

APPENDIX A.3

**REVISIONS TO HESPELER WEST SUBWATERSHEDS STUDY
REPORTS DATED MARCH 2003 AND REVISED NOVEMBER 2003**



The Corporation
of the City
of Cambridge

APPENDIX A.3.1
Information Report – PI 102-03 –
Hespeler West Subwatersheds Study
Report, March 2003 – Mapping
Revisions

Subject:

HESPELER WEST SUBWATERSHEDS STUDY REPORT, MARCH 2003
MAPPING REVISIONS

Prepared by: Wendy Wright

Ward: 1

Department: Planning Services

File No.: D03.01.09

Date to Management Committee: October 29, 2003

Report No: PI-102-03

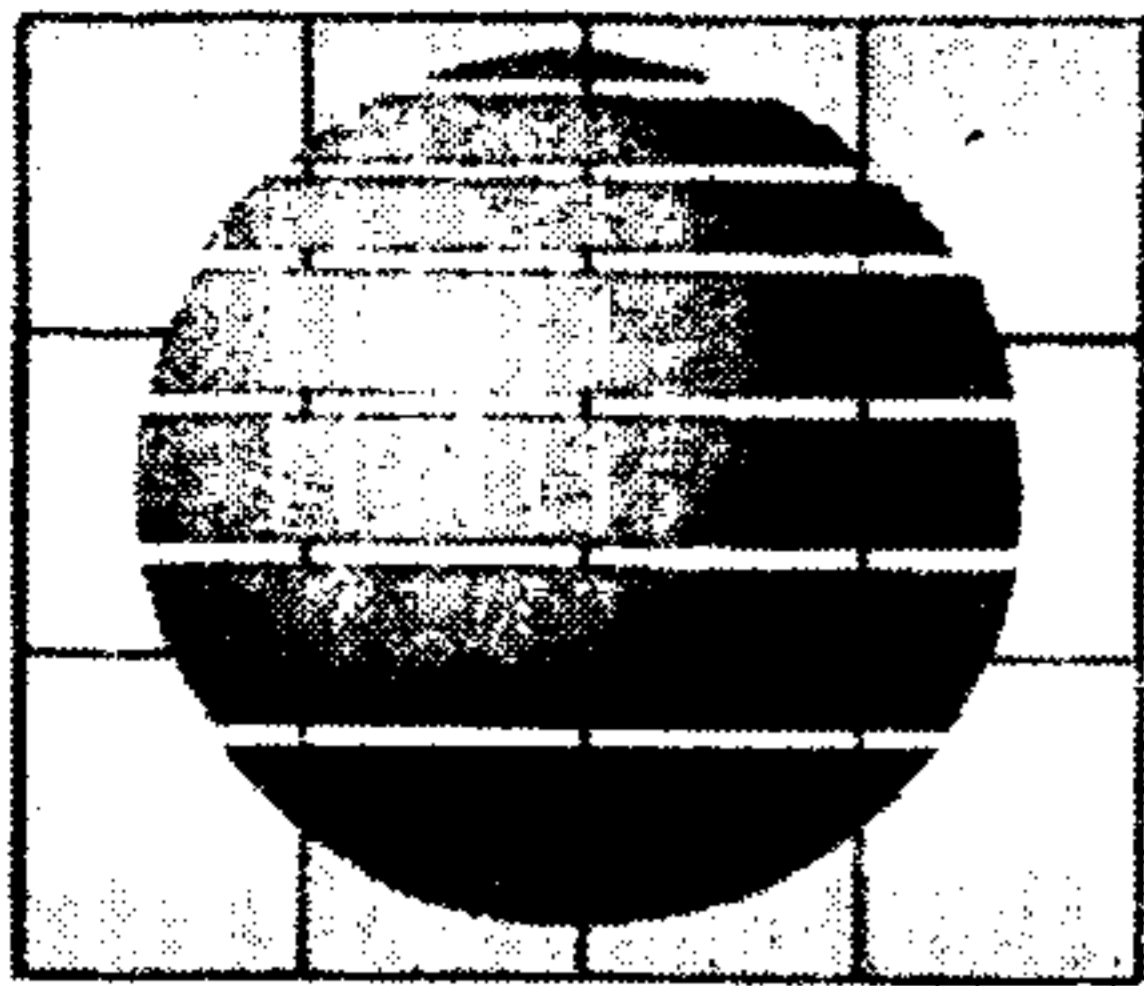
Date to Council: October 29, 2003

On November 18, 2002, Council approved placing the October, 2002 Hespeler West Subwatersheds Study for a ninety day review by commenting agencies and the public and requested that the mapping be immediately revised to show the licensed areas on the Arriscraft property. The information on licensed properties was added as Appendix J. As a result of the ninety day review period, the maps were updated, the updated information checked by staff, and the March 2003 Report was printed for Council approval.

In preparation for the meeting with the Working Committee on October 30, 2003, City staff identified that there were two different versions of the mapping in the final reports for October 2002 and March 2003. In March, staff checked that the revisions were made, but the other information in the October 2002 maps was assumed to still be correct. The attached correspondence from PEIL and Dougan & Associates explains the computer problems with producing the maps in the March 2003 report and other mapping errors that occurred. They have apologized for the errors and the inconvenience this has caused. They are in the process of correcting the maps and producing revised copies of a final report.

Copies of the November 2003 Report will be made available to the Hespeler West Subwatersheds Working Committee when we receive them and will be helpful in dealing with some of their concerns. There are also other issues that the Maple Grove Wetlands Association have identified that the Working Committee will need to address.

Attach.



PEIL

PLANNERS

CONSULTING

ENGINEERS &

LANDSCAPE

ARCHITECTS

Principals:

Paul Puccio, MA, MCIP, RPP,
OALA, President

John Ariens, B.Sc., MCIP, RPP

Ed Gazendam, M. Eng., P. Eng.

Sergio Marchia, BA, MCIP, RPP

John Perks, FAIA, MIA, P. Eng.

David Sisco, BA, MCIP, RPP

Kitchener

379 Queen St. S.
Kitchener, Ontario N2G 1W6
Bus.: (519) 745 2455
Fax: (519) 745 7547
email: kitcheners@peil.net

Hamilton

360 James St. N.
Suite 209, East Wing
Hamilton, Ontario L8L 1H5
Toll Free: 1-888-719-2773
Bus.: (905) 546-1010
Fax: (905) 546-1011
email: hamilton@peil.net

Brantford

Bus.: (519) 759-8788
Fax: (519) 759-8796

Greater Toronto Area

450 Brimley Rd. E., Suite 450 A
Mississauga, Ontario L4Z 1X2
Toll Free: 1-877-822-3798
Bus.: (905) 890-3750
Fax: (905) 890-7181
email: GTA@peil.net

October 24, 2003
File No. KW1253

Via E-mail & Courier

Mrs. Wendy Wright, MA, MCIP
Commissioner of Planning Services
City of Cambridge
Planning & Development
73 Water St. N., P.O. Box 669
Cambridge, Ontario N1R 5W8

Dear Mrs. Wright:

Re: Hespeler West Subwatersheds Study

Please accept, on behalf of our firm and the Consulting Team who prepared the Hespeler West Subwatershed Study, our sincere apologies regarding mapping errors that were identified on two figures in the March 2003 report. To assist you, enclosed herein, please find a letter from Mr. Jim Dougan of Dougan & Associates, who prepared the figures.

