ENVIRONMENTAL IMPACT STATEMENT
and
TREE CONSERVATION REPORT

PROPOSED MIXED USE DEVELOPMENT

KANATA WEST LANDS
CITY of OTTAWA

A report prepared for:

2325483 Ontario Ltd.

by *Muncaster Environmental Planning Inc.*

August, 2016

Bernie Muncaster, Principal, signed August 4th, 2016

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1.0 INTRODUCTION

The 54.6 hectare site is in the west portion of Kanata West, south of Highway 417 and Palladium Drive and to the west of Huntmar Drive (Map 1). The west boundary of the site is the west edge of the City`s Urban Area. The study area for this report includes the Ministry of Transportation (MTO) lands between the north site boundary and Highway 417. A stormwater management facility is proposed for the MTO lands (Map 3). Recent urban residential developments are to the south of the east portion of the site, with Maple Grove Road further to the south. The site is proposed to be developed as a mix of commercial and residential uses. The site's legal description is Part of Lots 1 and 2, Concession 1, West Carleton Geographic Township (former Huntley Township), now City of Ottawa. There are no municipal addresses assigned at this time.

The site is a mix of cultivated fields in the east portion, with coniferous, deciduous and mixed wooded areas in the west. Lower lying areas are to the north of the site, on the MTO lands south of Highway 417. There are no buildings or other structures on the site. Aerial photography indicates that much of the site that was forested in 2014 was in an agricultural use in 1976, apparently a combination of cultivation and pasture. As shown on Map 1, many of the trees in the north half of the site are now removed and the land grubbed. A Tree Cut Permit was not issued by the City of Ottawa for this tree removal.

Much of the site and MTO lands are part of the North of Maple Grove Urban Natural Area, identified as Area 32 in the Urban Natural Area Environmental Evaluation Study (Muncaster and Brunton, 2005). This 67 hectare Urban Natural Area was rated moderate overall and is discussed in more detail in Section 3.4. Portions of the Stittsville North Natural Area, identified as Natural Area 306 in the former Region of Ottawa-Carleton's Natural Environment System Strategy (Keddy, 1997) are within the North of Maple Grove Urban Natural Area. On a regional-wide basis this 244 hectare natural area was rated moderate overall, scoring moderate or high significance for the rare vegetation community, vegetation community and landform diversity, and hydrological features criteria (Keddy, 1997). This Natural Area is also described in more detail in Section 3.4. No portions of the City's Natural Heritage System are identified on or adjacent to the site, as shown on the Schedule L3 Overlay of the Official Plan and no environmental or other constraints are shown for the site or adjacent lands on Schedule K.

The site and adjacent lands to the north and east are designated *Enterprise Area* on Schedule B of the Official Plan, with lands to the south designated *General Urban Area*. Lands to the west of the south portion of the site are designated *General Urban Area*, with the lands to the west of the central and north portions of the site designated *Rural Natural Features Area*. There are no Areas of Natural and Scientific Interest or Provincially significant wetlands in proximity to the site, with parcels of the Goulbourn Wetland Complex the closest Provincially significant wetland, approximately 3.5 kilometres to the west and southwest of the site. The northwest portion of the site and lower lying areas to the north of the site are mapped as part of the Stittsville Wetland Complex, which was not considered Provincially significant as part of a wetland evaluation conducted by the Ministry of Natural Resources in the early 2000s or by Keddy (1997). Higher scores in the wetland evaluation were achieved for diversity of vegetation communities. Absence of human disturbance, recreational activities, and facilities and programs received relatively low scores. The evaluation noted that impairment of ecosystem quality was

intense in some areas due to filling and ditching of the watercourses. Many portions of the wetland complex to the south have been removed as part of residential developments. The closest Area of Natural and Scientific Interest is the South March Highlands, over four kilometres to the north of the site.

Areas of rare vegetation (as determined by GIS analysis) were identified in the southwest portion of the site and to the west of the site in the Carp River Watershed/Subwatershed Study (Map 1) (CRWSS, Robinson, 2004), although these areas are not included in the Centres of Ecological Significance identified by Robinson (2004). The closest Centres of Ecological Significance are well to the south of the site, south of Hazeldean Road along the Poole Creek. Wetlands are identified in the northwest portion of the site and to the north on the MTO lands in the CRWSS. A small portion of the on-site forests, approximately 90 metres in width in the central portion of the site adjacent to the cultivated fields, was identified in the CRWSS as woodlands greater than 50 years of age. No forest interior habitat was identified by Robinson (2004) on the site, however as discussed in Section 3.4 some forest interior habitat is in the southwest portion of the site using a minimum offset of 100 metres from the forest edges. Robinson (2004) identified the west and central portions of the site as moderate recharge areas due to sand and Paleozoic bedrock while the clay soils in the east portion were considered to have a low recharge. Note that the recommendation in the CRWSS of an overall corridor width of 70 metres along Feedmill Creek to accommodate the meander belt recommendations and provide aquatic habitat protection applies only to the portion of Feedmill Creek downstream (north) of Highway 417 and the site (see Table 8.2 – Recommended Subwatershed Plan of the CRWSS). Feedmill Creek is considered to support a cold water fish community by Robinson (2004), with good water quality suggested by the benthic invertebrate community in the closest sampling station to the site. Robinson (2004) recommended a 30 metre setback on each side of watercourses supporting cold water fish communities, with an enhanced protection level for total suspended sediments. Revegetating up to 75 percent of the total stream length with native, woody, riparian vegetation representing 50 percent of the replanted area is recommended in the CRWSS for the Feedmill Creek corridor.

This Environmental Impact Statement (EIS) has been completed due to the presence of the North of Maple Grove Urban Natural Area and Feedmill Creek adjacent to the west edge of the site.

1.1 Scoping the Environmental Impact Statement

This EIS was prepared in accordance with Section 4.7.8 of the City of Ottawa Official Plan (2010) following the EIS Guidelines and the Guidelines for City of Ottawa Tree Conservation Report, found at http://ottawa.ca/en/development-application-review-process-0/environmental-impact-statement-guidelines and http://ottawa.ca/en/env_water/tlg/trees/preservation/guidelines/index.html,with guidance from the Natural Heritage Reference Manual (OMNR, 2010). This report includes the components of an Environmental Impact Statement as identified in Section 4.7.8.11 a) through i) of the City of Ottawa Official Plan (City of Ottawa, 2010).

This report and some of the field surveys were completed by Bernie Muncaster, who has a Master's of Science in Biology and over twenty-eight years of experience in completing natural

environment assessments. Andrew McKinley completed four of the five turtle surveys (Muncaster did the June 10th survey), Michelle Lavictoire completed the breeding bird surveys and her employees completed the amphibian surveys and fish sampling, fish habitat assessments and the first eastern whip-poor-will survey. Muncaster and staff completed the second and third eastern whip-poor-will surveys. The purpose of the Tree Conservation Report component is to determine any tree stands that should be retained and protected. It is proposed to remove the woody vegetation not to be retained on the site in 2016 after the breeding bird season.

The major objective of this EIS is to determine whether significant natural heritage features are on or adjacent to the site and if so, will the proposed change in land use negatively affect these significant features and functions. The on-site features and functions of the North of Maple Grove Urban Natural Area will be documented. If negative impacts are anticipated on the significant features, can these impacts be mitigated?

The following items were identified for particular attention in the EIS, recognizing that many of these issues are interrelated:

- what are the anticipated direct and indirect potential impacts on the Feedmill Creek Corridor, including any woody vegetation in the riparian corridor and the aquatic habitat within Feedmill Creek?;
- is there any aquatic habitat present on the site outside of the Feedmill Creek corridor?;
- what are the features and functions of the woody vegetation in areas proposed for development?;
- are there any other significant natural heritage features such as Species at Risk utilization on or adjacent to the site?; and,
- how are the features and functions of the North of Maple Grove Urban Natural Area such as linkages and unique habitats influenced or supported by the site?

2.0 METHODOLOGY

Several background documents have been referenced during production of this EIS, including the Kanata West Implementation Plan (Stantec, 2006), the Urban Natural Area Environmental Evaluation Study (Muncaster and Brunton, 2005), the Carp River, Poole Creek and Feedmill Creek Restoration Class Environmental Assessment (TSH, 2005), the Carp River Watershed/Subwatershed Study (CRWSS) (Robinson, 2004) and the Natural Environment System Strategy (Keddy, 1997). Following the approach in Section 4.7.8 of the City of Ottawa Official Plan (2010), this EIS identifies the natural environment features within and adjacent to the site. The role the site plays in supporting the functions and features of the Palladium Interchange Urban Natural Area are described. Specifically Section 4.7.8.9 b) of the City of Ottawa Official Plan (2010) states that the focus of the EIS for lands within and adjacent to Urban Natural Features will be on managing the interface or transition zone between urban developments and natural features in an urban context.

Other natural heritage information was collected and summarized through correspondence with Kemptville District Ministry of Natural Resources and Forestry (MNRF) (Appendix A) and the City of Ottawa, and a review of the Natural Heritage Make a Map databases. Aerial photography

(1976 - 2014) was used to assess the natural environment features in the general vicinity of the site.

Several sets of field surveys were completed:

Blanding's Turtle

Following MNRF's methodology (OMNR, 2013) visual surveys were completed on five separate occasions during the early spring; after ice melt and prior to June 15th. Binoculars (10x magnification) or a spotting scope (60x) were used to survey the area. Where potential turtle habitat was present transects spaced 10 metres apart were walked. These visits targeted periods when the turtles would be more prone to basking (completed between 0800-1700 hours on sunny days when the air temperature was 10°C or higher or on partially cloudy days when the air temperature was a minimum of 15°C). Information collected included: date of survey, start and stop time, weather conditions, number and species of turtles observed and their location was noted using a hand-held GPS. Turtle surveys were conducted on April 15th, April 28th, May 6th, May 20th and June 10th, 2016. The dates were selected to coincide with ideal survey weather conditions. For example on April 15th the survey was completed from 11:45 to 14:15 with an air temperature of 12 to 14° C and sunny skies. Table 1 summarizes the survey parameters and results for the turtle surveys.

Table 1 – Turtle Survey Parameters

Survey Event	Date	Time	Temperature	Weather	Turtle Observations
1	April 15th	11:45 am to 2:15 pm	12 to 14 C	Full Sun	*None*
2	April 29th	2 pm to 5 pm	13 to 14 C	Full Sun	1 Painted Turtle - Feedmill Creek near Highway
3	May 6th	1:45 pm to 4:30 pm	19 to 21 C	Full Sun	*None*
4	May 20th	8:00 am to 10:30 am	13 to 18 C	Full Sun	*None*
5	June 10th	11:30 am to 4:30 pm	18 to 22 C	Full Sun	*None*

Breeding Birds

Breeding bird surveys were completed on June 2nd and June 18th, 2016. The breeding bird surveys meet the following requirements:

- completed between first week of June and first week in July and completed a minimum of 15 days apart;
- completed by mid-day in response to decreasing calling;
- conducted on days with no rain, little to no wind and good visibility;
- consisted of 5-min point observations located 300m apart (if habitat is complex additional points within 100m can be added)
- while walking between points, any additional observations were recorded;
- a list of all birds observed was also compiled within the different habitats; and
- birds were identified by sound and/or sight.

Although not considered likely due to the presence of woody vegetation and relatively small size, as an extra caution the two areas of cultural meadow in the central and west portions of the site

were surveyed for the potential grassland Species at Risk bobolink and eastern meadowlark on the above dates as well as June 10th, 2016. The point counts at these survey points were increased to 10 minutes to meet MNRF survey protocols for grassland bird Species at Risk surveys. Thus a total of three targeted grassland breeding bird surveys were completed, with the surveys following the MNRF protocol.

Amphibians

The *Environment Canada Marsh Monitoring Program* (MMP) guide was followed as described below to complete amphibian surveys on April 21st and May 18th:
:

- The surveys were completed twice during the spring and early summer.
- Observations begin 30 minutes after sunset and end before midnight;
- Each station is surveyed for 3 minutes during which time the species and the calling code are recorded for each of the following distances: 0-50m, 50-100m, and >100m. The calling codes are recorded as one of:
    - Code 1: Calls not simultaneous, number of individuals can be accurately counted
    - Code 2: Some calls simultaneous, number of individuals can be reliably estimated
    - Code 3: Full chorus, calls continuous and overlapping, number of individuals cannot be reliably estimated
- Surveys are only conducted if the wind strength was Code 0, 1, 2 or 3 on the Beaufort Wind Scale.
- Amphibian survey stations were separated by at least 500 metres.

