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Terrestrial natural environment assessment:

Kanata West Concept Plan

December 2001

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City of Ottawa, Ontario**

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1. Introduction

As part of the urban development plan for the Kanata West Business Park, an assessment of terrestrial natural environment values was undertaken in 2001. The 535 ha study area comprises a single block of land, extending from Hazeldean Road in Goulbourn, northward almost to Richardson Side Road in Kanata and West Carleton, and from the Carp River in Goulbourn and Kanata westward to the Second Line Road Right-of-Way (ROW) in West Carleton. The study area is almost entirely private land, with some public holdings along Highway 417 and the Carp River.

The on-site assessment of the area was undertaken by Daniel F. Brunton on 24, 29 and 31 July and 28 August 2001. Data gathered from field work undertaken in portions of the study area during the course of other natural environment investigations on 13 and 14 June and 16 and 20 October 2000, were also utilized (Brunton 2000; Brunton 2001). The purposes of the present investigation were as follows:

- 1) evaluate natural environment conditions and significance within the study area;
- 2) identify potential impacts of development alternatives on the apparent and potential natural values in adjacent areas;
- 3) determine ecologically appropriate mitigation opportunities.

The study area was examined on foot and by vehicle with topographic mapping and aerial photography at hand. Field notes were taken during these field investigations and voucher specimens collected for suspected significant plant species. Reviews of appropriate local and regional literature and natural environment data sources (as noted below) were conducted during and after the on-site investigations. Discussions with other members of the development assessment group were held on various occasions to ensure that ecological input was available for consideration throughout the development study. Similarly, participation in landowner/ stakeholder information sessions (e.g. Corel Centre visioning session, 11 July 2001) made such information available at a beyond scale.

2. Site context

Most of the Kanata West Business Park study area is situated on a clay plain which slopes gently eastward to the Carp River (Pratt 1982). Only in the southern portion of the study area (primarily towards the Maple Grove Road ROW between the Second Line ROW and Huntmar Road) is the underlying bedrock exposed. Here, shallow, sandy till mantles a limestone bedrock plain and is interrupted at disturbed sites by outcroppings.

The eastern end of a large organically based swamp forest through which Feedmill Creek flows, straddles the western boundary at Highway 417. It extends to the south of the highway just east of the Second Line Road ROW. The water table is high throughout the study area, with frequent ephemeral or permanent wetland pockets. Drainage through a myriad of channels as well as in over-grown ditches/ drains along some property lines moves surface water in a northeastward direction into Feedmill Creek and the Carp River. The dense Thicket Swamp at the north end of the Second Line Road ROW in the Feedmill Creek system by Highway 417 is a portion of the Stittsville Wetland Complex (Paquette et al., 1995).

The Kanata West Business Park study area has experienced a long history of human disturbance (Walker and Walker 1968), with the majority of the site having been transformed from a natural condition by decades of agricultural activity. Only about 100 ha (less than 20%) of the study area can be considered to be in natural or near-natural condition. Natural and near-natural landscapes are largely confined to agriculturally unsuitable creek corridors, the extensive swamp forest in the west and to the drier, thin-soiled, rocky lands in the southwest portion of the site. Even here, however, evidence of cattle grazing and other agricultural activities is common.

The Kanata West Business Park study area is under considerable development pressure. Completion of the Corel Centre recreation complex and other commercial establishments eastward along Palladium Drive constitute important recent changes in land use. Residential development associated with the rapid growth of Kanata and Stittsville is at or approaching study area boundaries on the south and east, and a residential and recreational (golf) complex is proposed for the area west of the Second Line ROW (Kristensen 1999).

The largest area of natural/ near-natural landscape occurs in the western half of the study area, forming the eastern limit of the Natural Environment System Strategy (NESS) Natural Areas 306 (Keddy 1997) and 418 (White 1997). The Stittsville North Natural Area (NESS 306) area within the Kanata West Business Park study area is included amongst 'Schedule K' lands in the current City of Ottawa (former Region of Ottawa-Carleton) Official Plan (Region of Ottawa-Carleton 1999). Such areas are considered in the Official Plan to contain at least potentially significant 'Environmental Features', the net significance of these areas to be maintained during subsequent development. The natural environment significance of this area was assessed in Brunton (2000).

