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ARGO BRONTE GREEN REGION'S LANDS ADDENDUM #1

TO

BRONTE GREEN SUBDIVISION FUNCTIONAL SERVICING STUDY

TOWN OF OAKVILLE
REGION OF HALTON

PROJECT NO. 12-601

APRIL 2021

ARGO BRONTE GREEN REGION'S LANDS
ADDENDUM #1
TO
BRONTE GREEN SUBIDIVISION FSR

TOWN OF OAKVILLE, REGION OF HALTON

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1.0 INTRODUCTION

1.4 Background and Study Purpose

The Argo Bronte Green Region Lands (Region's lands) are located in the Town of Oakville, southwest of the Bronte Green subdivision. These lands were studied as part of the *Bronte Green Subdivision Functional Servicing Study* (Bronte Green FSR). The Region's lands were studied as part of the detailed design of the Bronte Green subdivision.

The purpose of this Addendum to the *Bronte Green FSR* is to support draft plan approval of the Region's lands. These lands have an area of 1.41 ha, and are located southwest of the draft plan approved Bronte Green Lands east of Bronte Road. Please refer to ***Figure 2a*** for the Region's lands draft plan.

1.4.1 Region's Lands FSR Addendum Overview

The Region's lands are located southwest of the FSR study area of the *Bronte Green FSR*. It should be noted that the draft plan application for the subdivision did not include the Region's Lands; however the future development of these lands was considered as part of the report.

The proposed draft plan, shown on Figure 2a, is for 6 single detached units, 1 block of townhouses, one commercial block, 2 reserve blocks, and a road widening block. The single detached units will front Queen's Plate Road to the east and the townhouse units will from Merton Road to the west. The proposed commercial block is located at the northeast corner of the Bronte Road and Charles Cornwall Avenue intersection, west of Merton Road.

The focus of this Addendum #1 to *the Bronte Green FSR* is to highlight relevant updates to water distribution, wastewater servicing, storm drainage, storm water management, and grading requirements as determined through detailed design of the Bronte Green subdivision.

1.4.2 Bronte Green Subdivision FSR Report Sections updated as part of the Region's Lands FSR Addendum

A substantial portion of information in the *Bronte Green FSR* remains unchanged as part of the *Region's Lands FSR Addendum* with the exception of the stormwater management strategy for the Region's Lands. That is to say, the information contained in Sections 1 through Section 4 of the *Bronte Green FSR* remains valid for the *Region's Lands FSR Addendum*. Section 5 addresses the proposed drainage exchange between Bronte Creek and Fourteen Mile Creek, as a result of the proposed land-use change within the footprint of the existing Region Pond. Section 6 discusses the Stormwater Management Requirements for the Region's lands, with text supporting that the requirements have been addressed during detailed design. The stormwater management pond design in Section 7 is generally unchanged

from the *Bronte Green FSR*, with supporting documents provided in the appendices. Section 8 addresses the constraints and specifics for the SWM strategy of the Region's lands. Sections 9, 10, 11 and 12 of this Addendum have not changed from the *Bronte Green FSR*. Section headings have been reproduced in this report with a brief explanation of why the text from the *Bronte Green FSR* remains relevant and/or to highlight any relevant information from the *Bronte Green FSR* related to the Region's lands.

1.4.3 Figures and Drawings updated as part of the Region's Lands FSR Addendum

There are updates to the storm servicing figures and drawings from the *Bronte Green FSR*; however, these are primarily to reflect the concept plan and not a change in development strategy. For a specific discussion on the figures that have been updated from the *Bronte Green FSR*, please refer to ***Table A***.

Table 1-1: Figure & Drawing Revisions in *the Region's Lands FSR Addendum*

Figure / Drawing #	Figure Name	Status
Figure 2a	Draft Plan	• New figure for Region's Lands draft plan
Figure 9	Conceptual Storm Servicing	• Addition of Former Operation Yard lands to Site Boundary • Revision of Region SWM Pond to low-rise residential
Figure 13	Bronte Creek & Fourteen Mile Creek Drainage Exchange	• Addition of Former Operation Yard lands to Site Boundary • Revision of Region SWM Pond to low-rise residential
Drawing 5	Conceptual Storm Trunk Sizing	• Addition of Former Operation Yard lands to Site Boundary • Revision of Region SWM Pond to low-rise residential

The updated figures that have been revised as part of this addendum are included at the end of the text section of this report.

