



Niblett Environmental Associates Inc.
Biological Consultants

March 28th, 2018

Project No. 13-093

Fairouz Wahab
Richcraft Home Builders
2280 St. Laurent Boulevard
Suite 201,
Ottawa, ON
K1G 4K1

**RE: East Urban Community, Mixed Use Center, Community Design Plan (EUC MUC CDP)
Part Lots 8 & 9, Concession 1,
Ottawa, Ontario**

Headwater Drainage Feature Assessment Summary

Dear Ms. Wahab,

Niblett Environmental Associates Inc. (NEA) has prepared the following letter to summarize the current conditions of the watercourses within the CDP area and the associated Headwater Drainage Feature management recommendations.

Please contact our office if you have any questions or require additional project support.

Sincerely,

A handwritten signature in black ink that reads 'Amanda Smith'. The signature is written in a cursive, flowing style.

Amanda Smith, B.Sc.(Hons), CAN-CISEC
Fisheries and Aquatic Biologist

1.0 Introduction

NEA completed the “Draft Natural Environmental Existing Conditions Report – East Urban Centre CDP, Part Lots 8 & 9, Concession 1, City of Ottawa”, dated February 12th, 2015 for the project. Part of the field work component was to complete a rapid Headwater Drainage Feature (HDF) evaluation of all watercourses within the CDP lands, noting that additional surveys may be required during site specific design stage to confirm the feature function and management recommendation prior to the development application phase. The rapid HDF evaluation mandatory data requirements include; HDF form and flow condition, riparian vegetation, and site features (CVC and TRCA, 2014) .

Since the Draft Natural Environmental Existing Conditions Report was completed in 2015, and standard HDF assessments have been completed by multiple biological consultants on various properties within the CDP area.

The following letter provides a breakdown of all new information since 2014 for each watercourse. All reports relevant to the assessment and management of the CDP watercourses have been discussed in this letter for the purpose of providing a fulsome summary of the current conditions and resulting management recommendations.

The management recommendations for the CDP watercourses with RVCA jurisdiction were determined in consultation with RVCA staff during the March 14th, 2018 project meeting held at RVCA. The meeting was attended by NEA, RVCA, Richcraft Group of Companies, and City of Ottawa project staff.

2.0 Existing Data

NEA conducted a rapid HDF assessment of the CDP watercourses in 2014 and provided the results in the Draft Existing Conditions Report (NEA, 2015). In 2014, 10 potential headwater features were identified within the CDP area (Attachment 2). Since then, several assessments have been conducted on CDP properties that contained watercourses.

Based on the most current reports and agency discussions, management recommendations have been finalized for all of the CDP watercourse within RVCA jurisdiction. Therefore, no further HDF assessments are required for the watercourses within the RVCA jurisdiction.

Management recommendations have been proposed for all of the CDP watercourses in the South Nations Conservation Authority (SNCA) jurisdiction. It is our understanding from the existing background information that no further HDF assessments are required for the watercourses within the SNCA jurisdiction. However, consultation with SNCA staff is ongoing to verify the proposed management recommendations.

The following reports and discussions were used to determine the headwater feature management recommendations:

- *Trails Edge Development Fisheries Compensation Plan* (NEA, 2013).
- *Draft Natural Environmental Existing Conditions Report* (NEA, 2015).
- *Headwater Drainage Feature Assessment 3490 Innes Road Development* (Kilgour & Associates, 2017).
- *Environmental Impact Statement for 3490 Innes Road, Orleans, Ontario* (Kilgour & Associates, 2017).
- *Site Servicing and Stormwater Management Report – Orleans II Development Rezoning* (Stantec, 2016).
- *Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road* (Stantec, 2016).
- Fisheries and Aquatic Environment memorandum, dated December 12th, 2017 (Morrison Hershfield, 2017).
- Rideau Valley Conservation Authority (March 14th, 2018). EUC MUC CDP Meeting.

Please note, seven figures have been attached to support the review of this letter, see Section 4.0 for attachment details.

