternative arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to approximately 28 driveway accesses for 73 businesses during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> </ul>

18. Does not include agricultural businesses. Agricultural businesses are included under the following evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

19. Disruption to businesses has been applied with respect to driveway accesses, which considers customer access, deliveries and waste collection, etc. Disruption that relates to odour, noise and vibration are considered in the respective indicators below.

20. See the Land Use Baseline Conditions Report (CRA et al., April 2013) for descriptions and characteristics of businesses.

21. Note: Accesses are counted under both of the following indicators: "Number and characteristics of businesses temporarily or permanently disrupted" and "Number and type of residences temporarily or permanently disrupted".

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ 1 business with 1 access off of Prospect Street and 1 undisrupted access off of Queen Lane</li> <li>▪ 1 business with 1 access off of Prospect Street and 1 undisrupted access off of Grace Street</li> <li>▪ 1 business with 1 access off of Prospect Street and 1 undisrupted access off of Granby Place</li> <li>▪ 1 business that can only be accessed by Poplar Lane (off of Prospect Street)</li> <li>▪ <b>Section of Route along Prospect Street from Water Street to Mulock Drive</b> – 2 businesses with 2 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 2 businesses each with 1 shared access with 2 private residences off of Bayview Avenue</li> </ul> </li> <li>▪ <b>Section of Route along Mulock Drive from Bayview Avenue to the East Holland River</b> – 47 businesses with 7 driveway accesses, as well as 42 businesses that can only be accessed by Mulock Drive:               <ul style="list-style-type: none"> <li>▪ 6 businesses with 1 shared access off of Mulock Drive</li> <li>▪ 1 business with 1 access off of Mulock Drive and 1 undisrupted access off of Kent Drive</li> <li>▪ 3 businesses each with 1 access off of Mulock Drive</li> <li>▪ 4 businesses with 1 shared access off of Mulock Drive</li> <li>▪ 33 businesses with 1 access off of Mulock Drive and 1 undisrupted access off of Bayview Avenue</li> <li>▪ 42 businesses that can only be accessed by Steven Court (off of Mulock Drive)</li> </ul> </li> <li>▪ <b>Section of Route from Mulock Drive to Connection to Existing Gravity Sewer</b> – 1 business with 2 accesses off of Mulock Drive</li> <li>▪ <b>Staging Sites at Prospect Street and Bogart Pumping Station (Bogart Route)</b> – No businesses</li> <li>▪ Temporary disruption to road access for approximately 43 businesses that can only be accessed by Prospect Street and Mulock Drive (included in section of route along Davis Drive from Bayview Parkway to Prospect Street and Prospect Street from Davis Drive to Water Street (1 business) and section of route along Mulock Drive from Bayview Avenue to the East Holland River (42 businesses)) during construction of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary access and access signage for local roads and arrangements for waste collection to affected businesses and notify businesses of alternate arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to road access for approximately 43 businesses that can only be accessed by Prospect Street and Mulock Drive during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> </ul>





**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of Route along Davis Drive from Bayview Parkway to Prospect Street and Prospect Street from Davis Drive to Water Street</b> – 3 institutional facilities, including Canadian Cancer Society with 1 shared access with 2 businesses off of Prospect Street; York Regional Police District 1 Headquarters with 1 access off of Prospect Street and 1 undisrupted access off of Water Street; and York Region Health Services with 1 access off of Prospect Street</li> <li>▪ <b>Section of Route along Prospect Street from Water Street to Mulock Drive</b> – 1 facility with 5 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 1 institutional facility, the Pickering College Independent Day and Boarding Co-ed School with 5 accesses off of Bayview Avenue</li> </ul> </li> <li>▪ <b>Section of Route along Mulock Drive from Bayview Avenue to the East Holland River</b> – 1 facility with 1 driveway access, as well as 5 facilities that can only be accessed by Mulock Drive               <ul style="list-style-type: none"> <li>▪ 1 institutional facility, Newmarket Municipal Offices, with 1 access off of Mulock Drive that is shared with a business</li> <li>▪ 2 institutional facilities, including York Region Property Services and the Newmarket Telephone Centre, that can only be accessed by Steve Court (Mulock Drive)</li> <li>▪ 3 recreational facilities, including CanAm Karate, Newmarket Budokan Judo Club and Newmarket Soccer Club, that can only be accessed by Steve Court (Mulock Drive)</li> </ul> </li> <li>▪ Temporary disruption of road access for 5 community, recreational and institutional facilities (including, CanAm Karate, Newmarket Budokan Judo Club, Newmarket Soccer Club, The Newmarket Telephone Centre, and York Region Property Services) that can only be accessed by Mulock Drive and Pearson Street (section of route along Mulock Drive from Bayview Avenue to the East Holland River) during construction of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary access for local roads and arrangements for waste collection to affected community, recreational, and institutional facilities and notify facilities of alternate arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to road access for 5 community, recreational and institutional facilities (including, CanAm Karate, Newmarket Budokan Judo Club, Newmarket Soccer Club, The Newmarket Telephone Centre, and York Region Property Services) that can only be accessed by Mulock Drive and Pearson Street would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> </ul>



**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ Temporary disruption to portions of 8 community, institutional and recreational facilities where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties.</li> <li>▪ <b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> - 1 facility with no driveway accesses where the YDSS Modifications Alternative Route will be constructed within the property and 2 facilities with 3 driveway accesses where the YDSS Modifications Alternative Route will be constructed within the property:               <ul style="list-style-type: none"> <li>▪ 1 recreational facility with no accesses, Mabel Davis Conservation Area where the YDSS Modifications Alternative Route will be constructed within the property</li> <li>▪ 2 community/institutional facilities, including the Lake Simcoe Region Conservation Authority with 2 accesses off of Bayview Parkway and the York Region Community Service Housing Department with 1 access off of Bayview Parkway where the YDSS Modifications Alternative Route will be constructed within the properties (included in the totals above).</li> </ul> </li> <li>▪ <b>Section of Route from Mulock Drive to Connection to Existing Gravity Sewer</b> – 3 recreational facilities, the Fairy Lake Park, Bailey Ecological Park and St. Andrew’s Valley Golf Club, where the YDSS Modifications Alternative Route and/or staging areas will be constructed within the properties but accesses are undisturbed</li> <li>▪ <b>Staging Sites at Prospect Street and Bogart Pumping Station (Bogart Route)</b> – 2 recreational facilities, College Manor Park and Barrington Park, where the staging area will be constructed within the property but will not disrupt the accesses off of College Manor Drive and Terry Carter Crescent</li> <li>▪ No permanent disruption to community, institutional, and recreational facilities during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide compensation in accordance with York Region’s policies.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to portions of 8 community, institutional and recreational facilities (including Lake Simcoe Conservation Authority, York Region Community Service Housing Department, Mabel Davis Conservation Authority, Fairy Lake Park, Bailey Ecological Park, St. Andrew’s Valley Golf Club, College Manor Park, and Barrington Park) where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties would be compensated for (as necessary) in accordance with York Region’s policies.</li> <li>▪ No net effects.</li> </ul>



**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect of vibration on existing buildings	Number of existing buildings affected and extent and duration of adverse effects <sup>22</sup>	<ul style="list-style-type: none"> <li>▪ Temporary increase in vibration levels at approximately 313 adjacent<sup>23</sup> buildings (including 203 residences, 93 businesses and 17 community/ institutional/ recreational facilities) during construction of the YDSS Modifications Alternative Route.</li> <li>▪ Structural damage to historic buildings potentially sensitive to noise and vibration<sup>24</sup> in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route.</li> <li>▪ No permanent increase in vibration levels during operation of the YDSS Modifications Alternative Route</li> </ul>	<ul style="list-style-type: none"> <li>▪ Implement Best Management Practices for vibration reduction to minimize temporary construction-related effects, including measures such as:                             <ul style="list-style-type: none"> <li>▪ Staged construction so demolition, earth-moving and ground-impacting activities do not occur at the same time.</li> <li>▪ Relocate heavy equipment travel routes away from sensitive buildings.</li> <li>▪ Limit heavy construction to daytime hours.</li> <li>▪ Use specialized drilling equipment and methods (avoid sheet piling, jack hammer, vibratory rollers, etc.).</li> </ul> </li> <li>▪ Establish minimum setback distances between the YDSS Modifications Alternative Route and historic buildings (e.g., built heritage resources etc.).</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary increase in vibration levels at approximately 313 adjacent buildings (including 203 residences, 93 businesses and 17 community/institutional/recreational facilities) during construction of the YDSS Modifications Alternative Route would be minimized by implementing Best Management Practices for vibration reduction (i.e. staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</li> <li>▪ The structural damage to historic buildings potentially sensitive to noise and vibration in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route would be mitigated by establishing a minimum safe setback distance between the YDSS Modifications Alternative Route and sensitive buildings.</li> <li>▪ No net effects.</li> </ul>
	Effect on property	Number and extent of properties affected and ownership	<ul style="list-style-type: none"> <li>▪ No property acquisition required during construction or operation of the YDSS Modifications Alternative Route.</li> <li>▪ Permanent modification to existing easement<sup>25</sup> within approximately 10 properties during operation of the YDSS Modifications Alternative Route:                             <ul style="list-style-type: none"> <li>▪ <b>Section of Route from Newmarket Pumping Station to Heman Street</b> <ul style="list-style-type: none"> <li>▪ Potential extension of existing easement to the east of the existing forcemain within 2 properties owned by the Town of Newmarket.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> <li>▪ Compensate for acquisition of permanent easement on private property in accordance with standard Regional procedures and policies.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> <li>▪ The permanent modification to existing easement within approximately 10 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul>

22. Effect will depend on proximity to construction activity, building construction and subsurface soil conditions.

23. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction-related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

24. The locations of historic buildings potentially sensitive to noise and vibration within the UYSS EA study area were identified in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

25. Exact extent of easement required to be determined during detailed design.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of Route along Bayview Avenue from to Heman Street to Davis Drive</b> <ul style="list-style-type: none"> <li>▪ Potential extension of existing easement to the west of the existing forcemain within 1 property owned by the Lake Simcoe Region Conservation Authority, 1 property owned by York Region and 1 private property (multi-unit business complex).</li> </ul> </li> <li>▪ <b>Section of Route from Mulock Drive to Existing Gravity Sewer</b></li> <li>▪ Potential extension of existing easement to the east of the existing easement within 1 property owned by Lake Simcoe Region Conservation Authority, 3 private properties (1 business, 1 vacant, 1 recreational), and 1 hydro corridor owned by Hydro One.</li> </ul>		
		Total area of property acquisition required (ha)	<ul style="list-style-type: none"> <li>▪ No property acquisition during construction or operation of the YDSS Modifications Alternative Route.</li> <li>▪ Permanent acquisition of existing easement<sup>26</sup> within approximately 10 properties (listed above) during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation required.</li> </ul> <p>Compensate for acquisition of permanent easement on private property in accordance with standard Regional procedures and policies.</p>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> <li>▪ The permanent acquisition of existing easement within approximately 10 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul>
	Effect on existing roadway/utility infrastructure	Number of roadways and type affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>▪ Temporary disruption to 7 roadways, where the alternative route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route: <ul style="list-style-type: none"> <li>▪ Bayview Parkway (Town Minor Collector Road) and access to Heman Street (Town Local Road) to accommodate closures of some lanes on Bayview Parkway for up to 4 months</li> <li>▪ Timothy Street (Town Local Road) to accommodate crossing of Timothy Street</li> <li>▪ Prospect Street (Region Primary Collector Road), and access to Grace Street (Town Local Road), Granby Place (Town Local Road), Queen Street (Town Minor Collector Road), Wellington Street (Town Local Road), Skelton Street (Town Local Road), Srigley Street (Town Minor Collector Road), Timothy Street (Town Local Road), Lydia Street (Town Local Road), Water Street/Gorham</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Prepare and implement a traffic management plan describing detours for road closures and/or lane closures during construction of the YDSS Modifications Alternative Route and provision of temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to 7 roadways, where the Alternative Route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route would be minimized by implementing a traffic management plan and providing temporary access as required to the following: <ul style="list-style-type: none"> <li>▪ Bayview Parkway (Town Minor Collector Road) and access to Heman Street (Town Local Road) to accommodate closures of some lanes on Bayview Parkway for up to 4 months</li> <li>▪ Timothy Street (Town Local Road) to accommodate crossing of Timothy Street</li> <li>▪ Prospect Street (Region Primary Collector Road), and access to Grace Street (Town Local Road), Granby Place (Town Local Road), Queen Street (Town Minor Collector Road), Wellington Street (Town Local Road), Skelton Street (Town Local</li> </ul> </li> </ul>

26. Exact extent of easement required to be determined during detailed design.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<p>Street (Town Primary Collector Road), Pearson Street (Town Local Road), and Second Street (Town Local Road), to accommodate full road closure of Prospect Street for up to 12 months</p> <ul style="list-style-type: none"> <li>Bayview Avenue (Region Arterial Roads), and access to College Street (Town Local Road), Bondie Avenue/Penrose Street (Town Local Road), and Mulock Court (Town Local Road) to accommodate full road closure of Bayview Avenue for up to 12 months</li> <li>Mulock Drive (Region Arterial Road) and access to Steven Court/Kent Drive (Town Local Road) to accommodate closure of the north lane on Mulock Drive for up to 4 months.</li> <li>Davis Drive (Region Arterial Road) to accommodate crossing of Davis Drive</li> <li>Pearson Street (Town Local Road) to accommodate crossing of Pearson Street</li> </ul> <p>No permanent disruption to roadways during operation of the YDSS Modifications Alternative Route.</p>	<p>No avoidance/mitigation/compensation measures required.</p>	<p>Road), Strigley Street (Town Minor Collector Road), Timothy Street (Town Local Road), Lydia Street (Town Local Road), Water Street/Gorham Street (Town Primary Collector Road), Pearson Street (Town Local Road), and Second Street (Town Local Road), to accommodate full road closure of Prospect Street for up to 12 months</p> <ul style="list-style-type: none"> <li>Bayview Avenue (Region Arterial Roads), and access to College Street (Town Local Road), Bondie Avenue/Penrose Street (Town Local Road), and Mulock Court (Town Local Road) to accommodate full road closure of Bayview Avenue for up to 12 months</li> <li>Mulock Drive (Region Arterial Road) and access to Steven Court/Kent Drive (Town Local Road) to accommodate closure of the north lane on Mulock Drive for up to 4 months.</li> <li>Davis Drive (Region Arterial Road) to accommodate crossing of Davis Drive</li> <li>Pearson Street (Town Local Road) to accommodate crossing of Pearson Street</li> </ul> <p>No net effects.</p>
		Number and type of utilities affected and extent and duration of adverse effects <sup>27</sup>	<ul style="list-style-type: none"> <li>Temporary disruption to 6 major utilities (York Region Water and Wastewater Bayview Operations Centre, Canadian National rail corridor, Hydro One transformer station, hydro corridor, Newmarket Hydro and Bogart Pumping Station) located adjacent to the YDSS Modifications Alternative Route during construction.</li> <li>Temporary disruption to the watermain, sanitary sewer, storm sewer, local gas, local hydro, local cable and local telephone utilities on Prospect Street between Davis Drive and Mulock Drive for up to 12 months during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent disruption to utilities during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Locate utilities based on consultations with utility providers and relocate utilities if required.</li> <li>Locate utilities based on consultations with utility providers and relocate utilities if required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to 6 major utilities (including York Region Water and Wastewater, Bayview Operations Centre, Canadian National rail corridor, Hydro One transformer station, Newmarket Hydro, hydro corridor and Bogart Pumping Station) during the construction of the YDSS Modifications Alternative Route would be mitigated by locating utilities based on consultations with utility providers and relocating if required.</li> <li>The temporary disruption to watermain, sanitary sewer, storm sewer, local gas, local hydro, local cable and local telephone utilities on Prospect Street between Davis Drive and Mulock Drive would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No net effects.</li> </ul>

27. Distances are accurate within 50 m.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Social Environment	Effect on wells	Number of wells and type affected, extent and duration and nature (water quality/quantity) of adverse effects	<ul style="list-style-type: none"> <li>No temporary or permanent change to groundwater wells during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect of noise on sensitive receptors <sup>28</sup>	Number of sensitive receptors affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>Temporary increase in noise levels at approximately 203 adjacent<sup>29</sup> residences (including 4 multi-unit complexes) during construction of the YDSS Modifications Alternative Route</li> <li>No permanent increase in noise levels during operation of the YDSS Modifications Alternative Route</li> </ul>	<ul style="list-style-type: none"> <li>Adhere to Ministry of the Environment (MOE) Urban (NPC-205) and Rural (NPC-232) noise limits.</li> <li>Adhere to Town of East Gwillimbury's Noise By-law (2004-80) limits.</li> <li>Implement Best Management Practices for noise reduction to minimize temporary construction-related nuisance effects (i.e., operators limit impact noise from tailgate, use of construction equipment that meets the requirements of the MOE Construction Equipment Publication (NPC-115).</li> <li>Develop complaint resolution procedure for responding to complaints resulting from construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 203 adjacent residences (including 4 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul>
	Effect of perceptible vibration levels on sensitive receptors	Number of sensitive receptors <sup>30</sup> affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>Temporary increase in vibration levels at approximately 203 adjacent residences (including 4 multi-unit complexes) during construction of the YDSS Modifications Alternative Route</li> <li>No permanent increase in vibration levels during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Adhere to MOE vibration limits as set out in NPC-207 Publication (NPC 207 Impulse Vibration in Residential Buildings).</li> <li>Implement Best Management Practices for vibration reduction to minimize temporary construction-related nuisance effects during daytime, including: <ul style="list-style-type: none"> <li>Staged construction so demolition, earth-moving and ground-impacting activities do not occur at the same time.</li> <li>Relocate heavy equipment travel routes away from sensitive buildings.</li> <li>Limit heavy construction to daytime hours.</li> <li>Use specialized drilling equipment and methods (avoid sheet piling, jack hammer, vibratory rollers, etc.).</li> </ul> </li> <li>Develop complaint resolution procedure for responding to complaints resulting from construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 203 adjacent residences (including 4 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's vibration limits as set out in the NPC-207 Publication, implementing Best Management Practices for vibration reduction, and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul>

28. As defined by the Ministry of the Environment (MOE) in NPC-205, a sensitive "point of reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of approval of new sources of noise, including verifying compliance with Section 9 of the Environmental Protection Act, the point of reception may be located on any of the following existing or zoned for future use premises: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and noise sensitive buildings such as schools and places of worship.

29. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

30. Sensitive receptors from a vibration perspective include permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, campgrounds and vibration sensitive buildings.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect of odour sensitive receptors from current conditions <sup>31</sup>	Number of sensitive receptors impacted and extent and duration of impacts	<ul style="list-style-type: none"> <li>No temporary or permanent increase in odour during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
<b>Economic Environment</b>	Effect on approved/ planned land uses	Number, extent, and type of approved/planned land uses affected	<ul style="list-style-type: none"> <li>No effects on approved/planned land uses during operation of the YDSS Modifications Alternative Route, as there will be no permanent, above ground structures associated with YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect on agricultural soil resources	Approximate area (ha) of Class 1, Class 2, and Class 3 soils removed (priority in that order)	<ul style="list-style-type: none"> <li>No removal of Class 1, Class 2 and Class 3 soils along the route during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
Approximate area (ha) of Specialty Cropland removed, and/or area of agricultural soils disturbed, and/or area of active agricultural land removed		<ul style="list-style-type: none"> <li>No removal of Specialty Cropland, no disturbance to agricultural soils and no removal of active agricultural land during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>	
<b>Cultural Environment</b>	Effects on known or potential significant archaeological resources	Number and type of potentially significant, known archaeological sites affected	<ul style="list-style-type: none"> <li>No known archaeological sites affected during construction and operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
		Area (ha) of archaeological potential (i.e., lands with potential for the presence of significant archaeological resources) affected	<ul style="list-style-type: none"> <li>Disturbance to 0.96 ha with archaeological potential during construction of the YDSS Modifications Alternative Route.</li> <li>No disturbance to lands with archaeological potential during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Complete a Stage 2 Archaeological Assessment to determine the presence of archaeological sites within the alternative route alignment.</li> <li>If warranted, undertake a Stage 3 Archaeological Assessment for any archaeological sites discovered during the Stage 2 Archaeological Assessment. A Stage 4 Archaeological Assessment (i.e., avoidance or salvage excavation) will be completed, if required, following the Stage 3 Archaeological Assessment. At these sites, appropriate consultations with Aboriginal communities will be undertaken in accordance with Ministry of Tourism, Culture, and Sport guidelines.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The disturbance to 0.96 ha with archaeological potential during construction of the YDSS Modifications Alternative Route would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and if warranted during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul>

31. Sensitive receptors include residences, child care facilities, health care facilities, senior citizens' residence, long-term care facilities schools, and for this assessment, businesses have been included as well.

**Table C.2: Net Effects Analysis –York Durham Sewage System Modifications Alternative Route B**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effects on built heritage resources and cultural heritage landscapes.	Number and type of built heritage resources and cultural heritage landscapes displaced <sup>32</sup> or disrupted <sup>33</sup>	<ul style="list-style-type: none"> <li>Disruption to 4 cultural heritage resources during construction of the YDSS Modifications Alternative Route:                             <ul style="list-style-type: none"> <li>Newmarket Canal at 4 points between Mulock Drive and St. John's Sideroad and within the Wesley Brooks Conservation Area.</li> <li>Bailey Ecological Park</li> <li>Former Toronto Transit Commission electric railway corridor, north of Heman Street</li> <li>George Richardson Park</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Undertake detailed heritage evaluation and analysis to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration; avoidance of tree and fence removals, post-construction landscaping, documentation prior to alteration, commemoration etc.).</li> </ul>	<ul style="list-style-type: none"> <li>The disruption to 4 cultural heritage resources during construction of the YDSS Modifications Alternative Route would be minimized through preparation of detailed heritage evaluations to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration, avoidance of tree and fence removals, post-construction landscaping, documentation prior to alteration, commemoration etc.)                             <ul style="list-style-type: none"> <li>Newmarket Canal</li> <li>Bailey Ecological Park</li> <li>Former Toronto Transit Commission electric railway corridor, north of Heman Street</li> <li>George Richardson Park</li> </ul> </li> </ul>
			<ul style="list-style-type: none"> <li>Displacement and/or premature deterioration to 37 cultural heritage resources (listed in <b>Table C-2.1</b> below) located along Bayview Avenue, between Penrose Street and Davis Drive during construction of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Avoid displacement and/or premature deterioration of cultural heritage resources through appropriate siting of staging areas and access routes; monitoring construction vibration; avoidance of tree removals and fence removals; and post-construction landscaping activities.</li> </ul>	<ul style="list-style-type: none"> <li>The displacement and/or premature deterioration to 37 cultural heritage resources (listed in <b>Table C-2.1</b> below) located along Bayview Avenue, between Penrose Street and Davis Drive during construction of the YDSS Modifications Alternative Route would be avoided through appropriate siting of staging areas and access routes, monitoring construction vibration, avoiding tree removals and fence removals, and post-construction landscaping activities.</li> </ul>
			<ul style="list-style-type: none"> <li>No disruption or displacement to built heritage landscapes or cultural heritage resources during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
<b>Financial</b>	50-year Net Present Worth Costs	50-year present net worth costs associated with the capital investment, land acquisition, and operating and maintenance of the infrastructure, systems and equipment	<ul style="list-style-type: none"> <li>\$90,790,000<sup>34</sup></li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>\$90,790,000</li> </ul>

32. Displacement is indicated by removal or loss of heritage attributes of the cultural heritage resource at a scale where its heritage significance is no longer conserved and/or communicated. Pre-mature deterioration refers to construction-related effects such as vibration that could result in deterioration and ultimately a displacement of cultural heritage resources.

33. Disruption to cultural heritage resources refers to partial modification of cultural heritage resources.

34. Alternative Methods of Carrying Out the Undertaking – Cost Estimates Report (CRA et al., February 2013).



**Table C.2.1: YDSS Modifications Alternative Route B: Potentially Affected Cultural Heritage Resources**

ID	Township	Municipal Address	Year Built	Property Description	Site Type and/or Designation
CHR237	Newmarket	596 Davis Drive			
CHR244	Newmarket	344 Millard Avenue	1910/11	Residence	Plaque
CHR409	Newmarket	16874 Bayview Avenue	circa 1890	Residence	Plaque
CHR411	Newmarket	16916 Bayview Avenue	1865	Residence	
CHR509	Newmarket	16945 Bayview Avenue	1908-1909	Public	Significant
CHR626	Newmarket	61 Prospect Street	1920	2-storey house; 3-bay façade; centred main entrance; large arched window; corner tower;	Plaque
CHR627	Newmarket	146 Prospect Street		2 storey brick and frame residence	Plaque
CHR628	Newmarket	222 Prospect Street			Plaque
CHR629	Newmarket	75 Prospect Street	1886	2 1/2 storey brick house; double gable roof with dormers; 4-bay façade; arched windows on second storey; bay windows; verge board;	Plaque
CHR630	Newmarket	270 Prospect Street		single-storey painted brick on stone rubble foundation; hip roof; small closed veranda addition; all windows have been replaced;	Plaque
CHR631	Newmarket	233 Prospect Street		buff brick with banding on stone rubble foundation; 2-storey house; Italianate features; hanging bracket veranda; projecting eaves;	Plaque
CHR632	Newmarket	266 Prospect Street		Architect: William Bunney; incorporates Baptist Church - built circa 1848; storey red brick dwelling on stone rubble foundation; complex gable and hip roof; 2-bay façade; side entrance; large brick arches with key stone over ground floor	Plaque
CHR633	Newmarket	67 Prospect Street	1886	2-storey brick house on stone rubble foundation; gable roof; 1-bay façade; bay window; side entrance; side veranda	Plaque
CHR634	Newmarket	322 Prospect Street		2 storey, brick, "Victorian" Style of architecture.	Plaque
CHR635	Newmarket	221 Prospect Street		2 storey frame wooden clad residence in "Carpenter Italianate" style	Designated/Plaque
CHR636	Newmarket	291 Prospect Street		2 storey semi-detached frame vinyl clad residence	Plaque
CHR637	Newmarket	97 Prospect Street		1 1/2 storey frame dwelling with shiplap siding; L-shaped floor plan; 2-bay façade;	Plaque
CHR638	Newmarket	216 Prospect Street		Architect: William Bunney 2-storey frame house on stone rubble foundation; 2-bay façade; side hall plan; clapboard siding had been altered slightly; 2-storey frame house on stone rubble foundation; 2-bay façade; side hall plan;	Plaque
CHR639	Newmarket	295 Prospect Street		2 storey frame, brick veneer now vinyl clad semi-detached residence	Plaque
CHR640	Newmarket	190 Prospect Street		2 1/2 storey red brick house on limestone block foundation; 3-bay façade; centred entrance; corner tower; complex gable roof with balcony; single storey veranda with 2nd storey balcony;	Plaque
CHR641	Newmarket	232 Prospect Street Suite 234		2-storey solid brick house on stone rubble foundation; 3-bay façade; centred entrance with side lights and flat transom; L-shaped floor plan; 2x2 windows with arched openings; hip roof with projecting eaves; single storey with square posts on brick piers	
CHR642	Newmarket	334 Prospect Street		Queen Anne revival style; prominent corner tower; clapboard siding; 2-storey home; 2-bay façade; side entrance; single-storey veranda;	Plaque
CHR643	Newmarket	253 Prospect Street		2-storey frame house with aluminum siding; rough-cast; 3-bay façade; centred entrance; original windows replaced; gable roof with eaves facing street; end chimneys; centred dormer - not original; off-centred tail wing;	
CHR644	Newmarket	230 Prospect Street		1 1/2 storey brick house on concrete foundation with gambel roof; open veranda with roof supported by wood posts on brick pilasters; double-hung windows on stone sills;	Plaque
CHR645	Newmarket	342 Prospect Street		1 1/2 storey house; board and batten on stone rubble foundation; 3-bay façade; French windows flanking entrance; gable roof; tail wing (may be older)	
CHR646	Newmarket	85 Prospect Street		2-storey house; L-shaped floor plan; 3-bay façade; centred main entrance; gable roof; single storey veranda with 2nd storey door opening onto veranda roof terrace; small gable over 2nd storey door;	
CHR647	Newmarket	181 Prospect Street		Builder: Isaac Rose 2-storey red brick on limestone block foundation; hip roof; 3-bay façade; side door at recessed entrance; shallow bay windows along front and side façade; single storey brick veranda on southwest corner of house; 1x1 window sashes;	
CHR648	Newmarket	226 Prospect Street			Plaque
CHR649	Newmarket	158 Prospect Street			Plaque



**Table C.2.1: YDSS Modifications Alternative Route B: Potentially Affected Cultural Heritage Resources**

ID	Township	Municipal Address	Year Built	Property Description	Site Type and/or Designation
CHR650	Newmarket	185 Prospect Street		2-storey yellow brick veneer; hip roof; 3-bay façade; centred projecting eaves with brackets above entrance; 2x2 window sashes;	Plaque
CHR651	Newmarket	276 Prospect Street		Single-storey frame house on stone rubble foundation; 3-bay façade; centred entrance and gable; 2-storey veranda; veranda photo in Newmarket 1857-1957	
CHR652	Newmarket	163 Prospect Street		1 1/2 storey frame house; originally finished with rough cast scored ashlar; 2-bay façade; gable roof; bay window on side; Historical Society Photo circa 1910; featured in Era 20.4.1906	
CHR653	Newmarket	152 Prospect Street		Brick, 2 storey semi-detached property	Plaque
CHR655	Newmarket	330 Prospect Street		2 1/2 storey red brick house; 2-bay façade; gable roof; side entrance in alcove which has been closed in by window on south side;	
CHR656	Newmarket	208 Prospect Street		1 1/2 storey frame house; L-shaped floor plan with tail wing; gable roof; 2-bay façade with side entrance; originally clad with clapboard siding, now aluminum; originally had a single storey open veranda, now enclosed;	
CHR657	Newmarket	86 Prospect Street		2-storey yellow brick house with red brick quoining and arches over windows; ornamental key stones in arches; gable roof; stone rubble foundation;	
CHR659	Newmarket	173 Prospect Street		1 1/2 storey frame dwelling on stone rubble foundation; 4-bay façade; front entrance on side of 2-storey projecting vestibule; clapboard siding; gable roof; slightly arched 2x2 windows; single storey veranda on both sides of vestibule	





## **Appendix C-3**

### Table C.3

#### Net Effects Assessment – York Durham Sewage System Modifications Alternative Route C

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Technical	Carbon Dioxide (CO <sub>2</sub> ) Equivalent Footprint	Equivalent CO <sub>2</sub> (CO <sub>2</sub> e) generated in tonnes CO <sub>2</sub> e/year <sup>1</sup>	<ul style="list-style-type: none"> <li>Approximately 241 tonnes CO<sub>2</sub>e /year.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 241 tonnes CO<sub>2</sub>e /year.</li> </ul>
Natural Environment	Effect on groundwater	Temporary and/or long-term change in groundwater quality	<ul style="list-style-type: none"> <li>Temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route<sup>2</sup>.</li> <li>No long-term change in groundwater quality during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use construction such as limiting excavations below the water table, use directional drilling methods where suitable, use groundwater cut-off structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route would be minimized by using standard construction methods.</li> <li>No net effects.</li> </ul>
		Temporary and/or long-term change in groundwater quantity	<ul style="list-style-type: none"> <li>Temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route<sup>3</sup>.</li> <li>No long-term change in groundwater quantity during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use construction methods such as limiting excavations below the water table, use directional drilling methods where suitable, use groundwater cutoff structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route would be minimized by using construction methods.</li> <li>No net effects.</li> </ul>
	Effect on surface water	Temporary and/or long-term change in surface water quality	<ul style="list-style-type: none"> <li>Temporary decrease in surface water quality at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) due to increased sediment in surface water runoff during construction of the YDSS Modifications Alternative Route.</li> <li>No long-term change in surface water quality during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement an Erosion and Sediment Control Plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) during construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No net effects.</li> </ul>

1. Equivalent CO<sub>2</sub> generated indicator includes direct and indirect emissions (i.e., from electricity generation) of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O. Direct emissions include natural gas, transportation related emissions, process related emissions, equipment related emissions, chemical usage related emissions and off-site biosolids/residuals decomposition emission. Further details are provided in the Technical Concept Level 2 Document, (CRA et al., February 2013).

