

ENVIRONMENTAL IMPLEMENTATION REPORT / FUNCTIONAL SERVICING STUDY - MAIN REPORT (5TH SUBMISSION)

May 2019

14 Mile Creek West and the Lazy Pat Farm Property (3269 Dundas Street West), North Oakville West

PREPARED FOR: PREPARED BY:

D14-011-18

May 24, 2019 File No. 09M-00013-01

Town of Oakville 1225 Trafalgar Road Oakville ON L6H 0H3

Attention: Mr. Mark H. Simeoni, Director of Planning Services

Dear Sir:

 Subject: Environmental Implementation Report / Functional Servicing Study for 14 Mile Creek West and the Lazy Pat Farms Property, North Oakville West 5th Submission, May 2019 Zoning By-law Amendment (Z.1333.01) and Revised Draft Plan of Subdivision (24T-11001)

WSP Canada Group Limited (WSP) is pleased to submit our 5th Submission of the Environmental Implementation Report / Functional Servicing Study (EIR/FSS), May 2019, for 14 Mile Creek West and the Lazy Pat Farms Property, North Oakville West and a revised Draft Plan of Subdivision, associated with the above applications. The EIR/FSS has been prepared in accordance with the approved Terms of Reference for EIR/FSS studies for North Oakville, in support of a Draft Plan of Subdivision and Zoning By-law Amendment application for the Subject Property, and addresses Town and agency comments on the August 2018 Addendum Submission of the EIR/FSS.

The purpose of the EIR is to characterize and analyze the natural heritage features and functions, and to determine and address the potential impacts of the proposed development application, including servicing requirements, on the Natural Heritage System (NHS). The purpose of the FSS is to identify servicing requirements related to sanitary, water, stormwater, roads, and site grading.

Written acknowledgement has been prepared to confirm that the owners of the adjoining property at 3367 Dundas Street West have reviewed the reports related to the proposed development and understand all drainage implications. This acknowledgement letter is forthcoming and separate from this submission.

1.0 Areas of Expertise and Technical Lead

The EIR/FSS has been prepared by a multidisciplinary team to address the broad range of issues to be studied through the EIR/FSS. WSP Canada Group Limited is the lead consultant in the preparation of the EIR/FSS. The following highlights the technical areas of expertise and the lead qualified professional(s) overseeing the preparation of the EIR/FSS.

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Area of Expertise	Professional Lead(s)	
Land Use Planning	Chris Tyrrell, MCIP, RPP, Vice President, Planning, Landscape	
and Project	Architecture and Urban Design (WSP)	
Management	Rebecca Tannahill, MCIP, RPP, Senior Planner, Planning, Landscape Architecture and Urban Design (WSP)	
Municipal Servicing	Alex Williams, P.Eng., Senior Project Engineer, Municipal Engineering (WSP)	
Stormwater	Steve van Haren, P.Eng., P.E., Manager, Water Resources (WSP)	
Management and Albert Zhuge, M.Sc, P.Eng, PMP, Senior Project Manager, Water		
Water Resources (WSP)		
Ecology and Aquatics	Mark Cece, B.Sc., Manager, Environment / Environmental Management (WSP)	
Geology and Hydrogeology	Andrew Kulin, P.Eng., Senior Hydrogeologist / Geological Engineer, Environment / Environmental Management (WSP)	
Transportation	Craig Kelly, Senior Project Manager, Transportation Planning (WSP)	
Fluvial	Ed Gazendam, M. Eng. , P. Eng. (Water's Edge)	
Geomorphological &		
Erosion Threshold		
Assessment		
Geotechnical and	Baruyr E. Baghdasarian, M.Eng., B.A.Sc., B.Sc., Geotechnical Engineer	
Slope Stability	(Exp. Consulting (formerly Trow Associates Inc.))	
Analysis		

2.0 Summary of Comments and Responses

The attached Comments and Response tables summarize the comments and WSP responses to Conservation Halton's (CH) and Development Engineering comments on the 4th Submission (August 2018 Addendum) of the EIR/FSS, dated August 2018.

The attached Detailed Design Commitments Table outlines the specific requirements as part of the design and mitigation plans. This table provides a detailed list of specific commitments to be carried forward to detailed design of the plan of subdivision and are be incorporated into the appropriate subdivision or site plan conditions and construction documents where feasible.

The following items have been revised as a part of the 5th Submission:

- Draft Plan of Subdivision
- EIR/FSS Main Report
 - o Cover
 - Table of Contents
 - o Executive Summary text
 - Sections 3, 4, 5, 6, 7 & 8 text and figures in their entirety
- EIR/FSS Appendices Vol 1.
 - o Appendix 5.9
 - Appendix 6 (entire appendix)
- EIR/FSS Appendices Vol 2.
 - Appendix 7 (entire appendix)
 - Appendix 8 (entire appendix)

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- EIR/FSS Revised Plots
 - Sections 6 (Figures 6.5.1, 6.5.2, 6.5.3, 6.5.4, 6.6.1, 6.6.2, 6.6.3, 6.6.4, 6.6.5)
 - Section 8 (Drawings P1-P16, CR 1-1, CR 1-2, CR 2, D1-D4, GR1)

Also included on the DVD are digital files for the GAWSER Model.

We look forward to working with you to advance these applications to approval in a timely manner. Please call should you have any questions or require clarification on any matters discussed.

Yours truly,

WSP Canada Group Limited

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Chris Tyrrell, MCIP, RPP Vice President Planning, Landscape Architecture and Urban Design

Attachments:	Comment and Response Tables
	Detailed Design Commitments Table

CC: Mike Reel, QuadReal Property Group Robert Thun, B.Sc., MCIP, RPP, Town of Oakville, Planning Services



TO: Robert Thun, Town of Oakville

FROM: WSP

SUBJECT: Response to Comments on Interim Partial EIR/FSS September 2018 (24T-11001/1333) - 3269 and 3271 Dundas Street West Conservation Halton Comments (January 8, 2019)

DATE: May 24, 2019

Conservation Halton	WSP Response
Conservation Halton staff have reviewed the 5 th EIR/FSS submission (updates to the 4 th EIR/FSS submission) for the Quad Real – Bentall Kennedy (Canada) LP property received on September 20 th , 2018 and provide the following comments in accordance with the numbering of our January 12, 2018 letter on the previous comprehensive 4 th EIR/FSS submission. At this time Conservation Halton staff are still not in a position to support draft plan approval nor provide	-
draft plan conditions. We have the following outstanding concerns which have not been addressed in this EIR/FSS submission which could affect block sizing and block locations. A summary of these key issues are listed following along with the detailed comments on the current submission. Another meeting is recommended to resolve these outstanding issues.	
	1. The NHS Blocks have been redesigned
	as discussed with the Conservation Halton at the meeting on January 21
Key Issues - Draft Plan Approval	2019.
	2. The grading plans, corridor
The following summarizes the key issues that have still not been addressed to the satisfaction of	delineation plans and the Draft Plan are
application and establishing Draft Plan conditions.	3. tailwater analysis have been
	completed for SWM Ponds #2 and #3.
1. Redesign of the NHS Blocks for Reach 14W-22, Reach 14W-12A and Reach 14W-23 is required	SWM Pond #5 does not require a
2 Resolve discrepancies between grading plans, corridor delineation plans and the Draft Plan to	tailwater analysis as the discharge point
confirm NHS Block limits.	and the remainder of the SWM Facilities
3. Complete full tailwater analysis for SWM Ponds to confirm SWM Pond Block limits.	are not within the subject property.



Conservation Halton	WSP Response	
Detailed Comments	-	
Conservation Halton comments on the submission in accordance with our January 12, 2018 letter as follows:		
1. To. 7 Inclusive – Comments addressed.	N/A	
8. Section 4.4.4.6, Discussion of the Potential for Base Flow Reductions to Watercourses – Comment addressed subject to additional information being provided at the detailed design stage.	WSP to review during detail design stage.	
9. To 11. – Comments previously addressed.	N/A	
12. & 13 Comments to be addressed at the detailed design stage.	Comment 12 – Re the potential impacts to SAR Bobolink will be discussed with MECP during detail design to determine the potential for ESA permitting and if required, habitat compensation including location. Comment 13 – Re the staging of the conversion of the farm pond into a SWM pond and the timing of the creation of new habitat along Reach 14W-22 will be reviewing during detail design to accommodate the relocation of	
14. Section 5.9.1, Fish Habitat Enhancement Concepts		
a) Comment previously addressed.	N/A	
b) Comment addressed subject to review at the detailed design stage.	Noted and agreed. During detail design, the proposed works associated with the widening of Dundas Avenue will be confirmed and reviewed to determine the extend of the rehabilitation of the Reach 14W-12 to determine if it will extend beyond the ROW. If it does, the opportunity to undertake the outstanding restoration works will be reviewed and potentially included in this project.	



Conservation Halton	WSP Response
15. Formerly Section 5.9.5 Monitoring, Appendix 7.5: Hydraulic Monitoring (Now Appendix 7.8: Monitoring Program) – Comment addressed. It is understood that there are 2.9 km of infiltration trenches proposed as part of the development. It is requested that a holistic monitoring program be determined at the detailed design stage to determine the effectiveness of the low impact development components of the plan. This monitoring program should follow the adaptive environmental monitoring approach discussed in Section 5.9.9 (Item 9), Overview of Mitigation Measures on Page 5-86 of the current EIR-FSS submission.	Noted.
 16. Formerly Table 5.11 and Table 5.12 (Now Table 5.14, Summary of Potential Impacts to Aquatic Resources) – Road crossing information in the residual effects column still contains information that may suggest that open bottom culverts may not be possible. Please note that open bottom culverts will likely be required at the detailed design stage. Table 5.14 fails to document the loss of the cold water fish habitat that will occur when the farm pond is incorporated into a SWM facility. Staff continue to recommend consultation with the Department of Fisheries and Oceans (DFO) at the beginning of the detailed design stage to determine if approvals under the Federal Fisheries Act are required to change the farm pond into a SWM facility. 	The type of road crossing structures will be reviewed and confirmed during detail design. During detail design, when permits will be obtained, DFO will be consulted regarding the conversion of the farm pond into a SWM pond to obtain Fisheries Act approval.
17. To 19. Inclusive – Comments addressed.	N/A
20. Section 6.3.3, Corridor Width Delineation – Top of Bank (now Section 6.3.2 Top of Bank Requirements) -	-
a) While the hazard allowance has been applied incorrectly for Reach 14W-11 in the vicinity of the existing stable top of bank, staff are satisfied that this does not impact the Total Corridor Width shown and therefore do not require a revision to the drawing.	Noted.
b) Comment addressed.	N/A
21. Appendix 6.8, EXP Slope Stability Analysis – Comment addressed in Appendix 6.5.	N/A
22. Section 6.3.6, Corridor With Delineation – Hydrologic Feature 'A' (Now Section 6.3.5, Hydrologic Feature 'A') -	-
a) Comment previously addressed.	N/A
b) Addressed. Although the riparian flood storage analysis will need to be revisited in conjunction with refinding the NHS Block designs as outlined in comments below.	Riparian flood storage analysis has been revisited and confirmed.
23. 6.3.6, Corridor Width Delineation – Corridor Widths & Appendix 6.5, Corridor Width Delineation (Now Section 6.3.6, Total Corridor Widths) -	-
a) Comment previously identified as being no longer applicable.	N/A
b) Comment previously addressed.	N/A



Conservation Halton	WSP Response	
c) Table 6.2 was not revised as indicated in the response table. The table continues to:	Corridor width has been revised to	
i. Incorrectly calls Meander Belt plus Factor of Safety the Top of Bank Width;	satisfy the identified requirements.	
ii. Incorrectly applies under the heading "Meander Belt with NOCSS Setbacks" a 15 m regulatory/hazard allowance to the Meander Belt + FoS instead of the 7.5 m allowance; and,		
iii. Omits mention of the 7.5 m regulatory/hazard allowance from the stable top of bank,		
iv. Provides incorrect Total Corridor Widths (that do not match those provided on Figures 6.5.1 thru 6.5.4 or the Draft Plan).		
Page 6-7 and 6-8 should be updated accordingly and resubmitted for insertion into the final EIR/FSS. This can be addressed through a Draft Plan Condition.		
d) Figures 6.5.2 thru 6.5.4 must be updated accordingly and resubmitted for insertion into the final EIR/FSS. This can be addressed through a Draft Plan Condition.	Figures 6.5.2 – 6.5.4 have been revised to satisfy the identified requirements.	
e) Figures 6.5.1 thru 6.5.4	i. To xi. Inclusive – N/A	
 To xi. Inclusive - Comment addressed or no longer applicable. xii. A minimum 6 m access allowance must be maintained between the hazards associated with Reach 14W-22 and 14W-16. Ideally this would have been noted in Table 6.2 and must be addressed on the drawings before Draft Plan Approval. 	xii. The required 6m access allowance has been noted in table 6.2 and shown on the drawings. xiii. And xiv. – N/A	
xiii. And xiv Comments addressed.		
24. To 26. – Comments addressed or no longer applicable.	N/A	
27. Section 6.4.3.2, Proposed Channel Morphology, Reach 14W-22 Diversion -	-	
a) Comment addressed.	N/A	
b) There continues to be a disconnect between text provided in the EIR/FSS and the hydraulic models (for example, the bankfull flow rate). AS long as the NHS Block designs are refined to our satisfaction, this can be corrected in the final EIR/FSS. Please note a robust Natural Channel Design Brief will be required at the Detailed Design Stage to support the final channel and corridor block designs.	The text and models have been fully coordinated. We will provide the appropriate studies and reports at detailed design.	
c) Thru e) Inclusive - As we indicated in our previous comments, we concur that the radius of curvature, meander amplitude, an evaluation of a lower width/depth ratio and the basis for the final morphological parameters riffle, can be provided at the detailed design stage.	Noted and Agreed.	



Conservation Halton	WSP Response	
f) Figures 6.4.2 & 6.4.3 – The reference to "Top of Bank" was not removed from the Legend label for the Meander Belt + FOS line. These figures should be updated accordingly and resubmitted for insertion into the final EIR/FSS. This can be addressed through a Draft Plan Condition.	The reference to the Top of Bank has been removed.	
 g) Figures/Drawings - Figure 6.4.5, Channel Corridor Sections, Typical For 14W-22 – The sections on this figure are different from those provided on the grading plans and within the hydraulic model. All drawings must be consistent. Please also include the Regulatory floodplain, stable top of bank (when applicable) and apply the 7.5 m Hazard Allowance to the greatest of the hazards (Regulatory Storm floodplain, stable top of bank or meander belt plus factor of safety). 	 i. Figure 6.4.5 has been revised to satisfy the requirements. ii. The grading plans have been updated as necessary to address the comments on the corridor design. 	
 Please see Comment 'A' below for all comments on the Grading Plans. Figures 6.4.2 and 6.4.3 must be updated as necessary in conjunction with addressing the outstanding corridor grading design issues identified below. 		
28. Section 6.4.3.3, Proposed Channel Morphology - Reach 14W-21 Diversion - No further comments.	N/A	
29. Section 6.4.3.4, Proposed Channel Morphology - Reach 14W-23 Diversion (now Section 6.4.2.4) -		
a) to c) – Comments addressed or no action required.	N/A	
d) Please see Comment 'A' below for all comments on the Grading Plans. Figure 6.4.4 and/or the text of the document must be updated as necessary in conjunction with addressing the outstanding corridor grading design issues identified below.	-	
30. to 32. – Comments addressed or no action required.	N/A	
33. Section 6.4.4.2, Road Crossings – Modelling & Analysis – Comment addressed or no action required.	N/A	
34. Section 6.4.5, Conceptual Natural Channcel Design – Hydraulic Analysis (Now Section 6.5, Hydraulic Analysis) -	-	
a) No action required.	N/A	
b) Addressed in principle, however, the regulatory floodplain limits will need to be updated/reconfirmed in conjunction with addressing the outstanding corridor design issues identified below. Floodplain limits will also need to be reconfirmed at the detailed design stage.	Regulatory Floodplain limit has been revised in conjunction with addressing the outstanding corridor design issue identified below.	
c) to i) Inclusive – Comments addressed.	N/A	
j) Conservation Halton staff require redesign of the Corridor Blocks associated with Reaches 14W- 12A, 22 and 23 as outlined below. All supporting floodplain analysis must therefore be updated to the satisfaction of Conservation Halton staff prior to Draft Plan approval.	Floodplain analysis has been revised to satisfy the requirements.	



