

TAC Environmental Achievement Award – Armstrong Avenue Reconstruction Phase 1

Protection and Enhancement of the Environment

Armstrong Avenue in Georgetown Ontario is one of the Town's industrial hub's within Halton Hills. In 2013, the Town of Halton Hills initiated the process to reconstruct Armstrong Avenue with a forecast construction date of 2017-2019. The project was broken into two phases. Phase 1 (approx. 1310m) and Phase 2 (approx. 1310m) (Appendix A). Through an Ontario Municipal Class Environmental Assessment study it was identified as a section of road in need of active transportation and improved traffic operations to service the multiple industrial/commercial businesses (approx. 115) (Appendix B).

The Town of Halton Hills has a long-standing commitment to improving the environmental health locally and globally. In 2008, the Town of Halton Hills' Green Plan was approved by Town Council. The Green Plan is mainly focused on actions that improve our community's environmental health as well as beyond our Town borders. Specifically, a Green Plan action that relates to the Armstrong Avenue Reconstruction - Phase 1 project is to reduce sediments and debris from entering rivers, creeks and lakes via the storm sewer system. The Green Plan has led the Town's services and projects to take a more sustainable holistic approach of improving our community.

In 2013, the Town of Halton Hills developed a Community Sustainability Strategy (Strategy) where the four pillars of sustainability: cultural vibrancy, economic prosperity, environmental health and social wellbeing, were identified and are recognized in the all of the Town's work including Armstrong Avenue Reconstruction - Phase 1 project. The Strategy is a blueprint for the Town for the next 60 years. It consists of one overall vision for the community and each pillar has vision themes, focus areas and indicators to measure and ensure the Town is following the Strategy. Armstrong Avenue Reconstruction - Phase 1 is an example of the commitment the Town of Halton Hills has to sustainability of the community and relates to the Strategy by the following:

- Cultural vibrancy: connecting the industrial area to the urban fabric of Georgetown with a new multi-use pathway
- Environmental Health:
 - enhancing water and air quality by reducing sediment load into the water ways and while reducing greenhouse gases by providing access to alternate modes of transportation

- improving land use
- protecting biodiversity
- reducing impact on natural resources

- Economic Prosperity:
 - providing an attractive area for diversity of businesses
 - contributing to a balanced tax base by improving business area
 - improving infrastructure

- Social Wellbeing:
 - developing transportation infrastructure that encourages pedestrian, cycling and other more sustainable transportation modes
 - improving the inter-connection of and enhance local trail networks

The Armstrong Avenue - Phase 1 drainage area is part of the Credit River Valley watershed. The drainage area is 6.18 ha. (Appendix C). The Armstrong Avenue Reconstruction - Phase 1 proposed works provided the Town of Halton Hills the opportunity to install a Storm Water quality control unit to help address the sediment and debris loading from entering the Credit River, preventing over 2.5 tonnes of sediment from entering the river annually.

This section of 1,310m of road winds along the banks of the Credit River. The proposed reconstruction was to provide environmentally sound storm water quality control and treatment of the storm water before it entered the Credit River. In its existing condition, the road drainage was collected by roadside ditches, and then conveyed to an existing storm sewer system which discharged untreated into the Credit River. The reconstruction involved urbanizing the road cross section with full concrete curbs and constructing an additional 500m of storm sewer. The drainage area for treatment surpassed the market availability of the storm water quality units. The Town of Halton Hills intended to treat as much as possible with one unit. The Town of Halton Hills proposed to use the Vortechs 11000 (Appendix D) which would tie into the existing storm sewer system that outfalls into the Credit River. The Vortechs 11000 will provide both quality and quantity treatment of the storm water prior to it entering the Credit River. The proposed treatment unit return is approximately an 81% efficiency rate in removal of TSS (Total Suspended Solids). The location for the treatment unit was selected based on accessibility for construction, maintenance, and associated construction costs. (Appendix E).

