Muncaster Environmental Planning Inc.

January 2, 2018

Mr. Alex Turner
Manager, Planning & Development
Taggart Realty Management
225 Metcalfe Street, Suite 708
Ottawa, Ontario
K2P 1P9

Dear Mr. Turner:

RE: 3860 and 3930 Riverside Drive
Tree Conservation Report and Environmental Impact Statement

This Tree Conservation Report (TCR) and Environmental Impact Statement (EIS) addresses the existing vegetation, the Rideau River corridor, potential tree retention, Species at Risk utilization and other natural environment features at 3860 and 3930 Riverside Drive. The site is on the west side of Riverside Drive, east of the Rideau River, and north of Hunt Club Road, within Concession 2, Part of Lot 5 (Rideau Front) in the City of Ottawa. The overall site is composed of the tablelands where the development is proposed and the Rideau River corridor adjacent to the river. The portion of the Rideau River corridor west of the south portion of the site is City owned land, as are the lands to the northwest of the site.

Away from the Rideau River corridor the site has been highly disturbed over an extended period of time. Extraction activity shows on 1976 aerial photography and the site appears regraded and highly disturbed again on 2002 aerial photography. Since then some regenerating vegetation has occurred as shown on Map 1.

For the purposes of this report Riverside Drive is assumed to be in a north-south orientation in the vicinity of the site.

Background and Project Description

The proposed development (Map 2) includes a retirement residence in the north portion and a hotel, car dealerships, restaurants and other commercial developments in the central and south portions. As shown on Map 1 the development portion of the site will not infringe into the Environmental Protection zoned lands along the Rideau River corridor, except for the stormwater connection described below. Access will be via a new entrance and associated traffic signal on Riverside Drive. An existing community park is immediately to the north of the site.

The site will be on full municipal services. An existing stormwater management facility will be utilized to the northwest of the site, on City land and to the east of the Rideau River. To access the existing pipes leading to the stormwater management facility a stormwater pipe will be installed for approximately 250 metres through City land, as shown by the orange line on Map 1.

The development portion of the site is designated *General Urban Area* on Schedule B of the City`s Official Plan, with the Rideau River corridor designated *Urban Natural Features* and the park to the north of the site designated *Major Open Space*. Unstable slopes are shown along portions of the Rideau River on Schedule K, with the site within the Airport Vicinity Development Zone. Elements of the Natural Heritage System (Schedule L1) are mapped for the site, including the Rideau River corridor and parts of the development portion of the site. Perhaps the slopes on the development portion of the site triggered the Natural Heritage System mapping in this area, although the slopes appear to be in major part a result of extraction and grading for Riverside Drive. The moderately-rated Riverwood Park Woods Urban Natural Area is in the northwest portion of the overall site and to the northwest of the site within the Environmental Protection zoned City lands. The closest Natural Area identified by Brownell and Blaney (1997) was the Black Rapids Natural Area beginning approximately 200 metres south of the site, south of Hunt Club Road.

There are no Areas of Natural and Scientific Interest or provincially significant wetlands in proximity to the site, with the Lester Road Wetland Complex beginning about 2.5 kilometres to the east.

Methodology

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 Reports, 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).

The major objective of this EIS is to determine the feature and functions of the on-site and adjacent natural environment conditions and to assess the anticipated impacts associated with the proposed development on these features and functions.

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

- what are the terrestrial habitat features of the site and adjacent lands and the associated sensitivities?
- is there any aquatic habitat potential outside of the Rideau River corridor?
- are there significant valleylands on the site and is a proposed recreational pathway along the Rideau River corridor feasible?
- as required what are the recommended areas of tree retention and other mitigation measures to avoid unacceptable impacts on any significant natural heritage features? and,

- does the site support any other significant natural heritage features, including Species at Risk, that should be considered in development of the site?

Colour aerial photography (1976 - 2017) was used to assess the natural environment features in the general vicinity of the site. Field reviews of the site were completed on May 24th and November 21st, 2017. On May 24th the weather conditions were partly cloudy skies, with a light breeze and an air temperature of 21° C. On November 21st the air temperature was 7° C, with cloudy skies and a light to moderate breeze. A thin amount of snow cover was generally present on November 21st.

The field survey and this report were completed by Bernie Muncaster, who has a Master's of Science in Biology and over thirty years of experience in completing natural environment assessments. The purpose of the Tree Conservation Report component is to assess the vegetation and determine which will be retained and protected on the site. The owner of the site is St. Mary's Lands Corporation. It is proposed to remove the woody vegetation not to be retained after the breeding bird season in 2018.

Existing Conditions

The site is vacant land that was formally used as a sand and gravel pit and then a landfill for construction material, clay, gravel, wood, asphalt, concrete, rubble and other miscellaneous fill (Golder, 1994). Extensive grading appears to have taken place to smooth out the mounds of sand, silty sand, cobbles and boulders reported by Golder (1994). Golder (2017) noted between 10 and 15 metres of fill in the south portion of the lands proposed for development, with between 3 and 8 metres of fill in the north portion. The extraction and filling has resulted in an uneven ground surface elevation between 88 and 98 metres (Golder, 2017). The tablelands proposed for development are separated from the Rideau River corridor by relatively moderate slopes, with much steeper slopes in the corridor itself (Golder, 2017). The corridor is in the range of 50 metres wide to the west of the south and central portions of the lands proposed for development, with an associated change in slope height between 8 and12 metres, expanding to over 100 metres to the northwest. The change in slope height for the tablelands is between 7 and 9 metres (Golder, 2017), but spread over a much greater width, between 120 and 260 metres, than the river corridor.

Native sand deposits beneath the fill materials followed at depth by a silty clay layer were reported by Golder (1994). The depth to bedrock ranged between 15 to 25 metres below the original ground surface (Golder, 1994). The bedrock consists of grey limestone and/or dolomitic limestone.

Golder (2017) noted groundwater levels in the sand and gravel deposits reflected a downgradient from east to west across the site, towards the Rideau River. The general groundwater level was reported in the south portion of the lands proposed for development by Golder (2017) at elevations between 76 and 78 metres above sea level which approximately corresponds to the bottom of the fill level and likely controlled the lowest level to which the pit was apparently excavated (Golder, 2017).

The infiltration and groundwater recharge function of the site is reduced by the dominance of fill material. However, the vegetated riparian corridor along the Rideau River corridor provides some treatment and infiltration of surface water draining into the Rideau River.

Rideau River

The Rideau River ranges between approximately 75 to 100 metres in the vicinity of the site. The river supports a warm water fish community. Northern pike, carp, bluntnose minnow, fathead minnow, golden shiner, blackchin shiner, common shiner, spottail shiner, white sucker, yellow bullhead, banded killifish, rock bass, pumpkinseed, smallmouth bass, black crappie and logperch are common components of the Rideau River fish community. Nursery areas for black crappie, bluegill, emerald shiner, largemouth bass muskellunge, pumpkinseed, rock bass, smallmouth bass, walleye, white sucker, and yellow perch have been identified for the reach of the Rideau River in proximity to the site along with northern pike and walleye spawning areas (Appendix A).