The location of the amphibian survey stations is shown on Map 2. In addition to the point counts a walk around the areas surrounding the potential features was completed.

Eastern Whip-Poor-Will

Evening surveys for eastern whip-poor-will survey were completed on May 19th, May 27th and June 14th, 2016. The level of effort and weather conditions during the surveys were consistent with the requirements outlined by the MNRF protocol:

1) 500 metre intervals between survey points
2) Six minute listening period at each survey point
3) Three surveys during the appropriate time of year (end of May to mid-August) and appropriate conditions (over 10° C, calm winds, 50% or more visible moon face illuminated & moon over the horizon)
4) Surveys must be one week apart

Specifically the weather conditions for the three surveys included at least 55 percent of the moon face showing, air temperatures between 13 and 21° C, a noise condition code of 1 or 2 and wind and sky condition codes of 0 or 1. Two survey points were completed during the targeted surveys as shown on Map 1.

Fish Sampling and Fish Habitat Assessments

Fish community sampling was performed on May 4th, 2016 to document fish utilization in Feedmill Creek and tributaries to Feedmill Creek and the Carp River on and adjacent to the site. The fish community was sampled at the sites shown on Map 2 utilizing backpack electrofishing.

The fish habitat features within the study area was described on April 15th and May 2nd based on the MTO *Environmental Guide for Fish and Fish Habitat October 2006*, the *Ontario Stream Assessment Protocol* and the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* created by Credit Valley Conservation and Toronto Region Conservation (Approved July 2013, finalized January 2014). The Headwater Assessment Guideline is divided into three parts. Part 1 is the Evaluation and discusses various suggested study designs/methods. Part 2 determines the appropriate Classification following the outcome of Part 1. Finally, Part 3 outlines the Management Recommendations. In addition to this guideline, a collection of background review, fish habitat and community assessments and amphibian surveys were completed as described above. Information on the channel morphology was collected (channel width, wetted width, bankfull and wetted depths, cover type and abundance, and substrate type). Incidental observations of wildlife/plant species using the headwater features were also noted.

Background information regarding fish species was obtained by reviewing Distribution of Fish Species at Risk maps published by Mississippi Valley Conservation Authority (MVCA), a search of the Natural Heritage Information Centre (NHIC) databases, and a search of the Land Information Ontario databases. The headwater assessment was completed to determine the significance of the Feedmill Creek tributaries on and adjacent to the site. As Feedmill Creek itself will be maintained in its current condition within a protected corridor less sampling and assessment was completed on this main channel.

A third survey as part of the fish sampling, fish habitat analysis and the headwater assessment will be completed in July, 2016.

Incidental wildlife and vegetation observations were gathered on all of the above surveys. In addition a survey of potential cavity trees for bat use was completed on May 17th, 2016.

Ecological units were defined based on species present, the wetness index of the species, dominant species, drainage observations, health, age, topography and soil conditions. Records of wildlife were made through direct sightings and observations of tracks and scat. Other aspects of the surveys included photographs of site representative features and observations on the level of disturbance from human activities and other disturbances such as non-native flora.

NHIC (2016) and Muncaster and Brunton (2005) were used for the current status of the flora and fauna observed.

For the purposes of this report Highway 417 is assumed to run in an east-west orientation.

3.0 EXISTING CONDITIONS

3.1 Geologic and Hydrologic Conditions

The site is generally flat with a gentle slope to the east. The majority of the site is mapped as poorly drained silty loams, with imperfectly drained sandy loams and limited overburden in the southwest portion (Schut and Wilson, 1987). Paterson (2015) summarized the surficial soils in the east and north portions of the site as topsoil layer/ agriculturally disturbed zone overlying a silty clay layer and glacial till deposits. The soil profile encountered by Paterson (2015) at the remainder of the test hole locations consisted of topsoil underlain by a silty sand and/or a glacial till deposit. The depth of overburden varied between 0 and 10 metres in the west portion of the site and between 10 and 25 metres in the east. During our field reviews boulders and rock were frequently observed at the surface in the southwest and south-central portions of the site. The bedrock consists of interbedded limestone and shale of the Verulam formation in the east and interbedded limestone and dolomite of the Gull River formation in the west portion. Based on observations of soil moisture levels and consistency at the test hole locations, Paterson (2014) estimated the long-term groundwater table to be between two and three metres below existing ground surface.

Paterson (2015) concluded that grade raise restrictions were limited to the east corner and northwest portion of the site. Grade raises up to two metres were considered permissible.

3.2 Terrestrial Features

The majority of the site was in agricultural use on 1976 aerial photography, with several east-west hedgerows present and higher density of trees in the south-central portion. By the 1990s much of the site outside of the current fields and meadow habitats were forested.

Cultural Meadow/Agricultural Fields

Cultivated fields, planted in soybeans in 2016, are in the east portion of the site (Photo 1). Cultural meadow habitat is present in two fields, likely formally used for hay in the central and west portions of the site (see vegetation community 2 on Map 1 and Photo 2. Common ground flora in the meadow habitat and adjacent to the cultivated fields included brome grass, orchard grass, timothy, blue-eyed grass, Canada thistle, eastern bracken, thicket creeper, cow vetch, wild grape, common milkweed, orange hawkweed, yellow hawkweed, common dandelion, sensitive fern, poison ivy, virgin's bower, red clover, Canada goldenrod, narrow-leaved goldenrod, heart-leaved aster, curled dock, ox-eye daisy, daisy fleabane and common fleabane. Regenerating woody vegetation was common including common buckthorn, tartarian honeysuckle and red-osier dogwood shrubs and regenerating balsam poplar, trembling aspen, white elm, white cedar, white spruce, white birch and tamarack stems up to 25cm diameter at breast height (dbh).

Wildlife observed on and adjacent to the meadow habitat included ring-billed gull, American goldfinch, American crow, yellow warbler, cedar waxwing, common yellowthroat, alder

flycatcher, Wilson's snipe, wild turkey, song sparrow and turkey vulture and red-tailed hawk flying overhead.

Cleared/Disturbed Lands

As shown on Map 1 many areas of the north portion of the site have been recently cleared of most trees and the areas grubbed (Photos 3, 4 and 5). Remaining trees included white elms in the 20 – 30cm dbh range, red maples between 22 and 46cm dbh, green ash between 18 and 24cm dbh and trembling aspen up to 44cm dbh.

Photo 1 – Soybean fields dominate the east portion of the site. This is the south field with view looking east to cultural woodlands owned by others to the west of Huntmar Drive (June 10th, 2016)

Photo 2 –Cultural meadow habitat in the central-west portion of the site. View looking west from central point of meadow (June 10th, 2016)

Photo 3 – Recently cut area in the central west portion of the site to the west of the meadow habitat. View looking north from the south edge of the cutting (June 10th, 2016)

Photo 4 – Another area of tree cutting - this is in the northwest portion of the site, looking southeast at the proposed park location from the northwest site boundary (June 10th, 2016)

Photo 5 – Area of tree cutting in the north-central portion of the site. View looking southwest (June 10th, 2016)

Cultural Woodland

Cultural woodlands are in the north-central portion of the MTO lands adjacent to a gravel storage/staging area. Trembling aspens up to 25cm dbh are the dominant trees species, with mature eastern cottonwood and regenerating Manitoba maples also present. Staghorn sumac, tartarian honeysuckle, apple, common buckthorn and glossy buckthorn shrubs are in the understorey along with regenerating poplar and ash stems. Ground flora included Canada goldenrod, tall goldenrod, wild grape, thicket creeper, Canada thistle, daisy fleabane, reed canary grass, common burdock, common mugwort, black swallow-wort, ox-eye daisy, wild parsnip, common mullein, wild carrot, daisy fleabane, common burdock and common milkweed. Wild grape growth is on some of the trees and shrubs.

Wildlife noted in the cultural woodland included yellow warbler, brown-headed cowbird, black-capped chickadee, cedar waxwing, grey catbird and song sparrow.

Hedgerows

White ash, trembling aspen, white elm, sugar maple and apple are the dominant tree species in the deciduous hedgerows, identified as vegetation community 4 on Map 1. There is extensive evidence of damage from the emerald ash borer on many of the ash trees. The trees are generally intermediate-aged, with the largest ash, maples and poplars in the range of 25 - 45cm dbh. White cedars up to 45cm dbh are in a coniferous hedgerow in the north-central portion of the site (Photo 6). Common buckthorn, hawthorn, red raspberry, glossy buckthorn and gray dogwood shrubs are among the trees in the hedgerows.

Photo 6 - White cedar in the short coniferous hedgerow in the north-central portion of the site

Upland White Cedar Coniferous Forest

This is the dominant community of the on-site forests. White cedar up to 40cm dbh is the dominant tree species, with smaller bur oak, balsam fir, white ash, white birch and white spruce also present. Regenerating Manitoba maple stems are common portions of the forest peripheries. A 45cm dbh white cedar along the south property line was part of a former hedgerow that has become part of the forest since agricultural use in this portion of the site ended. White spruce up to 48cm dbh were also observed. The trees appear to be in generally good condition with some wind throw noted in the south representation of the coniferous forest (Photo 8). The understorey and ground flora coppice are limited in many areas by the high density of the young to intermediate-aged cedars (Photo 7). Where the canopy is more open common buckthorn is abundant in areas. Glossy buckthorn, black current, red elderberry, red-osier dogwood, tartarian honeysuckle, staghorn sumac, red raspberry and regenerating cedar and balsam fir stems are also in the understorey. Fragile fern, sensitive fern, oak fern, bulblet bladder fern, eastern bracken, ground cedar, Canada mayflower, Pennsylvania sedge, meadow grass, Canada thistle, poison ivy, yellow violet, Canada goldenrod, daisy fleabane, thicket creeper, wild grape, common dandelion, tall buttercup, common strawberry, white baneberry and starflower are typical of the ground flora. Wild grape was common on many shrubs and the lower branches of trees.

Wildlife observed in proximity to the cedar forests were least flycatcher, blue jay, white-throated sparrow, song sparrow, ovenbird, black-and-white warbler, eastern wood pewee, American goldfinch and American robin.

The following tree species are representative of the upland white cedar coniferous forest:

Tree Species Coniferous Forest	dbh Range	Distribution
White cedar	4 – 45 cm	70 %
White elm	15 – 20 cm	2 %
White ash	32 – 40 cm	5 %
Bur oak	20 – 25 cm	5 %
White birch	20 – 35 cm	7 %
Manitoba maple	12 – 22 cm	3 %
White spruce	15 – 48 cm	8 %

Photo 7 - Dense cedar forest in the northeast portion of the site with very limited understorey and ground cover (May 11th, 2016)

Photo 8 - Some wind throw in the cedar coniferous forest in the south-central portion of the site (June 10th, 2016)

Upland White Cedar - Poplar Mixed Forest

Small pockets of mixed forest are also in the west portion (Photo 9) and east edge of the site. White cedar up to 32cm dbh and trembling aspen up to 40cm dbh are the dominant tree species, with white birch, white ash, sugar maple, balsam poplar, white spruce, bur oak, white elm and green ash also present. A 60cm dbh white spruce is along the southwest edge of the site, likely within a former hedgerow that is now part of the forest habitat. Greater wind throw was noted in the southwest representation of the upland mixed forest. Glossy buckthorn is again abundant in many areas of the understorey, with red-osier dogwood and nannyberry also present. Sensitive fern, lady fern**,** poison ivy, thicket creeper, wild grape, Canada goldenrod, cow vetch, Canada mayflower, Philadelphia fleabane, ox-eye daisy, common dandelion and narrow-leaved goldenrod are typical of the ground flora. Grape and creeper coverage is extensive on the lower branches of many of the trees.

Wildlife observed in the mixed forest included American robin, cedar waxwing, ovenbird, wood thrush, veery, alder flycatcher, chestnut-sided warbler, yellow warbler, downy woodpecker and red-eyed vireo.