The Ministry of Environment and Climate Change (M.O.E.C.C.) manual for Stormwater Planning and Design indicates a desired level of 80% removal; drainage area no greater than 2 ha. The Town of Halton Hills believes that this reduction represents a significant improvement to the storm water run-off over the pre-reconstruction run-off. The storm

water quality unit for Armstrong Avenue Reconstruction - Phase 1 will improve the storm water discharge into the Credit River by addressing a major point source for sediment loading into the water course through the removal of approximately 81% TSS. The Town of Halton Hills will benefit from an overall improvement in water quality, and this benefit will be shared with downstream communities and ultimately Lake Ontario.

The reconstruction of Armstrong Avenue Reconstruction - Phase 1 with a consistent urban road cross section better defines the travel lanes and driveway entrances with an overall improvement for safety and traffic operations. With the addition of a complete storm sewer drainage system, the previous drainage concerns and environmental impacts have been eliminated.

In 2011, the Town of Halton Hills adopted our Transportation Master Plan in order to develop an integrated transportation plan and associated strategies to meet the transportation challenges facing the Town. Ultimately the Transportation Master Plan will assist the Town in providing a transportation system that is sustainable, integrated and encourages a healthy and active lifestyle. The Transportation Master Plan also encourages the development of Complete Streets which include elements that ensure streets are safe for all users including pedestrians, cyclists, public transportation users, motorists, and freight vehicles. The addition of a multi-use path along Armstrong Avenue will not only enhance the streetscape and provide opportunities for active transportation along the corridor but also assist in creating a more sustainable transportation system and barrier-free community.

The Credit River Watershed

Situated within one of the most-densely populated regions of Canada, the Credit River Watershed contains some of the most diverse landscapes in southern Ontario. In this area, the Carolinian Forest zone meets the Deciduous Forest zone, both of which contain unique species not found in other zones (Appendix F). The Niagara Escarpment and the Oak Ridges Moraine also run through the watershed, further increasing the number and diversity of plant and animals communities. The Credit River is almost 90 km long and meanders southeast from its headwaters in Orangeville, Erin and Mono, through nine municipalities, eventually draining into Lake Ontario at Port Credit, Mississauga. Located in the fastest growing region in Canada, the Credit River is at risk of becoming susceptible to the cumulative impacts of human settlement. Despite the increased cost, the Town of Halton Hills' decision to invest in the upgraded storm water management system will provide tangible long term environmental benefits for the Town of Halton Hills, the downstream settlements and the diverse biotic communities that call the watershed home.

Economic Benefits

In addition to the significant environmental benefits of the Armstrong Avenue Reconstruction – Phase 1, important economic benefits are anticipated. With the Town of Halton Hills not currently serviced by a traditional public transit system, some businesses face a challenge of attracting and retaining employees, in particular in entry-level positions. The introduction of a multi-use pathway along Armstrong Avenue will not only improve the road aesthetic of the Town of Halton Hills' key employment area, where there is a significant cluster of industrial and commercial businesses, but will also provide an additional transportation option for employers and their employees. In turn, this should assist with the attraction and retention of employees, and contribute to the long-term economic prosperity of the area. The road improvements are also anticipated to assist with truck movements which are an important part of the functionality of the area.