The aquatic habitat is enhanced by stream cover provided by trees along the bank of the river. The trees provide shade, a source of food items and stability for the river banks. Access to the Rideau River is relatively good in the vicinity of a golf course pumping station along the west edge of the site.

No erosion protection is along the Rideau River bank in the vicinity of the site, except in the vicinity of the pump station inlet. Golder (2017) reported areas of active erosion at several locations, which have resulted in over-steepened slope toes along the river bank. Above the zones of active erosion at the river bank toe, the remaining portion of the slope appeared by Golder (2017) to be quite dry and stable (surficially) in 2009, except the south cross-section. Golder (2017) reported that this localized south cross-section zone did not appear to be experiencing any deep-seated instability. In the north portion of the site, Golder (2017) noted that the large trees and shrubs along the Rideau River bank are responsible for maintaining the stability of the bank. Golder (2017) concluded that the lands adjacent to the slopes east of the Rideau River are considered to be hazard lands due to their stability. However, as shown with the red line on Figure 1 of Golder (2017), the limit of hazard lands does not extend into the lands proposed for development.

The Rideau River floodplain generally parallels the Rideau River shoreline and is very narrow adjacent to the south and central portions of the site, with a typical width of less than 10 metres along the east shoreline of the river (Map 1). The floodplain expands further inland to the northwest of the site in the vicinity of the existing stormwater management pond.

No channels with aquatic habitat potential were observed on the site outside of the Rideau River.

Terrestrial Features

This description is divided into the much less disturbed lands in the Rideau River corridor to the east of the river, and the past extraction tablelands where the development is proposed.

Rideau River Corridor, including the Riverwood Park Woods UNA

The Riverwood Park Woods Urban Natural Area supports floodplain forests and seepage-slope woods on a sand plain landform to the northwest of the tablelands portion of the site. The 10.4 hectare natural area was rated moderate overall and scored above average for the connectivity, size and shape, and representative flora criteria. Habitat maturity and wildlife habitat were considered average with regeneration, absence of disturbance, natural communities, and significant flora and fauna criteria scored below average. The site summary concluded that the natural area is a severely disturbed, scrubby riparian woodland offering limited intrinsic natural environment values but providing potential ecological function contributions to the Rideau River. No forest interior habitat was considered present by Muncaster and Brunton (2005) and all of the site was considered to have an edge effect influence. The site summary for the Urban Natural Area noted that the forest cover was fragmented by canopy cutting throughout. The impact of invasive plants was considered severe, especially glossy buckthorn. The vegetation communities included young upland mixed forests of white cedar, green ash, sugar maple, and white elm, with trembling aspen and white birch also present in moist, sandy substrate of upper slopes, and submature mixed swamp forests of white cedar, black ash, and yellow birch over dense buckthorn infestations in thin organic substrate. The Riverwood Park Woods Urban Natural Area is part of the Rideau River wildlife corridor and provides local stormwater control and enhanced Rideau River water quality (Muncaster and Brunton, 2005). The site summary notes that a vegetated buffer is required between adjacent development and woodland areas required to minimize edge effect. Another recommendation is potential for gravel footpath along the rivershore from public access off Kimberwick Street with development of interpretation themes, including wildlife corridor functions and woodland contribution to river water quality.

A few disturbances were within the Rideau River corridor along the west edge of the site, including the small pumping station to supply water to the Ottawa Hunt and Golf Club east of Riverside Drive, a wooden pole hydro line to service the station, a gravel access road, and the extensive presence of the invasive and non-native glossy buckthorn in the understory. There were several mature white pines in the upland mixed forest adjacent to the river. The larger trees were up to 65 cm diameter at breast height (dbh). Other trees species present included basswood, sugar maple, white ash, balsam poplar, black cherry, Manitoba maple and white elm (Photo 6). Some of the elm and ash appeared to be in very poor condition. In addition to glossy buckthorn, common buckthorn, staghorn sumac, tartarian honeysuckle, purple-flowering raspberry, and chokecherry shrubs were in the understory, along with regenerating ash, poplar, maple, Manitoba maple, and white elm stems. Jack-in-the-pulpit, false Solomon's-seal, white trillium, red trillium, trout lily, red baneberry, Canada mayflower, ostrich fern, lady fern, and bunchberry were representative ground vegetation in the mixed forest, with more disturbance reflected by garlic mustard, Canada goldenrod, common dandelion, common burdock and creeping charlie near the periphery of the mixed forest.

The Rideau River corridor adjacent to the south half of the site had much less canopy cover within a cultural woodland (Photo 5).

The Rideau River corridor is part of a natural linkage system and supports wildlife movement. However, the minimal width of the corridor in the vicinity of the Hunt Club Road bridge and

several homes along the Rideau River south of the bridge detract from the corridor function. Nevertheless, some corridor function remains, and the Southern corridor and McCarthy Woods further to the east can be accessed, approximately 800 metres to the north of the site.

Lands Proposed for Development

The lands proposed for development have been impacted by past human activity. Following extraction, around 2000 the area was completely cleared and graded, with no trees remaining at that time. Since then, as shown on Map 1, some vegetation has regenerated.

Non-native and/or invasive ground flora in the cultural meadows included reed canary grass, brome grass, orchard grass, bluegrass, wild carrot, common dandelion, tufted vetch, Canada goldenrod, tall goldenrod, Canada thistle, field sow-thistle, field horsetail, cypress spurge, white bedstraw, common mullein, common burdock, common milkweed, and field mustard. Staghorn sumac, red raspberry, common buckthorn, and slender willow shrubs were common in the meadow habitat along with regenerating stems of Manitoba maple and eastern cottonwood up to 15cm diameter at breast height (dbh) (Photos 1 and 2).

Staghorn sumac shrubs were dominant in many areas of the cultural thickets, with red raspberry, glossy buckthorn, common buckthorn, Tartarian honeysuckle, slender willow, and apple shrubs also present (Photo 3). The largest trees in the thicket habitats were trembling aspens up to 32cm dbh. Balsam poplar, crack willow, Manitoba maple, and eastern cottonwood were in the 10 – 20cm dbh range. Some of the larger poplars had trunk damage and fungus. Ground flora in the cultural thickets included brome grass, scouring rush, European bur-reed, wild carrot, wild parsnip, ox-eye daisy, Canada goldenrod, tall goldenrod, wild grape, thicket creeper, Canada thistle, field mustard, field horsetail, common burdock, wormseed mustard, common dandelion and common strawberry.

A cultural woodland is in the northwest portion of the lands proposed for development (Photo 4). Trembling aspen and Manitoba maple up to 20cm dbh were dominant, with crack willow, black locust, eastern cottonwood and balsam poplar also present. The largest trees were black locust and crack willow in the 25 – 30cm dbh range. Staghorn sumac, red-osier dogwood, red raspberry and Bebb's willow were common in the understory along with regenerating stems of poplar and Manitoba maple. Reed canary grass was a dominant ground vegetation in many areas of the cultural woodlands, with thicket creeper, wild grape, field horsetail, Canada goldenrod, heart-leaved aster, white baneberry, and crown vetch also present.