The following tree species are representative of the fresh-moist white cedar-poplar mixed forest:

Tree Species Mixed Forest	dbh Range	Distribution
White cedar	5 – 32 cm	25 %
White elm	8 – 18 cm	5 %
White ash	18 – 28 cm	3 %
Green ash	12 – 25 cm	8 %
White birch	10 – 36 cm	10 %
Trembling aspen	24 - 40 cm	30 %
Balsam poplar	12 – 28 cm	5 %
Sugar maple	8 – 34 cm	5 %
White spruce	24 – 60 cm	7 %
Bur oak	20 - 25 cm	2 %

Photo 9 - Mixed forest in the southwest portion of the site

Upland Poplar Deciduous Forest

This community, scattered in relatively small pockets throughout the central and west portions of the site, is dominated by trembling aspen and balsam poplar up to 48cm dbh and 33cm dbh, respectively (Photos 10 and 11, vegetation community 6 on Map 1). The largest trees seen in this community was a 54cm dbh white spruce on the MTO lands, with white birch up to 38cm dbh, and white ash up to 32cm dbh also noted. Green ash, crack willow, basswood, sugar maple, bur oak, white cedar and white elm are also present. Some of the elm were in poor condition with very little leaf-out. Wild grape coverage was thick on many of the trees. Glossy buckthorn or common buckthorn are dominant in portions of the understorey, with prickly gooseberry, tartarian honeysuckle, gray dogwood and regenerating ash and poplar stems also common. Canada goldenrod, tall goldenrod, poison ivy, wild grape, thicket creeper, cow vetch, bugleweed, common dandelion, yellow wood sorrel, white bedstraw, common strawberry, spotted jewelweed, white bedstraw, herb robert, field horsetail, Philadelphia fleabane, daisy fleabane, white snakeroot, thicket creeper, yellow violet, blue violet, tall buttercup**,** Pennsylvania sedge, eastern bracken, sensitive fern and lady fern are representative of the ground flora generally dominated by non-native and/or invasive species.

Red-eyed vireo, white-tailed deer tracks, ovenbird, great-crested flycatcher, northern flicker, cedar waxwing, red-eyed vireo, northern cardinal, rose-breasted grosbeak and downy woodpecker were observed in the deciduous forests.

The following tree species are representative of the upland poplar deciduous forest:

Tree Species Poplar Deciduous Forest	dbh Range	Distribution
White birch	14 – 38 cm	12 %
Balsam Poplar	7 – 33 cm	20 %
Trembling aspen	12 – 48 cm	25 %
Green ash	8 – 26 cm	12 %
White cedar	8 – 15 cm	2 %
White ash	8 – 32 cm	10 %
Crack willow	32 cm	< 1 %
White spruce	15 – 54 cm	2 %
White elm	6 – 23 cm	12 %
Sugar maple	18 – 25 cm	2 %
Bur oak	16 – 22 cm	< 1 %
Basswood	20 – 25 cm	2 %

Photo 10 – Remaining young poplar deciduous forest with thick buckthorn in understorey in the northwest portion of the site (June 10th, 2016)

Photo 11 - Poplar deciduous forest in the northeast portion of the site (June 10th, 2016)

Willow Thicket

Willow thicket habitat is common in the west half of the MTO lands to the north of the site (Photo 12, vegetation community 9 on Map 1). In addition to the dominant slender willow and glossy buckthorn, speckled alder, red-osier dogwood, Bebb's willow, narrow-leaved meadowsweet and black currant are well represented shrub species. White elm, white cedar, white birch and green ash trees up to 15cm dbh are also present, along with crack willows up to 32cm dbh on the periphery of the thickets. Sensitive fern, broad-leaved cattail, yellow sedge, field horsetail, tall meadow-rue, reed canary grass, Canada bluejoint, purple loosestrife, joe-pye-weed, marsh bedstraw, water horehound, dwarf raspberry, thicket creeper and spotted jewelweed are common ground flora. An area of denser cattails is within the northwest corner of the willow thicket (Photo 13).

During the turtle surveys the willow thicket was found to be very dry with no significant areas of standing water throughout the surveys. Shallow wet areas less than 1 meter across and less than 5cm deep were noted in some areas, but these were too small, shaded, and overgrown with woody vegetation to provide suitable turtle habitat.

Common yellowthroat, yellow warbler, downy woodpecker, veery, alder flycatcher, swamp sparrow, great-crested flycatcher and American goldfinch were observed in the thicket habitat.

Photo 12 – Typical willow thicket habitat on the MTO lands to the north of the west portion of the site (June 10th, 2016)

Photo 13 - Area of cattails in the northwest portion of the willow thicket on the MTO lands. No standing water was present on April 29th, 2016

3.3 Aquatic Habitat

Feedmill Creek is identified in the Carp River Watershed/Subwatershed Study (CRWSS) (Robinson, 2004) as a natural channel supporting a tolerant coldwater fish community, with good to fair water quality and some impairment of the benthic macroinvertebrate community from nutrient enrichment in the downstream, east, portion of the site. However, a water temperature survey conducted by Mississippi Valley Conservation Authority staff in August, 2003 about 500 metres upstream of the site at the Maple Grove Road allowance concluded that Feedmill Creek is at the upper limit of the cool, not cold, water temperature range, with a maximum water temperature of 22° C. Maximum water temperatures of 24° C in Feedmill Creek near the confluence with the Carp River were reported by TSH (2005). More recently and just downstream of the site water temperature data at Palladium Drive for Feedmill Creek between March 2012 and November 2014 were obtained from the City's Water Environment Protection Program. Water temperatures were variable among years. For example in the middle of July, 2013 maximum daily water temperatures were typically in the range of 23 – 26 ° C but were approximately four to six degrees cooler in July, 2012 and July, 2014. These summer temperatures represent a range of cool and warm water temperatures and are similar to those reported from 2005.

Regardless Feedmill Creek supports a diverse assemblage of forage fish, although water temperatures preclude the cold water designation for the creek. The CRWSS notes that Feedmill Creek is a relatively stable stream and is one of the watercourses in the Carp River watershed to support the greatest diversity of fish species and best habitat conditions. OMNR fish sampling in 1993 identified the following species in Feedmill Creek: bluntnose minnow, fathead minnow, northern redbelly dace, white sucker, brook stickleback, central mudminnow, common shiner, logperch and mottled sculpin. Extensive fish sampling in August, 2003 upstream of the site at the Maple Grove Road allowance identified a warm and coolwater forage fish community including brook stickleback, northern redbelly dace, central mudminnow, blacknose dace, creek chub and blacknose shiner. Our sampling in April, 2016 (sampling site # 5 on Map 2) identified white sucker, brook stickleback, creek chub, rock bass, blacknose dace, Johnny darter, common shiner, fathead minnow, northern red-belly dace and blacknose shiner from Feedmill Creek adjacent to the central-west edge of the site.

The morphology of Feedmill Creek in the reach adjacent to the site is dominated by runs with a typical ditch-like cross-section and no sinuosity (Photo 14). These disturbed characteristics are in contrast to the pool:riffle morphology and a meandering pattern exhibited by Feedmill Creek downstream, north of Highway 417 and to the south of the site in the vicinity of the Jackson Trails development. A large pool is present at the Highway 417 culvert (Photo 15). Aquatic vegetation such as broad-leaved cattails, slender pondweed and reed canary grass provide some in-stream cover, but boulders and woody debris were lacking. The banks are well vegetated with ground flora and shrubs such as European reed, Canada goldenrod, reed canary grass, joe-pye-weed, boneset, yellow sedge, white-sweet clover, Canada thistle, cow vetch, Bebb's willow and regenerating poplar stems (Photo 14). However the canopy cover is limited relative to the excellent cover to the north of the site, north of Highway 417.

No amphibians were recorded in proximity to the Feedmill Creek corridor. Mallard, song sparrow, white-crowned sparrow, common yellowthroat, American robin and Canada goose were observed along the Feedmill Creek corridor.

Photo 14 - Feedmill Creek along the unopened road allowance immediately west of the site. View looking north from west of the west-central property edge (June 10th, 2016)

Photo 15 - Feedmill Creek as it enters the box culvert under Highway 417 north of the MTO lands. View looking downstream, northeast (June 10th, 2016)

Other Channels

As shown on Map 2, tributaries of Feedmill Creek and the Carp River are on and adjacent to the site. Seven sampling sites were set up along these tributaries (Site 5 is on Feedmill Creek itself). Six of the seven sites were either dry or did not contain enough water to permit sampling with an electrofisher or dip netting on April 15th, 2016. Sampling was completed with a backpack electrofisher at Site 4, a roadside channel along the west side of Huntmar Drive.

The channel in the central and east portions of the site (sampling sites 1, 2 and 3 on Map 2) appears to have been dug by farm drainage and is referred to on Map 1 as the 'east swale' (Photos 16 and 17). The swale, which is tributary to the Carp River, had limited standing water throughout the spring period. Initially water in the drainage swales reached approximately 10cm depth in mid-April. By May 6th, standing water was limited to small discontinuous pools less than 10cm deep and the majority of the swale was dry. As no fish were caught the east swale it is not considered to provide direct fish habitat. In addition no turtles or amphibians were observed in the vicinity of the east swale. Due to the very limited aquatic and wetland habitat potential, the area of the east swale is not considered to provide suitable Blanding's Turtle habitat functionality due to the lack of substantial water.

The channel in the northwest portion of the site (sampling sites 5, 6 and 7 on Map 2) is referred to as the 'northwest swale' on Map 1, and is tributary to Feedmill Creek. This swale has been realigned to run along the north site boundary before turning 90 degrees to the north as the swale enters MTO land (Photos 18 and 19). The swale had very limited flowing water (less than 5cm

on April 15th and by April 29th there was no longer continuous flow through the channel, with no water observed in the vicinity of the culvert at the 417. By May 6th the entire channel was dry and was also dry on May 20th and June 10th. This feature also does not provide suitable turtle habitat and is only ephemerally wet in the very early spring, with not enough water for fish sampling on April 15th. Thus the northwest swale is also not considered to provide direct fish habitat.

The CRWSS did not consider any of the on-site channels leading to Feedmill Creek to be fish habitat and did not identify habitat protection for these channels (Robinson, 2004).

Photo 16 - East Swale on April 15th along the north edge of the east portion of the site. View looking east

Photo 17 - East Swale on April 15th in the south-central portion of the site. View looking north

Photo 18 - Realigned northwest swale along the north edge of the site. View looking west, with section of remaining trees to the left, south, and MTO lands to the right, north (April 15th, 2012)

Photo 19 – Realigned dry northwest swale (April 29th, 2016) along the north edge of the site. View looking east, with areas of tree cutting to the right, south, and MTO lands to the left, north

Fish, Turtle and Amphibian Survey Results Summary

On April 15th fish were only netted on Feedmill Creek itself and a roadside ditch along the west side of Huntmar Drive. Additional fish sampling will be completed in the summer of 2016.

As shown on Map 2 amphibians were sampled at five sites on April 21st, May 19th and June 16th, 2016. The only amphibian observations were two wood frogs heard in the vicinity of site A4 along the north edge of the site adjacent to a tributary of Feedmill Creek.

Five turtle surveys following the MNRF's Blanding's Turtle Survey Protocol (OMNR, 2013) were completed between April 15th and June 10th. No Species at Risk were observed during these surveys, with a single painted turtle observed on April 29th, 2016 along Feedmill Creek just upstream of the box culvert at Highway 417.

3.4 Species of Interest and Other Significant Features

Species at Risk and other Species of Interest

The only Species at Risk observed during the field surveys was butternut. No Species at Risk were reported by Keddy (1997) or Muncaster and Brunton (2005) in the applicable natural area summaries. Black bear, a regionally rare mammal, was reported by Keddy (1997) in the Stittsville North Natural Area summary, along with the regionally rare beggarticks, however this plant is no longer considered regionally rare (Muncaster and Brunton, 2005).

Other databases and sources were reviewed to determine potential Species at Risk in the general area. Schedule 1 (List of Wildlife Species at Risk) of the *Species at Risk Act* was reviewed, including the COSEWIC lists for endangered and threatened species and species of special concern. Correspondence from the MNRF dated May 31st, 2016 (Appendix A) identified several potential Species at Risk and species of special concern in the general area of the site, including butternut, bobolink, eastern meadowlark, barn swallow, Blanding's turtle, little brown bat, eastern small-footed myotis, snapping turtle, Canada warbler, eastern ribbonsnake, monarch, milksnake and short-eared owl.

The Ontario Ministry of Natural Resources and Forestry's Make a Map database was reviewed on May 17th, 2016. A search was conducted on the 1 km squares including the site and adjacent lands (18VR21_65, -66, -74 and -75). No Species at Risk were reported for these squares, with the provincially rare ram's-head lady's-slipper and snapping turtle, a species of special concern noted. The breeding birds listed in the Ontario Breeding Bird Atlas for the 10 km square 18VR21 identified eastern whip-poor-will, eastern meadowlark, barn swallow, bank swallow and bobolink as Species at Risk in the overall 10 km square.