3.0 Watercourse Summary and Management Recommendations

The watercourse location and numbering used in this letter were maintained from the Draft Existing Conditions Report (NEA, 2015). Headwater drainage management recommendations for all of the CDP watercourses have been discussed below and illustrated in Attachment 1 of this letter.

W1

- The 2017 HDF assessments by Kilgour & Associates provide adequate surveys and management recommendations based on the HDF methods (Table 1). Therefore, no additional surveys are recommended.
- Kilgour & Associates conducted a standard HDF assessment on this watercourse in 2016 and classified the management recommendation as Mitigation. Details can be found in *Headwater Drainage Feature Assessment 3490 Innes Road Development* (Kilgour & Associates, 2017). The watercourse was divided into four reaches (Attachment 3).
- W1 is within Rideau Valley Conservation Authority jurisdiction.

W2

- Glenview consulted with City staff on October 5, 2017 for this property and they were instructed that neither an EIS nor an HDFA were required for the feature. The only environmental requirements from the City of Ottawa was a Tree Conservation Report.
- Kilgour & Associates identified this feature was present in 2016, however, it was outside of their study area and was not included in the report (Kilgour & Associates, 2017). However, the report noted the riparian habitat north of W2 was cleared land.
- Given the new riparian function, City of Ottawa requirements and consultation with RVCA, the feature management recommendations was Mitigation (Table 1 and Attachment 1). No additional surveys are recommended.
- W2 is within Rideau Valley Conservation Authority jurisdiction.

W3

- The feature was an agricultural ditch created to divert surface water flow and was disconnected from surrounding headwater features. Therefore, the feature was classified as No Management Required and verified during the RVCA March 14th, 2018 (Table 1 and Attachment 1). No additional surveys are recommended.
The downstream portion of the watercourse (south of the hydro easement) was included in Trails Edge Development DFO Authorization (10-HCAA-CA4-00350),

dated March 26th, 2013. The permitted works were completed and the feature has been infilled. This portion of the feature was labelled as Reach 8 in Trails Edge Development Plan (NEA, 2013), refer to Attachment 5. The upstream flows were redirected into a drainage feature that runs east-west along the hydro easement and outlets into the stormwater pond.

- W3 is within Rideau Valley Conservation Authority jurisdiction.

W4

- The feature flow is supplied from the stormwater pipe outlet located at the southern edge of the parking lot. The entire feature upstream of the hydro easement was created to temporality manage stormwater flows with the full expectation of future removal or modification. Therefore, the feature should not be managed as a natural headwater drainage feature.
- The management recommendations were No Management Required (Table 1 and Attachment 1). Therefore, no additional surveys are recommended.
- The downstream portion of the watercourse (south of the hydro easement) was included in Trails Edge Development DFO Authorization (10-HCAA-CA4-00350), dated March 26th, 2013. The permitted works were completed and the feature has been infilled. This portion of the feature was labelled as Reach 4 in Trails Edge Development Plan (NEA, 2013)(Attachment 5). The upstream stormwater flows have been redirected into a drainage feature that runs east-west along the hydro easement and outlets into the stormwater pond.
- W4 is within Rideau Valley Conservation Authority jurisdiction

W5

- Stantec conducted a standard HDF assessment on the watercourse in 2016. Details can be found in the *Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road* (Stantec, 2016).
 - The watercourse was divided into two reaches, HDF 3 and HF4. Refer to Attachment 6.
 - The Management Recommendations were identified as follows:
 - HDF 3-No Management Required
 - HDF 4 (Reach 4-A)-No Management Required
- The 2016 HDF assessments by Stantec provides adequate management recommendation based on HDF methods (Table 1). Therefore, no additional surveys are recommended.
- W5 is within Rideau Valley and South Nation Conservation Authority jurisdiction.