The highly disturbed areas proposed for development do not provide any significant support for the features or functions of the adjacent forests along the Rideau River or the river itself. Other than the slopes there are no components of the lands proposed for development that would merit consideration for inclusion in the Natural Heritage System. The slopes without significant woody vegetation or other natural attributes of note do not represent significant valleylands or other significant natural heritage features.

Stormwater Servicing on City Lands

Mixed forests, alternating between upland characteristics in the north and south portions and wetland swamp in the central is along the approximately 250 metres of stormwater pipe alignment shown with an orange line on Map 1. The work area will be approximately 10 to 12 metres wide and was flagged in the field to assist in identifying the features along the alignment. Where the elevation permitted the alignment was modified to avoid the larger trees appearing to be in better condition. In the north portion of the alignment Manitoba maple, crack willow, white birch, eastern cottonwood, sugar maple, white spruce, red maple, basswood, bur oak, balsam fir, and white elm were present (Photos 7 and 9). The largest tree, a 50cm dbh eastern cottonwood, was in poor condition with extensive branch dieback. A red maple and a white spruce between 42cm and 45cm dbh near the edge of the proposed work area were in better condition, though the spruce had some trunk damage. Several of the other trees had branch and trunk damage and wind throw was common in the north and central portions of the alignment. Selective historical logging was also common in the forests. Nannyberry, common buckthorn, and red raspberry shrubs were common in the understory along with regenerating white cedar, ash, balsam fir and bur oak stems. Wild grape was a dominant ground flora in the north portion of the alignment, with calico aster, evergreen woodfern, eastern bracken, sensitive fern, common strawberry, bittersweet nightshade, wild carrot, and barren strawberry also present.

In the central portion of the stormwater pipe alignment, black ash up to 18cm dbh and yellow birch up to 30cm dbh were also present. The forest canopy was much more open here with reed canary grass a dominant ground cover in many areas (Photo 8). Other wetland characteristics included purple loosestrife common in the ground flora and speckled alder in the understory. No iced over areas or other evidence of larger areas of standing water were observed along the proposed stormwater pipe alignment

Several of the white cedars in the 20cm to 35cm dbh range had woodpecker cavities. Larger maples to the west of the alignment should not be impacted along with a 42cm dbh yellow birch and smaller American beech to the east.

Wildlife observed on and adjacent to the site included ring-billed gull, red-tailed hawk, American goldfinch, song sparrow, black-capped chickadee, downy woodpecker, northern flicker, red-eyed vireo, yellow warbler, American redstart, least flycatcher, American robin, grey catbird, American crow, blue jay, European starling, northern cardinal, grey squirrel, white-tailed deer tracks, and woodchuck. No larger trees with cavities which could be used by wildlife or stick nests or other evidence of raptor utilization were observed on or adjacent to the lands proposed for development or the stormwater pipe alignment.

Photo 1 – Cultural meadow habitat in the south-central portion of the site. View looking east from the west edge of the site

Photo 2 – Cultural meadow habitat in the north portion of the lands proposed for development. View looking south

Photo 3 – Typical cultural thicket habitat in the south portion of the tablelands portion of the site. View looking west

Photo 4 – Cultural woodland in the northwest portion of the lands proposed for development

Photo 5 – Cultural woodland to the west of the south portion of the site. View looking west to the Rideau River and Hunt Club Road bridge

Photo 6 – Upland mixed forest in the northwest corner of the overall site within the Rideau River corridor

Photo 7 – Wind throw in the mixed forest along the north portion of the proposed stormwater pipe alignment. View looking south

Photo 8 – Canopy cover is less in the central portion of the proposed stormwater pipe alignment. View looking south

Photo 9 – Upland mixed forest in the south portion of the proposed stormwater pipe alignment. View looking north

Species at Risk

No Species at Risk were observed during the field surveys. On May 20th, 2017 MNRF's Make a Map: Natural Heritage Areas website was reviewed (www.giscoeapp.lrc.gov.on.ca/web/MNR/NHLUPS/NaturalHeritage/Viewer/Viewer.html). This site allows for a search of Threatened and Endangered species covered by the 2008 *Endangered Species Act*, as well as other species of interest. A search was conducted on the 1 km squares including the site and adjacent areas (18VR42-50 and -51). Two very old Species at Risk observations were identified for these squares, the endangered skillet clubtail, and the threatened black-form lichen. The skillet clubtail is a rare dragonfly of large, clean, and medium to slow-running rivers with fine sand, silt, or clay bottoms and is currently known in only three locations in Canada. This dragonfly is no longer considered present in the Ottawa area. Black-form lichen is a leafy lichen that grows as greenish grey rosettes up to 20 cm across on the trunks of deciduous trees. The COSEWIC report noted this lichen appears to be extirpated from Ontario and Quebec. A species of special concern, snapping turtle, was also identified in the database. This species is likely present along the Rideau River corridor.

The breeding birds listed in the Ontario Breeding Bird Atlas for the 10 km square 18VR42 identified barn swallow, bank swallow, chimney swift, eastern meadowlark, and bobolink as Species at Risk in the overall 10 km square including the site. Bobolink and eastern meadowlark utilize large grassland areas including hay fields. The meadow habitat contains too much woody vegetation, is too disturbed and is too small to provide nesting habitat for these grassland Species at Risk. Barn swallows feed in open areas and nest in structures with accessible rafters such as

barns, storage sheds, and the underside of bridges. Chimney swifts nest predominantly in open chimneys and historically in tree hollows. No suitable structures were observed on or adjacent to the site. Bank swallow is a colonial nester; burrowing in eroding silt or sand banks and sand pit walls; exposed sand habitat was not present on or adjacent to the site.

American eel. Blanding's turtle, butternut and tri-coloured bat were other Species at Risk identified in MNRF correspondence (Appendix A) that may be found in the general area of the site. No butternuts were observed on or within 50 metres of the lands proposed for development or the proposed stormwater pipe alignment. American eel is known from the Ottawa River to the north. Any eel habitat utilization would be confined to the Rideau River. The flow in this reach of the river is likely too fast for suitable Blanding's turtle habitat and wetland habitat with standing water adjacent to the river proper is limited and does not extend onto the lands proposed for development. No larger cavity trees which may be used for bat summer maternity colonies were observed, and caves and mines, used for overwintering by bats, are not present.

The potential Species at Risk in the City of Ottawa were also reviewed. Endangered and threatened species reported in the overall City include butternut, American ginseng, eastern prairie fringed-orchid, wood turtle, spiny softshell, Blanding's turtle, musk turtle, Henslow's sparrow, loggerhead shrike, little brown myotis, northern long-eared bat, olive hickorynut, chimney swift, eastern meadowlark, barn swallow, bank swallow, bobolink, whip-poor-will, bald eagle, golden eagle, cerulean warbler, least bittern, eastern cougar, lake sturgeon and American eel.