The potential Species at Risk in the City of Ottawa were also reviewed, with an emphasis on the endangered and threatened species historically reported in the overall City, including butternut, American ginseng, eastern prairie fringed-orchid, wood turtle, spiny softshell, Blanding's turtle, snapping turtle, musk turtle, Henslow's sparrow, loggerhead shrike, bald eagle, golden eagle, least bittern, eastern whip-poor-will, chimney swift, eastern meadowlark, bank swallow, barn swallow, bobolink, little brown myotis, northern long-eared bat, olive hickorynut, eastern cougar and American eel. The habitat requirements of these species along with those listed as special concern were reviewed.

Other than butternut none of these Species at Risk were observed during the field surveys. Specific targeted surveys for Blanding's turtle, eastern whip-poor-will, bobolink and eastern meadowlark found no presence of these species. A 36cm dbh butternut was observed in the southwest portion of the site (Photo 20) and there are dozens of other butternuts on the site. Shaun St. Pierre, a certified Butternut Health Assessor (#281), will complete a butternut health assessment of the entire site in the summer of 2016. No additional site disturbances are to occur until the butternut health assessment is completed. All butternuts are to be protected with a 25 metre setback until thirty days have passed following submission of the butternut health assessment report to MNRF. Any butternuts assessed as healthy are to be protected with the setback until their removal has been compensated for through the on-line registry process or a MNRF permit has been issued.

Bobolink and eastern meadowlark utilize grass hay fields, but not the cultivated corn fields in the east portion of the site. No bobolink, eastern meadowlark or barn swallow were observed during the spring or early summer surveys, including targeted surveys in the meadow habitat. No structures are present on or adjacent to the site that may be utilized by barn swallow or chimney swift for nesting.

The willow thickets, including the northwest cattail area, on the MTO lands are considered too dry, lacking standing water except in the early spring, to support turtle habitat or habitat for

eastern ribbonsnake. No turtles were observed in these areas during the five targeted surveys. Potential turtle habitat is present along the Feedmill Creek corridor and one painted turtle was observed along the corridor on April 28th. No Blanding's or snapping turtles were observed during the five targeted surveys or other field surveys.

The understorey in the on-site forests appear too thick for utilization by eastern whip-poor-will, which requires large wooded areas with open patches, and/or open woodlands or alvar. No eastern whip-poor-wills were heard on or adjacent to the site during three targeted nocturnal surveys.

Milksnake (no longer considered a species of special concern) is relatively common in portions of Ottawa but is not often seen. It is found in open woodlands, clearings and around farmhouses where it hunts its major prey item, mice. Only common gartersnake was observed during the field surveys. MNRF recommends searches of the site during appropriate weather conditions prior to site alterations for potential turtles and snakes.

Maternity roosts for the bat Species at Risk are typically found in mixed or deciduous forests using cavities in trees 25cm dbh or larger. Although small areas of deciduous and mixed forests are present on the site, the forests are young and no trees greater than 25cm dbh with cavities were observed on the site during a May 17th, 2016 search for cavity trees.

The ram's-head lady's-slipper orchid is found in mature coniferous forests or coniferous fens and swamps, habitat not present on or in the vicinity of the site. This orchid was not observed during the spring surveys.

Photo 20 - 36cm dbh butternut in deciduous hedgerow in the south-central portion of the site

Natural Area Summaries

The North of Maple Grove Urban Natural Area, identified in Muncaster and Brunton (2005) as Urban Natural Area 32, includes the forested portion of the site and extends to the north onto the MTO lands. The Natural Area was rated moderate overall for natural significance, with the best scores assigned to the size and shape, representative flora and wildlife habitat criteria. Four of the nine evaluation criteria were assigned an average rating, connectivity, regeneration, habitat maturity and natural communities. The absence of disturbance and significant flora and fauna criteria were rated below average. Since the UNAEES was completed, extensive tree removal has occurred to the west of the site in the rural area and the southeast portion of the Urban Natural Area was removed for urban residential development. The site summary noted that there was extensive former tree cutting throughout the Urban Natural Area and foot trails and vehicle tracks were common throughout. The impact of non-native species, common buckthorn, glossy buckthorn, Manitoba maple and purple loosestrife, was considered significant. The vegetation communities were summarized by Muncaster and Brunton (2005) as young to submature upland coniferous and mixed forest, with a thicket swamp and mineral marsh at the north end of the Urban Natural Area. The flora and fauna biodiversity was considered low and no regionally rare or uncommon plant or animal species were noted. The exceptionally old eastern hemlock and white pines identified for the North of Maple Grove Urban Natural Area were to the south of the current site, north of Maple Grove Road.

The boundary of the Stittsville North Natural Area delineated in the Natural Environment System Strategy is a subset of the North of Maple Grove Urban Natural Area boundary on the site. The Natural Area summary described the Natural Area as upland mixed and coniferous forests of variable age and a moderate designation was assigned by Keddy (1997). The only criterion with a high significance was 'rare vegetation community/landform representation', referring to upland coniferous forests and upland rock/sand barrens. There are upland coniferous forests on-site but it is unknown why these were considered rare by Keddy (1997) given how common they are in the Goulbourn area. Moderate significance was identified for vegetation community/landform diversity and hydrological features, while seasonal wildlife concentrations and condition of natural area were considered to have low significance. No large-scale linkage was attributed to the natural area. Connections to other natural areas are limited by Highway 417, agricultural lands, the Kanata West Planning Area, and the residential and commercial developments associated with Stittsville.

The summary for Stittsville North Natural Area considered the degree of human disturbance to be moderate to high, with moderate site fragmentation (Keddy, 1997). Purple loosestrife and glossy buckthorn were widely distributed in the natural area and the overall impact of alien species was considered to be moderate to high. Glossy buckthorn is abundant in the understorey of many portions the site.

Blanding's Turtle Habitat Mapping

A sighting of Blanding's turtle, a threatened Species at Risk in Ontario, was reported by City of Ottawa staff within two kilometres of the study area in the vicinity of Carp Road and Highway

417. The general habitat description for the Blanding's turtle developed by MNRF identifies three habitat categorizations. Category 1 lands include overwintering/hibernation and nesting areas and an associated thirty metre buffer. Blanding's turtle nests are created in open habitats with low vegetation cover and high sun exposure such as in forest clearings, meadows, shorelines, beaches, rock outcrops, cornfields, gravel roads, road shoulders, ploughed fields, gardens, powerline rights-of-ways, yards and abandoned railroad beds, with females often showing a high fidelity to the same general nesting areas (OMNR, 2013). Blanding's turtles also display overwintering site fidelity, using some sites year after year and many individuals may aggregate at one site while overwintering (OMNR, 2013). Suitable Blanding's Turtle overwintering habitat typically includes permanent bogs, fens, marshes, ponds, channels or other habitats with free (unfrozen) shallow water. No evidence of nesting activity has been observed on the site and loose coarse overburden material does not appear available. Hibernation areas are identified by very early spring emergence and late fall observations in combination with habitat composition. Since no Blanding's turtles were observed during the five targeted surveys between April 15th and June 10th and no indication of turtle nesting or over-wintering was observed no Category 1 habitat is considered present on or adjacent to the site.

Category 2 lands are wetland complexes that extend up to two kilometres from an occurrence and 30 metres around these suitable wetlands/waterbodies (OMNR, 2013). For the purpose of general habitat protection for Blanding's Turtle, a wetland complex is defined as all wetlands that are within 500 m of each other. Suitable on-site and adjacent wetland habitat for Category 2 lands is limited to Feedmill Creek. The east and northwest swales are highly intermittent channels with very minimal available water in the channel or adjacent vegetation. Thus the channels and their adjacent areas are not considered suitable Blanding's Turtle habitat. Similarly, the willow thicket on MTO lands was found to be very dry with no significant areas of standing water throughout the surveys. Shallow wet areas less than 1 m across and less than 5 cm deep were noted in some areas, but these were too small, shaded, and overgrown with woody vegetation to provide suitable turtle habitat and were dry by the end of April. Although Feedmill Creek was continuously wet throughout the survey, it is also highly channelized with comparatively little riparian wetland vegetation. It is therefore not prime Blanding's Turtle habitat but is considered Category 2 Blanding's Turtle habitat following the General Habitat Description for the species (OMNR, 2013). The Category 2 habitat would extend 30 metres from the top of bank of the Feedmill Creek channel.

Category 3 Blanding's turtle habitat is between 30 and 250 metres around suitable Category 2 wetlands and waterbodies. The primary purpose with respect to Blanding's turtle habitat of the Category 3 lands is to provide movement corridors between wetlands, a function which is essential for carrying out life processes associated with the Category 1 and 2 habitats. The on-site Blanding's turtle Category 3 habitat would extend 220 metres to the east of the east edge of the Category 2 habitat shown on Map 3. As there are no wetland habitats in the central and east portions of the site or to the east or south of the site there is no indication that Blanding's Turtle would utilize the site to migrate to other suitable habitats. Thus the primary purpose of Category 3 Blanding's Turtle habitat is not applicable to the Category 3 lands on the site. The Blanding's Turtle sighting was to the west of the site and there are wetlands present to the west of Feedmill Creek further west of the site to the south of Highway 417. The site does not play on role in

facilitating potential Blanding's Turtle movement between the turtle sighting in the vicinity of Carp Road and the wetlands between the sighting area and Feedmill Creek.

Significant Woodlands

The forests in the southwest portion of the site are contiguous with forests to the south of the site. Overall the contiguous forest has approximately 10.6 hectares of forest interior habitat after removing a 100 metre edge from the 28.6 hectare forest. Approximately 17.6 hectares of the forest is on-site, with 6.9 hectares of the interior habitat on-site. Note that the recent tree removal in the north portion of the site would have reduced the extent of forest interior habitat on the site by less than 0.15 hectares due to the open road allowance along the west edge of the site and meadow habitat in the central portion. Although the forest is generally young, species that generally require a minimum forested area for successful breeding were observed including ovenbird, wood thrush, eastern wood pewee, black-and-white warbler and veery.

Much of the forest was in agricultural use in 1976, with clusters of trees. Tree cover was greater in 1991 but there were still many patches of open areas. The forest does not contain mature stands of trees 80 years of age or older. Of the three criteria that must be met for identifying significant woodlands in the rural portion of the City of Ottawa (the site is in the urban area but adjacent to the rural area and these criteria appear the most suitable available), the forest and contiguous tree cover to the south contain forest interior habitat and are adjacent to a watercourse. However, the mature tree stand criterion is not met and thus the forest would not be considered a significant woodland.