Financial Implications

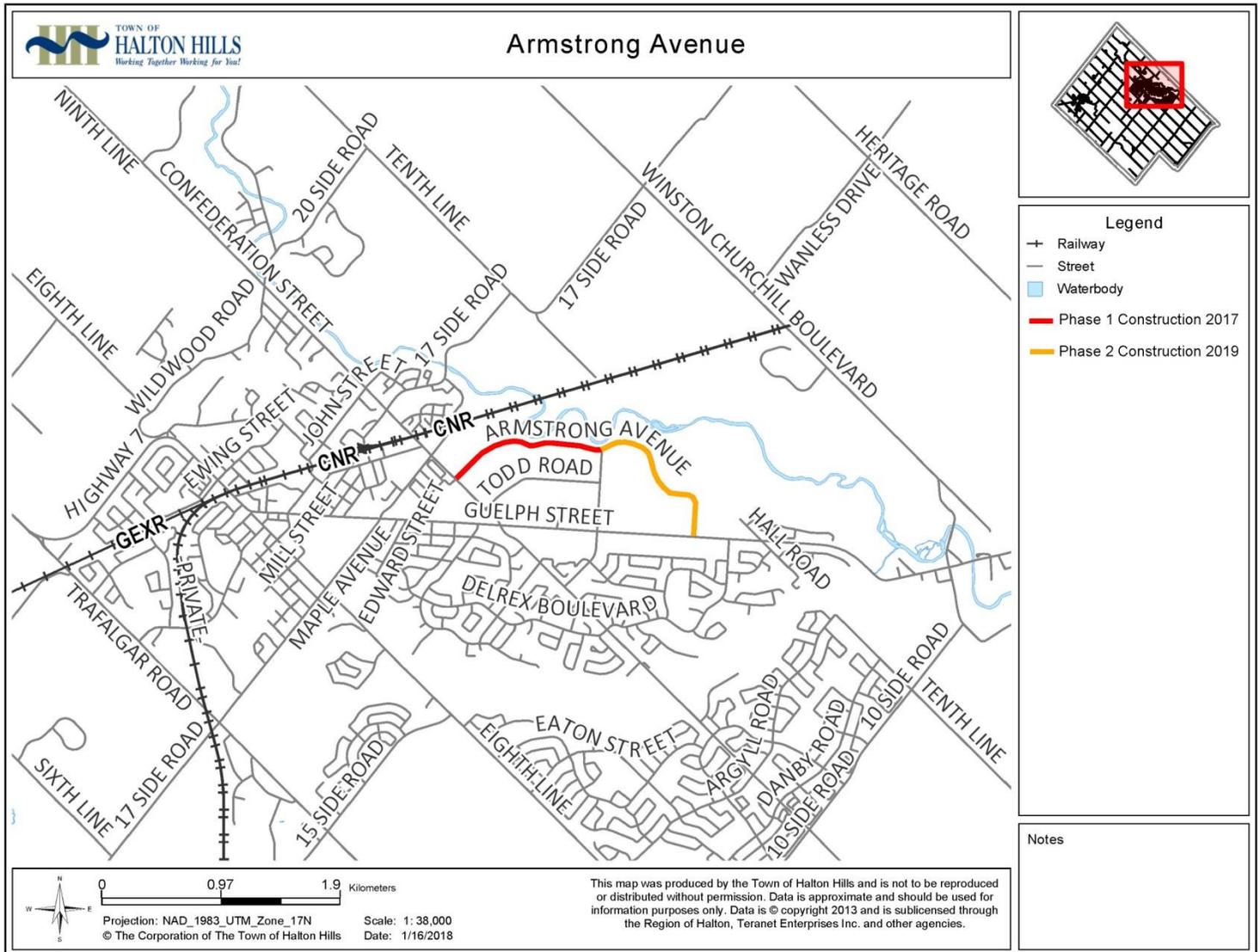
The total cost of the storm sewer system installed was approx. \$820,000. This included \$100,000 for the Vortechs 11000 Storm Water Quality Control Structure. The installation of the Vortech unit is shown in (Appendix G). The installation of a Quality Control Unit is not mandated but is an initiative of the Town of Halton Hills. Capital Budget funds were allocated to accommodate this installation.