A comprehensive study of physical development constraints and opportunities within the Carp River watershed was conducted concurrently with the development planning for the Kanata West Business Park study area (Robinson Consultants et al., 2001). More detailed consideration is

being applied in that study to the more development pressured upper watershed, including the Kanata West Business Park study area. The findings and conclusions of the present study and that of the Carp River watershed investigation are being closely integrated throughout the course of both undertakings.

3. Natural features

The majority (over 80%) of the Kanata West Business Park study area is in a transformed state as a result of many years of various cultural activities, as noted above. Vegetation in such transformed areas would be considered Cultural (CU) in the Ontario Ministry of Natural Resources, southern Ontario classification system (Lee et al., 1998) and is known to possess little if any intrinsic natural significance. The following describes those sites/ areas within the Kanata West Business Park study area possessing at least some natural environment values. Southern Ontario classification system acronyms from Lee et al. (1998) are employed for reference purposes, wherever possible.

i) Carp River:

The upper reaches of Carp River has been significantly impacted by agricultural and residential development. Robinson et al., (2001) note that a heavy sediment load, presumably resulting from adjacent residential development, has choked the main channel and is degrading the function of tributaries such Poole and Hazeldean Creeks. Most (all ?) of the Kanata West Business Park study area reach of the river has been channelized or physically modified by human activity.

Figure 1: Westward over Carp River constructed wetland at Palladium Drive
(16 Oct 2001)



Riverbanks along this section of the Carp River are severely disturbed, the lands between Hazeldean Road and Highway 417 consisting mostly of open fill. Virtually no tree or shrub growth exists in the vicinity, open regenerating pasture or plowed fields occurring for hundreds of metres along both shores. Extensive commercial development (e.g. parking lots) has occurred along the rivershore between Palladium Drive and Highway 417 in recent years. A narrow band of Cat-tail (*Typha latifolia*) mixed with Canary Grass (*Phalaris arundinacea*) and Purple Loosestrife (*Lythrum salicaria*) marsh (MAM vegetation) grows along the water's edge. An artificial wetland configuration developed in conjunction with the construction of Palladium Drive supports the largest extent of marsh vegetation in the Kanata West Business Park study area stretch of the Carp River, as well as the beginnings of deciduous swamp habitat with the growth of a grove of Crack Willow (*Salix × rubens*) (Figure 1) .

Non-fisheries wildlife use of the river is largely confined to waterfowl. Migratory ducks and geese (primarily Canada Geese and Mallards) are commonly observed both in the water and lounging on adjacent fields. These species breed in smaller numbers along the grassy banks of the river, with Mallards being concentrated in the Palladium Drive wetland area.

ii) Poole Creek:

Poole Creek is identified as one of only three cool-water streams in Ottawa-Carleton and sections of it (upstream of Hazeldean Road) are considered to have sport fisheries potential (Marshall Macklin Monaghan 2000). As with the Carp River, creek banks in the Kanata West Business Park study area are open and severely disturbed, those along the lower eastern section consisting mostly of regenerating fill or active agricultural land up to the water's edge.

At the southern end of the Kanata West Business Park study area in Lot 27, Concession 12 (Goulbourn), the Poole Creek valley broadens considerably. Wetland habitat formed behind a long-standing beaver dam supports a relatively extensive Cat-tail (*Typha latifolia*), Canary Grass (*Phalaris arundinacea*), Purple Loosestrife (*Lythrum salicaria*) marsh (MAM vegetation) with an abundance of dead standing trees. The area is extensively utilized by wildlife. The dead trees, for example, are used as nesting sites by nesting birds such as Tree Swallows, Northern Flicker and Wood Duck and the marsh and vicinity by common wetland breeding bird species such as Red-winged Blackbird and Common Grackle. A Green Heron observed flying over the marsh (pers obs., 29 July 2001) is likely resident in the submature and mature Red Maple (*Acer rubrum*) trees scattered along the wetland edge. A Great Horned Owl is apparently a resident species in the scrubby upland forest on adjacent slopes. Striped Skunk and Raccoon tracks were noted commonly along the creek.