2. Dewatering is expected to be relatively minor along Alternative Route C, because the route would be located in upland areas within existing roadways.

3. Dewatering is expected to be relatively minor along Alternative Route C, because the route would be located in upland areas within existing roadways.

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
		Temporary and/or long-term change in surface water quantity	<ul style="list-style-type: none"> <li>Temporary increase in surface water quantity at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) due to an increase in overland flow during construction of the YDSS Modifications Alternative Route.</li> <li>No long-term change in surface water quantity during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Develop and implement an Erosion and Sediment Control Plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) during construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) due to an increase in overland flow during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No net effects.</li> </ul>
	Effect on aquatic habitat or functions	Area (m <sup>2</sup> ) of temporary or permanent loss of aquatic features or categorical loss of functions by type – including Provincially Significant Wetland, Locally Significant Wetland, watercourses by sensitivity type, and others <sup>4</sup>	<ul style="list-style-type: none"> <li>Temporary loss of aquatic habitat and function at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent loss of aquatic habitat or function during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Undertake construction outside of the relevant fish spawning timing window, and in the low-flow, dry summer periods where possible.</li> <li>Implement appropriate construction Best Management Practices such as dewatering and fish relocation during construction works based on consultations with review agencies.</li> <li>Limit removal of riparian vegetation, especially mature shrubs and trees.</li> <li>Stabilize banks and implement a restoration plan to compensate for temporary loss of aquatic habitat.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function from a decrease in surface water quality at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated and compensated for (as required) by undertaking construction outside of relevant fish spawning and timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No net effects.</li> </ul>
	Effect on stream geomorphology	Change in geomorphic form/function/stability in affected channels	<ul style="list-style-type: none"> <li>Temporary change to channel form, function and stability at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No long-term change in geomorphic form, function or stability during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Limit removal of riparian vegetation.</li> <li>Implement post construction restoration of channel form and function.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form, function and stability at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No net effects.</li> </ul>

4. Provincially Significant Wetlands, Locally Significant Wetlands and permanent and intermittent watercourses were avoided during the generation of the long list of potential YDSS Modification Alternative Routes.

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect on aquatic species including Species at Risk (species of special concern, threatened, endangered) and species of local concern, native and invasive species	Number and type of aquatic species <sup>5</sup> potentially affected temporarily or permanently <sup>6</sup>	<ul style="list-style-type: none"> <li>Temporary disturbance<sup>7</sup> to aquatic species at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent disturbance to aquatic species during operation of the YDSS Modifications Alternative Route.</li> <li>No temporary or permanent disturbance to aquatic Species at Risk during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Undertake construction outside of relevant fish spawning timing window, and in the low-flow, dry summer periods where possible.</li> <li>Implement appropriate construction Best Management Practices such as dewatering and fish relocation during construction works.</li> <li>No avoidance/mitigation/compensation measures required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to aquatic species at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No net effects.</li> <li>No net effects.</li> </ul>
	Effect on groundwater recharge and discharge areas in relation to aquatic/wetland habitat	Area (m <sup>2</sup> ) of temporary or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>Temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent loss of groundwater recharge and discharge areas as they relate to aquatic/wetland habitat during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Use construction methods such as limiting excavations below the water table, use temporary groundwater cutoff structures where appropriate to minimize the amount of temporary dewatering required.</li> <li>Direct dewatering discharge back to local watercourse following temperature and clarity control to mitigate temporary loss of baseflow.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by using appropriate construction methods and directing the discharge back to the local watercourse.</li> <li>No net effects.</li> </ul>
	Effect on terrestrial habitat or functions	Area (m <sup>2</sup> ) of temporary and/or permanent loss of natural heritage features by type – including ESAs, ANSIs, wildlife corridors, and others	<ul style="list-style-type: none"> <li>No temporary or permanent loss of ESAs, ANSIs or wildlife corridors during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>

5. Aquatic species include species of local concern, native and invasive species.

6. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on aquatic species.

7. Temporary disturbance to aquatic species at crossings due to decrease in surface water quality during construction of the YDSS Modifications Alternative Route.

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect on terrestrial species including Species at Risk, (species of special concern, threatened, endangered) species of local concern, native and invasive species, and area-sensitive species	Number and type of terrestrial species <sup>8</sup> potentially affected temporarily and/or permanently <sup>9</sup>	<ul style="list-style-type: none"> <li>No temporary or permanent disturbance<sup>10</sup> to terrestrial species during construction or operation of the YDSS Modifications Alternative Route.</li> <li>No temporary or permanent disturbance to Species at Risk during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul>
	Effect on groundwater recharge and discharge areas in relation to terrestrial habitat	Area (m <sup>2</sup> ) of temporary and/or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>No temporary or permanent loss of groundwater recharge and discharge areas in relation to terrestrial habitat during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
<b>Built Environment</b>	Effect on agricultural operations and capital investment related to agriculture	Approximate area (ha) of active agricultural operations <sup>11</sup> affected	<ul style="list-style-type: none"> <li>No temporary or permanent loss of active agricultural operations during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
		Extent of disruption of active agricultural operations such as: <ul style="list-style-type: none"> <li>Fragmentation of agricultural fields</li> <li>Disturbance to artificial drainage systems and agricultural drains</li> <li>Removal and/or disturbance of farm fences, entrances and paddocks</li> <li>Disruption of agricultural-related businesses</li> <li>Disruption of normal external haul routes for farm machinery movements</li> </ul>	<ul style="list-style-type: none"> <li>No temporary or permanent disruption to active agricultural operations during construction or operation of the YDSS Modifications Alternative Route as it is located within an Urban Area.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect on existing residences, businesses, and/or community, institutional, and recreational facilities <sup>12</sup>	Number and type of residences displaced	<ul style="list-style-type: none"> <li>No displacement of residences during construction and operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>

8. Terrestrial species include species of local concern, native and invasive species and area-sensitive species.  
9. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on terrestrial species.  
10. Disturbance refers to construction-related activities (i.e., noise, vibration, dust, etc.).  
11. Active agricultural land removed refers to the area being ploughed (i.e., excludes barns, buildings etc).  
12. Information regarding existing residences and businesses accurate as of May 2012.

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
		Number and type of residences temporarily or permanently disrupted <sup>13</sup>	<ul style="list-style-type: none"> <li>▪ Temporary disruption to approximately 157 driveway accesses for 162 private residences during construction of the YDSS Modifications Alternative Route, including:               <ul style="list-style-type: none"> <li>▪ <b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> – 29 private residences with 29 driveway accesses:                   <ul style="list-style-type: none"> <li>▪ 28 private residences each with 1 access off of Bayview Parkway</li> <li>▪ 1 private residence with 1 access off of Bayview Parkway and 1 undisrupted access off of Heman Street</li> </ul> </li> <li>▪ <b>Section of Route along Charles Street from Davis Drive to Queen Street and Queen Street from Charles Street to Prospect Street</b> – 16 private residences with 16 driveway accesses:                   <ul style="list-style-type: none"> <li>▪ 9 private residences each with 1 access off of Charles Street</li> <li>▪ 7 private residences each with 1 access off of Queen Street</li> </ul> </li> <li>▪ <b>Section of Route along Prospect Street from Queen Street to Mulock Drive</b> – 117 private residences with 112 driveway accesses:                   <ul style="list-style-type: none"> <li>▪ 87 private residences each with 1 access off of Prospect Street</li> <li>▪ 1 private residence with 1 shared access with a business off of Prospect Street<sup>14</sup></li> <li>▪ 1 private retirement residence with 1 access off of Prospect Street</li> <li>▪ 14 private residences with 7 shared accesses off of Prospect Street</li> <li>▪ 1 private residences with 2 accesses off of Prospect Street</li> <li>▪ 1 private residence with 1 access off of Prospect Street and 1 undisrupted access off of Wellington Street</li> <li>▪ 1 private residence with 1 access off of Prospect Street and 1 undisrupted access off of Timothy Street</li> <li>▪ 2 private residences each with 1 access off of Queen Street</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary driveway access and arrangements for waste collection to affected residences and notify residences of alternate arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to approximately 157 driveway accesses for 162 private residences during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements<sup>15</sup></li> </ul>

13. Disruption to residences has been applied with respect to driveway accesses (including waste collection). Disruption that relates to odour, noise and vibration are considered in the respective indicators below.

14. Accesses for businesses operated out of residences are counted under both of the following indicators: "Number and characteristics of businesses temporarily or permanently disrupted" and "Number and type of residences temporarily or permanently disrupted".

15. Note that there are a number of townhomes and commercial property currently under construction at the southeast corner of Bayview Avenue and St. John's Sideroad East that when complete may experience temporary disruption to accesses depending on construction completion schedules.

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ 1 private low rise apartment property with 1 access off of Prospect Street</li> <li>▪ 1 private low rise apartment property with 1 access off of Prospect Street and 1 undisturbed access off of Cotter Street</li> <li>▪ 1 private residence with 1 access off of Prospect Street and 1 undisturbed access off of Second Street</li> <li>▪ 1 private residence with 2 accesses off of Bayview Avenue</li> <li>▪ 2 private residences each with 1 shared access with 2 businesses off of Bayview Avenue</li> <li>▪ 1 private residence with 1 access off of Bayview Avenue and 1 undisturbed access off of College Street</li> <li>▪ 2 Pickering College residences each with 1 access off of Bayview Avenue</li> <li>▪ Temporary disruption to road access for approximately 1,226 private residences that can only be accessed by Prospect Street, Bayview Avenue, and St. John's Sideroad East during construction of the YDSS Modifications Alternative Route.</li> <li>▪ <b>Section of Route along Prospect Street from Queen Street to Mulock Drive</b> –5 private residences that can only be accessed by Prospect Street: <ul style="list-style-type: none"> <li>▪ 3 private residences that can only be accessed by Skelton Street (off of Prospect Street)</li> <li>▪ 2 private residences that can only be accessed by Poplar Lane (off of Prospect Street)</li> </ul> </li> <li>▪ <b>Section of Route along Bayview Avenue from Mulock Drive to St. John's Sideroad</b> – 1,023 private residences that can only be accessed from Bayview Avenue or St. John's Sideroad E: <ul style="list-style-type: none"> <li>▪ 447 private residences whose access is only by McBean Avenue and Silken Laumann Drive (both roads off of Bayview Avenue)</li> <li>▪ 136 private residences whose access is only by Laurelwood Gate (off of Bayview Avenue)</li> <li>▪ 292 private residences whose access is only by Brooker Ridge (off of Bayview Avenue)</li> <li>▪ 148 private residences whose access is only by Ballymore Drive and Trent Street (off of Bayview Avenue and St. John's Sideroad E, respectively)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary access for local roads and arrangements for waste collection to affected residences and notify residences of alternate arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to road access for approximately 1,226 private residences that can only be accessed by Prospect Street, Bayview Avenue, and St. John's Sideroad East during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and notifying residents of the alternative arrangements.</li> </ul>

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of Route along St. John's Sideroad from Bayview Avenue to Aurora Pumping Station</b> – 198 private residences that can only be accessed from St. John's Sideroad:               <ul style="list-style-type: none"> <li>▪ 198 private residences whose access is only by Pinnacle Trail</li> </ul> </li> <li>▪ Temporary disruption to a small portion of 1 private residence due to the construction of the staging areas at Prospect Street and Bogart Pumping Station (Bogart Route) (will not disrupt driveway access off of Hamilton Street) within a portion of the property.</li> <li>▪ No permanent disruption to residences during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide compensation in accordance with York Region's policies.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to a small portion of 1 private residence due to the construction of the staging areas at Prospect Street and Bogart Pumping Station (Bogart Route) would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>▪ No net effects.</li> </ul>
		Number and characteristics of businesses displaced <sup>16</sup>	<ul style="list-style-type: none"> <li>▪ No displacement of businesses during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>
		Number and characteristics of businesses temporarily or permanently disrupted <sup>17,18</sup>	<ul style="list-style-type: none"> <li>▪ Temporary disruption to approximately 29 driveway accesses for 107 businesses with businesses during construction of the YDSS Modifications Alternative Route.</li> <li>▪ <b>Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> – 2 businesses with 3 driveway accesses, as well as 1 business with 1 driveway access and construction of YDSS Modifications Alternative Route within property:               <ul style="list-style-type: none"> <li>▪ 1 business with 1 access off of Bayview Parkway</li> <li>▪ 1 business with 2 accesses off of Bayview Parkway</li> <li>▪ 1 business with 1 access off of Bayview Parkway and 1 undisrupted access off of Davis Drive</li> </ul> </li> <li>▪ <b>Section of Route along Charles Street from Davis Drive to Queen Street and Queen Street from Charles Street to Prospect Street</b> – 13 businesses with 9 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 3 businesses each with 1 access off of Charles Street</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary driveway access and access signage, arrangements for waste collection to affected businesses and notify businesses of alternative arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to approximately 29 driveway accesses for 107 businesses during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> </ul>

16. Does not include agricultural businesses. Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

17. Does not include agricultural businesses. Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

18. Disruption to businesses has been applied with respect to driveway accesses, which considers customer access, deliveries and waste collection, etc. Disruption that relates to odour, noise and vibration are considered in the respective indicators below.





**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ 2 businesses each with 2 accesses off of Charles Street</li> <li>▪ 6 businesses that share 1 access off of Charles Street and 1 undisrupted access off of Davis Drive</li> <li>▪ 2 businesses with 1 shared access off of Queen Street and 1 undisrupted shared access off of Prospect Street</li> <li>▪ <b>Section of Route along Prospect Street from Queen Street to Mulock Drive</b> – 7 businesses with 7 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 2 businesses each with 1 access off of Prospect Street</li> <li>▪ 2 businesses with 2 shared accesses off of Prospect Street</li> <li>▪ 1 business with 1 access off of Poplar Lane</li> <li>▪ 2 businesses each with 1 access off of Bayview Avenue</li> </ul> </li> <li>▪ <b>Section of Route along Bayview Avenue from Mulock Drive to St. John's Sideroad</b> – 81 businesses with 8 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 1 business with 1 access off of Bayview Avenue and 1 undisrupted access off of Mulock Drive</li> <li>▪ 33 businesses with 1 shared access off of Bayview Avenue and 1 undisrupted shared access off of Mulock Drive</li> <li>▪ 1 business with 1 access off of Bayview Avenue and 1 undisrupted access off of Steven Court</li> <li>▪ 15 businesses with 1 shared access off of Bayview Avenue</li> <li>▪ 17 businesses with 2 shared accesses off of Bayview Avenue and 1 undisrupted shared access off of Steven Court</li> <li>▪ 14 businesses with 2 shared accesses off of Bayview Avenue</li> </ul> </li> <li>▪ <b>Section of Route along St. John's Sideroad from Bayview Avenue to Aurora Pumping Station</b> – 3 businesses with 1 shared access off of Bayview Avenue and 3 undisrupted shared accesses off of Earl Stewart Drive</li> <li>▪ <b>Staging Sites at Prospect Street and Bogart Pumping Station (Bogart Route)</b> – No disruption to businesses</li> </ul>		

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ Temporary disruption to road access for approximately 10 businesses that can only be accessed by Bayview Avenue during construction of the YDSS Modifications Alternative Route.</li> <li>▪ <b>Section of Route along Bayview Avenue from Mullock Drive to St. John's Sideroad</b> – 10 businesses that can only be accessed by Bayview Avenue:               <ul style="list-style-type: none"> <li>▪ 2 businesses whose access is only by Newpark Boulevard (off of Bayview Avenue)</li> <li>▪ 8 businesses whose access is only by Brooker Ridge (off of Bayview Avenue)</li> </ul> </li> <li>▪ Temporary disruption to a small portion of 1 business along the Section of Route along Bayview Parkway from Newmarket Pumping Station to Davis Drive where the YDSS Modifications Alternative Route is constructed within the business property (disruption to driveway access for this business is included above).</li> <li>▪ No permanent disruption to businesses during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary access for local roads and access signage, arrangements for waste collection to affected businesses and notify businesses of alternative arrangements.</li>   <li>▪ Provide compensation in accordance with York Region's policies.</li>   <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to road access for approximately 10 businesses that can only be accessed by Bayview Avenue during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying businesses of the alternative arrangements.</li>   <li>▪ The temporary disruption to a small portion of 1 business where the YDSS Modifications Alternative Route is constructed within the business property would be compensated for (as necessary) in accordance with York Region's policies.</li>   <li>▪ No net effects.</li> </ul>
		Number and characteristics of community, institutional, and recreational facilities displaced	<ul style="list-style-type: none"> <li>▪ No displacement of community, institutional, and recreational facilities during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>
		Number and characteristics of community, institutional, and recreational facilities temporarily or permanently disrupted	<ul style="list-style-type: none"> <li>▪ Temporary disruption to approximately 15 driveway accesses for 8 community, institutional and recreational facilities (including Tom Taylor Trail, George Richardson Park, Lake Simcoe Region Conservation Authority, York Region Community Service Housing Department, York Regional Police District 1 Headquarters, Pickering College Independent Day and Boarding Co-ed School, unnamed cemetery off of Bayview Avenue, and unnamed park off of St. John's Sideroad E) during construction of the YDSS Modifications Alternative Route.</li> <li>▪ <b>Section of route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> – 2 facilities with 2 driveway accesses and 2 facilities with 3 driveway accesses where the YDSS Modifications Alternative Route will be constructed within the property:               <ul style="list-style-type: none"> <li>▪ 2 recreational facilities, including Tom Taylor Trail and George Richardson Park each with 1 access off of Bayview Parkway</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary driveway access and access signage, arrangements for waste collection to affected community, institutional, and recreational facilities and notify the facilities of alternative arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to approximately 15 driveway accesses for 8 community, institutional and recreational facilities (including Tom Taylor Trail, George Richardson Park, Lake Simcoe Region Conservation Authority, York Region Community Service Housing Department, York Regional Police District 1 Headquarters, Pickering College Independent Day and Boarding Co-ed School, unnamed cemetery off of Bayview Avenue, and unnamed park off of St. John's Sideroad East) during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> </ul>



**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ 2 community/institutional facilities, including the Lake Simcoe Region Conservation Authority with 2 accesses off of Bayview Parkway and the York Region Community Service Housing Department with 1 access off of Bayview Parkway and where the YDSS Modifications Alternative Route will be constructed within the properties</li> <li>▪ <b>Section of route along Charles Street from Davis Drive to Queen Street and Queen Street from Charles Street to Prospect Street</b> – No community, institutional, and recreational facilities accesses will be disrupted</li> <li>▪ <b>Section of route along Prospect Street from Queen Street to Mulock Drive</b> – 2 facilities with 6 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 2 institutional facilities, including the Pickering College Independent Day and Boarding Co-ed School with 5 accesses off of Bayview Avenue, and the York Regional Police District 1 Headquarters, with 1 access off of Prospect Street and 1 undisrupted access off of Water Street</li> </ul> </li> <li>▪ <b>Section of route along Bayview Avenue from Mulock Drive to St. John's Sideroad</b> – 1 facility with 1 driveway access:               <ul style="list-style-type: none"> <li>▪ 1 institutional facility, including a cemetery with 1 access off of Bayview Avenue</li> </ul> </li> <li>▪ <b>Section of route along St. John's Sideroad from Bayview Avenue to Aurora Pumping Station</b> – 1 facility with 3 driveway accesses:               <ul style="list-style-type: none"> <li>▪ 1 local park with 2 accesses off of St. John's Sideroad and 1 access off of Downey Circle</li> </ul> </li> <li>▪ Temporary disruption to road access for 3 community, recreational and institutional facilities (including Art Ferguson Park, Hamilton Park and St. Andrew's Valley Golf Club) that can only be accessed by Bayview Avenue and St. John's Sideroad East.</li> <li>▪ <b>Section of route along Bayview Avenue from Mulock Drive to St. John's Sideroad</b> –1 recreational facility, Art Ferguson Park, whose access is only by Brooker Ridge (off of Bayview Avenue).</li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide temporary access for local roads and access signage, arrangements for waste collection, to affected community, institutional and recreational facilities and notify facilities of alternative arrangements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to road access for 3 community, recreational and institutional facilities (including Art Ferguson Park, Hamilton Park and St. Andrew's Valley Golf Club) that can only be accessed by Mulock Drive and Pearson Street would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> </ul>



**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ <b>Section of route along St. John’s Sideroad from Bayview Avenue to Aurora Pumping Station</b> –2 facilities that can only be accessed by St. John’s Sideroad E:               <ul style="list-style-type: none"> <li>▪ 2 recreational facilities including Hamilton Park whose access is only by Pinnacle Trail (off of St. John’s Sideroad E) and St. Andrew’s Valley Golf Club whose access is only by Pinnacle Trail (off of St. John’s Sideroad E)</li> </ul> </li> <li>▪ Temporary disruption to portions of 5 community, institutional and recreational facilities (including Lake Simcoe Region Conservation Authority, York Region Community Service Housing Department, Mabel Davis Conservation Area, College Manor Park, and Barrington Park) where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties (2 of these facilities have 3 accesses that will be disrupted and are also included above).</li> <li>▪ <b>Section of route along Bayview Parkway from Newmarket Pumping Station to Davis Drive</b> –1 facility with no driveway accesses where the YDSS Modifications Alternative Route will be constructed within the property, and 2 facilities with 3 driveway accesses where the YDSS Modifications Alternative Route will be constructed within the property:               <ul style="list-style-type: none"> <li>▪ 1 recreational facility with no accesses, Mabel Davis Conservation Area where the YDSS Modifications Alternative Route will be constructed within the property</li> <li>▪ 2 community/institutional facilities, including the Lake Simcoe Region Conservation Authority with 2 accesses off of Bayview Parkway and the York Region Community Service Housing Department with 1 access off of Bayview Parkway and where the YDSS Modifications Alternative Route will be constructed within the properties</li> </ul> </li> <li>▪ <b>Staging Sites at Prospect Street and Bogart Pumping Station (Bogart Route)</b> – 2 facilities with no disrupted accesses where the staging area will be constructed within the properties:               <ul style="list-style-type: none"> <li>▪ 2 recreational facilities, College Manor Park and Barrington Park, where the staging area will be constructed within the property but will not disrupt the accesses off of College Manor Drive and Terry Carter Crescent</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Provide compensation in accordance with York Region’s policies.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to portions of 5 community, institutional and recreational facilities (including Lake Simcoe Conservation Authority, York Region Community Service Housing Department, Mabel Davis Conservation Area, College Manor Park, and Barrington Park) where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties would be compensated for (as necessary) in accordance with York Region’s policies (2 of these facilities have 3 accesses that will be disrupted and are also included above).</li> </ul>

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>No permanent disruption to community, institutional, and recreational facilities during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect of vibration on existing buildings	Number of existing buildings affected and extent and duration of adverse effects <sup>19</sup>	<ul style="list-style-type: none"> <li>Temporary increase in vibration levels at approximately 487 adjacent<sup>20</sup> buildings (including 345 residences, 124 businesses and 18 community, institutional, and recreational facilities) during construction of the YDSS Modifications Alternative Route.</li> <li>Structural damage to historic buildings potentially sensitive to noise and vibration<sup>21</sup> in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent increase in vibration levels during operation of the YDSS Modifications Alternative Route</li> </ul>	<ul style="list-style-type: none"> <li>Implement Best Management Practices (BMPs) for vibration reduction to minimize temporary construction-related effects, including measures such as: <ul style="list-style-type: none"> <li>Staged construction so demolition, earth-moving and ground-impacting activities do not occur at the same time</li> <li>Relocate heavy equipment travel routes away from sensitive buildings</li> <li>Limit heavy construction to daytime hours</li> <li>Use specialized drilling equipment and methods (avoid sheet piling, jack hammer, vibratory rollers, etc.)</li> </ul> </li> <li>Establish a minimum setback distances between the YDSS Modifications Alternative Route and historic buildings (e.g., built heritage resources etc.).</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 487 adjacent buildings (including 345 residences, 124 businesses and 18 community, institutional, and recreational facilities) during construction of the YDSS Modifications Alternative Route would be minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</li> <li>The structural damage to historic buildings potentially sensitive to noise and vibration in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route would be mitigated by establishing a minimum safe setback distance between the YDSS Modifications Alternative Route and sensitive buildings.</li> <li>No net effects.</li> </ul>
	Effect on property	Number and extent of properties affected and ownership	<ul style="list-style-type: none"> <li>No property acquisition required during construction or operation of the YDSS Modifications Alternative Route.</li> <li>Permanent modification to existing easement within approximately 5 properties during operation of the YDSS Modifications Alternative Route: <ul style="list-style-type: none"> <li><b>Section of Route from Newmarket Pumping Station to Heman Street</b> <ul style="list-style-type: none"> <li>Potential extension of existing easement to the east of the existing forcemain within 2 properties owned by the Town of Newmarket.</li> </ul> </li> <li><b>Section of Route along Bayview Avenue from to Heman Street to Davis Drive</b> <ul style="list-style-type: none"> <li>Potential extension of existing easement to the west of the existing forcemain within 1 property owned by the Lake Simcoe Region Conservation Authority, 1 property owned by York Region and 1 private property (multi-unit business complex).</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>Compensate for acquisition of permanent easement on private property in accordance with standard Regional procedures and policies.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>The permanent modification to existing easement within approximately 5 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul>

19. Effect will depend on the proximity to construction activity, and subsurface soil conditions.

20. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction-related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

21. The locations of historic buildings potentially sensitive to noise and vibration within the UYSS EA study area were identified in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
		Total area of property acquisition required (ha)	<ul style="list-style-type: none"> <li>▪ No property acquisition during construction or operation of the YDSS Modifications Alternative Route.</li> <li>▪ Permanent acquisition of existing easement<sup>22</sup> within approximately 5 properties (listed above) during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation required.</li> <li>▪ Compensate for acquisition of permanent easement on private property in accordance with standard Regional procedures and policies.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> <li>▪ The permanent acquisition of existing easement within approximately 5 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul>
	Effect on existing roadway/utility infrastructure	Number of roadways and type affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>▪ Temporary disruption to 9 roadways, where the alternative route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route: <ul style="list-style-type: none"> <li>▪ Bayview Parkway (Town Minor Collector Road) and access to Heman Street (Town Local Road) to accommodate closures of some lanes on Bayview Parkway for up to 4 months</li> <li>▪ Charles Street (Town Local Road) and access to Granby Place (Town Local Road) to accommodate closure of the west lane of Charles Street for 1 month</li> <li>▪ Queen Street (Town Minor Collector Road) to accommodate closure of the north lane of Queens Street for 1 month</li> <li>▪ Prospect Street (Region Primary Collector Road), and access to Grace Street (Town Local Road), Granby Place (Town Local Road), Queen Street (Town Minor Collector Road), Wellington Street (Town Local Road), Skelton Street (Town Local Road), Srigley Street (Town Minor Collector Road), Timothy Street (Town Local Road), Lydia Street (Town Local Road), Water Street/Gorham Street (Town Primary Collector Road), Pearson Street (Town Local Road), and Second Street (Town Local Road), to accommodate full road closure of Prospect Street for up to 12 months</li> <li>▪ Bayview Avenue north of Mulock Drive (Region Arterial Roads), and access to College Street (Town Local Road), Bondie Avenue/Penrose Street (Town Local Road), and Mulock Court (Town Local Road) to accommodate full road closure of Bayview Avenue for up to 12 months</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Prepare and implement a traffic management plan describing detours for road closures and/or lane closures during construction of the YDSS Modifications Alternative Route and provision of temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to 9 roadways, where the Alternative Route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route would be minimized by implementing a traffic management plan and providing temporary access as required to the following: <ul style="list-style-type: none"> <li>▪ Bayview Parkway (Town Minor Collector Road)</li> <li>▪ Charles Street (Town Local Road)</li> <li>▪ Queen Street (Town Minor Collector Road)</li> <li>▪ Prospect Street (Region Primary Collector Road)</li> <li>▪ Bayview Avenue north of Mulock Drive (Region Arterial Roads)</li> <li>▪ Bayview Avenue south of Mulock Drive (Region Arterial Roads)</li> <li>▪ St. John's Sideroad (Region Arterial Road)</li> <li>▪ Davis Drive (Region Arterial Road)</li> <li>▪ Pearson Street (Town Local Road)</li> </ul> </li> </ul>