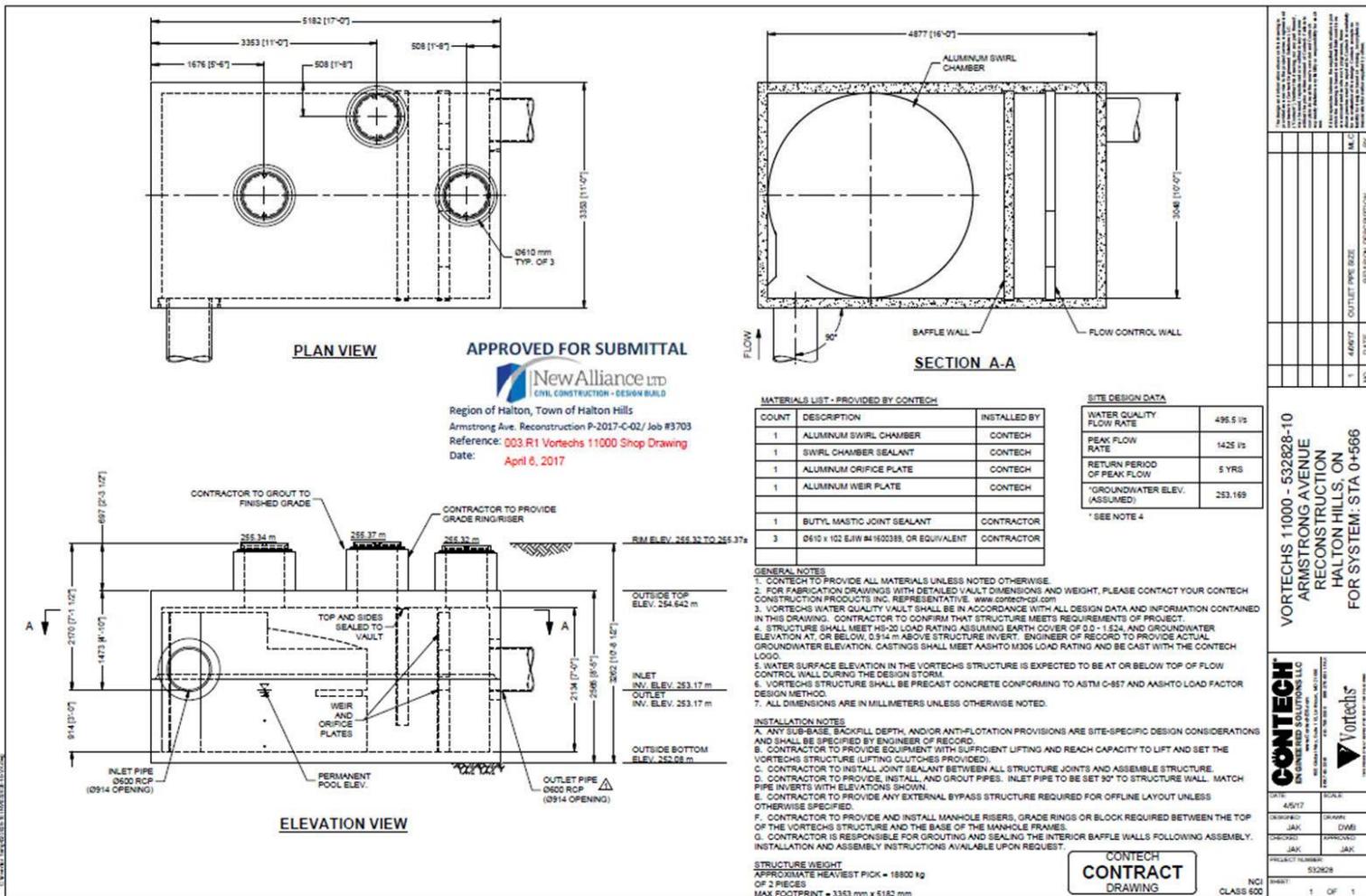
To ensure long term sustainability of the environmental improvement, sufficient increase to the operating budget was also included to undertake the required maintenance.

Transportation and the Environment

The stark change in the Armstrong Road cross section is shown in (Appendix H). The road provides a better environment for all users. Cyclists and pedestrians have access to a multi-use path with motorists and truck traffic having a better defined roadway. While both of these are great environmental enhancements, a significant benefit cannot be seen by the day-to-day users. The conveyance of the stormwater to the Vortech unit provides a benefit to the overall watershed in particular the receiving water courses and ultimately Lake Ontario.