Conservation Halton			WSP Response
k)	Existi	ng Conditions Model & All Applicable Tables -	i. The Manning's n for the main channel has been increased to 0.055 at all
	i.	Staff continue to be concerned that several bankfull channel locations within the model are incorrect and recommend they be revisited. Alternatively, the Manning's 'n' for the main channel should be increased to at least 0.055 (and potentially 0.08) at all locations where a wide (i.e. typically more than 3 m) main channel is assumed in order to reflect more accurately the dominate existing/future vegetation (dense, tall grasses) in these locations.	locations where a wide (more than 3m) main channel is assumed. ii. River 2, Reach 1A, XS210 and 210.5 have been revised in the model. iii. N/A
	ii.	River2, Reach IA, XS210 and 210.5 (Reach 14W-16) continue to be modelled incorrectly. Cross-sections should be cropped or levees added to exclude the local drainage feature.	
	iii.	Comment addressed.	
l)	Interi	n Conditions Ph 1A Model & Associated Tables -	I to iii – N/A
	i.	To iii Comments addressed.	iv. The Manning's n for the main channel has been increased to 0.055 at
	iv. Bankfull channel locations must be revisited or the main channel's Manning's n incr wherever a wider (> 3 m) main channel is assumed within the model.		all locations where a wide (more than 3m) main channel is assumed.
	v.	And vi Comments addressed.	v. and vi – N/A
	vii.	River2, Reach 1A, XS210 and 210.5 (Reach 14W-16) - Cross-sections should be cropped or levees added to exclude the local drainage feature.	vii. River 2, Reach 1A, XS210 and 210.5 have been revised in the model.
	viii.	Comment addressed.	viii. – N/A



Conserva	tion Halton	WSP Response
m) Inter	m Conditions Ph 1B Model & Associated Tables -	I to iii – N/A
ĺ.	To iii Comments addressed.	iv. The Manning's n for the main channel has been increased to 0.055 at
iv.	Bankfull channel locations must be revisited or the main channel's Manning's n increased wherever a wider (> 3 m) main channel is assumed within the model.	all locations where a wide (more than 3m) main channel is assumed. v N/A
v.	nment addressed.	
vi.	Addressed. At the detailed design stage, we may require that the crossing be modeled as a bridge instead of a culvert. This should be addressed with Conservation Halton staff at the pre-consultation stage for the associated permit application.	vi. – Noted.
		vii. River 2, Reach 1A, XS210 and 210.5 have been revised in the model.
vii.	River2, Reach 1A, XS210 and 210.5 (Reach 14W-16) - Cross-sections should be cropped or levees added to exclude the local drainage feature.	viii to xi Inclusive – N/A
viii.	To xi. Inclusive - Comments addressed.	
n) Inter	im Conditions Ph 2 Model & Associated Tables -	i. Noted
i.	Comment addressed. In Table 6.16, Flow Rates of Phase 2, it would appear that labels for Nodes 1B and 7 have been reversed in the 7 th column. Please update in final EIR/FSS.	ii and iii – N/A
ii.	1d iii Comments addressed.	iv. The Manning's n for the main channel has been increased to 0.055 at
iv.	Bankfull channel locations must be revisited or the main channel's Manning's 'n' increased wherever a wider (>3m) main channel is assumed within the model.	all locations where a wide (more than 3m) main channel is assumed.
v.	Comment addressed.	v. – N/A
vi.	Comment addressed. At the detailed design stage, we may require that the crossings be modeled as bridges instead of as culverts. This should be addressed with Conservation Halton staff at the pre-consultation stage for the associated permit applications.	vi. Noted.
		vii. River 2, Reach 1A, XS210 and 210.5 have been revised in the model.
vii.	2, Reach 1A, XS210 and 210.5 (Reach 14W-16) - Cross-sections should be cropped or levees added to exclude the local drainage feature.	viii. to xi. Inclusive – N/A
viii.	To xi. Inclusive - Comments addressed.	



Conservation Halton	WSP Response	
o) Ultimate Conditions Model & Associated Tables:	i. Noted	
 Comment addressed. In Table 6.19, Flow Rates of Ultimate Condition, it would appear that labels for Nodes 1B and 7 have been reversed in the 7th column. As part of a draft plan condition, lease update table to insert in final EIR/FSS. Comment addressed. 	ii. N/A iii. The Manning's n for the main channel has been increased to 0.055 at all locations where a wide (more than 2m) main sharmed is assumed	
 Bankfull channel locations must be revisited or the main channel's Manning's 'n' increased wherever a wider (> 3 m) main channel is assumed within the model. 	iv. Noted.	
iv. Comment addressed. At the detailed design stage, we may require that the crossings be modeled as bridges instead of as culverts. This should be addressed with Conservation Halton staff at the pre-consultation stage for the associated permit applications.	v. River 2, Reach 1A, XS210 and 210.5 have been revised in the model. vi. To ix. Inclusive – N/A	
 v. River2, Reach 1A, XS210 and 210.5 (Reach 14W-16) - Cross-sections should be cropped or levees added to exclude the local drainage feature. 		
VI. 10 IX. Inclusive - Comments addressed.		
p) No action required. Pre-consultation at the permit application stage is recommended to ensure that the proponent obtains the updated floodplain modeling and mapping standards/guidelines available at that time.	-	
q) Comment addressed.	N/A	
 r) Comments have not been addressed to the satisfaction of staff. Outstanding issues have been combine with Comment 'A' below that outlines concerns with the grading plans provided. r) Between the Grading Plans and the HEC-RAS modeling, the following information was not clear: 	i. Filling is proposed upstream of Section SS through the Burnhamthorpe Crossing	
 Upstream of Section S-S, is filling within the Regional Storm floodplain proposed between XS220.3 and XS231 (River1, Reach2B) on Reach 14W-12A? 	but it is not within the Regional Storm Floodplain. Additionally, given that Reach 14W-12A is	
ii. In the vicinity of Section C-C, will the 7.5 m regulatory hazard allowance be provided to the Regional Storm floodline? Currently the Section would suggest that the floodplain will actually extend beyond the line indicated by the label 'Fut. Uncontrolled Floodline' and the hazard allowance is not shown 7.5 m from either this labelled line or the extent of the floodplain provided. We did note that the Regional Storm flood elevation noted for Section C-C for Reach 14W-16 may be conservative in this location.	contributing Redside Dace Habitat, all works will be reviewed by MECP during detail design to determine if an ESA (2017) approval is required and/or any other design constraints /	



Conservation Halton	WSP Response	
	mitigation measures to be adhered to. ii. This comment has been addressed with Comment "A" b, vi. The grading design has been adjusted such that filling in the floodplain is no longer required. The section has been revised to clarify the design.	
New Comment – The Regional Storm flood elevation provided for Stations 13 and 14 on Reach 14W- 11A on Figures 6.6.1, 6.6.2 and 6.6.3 as well as in Table 6.8 (Regional Flood Water Levels under the Existing Conditions) does not match the hydraulic model results. Figure 6.6.1, Figure 6.6.2 and Table 6.8 can be updated in conjunction with the final EIR/FSS as a condition of Draft Plan Approval but Figure 6.6.3 should be updated prior to Draft Plan Approval in conjunction with other updates required to this drawing.	Figures 6.6.1, 6.6.2, 6.6.3 and Table 6.8 have been revised to ensure they match the hydraulic models.	
35. Section 6.4.6, Maintenance of Riparian Storage (Now Section 6.5.6, Riparian Storage Assessment) – Comments addressed for current design; however, the flood storage analysis will need to be updated in conjunction with resolving the outstanding corridor design issues identified below.	Riparian flood storage analysis has been revisited and confirmed.	
36. To 38. Inclusive – Comments addressed.	N/A	
39. Appendix 6.1, Regional Floodplain Analysis: 14 Mile Creek & Appendix 6.3, HEC-RAS Model River Reach Flood Flow Estimation (Now Appendix 6.1, HEC-RAS Results) – In light of corridor design concerns discussed below, staff have not reviewed the HEC-RAS output files provided in Appendix 6.1. These will be reviewed in conjunction with the updated modeling that will be required in support of the final corridor design.	The model will be provided for review.	
40. To 46. Inclusive – Comments addressed	N/A	
47. Section 7.6, Stormwater Management Facilities (Now Section 7.8, Stormwater Management Facilities) - Section 7.8.2, Dundas Street Expansion – No action required in EIR/FSS. Proponent to consult further with Halton Region at the detailed design stage to coordinate SWM approach for Dundas Street.	Noted.	



Conservation Halton			WSP Response	
48.	Section Criteria	7.6.1, Pond Design Overview – (Now Section 7.8.3, Pond Design Overview and Control) – Staff provide the following comments on the conceptual designs provided for each pond:	i.	The forebay has been designed to be consistent with the design calculations
	a) Pond 1, Drawing SWM1 –		ii.	The emergency spillway
	i.	A forebay should be provided in keeping with the design calculations.		has been designed to be consistent with the design
	ii	Emergency spillway width, side slopes and invert are inconsistent with Appendix 7.6 calculations.	iii.	calculations. Additional grading information has been
	iii	Insufficient grading information is provided downstream of the outlet to confirm feasibility of outlet.	iv.	provided. Noted.
	iv	Since this pond is not within the Draft Plan study area, the above can be addressed in the final EIR/FSS.		
b)	Pond 2	, Drawing SWM2 –	i <i>.</i>	As the drainage area for
	i.	What flows are being directed to the infiltration trench located between the SWM pond the NHS Block? The benefit of this infiltration trench should be evaluated at the detailed design stage.		the infiltration trench in the vicinity of SWM Pond 2 is limited, it has been removed from the design.
	ii.	Staff are not supportive of the proposal to construct the pond's outlet headwall near the centre line of the existing creek. For the final EIR/FSS, the headwall should be shown to be flush with existing grades on the west side of the valley. At the detailed design stage,	ii.	The outlet of the pond has been moved to above the 100-yr floodline elevation and is now outside of the
		siting of the headwall and outlet channel should be coordinated with Conservation Halton and Town staff as part of pre-consultation.		existing creek. At detailed design, the exact location of the outlet headwall will
	iii.	Regional water surface elevation in pond is different on drawing from that provided within rating curve in Appendix 7.6. As it is conservative from a grading/block size perspective, no update is required, however please ensure that at the detailed design stage all reports and drawings match.	iii.	be coordinated with Conservation Halton. Noted. The drawings and design calculations are consistent.



	<u> </u>
c) Pond 3, Drawing SWM3 – i. The emergency spill	way
design is consistent design is consistent with Appendix 7.6	with
i. The extraneous spot	115.
elevations have been	1
ii. The various spot elevations provided in the vicinity of the top of pond don't match the deleted.	
proposed contour lines. We have completed our review based on the contour lines. iii. Noted and agreed.	
iii. The above can be addressed in the final EIR/FSS.	
d) Pond 5, Drawing SWM4 – i. The emergency spill	way
design is consistent to the design calculation the design calculatio	WITTI MS
i. Emergency spillway width, side slopes and invert should be made consistent between ii. The overflow pipe/h	igh
flow weir are consist	ent
ii. The overflow pipe/high flow weir should be consistent between Drawing SWM4 and between the drawing the design calculation and the design calculation.	gs and
Appendix 7.6 calculations.	115.
The above can be addressed in the final FIR/FSS	
III. The above can be addressed in the final Energies.	
49. and 50. – Comments addressed.	
51. Section 7.6.6, Water Quantity Control (Now Section 7.8.6, Water Quantity Control) -	
a) This section does not discuss roof top storage. While mentioned in the hydrologic analysis The requirements for rooftop storage.	age
section, staff responsible for Site Plan reviews can easily miss this. It continues to be have been included in sections 7.	5.7 anu
recommended that the requirements for roof top storage be outlined clearly in section 7.2.2. Proposed Stormwater Management Report. We also recommend that	
additional detail be provided on servicing drawings to illustrate the associated municipal	
infrastructure, including the outlet point to Reach 14W-12A (e.g. P-drawing Series, Figure 8.5	
and Figure 8.7 series).	
b) and c) – Comments addressed. N/A	
d) Weir side slope assumptions should be made consistent between the SWM series design drawings and Noted.	
Appendix 7.6 calculations.	
e) Comment addressed.	
f) Comment addressed within Appendix 7.6 but SWN series drawings need to be updated accordingly. See Noted.	
comment No. 48 above.	
i. Comment addressed	



Conservation Halton	WSP Response
ii. The analysis provided in the response matrix is insufficient. The report should demonstrate that for SWM Ponds 2 and 3 the Regional Storm target release rates will be met with the reduced head that will be available under a tailwater condition. This is required prior to Draft Plan approval to confirm pond block sizes.	Tailwater Analysis has been completed for Ponds 2 and 3.
 52. Previously Section 7.6.7, Thermal Mitigation and 7.8.7, Thermal Mitigation) – Now Section 7.8.8, Thermal Mitigation – Thermal mitigation measures are to be revisited at the detailed design stage. Monitoring of the selected thermal mitigation measures will also be deferred to detailed design. 	The thermal mitigation measures associated with the outflow from the SWM ponds will be reviewed during detail design to is if there are further opportunities to reduce potential thermal impacts. Once the thermal mitigation measures are determined, monitoring plan will be developed.
53. To 62. Inclusive – Comments addressed.	N/A
63. Appendix 8.3, Figure A-8.3 – This comment has been addressed subject to the future review of impacts to natural heritage areas east of Avenue 3 through an Addendum to the current EIR-FSS.	Noted. WSP will address any comments that arise from the future review of the EIR-FSS Addendum.
64. And 65. – Comments addressed.	N/A
 A. Staff provide the following comments on the new Grading Plans. We recommend a meeting of technical staff to ensure that the next submission adequately addresses NOCSS and CH requirements as well as present the information in a fashion that meets the needs of all parties - All Reaches - 	 The grading plans and sections now show the various key lines in colour for increased clarity. The undisturbed areas of
 a. An Reaches - i. Staff found it difficult to distinguish the key lines shown on Grading Plan GR1 and relate them to the Section details and Draft Plan. The NHS Block limits (both within the Draft Plan and external lands) in particular should be clear on GR1. ii. Grading Plan GR1 must clearly illustrate the undisturbed NHS areas to demonstrate that all interval in the section of t	 the NHS are clearly labeled. iii. Additional grades have been added to the drawings as requested. iv. As per the email received from the Town on xxx xx.
 constraints are respected and that no off-site work is proposed. iii. Staff continue to be of the opinion that the grading information provided for the channel design is sparse. Additional detail should be provided in conjunction with addressing the following issues to avoid the need for redline revisions at the detailed design stage. 	2019, the trail design has been deferred to detailed design.
iv. Please ensure the location and appropriate grading for the trails are shown on Grading Plan GRI and all cross-sections.	

Conservation Halton	WSP Respo	nse
b. (Drawings GR1, D1, D2, CR2) that reflect the new corridor block design for Reach 14W-22 -	i.	All 3:1 slopes are located outside of the meander belt
i. The design must be modified so that all 3:1 slopes are located <u>outside of the meander belt</u> <u>plus factor of safety</u> with the possible exception of small benching less than 0.15 m in height as long as the benching is located outside of the meander belt and the 100 year floodplain.	ii.	plus factor of safety. The grading design now shows a 2% minimum slope for the floodplain.
ii. The Section details propose a 0% floodplain slope. This is not in keeping with previously identified design requirements nor is this clearly reflected on the Plan View. The design and all associated grading plans must be updated accordingly.		
 iii. 3:1 slopes greater than 2 meters in height are proposed (e.g. Section A-A, C-C, N-N), creating a confined valley system in some locations. For all slopes greater than 2 meters in height, the 7.5 m hazard allowance must be applied to the slope's stable top of bank. All slopes within the 7.5 m allowance to the stable top of bank must be graded at 10:1 or flatter. 	iii.	All sections with a 3:1 slope greater than 2 metres in height will be treated as a confined valley system. All slopes within the hazard
 Where the system remains unconfined, the design must be updated where necessary in enabled that - 6 meters of the 7.5 m allowance to the greater of the Regulatory floodplain and the meander belt plus factor of safety is graded at 10:1 or flatter, or Additional lands are provided within the Natural Heritage System adjacent to the regulated area to provide for emergency and maintenance access adjacent to the natural hazards. 	iv.	flatter. In the unconfined systems, lands adjacent to the NHS have been provided for emergency and maintenance access.
v. Where Reaches 14W-16 and 14W-22 run parallel, a minimum 6 meter width that is sufficient to provide emergency and maintenance access must be provided between all hazards associated with each watercourse. Currently this is not provided between Sections A-A and C-C where Reach 14W-16's Regulatory floodplain overlaps with the hazards associated with Reach 14W-22. We also recommend that a cross-section be provided at this location in the future to clearly demonstrate that the hazards are appropriately setback from each other.	ν.	The alignment of watercourse 14W-22 has been adjusted so that 6m is available between the greatest hazard of the two reaches for maintenance
 vi. A 7.5 m allowance from the Regional Storm floodplain is not illustrated on the west (left) side of Section C-C, Drawing D2. While the plan view on Drawing GR1 does illustrate a 7.5 allowance, it also includes a grade elevation in this vicinity that would require filling within the Regional Storm floodplain, which is not shown on Section C-C nor is it permitted by NOCSS or Conservation Halton. Furthermore, the grades provided on GR1 for Section C-C are misleading as they do not include the high point of 153.2 m proposed between the two tributaries on Drawing D1. These inconsistencies need to be eliminated along with additional grading information provided that clearly demonstrates that there will be no filling within the Reach 14W-16 floodplain and the 7.5 m allowance from the greatest hazard will be provided. 	vi.	The grading design has been adjusted such that filling in the floodplain is no longer required. The section has been revised to clarify the design.