22. Exact extent of easement required to be determined during detailed design.

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
			<ul style="list-style-type: none"> <li>▪ Bayview Avenue south of Mulock Drive (Region Arterial Roads), and access to Mulock Drive (Region Arterial Road), Carberry Street (Town Local Road), Newpark Boulevard/McBean Avenue (Town Local Road), Silken Laumann Drive/Stonehaven Avenue (Town Local Road), Brooker Ridge (Town Minor Collector Road), and Ballymore Drive (Town Local Road) to accommodate closure of east lane on Bayview Avenue for up to 4 months</li> <li>▪ St. John's Sideroad (Region Arterial Road), and access to Trent Street (Town Local Road), Earl Stewart Drive (Town Minor Collector Road), Gateway Drive (Town Major Collector), and Industrial Parkway North (Town Major Collector) to accommodate closure of south lane on St. John's Sideroad for up to 4 months</li> <li>▪ Davis Drive (Region Arterial Road) to accommodate crossing of Davis Drive</li> <li>▪ Pearson Street (Town Local Road) to accommodate crossing of Pearson Street</li> <li>▪ No disruption to roadways during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No net effects.</li> </ul>
		Number and type of utilities affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>▪ Temporary disruption to 4 major utilities (York Region Water and Wastewater Bayview Operations Centre, Bayview Pumping Station, Hydro Corridor and Bogart Pumping Station) located adjacent to the YDSS Modifications Alternative Route during construction.</li> <li>▪ Temporary disruption to the watermain, sanitary sewer, storm sewer, local gas, local hydro, local cable and local telephone utilities on Prospect Street between Davis Drive and Mulock Drive for up to 12 months during the construction of the YDSS Modifications Alternative Route.</li> <li>▪ No permanent disruption to utilities during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Locate utilities based on consultations with utility providers and relocate utilities if required.</li> <li>▪ Locate utilities based on consultations with utility providers and relocate utilities if required.</li> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption to 4 major utilities (York Region Water and Wastewater, Bayview Pumping Station, Hydro Corridor and Bogart Pumping Station) during construction of the YDSS Modifications Alternative Route would be mitigated by locating utilities based on consultations with utility providers and relocating if required.</li> <li>▪ The temporary disruption to the watermain, sanitary sewer, storm sewer, local gas, local hydro, local cable and local telephone utilities on Prospect Street between Davis Drive and Mulock Drive would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>▪ No net effects.</li> </ul>

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
Social Environment	Effect on wells	Number of wells and type affected, extent and duration and nature (water quality/ quantity) of adverse effects.	<ul style="list-style-type: none"> <li>No temporary or permanent change to groundwater wells during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
	Effect of noise on sensitive receptors <sup>23</sup>	Number of sensitive receptors affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>Temporary increase in noise levels at approximately 345 adjacent<sup>24</sup> residences (including 6 multi-unit complexes) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent increase in noise levels during operation of the YDSS Modifications Alternative Route</li> </ul>	<ul style="list-style-type: none"> <li>Adhere to Ministry of the Environment (MOE) Urban (NPC-205) and Rural (NPC-232) noise limits.</li> <li>Adhere to Town of East Gwillimbury's Noise By-law (2004-80) limits for construction activity. Implement Best Management Practices for noise reduction to minimize temporary construction-related nuisance effects (i.e., operators limit impact noise from tailgate, use of construction equipment that meets the requirements of the MOE Construction Equipment Publication (NPC-115).</li> <li>Develop complaint resolution procedure for responding to complaints resulting from construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 345 adjacent residences (including 6 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul>
	Effect of perceptible vibration levels on sensitive receptors	Number of sensitive receptors <sup>25</sup> affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>Temporary increase in vibration levels at approximately 345 adjacent<sup>26</sup> residences (including 6 multi-unit complexes) during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent increase in vibration levels during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Adhere to MOE vibration limits as set out in NPC-207 Publication (NPC 207 Impulse Vibration in Residential Buildings).</li> <li>Implement Best Management Practices for vibration reduction to minimize temporary construction-related nuisance effects during daytime, including: <ul style="list-style-type: none"> <li>Staged construction so demolition, earth-moving and ground-impacting activities do not occur at the same time.</li> <li>Relocate heavy equipment travel routes away from sensitive buildings.</li> <li>Limit heavy construction to daytime hours.</li> <li>Use specialized drilling equipment and methods (avoid sheet piling, jack hammer, vibratory rollers, etc.).</li> </ul> </li> <li>Develop complaint resolution procedure for responding to complaints resulting from construction.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 345 adjacent residences (including 6 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's vibration limits as set out in the NPC-207 Publication, implementing Best Management Practices for vibration reduction, adhering to MOE's NPC-207 vibration limits, and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul>

23. As defined by the Ministry of the Environment (MOE) in NPC-205, a sensitive "point of reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of approval of new sources of noise, including verifying compliance with Section 9 of the Environmental Protection Act, the point of reception may be located on any of the following existing or zoned for future use premises: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and noise sensitive buildings such as schools and places of worship.

24. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

25. Sensitive receptors from a vibration perspective include permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, campgrounds and vibration sensitive buildings.

26. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.



**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effect of odour sensitive receptors from current conditions <sup>27</sup>	Number of sensitive receptors impacted and extent and duration of impacts	<ul style="list-style-type: none"> <li>No temporary or permanent increase in odour during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
<b>Economic Environment</b>	Effect on approved/planned land uses	Number, extent, and type of approved/planned land uses affected	<ul style="list-style-type: none"> <li>Temporary disruption to driveway accesses for 28 townhomes, 135 stacked townhomes, 16 townhome condos and commercial property currently under construction at the southeast corner of Bayview Avenue and St. John's Sideroad East, during construction of the YDSS Modifications Alternative Route.</li> <li>No permanent effects on approved/planned land uses during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Provide temporary driveway access and access signage, and arrangements for waste collection to properties and notify residents and businesses of alternate arrangements.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul>
	Effect on agricultural soil resources	<p>Approximate area (ha) of Class 1, Class 2, and Class 3 soils removed (priority in that order).</p> <p>Approximate area (ha) of Specialty Cropland removed, and/or area of agricultural soils disturbed, and/or area of active agricultural land removed</p>	<ul style="list-style-type: none"> <li>No removal of Class 1, Class 2 and Class 3 soils along the route during construction or operation of the YDSS Modifications Alternative Route.</li> <li>No removal of Specialty Cropland, no disturbance to agricultural soils and no removal of active agricultural land during construction or operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul>
<b>Cultural Environment</b>	Effects on known or potential significant archaeological resources	Number and type of potentially significant, known archaeological sites affected.	<ul style="list-style-type: none"> <li>No known archaeological sites affected during construction and operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>
		Area (ha) of archaeological potential (i.e., lands with potential for the presence of significant archaeological resources) affected.	<ul style="list-style-type: none"> <li>Disturbance to 0.74 ha with archaeological potential during construction of the YDSS Modifications Alternative Route.</li> <li>No disturbance to lands with archaeological potential during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>Complete a Stage 2 Archaeological Assessment to determine the presence of archaeological sites within the alternative route alignment.</li> <li>If warranted, undertake a Stage 3 Archaeological Assessment for any archaeological sites discovered during the Stage 2 Archaeological Assessment. A Stage 4 Archaeological Assessment (i.e., avoidance or salvage excavation) will be completed, if required, following the Stage 3 Archaeological Assessment. At these sites, appropriate consultations with Aboriginal communities will be undertaken in accordance with Ministry of Tourism, Culture and Sport guidelines.</li> <li>No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>The disturbance to 0.74 ha with archaeological potential during construction of the YDSS Modifications Alternative Route would be minimized and appropriate mitigation measures would be identified, if required, in the Stage 2 Archaeological Assessment and if warranted, during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul>

27. Sensitive receptors include residences, child care facilities, health care facilities, senior citizens' residences, long-term care facilities, schools, and for this assessment, businesses have been included as well.

**Table C.3: Net Effects Analysis – York Durham Sewage System Modifications: Alternative Route C**

Category	Criteria	Indicator	Potential Effects	Avoidance/Mitigation/Compensation Measures	Net Effects
	Effects on built heritage resources and cultural heritage landscapes.	Number and type of built heritage resources and cultural heritage landscapes displaced <sup>28</sup> or disrupted <sup>29</sup> .	<ul style="list-style-type: none"> <li>▪ Disruption of 2 cultural heritage resources during construction of the YDSS Modifications Alternative Route: <ul style="list-style-type: none"> <li>▪ Former Toronto Transit Commission electric railway corridor, north of Heman Street</li> <li>▪ George Richardson Park</li> </ul> </li>   <li>▪ Displacement and/or premature deterioration to 32 cultural heritage resources (listed in <b>Table C-3.1</b> below) located along Bayview Avenue, between Penrose Street and Queen Street during construction of the YDSS Modifications Alternative Route.</li>   <li>▪ No disruption or displacement of cultural heritage landscapes or built heritage resources during operation of the YDSS Modifications Alternative Route.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Undertake detailed heritage evaluation and analysis to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration; avoidance of tree and fence removals, post-construction landscaping; documentation prior to alteration, commemoration etc.).</li>   <li>▪ Avoid displacement and/or premature deterioration of cultural heritage resources through appropriate siting of staging areas and access routes; monitoring construction vibration; avoidance of tree removals and fence removals; and post-construction landscaping activities.</li>   <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The disruption of 2 cultural heritage resources during construction of the YDSS Modifications Alternative Route would be minimized through preparation of detailed heritage evaluations to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration; avoidance of tree and fence removals, post-construction landscaping; documentation prior to alteration, commemoration etc.) <ul style="list-style-type: none"> <li>▪ Former Toronto Transit Commission electric railway corridor, north of Heman Street</li> <li>▪ George Richardson Park</li> </ul> </li> <li>▪ Displacement and/or premature deterioration to 32 cultural heritage resources (listed in <b>Table C-3.1</b> below) located along Bayview Avenue, between Penrose Street and Queen Street during construction of the YDSS Modifications Alternative Route would be avoided through appropriate siting of staging areas and access routes, monitoring construction vibration, avoiding tree removals and fence removals, and post-construction landscaping activities.</li> <li>▪ No net effects.</li> </ul>
<b>Financial</b>	50-year Net Present Worth Costs	50-year present net worth costs associated with the capital investment, land acquisition, and operating and maintenance of the infrastructure, systems and equipment	<ul style="list-style-type: none"> <li>▪ \$96,200,000<sup>30</sup></li> </ul>	<ul style="list-style-type: none"> <li>▪ No avoidance/mitigation/compensation measures required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ \$96,200,000</li> </ul>

28. Displacement is indicated by removal or loss of heritage attributes of the cultural heritage resource at a scale where its heritage significance is no longer conserved and/or communicated. Pre-mature deterioration refers to construction-related effects such as vibration that could result in deterioration and ultimately a displacement of cultural heritage resources.

29. Disruption to cultural heritage resources refers to partial modification of cultural heritage resources.

30. Alternative Methods of Carrying Out the Undertaking – Cost Estimates Report (CRA et al., February 2013).

**Table C.3.1 YDSS Modifications Alternative Route C: Potentially Affected Cultural Heritage Resources**

ID	Township	Municipal Address	Year Built	Property Description	Site Type and/or Designation
CHR409	Newmarket	16874 Bayview Avenue	circa 1890	Residence	Plaque
CHR411	Newmarket	16916 Bayview Avenue	1865	Residence	
CHR509	Newmarket	16945 Bayview Avenue	1908-1909	Public	Significant
CHR627	Newmarket	146 Prospect Street		2 storey brick and frame residence	Plaque
CHR628	Newmarket	222 Prospect Street			Plaque
CHR629	Newmarket	75 Prospect Street	1886	2 1/2 storey brick house; double gable roof with dormers; 4-bay façade; arched windows on second storey; bay windows; verge board;	Plaque
CHR630	Newmarket	270 Prospect Street		single-storey painted brick on stone rubble foundation; hip roof; small closed veranda addition; all windows have been replaced;	Plaque
CHR631	Newmarket	233 Prospect Street		buff brick with banding on stone rubble foundation; 2-storey house; Italianate features; hanging bracket veranda; projecting eaves;	Plaque
CHR632	Newmarket	266 Prospect Street		Architect: William Bunney; incorporates Baptist Church - built circa 1848; storey red brick dwelling on stone rubble foundation; complex gable and hip roof; 2-bay façade; side entrance; large brick arches with key stone over ground floor	Plaque
CHR633	Newmarket	67 Prospect Street	1886	2-storey brick house on stone rubble foundation; gable roof; 1-bay façade; bay window; side entrance; side veranda	Plaque
CHR634	Newmarket	322 Prospect Street		2 storey, brick, "Victorian" Style of architecture.	Plaque
CHR635	Newmarket	221 Prospect Street		2 storey frame wooden clad residence in "Carpenter Italianate" style	Designated/Plaque
CHR636	Newmarket	291 Prospect Street		2 storey semi-detached frame vinyl clad residence	Plaque
CHR637	Newmarket	97 Prospect Street		1 1/2 storey frame dwelling with shiplap siding; L-shaped floor plan; 2-bay façade;	Plaque
CHR638	Newmarket	216 Prospect Street		Architect: William Bunney 2-storey frame house on stone rubble foundation; 2-bay façade; side hall plan; clapboard siding had been altered slightly; 2-storey frame house on stone rubble foundation; 2-bay façade; side hall plan;	Plaque
CHR639	Newmarket	295 Prospect Street		2 storey frame, brick veneer now vinyl clad semi-detached residence	Plaque
CHR640	Newmarket	190 Prospect Street		2 1/2 storey red brick house on limestone block foundation; 3-bay façade; centred entrance; corner tower; complex gable roof with balcony; single storey veranda with 2nd storey balcony;	Plaque
CHR641	Newmarket	232 Prospect Street Suite 234		2-storey solid brick house on stone rubble foundation; 3-bay façade; centred entrance with side lights and flat transom; L-shaped floor plan; 2x2 windows with arched openings; hip roof with projecting eaves; single storey with square posts on brick piers	
CHR642	Newmarket	334 Prospect Street		Queen Anne revival style; prominent corner tower; clapboard siding; 2-storey home; 2-bay façade; side entrance; single-storey veranda;	Plaque
CHR643	Newmarket	253 Prospect Street		2-storey frame house with aluminum siding; rough-cast; 3-bay façade; centred entrance; original windows replaced; gable roof with eaves facing street; end chimneys; centred dormer - not original; off-centred tail wing;	
CHR644	Newmarket	230 Prospect Street		1 1/2 storey brick house on concrete foundation with gambel roof; open veranda with roof supported by wood posts on brick pilasters; double-hung windows on stone sills;	Plaque
CHR645	Newmarket	342 Prospect Street		1 1/2 storey house; board and batten on stone rubble foundation; 3-bay façade; French windows flanking entrance; gable roof; tail wing (may be older)	
CHR646	Newmarket	85 Prospect Street		2-storey house; L-shaped floor plan; 3-bay façade; centred main entrance; gable roof; single storey veranda with 2nd storey door opening onto veranda roof terrace; small gable over 2nd storey door;	
CHR647	Newmarket	181 Prospect Street		Builder: Isaac Rose 2-storey red brick on limestone block foundation; hip roof; 3-bay façade; side door at recessed entrance; shallow bay windows along front and side façade; single storey brick veranda on southwest corner of house; 1x1 window sashes;	
CHR648	Newmarket	226 Prospect Street			Plaque
CHR649	Newmarket	158 Prospect Street			Plaque
CHR650	Newmarket	185 Prospect Street		2-storey yellow brick veneer; hip roof; 3-bay façade; centred projecting eaves with brackets above entrance; 2x2 window sashes;	Plaque
CHR651	Newmarket	276 Prospect Street		single-storey frame house on stone rubble foundation; 3-bay façade; centred entrance and gable; 2-storey veranda; veranda photo in Newmarket 1857-1957	



**Table C.3.1 YDSS Modifications Alternative Route C: Potentially Affected Cultural Heritage Resources**

ID	Township	Municipal Address	Year Built	Property Description	Site Type and/or Designation
CHR652	Newmarket	163 Prospect Street		1 1/2 storey frame house; originally finished with rough cast scored ashlar; 2-bay façade; gable roof; bay window on side; Historical Society Photo circa 1910; featured in Era 20.4.1906	
CHR653	Newmarket	152 Prospect Street		Brick, 2 storey semi-detached property	Plaque
CHR655	Newmarket	330 Prospect Street		2 1/2 storey red brick house; 2-bay façade; gable roof; side entrance in alcove which has been closed in by window on south side;	
CHR656	Newmarket	208 Prospect Street		1 1/2 storey frame house; L-shaped floor plan with tail wing; gable roof; 2-bay façade with side entrance; originally clad with clapboard siding, now aluminum; originally had a single storey open veranda, now enclosed;	
CHR657	Newmarket	86 Prospect Street		2-storey yellow brick house with red brick quoining and arches over windows; ornamental key stones in arches; gable roof; stone rubble foundation;	
CHR659	Newmarket	173 Prospect Street		1 1/2 storey frame dwelling on stone rubble foundation; 4-bay façade; front entrance on side of 2-storey projecting vestibule; clapboard siding; gable roof; slightly arched 2x2 windows; single storey veranda on both sides of vestibule	



Assessment and Comparative Evaluation  
of the Short List of Alternative Methods  
Upper York Sewage Solutions EA



## Appendix D

Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
Technical	Carbon Dioxide (CO <sub>2</sub> ) Equivalent Footprint	Equivalent CO <sub>2</sub> (CO <sub>2</sub> e) generated in tonnes CO <sub>2</sub> e/year <sup>3</sup>	<ul style="list-style-type: none"> <li>The lower CO<sub>2</sub>e/year, the better the ranking.</li> </ul>	<b>Site</b> <ul style="list-style-type: none"> <li>Approximately 2,780 tonnes CO<sub>2</sub>e/year.</li> </ul> <b>Conveyance Infrastructure to Site</b> <ul style="list-style-type: none"> <li>Approximately 149 tonnes CO<sub>2</sub>e /year.</li> </ul> <b>Conveyance Infrastructure from Site to Outfall</b> <ul style="list-style-type: none"> <li>Approximately 54 tonnes CO<sub>2</sub>e /year.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>Approximately 2,780 tonnes CO<sub>2</sub>e/year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 188 tonnes CO<sub>2</sub>e/year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 40 tonnes CO<sub>2</sub>e/year.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>Approximately 2,780 tonnes CO<sub>2</sub>e/year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 149 tonnes CO<sub>2</sub>e /year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 54 tonnes CO<sub>2</sub>e /year.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>Approximately 2,780 tonnes CO<sub>2</sub>e/year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 188 tonnes CO<sub>2</sub>e/year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 40 tonnes CO<sub>2</sub>e/year.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>Approximately 2,780 tonnes CO<sub>2</sub>e/year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 149 tonnes CO<sub>2</sub>e /year.</li> </ul> <ul style="list-style-type: none"> <li>Approximately 54 tonnes CO<sub>2</sub>e /year.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
				<b>Technical Category Ranking &amp; Rationale:</b>				<b>Most Preferred (Tied)</b> The Site is Most Preferred from a Technical Category perspective compared to the other Sites because it would generate the lowest amount of CO <sub>2</sub> e/year.
Natural Environment	Effect on groundwater	Temporary and/or long-term change in groundwater quality		<b>Site</b> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <b>Conveyance Infrastructure to Site</b> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering for construction of the Conveyance Infrastructure to the Site along Holborn Road would be minimized by using appropriate construction methods.</li> </ul> <ul style="list-style-type: none"> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering for construction of the Conveyance Infrastructure to the Site along Holborn Road would be minimized by using appropriate construction methods.</li> </ul> <ul style="list-style-type: none"> <li>No long-term net effects</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul>

1. In general, no net effects ranked better than temporary effects and temporary effects ranked better than permanent effects.

2. The effects associated with the Outfall and the Treated Effluent Discharge to the East Holland River are the same for all Sites and resulted in no difference in ranking of the five alternative Sites and were excluded from this comparative evaluation table.

3. Equivalent CO<sub>2</sub> generated indicator includes direct and indirect emissions (i.e., from electricity generation) of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O. Direct emissions include natural gas, transportation related emissions, process related emissions, equipment related emissions, chemical usage related emissions, and off-Site biosolids/residuals decomposition emission. Further details are provided in the Technical Concept Level 2 Document, (CRA et al., February 2013).

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The greater the potential for dewatering during construction, the worse the ranking.</li> </ul>	<p><b>Conveyance Infrastructure from Site to Outfall<sup>4</sup></b></p> <ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering for construction of the Conveyance Infrastructure from the Site along Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering for construction of the Conveyance Infrastructure from the Site along Holborn Road and Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering for construction of the Conveyance Infrastructure from the Site along Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized through appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering for construction of the Conveyance Infrastructure from the Site along Holborn Road and Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering for construction of the Conveyance Infrastructure from the Site along Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized through appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>First (Tied)</b></p>
		Temporary and/or long-term change in groundwater quantity		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> <li>The temporary decrease in groundwater quantity due to dewatering for construction of the Conveyance Infrastructure to the Site along Holborn Road would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> <li>No temporary and/or long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> <li>The temporary decrease in groundwater quantity due to dewatering for construction of the Conveyance Infrastructure to the Site along Holborn Road would be minimized by using appropriate construction methods.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> <li>No long-term net effects.</li> </ul>

4. Dewatering is expected to be required along Queensville Sideroad during construction of the Conveyance Infrastructure from the Site (common for all alternatives).

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p><b>Conveyance Infrastructure from Site to Outfall<sup>5</sup></b></p> <ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to construction dewatering for construction of the Conveyance Infrastructure from the Site along Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering for construction of the Conveyance Infrastructure from the Site along Holborn Road and Queensville Sideroad from approximately 2nd Concession to the Outfall and would be minimized through appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering for construction of the Conveyance Infrastructure from the Site along Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering for construction of the Conveyance Infrastructure from the Site along Holborn Road and Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to construction dewatering for construction of the Conveyance Infrastructure from the Site along Queensville Sideroad from approximately 2nd Concession to the Outfall would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p><b>First (Tied)</b></p>
<b>Effect on Groundwater Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
Effect on surface water	Temporary and/or long-term change in surface water quality <sup>6</sup>			<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary decrease in surface water quality entering Holborn Drain due to increased sediment in surface water runoff during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>

5. Dewatering is expected to be required along Queensville Sideroad during construction of the Conveyance Infrastructure from the Site (common for all alternatives).

6. All watercourses have similar surface water quality characteristics.



Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<ul style="list-style-type: none"> <li>The long-term decrease in surface water quality entering Holborn Drain due to increased sediment in surface water runoff during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quality) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The long-term decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quality) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul> <ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure to the Site would be mitigated by implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul> <ul style="list-style-type: none"> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The long-term decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quality) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul> <ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure to the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul> <ul style="list-style-type: none"> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The long-term decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quality) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul> <ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure to the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul> <ul style="list-style-type: none"> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The long-term decrease in surface water quality entering Ravenshoe/Boag Drain due to increased sediment in surface water runoff during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quality) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul> <ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure to the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul> <ul style="list-style-type: none"> <li>No long-term net effects.</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The lower the number of surface water crossings along the Conveyance Infrastructure to and from the Sites, the better the ranking.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>Site 24, WH1 West and WH2 were ranked the same in terms of surface water quality along the Conveyance Infrastructure to and from the Site because the Ravenshoe/Boag Drain along 2nd Concession is an ephemeral feature with low sensitivity.</li> <li>The Ravenshoe/Boag Drain along Holborn Road and Leslie Street is an</li> </ul>	<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 1 crossing of the Queensville Drain<sup>7</sup> due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 1 crossing of the Queensville Drain and 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street), due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession and 1 crossing of the Queensville Drain due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 1 crossing of Queensville Drain and 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession and 1 crossing of the Queensville Drain due to increased sediment in surface water runoff during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>
				<b>First (Tied)</b>	<b>Fourth (Tied)</b>	<b>First (Tied)</b>	<b>Fourth (Tied)</b>	<b>First (Tied)</b>

7. Queensville Drain begins north of Mount Albert Road and west of Leslie Street, flowing northwest to the Queensville Sideroad drainage ditch, which follows Queensville Sideroad towards the East Holland River.

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			ephemeral feature with moderate sensitivity.					
		Temporary and/or long-term change in surface water quantity		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary increase in surface water quantity entering Holborn Drain<sup>8</sup> due to increase in overland flow during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>The long-term increase in surface water quantity entering the Holborn Drain due to increase in overland flow during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quantity) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity entering Ravenshoe/Boag Drain due to an increase in overland flow during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>The long-term increase in surface water quantity entering Ravenshoe/Boag Drain due to an increase in overland flow during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater quantity management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quantity) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity entering Ravenshoe/Boag Drain due to increase in overland flow to during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>The long-term increase in surface water quantity entering Ravenshoe/Boag Drain due to increase in overland flow during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quantity) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity entering Ravenshoe/Boag Drain due to increase in overland flow to during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>The long-term increase in surface water quantity entering Ravenshoe/Boag Drain due to increase in overland flow during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.50SA and 4.8-DP with respect to surface water quantity) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity entering Ravenshoe/Boag Drain due to increase in overland flow to during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>The long-term increase in surface water quantity entering Ravenshoe/Boag Drain due to increase in overland flow during operation of the Water Reclamation Centre would be mitigated by implementing a stormwater management plan in accordance with the Lake Simcoe Protection Plan (i.e., 4.5-SA and 4.8-DP with respect to surface water quantity) and Lake Simcoe Region Conservation Authority's Watershed Development Policies and a spill response plan.</li> </ul>

8. The Holborn Drain and the Ravenshoe/Boag Drain both have similar intermittent surface water flow regimes.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 1 crossing of the Queensville Drain due to increase in overland flow during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street), due to an increased in overland flow during construction of the Conveyance Infrastructure to the Site would be mitigated by implement an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in surface water quantity entering 1 crossing of the Queensville Drain and 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) due to increase in overland flow during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 1 crossing of Ravenshoe/Boag Drain along 2nd Concession due to increase in overland flow during construction of the Conveyance Infrastructure to the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 1 crossing of the Ravenshoe/Boag Drain and 1 crossing of the Queensville Drain due to increase in overland flow during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) due to increase in overland flow during construction of the Conveyance Infrastructure to the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in surface water quantity entering 1 crossing of the Queensville Drain and 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street), due to increase in overland flow during construction of the Conveyance Infrastructure from the Site would be mitigated by developing and implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 1 crossing of Ravenshoe/Boag Drain along 2nd Concession due to increase in overland flow during construction of the Conveyance Infrastructure to the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 1 crossing of the Ravenshoe/Boag Drain and 1 crossing of the Queensville Drain due to increase in overland flow during construction of the Conveyance Infrastructure from the Site would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul>

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The lower the number of surface water crossings along the Conveyance Infrastructure to and from the Sites, the better the ranking.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>Site 24, WH1 West and WH2 were ranked the same in terms of surface water quantity along the Conveyance Infrastructure to and from the Sites because the Ravenshoe/Boag Drain along 2nd Concession is an ephemeral feature with low sensitivity.</li> <li>The Ravenshoe/Boag Drain along Holborn Road and Leslie Street is an ephemeral feature with moderate sensitivity.</li> </ul>	First (Tied)	Fourth (Tied)	First (Tied)	Fourth (Tied)	First (Tied)
<b>Effect on Surface Water Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
Effect on aquatic habitat or functions	Area (m <sup>2</sup> ) of temporary or permanent loss of aquatic features or categorical loss of functions by type – including Provincially Significant Wetland, Locally Significant Wetland, watercourses by sensitivity type, and others <sup>9</sup>		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary net effects.</li> <li>The permanent loss of approximately 324.5 m of ephemeral head water drainage feature of Ravenshoe/ Boag Drain during operation of the Water Reclamation Centre would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies<sup>10</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary net effects.</li> <li>The permanent loss of approximately 234.2 m of ephemeral head water drainage feature of Ravenshoe/ Boag Drain during operation of the Water Reclamation Centre would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	

9. Provincially Significant Wetlands, Locally Significant Wetlands and permanent and intermittent watercourses were avoided during the generation of the long list of potential alternative Water Reclamation Centre Sites (Generation of the Long List of Potential Alternative Water Reclamation Centre Sites, CRA et al., April 2012).