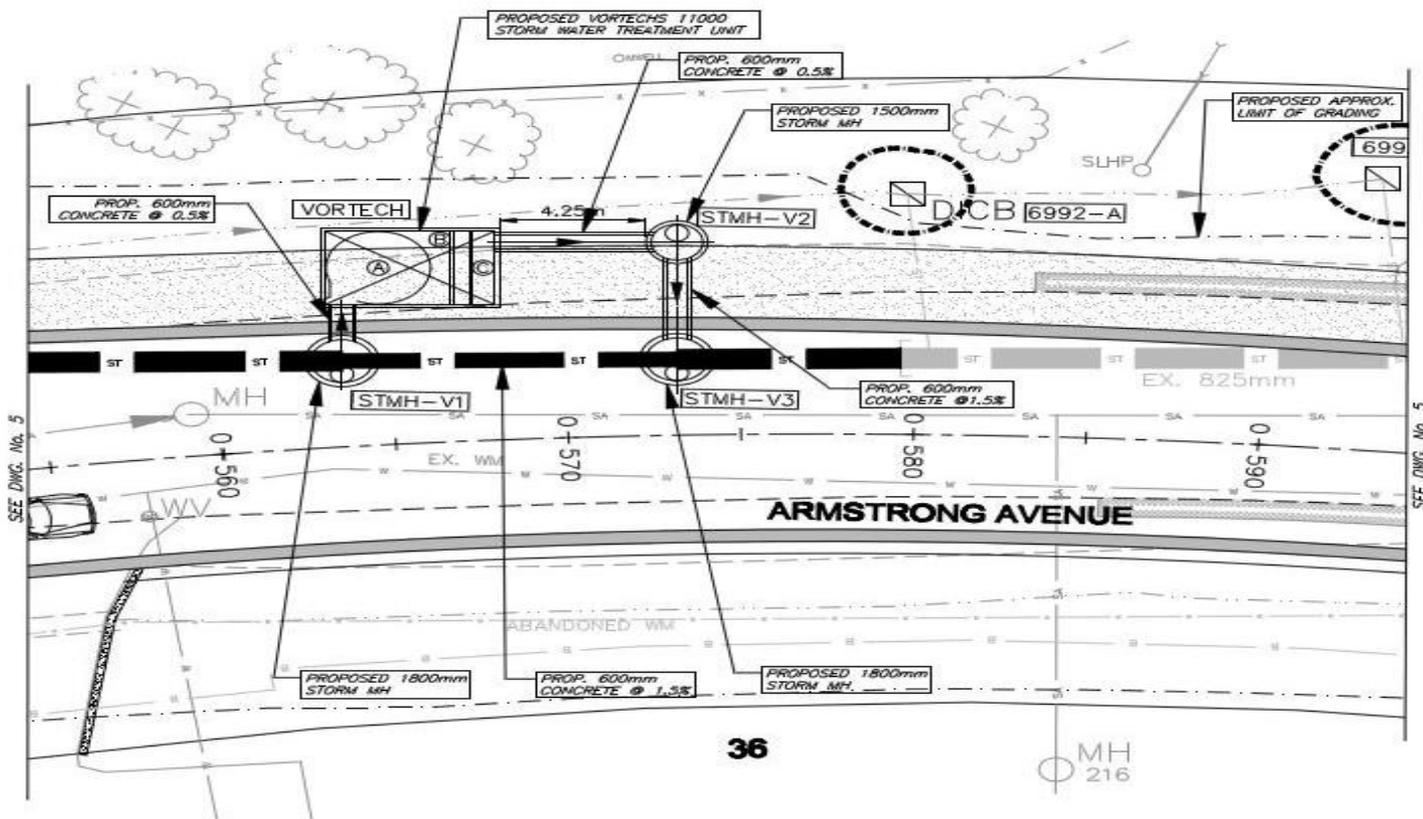
Project Area – Armstrong Avenue, Halton Hills