W6

- Stantec conducted a standard HDF assessment on the northern reach of this watercourse in 2016 (Attachment 6). Details can be found in the *Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road* (Stantec, 2016).
 - The management recommendations were identified as follows; HDF 4 (Reach 4-B) - No management required.
- Morrison Hershfield confirmed a reach of the southern portion of W6 was no longer present in 2017 (Attachment 7). Details can be found in the *Vanguard Drive EA-Fisheries Existing Conditions Memo* (Morrison Hershfield, 2017).
- The southern reach was not included in the Stantec, 2016 report. However, all of the headwater features will be diverted north into the storm sewer at Wildflower and Innes Road (per the “*Site Servicing and Stormwater Management Report – Orleans II Development Rezoning*” (Stantec, 2016) ; consequently, dehydrating the downstream feature. Therefore, no additional surveys are required and feature has been classified No Management Required (Table 1 and Attachment 1).
- W6 is within South Nation Conservation Authority.

W7

- W7 is a constructed stormwater drain created to manage surface water flows and divert waters away for the southern housing development. In addition, it appears the water is not connected to a natural watercourse.
- NEA classified the watercourse hydrology and riparian function as limited in 2014 (NEA, 2015) and no additional HDF assessments are known for this feature.
- The feature was created to manage stormwater flows, HDF assessments do not apply to storm water features. Therefore, the HDF management recommendation would be classified as No Management Required (Table 1 and Attachment 1) and no additional surveys are recommended.
- W7 is within South Nation Conservation Authority.

W8 and W9

- The Montfort property has been rezoned to permit the future Montfort Orleans Health Hub. Site plan approval is currently underway, Robin Van de Lande (CDP City Planner) confirmed verbally with Julie LeBrun (City Planner for the Orleans Health Hub) that the ditches were investigated and no additional HDF work was required.
- No additional HDF assessments are recommended (Table 1), given the natural environment information has been addressed.
- South Nation Conservation Authority to confirm the HDF Management Recommendations (Table 1).

- W10 is within South Nation Conservation Authority jurisdiction.

W10

- The features were created as surface water management ditches for the snow disposal facility and has been realigned to flow into a large stormwater pond directly west of the property. Therefore, the feature should not be managed as a natural headwater drainage feature and No Management is Required (Table 1 and Attachment 1). No additional surveys are recommended.
- W10 is within South Nation Conservation Authority jurisdiction.

Table 1: Headwater Drainage Feature Form and Function Classification and Management Recommendations for the CDP Lands.

Water course # (*)	Watercourse Segments (**)	Hydrology	Riparian Function	Fish and Fish Habitat	Terrestrial	Management Recommendation	Comments
W1	Reach 1	Limited	Limited	Contributing	Limited	Mitigation	Updated all HDF form and function classifications and Management Recommendations to reflect the <i>Headwater Drainage Feature Assessment 3490 Innes Road Development Report</i> (Kilgour & Associates, 2017).
	Reach 2	Contributing	Limited	Contributing	Limited	Mitigation	
	Reach 4	Contributing	Limited	Contributing	Contributing	Mitigation	
	Reach 5	Contributing	Contributing	Contributing	Contributing	Mitigation	
W2	/	Limited	Limited - Cleared land	N/A	N/A	Mitigation	Updated riparian classification and Management Recommendation based on Glenview consultations with City of Ottawa, the <i>Environmental Impact Statement for 3490 Innes Road, Orleans, Ontario</i> Report (Kilgour & Associates, 2017) Management recommendations verified during March 14 th 2018 project meeting.
W3	/	Limited	Limited-Cropland	N/A	N/A	No Management Required	Updated Management Recommendations based on the Hydrology and Riparian classifications found in <i>Draft Natural Environmental Existing Conditions Report</i> (NEA, 2015). Management recommendations verified during March 14 th 2018 project meeting.
W4	/	Contributing	Limited - Cropland	Important	N/A	No Management Required	Updated Management Recommendations based on stormwater management function. Management recommendations verified during March 14 th 2018 project meeting.