We would like to stress and clearly point out that the inadvertent, computer generated errors in Figures B8.3.1 and C1.2.1 do not affect the findings, conclusions and recommendations of the Greenspace Management Strategy. The management strategy, consisting of providing adequate measures including the protection, maintenance and enhancement of natural environmental features and associated buffers width, are defensible from an environmental and scientific perspective.

We wish to note two additional areas of change that we are also working on:

Firstly, and as a result of the errors to Figures B8.3.1 and C1.2.1 noted above, the City has reviewed other mapping in the document again, uncovering additional mistakes and oversights (Ms. Souwand's memo of October 21, 2003). Our Team has also taken the opportunity to do likewise, noticing several mapping mistakes on the environmental figures. As a result, we have made the following revisions:

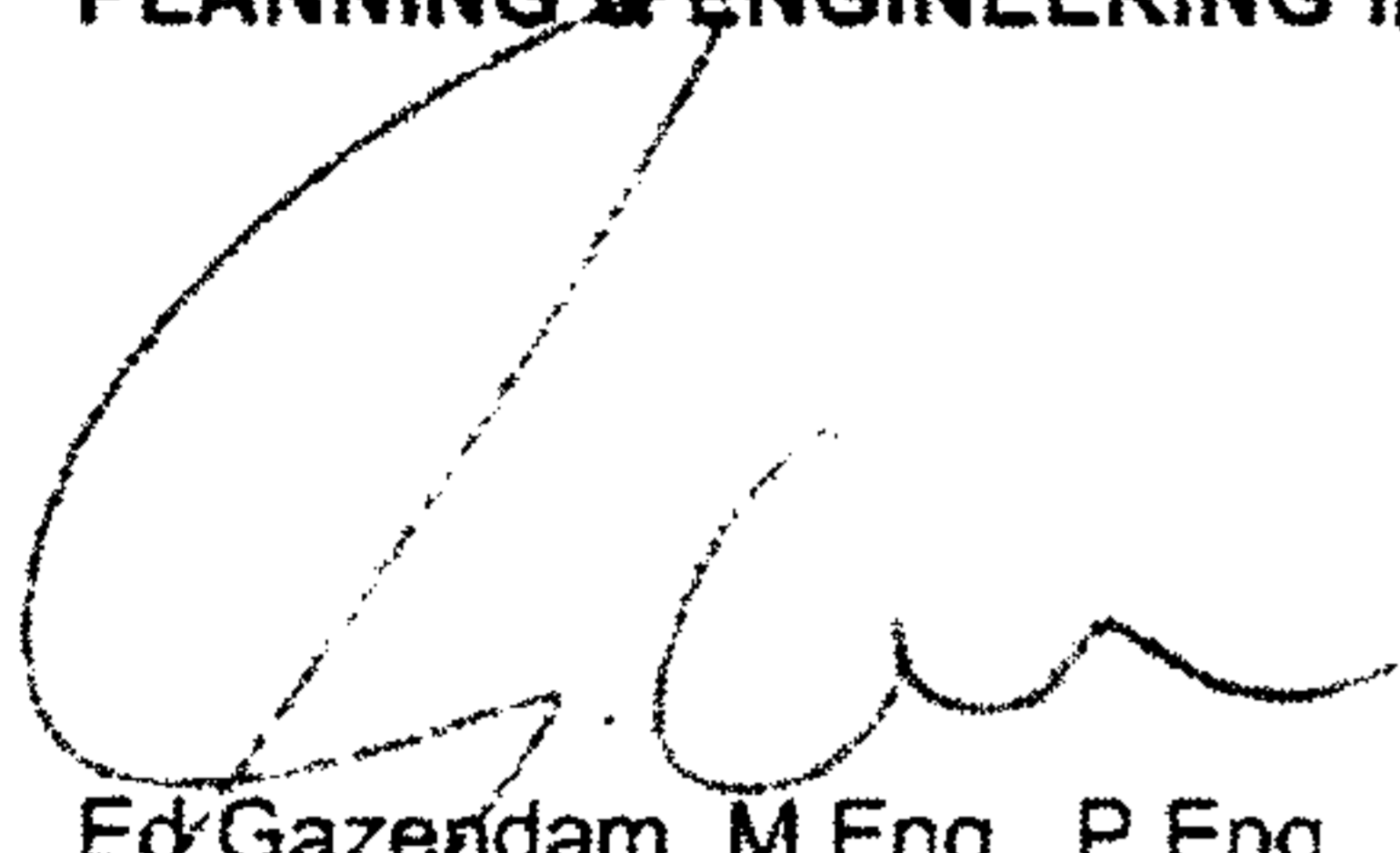
1. Figure A1.1.2 Subwatershed Stream and Ponds – labelled ponds.
2. Figure A3.3.1 Existing Stormwater Drainage System – corrected spelling of "Briardean".
3. Figure B1.4.1 Overburden Thickness – revised City road network.
4. Figure B3.2.1 Regulatory Floodlines – updated floodline on East Creek (as correctly shown in detail on Map 1A in March 2003 report) and Item 5 below.
5. Map 1D Floodlines – made small corrections to floodlines north of Middle Block Road to conform to contours.
6. Figure C3.3.1 and Map 3 Greenspace Management Strategy – shown correct floodline on part of East Creek (as correctly shown in detail on Map 1A in March 2003 report) and updated figure as per Item 5 above. Various small revisions to unit mapping.
7. Map 02 Existing Natural Heritage System – added missing wildlife observations dots.

Secondly, we will complete the work authorized in your email of June 18, 2003 as a result of MNR's additional review. We will make the necessary mapping revisions to adjust the farm laneway on ORC lands east of Fountain Street (the feature should be coloured "cultural feature", not wetland). The revised figures will incorporate comments made in your October 21, 2003 memo and therefore you may discard the October 16th, 2003 versions provided earlier.

We are sorry for the inconvenience that this has created and we will undertake any steps to explain the computer generated errors to your staff, Council and the local residents. We have rechecked the above figures and are revising them accordingly.

Should you have any comments or questions, please do not hesitate to contact the undersigned.

Sincerely,
PLANNING & ENGINEERING INITIATIVES LTD.



Ed Gazendam, M.Eng., P.Eng.
Principal
Manager, Water & Environmental Resources

EG/mm

Encl.

cc: April Souwand, City of Cambridge
Jim Dougan, Dougan & Associates



Dougan & Associates

Ecological Consulting
Services (918676 Ont. Inc.)

7 Waterloo Avenue
Guelph, Ontario N1H 3H2
Tel: (519) 822-1609
Fax (519) 822-5389
Email: info@dougan.ca
Web: www.dougan.ca

- Natural Heritage Planning
- Landscape & Habitat Design
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- Urban Street Tree & Forest Management
- Peer Review & Expert Witness Testimony

October 25, 2003

Wendy Wright, M.A., M.C.I.P.
Commissioner of Planning
City of Cambridge
73 Water Street North, 3rd Floor
Cambridge, Ontario
N1R 5W8

Dear Mrs. Wright;

Re: Hespeler West Subwatersheds Natural Heritage Mapping

Please accept our sincere apologies regarding incorrect toning which was recently identified on the March 2003 and later versions of natural heritage maps for the Subwatershed Study.