10. The quality of aquatic habitat in each stream on Site 30 and Site WH1 East is relatively the same.

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 1 crossing of the Queensville Drain during construction of the Conveyance Infrastructure from the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices, limiting removal of riparian vegetation, stabilizing the</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street), during construction of the Conveyance Infrastructure to the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) and 1 crossing of the Queensville Drain during construction of the Conveyance Infrastructure from the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window,</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 1 crossing of Ravenshoe/Boag Drain along 2nd Concession during construction of the Conveyance Infrastructure to the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 1 crossing of Ravenshoe/Boag Drain along 2nd Concession and 1 crossing of Queensville Drain during construction of the Conveyance Infrastructure from the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss in aquatic habitat and function at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street), during construction of the Conveyance Infrastructure to the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices based on consultation with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) and 1 crossing of the Queensville Drain during construction of the Conveyance Infrastructure from the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window,</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 1 crossing of Ravenshoe/Boag Drain along 2nd Concession during construction of the Conveyance Infrastructure to the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 1 crossing of Ravenshoe/Boag Drain along 2nd Concession and 1 crossing of the Queensville Drain during construction of the Conveyance Infrastructure from the Site would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best</li> </ul>

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The shorter the stream length, the lower amount of aquatic habitat potentially affected, the better the ranking.</li> <li>The lower the number of surface water crossings along the Conveyance Infrastructure to and from the Sites, the better the ranking.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>The Ravenshoe/Boag Drain for the Conveyance Infrastructure along 2nd Concession has a low aquatic habitat potential and a low sensitivity classification.</li> <li>The Ravenshoe/Boag Drain for the Conveyance Infrastructure along Holborn Road and Leslie Street has a low aquatic habitat potential and a moderate sensitivity classification.</li> </ul>	<p>banks and implementing a restoration plan.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<p>implementing appropriate Best Management Practices, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p><b>Fifth</b></p>	<p>Management Practices, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<p>implementing appropriate construction Best Management Practices, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p><b>Fourth</b></p>	<p>Management Practices, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
<b>Effect on Aquatic Habitat or Functions</b>				<b>Most Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred (Tied)</b>	<b>Moderately Preferred</b>	<b>Most Preferred (Tied)</b>
<b>Criterion Ranking</b>								
Effect on stream geomorphology	Change in geomorphic form/ function/ stability in affected channels			<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary change to channel function of Holborn Drain due to removal of swales during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) and by replicating drainage density of swales on Site layout in conjunction with stormwater management.</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel function of the Ravenshoe/ Boag Drain due to removal of swales during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) and by replicating drainage density of swales on Site layout in conjunction with stormwater management.</li> <li>The permanent reduction to channel function of 324.5 m of the ephemeral Ravenshoe/ Boag Drain and change to downstream channel stability due to loss of 324.5 m of the Ravenshoe/ Boag Drain during operation of the Water Reclamation Centre would be compensated for by developing a relocation plan for the portion of the drain using natural channel design principles based on consultation with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel function of the Ravenshoe/Boag Drain due to removal of swales during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) and by replicating drainage density of swales on Site layout in conjunction with stormwater management.</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel function of the Ravenshoe/ Boag Drain due to removal of swales during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) and by replicating drainage density of swales on Site layout in conjunction with stormwater management.</li> <li>The permanent reduction to channel function of 234.2 m of the ephemeral Ravenshoe/ Boag Drain and change to downstream channel stability due to loss of 234.2 m of the Ravenshoe/ Boag Drain during operation of the Water Reclamation Centre would be compensated for by developing a relocation plan for the portion of the drain using natural channel design principles based on consultation with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel function of the Ravenshoe/Boag Drain due to removal of swales during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006) and by replicating drainage density of swales on Site layout in conjunction with stormwater management.</li> <li>No long-term net effects.</li> </ul>



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				<p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or long-term net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary change to channel form at 1 crossing of the Queensville Drain due to channel disturbance and vegetation removal during construction of the Conveyance Infrastructure from the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form and function at 4 crossings of the Ravenshoe/ Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) during construction of the Conveyance Infrastructure to the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary change to channel form and function at 4 crossings of the Ravenshoe/ Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) and 1 crossing of the Queensville Sideroad during construction of the Conveyance Infrastructure from the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form and function at 1 crossing of the Ravenshoe/ Boag Drain along 2nd Concession due to channel disturbance and vegetation removal during construction of the Conveyance Infrastructure to the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary change to channel form and function at 1 crossing of the Ravenshoe/ Boag Drain along 2nd Concession and 1 crossing of the Queensville Drain due to channel disturbance and vegetation removal during construction of the Conveyance Infrastructure from the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form and function at 4 crossings of the Ravenshoe/ Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) during construction of the Conveyance Infrastructure to the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary change to channel form and function at 4 crossings of the Ravenshoe/ Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) and 1 crossing of the Queensville Drain during construction of the Conveyance Infrastructure from the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form and function at 1 crossing of the Ravenshoe/ Boag Drain along 2nd Concession due to channel disturbance and vegetation removal during construction of the Conveyance Infrastructure to the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary change to channel form and function at 1 crossing of the Ravenshoe/ Boag Drain along 2nd Concession and 1 crossing of the Queensville Drain due to channel disturbance and vegetation removal during construction of the Conveyance Infrastructure from the Site would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No long-term net effects.</li> </ul>

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The shorter the stream length potentially affected, the lower potential effects on stream geomorphology, the better the ranking.</li> <li>The lower the number of surface water crossings along the Conveyance Infrastructure to and from the Sites, the better the ranking.</li> </ul> Note: <ul style="list-style-type: none"> <li>Sites 24, WH1 West and WH2 were ranked the same in terms of effects on stream geomorphology along the Conveyance Infrastructure to and from the Site because the Ravenshoe/Boag Drain along 2nd Concession is an ephemeral feature with low sensitivity.</li> <li>The Ravenshoe/Boag Drain along Holborn Road and Leslie Street is an ephemeral feature with moderate sensitivity.</li> </ul>	<b>First (Tied)</b>	<b>Fifth</b>	<b>First (Tied)</b>	<b>Fourth</b>	<b>First (Tied)</b>
<b>Effect on Stream Geomorphology Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred (Tied)</b>	<b>Moderately Preferred</b>	<b>Most Preferred (Tied)</b>
Effect on aquatic species including Species at Risk (species of special concern, threatened, endangered) and species of local concern, native and invasive species	Number and type of aquatic species <sup>11</sup> potentially affected temporarily or permanently <sup>12</sup>		<b>Site</b> <ul style="list-style-type: none"> <li>The temporary disturbance<sup>13</sup> to aquatic species in the Holborn Drain due to decrease in surface water quality during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species in the Ravenshoe/Boag Drain due to decrease in surface water quality during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species in the Ravenshoe/Boag Drain due to decrease in surface water quality during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects<sup>14</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species in the Ravenshoe/Boag Drain due to decrease in surface water quality during construction of the Water Reclamation Centre would be mitigated by implementing an erosion and sediment control plan consistent with the policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> </ul>	

11. Aquatic species include species of local concern, native and invasive species.

12. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on aquatic species.

13. Disturbance refers to construction-related activities (i.e., noise, vibration, dust etc.).

14. The portion of Ravenshoe/Boag Drain on Site WH1 East is ephemeral in nature.

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				<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary net effects to aquatic species.</li> </ul> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>The permanent disturbance to aquatic species in the ephemeral Ravenshoe/Boag Drain due to loss of approximately 324.5 m of Ravenshoe/Boag Drain would be compensated for (as required) and relocated based on consultations with review agencies.</li> <li>The temporary disturbance to aquatic species at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) during construction of the Conveyance Infrastructure to the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> <li>The temporary disturbance to aquatic species at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession due to decrease in surface water during construction of the Conveyance Infrastructure to the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> <li>The temporary disturbance to aquatic species at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> <li>The temporary disturbance to aquatic species at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession due to decrease in surface water during construction of the Conveyance Infrastructure to the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The shorter the stream length potentially affected, the lower potential effects on aquatic species, the better the ranking.</li> <li>The lower the number of surface water crossings along the Conveyance Infrastructure to and from the Sites, the better the ranking.</li> </ul> <p>Note:</p> <ul style="list-style-type: none"> <li>The Ravenshoe/Boag Drain for the Conveyance Infrastructure along 2nd Concession has a low aquatic habitat potential and a low sensitivity classification.</li> </ul>	<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 1 crossing of the Queensville Drain due to decrease in surface water quality during construction of the Conveyance Infrastructure from the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 4 crossings of Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) and at 1 crossing of the Queensville Drain due to decrease in surface water quality during construction of the Conveyance Infrastructure from the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession and at 1 crossing of the Queensville Drain due to decrease in surface water quality during construction of the Conveyance Infrastructure from the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 4 crossings of the Ravenshoe/Boag Drain (1 along 2nd Concession and 3 along Holborn Road and Leslie Street) and 1 crossing of the Queensville Drain due to the decrease in surface water quality during construction of the Conveyance Infrastructure from the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 1 crossing of the Ravenshoe/Boag Drain along 2nd Concession and 1 crossing of the Queensville Drain due to the decrease in surface water quality during construction of the Conveyance Infrastructure from the Site would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No temporary and/or permanent net effects to aquatic Species at Risk.</li> <li>No permanent net effects to aquatic species.</li> </ul>
				<b>First (Tied)</b>	<b>Fifth</b>	<b>First (Tied)</b>	<b>Fourth</b>	<b>First (Tied)</b>

Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The Ravenshoe/Boag Drain for the Conveyance Infrastructure along Holborn Road and Leslie Street has a low aquatic habitat potential and a moderate sensitivity classification.</li> </ul>					
<b>Effect on Aquatic Species Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred (Tied)</b>	<b>Moderately Preferred</b>	<b>Most Preferred (Tied)</b>
Effect on groundwater recharge and discharge areas in relation to aquatic/ wetland habitat	Area (m <sup>2</sup> ) of temporary or permanent loss of recharge and discharge areas <sup>15</sup>		<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary reduction in stream baseflow in the Queensville Drain due to dewatering during construction of Conveyance Infrastructure from the Site would be mitigated by using appropriate construction methods and directing the dewatering discharge to the Queensville Drain.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>The temporary reduction in stream baseflow in the Queensville Drain due to dewatering during construction of Conveyance Infrastructure from the Site would be mitigated by using appropriate construction methods and directing the dewatering discharge to the Queensville Drain.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>The temporary reduction in stream baseflow in the Queensville Drain due to dewatering during construction of Conveyance Infrastructure from the Site would be mitigated by using appropriate construction methods and directing the dewatering discharge to the Queensville Drain.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>The temporary reduction in stream baseflow in the Queensville Drain due to dewatering during construction of Conveyance Infrastructure from the Site would be mitigated by using appropriate construction methods and directing the dewatering discharge to the Queensville Drain.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>The temporary reduction in stream baseflow in the Queensville Drain due to dewatering during construction of Conveyance Infrastructure from the Site would be mitigated by using appropriate construction methods and directing the dewatering discharge to the Queensville Drain.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>

15. There are no significant groundwater recharge or discharge areas on any of the Sites.

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
	<b>Effect on Groundwater Recharge and Discharge areas in Relation to Aquatic/Wetland Habitat Criterion Ranking</b>			<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
	Effect on terrestrial habitat or functions	Area (m <sup>2</sup> ) of temporary and/or permanent loss of natural heritage features by type – including Environmentally Sensitive Areas (ESAs) and Areas of National and Scientific Interest (ANSIs), wildlife corridors, and others		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>The permanent loss of 0.32 ha of deciduous hedgerow communities for the Water Reclamation Centre would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The permanent loss of up to 21.5 ha of habitat potentially suitable for Bobolink (Provincially and Nationally Threatened) and Savannah Sparrow bird species for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> <li>The permanent loss of 1 barn containing Chimney Swift nesting habitat for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>The permanent loss of 1.2 ha of deciduous hedgerow communities and 2.5 ha of swamp, cultural meadow and meadow marsh habitat for the Water Reclamation Centre would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The permanent loss of up to 24.8 ha of habitat potentially suitable for Barn Swallow and Bobolink (Provincially and Nationally Threatened) and Cliff Swallow bird species for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> <li>The permanent loss of 1 building providing habitat for the Barn Swallow bird species for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> <li>The permanent loss of 0.3 ha of shallow dug pond for the Water Reclamation Centre would be compensated for (as required) by implementing a habitat restoration plan based on consultations with</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>The permanent loss of 0.45 ha of deciduous hedgerow communities and 0.72 ha of cultural thicket and cultural meadow communities for the Water Reclamation Centre would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The permanent loss of up to 21.5 ha of habitat potentially suitable for Bobolink (Provincially and Nationally Threatened) bird species for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> <li>The permanent loss of 1 barn containing Chimney Swift nesting habitat for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>The permanent loss of 1.5 ha of deciduous hedgerow communities for the Water Reclamation Centre would be compensated for by implementing a habitat restoration plan based on consultation with review agencies.</li> <li>The permanent loss of up to 44.4 ha of habitat potentially suitable for Bobolink (Provincially and Nationally Threatened) and Savannah Sparrow bird species during operation of the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>The permanent loss of 0.60 ha of deciduous hedgerow communities for the Water Reclamation Centre would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The permanent loss of up to 21.5 ha of habitat potentially suitable for Bobolink and Eastern Meadowlark (Provincially and Nationally Threatened) and Savannah Sparrow bird species for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> <li>The permanent loss of 1 barn containing Barn Swallow nesting habitat for the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)	
					review agencies.				
				<p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects to terrestrial habitat and function.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects to terrestrial habitat and function.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects to terrestrial habitat and function.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects to terrestrial habitat and function.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects to terrestrial habitat and function.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects to terrestrial habitat and function.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects to terrestrial habitat and function.</li> </ul>
			<ul style="list-style-type: none"> <li>The lower the area and quality of terrestrial habitat lost, the better the ranking.</li> </ul>	<b>First</b>	<b>Fifth</b>	<b>Third</b>	<b>Fourth</b>	<b>Second</b>	
<b>Effect on Terrestrial Habitat or Functions Criterion Ranking</b>				<b>Most Preferred</b>	<b>Least Preferred</b>	<b>Moderately Preferred</b>	<b>Less Preferred</b>	<b>More Preferred</b>	
Effect on terrestrial species including Species at Risk, (species of special concern, threatened, endangered) species of local concern, native and invasive species, and area-sensitive species	Number and type of terrestrial species <sup>16</sup> potentially affected temporarily and/or permanently <sup>17</sup>			<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary disturbance<sup>18</sup> to terrestrial species within the Natural Heritage System Core area to the west of the Site from adjacent construction activities during construction of the Water Reclamation Centre would be minimized by maintaining a minimum 30 m buffer<sup>19</sup> and using</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to terrestrial species within the Natural Heritage System in the central portion of the Site during construction of the Water Reclamation Centre would be minimized by maintaining a minimum 30 m buffer and using appropriate construction</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to terrestrial species within Natural Heritage System Core area to the east of the Site from adjacent construction activities during construction of the Water Reclamation Centre would be minimized by maintaining a minimum 30 m buffer and using</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to terrestrial species within the Natural Heritage System Core area to the east and west of the Site from adjacent construction activities during construction of the Water Reclamation Centre would be minimized by maintaining a minimum 30 m buffer and using</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to terrestrial species within the Natural Heritage System Core area to the east of the Site from adjacent construction activities during construction of the Water Reclamation Centre would be minimized by maintaining a minimum 30 m buffer and using appropriate</li> </ul>	

16. Terrestrial species include species of local concern, native and invasive species and area-sensitive species.

17. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on terrestrial species.

18. Disturbance refers to construction-related activities (i.e., noise, vibration, dust, etc.).

19. Following the completion of an Environmental Impact Study, a 30 m buffer is the minimum required setback distance from features within the Natural Heritage System Core Area in accordance with the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (Ministry of Natural Resources).

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				appropriate construction methods.	methods.	appropriate construction methods.	appropriate construction methods.	construction methods.
				<ul style="list-style-type: none"> <li>The permanent disturbance to grassland bird species (including Bobolink and Barn Swallow Species at Risk) during construction of the Water Reclamation Centre (if potential habitat is confirmed) would be mitigated by conducting pre-construction Bobolink habitat surveys in accordance with the Survey Methodology under the <i>Endangered Species Act</i> (2007), ensuring that vegetation clearing occurs outside of the Bobolink breeding season (May 1 to July 31) and using appropriate construction methods.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent disturbance to grassland bird species (including Bobolink, Barn Swallow, and Cliff Sparrow Species at Risk) during construction of the Water Reclamation Centre (if potential habitat is confirmed) would be mitigated by conducting pre-construction Bobolink habitat surveys in accordance with the Survey Methodology under the <i>Endangered Species Act</i> (2007), ensuring that vegetation clearing occurs outside of the Bobolink breeding season (May 1 to July 31) and using appropriate construction methods.</li> <li>Permanent disturbance to amphibian species (including Bullfrog) during construction of the Water Reclamation Centre would be compensated for (as required) based on consultations with review agencies.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent disturbance to grassland bird species (including Bobolink and Chimney Swift Species at Risk) during construction of the Water Reclamation Centre (if potential habitat is confirmed) would be mitigated by conducting pre-construction Bobolink habitat surveys in accordance with the Survey Methodology under the <i>Endangered Species Act</i> (2007), ensuring that vegetation clearing occurs outside of the Bobolink breeding season (May 1 to July 31) and using appropriate construction methods.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent disturbance to grassland bird species (including Bobolink Species at Risk) during construction of the Water Reclamation Centre (if potential habitat is confirmed) would be mitigated by conducting pre-construction Bobolink habitat surveys in accordance with the Survey Methodology under the <i>Endangered Species Act</i> (2007), ensuring that vegetation clearing occurs outside of the Bobolink breeding season (May 1 to July 31) and using appropriate construction methods.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent disturbance to grassland bird species (including Bobolink and Eastern Meadowlark Species at Risk) during construction of the Water Reclamation Centre (if potential habitat is confirmed) would be mitigated by conducting pre-construction Bobolink habitat surveys in accordance with the Survey Methodology under the <i>Endangered Species Act</i> (2007), ensuring that vegetation clearing occurs outside of the Bobolink breeding season (May 1 to July 31) and using appropriate construction methods.</li> </ul>
			<ul style="list-style-type: none"> <li>The number and sensitivity of terrestrial species potentially affected is</li> </ul>	<p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>



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			relatively the same for all Sites, however, amphibian habitat is present on Site 30, therefore the worse the ranking.					
	<b>Effect on Terrestrial Species, Including Species at Risk Criterion Ranking</b>			<b>Most Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
	Effect on groundwater recharge and discharge areas in relation to terrestrial habitat	Area (m <sup>2</sup> ) of temporary and/or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<b>Site</b> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <b>Conveyance Infrastructure to Site</b> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <b>Conveyance Infrastructure from Site to Outfall</b> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
	<b>Effect on Groundwater Recharge and Discharge Areas in Relation to Terrestrial Habitat Criterion Ranking</b>			<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
<b>Natural Environment Category Ranking &amp; Rationale:</b>				<b>Most Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred (Tied)</b>	<b>Moderately Preferred</b>	<b>Most Preferred (Tied)</b>
<ul style="list-style-type: none"> <li>+ Denotes an advantage for an alternative Site relative to other Sites</li> <li>- Denotes a disadvantage for an alternative Site relative to other Sites</li> </ul>				<p>The Site is Most Preferred from a Natural Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ No watercourses on the Site</li> <li>+ Temporary change to aquatic habitat at the lowest number of watercourse crossings (1 crossing) along the Conveyance Infrastructure routes</li> <li>+ Loss of the smallest area of low quality deciduous hedgerow communities (0.3 ha)</li> <li>+ Removal of the smallest area of potentially suitable habitat for Bobolink and Savannah Sparrow (19.0 ha)</li> </ul>	<p>The Site is Least Preferred from a Natural Environment Category perspective compared to the other Sites, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Permanent loss of an ephemeral watercourse on the Site</li> <li>- Temporary change to aquatic habitat at the highest number of watercourse crossings along the Conveyance Infrastructure routes (5 crossings)</li> <li>- Loss of second largest area of low quality deciduous hedgerow communities (1.2 ha)</li> <li>- Removal of the second largest area of potentially suitable habitat for Bobolink, Barn Swallow and Cliff Swallow (approximately 25 ha) and loss of moderate quality swamp, cultural meadow and meadow</li> </ul>	<p>The Site is Most Preferred from a Natural Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ No watercourses on the Site</li> <li>+ Temporary change to aquatic habitat at the second lowest number of watercourse crossings (2 crossings) along the Conveyance Infrastructure routes</li> <li>+ Loss of the second smallest area of low quality deciduous hedgerow communities (0.5 ha) and low quality thicket/ meadow communities (0.7 ha)</li> <li>+ Removal of the second smallest area of potentially suitable habitat for Bobolink (22.0 ha)</li> </ul> <p><b>Notwithstanding this, the Site</b></p>	<p>The Site is Moderately Preferred from a Natural Environment Category perspective compared to the other Sites because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Permanent loss of an ephemeral watercourse on the Site</li> <li>- Temporary change to aquatic habitat at the highest number of watercourse crossings along the Conveyance Infrastructure routes (5 crossings)</li> <li>- Loss of the largest area of low quality deciduous hedgerow communities (1.5 ha)</li> <li>- Removal of the largest area of potentially suitable habitat for Bobolink and Savannah Sparrow (44.0 ha)</li> </ul>	<p>The Site is Most Preferred from a Natural Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ No watercourses on the Site</li> <li>+ Temporary change to aquatic habitat at the second lowest number of watercourse crossings (2 crossings) along the Conveyance Infrastructure routes</li> <li>+ Loss of the third smallest area of low quality deciduous hedgerow communities (0.6 ha)</li> <li>+ Removal of the second smallest area of potentially suitable habitat for Bobolink, Savannah Sparrow and Eastern Meadowlark (22.0 ha)</li> </ul> <p><b>Notwithstanding this, the Site</b></p>

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p><b>Notwithstanding this, the Site has the following disadvantage:</b></p> <ul style="list-style-type: none"> <li>- Loss of 1 barn providing nesting Barn Swallow habitat</li> </ul>	<p>marsh communities (approximately 2.5 ha)</p> <ul style="list-style-type: none"> <li>- Loss of 1 building providing nesting Barn Swallow habitat</li> <li>- Loss of a shallow dug pond, estimated at 0.3 ha, providing amphibian habitat (including bullfrogs)</li> </ul>	<p><b>has the following disadvantage:</b></p> <ul style="list-style-type: none"> <li>- Loss of 1 barn providing nesting Chimney Swift habitat</li> </ul>	<p><b>Notwithstanding this, the Site has the following advantage:</b></p> <ul style="list-style-type: none"> <li>+ No loss of barns or buildings containing nesting bird habitat</li> </ul>	<p><b>has the following disadvantage:</b></p> <ul style="list-style-type: none"> <li>- Loss of 1 barn providing nesting Barn Swallow habitat</li> </ul>
<b>Built Environment</b>	Effect on agricultural operations and capital investment related to agriculture	Approximate area (ha) of active agricultural operations <sup>20</sup> affected	<ul style="list-style-type: none"> <li>▪ The lower the active agricultural land removed, the better the ranking.</li> </ul>	<p><b>Site</b></p> <ul style="list-style-type: none"> <li>▪ The permanent loss of 31.6 ha of active agricultural operations (specialty crop) for the Water Reclamation Centre would be compensated for (as required) at fair value in accordance with York Region's policies.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>▪ No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>▪ No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second (Tied)</b></p>	<ul style="list-style-type: none"> <li>▪ The permanent loss of 43.9 ha of active agricultural lands on Site (common field crop - soybeans) for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>▪ No temporary and/or permanent net effects.</li> <li>▪ No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>▪ The permanent loss of 31.4 ha of active agricultural operations (common field crops - 8.5 ha of corn and 22.9 ha of soybeans) for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>▪ No temporary and/or permanent net effects.</li> <li>▪ No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second (Tied)</b></p>	<ul style="list-style-type: none"> <li>▪ The permanent loss of 21.3 ha of active agricultural operations (common field crop – soybean) for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>▪ No temporary and/or permanent net effects.</li> <li>▪ No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>▪ The permanent loss of 30.0 ha of active agricultural operations (common field crop - soybean) for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>▪ No temporary and/or permanent net effects.</li> <li>▪ No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second (Tied)</b></p>
		Extent of disruption of active agricultural operations such as:		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>▪ The temporary disruption of farm equipment travel routes during construction of the Water Reclamation Centre would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption of farm equipment travel routes during construction of the Water Reclamation Centre would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption of farm equipment travel routes during construction of the Water Reclamation Centre would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption of farm equipment travel routes during construction of the Water Reclamation Centre would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The temporary disruption of farm equipment travel routes during construction of the Water Reclamation Centre would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>

<sup>20</sup> Active agricultural land removed refers to the area being ploughed (i.e., excludes barns, buildings, etc.).

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
		<ul style="list-style-type: none"> <li>paddocks</li> <li>Disruption of agricultural-related businesses</li> <li>Disruption of normal external haul routes for farm machinery movements</li> </ul>		<ul style="list-style-type: none"> <li>The permanent agricultural field fragmentation due to the construction and operation of the Water Reclamation Centre would be minimized through Site design.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent agricultural field fragmentation due to the construction and operation of the Water Reclamation Centre would be minimized through Site design.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent agricultural field fragmentation due to the construction and operation of the Water Reclamation Centre would be minimized through Site design.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent agricultural field fragmentation due to the construction and operation of the Water Reclamation Centre would be minimized through Site design.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent agricultural field fragmentation due to the construction and operation of the Water Reclamation Centre would be minimized through Site design.</li> </ul>
				<ul style="list-style-type: none"> <li>The permanent loss of 1 agricultural business (farm) during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>The permanent loss of 1 retired agricultural facility during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to 1 retired agricultural facility access during construction of the Conveyance Infrastructure to the Site adjacent to 2nd Concession south of Queensville Sideroad would be mitigated by implementing a traffic management plan and providing a temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent loss of 1 agricultural business (farm) during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>The permanent loss of 1 agricultural facility (horses) during construction and operation of the proposed Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 9 agricultural facility accesses during construction of the Conveyance Infrastructure to the Site (3 retired facilities, 1 hobby horse farm, 1 greenhouse and 1 unknown facility adjacent to 2nd Concession, 1 mushroom farm adjacent to Holborn Road and 2 retired facilities adjacent to Leslie Street) would be minimized by implementing a traffic management plan and providing temporary</li> </ul>	<ul style="list-style-type: none"> <li>The permanent loss of 1 agricultural business (farm) during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 5 agricultural facility accesses during construction of the Conveyance Infrastructure to the Site (2 retired facilities, 2 hobby horse farms and 1 unknown facility adjacent to 2nd Concession) would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent loss of 1 agricultural business (farm) during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 9 agricultural facilities accesses during construction of the Conveyance Infrastructure to the Site (3 retired facilities, 1 hobby horse farm, 1 greenhouse and 1 unknown facility adjacent to 2nd Concession, 1 mushroom farm adjacent to Holborn Road and 2 retired facilities adjacent to Leslie Street) would be minimized by implementing a traffic management plan and providing temporary</li> </ul>	<ul style="list-style-type: none"> <li>The permanent loss of 1 agricultural business (farm) during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to 1 retired agricultural facility access during construction of the Conveyance Infrastructure to the Site adjacent to 2nd Concession south of Queensville Sideroad would be mitigated by implementing a traffic management plan and providing a temporary access, as required.</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>accesses, as required.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>accesses, as required.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>
				<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary disruption of access to approximately 7 agricultural facility accesses during construction of the Conveyance Infrastructure from the Site (3 retired and 4 hobby horse farms) adjacent to Queensville Sideroad would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 15 agricultural facility accesses (2 retired facilities, 1 hobby horse farm, 1 greenhouse and 1 unknown facility adjacent to 2nd Concession, 1 mushroom farm on Holborn Road and 2 retired facilities on Leslie Street (also included in the Conveyance Infrastructure to the Site) and 3 retired facilities and 4 hobby horse farms adjacent to Queensville Sideroad) would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 11 agricultural facility accesses during construction of the Conveyance Infrastructure from the Site (1 retired facility, 1 hobby horse farm, 1 greenhouse and 1 unknown facility adjacent to 2nd Concession (also included in the Conveyance Infrastructure to the Site) and 3 retired facilities and 4 hobby horse farms adjacent to Queensville Sideroad) would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 15 agricultural facility accesses during construction of the Conveyance Infrastructure from the Site (2 retired facilities, 1 hobby horse farm, 1 greenhouse and 1 unknown facility adjacent to 2nd Concession, 1 mushroom farm on Holborn Road and 2 retired facilities on Leslie Street (also included in the Conveyance Infrastructure to the Site) and 3 retired facilities and 4 hobby horse farms adjacent to Queensville Sideroad) would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 7 agricultural facility accesses during construction of the Conveyance Infrastructure from the Site (3 retired and 4 hobby horse farms) adjacent to Queensville Sideroad would be minimized by implementing a traffic management plan and providing temporary accesses, as required.</li> </ul>
			<ul style="list-style-type: none"> <li>No agricultural facilities removed ranked better than removal of active or retired agricultural facilities.</li> <li>Removal of a retired agricultural facility, ranked better than removal of an active agricultural facility.</li> </ul>	<p><b>Fourth</b></p>	<p><b>Fifth</b></p>	<p><b>First (Tied)</b></p>	<p><b>First (Tied)</b></p>	<p><b>First (Tied)</b></p>
<b>Effect on Agricultural Operations and Capital Investment Related to Agriculture Criterion Ranking</b>				<b>Less Preferred</b>	<b>Least Preferred</b>	<b>More Preferred (Tied)</b>	<b>Most Preferred</b>	<b>More Preferred (Tied)</b>
Effect on existing residences, businesses, and/or community, institutional, and recreational facilities	Number and type of residences displaced			<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The permanent displacement of 1 single detached residence during construction and operation</li> </ul>	<ul style="list-style-type: none"> <li>The permanent displacement of 1 single detached residence during construction and operation</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>No displacement of residences ranked better than displacement of residences.</li> <li>The fewer residences displaced, the better the ranking.</li> </ul>	<p>of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies and applicable laws.</p> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<p>of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies and applicable laws.</p> <ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>
		Number and type of residences temporarily or permanently disrupted <sup>21</sup>		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to driveway access to approximately 4 single detached residences during construction of the Conveyance Infrastructure to the Site would be minimized by providing temporary driveway access, arrangements for waste collection, and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access to approximately 30 single detached residences during the construction of the Conveyance Infrastructure to the Site would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access to approximately 10 single detached residences during construction of the Conveyance Infrastructure to the Site would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access to approximately 31 single detached residences during construction of the Conveyance Infrastructure to the Site would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access to approximately 4 single detached residences during construction of the Conveyance Infrastructure to the Site would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>

