Agenda Item # Page #

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

TO:	**CHAIR AND MEMBERS PLANNING & ENVIRONMENT COMMITTEE**
FROM:	**JOHN M. FLEMING MANAGING DIRECTOR, PLANNING AND CITY PLANNER**
SUBJECT:	**APPLICATION BY: PENEQUITY REALTY CORPORATION 3130 & 3260 DINGMAN DRIVE AND THE REAR PORTION OF 4397/4407 WELLINGTON ROAD SOUTH MEETING ON 20 AUGUST 2013**

RECOMMENDATION

That, on the recommendation of the Managing Director, Planning and City Planner, with respect to the application of PenEquity Realty Corporation relating to the property located at 3130 and 3260 Dingman Drive and the rear portion of 4397/4407 Wellington Road South, the following report **BE RECEIVED** for information.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

June 18, 2013 Report to the Planning and Environment Committee – 3130 and 3260 Dingman Drive and the rear portion of 4397/4407 Wellington Road South

June 20, 2013 Report to the Planning and Environment Committee – 3130 and 3260 Dingman Drive and the rear portion of 4397/4407 Wellington Road South

PURPOSE AND EFFECT OF RECOMMENDED ACTION

The purpose and effect of this report is to receive further information and materials provided by the applicant in respect of the Municipal Council decision on June 25, 2013, and allow Council to consider the information and material and, to clarify the Council Resolution which was contradictory given that it requested that an EIS be undertaken, which would have the effect of preserving and the Significant Woodland, while requesting that the applicant consider retaining *some or all of the woodlot*, which implies that the Significant Woodland may be removed.

PLANNING HISTORY

Public Meeting of the PEC – 18 June 2013

At the statutory public meeting of the PEC on June 18, 2013, Planning Staff presented a report, in response to the application for an Official Plan and Zoning By-law amendment for the subject site, recommending that the Official Plan be amended to change the designation of the Significant Woodland (Patch 10102) on Schedule “A” (Land Use) from commercial to open space and on Schedule “B-1” (Natural Heritage Features) from Unevaluated Vegetation Patch to Significant Woodlands and simultaneous amendments to the Zoning By-law to facilitate its preservation while further amending the Official Plan and Zoning By-law to permit a wider range of retail and cinema uses on the remainder of the site.

Meeting of the PEC – 20 June 2013

At the previous meeting of the PEC on June 18, 2013, the Planning and Environment Committee requested that Planning Staff revise the recommended Official Plan and Zoning By-law amendment to allow the removal of the Unevaluated Vegetation Patch designation on the subject site. As a result, Planning Staff presented a report, which modified the previous Official Plan amendment, to delete the existing Unevaluated Vegetation Patch designation from Schedule “B-1” of the Official Plan to facilitate its removal while amending the Official Plan and Zoning By-law to permit a wider range of retail and cinema uses on the whole of the site.

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Council Resolution – 25 June 2013

At its session on June 25, 2013, Municipal Council resolved that the matter be referred back to Civic Administration to:

- complete an Environmental Impact Study, which is to include an evaluation and comment on the status of the woodlot and/or wetland;
- [provide] a summary of the net jobs, including a description of the type of jobs that will be created by this proposal;
- permit the applicant an opportunity to further consider the potential to retain some, or all of the woodlot; and,
- report back to the Planning and Environment Committee

BACKGROUND

New information provided by the applicant

In response to the Council Resolution, the applicant has undertaken additional reports and studies to for Municipal Council to consider. These additional reports and studies include:

- Comment on net jobs (Leger Xavier – PenEquity)
- Response to the "Golder's Reports" by Jeffrey Paul, P.Eng. (Stantec)
- Response to the "Golder's Reports" by Gary Epp, M.Sc., Ph.D. (AECOM)
- Summary of Tree Species within Patch 10102 by Mike Boulanger, ISA Certified Arborist & Forestry Technician
- Four options for woodland retention for the purposes of discussion concluding that the long-term viability of the woodland patch is likely to be diminished by the development of lands on all sides of the patch and the consequential loss of an ecological linkage to other natural heritage features by Gary Epp, M.Sc., Ph.D. (AECOM)
- Wetland Evaluation Report evaluates the wetland communities found within Patch No. 10102 by Jillian deMan, H.B.Sc Terrestrial and Wetland Ecologist (AECOM)

The above reports/studies are attached as appendices to this report.

The applicant has indicated that they will not proceed with the development of the subject site if the significant woodland is retained. They have indicated that exposure along the Highway 401 corridor is an important factor in their business model and the ultimate success of the development of this site for retail uses.

ANALYSIS

Summary of Net Jobs

Prior to the 2006 comprehensive review of the Official Plan (OPA 438), the designation of the subject site was changed from Restricted Service Commercial which permitted a limited range of commercial uses that require sites that are large enough to accommodate extensive, open or enclosed display or storage areas and not intended to accommodate retail activities that were intended for the Downtown or other retail designations.

As part of OPA 438, the commercial designations of the Official Plan were restructured to a hierarchical classification system based on the intended level of activity. The subject site was redesignated to New Format Regional Commercial Node, which are regarded as major activity centres by reason of their size and range of uses, and may have trade areas that also extend beyond the municipal boundary. Although the Official Plan designation was amended through OPA 438, the previous Restricted Service Commercial zoning continued to apply to the site as a legacy of the previous designation.

The Zoning By-law amendment requested by the applicant as part of this application seeks to expand the range of commercial uses and permit a range of retail uses that are more in keeping with the existing designation. Given that the requested Zoning By-law amendment seeks to apply a zone that implements the existing Official Plan designation, the "*…net jobs, including a description of the type of jobs that will be created by this proposal*" is was already assumed under the existing designation given that the decision to permit the form of development and range of uses sought by the applicant at this location had been resolved by Council as part of the 2006 Official Plan review which came into force and effect in December, 2009.

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However, in response to Council's request, the applicant has provided a statement attached as Appendix "1" of this report.

Status of the Wetland

The Subject Land Status Report completed on behalf of the applicants which evaluated the *Unevaluated Vegetation Patch* identified the presence of wetland communities with an area of greater than 2.0 hectares. As a result, the Ministry of Natural Resources (MNR) recommended that an OWES evaluation be completed noting that policy 2.1.3 of the Provincial Policy Statement indicates that, "*Development* and *site alteration shall not be permitted in significant wetlands*." The MNR further noted that the OWES evaluation be provided to the MNR given that they are the approval authority for wetland boundaries.

In response to the Council Resolution and the request by NMR, the applicant has provided an evaluation of the wetland, completed by certified wetland evaluators (AECOM), which is attached as Appendix "2" of this report. The evaluation concluded that the wetland is not provincially significant. The City received a copy of this study on July 30, 2013, and has not had sufficient time to review it.

For wetlands that are not provincially significant, the City of London Official Plan provides overarching policies that generally describe the protection of wetlands as an objective of the Plan. For wetlands that are provincially significant, the Official Plan policies specifically outline the protection of *Provincially Significant Wetlands* and explicitly prohibit development and site alteration within these areas, consistent with the policies of the PPS. The wetland evaluation submitted by the applicant indicates that the wetland is not provincially significant (noting that the MNR has not yet reviewed the evaluation). The policies of the Official Plan also specifically speak to protecting and buffering *Locally Significant Wetlands* although the policies do not define or quantify *Locally Significant Wetlands*. As a result, there are no Official Plan policies that would indicate whether this feature is a *Locally Significant Wetland*. Notwithstanding, the issue of local significance, policy 15.7.4 of the Official Plan states that:

> *Wetlands and their surrounding areas of interference are subject to regulation under the Conservations Authorities Act…The Regulation Limit also applies to surrounding areas of interference for…other wetlands larger than two hectares in size, and 30 metres around wetlands that are less than two hectares and not provincially significant.*

Consistent with the above policy, the Upper Thames River Conservation Authority (UTRCA) has stated that the wetland is a protected feature and that the UTRCA Planning Policy Manual (June, 2006) stipulates that new development and site alteration is not permitted in wetlands. As such, the UTRCA "…*would not be in a position to issue any approvals for development in the wetland feature on the subject lands*" and that an EIS is required to determine an appropriate buffer to development. It should be noted that the City of London does not typically support the rezoning of lands for which the UTRCA will not grant a permit.

Status of the Woodland

A Subject Lands Status Report (SLSR) is a first step in evaluating the significance of a natural feature. As it relates to this application, the applicant has submitted a Subject Land Status Report (SLSR) as part of a complete application. The SLSR identified that five (out of a total of eight) criteria for the establishment of a significant woodland rated "high". The scores were based on the following (as indicated in the applicant's SLSR):

1. *The presence of wetland communities with an area of greater than 2.0 hectares;*
2. *The presence of greater than 10% woodland cover within a radius of 2 km of the subject lands;*
3. *The presence of one confirmed breeding Priority Level 1 bird species found within the patch, Brown Thrasher*
4. *The diversity of plant communities – the patch contained greater than 6 plant community types; and,*
5. *The presence of a high quality or rare plant community type, the gray dogwood mineral thicket swamp community.*

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Policy 2.1.4 of the PPS does not permit development and site alteration in significant woodlands south and east of the Canadian Shield unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

The City of London Official Plan identifies *Significant Woodlands* as components of the Natural Heritage System and the City's management and rehabilitation priorities are "*to protect existing ecosystem features and functions, to increase the amount of interior forest habitat, and to retain or restore linkages between isolated natural areas*".

However, as part of the evaluation of the woodland, the applicant's SLSR has indicated the following extenuating factors to be considered in decisions related to the Significant Woodland and future options for the subject lands:

1. *Patch 10102 does not contain any Species at Risk;*
2. *The ecological functions of the woodland are not considered to be uncommon within the area of London;*
3. *The woodlands areas of the patch have a high invasive plant cover that compromises the patch;*
4. *The patch is severed by a sewer easement that has and will be maintained as a cleared area;*
5. *Given its situation within the landscape and lack of connectedness to other open space, the woodland does not offer an opportunity for open space amenity or passive recreational activities;*
6. *The SWT2-9: Gray Dogwood Mineral Thicket Swamp Type, while ranked rare to uncommon for the Province of Ontario, is commonly found within the City of London and surrounding areas;*
7. *The long-term viability of the patch as a functioning woodland is dubious given the following factors:*
    - *i) its isolation from other patches,*
    - *ii) Separation from the Dingman Creek corridor,*
    - *iii) continual and increasing noise disturbance from Highway 401, and*
    - *iv) the future commercial development of surrounding lands.*

In addition to the above, the applicant has provided a subsequent *Summary of Tree Species* for the significant woodland (attached as Appendix "3"). This Summary was prepared by a Certified Arborist and Forestry Technician and indicates that the significant woodland contains a total of 1,653 trees with a diameter greater than 15 centimetres of which 79% percent is comprised of Ash and Elm. The Summary concludes that the existing Ash trees are heavily infested with Emerald Ash Borer and that these Ash trees are dead or in severe decline. Additionally, the Summary also concludes that most of the mature Elm trees are predominantly dead or in decline due to Dutch Elm Disease. It should be noted that Staff have not yet had an opportunity to review the inventory to confirm or deny these findings.

Sustainability of the Woodland

The sustainability of the significant woodland was called into question given concerns about the post-development viability of the water balance needed to maintain the woodland. As a result, the City of London retained Golder and Associates to complete a conceptual assessment to determine options to maintain the appropriate volume of surface water flow into the significant woodland. One potential conceptual option proposed to utilize a stormwater management rooftop recharge system (or 'third-pipe' roof drain system) that would direct rainfall from a portion of the roof areas on the developed site to a landscape element referred to as a bioswale that would surround the perimeter of the significant woodland. This solution was presented in the Staff report to the Planning and Environment Committee on June 18th, 2013.

Staff met with PenEquity and their consultants in July 2013 who expressed disagreement that a 3rd pipe system could work on this site. On July 29, 2013, PenEquity provided two responses to the conceptual 3rd pipe system. The Response written by Stantec (attached as Appendix "4") concludes that the proposed bioswale design is not a feasible solution for this site given that:

- the native soils are mostly silty clay, creating permeability issues including a subsurface travel time from the bioswale to the interior of the proposed woodlot of approximately 5 years;
- local groundwater elevations which are too high for the proposed bioswale design;

- a proposed detention time is too long with a drawdown time for the proposed bioswale is approximately 12 days among other concerns; and,
- an estimated cost between $ 3.8M and $ 7.6M.

The Response written by AECOM is also of the opinion that the proposed bioswale design concept is not ecologically viable (attached as Appendix "5"). Among other matters, the Review states that:

- the dense nature of the soils within the woodland is likely to prevent effective infiltration of surface water;
- the shape of the proposed area eliminates portions of the wetland communities that would be intended to be protected; and,
- the concept will alter the hydrology of the entire area.

The City's Stormwater Management Unit has reviewed Stantec's comments and, based on the available information, have indicated that they "*…would not recommend the bioswale design approach as the viable, long-term sustainable and cost effective option for the preservation of this woodland*".

Compensation

While Planning Staff provided their recommendation for retention of the significant woodland in the June 18th, 2013 report to PEC, further to PEC's direction Staff did provide some parameters for compensation in the June 20th, 2013 report to PEC should Council decide to allow for the removal of the significant woodland. During the Committee and Council discussions, some concerns were raised that these parameters were too vague.