We have completed a detailed review of all the natural heritage related maps. The obvious problems (i.e. features beyond the watershed limit, and conversion of assigned cover in a couple of locations) were traced to the transfer of files onto new Arcview software which we upgraded in January 2003, and associated data linkages. As the maps originated from the GIS database, some of the errors affected more than one of the maps. However, the release of the maps without adequate hard copy review was inexcusable and I accept full responsibility for this matter.

The two maps affected by noteworthy changes include:

- B8.3.1 Existing Natural Heritage System – adjusted limits of natural feature toning outside subwatershed; ‘anthropogenic’ toning applied to existing estate subdivision on East Creek; farm laneway at Fountain St. shown as ‘cultural’.
- C1.2.1 Conceptual Watershed Linkage and Enhancement Areas – farm laneway at Fountain St. shown as ‘cultural’; minor linkage across Fountain St. moved slightly southward to line up with existing hedgerow.

Please be advised that these mapping changes do not affect any of the recommendations of the Greenspace Management Strategy. I believe the recommended system is fully defensible based on the most current principles in environmental planning and conservation science, is comparable to recent initiatives in Cambridge and other southern Ontario jurisdictions, and conforms with MNR’s Natural Heritage approaches under Provincial Policy. The buffer approach and protection of core environmental features and functions are also supported by MNR, GRCA and the Region.

We are also rechecking the other figures to address any minor inconsistencies. Once the revised mapping is provided, I will call you to discuss this matter and to offer my personal support to the City in its ongoing discussion with stakeholders.

Sincerely

Jim Dougan, M.Sc.
Principal and Senior Ecologist

MGWA – HWSS Errata

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Introduction

This errata contains the corrections and relative issues in the original report and stands as adopted by the MGWA Steering Committee. The errors resolved in the context of the HWSS Working Committee are excluded from this list.

November '03 Editions Revisions List Omissions

- Vegetation unit 0.03 on maps/Figures C 1.2.1, B 8.3.1 changed from forest to cultural between March '03 and November '03, but could not find this change detailed in the change list.

MGWA – HWSS Errata

November '03 Edition Persistent Issues

These were previously reported and should have been corrected, yet persist:

- Figure B 8.3.1 (Nov '03) – Hedgerows outside of subwatershed boundaries are inconsistently identified as natural heritage features; examples of this exist in the east and the west and the north.
- Figure B 8.3.1 (Nov '03) – Vegetation unit 0.04 is anthropogenic in Appendix J6, but natural heritage feature outside of the watersheds on the Figure.
- Figure B 8.3.1 (Nov '03) – Legend has subtitle “Natural Heritage Features”, yet includes “Agricultural”, “Anthropogenic”, and “Cultural Feature”. These three represent human heritage features even as do the aggregate pits. Figure C 1.2.1 also has this problem.

Editorial Errors

The Study contains numerous typographical, grammatical, spelling, terminology and arithmetic errors, which, together with references to non-existent items, raise credibility concerns.

References to Non-existent Items

Section B 8.2.1 “Special Features” page B-82, March '03 revision hardcopy, references Figures A 2.2.3 and A 2.2.4 – these appeared nowhere. These maps seem to have re-appeared in the November '03 revision of the Study. This was likely related to production, since the soft copy PDFs did not suffer from this problem.

Section B 8.3.2.1 “Vegetative Communities” states “a list of vegetation communities and associated attributes is presented in Appendix J4.” The vegetative communities correctly appear in Appendix J6, not in J4. Also, there is a J4a and a J4b, but there is no J4.

References to Map J1, which does not exist – should have read Map 02, probably.

Typos, Spelling & Grammar

Not all of the errors of this class were recorded, but here are some examples.

- HWSS March '03 inside front cover, “Athough” ==> Although.
- HWSS March '03 p B-49 B 4.3.1 Summary of Work... “bankfull” ==> bank full.
- HWSS March '03 p B-50 B 4.3.1 Summary of Work... “LWD” ==> large woody debris? Abbreviation not defined...
- HWSS March '03 p B-53,54,55 etc., B 4.3.3 Flow Assessment “bankfull” ==> bank full.
- HWSS March/Nov '03 p B-91 Cultural Woodland “typicall” ==> typically.
- HWSS Nov '03 Appendix D, 1.0, p1 “disscused” ==>discussed.

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- HWSS Nov '03 Appendix D, 2.2.4, p4 “its” ==> it.
- HWSS Nov '03 Appendix D, Figure 2.2.1a, missing close parenthesis on “Snowmelt”; STOR is an undefined abbreviation, meaning storage?
- HWSS March '03 page D-4 section D 1.1.2, “Maple Grove Road Provincially Significant Wetland ==> Maple Grove Provincially Significant Wetland Complex.
- HWSS NOV '03 page B 80, Section B 7.4, “marginal commercially viability” ==> marginal commercially, or marginal commercial viability. However, this is also a value statement which requires research references to support it, for which none are provided.

Arithmetic Errors

Not all calculation anomalies were recorded, but a couple obvious examples are provided here:

- The Executive Summary on p3 provides, West Ck. at 151ha, Middle Ck. at 585ha, and East Ck. at 160ha. It then claims that these total 990ha – leaving 94ha unexplained.
- Appendix D on p3 states that 160+ 585+151, equals 917ha, which is grade school math gone wrong. But then by adding 27 and 65 for S1 and S2, it's supposed to total 990ha, which is again wrong. The actual total, if these numbers are to be trusted, should have worked out to 988ha.

Enhancement Inconsistencies

- Figure C 3.3.1 and Map 03, indicate an enhancement area on the north side of Maple Grove Rd. , west of Speedsville, east of Middle Ck.. There is a house and a barn within the enhancement area. This is inconsistent with all other anthropogenic units which are purple.

Primary Linkage, No Opportunity

In general, this is shown along Middle Ck. extending north along the Hunsperger Drain, and the Hunsperger Drain Extension. There are gaps in the contiguity of the core natural features along this route, but the main issue with respect to “primariness” is related to the complete lack of natural features between the swamps at Middle Block Rd. and the Grand River to the north in the areas shown by the arrow on Figure C 1.2.1.

In the HWSS Working Committee, we all agreed that it would be unrealistic to propose an enhancement recommendation when major impediments exist to wildlife movement today.

The lack of enhancement recommendation along the northernmost reach of this conceptual linkage might be in part mitigated if the potential for the Chilligo Ck. primary corridor gets recognized in a future subwatershed study, and that connectivity to that watershed achieved through core feature linkages and enhancements. In light of this it is a very important local linkage.

MGWA – HWSS Errata

Primary Linkage Enhancement Area on West Side of Middle Block Rd. Swamp, never recommended per C 1.2.1

West of the swamp area, along the Hunsperger Drain Extension, Map 03 recommends enhancements north and south of Middle Block Rd. These enhancement areas are not supported by the conceptual linkage recommendations of Figure C 1.2.1.

Linkage across Middle Block along existing wetlands are across core features and these are adequately wide.

Agricultural Ditches, not Creeks

Section B 4.3.7, page B-63, states that “these creeks are on the edge”. This is alarming, but inconsistent in that it fails to recognize the fundamental fact that these are actually agricultural ditches, not creeks.

Hedgerow Classified as Deciduous Forest (Unit 1.17)

This feature is long and linear following a shallow dry ditch, yet was classified as deciduous forest.