3.0 WATER SUPPLY SERVICING

There are no proposed revisions to this section of the *Bronte Green FSR*. Furthermore, the draft plan land-uses are consistent with the assumptions used in the Bronte Green detailed design, so there are no relevant changes to the water supply servicing.

An illustration of the watermain network that was approved through detailed design of the subdivision can be found in the engineering drawing set provided in **Appendix W**. The watermain analysis, prepared by GeoAdvice Engineering Inc. as part of the subdivision, includes the proposed commercial lands and residential lotting within the site. This watermain analysis has been provided in **Appendix B.**

4.0 WASTEWATER SERVICING

There are no proposed revisions to this section of the *Bronte Green FSR*. Furthermore, the draft plan land-uses are consistent with the assumptions used in the Bronte Green detailed design, so there are no relevant changes to the wastewater servicing.

The sanitary drainage areas and design sheets, approved through the detailed design of the Bronte Green subdivision, have been provided in **Appendix W** for reference.

5.0 STORM DRAINAGE

Section 5.0 of the *Bronte Green FSR* addresses SWM requirements including discussion on existing drainage patterns, storm drainage criteria, drainage area modifications, management of external drainage, proposed SWM pond locations and designs, and major/minor system designs.

This Addendum has not reproduced all of Section 5 matters from the *Bronte Green FSR*; rather it includes discussion of the resulting proposed drainage exchange from the land-use changes within the footprint of the existing Region's pond. The proposed lands-use changes are consistent with the assumptions used in the Bronte Green detailed design.

More detail of the minor and major system design of the Bronte Green subdivision is discussed through the *Stormwater Management Report for the Bronte Green Subdivision* (SWM Report), prepared by JFSA, and provided in **Appendix U**. Discussion on the SWM Pond design can be found in the *Design Brief for the Stormwater Management Pond for the Bronte Green Subdivision* (Pond Design Brief), prepared by JFSA, and provided in **Appendix V**. The storm drainage areas approved as part of the subdivision detailed design have been provided in **Appendix W**.

5.2 Proposed Drainage Exchange

The *Bronte Green FSR* considered the drainage exchange between the Bronte Creek catchment and the Fourteen Mile Creek catchment. 4.3 Ha of the subdivision lands, and 0.5 ha of the Region's lands were proposed to be re-directed from the Bronte Creek catchment to the Fourteen Mile Creek catchment.

As directed in the *Bronte Green FSR*, the public roads and adjacent lots are required to drain to a public facility, and as such the future houses will be re-directed to Bronte Green SWM Pond (Fourteen Mile Creek). This increases the area that will be redirected to Fourteen Mile Creek by 0.43 ha compared to the *Bronte Green FSR*. The proposed commercial block will provide controls within the private property and continue to drain to Bronte Creek.

The Bronte Green subdivision detailed design considered the public roads and private lots draining to the Bronte Green SWM Pond. The SWM Report in **Appendix U**, and Pond Design Brief in **Appendix V**, confirmed that this additional exchange does not result in negative downstream impacts to Fourteen Mile Creek.

6.0 STORMWATER MANAGEMENT STRATEGY

Section 6.0 of the *Bronte Green FSR* addresses the SWM strategy including Stormwater Management requirements, water balance, surface water balance, and thermal mitigation. This Addendum has not reproduced all of Section 6 matters from the *Bronte Green FSR*. Rather, only Section 6.1 is included to provide discussion of the latest Stormwater Management Requirements provided during detailed design. The proposed lands use changes to the existing SWM pond are consistent with the assumptions used in the Bronte Green detailed design.

6.4 Stormwater Management Requirements

The *Bronte Green FSR* modified the existing conditions PCSWMM model of Fourteen Mile Creek to include the proposed developments at Bronte Green, Enns, and Deerfield, which demonstrated that downstream flows at key locations would not exceed existing flow rates and water levels. This analysis was updated as part of the Bronte Green subdivision detailed design and was determined to be acceptable to the Town of Oakville and Conservation Halton. The proposed SWM design is consistent with the Bronte Green subdivision detailed design and as such the downstream analysis can be found in the *Pond Design Brief* in **Appendix V**.