The upland forest fringe appears to be a remnant of former natural deciduous upland forest, with Sugar Maple (*Acer saccharum*) and Basswood (*Tilia americana*) mixed with the introduced Manitoba Maple (*Acer negundo*). Although fragmented and infested with invasive Common Buckthorn (*Rhamnus cathartica*) shrubbery, this woodland cover provides habitat for migratory and resident wildlife species.

iii) Feedmill Creek (including eastern NESS 418):

The main channel of Feedmill Creek enters the Kanata West Business Park study area at Highway 417 from the southwest, then passes parallel and close to the north side of Highway 417 until emptying the Carp River. Much of this section consists of open regenerating or active agricultural land, with a section being dramatically rebuilt for the crossing of the Huntmar Road interchange. Within the eastern portion of NESS 419 between Highway 417 and the Huntmar Road interchange, however, a substantial woodland area remains. This woodland is dominated by White Cedar (*Thuja occidentalis*), Green Ash (*Fraxinus pennsylvanica*) and Basswood mixed forest (SWM1 vegetation). A dense undergrowth of Ostrich Fern (*Matteuccia struthiopteris*) dominates wetter sites within the woodland, especially along the edges of the active beaver pond situated along this section of the creek. The Regionally uncommon Virginia Stickseed (*Hackelia virginiana*) occurs along the cedar woodland edge.

The woodland habitat is connected directly to the more extensive forested lands in the remainder of NESS 418 west of the Second Line Road ROW and is identified by Robinson et al. (2001) as a part of the section of the Feedmill Creek corridor having significance for its ecological linkage potential within the Carp River watershed. A narrow band of openly spaced Green Ash, Basswood and Bur Oak (*Quercus macrocarpa*) occupies the creek bank east of the Huntmar Road interchange.

A large Swamp Thicket (SWT3 vegetation) at Highway 417 east of the Second Line Road ROW drains into Feedmill Creek and is a part of the Stittsville Wetland Complex (Paquette et al., 1995). It is virtually pure Meadow Willow (*Salix petiolaris*) and is connected directly with the dense Cat-tail (*Typha latifolia*) marsh vegetation immediately west of the Second Line Road ROW.

iv) Hazeldean Creek:

This short tributary of the Carp River is very much like the larger Poole Creek to the north, open banks along the lower, eastern portion consisting mostly of regenerating fill or active agricultural land up to the water's edge. Immediately north of Hazeldean Road, however, this permanently flowing creek runs through a narrow, disturbed riparian woodland area of Green Ash, Manitoba Maple and Basswood (SWD2 vegetation). The formerly more open nature of this woodland area is indicated by the abundance of field and scrub species found at ground level, such

as Common raspberry (*Rubus strigosus*) and White Avens (*Geum canadense*). Marsh areas dominate by the introduced Canary-grass (*Phalaris arundinacea*) (MAM vegetation) occupy open areas along this section of the creek and support populations of common marsh animals such as Northern Yellowthroat and Green Frogs.

v) NESS 306 (eastern area):

Keddy (1997) and Kristensen (1999) describe the core of NESS 306 as being an upland complex of White Cedar-dominated mixed woodlands (FOM7 vegetation) with White Spruce (*Picea glauca*), Trembling Aspen (*Populus tremuloides*) and Balsam Fir (*Abies balsamea*) being locally important associated dominant trees. Regenerating pasture intersperses forested areas. Submature White Cedar dominates upland forest habitat, with White Spruce being the next most common dominant and with White Elm (*Ulmus americana*), Balsam Fir and Trembling Aspen also being locally important. Young to submature Trembling Aspen and White Birch (*Betula papyrifera*) forest (FOD8 vegetation) dominate a small area at the southern end of the Second Line Road ROW and is a continuation of the larger area of continuous woodland to the west. Very young Trembling Aspen also dominated the slightly higher, drier regenerating woodland at the northeastern corner of the NESS area by the Ontario Ministry of Transportation Highway 417 yard area.

Woodland in the eastern portion of the NESS area largely represent regeneration from extensive disturbance (clearing for agriculture, intensive cutting for timber and/ or fence rails, etc.). Where cedar growth is dense, the resulting intense shade excludes virtually all ground vegetation. In more open, mixed stands, the disturbance history of the area is reflected by the severe infestation of Common Buckthorn.