As noted, the City of London provided compensation in the case of a woodland located within one of the City's industrial parks which had been zoned to permit industrial development and was removed to allow for the expansion of an existing industry. Compensation of this woodland was provided at a land area rate of 5.8:1. To compensate for its loss, a mature woodland comprising an area that was twice the size of the removed woodland was protected by an Official Plan and Zoning By-law amendment to Open Space, and a large area of industrial land was set also aside for replanting.

If Council chooses to consider the possibility for compensation, Staff believe that a similar compensation ratio of 5.8:1 is appropriate.

Potential for Precedence

Unlike the existing situation, vegetation patches identified on Schedule "B-1" of the Official Plan are usually simultaneously designated on Schedule "A" as Open Space or Environmental Review. In this case, while the subject woodland is identified on Schedule "B-1", it is not designated on Schedule "A". This is a relatively unique situation.

Across the City, there are 168 vegetation patches. Of these, there are 5 other vegetation patches that fall under the same circumstance – they are not designated on Schedule "A" but are identified on Schedule "B-1" and are therefore not protected by the Tree Conservation By-law. These rare circumstances occur mainly in the industrial lands within the former Town of Westminster and two of these have since had most of their vegetation removed to permit the zoned uses.

One additional larger patch near this site is not designated or identified on both Schedules "A" and "B-1", although it is likely a significant woodland or even an Environmentally Significant Area due to its size and ecological features. The acquisition of these 6 sites or their designation on Schedule "A" as "Open Space" would benefit the natural heritage system.

In the June 20th, 2013 report to PEC, Planning Staff recommended that an Official Plan amendment be initiated for woodlands facing similar instances, where "Unevaluated Vegetation Patches" on Schedule "B-1" of the Official Plan are not shown as "Open Space" or "Environmental Review" on Schedule "A", to reconcile the differences between Schedules "A" and "B-1" by designating these lands as "Open Space" or "Environmental Review" on Schedule "A" of the Official Plan or remove them from Schedule "B-1" as vegetation patches. As previously recommended, Planning Staff believe that direction should be given to proceed on this basis.

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Next Steps

As noted, the applicant has completed a Subject Land Status Report (SLSR), considered to be the first part of an Environmental Impact Study, which determined that the Unevaluated Vegetation Patch was a Significant Woodland. The undertaking of an EIS is only required if the Significant Woodland is to be preserved.

The City does not typically undertake the EIS process on behalf of an applicant. To do so, Staff would require the commitment of a development plan that protects the woodland features, including a proposed site plan and storm water management study and would also require approximately four months to complete.

However, the Council Resolution of June 25, 2013, was contradictory in that it requested that Civic Administration complete an EIS while at the same time permitting the applicant to consider the potential to retain some or all of the woodland. The former implies that the Significant Woodland is to be retained and the intent of undertaking of an EIS would then be to refine the boundaries of the Significant Woodland and ensure that development does not negatively impact its natural features and ecological functions. However, the latter implies that the Significant Woodland may be removed while allowing the applicant to consider the potential to retain *some or all of the woodlot*. Staff would like to bring this to the attention of Council so that Council can clarify its intention to Staff and allow Staff to move forward with Council's direction.

CONCLUSION

The applicant has provided additional information and materials in respect of the Municipal Council decision on June 25, 2013 to be received and considered by Council noting that these Staff have not had an opportunity to fully review the additional information and material nor have the statutory approval authorities, where applicable.

The Council Resolution pertaining to the Significant Woodland was contradictory and clarity of direction related to the future of the Significant Woodland will assist Civic Administration in moving forward.

PREPARED BY:	**SUBMITTED BY:**
MICHAEL TOMAZINCIC, MCIP, RPP **MANAGER, PLANNING REVIEW** **COMMUNITY PLANNING AND DESIGN**	**JIM YANCHULA, MCIP, RPP** **MANAGER, COMMUNITY PLANNING AND DESIGN**

RECOMMENDED BY:
JOHN M. FLEMING, MCIP, RPP **MANAGING DIRECTOR, PLANNING AND CITY PLANNER**

August 9, 2013
MT/mt
Y:/Shared\implemen\DEVELOPMENT APPS\2012 Applications 8003 to\8120OZ - 3130-3260 Dingman Dr (CS)\6 – Follow-up Report to Council\8120OZ Report toPEC (20 August 2013).docx

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Appendix "1"

Comment on Job or Net Job Growth

The definition of New Format Regional Commercial Node in the Offical Plan includes direction that they are meant to be "major activity centres by reason of their size and range of uses, and may have trade areas that also extend beyond the municipal boundary". We have been very clear from our initial meetings with Staff that this location, at Highway 401 and Wellington Road offers a unique opportunity to improve the existing Wellington Street Retail Node (not relocate it south of highway 401) and create something special at London's gateway. This will also have the potential to bring additional spending dollars into the community from the South-Western Ontario Region and traffic on the NAFTA Corridor. In this regard Gateway London's locational characteristics (Highway 401 and Wellington Road) also have a greater ability and likelihood to drawn new retailers in new formats to the City from Regional, National and International markets due to its unique location, access, highway exposure and regional draw. In this regard, we are very pleased with the feedback that we have received from the market and we are confident that we will be successful in achieving these goals and objectives as we have done in the past.

During Council's discussion it was questioned whether the 1,200 jobs identified in Altus' Economic Benefits Study were new jobs or just a relocation of the existing jobs in the node (i.e. the potential to re-locate the theatre). In addition to the comments above which identify our strategy to develop a centre with an emphasis on attracting new businesses to this node (from Local, Regional, National and International markets), the simple answer is that the existing stores or facilities in the market would be filled with new tenants and as a result lead to an expansion of business.

In many instances the re-location of an existing retailer allows the node to adapt, stabilize and grow beyond the status quo. There are many examples of this growth and re-generation but a relevant example in the City London just occurred on Wellington Road at the Southgate Centre (1025 – 1037 Wellington Road). One of the centre's anchors (Toys "R" Us) moved to Wonderland Road. The centre did not die, become vacant and jobs transferred; on the contrary the owner secured new high profile tenants and re-invested in centre by renovating the entire centre in its entirety and expanded it by 20% of the area creating a material number of new jobs not only because it expanded in size, but also the mix of new tenants employed more people. Further we would also note that Gateway London would have given Toys "R" Us an option to stay in the Wellington Street Retail Node (as opposed to re-locating from the Wellington Node to the Wonderland Node) as opposed to relocating out of the node.

Accordingly, we have reviewed council's question with our team and are very confident in responding that the 1,200 jobs are real and not a relocation of existing jobs.

Leger Xavier
PenEquity Realty Corporation

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Appendix "2"

AECOM
50 Sportsworld Crossing Road, Suite 290 519.650.5313 tel
Kitchener, ON, Canada N2P 0A4 519.650.3424 fax
www.aecom.com

July 29, 2013

Calvin McCourt
Director or Development
10 Dundas Street East, Suite 1002
Toronto, Ontario
M5B 2G9

Dear Mr. McCourt:

Project No: 60302651

Regarding: Wetland Evaluation Results – Patch No. 10102

The following Wetland Evaluation Report evaluates the wetland communities found within Patch No. 10102 located southeast of Highway 401, west of Wellington Road South and north of Dingman Drive in the City of London. This evaluation is in accordance with the Ministry of Natural Resources' Ontario Wetland Evaluation System: Southern Manual (OMNR, 2013 3rd edition). The results from this evaluation qualify the wetland as one that is **Non-provincially significant**.

Should you have any questions or need for clarification, please contact me at 519-650-8694 or jillian.deman@aecom.com.

Sincerely,
AECOM Canada Ltd.

Jillian deMan, H.B.Sc
Terrestrial and Wetland Ecologist
jillian.deman@aecom.com

TS:jd
Encl.
cc:

Ltr-Penequity-2013-07-29-Wetland Evaluation Cover Letter.Docx

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Appendix "2"

Pen Equity Wetland					
Wetland Evaluation Edition	3rd				
July 26, 2013					
Comments					
This wetland patch is approximately 2.4 hectares in size influenced by overland flow. There is no formal watercourse as part of the overall wetland system. It is classified as a palustrine wetland consisting of both marsh and swamp wetland types. There are two swamp wetland communites and one marsh wetland community. The first swamp community is dominated by tall shrubs (S1) and consists of gray dogwood, the second swamp community (S2) is dominated by deciduous trees containing a mixture of Freeman's and silver maple. The marsh community (M1) occurs throughout the tall shrub swamp as a mosaic containing a variety of sedges, rushes and other hydrophytic herbaceous plants. These areas occur on slightly raised moss hummocks, which accounts for the reddish hue in the aerial photograph. Considering the clay soils in the area and the overall topography, these wetland areas persist due to perched surface water from rain and spring melt events.					
Additional Information					
Include relevant information that can not be entered in the wetland data record(Ex. Sections that have not been completed.)					
Official Name:	Pen Equity Wetland				
Evaluation Edition:	3rd	Class:		Wetland ID.:	
Wetland Significance	Year/Month Last Evaluated			July 26, 2013	
	Year/Month Last Updated				
Special Planning Considerations:				**Scores**	
				Biological:	90
				Social:	42
				Hydrological:	199
				Special Features:	112
Information Source				Overall:	443
Submitted by:	Jillian deMan & Jessica Piette				
Date:	July, 2013				

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Appendix "2"

Southern Ontario Wetland Evaluation, Data and Scoring Record **March 1993**

Wetland Manual

WETLAND DATA AND SCORING RECORD

i) **WETLAND NAME:** **Pen Equity Wetland**

ii) **MNR ADMINISTRATIVE REGION:** **Southern** **DISTRICT:** **Aylmer**

AREA OFFICE (if different from District):

iii) **CONSERVATION AUTHORITY JURISDICTION:** **Upper Thames River Conservation Authority**

(If not within a designated CA, check here: _____

iv) **COUNTY OR REGIONAL MUNICIPALITY:** **City of London**

v) **TOWNSHIP:**

vi) **LOTS & CONCESSIONS:**
(attach separate sheet if necessary)

vii) **MAP AND AIR PHOTO REFERENCES**

a) Latitude: _____ Longitude: _____

b) UTM grid reference: Zone: _____ Block: _____
Grid:E _____ Grid:N _____

c) National Topographic Series:

map name(s) **London**

map number(s) _____ edition _____

scale _____

d) Aerial photographs: Date photo taken: **2011** Scale: **1:15400**

Flight & plate numbers: _____

(attach separate sheet if necessary)

e) Ontario Base Map numbers & scale _____

(attach separate sheets if necessary)

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Appendix “2”

Field Comm	Comm Code		Site Type							Soil Type						
	WT	SC	I	P	R	L	RRM	LEB	LEL	C/L	S/M	Lim	S	H/M	F	G
1	M	1														
Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00							
2	S	1														
Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00							
3	S	2														
Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00							
4																
Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00							
5																
Total			0.00	0.00	0.00	0.00	0.00	0.00	0.00							
6																
Total										0.00	0.00	0.00	0.00	0.00	0.00	0.00

Field Comm	Dominate Vegetation															
	H	C	DH	DC	TS	LS	DS	GC	M	NE	BE	RE	FF	F	SU	U
1																
Total																
2																
Total																
3	0.60															
Total																
4																
Total																
5																
Total																
6																
Total	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Field Comm	Vegetation Forms	No. of Forms	Wetland Type				% OPEN WATER		
			Sw	Ma	Fe	Bo	LOW	HIGH	AVG
1	ne*; m	2		0.90					
Total									
2	ts*; gc		0.90						
Total									
3	h*		0.60						
Total									
4									
Total									
5									
Total									
6									
Total			1.50	0.90	0.00	0.00			

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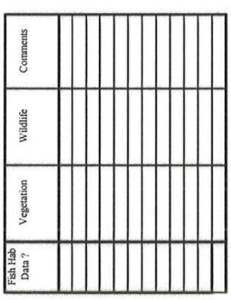
Appendix “2”



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Appendix "2"

Southern Ontario Wetland Evaluation, Data and Scoring Record March 1993

Wetland Manual

viii) **WETLAND SIZE AND BOUNDARIES**

a) Single contiguous wetland area: 2.4 hectares

b) Wetland complex comprised of 3 individual wetlands:

Wetland Unit Number (for reference)		Size of each wetland unit							
		Isolated	Palustrine	Riverine	Lacustrine	Riv. R.M.	Lac.E.B.	Lac.E.L.	
Wetland Unit No.	M1		0.90						ha
Wetland Unit No.	S1		0.90						ha
Wetland Unit No.	S2		0.60						ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit No.									ha
Wetland Unit Totals:		0.00	2.40	0.00	0.00	0.00	0.00	0.00	

(Attach additional sheets if necessary)

TOTAL WETLAND SIZE 2.40 ha

c) Brief documentation of reasons for including any areas less than 0.5 ha in size:

(Attach separate sheets if necessary .)

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Appendix "2"

Southern Ontario Wetland Evaluation. Data and Scoring Record May 1994
Wetland Manual

1.0 BIOLOGICAL COMPONENT

1.1 PRODUCTIVITY

1.1.1 GROWING DEGREE-DAYS/SOILS

GROWING DEGREE DAYS (check one)		
1)		<2800
2)		2800 -3200
3)		3200 -3600
4)	x	3600 -4000
5)		>4000

SOILS Estimated Fractional Area	
1.00	clay/loam
	silt/marl
	limestone
	sand
	humic/mesic
	fibric
	granite

Determine the soil type from the appropriate OMAF soils maps

SCORING:

Growing Degree-Days	Clay-Loam	Silt-Marl	Lime-stone	Sand	Humic-Mesic	Fibric	Granite
<2800	15	13	11	9	8	7	5
2800-3200	18	15	13	11	9	8	7
3200-3600	22	18	15	13	11	9	7
3600-4000	26	21	18	15	13	10	8
>4000	30	25	20	18	15	12	8

(maximum score 30; if wetland contains more than one soil type, evaluate based on the fractional area)

Steps required for evaluation: (maximum score 30 points)

1. Select GDD line in evaluation table applicable to your wetland;
2. Determine fractional area of the wetland for each soil type;
3. Multiply fractional area of each soil type by score;
4. Sum individual soil type scores (round to nearest whole number).