Significant Wildlife Habitat and Linkages

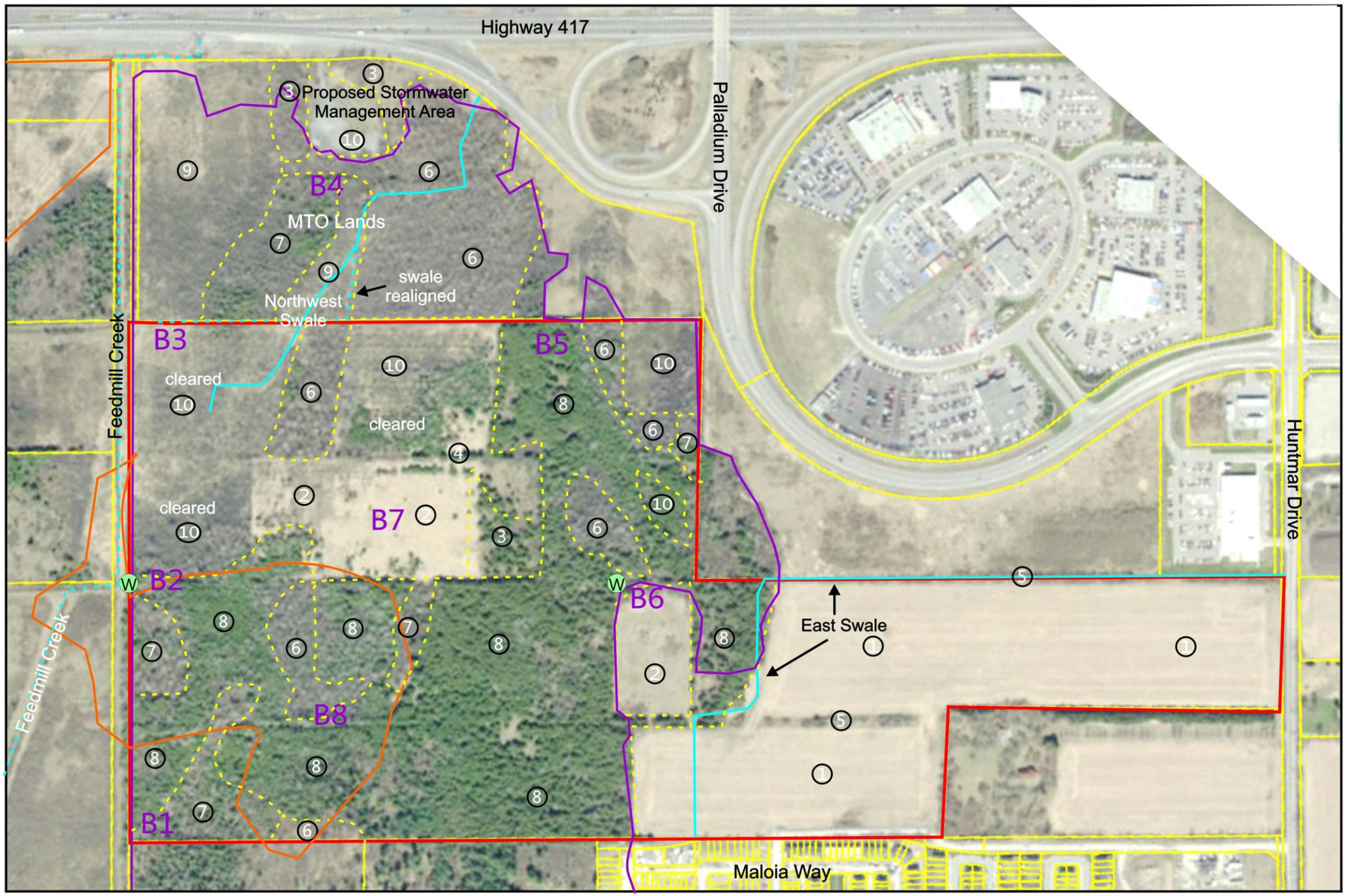
The potential for significant wildlife habitat was assessed using the guidance in OMNR (2010) and MNRF (2015). Potential components which may lead to a designation of significant wildlife habitat include seasonal concentration areas of animals, rare vegetation communities or specialized habitat for wildlife, habitat for species of conservation concern and animal movement corridors.

The forests in the south portion of the site may represent significant wildlife habitat as eastern wood pewee and wood thrush, both Species of Special Concern, were observed in the forests, fulfilling the special concern and rare wildlife species criterion within the habitat for species of conservation concern criteria. Of the woodland area-sensitive bird breeding habitat wildlife species considered indicators in MNRF (2015) ovenbird and veery were observed in the on-site forests. Three or more species are required to trigger this criterion. In addition the on-site and adjacent contiguous forest to the south do not meet the 30 hectare size threshold and are not greater than 60 years old as required for the area-sensitive bird breeding habitat criterion in MNRF (2015).

No habitats of Species of Conservation Concern are present as the indicator species associated with marsh, open country or shrub/early successional breeding bird habitat were not observed. No Provincially rare species were observed. No evidence of animal movement corridors, such as those for deer or amphibians, were noted.

Other field observations would not trigger a significant wildlife habitat designation with respect to the ELC communities present. For example the cultural habitats do not support waterfowl stopover or staging areas, colonial nesting bird breeding habitat or other examples of seasonal concentration areas. No rare vegetation communities as noted in MNRF (2015) or rare or specialized habitats were observed. Based on the field observations no rationale could be determined for the boundary of significant vegetation provided in the CRWSS (Robinson, 2004) and shown on Map 1. The amphibian observations were not in sufficient numbers or species diversity to meet the defining criteria in MNRF (2015). The forests and adjacent cultivated fields and cultural woodlands do not appear to support raptor wintering areas, old growth forest is not present and the forests are not large enough to meet the size criterion for deer winter congregation areas. No seeps or springs were observed. No potential bat hibernacula or maternity colonies or suitable turtle nesting or wintering areas were observed. Areas of broken and fissured rock for potential use by snakes, including potential reptile hibernaculum, were not observed. The forests are too small to meet the criterion in MNRF (2015) for area-sensitive bird breeding habitat.

No large scale linkages were associated with the Stittsville North Natural Area (Keddy, 1997). The adjacent cultivated land, Canadian Tire Centre, urban residential developments, Highway 417 corridor and retail and business parks north of the Highway have greatly reduced the potential linkage functions of the general area.



2014 air photo from City of Ottawa web site

Legend

- Site
- Vegetation Communities
- North of Maple Grove Urban Natural Area
- B2 Breeding Bird Point Counts
- W Whip-poor-will Survey Points
- Other Channels
- Rare Vegetation per CRWSS (2004)

Vegetation Communities

1. Cultivated field
2. Cultural meadow
3. Cultural woodland
4. Coniferuous hedgerow
5. Deciduous hedgerow
6. Upland popar deciduous forest
7. Upland white cedar-poplar mixed forest
8. Upland white cedar coniferous forest
9. Willow thicket swamp
10. Cleared/disturbed lands

Approx. Scale 1:5,200 (on a 11 x 17 plot)

0 50 100 150 200 METRES

Prepared for: 2325483 Ontario Ltd.

Prepared by: Muncaster Environmental Planning Inc.

FILE: 15-19

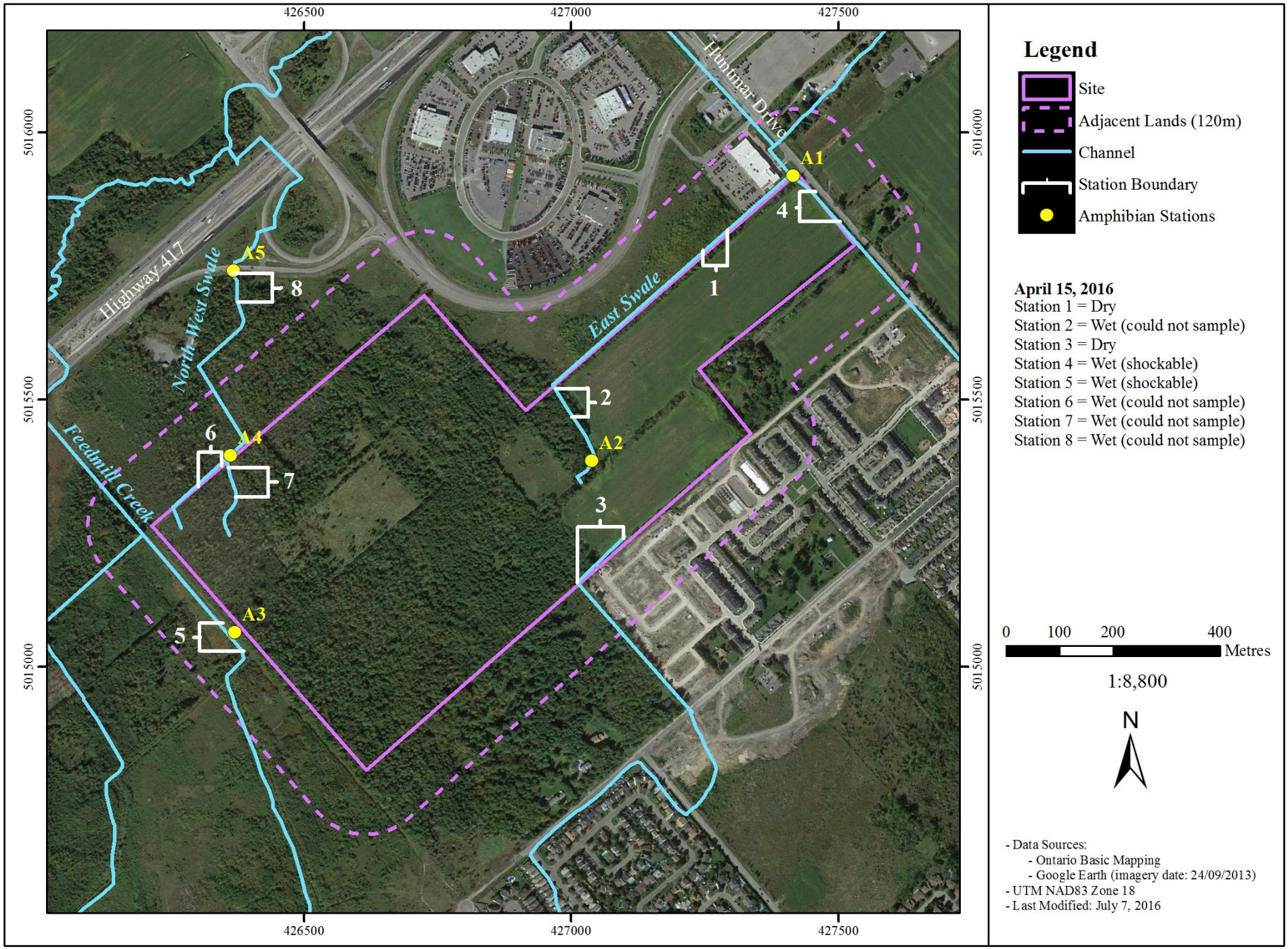
June 27, 2016

Map 1

NATURAL ENVIRONMENT FEATURES

Kanata West Lands, City of Ottawa
Concession 1, Lots 1 and 2, Huntley

MAP 2 – Aquatic and Amphibian Sampling Stations



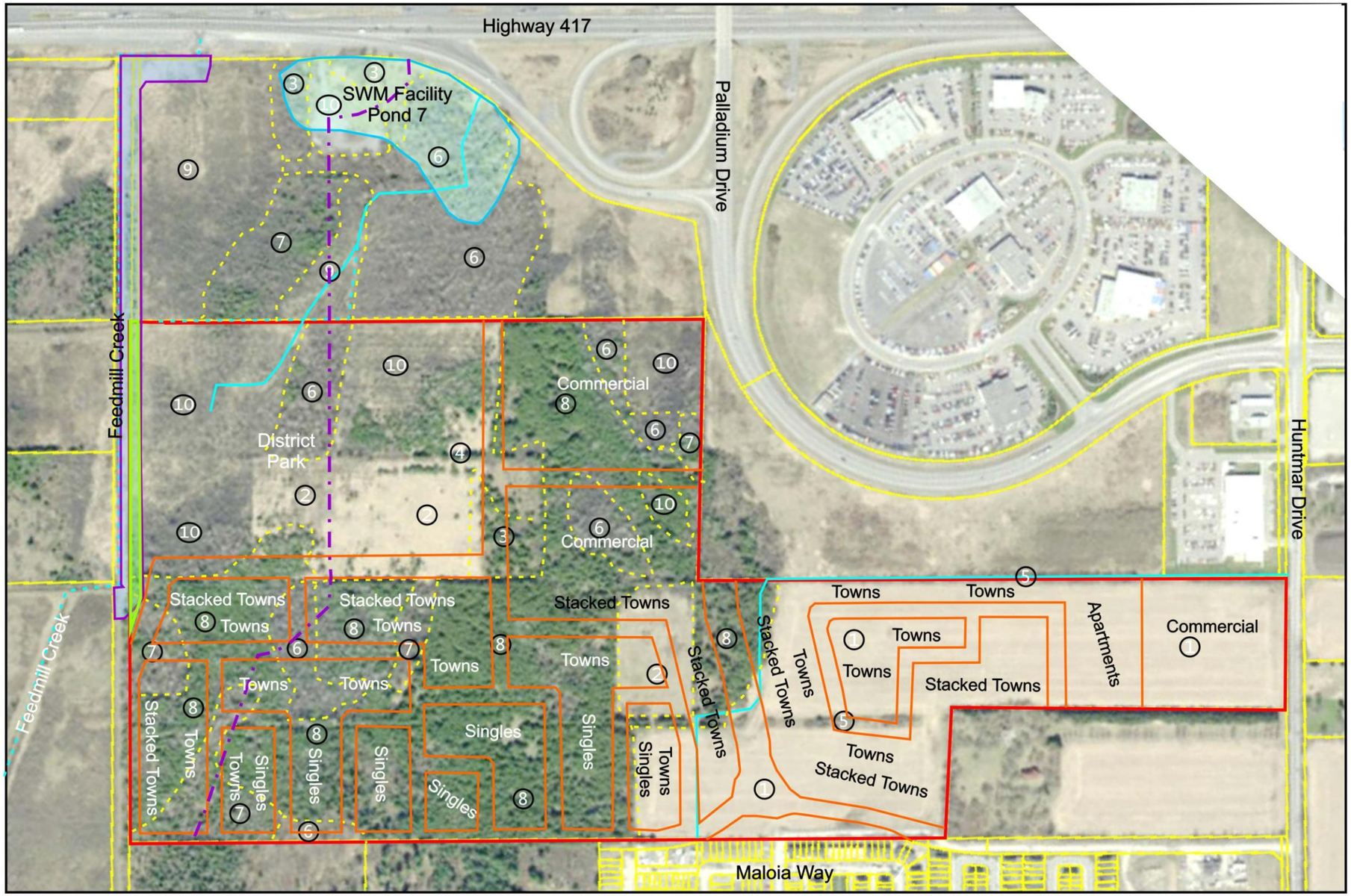
4.0 DEVELOPMENT PROPOSAL

The site is designated *Enterprise Area* on Schedule B of the Official Plan and is currently zoned *Development Reserve Zone* (*DR*) in the City of Ottawa Comprehensive Zoning By-law (2008-250) (FOTENN, 2016). The purpose of this zone is to recognize lands intended for future urban development. The proposed development consists of commercial developments fronting onto to Huntmar Drive and the north portion of the future North-South Arterial. An 11.1 hectare district park is proposed for the northwest portion of the site. Single detached residences, townhouses, stacked townhomes and apartment units are proposed for the balance of the site. Approximately 182 single units on 10 x 30 metre typical lots are proposed, along with 345 townhouses, 520 stacked townhomes in 4 storey buildings and approximately 120-190 apartment units. In addition to the surface parking for the low and medium density residential units, underground parking is anticipated for the apartment units depending on the density and size of each apartment. The proposed Block layout is shown on Map 3.