In June 2000 a small area of submature White Pine (*Pinus strobus*) upland coniferous forest (FOC1 vegetation) at the southern edge of the Kanata West Business Park study area in Lot 1, Concession 1 (West Carleton) on deeper, better drained deposits of sandy till (Pratt 1982), showed little indication of the disturbance typical of most of the study area. A dense growth of young Sugar Maple occupies the understory, with a relatively open ground flora of native herbaceous species. A Regionally uncommon plant species, Hay-scented Fern (*Dennstaedtia punctilobula*), was recorded here (Brunton 2000).

Wetland vegetation occurs commonly within the eastern portion of NESS 306 in small, typically ephemeral swales and swampy areas. Black Buckthorn (*Rhamnus frangula*) is frequent in such sites, with lowland White Cedar mixed with Larch (*Larix laricina*), White Spruce, Black Ash (*Fraxinus nigra*), Green Ash and Specked Alder (*Alnus incana* ssp. *rugosa*).

No Regionally Significant fauna (Brownell & Larsen 1995) were observed in the NESS 306 area. Breeding birds noted were species typical of disturbed mixed woodland edges, such as White-

throated Sparrow, Nashville Warbler, Song Sparrow and Black-capped Chickadee. Only common species of mammals found typically along woodland edge were noted, such as Porcupine, Woodchuck, White-tailed Deer and Striped Skunk. Evidence of White-tailed Deer (droppings, browse, fresh tracks) are common in this area and in woodlands throughout the Kanata West Business Park study area.

vi) John Street woods:

A small (ca. 1.4 ha) woodland area extends eastward from John Street opposite Alon Street. It grades quickly into a regenerating pasture area which likely also included a former farm residence, as suggested by the abundance of persisting Lilac (*Syringa vulgaris*) thickets. Limestone bedrock outcrops through the thin till soil in the regenerating pasture but presents none of the floristic elements of significant alvar vegetation noted immediately west of the Kanata West Business Park study area (Kristensen 1999; Brunton 2000).

The woodland is an essentially pure grove of submature Trembling Aspen with a dense Black Buckthorn infestation below this deciduous canopy (FOD3-1vegetation). The presence of weedy species of open ground and pastures such as Wild-carrot (*Daucus carota*), Tartarian Honeysuckle (*Lonicera tartarica*) and Canada Goldenrod (*Solidago canadensis*) indicate that the woodland was formerly severely disturbed and with a more open canopy.

4. Significant values

i) Significant vegetation:

The significance of vegetation types within the Kanata West Business Park study area has been substantially reduced by the long history of disturbance in the study area. Although several polygons containing Regionally Rare White Cedar -White Spruce (White Pine) forest over thinly mantled sedimentary bedrock are reported for NESS 306, these are located to the west of the study area (Kristensen (1999); pers. obs.). Only small fragments of such vegetation were observed in the Kanata West Business Park study area portion of NESS 306 (Brunton 2000).

The aesthetically pleasing White Pine - Sugar Maple grove on till substrate at the southern boundary of the NESS 306 portion of the Kanata West Business Park study area appears to be in a healthy and sustainable condition. It constitutes Locally Significant vegetation, offering locally valuable wildlife shelter and breeding habitat as well as a potential visual and sound buffer for the local community ¹.

¹ On 23 November 2001 (subsequent to the completion of field investigations), a Maple Grove Road resident reported the apparent logging of the White Pine grove. If indeed the grove has been destroyed, that obviously precludes possible considerations of employing this feature as a potentially valuable landscaping and community asset in the Kanata West Business Park.

Similarly, a dense grove of submature to mature White Cedar at the eastern edge of the NESS 306 area by the Huntmar Road interchange offers wildlife habitat, a visual screen and potential sound buffering.

ii) Significant flora

No Provincially or Regionally Significant flora (Oldham 1999; Brunton 1998) were noted in the Kanata West Business Park study area, although species representatives of both levels are noted immediately to the west in association with the White Cedar Spruce forest habitat also found in a small portion of the study area (Kristensen 1999; Brunton 2000). Regionally uncommon plants species were noted in the White Pine grove in Lot 1, Concession 1 (West Carleton) and along Feedmill Creek in NESS 418 (Hay-scented Fern (*Dennstaedtia punctilobula*) and Virginia Stickseed (*Hackelia virginiana*), respectively).