Conservation Halton	WSP Respons	e
 Staff provide the following comments on the Grading Plans (Drawings GR1, D1, D2) that reflect the new corridor block and Burnhamthorpe Road designs in the vicinity of the confluence of Reaches 14W-12, 14W-12A, 14W-16 and 14W-22 - vii. Insufficient grading information is provided in this location. Staff cannot evaluate the potential impacts to the natural hazards or heritage system. An enlargement of the area is recommended that clearly illustrates road elevations, top of slopes, toe of slopes creek banks and creek invert elevations. viii. Drawing CR2 indicates that Reach 14W-12A will be altered downstream of its confluence with Reach 14W-22, contrary to NOCSS and the text of the EIR/FSS. This is not supported by Conservation Halton. 	vii. A a c r v viii. E r a v	An enlargement of this area has been created and clearly illustrates how the road and crossing connect with the existing ground. Drawing CR2 has been revised to clarify that no alterations to the existing vatercourse proposed.
 Staff provide the following comments on the Grading Plans that reflect the new corridor block design for Reach 14W-23 (Drawings GR1, D2, D3) - ix. The design and all associated grading plans must be modified so that all 3:1 slopes are located outside of the meander belt plus factor of safety with the possible exception of small benching less than 0.15 m in height may be permitted as long as the benching is located outside of the meander belt and the 100 year floodplain. 	ix. T b t c F	The grading plans have been revised accordingly so hat all 3:1 sloping is butside of the meander belt blus factor of safety.



Conservation Halton	WSP Response
 x. Where the system remains unconfined, the design must be updated where necessary to ensure that: 6 meters of the 7.5 m allowance to the greater of the Regulatory floodplain and the meander belt plus factor of safety is graded at 10:1 or flatter, or Additional lands are provided within the Natural Heritage System adjacent to the regulated area to provide for emergency and maintenance access adjacent to the natural hazards. xi. The Section details propose a 0% floodplain slope. This is not in keeping with previously identified design requirements nor is this clearly reflected on the Plan View. The design and all associated grading plans must be updated accordingly. xii. Please provide sufficient grading information on Grading Plan GR1 to verify that a 300 mm freeboard is provided throughout the Natural Heritage System Block. xiii. A profile view of Reach 14-23 is required, demonstrating how the channel will merge with the upstream and downstream reaches along with the proposed slope of the channel. xiv. A 300 mm freeboard from the Regional Storm floodplain to the development limits is not provided at Section L-L on Drawing D3. The design must be updated accordingly. xv. There may be some opportunities to share maintenance access requirements for the Natural Heritage Corridor and the infiltration swales. This should be discussed amongst all parties prior to resubmission. 	 x. The design has been updated to ensure that 6m of the 7.5m allowance is graded at 10:1 or flatter. xi. The section has been revised to show 2% slope. xii. Additional details have been provided on GR1 to show the 300mm freeboard is provided. xiii. A profile of 14-23 has been created as part of this submission. xiv. The design has been revised to allow for 300mm freeboard from the Regional Floodplain. xv. We have evaluated the opportunities for shared access to the infiltration swales and Natural Heritage Corridor and revised the drawings accordingly; this can be further refined at the detailed design stage.
 Other Grading Plan GR1 comments - The spot elevations provided in the vicinity of the top of SWM Pond 3 do not match the proposed pond contours. Please correct in the final EIR/FSS. 	The extraneous spot elevations near SWM Pond 3 have been deleted.
 66. EIR Sections 5 and 6 - Comment addressed. Additional information (e.g. Landscaping/restoration plans) will be required at the detailed design stage. Further, at the detailed design stage offline floodplain ponds are fine. However, please remove on-line wetlands in Reach 14W-22 and no rehabilitation work and/or planform alignment should be planned for Reach 14W-16. 67. And 68 Comments addressed. 	Noted and agreed. During detail design, the landscaping / restoration plans will be developed and will ensure that no on- line wetlands are included along Reach 14W-22. Reach 14W-16 will be maintained as is. N/A



Conservation Halton	WSP Response
 Additional Detailed Comments 69. Draft Plan of Subdivision and EIR Figure 3.1 407 West Employment Area Concept Plan - Staff continue to note that the proposed alignment of Avenue One is in proximity to a Provincially Significant Wetland (PSW) on the lands to the east of the Subject Lands. At detailed design, please be reminded to maintain the 30 m regulation limit around this PSW. 	Noted. The alignment of Avenue One will be reviewed during detail design in relation to the PSW. However, these lands are outside of the proposed development limits.
70. EIR Table 5.15 Summary of Potential Impacts to Vegetation - Comment addressed.	N/A
71. EIR Section 5.9 Impact Overview, p. 5-81 and Table 5.13 – ELC and Impacts of Trail System – Comment addressed. Conservation Halton staff will want to ensure that the proposed trail is staked outside and as far back as possible from the Oak-Hickory valley forest stand (Unit 5A).	Noted. During detail design, the proposed trail alignment will be staked and reviewed in the field with CH to confirm the trail alignment in proximity of Unit 5A.
72. EIR Section 6.3.5 Hydrologic Feature 'A', p. 6-6 – Comment addressed.	N/A
73. New Comment on New Draft Plan - Please note that Conservation Halton staff have not reviewed the Proposed Draft Plan in detail relative to the Natural Heritage System in light of the concerns identified with the design of the Corridor Blocks. We have however noted what appear to be discrepancies between the NHS Block limits indicated on the Grading Plans/Cross-Sections, Corridor Delineation Plans and the limits shown on the Draft Plan. Once a satisfactory design has been submitted to the review agencies, the Draft Plan must be updated accordingly. To facilitate this review, please ensure that the NHS Block limits are clearly illustrated on all grading plans and the Draft Plan.	All the drawings and Draft Plan have been fully coordinated. WSP understands that further review of the Natural Heritage System will be undertaken by CH once the revised corridor blocks have been incorporated into the Draft Plan and submitted. The revised NHS block limits will be shown on all grading plans and the Draft Plan



Conservation Halton	WSP Response
In preparing a response to Conservation Halton, the applicant should provide a resubmission matrix outlining how each of the above referenced comments has been addressed. In addition, the resubmission should include the attached "Conservation Halton Re-submission for <i>Planning Act</i> Applications" form along with the applicable review fee. The review fee will be 25% of the current fee as per Conservation Halton's Preliminary Plan Review Fee Schedule. Any subsequent submissions will require a resubmission fee that is 50% of the current fee. The applicant should contact Conservation Halton staff to confirm the applicable fee amount.	
If you require additional information, please do not hesitate to contact me at extension 2317.	
Sincerely, Jenicougraphi	
Jessica Bester, BES, MCIP, RPP Environmental Planner	
 Copy: Mr. Scott Hanna, Ms. Kristina Parker, and Mr. Phillip Kelly, Town of Oakville (via e-mail) Ms. Anne Gariscsak, Ms. Laurielle Natywary, Halton Region (via e-mail) Mr. Mark Heaton, MNRF (via e-mail) Ms. Rebecca Tannahill, Applicant, WSP (<u>rebecca.tannahill@wsp.com</u>) 	
Att.: Conservation Halton's Resubmission Declaration Form for Planning Act Applications	



TO: Robert Thun, Town of Oakville

FROM: WSP

SUBJECT: Response to Comments on Interim Partial EIR/FSS September 2018 (24T-11001/1333) - 3269 and 3271 Dundas Street West Halton Region Comments (January 9, 2019)

DATE: May 24, 2019

Halton Region Planning	WSP Response
Regional Staff have now completed a comprehensive review of Bentall Kennedy's revised submissions related to the lands municipally known as 3269 and 3271 Dundas Street West. The proposal includes a proposed draft plan of subdivision for employment and service employment uses which also includes blocks for stormwater management, natural heritage system, park, and road widening blocks and a zoning amendment application to rezone the lands from an Existing Development 'ED' zone to Light Employment 'LE', General Employment 'GE', Service Area 'SA', and other zone categories to implement stormwater management, natural heritage system and park purposes. Regional Planning Staff have reviewed the subject applications within the context of Provincial planning documents and Regional Official Plan (ROP) and have no objection to the approval of the applications	-
subject to the draft plan conditions contained in Schedule A.	
The subject lands are designated as 'Urban Area' and 'Regional Natural Heritage System' within the 2009 Official Plan (ROP). The subject lands are also identified as form part of the 'Employment Area – Overlay' and are adjacent to a Higher Order Transit Corridor (Intensification Area) within the ROP.	-
The policies of Urban Area designation support a form of growth that is compact and supportive of transit, the development of vibrant and healthy mixed use communities which afford maximum choices for residence, work and leisure. Sections 77, 78 and 81 of the ROP further supports providing opportunities for achieving higher densities and mix of uses as defined and prescribed by Local Official Plan policies. The Employment Area policies provide for the planning, protection and development of Employment Areas for employment purposes. In addition, the ROP provides for promotion of intensification and increased densities of Employment Areas, where appropriate.	



Halton Region Planning	WSP Response
<u>Regional Natural Heritage System:</u> In addition to Regional Natural Heritage policies, the Provincial Policy Statement speaks to restricting development and site alteration on lands adjacent to natural heritage features unless their ecological function have been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.	-
On January 8, 2019 Conservation Halton (CH) provided detailed comments on the proposed ZBA and DPS applications. These comments indicate that there are a number of matters that remain outstanding and are required to be addressed prior to support being given for draft plan approval.	-
 The letter provided by CH staff summarizes the outstanding Natural Heritage issues as follows: Redesign of the NHS Blocks for Reach 14W-22, Reach 14W-12A and Reach 14W-23 to meet NOCSS and CH requisites and the associated updated to the Draft Plan. Resolve of discrepancies between grading plans. Corridor delineation plans and the Draft Plan to confirm NHS Block limits. Completion of full tailwater analysis for SWM ponds to confirm SWM Pond Block limits. 	1. The NHS Blocks for Reach 14W-22, Reach 14W-12A and Reach 14W-23 have had their corridors revised in consultation with CH.
As the Region is relying on CH for technical Natural Heritage matters related to these applications, the Region will require CH to be satisfied prior to providing draft plan conditions and recommending approval.	-
Site Contamination: Section 147(17) of the ROP requires that prior to the Region considering any development application proposals, the proponent must identify whether there is any potential for soils on the site to be contaminated. Regional Staff note that the Phase 1 ESA that was provided as part of a previous submission is out of date and will require updating based upon O.reg. 153/04 standards and requirements.	Noted.
Archaeological Resources: It should be noted that the property is identified as having archaeological potential. In accordance with ROP policy direction, a Stage 1, Stage 2 and Stage 3 Archaeological Assessment were completed for the subject lands. These assessments conclude that all archaeological potential and resources onsite have been investigated in accordance with Ministry of Tourism, Culture and Sport (MTCS) requirements. Further, a letter of acknowledgement from the MTCS has also been provided which indicates that the Ministry is satisfied with these submissions. As such, Provincial and Regional policy requirements have been addressed.	Noted.
<u>Municipal Services:</u> Policy 58 (1.1) of 2009 ROP permits development provided that "adequate supply of water and treatment of wastewater for the proposed use has been secured to the satisfaction of the Region". Further, and as noted above, Policy 89(3) of the 2009 ROP requires that all new development within the Urban Area be on the basis of connection to Halton's municipal water and wastewater system.	Noted and Agreed.



Halton Region Planning	WSP Response
The existing services in the area of the site include a 1200mm dia. trunk watermain is located on Dundas Street West adjacent to the property. There are no existing sanitary sewers located adjacent to the property.	Noted and Agreed.
The original application was received in June 2011. Revised draft plans were received on December 2014, October 2015, July 2017 and September 2018. These servicing comments are in relation to the latest draft plan submitted.	Noted.
Please note that a Functional Servicing Study (FSS) was submitted as part of the Environmental Implementation Report (EIR) prepared by MMM Group and WSP. This report was revised numerous times and these submissions can be summarized as follows:	Noted.
 May 2011 December 2012 November 2014 June 2017 August 2018 (Addendum) 	
These servicing comments are based on the review of the latest FSS dated June 2017. Please note that the FSS addresses the servicing of lands well outside the limits of this development and reiterates the concepts and methodology used to service the entire secondary plan area as noted in the ASP.	
The servicing for the western portion of the North Oakville West Secondary Plan is addressed in the 407 West Employment Area - Area Servicing Plan (ASP). The ASP provides the overall servicing plan for the ultimate servicing and infrastructure requirements for this part of the NOWSP.	Noted.
<u>Wastewater Servicing:</u> The FSS notes that the wastewater servicing of this subdivision will be by an internal gravity sewer system that will convey flows to a proposed Regional trunk sanitary sewer that is to be located on Dundas Street West. The flows from this trunk sewer flow eastward to the existing trunk sewer located on Colonel William Parkway.	We will coordinate with the Region to accelerate this project by front end financing it.
The Dundas Street sanitary trunk sewer is a development charges project (ID #6911); however, it is currently not funded in a Regional budget. The trunk sewer is required to service this development but it cannot be constructed until there is Regional funding in place to do so. The status of the funding may impact the timing of this development. In order to have the trunk sewer designed and constructed in advance of the Region funding being available the developer would have to accelerate this project and front end the financing of this project and construct it. The developer would then be reimbursed for the cost of this sewer once Regional funding became available.	

wsp

Halton Region Planning	WSP Response
<u>Water Servicing</u> : The FSS proposes to service the development by providing a watermain network to be located within the proposed road network within the subdivision. As part of this network a 600mm diameter trunk watermain is proposed on Avenue One and local watermains are to be provided on Avenue Two and Avenue Three. This network will be connected to the existing external 1200mm diameter trunk watermain on Dundas Street where Avenue Two and Avenue Three intersect Dundas Street. This proposed water system is in accordance with the ASP.	Noted and Agreed.
Please note that the existing 1200mm diameter trunk watermain is located in the south boulevard of Dundas Street. When this watermain was constructed no crossing stubs/connections were provided for or constructed across Dundas Street at the future intersections of Avenue Two and Avenue Three. Valve chambers were provided in the general vicinity of these intersections in order to accommodate these future connections.	Noted. This development will construct the required crossings to connect to the 1200mm diameter trunk watermain.
The proposed 600mm diameter watermain on Avenue One is a DC reimbursable project (ID #5627). The project is not currently included in a current Regional budget. Should the funding not be available at the time of proceeding with the design and construction of this section of watermain then the developer will have to front end the funding of the design and construction of the watermain and be reimbursed in the future once funding becomes available in a Regional budget.	We will coordinate with the Region to accelerate this project by front end financing it.
The looping of the watermain system within this subdivision is contingent on watermains that are to be located on the adjacent lands that are both east and west of this subdivision. Avenue Two is located on both the lands of this subdivision and also on the adjacent lands to the west. Avenue Three is located on the lands of this subdivision and also the adjacent lands to the east. The FSS does not address how the watermain system/loop is to be completed by providing the external connections on these adjoining lands. The timing of the development of the adjacent lands could also be problematic in terms of providing proper watermain looping since it could result in temporary looping connections within the subdivision and/or possible long term temporary dead end watermains.	The watermain looping will be achieved in the interim conditions by constructing interim watermain through the development blocks. An easement in favour of the Region will be required for these interim watermains. The developer will be responsible for maintenance and decommissioning of all interim servicing and any flushing programs.
An external local watermain will be required to be constructed within the north boulevard of Dundas Street in order to service the blocks fronting on this street and also to provide fire protection for these blocks.	This watermain will be constructed in conjunction with this development.
The subdivision is located within the Zone 3 pressure zone. The FSS notes that the proposed water system was modeled using the Region's existing hydraulic model. The results show that there are parts of the subdivision that will be located in the lower end of the pressure range in this zone. Consideration may have to be given to providing pressure booster units in the buildings that are located on the lower end of the pressure range.	We are willing to consider the use of pressure booster units for blocks within the lower end of the pressure range. This will be part of each blocks SPA submission.