The site will be accessed via streets off Huntmar Drive, the future North-South Arterial Road and an extension of Stittsville Main Street. Full municipal services will be utilized. As summarized in DSEL (2016) the overall municipal servicing strategy for the 54.6 hectare site was approved as part of the Kanata West Master Servicing Study (MSS) (Stantec, CCL, IBI, June 2006) and can be described as follows:

- Water supply is to be provided through extensions of the existing pressurized trunk watermain system.
- Waste water is to be conveyed through sanitary trunk sewers to the Kanata West Pumping Station, which is currently being constructed.
- Stormwater runoff is to be conveyed via storm trunk sewers (minor system) and overland flow routes (major system) to designated off-site stormwater management facilities: one new stormwater management pond outletting to Feedmill Creek (Pond 7) and one existing stormwater management pond outletting to the Carp River (Pond 4).
- To achieve the planned stormwater drainage program and meet City of Ottawa guidelines pertaining to road and lot grading, final on-site road grades are planned to be set at least to 106.5m – 107.5m, which requires about two meters of fill above existing ground.

The Functional Servicing Report (DSEL, 2016) provides details on the planned on-site and off-site municipal services and explains that adequate municipal infrastructure capacity is available for the planned development of the site.



2014 air photo from City of Ottawa web site

Legend

- Site
- Vegetation Communities
- Other Channels
- Category 2 Blanding's Turtle Habitat Along and East of Feedmill Creek
- East Limit of Blanding's Turtle Category 3 Habitat
- Area of Proposed Tree Retention

No other tree retention possible due to significant grade raises and road locations

Vegetation Communities

1. Cultivated field
2. Cultural meadow
3. Cultural woodland
4. Coniferuous hedgerow
5. Deciduous hedgerow
6. Upland popar deciduous forest
7. Upland white cedar-poplar mixed forest
8. Upland white cedar coniferous forest
9. Willow thicket swamp
10. Cleared/disturbed lands

Approx. Scale 1:5,200 (on a 11 x 17 plot)

0 50 100 150 200 METRES

Prepared for: 2325483 Ontario Ltd.

Prepared by: Muncaster Environmental Planning Inc.

FILE: 15-19

June 27, 2016

Map 3

PROPOSED CONSERVED VEGETATION
BLANDING'S TURTLE HABITAT

Kanata West Lands, City of Ottawa
Concession 1, Lots 1 and 2, Huntley

5.0 POTENTIAL IMPACTS

The potential impacts of the proposed development considered critical to the local natural system were scoped from features identified in the review of existing information, including the features identified in the North of Maple Grove Urban Natural Area, the Stittsville North Natural Area, the CRWSS and field visits to the site and adjacent lands.

5.1 Terrestrial and Wetland Habitats

The on-site forests of young to intermediate age are shown mostly in agricultural production in 1976 aerial photography. Invasive species are common in the understorey and ground flora, reflecting regeneration on former agricultural land. The forests support local wildlife including some area sensitive breeding birds. The removal of the south forest will remove over 10 hectares of forest interior habitat, including approximately 7 hectares on–site.

As discussed in Section 6.1, due to the filling required to accommodate the servicing of the urban development no tree retention is possible within the core of the site. Many of the older trees are along the west and central portions of the south site boundary. However this is the location of the future Stittsville Main Street extension and thus trees cannot be retained in this area over the long term. As assessed below no development is recommended within thirty metres of the normal high water mark of Feedmill Creek, as recommended in the Official Plan and the CRWSS (Robinson, 2004). This 30 metre setback from the Creek will be greater than the 15 metres from the top of slope setback as the normal high water and top of slope are in similar locations along the east side of Feedmill Creek. The 30 metre setback will also exceed the geotechnical limit of hazard lands of eight metres as described in the next section. Thus remaining trees along the west edge of the site will be retained as shown on Map 3, with new trees planted to replace those recently removed.

The lands in the northwest corner of the site appear as wetland habitat on some background mapping of the site. The lands have been grubbed and are shown as disturbed lands on Map 1. As part of the park development in this area, plantings of native, local trees and shrubs are recommended to over time assist in replacing the features and functions of the woody vegetation removed.

The stormwater management facility to the north of the site has been sited to avoid the willow thicket swamp habitat in the west portion of the MTO lands. The footprint of the stormwater management facility will maximize use of the existing disturbed staging area and adjacent cultural woodlands and younger deciduous forests. This entire area was in agricultural use prior to construction of Highway 417 in the late 1970s.

Protection of the Feedmill Creek corridor will achieve a major objective of the CRWSS, including establishment of an environmental corridor along Feedmill Creek. The portion of the 30 metre setback on the site is to be allowed to regenerate, assisted by extensive plantings of local native trees and shrubs.

5.2 Aquatic Habitat

As indicated above Feedmill Creek located to the west of the site, in the west portion of the adjacent unopened road allowance will be protected with a 30 metre no-touch setback that is allowed to naturalize. This stream corridor is a significant ecological feature which provides aquatic habitat, including sensitive cool water habitats and contributes significantly to the Carp River baseflow. This no-touch setback will protect and allow for restoration of the existing vegetation, aquatic habitat and water quality of the Feedmill Creek corridor.

Based on the analysis by Paterson (2016) the slopes of Feedmill Creek are considered stable and the limit of hazard lands is eight metres from the top of slope. The eight metres is composed of a two metre toe erosion allowance and a six metre toe erosion access allowance (Paterson, 2016).

The on-site tributaries of Feedmill Creek and the Carp River, referred to as the northwest and east swales, respectively, do not support direct aquatic habitat, with two fish species netted in the roadside ditch on the west side of Huntmar Drive. Except for the roadside ditch these channels will not be retained. Once the headwater field sampling and analysis are completed compensation measures as required will be developed for the removal of the on-site tributaries and a Request for Review will be submitted to the Department of Fisheries and Oceans. Permitting for removal of some of these tributaries may also be required from the MVCA under their *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* regulation.

As the east and northwest swales are highly intermittent channels with very minimal available water in the channel or adjacent vegetation these channels and their adjacent areas are not considered suitable Blanding's Turtle habitat. Similarly, the willow thicket on MTO lands was found to be very dry with no significant areas of standing water throughout the surveys. Shallow wet areas less than 1 m across and less than 5 cm deep were noted in some areas, but these were too small, shaded, and overgrown with woody vegetation to provide suitable turtle habitat and were dry by the end of April. Although Feedmill Creek was continuously wet throughout the survey, it is also highly channelized with comparatively little riparian wetland vegetation. It is therefore not prime Blanding's Turtle habitat but is considered Category 2 Blanding's Turtle habitat following the General Habitat Description for the species (OMNR, 2013). The Category 2 habitat would extend 30 metres from the top of bank of the Feedmill Creek channel, as shown on Map 3.

Category 3 Blanding's turtle habitat is between 30 and 250 metres around suitable Category 2 wetlands and waterbodies. The primary purpose with respect to Blanding's turtle habitat of the Category 3 lands is to provide movement corridors between wetlands, a function which is essential for carrying out life processes associated with the Category 1 and 2 habitats. The on-site Blanding's turtle Category 3 habitat would extend 220 metres to the east of the east edge of the Category 2 habitat shown on Map 3. As there are no wetland habitats in the central and east portions of the site or to the east or south of the site there is no indication that Blanding's Turtle

would utilize the site to migrate to other suitable habitats. Thus the primary purpose of Category 3 Blanding's Turtle habitat is not applicable to the Category 3 lands on the site. The Blanding's Turtle sighting was to the west of the site and there are wetlands present to the west of Feedmill Creek further west of the site to the south of Highway 417. The site does not play on role in facilitating potential Blanding's Turtle movement between the turtle sighting in the vicinity of Carp Road and the wetlands between the sighting area and Feedmill Creek. Thus the loss of the Category 3 habitat in this area is not anticipated to impact the productivity and life stages of the species.

Existing on-site grades are below the 100-year floodplain elevation as reported by MVCA, based on their Feedmill Creek watershed study that is currently underway (DSEL, 2016). Written authorization from MVCA pursuant to Ontario Regulation 153/06, MVCA's *Development, Interference with Wetlands and Alterations to Shorelines and Watercourses* regulation is required to fill site areas below the 100-year floodplain elevation and outside of the identified Feedmill Creek corridor. Based on preliminary consultation with the MVCA by DSEL, it is understood that the proposed fill outside of the Feedmill Creek corridor is not expected to have a negative impact on the function of Feedmill Creek.

Stormwater management measures outlined in the Functional Servicing Report (DSEL, 2016) will be designed to ensure that the development can proceed without adversely affecting the downstream Feedmill Creek and Carp River in terms of water quality, base flows or peak flow rates. Best management practices identified in Section 6.3 will ensure that the aquatic habitat of Feedmill Creek will not be impacted. As outlined in DSEL (2016) stormwater from the west and central portions of the site will be directed to a stormwater management pond (Pond 7) on the MTO lands to the north, while flows in the east portion of the site will be directed to the existing Pond 4 north of Maple Grove Road on the west side of the Carp River. This split will result in additional flows directed to Feedmill Creek relative to the current flows to the east of the site. Currently approximately 17 hectares of the site drains to the north to Feedmill Creek. In the proposed post-development scenario, all lands west of the future North-South Arterial Road, approximately 40 hectares, will drain to Feedmill Creek. As the approximate drainage area for the Carp River in the vicinity of Palladium Drive is 3,200 hectares, this loss of approximately 24 hectares of drainage, or in the range of 0.5 percent, is not anticipated to have a detectable impact on the flows in the Carp River for the approximate one kilometre in river distance between where the flows would currently enter the Carp River at Palladium Drive relative to the downstream confluence of Feedmill Creek and the Carp River. Furthermore given the early spring and spring observations of the east swale, except during major events, the flows from the site that drain directly to the Carp River likely do not reach the River.

The servicing approach detailed in DSEL (2016) includes recommendations to promote infiltration of stormwater runoff within the site. The Master Servicing Study (MSS) calls for an increase of 25 percent in infiltration rates from pre-development levels for all areas subject to the MSS. For this site, the pre-development infiltration rate suggested by the MSS is 70-100 mm/yr. DSEL (2016) report that the existing subsurface conditions in the area and the amount of impervious surfaces, among other factors, have made it difficult to achieve this target for

development applications to date within the MSS area. As such, soil and groundwater conditions will require further site-specific evaluation through the detailed design process to determine the feasibility of achieving the post-development 25 percent increase in infiltration. Regardless, because the site is not identified as a Significant Groundwater Recharge Area in the Mississippi-Rideau Source Water Protection Plan, Schedule M (MVCA & RVCA, August 2014), it is anticipated that an infiltration deficit for the site in the post-development scenario would not have a significant impact on the quantity of groundwater available within the Mississippi-Rideau region. As detailed designs by DSEL progress, a detailed site-specific water budget is to be undertaken to characterize pre-development and post-development infiltration for the site.