W5	HDF 3	Limited	Limited	Contributing	Limited	No Management Required	Updated all HDF form and function classifications and Management Recommendations to reflect <i>Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road Report</i> (Stantec, 2016).
	HDF 4 (Reach 4-A)	Limited	Limited	Contributing	Limited	No Management Required	
W6 north portion	HDF 4 (Reach 4-B)	Limited	Limited	Contributing	Limited	No Management Required	Updated all HDF form and function classifications and Management Recommendations to reflect <i>Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road Report</i> (Stantec, 2016).
W6 south portion	/	Limited	Important Meadow	N/A	N/A	No Management Required	Updated Management Recommendations based on the <i>Site Servicing and Stormwater Management Report – Orleans II Development Rezoning</i> (Stantec, 2016). The report states that this feature will be dehydrated and therefore, it was determined no management was required. Management recommendations verified during March 14 th 2018 project meeting.
W7	/	Limited	Limited ditched cropland	N/A	N/A	No Management Required	Updated Management Recommendations due to the stormwater function of W7 and upstream the management approach, as discussed in March 14 th 2018 project meeting. To be verified by SNCA.

W8	/	Limited	Important Thicket	N/A	N/A	Not Available	Management Recommendations not available at this time. However, it is understood that HDF assessments have been completed for the property. SNCA to confirm the management recommendation.
W9	/	Perennial Function	Important Wetland	Important - fish visually observed (NEA 2014)	N/A	Not Available	Management Recommendations not available at this time. However, it is understood that HDF assessments have been completed for the property. SNCA to confirm the management recommendation.
W10	/	Limited Function	Important Thicket	N/A	N/A	No Management Required	Updated Management Recommendations as this feature function as a stormwater and roadside ditching. Management recommendations verified during March 14 th 2018 project meeting.

Note: (*) Watercourse Numbers extracted from *Figure 2. Watercourse, Aquatic Stations and Flow Direction in Draft Natural Environmental Existing Conditions Report* (NEA, 2015).

(**) Watercourse Segments extracted from HDF assessments completed by consultants other than NEA. Refer to Comments column for source.

(/) Watercourse Segment number not applicable.

(N/A) not applicable as Fish and Fish Habitat and Terrestrial classifications are not required as part of the Rapid HDF Assessment (CVC and TRCA, 2014).

4.0 Attachments

Attachment 1: Figure 1. Headwater Drainage Feature Management Recommendations for the CDP Lands (NEA, 2018).

Attachment 2: Figure 2. Watercourse, Aquatic Stations and Flow Direction, extracted from the Draft Natural Environmental Existing Conditions Report (NEA, 2015).

Attachment 3: Figure 1. HDF Reaches extracted from the Headwater Drainage Feature Assessment 3490 Innes Road Development (Kilgour & Associates, 2017).

Attachment 4: Figure 2 Current Site Conditions extracted from the Environmental Impact Statement for 3490 Innes Road, Orleans, Ontario (Kilgour & Associates, 2017).

Attachment 5: Figure 1. Supplemental Fish and Fish Habitat Survey, extracted from the Trails Edge Development Fisheries Compensation Plan (NEA, 2013).