Halton Region Planning	WSP Response
<u>Phasing of the Development:</u> The FSS notes that this development will be phased in Phase 1A, Phase 1B and Phase 2. Due to this the servicing of the development will also be phased. Further, it appears that this draft plan of subdivision will proceed prior to the adjacent lands being developed. This is problematic from a servicing perspective since full road connections throughout the entire secondary plan area will not occur at the same time. This will impact the watermain system in the area since it will result in temporary dead-end watermains. The FSS notes that temporary and/or interim watermains may be required for looping. Servicing Plans for the different phases were included in the FSS. The interim watermain proposed can be summarized as follows:	-
 Phase 1A: A local watermain is proposed on Avenue Two and a short section of watermain is proposed on Burnhamthorpe Road. A temporary watermain is proposed through Block 3 and Block 1 and connects to the existing 1200mm dia. watermain on Dundas Street. This main would eventually be decommissioned and abandoned. This watermain would have to be in a temporary Regional easement. This results in a dead end watermain on Burnhamthorpe Road. 	The interim servicing noted is correct. We agree that the temporary servicing will require a temporary Regional easement and will be decommissioned and abandoned by the proponent's forces.
 Phase 1B: A local watermain would be constructed on the remaining portion of Burnhamthorpe Road that is within the limits of this subdivision. A small portion of local watermain would also be constructed on Avenue Three. A temporary local watermain would be constructed southward along the eastern limit of the property and connect to the existing 1200mm dia. watermain on Dundas Street. This watermain would have to be in a temporary Regional easement. The temporary watermain that was constructed in Phase 1A within Blocks 3 and 1 would be decommissioned, removed and/or abandoned in this phase. 	The interim servicing noted is correct. We agree that the temporary servicing will require a temporary Regional easement and will be decommissioned and abandoned by the proponent's forces.
 Phase 2: A local watermain would be constructed on a portion of Avenue Three that is north of Burnhamthorpe Road. A 600mm dia. trunk watermain would be constructed on the eastern portion of Avenue One. A temporary local watermain would be constructed along the eastern limit of the property just south of Avenue One. This watermain would have to be in a temporary Regional easement. The temporary watermain that was constructed in Phase 1B along the eastern limit would be decommissioned, removed and/or abandoned in this phase. This results in a dead end watermain on Avenue One. A temporary watermain is proposed through Block 7 and would connect to what would be then an existing local watermain on Burnhamthorpe Road. This main would eventually be decommissioned and abandoned. This watermain would have to be in a temporary Regional easement. 	The interim servicing noted is correct. We agree that the temporary servicing will require a temporary Regional easement and will be decommissioned and abandoned by the proponent's forces.



Halton Region Planning	WSP Response
The FSS did not indicated any further phases which showed when and how the remaining portion of the proposed 600mm dia. trunk watermain would be constructed and when the remaining	This FSS is for the Lazy Pat property and the proponent (QuadReal) has no control of the external lands; therefore there are no future phases for this development. However, participating in a cost-sharing agreement for future developments which will obligate full and proper build out of the 407 West Lands. The interim servicing will remain in place and maintained by the proponent until the ultimate servicing such as the 600mm diameter trunk is in place
temporary watermains constructed in Phase 2 would be decommissioned.	and active.
The FSS notes that where temporary looping cannot be provided that a regular flushing program will be required at these dead ends. Temporary flushing hydrants would have to be installed at these dead- ends. This is problematic to the Region since these dead-ends, although temporary, may be in place for long extended periods. The FSS did not address how such a flushing program would be funded and what forces would provide this flushing service. Further, the assumption of the subdivision by the Region could be affected by these temporary dead-ends and hydrants since the Region would not assume these works until the proper and ultimate watermain system is installed according to the ASP.	The flushing program will be funded by the proponent and carried out by the proponents forces. All flushing and test results will be provided to the Region for review and any corrective measures will be funded and carried out by the proponent as required.
The FSS is required to be revised to address the temporary looping, dead-end watermains and to demonstrate how the ultimate watermain system is to be constructed.	As discussed and agreed to with Ron MacKenzie of Halton Region on January 31, 2019, this response letter would suffice as a response to these comments.
<u>Reconstruction of Dundas Street:</u> The Region is planning to reconstruct Dundas Street from Appleby Line to Bronte Road under Project PR-2671B/2672B. The project is currently under design, however, the scope of work for the reconstruction of Dundas Street does not include the design of the proposed trunk sanitary sewer and/or the local watermain crossings required along Dundas Street. There is a possibility that the trunk sanitary sewer may be added to the scope of work for this project. If the funding for the trunk sewer is delayed then consideration should be given to having the developers in the area provide the front end financing for these projects in order that they can be included in scope of work for the road reconstruction project.	We will coordinate with the Region to accelerate this project by front end financing it if necessary.
The local watermain crossings required at Avenue Two and Avenue Three are considered local watermains and are not eligible as DC infrastructure. For these crossings to be included in the scope of work for the reconstruction of Dundas Street the developer would have to provide the funding to the Region and the Region would construct the crossings on their behalf.	We will coordinate with the Region to provide funding to allow for the construction of these road crossings as part of the Dundas Street road widening project.



Halton Region Planning	WSP Response
<u>Existing Private Water Well & Septic System Decommissioning:</u> The FSS did not indicate if there where private wells and/or septic systems located on the property from former use of these lands. Any existing private wells and/or septic systems are to be decommissioned prior to construction commencing on the site. Both existing wells and septic systems, if present on the site are to be decommissioned and removed from the site according to the proper MOE guidelines.	There is a private well and septic system associated with the existing farm residence. These will both be decommissioned in accordance with MECP regulations and guidelines.
<u>Storm Water Drainage on Regional Roads</u> : Dundas Street West is adjacent to this subdivision and it is slated for reconstruction and urbanization by the Region. Section 7.8.2 addresses storm drainage from the reconstructed Dundas Street being accommodated in SWM Pond 2 that is located in this subdivision and this pond is to be constructed in the first phase of the subdivision (Phase 1A). The FSS indicates that a small section 2.24 ha) of Dundas Street is proposed to drain to Pond 2 in the subdivision. This pond and some of the internal storm sewers in the subdivision will have to be designed to accommodate the storm water drainage from this section of roadway.	Noted and agreed. These sewers will be designed to accommodate the flows from Dundas Street West as described.
Please note that the Region previously had the EIR/FSS peered reviewed in regards to impacts of storm drainage from this development on Dundas Street. In particular the Region retained MMM Group to review an interim EIR/FSS (date unknown) and they provided their comments to the Region in a memo dated on Dec 14/15 (will be provided electronically to Town staff for re-distribution given the time lapse). In this memo it was noted that there is a potential for parts of Dundas Street to be in an overtopping condition for a Regional Storm Event in the post development period. The location that this could occur is at Culvert FM-D2 using the existing culvert at this location. This culvert is slated for replacement and upsizing when Dundas Street is reconstructed which is to remove the overtopping issue.	We understand that the culvert will be replaced. Our design will be able to accommodate this and Section 7.8.2 has been revised to account for the replacement.
The FSS should be revised to address the potential overtopping issues on Dundas Street.	Section 7.8.2 has been revised to include the replacement of Dundas Street culvert.
Regional Transportation: Section 173(8) of the ROP states that the Region and the Local municipalities will work together to control access to Arterial Roads in accordance with Council adopted access management policies. On Map 3 of the ROP, Regional Road 5 (Dundas Street) is defined as Major Arterial roads. In considering development applications, the ROP further requires that the proponent for any development considered to have a transportation impact a detailed transportation study to assess the impact of the proposal and to recommend necessary improvements is required. In addition, the ROP provides direction to restrict access to Major Arterial Roads, and require land dedication for road widening and daylight triangle purposes as defined by the ROP. The following comments are provided in relation to the materials provided as part of the above noted development proposal and supporting materials:	As part of the updated Transportation Study, WSP only allowed access to the development blocks via the internal roadway network. No access was assumed via Major Arterial Roads. Planning Team to ensure that the property line accounts for the planned road widening.



Halton Region Planning	WSP Response
Dundas Street Right-of-Way: The applicant should be aware that the location of future intersections along Dundas Street will be as indicated in the approved North Oakville West Secondary Plan. Further, the applicant will be required as conditions of approval to dedicate any lands which have been identified as required for the future widening and/or realignment of Dundas Street , or the future transit station stop on the northwest corner of Tremaine Road, through the Dundas Street Class EA/Dundas Street Detailed Design Study to Halton Region. Lands for daylight triangles for intersections with Dundas Street are also required for dedication. In this regard the applicant should be aware that any proposed signage, plantings etc., for the site must be placed <u>outside</u> of the <u>new</u> Regional right-of-way (on private property).	Noted and understood.
and specific comments related to the Dundas Street project are forincoming.	An updated Transportation Study has been
The Traffic Impact Study: The Traffic Impact Study (August 2013) and Response Document (August 2014) were peer reviewed in September 2015 by CIMA, on behalf of the Town of Oakville and Haiton Region (2^{nd} peer review). The response document was found to be acceptable. Due to the lapse in time the applicant will be required to provide a revised transportation impact study , using <u>2018</u> as the base year which incorporates all of the revisions outlined in their response report as a condition of draft approval.	completed for the proposed development using an updated base year.
 <u>Halton's Capital Implementation Plan (2017 - 2031)</u>: For information purposes, the updated timing of Halton's capital works, which is subject to change, is as follows: Dundas Street Widening - 4 to 6 lanes from Appleby Line to Bronte Road - Q3 2019 to Q3 2022 Dundas Street - Widening - 4 to 6 lanes from North Hampton Boulevard to Appleby Line - Q3 2019 to Q4 2020 William Halton Parkway - 2 to 4 Lane Widening from Old Bronte Road to Hospital Gate - Q2 2020 to Q4 2020 Tremaine Road - 2 to 4 lane widening from Dundas Street to Lower Base Line - start of construction 2024 	All capital works projects listed within this comment have been included within the updated Transportation Study, in addition to the planned Bronte Road widening within the study area (as included within the Region's Road Capital Project (2012- 2021)).
Environmental Implementation Report/Functional Servicing Study: The Environmental Implementation Report/Functional Servicing Study (WSP/QuadReal, June 2017) will be reviewed and approved by the Region's Development Project Manager and will be done in consultation with Halton's Detail Design Project Manager for the Dundas Street Capital Project (Appleby Line to Bronte Road).	_



Halton Region Planning	WSP Response
<u>Proposed Access at the east limit of the subject lands:</u> This location for a right-in/right-out access was never previously reviewed for access to the development lands. Further, the location shown on the draft plan does <u>not</u> permit a right-in/right-out access based on Halton's Access Management Guidelines and minimum spacing requirements from Colonel William Parkway.	Only the proposed avenue roadways (Avenue One/Two/Three/Five) and Burnhamthorpe Road were assumed to intersect with the surrounding boundary road network in the updated Transportation Study. All internal blocks
Should this potential access be contemplated it is required to be addressed and justified in the TIS so that it can be appropriately considered. The review and approval of the access is subject to the review and approval of the updated/approved TIS.	were assumed to have access via the internal roadway network. No right-in/right-out accesses were assumed to the surrounding regional roads.
<u>Conclusion:</u> At this time Regional staff will require the items identified in this letter to be addressed prior to supporting draft plan approval and providing draft plan conditions.	
I trust these comments are of assistance to you. Should you have any questions or require additional information, please do not hesitate to contact me directly.	
Sincerely, Laurielle Natywary BES, MCIP, RPP Senior Planner Extension 7182 Laurielle.natywary@halton.ca	



TO: Robert Thun, Town of Oakville

FROM: WSP

SUBJECT: Response to Comments on Interim Partial EIR/FSS September 2018 (24T-11001/1333) - 3269 and 3271 Dundas Street West Town of Oakville Development Engineering Comments (January 9, 2019)

DATE: May 24, 2019

Development Engineering	WSP Response
Development Engineering Staff has reviewed the above-mentioned submission received in September 2018, as well as the response document provided by WSP. Staff appreciate the additional details related to the stormwater management plan. Significant strides have been made with respect to the overall flow regime, water balance and stormwater management planning. Most of the outstanding issues are related to how this plan will be implemented based on the proposed draft Plan of Subdivision.	-
Town staff offer the following comments, while maintaining the comment numbering of the previous	
reviews.	
1. Nothing further.	N/A
2. Flow Regime - Staff continue to defer comments on the implications of the proposed decreases in flow at specific locations including Node 2 to Conservation Halton and MNRF. No further comment. Staff have reviewed appendix 7.6 with respect to the proposed stormwater management plan. The proposed plan is based on a fictitious proposed lot division. Since the proposed large blocks will likely eventually be subdivided by part lot control, further details are required at this time to ensure a prescriptive summary plan with sufficient details is available into detailed design. This summary plan includes the minimum and maximum roof drainage area and/or flows per hectare to support 14W-12A within each block with direction on how the overall requirements are achieved through development phasing. Details on the sizing and outlet of the stormwater system to supplement 14W-12A are required. Please confirm how roof release rates were considered for the various events including the Regional. This summary plan should also include details on the sensitivity of the flow regime balance, or justification as to when the flow regime would or would not require updating through detailed design.	

Development Engineering	WSP Response
The text of the report should be more clear on the assumptions made of which areas are draining to the infiltration trenches, 14W-12A supplemental system and Ponds for various events. Staff remain to have concerns about both supporting a permanent pool as well as providing sufficient storage for the Regional event. The intent of the summary plan noted above is to clearly identify drainage areas	
through the development phasing plan.	Notod
3. On-going coordination with adjacent property owners is required.	N/A
4. Nothing further.	Noted and agreed
s. Erosion Threshold Analysis – start remain to be confortable moving forward given that a robust monitoring program will be required to support this work.	Noteu anu agreeu.
6. Location and Size of Stormwater Management Ponds – Staff appreciate the further details on pond design provided through the interim submission. Staff note there are several discrepancies in elevations between the main report, summary tables and grading plan/cross sections (GR-1, SWM, D plans) for ponds 2 and 3. All drawings, grading plans, sections and report documentation must be made consistent. See further comments below on grading details.	Tailwater analysis have been completed for SWM Ponds #2 and #3.
Blocks C2-1 and C2-2 have split drainage to different ponds, please confirm if Pond 2 can accommodate drainage from the entire block.	
A more fulsome analysis of tailwater conditions is required as there may be timing changes that may impact flows. While some information on consideration for blocked outlets has been provided, further analysis is required to confirm these conditions have been modelled appropriately to demonstrate the pond design has considered blockages and tailwater conditions appropriately. Continued coordination with the Region's detailed design for the Dundas is required.	
7. Further information is required on the grading plan along the NHS to confirm access for the NHS. As noted above, there are discrepancies with respect to elevations/grading along the NHS between the grading plan, SWM plans and sections and summary tables.	The Grading plan has been updated with more detail to demonstrate access to the NHS.
8. With respect to the holdout property just upstream of FM-D3, a binding agreement with the current owner is required that confirms the current owner is aware that drainage currently contributing to their property will be altered.	In our opinion, the proposed roof plan for the subject development is pre-mature at the current stage by considering the proposed site plan does not exist. But as indicated previously, roof release rates during the Ultimate conditions for the various events
Statt appreciate the further details on the proposed infiltration galleries and roof drainage system. The flowrate assumed for the rooftop drainage is noted in Appendix 7.6, however no details on how this rate will be achieved physically are provided. As noted under comment #2, a more prescriptive summary plan of roof area required and/or flows per hectare are needed to provide guidance into detailed design.	including the Regional event are provided. A table is also included to summarize the required surface compensation measurements/details to supplement 14W-12A.
9. Since infiltration trenches along NHS are located within private ownership, the town will require easement agreements for these systems to ensure on-going operation and maintenance. The subdivision agreement will speak to the infiltration systems and requirement to construct, operate	The summary table has been provided. We agree with the comments regarding easement or block requirements.