21. Disruption to residences has been applied with respect to driveway accesses (including waste collection). Disruption related to odour, noise and vibration are considered in the respective indicators below.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The fewer residential accesses disrupted, the better the ranking however, where the numbers are very similar, to be conservative the same ranking is applied.</li> </ul>	<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to driveway access for approximately 96 single detached residences (1 residence is also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access, arrangements for waste collection, and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to driveway access for approximately 122 single detached residences (27 are also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access, arrangements for waste collection, and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to driveway access for approximately 102 single detached residences (7 are also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access, arrangements for waste collection, and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul> <p><b>Third</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to driveway access for approximately 123 residences (28 are also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to driveway access for approximately 96 single detached residences (1 residence is also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access, arrangements for waste collection, and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>
		Number and characteristics of businesses displaced <sup>22</sup>	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>

22. Does not include agricultural businesses Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
		Number and characteristics of businesses temporarily or permanently disrupted <sup>23,24</sup>		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to driveway access for approximately 9 businesses during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access for 1 business during construction of the Conveyance Infrastructure to the Site would be minimized by providing temporary driveway access and access signage, providing arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> <li>The temporary disruption to driveway access for approximately 10 businesses (1 is also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access for approximately 9 businesses during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access for 1 business during the construction of the Conveyance Infrastructure to the Site would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> <li>The temporary disruption to driveway access for approximately 10 businesses (1 is also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to driveway access for approximately 9 businesses during construction of the Conveyance Infrastructure from the Site would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>No permanent net effects.</li> </ul>

23. Does not include agricultural businesses. Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

24. Disruption to businesses has been applied with respect to driveway accesses, which considers customer access, deliveries and waste collection etc. Disruption that relate to odour, noise and vibration are considered in the respective indicators below.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)	
			<ul style="list-style-type: none"> <li>The fewer business accesses disrupted, the better the ranking however, where the numbers are very similar, to be conservative the same ranking is applied.</li> </ul>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>	
		Number and characteristics of community, institutional, and recreational facilities displaced		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent displacement of the Holland Landing Snowmobile Club snowmobile route during construction and operation of the Water Reclamation Centre would be mitigated by relocating the snowmobile route to an appropriate location.</li> <li>No net effects.</li> <li>No net effects.</li> </ul>
			<ul style="list-style-type: none"> <li>No displacement of community, institutional, and recreational facilities ranked better than displacement of community, institutional, and recreational facilities.</li> </ul>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>Fifth</b>	
		Number and characteristics of community, institutional, and recreational facilities temporarily or permanently disrupted		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to the Holland Landing Snowmobile Club Trail at 1 location during construction of the Conveyance Infrastructure to the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to the Holland Landing Snowmobile Club Trail at 2 locations during construction of the Conveyance Infrastructure to the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to the Holland Landing Snowmobile Club Trail at 1 location during construction of the Conveyance Infrastructure to the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to the Holland Landing Snowmobile Club Trail at 2 locations during construction of the Conveyance Infrastructure to the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to the Holland Landing Snowmobile Club Trail at 1 location during construction of the Conveyance Infrastructure to the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> </ul>	



**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<ul style="list-style-type: none"> <li>▪ No permanent net effects.</li> <li>▪ <b>Conveyance Infrastructure from Site to Outfall</b></li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail at 2 locations during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail and multi-use trail<sup>25</sup> accessible from Queen's Court during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles and trail users.</li> <li>▪ The temporary disruption to bicycle users during construction of the Conveyance Infrastructure from the Site along Queensville Sideroad (designated within the York Region's Bicycle Lane Designation Network) would be minimized by implementing a traffic management plan, including appropriate detours for bicycle users<sup>26</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No permanent net effects.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail at 3 locations (1 is also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail and multi-use trail accessible from Queen's Court during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles and trail users.</li> <li>▪ The temporary disruption to bicycle users during construction of the Conveyance Infrastructure from the Site along Queensville Sideroad (designated within the York Region's Bicycle Lane Designation Network) would be minimized by implementing a traffic management plan, including appropriate detours for bicycle users.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No permanent net effects.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail at 2 locations during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail and multi-use trail accessible from Queen's Court during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles and trail users.</li> <li>▪ The temporary disruption to bicycle users during construction of the Conveyance Infrastructure from the Site along Queensville Sideroad (designated within the York Region's Bicycle Lane Designation Network) would be minimized by implementing a traffic management plan, including appropriate detours for bicycle users.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No permanent net effects.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail at 3 locations (1 is also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail and multi-use trail accessible from Queen's Court during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles and trail users.</li> <li>▪ The temporary disruption to bicycle users during construction of the Conveyance Infrastructure from the Site along Queensville Sideroad (designated within the York Region's Bicycle Lane Designation Network) would be minimized by implementing a traffic management plan, including appropriate detours for bicycle users.</li> </ul>	<ul style="list-style-type: none"> <li>▪ No permanent net effects.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail at 2 locations during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles.</li> <li>▪ The temporary disruption to the Holland Landing Snowmobile Club Trail and multi-use trail accessible from Queen's Court during construction of the Conveyance Infrastructure from the Site would be mitigated by providing appropriate temporary detours for snowmobiles and trail users.</li> <li>▪ The temporary disruption to bicycle users during construction of the Conveyance Infrastructure from the Site along Queensville Sideroad (designated within the York Region's Bicycle Lane Designation Network) would be minimized by implementing a traffic management plan, including appropriate detours for bicycle users.</li> </ul>

25. Designated in York Region Cycling Map, 2011.

26. Designed as "Paved Shoulder". A paved shoulder is located next to the traveled portion of the roadway and is used to accommodate cyclists on rural roads in York Region. Paved shoulders in the York Region Bicycle Designation Network are for roadways which generally have less than 10,000 daily vehicles and posted speed limits of less than 80 km/h.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>Fewer community, institutional, and recreational facilities accesses disrupted, the better the ranking.</li> <li>The number of community, institutional, and recreational facilities along the Conveyance Infrastructure routes is similar for all five alternative Sites.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
<b>Effect on Existing Residences, Businesses, and/or Community, Institutional, and Recreational Facilities Criterion Ranking</b>				<b>More Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred</b>	<b>More Preferred (Tied)</b>	<b>Less Preferred</b>
Effect of vibration on existing buildings	Number of existing buildings affected and extent and duration of adverse effects <sup>27</sup>			<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 5 buildings within 250 m of the Site property line during construction of the Water Reclamation Centre would be minimized by implementing Best Management Practices, limiting construction hours, and use of specialized drilling equipment.</li> <li>No permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 4 buildings adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by implementing Best Management</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 15 buildings within 250 m of the Site property line during construction of the Water Reclamation Centre would be minimized by implementing Best Management Practices, limiting construction hours, and use of specialized drilling equipment.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 31 buildings adjacent to Leslie Street, Holborn Road, and 2nd Concession during construction of the Conveyance Infrastructure to the Site would be</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 7 buildings within 250 m of the Site property line during construction of the Water Reclamation Centre would be minimized by implementing Best Management Practices, limiting construction hours, and use of specialized drilling equipment.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 8 buildings adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by implementing Best Management</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 16 buildings within 250 m of the Site of the property line during construction of the Water Reclamation Centre would be minimized by implementing Best Management Practices, limiting construction hours, and use of specialized drilling equipment.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 32 buildings adjacent to Leslie Street, Holborn Road, and 2nd Concession during construction of the Conveyance Infrastructure to the Site would be</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 17 buildings within 250 m of the Site property line during construction of the Water Reclamation Centre would be minimized by implementing Best Management Practices, limiting construction hours, and use of specialized drilling equipment.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 4 buildings adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by implementing Best Management</li> </ul>

27. Effect will depend on proximity to construction activity, building construction and subsurface soil conditions.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p>Practices for vibration reduction (i.e. staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 33 buildings (1 adjacent to 2nd Concession which is also included in the Conveyance Infrastructure to Site and 32 buildings adjacent to Queensville Sideroad, Queens Court and Yonge Street) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</li> </ul>	<p>minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p>The temporary increase in vibration levels at approximately 60 buildings (28 adjacent to Leslie Street, Holborn Road, and 2nd Concession which are also included in the Conveyance Infrastructure to the Site and 32 adjacent to Queensville Sideroad and 2nd Concession) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<p>Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p>The temporary increase in vibration levels at approximately 37 buildings (5 adjacent to 2nd Concession which are also included in the Conveyance Infrastructure to the Site and 32 adjacent to Queensville Sideroad) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<p>minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p>The temporary increase in vibration levels at approximately 61 buildings (29 residences on Leslie Street, Holborn Road, and 2nd Concession which are also included in Conveyance Infrastructure to the Site and 32 adjacent to Queensville Sideroad, Queen's Court and Yonge Street) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<p>Practices for vibration reduction (i.e. staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p>The temporary increase in vibration levels at approximately 33 buildings (1 adjacent to 2nd Concession which is also included in Conveyance Infrastructure to the Site and 32 adjacent to Queensville Sideroad, Queens Court and Yonge Street) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment etc.).</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>
			<ul style="list-style-type: none"> <li>The lower the number of buildings within 250 m<sup>28</sup> of the Water Reclamation Centre and adjacent<sup>29</sup> to the Conveyance Infrastructure routes, the lower the potential future vibration related complaints,</li> </ul>	<b>First</b>	<b>Fifth</b>	<b>Second</b>	<b>Fourth</b>	<b>Third</b>

28. 250 m was considered a suitable experience-based screening distance to identify points-of-reception for potential vibration effects.

29. Adjacent buildings were evaluated for the Conveyance Infrastructure route since the noise effects are construction-related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			the better the ranking.					
	<b>Effect of Vibration on Existing Buildings Criterion Ranking</b>			<b>Most Preferred</b>	<b>Least Preferred</b>	<b>More Preferred</b>	<b>Less Preferred</b>	<b>Moderately Preferred</b>
	Effect on property	Number and extent of properties affected and ownership	<ul style="list-style-type: none"> <li>Fewer properties required, the better the ranking.</li> <li>Partial vs. entire property acquisition, the better the ranking.</li> <li>Willing Host owner<sup>30</sup>, better than unwilling seller, the better the ranking.</li> </ul>	<p><b>Site</b></p> <ul style="list-style-type: none"> <li>Property acquisition of 1 entire private property (from an unwilling seller) for the construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>Property acquisition of 1 entire private property the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>Fourth</b></p>	<ul style="list-style-type: none"> <li>Property acquisition of 1 partial private property (from a Willing Host owner) for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>Property acquisition of 1 partial private property (from a Willing Host owner) for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>Property acquisition of 1 partial private property (from a Willing Host owner) for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>
		Total area of property acquisition required (ha)		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The property acquisition of 39.8 ha required for the construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The property acquisition of 60.4 ha required for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The property acquisition of 36.0 ha required for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The property acquisition of 40.0 ha required for the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The property acquisition of 42.0 ha required for the construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>No net effects.</li> </ul>

30. A Willing Host owner refers to either of the two properties that met the UYSS project requirements in response to the Request for Expression of Interest issued by York Region's Supplies and Services Department in February 2012.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The smaller the total area of property acquisition required, the better the ranking.</li> </ul>	<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Fourth</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Second</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Third</b></p>
<b>Effect on Effect on Property Criterion Ranking</b>				<b>Least Preferred (Tied)</b>	<b>Less Preferred (Tied)</b>	<b>More Preferred</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
Effect on existing roadway/ utility infrastructure	Number of roadways and type affected and extent and duration of adverse effects <sup>31,32</sup>			<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 850 m of roadway for approximately 6 months (approximately 1 construction season) as a result of 1 full road closure along 2nd Concession between the Site and Queensville Sideroad (Town Rural Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to approximately 500 m of roadway for approximately 2 months as a result of lane closures along 1 roadway, 2nd Concession between Queensville Sideroad and the pumping station (Regional Arterial Road) during construction of the Conveyance Infrastructure would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to approximately 1,350 m of roadway for approximately 6 months (1 construction season) as a result of 1 full road closure along 2nd Concession (Town Rural Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to approximately 2,000 m of roadway for approximately 9 months (1.5 construction seasons) as a result of full road closures along Holborn Road (Town Rural Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to approximately 1,350 m of roadway for approximately 6 months (1 construction season) as a result of 2 full road closures along 2nd Concession between the Site and Queensville Sideroad (Town Rural Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to approximately 500 m of roadway for approximately 2 months as a result of land closures along 1 roadway, 2nd Concession between Queensville Sideroad and the pumping station (Regional Arterial Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to approximately 1,400 m of roadway for approximately 6 months (1 construction season) as a result of a full road closure along 2nd Concession (Town Rural Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to approximately 2,000 m of roadway for approximately 9 months (1.5 construction seasons) as a result of full road closures along Holborn Road (Town Rural Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>The temporary disruption to approximately 650 m of roadway for approximately 9 months (1.5 construction seasons) as a result of 2 full road closures along 2nd Concession between the Site and Queensville Sideroad (Town Rural Road) during construction of the Conveyance Infrastructure to the Site would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to approximately 500 m of roadway for approximately 2 months as a result of land closures along 1 roadway, 2nd Concession between Queensville Sideroad and the pumping station (Regional Arterial Road), during construction of the Conveyance Infrastructure to the Site would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>

31. Distances are accurate within 50 m.

32. Assumes construction associated with the Conveyance Infrastructure would occur on roadway for entire frontage of property.

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				<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 850 m of roadway for approximately 6 months (1 construction season) as a result of 1 full road closure along 2nd Concession between the Site and Queensville Sideroad (Town Rural Road), (also included in the Conveyance Infrastructure to the Site), during construction of the</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 2,000 m of roadway for approximately 3 months as a result of lane closures along 1 roadway, Leslie Street (Regional Arterial Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to approximately 500 m of roadway for approximately 2 months as a result of lane closures along 1 roadway, 2nd Concession between Queensville Sideroad and the pumping station (Regional Arterial Road), during construction of the Conveyance Infrastructure to the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> <li>The temporary disruption to approximately 5,350 m of roadway along 2nd Concession, Holborn Road and Leslie Street (also included in the Conveyance Infrastructure to the Site) during construction of the Conveyance Infrastructure from the Site would be minimized by implementing a traffic management plan and providing temporary</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li>The temporary disruption to approximately 1,350 m of roadway for approximately 6 months (1 construction season) as a result of 1 full road closure along 2nd Concession between the Site and Queensville Sideroad (Town Rural Road), (also included in Conveyance Infrastructure to the Site), during construction of the</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li>The temporary disruption to approximately 5,400 m of roadway for during construction of the Conveyance Infrastructure from the Site (also included in the Conveyance Infrastructure to the Site) would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li>The temporary disruption to approximately 650 m of roadway for approximately 9 months (1.5 construction seasons) as a result of 2 full road closures along 2nd Concession between the Site and Queensville Sideroad (Town Rural Road), (also included in Conveyance Infrastructure to the Site), during construction of the</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<p>The shorter the length of roadways affected, the better the ranking.</p>	<p>Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 2,400 m of roadway for approximately 12 months (2 construction seasons) as a result of lane closures along 1 roadway, Queensville Sideroad (Regional Arterial Road), during construction of the Conveyance Infrastructure from the Site would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to 3 roads (Yonge Street (Town Rural Road), Morgans Road (Town Rural Road) and Queens Court (Town Local Road)), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<p>access, as required.</p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 2,400 m of roadway for approximately 11 months (2 construction seasons) as a result of lane closures along Queensville Sideroad (Regional Arterial Road), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to 3 roads (Yonge Street (Town Rural Road), Morgans Road (Town Rural Road) and Queens Court (Town Local Road)), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<p>Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 2,400 m of roadway for approximately 11 months (2 construction seasons) as a result of lane closures along 1 road, Queensville Sideroad (Regional Arterial Road), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to 3 roads (Yonge Street (Town Rural Road), Morgans Road (Town Rural Road) and Queens Court (Town Local Road)), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<p>Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 2,400 m of roadway for approximately 11 months (2 construction seasons) as a result of lane closures along 1 roadway, Queensville Sideroad (Regional Arterial Road), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to 3 roads (Yonge Street (Town Rural Road), Morgans Road (Town Rural Road) and Queens Court (Town Local Road)), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<p>Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 2,400 m of roadway for approximately 12 months (2 construction seasons) as a result of lane closures along 1 road, Queensville Sideroad (Regional Arterial Road), during construction of the Conveyance Infrastructure from the Site would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>The temporary disruption to 3 roads (Yonge Street (Town Rural Road), Morgans Road (Town Rural Road) and Queens Court (Town Local Road)), during construction of the Conveyance Infrastructure from the Site, would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
		Number and type of utilities affected and extent and duration of adverse effects		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to local utilities located on the Site during construction of the Water Reclamation Centre would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 4 utilities during construction of the Conveyance Infrastructure to the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary interruption of services during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 4 utilities during construction of the Conveyance Infrastructure from the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to local utilities located on the Site during construction of the Water Reclamation Centre would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 6 utilities during construction of the Conveyance Infrastructure to the Site, would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary interruption of services during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 7 utilities during construction of the Conveyance Infrastructure from the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption of local utilities located on the Site during construction of the Water Reclamation Centre would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 4 utilities during construction of the Conveyance Infrastructure to the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary interruption of services during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 4 utilities during construction of the Conveyance Infrastructure from the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption of utilities located on the Site during construction of the Water Reclamation Centre would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 6 utilities during construction of the Conveyance Infrastructure to the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary interruption of services during location is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 7 utilities during construction of the Conveyance Infrastructure from the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption of utilities located on the Site during construction of the Water Reclamation Centre would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 4 utilities during construction of the Conveyance Infrastructure to the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary interruption of services during relocation is anticipated).</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary disruption to approximately 4 utilities during construction of the Conveyance Infrastructure from the Site would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (temporary</li> </ul>



**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				interruption of services during relocation is anticipated).	interruption of services during relocation is anticipated).	interruption of services during relocation is anticipated).	interruption of services during relocation is anticipated).	interruption of services during relocation is anticipated).
			<ul style="list-style-type: none"> <li>The lower the number of utilities affected, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
				<b>More Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Less Preferred</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
				<b>Effect on Existing Roadway/Utility Infrastructure Criterion Ranking</b>	<b>Least Preferred (Tied)</b>	<b>Less Preferred</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
	Effect on traffic	Temporary and/or permanent disruption to traffic operations		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to traffic operations during construction of the Water Reclamation Centre as a result of increased number of construction vehicles accessing the Site would be minimized by implementing a traffic management plan and provision of temporary access, as required.</li> <li>Truck and vehicle trips generated during operation of the Water Reclamation Centre would have a nominal effect on the operation of the 2nd Concession/Queensville Sideroad and Leslie Street/Queensville Sideroad intersections continuing to operate within existing capabilities<sup>33</sup>.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure to the Site as a result of construction vehicles and road closures would be</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to traffic operations during construction of the Water Reclamation Centre as a result of increased number of construction vehicles accessing the Site would be minimized by implementing a traffic management plan and provision of temporary access, as required.</li> <li>Truck and vehicle trips generated during operation of the Water Reclamation Centre would have a nominal effect on the operation of the 2nd Concession/Queensville Sideroad and Leslie Street/Queensville Sideroad intersections continuing to operate within existing capabilities.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure to the Site as a result of construction vehicles and road closures would be</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to traffic operations during construction of the Water Reclamation Centre as a result of increased number of construction vehicles accessing the Site would be minimized implementing a traffic management plan and provision of temporary access, as required.</li> <li>Truck and vehicle trips generated during operation of the Water Reclamation Centre would have a nominal effect on the operation of the 2nd Concession/Queensville Sideroad and Leslie Street/Queensville Sideroad intersections continuing to operate within existing capabilities.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure to the Site as a result of construction vehicles and road closures would be</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to traffic operations during construction of the Water Reclamation Centre as a result of increased number of construction vehicles accessing the Site would be minimized implementing a traffic management plan and provision of temporary access, as required.</li> <li>The truck and vehicle trips generated during operation of the Water Reclamation Centre would have a nominal effect on the operation of the 2nd Concession/Queensville Sideroad and Leslie Street/Queensville Sideroad intersections continuing to operate within existing capabilities.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure to the Site as a result of construction vehicles and road closures would be</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to traffic operations during construction of the Water Reclamation Centre as a result of increased number of construction vehicles accessing the Site would be minimized by measures such as implementing a traffic management plan and provision of temporary access, as required.</li> <li>Truck and vehicle trips generated during operation of the Water Reclamation Centre would have a nominal effect on the operation of the 2nd Concession/Queensville Sideroad and Leslie Street/Queensville Sideroad intersections continuing to operate within existing capabilities.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure to the Site as a result of construction vehicles and road closures would be</li> </ul>

<sup>33</sup> The intersection of Leslie Street/Queensville Sideroad shows a minor increase in delay, which is primarily attributed to the future background growth in traffic as a result of the Highway 404 Extension and improved road connectivity rather than as a result of traffic from the Site.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<ul style="list-style-type: none"> <li>minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>	<ul style="list-style-type: none"> <li>minimized by implementing a traffic management plan and providing temporary access, as required.</li> </ul>
			<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li><b>Conveyance Infrastructure from Site to Outfall</b></li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> <li>The temporary disruption to traffic operations during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No permanent net effects.</li> </ul>
				<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>	<b>First (Tied)</b>
<b>Effect on Traffic Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
<b>Built Environment Category Ranking &amp; Rationale:</b>				<b>Moderately Preferred</b>	<b>Least Preferred</b>	<b>Most Preferred</b>	<b>Less Preferred</b>	<b>More Preferred</b>
<ul style="list-style-type: none"> <li>+ Denotes an advantage for an alternative Site relative to other Sites</li> <li>- Denotes a disadvantage for an alternative Site relative to other Sites</li> </ul>				<p>The Site is <b>Moderately Preferred</b> from a Built Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary disruption to the lowest number of accesses (approximately 99 residences and 8 agricultural facilities) adjacent to the Conveyance Infrastructure routes</li> <li>+ Temporary increase in vibration at the lowest number of buildings within 250 m of the proposed Water Reclamation Centre and adjacent to the Conveyance Infrastructure routes (approximately 41)</li> </ul>	<p>The Site is <b>Least Preferred</b> from a Built Environment Category perspective compared to the other Sites, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary disruption to the second highest number of residential accesses (approximately 125) and highest number of agricultural facilities (approximately 16) adjacent to the Conveyance Infrastructure routes</li> <li>- Temporary increase in the second highest number of buildings within 250 m of the proposed Water Reclamation Centre and adjacent to the Conveyance Infrastructure</li> </ul>	<p>The Site is <b>Most Preferred</b> from a Built Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary disruption to the second lowest number of accesses (approximately 105 residences and 11 agricultural facilities) adjacent to the Conveyance Infrastructure routes</li> <li>+ Temporary increase in vibration levels at the second lowest number of buildings within 250 m of the proposed Water Reclamation Centre and adjacent to the Conveyance Infrastructure</li> </ul>	<p>The Site is <b>Less Preferred</b> from a Built Environment Category perspective compared to the other Sites, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary disruption to the highest number of accesses (approximately 126 residences and 16 agricultural facilities) adjacent to the Conveyance Infrastructure routes</li> <li>- Temporary increase in vibration levels at the highest number of buildings within 250 m of the proposed Water Reclamation Centre and adjacent to the Conveyance Infrastructure routes</li> </ul>	<p>The Site is <b>More Preferred</b> from a Built Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary disruption to the lowest number of accesses (approximately 99 residences and 8 agricultural facilities) adjacent to the Conveyance Infrastructure routes</li> <li>+ Temporary increase in vibration levels at third lowest number of buildings within 250 m of the proposed Water Reclamation Centre and adjacent to the Conveyance Infrastructure routes (approximately 53)</li> </ul>

Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<ul style="list-style-type: none"> <li>+ Temporary disruption to the second shortest length of roadway along the Conveyance Infrastructure routes (3.7 km)</li> </ul> <p><b>Notwithstanding this, the Site has the following disadvantages:</b></p> <ul style="list-style-type: none"> <li>- Loss of the second largest area of active agricultural operations (32.0 ha) and loss of 1 retired agricultural facility</li> <li>- Permanent displacement of 1 residence</li> <li>- Acquisition of 1 entire private property with the second smallest property area (40 ha) from an unwilling seller</li> </ul>	<ul style="list-style-type: none"> <li>routes (approximately 78)</li> <li>- Temporary disruption to the second longest length of roadway along the Conveyance Infrastructure routes (8.1 km)</li> <li>- Loss of the largest area of active agricultural operations (44.0 ha) and loss of 1 horse farm</li> <li>- Permanent displacement of 1 residence</li> <li>- Acquisition of 1 entire private property with the largest property area (60.0 ha)</li> </ul>	<ul style="list-style-type: none"> <li>routes (approximately 47)</li> <li>+ Temporary disruption to the third shortest length of roadway along the Conveyance Infrastructure routes (4.2 km)</li> <li>+ Loss of the third smallest area of active agricultural operations (31.0 ha) and no loss of agricultural facilities</li> <li>+ No displacement of residences</li> <li>+ Acquisition of a portion of 1 vacant private property with the smallest property area (36.0 ha) from a Willing Host owner</li> </ul>	<ul style="list-style-type: none"> <li>(approximately 80)</li> <li>- Temporary disruption to the longest length of roadway along the Conveyance Infrastructure routes (8.3 km)</li> </ul> <p><b>Notwithstanding this, the Site has the following advantages:</b></p> <ul style="list-style-type: none"> <li>+ Loss of the smallest area of active agricultural operations (21.0 ha) and no agricultural facilities</li> <li>+ No displacement of residences</li> <li>+ Acquisition of a portion of 1 vacant private property with the second smallest property area (40.0 ha) from a Willing Host owner</li> </ul>	<ul style="list-style-type: none"> <li>+ Temporary disruption to the shortest length of roadway along the Conveyance Infrastructure routes (3.6 km)</li> <li>+ Loss of the second smallest area of active agricultural operations (30.0 ha) and no loss of agricultural facilities</li> <li>+ No displacement of residences</li> <li>+ Acquisition of a portion of 1 vacant private property with the third smallest property area (42.0 ha) from a Willing Host owner</li> </ul> <p><b>Notwithstanding this, the Site has the following disadvantage:</b></p> <ul style="list-style-type: none"> <li>- Permanent displacement of the Holland Landing Snowmobile Club snowmobile route</li> </ul>
Social Environment	Effect on wells	Number of wells and type affected, extent and duration and nature (water quality/quantity) of adverse effects <sup>34</sup>		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>▪ No temporary or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>▪ The temporary decrease to groundwater quantity and/or quality in approximately 7 private groundwater wells along 2nd Concession due to dewatering during construction of the Conveyance Infrastructure to the Site would be minimized by using appropriate construction methods and, if required, affected residents would be</li> </ul>	<ul style="list-style-type: none"> <li>▪ No temporary or permanent net effects.</li> <li>▪ The temporary decrease to groundwater quantity and quality in approximately 56 private groundwater wells identified along 2nd Concession, Holborn Road and Leslie Street due to dewatering during construction of the Conveyance Infrastructure to the Site would be minimized by using appropriate construction methods and, if required,</li> </ul>	<ul style="list-style-type: none"> <li>▪ No temporary or permanent net effects.</li> <li>▪ The temporary decrease to groundwater quantity and quality in approximately 13 private groundwater wells identified along 2nd Concession due to dewatering during construction of the Conveyance Infrastructure to the Site would be minimized by using appropriate construction methods and, if required, affected residents would be</li> </ul>	<ul style="list-style-type: none"> <li>▪ No temporary or permanent net effects.</li> <li>▪ The temporary decrease to groundwater quantity and/or quality in approximately 56 private groundwater wells identified along 2nd Concession, Holborn Road and Leslie Street due to dewatering during construction of the Conveyance Infrastructure to the Site would be minimized by using appropriate construction methods and, if required,</li> </ul>	<ul style="list-style-type: none"> <li>▪ No temporary or permanent net effects.</li> <li>▪ The temporary decrease to groundwater quantity and quality in approximately 7 private groundwater wells identified along 2nd Concession due to construction dewatering during construction of the Conveyance Infrastructure to the Site would be minimized by using appropriate construction methods and, if required, affected residents would be</li> </ul>

34. The number of wells was estimated from a search of the Ministry of the Environment Water Well Database and includes the on-Site well(s).