Brunton (2000) also notes an apparently ancient Eastern Hemlock (*Tsuga canadensis*) tree in the norther half of Lot 1, Concession 1 (West Carleton). The tree is 20 m or more tall and has a girth of 323.5 cm CBH (= 1.03 m diameter). A fire scar on the west side of the tree presumably dates from the massive fires of 1870 which initiated/ renewed much of the upland cedar-spruce dominated, bedrock-based vegetation in western Ottawa (Walker & Walker 1969). It could well be the largest (oldest ?) known example of this formerly common and important tree in the City of Ottawa.

iii) Significant fauna:

No Regionally or Provincially Significant native animal species were observed during the inventory, or are reported in appropriate regional literature (Geomatics International 1995; Keddy 1997; White 1997). On the basis of the present investigation, none appear likely to occur in the habitats noted on this area.

iv) Significant features and functions:

Stittsville Wetland complex

The Stittsville Wetland complex has been classified as a Class 4 (Locally significant) wetland (Paquette, R. et al., 1995). The low topography and shallow soil of the Stittsville area results in the formation of several wetlands and wetland complexes which have variously been determined to be Locally or Provincially Significant, and which may well be reconfigured within the near future (S. Thompson, Ontario Ministry of Natural Resources, *pers. comm.*). The final status of the Stittsville Wetland complex is not clear.

NESS 306:

The Stittsville North Natural Area (NESS 306) is classified as being at a Moderate level of ecological significance, viz., " ... *important for maintaining biodiversity and ecological functions*" in the City of Ottawa (Keddy 1997). The habitat in the Kanata West Business Park study area portion is an extension of that found in the western and southern majority of NESS 306. Brunton (2000) determined that it contained no features and values of significance not also found in the main body of the NESS area and concluded that it provided a limited contribution to the significance rating of NESS 306.

NESS 418:

The Queensway North Natural Area (NESS 418) is classified as being at a Low level of ecological significance, viz., " ... *fair for maintaining biodiversity and ecological functions*" in the City of Ottawa (White 1997). The Kanata West Business Park study area portion of the NESS provides ±continuous woodland habitat, a Regionally uncommon plant species and an ecological corridor with the Carp River (see below). Although the lower, eastern half of the creek corridor is severely disturbed, these characteristics and its fisheries values suggest that the potential ecological benefits of habitat restoration along the creek could be considerable.

Wildlife corridors:

Robinson et al. (2001) determined that Poole, Hazeldean and Feedmill Creek all possessed fisheries habitat values within the Kanata West Business Park study area, despite the highly degraded condition of the lower reaches of these water courses. It was determined that significant recharge occurred in the wooded headwater areas of the tributaries and permitted this continued ecological performance, likely supported by contributions provided by the riparian woodland areas identified above. In addition, considerable wildlife activity was noted here during the course of the present study (see above). The at least locally significant wildlife corridor contributions of the Carp River tributary creek valleys, then, has been demonstrated. This also indicates that habitat restoration along these creek valleys may have important roles to play in the eventual enhancement of the presently degraded upper reaches of the Carp River.

Conclusions

relatively little natural environment habitat and ecological diversity remain in the substantially transformed Kanata West Business Park study area, the remaining natural/ near-natural habitats being fragmented and/ or degraded by a long history of human activities;

The Kanata West Business Park study area portions of NESS306 and 418 provide limited contributions to the overall ecological value of those City of Ottawa Natural Areas and present limited potential for the development of significant features;

potential contributions and support for documented off-site natural features such as downstream Carp River features and functions and fisheries values, constitute the major ecological asset of the Kanata West Business Park study area;

existing and potential wildlife corridor values along Poole, Feedmill and Hazeldean Creeks and their contribution to the maintenance of ecological values in the Carp River, provide support for habitat restoration along these water courses.

maintenance and protection of the locally significant White Pine grove and the large Eastern Hemlock tree in the south end of the study area would provide valuable aesthetic and landscaping assets to the community in and around for the Kanata West Business Park.

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