The habitat requirements of the above species along with those listed as special concern were reviewed. The only Species at Risk considered to have the potential to be on or adjacent to the lands proposed for development or the proposed stormwater pipe alignment is butternut which is found in a variety of habitats in the Ottawa area. As indicated above no butternuts were observed during the field surveys on and adjacent to the site.

Significant Wildlife Habitat

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.

No field observations which would trigger a significant wildlife habitat designation with respect to the ELC communities present were noted. 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), Provincially rare species, evidence of animal movement corridors or rare or specialized habitats were observed. The cultural habitats do not appear to support raptor wintering areas. No old growth forest or forest interior habitat is present. Areas of broken and fissured rock for potential use by snakes, including potential reptile hibernaculum, were not observed. No evidence of raptor utilization was observed.

Linkage functions are generally limited to the Rideau River corridor, with the disturbed tablelands containing limited woody vegetation and bounded by Riverside Drive, Hunt Club Road and urban residential developments to the north.

Significant Woodlands

The on-site forests in the northwest portion of the overall site will not be disturbed. These forests do not support forest interior habitat and have been selectively logged over time, but do contain some larger trees. The significance of woodlands is evaluated using the criteria in the Natural Heritage Reference Manual (OMNR, 2010). There contiguous forests to the north are linear and approximately 12 hectares in size, less than the 20 hectare threshold required in OMNR (2010) for the tree cover of this portion of the City. There is no forest interior habitat in the contiguous forest to the north and the trees observed in the vicinity of the proposed stormwater pipe alignment are not large. No forest features were observed that would appear to meet the criteria for significant woodlands. However large portions of the contiguous forest were not reviewed and these may contain features that would make the overall forest significant. The work area for installation of the stormwater pipe will not be wide enough to create a break in the forest cover. Thus, if the overall contiguous forest is a significant woodlands now, it will continue to be a significant woodlands post development.

Impact Analysis and Recommendations

The natural heritage features, as identified in the Provincial Policy Statement and OMNR (2010), on and adjacent to the site are the Rideau River and associated fish habitat, the significant valleylands along the Rideau River corridor and potential significant woodlands in the northwest corner of the overall site and continuing to the north. Other than the proposed stormwater pipe through the forest to the north of the site to connect to the existing stormwater management pipe and pond on City lands, these features and the associated Urban Natural Area will not be directly impacted. All development will occur on the tablelands which are not part of a natural area and are highly disturbed from past extraction activity and post-extraction placement of significant fill and levelling. Given these disturbances, the tablelands and associated lack of environmental features there would appear to be no rationale to include the lands proposed for development as part of the Natural Heritage System.

Important mitigation measures are presented in this section to protect the Rideau River corridor from potential indirect impacts associated with the construction and operation of the proposed development as well as the limited features and functions on the tablelands. As there are no areas where the limit of development on the tablelands is adjacent to a forest along the Rideau River corridor, no setbacks are required from the limit of development for protection of a forest edge and associated critical root zones and potential impacts such as wind throw and sunscald. All development will also occur outside of the geotechnical limit of hazard lands.

The minimum setback from the closest point of the limit of development to the Rideau River is approximately 50 metres which is sufficient to protect the aquatic habitat and water quality of the river. Where the setback is currently not forested, over time naturalization is anticipated to

increase the canopy cover in the cultural thickets and woodlands. In conjunction with retention of the forested slopes along the Rideau River and other forests within the Rideau River corridor this will preserve and enhance the existing corridor functions, including wildlife movements. No Species at Risk were observed and no aquatic habitat potential was identified on or adjacent to the site outside of the Rideau River.

Recommended Mitigation Measures

1. The regenerating trees on the site are young and often less desirable species for retention such as poplar, Manitoba maple, white elm, and crack willow. In combination with the grading and other servicing requirements for the proposed development no tree retention is anticipated for the tablelands proposed for development. Rather, plantings of native vegetation are recommended as part of the development. Potential native species to plant include nannyberry, elderberry and dogwood shrubs along with sugar maple, red maple, basswood, balsam fir, white cedar, bur oak, red oak, and white spruce trees. Sourcing native species from local seed sources is strongly recommended to ensure adaptability and longevity. There are no planting sensitivities identified for the site other than the potential need for topsoil to accompany plantings in the areas of fill.

2. The work area for the proposed stormwater pipe is to be as narrow as possible and the alignment fine-tuned to avoid trees of desirable species such as maple, beech, birch, white cedar, and white spruce along the edges of the work area.

3. To provide sediment and erosion control, delineate the work area, and protect adjacent vegetation and their associated critical root zones, silt fencing is to be installed along the perimeter of the work areas, including the stormwater pipe corridor on the City lands to the north. The fencing must be properly keyed in to filter runoff and assist in keeping wildlife out of the work area. The fencing will need to be maintained as required including repair of broken sections and removal of accumulated sediment. Signs, notices or posters are not to be attached to any tree. No grading, heavy machinery traffic, stockpiling of material, machinery maintenance and refueling or other activities that may cause soil compaction are to occur outside of the work areas delineated by the silt fencing. The root system, trunk or branches of the trees to be retained are to be protected and not damaged. 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, burlap or woodchips and kept moist until the roots can be buried permanently. A plastic covering should be used to retain moisture during an extended period when watering is not possible. Any roots that must be cut are to be cut cleanly to facilitate healing and as far from the tree as possible. Exhaust fumes from all equipment during construction will not be directed towards the canopy of trees to be retained. The silt fencing is to be retained and kept in proper working order until all site servicing and construction has been completed and the site has been stabilized.

4. Once the fencing has been installed, prior to any site disturbances the work areas are to be thoroughly searched and any wildlife at risk including turtles and snakes are to be safely relocated to the Rideau River corridor. 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.

5. To protect breeding birds, the woody vegetation removal should not occur between April 15th and August 15th, unless a breeding bird survey conducted within five days of the woody vegetation removal identifies no active nests in the trees or shrubs. No stick nests or other evidence of raptor utilization on the site were observed;

6. Many helpful wildlife oriented mitigation measures are detailed in the City's Protocol for Wildlife Protection during Construction (City of Ottawa, 2015). For example, any of the trees with wildlife cavity potential along the proposed stormwater pipe alignment are to be removed in the less sensitive periods of early spring or late summer to early fall. 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 butternut. Appendix 1 of City of Ottawa (2015) describes these species. Appendix 1 should be modified for this development project to include the contact information of the project biologist, as applicable. Any Species at Risk sightings are to be immediately reported to the project manager and the Ministry of the Natural Resources and Forestry and work that may impact the species suspended immediately;

7. As recommended in the 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; and,

8. Once the stormwater pipe is installed, native tree and shrub species as described in 1) above should be planted along the edges of the former work area and a pathway of permeable material constructed along the centre of the pipe alignment. Pending input from City staff the pathway should be extended west along the north edge of the development to meet existing pathways within the Rideau River corridor, heading south towards the Hunt Club Bridge. Geotechnical input will be required to determine if use of the existing pathways is suitable within the identified hazard lands.