Development Engineering	WSP Response
and maintain. With respect to the stormwater system to supplement 14W-12A, all infrastructure	
associated with the system should be located with a town-owned block, or preferably within a right of	
way. Again, a summary plan is required to guide detailed design through development phasing.	
10. Comment unchanged.	N/A
11. No further comments.	N/A
12. No further comment.	N/A
13. No further comment.	N/A
14. Downstream Impacts for Regional Storm – No further comment.	N/A
15. No further comment.	N/A
16. Monitoring Plan. Staff continue to require a detailed monitoring program at the time of	Noted and agreed.
engineering design stage.	
17. Trails Impact Assessment - Comment unchanged. Discussion on the location of trails is required.	We understand that this has been deferred to detailed
Staff understand that a trail staking exercise is outstanding, however sufficient grading information is	design.
needed within the EIR to ensure the proposed trail system including access is supported. Please add	
proposed trails to the grading plan and cross sections.	
18. Water Balance – no further comment.	N/A
19. Thermal Mitigation – no further comment. Opportunities to further enhance thermal mitigation	Noted.
can be assessed through detailed design.	
20. Major Storm System – The major system flows have not been shown on Figure 8.5. Also, the	Figure 8.5 has been revised to indicate the major
legend for this figure has discrepancies related to drainage areas for ponds.	storm system flows and the drainage areas are
	consistent.
21. Road Network and Servicing – Comments related to the road network and servicing will be	We understand that there are no further comments
provided from Development Engineering under separate cover.	coming.
22. Viability of Proposed Block P1 – Staff understand that the frontage for this block will be at	Noted and Agreed.
minimum 15 m.	
23. NEW COMMENT – a Section within the EIR that provides a commitment table summary is	We have provided a commitment table with this
required. This summary includes any conditions and items to work through during detailed design	submission.
and provides guidance of next steps through detailed design to implementation. The summary tables	
for the stormwater plan (infiltration trenches, supplement system to 14W-12A and ponds) is part of	
this section.	
We trust that the above is helpful. If you have any questions or concerns, please contact the	
undersigned at extension 3889.	
Kristina Parker, M.A.Sc., P. Eng.	
Water Resources Engineer	
Development Engineering Department	
kparker@oakville.ca	



то:	Robert Thun, Town of Oakville
FROM:	WSP
SUBJECT:	Detailed Design Commitments Table
DATE:	May 24, 2019

Many of the environmental concerns related to this project have been mitigated through the process by which the design as described in the EIR/FSS. There are various specific requirements as part of the design and mitigation plans. This section provides a detailed list of specific commitments to be carried forward to detailed design of the subdivision and blocks.

It is recommended that these commitments be incorporated into the appropriate subdivision or site plan conditions and construction documents where feasible.

It is important that proper environmental monitoring, site review and contractor education are appropriately completed throughout the project to ensure the commitments described in the table below are fully satisfied.

ID #	Detailed Design Commitments Extracted from the EIR/FSS
Surface	Water Compensation Measures
1	In Phase 1B, provide 2.56 ha of Rooftop Area and 7.68 ha of Pre-Development Area directed to 14W-12A
	(Flow Node 2)
2	In Phase 2, provide 5.12 ha of Rooftop Area directed to 14W-12A (Flow Node 2)
3	In the Ultimate Condition, provide 5.12 ha of Rooftop Area directed to 14W-12A (Flow Node 2)
Enviror	nmental Monitoring
4	Baseline monitoring for Anurans within Reaches 14W-11, 14W-16 and 14W-12
5	Baseline monitoring for Breeding Birds within Reaches 14W-11, 14W-16 and 14W-12
6	Baseline Temperature monitoring within Reaches 14W-11, 14W-14, 14W-16 and 14W-12
7	Baseline Monitoring for Benthic Macroinvertebrate for Reach 14W-11
8	Baseline Fish Community Monitoring for Reach 14W-11 and 14W-14
Ground	water Compensation Measures
9	In Phase 1A, provide 0.46ha of Rooftop Area from Block 2 directed to an infiltration swale adjacent to
	14W-12 with a minimum area of 230m².
10	In Phase 1A, provide 0.62ha of Rooftop Area from Block 3 directed to an infiltration swale adjacent to
	14W-12 with a minimum area of 325m².
11	In Phase 1A, provide 0.59ha of Rooftop Area from Block 4 directed to an infiltration swale adjacent to
	14W-16 with a minimum area of 310m².
12	In Phase 1B, provide 0.11ha of Rooftop Area from Block 6, directed to an infiltration swale adjacent to
	14W-12A with a minimum area of $60m^2$.



ID #	Detailed Design Commitments Extracted from the EIR/FSS
13	In Phase 1B, provide 0.62ha of Rooftop Area from Block 7 directed to an infiltration swale adjacent to
	14W-22 with a minimum area of $320m^2$.
14	In Phase 2, provide 0.61ha of Rooftop Area from Block 7 directed to an infiltration swale adjacent to
	14W-22 with a minimum area of $325m^2$.
15	In Phase 2, provide 1.06ha of Rooftop Area from Block 8 directed to an infiltration swale adjacent to
	14W-21 with a minimum area of $555m^2$.
16	In Phase 2, provide 1.07ha of Rooftop Area from Block 8 directed to an infiltration swale adjacent to
	14W-23 with a minimum area of 580m^2 .
Enviro	nmental Design Review
17	The discussion of the potential for the reduction of baseflow in the watercourses to be reduced will be
	reviewed subject to additional information being available.
18	ESA permitting regarding impacts to Bobolink will be reviewed with MECP.
19	The staging of the conversion of the farm pond into a SWM pond and the timing of the creation of new
	habitat along Reach 14W-22 will be reviewing to accommodate the relocation of amphibians.
20	The proposed works associated with the widening of Dundas Avenue will be confirmed and reviewed
	to determine the extend of the rehabilitation of the Reach 14W-12 to determine if it will extend
	beyond the ROW. If it does, the opportunity to undertake the outstanding restoration works will be
	reviewed and potentially included in this project.
21	The type of road crossing structures will be reviewed and confirmed.
22	DFO will be consulted regarding the conversion of the farm pond into a SWM pond to obtain Fisheries
	Act approval.
23	The thermal mitigation measures associated with the outflow from the SWM ponds will be reviewed to
	see if there are further opportunities to reduce potential thermal impacts. Once the thermal
	mitigation measures are determined, a monitoring plan will be developed.
24	The landscaping / restoration plans will be developed and will ensure that no on-line wetlands are
	included along Reach 14W-22.
25	The alignment of Avenue One will be reviewed in relation to the PSW to maintain a 30 m regulation
	limit.
26	The proposed trail alignment will be staked and reviewed in the field with CH to confirm the trail
	alignment in proximity of Unit 5A.
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Executive Summary



Executive Summary

This Environmental Implementation Report and Functional Servicing Study (EIR/FSS) has been prepared for a portion of lands within the Fourteen Mile Creek West catchment area (FM1001) and the bcIMC Realty Corp. lands, managed by QuadReal Property Group (formerly Bentall Kennedy (Canada) LP) and commonly known as the "Lazy Pat Farms" property (Subject Property). A range of environmental and municipal servicing matters are addressed in this EIR/FSS as required by the approved Terms of Reference for EIR/FSS studies for North Oakville.

The Subject Property is located within the western portion of North Oakville West Secondary Plan (NOWSP) area, which has been defined as the 407 West Employment Area. The Subject Property is located on the north side of Dundas Street West (Highway 5), generally mid-block between Tremaine Road and Bronte Road (Highway 25), in the Town of Oakville. The property encompasses an area of approximately 185 acres (75 hectares).

The purpose of the EIR is to characterize and analyze the natural heritage features and functions and to determine and address the potential impacts of a proposed development application, including servicing requirements, on the Natural Heritage System (NHS). The purpose of the FSS is to identify servicing requirements related to sanitary, water, stormwater, roads, and site grading. Further, the purpose of both the EIR/FSS is to provide a link between the Town's North Oakville Creeks Subwatershed Study (NOCSS) Management Report and Implementation Report, the NOWSP (OPA 289) and the Draft Plan of Subdivision submissions for development applications and identification of environmental and engineering draft plan conditions of approval for the Subject Property.

The following summarizes the major findings and recommendations of the EIR/FSS.

1.1 EIR Subcatchment Area and FSS Study Area

The Subject Lands are located primarily within the FM1001 subcatchment area, and smaller portions lie within the FM1102 and FM1109 subcatchment areas. The EIR subcatchment boundaries were refined using 2002 Town of Oakville topographic mapping. A comparison of updated existing drainage areas was made with drainage areas reported in the NOCSS Study. There are differences in drainage boundary interpretation resulting in approximately a 14 ha decrease in subcatchment FM1102, a 36 ha decrease in subcatchment FM1001 and a 3 ha increase in subcatchment FM1109; however, all drainage remains within the Fourteen Mile Creek system.

EIR Subcatchment Area is defined to be the FM1001 subcatchment, focusing on the area south of Highway 407. Environmental and engineering requirements for the small portions of FM1102 and FM1109 subcatchment areas have been addressed without the need to prepare an EIR for these subcatchment areas, in accordance with the Terms of Reference.

The FSS Study Area is defined to include the Subject Property; however, additional details have been provided for the entire 407 West Employment Area (lands bounded by Dundas Street West, Tremaine Road, Highway 407 and Regional Road 25 (Bronte Road)), to ensure servicing requirements for the areas external to the Draft Plan of Subdivision are adequate.

1.2 Natural Heritage System Framework

With respect to the Subject Property and the EIR Subcatchment Area, OPA 289, NOCSS and NOCSS Addendum identify various environmental features to be protected and/or studied further during the preparation of the EIR/FSS. As illustrated on Figure NOW 3 from OPA 289 (Figure 2.1), the components of the Natural Heritage System (NHS) that are located within the EIR Subcatchment Area, and related subcatchment areas on the Subject Property include the 'High Constraint Stream Corridor Area' and 'Medium Constraint Stream Corridor Area', and features designated as 'Other Hydrological Features', which includes Low Constraint Stream Corridors, Hydrologic Features "A" and Hydrologic Features "B" and topographic depressions. These natural heritage components are further addressed through Section 2.0 and Section 5.0 of the EIR/FSS.

1.3 Land Use

The proposed land uses for the Subject Property consist of a range of employment uses and associated natural heritage and open space uses, in accordance with the Region's and Town's land use and planning directions for the 407 West Employment Area. The development concept envisions the creation of an office and business park with prestige employment uses adjacent to Highway 407, due to increased visibility along this major Provincial Highway. Mixed employment uses, which include limited service and office uses, (i.e., identified as Mixed Employment) are envisioned at the major road intersections along the Dundas Street corridor and at major Arterial intersections to serve the employment area. It is proposed that more general industrial uses, such as mixed warehousing and office uses may be accommodated internal to the business park. The Development Area Concept Plan (Figure 3.1) and proposed Draft Plan of Subdivision (Figure 3.2) are further presented in Section 3.0.

The NOWSP, Figure NOW4 conceptually identifies a Major Trail System along the Burnhamthorpe Road extension, west of Bronte Road, extending to Tremaine Road, in addition to a Major Trail System within the NHS, along the main stream corridor which traverses the Subject Property and around the NHS associated with Fourteen Mile Creek. The Town's North Oakville Trails Plan, May 2013 provides further guidance with respect to trails planning in North Oakville. Figure 3.3 illustrates the conceptual trails plan within the 407 West Employment Area. Design considerations are provided to guide further trail design at later stages in the development process where the trail system interfaces with the NHS. Section 5.0 provides further details with respect to trail planning in relation to the NHS.

The Planning Rationale Report, prepared by WSP Canada Group Limited (WSP) (formerly MMM Group Limited), in support of the Draft Plan of Subdivision and Zoning By-law Amendment applications, concludes that the development proposal is consistent with the Provincial Policy Statement, the Region of Halton Official Plan and the NOWSP.

1.4 Hydrogeology and Geology

The Subject Property and the three subwatersheds that traverse the property are located in a hydrogeological environment that is not particularly favourable towards mitigation of infiltration losses. The surficial fine-grained deposits of Halton Till found throughout the study area serves to limit infiltration to the groundwater system (69 mm/year) and as a result, the local watercourse systems receive a little over two-thirds of their total water from surface runoff (141 mm/year). Based upon the results of the water balance analysis, almost all the groundwater base flow into the watercourses occurs over the period of November to

May, when the entire shallow system, including upgradient reaches of the channel are saturated and contributing water to the watercourses. The watercourses are observed in a dry to ponded condition during the summer months as identified by the water balance, and the comparisons of measured stream flows to estimates from the water balance methodology are reasonable.

The lower reaches of the FM1001 tributaries (generally to the south of Highway 407) are interpreted as receiving minor groundwater contributions from the Queenston Shale bedrock but these contributions are insufficient to provide enough water to maintain flow in these watercourses during the summer months as the watercourses have been observed in dry to ponded conditions during these periods. Groundwater inputs from the bedrock into the realigned watercourses after development are however expected to increase compared with the pre-development levels. Over the lower reaches of the main channel there may be greater opportunity for bedrock-based groundwater to maintain pools in the channel as the bedrock is exposed in the channel and the watercourse is shaded somewhat by large trees.

The section of the FM1109 tributary (Reach 14W-11 and Reach 14W-11A) passing through the northeast corner of the Subject Property is interpreted from collected site data to be losing water to the ground, due to the nearby influence of a buried bedrock valley to the east. The large human-made Farm Pond at the central portion of the Subject Property is also shown to be maintained almost entirely by surface water inflow rather than from groundwater contributions on the basis of the comparison of the measured surface water levels at the pond against the groundwater elevations at monitoring wells constructed around the pond. Minor, seasonal groundwater seepage potential has been identified at a mini-piezometer station located to the northwest of the west end of the pond alongside Reach 14W-12A where both upward and downward gradients have been recorded. The quantity of water discharging to the channel in this area has been calculated to be quite small and any losses due to construction of the pond will be made up with water from a 40 m length of infiltration trench and from controlled flow of roof runoff from nearby buildings.

The upper weathered zone of the surficial till deposits found throughout the subwatershed provides the bulk of the groundwater inputs to the local watercourses, but on a seasonal basis over about seven months of the year. The enhanced permeability of this upper zone permits infiltrating groundwater to travel through the shallow zone towards the watercourses and it is these conditions that provide the most promising potential mitigation opportunities at this site.

The greatest opportunity for mitigating against infiltration losses at the Subject Property is along the edge of the existing valley lands where the naturally weathered and fractured surficial till soils will remain undisturbed by construction and will retain their ability to convey water laterally towards the watercourses. It is along these lands that infiltration swales primarily receiving clean roof runoff are proposed, and such infiltration measures are calculated to reduce the post-development on-site infiltration deficits from approximately 62% (with no mitigation proposed) to a balance with the pre-existing conditions with the use of the infiltration swales.

1.5 Natural Environment

The Subject Property and surrounding lands consists principally of agricultural lands that are actively farmed intermixed with recreation and rural residential uses that are dissected by a local and regional road network. The notable natural features within the catchments areas of the Subject Property include the Oakville-Milton Wetlands & Uplands Candidate Life Science Area of Natural and Scientific Interest (ANSI), North Oakville – Milton Wetlands – West Provincially Significant Wetland (PSW) Complex, Trafalgar

Moraine Candidate Provincially Significant Earth Science ANSI, Halton Region Significant Woodlands, as well as, features identified in NOCSS including Core #1 and Linkage to Core #2 and Stream Corridors associated with Fourteen Mile Creek including watercourses supporting Redside Dace and Hydrological Features. With the exception of the Stream Corridors and Hydrological Features the remaining features are located beyond the boundary of the Subject Property. Within the boundaries of the Subject Property the main natural features consist of tributaries of Fourteen Mile Creek including Redside Dace habitat, as well as, their associated riparian habitat. Species at Risk (SAR) discussions with the Ministry of Natural Resources and Forestry (MNRF) were undertaken for the species identified within the Subject Property. Consultation has indicated that approvals under the *Endangered Species Act* (2007) will be required for impacts related to Redside Dace and potentially for Bobolink, Barn Swallow, and two bat species; Little Brown Myotis and Northern Myotis. All approvals will be confirmed during detailed design.

Detailed field investigations were undertaken between 2009 and 2011 to supplement background data from the NOCSS, previous field investigations undertaken on site by WSP (formerly MMM Group Limited which was formerly Marshall Macklin Monaghan Limited) and to address comments received from Conservation Halton (CH) and the Town of Oakville. This data was used to verify the NOCSS classification of habitat, as well as, assess potential impacts to the natural features associated with the proposed concept plan. With the exception of a section of Reach 14W-12 and Reach 14W-14A, generally the field data supported the NOCSS classification of form and function and associated constraints.