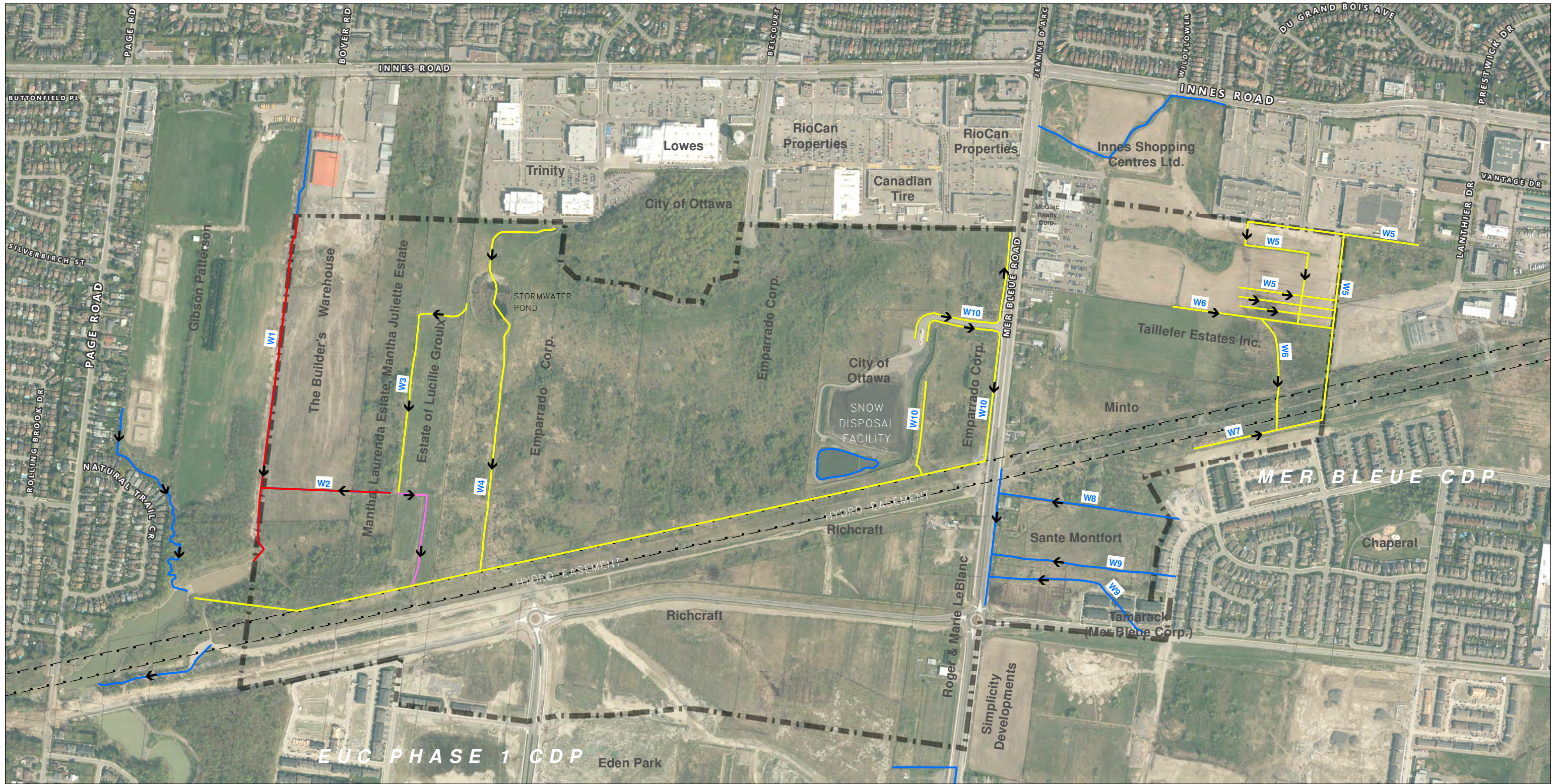
Attachment 6: Figure 3. Headwater Drainage Feature Management Recommendations extracted from the Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road (Stantec, 2016).

Attachment 7: Figure 1. Overview Map of Vanguard Drive Study Area and Aquatic Habitat Values. Extracted from the Fisheries and Aquatic Environment memorandum, dated December 12th, 2017 (Morrison Hershfield, 2017).

5.0 References

- CVC and TRCA. (2014). *Evaluation, Classification and Management of Headwater Drainage Features Guidelines*. CVC and TRCA.
- Kilgour & Associates. (2017). *Environmental Impact Statement for 3490 Innes Road, Orleans, Ontario*. Ottawa: Kilgour & Associates Ltd.
- Kilgour & Associates. (2017). *Headwater Drainage Feature Assessment 3490 Innes Road Development*. Ottawa, Ontario: Kilgour and Associates Ltd.
- Muncaster Environmental Planning Inc. (2017). *2159 Bleue Road Environmental Impact Statement*. Ottawa: Muncaster Environmental Planning Inc.
- NEA. (2013). *Trails Edge Development Fisheries Compensation Plan*. Lindsay: NEA.
- NEA. (2015). *East Urban Community Mixed Use Centre CDP, Part Lots 8 & 9, Concession 1, City of Ottawa. Draft Natural Environmental Existing Conditions Report*. Lindsay, Ontario: Niblett Environmental Associates Ltd.
- Stantec. (2016). *Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road*. Stantec Consulting Inc.
- Stantec. (2016). *Site Servicing and Stormwater Management Report – Orleans II Development Rezoning*. Ottawa: Stantec Consulting Ltd.