In wetland complexes the evaluator should aim at determining the percentage of area occupied by the categories for the complex as a whole.

Score		
26	clay/loam	26.00
	silt/marl	0.00
	limestone	0.00
	sand	0.00
	humic/mesic	0.00
	fibric	0.00
	granite	0.00

Final Score Growing Degree-Days/Soils (maximum 30 points) 26

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1.1.2 WETLAND TYPE (Fractional Area = area of wetland type/total wetland area)

Estimate the Wetland Type from air photos or default to "swamp" (8)

	Fractional Area		Score
Bog		x 3	0.0
Fen		x 6	0.0
Swamp	0.63	x 8	5.0
Marsh	0.37	x 15	5.6
		Subtotal:	10.6

Wetland type score (maximum 15 points) 11

1.1.3 SITE TYPE (Fractional Area = area of site type/total wetland area)

Estimate from air photos

	Fractional Area		Score
Isolated		x 1 =	0.00
Palustrine (permanent or intermittent flow)	1.00	x 2 =	2.00
Riverine		x 4 =	0.00
Riverine (at rivermouth)		x 5 =	0.00
Lacustrine (at rivermouth		x 5 =	0.00
Lacustrine (on enclosed bay, with barrier beach)		x 3 =	0.00
Lacustrine (exposed to lake)		x 2 =	0.00
		Sub Total:	2.00

Site Type Score (maximum 5 points) 2

1.2 BIODIVERSITY

1.2.1 NUMBER OF WETLAND TYPES

(Check only one)			Score
1)		one	9 points
2)	13	two	13
3)		three	20
4)		four	30

Number of Wetland Types Score (maximum 30 points) 13

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1.2.2 VEGETATION COMMUNITIES

Attach a separate sheet listing community (map) codes,vegetation forms and dominant species. Use the form on the following page to record percent area by dominant vegetation form. This information will be used in other parts of the evaluation.

Communities should be grouped by number of forms. For example, 2 form communities might appear as follows:

2 forms

Code	Forms	Dominant Species
M6	re, ff	re, *Typha latifolia;* ff, *Lemna minor, Wolffia*
S1	ts, gc	ts, *Salix discolor;* gc, *Impatiens capensis, Thelypteris palustris*

Note that the dominant species for each form are separated by a semicolon. The dominant species (maximum of 2) within a form are separated by commas.

Scoring:

Total # of communities with 1-3 forms	Total # of communities with 4 -5 forms	Total # of communities with 6 or more forms
1 = 1.5 points	1 = 2 points	1 = 3 points
2 = 2.5	2 = 3.5	2 = 5
3 = 3.5	3 = 5	3 = 7
4 = 4.5	4 = 6.5	4 = 9
5 = 5	5 = 7.5	5 = 10.5
6 = 5.5	6 = 8.5	6 = 12
7 = 6	7 = 9.5	7 = 13.5
8 = 6.5	8 = 10.5	8 = 15
9 = 7	9 = 11.5	9 = 16.5
10 = 7.5	10 = 12.5	10 = 18
11 = 8	11 = 13	11 = 19
+.5 each additional community = 3.5	+.5 each additional community =	+ 1 each additional community =

e.g., a wetland with 3 one form communities 4 two form communities 12 four form communities and 8 six form communities would score:

6 + 13.5 + 15 = 34.5 = 35 points

Vegetation Communities Score (maximum 45 points) 4

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Wetland Name:	Pen Equity Wetland
Wetland Size (ha):	2.4
Vegetation Form	% area in which form is dominant
h	25.00
c	
dh	
dc	
ts	37.50
ls	
ds	
gc	
m	
ne	37.50
be	
re	
ff	
f	
su	
u (unvegetated)	
Total = 100%	100.00

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1.2.3 DIVERSITY OF SURROUNDING HABITAT

(Check all appropriate items(1))

Determine from air photos

1	row crop
	pasture
	abandoned agricultural land
1	deciduous forest
	coniferous forest
	mixed forest (at least 25% conifer and 75% deciduous or vice versa)
	abandoned pits and quarries
	open lake or deep river
1	fence rows with cover, or shelterbelts
	terrain appreciably undulating,hilly,or with ravines
1	creek flood plain
4	Subtotal

Diversity of Surrounding Habitat Score (1 for each, maximum 7 points) 4

1.2.4 PROXIMITY TO OTHER WETLANDS

(Check first appropriate category only) Scoring

Determine from air photos and other wetlands evaluations in the vicinity

1)	Hydrologically connected by surface water to other wetlands (different dominant wetla11d type) or to open lake or deep river within 1.5 km	8 points
2)	Hydrologically connected by surface water to other wetlands (same dominant wetland type) within 0.5 km	8
3)	Hydrologica11y connected by surface water to other wetlands (different dominant wetland type),or to open lake or deep river from 1.5 to 4 km away	5
4)	Hydrologically connected by surface water to other wetlands (same dominant wetland type) from 0.5 to 1.5 km away	5
5) 5	Within 0.75 km of other wetlands (different dominant wetland type) or open water body, but not hydrologically connected by surface water	5
6)	Within 1 km of other wetlands,but not hydrologically connected by surface water	2
7)	No wetland within 1 km	0

Proximity to other Wetlands Score (Choose one only, maximum 8 points) 5

hydrologically connected to the Grand River and associated nearshore marshes

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1.2.5 INTERSPERSION

Optional: Complete as time permits or as scoring dictates.

Number of Intersections (Check one)				Score
1)	26 or less			3
2)	27 to 40			6
3)	41 to 60	54	9	9
4)	61 to 80			12
5)	81 to 100			15
6)	101 to 125			18
7)	126 to 150			21
8)	151 to 175			24
9)	176 to 200			27
10)	>200			30

Interspersion Score (Choose one only maximum 30 points) 9

1.2.6 OPEN WATER TYPES

Determine from aerial photos.

Permanently flooded: (Check one)			Score
1)		type 1	8
2)	8	type 2	8
3)		type 3	14
4)		type 4	20
5)		type 5	30
6)		type 6	8
7)		type 7	14
8)		type 8	3
9)		no open water	0

Open Water Type Score (Choose one only maximum 30 points) 8

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1.3 SIZE

Score may be lower than actual if "Vegetation Community and Interspersion" have not been calculated.

2.4 hectares 43 Subtotal for Biodiversity

Size Score (Biological Component) (maximum 5O points) 5

Evaluation Table Size Score (Biological component)

Wetland size (ha)	Total Score for Biodiversity Subcomponent									
	<37	37-48	49-60	61-72	73-84	85-96	97-108	109-120	121-132	>132
<21 ha	1	5	7	8	9	17	25	34	43	50
21-40	5	7	8	9	10	19	28	37	46	50
41-60	6	8	9	10	11	21	31	40	49	50
61-80	7	9	10	11	13	23	34	43	50	50
81-100	8	10	11	13	15	25	37	46	50	50
101-120	9	11	13	15	18	28	40	49	50	50
121-140	10	13	15	17	21	31	43	50	50	50
141-160	11	15	17	19	23	34	46	50	50	50
161-180	13	17	19	21	25	37	49	50	50	50
181-200	15	19	21	23	28	40	50	50	50	50
201-400	17	21	23	25	31	43	50	50	50	50
401-600	19	23	25	28	34	46	50	50	50	50
601-800	21	25	28	31	37	49	50	50	50	50
801-1000	23	28	31	34	40	50	50	50	50	50
1001-1200	25	31	34	37	43	50	50	50	50	50
1201-1400	28	34	37	40	46	50	50	50	50	50
1401-1600	31	37	40	43	49	50	50	50	50	50
1601-1800	34	40	43	46	50	50	50	50	50	50
1801-2000	37	43	47	49	50	50	50	50	50	50
>2000	40	46	50	50	50	50	50	50	50	50

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2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS

2.1.1 WOOD PRODUCTS

Determine the percentage of the wetland area dominated by "h" or "c" by using aerial photograph.

Area of wetland forested (ha), i.e. dominant form is h or c. Note that this is not wetland size. (Check one only) h: 0.60 c: 0.00

			Score
1)	0	<5 ha	0
2)		5 -25 ha	3
3)		26 -50 ha	6
4)		51- 100 ha	9
5)		101 -200 ha	12
6)		>200 ha	18

Source of information: field observation AECOM

Wood Products Score (Score one only, maximum 18 points) 0

2.1.2 WILD RICE

(Check one)			Score (Choose one)
Present (minimum size 0.5 ha)	1)		6 points
Absent	2)	0	0

Source of information: field observation AECOM

Wild Rice Score (maximum 6 points) 0

2.1.3 COMMERCIAL FISH (BAIT FISH AND/OR COARSE FISH

(Check one)			Score (Choose one)
Present	1)		12 points
Habitat not suitable for fish	2)	0	0

Source of infolmation: field observation AECOM

If any part of the wetland is riverine or the District fisheries files indicate presence of fish score"present"

Commercial Fish Score (maximum 12 points) 0

2.1.4 BULLFROGS

(Check one)			Score (Choose one)
Present	1)		1 points
Absent	2)	0	0

Source of information: field observation AECOM

Bullfrog Score (maximum 1 point) 0

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2.1.5 SNAPPING TURTLES

(Check one)			Score (Choose one)
Present	1)		1 point
Absent	2)	0	0

Source of information: field observation AECOM

Snapping Turtle Score (maximum 1 point) 0

2.1.6 FURBEARERS

(Consult Appendix 9)

Name of furbearer		Source of information
1) Opossum	1	field observation by AECOM
2) Raccoon	1	field observation by AECOM
3)		
4)		
5)		
SubTotal	2	

Scoring: 3 points for each species. maximum 12

Furbearer Score (maximum 12 points) 2

2.2 RECREATIONAL ACTIVITIES

Intensity of Use	Type of Wetland-Associated Use: Hunting		Nature Enjoyment/ Ecosystem Study		Fishing		
High	40 points		40 points		40 points		
Moderate	20		20		20		
Low	8		8		8		
Not possible/NotKnown	0	0	0	0	0		
Totals		0		0		0	0

(score one level for each of the three wetland uses; scores are cumulative; maximum score 80 points)

Sources of information:

Hunting:

Nature:

Fishing: not known

Recreational Activities Score (maximum 80 points) 0

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2.3 LANDSCAPE AESTHETICS

Score using ortho-aerial photography

2.3.1 DISTINCTNESS

(Check one)			Score (Choose one)
Clearly distinct	1)	3	3 points
Indistinct	2)		0

Landscape Distinctness Score (maximum 3 points) 3

2.3.2 ABSENCE OF HUMAN DISTURBANCE

(Check one)			Score (Choose one)
Human disturbances absent or nearly so	1)		7 points
One or several localized disturbances	2)		4
Moderate disturbance; localized water pollution	3)	2	2
Wetland intact but impairment of ecosystem quality intense in some areas	4)		1
Extreme ecological degradation, or water pollution severe and widespread	5)		0

Source of information: AECOM observations

Absence of Human Disturbance Score (maximum 7 points) 2

2.4 EDUCATION AND PUBLIC AWARENESS

Optional: complete as time and scoring dictates.

2.4.1 EDUCATIONAL USES

(Check one)			Score (Choose one)
Frequent	1)		20 points
Infrequent	2)		12
No visits	3)	0	0

Source of information: none known

Requires contact with Local Boards of Education.

Educational Uses Score (maximum 20 points) 0

2.4.2 FACILITIES AND PROGRAMS

(check one)			Score (Choose one)
Staffed interpretation centre	1)		8 points
No interpretation centre or staff but a system of self-guiding trails or brochures available	2)		4
Facilities such as maintained paths (e.g., woodchips) boardwalks, boat launches or observation towers but no brochures or other interpretation	3)		2
No facilities or programs	4)	0	0

Source of information: field observation AECOM

Facilities and Programs Score (maximum 8 points) 0

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2.4.3 RESEARCH AND STUDIES

(check appropriate spaces)		Score
Long term research has been done		12 points
Research papers published in refereed scientific journal or as a thesis		10
One or more (non-research) reports have been written on some aspect of the wetland ' s flora fauna hydrology etc.		5
No research or reports	0	0
Subtotal:	0	

Attach list of known reports by above categories

Brant County ESA Report

Research and Studies Score (Score is cumulative, maximum 12 points) 0

2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT

Circle the highest applicable score

Distance of wetland from settlement	1) population> 10,000		2) population 2,500 -10,000		3) population <2,500 or cottage community	
1) Within or adjoining settlement	40 points		26		16	
2) 0.5 to 10 km from settlement	26	26	16		10	
3) 10 to 60 km from settlement	12		8		4	
4) >60 km from settlement	5		2		0	
		26		0		0

Name of settlement: City of London

Proximity to Human Settlement Score (maximum 40 points) 26

2.6 OWNERSHIP (FA= fraction Area) Score

Select a default value of "4" if no other information exists.