Additional recommended mitigation measures for sediment and erosion control and general environmental protection include:

- Any groundwater that must be removed from work area will be pumped into a proper filter mechanism such as a sediment trap or filter bag prior to release to the environment. The discharge will not be directed to the Rideau River corridor;

- The extent of exposed soils is to be kept to a minimum at all times. Re-vegetation of exposed, non-developed areas is to be achieved as soon as possible. The objective with respect to erosion and sediment controls will be to ensure that the surface water runoff leaving the site is not degraded with respect to water quantity or quality. Erosion and sediment control will focus on best management practices such as grassed swales with a reduced slope, and direction of roof runoff to grass or other permeable surfaces;
- During construction seepage barriers such as silt fencing, straw bale check dams and other sediment and erosion control measures will be installed as required to OPSD requirements 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. Proper stormwater management and no disturbances within the riparian corridor should ensure that all stormwater is properly treated before ultimately entering the Rideau River or lost through evapouration or infiltration;
- Municipal by-laws and provincial regulations for noise will be followed and utilities will be located as required in the vicinity of the site prior to construction; and,
- Waste will be managed in accordance with provincial regulations. The contractor will have a spill kit on-hand at all times in case of spills or other accidents.

Schedule of Proposed Works

The woody vegetation not to be retained is proposed for removal later in 2018, after the breeding bird season. Trees with wildlife cavity potential are to be removed in the less sensitive periods of early spring or late summer to early fall. A Tree Cut Permit will be required for removal of trees on private land that are greater than 10cm dbh. 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, if applicable, has been properly constructed.

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 development tablelands portion of the site is dominated by highly disturbed former extraction lands with some regenerating vegetation. The Rideau River corridor contains significant valleylands, provides a wildlife corridor, and supports the adjacent aquatic habitat. The corridor will not be impacted. Provided the mitigation measures recommended above are properly implement no significant impacts are anticipated from installation of a stormwater pipe on City lands to the north of the site. Given the disturbed nature of the development portion of the site and adjacent urban roadways, residential developments and commercial operations, no significant cumulative effects are anticipated on the general landscape as a result of the proposed development.

Conclusion

The site is vacant land that exhibits a high level of disturbance as it was formally used as a sand and gravel pit and then a landfill for construction material, gravel, wood, asphalt, concrete and other miscellaneous fill. The Rideau River corridor and associated aquatic habitat, significant valleylands and wildlife corridor are the significant natural heritage features in the vicinity of the site, along with potential significant woodlands within the lands zoned Environmental Protection. No Species at Risk were observed on or adjacent to the site.

The highly disturbed tablelands proposed for development do not provide any significant support for the features or functions of the Rideau River and adjacent corridor. Other than the stormwater management pipe connecting to existing infrastructure to the north no direct impacts will occur on adjacent features and functions through development outside of the Environmental Protection zoned area of a retirement residence in the north portion and a hotel, car dealerships, restaurants and other commercial developments in the central and south portions of the tablelands.

Potential indirect impacts will be addressed using the mitigation measures described above. In particular, proper stormwater management and erosion control will ensure no offsite impacts to the aquatic habitat of the Rideau River. A properly designed pathway of permeable material along the stormwater pipe alignment will link the site with existing pathways to the north, and provide these residents with more direct access to the parklands between the tablelands portion of the site and the residential community. The pathway will also provide a link to any future pathway along the Rideau River corridor to the south.

It is important that the other mitigation measures outlined in this EIS and TCR are properly implemented and maintained.

References

Brownell, V.R. and C.S. Blaney. 1997. Summary: Natural Area Reports for Natural Areas East of the Rideau River. Prepared for the Regional Municipality of Ottawa-Carleton, Planning and Development Approvals Department. 324 pp.

City of Ottawa. 2010. City of Ottawa Official Plan. As adopted by City Council, May, 2003 and Updated 2010. Publication: 1-28. 227 pp & Sched.

City of Ottawa. 2015. Protocol for Wildlife Protection during Construction. August, 2015. 14 pp & Append.

Golder Associates. 1994. Phase I and Partial Phase II Environmental Site Assessment. Riverwalk Park and St. Mary's Sites, Riverside Drive, Ottawa, Ontario. June 1994. 14 pp & append.

Golder Associates. 2017. Preliminary Geotechnical Assessment, Proposed Development Hunt Club Road and Riverside Drive, Ottawa, Ontario. May, 2017. Report No. 1670692-1000. 25 pp. & Append.

Ontario Ministry of Natural Resources. 2010. Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005. March 2010. 233 pp.

Ontario Ministry of Natural Resources and Forestry. 2015. Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E. January, 2015. 38 pp.

Please call if you have any questions on this EIS and TCR.

Yours Sincerely,
MUNCASTER ENVIRONMENTAL PLANNING INC.

Bernie Muncaster, M.Sc.
Principal

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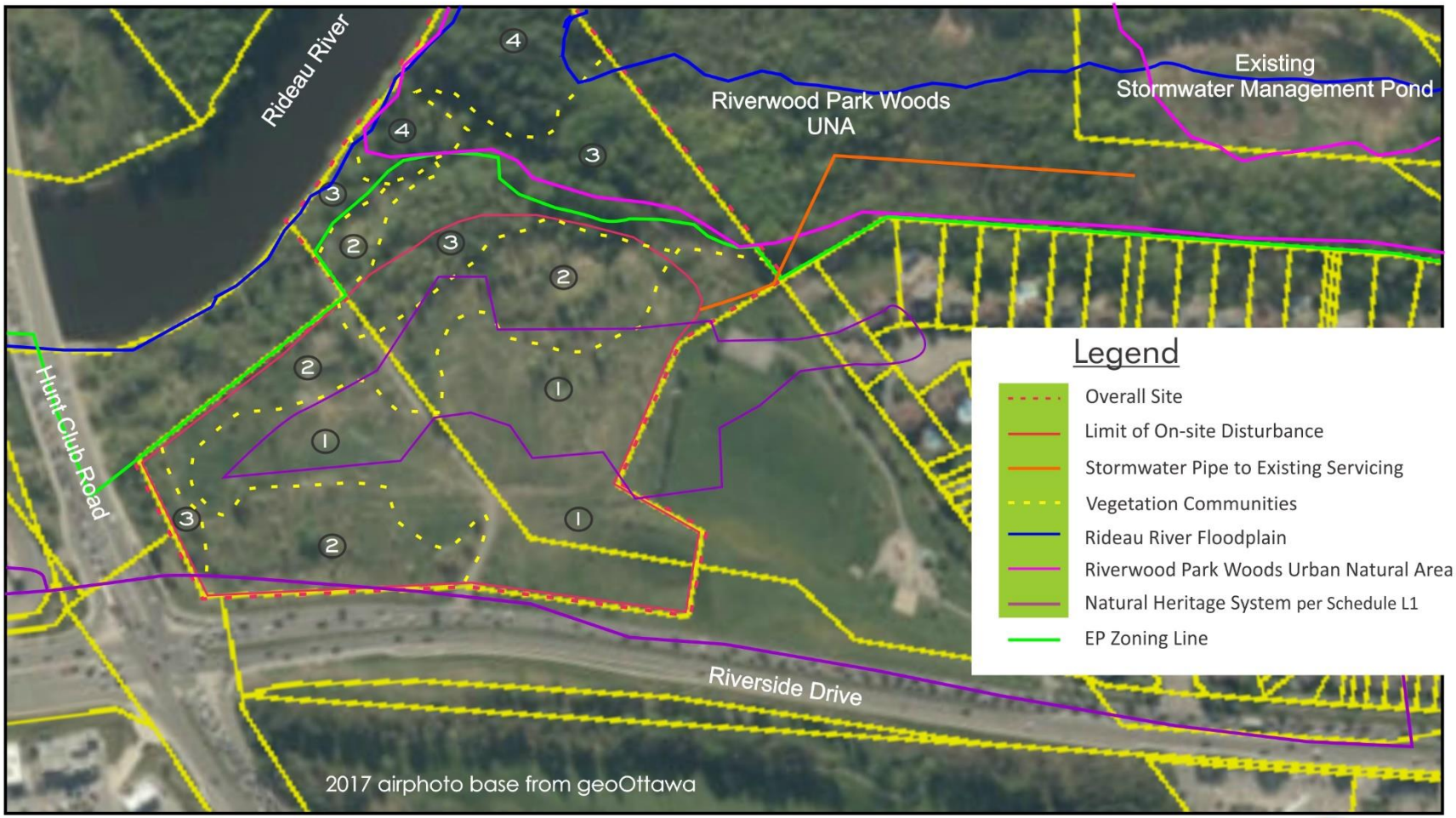