**Attachment 1:
Figure 1. Headwater Drainage Feature Management
Recommendations for the CDP Lands (NEA, 2018).**



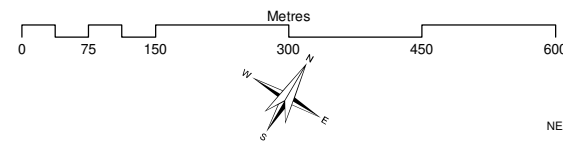
- LEGEND**
- Flow Direction
 - Watercourse
 - Hydro Line
 - Mitigation
 - No Management Required
 - Previously Assessed Under DFO Authorization (NEA, 2013)
 - CDP Boundary (2014)



MTM Zone 9
 WKID: 32189 Authority: EPSG
 Transverse Mercator
 GCS North American 1983, ESRI ArcGIS 10.1

**FIGURE 1: HEADWATER DRAINAGE FEATURE
 MANAGEMENT RECOMMENDATIONS FOR CDP LANDS**

EAST URBAN COMMUNITY
 CITY OF OTTAWA
 KEMPTVILLE DISTRICT



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REVISIONS			
NO	BY	DATE	DESCRIPTION
1	W.P.	26/03/2018	INITIAL MAP CREATION.
2	W.P.	28/03/2018	REMOVED WATERSHED BOUNDARIES AND LABELS.

CONTACT: Will Fridham, GIS SPECIALIST & CARTOGRAPHER	PROJECT NO.: FNI13-093	REVISION NO.: RV-02	SCALE: 1:8,500 CENTIMETERS © Niblett Environmental Associates Inc. 2018.
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**Attachment 2:
Figure 2. Watercourse, Aquatic Stations and Flow Direction (NEA,
2015).**



LEGEND

- Fish Station
- Hydro Line
- Watercourse
- Watershed Boundary (2005)
- CDP Boundary (2014)
- Flow Direction

**FIGURE 2: WATERCOURSES,
AQUATIC STATIONS & FLOW DIRECTION**

East Urban Community
City of Ottawa
Kemptville District
1 cm = 85 meters

WTM Zone 9
WKID: 32189 Authority: EPSG
Transverse Mercator
GCS North American 1983, ESRI ArcGIS 10.1

Map was produced by
NEA under public license from Ontario
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REVISIONS

NO	BY	DATE	DESCRIPTION
1	W.P.	07/10/2014	Initial map creation.
2	W.P.	21/10/2014	Field-verified watercourses added.
3	W.P.	29/10/2014	Additional watercourses mapped.
4	W.P.	11/02/2015	Added flow direction.

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PHONE: 1 (705)-878-9399	PROJECT DESCR: EUC Mixed Use CDP		
EMAIL: wpridham@niblett.ca	CLIENT: Richcraft Homes		

**Attachment 3:
Figure 1. HDF Reaches (Kilgour & Associates, 2017).**

Figure 1. HDF reaches



**Attachment 4:
Figure 2 Current Site Conditions (Kilgour & Associates, 2017).**



Figure 2 Current site conditions

Legend

- ELC**
- CUM
 - FOCM5
 - FOCM6
 - FOD2-1
 - FOD7
 - FOD7-3
 - Golf
 - MEMM3
 - OAG
 - Parking
 - THDM2
 - THDM3
 - Cleared Land
- HDF Reaches**
- Conservation
 - Mitigation
 - Protection
 - Other
 - Reach Divide



0 200 m

Project File: CAIV544 - HDFA mapv2
 Created By: RB
 Checked By: AF
 Universal Transverse Mercator - Zone 18 (N)
 Printed on: 2017-09-18