The Delcan Class EA, 2001, identifies this feature only as a “dry ditch” with shrubs and a few trees.

East Creek at Mohawk Rd., the Case of Double Vision (Units 3.07 and 4.01A)

The Study depicts two East Creek channels crossing Mohawk Rd., continuing on in parallel paths, joining downstream at the point where it veers east.

This error is apparent even on the Professional Engineer stamped, floodline Map 1B.

There is only a single culvert crossing Mohawk Rd. for East Ck., and a single channel through 4.01A – not the two shown by the Study.

A Study that purports to be focussed on water systems like this one does, needs to accurately depict the watercourse channels.

Wetland Units in Error

These have been reported to the OMNR in '03 and in early '04. Some were classification errors, i.e. 2.11, 2.13, others were boundary errors. The OMNR has agreed with our corrections.

No Per Watershed Breakdown of Data

Appendix J4a does not reveal which subwatershed, or even which wetland complex each plant or animal specie was found in. Independent review is therefore impossible. True science demands independent review.

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Vascular Plant Species: Executive Summary Totals Don't Match Appendix J4a

In the Executive Summary “Quick Facts”, p18, it states that 450 vascular plant species had been identified. However, in the data listed in Appendix J4a, there are only 437 listed as having been found in the Study area. This error was also acknowledged by the Regional Environmental Planner.

Provincially Significant Species, Two, or is it Three?

The “Quick Facts”, p18, indicates that there were two Provincially Significant Species found.

On p5 of the Executive Summary it says that there were not two, but **three** provincially rare species found.

A search of J4a indicates that a single SRank S2 specie was identified. This was the Honey Locust, often found in the area as it is planted by people as an ornamental.

There was a single S3, and a single S3/S4.

The Provincial Wetland Scoresheet identifies **zero** Provincially Significant Species as being found in the area.

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Table B 8.3.3, Inconsistencies with Appendix J4a

#	Family (J4a)	Scientific Name (J4a)	Common Name	Strnk	Habitat as per B 8.3.3	cw (J4a)	Discrepancy Notes	P
24	RUTACEAE	Zanthoxylum americanum	Northern Prickly Ash	S5	Lowland	5	<ul style="list-style-type: none"> misspelt as “Zanthoxylem americanum” by Table B 8.3.3. B 8.3.3 is wrong, this is very much an upland specie. 	C
22	ERICACEAE	Vaccinium angustifolium	Late Lowbush Blueberry	S5	Lowland	3	<ul style="list-style-type: none"> B 8.3.3 is incorrect, this is usually an upland specie 	B
20	ROSACEAE	Rubus odoratus	Purple-flowering Raspberry	S5	Upland and Lowland	5	<ul style="list-style-type: none"> Appendix J4a identifies this as cw=5, purely upland 	B
18	MENISPERMACEAE	Menispermum canadense	Canada Moonseed	S4	Upland	0	<ul style="list-style-type: none"> Appendix J4a identifies this as cw=0, that is upland and lowland 	A
13	ORCHIDACEAE	Cypripedium calceolus var parviflorum	Small Yellow Lady's-slipper	S5	Lowland	-1	<ul style="list-style-type: none"> According to Appendix J4a, cw of -1 to 1 means “Equally likely to occur in wetlands or non-wetlands. This is upland and lowland 	F
11	CYPERACEAE	Carex woodii	Pretty Sedge	S4	Upland	0	<ul style="list-style-type: none"> See quote for 13. This is an upland and lowland. 	E

Northern Boundary

The northern boundary of the Middle Ck. watershed is inaccurate as per information supplied by the local residents.

The Study assumes that Subcatchment 2120 only outlets into Middle Ck.. This is not the case. The natural outlet is to the north and not at all to the Hunsperger Drain/Middle Ck. system.

The Study shows the subcatchment 2115 outlet being Middle Ck. only. In reality it has two outlets, one to the north to the Randall Drain and another to the south to the Hunsperger Drain system. The Hunsperger eventually drains into Middle Ck..

The Study assumes that subcatchment 2110 has an outlet into 2115, then subsequently to Middle Ck.. Factually, 2110 has a separate outlet via culvert directly into the

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Hunsperger Drain system, which is directly under Middle Block Rd. This fact was captured by the Delcan Class EA, 2001, but was missed by the HWSS.

Nearly every map is impacted. Some adjustments to the floodline may be implied.

Western Boundary

The western boundary of the Middle Ck. watershed is inaccurate, per information supplied by the local residents.

Subcatchment 2125, during base flow and low flow conditions contributes entirely to Freeport Ck., not to Middle Ck.. A tile connects a catchbasin to a stormwater management system that runs south along Fountain St.. This had been redirected from West Ck. when the Loblaw facility had been constructed prior to the commencement of the Subwatersheds Study.

Independent review suggested that even in event of a regional storm, little or no water from subcatchment 2125 would contribute to Middle Ck..

Adjustments need to be made. Nearly every map is impacted.

Culvert Errors

Various culvert errors were reported by the MGWA in February '04. This impacts on the perceived credibility of the Study, since the errors were readily apparent to the casually observing layman.

It is unknown what influence, if any, this will have on the floodline calculations.

Cultural Features Included as Significant Natural Heritage Feature Classification

In some cases cultural features were included as significant natural heritage features. Yet, by definition, cultural features are human heritage and not natural.

The apparent rationale for this natural classification seems to hinge on slope. Slopes in some areas are known to be a result of previous extraction operations and other human activities. But, even if the slope is naturally occurring, if the biotic element is disturbed enough to call it cultural, it is human heritage feature.

In other cases the classification seems to hinge on factors other than slope.

It seems inappropriate to apply “significant natural heritage feature” classifications to areas which are human heritage features.

Aggregate Extraction Impacts

The impact from the removal of several meters of grade due to current and licenced pits and quarries activities has been grossly under-represented in the Study.

The unanswered questions remain:

- What are the impacts of the extractions on significant natural heritage features

MGWA – HWSS Errata

within, pit boundaries, or nearby pit areas?

- What will the impacts of the extraction be on the water table?

We perceive these to be important points and can surmise some negative impacts. Yet, these remain pretty much unknown, since the Study did not include these factors in the investigation.

Cartographic Errors

Detailed Contour Maps, Missing Bearing Indicator

Floodline maps, 1A through 1E, do not have even a basic compass rose or north indicator. In the absence of UTM grid, one is left to assume that the top of the page is approximately north, but is that magnetic north? true north? or some other graticule?

These features are essential on every map, as they teach in grade school geography.

Key Maps, Contain Significant Scale Errors

Take Map 03 or 02 and compare distances to Maps 1A-1E and one finds that they yield inconsistent results.

North South: On Map 03, or 02, we measure the distance along Speedsville Rd. , between Maple Grove Rd. and Mohawk Rd. , 83mm at stated scale of 1:8000, which yields 664,000mm or 664m in real life. On Map 1B, measure the same linear distance, 384mm at stated scale of 1:2000, which yields 768,000mm or 768m real life.

East-West: On Map 03, or 02, we measure the distance along Mohawk Rd. between Speedsville Rd. and the back of the south-east farm, which is 46mm apart at the stated scale of 1:8,000, which yields, 368,000mm or 368m in real life. On Map 1B, measure the same, 215mm at stated scale of 1:2000, which yields 430,000mm or 430m in real life.