Vegetation Communities

1. Cultural Meadow
2. Cultural thicket
3. Cultural Woodland
4. Upland Pine-Maple Mixed Forest

Approx. Scale 1:3,450

0 50 100 150 200
METRES

December 15, 2017 | **FILE: 16-24** | **Map 1**

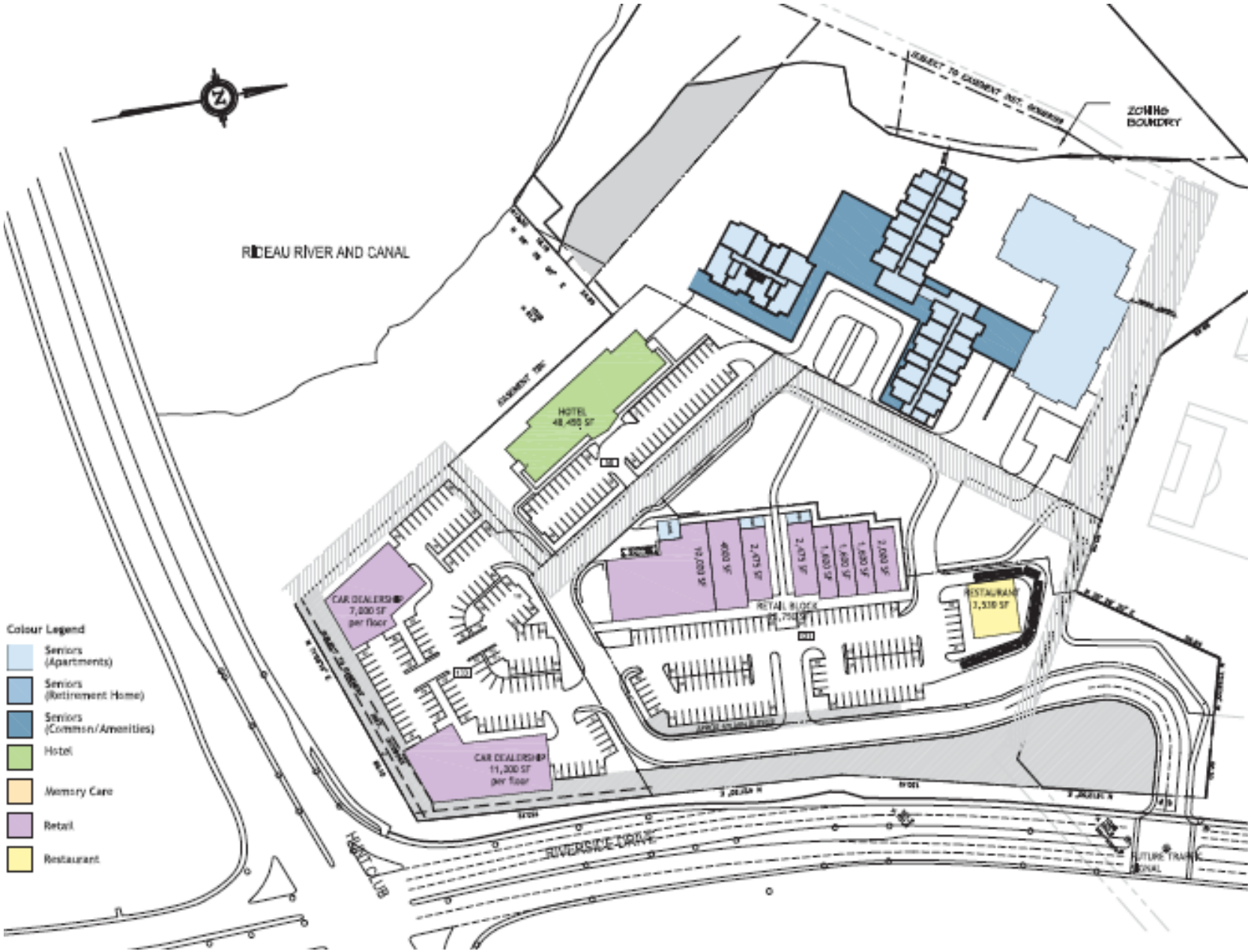
Prepared for: St. Mary's Lands Corporation