**Attachment 5:
Figure 1. Supplemental Fish and Fish Habitat Survey (NEA, 2013).**

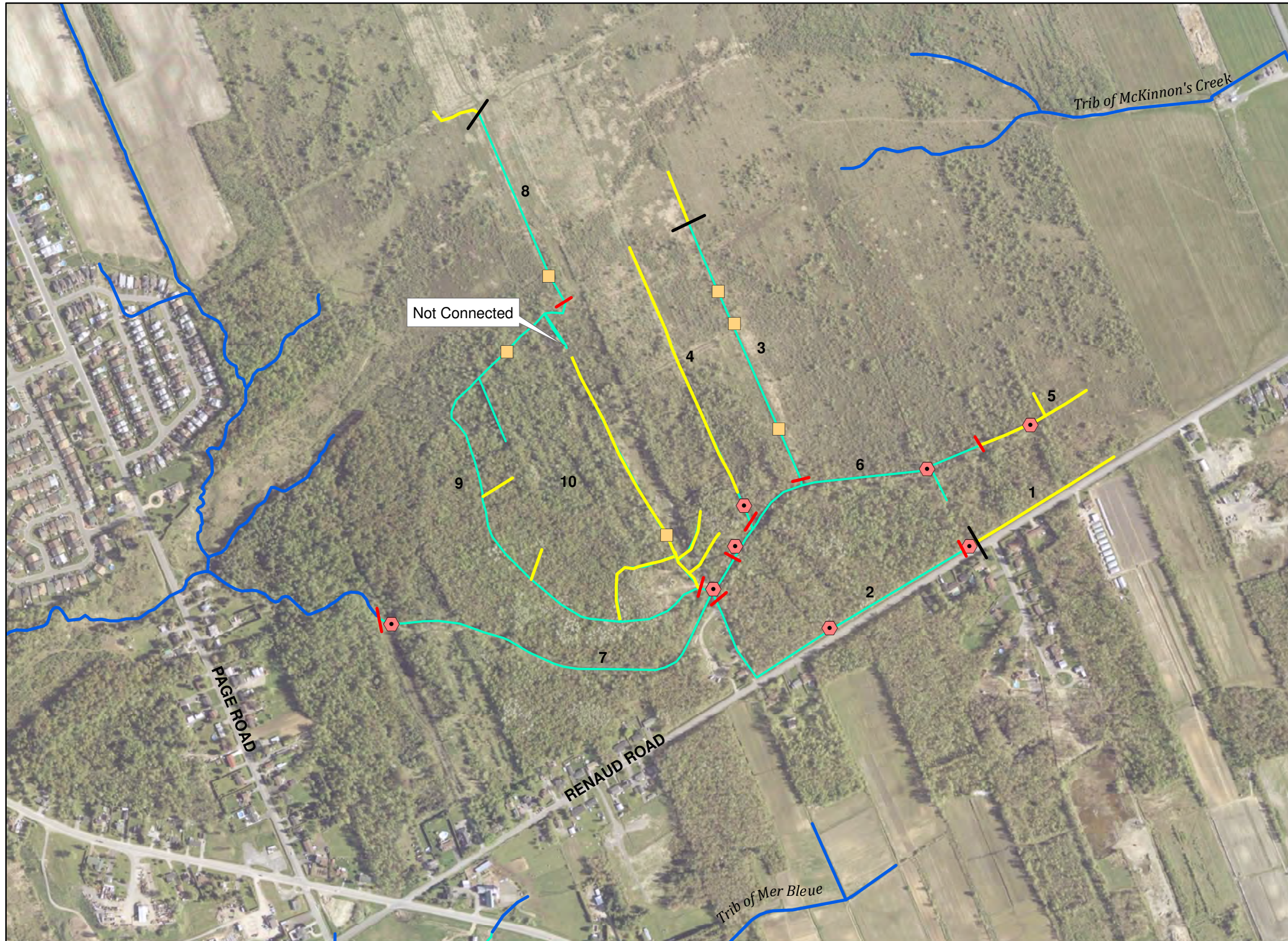
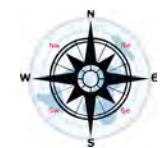
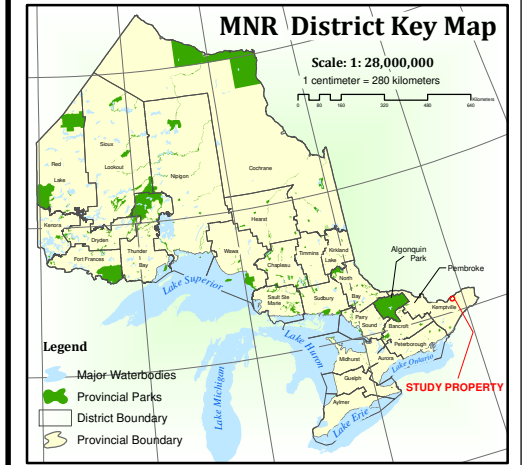