7.0 STORMWATER MANAGEMENT POND DESIGN – SOUTHERN SUBDIVISION

Section 7.0 of the *Bronte Green FSR* addresses the SWM Pond Design for the southern subdivision. This includes sediment forebay, permanent pool, extended detention, flood control, access road, emergency overflow and outlet locations.

The SWM Pond design was further refined through the detailed design of the Bronte Green subdivision. There are no proposed changes to the SWM Pond design as part of this FSR Addendum. The design of the Bronte Green SWM pond is discussed in further detail within the *Pond Design Brief*, prepared by JFSA, and provided in **Appendix V**. Please refer to **Appendix W** for the approved detailed design drawings of the SWM Pond.

8.0 REGION OF HALTON HEADQUARTERS

Section 8.0 of the *Bronte Green FSR* addresses the existing storm water management strategy for the Region of Halton Headquarters lands, and proposed several storm water management alternatives for the 1.41 ha of land that has been acquired from the Region as part of this draft plan. Alternative 5 – *Hybrid of Private Drainage Maintained Bronte Creek / Municipal Drainage to Fourteen Mile Creek* was ultimately chosen in the *Bronte Green FSR*, and pursued during detailed design of the Bronte Green Subdivision. Details of the modelling to support this alternative can be found in the following reports prepared by JFSA:

- *Region Headquarter Lands Pond Design Brief* - **Appendix R**;
- *Stormwater Management Report for the Bronte Green Subdivision* - **Appendix U**;
- *Design Brief for the Stormwater Management Pond for the Bronte Green Subdivision* - **Appendix V**

Most of Section 8 remains consistent from the *Bronte Green FSR*; however, relevant sections were revised with information from detailed design. Consequently, Sections 8.3.1 to 8.3.4, and Section 8.6 has not been reproduced as they discuss now irrelevant SWM strategy alternatives.

8.1 Existing Drainage and Stormwater Management Requirements

This section remains consistent with the *Bronte Green FSR* as the existing drainage and SWM requirements have not changed.

8.2 Constraints to be Considered in Stormwater Management Strategy

Most of the constraints outlined in the *Bronte Green FSR* remain relevant, with the exception of maintaining the function of the Region's SWM Pond. The proposed draft plan reflects the scenario in which the Region SWM Pond is removed (and the storage is replicated by a SWM Facility within the Region's Operations Centre Lands).

A comprehensive stormwater management plan for the Region's Operation Center is being prepared by David Schaeffer Engineering Ltd. on behalf of the Region of Halton. On-site storage, in the form of an underground storage tank, will be provided for the Region's Headquarters. The details of the Region's Operation Center stormwater management strategy have not been provided in this report as the purpose of this FSR Addendum is to discuss the stormwater management for the Argo Bronte Green Region's lands.

The updated criteria are provided below for reference:

- Maintain the existing drainage in the Bronte Creek watershed to the extent that it is feasible.

- Municipal road runoff should be maintained in municipal infrastructure – i.e. public drainage should not be released into private infrastructure (ponds / pipes) which is not within the control of the municipality.

- Maintain Street K (read: Charles Cornwall Avenue) at approximately the same grade as the existing private driveway to match the existing site plan grades and not block the surface drainage pattern to the pond.

8.3 Analysis of Drainage and SWM Alternatives

The *Bronte Green FSR* presented five alternatives for the SWM strategy of the Region's lands. Alternative 5 was presented and determined to be the preferred solution. Subsequently, this SWM strategy was implemented as part of detailed design and approved by the Town of Oakville and Conservation Halton. As such, Sections 8.3.1 to 8.3.4 has been removed. Section 8.3.5 describes in brief the overall SWM strategy presented as part of the detailed design for the Bronte Green Subdivision.

8.3.5 Alternative 5 – Hybrid of Private Drainage Maintained Bronte Creek / Municipal Drainage to Fourteen Mile Creek

The lands acquired from the Region is split into two portions with independent drainage patterns: 1 Ha of the commercial block which will continue to drain to Bronte Creek, while the remaining road and future lots will be part of the Bronte Green SWM system and will discharge to Fourteen Mile Creek. The outflows from the 1 Ha Commercial block will be managed through on-site controls, and will outlet to the existing storm sewer west of the Region's Ring Road that ultimately discharges to Bronte Creek.