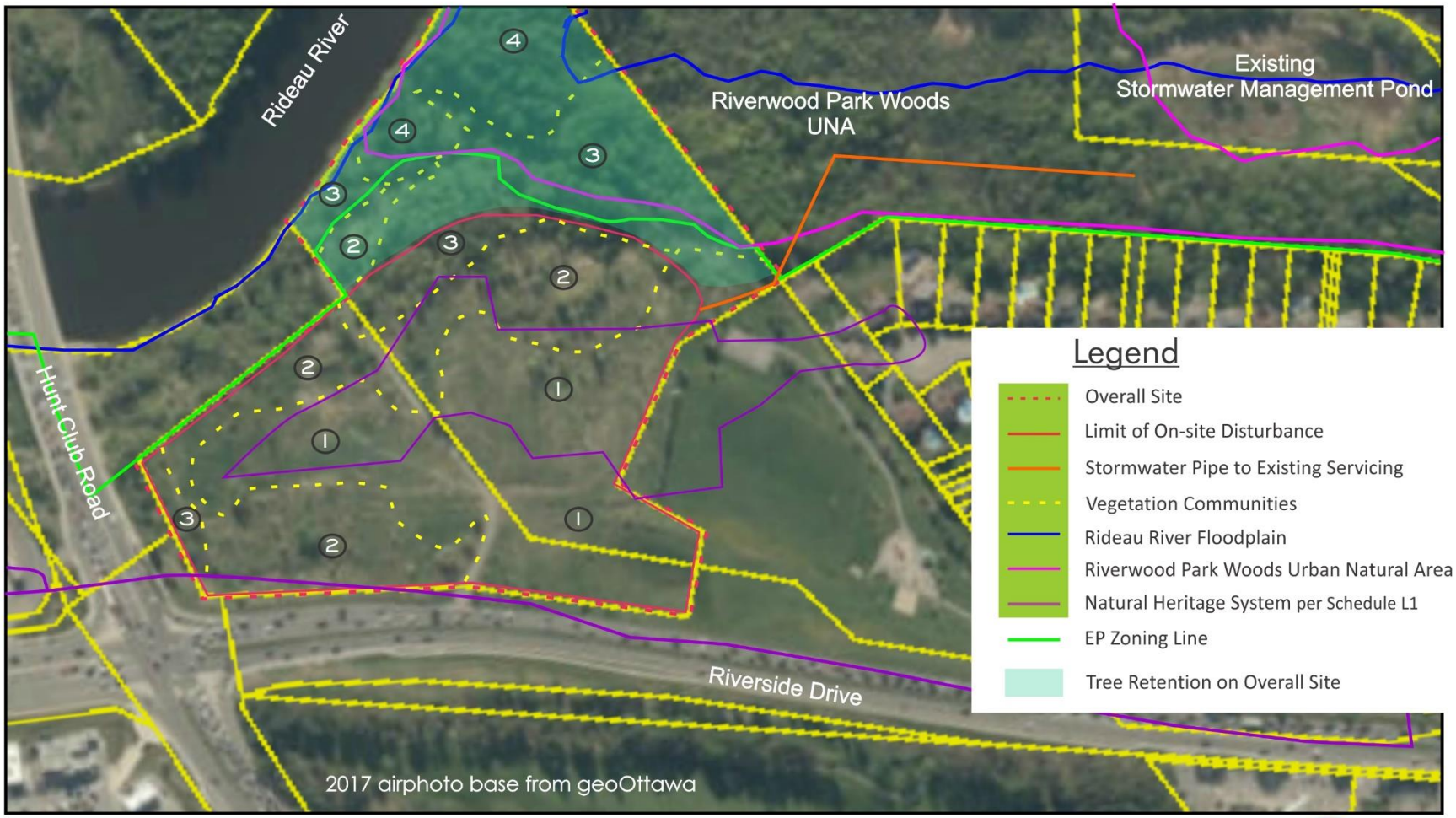
Prepared by: Muncaster Environmental Planning Inc.

CURRENT VEGETATION and OTHER FEATURES

3860 and 3930 RIVERSIDE DRIVE
CITY of OTTAWA

MAP 2 – PROPOSED DEVELOPMENT





Vegetation Communities

1. Cultural Meadow
2. Cultural thicket
3. Cultural Woodland
4. Upland Pine-Maple Mixed Forest

Approx. Scale 1:3,450

0 50 100 150 200

METRES

December 15, 2017 | **FILE: 16-24** | **Map 3**

Prepared for: St. Mary's Lands Corporation

Prepared by: Muncaster Environmental Planning Inc.

PROPOSED CONSERVED VEGETATION

3860 and 3930 RIVERSIDE DRIVE
CITY of OTTAWA

APPENDIX A

MINISTRY of NATURAL RESOURCES and FORESTRY

CORRESPONDENCE

Ministry of Natural Resources and Forestry

Kemptville District

10 Campus Drive
Postal Box 2002
Kemptville ON K0G 1J0
Tel.: 613 258-8204
Fax: 613 258-3920

Ministère des Richesses naturelles et des Forêts

District de Kemptville

10, promenade Campus
Case postale, 2002
Kemptville ON K0G 1J0
Tél.: 613 258-8204
Téléc.: 613 258-3920

Ontario

Fri. Aug 4, 2017

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

Attention: Bernie Muncaster

Subject: Information Request - Developments
Project Name: Taggart Hunt Club and Riverside Mixed Use
Site Address: 3860 and 3930 Riverside Drive
Our File No. 2017_GLO-4149

Natural Heritage Values

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

The following Natural Heritage values were identified for the general subject area:

- ANSI, Earth Science, Mccarthy Road Quarry (Provincial)
- Fish Nursery, Black Crappie Nursery Area
- Fish Nursery, Blue Gill Nursery Area (Non-Sensitive)
- Fish Nursery, Centrarchidae Nursery Area (Non-Sensitive)
- Fish Nursery, Cyprinidae Nursery Area (Non-Sensitive)
- Fish Nursery, Emerald Shiner Nursery Area (Non-Sensitive)
- Fish Nursery, Largemouth Bass Nursery Area (Non-Sensitive)
- Fish Nursery, Muskellunge Nursery Area (Non-Sensitive)
- Fish Nursery, Pumpkinseed Nursery Area
- Fish Nursery, Rock Bass Nursery Area (Non-Sensitive)
- Fish Nursery, Smallmouth Bass Nursery Area (Non-Sensitive)
- Fish Nursery, Walleye Nursery Area (Non-Sensitive)
- Fish Nursery, White Sucker Nursery Area
- Fish Nursery, Yellow Perch Nursery Area (Non-Sensitive)
- Lake (Non-Sensitive)
- Spawning Area, Northern Pike Spawning Area (Non-Sensitive)
- Spawning Area, Walleye Spawning Area

- Unevaluated Wetland (Not evaluated per OWES)

Municipal Official Plans contain information related to natural heritage features. Please see the local municipal Official Plan for more information, such as specific policies and direction pertaining to activities which may impact natural heritage features. For planning advice or Official Plan interpretation, please contact the local municipality. Many municipalities require environmental impact studies and other supporting studies be carried out as part of the development application process to allow the municipality to make planning decisions which are consistent with the Provincial Policy Statement (PPS, 2014).

The MNRF strongly encourages all proponents to contact partner agencies and appropriate municipalities early on in the planning process. This provides the proponent with early knowledge regarding agency requirements, authorizations and approval timelines; Ministry of the Environment and Climate Change (MOECC) and the local Conservation Authority may require approvals and permitting where natural values and natural hazards (e.g., floodplains) exist.

As per the Natural Heritage Reference Manual (NHRM, 2010) the MNRF strongly recommends that an ecological site assessment be carried out to determine the presence of natural heritage features and species at risk and their habitat on site. The MNRF can provide survey methodology for particular species at risk and their habitats.

The NHRM also recommends that cumulative effects of development projects on the integrity of natural heritage features and areas be given due consideration. This includes the evaluation of the past, present and possible future impacts of development in the surrounding area that may occur as a result of demand created by the presently proposed project.