FA of wetland in public or private ownership held under contract or in trust for wetland protection		x	10	=	0.00
FA of wetland area in public ownership,not as above	1.00	x	8	=	8.00
FA of wetland area in private ownership,not as above		x	4	=	0.00

Source of information: City of London

Ownership Score (maximum 10 points) 8

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Additional Reports

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2.7 SIZE

The score may be lower than actual since economic and recreational values have not been completed.

2.4 hectares 28 Subtotal for Social

Evaluation Table for Size Score (Social Component)

Wetland Size (ha)	Total for Size Dependent Score									
	<31	31-45	46-60	61-75	76-90	91-105	106-120	121-135	136-150	>150
<2 ha	1	2	4	8	10	12	14	14	14	15
2 - 4ha	1	2	4	8	12	13	14	14	15	16
5 - 8ha	2	2	5	9	13	14	15	15	16	16
9 - 12ha	3	3	6	10	14	15	15	16	17	17
13-17	3	4	7	10	14	15	16	16	17	17
18-28	4	5	8	11	15	16	16	17	17	18
29-37	5	7	10	13	16	17	18	18	19	19
38-49	5	7	10	13	16	17	18	18	19	20
50-62	5	8	11	14	17	17	18	19	20	20
63-81	5	8	11	15	17	18	19	20	20	20
82-105	6	9	11	15	18	18	19	20	20	20
106-137	6	9	12	16	18	19	20	20	20	20
138-178	6	9	13	16	18	19	20	20	20	20
179-233	6	9	13	16	18	20	20	20	20	20
234-302	7	9	13	16	18	20	20	20	20	20
303-393	7	9	14	17	18	20	20	20	20	20
394-511	7	10	14	17	18	20	20	20	20	20
512-665	7	10	14	17	18	20	20	20	20	20
666-863	7	10	14	17	19	20	20	20	20	20
864-1123	8	12	15	17	19	20	20	20	20	20
1124-1460	8	12	15	17	19	20	20	20	20	20
1461-1898	8	13	15	18	19	20	20	20	20	20
1899-2467	8	14	16	18	20	20	20	20	20	20
>2467	8	14	16	18	20	20	20	20	20	20

Total Size Score (Social Component) 1.0

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2.8 ABORIGINAL AND CULTURAL HERITAGE VALUES

Either or both Aboriginal or Cultural Values may be scored. However, the maximum score permitted for 2.8 is 30 points. Attach documentation.

2.8.1 ABORIGINAL VALUES

Full documentation of sources must be attached to the data record.

1)	Significant		=	30 points
2)	Not Significant		=	0
3)	Unknown	0.0	=	0
	Total:	0		

2.8.2 CULTURAL HERITAGE

1)	Significant		=	30 points
2)	Not Significant		=	0
3)	Unknown	0.0	=	0
	Total:	0		

Aboriginal Values/Cultural Heritage Score (maximum 30 points) 0.0

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3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION

Estimated&Calculated values can be obtained from G.I.S. data layers.

If the wetland is a complex including isolated wetlands, apportion the l00 points according to area. For example if 10 ha of a l00 ha complex is isolated, the isolated portion receives the maximum proportional score of 10. The remainder of the wetland is then evaluated out of 90.

Step 1: Detennination of Maximum Score

_____	Wetland is located on one of the defined 5 large lakes or 5 major rivers (Go to Step 4)
_____	Wetland is entirely isolated (i.e. not part of a complex) (Go to Step 4)
X	All other wetland types (Go through Steps 2,3 and 4B)

Step 2: Determination of Upstream Detention Factor (DF)

(a)	Wetland area (ha)		2.40	
(b)	Total area (ha) of upstream detention areas (include the wetland itself)		2.40	*estimate*
(c)	Ratio of (a):(b)		1.00	
(d)	Upstream detention factor: (c) x 2 = (maximum allowable factor = 1)	2.0	1.00	

Step 3: Determination of Wetland Attenuation Factor (AF)

(a)	Wetland area (ha)		2.40	
(b)	Size of catchment basin (ha) upstream of wetland (include wetland itself in catchment area)		14.75	*calculate*
(c)	Ratio of (a):(b)		0.16	
(d)	Wetland attenuation factor: (c) x 10 = (maximum allowable factor = 1)	1.6	1.00	

Step 4: Calculation of final score

(a)	Wetlands on large lakes or major rivers		0	
(b)	Wetland entirely isolated		0	
(b)	All other wetlands --calculate as follows:			
(c	* Complex Formula - Isolated portion	100.00		
	Initial Score		100 *	
	Upstream detention factor (DF) (Step 2)		1.00	
	Wetland attenuation factor (AF) (Step 3)		1.00	
	Final score: [(DF + AF)/2] x Initial score =		100.00	
(c	* Final score:=	100		

*Unless wetland is a complex with isolated portions (see above).

Flood Attenuation Score (maximum l00 points) 100.0

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3.2 WATER QUALITY IMPROVEMENT

3.2.1 SHORT TERM WATER QUALITY IMPROVEMENT

Step 1: **Determination of maximum initial score**

	Wetland on one of the 5 defined large lakes or 5 major rivers (Go to Step 5a)
X	All other wetlands (Go through Steps 2, 3, 4, and 5b)

Step 2: **Determination of watershed improvement factor (WIF)**
Calculation of WIF is based on the fractional area (FA) of each site type that makes up the total area of the wetland.

(FA= area of site type/total area of wetland)	Fractional Area				
FA of isolated wetland		x	0.5	=	0.00
FA of riverine wetland		x	1	=	0.00
FA of palustrine wetland with no inflow	1.00	x	0.7	=	0.70
FA of palustrine wetland with inflows		x	1	=	0.00
FA of lacustrine on lake shoreline		x	0.2	=	0.00
FA of lacustrine at lake inflow or outflow		x	1	=	0.00
			Sub Total:		0.70
			Sum (WIF cannot exceed 1.0)		0.70

Step 3: Determination of catchment land use factor (LUF)
(Choose the first category that fits upstream landuse in the catchment.)

1)	1.0	Over 50% agricultural and/or urban	1.0
2)		Between 30 and 50% agricultural and/or urban	0.8
3)		Over 50% forested or other natural vegetation	0.6
		LUF (maximum 1.0)	1.00

Step 4: Determination of pollutant uptake factor (PUT)
Calculation of PUT is based on the fractional area (FA) of each vegetation type that makes up the total area of the wetland. Base assessment on the dominant vegetation form for each community except where dead trees or shrubs dominate. In that case base assessment on the domininant live vegetation. (FA = area of vegetation type/total area of wetland)

	Fractional Area				
FA of wetland with live trees, shrubs, herbs or mosses (c,h,ts,ls,gc,m)	0.63	x	0.75	=	0.47
FA of wetland with emergent, submergent or floating vegetation (re,be,ne,su,f,ff)	0.37	x	1	=	0.37
FA of wetland with little or no vegetation (u)		x	0.5	=	0.00
			Subtotal:		0.84
Estimate FA from air photos or use default factor of "0.75"			**Sum (PUT cannot exceed 1.0)**		0.84

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Step 5: Calculation of final score

(a)	Wetland on large lakes or major rivers	0
(b)	All other wetlands -calculate as follows	
	Initial score	60
	Water quality improvement factor (WQF)	0.70
	Land use factor (LUF)	1.00
	Pollutant uptake factor (PUT)	0.84
	Final score: 60 x WQF x LUF x PUT =	35.39

Short Term Water Quality Improvement Score (maximum 60 points) 35

3.2.2 LONG TERM NUTRIENT TRAP

Determine wetland type from aerial photos and soil type from OMAF soils maps.

Step 1:

___	Wetland on large lakes or 5 major rivers	0 points
X	All other wetlands (proceed to Step 2)	

Step 2: Choose only one of the following settings that best describes the wetland being evaluated

1)	___	Wetland located in a river mouth	10 points
2)	___	Wetland is a bog, fen or swamp with more than 50% of the wetland being covered with organic soil	10
3)	3	Wetland is a bog, fen or swamp with less than 50% of the wetland being covered with organic soil	3
4)	___	Wetland is a marsh with more than 50% of the wetland covered with organic soil	3
5)	___	None of the above	0

Long Term Nutrient Trap Score (maximum 10 points) 3

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3.2.3 GROUNDWATER DISCHARGE

The final score will be underestimated since some of the wetland characteristics cannot be scored

(Circle the characteristics that best describe the wetland being evaluated and then sum the scores. If the sum exceeds 30 points assign the maximum score of 30.)

Wetland Characteristics	Potential for Discharge					
	None to Little		Some		High	
Wetland type	1) Bog = 0		2) Swamp/Marsh = 2	2	3) Fen = 5	
Topography	1) Flat/rolling = 0	0	2) Hilly = 2		3) Steep = 5	
Wetland Area: Upslope Catchment Area	Large (>50%) = 0		Moderate (5-50%) = 2		Small <(5%) = 5	5
Lagg Development	1) None found = 0	0	2) Minor = 2		3) Extensive = 5	
Seeps	1) None = 0	0	2) = or < 3 seeps = 2		3) > 3 seeps = 5	
Surface marl deposits	1) None = 0	0	2) = or < 3 sites = 2		3) > 3 sites = 5	
Iron precipitates	1) None = 0	0	2) = or < 3 sites = 2		3) > 3 sites = 5	
Located within 1 km of a major aquifer	N/A = 0	0	N/A = 0	0	Yes = 10	
Totals		0		2		5

(Scores are cumulative maximum score 30 points)

Groundwater Discharge Score (maximum 30 points) 7

3.3 CARBON SINK

Choose only one of the following

1)	Bog, fen or swamp with more than 50% coverage by organic soil		5 points
2)	Bog, fen or swamp with between 10 to 49% coverage by organic soil		2
3)	Marsh with more than 50% coverage by organic soil		3
4)	Wetlands not in one of the above categories	0	0

Carbon Sink Score (maximum 5 points) 0

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3.4 SHORELINE EROSION CONTROL

Step 1: ***Determine from ortho-aerial photography*** Score

0	Wetland entirely isolated or palustrine	0
	Any part of the Wetland riverine or lacustrine (proceed to Step 2)	

Step 2:

Choose the one characteristic that best describes the shoreline vegetation (see text for a definition of shoreline)

			Score
1)		Trees and shrubs	15
2)		Emergent vegetation	8
3)		Submergent vegetation	6
4)		Other shoreline vegetation	3
5)		No vegetation	0

Shoreline Erosion Control Score (maximum 15 points) 0

3.5 GROUND WATER RECHARGE

3.5.1 WETLAND SITE TYPE

Score

(a) Wetland > 50% lacustrine (by area) or located on one of the five major rivers 0

(b) Wetland not as above. Calculate final score as follows:
(FA= area of site type/total area of wetland)

	Fractional Area			
FA of isolated or palustrine wetland	1.00	x 50	=	50.0
FA of riverine wetland	0.00	x 20	=	0.0
FA of lacustrine wetland (wetland <50% lacustrine)	0.00	x 0	=	0.0
		Subtotal:		50.0

Ground Water Recharge Wetland Site Type Component Score (maximum 50 points) 50

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3.5.2 WETLAND SOIL RECHARGE POTENTIAL

Determine from OMAF soils maps.

(Circle only **one** choice that best describes the hydrologic soil class of the area surrounding the wetland being evaluated.)

Dominant Wetland Type	1) Sand, loam, gravel, till		2) Clay or bedrock	
1) Lacustrine or on a major river	0		0	
2) Isolated	10		5	
3) Palustrine	7		4	4
4) Riverine (not a major river)	5		2	
Totals		0		4

Ground Water Recharge Wetland Soil Recharge Potential Score (maximum 10 points) 4

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4.0 SPECIAL FEATURES COMPONENT

4.1 RARITY

4.1.1 WETLANDS

Site District 7-6
Presence of wetland type (check one or more)

	Bog
	Fen
X	Swamp
X	Marsh

Score for rarity within the landscape and rarity of the wetland type. Score for rarity of wetland type is cumulative (maximum 80 points) based on presence or absence.

Slte District	Score for Rarity within the Landscape	Score for Rarity of Wetland Type			
		Marsh	Swamp	Fen	Bog
6-1	60	40	0	80	80
6-2	60	40	0	80	80
6-3	40	10	0	40	80
6-4	60	40	0	80	80
6-5	20	40	0	80	80
6-6	40	20	0	80	80
6-7	60	10	0	80	80
6-8	20	20	0	80	80
6-9	0	20	0	80	80
6-10	20	0	20	80	80
6-11	0	30	0	80	80
6-12	0	30	0	60	80
6-13	60	10	0	80	80
6-14	40	20	0	40	80
6-15	40	0	0	80	80
7-1	60	0	60	80	80
7-2	60	0	0	80	80
7-3	60	0	0	80	80
7-4	80	0	0	80	80
7-5	60	20	0	80	80
7-6	80	30	0	80	80

Rarity within the Landscape Score (maximum 80 points) 80
Rarity of Wetland Type Score (maximum 80 points) 30

The updated scores for rarity in Site Region 7-5 are in the stages of review and still require official confirmation.(June 8, 2004)

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4.1.2 SPECIES

4.1.2.1 BREEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

	Name of species		Source of information
1)			field observation by AECOM
2)			
3)			
4)			
5)			
	Total:	0	

Attach documentation.