The remaining minor and major system drainage from future Charles Cornwall Avenue, Merton Road, and the residential lots has been accommodated in the Bronte Green subdivision SWM Pond. The Bronte Green SWM Pond was designed and approved as part of the Bronte Green Subdivision. Supporting details can be found in in **Appendix U** and **Appendix V**.

8.4 Commercial SWM Strategy

The commercial site will provide on-site controls in accordance with Town of Oakville criteria:

- **Water Quality:** The commercial block will provide Enhanced Level quality control in keeping with SWMP Design Manual and general industry practice. Water quality will be provided with through an OGS or equivalent. The OGS sizing will be completed through the site plan application process for the commercial block.

- **Water Quantity:** The commercial block re-development will provide on-site quantity control as to not increase peak flows as compared to existing conditions. The existing conditions peak flows from the Region's Operations Yard, and establishment of the commercial block target release rates is further described below. The on-site quantity controls may be provided through a combination of surface and subsurface storage. Preliminary volume requirements to meet required release rates for the commercial blocks are provided in **Appendix R**.

- **Erosion Criteria:** As noted in Section 8.1, there are currently no site-specific erosion control requirements for the existing SWM pond, based on the Region's SWM Report.

- **Water Balance:** It is suggested that the water balance targets for the commercial block be determined through the site plan application process. Typically, site plans of this size have a target for on-site retention of the equivalent runoff volume from a 5 mm storm event.

The site will attenuate the post-development flows to match the allowable release rates (pro-rated by area) established in the Region's SWM report for the site and release the attenuated flows into the existing 450 mm private outflow pipe. The target release rates for the commercial lands will be further reduced to compensate for the increase in outflows from the Region's SWM Tank. A summary of the allowable release rates from the commercial block, and the resulting storage requirements are provided below in **Table 8-1** and **Appendix R**.

Table A: Figure & Drawing Revisions in *the Region's Lands FSR Addendum*

Storm Event	Allowable Release Rate (m^3/s)	SWM Pond Release Rate (m^3/s)	Commercial Release Rate (m^3/s)	Commercial Storage (m^3)
25mm/3hr Chicago	0.020	0.014	0.006	197
2yr/4hr Chicago	0.040	0.030	0.009	297
5yr/4hr Chicago	0.070	0.056	0.022	335
25yr/4hr Chicago	0.127	0.112	0.055	402
100yr/4hr Chicago	0.206	0.171	0.105	500

Agreements will be required between the commercial site and the Region to provide for the use of the existing private outfall pipe.

8.5 Road Allowance SWM Strategy

This section remains consistent with the *Bronte Green FSR* as the road allowance SWM strategy has not changed.

9.0 EXISTING FOURTEEN MILE CREEK FLOODPLAIN

There are no proposed revisions to this section of the *Bronte Green FSR* as a result of the draft plan changes.

10.0 ROADS

There are no proposed revisions to this section of the *Bronte Green FSR*, as the *Bronte Green FSR* Functional Servicing Study Area was inclusive of the Region's lands. Furthermore, the draft plan land-uses are consistent with the assumptions used in the Bronte Green detailed design, so there are no relevant changes to the Bronte Green roadway design.

11.0 TRAILS IN NHS

There are no proposed revisions to this section of the *Bronte Green FSR* as a result of the draft plan changes.

12.0 GRADING

There are no proposed revisions to this section of the *Bronte Green FSR*, as the *Bronte Green FSR* Functional Servicing Study Area was inclusive of the Region's lands. Furthermore, the draft plan land-uses are consistent with the assumptions used in the Bronte Green detailed design, so there are no relevant changes to the grading plan.

13.0 EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

There are no proposed revisions to this section of the *Bronte Green FSR* as a result of the draft plan changes.

14.0 CONCLUSIONS

The Functional Servicing Report provides an overview of the servicing plan for the Bronte Green lands located within the Region of Halton. This report demonstrates that the servicing strategy for the draft plan lands is consistent with the assumptions made during the *Bronte Green FSR*, as well as the approved detailed design of the Bronte Green Subdivision. As such, the availability of water, wastewater and stormwater management services for the proposed developments for the draft plan is in accordance with Regional, Town, Conservation Halton and MNRF criteria.

We trust you will find the contents of this report satisfactory.

Prepared by
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