Potential effects to the natural heritage system associated with the proposed concept plan were also examined, taking into consideration the habitat present, as well as, mitigation measures, to determine potential residual impacts. Previous consultation with Fisheries and Oceans Canada (DFO) has indicated that a *Fisheries Act* (FA) (1985) Authorization will not be required for the consolidation and realignment of Reach 14W-13 and Reach 14W-14, as well as, the realignment of Reach 14W-11A. The proposed realignments will provide suitable opportunities to undertake restoration works in watercourses that have been altered by agricultural activities including the incorporation of greater habitat diversity (i.e., riffles, pools) and improved riparian cover as identified in the enhancement strategies. These restoration works will be implemented to address potential adverse effects to fish and fish habitat associated with the proposed realignments works.

The development concept plan also proposes to remove the existing Farm Pond (Reach 14W-14A) and its incorporation into the proposed stormwater management plan, with enhanced water quality treatment to improve water quality discharged to downstream fish habitat in Reach 14W-12. This will result in the removal of the constructed agricultural Farm Pond feature that, due to its current form, has adverse thermal and water quality effects to downstream Redside Dace habitat. Its removal is anticipated to benefit fish and fish habitat. DFO has indicated that the effects to Reach 14W-14A will not require a FA (1985) Authorization.

The proposed development will also result in changes to flow within the reaches, most notably within the upper section of Reach 14W-12 (referred to as Reach 14W-12A in this report). The effect of this change in flow was examined based on the ecological function of the relatively short section of the reach to be affected and the anticipated change in flow. Based on the function of this short section, it is anticipated that any adverse effects can be addressed through the proposed habitat enhancements in other reaches.

The natural heritage components are further addressed in Section 5.0.

1.6 Water Resources

The refinement of corridor widths for high and medium constraint streams have been completed based on the guidance provided in the NOCSS. A medium constraint stream corridor (Reach 14W-14) and a low constraint stream corridor (Reach 14W-13) of the West Branch of Fourteen Mile Creek within the Subject Property are proposed to be diverted to Reach 14W-12A, approximately 20 metres upstream of the connection with 14W-12 to accommodate the development. The proposed diversion (Reach 14W-21) along Highway 407 will intercept flows from Reach 14W-13 and Reach 14W-14 just downstream of Highway 407 and eventually divert them to Reach 14W-12A via another proposed diversion (Reach 14W-22) along the southwest limits of the Subject Property. Another medium constraint stream corridor (Reach 14W-11A) of the West Branch of Fourteen Mile Creek will be realigned along Highway 407 and the northeast limits of the Subject Property.

All proposed diversion channels have been developed based on the principles of Natural Channel Design and NOCSS requirements. The proposed Natural Channel Design features (e.g., pools, riffles, and floodplain wetlands) provide great opportunity to sustain or even improve the ecological functions already existing in Reach 14W-13, Reach 14W-14, and Reach 14W-11A.

The Hydrologic Engineering Center's (CEIWR-HEC) River Analysis System (HEC RAS) model was updated to account for the proposed re-alignments. Changes in bed elevation and water surface elevations, due to changes in connectivity and continuity were analyzed in terms of conveyance, floodplain mapping, and riparian storage. The floodlines under interim and ultimate conditions were delineated, and they fall within the meander belt + factor of safety width in most cases. In a few instances, where floodlines were not encompassed within that limit, the Hazard Allowance setback was offset from the floodlines, following the recommendations of the NOCSS.

For all proposed reaches within the Subject Property associated with the future developments (i.e., 14W-22, 14W-23 and 14W-12A), the results of riparian storage analysis show that the all future channels would have more riparian storages than those under the existing conditions based on both design flows and standardized flows. The only exception is for Reach 14W-14/14W-22, where the decrease in riparian storage of 11% estimated under regional storm was estimated. However, this reduction is reasonable by considering the 23% flow reduction at the channel during the future conditions.

1.7 Stormwater Management

In accordance with the NOCSS, the NOCSS unit flow rates have been used along with the updated existing drainage areas to calculate pre-development peak flow rates at both EIR nodes and reference flow nodes. As required by NOCSS and the EIR/FSS Terms of Reference, alternative Stormwater Management Practices are described and evaluated for application in the EIR Subcatchment Area, and a stormwater management plan was selected to satisfy NOCSS and Town of Oakville stormwater management goals, objectives and targets.

The soils within the Subject Property have been characterized as clay loams that have a relatively low infiltration potential and the proposed employment land uses have a high imperviousness to accommodate viable employment development blocks. Therefore, minimal opportunities to implement infiltration techniques are anticipated, other than the potential for proposed infiltration swales alongside the valley corridors. Opportunities to integrate low impact development measures at the lot level will be considered at

the detailed design stage. The current strategy is aimed at addressing stormwater impacts from the dense urban form planned under the Town's policies and guidelines. As the eventual imperviousness of the final blocks will be determined by the prospective tenants, conservative assumptions on block coverages have been utilized to devise a stormwater management strategy. Any built form proposals that reduce lot imperviousness and/or install low impact development techniques or on-site stormwater management controls will reduce flow rates and pollutant loadings to the proposed stormwater management (SWM) facilities and should be encouraged.

A stormwater management plan has been developed for the Subject Property based on the guidance provided in the NOCSS. Preliminary designs have been completed for the four SWM facilities associated with the subject study area, including two SWM facilities within the Subject Property and the other two SWM facilities located outside of the Subject Property, east of Tremaine Road between Highway 407 and Dundas Street. The following provides a summary for the SWM plan:

- Water Quantity: The stormwater management facilities are sized to control the post-development peak flows to pre-development levels for the 2-year to 100-year return period events and the Regional Storm.
- Water Quality: The SWM facilities are designed to meet MECP's Enhanced Level of water quality protection (Level 1) for water quality control, phosphorus control and fisheries protection (thermal mitigation).
- Erosion Control: The detailed erosion threshold analyses including a fluvial geomorphological study were performed to ensure the proposed SWM facilities would provide adequate erosion control protection for the downstream watercourses, so that existing channel erosion or aggradation is not exacerbated by development.
- Hydrologic Flow Regimes Analysis: A comprehensive investigation of the impact of development has been carried out on all flow nodes within the Subject Property. Where reaches were to be re-aligned or where habitat concerns had been communicated with the study team, detailed assessments were incorporated. Specifically, the magnitude of peak flows will only decrease by 15-20% from existing conditions for Reach 14W-22 and Reach 14W-23, and the duration and frequency will be similar. For Reach 14W-12A, although reductions in stream flows are anticipated, the wetted perimeter and continuity of the flows will be maintained.

Note that in order to allow a uniform and sustained level of flow to be maintained in the subject receiving 14W-12A channel, flows from rooftops of the proposed buildings with a total area of 5.12 ha will be diverted to Reach 14W-12A directly under ultimate development conditions. Note that it is assumed that the roof drains will be installed at rooftops of the proposed buildings to provide a controlled unit flow rate of 41 L/s/ha at a maximum water depth of 0.15 m on the rooftops.

- **Topographic Depression Volumes:** Evaluation of the existing depression storage was performed to ensure that the natural depression storage would be maintained in the SWM system.
- **SWM Pond Design**: The SWM facilities are design to meet all the criteria as enforced by the MECP and in accordance with the Town of Oakville design guidelines.

Downstream Impacts for Regional Storm: With the proposed SWM facilities providing Regional controls for the developments within the Subject Property, there will be no impact to the downstream watercourses due to the development of the Subject Property. As a prudent measure, a hydrological analysis for the entire Fourteen Mile Creek subwatershed was carried out to investigate and ensure that there would not be potential increases to flood risk for the entire downstream watercourse to its outlet at Lake Ontario during Regional Storm conditions.

1.8 Municipal Servicing

Section 8.0 outlines the municipal services for the 407 West Employment Area and Subject Property based on the proposed development concept plan. This includes proposed wastewater servicing, water distribution, stormwater servicing and management, and conceptual road and lot grading. The servicing design was developed using the information and guidelines provided by the Region of Halton's Water and Wastewater Master Plan, the NOCSS and the approved 407 West Employment Area – Area Servicing Plan, June 2014, prepared by WSP (formerly MMM Group).

Wastewater servicing design consists of a gravity flow system which drains north to south and connects to the proposed trunk sewer on Dundas Street West, ultimately discharging to the existing Colonel William Parkway wastewater system. The conceptual wastewater servicing design is described in detail in Section 8.2 and illustrated in Figure 8.2.

The water distribution system will be serviced from the Oakville pressure district Zone 3 supply, connecting at Dundas Street West and Bronte Road with an interconnection to Burlington Zone B3, connecting at Dundas Street West and Tremaine Road. Water will be supplied through a system of trunk and local mains within the proposed road network in accordance with the Regional Master Plan. Sizing of watermains was determined using the water model outlined in Section 8.3 and illustrated in Figure 8.4 and Appendix 8.2.

Stormwater servicing will consist of gravity sewers within the conceptual road network that will discharge to SWM facilities for treatment based on the catchment areas indicated in Section 7.0. The major storm system will convey the major storm flows via an overland flow route along the road rights-of-way to the designated SWM facility. The conceptual minor and major storm system designs are illustrated on Figure 8.5.

The conceptual road and lot grading was designed with the intention of matching existing grades as closely as possible while still maintaining necessary elements of the Stormwater Management Plan detailed in Section 7.0. The conceptual grading plan is illustrated on Figure 8.6.

1.0 Introduction



1.0 Introduction

1.1 Study Purpose

This Environmental Implementation Report and Functional Servicing Study (EIR/FSS) has been prepared in accordance with the requirements of the Town of Oakville North Oakville Environmental Implementation Report and Functional Servicing Study Terms of Reference (ToR), August 2, 2007 (Revised May 2013), for a portion of lands within the Fourteen Mile Creek West catchment area, commonly known as the "Lazy Pat Farms" property, as shown on Figure 1.1. This parcel of land is owned by bcIMC Realty Corp. and managed by QuadReal Property Group (previously managed by Bentall Kennedy (Canada) LP) and is herein referred to as the "Subject Property".

The Subject Property is located within the western portion of North Oakville West Secondary Plan (NOWSP) area, which has been defined as the 407 West Employment Area. The Subject Property is located on the north side of Dundas Street West (Highway 5), generally mid-block between Tremaine Road and Bronte Road (Highway 25), in the Town of Oakville. The municipal address is 3269 Dundas Street West, Oakville and is legally described as Part of Lots 33 and 34, Concession 1, North of Dundas Street, Township of Trafalgar, now in the Town of Oakville, Regional Municipality of Halton. The Subject Property encompasses an area of approximately 185 acres (75 hectares).

This EIR/FSS has been prepared to address the NOWSP policy requirements in support of the approval of a Draft Plan of Subdivision and Zoning By-law Amendment application for the Subject Property. The NOWSP was adopted by Council on May 25, 2009. On December 4, 2009, the Ontario Municipal Board (OMB) approved the majority of the NOWSP, save and except for lands shown as Appeal Area on Attachment A of the decision which generally includes the lands bound by Fourteen Mile Creek on the west; Highway 407 on the north; Bronte Road to the east (including certain lands fronting on the east side of Bronte Road); and Dundas Street to the south. These lands remain under appeal, until an OMB decision is rendered. The balance of the area, which includes the Subject Property is subject to the NOWSP which came into force and effect as of December 4, 2009.

OPA 289 establishes the NOWSP for the lands generally bounded by Dundas Street, Tremaine Road, Highway 407 and the Sixteen Mile Creek. The NOWSP includes land use designations and detailed policies establishing general development objectives to guide the future development of this area.

The NOWSP also sets out the requirements which must be met before any development can proceed. This included the preparation of an EIR/FSS:

Policy 8.8.3 a) requires that an Environmental Implementation Report (EIR) be prepared for each subcatchment area, in accordance with the directions established in the North Oakville Creeks Subwatershed Study (NOCSS) Implementation Report for each subcatchment area identified in Appendix 8.2. The EIR must demonstrate how the submissions address the overall North Oakville Creeks Subwatershed Management Report. Policy 8.8.3 a) iii) requires that Environmental Implementation Reports be prepared in accordance with ToR approved by the Town of Oakville (the "Town"), the Region of Halton (the "Region") and the applicant(s), in consultation with Conservation Halton ("CH").

- Policy 8.8.3.b) requires that a Functional Servicing Report (FSS) be prepared for each plan of subdivision or major development application. The FSS must include a preferred servicing plan based on an analysis of servicing requirements, in accordance with any approved Class Environmental Assessment Studies, Halton Transportation Master Plan and the Master Servicing Plan for the North Oakville West Planning Area and including:
 - i. servicing design requirements;
 - ii. preliminary sizing of water and wastewater infrastructure;
 - iii. layout for roads and other transportation systems including transit and trails;
 - iv. preliminary sizing and location of stormwater management facilities; and
 - v. integration with environmental features and development areas.

An Area Servicing Plan (ASP) has been prepared by MMM Group Limited for the 407 West Employment Area (area bound by Dundas Street West, Tremaine Road, Highway 407, and Regional Road 25 (Bronte Road)), based on the Area Servicing Plan ToR provided by the Region. The ASP was approved by the Region on June 2, 2014.

The work completed as part of this EIR/FSS and documented in this report was guided by requirements set out in the EIR/FSS ToR (Revised May 2013) approved by the Town and CH, and is intended to satisfy the policy requirements of OPA 289. A copy of the approved ToR is provided in Appendix 1.1.

As identified in the ToR, the purpose of the EIR is to characterize and analyze the natural heritage features and functions and to determine and address the potential impacts of a proposed development application, including servicing requirements, on the Natural Heritage System (NHS). The purpose of the FSS is to identify servicing requirements related to sanitary, water, stormwater, roads, and site grading. Further, the purpose of both the EIR and FSS is to provide a link between the Town's NOCSS Management Report and Implementation Report, the NOWSP and the Draft Plan submissions for development applications.

The objectives to be fulfilled by the EIR/FSS are set out in the approved ToR, and:

Demonstrate how the subwatershed requirements set out in the NOCSS Management Report (including targets), the Implementation Report, and Secondary Plan are being fulfilled in all proposed Draft Plans;

- Provide sufficient level of conceptual design to ensure that the various components of the NHS and infrastructure can be implemented as envisaged in the NOCSS and Secondary Plan and to ensure that the Draft Plans are consistent with this conceptual design;
- Ensure servicing requirements as determined in the FSS for the areas external to the Draft Plan are adequate;
- Identify details regarding any potential development constraints or conflicts and how they are to be resolved;
- Provide any further implementation details as needed;
- Streamline the Draft Plan approval process; and,
- Facilitate the preparation of Draft Plan conditions.

As set out in the ToR, the EIR/FSS for the Subject Property has been prepared as a joint report to fully integrate environmental and engineering recommendations to protect the function of the NHS and service the Subject Property.

1.2 EIR Subcatchment Area and FSS Study Area

The Subject Property is located primarily within the FM1001 subcatchment area; and smaller portions lie within the FM102 and FM1109 subcatchment areas. The limits of these subcatchments within the Subject Lands are shown on Figure 1.2 and have been refined from the subcatchment areas identified in the NOCSS based on further analysis undertaken through the preparation of this EIR/FSS as provided in Section 7.0. Table 1.1 notes the subcatchments draining the Subject Property and the areas/percentages of the Subject Property lying within each subcatchment area.

Table 1.1 –	Subwatershed Areas
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Subwatershed	Subwatershed Area (ha)	Subwatershed Area within Subject Property (ha)	Proportion of Subwatershed within Subject Property (%)	Proportion of Subject Property within the Subwatershed (%)
FM1102	44.4	4.7	11%	6%
FM1001	395.3	60.4	15%	81%
FM1109	365.0	10.0	3%	13%
Subject				
Property		75.1		100%

The EIR/FSS ToR differentiate between the study area for the FSS and the subcatchment study area for the EIR. The EIR is to be completed on a subcatchment basis, while the FSS will address specific servicing requirements in support of draft plans of subdivision.

The NOCSS provides direction to the preparation of EIRs including the delineation of EIR subcatchments. Figure 7.4.2 from the NOCSS Addendum illustrates the EIR subcatchment areas. With reference to this figure (included at the end of this section) and direction from the ToR, the appropriate study areas for this EIR/FSS are:

- EIR Subcatchment Area is defined to be the FM1001 subcatchment, focusing on the area south of Highway 407; and,
- FSS Study Area is defined to include the Subject Property, which consists of the lands owned by bcIMC Realty Corp.; however, sufficient details have been provided for the 407 West Employment Area.