The results returned by the 1:2000 scale map, can probably be trusted based on our comparison with other data.

The actual scale of Maps 02 and 03 seems closer to 1:9,350, rather than the stated 1:8000.

A bar scale could have been provided.

Borehole Data Inaccurate

With reference to the Study's geotechnical data, borehole locations had been incorrectly shown. These errors, to the tune of hundreds of meters, were reported by the citizens in fall of 2002. These can be seen by comparing Map B 1.2.1 dated August 2002, and that dated April 2003. (August dated maps appeared in Oct '02 final draft of the Study, and those dated April appeared in the March '03 final, final draft.)

Only specifically reported borehole data were ever corrected. Other, borehole data were never verified. As such, data errors of this class, persist even in the November '03,

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final, final, final draft. Compare the data which appear on Figure B 1.1.2 with the original reports, for example.

Wetland Buffers Applied to Non-wetland Features

The 30m buffer is not applied only to wetland units, but to any area deemed “significant natural heritage feature” (SNHF).

Some of these SNHF units are in reality, cultural and dry, for example “woodlands” which are in fact lawns with lilac and shrubs. Or, plantations, people planted forests, some of which are in desperate need of thinning out, rather than protecting from human activities through buffering.

Science suggests that protection requirements for upland forest are not the same as for a wetland. An upland forest needs to have enough buffer to protect the roots of the trees, which is approximated by the dripline in areas of agricultural cultivation. Cultivation disturbs the roots of trees.

Recommending ubiquitous 30m SNHF buffer requires one to turn a blind eye to the data sections of the Study.

Omission: Social and Economic Factors

The goal of the Study was to make “socially and economically sustainable” recommendations. This was a requirement of the Terms of Reference found in Appendix A.

The only social factors that seem have been considered are, a brief historical overview, in passing, mention of fishing and rather extensive treatment of community trails.

It seems odd that there are no statements on the following factors:

- List or table of social and economic factors which were considered.
- Economic losses associated with currently productive lands being taken out of human usage and devoted to naturalization. Where is the cost calculation?
- Population of the subwatersheds.
- Who are the people who live here – demographics?

Yet, the Study states that, “planning partners in subwatershed planning include[d] ... the public” (page A-9). This must be considered a lofty goal, as none of the local land owners regarded themselves to be “planning partners” and it is precisely their social or economic realities which are not considered.

Social and economic factors are never explicitly factored in. And the reader is left to take it on faith that the recommendations are in fact “socially and economically sustainable”.



The Corporation
of the City
of Cambridge

APPENDIX A.3.3

Letter from Wendy Wright, Commissioner
of Planning Services to Paul Puopolo,
Planning and Engineering Initiatives
Limited dated August 27, 2004. Re:
Hespeler West Subwatershed Study

Phone: (519) 740-4650, Ext. 4576

Fax: (519) 622-6184

wrightw@city.cambridge.on.ca

File: D03.01.09.01

August 27, 2004

Mr. Paul Puopolo
Planning and Engineering Initiatives Limited
379 Queen Street South
Kitchener, Ontario N2G 1W6

Dear Mr. Puopolo:

Re: Hespeler West Subwatersheds Study

Further to our meeting of August 24, 2004, this is to confirm that you will provide us with 30 revised bound hard copies (report and appendices) and one digital version on CD of the Hespeler West Subwatersheds Study (Revised September 2004) at no cost to the City by September 16, 2004.

The revised report will include:

1. the updated floodline calculations and related text, prepared by PEIL;
2. an expanded list of changes between the March and November 2003 reports based on an e-mail prepared by April Souwand dated November 18, 2003;
3. a review and response to the MGWA Errata attached to this letter;
4. information on the ortho imagery preparation and accuracy of scale provided by the Region, and
5. other editorial changes (approximately 7) discussed at the meeting.

Our current timetable to complete this study includes an Open House/Public Meeting scheduled for September 9, 2004 and a Special Council meeting on September 28, 2004. In order to meet this timetable, it is very important that we receive the reports by September 16, 2004.

Yours truly,

Wendy Wright, M.A., M.C.I.P.,
Commissioner of Planning Services.



NOTE: The November 2003 Report of the Hespeler West Subwatersheds Study includes changes to the following maps dated November 2003:

- **Figure B 8.3.1 - Existing Natural Heritage System:** The farm laneway on the ORC lands south of Middle Block Road, east of Fountain Street that was incorrectly identified as "marsh" has been changed to "cultural feature". The farm fields that lay outside the subwatersheds boundary that were incorrectly shaded as "natural heritage features outside the sws" have had the shading removed. Several polygons south of Maple Grove Road between Speedsville and Beaverdale that were coloured incorrectly have been properly coloured (for instance, the large polygon south of Starr Crescent in Idylwild Estates that was identified as "swamp" has been correctly coloured "anthropogenic").
- **Map 02 - Existing Natural Heritage System:** This map was missing the wildlife observation dots. They have been added.

At this time, minor corrections have also been made to the following:

- **Figure A 1.1.2 - Subwatershed Stream and Ponds:** Ponds have been labeled.
- **Figure A 3.3.1 - Existing Stormwater Drainage System:** The misspelling of Briardean Road has been corrected.
- **Figure B 1.4.1 - Overburden Thickness:** The City road network has been updated and corrected.
- **Figure B 3.2.1 - Regulatory Floodlines:** The East Creek Floodline has changed in the downstream portion to reflect refinements requested by GRCA (spill area along Beaverdale Road - this was already shown on the detailed floodline Map 1A but had not been changed on the Figure B 3.2.1). The Middle Creek Floodline in the upstream portion north of Middle Block Road has changed to reflect refinements requested by GRCA (the computer-drafted floodline crossed contours in a couple of spots at the extreme eastern edge of the floodplain - this also changed detailed floodline map 1D).
- **Figure B 8.3.2 - Evaluated Wetlands:** The farm laneway on the ORC lands south of Middle Block Road, east of Fountain Street that was incorrectly identified as Maple Grove Wetland Complex has been removed from wetland designation. The note regarding polygon numbering was removed as it did not apply to this map.
- **Figure B 8.3.3 - Natural Heritage Constraints:** The farm laneway on the ORC lands south of Middle Block Road, east of Fountain Street that was incorrectly identified as "high constraint" has been changed to "low constraint".
- **Figure C 1.2.1 - Conceptual Watershed Linkage and Enhancement Areas:** The underlying Natural Heritage Features polygons have been correctly colour-coded per Figure B8.3.1 Existing Natural Heritage System. The local linkage opportunity previously shown on the farm laneway on the ORC lands south of Middle Block Road, east of Fountain Street has been shifted south to run along the hedgerow north of the Loblaws site.



- **Figure C 3.3.1 - Greenspace Management Strategy:** The Significant Natural Heritage Feature and buffer shown along the farm laneway on the ORC lands south of Middle Block road, east of Fountain Street has been removed and an Enhancement Area shown along the hedgerow north of the Loblaws site instead, linking across Fountain Street to the wetland block to the west. The portion of the Speed River Wetland south of Hunt Club Road has been shown as "Significant Natural Feature" with associated 30 metre buffer. The floodlines for East and Middle Creek have been corrected per Figure B 3.2.1 Regulatory Floodlines.
- **Map 1D – Floodlines:** Middle Creek Floodline in the upstream portion north of Middle Block Road has changed to reflect refinements requested by GRCA (the computer-drafted floodline crossed contours in a couple of spots at the extreme eastern edge of the floodplain).
- **Map 03 - Greenspace Management Strategy:** Same changes as to Figure C 3.3.1 Greenspace Management Strategy.
- **Table B 8.3.1 - ELC Community Series Present in the Hespeler West Subwatersheds:** This table changed because the Cultural Meadow area and percentage of subwatersheds went up slightly and the Meadow Marsh area and percentage of subwatersheds went down slightly due to the farm laneway on the ORC lands south of Middle Block road, east of Fountain Street changing from Meadow Marsh to Cultural Meadow.
- **Quick Facts:** Hespeler West Subwatersheds (Page D-24): Percentage of subwatershed covered by wetland went down from 20.06% to 19.92% due to the farm laneway on the ORC lands south of Middle Block Road, east of Fountain Street that was incorrectly identified as Maple Grove Wetland Complex being removed from wetland designation.
- **Appendix J6 – Unit 2.11:** This is the farm laneway on the ORC lands south of Middle Block Road, east of Fountain Street - this vegetation unit changed from MAM Meadow Marsh of High Constraint Rating to CUM Cultural Meadow of Low Constraint Rating.

All revised information has been dated "November 2003". Information that has not been changed continues to be dated March 2003 in this draft report.



MGWA	PEIL / Dougan Comments
<p>MGWA – HWSS Errata</p> <ul style="list-style-type: none"> • HWSS Nov '03 Appendix D, 2.2.4, p4 "its" => it. • HWSS Nov '03 Appendix D, Figure 2.2.1a, missing close parenthesis on "Snowmelt"; STOR is an undefined abbreviation, meaning storage? • HWSS March '03 page D-4 section D 1.1.2, "Maple Grove Road Provincially Significant Wetland => Maple Grove Provincially Significant Wetland Complex. • HWSS NOV '03 page B 80, Section B 7.4. "marginal commercially viability" => marginal commercially, or marginal commercial viability. However, this is also a value statement which requires research references to support it, for which none are provided. <p>Arithmetic Errors</p> <p>Not all calculation anomalies were recorded, but a couple obvious examples are provided here:</p> <ul style="list-style-type: none"> • The Executive Summary on p3 provides, West Ck. at 151ha, Middle Ck. at 585ha, and Fast Ck. at 160ha. It then claims that these total 990ha – leaving 94ha unexplained. • Appendix D on p3 states that 160+ 585+151, equals 917ha, which is grade school math gone wrong. But then by adding 27 and 65 for S1 and S2, it's supposed to total 990ha, which is again wrong. The actual total, if these numbers are to be trusted, should have worked out to 988ha. <p>Enhancement Inconsistencies</p> <ul style="list-style-type: none"> • Figure C 3.3.1 and Map 03, indicate an enhancement area on the north side of Maple Grove Rd., west of Speedsville, east of Middle Ck.. There is a house and a barn within the enhancement area. This is inconsistent with all other anthropogenic units which are purple. <p>Primary Linkage, No Opportunity</p> <p>In general, this is shown along Middle Ck. extending north along the Hunsperger Drain, and the Hunsperger Drain Extension. There are gaps in the contiguity of the core natural features along this route, but the main issue with respect to "primariness" is related to the complete lack of natural features between the swamps at Middle Block Rd. and the Grand River to the north in the areas shown by the arrow on Figure C 1.2.1.</p> <p>In the HWSS Working Committee, we all agreed that it would be unrealistic to propose an enhancement recommendation when major impediments exist to wildlife movement today.</p> <p>The lack of enhancement recommendation along the northernmost reach of this conceptual linkage might be in part mitigated if the potential for the Chilligo Ck. primary corridor gets recognized in a future subwatershed study, and that connectivity to that watershed achieved through core feature linkages and enhancements. In light of this it is a very important local linkage.</p> <p style="text-align: center;">3 of 9</p>	<p>It: Corrected on Appendix D. Closed parenthesis in Figure 2.2.1a. "STOR" is model term for storage. Changed: Maple Grove Provincially Significant Wetland Complex. Changed to "Marginal commercial viability".</p> <p>Revised text.</p> <p>Revised text.</p> <p>The City of Cambridge is preparing a revised Greenspace Management Strategy based on comments received.</p> <p>The City of Cambridge is preparing a revised Greenspace Management Strategy based on comments received.</p>



MGWA	PEIL / Dougan Comments
<p>MGWA – HWSS Errata</p> <p>Primary Linkage Enhancement Area on West Side of Middle Block Rd. Swamp, never recommended per C 1.2.1</p> <p>West of the swamp area, along the Hunsperger Drain Extension, Map 03 recommends enhancements north and south of Middle Block Rd. These enhancement areas are not supported by the conceptual linkage recommendations of Figure C 1.2.1.</p> <p>Linkage across Middle Block along existing wetlands are across core features and these are adequately wide.</p> <p>Agricultural Ditches, not Creeks</p> <p>Section B 4.3.7, page B-63, states that “these creeks are on the edge”. This is alarming, but inconsistent in that it fails to recognize the fundamental fact that these are actually agricultural ditches, not creeks.</p> <p>Hedgerow Classified as Deciduous Forest (Unit 1.17)</p> <p>This feature is long and linear following a shallow dry ditch, yet was classified as deciduous forest.</p> <p>The Delcan Class EA, 2001, identifies this feature only as a “dry ditch” with shrubs and a few trees.</p> <p>East Creek at Mohawk Rd., the Case of Double Vision (Units 3.07 and 4.01A)</p> <p>The Study depicts two East Creek channels crossing Mohawk Rd., continuing on in parallel paths, joining downstream at the point where it veers east.</p> <p>This error is apparent even on the Professional Engineer stamped, floodline Map 1B.</p> <p>There is only a single culvert crossing Mohawk Rd. for East Ck., and a single channel through 4.01A – not the two shown by the Study.</p> <p>A Study that purports to be focussed on water systems like this one does, needs to accurately depict the watercourse channels.</p> <p>Wetland Units in Error</p> <p>These have been reported to the OMNR in '03 and in early '04. Some were classification errors, i.e. 2.11, 2.13, others were boundary errors. The OMNR has agreed with our corrections.</p> <p>No Per Watershed Breakdown of Data</p> <p>Appendix J4a does not reveal which subwatershed, or even which wetland complex each plant or animal specie was found in. Independent review is therefore impossible. True science demands independent review.</p> <p style="text-align: center;">4 of 9</p>	<p>The City of Cambridge is preparing a revised Greenspace Management Strategy based on comments received.</p> <p>This channel and its vegetative cover was eliminated and will be re-established as a riparian system. The City of Cambridge will revise its mapping to reflect the new channel and its proposed vegetative cover.</p> <p>Layer originally from MNR. East Creek corrected per comments, however, creek line is not a surveyed line and remains for general location only.</p> <p>The City will be producing updated ELC mapping and a final MNR wetlands map. Some areas taken out of the PSW by MNR are wetlands according to ELC definitions, and will be shown as such on the City's ELC mapping. For the purposes of future planning decisions, the PSW limits as affirmed by MNR will have the highest priority.</p> <p>The City did not request this level of detail in our reporting. Queries for site-specific data may be made by special arrangement from the City.</p>





MGWA	PEIL / Dougan Comments
<p>MGWA – HWSS Errata</p> <p>Vascular Plant Species: Executive Summary Totals Don't Match Appendix J4a</p> <p>In the Executive Summary "Quick Facts", p18, it states that 450 vascular plant species had been identified. However, in the data listed in Appendix J4a, there are only 437 listed as having been found in the Study area. This error was also acknowledged by the Regional Environmental Planner.</p> <p>Provincially Significant Species, Two, or is it Three?</p> <p>The "Quick Facts", p18, indicates that there were two Provincially Significant Species found.</p> <p>On p5 of the Executive Summary it says that there were not two, but three provincially rare species found.</p> <p>A search of J4a indicates that a single SRank S2 specie was identified. This was the Honey Locust, often found in the area as it is planted by people as an ornamental.</p> <p>There was a single S3, and a single S3/S4.</p> <p>The Provincial Wetland Scoresheet identifies zero Provincially Significant Species as being found in the area.</p>	<p>In the revised report these discrepancies have been addressed, and numbers also reflect the final confirmation of identifications of several plant species.</p> <p>The revised report indicates only one provincially significant plant species (<i>Carex formosa</i>); review of other sedges by Dr. Peter Ball, a sedge expert (retired) from Erindale College determined that two species previously listed in Table B 8.3.3 are more common species; Table B 8.3.3 has therefore been revised. Native Honey Locust is provincially rare; the widely cultivated cultivars are not naturally reproducing in the subwatersheds and therefore Honey Locust has not been included in Table B 8.3.3 (Significant Vascular Plants)</p>

MGWA							PEIL / Dougan Comments
MGWA – HWSS Errata							
Table B 8.3.3, Inconsistencies with Appendix J4a							
#	Family (J4a)	Scientific Name (J4a)	Common Name	SW	Habitat as per B.3.3	Discrepancy Notes	
24	RUTACEAE	Zanthoxylum americanum	Northern Prickly Ash	S5	Lowland	<ul style="list-style-type: none"> misspelt as "Zanthoxylem americanum" by Table B 8.3.3. B 8.3.3 is wrong, this is very much an upland species. 	C
22	ERICACEAE	Vaccinium angustifolium	Late Lowbush Blueberry	S5	Lowland	<ul style="list-style-type: none"> B 8.3.3 is incorrect, this is usually an upland specie 	B
20	RUBACEAE	Rubus odoratus	Purple-flowering Raspberry	S5	Upland and Lowland	<ul style="list-style-type: none"> Appendix J4a identifies this as cw=5, purely upland 	B
18	MENISPERMACEAE	Menispermum canadense	Canada Moonseed	S4	Upland	<ul style="list-style-type: none"> Appendix J4a identifies this as cw=0, that is upland and lowland 	A
13	ORCHIDACEAE	Cypripedium calceolus var parviflorum	Small Yellow Lady's slipper	S5	Lowland	<ul style="list-style-type: none"> According to Appendix J4a, cw of -1 to 1 means "Equally likely to occur in wetlands or non-wetlands." This is upland and lowland 	F
11	CYPERACEAE	Carex woodii	Pretty Sedge	S4	Upland	<ul style="list-style-type: none"> See quote for 13. This is an upland and lowland 	E
<p>Northern Boundary</p> <p>The northern boundary of the Middle Ck. watershed is inaccurate as per information supplied by the local residents.</p> <p>The Study assumes that Subcatchment 2120 only outlets into Middle Ck.. This is not the case. The natural outlet is to the north and not at all to the Hunsperger Drain/Middle Ck. system.</p> <p>The Study shows the subcatchment 2115 outlet being Middle Ck. only. In reality it has two outlets, one to the north to the Randall Drain and another to the south to the Hunsperger Drain system. The Hunsperger eventually drains into Middle Ck..</p> <p>The Study assumes that subcatchment 2110 has an outlet into 2115, then subsequently to Middle Ck.. Factually, 2110 has a separate outlet via culvert directly into the</p>							<p>The habitat notes in Table B 8.3.3 reflect the general habitat conditions where these species were encountered in the subwatersheds. Minor adjustments to the table have been made to clarify its purpose.</p> <p>The Coefficient of Wetness (COW) ratings in Appendix J4a have no official status under the Ontario Wetland Evaluation System (OWES); the OWES Manual contains lists of typical wetland indicator species, some of which are not obligate wetland species but which are considered reliable indicators. A review of COW ratings has been recommended in a study being conducted to harmonize the OWES and ELC systems in Ontario.</p> <p>To be revised in future detailed analysis.</p>
6 of 9							



MGWA	PEIL / Dougan Comments
<p>MGWA – HWSS Errata</p> <p>Hunsperger Drain system, which is directly under Middle Block Rd. This fact was captured by the Delcan Class EA, 2001, but was missed by the HWSS.</p> <p>Nearly every map is impacted. Some adjustments to the floodline may be implied.</p> <p>Western Boundary</p> <p>The western boundary of the Middle Ck. watershed is inaccurate, per information supplied by the local residents.</p> <p>Subcatchment 2125, during base flow and low flow conditions contributes entirely to Freeport Ck., not to Middle Ck.. A tile connects a catchbasin to a stormwater management system that runs south along Fountain St.. This had been redirected from West Ck. when the Loblaw facility had been constructed prior to the commencement of the Subwatersheds Study.</p> <p>Independent review suggested that even in event of a regional storm, little or no water from subcatchment 2125 would contribute to Middle Ck..</p> <p>Adjustments need to be made. Nearly every map is impacted.</p> <p>Culvert Errors</p> <p>Various culvert errors were reported by the MGWA in February '04. This impacts on the perceived credibility of the Study, since the errors were readily apparent to the casually observing layman.</p> <p>It is unknown what influence, if any, this will have on the floodline calculations.</p> <p>Cultural Features Included as Significant Natural Heritage Feature Classification</p> <p>In some cases cultural features were included as significant natural heritage features. Yet, by definition, cultural features are human heritage and not natural.</p> <p>The apparent rationale for this natural classification seems to hinge on slope. Slopes in some areas are known to be a result of previous extraction operations and other human activities. But, even if the slope is naturally occurring, if the biotic element is disturbed enough to call it cultural, it is human heritage feature.</p> <p>In other cases the classification seems to hinge on factors other than slope.</p> <p>It seems inappropriate to apply "significant natural heritage feature" classifications to areas which are human heritage features.</p> <p>Aggregate Extraction Impacts</p> <p>The impact from the removal of several meters of grade due to current and licenced pits and quarries activities has been grossly under-represented in the Study.</p> <p>The unanswered questions remain:</p> <ul style="list-style-type: none"> • What are the impacts of the extractions on significant natural heritage features <p style="text-align: center;">7 of 9</p>	<p>To be revised in future detailed analysis.</p> <p>Modelling revised resulting in minor changes to floodlines and no impact to Greenspace Management Strategy.</p> <p>The classification used is based on the ELC system (Lee et al 1998). Cultural features such as meadows, successional thickets, plantations and woodlands also have natural functions (and constraints) despite their origin. Constraints may be related to slope, moisture and canopy characteristics.</p> <p>Section B 8 3.2.4 notes existing impacts including aggregate extraction. Further site specific analysis of impacts is not within the scope of the study.</p>



MGWA	PEIL / Dougan Comments
<p>MGWA – HWSS Errata</p> <p>within, pit boundaries, or nearby pit areas?</p> <ul style="list-style-type: none"> • What will the impacts of the extraction be on the water table? <p>We perceive these to be important points and can surmise some negative impacts. Yet, these remain pretty much unknown, since the Study did not include these factors in the investigation.</p> <p>Cartographic Errors</p> <p>Detailed Contour Maps, Missing Bearing Indicator</p> <p>Floodline maps, 1A through 1E, do not have even a basic compass rose or north indicator. In the absence of UTM grid, one is left to assume that the top of the page is approximately north, but is that magnetic north? true north? or some other graticule? These features are essential on every map, as they teach in grade school geography.</p> <p>Key Maps, Contain Significant Scale Errors</p> <p>Take Map 03 or 02 and compare distances to Maps 1A-1E and one finds that they yield inconsistent results.</p> <p>North-South: On Map 03, or 02, we measure the distance along Speedsville Rd. between Maple Grove Rd. and Mohawk Rd., 83mm at stated scale of 1:8000, which yields 664,000mm or 664m in real life. On Map 1B, measure the same linear distance, 384mm at stated scale of 1:2000, which yields 768,000mm or 768m real life.</p> <p>East-West: On Map 03, or 02, we measure the distance along Mohawk Rd. between Speedsville Rd. and the back of the south-east farm, which is 46mm apart at the stated scale of 1:8,000, which yields, 368,000mm or 368m in real life. On Map 1B, measure the same, 215mm at stated scale of 1:2000, which yields 430,000mm or 430m in real life.</p> <p>The results returned by the 1:2000 scale map, can probably be trusted based on our comparison with other data.</p> <p>The actual scale of Maps 02 and 03 seems closer to 1:9,350, rather than the stated 1:8000.</p> <p>A bar scale could have been provided.</p> <p>Borehole Data Inaccurate</p> <p>With reference to the Study's geotechnical data, borehole locations had been incorrectly shown. These errors, to the tune of hundreds of meters, were reported by the citizens in fall of 2002. These can be seen by comparing Map B 1 2.1 dated August 2002, and that dated April 2003. (August dated maps appeared in Oct '02 final draft of the Study, and those dated April appeared in the March '03 final, final draft.)</p> <p>Only specifically reported borehole data were ever corrected. Other, borehole data were never verified. As such, data errors of this class, persist even in the November '03.</p> <p style="text-align: center;">8 of 9</p>	<p>North arrow added.</p> <p>Printing of large maps on different plotters and/or media may result in scale distortion; therefore a bar scale has been added to Maps 02 and 03.</p> <p>Naylor has indicated that the boreholes are approximate and were only used for general clarification of groundwater and soil characteristics.</p>





MGWA	PEIL / Dougan Comments
<p>MGWA – HWSS Errata</p> <p>final, final, final draft. Compare the data which appear on Figure B 1.1.2 with the original reports, for example.</p> <p>Wetland Buffers Applied to Non-wetland Features</p> <p>The 30m buffer is not applied only to wetland units, but to any area deemed "significant natural heritage feature" (SNHF).</p> <p>Some of these SNHF units are in reality, cultural and dry, for example "woodlands" which are in fact lawns with lilac and shrubs. Or, plantations, people planted forests, some of which are in desperate need of thinning out, rather than protecting from human activities through buffering.</p> <p>Science suggests that protection requirements for upland forest are not the same as for a wetland. An upland forest needs to have enough buffer to protect the roots of the trees, which is approximated by the dripline in areas of agricultural cultivation. Cultivation disturbs the roots of trees.</p> <p>Recommending ubiquitous 30m SNHF buffer requires one to turn a blind eye to the data sections of the Study.</p> <p>Omission: Social and Economic Factors</p> <p>The goal of the Study was to make "socially and economically sustainable" recommendations. This was a requirement of the Terms of Reference found in Appendix A.</p> <p>The only social factors that seem have been considered are, a brief historical overview, in passing, mention of fishing and rather extensive treatment of community trails.</p> <p>It seems odd that there are no statements on the following factors:</p> <ul style="list-style-type: none"> - List or table of social and economic factors which were considered. - Economic losses associated with currently productive lands being taken out of human usage and devoted to naturalization. Where is the cost calculation? - Population of the subwatersheds. - Who are the people who live here – demographics? <p>Yet, the Study states that, "planning partners in subwatershed planning include[d] ... the public" (page A-9). This must be considered a lofty goal, as none of the local land owners regarded themselves to be "planning partners" and it is precisely their social or economic realities which are not considered.</p> <p>Social and economic factors are never explicitly factored in. And the reader is left to take it on faith that the recommendations are in fact "socially and economically sustainable".</p>	<p>Buffers are intended to apply to all features recommended to be protected within the natural heritage system, which may include upland habitats, wetlands, and some units with a cultural history which support important functions or constraints in the context of the recommended NHS.</p> <p>The City has been provided with a summary of current science supporting a minimum 30 m buffer for the protection of natural systems and functions.</p> <p>The HWSS has considered social and economic factors in determining the preferred management plan for the subwatershed areas. Our review was from a city-wide perspective and did not evaluate individual landowners. However, the HWSS is to be used for further consideration of economic and social factors during the secondary planning process where further consideration is typically given to such factors.</p>



Response to City of Cambridge letter dated August 27, 2004.

Updated floodline calculations and related text, prepared by PEIL	Updated Table B 3.21 Regional Flood Elevations, Table B 3.3.1 Hydraulic Summary of Hespeler West Structures and updated Appendix E.
An expanded list of changes between the March and November 2003 reports based on an e-mail prepared by April Souwand dated November 18, 2003.	See Appendix K.
A review and response to the MGWA Errata attached to this letter.	See Appendix K.
Information on the ortho-imagery preparation and accuracy of scale provided by the Region.	<p>1/2m Contours are based on the Digital Elevation Model created in the summer of 2000 using visual stereoscopic equipment. Individual points were created on a 12m-grid pattern as well as at 1m intervals along breaklines. The contours were generated by Northway-Photomap in 2001 and are uncorrected.</p> <p>The DEM was collected photogrammetrically during the spring of 2000 - 1:8000, and 1:15,000 scale black and white aerial photography. In most cases the 1:8000 scale aerial photography was used to collect the urban area information. The point placement was collected at 2 mm at plate scale and breakline information collected at 2-3 times this density for breakline features where required to support the ortho-photo image.</p> <p>In summary, mapping has been prepared at a scale that is reasonably accurate for the purposes of this study. Technology allows users to enlarge or reduce information to scales where accuracy is no longer reasonable. As a result, the mapping, as with similar studies, provides direction to future work programs where field-level data collection can occur for site-specific applications.</p>
Other editorial changes approximately 7 discussed at the meeting.	<ul style="list-style-type: none"> - Table B 1.5.7 and Table B 1.5.8, update heading to read: Infiltration (% of total rainfall). - Delete reference to C 1.2.2 on page C-7. - Page C-19, item #2 should read quantity not quality. - Page C-38, should read: "wetland or upland forest" not "wetland of upland forest". - Page D-2, Greenspace Management Strategy table, should read "High" not "High & Medium". - Page D-4, should read "Maple Grove Provincially Significant Wetland Complex" not "Maple Grove Road Provincially Significant Wetland". - Page D-10, should read "High Constraint Areas" not "High and Medium Constraint Areas".