In Addition, the following Fish species were identified: alewife, American eel, black crappie, bluegill, brown bullhead, channel catfish, common carp, greater redhorse, largemouth bass, logperch, muskellunge, northern pike, pumpkinseed, rock bass, shorthead redhorse, silver redhorse, tessellated darter, walleye, white sucker, yellow perch.

Wildland Fire

MNRF woodland data shows that the site contains woodlands. The lands should be assessed for the risk of wildland fire as per PPS 2014, Section 3.1.8 "*Development shall generally be directed to areas outside of lands that are unsafe for development due to the presence of hazardous forest types for wildland fire. Development may however be permitted in lands with hazardous forest types for wildland fire where the risk is mitigated in accordance with wildland fire assessment and mitigation standards*". Further discussion with the local municipality should be carried out to address how the risks associated with wildland fire will be covered for such a development proposal. Please see the Wildland Fire Risk Assessment and Mitigation Guidebook (2016) for more information.

Significant Woodlands

Section 2.1.5 b) of the PPS states: *Development and site alteration shall not be permitted in significant woodlands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* The 2014 PPS directs that significant woodlands

must be identified following criteria established by the Ontario Ministry of Natural Resources and Forestry, i.e. the Natural Heritage Reference Manual (NHRM), 2010. Where the local or County Official Plan has not yet updated significant woodland mapping to reflect the 2014 PPS, all wooded areas should be reviewed on a site specific basis for significance. The MNRF Kemptville District modelled locations of significant woodlands in 2011 based on NHRM criteria. The presence of significant woodland on site or within 120 metres should trigger an assessment of the impacts to the feature and its function from the proposed development.

Significant Wildlife Habitat

Section 2.1.5 d) of the PPS states: *Development and site alteration shall not be permitted in significant wildlife habitat unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.* It is the responsibility of the approval authority to identify significant wildlife habitat or require its identification. The MNRF has several guiding documents which may be useful in identification of significant wildlife habitat and characterization of impacts and mitigation options:

- Significant Wildlife Habitat Technical Guide, 2000
- The Natural Heritage Reference Manual, 2010
- Significant Wildlife Habitat Mitigation Support Tool, 2014
- Significant Wildlife Habitat Criteria Schedule for Ecoregion 5E and 6E, 2015

The habitat of special concern species (as identified by the Species at Risk in Ontario list) and Natural Heritage Information Centre tracked species with a conservation status rank of S1, S2 and S3 may be significant wildlife habitat and should be assessed accordingly.

Water

If any in-water works are to occur, there are timing windows for which work in water should not take place (see below). Appropriate measures should be taken to minimize and mitigate impact on water quality and fish habitat, including:

- installation of sediment and erosion control measures;
- avoiding the removal, alteration, or covering of substrates used for fish spawning, feeding, over-wintering or nursery areas; and
- debris control measures to manage falling debris (e.g. spalling).

Timing windows (no in-water works) in MNRF Kemptville District*:

Warmwater and cool water	→ March 15 – June 30
St. Lawrence River & Ottawa River	→ March 15 – July 15
Coldwater	→ October 1 – May 31
Big Rideau Lake & Charleston Lake	→ October 1 – June 30

* *Please note: Additional timing restrictions may apply as they relate to endangered and threatened species for works in both water and wetland areas.*

Timing windows when in-water work is restricted – based on species presence:

	FISH SPECIES	TIMING WINDOW (No in-water works)
Spring:	Walleye	March 15 to May 31
	Northern Pike	March 15 to May 31
	Lake Sturgeon	May 1 to June 30
	Muskellunge	March 15 to May 31
	Largemouth/Smallmouth Bass	May 1 to July 15
	Rainbow Trout	March 15 to June 15
	Other /Unknown Spring Spawning Species	March 15 to July 15

	FISH SPECIES	TIMING WINDOW (No in-water works)
Fall:	Lake Trout	October 1 to May 31
	Brook Trout	October 1 to May 31
	Pacific Salmon	September 15 to May 31
	Lake Whitefish	October 15 to May 31
	Lake Herring	October 15 to May 31
	Other /Unknown Fall Spawning Species	October 1 to May 31

Additional approvals and permits may be required under the Fisheries Act. Please contact Fisheries and Oceans Canada to determine requirements and next steps. There may also be approvals required by the local Conservation Authority or Transport Canada. As the MNRF is responsible for the management of provincial fish populations, we request ongoing involvement in such discussions in order to ensure population conservation.

Species at Risk

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:

- American Eel (END)
- Bank Swallow (THR)
- Barn Swallow (THR)
- Blanding's Turtle (THR)
- Bobolink (THR)
- Butternut (END)
- Chimney Swift (THR)
- Eastern Meadowlark (THR)
- Tri-Colored Bat (END)

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. Thus any potential works should consider disturbance to the individuals as well as their habitat (e.g. nesting sites). General habitat protection applies to all threatened and endangered species. Note some species in Kemptville District receive regulated habitat protection. The habitat of these listed species is protected from damage and destruction and certain activities may require authorization(s) under

the ESA. For more on how species at risk and their habitat is protected, please see: https://www.ontario.ca/page/how-species-risk-are-protected.

If the proposed activity is known to have an impact on any endangered or threatened species at risk (SAR), or their habitat, an authorization under the ESA may be required. It is recommended that MNRF Kemptville be contacted prior to any activities being carried out to discuss potential survey protocols to follow during the early planning stages of a project, as well as mitigation measures to avoid contravention of the ESA. Where there is potential for species at risk or their habitat on the property, an Information Gathering Form should be submitted to Kemptville MNRF at sar.kemptville@ontario.ca.

The Information Gathering Form may be found here:
http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf/FormDetail?OpenForm&ACT=RDR&TAB=PROFILE&ENV=WWE&NO=018-0180E

For more information on the ESA authorization process, please see:
https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization

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 and/or Migratory Birds Convention Act. Again, the habitat of special concern species may be significant wildlife habitat and should be assessed accordingly. Species of special concern for consideration:

- Eastern Wood-Pewee (SC)
- Monarch (SC)
- Peregrine Falcon (SC)
- Snapping Turtle (SC)
- Wood Thrush (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 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 largely on documented occurrences and does not necessarily 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. It is the responsibility of the proponent to ensure that species at risk are not killed, harmed, or harassed, and that 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. For specific questions regarding the

Endangered Species Act (2007) or SAR, please contact MNRF Kemptville District at sar.kemptville@ontario.ca.

The approvals processes for a number of activities that have the potential to impact SAR or their habitat have recently changed. For information regarding regulatory exemptions and associated online registration of certain activities, please refer to the following website: https://www.ontario.ca/page/how-get-endangered-species-act-permit-or-authorization.

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; or
- Additional occurrences of species are discovered on or in proximity to the site.

This letter is valid until: Sat. Aug 4, 2018

The MNRF would like to request 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,

Carolyn Hann
Management Biologist
carolyn.hann@ontario.ca

Encl.\
-ESA Infosheet
-NHIC/LIO Infosheet