Scoring:

For each species 250 points

(score is cumulative, no maximum score)

Breeding Habitat for Endangered or Threatened Species Score (no maximum) 0

4.1.2.2 TRADITIONAL MIGRATION OR FEEDING HABITAT FOR AN ENDANGERED OR THREATENED SPECIES

	Name of species		Source of information
1)			field observations by AECOM
2)			
3)			
4)			
5)			
	Total:	0	

Attach documentation.
Scoring:

For one species 150 points
For each additional species 75

(score is cumulative, no maximum score)

Traditional Habitat for Endangered Species Score (no maximum) 0

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4.1.2.3 PROVINCIALLY SIGNIFICANT ANIMAL SPECIES

	Name of species	Source of information
1)		
2)		
3)		
4)		
5)		
6)		
7)		
8)		
9)		
10)		
11)		
12)		
13)		
14)		
15)		

Attach separate list if necessary; Attach documentation

Scoring:

Number of provincially significant animal species in the wetland:

1 species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

(no maximum score)

Provincially Significant Animal Species Score (no maximum) 0

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4.1.2.4 PROVINCIALLY SIGNIFICANT PLANT SPECIES

	(Scientific names must be recorded) Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			

Attach separate list if necessary; Attach documentation

Scoring: 80

Number of provincially significant plant species in the wetland:

1 species	=	50 points	14 species	=	154
2 species	=	80	15 species	=	156
3 species	=	95	16 species	=	158
4 species	=	105	17 species	=	160
5 species	=	115	18 species	=	162
6 species	=	125	19 species	=	164
7 species	=	130	20 species	=	166
8 species	=	135	21 species	=	168
9 species	=	140	22 species	=	170
10 species	=	143	23 species	=	172
11 species	=	146	24 species	=	174
12 species	=	149	25 species	=	176
13 species	=	152			

Add one point for every species past 25 (for example, 26 species = 177 points, 27 species = 178 points etc.)

Provincially Significant Plant Species Score (no maximum) 0

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4.1.2.5 REGIONALLY SIGNIFICANT SPECIES (SITE REGION)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

SIGNIFICANT IN SITE REGION:

	Common Name	Scientific Name	Source of information
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			
14)			
15)			

Attach separate list if necessary .Attach documentation.

Scoring: 4

No. of species significant in Site Region

1 species	=	20	6 species	=	55
2 species	=	30	7 species	=	58
3 species	=	40	8 species	=	61
4 species	=	45	9 species	=	64
5 species	=	50	10 species	=	67

Add one point for every species past 10. (no maximum score)

Regionally Significant Species Score (Site Region)(no maximum) 0

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Additional Species

Common Name	Scientific Name	S Rank	G Rank	Wet CoE	Tracked	Poly. Loc	Comments
Plants							
Amphibians							
Mammals							
Birds							
Reptiles							

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4.2.1.6 LOCALLY SIGNIFICANT SPECIES (SITE DISTRICT)

Scientific names must be recorded for plant species. **Lists of significant species must be approved by MNR.**

	Common Name	Scientific Name	Source of information
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
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38			
39			
40			
41			
42			
43			
44			
45			
46			
47			
48			
49			
50			

Attach separate list if necessary .Attach documentation.

Scoring:

No. of species significant in Site District

1 species	=	10	6 species	=	41
2 species	=	17	7 species	=	43
3 species	=	24	8 species	=	45
4 species	=	31	9 species	=	47
5 species	=	38	10 species	=	49

For each significant species over 10 in the wetland, add 1 point.

Locally Significant Species Score (Site District) (no maximum) 0

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4.2 SIGNIFICANT FEATURES AND/OR FISH & WILDLIFE HABITAT

4.2.1 NESTING OF COLONIAL WATERBIRDS

Status	Name of species	Source of Information	Score	
1) Currently nesting			50	
2) Known to have nested within past 5 years			25	
3) Active feeding area (Do not include feeding by great blue herons)			15	
4) None known			0	0

Consult the Ontario Heronry database at Bird Studies Canada. Subtotal: 0

Attach documentation (nest locations etc., if known)

Score highest applicable category only; maximum score 50 points.

Score for Nesting Colonial Waterbirds (maximum 50 points) 0

4.2.2. WINTER COVER FOR WILDLIFE

Score "locally significant" if trees & shrubs are present, also consult District deer yard data.

(Check only highest level of significance) (one only)		Score
1)	Provincially significant	100
2)	Significant in Site Region	50
3)	Significant in Site District	25
3)	Locally significant	10
4) 0	Little or poor winter cover present	0

Source of information: AECOM field investigations

Winter Cover for Wildlife Score (maximum 100 points) 0

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4.2.3 WATERFOWL STAGING AND/OR MOULTING

(Check only highest level of significance for both staging and moulting; score is cumulative across columns, maximum score 15(

		Staging	Score (one only)	Moulting	Score (one only)
1)	Nationally significant		150		150
2)	Provincially significant		100		100
3)	Regionally significant		50		50
4)	Known to occur		10		10
5)	Not possible		0		0
6)	Unknown	0	0	0	0
	Total:	0		0	
	Subtotal:		0		

Source of information: AECOM field investigations

Waterfowl Moulting and Staging Score (maximum 150 points) 0

4.2.4 WATERFOWL BREEDING

		(Check only highest level of significance)	Score
1)		Provincially significant	100
2)		Regionally significant	50
3)		Habitat suitable	10
4)	x	Habitat not suitable	0

Source of information: AECOM field investigations

Waterfowl Breeding Score (maximum 100 points) 0

4.2.5 MIGRATOR PASSERINE, SHOREBIRD OR RAPTOR STOPOVER AREA

(check highest applicable category)

1)		Provincially significant	100
2)		Significant in Site Region	50
3)		Significant in Site District	10
4)	0	Not significant	0

Source of information: AECOM field investigations

Passerine, Shorebird or Raptor Stopover Score (maximum 100 points) 0

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4.2.6 FISH HABITAT

Consult District Fisheries files. If fish are present in the wetland, score 15 or 25 points depending on the size of the fish habitat present.

4.2.6. Spawning and Nursery Habitat

Table 5. Area Factors for Low Marsh, High Marsh, and Swamp Communities.

No. of ha of Fish Habitat	Area Factor
< 0.5 ha	0.1
0.5- 4.9	0.2
5.0- 9.9	0.4
10.0- 14.9	0.6
15.0 -19.9	0.8
20.0+ ha	1.0

Step 1:

0 Fish habitat is not present within the wetland (Score = 0)

_____ Fish habitat is present within the wetland (Go to Step 2)

Step 2: Choose only one option

1) _____ Significance of the spawning and nursery habitat within the wetland is known (Go to Step 3)

2) _____ Significance of the spawning and nursery habitat within the wetland is not known (Go through Steps 4, 5, 6 and 7)

Step 3: Select the highest appropriate category below attach documentation:

1)	Significant in Site Region	l00 points
2)	Significant in Site District	50
3)	Locally Significant Habitat (5.0+ ha)	25
4)	Locally Significant Habitat (<5.0 ha)	15

Score for Spawning and Nursery Habitat (maximum score 100 points) 0

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Step 4: **Proceed to Steps 4 to 7 only if Step 3 was not answered.**

(**Low Marsh**: marsh area from the existing water line out to the outer boundary of the wetland)

_____ Low marsh not present (Continue to Step 5)
_____ Low marsh present (Score as follows)

Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each Low Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16 Table 16-2) for each Low Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	0.0
2	Shortgrass-Sedge				11	0.0
3	Cattail-Bulrush-Burreed				5	0.0
4	Arrowhead-Pickerelweed				5	0.0
5	Duckweed				2	0.0
6	Smartweed-Waterwillow				6	0.0
7	Waterlily-Lotus				11	0.0
8	Waterweed-Watercress				9	0.0
9	Ribbongrass				10	0.0
10	Coontail-Naiad-Watermilfoil				13	0.0
11	Narrowleaf Pondweed				5	0.0
12	Broadleaf Pondweed				8	0.0
Sub Total Score (maximum 75 points)						0.0
Total Score (maximum 75 points)						0.0

Step 5: (**High Marsh**: area from the water line to the inland boundary of marsh wetland type. This is essentially what is commonly referred to as a wet meadow, in that there is insufficient standing water to provide fisheries habitat except during flood or high water conditions.)

_____ High marsh not present (Continue to Step 6)
_____ High marsh present (Score as follows)

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Scoring for Presence of Key Vegetation Groups

Scoring is based on the one most clearly dominant plant species of the dominant form in each High 1Marsh vegetation community. Check the appropriate Vegetation Group (see Appendix 16 Table 16-2) for each High Marsh community. Sum the areas of the communities assigned to each Vegetation Group and multiply by the appropriate size factor from Table 5.

Vegetation Group Number	Vegetation Group Name	Present as a Dominant Form (check)	Total Area (ha)	Area Factor (see Table 5)	Score	Final Score (area factor x score)
1	Tallgrass				6 pts	0.0
2	Shortgrass-Sedge				11	0.0
3	Cattail-Bulrush-Burreed				5	0.0
4	Arrowhead-Pickerelweed				5	0.0
Sub Total Score (maximum 25 points)						0.0
Total Score (maximum 25 points)						0.0

Step 6: (**Swamp**: Swamp communities containing fish habitat,either seasonally or permanently. Determine the total area of seasonally flooded swamps and permanently flooded swamps containing fish habitat.)

_____ Swamp containing fish habitat not present (Continue to Step 7)
_____ Swamp containing fish habitat present (Score as follows)

Swamp containing fish Habitat	Present (check)	Total area (ha)	Area Factor (see Table 5)	Score	TOTAL SCORE (factor x score)
Seasonally flooded					0.0
Permanently flooded					0.0
Sub SCORE (maximum 20 points)					0.0
SCORE (maximum 20 points)					0.0

Step 7: Calculation of final score

Score for Spawning and Nursery Habitat (Low Marsh) (maximum 75) = 0.0

Score for Spawning and Nursery Habitat (High Marsh) (maximum 25) = 0.0

Score for Swamp Containing Fish Habitat (maximum 20) = 0.0

Subtotal: 0.0

Sum (maximum score 100 points) = 0.0

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4.2.6.2 Migration and Staging Habitat ***Score only if information on fish migration and staging exists, e.g. migration of northern pike through a wetland to access spawning areas.***

Step 1:

1) 0 Staging or Migration Habitat is not present in the wetland (Score = 0)

2) ____ Staging or Migration Habitat is present in the wetland significance of the habitat is known (Go to Step 2)

3) ____ Staging or Migration Habitat is present in the wetland significance of the habitat is not known (Go to Step 3)

NOTE: Only one of Step 2 or Step 3 is to be scored.

Step 2: Select the highest appropriate category below, attach documentation:

		Score
1)	Significant in Site Region	25 points
2)	Significant in Site District	15
3)	Locally Significant	10
4)	Fish staging and/or migration habitat present,but not as above	5

Score for Fish Migration and Staging Habitat (maximum score 25 points) 0

Step 3: Select the highest appropriate category below based on presence of the designated site type (does not have to be dominant). See Section 1.1.3. Note name of river for 2) and 3).

		Score
1)	Wetland is riverine at rivermouth or lacustrine at rivermouth	25 points
2)	Wetland is riverine,within 0.75 km of rivermouth	15
3)	Wetland is lacustrine,within 0.75 km of rivermouth	10
4)	Fish staging and/or migration habitat present, but not as above	5

Score for Staging and Migration Habitat (maximum score 25 points) 0

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4.3 ECOSYSTEM AGE

(Fractional Area = area of wetland/total wetland area)

	Fractional Area				Scoring
Bog	0.00	x	25	=	0.0
Fen, treed to open on deep soils floating mats or marl		x	20	=	0.0
Fen, on limestone rock		x	5	=	0.0
Swamp	0.63	x	3	=	1.9
Marsh	0.37	x	0	=	0.0
		Sub Total:			1.9

Ecosystem Age Score (maximum 25 points) 1.9

4.4 GREAT LAKES COASTAL WETLANDS

Score for coastal (see text for definition) wetlands only

Choose one only

0	wetland < 10 ha	=	0 points
	wetland 10- 50 ha	=	25
	wetland 51 -lOO ha	=	50
	wetland > 100 ha	=	75

Great Lakes Coastal Wetlands Score (maximum 75 points) 0

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5.0 EXTRA INFORMATION

5.1 PURPLE LOOSESTRIFE

x Absent/Not seen

____ Present

(a) One location in wetland ____
Two to many locations ____

Abundance code
(b) (1 < 20 stems ____
(2 20-99 stems ____
(3 100-999 stems ____
(4 >1000 stems ____

5.2 SEASONALLY FLOODED AREAS

Check one or more

Ephemeral	(less than 2 weeks)	____
Temporal	(2 weeks to 1 month)	____
Seasonal	(1 to 3 months)	X
Semi-permanent	(>3 months)	____
No seasonal flooding		____

5.3 SPECIES OF SPECIAL SIGNIFICANCE

5.3.1 Osprey

Present and nesting	____
Known to have nested in last 5 yr	____
Feeding area for osprey	____
Not as above	X

5.3.2 Common Loon

Nesting in wetland	____
Feeding at edge of wetland	____
Observed or heard on lake or river adjoining the wetland	____
Not as above	X

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INVESTIGATORS	AFFILIATION
Jillian deMan	Terrestrial and Wetland Ecologist, AECOM
Jessica Piette	Terrestrial Ecologist, AECOM

DATES WETLAND VISITED

May 13, May 26, and June 9, 2011

DATE THIS EVALUATION COMPLETED: **July 17, 2013**

ESTIMATED TIME DEVOTED TO COMPLETING THE FIELD SURVEY IN "PERSON HOURS"

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WEATHER CONDITIONS

i) at time of field work variable

(Continue in the space below if necessary)

ii) summer conditions in general Warm, Moderate

OTHER POTENTIALLY USEFUL INFORMATION:

CHECKLIST OF PLANT AND ANIMAL SPECIES RECORDED IN THE WETLAND:

Attach a list of all flora and fauna observed in the wetland.