The EIR Subcatchment Areas and the FSS Study Area for the Subject Property are shown on Figure 1.2.

The ToR recognizes that ownership or draft plan boundaries will not follow subcatchment boundaries and allow for the assessment of portions of subcatchments where reasonable. The ToR recognizes that where the proposed development is within the majority of the EIR subcatchment with minor portions outside:

• Consideration will be given to minor adjustments in subcatchment boundaries with the conditions that the adjustments would not put undue restrictions on the servicing of adjacent subcatchments and demonstrate no negative impacts to flooding, erosion and the NHS; and,

• If no change in subcatchment boundary is proposed, consideration is to be given to how development in the adjacent subcatchment is to be serviced. Conceptual drainage patterns are to be developed and profiles generated to ensure that the area can be serviced.

This EIR/FSS has addressed the subcatchment and draft plan requirements for the small portions of the Subject Property located within the FM1102 and the FM1109 subcatchment areas, without preparing complete EIRs for these subcatchment areas. With respect to the FM1102 subcatchment area, the portion of the Subject Property within this subcatchment is relatively small (4.7 ha), comprising approximately 11% of the entire subcatchment area. With respect to FM1109 subcatchment area, the portion of the Subject Property within this subcatchment is relatively small (4.7 ha), comprising approximately 11% of the entire subcatchment area. With respect to FM1109 subcatchment area, the portion of the Subject Property within this subcatchment is relatively small (10.0 ha), comprising approximately 3.0% of the entire subcatchment area. This EIR/FSS focuses on the FM1001 subcatchment and provides discussion of subcatchments FM1109 and FM1102 to the extent required.

This EIR/FSS consistently uses the following terms when referring to various land areas:

- the "Subject Property" referring to the bcIMC Realty Corp. land holdings managed by QuadReal Property Group (previously managed by Bentall Kennedy (Canada) LP);
- the "FSS Study Area" referring to the Subject Property;
- the "EIR Subcatchment Area" referring to the FM1001 subcatchment area; and,
- the "Study Areas", referring to both the EIR Subcatchment Area and the FSS Study Area.

As required by the EIR/FSS ToR, land uses as proposed by the Town's NOWSP for lands adjacent to the FSS Study Area are recognized and considered in planning, transportation and servicing analyses. As such, land use and development assumptions have been made to facilitate the preparation of this EIR/FSS. The land use and development assumptions for purposes of analysis reflect best practices and procedures for undertaking such planning, transportation and servicing analyses. The adjacent lands are designated Employment District and Natural Heritage and Open Space in the NOWSP.

1.3 Study Team

A multidisciplinary study team lead by WSP Canada Group Limited (WSP) (formerly MMM Group Limited) has studied the environment and servicing of the Study Areas. The team and their responsibilities include:

WSP Canada Group Limited:

- lead EIR consultant addressing limits of development, study integration, team/study management and coordination of EIR/FSS report preparation;
- lead FSS consultant addressing municipal servicing, stormwater management and site grading;
- aquatic habitats;
- terrestrial ecology;
- geology and hydrogeology;
- hydrology and fluvial geomorphology; and,
- municipal planning matters and preparing the draft plan of subdivision.

Waters Edge:

• fluvial geomorphological and erosion threshold assessment.

Exp. Consulting:

• geotechnical and slope stability analysis.

1.4 References

Included in Appendix A1.2 is a complete list of references, studies, guidelines and documents which have been reviewed in preparation of this EIR/FSS.



Environmental Implementation Report / Functional Servicing Study for 14 Mile Creek West and the Lazy Pat Farm property

Subject Property with Aerial Photography

LEGEND



Subject property

407 West Employment Area

1:7500 0m 50 100 150 2	00 250 500m	
	Prepared by	
June 2017	Proj. No. 09M-00013-01 (1409222-001)	
Aerial Photo © DigitalGlobe 2010, Google 2009	Figure 1.1	



Environmental Implementation Report / Functional Servicing Study for 14 Mile Creek West and the Lazy Pat Farm Property

Study Areas

LEGEND





^{Scale} 1 : 15,000	\bigcirc
0m 100 200 300 400 5	00 1km
	Prepared by
	•
June 2017	Proj. No. 09M-00013-01 (1409222-001)
Aerial Photo © DigitalGlobe 2010, Google 2009	Figure 1.2

2.0 Natural Heritage System Framework



2.0 Natural Heritage System Framework

2.1 Natural Heritage System Components

The 'Natural Heritage System Area' designation of the NOWSP reflects the components of the Natural Heritage and Open Space System and is intended to protect, preserve, and where appropriate, enhance the natural environment. OPA 289, the Town's NOCSS and the NOCSS Addendum provide policies and/or directions with respect to the protection and management of the North Oakville West Natural Heritage/Open Space System. The NOCSS is divided into four sections, which follow the four phases of a subwatershed management approach, they include Characterization, Analysis, Management Strategy and Implementation.

The Management Strategy outlines requirements regarding lands restricted from development, lands with development limitations or constraints, stormwater management, input to land use policies and servicing requirements. The Implementation Plan outlines the implementation requirements for the recommended management strategy, studies needed in subsequent stages of the development process, environmental reporting requirements, agency responsibilities, and the approval process with the Town, the Region and CH, and, where applicable, the Ministry of Natural Resources and Forestry (MNRF) and Fisheries and Oceans Canada (DFO).

With respect to the Subject Property and the EIR Subcatchment Area, OPA 289, NOCSS and the NOCSS Addendum identify various environmental features to be protected and/or studied further during the preparation of the EIR/FSS. As illustrated on Figure NOW3 from OPA 289 (Figure 2.1), the components of the Natural Heritage System (NHS) that are located within the EIR Subcatchment Area, and related subcatchment areas on the Subject Property include the 'High Constraint Stream Corridor Area' and 'Medium Constraint Stream Corridor Area', and features designated as 'Other Hydrological Features', which includes Low Constraint Stream Corridors, Hydrologic Features "A" and Hydrologic Features "B" and topographic depressions.

These natural heritage components are described below and further addressed through Section 5.0 of the EIR/FSS.

 High Constraint Stream Corridor Areas (Red Streams) – include certain watercourses and associated riparian lands, including buffers measured from stable top-of-bank and meander belts, including the 15 metre allowance measured from the Regional Storm floodplain. They must be protected in their existing locations for hydrological and ecological reasons in accordance with the NOCSS. High Constraint Stream Corridor Areas located on the Subject Property, as identified in the NOCSS include Reach 14W-12 located north of Dundas Street to the confluence with Reach 14W-16; and Reach 14W-11 (High Constraint Stream Corridor Requiring Rehabilitation), along the eastern property boundary. The High Constraint Stream Corridor reaches and associated riparian lands will be protected and enhanced, where feasible.

Section 5.0 of the EIR/FSS addresses the character, designations, management and protection of these High Constraint Stream Corridors within the EIR Subcatchment Area.

 Medium Constraint Stream Corridor Areas (Blue Streams) – include certain watercourses and associated riparian lands, including buffers measured from stable top-of-bank and meander belts, including the 7.5 or 15 metre allowance measured from the Regional Storm floodplain. They must be protected for hydrological and ecological reasons, but may be deepened and/or relocated and consolidated with other watercourses provided the watercourse feature and function of the watercourse is maintained in accordance with the NOWSP (S. 8.4.7.1 e)). In addition, Federal, Provincial and Conservation Authority regulations must be adhered to, and the relocated and/or consolidated watercourses must be designed using natural channel design principles.

The Medium Constraint Stream Corridor Areas include Reach 14W-16, Reach 14W-14, Reach 14W-14A, and Reach 14W-11A. The NOWSP provides policies for the relocation of Medium Constraint Stream Corridor Areas. The Development Concept proposes modifications to the drainage network, specifically these Medium Constraint Stream Corridors and are discussed further in Sections 5.0 and 6.0.

Sections 5.0 and 6.0 of the EIR/FSS address the character, designations, management, alteration and protection of these Medium Constraint Stream Corridors within the EIR Subcatchment Area.

The boundaries of the High Constraint Stream Corridor Areas and Medium Constraint Stream Corridor Areas are to be maintained as generally shown on Figure NOW 3 from OPA 289 (Figure 2.1); however, minor modifications have been considered to reflect differences in scale and levels of detail during the preparation of the EIR.

There are no Core Preserve Areas or Linkage Preserve Areas located on the Subject Property. The protection and management of these Core Preserve Areas and Linkage Preserve Areas within the 407 West Employment Area are subject to the NOWSP and NOCSS and are to be further evaluated through EIR/FSS for these respective subcatchment areas.

In addition to the High and Medium Constraint Stream Corridor Areas, there are other hydrological features that also form part of the Natural Heritage and Open Space System to the extent that they are maintained after development occurs. These features include Low Constraint Stream Corridors, Hydrologic Features "A" and Hydrologic Features "B", as described below:

- Low Constraint Stream Corridors (Green Streams) while the streams do not need to be maintained, the function of the watercourse must be maintained in accordance with the NOCSS, and Federal, Provincial and Conservation Authority regulations. Low Constraint Stream Corridor Area (Reach 14W-13) is removed; however, the function of the watercourse is maintained within the relocated channel. The removal of this reach is consistent with the NOWSP policies for Low Constraint Stream Corridor Areas.
- Hydrologic Features "A" where a Hydrologic Features "A" is located within a Medium Constraint Stream Corridor which is to be moved or rehabilitated, it is intended that the Hydrologic Features "A" will be reconstructed in the relocated/rehabilitated stream corridor such that the form and function is retained or enhanced. There are three Hydrologic Features "A" located on the Subject Property, including features within Reach 14W-14, Reach 14W-16 and the existing Farm
Pond (Reach 14W-14A). These features have been considered through the detailed hydrological and hydrogeological assessment as part of the EIR/FSS.

- Hydrologic Features "B" are not associated with the NHS, and may be relocated and consolidated with other wet features, wetlands or stormwater management (SWM) facilities, provided the hydrologic function of the feature is maintained. There are three Hydrologic Features "B" located on the Subject Property. These features have been considered through the detailed hydrological and hydrogeological assessment as part of the EIR/FSS.
- Topographic Depressions Topographic depressions do not form part of the NHS; however, NOCSS (Figure 6.3.15) identifies topographic depressions, ponds and pits that must be addressed as part of the SWM system design. Constructed ponds do not have to be included in the assessment of depression storage. These topographic depressions have been considered through the drainage and SWM assessment as part of the EIR/FSS, and the analysis has demonstrated that the SWM facilities volumes compensate for the hydrologic influence of the existing depression areas.

2.2 Permitted Uses in the Natural Heritage System

Section 8.4.7.3 of the NOWSP identifies the potential permitted uses within the NHS. Permitted uses within the NHS Area designation shall include only legally existing uses, buildings and structures, and fish, wildlife and conservation management. Development or land disturbances shall generally be prohibited. In accordance with S. 8.4.7.3 b), exceptions are permitted subject to the satisfaction of the Town, in consultation with the Region and CH, to accommodate such uses as:

- required flood and stream bank erosion controls;
- fish, wildlife and conservation management;
- to accommodate stormwater outfalls;
- the relocation of deepening of Medium Constraint Stream Corridor Areas; roads and related utilities;
- expansion of existing water and wastewater services;
- trails, interpretive signage or similar passive recreation uses; and
- SWM facilities,

These uses would be subject to S. 8.4.7.3 c) v), and in accordance with the directions of the NOCCS and any related EIR, and Federal, Provincial and Conservation Authority regulations.

SWM facilities established in accordance with the directions of the NOCSS may be permitted within the NHS Area, as outlined in S. 8.4.7.3 c) v), provided, the number, location and size of the SWM facilities have been identified through the EIR/FSS, and provided that generally such facilities:

"be limited where located in or adjacent to High and Medium Constraint Stream Corridor Areas, which are not located within Linkage Preserve Areas as designated conceptually on Figure NOW 3 [from OPA 289], to areas:

- outside the 100 year floodline;
- outside the meanderbelt allowance which is the meanderbelt plus the factor of safety;

- outside the erosion/access allowance measured from the meander belt or stable top-of-bank, except that some overlap of the access required for the SWM facility and the erosion/access allowance may be permitted in accordance with the directions established in the NOCSS, and to the satisfaction of the Town and CH;
- outside the confined valley; and,
- provided that there is no loss of flood storage or conveyance"

The NHS designation on the Subject Property does not comprise Core Preserve or Linkage Preserve Areas. Stream Corridor Reach 14W-12 is identified on Figure NOW 3 from OPA 289 as High Constraint Stream Corridor, and the human-made Farm Pond (Reach 14W-14A) is identified as a Medium Constraint Stream Corridor and a Hydrologic Feature 'A'.

The EIR/FSS has determined the size and configuration of the SWM facilities and supports the use of the existing Farm Pond (Reach 14W-14A) as a SWM facility. The SWM facilities are proposed to be located outside of the 100 year floodline; outside of the Regional Storm floodline; outside the meanderbelt allowance which is the meanderbelt plus the factor of safety; outside the erosion/access allowance; outside the confined valley, and outside the 30 metre setback. The EIR/FSS demonstrates that there is no loss of flood storage or conveyance.

The Draft Plan of Subdivision delineates the SWM blocks to ensure sufficient area for the detailed design of the SWM facilities and all the ancillary features such as sediment dewatering areas, and maintenance access. Furthermore, as outlined in the EIR/FSS, from a fisheries perspective the existing Farm Pond (Reach 14W-14A) appears to have a negative effect on downstream aquatic habitat and its removal and reconfiguration as a SWM facility would provide aquatic benefits.



3.0 Land Use



3.0 Land Use

3.1 Development Concept Plan

The proposed land uses for the Subject Property consist of a range of employment uses and associated Natural Heritage and Open Space uses, in accordance with the Region's and Town's land use and planning directions for the 407 West Employment Area. The development concept envisions the creation of an office and business park with prestige employment uses adjacent to Highway 407, due to increased visibility along this major Provincial Highway. Limited employment-related commercial and service/retail uses, including office uses (i.e., identified as Mixed Employment (Service/Office)) are envisioned at the major road intersections along the Dundas Street corridor to serve the employment area. Furthermore, limited employment-related commercial and service/retail uses may be accommodated internal to the 407 West Employment Area at major intersections, as part of an employment or office building. It is proposed that more general industrial uses, such as mixed warehousing and office uses be accommodated internal to the business park.

Figure 3.1 illustrates the concept plan for the Study Area based on the direction of the Town's NOWSP. The concept plan for the Study Area is generally consistent with the Town's NOWSP and Master Plan and incorporates modest revisions to the proposed road network based on further study. The road pattern follows a modified grid pattern which responds to the existing environmental and site conditions while encouraging accessibility and a viable transit network throughout the 407 West Employment area. The conceptual road network identified in the NOWSP does not provide a sufficient network to facilitate the appropriate development of the 407 West Employment Area, based on more detailed study undertaken through this EIR/FSS. WSP (formerly MMM) has provided various comments to the Town in relation to the NOWSP road pattern, and based on these discussions with the Town it was recognized that the road network is conceptual and may be further refined, this is further supported by the policies of the NOWSP. Modifications to the road network have been proposed to: minimize the impacts on the existing GE Facility site and operations, by shifting Avenue One to the south; minimize the impacts on the NHS by shifting the Burnhamthorpe Road alignment north of the High Constraint Stream Corridor and existing Farm Pond on the Subject Property, and modifying the road alignments to accommodate appropriate access to larger sized employment blocks, particularly to the north of the planning area.

The concept plan accommodates three intersection locations with Dundas Street West, including the existing intersections with Valleyridge Drive and Colonel Williams Parkway. A new intersection with Dundas Street is proposed adjacent to the western boundary of the Subject Property to provide access to the Subject Property and adjacent lands to the west, this new intersection is approximately equal distance between Tremaine Road and the eastern extent of the NHS on the Subject Property.

The proposed road alignments have been identified to minimize the number of crossings and the impacts to the NHS, particularly the Burnhamthorpe Road Extension which has been shifted further north to avoid crossing the existing High Constraint Stream Corridor, and is proposed outside the Reach 14W-12A High Constraint Stream Corridor, as identified in the NOWSP. The road crossings through the NHS will be designed to minimize disruption to the watercourses, through appropriate road crossing construction practices, and minimize encroachment into Redside Dace Habitat (i.e., the Burnhamthorpe Road Extension), as discussed further in Section 5.0.