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Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p>provided with a temporary potable water source.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<p>affected residents would be provided with a temporary potable water source.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<p>provided with a temporary potable water source.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<p>affected residents would be provided with a temporary potable water source.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<p>provided with a temporary potable water source.</p> <ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>
			<p>The lower the number of wells along the Conveyance Infrastructure routes, the better the ranking.</p>	<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary decrease to groundwater quantity and quality in approximately 95 private groundwater wells identified along Queensville Sideroad due to dewatering during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by using appropriate construction methods and, if required, affected residents would be provided with a temporary potable water source.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease to groundwater quantity and quality in approximately 95 private groundwater wells identified along Queensville Sideroad due to dewatering during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by using appropriate construction methods and, if required, affected residents would be provided with a temporary potable water source.</li> <li>No permanent net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease to groundwater quantity and quality in approximately 95 private groundwater wells identified along Queensville Sideroad due to dewatering during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by using appropriate construction methods and, if required, affected residents would be provided with a temporary potable water source.</li> <li>No permanent net effects.</li> </ul> <p><b>Third</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease to groundwater quantity and quality in approximately 95 private groundwater wells identified along Queensville Sideroad due to dewatering during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by using appropriate construction methods and, if required, affected residents would be provided with a temporary potable water source.</li> <li>No permanent net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease to groundwater quantity and quality in approximately 95 private groundwater wells identified along Queensville Sideroad due to dewatering during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by using appropriate construction methods and, if required, affected residents would be provided with a temporary potable water source.</li> <li>No permanent net effects.</li> </ul> <p><b>First (Tied)</b></p>
<b>Effect on Wells Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Moderately Preferred</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
Effect of noise on sensitive receptors <sup>35</sup>	Number of sensitive receptors affected and extent and duration of adverse effects			<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 20 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment noise limits, the Town of East Gwillimbury's Noise By-Law (2004-80), implementing construction related Best Management Practices for noise reduction,</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 50 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment noise limits, the Town of East Gwillimbury's Noise By-Law (2004-80), implementing construction related Best Management Practices for noise reduction,</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 10 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 50 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment noise limits, the Town of East Gwillimbury's Noise By-Law (2004-80), implementing construction Best Management Practices</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 21 sensitive receptors within 500 m of Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices</li> </ul>

35. As defined by the Ministry of the Environment (MOE) in NPC-205, a sensitive "point of reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of approval of new sources of noise, including verifying compliance with Section 9 of the Environmental Protection Act, the point of reception may be located on any of the following existing or zoned for future use premises: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and noise sensitive buildings such as schools and places of worship.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				constructing temporary noise barriers (as required), and implementing a complaint resolution procedure.	constructing temporary noise barriers (as required), and implementing a complaint resolution procedure.	for noise reduction, constructing temporary noise barriers (as required), and implementing a complaint resolution procedure.	for noise reduction, constructing temporary noise barriers (as required), and implementing a complaint resolution procedure.	for noise reduction, constructing temporary noise barriers (as required), and implementing a complaint resolution procedure.
				<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled noise levels from uncontrolled emission sources (up to 61 dBA during the day) at approximately 20 sensitive receptors within 500 m of the Site property line during operation of the Water Reclamation Centre would be mitigated by implementing noise abatement measures achieving compliance with MOE NPC-232 limits (i.e. 45 dBA during the day), and implementing a complaint resolution procedure.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 4 sensitive receptors adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled noise levels from uncontrolled emission sources (up to 72 dBA during the day) at approximately 50 sensitive receptors within 500 m of the Site property line during operation of the Water Reclamation Centre would be mitigated by implementing noise abatement measures achieving compliance with MOE NPC-232 limits (i.e. 45 dBA during the day), and implementing a complaint resolution procedure.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 31 sensitive receptors adjacent to Leslie Street, Holborn Road, and 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-Law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint</li> </ul>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled noise levels from uncontrolled emission sources (up to 63 dBA during the day) at approximately 10 sensitive receptors within 500 m of the Site property line during operation of the Water Reclamation Centre would be mitigated by implementing noise abatement measures, achieving compliance with MOE NPC-232 limits (i.e. 45 dBA during the day) and implementing a complaint resolution procedure.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 8 sensitive receptors adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled noise levels from uncontrolled emission sources (up to 69 dBA during the day) at approximately 50 sensitive receptors within 500 m of the Site property line during operation of the Water Reclamation Centre would be mitigated by implementing noise abatement measures, achieving compliance with MOE NPC-232 limits (i.e. 45 dBA during the day), and implementing a complaint resolution procedure.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 32 sensitive receptors adjacent to Leslie Street, Holborn Road, and 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint</li> </ul>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled noise levels from uncontrolled emission sources (up to 66 dBA during the day) at approximately 21 sensitive receptors within 500 m of the Site property line during operation of the Water Reclamation Centre would be mitigated by implementing noise abatement measures, achieving compliance with MOE NPC-232 limits (i.e. 45 dBA during the day) and implementing a complaint resolution procedure.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 4 sensitive receptors adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul>
				<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 38 sensitive receptors (1 adjacent to 2nd Concession which is also included in Conveyance Infrastructure to the Site and approximately 37 adjacent to Queensville Sideroad) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 65 sensitive receptors (28 adjacent to Leslie Street, Holborn Road, and 2nd Concession which are also included in the Conveyance Infrastructure to the Site and approximately 37 adjacent to Queensville Sideroad and 2nd Concession) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-Law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 42 sensitive receptors (5 located adjacent to 2nd Concession which are also included in the Conveyance Infrastructure to the Site and approximately 37 adjacent to Queensville Sideroad) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 66 sensitive receptors (29 adjacent to Leslie Street, Holborn Road, and 2nd Concession which are also included in Conveyance Infrastructure to the Site and approximately 37 adjacent to Queensville Sideroad during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to the Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 38 sensitive receptors (1 adjacent to 2nd Concession which is also included in Conveyance Infrastructure to the Site and approximately 37 adjacent to Queensville Sideroad, Queens Court and Yonge Street) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of Environment noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>
			<ul style="list-style-type: none"> <li>The lower the number of sensitive receptors within 500 m<sup>36</sup> of the Water Reclamation Centre, the lower the potential future noise related complaints, the better the ranking.</li> </ul>	<b>Second (Tied)</b>	<b>Fourth (Tied)</b>	<b>First</b>	<b>Fourth (Tied)</b>	<b>Second (Tied)</b>

36. A 500 metre separation distance is a typical zone of influence used to identify the nearest off-Site sensitive points-of-reception subject of environmental noise impact assessment from adjacent industry. The 500 m distance is specifically referenced in the Noise Screening for Section 9 Applications form developed by the Ministry of the Environment. The sensitive receptors 500 m of the Water Reclamation Centre are also included in the number of sensitive receptors adjacent to the Conveyance Infrastructure routes where there is an overlap.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<b>Moderately Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred</b>	<b>Least Preferred (Tied)</b>	<b>Moderately Preferred (Tied)</b>
	<b>Effect of Noise on Sensitive Receptors Criterion Ranking</b>							
	Effect of perceptible vibration levels on sensitive receptors	Number of sensitive receptors <sup>37</sup> affected and extent and duration of adverse effects		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 21 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 4 sensitive receptors adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 50 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 31 sensitive receptors adjacent to Leslie Street, Holborn Road, and 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 10 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 8 sensitive receptors adjacent<sup>38</sup> to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 50 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 32 sensitive receptors adjacent to Leslie Street, Holborn Road, and 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 21 sensitive receptors within 500 m of the Site property line during construction of the Water Reclamation Centre would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 4 sensitive receptors adjacent to 2nd Concession during construction of the Conveyance Infrastructure to the Site would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul>

37. Sensitive receptors from a vibration perspective include permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and vibration sensitive buildings.

38. Adjacent buildings were evaluated for the Conveyance Infrastructure route since vibration effects are construction-related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.



**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 38 sensitive receptors adjacent to Queensville Sideroad during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p><b>Second (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 65 sensitive receptors (28 adjacent to Leslie Street, Holborn Road and 2nd Concession which are also included in the Conveyance Infrastructure to the Site and 37 adjacent to Queensville Sideroad and 2nd Concession) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 42 sensitive receptors (5 located adjacent to 2nd Concession which are also included in the Conveyance Infrastructure to the Site and 37 adjacent to Queensville Sideroad) during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p><b>First</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 66 sensitive receptors (29 adjacent to Leslie Street, Holborn Road, and 2nd Concession which are also included in the Conveyance Infrastructure to the Site and 37 adjacent to Queensville Sideroad, during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 38 sensitive receptors (1 adjacent to 2nd Concession which is also included in Conveyance Infrastructure to the Site and 37 adjacent to Queensville Sideroad during construction of the Conveyance Infrastructure from the Site and Outfall would be minimized by adhering to Ministry of the Environment's vibration limits as set out in NPC-207 Publication, implementing Best Management Practices for vibration reduction, and implementing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p><b>Second (Tied)</b></p>
			<ul style="list-style-type: none"> <li>The lower the number of sensitive receptors within 500 m<sup>39</sup> of the proposed Water Reclamation Centre, the lower the potential future vibration related complaints, the better the ranking.</li> </ul>					
			<b>Effect of Perceptible Vibration Levels on Sensitive Receptors Criterion Ranking</b>	<b>Moderately Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred</b>	<b>Least Preferred (Tied)</b>	<b>Moderately Preferred (Tied)</b>
	Effect of odour sensitive receptors from current conditions <sup>40</sup>	Number of sensitive receptors impacted and extent and duration of impacts		<p><b>Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>

39. A 500 metre separation distance is a typical zone of influence used to identify the nearest off-Site sensitive points-of-reception subject of environmental noise impact assessment from adjacent industry. The 500 m distance is specifically referenced in the Noise Screening for Section 9 Applications form developed by the Ministry of the Environment. The sensitive receptors 500 m of the Water Reclamation Centre are also included in the number of sensitive receptors adjacent to the Conveyance Infrastructure routes where there is an overlap.

40. Sensitive receptors include residences, child care facilities, health care facilities, senior citizens' residence, long-term care facilities, schools, and for this assessment, businesses have been included as well.



**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<ul style="list-style-type: none"> <li>The lower the number of sensitive receptors within 250 m<sup>41</sup> of the Water Reclamation Centre, the lower the potential future odour related complaints, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled odour, during operation of the Water Reclamation Centre at approximately 5 sensitive receptors within 250 m of the Water Reclamation Centre facility footprint, would be mitigated by siting potential odour facilities within an air separation zone in accordance with the Ministry of the Environment Design Guidelines for Sewage Works, 2008 and installing odour control equipment (i.e., biofilter, carbon, etc.).</li> <li><b>Conveyance Infrastructure to Site</b></li> <li>No temporary and/or permanent net effects.</li> <li><b>Conveyance Infrastructure from Site to Outfall</b></li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled odour, during operation of the Water Reclamation Centre at approximately 7 sensitive receptors within 250 m of the Water Reclamation Centre facility footprint, would be mitigated by siting potential odour facilities within an air separation zone in accordance with the Ministry of the Environment Design Guidelines for Sewage Works, 2008 and installing odour control equipment (i.e., biofilter, carbon, etc.).</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled odour during operation of the Water Reclamation Centre at approximately 8 sensitive receptors within 250 m of the Water Reclamation Centre facility footprint would be mitigated by siting potential odour facilities within an air separation zone in accordance with the Ministry of the Environment Design Guidelines for Sewage Works, 2008 and installing odour control equipment (i.e., biofilter, carbon, etc.).</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled odour during operation of the Water Reclamation Centre at approximately 8 sensitive receptors within 250 m of the Water Reclamation Centre facility footprint would be mitigated by siting potential odour facilities within an air separation zone in accordance with the Ministry of the Environment's Design Guidelines for Sewage Works, 2008 and installing odour control equipment (i.e., biofilter, carbon, etc.).</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Fourth (Tied)</b></p>	<ul style="list-style-type: none"> <li>The permanent increase in uncontrolled odour during operation of the Water Reclamation Centre at approximately 6 sensitive receptors within 250 m of the Water Reclamation Centre facility footprint would be mitigated by siting potential odour facilities within an air separation zone in accordance with the Ministry of the Environment Design Guidelines for Sewage Works, 2008 and installing odour control equipment (i.e., biofilter, carbon, etc.).</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>

<sup>41</sup> Increase in odour based on the potential frequency for exceedance of 1 odour unit (OU). The Site odour controls will be designed with consideration of MOE's odour guidelines. The guidelines recommend less than 1 odour unit (OU), 99.5% of the time at any sensitive receptor. The design is to achieve this as close as possible and within 250 m of the property line). Therefore, if there were any potential off-Site odour effects, it is a reasonable assumption to estimate potentially impacted sensitive receptors within a 250 m distance from the Water Reclamation Centre.

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			<b>Effect of Odour on Sensitive Receptors from Current Conditions Criterion Ranking</b>	<b>Most Preferred</b>	<b>Less Preferred</b>	<b>Least Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>More Preferred</b>
	Effect on existing views	Number and type of buildings visually affected and extent of adverse effects within viewing zones ( <i>Close-up View Zone (0 m to 500 m)</i> ; <i>Distant View Zone (500 m to 1,000 m)</i> and <i>1,000 m + View Zone</i> <sup>42</sup> )		<p><b>Site Close-up View Zone (0 to 500 m)</b></p> <ul style="list-style-type: none"> <li>Approximately 8 residences/businesses (1 located north of the facility, 2 northeast, 4 south and 1 southwest) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> </ul> <p><b>Distant View Zone (500 m to 1,000 m)</b></p> <ul style="list-style-type: none"> <li>Approximately 5 residences/businesses (2 located southeast of the facility and 3 south) of the facility would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 16 residences/businesses (9 located northwest, 1 west and 6 southwest of the facility) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> <li>Approximately 14 residences/businesses (9 located northwest, 3 southwest and 2 north of the facility) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 9 residences/businesses (3 located northwest of the facility and 6 southwest) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> <li>Approximately 5 residences/businesses (2 located north, 1 northwest and 2 located southeast of the facility) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 9 residences/businesses (3 located northwest, 3 southeast and 3 south of the facility) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> <li>Approximately 10 residences/businesses (7 located north, 2 northeast and 1 northwest of the facility) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 15 residences/businesses (4 located northwest of the facility, 2 north, 6 southwest and 3 southeast) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> <li>Approximately 4 residences/businesses (2 located west of the facility, and 2 southwest) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> </ul>

42. Within the Close-up View Zone (0 m to 500 m) there is a high likelihood that the facility would be visible to most residences. Within the Distant View Zone (500 m to 1,000 m) from the Site, the visibility of the facility diminishes significantly as the distance increases and because of various obstructions (i.e., vegetation, structures and topography). Beyond 1,000 m, the visibility of the facility is generally limited to residences in high areas with clear lines of Site not obstructed or screened by vegetation, structures and topography. These have been taken into account as required.

Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				<p><b>1,000 m+ View Zone</b></p> <ul style="list-style-type: none"> <li>Approximately 15 residences/businesses (7 located southeast of the facility and 8 in the Balmoral Heights subdivision) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>	<p>Approximately 3 residences/businesses (2 located north and 1 northwest of the facility) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</p> <p>No temporary and/or permanent net effects.</p> <p>No temporary and/or permanent net effects.</p>	<p>Approximately 1 residence/business located southwest of the facility would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</p> <p>No temporary and/or permanent net effects.</p> <p>No temporary and/or permanent net effects.</p>	<p>Approximately 3 residences/businesses (1 located northeast and 2 north of the facility) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</p> <p>No temporary and/or permanent net effects.</p> <p>No temporary and/or permanent net effects.</p>	<p>Approximately 15 residences/businesses (6 located southeast of the facility and 8 in the Balmoral Heights subdivision) would have a partially obstructed and screened view of the Water Reclamation Centre following the implementation of a Landscape Management Plan and through the architectural design of the facility.</p> <p>No temporary and/or permanent net effects.</p> <p>No temporary and/or permanent net effects.</p>
			<ul style="list-style-type: none"> <li>Close-up View Zone takes precedence over Distant View Zone and 1000 m + View Zone.</li> <li>Distant View Zone takes precedence over 1000 m + View Zone.</li> <li>The lower number of residences within the respecting View Zones, the better the ranking.</li> </ul>	<b>Second (Tied)</b>	<b>Fifth</b>	<b>First</b>	<b>Second (Tied)</b>	<b>Fourth</b>
<b>Effect on Existing Views Criterion Ranking</b>				<b>More Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred</b>	<b>More Preferred (Tied)</b>	<b>Less Preferred</b>

Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
<b>Social Environment Category Ranking &amp; Rationale:</b>				<b>More Preferred</b>	<b>Least Preferred</b>	<b>Most Preferred</b>	<b>Less Preferred</b>	<b>Moderately Preferred</b>
<ul style="list-style-type: none"> <li>+ Denotes an advantage for an alternative Site relative to other Sites</li> <li>- Denotes a disadvantage for an alternative Site relative to other Sites</li> </ul>				<p>The Site is <b>More Preferred</b> from a Social Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary change the lowest number of private groundwater wells (approximately 102) adjacent to Conveyance Infrastructure routes</li> <li>+ Lowest number of odour sensitive receptors (approximately 5) within 250 m of the proposed Water Reclamation Centre</li> <li>+ Partial visibility of the proposed Water Reclamation Centre from the second lowest number of residences within 500 m and between 500 m to 1000 m (approximately 8 and 5, respectively) and the highest number of residences more than 1000 m away (approximately 15)</li> </ul> <p><b>Notwithstanding this, the Site has the following disadvantage:</b></p> <ul style="list-style-type: none"> <li>- Temporary increase in noise and vibration levels at the second lowest number of sensitive receptors (approximately 20) within 500 m of the proposed Water Reclamation Centre and the lowest number of sensitive receptors (approximately 41) adjacent to the Conveyance Infrastructure routes</li> </ul>	<p>The Site is <b>Least Preferred</b> from a Social Environment Category perspective compared to the other Sites, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary change to approximately 151 private groundwater wells adjacent to Conveyance Infrastructure routes</li> <li>- Second highest number of odour sensitive receptors (approximately 7) within 250 m of the proposed Water Reclamation Centre</li> <li>- Temporary increase in noise and vibration levels at the highest number of sensitive receptors (approximately 50) within 500 m of the proposed Water Reclamation Centre and the second highest number of sensitive receptors (approximately 68) adjacent to the Conveyance Infrastructure routes</li> <li>- Partial visibility of the proposed Water Reclamation Centre from the highest number of residences within 500 m and between 500 m to 1000 m (approximately 16 and 14, respectively) and the second lowest number of residences more than 1000 m away (approximately 3)</li> </ul>	<p>The Site is <b>Most Preferred</b> from a Social Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary change to the second lowest number of private groundwater wells (approximately 108) adjacent to Conveyance Infrastructure routes</li> <li>+ Temporary increase in noise and vibration levels at the lowest number of sensitive receptors (approximately 10) within 500 m of the proposed Water Reclamation Centre and the second lowest number of sensitive receptors (approximately 45) adjacent to the Conveyance Infrastructure routes</li> <li>+ Partial visibility of the proposed Water Reclamation Centre from the third lowest number of residences within 500 m (approximately 9), the second lowest number of residences between 500 m to 1000 m (approximately 5), and the lowest number of residences more than 1000 m away (approximately 1)</li> </ul> <p><b>Notwithstanding this, the Site has the following disadvantage:</b></p> <ul style="list-style-type: none"> <li>- Highest number of odour sensitive receptors (approximately 8) within 250 m of the proposed Water Reclamation Centre</li> </ul>	<p>The Site is <b>Less Preferred</b> from a Social Environment Category perspective compared to the other Sites, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary change to approximately 151 private groundwater wells adjacent to Conveyance Infrastructure routes</li> <li>- Highest number of odour sensitive receptors (approximately 8) within 250 m of the proposed Water Reclamation Centre</li> <li>- Temporary increase in noise and vibration levels at the highest number of sensitive receptors (approximately 50) within 500 m of the proposed Water Reclamation Centre and adjacent to the Conveyance Infrastructure routes (approximately 69)</li> </ul> <p><b>Notwithstanding this, the Site has the following advantage:</b></p> <ul style="list-style-type: none"> <li>+ Partial visibility of the proposed Water Reclamation Centre from the lowest number of residences from within 500 m (approximately 7), the second highest number of residences from between 500 m to 1000 m (approximately 10), and the second lowest number of residences more than 1000 m away (approximately 3)</li> </ul>	<p>The Site is <b>Moderately Preferred</b> from a Social Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary change the lowest number of private groundwater wells (approximately 102) adjacent to Conveyance Infrastructure routes</li> <li>+ Second lowest number of odour sensitive receptors (approximately 6) within 250 m of the proposed Water Reclamation Centre</li> </ul> <p><b>Notwithstanding this, the Site has the following disadvantages:</b></p> <ul style="list-style-type: none"> <li>- Temporary increase in noise and vibration levels at the third lowest number of sensitive receptors (approximately 21) within 500 m of the proposed Water Reclamation Centre and the lowest number of sensitive receptors (approximately 41) adjacent to the Conveyance Infrastructure routes</li> <li>- Partial visibility of the proposed Water Reclamation Centre from the second highest number of residences from within 500 m (approximately 15), the lowest number of residences from between 500 m to 1000 m (approximately 4), and the highest number of residences more than 1000 m away (approximately 15)</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
Economic Environment	Effect on approved/planned land uses	Number, extent, and type of approved/ planned land uses affected	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<b>Site</b> <ul style="list-style-type: none"> <li>No changes required to approved/planned land use designations to accommodate the construction and operation of the Water Reclamation Centre<sup>43</sup>.</li> </ul> <b>Conveyance Infrastructure to Site</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <b>Conveyance Infrastructure from Site to Outfall</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No changes required to approved/planned land use designations to accommodate the construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No changes required to approved/planned land use designations to accommodate the construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No changes required to approved/planned land use designations to accommodate the construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No changes required to approved/planned land use designations to accommodate the construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
	<b>Effect on Approved/Planned Land Uses Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
	Effect on agricultural soil resources	Approximate area (ha) of Class 1, Class 2 and Class 3 soils removed (priority in that order) <sup>44</sup>	<ul style="list-style-type: none"> <li>No loss of Class 1 soils, the better the ranking.</li> <li>The lower the area of Class 1 soils removed, the better the ranking.</li> <li>The lower the area of Class 2 and Class 3 soils removed, the better the</li> </ul>	<b>Site</b> <ul style="list-style-type: none"> <li>An estimated 22.3 ha of Class 2 soils and 16.7 ha Class 3 soils (designated as Agricultural (whitebelt)) would be removed during construction and operation of the Water Reclamation Centre.</li> </ul> <b>Conveyance Infrastructure to Site</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <b>Conveyance Infrastructure from Site to Outfall</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>An estimated 47.8 ha of Class 1 soils (designated as Agricultural (whitebelt)) would be removed during construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>An estimated 7.5 ha of Class 1 soils and 26.6 ha of Class 2 soils (designated as Agricultural (whitebelt)) would be removed during construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>An estimated 32.0 ha of Class 1 soils (designated as Agricultural (whitebelt)) would be removed during construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Fourth</b></p>	<ul style="list-style-type: none"> <li>An estimated 7.8 ha of Class 1 soils and 32.0 ha of Class 2 soils (designated as Agricultural (whitebelt)) would be removed during construction and operation of the Water Reclamation Centre.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>

43. The Water Reclamation Centre is a permitted use in all land use designations as per Section 4.15 of the 2010 East Gwillimbury Official Plan (Council Approved), and Section 3.5 of the 1997 Town of East Gwillimbury Official Plan (In Effect).

44. In accordance with the Provincial Policy Statement (2005), Class 1, Class 2 and Class 3 soils have the highest priority for protection, in that order respectively (i.e., Class 1 soil have a higher priority for protection than Class 2 and Class 3 soils and Class 2 soils have a higher priority for protection than Class 3 soils).

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
		Approximate area (ha) of Specialty Cropland <sup>45</sup> removed, and/or area of agricultural soils disturbed <sup>46</sup> , and/or area of active agricultural land <sup>47</sup> removed	ranking.	<p><b>Site</b></p> <ul style="list-style-type: none"> <li>The permanent removal of up to 31.6 ha of Specialty Cropland during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> <li>An estimated 39.0 ha of agricultural soils would be permanently removed during construction and operation of the Water Reclamation Centre.</li> <li>The permanent removal of 31.6 ha of active agricultural land during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>An estimated 47.8 ha of agricultural soils would be permanently removed during construction and operation of the Water Reclamation Centre.</li> <li>The permanent removal of approximately 43.9 ha of active agricultural land during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p style="text-align: center;"><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>An estimated 34.1 ha of agricultural soils would be permanently removed during construction and operation of the Water Reclamation Centre.</li> <li>The permanent removal of approximately 31.4 ha of active agricultural land during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>An estimated 32.0 ha of agricultural soils would be permanently removed during construction and operation of the Water Reclamation Centre.</li> <li>The permanent removal of approximately 21.3 ha of active agricultural land during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>An estimated 39.8 ha of agricultural soils would be permanently removed during construction and operation of the Water Reclamation Centre.</li> <li>The permanent removal of approximately 30.0 ha of active agricultural land during construction and operation of the Water Reclamation Centre would be compensated for (as required) at fair market value in accordance with York Region's policies.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>

45. Specialty Cropland refers to a farmer choosing to grow a specialty crop in an undesignated Specialty Cropland area, recognizing that it could change from year to year depending on the farmer's choice. Therefore, having a specialty crop on Site does not affect the ranking of the alternatives.

46. Area of agricultural soils disturbed refers to all Canada Land Inventory Classifications (Classes 1 through 7). Note: The number includes the area of soil Classes 1, 2, 3 which is also included in the indicator above.

47. Active agricultural land removed refers to the area being ploughed (i.e., excludes barns, buildings etc.).

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
Effect on Agricultural Soil Resources Criterion Ranking				Most Preferred	Least Preferred	More Preferred	Less Preferred	Moderately Preferred
<b>Economic Environment Category Ranking &amp; Rationale:</b>				<b>Most Preferred</b> The Site is Most Preferred from an Economic Environment Category perspective compared to the other Sites, because it results in no loss of Class 1 soils.	<b>Least Preferred</b> The Site is Least Preferred from an Economic Environment Category perspective compared to the other Sites, because it results in loss of the largest area of Class 1 soils (48.0 ha).	<b>More Preferred</b> The Site is More Preferred from an Economic Environment Category perspective compared to the other Sites, because it results in loss of the smallest area of Class 1 soils (7.5 ha).	<b>Less Preferred</b> The Site is Less Preferred from an Economic Environment Category perspective compared to the other Sites, because it results in loss of the second largest area of Class 1 soils (32.0).	<b>Moderately Preferred</b> The Site is Moderately Preferred from an Economic Environment Category perspective compared to the other Sites, because it results in loss of the second smallest area of Class 1 soils (8.0 ha).
<b>Cultural Environment</b>	Effects on known or potential significant archaeological resources	Number and type of potentially significant, known archaeological Sites affected.	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<b>Site</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <b>Conveyance Infrastructure to Site</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <b>Conveyance Infrastructure from Site to Outfall</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <b>First (Tied)</b>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <b>First (Tied)</b>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <b>First (Tied)</b>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <b>First (Tied)</b>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> <li>No net effects.</li> </ul> <b>First (Tied)</b>
				Area (ha) of archaeological potential (i.e., lands with potential for the presence of significant archaeological resources) affected.	<ul style="list-style-type: none"> <li>The disturbance to 35.0 ha with archaeological potential during construction of the Water Reclamation Centre would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and, if warranted, during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul> <b>Conveyance Infrastructure to Site</b> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <b>Conveyance Infrastructure from Site to Outfall</b>	<ul style="list-style-type: none"> <li>The disturbance to 41.0 ha with archaeological potential during construction of the Water Reclamation Centre would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and, if warranted, during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul> <ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The disturbance to 27.0 ha with archaeological potential during construction of the Water Reclamation Centre would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and, if warranted, during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul> <ul style="list-style-type: none"> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The disturbance to 30.0 ha with archaeological potential during construction of the Water Reclamation Centre would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and, if warranted, during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul> <ul style="list-style-type: none"> <li>No net effects.</li> </ul>

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
				▪ No net effects.	▪ No net effects.	▪ No net effects.	▪ No net effects.	▪ No net effects.
			▪ The smaller the area with archaeological potential, the lower the potential for presence of significant archaeological resources, the better the ranking.	<b>Third</b>	<b>Fifth</b>	<b>First</b>	<b>Second</b>	<b>Fourth</b>
<b>Effects on Known or Potential Significant Archaeological Resources Criterion Ranking</b>				<b>Moderately Preferred</b>	<b>Least Preferred</b>	<b>Most Preferred</b>	<b>More Preferred</b>	<b>Less Preferred</b>
Effects on built heritage resources and cultural heritage landscapes.	Number and type of built heritage resources and cultural heritage landscapes displaced or disrupted.			<b>Site</b> ▪ Displacement of 1 cultural heritage resource (an evolved farm complex with late nineteenth century buildings <sup>48</sup> ) during construction of the Water Reclamation Centre would be addressed through a Site specific heritage to develop appropriate mitigation measures prior to resource removal (e.g., relocation, partial retention, adaptive re-use, commemoration, salvage, and/or documentation).	▪ Displacement of 1 cultural heritage resource (a nineteenth century farm complex <sup>49</sup> ) during construction of the Water Reclamation Centre would be addressed through a Site specific heritage evaluation to develop appropriate mitigation measures prior to resource removal (e.g. relocation, partial retention, adaptive re-use, commemoration, salvage, and/or documentation).	▪ No displacement of cultural heritage resources.  ▪ Disruption to 2 cultural heritage resources (remnant nineteenth-century farm complexes <sup>51</sup> ) during construction of the Water Reclamation Centre would be minimized through a Site specific heritage evaluation to develop appropriate mitigation measures (e.g., commemoration, documentation of the	▪ Displacement of 2 cultural heritage resources (remnant nineteenth century farm complexes <sup>50</sup> ) during construction of the Water Reclamation Centre would be addressed through a Site specific heritage evaluation that would identify appropriate mitigation measures prior to resource removal (e.g., relocation, partial retention, adaptive re-use, commemoration, salvage, and/or documentation).	▪ No displacement of cultural heritage resources.  ▪ Disruption to 1 cultural heritage resource (a nineteenth-century farm complex <sup>52</sup> ) during construction of the Water Reclamation Centre would be minimized through a Site specific heritage evaluation to develop appropriate mitigation measures (e.g., commemoration, documentation of the