*Indicate if voucher specimens or photos have been obtained, where located, etc.

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WETLAND EVALUATION SCORING RECORD

WETLAND NAME AND/OR NUMBER	Pen Equity Wetland

1.0 BIOLOGICAL COMPONENT

1.1	PRODUCTIVITY		
1.1.1	Growing Degree-Days/Soils	26.0	
1.1.2	Wetland Type	10.6	
1.1.3	Site Type	2.0	
	Total for Productivity		39
1.2	BIODIVERSITY		
1.2.1	Number of Wetland Types	13.0	
1.2.2	Vegetation Communities (maxixmum 45)	3.5	
1.2.3	Diversity of Surrounding Habitat (maximum 7)	4.0	
1.2.4	Proximinty to Other Wetlands	5.0	
1.2.5	Interspersion	9.0	
1.2.6	Open Water Type	8.0	
	Total for Biodiversity		43
	Sub Total for Biodiversity	43	
1.3	SIZE (Biological Component)		5
	Sub Total:		90
	TOTAL FOR BIOLOGICAL COMPONENT (not to exceed 250)		90

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "2"

Southern Ontario Welland Evaluation — March 1993
Wetlands Manual

2.0 SOCIAL COMPONENT

2.1 ECONOMICALLY VALUABLE PRODUCTS		
2.1.1 Wood Products	0	
2.1.2 Wild Rice	0	
2.1.3 Commercial Fish	0	
2.1.4 Bullfrogs	0	
2.1.5 Snapping Turtles	0	
2.1.6 Furbearers	2	
Total for Economically Valuable Products		2
2.2 RECREATIONAI ACTIVITIES (maximum 80)		0
2.3 LANDSCAPE AESTHETICS		
2.3.1 Distinctness	3	
2.3.2 Absence of Human Disturbance	2	
Total for Landscape Aesthetics		5
2.4 EDUCATION AND PUBLIC AWARENESS		
2.4.1 Educational Uses	0	
2.4.2 Facilities and Programs	0	
2.4.3 Research and Studies	0	
Total for Education and Public Awareness		0
2.5 PROXIMITY TO AREAS OF HUMAN SETTLEMENT		26
2.6 OWNERSHIP		8
Subtotal for Social Component	28.0	
2.7 SIZE (Social Component)		1
2.8 ABORIGINAL AND CULTURAL VALUES		0
Sub Total:		42
TOTAL FOR SOCIAL COMPONENT (not to exceed 250)		42

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "2"

Southern Ontario Wetland Evaluation, Score Summary — March 1993
Wetlands Manual

3.0 HYDROLOGICAL COMPONENT

3.1 FLOOD ATTENUATION		100
3.2 WATER QUALITY IMPROVEMENT		
3.2.1 Short Term Improvement	35.4	
3.2.2 Long Term Improvement	3.0	
3.2.3 Groundwater Discharge (maximum 30)	7.0	
Total for Water Quality Improvement		45
3.3 CARBON SINK		0
3.4 SHORELINE EROSION CONTROL		0
3.5 GROUNDWATER RECHARGE		
3.5.1 Site Type	50.00	
3.5.2 Soils	4.0	
Total for Groundwater Recharge		54
Sub Total:		199
TOTAL FOR HYDROLOGICAL COMPONENT (not to exceed 250)		199

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Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "2"

Southern Ontario Wetland Evaluation, Score Summary — December 2002
Wetlands Manual

4.0 SPECIAL FEATURES

4.1 RARITY		
4.1.1 Wetlands		
4.1.1.1 Rarity within the Landscape	80.0	
4.1.1.2 Rarirty of Wetland Type (maximum 80)	30.0	
Total for Wetland Rarity		110
4.1.2 Species		
4.1.2.1 Endangered or Threatened Species Breeding	0.0	
4.1.2.2 Traditional Use by Endangered or Threatened Species	0.0	
4.1.2.3 Provincially Significant Animals	0.0	
4.1.2.4 Provincially Significant Plants	0.0	
4.1.2.5 Regionally Significant Species	0.0	
4.1.2.6 Locally Significant Species	0.0	
Total for Species Rarity		0
4.2 SIGNIFICANT FEATURES OR HABITAT		
4.2.1 Colonial Waterbirds	0.0	
4.2.2 Winter Cover for Wildlife	0.0	
4.2.3 Waterfowl Staging and Moulting	0.0	
4.2.4 Waterfowl Breeding	0.0	
4.2.5 Migratory Passerine, Shorebird or Raptor Stopover	0.0	
4.2.6 Fish Habitat	0.0	
Total for Significant Features and Habitat		0
4.3 ECOSYSTEM AGE		2
4.4 GREAT LAKES COASTAL WETLANDS		0
Sub Total:		112
TOTAL FOR SPECIAL FEATURES (maximum 250)		112

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "2"

Southern Ontario Wetland Evaluation, Score Summary — March 1993
Wetlands Manual

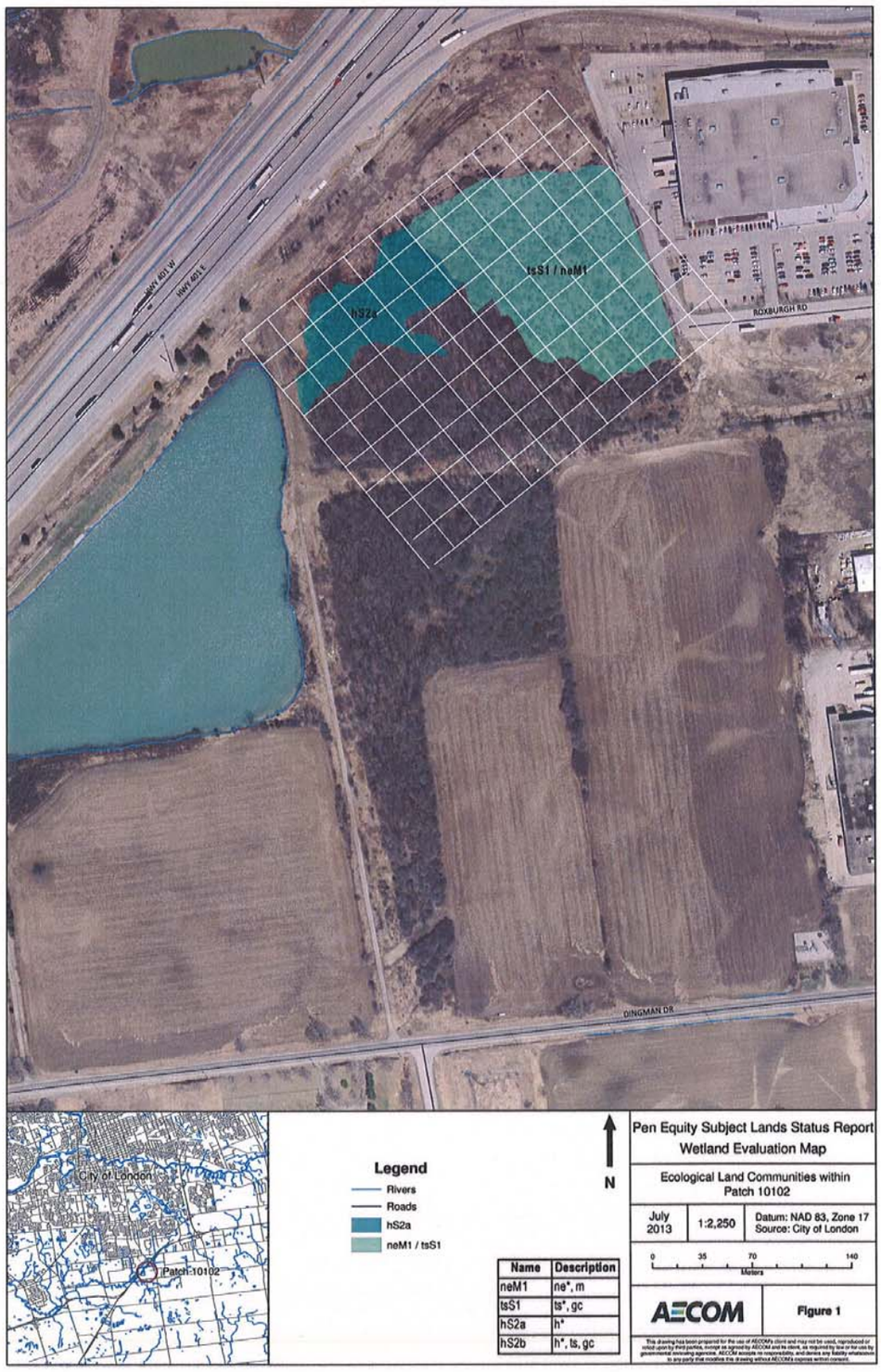
SUMMARY OF EVALUATION RESULT

Wetland	Pen Equity Wetland
TOTAL FOR 1.0 BIOLOGICAL COMPONENT	90
TOTAL FOR 2.0 SOCIAL COMPONENT	42
TOTAL FOR 3.0 HYDROLOGICAL COMPONENT	199
TOTAL FOR 4.0 SPECIAL FEATURES COMPONENT	112
WETLAND TOTAL	443

INVESTIGATORS	
Jillian deMan	
Jessica Piette	
0	
0	
0	
AFFILIATION	
Terrestrial and Wetland Ecologist, AECOM	
Terrestrial Ecologist, AECOM	
0	
0	
0	
DATE	July 17, 2013

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix “2”



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Appendix "3"

Summary of Tree Species within Patch 10102

Species	Area C Number of Trees		Area A Number of Trees		Total	
Ash and Elm	478	86%	829	76%	1307	79%
Remaining Tree Species	81	14%	265	24%	346	21%
	559		1094		1653	

NOTES:

Report Prepared by: Mike Boulanger
ISA Certified Arborist & Forestry Technician
416-791-1840

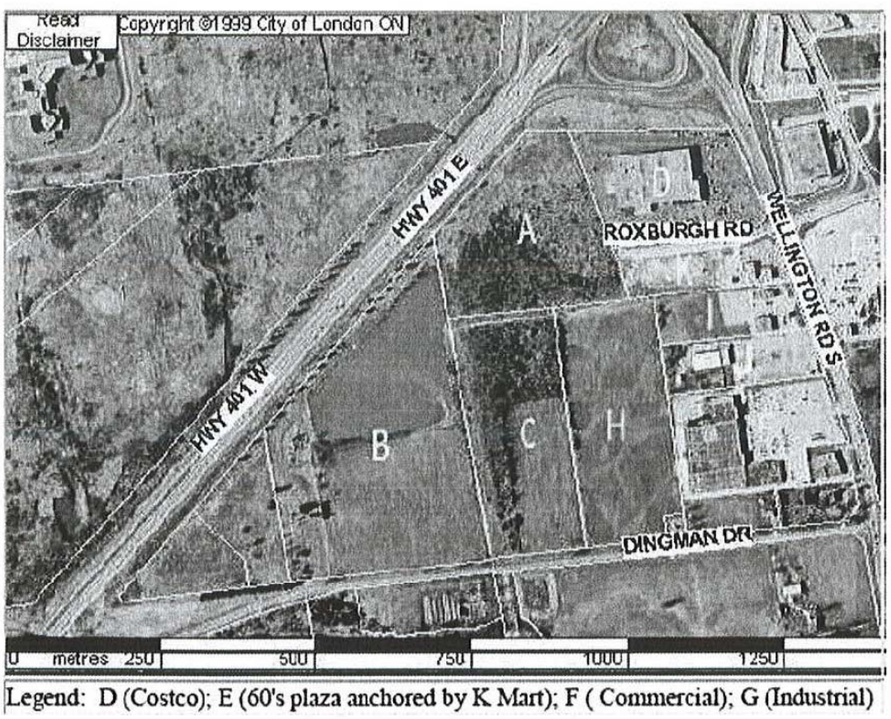
Date of Field Work: June 29, July 1, and July 11, 2013
All of the aforementioned trees are of a DBH greater than 15 centimeters.

Other Comments: Areas A and C are per the attached aerial
The Ash trees are heavily infested with EAB. All of these trees are dead or in severe decline.
"EAB" Emerald Ash Borer
Most of the mature elm trees are predominantly dead or in decline due to Dutch elm disease.
Combined Ash and Elm comprise 79% of the Tree inventory of Patch 10102

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix “3”

APPENDIX C: Ariel View of Property



Legend: D (Costco); E (60's plaza anchored by K Mart); F (Commercial); G (Industrial)

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "4"

Stantec Consulting Ltd.
171 Queens Avenue 6th Floor
London ON N6A 5J7
Tel: (519) 645-2007
Fax: (519) 645-6575

July 28, 2013
File: 1614-03378

Attention: Mr. Calvin McCourt
Director of Planning

PenEquity Realty Corporation
10 Dundas Street East, Suite 1002
Toronto, ON M5B 2G9

Dear Calvin,

Reference: London Gateway Project
Significant Woodland Preservation Approach
Review Comments

Further to our letter of June 17, 2013 and our meeting with City on July 23, 2013, we provide the following comments relating to the issue of retaining the woodlot on the subject site.

As requested, we have reviewed the following documents prepared by Golder Associates:

- Summary of Proposed Approach to Preserve a Significant Woodland in South London, Ontario, dated May 24, 2013, and
- Summary of Technical Assessment of Viability for a SWM and Ecological Strategy to Preserve a Significant Woodland in South London, ON, dated June 2, 2013.