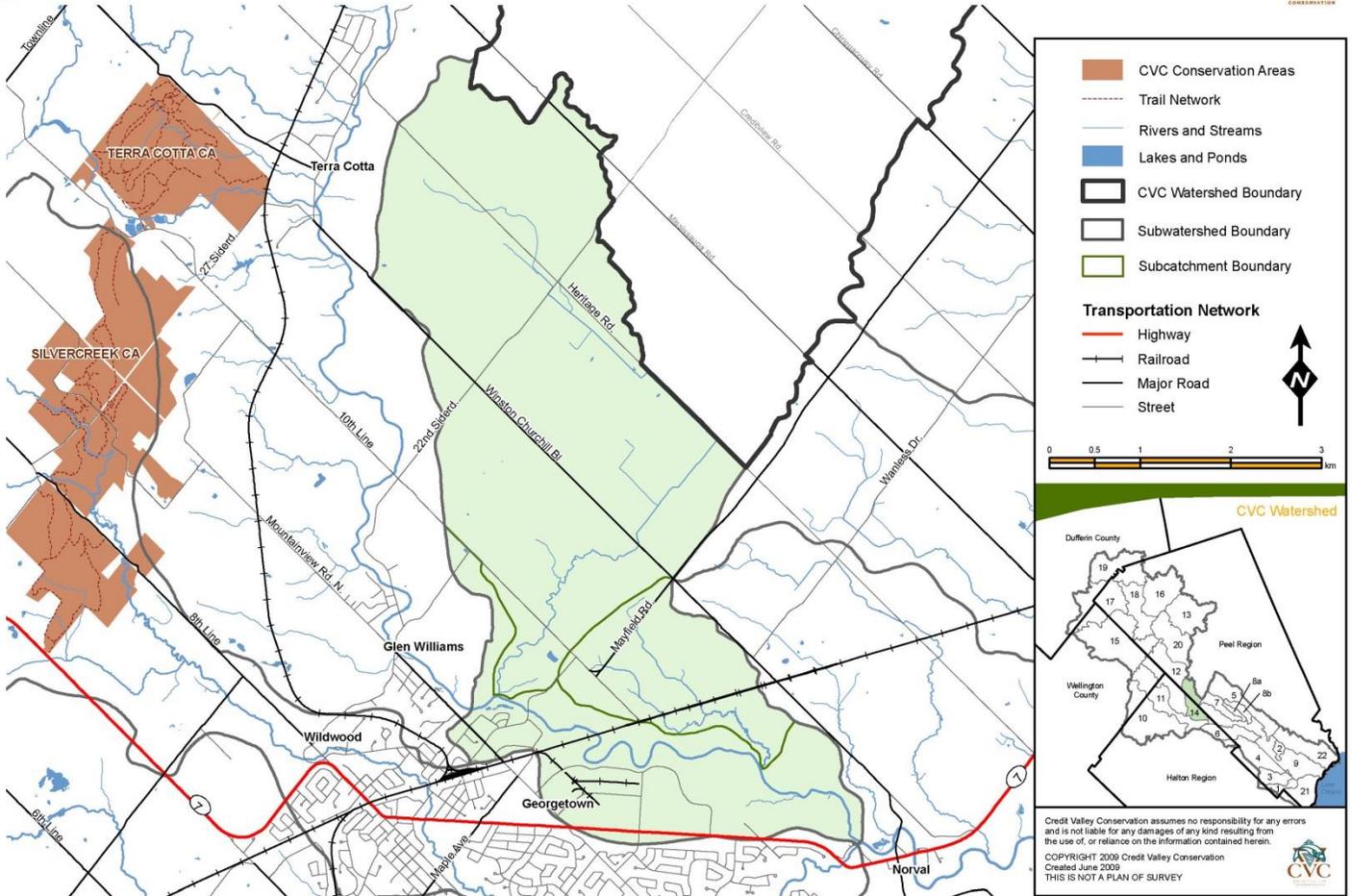


STRUCTURE NUMBER	STATION	OFFSET (m)	INVERT IN	INVERT OUT	ORIFICE TYPE STRUCTURE	ORIFICE TYPE FRAME/COVER	TOP OF GRADE ELEV.
STMH-V1	0+563.69	3.58 (L)	W.253.36	E.253.48	701.0A2	40L010	253.32
VORTECHS 11000	0+568	7.35 (L)	W.253.17	E.253.17	AS PER DETAILS	SUPPLIED AS PER DETAILS	A-253.34 B-253.33 D-253.32
STMH-V2	0+573.33	8.08 (L)	W.253.14	E.253.09	701.011	40L010	253.23
STMH-V3	0+573.22	3.17 (L)	W.253.07	E.253.04	701.012	40L010	253.07

Vortechs 11000 Treatment Location Plan Appendix E



14 - Glen Williams to Norval Subwatershed



Installation of Vortech 11000

Appendix G



Armstrong Avenue – Before Construction



Armstrong Avenue – After Construction