48. Refer to remnant nineteenth-century farm complex CHR 669 in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

49. Refer to nineteenth century farm complex CHR 65 in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

50. Refer to remnant nineteenth-century farm complexes CHR 75 and CHR 126 in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

51. Refer to remnant nineteenth-century farm complexes CHR 75 and CHR 126 in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

52. Refer to remnant nineteenth-century farm complex CHR 91 in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).



Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure) resource etc.)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure) resource etc.).
			<ul style="list-style-type: none"> <li>Displacement of cultural heritage resources, worse than disruption of cultural heritage resources.</li> <li>The lower number of cultural heritage resources displaced or disrupted, the better the ranking.</li> <li>Avoidance of displacement or disruption of cultural heritage resources takes precedence over minimizing/compensating for displacement/disruption of cultural heritage resources.</li> </ul>	<p><b>Conveyance Infrastructure to Site</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>Conveyance Infrastructure from Site to Outfall</b></p> <ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Fourth</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
	Effects on Built Heritage Resources and Cultural Heritage Landscapes Criterion Ranking			<b>Less Preferred</b>	<b>Moderately Preferred</b>	<b>Most Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred (Tied)</b>
<b>Cultural Environment Category Ranking &amp; Rationale:</b>				<b>Less Preferred (Tied)</b>	<b>Least Preferred</b>	<b>Most Preferred</b>	<b>Less Preferred (Tied)</b>	<b>More Preferred</b>
<p>+ Denotes an advantage for an alternative Site relative to other Sites - Denotes a disadvantage for an alternative Site relative to other Sites</p>				<p>The Site is Less Preferred from a Cultural Environment Category perspective compared to the other Sites, because it has the following disadvantage:</p> <ul style="list-style-type: none"> <li>- Displacement of 1 cultural heritage resource</li> </ul> <p><b>Notwithstanding this, the Site has the following advantage:</b></p> <ul style="list-style-type: none"> <li>+ Disturbance to the third smallest area with archaeological potential (approximately 35.0 ha)</li> </ul>	<p>The Site is Least Preferred from a Cultural Environment Category perspective compared to the other Sites, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Displacement of 1 cultural heritage resource</li> <li>- Disturbance to the largest area with archaeological potential (41.0 ha)</li> </ul>	<p>The Site is Most Preferred from a Cultural Environment Category perspective compared to the other Sites, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ No displacement of cultural heritage resources.</li> <li>Disruption to 2 cultural heritage resources</li> <li>+ Disturbance to the smallest area with archaeological potential (27.0 ha)</li> </ul>	<p>The Site is Less Preferred from a Cultural Environment Category perspective compared to the other Sites, because it has the following disadvantage:</p> <ul style="list-style-type: none"> <li>- Displacement of 2 cultural heritage resources</li> </ul> <p><b>Notwithstanding this, the Site has the following advantage:</b></p> <ul style="list-style-type: none"> <li>+ Disturbance to the second smallest area with archaeological potential (30.0 ha)</li> </ul>	<p>The Site is More Preferred from a Cultural Environment Category perspective compared to the other Sites, because it has the following advantage:</p> <ul style="list-style-type: none"> <li>+ No displacement of cultural heritage resources.</li> <li>Disruption of 1 cultural heritage resource</li> </ul> <p><b>Notwithstanding this, the Site has the following disadvantage:</b></p> <ul style="list-style-type: none"> <li>- Disturbance to the second largest area of archaeological</li> </ul>

Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)	
								potential (38.0 ha)	
Financial	50-year Net Present Worth Costs	50-year present net worth costs associated with the capital investment, land acquisition, and operating and maintenance of the infrastructure, systems and equipment <sup>53</sup>	<ul style="list-style-type: none"> <li>The lower the overall 50-year present net worth costs, the better the ranking.</li> </ul>	<b>Site/ Conveyance Infrastructure to and from Site</b> <ul style="list-style-type: none"> <li>\$687,710,000</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>\$790,930,000</li> </ul> <p style="text-align: center;"><b>Fourth</b></p>	<ul style="list-style-type: none"> <li>\$703,170,000</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>793,850,000</li> </ul> <p style="text-align: center;"><b>Fifth</b></p>	<ul style="list-style-type: none"> <li>\$684,190,000</li> </ul> <p style="text-align: center;"><b>First</b></p>	
<b>Financial Category Ranking &amp; Rationale:</b>				<b>More Preferred</b>	<b>Less Preferred</b>	<b>Moderately Preferred</b>	<b>Least Preferred</b>	<b>Most Preferred</b>	
				The Site is <b>More Preferred</b> from a Financial Category perspective compared to the other Sites because it has the second lowest 50-year Net Present Worth Costs.	The Site is <b>Less Preferred</b> from a Financial Category perspective compared to the other Sites because it has the second highest 50-year Net Present Worth Costs.	The Site is <b>Moderately Preferred</b> from a Financial Category perspective compared to the other Sites because it has the third lowest 50-year Net Present Worth Costs.	The Site is <b>Least Preferred</b> from a Financial Category perspective compared to the other Sites because it has the highest 50-year Net Present Worth Costs.	The Site is <b>Most Preferred</b> from a Financial Category perspective compared to the other Sites because it has the lowest 50-year Net Present Worth Costs.	
<b>OVERALL RECOMMENDATION AND RATIONALE</b>				<b>Not Recommended</b>	<b>Not Recommended</b>	<b>Recommended</b>	<b>Not Recommended</b>	<b>Not Recommended</b>	
<ul style="list-style-type: none"> <li>+ Denotes an advantage for the Recommended Alternative</li> <li>- Denotes a disadvantage for an alternative Site relative to the Recommended Site</li> </ul>				<ul style="list-style-type: none"> <li>An overall ranking of <b>Recommended</b> was assigned to an alternative having the greatest number of top placed category rankings (e.g., more Most Preferred, More Preferred and Moderately Preferred rankings) among all of the alternatives being considered, thus providing the highest number of advantages and the least number of disadvantages overall.</li> <li>An overall ranking of <b>Not Recommended</b> was assigned to an alternative having fewer number of top placed category rankings (e.g., more Most Preferred, More Preferred and Moderately Preferred).</li> </ul>	<ul style="list-style-type: none"> <li>Higher number of sensitive receptors within 500m of the proposed Water Reclamation Centre temporarily affected</li> <li>Acquisition of 1 entire private property with an unwilling seller with a higher property area</li> <li>Displacement of an existing residence</li> <li>Partial visibility of the proposed Water Reclamation Centre from a higher number of residences more than 1000 m away</li> <li>Loss of 1 retired agricultural facility</li> <li>Displacement of a higher number of cultural heritage resources</li> <li>Disturbance to a larger</li> </ul>	<ul style="list-style-type: none"> <li>Higher Carbon Dioxide (CO2) Equivalent Footprint / year</li> <li>Permanent loss of an ephemeral watercourse</li> <li>Temporary change to aquatic habitat at a higher number of watercourse crossings along the Conveyance Infrastructure routes</li> <li>Loss of moderate quality swamp, cultural meadow and meadow marsh communities</li> <li>Removal of larger area of potentially suitable habitat for Bobolink, Barn Swallow and Cliff Swallow. Loss of 1 building providing nesting Barn Swallow habitat</li> <li>Loss of a shallow dug pond</li> </ul>	<ul style="list-style-type: none"> <li>Lower Carbon Dioxide (CO2) Equivalent Footprint / year</li> <li>No watercourse crossings on the Site and temporary change to aquatic habitat at a lower number of watercourse crossings than Sites 30 and WH1 East along the Conveyance Infrastructure routes</li> <li>Loss of a smaller area of low quality deciduous hedgerow communities than Sites 30, WH1 East and WH2</li> <li>Removal of a smaller area of potentially suitable habitat for Bobolink than Sites 30 and WH1 East</li> <li>Lower number of accesses to residences</li> </ul>	<ul style="list-style-type: none"> <li>Higher Carbon Dioxide (CO2) Equivalent Footprint / year</li> <li>Permanent loss of an ephemeral watercourse and temporary change to aquatic habitat at a higher number of watercourse crossings along the Conveyance Infrastructure routes</li> <li>Loss of a larger area of low quality deciduous hedgerow communities and removal of higher area of potentially suitable habitat for Bobolink and Savannah Sparrow</li> <li>Higher number of accesses to residences and agricultural facilities temporarily affected</li> </ul>	<ul style="list-style-type: none"> <li>Higher number of sensitive receptors within 500 m of the proposed Water Reclamation Centre temporarily affected</li> <li>Acquisition of a portion of 1 vacant private property from a Willing Host owner with larger property area</li> <li>Partial visibility of the proposed Water Reclamation Centre from a higher number of residences within 500 m and more than 1000 m away</li> <li>Disturbance to a larger area of archaeological potential</li> <li>Permanent displacement of the Holland Landing Snowmobile Club</li> </ul>

53. Alternative Methods of Carrying Out the Undertaking – Cost Estimates Report (CRA et al., February 2013).

**Table D.1: Comparative Evaluation of the Short List of Alternative Water Reclamation Centre Sites**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Site 24 (including Conveyance Infrastructure <sup>2</sup> )	Site 30 (including Conveyance Infrastructure)	Site WH1 West (including Conveyance Infrastructure)	Site WH1 East (including Conveyance Infrastructure)	Site WH2 (including Conveyance Infrastructure)
			rankings) among all of the alternatives being considered, thus providing the higher number of disadvantages and lower number of advantages overall.	<ul style="list-style-type: none"> <li>area of archaeological potential</li> <li>- Higher 50-year Net Present Worth Costs</li> </ul>	<ul style="list-style-type: none"> <li>providing habitat to bullfrogs</li> <li>- Higher number of residential accesses and agricultural facilities temporarily affected</li> <li>- Higher number of sensitive receptors within 500 m of the proposed Water Reclamation Centre temporarily affected</li> <li>- Acquisition of 1 entire private property with higher property area</li> <li>- Displacement of 1 existing residence</li> <li>- Partial visibility of the proposed Water Reclamation Centre from higher number of residences from within 500 m and between 500 m to 1000 m</li> <li>- Temporary disruption to a longer length of roadway along the Conveyance Infrastructure routes</li> <li>- Loss of a larger area of Class 1 soils and loss of 1 agricultural facility</li> <li>- Displacement of a cultural heritage resource</li> <li>- Disturbance to a larger area of archaeological potential</li> <li>- Higher 50-year Net Present Worth Costs</li> </ul>	<ul style="list-style-type: none"> <li>and agricultural facilities temporarily affected than Sites 30 and WH1 East</li> <li>+ Lower number of sensitive receptors within 500 m of the proposed Water Reclamation Centre temporarily affected</li> <li>+ Acquisition of a portion of 1 vacant private property from a Willing Host owner with a lower property area</li> <li>+ No displacement of residences</li> <li>+ Partial visibility of the proposed Water Reclamation Centre from lower number of residences between 500 m to 1000 m and more than 1000 m away</li> <li>+ Loss of smaller area of Class 1 soils and no loss of agricultural facilities</li> <li>+ No displacement of cultural heritage resources</li> <li>+ Disturbance to a smaller area of archaeological potential</li> <li>+ Lower 50-year Net Present Worth Costs than Sites 30 and WH1 East</li> </ul>	<ul style="list-style-type: none"> <li>- Higher number of sensitive receptors within 500 m of the proposed Water Reclamation Centre temporarily affected</li> <li>- Temporary disruption to a longer length of roadway along the Conveyance Infrastructure routes</li> <li>- Acquisition of a portion of 1 vacant private property from a Willing Host owner with a larger property area</li> <li>- Loss of a larger area of Class 1 soils</li> <li>- Displacement of a higher number of cultural heritage resources</li> <li>- Disturbance to a larger area of archaeological potential</li> <li>- Higher 50-year Net Present Worth Costs</li> </ul>	<ul style="list-style-type: none"> <li>snowmobile route</li> </ul>



Assessment and Comparative Evaluation  
of the Short List of Alternative Methods  
Upper York Sewage Solutions EA



## Appendix E

Comparative Evaluation of the York Durham Sewage System Modifications Alternative Routes

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
Technical	Carbon Dioxide (CO <sub>2</sub> ) Equivalent Footprint	Equivalent CO <sub>2</sub> (CO <sub>2</sub> e) generated in tonnes CO <sub>2</sub> e/year <sup>2</sup>	<ul style="list-style-type: none"> <li>The lower CO<sub>2</sub>e/year, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>Approximately 207 tonnes CO<sub>2</sub>e /year.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>Approximately 235 tonnes CO<sub>2</sub>e /year.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>Approximately 241 tonnes CO<sub>2</sub>e /year.</li> </ul> <p style="text-align: center;"><b>Third</b></p>
<b>Technical Category Ranking &amp; Rationale:</b>				<b>Most Preferred</b>	<b>Moderately Preferred</b>	<b>Least Preferred</b>
				<p>The Route is Most Preferred from a Technical Category perspective compared to the other Routes because it would generate the lowest amount of CO<sub>2</sub> e/year.</p>	<p>The Route is Moderately Preferred from a Technical Category perspective compared to the other Routes because it would generate lower amount of CO<sub>2</sub> e/year than Route C.</p>	<p>The Route is Least Preferred from a Technical Category perspective compared to the other Routes because it would generate the highest amount of CO<sub>2</sub> e/year.</p>
Natural Environment	Effect on groundwater	Temporary and/or long-term change in groundwater quality	<ul style="list-style-type: none"> <li>The greater the potential for dewatering during construction, the worse the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route along the East Holland River would be minimized by using appropriate construction methods<sup>3</sup>.</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route along the East Holland River would be minimized by using appropriate construction methods<sup>4</sup>.</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quality due to dewatering during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>
		Temporary and/or long-term change in groundwater quantity	<ul style="list-style-type: none"> <li>The greater the potential for dewatering during construction, the worse the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in groundwater quantity due to dewatering during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>

1. In general, no net effects ranked better than temporary effects and temporary effects ranked better than permanent effects.  
2. Equivalent CO<sub>2</sub> generated indicator includes direct and indirect emissions (i.e., from electricity generation) of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O. Direct emissions include natural gas, transportation related emissions, process related emissions, equipment related emissions, chemical usage related emissions, and off-site biosolids/residuals decomposition emission. Further details are provided in the Technical Concept Level 2 Document, (CRA et al., February 2013).  
3. Due to the expected presence of coarse grained alluvial materials and a high water table, dewatering along Alternative Route A has the potential to be significant.  
4. Due to the expected presence of coarse grained alluvial materials and a high water table, dewatering along Alternative Route B has the potential to be significant.

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
				<b>Least Preferred</b>	<b>Moderately Preferred</b>	<b>Most Preferred</b>
Effect on Groundwater Criterion Ranking	Effect on surface water	Temporary and/or long-term change in surface water quality	<ul style="list-style-type: none"> <li>All three alternative Routes have the same number of crossings, but at different locations.</li> <li>All watercourses have similar surface water quality characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary decrease in surface water quality at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
		Temporary and/or long-term change in surface water quantity		<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to an increase in overland flow during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to an increase in overland flow during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in surface water quantity at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) due to an increase in overland flow during construction of the YDSS Modifications Alternative Route would be minimized by developing and implementing an erosion and sediment control plan consistent with policies outlined in the Erosion and Sediment Control Guidelines for Urban Construction (2006).</li> <li>No long-term net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
<b>Effect on Surface Water Criterion Ranking</b>						
Effect on aquatic habitat or functions	Area (m <sup>2</sup> ) of temporary or permanent loss of aquatic features or categorical loss of functions by type – including Provincially Significant Wetland, Locally Significant Wetland, watercourses by sensitivity type, and others		<ul style="list-style-type: none"> <li>All three alternative Routes have the same number of crossings, but at different locations.</li> <li>All surface water crossings have similar aquatic habitat potential and similar sensitivity classifications.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated and compensated for (as required) by undertaking construction outside of the relevant fish spawning timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary loss of aquatic habitat and function from a decrease in surface water quality at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated and compensated for (as required) by undertaking construction outside of relevant fish spawning and timing window, implementing appropriate construction Best Management Practices based on consultations with review agencies, limiting removal of riparian vegetation, stabilizing the banks and implementing a restoration plan.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
<b>Effect on Aquatic Habitat or Functions Criterion Ranking</b>						
Effect on stream geomorphology	Change in geomorphic form/function/ stability in affected channels		<ul style="list-style-type: none"> <li>All three alternative Routes have the same number of crossings, but at different locations.</li> <li>All surface water crossings have similar geomorphic form and function.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary change to channel form, function and stability at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary change to channel form, function and stability at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary change to channel form, function and stability at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by limiting vegetation removal and implementing post construction restoration.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
<b>Effect on Stream Geomorphology Criterion Ranking</b>						
	Effect on aquatic species including Species at Risk (species of special concern, threatened, endangered) and species of local concern, native and invasive species	Number and type of aquatic species <sup>5</sup> potentially affected temporarily or permanently <sup>6</sup>	<ul style="list-style-type: none"> <li>All three alternative Routes have the same number of crossings, but at different locations.</li> <li>All surface water crossings have similar aquatic habitat potential and similar aquatic species.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No permanent disturbance to aquatic species.</li> <li>No temporary or permanent disturbance to aquatic Species at Risk.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary disturbance to aquatic species at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No permanent disturbance to aquatic species.</li> <li>No temporary or permanent disturbance to aquatic Species at Risk.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to aquatic species at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) due to a decrease in surface water quality during construction of the YDSS Modifications Alternative Route would be mitigated by undertaking construction outside of the relevant fish spawning timing window and implementing appropriate construction Best Management Practices.</li> <li>No permanent disturbance to aquatic species.</li> <li>No temporary or permanent disturbance to aquatic Species at Risk.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
<b>Effect on Aquatic Species Criterion Ranking</b>						
	Effect on groundwater recharge and discharge areas in relation to aquatic/ wetland habitat	Area (m <sup>2</sup> ) of temporary or permanent loss of recharge and discharge areas	<ul style="list-style-type: none"> <li>All three alternative Routes have the same number of crossings, but at different locations.</li> <li>All surface water crossings have the potential to require temporary dewatering</li> </ul>	<ul style="list-style-type: none"> <li>The temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by using appropriate construction methods and directing the discharge back to the local watercourse.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (3 at Tannery Creek, 1 at Weslie Creek, 1 at Bogart Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by using appropriate construction methods and directing the discharge back to the local watercourse.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>The temporary reduction in groundwater discharge (baseflow) at 7 surface water crossings (1 at Weslie Creek, 1 at Bogart Creek, 1 at Marsh Creek, 2 tributaries to Tannery Creek and 2 unnamed tributaries along Bayview Parkway) during construction of the YDSS Modifications Alternative Route would be mitigated by using appropriate construction methods and directing the discharge back to the local watercourse.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>

5. Aquatic species include species of local concern, native and invasive species.

6. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on aquatic species.



**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
			during construction.			
	<b>Effect on Groundwater Recharge and Discharge areas in Relation to Aquatic/Wetland Habitat Criterion Ranking</b>			<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
	Effect on terrestrial habitat or functions	Area (m <sup>2</sup> ) of temporary and/or permanent loss of natural heritage features by type – including Environmentally Sensitive Areas (ESAs) and Areas of National and Scientific Interest (ANSIs), wildlife corridors, and others	<ul style="list-style-type: none"> <li>The lower the area and quality of terrestrial habitat lost, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>The temporary and permanent loss of 3.3 ha of meadow, thicket, plantation, forest, marsh and swamp habitat and associated wildlife habitat (in the Wesley Brooks Conservation Area, the Mable Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek) during construction and operation of the YDSS Modifications Alternative Route<sup>7</sup> would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The temporary and permanent loss of 0.13 ha of cultural meadow, shallow marsh and deciduous swamp habitat and associated wildlife habitat (in the Wesley Brooks Conservation Area, the Mable Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek ) from construction of the staging areas<sup>8</sup> for the YDSS Modifications Alternative Route would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>The temporary and permanent loss of 2.8 ha of meadow, thicket, plantation, forest, marsh and swamp habitat and associated wildlife habitat (in the Bailey Ecological Park and within the flood plain of Tannery Creek) during construction and operation of the YDSS Modifications Alternative Route would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> <li>The temporary and permanent loss of 0.08 ha of cultural meadow and shallow marsh habitat (in the Bailey Ecological Park and within the flood plain of Tannery Creek) from construction of the staging areas for the YDSS Modifications Alternative Route would be compensated for (as required) by implementing a habitat restoration plan based on consultations with review agencies.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects to ESAs, ANSIs or wildlife corridors.</li> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>
	<b>Effect on Terrestrial Habitat or Functions Criterion Ranking</b>			<b>Least Preferred</b>	<b>Moderately Preferred</b>	<b>Most Preferred</b>
	Effect on terrestrial species including	Number and type of terrestrial species <sup>9</sup> potentially affected		<ul style="list-style-type: none"> <li>The temporary and permanent disturbance to terrestrial species in the Wesley Brooks</li> </ul>	<ul style="list-style-type: none"> <li>The temporary and permanent disturbance to terrestrial species in the Bailey</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul>

7. It has been assumed that the YDSS Modifications Alternative Route will disturb a 20 m width over the entire length of Alternative Route A within the Tannery Creek Valley. It has also been assumed that construction of the YDSS Modifications Alternative Route will be conducted using open cut construction methods rather than less invasive methods such as directional drilling. This has led to an over estimation of the area of terrestrial habitat affected, as many areas within the Tannery Creek Valley are planned to be constructed using less invasive directional drilling, wherever practical.

8. The area disturbed during construction of the staging areas has been estimated assuming that land clearing will be required for directional drilling under all major stream crossings and at approximately 400 m intervals within the Tannery Creek Valley along YDSS Modifications Alternative Route A.

9. Terrestrial species include species of local concern, native and invasive species and area-sensitive species.

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
	Species at Risk, (species of special concern, threatened, endangered) species of local concern, native and invasive species, and area-sensitive species	temporarily and/or permanently <sup>10</sup>	<ul style="list-style-type: none"> <li>The number and sensitivity of terrestrial species potentially affected is related to the amount and type of habitat potentially affected.</li> </ul>	<p>Conservation Area, the Mable Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek during construction and operation of the YDSS Modifications Alternative Route and associated staging areas would be minimized by using appropriate construction methods, providing tree protection and delineation or work adjacent to natural areas and relocating amphibian species, as required.</p> <ul style="list-style-type: none"> <li>The temporary disturbance to terrestrial species within the north-south wildlife corridor along Tannery Creek during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>The temporary disruption to Savannah Sparrow bird species during construction of the YDSS Modifications Alternative Route would be minimized by conducting pre-construction bird surveys to determine habitat use and using construction Best Management Practices.</li> <li>No temporary or permanent net effects to terrestrial Species at Risk.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<p>Ecological Park and within the flood plain of Tannery Creek during construction and operation of the YDSS Modifications Alternative Route and associated staging areas would be minimized by using appropriate construction methods, providing tree protection and delineation or work adjacent to natural areas and relocating amphibian species, as required.</p> <ul style="list-style-type: none"> <li>The temporary disturbance to terrestrial species within the north-south wildlife corridor along Tannery Creek during construction of the YDSS Modifications Alternative Route would be minimized by using appropriate construction methods.</li> <li>The temporary disruption to Savannah Sparrow bird species during construction of the YDSS Modifications Alternative Route would be minimized by conducting pre-construction bird surveys to determine habitat use and using construction Best Management Practices.</li> <li>No temporary or permanent net effects to terrestrial Species at Risk.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> <li>No temporary and/or permanent net effects to terrestrial species.</li> <li>No temporary or permanent net effects to terrestrial Species at Risk.</li> </ul> <p style="text-align: center;"><b>First</b></p>
<b>Effect on Terrestrial Species, Including Species at Risk Criterion Ranking</b>				<b>Least Preferred</b>	<b>Moderately Preferred</b>	<b>Most Preferred</b>
Effect on groundwater recharge and discharge areas in relation to terrestrial habitat	Area (m <sup>2</sup> ) of temporary and/or permanent loss of recharge and discharge areas		<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No temporary and/or permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>

10. Refer to the Natural Environment Baseline Conditions Report (CRA et al., April 2013) for detailed information on terrestrial species.

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
	Effect on Groundwater Recharge and Discharge Areas in Relation to Terrestrial Habitat Criterion Ranking			Most Preferred (Tied)	Most Preferred (Tied)	Most Preferred (Tied)
<b>Natural Environment Category Ranking &amp; Rationale:</b>				<b>Least Preferred</b>	<b>Moderately Preferred</b>	<b>Most Preferred</b>
<ul style="list-style-type: none"> <li>+ Denotes an advantage for an alternative Route relative to other Routes</li> <li>- Denotes a disadvantage for an alternative Route relative to other Routes</li> </ul>				<p>The Route is <b>Least Preferred</b> from a Natural Environment Category perspective compared to the other Routes, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Highest volume of temporary groundwater dewatering</li> <li>- Temporary and long-term disturbance to the largest area of moderate quality meadow, thicket, plantation, forest, marsh and swamp communities (3.4 ha)</li> <li>- Temporary and long-term disturbance to terrestrial habitat and wildlife species in the highest number of natural heritage areas, including Wesley Brooks Conservation Area, the Mable Davis (Fairy Lake) Conservation Area, the Bailey Ecological Park and within the flood plain of Tannery Creek</li> </ul>	<p>The Route is <b>Moderately Preferred</b> from a Natural Environment Category perspective compared to the other Routes, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Higher volume of temporary groundwater dewatering</li> <li>- Temporary and long-term disturbance to a larger area of moderate quality meadow, thicket, plantation, forest, marsh and swamp communities (2.8 ha)</li> <li>- Temporary and long-term disturbance to terrestrial habitat and wildlife species in a higher number of natural heritage areas, including Bailey Ecological Park and within the flood plain of Tannery Creek</li> </ul>	<p>The Route is <b>Most Preferred</b> from a Natural Environment Category perspective compared to the other Routes, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Lowest volume of temporary groundwater dewatering</li> <li>+ No temporary or long-term disturbance to vegetation communities</li> <li>+ No temporary disturbance to terrestrial habitat or wildlife species</li> </ul>
<b>Built Environment</b>	Effect on agricultural operations and capital investment related to agriculture	Approximate area (ha) of active agricultural operations affected	<ul style="list-style-type: none"> <li>▪ The net effects are the same for all alternatives.</li> </ul>	No net effects. <b>First (Tied)</b>	No net effects. <b>First (Tied)</b>	No net effects. <b>First (Tied)</b>
		Extent of disruption of active agricultural operations such as: <ul style="list-style-type: none"> <li>• Fragmentation of agricultural fields</li> <li>• Disturbance to artificial drainage systems and agricultural drains</li> <li>• Removal and/or disturbance of farm fences, entrances and paddocks</li> <li>• Disruption of agricultural-related businesses</li> <li>• Disruption of normal external haul Routes for farm machinery movements</li> </ul>	<ul style="list-style-type: none"> <li>▪ The net effects are the same for all alternatives.</li> </ul>	No net effects. <b>First (Tied)</b>	No net effects. <b>First (Tied)</b>	No net effects. <b>First (Tied)</b>

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
<b>Effect on Agricultural Operations and Capital Investment Related to Agriculture</b>				<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
	<b>Criterion Ranking</b>					
Effect on existing residences, businesses, and/or community, institutional, and recreational facilities	Number and type of residences displaced		<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>
	Number and type of residences temporarily or permanently disrupted <sup>11</sup>		<ul style="list-style-type: none"> <li>The fewer residential accesses disrupted, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to driveway access for approximately 41 private residences during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>The temporary disruption to road access for 2 private residences that can only be accessed by Cotter Street during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and notifying residents of the alternative arrangements.</li> <li>The temporary disruption to small portions of approximately 4 private residences (including 1 multi-unit residential complex) where staging areas are constructed within the properties, and 1 multi-unit residential complex owned by York Region where the YDSS Modifications Alternative Route is constructed would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>No permanent net effects.</li> </ul> <p><b>First</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 145 driveway accesses for 149 private residences during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway accesses, arrangements for waste collection and notifying residents of the alternative arrangements.</li> <li>The temporary disruption to road access for approximately 5 private residences that can only be accessed by Prospect Street during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and notifying residents of the alternative arrangements.</li> <li>The temporary disruption to a small portion of 1 private residence due to construction of the staging area within a portion of the property would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>No permanent net effects.</li> </ul> <p><b>Second</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 157 driveway accesses for 162 private residences during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access, arrangements for waste collection and notifying residents of the alternative arrangements<sup>12</sup>.</li> <li>The temporary disruption to road access for approximately 1,226 private residences that can only be accessed by Prospect Street, Bayview Avenue, and St. John's Sideroad East during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and notifying residents of the alternative arrangements.</li> <li>The temporary disruption to a small portion of 1 private residence due to the construction of the staging areas at Prospect Street and Bogart Pumping Station (Bogart Route) would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>No permanent net effects.</li> </ul> <p><b>Third</b></p>

11. Disruption to residences has been applied with respect to driveway accesses (including waste collection). Disruption related to odour, noise and vibration are considered in the respective indicators below.

12. Note that there are a number of townhomes and commercial property currently under construction at the southeast corner of Bayview Avenue and St. John's Sideroad East that when complete may experience temporary disruption to accesses depending on construction completion schedules.