Our review comments are as follows. While we have additional specific technical concerns regarding the presented work the review comments are limited to more general comments as summarized below:

JUSTIFICATION

- There is an implicit assumption that all runoff which enters the woodlot under existing conditions is vital for sustaining it. However, the necessity of matching the existing water volumes following site development is not justified in the reviewed documentation.
- Vegetation of any given species can tolerate and thrive under a range of annual water volumes. There is no information presented to identify the range of volumes required to sustain the existing woodlot.
- The existing Cousins Drain crosses the proposed woodlot, and the land along its alignment should be managed as a utility corridor. This may affect the **area identified as "Significant Woodland" and its** future management.

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "4"

Stantec

July 28, 2013
Mr. Calvin McCourt
Director of Planning

Reference: London Gateway Project
Significant Woodland Preservation Approach
Review Comments

WATER BALANCE

- The memo states that "post development water budget volumes are to be within a deviation limit of 10 to 15% surplus or deficit of the existing condition total annual runoff and infiltration volumes." Based on Stantec's experience in commercial, industrial, and residential land development, this criterion is not achievable in the City of London. Furthermore, this water budget criterion has not been reviewed and approved by Council. Consequently, it should not be applied to the proposed PenEquity site.

- Since a pre-development water budget is not provided for the woodlot, the water balance information does not demonstrate that the net volume of water that enters the woodlot changes following development. Both an existing conditions and proposed conditions water budget should be developed for the woodlot to:

    1. justify the need to provide water balance mitigation measures, and

    2. verify that the proposed mitigation measures address the identified water deficit.

- While some of the water balance assumptions are summarized, the water balance calculations are not provided.

BIOSWALE DESIGN

The bioswale relies upon the native soils to convey groundwater to the woodlot. Given that the native soils are mostly silty clay, the permeability of these soils is low creating many issues noted below.

- The benefit that the proposed bioswale provides to the proposed woodlot is unclear. Based on the assumed infiltration rates, the subsurface travel time from the bioswale to the interior of the proposed woodlot is approximately 5 years.

- The local groundwater elevations are too high for the proposed bioswale design. The observed groundwater elevations in the vicinity of the proposed bioswale are approximately 1.0 to 1.4 m below ground level. In contrast, the bioretention measure design guidance presented in the TRCA LID manual states that "bioretention should be separated from the seasonally high water table by a minimum of one (1) metre".

- Due to the low permeability of the native soils, the proposed detention time is too long. Based on the assumptions presented by Golder Associates, the drawdown time for the proposed bioswale is approximately 12 days. In contrast, the bioretention measure design guidance presented in the TRCA LID manual states that "the maximum allowable surface ponding time is 24 hours after the storm event".

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Appendix "4"

Stantec

July 28, 2013
Mr. Calvin McCourt
Director of Planning

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Reference: London Gateway Project
Significant Woodland Preservation Approach
Review Comments

- The proposed ponding depth is too deep. The design ponding depth is 0.5 m. In contrast, TRCA LID manual states that the "maximum ponding depth will be between 150-250 millimetres at the end of a storm".
- Due to the long detention time, there is a significant risk that the proposed bioswale could become a mosquito breeding area and consequently, a source of West Nile virus.
- The proposed design was developed based on assumed infiltration rates. The actual site infiltration rates could be substantially less than the assumed values.
- Portions of the bioswale sit atop and cross the existing storm and sanitary sewers on the site. Access will need to be maintained to these sewers which has not been considered in the bioswale design.
- The bioswale is designed to provide a homogeneous flow of groundwater to the woodlot. As discussed at the meeting, the woodlot contains some wetland and upland elements which have differing water requirements. This system is not designed to be able to accommodate these different requirements.

SITE DEVELOPMENT

- Since the proposed bioswale invert is 1 m below existing grades or must be 1 m above the seasonally high groundwater level, a significant volume of fill would be required to provide sufficient cover over the proposed third pipe system.
- As the site is relatively flat, draining portions of the site to the proposed bioswale will have a significant effect on the site grading and will require a significant import of fill material. Stantec's preliminary calculations estimate this fill requirement for the entire site at 380,000 m^3. Our estimate is that the cost of importing this volume of fill would be approximately $ 3.8M to $ 7.6M.
- Preserving the woodlot in the location identified on Figure 2 leaves narrow strips of land both north and east of the woodlot. Development of these areas in accordance with the site's commercial zoning may not be feasible.

COST ESTIMATION

- The cost estimates presented were completed without a site plan design nor any detailed design of the proposed third pipe system or bioswale. Accordingly, the cost estimates carry a high degree or potential variation from actual cost.
- The cost estimates make very broad assumptions regarding maintenance. They further assume that these costs will be borne by the City of London. Given that this system is installed on a private site, these costs will fall upon the PenEquity for future maintenance.

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Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix “4”

Stantec

July 28, 2013
Mr. Calvin McCourt
Director of Planning

Reference: London Gateway Project
Significant Woodland Preservation Approach
Review Comments

HISTORIC DRAINAGE CONSIDERATIONS

In addition to the above, there was some discussion at the meeting regarding the wetland element contained within the woodlot. It was indicated by City staff at the meeting that the existing Cousins Drain was once an open ditch across the property. This drain was enclosed in a pipe around 1989 and the lands modified. Additionally the as-built drawings indicate that the existing pond was partially filled during this construction activity. Accordingly, it is highly likely that the wetland element present today is a manmade feature created by modifying existing drainage patterns.

SUMMARY

Based on the provided information, it is our opinion that the proposed bioswale design is not a feasible solution for this site for the following reasons:

- No documentation has been provided to demonstrate that there will be a net reduction in the volume of water below the threshold necessary to sustain the woodlot following development.
- The proposed bioswale concept does not appear to address the design objective of mimicking the existing volume and character of water that is available to the woodlot.
- The existing soils on the site have a low permeability. The detention times within the bioswale are estimated at 12 days which creates many potential aesthetic and social issues.
- The proposed bioswale design does not meet the design criteria for bioretention areas established by the CVC and TRCA.
- The proposed bioswale will impose a significant fill requirement onto the site which is estimated to cost between $ 3.8M and $ 7.6M.

Please feel free to contact us if you have any further questions or concerns.

Regards,

STANTEC CONSULTING LTD.

Jeffrey Paul, P.Eng.
Managing Principal
Tel: (519) 645-2007
Fax: (519) 645-6575
jeff.paul@stantec.com

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix “4”

Stantec

July 28, 2013
Mr. Calvin McCourt
Director of Planning

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Reference: London Gateway Project
Significant Woodland Preservation Approach
Review Comments

jp document1

File: OZ-8120
Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "5"

AECOM
50 Sportsworld Crossing Drive
Suite 290
Kitchener, ON, Canada N2P 0A4
www.aecom.com

519 650 5313 tel
519 650 3424 fax

July 26 2013

Calvin McCourt
Director of Planning
Goal Ventures Inc.
10 Dundas Street East, Suite 1002
Toronto, ON
M5B 2G9

Dear Mr. McCourt:

Project No: 60302651

Regarding: Goal Ventures Inc.
Brockley Area Property, London
Review of Golder Associates Technical Memorandum

Further to your request, we are pleased to provide the following review of technical memoranda prepared by Golder Associates regarding the assessment of a proposed approach to preserve the Significant Woodland associated with Vegetation Patch No. 10102, in the City of London.

The memoranda reviewed include:

- Golder Associates, Technical Memorandum – Summary of Proposed Approach to Preserve a Significant Woodland in South London, Ontario. May 24, 2013.
- Golder Associates, Technical Memorandum – Summary of Technical Assessment of Viability for a SWM and Ecological Strategy to Preserve a Significant Woodland in South, London.

We have reviewed the approach presented by Golder Associates based on our knowledge of the existing features and functions of Vegetation Patch No. 10102 and the ecological viability of such an approach. We rely on the information and evaluation documented in our report entitled "Subject Lands Status Report for Patch 10102", dated May 7 2012.

It is our opinion that the approach proposed is not ecologically viable for the following reasons:

1. The proposed approach relies on infiltration of surface water via a bioswale oriented around the perimeter of a portion of the vegetation patch. It is our opinion that the primary source of water to the existing wetland within the Significant Woodland is from surface water runoff from surrounding lands. The proposed approach, therefore, changes the delivery of water to the patch and has potential to change the hydrology of the woodland and wetland.

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Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "5"

Additionally, the dense nature of the soils within the woodland is likely to prevent effective infiltration of surface water.

2. The proposed approach ignores vegetation community boundaries in it's shape, orientation and layout. The rectangular shape of the proposed area does not follow vegetation community boundaries and in doing so eliminates portions of the wetland communities that would be intended to be protected.

3. The proposed approach will presumably deliver water to both wetland an upland communities and has no means to control the delivery to one or the other. Under existing conditions, surface water flows direct water to the low lying swamp community in the northwest portion of the vegetation patch and to the swamp/meadow mosaic in the eastern portion of the patch. The proposed approach will alter the hydrology of the entire area of the remaining vegetation and has the potential to significantly change the composition and structure of vegetation communities remaining.

4. There appears to be no technical rationale for the proposed buffer zone surrounding the area being protected. In order to provide a defensible buffer recommendation, the ecological features and functions of the vegetation patch need to be considered in conjunction with the potential land-use derived impacts that can reasonably be expected from the proposed development. Furthermore, a buffer zone for the vegetation patch would most appropriately be situated between the woodland and the proposed bioswale.

5. The proposed approach provides no linkage to the Dingman Creek corridor. In order for such a small vegetation patch to be viable it requires some form of linkage to a large natural heritage system.

In accordance with our opinion stated in the Subject Lands Status Report and correspondence dated January 27, 2012, the viability of the patch over the long-term is dubious. However, if an attempt was to be made the following would be required:

- Protection of a majority or all of the woodland and wetland communities with a portion of cultural communities for supporting habitat;

- Development and implementation of a scientifically defensible buffer zone based on the features and functions of the patch and the potential land use derived impacts that can be expected from the proposed development plan.

- Maintenance of water balance to the patch based on matching pre-development conditions and by providing surface water input to the wetland component of the patch.

- Maintenance and or enhancement of a linkage between the vegetation patch and the Dingman Creek corridor;

This option for protection of the vegetation patch would involve most of the existing vegetation patch and some adjacent lands for an ecological buffer zone. Implementation of this option would bisect the subject property and leave developable lands east and west of the woodland patch.

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Appendix “5”

If you have any questions or concerns, please do not hesitate to contact me at 519-650-8693 (office).

AECOM Canada Ltd.

Gary A. Epp, M.Sc., Ph.D.
Director of Ecology, Environment

GAE:ge

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Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "6"

AECOM
50 Sportsworld Crossing Drive
Suite 290
Kitchener, ON, Canada N2P 0A4
www.aecom.com

519 650 5313 tel
519 650 3424 fax

January 27, 2012

Calvin McCourt
Director of Planning
Pen Equity Corporation
10 Dundas Street East, Suite 1002
Toronto, ON
M5B 2G9

BY E-MAIL & MAIL

Dear Mr. McCourt:

Project No: 60214391

Regarding: Pen Equity Corporation
Brockley Area Property, City of London
Proposed Development - Subject Lands Status Report
Vegetation Patch # 10102 Retention

Further to your request, we are providing the following opinion regarding the potential for retention of a portion of the Vegetation Patch (# 10102) identified within the subject lands in the Brockley Area of the City of London.

As noted in our Subject Lands Status Report, the long-term viability of the patch as a fully functioning woodland within a developing landscape is dubious due to the disconnected nature of natural heritage features within the immediate surrounding landscape, the disturbance from existing and future urban land uses, and the limited size of the patch.

We have delineated four (4) options for woodland retention for the purposes of discussion. These four options range from a very limited area of retention to nearly complete retention of the patch. The options are attached to this letter and are described below with the general implications for development and woodland integrity and functions:

1. **Option 1-** This option was described by yourself as one discussed with Parks Planning & Development. Option 1 protects the Silver Maple Deciduous Swamp community and a portion of the Gray Dogwood Mineral Thicket Swamp and Narrow-leaved Sedge Mineral Meadow Marsh Complex. It is our opinion that with surrounding development this option would result in loss of most of the functions of the patch and over time invasive plant growth would dominate the remaining patch rendering it to a patch of limited ecological value.

2. **Option 2 –** This option allows for the extension of Roxburgh Road into the subject lands and protects the patch north of this extension plus some cultural vegetation adjacent to Highway 401. Option 2 protects all of the Silver Maple Deciduous Swamp community, all of the Fresh-Moist Bur Oak Deciduous Forest, a small portion of the Fresh-Moist White Elm Lowland

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Planner: C. Smith/M. Tomazincic/A. Macpherson

Appendix "6"

Deciduous Forest, and a larger portion of the Gray Dogwood Mineral Thicket Swamp and Narrow-leaved Sedge Mineral Meadow Marsh Complex. Generally, this option would maintain few of the functions of the original woodland patch. The avifauna and amphibian habitat functions are likely to be significantly compromised by the limited size of the patch and the edge effects caused by the elimination of the southern portions of the patch. The intent of this option would be to provide some patch retention and tree cover. Edge management and restoration in the cultural area adjacent to Hwy 401 would be necessary mitigation and compensation measures.