Given the retention of the Feedmill Creek corridor and proper stormwater management and implementation of other best management practices no impacts are anticipated on this or other off-site habitats.

6.0 MITIGATION MEASURES AND RECOMMENDATIONS

This section outlines recommendations to minimize potential impacts to the natural environment features within and adjacent to the site, provides a Tree Conservation Report and addresses Design with Nature concepts.

6.1 Tree Conservation Report

The purpose of the Tree Conservation Report is to establish which vegetation should be retained and protected on the site. The site is owned by 2325483 Ontario Ltd. (613-257-2918). As described in Section 4, proposed uses for the site include car dealerships, commercial operations, townhomes, apartments and a district park in the northwest portion of the site. The woody vegetation not identified in this report for retention will be removed outside of the breeding bird season as each block is developed.

Retention of healthy trees and regenerating tree stems will be done along the Feedmill Creek corridor, although most of these trees in the portion of the Feedmill Creek corridor extending onto the site have already been removed. Native plantings of local origin will be required to replace them and help to restore the integrity of the corridor. Scattered trees that remain include white elm, red maple, green ash and trembling aspen in the 20 – 30cm dbh range. Tree retention and planting will assist in providing a future source of seeds and regenerating stems.

As outlined in DSEL (2016) to achieve the planned stormwater drainage program and meet City of Ottawa guidelines pertaining to road and lot grading, final on-site road grades are planned to be set at least to 106.5 – 107.5 metres, which requires about two metres of fill above existing ground. Thus tree retention elsewhere on the site is not considered feasible. Trees have also already been removed along the north site edge. Tree retention along this periphery would likely not be possible in the long term as the MTO lands are developed.

There will be a loss of forest interior habitat in the south-central and southwest portions of the site as the forests are removed. Some local wildlife and aesthetic functions of the removed vegetation can be mitigated with a generous planting plan of native trees and shrubs. Retention of trees along the south site boundary is not possible due to the orientation of the Main Street Stittsville extension. The removal of these trees will create a new forest. To reduce the potential for indirect impacts, such as sunscald or wind throw, on the forest trees to the south it is recommended that a band of trees, 3 – 5 metres wide, be cleared a growing season before the balance of trees are removed to pre-stress the trees to be retained.

Where possible the tree retention can be enhanced through minimizing the extent of vegetation removal as much as possible and pruning of branches on trees to be retained to improve their condition and anticipated longevity.

The trees to be retained and their associated critical root zone are to be protected by placing temporary sturdy construction fencing at least 1.2 metres high adjacent to the protected vegetation. The fencing is to be installed at a distance of ten times the tree diameter from the tree trunk. No grading or activities that may cause soil compaction such as heavy machinery traffic and stockpiling of material are permitted within the fencing. No machinery maintenance or refuelling, storage of construction materials or stockpiling of earth is to occur within five metres of the protective fencing. The existing grade is not to be raised or lowered within the fencing and no digging is permitted within the fencing. The root system, trunk or branches of the trees to be retained must not be damaged. Exhaust fumes from all equipment during construction will not be directed towards the canopy of the retained trees. If any roots of trees to be retained are exposed during site alterations, the roots shall be immediately reburied with soil or covered with filter cloth or woodchips and kept moist until the roots can be buried permanently. Signs, notices or posters cannot be attached to any trees to be retained.

As part of the landscape plan for each Block the developers are encouraged to plant a mix of native species such as sugar maple, red maple, tamarack, white spruce, white cedar, red oak, bur oak, bitternut hickory and basswood. To maximize the success of the plantings, it is strongly encouraged that stock from a local seed base be utilized. Due to the clay soils tree and shrub species that have a high water demand are generally not recommended. These species include willows, poplars, Manitoba maple and elm. Similar native plantings of trees and shrubs around the stormwater management pond to the north on MTO lands will enhance the local environmental functions.

To protect breeding birds, no tree or shrub removal should occur between April 15th and August 15th, unless a nesting survey conducted within five days of the woody vegetation removal identifies no breeding activity. No stick nests or other signs of potential raptor activity were observed on the site. It is important to note that nesting surveys cannot be done effectively in larger forested areas such as those present in the southwest and south-central portion of the site. The trees in the larger forested areas are to be removed outside of the breeding bird period only to avoid impacting nesting by the observed Species of Special Concern and other area sensitive breeding birds.

Many helpful wildlife oriented mitigation measures are detailed in the City's Protocol for Wildlife Protection during Construction (City of Ottawa, 2015). Contractors are to review in detail and understand the City's Protocol for Wildlife Protection during Construction prior to commencement of construction. The contractor is to be aware of the potential Species at Risk in the vicinity of the site including Blanding's turtle, barn swallow and butternut. Appendix 1 of City of Ottawa (2015) describes these species. Appendix 1 should be modified for this construction project to include the contact information of the project biologist, as applicable. Any Species at Risk sightings are to be immediately reported to the contractor administrator/ City project manager and the Ministry of the Natural Resources and Forestry and work that may impact the species suspended immediately.

As recommended in City of Ottawa (2015) prior to beginning work each day, the work areas are to be checked for wildlife by conducting a thorough visual inspection of the work space and immediate surroundings. See Section 2.5 of the City's Protocol for Wildlife Protection during Construction (City of Ottawa, 2015) for additional recommendations on construction site management.

Any turtles and snakes are to be relocated to the rural areas to the west of the north portion of the site. Animals should be moved only far enough to ensure their immediate safety. See Appendix 1 and the links in Section 4 of City of Ottawa (2015) for suggestions on how to effectively relocate turtles and snakes.

6.2 Feedmill Creek and Stormwater Mitigation

For the north half of the site Feedmill Creek is located within a straight channel immediately to the west within an unopened road allowance. Feedmill Creek will be directly protected with a no-touch setback of 30 metres from the normal high water mark. Approximately 14 metres of this setback will be within the unopened road allowance, with the balance of approximately 16 metres extending onto the site. This 30 metre setback will also ensure any potentially functional Category 2 Blanding's turtle habitat is retained on the site. As the outlet for the new stormwater management pond (Pond 7) will utilize existing channels no in-water or riparian work is anticipated in the immediate vicinity of Feedmill Creek, with potential for some minor channel modifications for flow enhancements on the channels providing the outlet for Pond 7.

Paterson (2016) determined a limit of hazard lands of eight metres from the top of slope. As the top-of-slope is similar to the normal high water mark in this situation the proposed setback width of 30 metres from the normal high water mark will exceed the geotechnical limits. There will be no on-site intrusions into the corridor.

DSEL (2016) has prepared a Functional Servicing Report in support of the proposed development. The report includes an assessment of the collection and treatment of stormwater runoff, including stormwater mitigation in the form of Best Management Practices.

The stormwater management pond to the north of the site, and the existing Pond 4 to the east, will provide enhanced water quality control, including 80 percent total suspended sediment removal and some water quantity control during operation of the developments. A series of storm sewers will be installed to convey site flow to the stormwater management facilities. The stormwater management facilities will control major overland flows as well. The stormwater management pond (Pond 7) will be designed with wetland features and a variety of habitats (e.g. deep water areas, shallow water areas, shoreline fringe areas; flood fringe areas, and upland areas), and thus is seen as an enhancement for the Feedmill Creek corridor relative to the current disturbed lands and cultural habitats, although some younger deciduous forest will also be removed. The stormwater management pond will outlet to Feedmill Creek via the section of the northwest swale downstream of the MTO lands and culverts under Highway 417 and its interchange with Palladium Drive.

Roof leaders should be directed to grassed and natural areas to promote infiltration and reduce surface runoff.

As outlined in DSEL (2016) City of Ottawa staff have provided a suggested 8 L/s/hectare release rate for the 100-year design storm event for Pond 7 to respect the flow regime of Feedmill Creek (the receiving watercourse).

Section 6.3 describes the erosion and sediment control practices to be employed to protect the creek during construction.

As the tributary channels are abandoned the following mitigation measures are recommended:

1. The existing channels should be closed during drier periods such as between July 1st and September 15th or when the channels are dry during the growing season. The summer period is recommended due to generally reduced flow, decreased potential for sediment input and the greater growing season afforded for re-vegetation of disturbed areas. If the proposed timing of the work is to take place between October 15th and March 15th, it will be necessary to have all exposed areas along the banks to be covered with erosion control blankets to keep the soil in place and prevent erosion from occurring during the spring freshet time period;

2. re-direction of existing flows will not be initiated when flows are elevated from local rains, storm events or seasonal floods, or when significant rains are forecasted;

3. although very unlikely any fish trapped within the channels to be abandoned must be safely relocated to Feedmill Creek. Fish collection will require a permit from MNRF;

4. erosion and sediment control measures are critical components of the channel closures. Effective sediment and erosion control measures are to be maintained until complete re-vegetation of disturbed areas is achieved. Prior to filling of the swales, a rock flow check

dam, with a sediment trap immediately upstream of the flow check, must be installed downstream of the work areas.

5. additional mitigation measures to minimize the potential for inputs of sediments and other contaminants into the watercourse and the environment in general include proper maintenance on construction equipment with respect to refuelling, washing and fluid changes, and proper disposal of fluids, filters and other waste materials; and,

6. monitoring is to be completed at all times and any water quality issues such as elevated turbidity levels be addressed immediately with cessation of work until proper sediment and erosion controls are in place.

6.3 Erosion and Sediment Controls and Monitoring

An erosion and sediment control plan will be prepared as part of the detailed design package. During construction, existing stream and conveyance systems can be exposed to significant sediment loadings. The following mitigative construction techniques will be deployed to reduce as much as possible sediment loadings during construction:

- Any groundwater encountered during construction of municipal services will be pumped into a proper filter mechanism such as a sediment trap or filter bag prior to release to the environment. The treated discharge will be directed away from the Feedmill Creek corridor;
- Bulkhead barriers will be installed over the lower half of the outletting sewers to reduce sediment loadings during construction. The barriers will captured sediment laden flows;
- Seepage barriers such as silt fencing, straw bale check dams and other sediment and erosion control measures will be installed in any temporary drainage ditches and around disturbed areas during construction and stockpiles of fine material. These control measures must be properly maintained to maximize their function during construction; and,
- Catchbasin inserts will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use and the surrounding landscape is stabilized.

A qualified inspector will conduct frequent visits during construction to ensure that the contractor is constructing the project in accordance with the design drawings and mitigation measures are being implemented and maintained as specified. Bulkhead barriers, catchbasin inserts on open surface structures and silt fencing may require removal of sediment and repairs. The inspector must ensure that construction vehicles and chemicals, fuels and other potentially hazardous materials remain in designated areas.

After build-out of each Block, applicable sewers will be inspected and cleaned. All sediment and construction fencing should be removed following construction, providing there is no exposed soil or other potential sources of sedimentation.

Feedmill Creek Corridor

It is very important that the integrity of the Feedmill Creek corridor habitat be maintained during adjacent construction. In addition to the construction fencing to protect the vegetation, silt fencing will be placed along the west side of the work areas adjacent to the corridor. No activity will be permitted on the corridor side of the fencing.

Silt fencing will also be placed around the work areas, and adjacent to any temporary swales and around stockpiles. Straw bale check dams and other sediment and erosion control measures will be installed at the downstream end of the on-site tributaries until they are removed and as required downstream of disturbed areas and within temporary swales. These control measures must be properly maintained to maximize their function during construction. Stockpiles of cleared materials as well as equipment fuelling and maintenance areas will be located away from the Feedmill Creek corridor, swales and other conveyance routes.

All sodding, seeding and tree and shrub planting are to be conducted correctly and as soon as weather and construction activity permits. The success of all vegetative plantings will be assessed for through visual inspections following planting. Any plantings that are dead or dying will be replaced.

7.0 SCHEDULE of PROPOSED WORKS

It is proposed to remove the on-site woody vegetation later in 2016 or early in 2017 outside of the breeding bird season. City of Ottawa staff (Forester – Planning) is to be contacted at least two business days prior to any tree removal so that staff have the opportunity to verify that the protective fencing has been properly constructed. A Tree Cut Permit will be required from the City of Ottawa prior to any removal of trees greater than 10cm dbh.