FIGURE 1: SUPPLEMENTAL FISH & FISH HABITAT SURVEY

LOTS 1 - 5, CONC 3
EAST URBAN COMMUNITY
CITY OF OTTAWA



MAP LEGEND	
	Minnow Trap
	Visual Observation
	Creeks Not in Study Area
	Direct Fish Habitat
	Indirect Fish Habitat
	Reach Break
	Barrier

DATA SOURCING AND METADATA

All base data was obtained from Land Information Ontario and is current to 2008. The data author is the Ontario Ministry of Natural Resources. Niblett Environmental Associates has been licensed to dispense and use spatial base data. Data sharing agreements relevant to this map include the "Ontario Base Layer Datas sharing Agreement" with the Ministry of Natural Resources (MNR, 2008).

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SPATIAL REFERENCING INFO		
Original base data was not projected and was in a geographic coordinate system (NAD 1983). The data has been projected onto a Universal Transverse Mercator (UTM) grid of the appropriate type for this map. Please see below for exact grid number.		
GridZone:	Projection:	Central Meridian:
18N	UTM	-81.0000
	Scale Origin:	0.9996

PROJECT INFORMATION	
EAST URBAN COMMUNITY	
Project Number: PN 09-089	Project Type: EIS
Mapping Date: 16-JANUARY-2010	Map Version: VERSION 6
Cartographer: WILL PRIDHAM	Client: FOTENN CONSULTANTS

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Scale: 1:7,000
1 centimeter = 70 meters

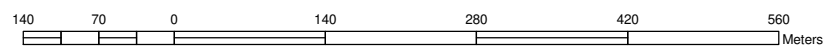


FIGURE 1: SUPPLEMENTAL FISH & FISH HABITAT SURVEY

LOTS 1 - 5, CONC 3
EAST URBAN COMMUNITY

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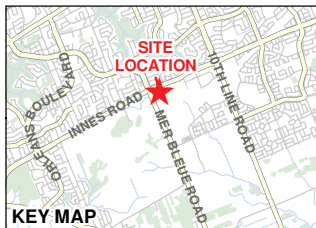
Affiliate member of:



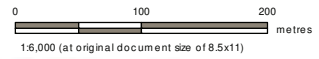
**Attachment 6:
Figure 3. Headwater Drainage Feature Management
Recommendations (Stantec, 2016).**



City of Ottawa



- Legend**
- Project Area
 - Mitigation
 - No Management Required



Project Location: 4100 Innes Road / 2025 Mer Bleue Road, Ottawa, Ontario
 160401242-0001 REVA
 Prepared by AB on 2016-12-13

Client/Project: SmartFRET
 EIS WITH HEADWATER ASSESSMENT

Figure No.: 3
 Title:

Headwater Drainage Feature Management Recommendations

Figure 1

- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18T
 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2016.
 3. Orthoimagery © City of Ottawa, 2014.

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**Attachment 7:
Figure 1. Fisheries and Aquatic Environment memorandum,
dated December 12th, 2017 (Morrison Hershfield, 2017).**



Figure 1: Overview Map of Vanguard Drive Study Areas and Aquatic Habitat Values