3. **Option 3-** This option protects the area of the patch north of the sewer easement that bisects the patch and would preclude the extension of Roxburgh Road into the site. Option 3 protects all of the Silver Maple Deciduous Swamp community, all of the Fresh-Moist Bur Oak Deciduous Forest, a small portion of the Fresh-Moist White Elm Lowland Deciduous Forest, all of the Gray Dogwood Mineral Thicket Swamp and Narrow-leaved Sedge Mineral Meadow Marsh Complex, and a small portion of the Mineral Cultural Thicket Ecosite. Similar to Option 2 many of the wildlife functions would be compromised. Overall impacts to the patch would be somewhat less than Option 2, but not to a significant degree.

4. **Option 4 –** This Option protects most of the woodland patch, with the exception of the projection to the south-end of the patch. While not included, the cultural area north of the patch, adjacent to Hwy 401 would be isolated and not useable for development. Option 4 protects all of the Silver Maple Deciduous Swamp community, all of the Fresh-Moist Bur Oak Deciduous Forest, a majority of the Fresh-Moist White Elm Lowland Deciduous Forest, all of the Gray Dogwood Mineral Thicket Swamp and Narrow-leaved Sedge Mineral Meadow Marsh Complex, and a majority of the Mineral Cultural Thicket Ecosite. Option 4 affords the most protection of the woodland and its functions, however, in order to adequately protect the identified patch area buffer areas would be required that extend beyond these limits. Overall, ecological function of the woodland would be compromised by the surrounding development and edge effects would reduce the integrity of the patch if appropriate buffers are not provided.

As previously stated, with respect to all the options discussed above, the long-term viability of the woodland patch is likely to be diminished by the development of lands on all sides of the patch and the consequential loss of an ecological linkage to other natural heritage features such as the Dingman Creek corridor.

If you have any questions or concerns, please do not hesitate to contact me at 519-650-8693 (office).

AECOM Canada Ltd.

Gary A. Epp, M.Sc., Ph.D.
Manager of Ecological Services
GAE:ge

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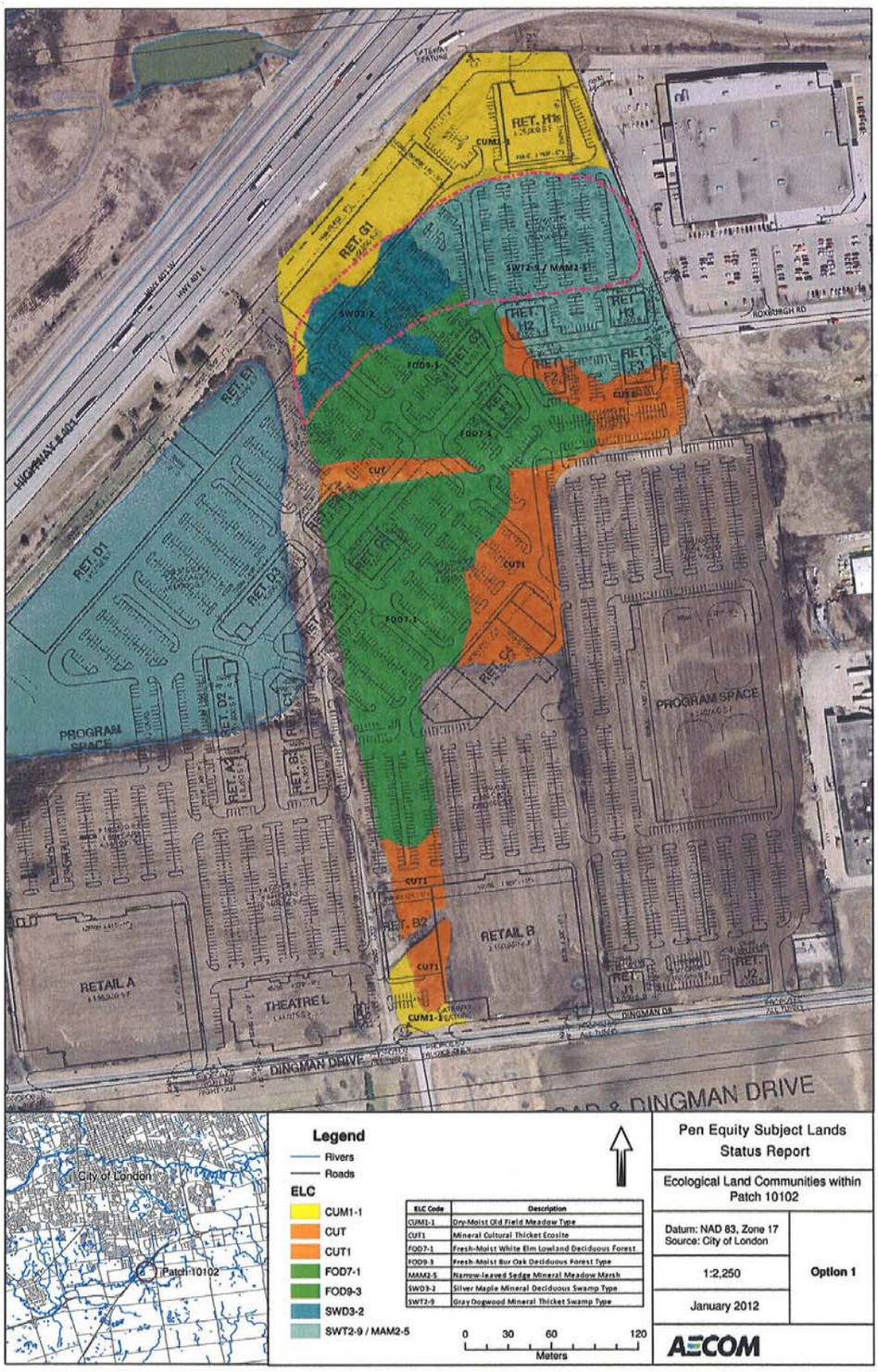

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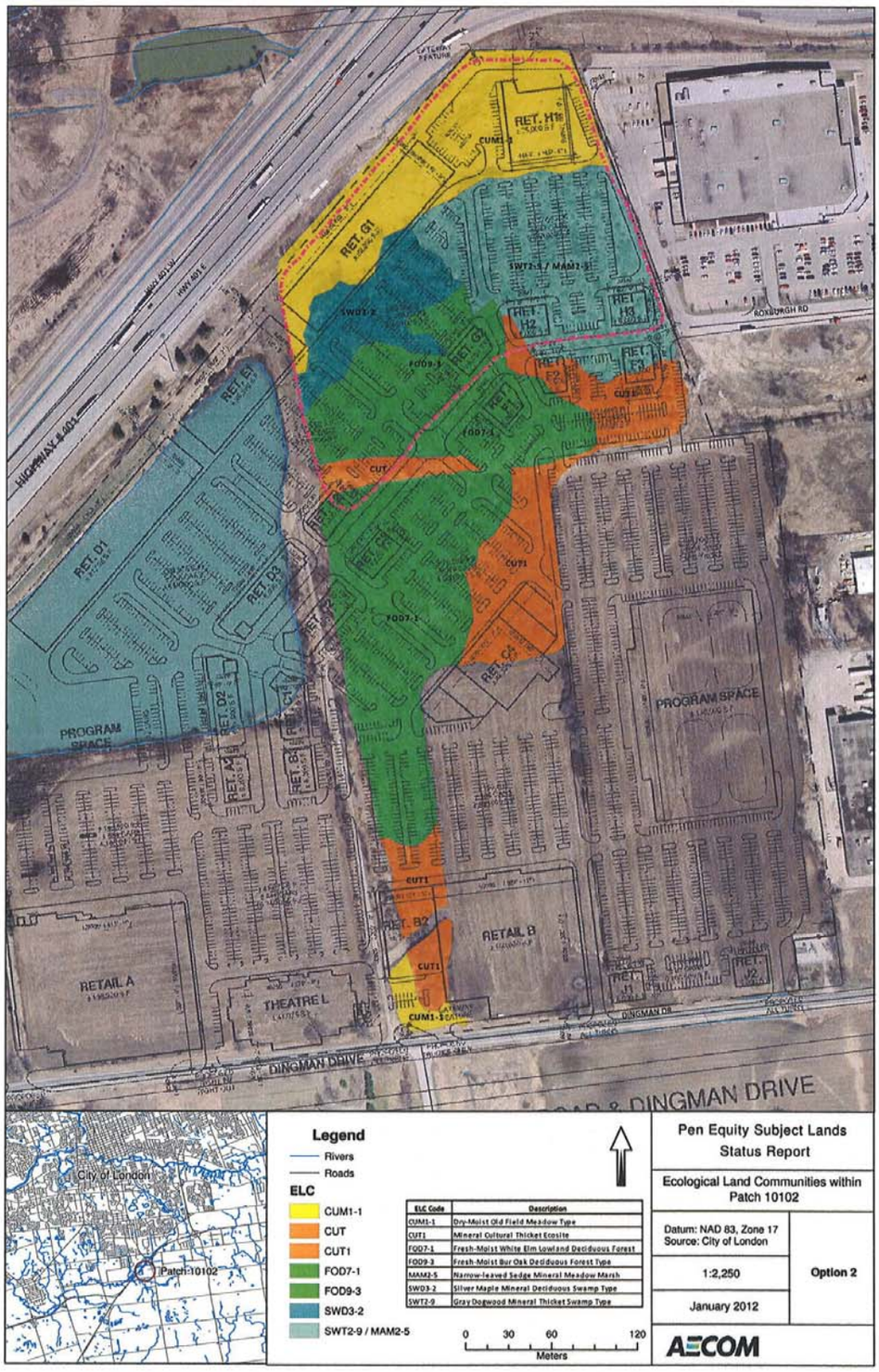

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Planner: C. Smith/M. Tomazincic/A. Macpherson

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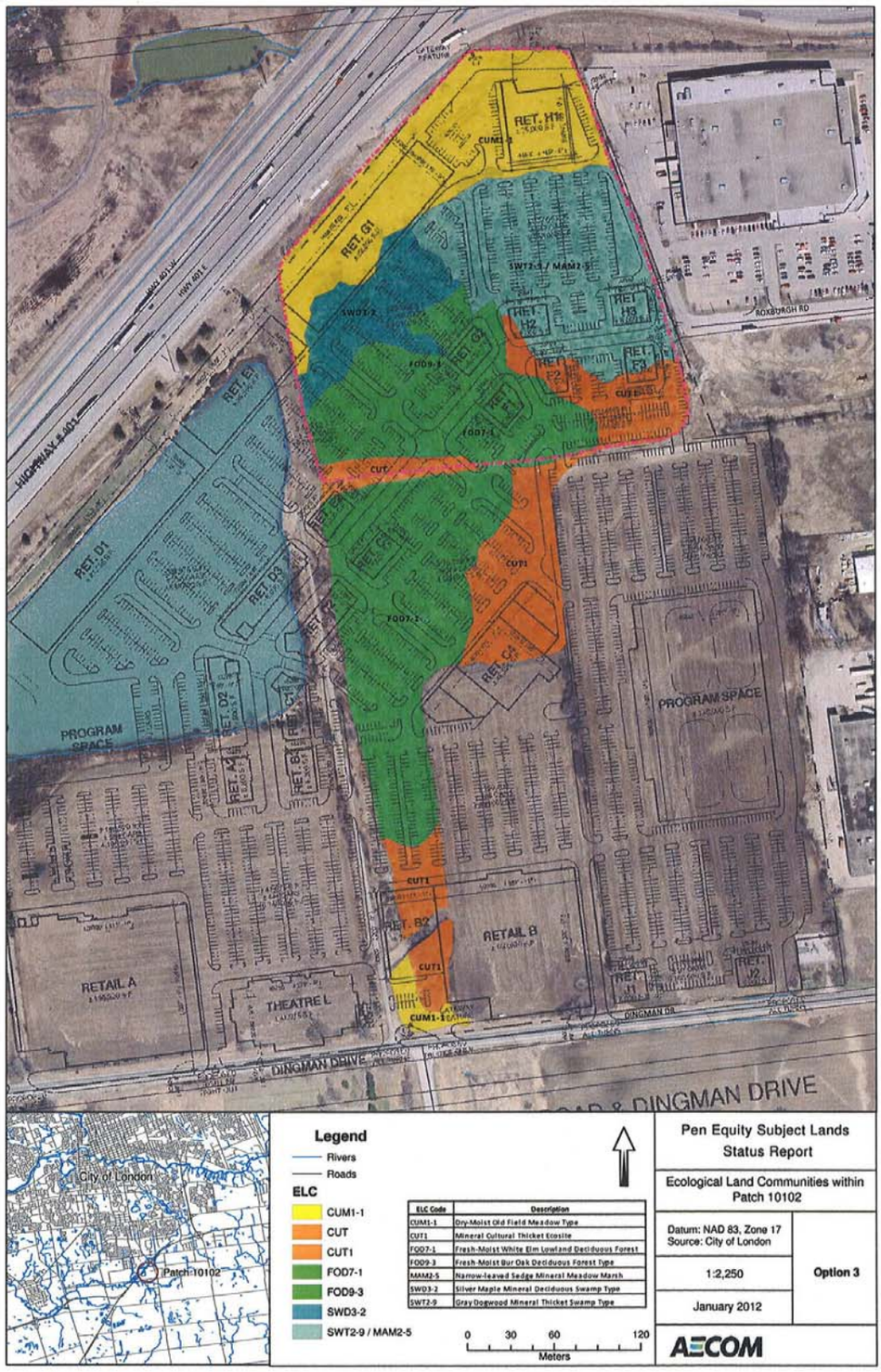

Agenda Item # Page #

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