Two major east/west road corridors are proposed as identified in the NOWSP to accommodate access from Tremaine Road to Regional Road 25 (Bronte Road). The proposed road network through the Subject Property provides flexibility for multiple road alignment options through adjacent properties. The southern east/west road aligns with the proposed New North Oakville Transportation Corridor (Burnhamthorpe Road Extension) proposed on the east side of Bronte Road. The Burnhamthorpe Road Extension west of Bronte Road will be under the jurisdiction of the Town. While the intersection locations for Burnhamthorpe Road are fixed at the intersection with Bronte Road and where it enters the Subject Property, the alignment of the Burnhamthorpe Road Extension between these intersections is flexible and may be modified through subsequent planning work on the adjacent lands. The spacing and locations of these intersections is consistent with the NOWSP and aligns with the planning work being undertaken for the Dundas/Tremaine Secondary Plan area in the City of Burlington and the New North Oakville Transportation Corridor EA.

The alignment of Avenue Two is generally consistent with the NOWSP and extends north and to the west of the NHS, to avoid crossing Medium Constraint Stream Corridor Reach 14W-16. The alignment of Avenue Two has been revised following further review and discussion with the Town and CH to minimize the number and extent of stream crossings while providing an efficient road pattern which supports the development of the employment area, in addition to addressing landowner coordination issues related to the Avenue Two road location and alignment.

The alignment of Avenue One was designed to minimize the length of required road crossings from that identified in the NOWSP, and minimize impacts to the existing GE Facility. West of the GE Facility, Avenue One shifts to the north, as it traverses the Subject Property, to provide sufficient access to the northern portion of the Subject Property and facilitate suitably sized employment blocks.

Avenue Three aligns with the existing intersection at Dundas Street and Colonel Williams Parkway, and will facilitate access to the Subject Property and the GE Facility, through a new road designed and constructed to the Town's standards. Furthermore, by shifting Avenue Three to the west and onto the Subject Property, the road alignment provides for more suitably sized future employment blocks, particularly on the GE lands fronting the east side of Avenue Three.

The development concept plan delineates the proposed Natural Heritage and Open Space System based on the Town's NOWSP and NOCSS, which has been further refined for the Subject Property based upon the recommendations of the EIR/FSS. The NHS and adjacent SWM facilities on either side of the NHS, will provide a central focus for the business park, and accommodate pedestrian trails and passive recreational uses, integrated with the adjacent employment development. The SWM facilities will accommodate stormwater runoff within their respective subcatchment areas.

Figure 3.2 illustrates the Draft Plan of Subdivision which implements the concept plan for the Subject Property. The Draft Plan of Subdivision also identifies temporary rights-of-way (cul-de-sacs) and existing easements (driveways), which are intended to accommodate an appropriate road network and access to the Subject Property until the proposed roads and intersections have been constructed on adjacent lands, where required. These temporary rights-of-way have been accommodated to facilitate the development of the Subject Property in the short-term, as the timing of development on the adjacent lands, is unknown and may not coincide with the timing of development on the Subject Property. These temporary rights-of-way (cul-de-sacs) are accommodated on Burnhamthorpe Road (prior to the crossing of the NHS, within Block 4), the southerly extent of Avenue Three (within Block 5), and the westerly extent of Avenue One, prior to the

crossing of the NHS. Street Four has been proposed to provide access to the Stormwater Management Facility (Block 9), and provide access to Block 1, Block 2, and the intervening lands.

The Planning Rationale Report, May 2011, prepared by WSP (formerly MMM Group Limited), concludes that the Draft Plan of Subdivision represents good and sound community planning and conforms to and implements the goals, objectives and policies of the Provincial Policy Statement, the Growth Plan for the Greater Golden Horseshoe, the Regional Official Plan, and the NOWSP.

3.2 Trail Planning

The NOWSP (S. 8.5.5.10) states that: "An extensive system of recreational trails will be developed related to the Natural Heritage and Open Space System as well as along certain public road rights of way. A conceptual major trail system which will form the basis for the development of this more extensive system is identified on Figure NOW 4. However, any proposed trail development within the Natural Heritage and Open Space System shall be subject to further study as part of the Implementation Strategy to the satisfaction of the Town, in consultation with the Region and CH. The system may be refined through the preparation of an EIR in accordance with the provisions of Section 8.8.3 a) of this Plan."

The NOWSP, Figure NOW 4 conceptually identifies a Major Trail System along the Burnhamthorpe Road Extension, west of Bronte Road, extending to Tremaine Road, in addition to a Major Trail System within the NHS, along the main stream corridor (Reach 14W-16 and Reach 14W-12) which traverses the Subject Property. The Town has prepared the North Oakville Trails Plan, May 21, 2013 which provides more detailed guidance for trail planning in North Oakville. In addition to the Major Trail System identified in the NOWSP, the North Oakville Trails Plan (May 21, 2013) also identifies a Major Trail along Reach 14W-11A on the Subject Property and around the Core Preserve Area associated with Fourteen Mile Creek and the Zenon Forest. Figure 3.3 illustrates the conceptual trail network as identified in the NOSWP and North Oakville Trails Plan, 2013 in relation to the 407 West Employment Area Concept Plan.

Section 8.4.7.3 of the NOWSP notes that one of the potential permitted uses in the NHS is:

iv) Trails, interpretative displays or signage or other similar passive recreation uses consistent with the purpose of the applicable designation and provided that:

- for lands in the Linkage Preserve Area designation on Figure NOW 3, such uses shall generally be located in the Linkage Preserve Area, but adjacent to the boundary of the linkage;
- trails shall be permitted within the setback from the edge of the Sixteen Mile Creek Valley, and may be permitted within the valley subject to the review of their impact on any environmentally sensitive features;
- trails in stream corridors other than the Sixteen Mile Creek shall be permitted adjacent to the valley in the buffer; and,
- trails in the NHS Area designation be designed and located to minimize any impact on the natural environment.

Section 6.3.5.2 of the NOCSS states that:

"Recreational trails for pedestrian and bicycle use will require special consideration and evaluation when planning their location within the NHS. A designated trail system associated with the NHS will be the best

strategy to discourage informal trail creation (i.e., trail blazing) for the public wishing to gain access to the NHS.

The following should be considered when planning the location of future trail systems:

- Trails should cross the NHS (cores, linkages and stream corridors) within existing and proposed road crossings;
- Locations where roads are flanking core areas, trails should be substituted for sidewalks provided winter maintenance is feasible;
- Where trail systems are proposed to cross the NHS at locations other than where a road crossing is proposed, an impact assessment will be required to ensure no negative impacts to the NHS (i.e., species migration, impacts to drainage);
- Trail systems requiring winter maintenance will need to be located outside the NHS to minimize disturbance (i.e., ploughing, sand and salt); and
- Trail systems are not permitted in stream valleys.

The North Oakville Trails Plan (May 21, 2013) identifies the following trail facilities and their associated standards:

Cycling Facilities

The Cycling and Trails Network is shown in Figure 3.3. Bicycles are designated as a vehicle under the *Highway Traffic Act* (HTA) and as such are required to obey all the same rules and regulations as automobiles when being operated on a public roadway. The cycling routes proposed as part of the Town's North Oakville Trails Plan (May 21, 2013) network comprise several facility types, each with its own set of minimum design parameters. These are generally consistent with the Ministry of Transportation (MTO) and the Transportation Association of Canada (TAC) guidelines for the design of on-road facilities and standards for signing the on-road cycling system.

The cycling component of the Town's North Oakville Trails Plan (May 21, 2013) network for the 407 West Employment Area consists of multi-use trails and signed bike routes. For roadways labelled as Regional Bicycle Facility in the North Oakville Trails Plan (May 21, 2013), the type of bicycle facility will need to be determined by the Region; however, the following has been assumed for the boundary Regional roadways based on both the ATMP and the North Oakville Trails Plan (May 21, 2013):

- A 3.0 metre asphalt multi-use trail in the boulevard on Bronte Road between Dundas Street and Avenue One;
- A 3.0 metre asphalt multi-use trail in the boulevard on Dundas Street; and,
- A signed bicycle route on Tremaine Road.

Within the Subject Property and adjacent lands within the NOWSP area, all bicycle facilities are proposed to be on-road signed bicycle routes.

The purpose of designating a signed only bicycle route is to promote a road for cycling because it is deemed to be well suited for cycling; it may provide an important connection between destinations, or it is a preferred route identified by cyclists. In the case of signed on-road bicycle routes, the travel lane is shared by motorists

and cyclists. These are roads where traffic volumes and vehicle speeds are relatively low. Under these conditions, cyclists can share the road with motor vehicles and there is no need to create a designated space for cyclists. Bicycle route marker signs located at intersections and at regular intervals aid users with wayfinding.

On-road signed bicycle routes are proposed along Burnhamthorpe Road between Bronte Road and Tremaine Road, and along all the Avenues within the 407 West Employment Area. These proposed on-road bicycle routes are to be accommodated within the Town's Avenue/Transit Corridor (22.0m ROW) – Employment Area. The proposed bicycle facilities provide connections to bike lanes along Burnhamthorpe Road, east of Bronte Road, and along Colonel William Parkway, south of Dundas Street. The proposed on-road signed bicycle routes within the Subject Property and adjacent lands of the 407 West Employment Area also connect to planned bicycle facilities on the boundary Regional boundary roads.

It is anticipated that bicycle facilities crossing the Regional boundary roads will be provided at signalized intersections, and where applicable, these crossings are to be designed and implemented in accordance with recommendations of the Town's Active Transportation Master Plan.

Major Trails

The development proposal outlines the proposed Natural Heritage and Open Space System based on the Town's North Oakville Trails Plan and NOWSP Transportation Plan. The central open space system and adjacent SWM facilities will accommodate pedestrian trails and passive recreational uses, integrated with the adjacent employment development. As shown in Figure 3.3 Major Trails are proposed around the Zenon Woodlot/Core area, located east to the Subject Property, as well as, along the west side of the main stream corridor (Reach 14W-16 and Reach 14W-12) which traverses the Subject Property from Dundas Street West to the northwest corner of the 407 West Employment Area.

Major Trails are off-road, soft surface pathways used primarily by pedestrians, although cycling is not restricted. Major trails will be typically 2.1 - 2.4 metres wide, with a compacted limestone screenings surface, and asphalt paving on slopes greater than 5%. Where possible, trail design/layout shall promote the greatest level of accessibility possible. Signage should be provided for recreational cyclists and pedestrians. Major trails within the NHS will not receive regular winter maintenance. Mid-block crossings are to be minimized, with roadway crossings occurring where possible at signalized or stop-controlled intersections.

Figure 3 of the North Oakville Trails Plan provides an illustration of a typical Major Trail cross-section (Type A) which is supported by the trail design guidelines outlined in Section 3.5 of the Plan.

Figures 5.7 and 5.8 illustrate the proposed Major Trails in relation to the NHS and natural heritage features. The on-road trails will follow the proposed road network thereby minimizing the number of watercourse crossings. The impact assessment of these on-road trail crossings will be included in the impact assessment for said road crossings.

The Major Trails have principally been located along the margins of the NHS to minimize encroachments to the actual natural features and maintain the alignment within the existing disturbed areas (i.e., agricultural fields). As indicated, where the trail system crosses through the NHS other than at a road crossing, an impact assessment will be required. Within the 407 West Employment Area, these occurrences are limited to the proposed Major Trails along the Highway 407 corridor and there is the potential that an impact assessment(s)

will be required for the majority of these areas to comply with this requirement. Within the Subject Property, the greater part of the Major Trail system does not cross through the NHS, but instead follows the margins. The exception to this is a section of trail along the Highway 407 corridor within the realigned portion of Reach 14W-11A, as this reach will be realigned there is no existing feature (or setback) present in the proposed trail location and as such, the design of the realigned channel will consider the trail through this section. The siting of the trails within the NHS of the Subject Property will be undertaken once the stream corridor limits have been agreed upon. This will be undertaken in consultation with the MNRF, and CH as stipulated in NOCSS (Section 6.3.5.2).

The potential impacts (and permitting) for the remaining Major Trails proposed in the EIR lands will be assessed by their respective property owners.

The NOWSP permits trails within stream corridors, other than Sixteen Mile Creek, which are adjacent to the valley and located within the buffer. Trails in the NHS designation are to be designed and located to minimize any impact on the natural environment. In addition to the trail design guidance in the North Oakville Trails Plan, the following provides general guidance where the proposed trail system interfaces with the NHS:

- The trail will only cross the stream corridors along a proposed road crossing;
- The trail will be aligned through the NHS to avoid sensitive natural features and habitats;
- Where trails are proposed in the vicinity of a watercourse, they will be located outside of the valleys in the stream corridor setbacks;
- Walking access should be restricted to a properly sited and established trail;
- The trail alignment through the NHS should be delineated in the field with specific consideration to vegetation cover, slope, and drainage, taking advantage of openings and avoiding sensitive natural features and habitats;
- Boardwalks or viewpoints adjacent to sensitive features or SWM facilities may be appropriate;
- The trail should avoid areas where there are trees that have a tendency to drop excessive debris, to droop or to break under heavy snow loads or wind;
- Where vegetation is dense, access can be provided by thinning the lower branches, but maintaining the stem and root structures;
- If there are sloping areas, the trails should not result in a concentration of surface runoff down the slope to avoid erosion. Trails along steep sloping areas should be avoided;
- The trails should not be lit where they traverse natural communities. Where walkways/trails approach
 or skirt natural areas, they could be lit strategically, and of a parks scale with fixtures low to the
 ground (e.g., bollard height). The lighting should be focused on the trail. There should be little or no
 sky-lighting effect due to the environment-friendly design (cut-off refractors);
- Fencing should be avoided around the trails. If bolstering of the trail alignment is required, it should
 occur through plantings of appropriate native indigenous vegetation, comprising species that
 produce dense growth and 'unfriendly' characteristics, such as thorns. As well, the plantings should
 be designed and implemented to promote natural succession, help control invasive species, provide
 for wildlife habitat and be native to the area;
- Over the long term, the establishment of unauthorized trails that may develop through excursions from the built trails, should be addressed through dense plantings and physical barriers, if necessary;
- Prior to construction, the limits of construction activity need to be established. Rutting and compaction of the terrain and scarring of the vegetation beyond the limits of construction should not occur;

- During construction, the smallest size of equipment should be used (specialty narrow width loader/backhoe) to avoid compaction and damage of the existing root zone; and,
- A regular program of inspection and maintenance should be detailed.



Environmental Implementation Report / Functional Servicing Study for 14 Mile Creek West and the Lazy Pat Farm Property

407 West Employment Area Concept Plan

	Are	ea	
	Hectares	Acres	
Employment (Specific land use to be determinded)	94.1	233	
Mixed Employment (Service/Office)	6.1	15	
Light Employment	16.4	41	
General Employment	17.3	42	
Park	0.3	1	
Open Space	72.7	180	
Stormwater Management	15.6	38	
Planned 407 Transitway	12.3	30	
Roads	16.2	40	
	251.0 ha	620 ac	
 407 West Employment Area Subject Lands Notes: For the purposes of our analysis we have made land use, natural heritage and storm water sizing and location assumptions for the entire 407 West Employment Area Right-of-way requirements for future 407 Transitway to be determined The Natural Heritage System on lands owned by others is conceptual, as shown in the North Oakville West Secondary Plan, and is subject to further study. 			
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QuadReal	ed by)	

	Project No.	09M-00013-01
April 2019		(1409222-001)
Aerial Photo		
© DigitalGlobe 2010, Google 2009		Figure 3.1





Environmental Implementation Report / Functional Servicing Study for 14 Mile Creek West and the Lazy Pat Farm Property

407 West Employment Area Concept Plan Trails Plan (Conceptual)

LEGEND Major Trails Multi-Use Trail (Off-Road / In Boulevard) Regional Bicycle Facility Signed Bicycle Route (On-Road) Park Open Space Stormwater Management Planned 407 Transitway Roads 407 West Employment Area Subject Lands

Notes:

- For the purposes of our analysis we have made land use, natural heritage and storm water sizing and location assumptions for the entire 407 West Employment Area
- Right-of-way requirements for future 407 Transitway to be determined
- The Natural Heritage System on lands owned by others is conceptual, as shown in the North Oakville West Secondary Plan, and is subject to further study.

Scale

1:7500

Client	Prepared by		
QuadRee			
April 2019	Project No. 09M-00013-01 (1409222-001)		
Aerial Photo © DigitalGlobe 2010, Google 2009	Figure 3.3		