8.0 CUMULATIVE EFFECTS

The Canadian Environmental Assessment Agency (CEAA) defines cumulative effects as…"*the effects on the environment caused by an action in combination with other past, present, and future human actions*…" They occur when two or more project-related environmental effects, or two or more independent projects, combine to produce an augmented effect. These cumulative effects may be positive or negative.

The Feedmill Creek corridor and associated aquatic habitat is a significant natural heritage feature on and adjacent to the site. The corridor and associated Category 2 Blanding's turtle habitat will be protected with a vegetated un-maintained 30 metre setback. The removal of the on-site forests will impact forest interior habitat and area sensitive breeding birds. To provide some replacement of aesthetic and local wildlife functions, it is recommended that plantings of native trees and shrubs be undertaken wherever possible, including in conjunction with the large block developments, around the stormwater management facility to the north and in the Feedmill Creek corridor will many of the trees have already been removed. While proper implementation

of the mitigation measures described in this report and these plantings will assist in mitigating the impacts on the North of Maple Grove Urban Natural Area and Stittsville North Natural Area, the proposed development will result in a net loss of forest habitat and associated wildlife habitat functions in this portion of the urban area and the integrity of the Natural Areas will continue to be impacted as development occurs in the urban area. The protected corridor along the west edge of the site will protect the features and functions of the habitat to the west.

9.0 SUMMARY

A mixed use of commercial and residential is proposed for the 54.6 hectare site in the west portion of Kanata West, south of Highway 417 and Palladium Drive and to the west of Huntmar Drive. A district park is proposed in the northwest portion of the site, with a stormwater management facility on the MTO lands to the north of the site. The site is a mix of cultivated fields in the east portion and coniferous, deciduous and mixed forests in the west. There are no buildings or other structures on the site. Aerial photography indicates that much of the site that was forested in 2014 was in an agricultural use in 1976, apparently a combination of cultivation and pasture. Extensive recent tree clearing and grubbing has occurred in parts of the central and north portions of the site.

Feedmill Creek to the west of the site will be protected with a 30 metre no-touch setback. This will also retain the Category 2 Blanding's turtle habitat identified for the site and provide a band of tree retention/native tree planting. Although by definition Category 3 Blanding's turtle habitat extends 220 metres on site to the east of the Category 2 habitat, the primary function of Category 3, to provide movement corridors between wetlands, is not applicable. It is anticipated that the species will not be impacted by the removal of this Category 3 habitat.

The on-site forests do not contain mature stands of trees 80 years of age or older and thus do not meet the City's Significant Woodlands criteria. Non-native species are common in the understorey and ground flora indicating the historical disturbances. However the forests in the south portion of the site do contain forest interior habitat and area sensitive breeding birds were observed. Eastern wood pewee and wood thrush, both Species of Special Concern, were observed in the forests during the breeding bird surveys. The development will remove the forest interior habitat on and to the south of the site and the ability of the site to support the observed Species of Special Concern. To mitigate the impacts on these species the forests are to be removed outside of the breeding bird period.

The district park is proposed for an area of recent woody vegetation removal and grubbing. There are no environmental features and functions of note remaining in this area. The stormwater management facility to the north of the site has been located to avoid willow thicket habitat and maximize use of disturbed lands. The on-site tributaries of Feedmill Creek and the Carp River do not represent direct fish habitat.

The only Species at Risk observed on or adjacent to the site was butternut. No additional site disturbances are to occur until the butternut health assessment is completed. All butternuts are to be protected with a 25 metre setback until thirty days have passed following submission of the butternut health assessment report to MNRF. Any butternuts assessed as healthy are to be protected with the setback until their removal has been compensated for through the on-line registry process or a MNRF permit has been issued.

In addition to the butternut work, summer sampling is required to complete the headwater assessment. Once this work is completed a separate Headwater Assessment report will be prepared.

This EIS identifies many important natural environment mitigation measures. Although this EIS concludes that the construction and operation of the proposed mixed-use development will have a significant impact on many of the remaining natural heritage features and functions of the site, including further development in the North of Maple Grove Urban Natural Area and Stittsville North Natural Area and associated loss of forests and forest interior habitat, the Feedmill Creek corridor will be retained and protected. The following is a numbered summary of the main mitigation measures:

1. Retain the Feedmill Creek corridor, with a 30 metre setback, approximately 16 metres on-site and revegetate with native species of local origin where trees have already been removed in the corridor;
2. Careful siting of the building envelopes on the Blocks to further increase tree and shrub retention at the individual Block lot development stage;
3. Protect woody vegetation to be retained with sturdy fencing at least 1.2 metres in height prior to any site alterations. See Section 6.1 for further measures to protect the adjacent retained vegetation during construction;
4. A new forest edge will be created along the south edge of the west half of the site. To reduce the potential for indirect impacts, such as sunscald or wind throw, on the forest trees to be retained to the south it is recommended that a band of trees, 3 – 5 metres wide, be cleared a growing season before the balance of trees are removed to pre-stress the trees to be retained;
5. Woody vegetation that must be removed is to be cut outside of the breeding bird period of April 15th to August 15th unless a breeding bird survey identifies no nesting activity within five days of the proposed vegetation removal. Note that nesting surveys are not generally effective in forest habitats and to protect the Species of Special Concern no tree removal is to occur in the forests during their nesting period;
6. Abandonment of swales tributary to Feedmill Creek and the Carp River are to be completed outside of the more sensitive aquatic habitat periods, with the mitigation measures described in Section 6.2 properly implemented;
7. Proper sediment and erosion control, as outlined in Section 6.3 is very important for the protection of the Feedmill Creek corridor and other environmental features. These measures must be monitored and properly implemented;

8. A stormwater management pond will protect the water quality and quantity entering Feedmill Creek and the Carp River during operation of the mixed-use development; and,

9. Plantings of native trees and shrubs of local origin along the Feedmill Creek corridor will assist in replacing the trees removed and restoring the integrity of the corridor and add to the features and functions along the corridor.

10.0 REFERENCES

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APPENDIX A

MINISTRY of NATURAL RESOURCES and FORESTRY

CORRESPONDENCE

Ministry of Natural Resources and Forestry

Kemptville District

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Ministère des Richesses naturelles et des Forêts

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Ontario

Tue. May 31, 2016

Bernie Muncaster
Muncaster Environmental Planning Inc.
491 Buchanan Crescent
Ottawa, Ontario
K1J 7V2
(613) 748-3753
bmuncaster@rogers.com

bmuncaster@rogers.com

Attention: Bernie Muncaster

Subject: **Information Request - Kanata West Cavanagh**
Site Address: **unassigned, west of 173 Huntmar Dr**
Our File No. **2016_HUN-3492**

Natural Heritage Values

The Ministry of Natural Resources and Forestry (MNRF) Kemptville District has carried out a preliminary review of the area in order to identify any potential natural resource and natural heritage values.

The MNRF works closely with partner agencies and local municipalities in order to establish concurrent approval process and to achieve streamlined and efficient service delivery. The MNRF strongly encourages all proponents to contact partner agencies (e.g. MOECC, Conservation Authority, etc.) and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements and approval timelines.

Natural heritage features and values contribute to the province's rich biodiversity and provide habitat for a variety of species. The following Natural Heritage values were identified:

- Unevaluated Wetland (Not evaluated per OWES)
- Stittsville Wetland Complex – evaluated – not significant
- Licensed pit and quarry #4106 within 500 m of the site

Municipal Official Plans contain additional information related to natural heritage features. Please see the local municipal Official Plan for more information such as specific policies and direction

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pertaining to activities which may impact natural heritage features. For planning advice or Official Plan interpretation, please contact the local municipality.

Where natural values and natural hazards exist (e.g., floodplains), there may be additional approvals and permitting required from the local Conservation Authority. The MNRF strongly recommends contacting the local Conservation Authority for further information and approvals. Please see the MNRF Kemptville Information Guide (2012) for contact information pertaining to Conservation Authorities located within the Kemptville District area.

For additional information and online mapping tools, please see the Natural Heritage Information Centre (NHIC), where additional data and files can be downloaded in both list and digital format. In addition sensitive species information can be requested and accessed through the NHIC at NHICrequests@ontario.ca.

As per the Natural Heritage Reference Manual (Section 13; OMNRF 2010) the MNRF strongly recommends that an Ecological Site Assessment be carried out to more thoroughly determine the presence of natural heritage features, and Species at Risk and their habitat located on site. The MNRF can provide survey methodology for particular species at risk and their habitats. In addition, the local planning authority may have more details pertaining to the requirements of the assessment process, which will allow for the municipality to make planning decisions which are consistent with the Provincial Policy Statement (2014).

Species at Risk

It is important to understand which species and habitats exist in the area and the implications of the Endangered Species Act (ESA, 2007). A review of the Natural Heritage Information Centre (NHIC) and internal records indicate that there is a potential for the following Threatened (THR) and/or Endangered (END) species on the site or in proximity to it:

- Blanding's Turtle (THR) – within 2 km of the site
- Butternut (END)
- Little Brown Bat (END)
- Whip poor will (THR)

All Endangered and Threatened species receive individual protection under section 9 of the ESA and receive general habitat protection under Section 10 of the ESA, 2007. Any potential works should consider disturbance of possible important habitat (e.g. nesting sites). If the proposed activity is known to have an impact on the species mentioned above or any other SAR, an authorization under the Endangered Species Act, 2007 (ESA) may be required. It is recommended

Ministry of Natural Resources and Forestry

Kemptville District

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Ministère des Richesses naturelles et des Forêts

District de Kemptville

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Ontario

that MNRF Kemptville be contacted prior to any activities being carried out to discuss potential survey and mitigation measures to avoid contravention of the ESA.

In addition, one or more Special Concern species has been documented to occur either on the site or nearby. Species listed as Special Concern are not protected under the ESA, 2007. However, please note that some of these species may be protected under the Fish and Wildlife Conservation Act. Species of Special Concern for consideration:

- Milksnake (SC)
- Monarch (SC)
- Snapping Turtle (SC)

If any of these or any other species at risk are discovered throughout the course of the work, and/or should any species at risk or their habitat be potentially impacted by on site activities, MNRF should be contacted immediately and operations be modified to avoid any negative impacts to species at risk or their habitat until further direction is provided by MNRF.

Please note that information regarding species at risk is based on documented occurrences only and does not include an interpretation of potential habitat within or in proximity to the site in question. Although this data represents the MNRF's best current available information, it is important to note that a lack of information for a site does not mean that additional features and values are not present. i.e.: Species at Risk (SAR) or their habitat could still be present at the location or in the immediate area. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed; or their habitat is not damaged or destroyed through the activities carried out on the site. The MNRF continues to strongly encourage ecological site assessments to determine the potential for SAR habitat and occurrences. When a SAR or potential habitat for a SAR does occur on a site, it is recommended that the proponent contact the MNRF for technical advice and to discuss what activities can occur without contravention of the Act. If an activity is proposed that will contravene the ESA (such as Section 9 or 10), the proponent must contact the MNRF to discuss the potential for a permit (Section 17). For specific questions regarding the Endangered Species Act (2007) or SAR, please contact a district Management Biologist at sar.kemptville@ontario.ca. For more information regarding the ESA (2007), please see attached ESA Information Sheet.

As of July 1, 2013, the approvals processes for a number of activities that have the potential to impact SAR or their habitat were changed in an effort to streamline approvals processes while continuing to protect and sustainably manage Ontario's natural resources. For those activities that require registration with the Ministry, businesses and individuals will be able to do so through a new online system. The online system will also include information to help guide individuals and

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businesses through the new processes. For further information on which activities are authorized through this new online registration process and how to apply, please refer to the following website: http://www.MNRF.gov.on.ca/en/About/2ColumnSubPage/STDPROD_104342.html. General inquiries may be directed towards Kemptville District MNRF, while questions and comments involving the new online forms can be directed to the Registry Approvals Service Centre (RASC) at 1-855-613-4256 or MNRF.rasc@ontario.ca.

Please note: The advice in this letter may become invalid if:

- The Committee on the Status of Species at Risk in Ontario (COSSARO) re-assesses the status of the above-named species OR adds a species to the SARO List such that the section 9 and/or 10 protection provisions apply to those species.
- Additional occurrences of species are discovered.
- Habitat protection comes into force for one of the above-mentioned species through the creation of a habitat regulation (see general habitat protection above).

This letter is valid until: Wed. May 31, 2017

The MNRF would like to advise, by way of this letter, that we continue to be circulated on information with regards to this project. If you have any questions or require clarification please do not hesitate to contact me.

Sincerely,

Lyn Garrah
District Planner
lyn.garrah@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet