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TECHNICAL MEMORANDUM

TO: Ben Kester
FROM: P. Warburton, P. Eng.
DATE: December 9, 2008 *****REVISED March 29, 2010*****
OUR FILE: 7407
PROJECT: Uxbridge Flooding EA - TOR
SUBJECT: Hydrotechnical Assessment of Downstream Effects

Introduction

In August 2008 the Township of Uxbridge retained MRC to develop Terms of Reference for a *Municipal Class Environmental Assessment Study (Class EA Study)* to alleviate if not eliminate the potential risks associated with flooding in the downtown area of the Town of Uxbridge. The Township also requested MRC to conduct a basic assessment of potential downstream effects from a combination of alternatives that were assessed in a previous study (*Flood Relief Study of the Town of Uxbridge, Cumming-Cockburn and Associates, 1983*) commissioned by the Lake Simcoe Region Conservation Authority (LSRCA). This memo provides details of that assessment.

The 1983 study investigated the downtown flooding problem in detail and concluded that a severe flood hazard under the Regional Storm event exists for lands adjacent to the main branch of Uxbridge Brook, especially between Elgin Pond and just downstream of Brock Street. This study also concluded that the flood hazard is due to the presence of a long culvert which encloses the watercourse between Pond Street (Centennial Drive) and the north limit of the parking lot, 100 metres north of Brock Street. This study examined a number of alternatives to alleviate the flooding problem.

The Township of Uxbridge has requested MRC to conduct a basic assessment of potential downstream effects from a combination of alternatives from the 1983 study. The arrangement to be assessed was to have the following specifications:

- The culvert is sized to convey the Regional Storm flow, twin 4.8 x 3.0m concrete box culverts as identified in the 1983 report.
- The existing culvert under Pond Street is maintained and Pond Street is allowed to be overtopped during the Regional Storm
- The watercourse is day-lighted downstream of Brock Street

Background Information

- *Flood Relief Study of the Town of Uxbridge*, Cumming-Cockburn and Associates, 1983
- *Hydrologic Modelling Report, Final Report, Pefferlaw River, Uxbridge Brook, Beaver River, White's Creek, and Beaverton Creeks for Lake Simcoe Region Conservation Authority*, MMM Group September 2008
- Regional storm flood lines, provided by LSRCA (currently being updated)
- Latest hydrologic model by MMM (Visual OTTHYMO), provided by LSRCA, revised February 9, 2009.
- Latest hydraulic model (HEC-2) provided by LSRCA
- Contour mapping and the parcel fabric, provided by the Region of Durham

Hydrotechnical Method of Assessment (Approach)

It can be seen from the Regional storm flood lines that all flows which exceed the existing culvert capacity will flood through the urban area then rejoin the current flows at the downstream channel. Therefore it can be assumed that the total volume of water would not increase to the downstream channel with the potential culvert works.

However, there would be a loss of storage volume (floodplain storage) by eliminating the flooding. This could potentially increase the peak flows to the downstream channel causing an increase in flood risk.

The effect of this loss of storage was assessed by estimating the storage volume in the existing urban flooding area and routing the Regional Storm hydrograph through this area using SWMHYMO's route reservoir command. The resulting peak flow was then compared to the result

from routing the same hydrograph through the reduced storage under proposed conditions. (i.e. with the increased culvert capacity)

The first step was to recreate the hydrology for the section of the watershed upstream of the Brock Street Culvert. To do this, the newly revised Visual OTTHYMO file was obtained from the LSRCA. Examination of the Visual OTTHYMO output file for the Regional Storm event along with the floodline mapping and property fabric revealed that the point in the model that best describes flows to the upstream end of the Brock Street culvert is 9041 which has a Regional Storm peak flow of **105m³/s** according to the MMM hydrologic modelling (revised on February 9, 2009).

It was noted that the Regional Storm peak flow to this point in the system differs slightly from the flow discussed in the Cumming-Cockburn Flood Relief Study. In that report the Regional peak flow was estimated to be **102m³/s**. This difference is insignificant however since the purpose of this investigation was to assess the downstream effect from the loss of storage due to the installation of the twin culverts described in the 1983 report, the Regional peak flow from that report has been used. To recreate this peak flow, the hydrology described in Section 3 of the 1983 report was recreated in SWMHYMO. See attached input and output files in Appendix A.

The next step was to determine how much storage there is within the floodplain in this area. This was done using the DTM that was provided by the Region and the stage-storage curve was generated using Civil-3D.

A stage-discharge rating curve was then generated for the proposed twin box culvert using CulvertMaster. The tailwater rating curve was developed using flow and flood elevation information taken from the hydraulic (HEC-2) model. A stage-discharge rating curve for the existing culvert was taken from the Cumming-Cockburn Flood Relief Study, Figure 4.1. These rating curves were combined with the stage-storage curve to create existing and proposed discharge-storage rating curves which SWMHYMO uses in the Route Reservoir command.

Results

As shown in the SWMHYMO output file in Appendix A, routing the hydrograph through the reservoir under existing conditions results in a 6% reduction in peak flow and the total storage volume used is 23.4 ha.m. Routing the hydrograph through the reservoir under proposed conditions results in a 1% reduction in peak flow and the total storage volume used is 3.5 ha.m.

In conclusion, the difference in peak flow reduction is relatively minor which indicates that the loss of storage from an increase in conveyance capacity of the Brock Street culvert should not have significant effects on the downstream watercourse.

Please contact me directly if any further information or clarification is required.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Warburton', followed by a long horizontal line extending to the right.

P. Warburton, P.Eng.

McCormick Rankin Corporation

APPENDIX A

SWMHYMO INPUT / OUTPUT FILES

```

* Output filename: K:\Projects\7400-7-1\7407-U-1\21-HYD-1\CC.out
* Summary filename: K:\Projects\7400-7-1\7407-U-1\21-HYD-1\CC.sum
* User comments:
* 1:
* 2:
* 3:

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RUN: COMMANDH
001:0001-----
START
(TZERO = .00 hrs on 0)
(METOUT= 2 (1=imperial, 2=metric output))
(MSTORM= 0)
(NRUN = 1)
001:0002-----
READ STORM
Filename = Haz12hr.stm
Comment =
(SDT=60.00:SDUR= 13.00:PTOT= 212.00)
-----ID:NHYD-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C
.597 CALIB WASHVD 01:100 733.00 44.808 No_date 12:00 147.77
[CN= 77.0: N= 2.10]
[TP= 1.85:DT=15.00]
001:0004-----ID:NHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C
.597 CALIB WASHVD 02:101 642.00 33.504 No_date 11:45 147.77
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n/a + 02:101 642.00 33.504 No_date 11:45 147.77
n/a + 03:102 653.00 22.455 No_date 12:00 147.77
n/a (DT= 5.00) SUM= 04:000200 2028.00 100.713 No_date 12:00 147.77
001:0007-----ID:NHYD-----AREA-----OPEAK-TpeakDate_hh:mm-----R.V.-R.C
n/a ROUTE RESERVOIR -> 04:000200 2028.00 100.713 No_date 12:00 147.77
n/a (RDT= 5.00) out<- 05:009999 2028.00 94.552 No_date 12:40 147.77
n/a (MaxStoUsed=.2340E+02)

```

6% ↓

↳ 23.4ha.m = 234 000 m³

```

SSSSS W W M H H Y Y M M O O O 999 999
S W M M M H H Y Y M M M O O O 9 9 9 9 9 Ver. 4.02
SSSSS W W M M M H H H H H Y Y M M M O O O 9999 9999 July 1999
SSSSS W W M M H H Y Y M M O O O 9 9 9 9 9
StormWater Management Hydrologic Model 9 9 9 9 9 # 4313781

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***** SMHYMO-99 Ver/4.02 *****
***** A single event and continuous hydrologic simulation model *****
***** based on the principles of HYMO and its successors *****
***** OTTHYMO-83 and OTTHYMO-89. *****
***** Distributed by: J. F. Sabourin and Associates Inc. *****
***** Ottawa, Ontario: (613) 727-5199 *****
***** Gatineau, Quebec: (819) 243-6858 *****
***** E-Mail: smhymo@fesa.Ccm *****

```

```

***** Licensed user: McCormick Rankin Corporation *****
***** Kitchener SERIAL# 4313781 *****
***** *****
***** ***** PROGRAM ARRAY DIMENSIONS *****
***** Maximum value for ID numbers : 10 *****
***** Max. number of rainfall points : 15000 *****
***** Max. number of flow points : 15000 *****

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***** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) *****
***** ID: Hydrograph Identification numbers. (1-10). *****
***** NHYD: Hydrograph reference numbers. (6 digits or characters). *****
***** AREA: Drainage area associated with hydrograph, (ac.) or (ha.). *****
***** OPEAK: Peak flow of simulated hydrograph, (ft3/s) or (m3/s). *****
***** TpeakDate_hh:mm is the date and time of the peak flow. *****
***** R.V.: Runoff Volume of simulated hydrograph, (in) or (mm). *****
***** R.C.: Runoff Coefficient of simulated hydrograph, (ratio). *****
***** **: see WARNING or NOTE message printed at end of run. *****
***** **: see ERROR message printed at end of run. *****

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***** S U M M A R Y O U T P U T *****
***** DATE: 2008-12-08 TIME: 14:56:48 RUN COUNTER: 000420 *****
***** Input filename: K:\Projects\7400-7-1\7407-U-1\21-HYD-1\CC.dat *****

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PT
1/6

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FINISH
-----
WARNINGS / ERRORS / NOTES
-----
Simulation ended on 2008-12-08 at 14:56:48
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3.5 ha.m = 35000 m³

Input.

File: K:\Projects\7400-7599\7407 - Uxbridge Flooding EA - TOR\21-Hydrology\CC.d
t 08/12/2008, 3:56:44PM

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2
*
*
*-----*
* McCormick Rankin Corporation
* Nov. 2008
* P. Warburton
*-----*
*
*-----*
* Uxbridge TOR EA - Project Number 7407
* Existing Drainage Conditions using Cumming Cockburn Catchments
*-----*
*
* SIMULATION STARTS AT 0.0 HRS
*-----*
*
* Use 48 Hr Hurricane Hazel
* TIME= 0 METOUT= 0 NSTORM=1 NRUN=001
*
* MASS STORM
* PTOTAL=[285.0] (mm), CSDT=[5] (min),
* Hazel48.mas
*
*-----*
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* ADD HYD
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File: K:\Projects\7400-7599\7407 - Uxbridge Flooding EA - TOR\21-Hydrology\CC.d
t 08/12/2008, 3:56:44PM

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*-----*
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*-----*
*
* ROUTE RESERVOIR ID NHYD IDIN DT
* 5 9999 4 5
* DISCH.
* 0 0.00
* 2 0.02
* 6 0.10
* 10 0.26
* 11 0.51
* 14.2 1.45
* 15.7 2.33
* 16.8 3.58
* 18 5.21
* 18.8 7.29
* 20 9.81
* 36.40 11.22
* 52.80 12.63
* 69.20 15.78
* 85.60 19.72
* 102 26.45
* 118.40 34.71
* 134.80 44.97
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* 167.60 68.77
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* 33 0.26
* 50 0.51
* 65 0.88
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* 90 2.33
* 100 3.58
* 110 5.21
* 120 7.29
* 130 9.81
* 135 11.22
* 140 12.63
* 145 15.78
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* 165 26.45
* 170 34.71
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* FINISH
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at 08/12/2008, 3:56:44PM

TERMS OF REFERENCE

**UXBRIDGE DOWNTOWN FLOOD REDUCTION
CLASS ENVIRONMENTAL ASSESSMENT STUDY**

April 2010

Table of Contents

1.0	GENERAL.....	1
1.1	STUDY PURPOSE	1
1.2	STUDY AREA	1
1.3	STUDY BACKGROUND.....	1
1.4	STEERING COMMITTEE / PROJECT TEAM.....	4
2.0	BACKGROUND REPORTS AND DATA COLLECTION	4
3.0	SCOPE OF SERVICES.....	6
3.1	PUBLIC PARTICIPATION.....	8
4.0	STUDY SCHEDULE AND DOCUMENTATION	9
5.0	STUDY ADMINISTRATION	10
6.0	PROPOSAL INSTRUCTIONS	10
6.1	TECHNICAL AND MANAGEMENT COMPONENT	10
6.2	DETAILED WORK PLAN, SCHEDULE AND FINANCIAL COMPONENT.....	12
6.3	FINAL SELECTION METHOD	13
6.4	NEGOTIATIONS.....	13
6.5	AWARD	14
6.6	PROPONENT NOTIFICATION.....	14

Appendices

Appendix A - Floodplain Mapping in Downtown Area.

1.0 GENERAL

1.1 Study Purpose

The Township of Uxbridge and the Region of Durham (from here on in referred to as the Region-Township) have become aware that a culvert which conveys the Uxbridge Brook under a portion of Downtown Uxbridge will require replacement due to structural condition. The Region/Township has recognized this as an opportunity to also examine reducing the risk of flooding in this area. Therefore they are embarking on a *Municipal Class Environmental Assessment Study (Class EA Study)* to alleviate if not eliminate the potential risks associated with flooding in part of the downtown area of the Town of Uxbridge.

Specifically, the objectives of this study are 1) provide a preliminary design for a recommended culvert replacement 2) to reduce potential risk to life and properties associated with flooding in the downtown area and 3) reduce the extent of the Regulated Floodplain that currently encompasses a large portion of the downtown area.

The project shall be completed as a Schedule “C” Class Environmental Assessment in accordance with the requirements of the Municipal Class EA (MEA 2000, as amended in 2007). The Consultant will be responsible for completing Phases 1, 2, 3 and 4 of the Class EA.

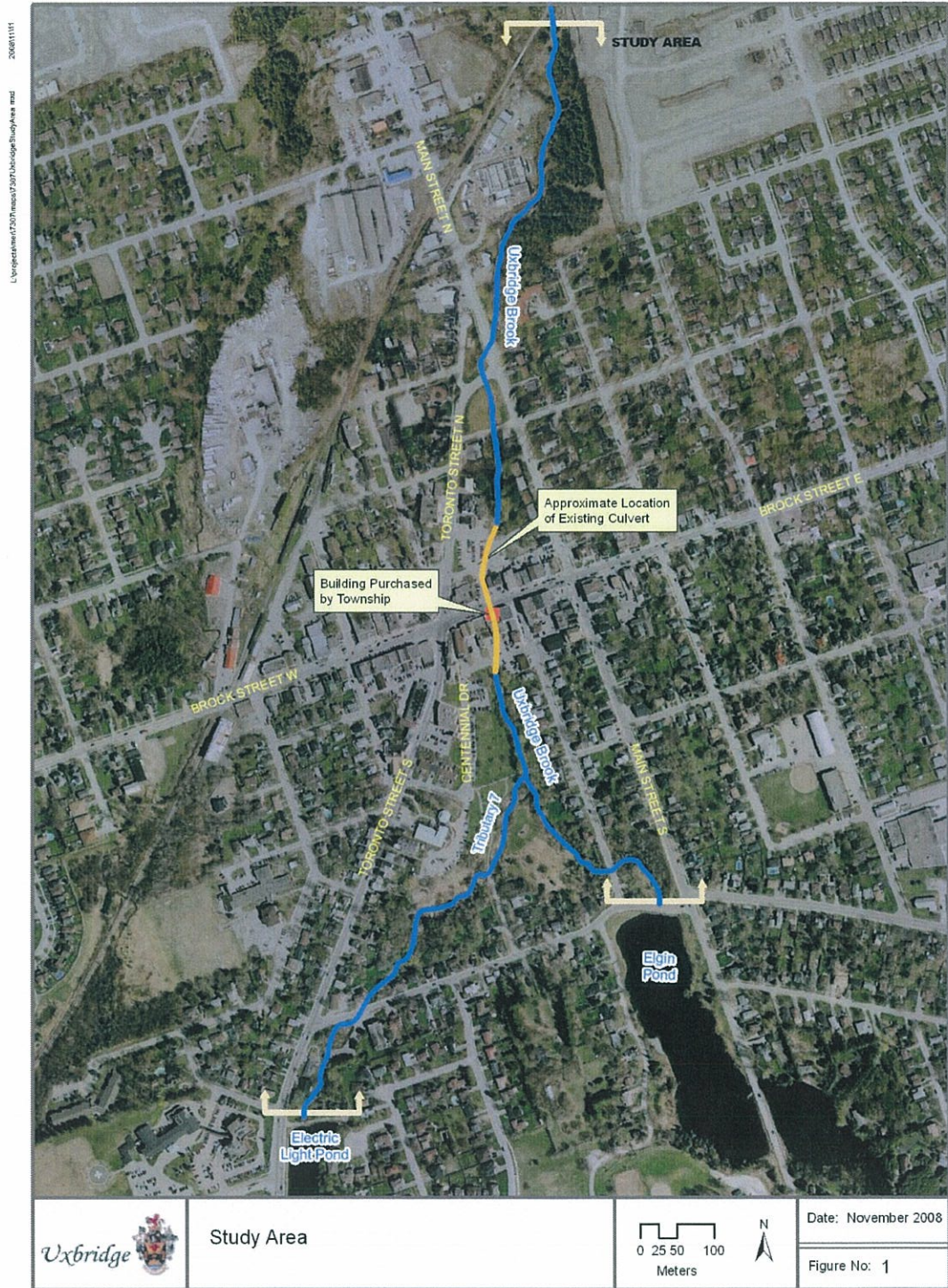
1.2 Study Area

The Study Area will initially be considered the Regulated Floodplain Area along the stream reaches of Uxbridge Brook just downstream of the dams at Electric Light Pond and Elgin Pond to the railway just north of Regional Road #1 (Main Street North - See Figure 1 and Appendix A). However, as the study progresses there may be a need to expand the extent of the Study Area in order to fully understand the upstream and downstream effects of alternative works.

1.3 Study Background

As with many communities in Ontario, development within the Township of Uxbridge has been centred on a natural drainage system, namely Uxbridge Brook (see Figure 1). Uxbridge Brook has a total watershed area of 178km² upstream of its outlet into Pefferlaw River. As it flows north from its headwaters on the Oak Ridges Moraine, the Brook crosses four municipal boundaries, with the majority of its length in the Township of Uxbridge within the Regional Municipality of Durham and smaller portions within the Townships of Scugog and Brock and in the Town of Georgina in the Regional Municipality of York. The underlying aquifers represent a regionally

significant groundwater resource, and the headwaters of Uxbridge Brook support an important coldwater fishery identified by the Ministry of Natural Resources (MNR) and the Lake Simcoe Region Conservation Authority (LSRCA).



The Regulatory Floodplain Area (established by the LSRCA) currently encompasses a large portion of the downtown core of the Town of Uxbridge (see Appendix A). A previous study (*Flood Relief Study of the Town of Uxbridge*, Cumming-Cockburn and Associates, 1983) commissioned by Lake Simcoe Region Conservation Authority (LSRCA) investigated the flood hazard during the Regional Storm event that exists for lands adjacent to the main branch of the watercourse, particularly between Elgin Pond and just downstream of Brock Street.

The study concluded that a long (approximately 200m) culvert which encloses Uxbridge Brook between Pond Street (now called Centennial Drive) and the north limit of the parking lot 100 metres north of Brock Street, (see Figure 1) acts as a 'bottle-neck' during the Regional Storm event. The culvert adequately conveys the flows of the 100 year design storm without causing flooding of buildings; however during the Regional Storm (with a peak flow of approximately 100m³/s) the culvert restricts flows, resulting in an increase in upstream surface water elevation.

The culvert consists of sections of CSP, concrete box, stone arch and structural plate arch. Since the time of the Cummings-Cockburn Study (CCL Study), the Township of Uxbridge has purchased the building directly above the Brock Street culvert on the south side of Brock Street. It should be noted that the middle section of this culvert (under Brock Street which is also Regional Road 8, is owned by the Region of Durham. An inspection of the culvert was conducted by Soderholm Maritime Services Inc. in March 2009. The inspection report documents the culvert condition and also makes recommendations for some rehabilitation measures and the implementation of a monitoring program. A subsequent review of the inspection by SRM Associates (dated July 8, 2009) also recommended repairs and estimated that upon completion of those repairs, the remaining service life of the culvert would be extended by approximately 10-20 years.

The CCL Study evaluated a variety of alternatives to alleviate flood risk in the downtown area and conducted structural assessments of a number of dam structures upstream of the downtown area. The study recommended that an emergency overflow culvert be constructed on top of the existing culvert to provide additional capacity. The cost of this work in 1982 dollars was estimated at approximately 1.0 million dollars.

The Regulatory Floodplain Mapping was last established by the LSRCA in 1985; which shows potential flood damage areas located primarily in the downtown area of Uxbridge (see Appendix A). The LSRCA has recently updated the flood lines for the entire watershed (April 2009) using

flows taken from the *Hydrologic Modelling Report - Pefferlaw River, Uxbridge Brook, Beaver River, White's Creek and Beaverton Creeks (MMM Group, Sept 2008)* and revised modelling for Uxbridge Creek submitted in February 2009.

1.4 Steering Committee / Project Team

A Steering Committee will be established by the Region-Township's Project Manager upon commencement of the study which will consist of staff from the Township of Uxbridge and the Region of Durham as well members of stakeholder groups and review agencies. The "Project Team" will include the consultant's project staff and members of the Steering Committee.

2.0 Background Reports and Data Collection

Background information for this study includes, but is not limited to the following:

Flood Relief Study of the Town of Uxbridge (Cumming-Cockburn and Associates, 1983)

This study investigated the downtown flooding problem in detail and concluded that a severe flood hazard under the Regional Storm event exists for lands adjacent to the main branch of Uxbridge Brook, especially between Elgin Pond and just downstream of Brock Street. This study also concluded that the flood hazard is due to the presence of a long culvert which encloses the watercourse between Pond Street (Centennial Drive) and the north limit of the parking lot, 100 metres north of Brock Street. This study recommended that an emergency overflow culvert be constructed on top of the existing culvert to provide the required capacity.

Uxbridge Brook Watershed Plan (Lake Simcoe Region Conservation Authority, 1997)

The Uxbridge Brook Watershed Plan identifies resources, management issues, and recommends development constraints and best management practices for the watershed. The study approach consisted of five steps, as follows:

1. Creating an Organizational Structure
2. Background Review, Data Collection and Analysis
3. Establishing Watershed Goals, Objectives and Land Use Scenarios
4. Developing Constraints and Remedial Strategies
5. Selecting Management Alternatives, Establishing Evaluation and Monitoring Strategies.

Hydrologic Modelling Final Report, Pefferlaw River, Uxbridge Brook, Beaver River, White's Creek and Beaverton Creeks (MMM Group, Sept 2008) and revised modelling for Uxbridge Creek submitted in February 2009

This study involved updating the hydrologic models for the Pefferlaw River, Uxbridge Brook, Beaver River and White's Creek watersheds and the development of new hydrologic models for eight (8) small tributaries of Lake Simcoe collectively referred to as the Beaverton Creeks.

The updated and new hydrologic models were developed using the Visual OTTHYMO v2.0 software package. The updated models reflect existing and committed future land-use scenarios for the watersheds. As part of the model development process, available stream flow and meteorological data were used to calibrate and validate the hydrological models.

Technical Memorandum – Hydrotechnical Assessment of Downstream Effects (McCormick Rankin Corporation, December, 2008*REVISED March 29, 2010***)**

The Region-Township retained McCormick Rankin Corporation to conduct a basic assessment of potential downstream effects of a combination of flood reduction alternatives presented in the *Flood Relief Study of the Town of Uxbridge* (Cumming-Cockburn and Associates, 1983). This memo provides details of that assessment.

Inspection Report – Uxbridge Brook Culvert (Soderholm Maritime Services Inc., March 2009)

An inspection of the Uxbridge Brook Culvert was conducted by Soderholm Maritime services Inc. on behalf of the Region of Durham in March 2009. The inspection included video documentation through the length of the culvert. The inspection report documents the conditions and measurements of each section, each transition and of other spots of note throughout culvert. The inspection report also makes recommendations for some rehabilitation measures and the implementation of a monitoring program.

Facsimile from John Semjan P.Eng. (SRM Associates) to Paul Foster (Region of Durham) July 8, 2009 Re: Review of Video Record of Culvert Inspection, Uxbridge Brook Culvert

SRM Associates was asked by the Region of Durham to review the video inspection of the Uxbridge Brook Culvert and provide an opinion with respect to the structural condition of the stone arch section of the culvert under Brock Street as well as recommendations for any needed

repairs. In this correspondence Mr. Semjan outlines recommended repair work and notes if this work is completed the useful service life of this section of the culvert will be extended by approximately 10-20 years.

Uxbridge Brook Culvert Inspection Report (AECOM, October 15, 2009)

The Town of Uxbridge requested AECOM conduct a physical condition assessment of the Uxbridge Brook culvert. The assessment was made by walking through the culvert and this report summarizes the finding of that investigation.

Other related data / information that will be made available by the Region-Township will include:

- Digital topographic and base mapping of the Study Area
- Detailed survey field book file (FBK) of the Study Area (to be completed by the Region of Durham)
- Plan and profile drawings of municipal services with the Study Area
- Hydrologic model (Visual OTTHYMO v2.0) updated February 9, 2009
- Hydraulic model (HEC-2 v4.6.2)

3.0 SCOPE OF SERVICES

The consultant will be responsible for all the work associated with the successful completion of Phases 1, 2, 3 and 4 of the Municipal Class Environmental Assessment (MEA 2000, as amended in 2007), including technical analysis, environmental assessment, public consultation and preparation of the preliminary design drawings of the preferred alternative. This study is to be completed in accordance with requirements of Schedule “C” of the Class EA process.

For the purposes of this study, the upstream dam structures are to be considered structurally sound. The anticipated tasks to be undertaken as part of this study should include, but are not limited to the following:

1. Develop a clear Statement of Problems and Opportunities.
2. Prepare a Public Consultation Plan (See more detail regarding public consultation requirements in Section 3.1).

3. Review and document any reported flooding within the Study Area.
4. Review Regulatory Floodplain mapping of the Study Area (to be updated by the LSRCA).
5. Investigate and assess the existing environmental conditions within the Study Area:
 - Conduct a thorough review of all available relevant environmental information for the study area and confirm environmental issues requiring further investigation;
 - Consult with appropriate regulatory agencies and all other interested stakeholders (residents, field naturalists, etc.) to identify any specific issues or concerns relative to natural features;
 - Complete field inventory and assessment of aquatic and terrestrial resources;
 - Ensure that all regulatory agency (LSRCA, MNR and DFO) interests are considered, as well as the interests of the Town of Uxbridge and the Region of Durham;
 - Conduct a Stage I Archaeological Assessment within any potential construction limits.
6. Review and consider recommendations of the Uxbridge Brook Watershed Plan and identify any opportunities to implement the recommendations while addressing the flood reduction objective.
7. Conduct a detailed survey of the existing culvert's layout under Brock Street.
8. Prepare a preliminary design for culvert replacement to accommodate hydrotechnical requirements
9. Identify all reasonable and feasible solutions that will reduce the flood risk in the downtown area, reduce the extent of the downtown area currently within the Regulatory Floodplain and take advantage of any environmental enhancement opportunities.

10. Evaluate alternative solutions using a method that will meet the Class EA Schedule “C” requirements. This process shall include, but is not limited to, the following evaluation factors:
 - Effectiveness of mitigation measures with respect to achieving Study objectives
 - Potential impact to downstream watercourse (flooding, erosion etc.)
 - Social/community impacts
 - Natural environment impacts
 - Cost (life cycle)
11. Obtain endorsement of a preferred solution from review agencies (e.g. LSRCA).
12. Identify and evaluate design alternatives for the preferred solution.
13. Prepare a preliminary design of the preferred alternative that will include, but not be limited to; a construction staging plan, detailed evaluation of downstream effects with respect to flooding and erosion potential, structural assessment of building removal feasibility, and identification of conflicts with utilities and regional services.
14. Make recommendations for any monitoring that is to be carried out once the preferred alternative is in place.

3.1 Public Participation

The Region-Township anticipate a high level of public interest and participation in this study and therefore intend to exceed the minimum requirements set out in the Municipal Class Environmental Assessment process by including a discretionary Public Information Centre (PIC) during Phase 1. A minimum of three (3) PICs should be allowed for.

Public participation shall be encouraged through PICs which will be held to disseminate information about the study to the public and solicit their input. The PICs will allow for one-on-one discussions between members of the Project Team and members of the public. They will include informative displays and may include a formal presentation and handouts.

The consultant will be responsible for preparing any display materials that the consultant, in consultation with the Region-Township's Project Manager, deems appropriate. The consultant will be responsible for printing the display materials. The consultant will submit display material

ten (10) days in advance of the PIC events in order to allow Region-Township staff an appropriate period of time for review/edit of display materials. In addition the Consultant will prepare a Notice of Study Commencement, notices of Public Information Centres and a Notice of Study Completion and the Region-Township will be responsible for their publication. The Region-Township will be responsible for the arrangement and payment for the PIC venues.

4.0 STUDY SCHEDULE AND DOCUMENTATION

The consultant will prepare and provide 10 hard copies and 1 digital copy on a CD (including all models and exhibits) of the DRAFT Environmental Study Report documenting all aspects of the study in accordance with the Class Municipal EA process. This report should clearly identify the legislative requirements (permits) for any works recommended as a result of this study.

The consultant will prepare and provide 10 hard copies and 1 digital copy on a CD (including all models and exhibits) of the FINAL Environmental Study Report documenting all aspects of the study in accordance with the Class Municipal EA process. This report should clearly address any comments received on the DRAFT Report from the Region-Township, stakeholders and review agencies. The Region-Township will be responsible for obtaining Council endorsement and filing of the document on the public record.

August 2011 is the desired completion date of the Final Environmental Study Report (ESR). However, it is noted the nature of this type of study may require a longer schedule period. The consultant shall allow a minimum of 3 weeks for the review of the draft ESR and 3 weeks for the review and acceptance of the final ESR. All deliverables must be accepted by the Region-Township prior to release to the agencies or the public.

Note: It will not be within the scope of services of the consultant to deal with concerns resulting from an order by the Minister requiring the Region-Township to comply with Part II of the EA Act.

The consultant shall ensure the quality of the deliverables and that they meet the requirements of this Terms of Reference, the Municipal Class Environmental Process and the needs of the Region-Township.

5.0 STUDY ADMINISTRATION

Ben Kester will be the Region-Township's Project Manager, responsible for day to day contact and regular liaison with the consultant on behalf of the Region-Township. The consultant will be responsible for preparing the agendas and minutes and any other materials required for all meetings related to this study. A minimum of five (5) meetings with the Steering Committee shall be held as needed to discuss and address any issues that may rise.

6.0 PROPOSAL INSTRUCTIONS

The *Proposal* shall consist of two (2) parts, submitted in separate envelopes:

- Technical and Management component, which shall include all items, outlined in Subsection 6.1
- Financial component, which shall include all of the items outlined in Subsection 6.2.

For the Region-Township to fairly and completely evaluate the *Proposals*, *Proponents* should provide all of the information requested in the form set out in the *RFP*, and are encouraged to offer their best terms/conditions in their *Proposals*. Failure to comply may result in the *Proponent* being disqualified or scoring poorly in the evaluation. *Proponents* must explain any deviation from the requirements of the *RFP* in their *Proposals*.

Consultants should submit Proposals no later than 2:00pm Noon, Wednesday, May 5th 2010 addressed to:

Ben Kester
Director of Public Works
Township of Uxbridge
51 Toronto Street South
P.O. Box 190
Uxbridge, Ontario
L9P 1T1

6.1 Technical and Management Component

The Technical and Management component of the *Proposal* shall describe the *Proponent's* proposed team and approach for providing the *Services* described in Section 3. The document

shall not exceed **fifteen (15)** pages in length, **inclusive of all figures** such as time schedules and organizational charts.

The *Proponent* shall type the *Proposal* using a minimum 11 point font on standard 8 ½” x 11” letter size sheets, with at least 1” margins. Three (3) standard 11” X 17” ledger size sheets may be substituted for three (3) of the letter size sheets. The ledger size sheets shall only be used for figures and shall not be utilized for text. ***Proposals not adhering to these specifications will be disqualified.***

The Technical and Management component shall provide the following information:

a) Project Team (40%)

- Proponent qualifications and experience with similar projects
- Co-ordination of disciplines and team organization
- Project Manager and key team member qualifications and experience (*Note: The Region-Township will not accept any key personnel changes during the project except under extenuating circumstances and even then only with the written approval of the Region-Township’s Project Manager.*)
- Public involvement approach and experience
- Familiarity with the study area
- Overall project management plan
- The proponent’s general approach and/or policy on quality control of its work.

b) Approach and Methodology (35%)

- Comprehension of scope of services and study requirements
- Understanding of specific site conditions
- Sensitivity to local issues
- Approach to all phases of the services
- Letter of Interest quality, clarity and completeness

Each criterion within these categories will be scored based on the following system:

- 0 = does not meet requirements
- 1 = partially meets requirements
- 2 = addresses requirements
- 3 = exceeds requirements
- 4 = exceptional

Equal scores may be assigned to more than one *Proposal* if the submissions are judged to be of equivalent quality.

The *Township's Project Manager* will compile the evaluations completed by the selection committee members and sum the individual scores to compute an aggregate score for each criterion. The aggregate individual criterion scores will then be summed to calculate the aggregate category scores.

The remaining 25% is reserved for the detailed work plan, schedule and financial component which will only apply to the short-listed consultants. Once the short list has been established a question period will be defined.

6.2 Detailed Work Plan, Schedule and Financial Component

Once the Technical and Management component evaluations are completed, the *Township's Project Manager* will open "Envelope 2" (Detailed work plan, schedule and financial component) for the remaining *Proposals*.

- a) **Detailed Work Plan and Schedule (5%).**
- b) **Financial Component (20%)**

The consultant shall submit with their estimate a cost breakdown by major tasks including hourly rates for key personnel and support team members.

Invoices will be submitted on a monthly basis and should include documentation on the percent complete for each of the major tasks. The Financial component of the Proposal will be scored based on the relative pricing scale with respect to the lowest price. The remaining *Proposals* will be scored in the following scale based on the relative pricing differential.

Price Comparison	Mark Awarded
Lowest price	20 %
Within 5% of the lowest price	16 %
>5% to 10% of the lowest price	12 %
>10% to 15% of the lowest price	8 %
>15% to 25% of the lowest price	4 %
Exceeds 25% of the lowest price	0 %

6.3 Final Selection Method

The *Township's Project Manager* will compile the Technical and Management component evaluations prepared by the selection committee members and compute the aggregate score for each *Proponent*. This score will be combined with the Detailed Work Plan, Schedule and Financial Component score to determine the rankings of the compliant *Proposals*.

Once the rankings have been completed, the Region-Township may conduct interviews with any or all *Proponents* to clarify or obtain more information about their *Proposals*. The Region-Township reserves the right to select which, if any, *Proponents* will be interviewed. All selection committee members will be invited to participate in the interviews, which will be structured as follows:

- *Proponent* introductions and presentation of the *Proposal* (20 minutes)
- Questions from the selection committee (15 minutes)
- Questions from the *Proponent* (5 minutes)

6.4 Negotiations

The *Township* may elect to initiate negotiations with the selected *Proponent* prior to issuing the *Award*. This option rests solely with the *Township*.

The *Township* reserves the right to add terms and conditions during negotiations. These terms and conditions will be within the scope of the *RFP* and will not affect the *Proposal* evaluations.

The *Township* may terminate negotiations with the selected *Proponent* and commence negotiations with the next highest ranked *Proponent* if the selected *Proponent*:

- Fails to provide information required to begin negotiations in a timely manner;
- Fails to negotiate in good faith;
- Indicates they cannot perform the *Services* within the available budget; or
- Cannot come to terms with the *Township*, after a good faith effort.

Upward price negotiation will not be permitted.

6.5 Award

The selected *Proponent* will be formally notified of the *Award* in writing to the address given on the “Form of Proposal” and may be contacted by phone to advise of the decision. The *Township* reserves the right to:

- Issue an *Award* in whole or in part for this assignment;
- Refrain from making an *Award* if it determines that to be in its best interest

The *Township* may make an *Award* solely on the basis of the *Proposals* received without discussion. *Proponents* are encouraged to offer their best terms/information in their *Proposals*, including all required documentation as listed in this *RFP*. Low bid does not necessarily constitute an *Award*.

If the selected *Proponent* is not prepared to provide the *Services* at the price submitted, they will be permitted to withdraw without prejudice. The *Township* will then decide the most appropriate course of action (i.e. recommend *Award* to or negotiate with another *Proponent*, or conduct a subsequent *RFP* process).

6.6 Proponent Notification

The *Township's Project Manager* will notify the *Proponents* in writing of the *Township's* decision.