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
		Number and characteristics of businesses displaced <sup>13</sup>	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
		Number and characteristics of businesses temporarily or permanently disrupted <sup>14,15</sup>	<ul style="list-style-type: none"> <li>The fewer business accesses disrupted, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 12 driveway accesses for 14 businesses during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> <li>The temporary disruption to small portions of approximately 3 private businesses where the YDSS Modifications Alternative Route and/or staging areas are constructed within the business properties would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 28 driveway accesses for 73 businesses during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> <li>The temporary disruption to road access for approximately 43 businesses that can only be accessed by Prospect Street and Mulock Drive during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> <li>The temporary disruption to small portions of 2 private businesses where the YDSS Modifications Alternative Route and/or staging area is constructed within the business properties would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to approximately 29 driveway accesses for 107 businesses during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> <li>The temporary disruption to road access for approximately 10 businesses that can only be accessed by Bayview Avenue during construction of the YDSS Modifications Alternative Route would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying businesses of the alternative arrangements.</li> <li>The temporary disruption to a small portion of 1 business where the YDSS Modifications Alternative Route is constructed within the business property would be compensated for (as necessary) in accordance with York Region's policies.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>
		Number and characteristics of community, institutional, and recreational facilities displaced	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>

13. Does not include agricultural businesses. Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

14. Does not include agricultural businesses. Agricultural businesses are included under the evaluation criteria: "Effect on agricultural operations and capital investment related to agriculture".

15. Disruption to businesses has been applied with respect to driveway accesses, which considers customer access, deliveries and waste collection etc. Disruption that relate to odour, noise and vibration are considered in the respective indicators below.

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
		Number and characteristics of community, institutional, and recreational facilities temporarily or permanently disrupted		<ul style="list-style-type: none"> <li>The temporary disruption to 7 driveway accesses for 5 community, institutional and recreational facilities (including Tom Taylor Trail, George Richardson Park, Lake Simcoe Conservation Authority, York Region Community Service Housing Department, and Newmarket Recreation Youth Centre and Sk8park) during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> <li>The temporary disruption to portions of 9 community, institutional and recreational facilities (including Tom Taylor Trail, Lake Simcoe Conservation Authority, York Region Community Service Housing Department, Mabel Davis Conservation Area, York Regional Police District 1 Headquarters, Fairy Lake Park, Bailey Ecological Park, St. Andrew's Valley Golf Club, and College Manor Park) where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties would be compensated for (as required) in accordance with York Region's policies.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to 14 driveway accesses for 9 community, institutional and recreational facilities (including Tom Taylor Trail, George Richardson Park, Lake Simcoe Conservation Authority, York Region Community Service Housing Department, York Regional Police District 1 Headquarters, Canadian Cancer Society, Pickering College Independent Day and Boarding Co-ed School, Newmarket Municipal Offices, and York Region Health Services) during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> <li>The temporary disruption to road access for 5 community, recreational and institutional facilities (including, CanAm Karate, Newmarket Budokan Judo Club, Newmarket Soccer Club, The Newmarket Telephone Centre, and York Region Property Services) that can only be accessed by Mulock Drive and Pearson Street would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> <li>The temporary disruption to portions of 8 community, institutional and recreational facilities (including Lake Simcoe Conservation Authority, York Region Community Service Housing Department, Mabel Davis Conservation Authority, Fairy Lake Park, Bailey Ecological Park, St. Andrew's Valley Golf Club, College Manor Park, and Barrington Park) where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties would be compensated for (as required) in accordance with York Region's policies.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to 15 driveway accesses for 8 community, institutional and recreational facilities (including Tom Taylor Trail, George Richardson Park, Lake Simcoe Conservation Authority, York Region Community Service Housing Department, York Regional Police District 1 Headquarters, Pickering College Independent Day and Boarding Co-ed School, unnamed cemetery off of Bayview Avenue, and unnamed park off of St. John's Sideroad E) during construction of the YDSS Modifications Alternative Route would be minimized by providing temporary driveway access and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> <li>The temporary disruption to road access for 3 community, recreational and institutional facilities (including Art Ferguson Park, Hamilton Park and St. Andrew's Valley Golf Club) that can only be accessed by Mulock Drive and Pearson Street would be minimized by providing access for local roads and access signage, arrangements for waste collection and notifying the facilities of the alternative arrangements.</li> <li>The temporary disruption to portions of 5 community, institutional and recreational facilities (including Lake Simcoe Conservation Authority, York Region Community Service Housing Department, Mabel Davis Conservation Area, College Manor Park, and Barrington Park) where the YDSS Modifications Alternative Route and/or staging areas are constructed within these properties would be compensated for (as required) in accordance with York Region's policies (2 of these facilities have 3 accesses that will be disrupted and are also included above).</li> </ul>

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
			<ul style="list-style-type: none"> <li>The fewer community, institutional, and recreational facilities accesses disrupted, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>
<b>Effect on Existing Residences, Businesses, and/or Community, Institutional, and Recreational Facilities</b>				<b>Most Preferred</b>	<b>Least Preferred</b>	<b>Moderately Preferred</b>
<b>Criterion Ranking</b>						
Effect of vibration on existing buildings	Number of existing buildings affected and extent and duration of adverse effects <sup>16</sup>		<ul style="list-style-type: none"> <li>The lower the number of adjacent buildings, the lower the potential future vibration related complaints, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 118 adjacent<sup>17</sup> buildings (including 87 residences, 16 businesses and 15 community/institutional/recreation facilities) during construction of the YDSS Modifications Alternative Route would be minimized by implementing Best Management Practices for vibration reduction (i.e. staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</li> <li>The structural damage to historic buildings potentially sensitive to noise and vibration<sup>18</sup> in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route would be mitigated by establishing a minimum safe setback distance between the YDSS Modifications Alternative Route and sensitive buildings.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 313 adjacent buildings (including 203 residences, 93 businesses and 17 community/institutional/recreational facilities) during construction of the YDSS Modifications Alternative Route would be minimized by implementing Best Management Practices for vibration reduction (i.e. staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</li> <li>The structural damage to historic buildings potentially sensitive to noise and vibration in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route would be mitigated by establishing a minimum safe setback distance between the YDSS Modifications Alternative Route and sensitive buildings.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 487 adjacent buildings (including 345 residences, 124 businesses and 18 community, institutional, and recreational facilities) during construction of the YDSS Modifications Alternative Route would be minimized by implementing Best Management Practices for vibration reduction (i.e., staged construction, limiting construction hours, use of specialized drilling equipment, etc.).</li> <li>The structural damage to historic buildings potentially sensitive to noise and vibration in close proximity and of inferior / aged condition during construction of the YDSS Modifications Alternative Route would be mitigated by establishing a minimum safe setback distance between the YDSS Modifications Alternative Route and sensitive buildings.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>

16. Effect will depend on proximity to construction activity, building construction and subsurface soil conditions.

17. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction-related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

18. The locations of historic buildings potentially sensitive to noise and vibration within the UYSS EA study area were identified in the Cultural Heritage Baseline Conditions Report (CRA et al., April 2013).

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
<b>Effect of Vibration on Existing Buildings Criterion Ranking</b>						
Effect on property	Number and extent of properties affected and ownership		<ul style="list-style-type: none"> <li>The lower the number of properties affected, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>No property acquisition required for the construction and operation of the YDSS Modifications Alternative Route.</li> <li>The permanent modification to existing easement<sup>19</sup> within approximately 24 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as required) in accordance with standard Regional procedures and policies.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>No property acquisition required for the construction and operation of the YDSS Modifications Alternative Route.</li> <li>The permanent modification to existing easement within approximately 10 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as required) in accordance with standard Regional procedures and policies.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>No property acquisition required for the construction and operation of the YDSS Modifications Alternative Route.</li> <li>The permanent modification to existing easement within approximately 5 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as required) in accordance with standard Regional procedures and policies.</li> </ul> <p style="text-align: center;"><b>First</b></p>
				Total area of property acquisition required (ha)	<ul style="list-style-type: none"> <li>No area of property acquisition required for the construction and operation of the YDSS Modifications Alternative Route.</li> <li>The permanent acquisition of existing easement within approximately 24 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>No area of property acquisition required for the construction and operation of the YDSS Modifications Alternative Route.</li> <li>The permanent acquisition of existing easement within approximately 10 properties during operation of the YDSS Modifications Alternative Route would be compensated for (as necessary) in accordance with standard Regional procedures and policies.</li> </ul> <p style="text-align: center;"><b>Second</b></p>
<b>Effect on Effect on Property Criterion Ranking</b>						
Effect on existing roadway/ utility infrastructure	Number of roadways and type affected and extent and duration of adverse effects <sup>20,21</sup>			<ul style="list-style-type: none"> <li>The temporary disruption to 10 roadways, where the Alternative Route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Least Preferred</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to 7 roadways, where the Alternative Route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Moderately Preferred</b></p>	<ul style="list-style-type: none"> <li>The temporary disruption to 9 roadways, where the Alternative Route follows or crosses the existing roadway, during construction of the YDSS Modifications Alternative Route would be minimized by implementing a traffic management plan and providing temporary access, as required.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Most Preferred</b></p>

19. Exact extent of easement required to be determined during detailed design.

20. Distances are accurate within 50 m.

21. Assumes construction associated with the conveyance infrastructure would occur on roadway for entire frontage of property.



**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
			<ul style="list-style-type: none"> <li>The fewer roadways affected, the better the ranking.</li> </ul>	<b>Third</b>	<b>First</b>	<b>Second</b>
		Number and type of utilities affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>The lower the number of utilities affected, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to 4 major utilities (York Region Water and Wastewater Bayview Operations Centre, CN Corridor, Hydro Corridor and Bogart Pumping Station) during construction of the YDSS Modifications Alternative Route would be mitigated by locating utilities based on consultations with utility providers and relocating if required.</li> <li>The temporary disruption to watermain, sanitary sewer, local gas, local hydro, local cable and local telephone utilities on Cotter Street between Water Street and 100 m south of Second Street would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to 6 major utilities (including York Region Water and Wastewater, Bayview Operations Centre, CN Rail Corridor, Hydro One transformer station, Newmarket Hydro, Hydro Corridor and Bogart Pumping Station) during the construction of the YDSS Modifications Alternative Route would be mitigated by locating utilities based on consultations with utility providers and relocating if required.</li> <li>The temporary disruption to watermain, sanitary sewer, storm sewer, local gas, local hydro, local cable and local telephone utilities on Prospect Street between Davis Drive and Mulock Drive would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No net effects.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary disruption to 4 major utilities (York Region Water and Wastewater, Bayview Pumping Station, Hydro Corridor and Bogart Pumping Station) during construction of the YDSS Modifications Alternative Route would be mitigated by locating utilities based on consultations with utility providers and relocating if required.</li> <li>The temporary disruption to the watermain, sanitary sewer, storm sewer, local gas, local hydro, local cable and local telephone utilities on Prospect Street between Davis Drive and Mulock Drive would be minimized by locating utilities based on consultation with utility providers and, if confirmed on-site, relocating if required (Temporary interruption of service during relocation is anticipated).</li> <li>No net effects.</li> </ul>
				<b>First (Tied)</b>	<b>Third</b>	<b>First (Tied)</b>
		Effect on Existing Roadway/Utility Infrastructure Criterion Ranking		<b>Least Preferred (Tied)</b>	<b>Least Preferred (Tied)</b>	<b>Most Preferred</b>
<b>Built Environment Category Ranking &amp; Rationale:</b>				<b>Most Preferred</b>	<b>Least Preferred</b>	<b>Moderately Preferred</b>
<ul style="list-style-type: none"> <li>+ Denotes an advantage for an alternative Route relative to other Routes</li> <li>- Denotes a disadvantage for an alternative Route relative to other Routes</li> </ul>				<p>The Route is <b>Most Preferred</b> from a Built Environment Category perspective compared to the other Routes, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary disruption to accesses for approximately 43 residences, 17 businesses and 10 roadways</li> <li>+ Temporary disruption to accesses for 5 community, institutional and recreational facilities</li> <li>+ Temporary disruption to 4 major utilities/service providers including York</li> </ul>	<p>The Route is <b>Least Preferred</b> from a Built Environment Category perspective compared to the other Routes, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary disruption to accesses for approximately 154 residences, 116 businesses and 7 roadways</li> <li>- Temporary disruption to accesses for 14 community, institutional and recreational facilities</li> <li>- Temporary disruption to 6 major utilities/service providers including York Region</li> </ul>	<p>The Route is <b>Moderately Preferred</b> from a Built Environment Category perspective compared to the other Routes, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary disruption accesses for approximately 1,388 residences, 117 businesses and 9 roadways</li> <li>- Temporary disruption to accesses for 11 community, institutional and recreational facilities</li> <li>- Temporary increase in vibration levels at approximately 487 adjacent buildings,</li> </ul>

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
				Region Water and Wastewater Bayview Operations Centre, CN Corridor, Hydro Corridor, and Bogart Pumping Station + Temporary increase in vibration levels at approximately 118 adjacent buildings, including 87 residences, 16 businesses and 15 community, institutional, and recreation facilities	Water and Wastewater Bayview Operations Centre, CN Rail Corridor, Hydro One transformer station, Newmarket Hydro, Hydro Corridor and Bogart Pumping Station - Temporary increase in vibration levels at approximately 313 adjacent buildings, including 203 residences, 93 businesses and 17 community, institutional, and recreational facilities	including 345 residences, 124 businesses and 18 community, institutional, and recreational facilities  <b>Notwithstanding this, the Route has the following advantages:</b> + Temporary disruption to 4 major utilities/service providers including York Region Water and Wastewater Bayview Operations Centre, Bayview Pumping Station, Hydro Corridor and Bogart Pumping Station
Social Environment	Effect on wells	Number of wells and type affected, extent and duration and nature (water quality/quantity) of adverse effects <sup>22</sup>	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
	Effect on Wells Criterion Ranking	Effect of noise on sensitive receptors <sup>23</sup>	Number of sensitive receptors affected and extent and duration of adverse effects	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 87 adjacent<sup>24</sup> residences (including 2 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 203 adjacent residences (including 4 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in noise levels at approximately 345 adjacent residences (including 6 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's noise limits, the Town of East Gwillimbury's Noise By-law (2004-80), implementing construction Best Management Practices for noise reduction and developing a complaint resolution procedure.</li> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>

22. The number of wells was estimated from a search of the Ministry of the Environment Water Well Database and includes the on-site well(s).

23. As defined by the Ministry of the Environment (MOE) in NPC-205, a sensitive "point of reception" means any point on the premises of a person where sound or vibration originating from other than those premises is received. For the purpose of approval of new sources of noise, including verifying compliance with Section 9 of the Environmental Protection Act, the point of reception may be located on any of the following existing or zoned for future use premises: permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and noise sensitive buildings such as schools and places of worship.

24. Adjacent buildings were evaluated for the YDSS Modifications Alternative Route since the noise effects are construction related and the equipment is mobile rather than stationary. Potentially affected locations would be those receivers immediately adjacent to the road.

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
<b>Effect of Noise on Sensitive Receptors Criterion Ranking</b>				<b>Most Preferred</b>	<b>Moderately Preferred</b>	<b>Least Preferred</b>
Effect of perceptible vibration levels on sensitive receptors	Number of sensitive receptors <sup>25</sup> affected and extent and duration of adverse effects		<ul style="list-style-type: none"> <li>The lower the number of adjacent sensitive receptors, the lower the potential future vibration related complaints, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 87 residences (including 2 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's vibration limits as set out in the NPC-207 Publication, implementing Best Management Practices for vibration reduction, and developing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 203 adjacent residences (including 4 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's vibration limits as set out in the NPC-207 Publication, implementing Best Management Practices for vibration reduction, and developing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>The temporary increase in vibration levels at approximately 345 adjacent residences (including 6 multi-unit complexes) during construction of the YDSS Modifications Alternative Route would be minimized by adhering to the Ministry of the Environment's vibration limits as set out in the NPC-207 Publication, implementing Best Management Practices for vibration reduction, and developing a complaint resolution procedure.</li> <li>No permanent net effects.</li> </ul> <p style="text-align: center;"><b>Third</b></p>
<b>Effect of Perceptible Vibration Levels on Sensitive Receptors Criterion Ranking</b>				<b>Most Preferred</b>	<b>Moderately Preferred</b>	<b>Least Preferred</b>
Effect of odour sensitive receptors from current conditions <sup>26</sup>	Number of sensitive receptors impacted and extent and duration of impacts		<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p style="text-align: center;"><b>First (Tied)</b></p>
<b>Effect of Odour on Sensitive Receptors from Current Conditions Criterion Ranking</b>				<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
<b>Social Environment Category Ranking &amp; Rationale:</b>				<b>Most Preferred</b>	<b>Moderately Preferred</b>	<b>Least Preferred</b>
<ul style="list-style-type: none"> <li>+ Denotes an advantage for an alternative Route relative to other Routes</li> <li>- Denotes a disadvantage for an alternative Route relative to other Routes</li> </ul>				<p>The Route is "Most Preferred" from a Social Environment Category perspective compared to the other Routes, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Temporary increase in noise and vibration levels at the lowest number of sensitive receptors (approximately 87 residences)</li> </ul>	<p>The Route is "Moderately Preferred" from a Social Environment Category perspective compared to the other Routes, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary increase in noise and vibration levels at a higher number of sensitive receptors (approximately 203 residences)</li> </ul>	<p>The Route is "Least Preferred" from a Social Environment Category perspective compared to the other Routes, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Temporary increase in noise and vibration at the highest number of sensitive receptors (approximately 345 residences)</li> </ul>

25. Sensitive receptors from a vibration perspective include permanent or seasonal residences, hotels/motels, nursing/retirement homes, rental residences, hospitals, camp grounds, and vibration sensitive buildings.

26. Sensitive receptors include residences, child care facilities, health care facilities, senior citizens' residence, long-term care facilities, schools, and for this assessment, businesses have been included as well.

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
<b>Economic Environment</b>	Effect on approved/planned land uses	Number, extent, and type of approved/ planned land uses affected	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>
	<b>Effect on Approved/Planned Land Uses Criterion Ranking</b>			<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Least Preferred</b>
	Effect on agricultural soil resources	Approximate area (ha) of Class 1, Class 2 and Class 3 soils removed (priority in that order).	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>
		Approximate area (ha) of Specialty Cropland removed, and/or area of agricultural soils disturbed, and/or area of active agricultural land removed	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>
	<b>Effect on Agricultural Soil Resources Criterion Ranking</b>			<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>	<b>Most Preferred (Tied)</b>
<b>Economic Environment Category Ranking &amp; Rationale:</b>				<b>Most Preferred (Tied)</b> No difference between the 3 alternative Routes based on the application of the 2 Economic Category Evaluation Criteria (no potential negative environmental effects were identified).	<b>Most Preferred (Tied)</b> No difference between the 3 alternative Routes based on the application of the 2 Economic Category Evaluation Criteria (no potential negative environmental effects were identified).	<b>Most Preferred (Tied)</b> No difference between the 3 alternative Routes based on the application of the 2 Economic Category Evaluation Criteria (no potential negative environmental effects were identified).
<b>Cultural Environment</b>	Effects on known or potential significant archaeological resources	Number and type of potentially significant, known archaeological sites affected	<ul style="list-style-type: none"> <li>The net effects are the same for all alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>	<ul style="list-style-type: none"> <li>No net effects.</li> </ul> <p><b>First (Tied)</b></p>
		Area (ha) of archaeological potential (i.e., lands with potential for the presence of significant archaeological resources) affected	<ul style="list-style-type: none"> <li>The smaller the area with archaeological potential, the lower the potential for presence of significant archaeological resources, the better the ranking.</li> </ul>	<ul style="list-style-type: none"> <li>The disturbance to 1.57 ha with archaeological potential during construction of the YDSS Modifications Alternative Route would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and if warranted during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul> <p><b>First</b></p>	<ul style="list-style-type: none"> <li>The disturbance to 0.96 ha with archaeological potential during construction of the YDSS Modifications Alternative Route would be minimized and appropriate mitigation measures would be identified if required in the Stage 2 Archaeological Assessment and if warranted during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul> <p><b>Second</b></p>	<ul style="list-style-type: none"> <li>The disturbance to 0.74 ha with archaeological potential during construction of the YDSS Modifications Alternative Route would be minimized and appropriate mitigation measures would be identified, if required, in the Stage 2 Archaeological Assessment and if warranted, during the Stage 3 or Stage 4 Archaeological Assessments.</li> <li>No net effects.</li> </ul> <p><b>Third</b></p>
	<b>Effects on Known or Potential Significant Archaeological Resources Criterion Ranking</b>			<b>Most Preferred</b>	<b>Moderately Preferred</b>	<b>Least Preferred</b>

**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
	Effects on built heritage resources and cultural heritage landscapes.	Number and type of built heritage resources and cultural heritage landscapes displaced <sup>27</sup> or disrupted <sup>28</sup>	<ul style="list-style-type: none"> <li>Displacement of cultural heritage resources, worse than disruption of cultural heritage resources.</li> <li>The lower number of cultural heritage resources displaced or disrupted, the better the ranking.</li> <li>Avoidance of displacement or disruption of cultural heritage resources takes precedence over minimizing/compensating for displacement/disruption of</li> </ul>	<ul style="list-style-type: none"> <li>The disruption to 6 cultural heritage resources<sup>29</sup> during construction of the YDSS Modifications Alternative Route would be minimized through a detailed heritage evaluation to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration, avoidance of tree and fence removals, post-construction landscaping, documentation prior to alteration, commemoration etc.)</li> <li>The displacement of 1 cultural heritage resource (543 Timothy Street; Factory Complex designated under the Ontario Heritage Act) during construction of the YDSS Modifications Alternative Route would be addressed through preparation of a detailed heritage evaluation to develop appropriate mitigation measures (i.e. commemoration, salvage, and/or documentation prior to resource removal).</li> <li>No net effects during operation of the YDSS Modifications Alternative Route.</li> </ul> <p style="text-align: center;"><b>Third</b></p>	<ul style="list-style-type: none"> <li>The disruption to 4 cultural heritage resources<sup>30</sup> during construction of the YDSS Modifications Alternative Route would be minimized through preparation of detailed heritage evaluations to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration, avoidance of tree and fence removals, post-construction landscaping, documentation prior to alteration, commemoration etc.)</li> <li>The displacement and/or premature deterioration to approximately 37 cultural heritage resources located along Bayview Avenue, between Penrose Street and Davis Drive during construction of the YDSS Modifications Alternative Route would be avoided through appropriate siting of staging areas and access Routes, monitoring construction vibration, avoiding tree removals and fence removals, and post-construction landscaping activities.</li> <li>No net effects during operation of the YDSS Modifications Alternative Route.</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>The disruption of 2 cultural heritage resources<sup>31</sup> during construction of the YDSS Modifications Alternative Route would be minimized through preparation of detailed heritage evaluations to develop appropriate mitigation measures (e.g., façade stabilization, identification of buffer requirements, monitoring of construction vibration, avoidance of tree and fence removals, post-construction landscaping, documentation prior to alteration, commemoration etc.)</li> <li>The displacement and/or premature deterioration to approximately 32 cultural heritage resources located along Bayview Avenue, between Penrose Street and Queen Street during construction of the YDSS Modifications Alternative Route would be avoided through appropriate siting of staging areas and access Routes, monitoring construction vibration, avoiding tree removals and fence removals, and post-construction landscaping activities.</li> <li>No net effects during operation of the YDSS Modifications Alternative Route.</li> </ul> <p style="text-align: center;"><b>First</b></p>

27. Displacement is indicated by removal or loss of heritage attributes of the cultural heritage resource at a scale where its heritage significance is no longer conserved and/or communicated. Pre-mature deterioration refers to construction-related effects such as vibration that could result in deterioration and ultimately a displacement of cultural heritage resources.

28. Disruption to cultural heritage resources refers to partial modification of cultural heritage resources.

29. Cultural heritage resources disrupted along Alternative Route A include the Newmarket Canal, Bailey Ecological Park, Wesley Brooks Conservation Area, George Richardson Park, the former Toronto Transit Commission electric railway corridor (north of Heman Street) and Open space located between former rail corridor and Prospect Street, north of Timothy Street.

30. Cultural heritage resources disrupted along Alternative Route B include the Newmarket Canal, Bailey Ecological Park, the former Toronto Transit Commission electric railway corridor (north of Heman Street) and George Richardson Park.

31. Cultural heritage resources disrupted along Alternative Route C include the former Toronto Transit Commission electric railway corridor (north of Heman Street) and George Richardson Park.

Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C	
			cultural heritage resources.				
Effects on Built Heritage Resources and Cultural Heritage Landscapes Criterion Ranking				Least Preferred	Moderately Preferred	Most Preferred	
<b>Cultural Environment Category Ranking &amp; Rationale:</b>				<b>Least Preferred</b>	<b>Moderately Preferred</b>	<b>Most Preferred</b>	
<ul style="list-style-type: none"> <li>+ Denotes an advantage for an alternative Route relative to other Routes</li> <li>- Denotes a disadvantage for an alternative Route relative to other Routes</li> </ul>				<p>The Route is Least Preferred from a Cultural Environment perspective compared to the other Routes, because it has the following disadvantages:</p> <ul style="list-style-type: none"> <li>- Disturbance to the largest area of archaeological potential (1.6 ha)</li> <li>- Disruption to the highest number of cultural heritage resources (approximately 6)</li> <li>- Displacement of 1 cultural heritage resource</li> </ul>	<p>The Route is Moderately Preferred from a Cultural Environment perspective compared to the other Routes, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Disturbance to a smaller area of archaeological potential (1.0 ha)</li> <li>+ Disruption to a higher number of cultural heritage resources (approximately 4)</li> <li>+ No displacement of cultural heritage resources</li> </ul>	<p>The Route is Most Preferred from a Cultural Environment perspective compared to the other Routes, because it has the following advantages:</p> <ul style="list-style-type: none"> <li>+ Disturbance to the smallest area of archaeological potential (0.7 ha)</li> <li>+ Disruption to the lowest number of cultural heritage resources (approximately 2)</li> <li>+ No displacement of cultural heritage resources</li> </ul>	
Financial	50-year Net Present Worth Costs	50-year present net worth costs associated with the capital investment, land acquisition, and operating and maintenance of the infrastructure, systems and equipment <sup>32</sup>	<ul style="list-style-type: none"> <li>▪ The lower the overall 50-year present net worth costs, the better the ranking</li> </ul>	<ul style="list-style-type: none"> <li>▪ \$ 89, 230,000</li> </ul> <p style="text-align: center;"><b>First</b></p>	<ul style="list-style-type: none"> <li>▪ \$ 90,790,000</li> </ul> <p style="text-align: center;"><b>Second</b></p>	<ul style="list-style-type: none"> <li>▪ 96,200,000</li> </ul> <p style="text-align: center;"><b>Third</b></p>	
<b>Financial Category Ranking &amp; Rationale:</b>				<b>Most Preferred</b>	<b>Moderately Preferred</b>	<b>Least Preferred</b>	
				<p>The Route is Most Preferred from a Financial perspective compared to the other Routes because it has the lowest 50-year Net Present Worth Costs.</p>	<p>The Route is Moderately Preferred from a Financial perspective compared to the other Routes because it has lower 50-year Net Present Worth Costs than Route C.</p>	<p>The Route is Least Preferred from a Financial perspective compared to the other Routes because it has the highest 50-year Net Present Worth Costs.</p>	
<b>OVERALL RECOMMENDATION AND RATIONALE</b>				<b>Recommended</b>	<b>Not Recommended</b>	<b>Not Recommended</b>	
<ul style="list-style-type: none"> <li>+ Denotes an advantage for the recommended alternative</li> <li>- Denotes a disadvantage for an alternative Route relative to the recommended Route</li> </ul>				<ul style="list-style-type: none"> <li>▪ An overall ranking of <b>Recommended</b> was assigned to an alternative having the greatest number of top placed category rankings (e.g., more Most Preferred, More Preferred and Moderately Preferred rankings) among all of the alternatives being considered, thus providing the highest number of advantages and the least number of disadvantages overall.</li> <li>▪ An overall ranking of <b>Not Recommended</b> was assigned to an alternative</li> </ul>	<ul style="list-style-type: none"> <li>+ Lower Carbon Dioxide (CO<sub>2</sub>) Equivalent Footprint / year</li> <li>+ Lower number of accesses to residences, businesses and community, institutional and recreational facilities temporarily affected</li> <li>+ Lower number of major utilities/service providers temporarily affected than Alternative Route B</li> <li>+ Lower number of adjacent buildings affected by a temporary increase in noise and vibration levels</li> <li>+ Lower 50-year Net Present Worth Costs</li> </ul>	<ul style="list-style-type: none"> <li>- Higher Carbon Dioxide (CO<sub>2</sub>) Equivalent Footprint / year</li> <li>- Higher number of accesses to residences and businesses temporarily affected</li> <li>- Higher number of major utilities/service providers temporarily affected</li> <li>- Higher number of adjacent buildings affected by a temporary increase in noise and vibration levels</li> <li>- Higher 50-year Net Present Worth Costs</li> </ul>	<ul style="list-style-type: none"> <li>- Higher Carbon Dioxide (CO<sub>2</sub>) Equivalent Footprint / year</li> <li>- Higher number of accesses to residences and businesses temporarily affected</li> <li>- Higher number of adjacent buildings affected by a temporary increase in noise and vibration levels</li> <li>- Higher 50-year Net Present Worth Costs</li> </ul>

32. Alternative Methods of Carrying Out the Undertaking – Cost Estimates Report (CRA et al., February 2013).



**Table E.1: Comparative Evaluation of the YDSS Modifications Alternative Routes**

Category	Criteria	Indicator	Rationale for Ranking <sup>1</sup>	Alternative Route A	Alternative Route B	Alternative Route C
			having fewer number of top placed category rankings (e.g., more Most Preferred, More Preferred and Moderately Preferred rankings) among all of the alternatives being considered, thus providing the higher number of disadvantages and lower number of advantages overall.			