September 23, 2009

Mr. Binu Korah
Manager Development Engineering
City of Kitchener
9th Floor-200 King Street West
Kitchener, ON, N2G 4G7

Dear Mr. Korah:

Re: Doon South Sanitary Pumping Station and Forcemain Schedule ‘B’ Class Environmental Assessment

We are pleased to provide the Final Draft of the “Doon South Sanitary Pumping Station and Forcemain Schedule ‘B’ Class Environmental Assessment (EA)” Project File. It characterizes the constraints and opportunities within the existing system, provides an outline for sanitary servicing alternatives for Phase II of the Doon South Community including lands beyond the approved Urban Boundary.

Once we have received comments, revisions will be made and a final report issued. Should you have any questions regarding this report, please contact the undersigned at your convenience.

Sincerely,

AECOM Canada Ltd.

Duncan McLeod, P.Eng.
Senior Project Manager
Duncana.mcleod@aecom.com

DM:sm
Encl. Doon South Sanitary Pumping Station Schedule ‘B’ Class Environmental Assessment
cc: Sharon Daniel
Executive Summary

The City of Kitchener is responsible for operating and maintaining the sanitary sewer networks and pumping stations within its' boundaries. The City's 2004 Development Charge Background studies had identified the need to establish new sanitary sewer pumping station(s), trunk sewer(s) and forcemain(s) to provide wastewater servicing for the Doon South Community Plan area.

The primary goal of this study was to identify and define a publicly acceptable solution which will provide the developing Phase II Doon South Community Plan and any future developments beyond the approved Urban Boundary, with a means of delivering their sanitary wastewater to the Region of Waterloo's, Kitchener Wastewater Treatment Plant.

This study has been completed as a Schedule “B” Class Environmental Assessment in accordance with Municipal Engineers Association document "Municipal Class Environmental Assessment, October 2000, as amended in 2007". The Class Environmental Assessment (Class EA) process included consultation with the public, agencies and stakeholders through the issuance of a Notice of Commencement, the development and regular updating of a contact list and two Public Information Centres (PIC) to present the findings and receive comments.

The purpose statement for the Doon South Pumping Station Class EA is defined as follows:

• The City is preparing a development strategy for the development of the Doon South Planning area in the City of Kitchener. This study will consider current sanitary system capacities, future service area demands and future growth strategies;
• With input from the general public and interested stakeholders, the City of Kitchener is developing a sanitary sewer strategy for the design of a sanitary sewer pumping station(s) that will accept flows from the local catchments and deliver the flows through a forcemain(s) to an existing or proposed sanitary sewer system so that flow can be transported to the Kitchener Wastewater Treatment Plant;
• The design and location of the sanitary sewer pumping station will be designed in a manner which:
  • Protects human health and property;
  • Protects and enhances significant aspects of the natural environment;
  • Addresses current and anticipated regulatory requirements/changes;
  • Is fiscally responsible;
  • Provides a collection system of sanitary sewer flows that supports re-urbanization and targeted Greenfield development within the Doon South Planning area; and
  • Provides security of collection systems for future urbanization.

Notice of Commencement

A Notice of Commencement was issued October 2, 2008. The Notice of Commencement was advertised in the Record newspaper, on the City of Kitchener website and by direct mail to all stakeholders.
Notice of Public Information Centres

Two Public Information Centres (PICs) were held in order to present the information to the general public. The PICs were advertised in advance on the City of Kitchener’s website, as well as twice in the local newspaper. In addition, notices were sent by mail to local residents and stakeholders.

Notice of Completion

A Notice of Completion, including the compilation of the Doon South Pumping Station Class Environmental Assessment Study Report and the availability of the draft report for public review and comment, was published in the local newspaper.

The Phase II lands were originally planned to be developed as "Limited Service Residential" (or Estate Residential) on individual septic systems rather than City sanitary sewers, as they could not be serviced by the City's gravity sewer system. The study limits for the proposed pumping station(s) were expanded to include the lands bounded by Riedel Road to the east, Blair Creek to the north, New Dundee Road to the south and the South Strasburg Class EA boundary to the west.

The population projection for Phase II of the Doon South Community Plan is based on a zoning of "Low Density Residential", and 56 persons per hectare (ppha). The total projected population is 18,615 people.

Wastewater flow is based on projected population, wastewater generation per person and infiltration allowances. The total wastewater generation from Doon South Phase II Community Plan and additional lands beyond the Urban Boundary is approximately 0.211 m³/s.

Infrastructure Review

A review of the following existing infrastructure within and around the Doon South area including the Homer Watson Pumping Station was undertaken in an effort to identify a suitable outlet location for the wastewater from the Doon South Pumping Station (DSPS).

Doon South Trunk Sanitary Sewer

The sewer reach at the intersection of Doon South Drive and Robert Ferrie Drive transitions from a 375mm dia. pipe with a bed slope of 2.75% to a 450mm dia. pipe with a bed slope of 0.4%. The 375mm dia. pipe has a capacity of 291 L/s and the 450mm dia. pipe has a capacity of 180 L/s. The DSPS can convey approximately 47 L/s into the Doon South Trunk Sewer. At the zoning density of 56 ppha this flow equates to approximately 30 ha.

Homer Watson Pumping Station (HWPS)

The HWPS requires upgrades that include emergency storage. To accommodate one hour of wastewater when the rated capacity is 309 L/s, an emergency storage tank of 1,120 m³ is required. Special design considerations need to be taken into account in the design of the emergency storage tank such as; water
proofing, weight of the structure to resist the effects of buoyancy, dewatering of the excavation during construction and due to limitations of the site, the type of construction (i.e. sheet pile vs. trench sloping).

**Strasburg Direct Trunk Sanitary**

The 2007 Stantec report *South Strasburg Gravity Trunk Sanitary Sewer Schedule ‘B’ Class Environmental Assessment*, studied the lands in the southwest quadrant of Kitchener. It identified the lands to be serviced by a gravity trunk sanitary sewer to the Strasburg Direct Trunk Sanitary Sewer. The results from the review by AECOM indicate that sufficient capacity may not be available. Accordingly, AECOM made the following recommendations to the City:

- Further increase the study area for the DSPS to include lands from the South Strasburg Class EA; or
- Conduct dynamic hydraulic modelling of the downstream Strasburg Direct and Pioneer Trunk Sanitary Sewer Systems.
- Identify hydraulic deficiencies, and recommend remedial actions necessary to upgrade the trunk sewers systems where required.

Guidelines for evaluation criteria have been set out in the Class EA document, *Municipal Class Environmental Assessment, October 2000, as amended in 2007*. The key considerations for wastewater projects have been listed below:

1. Land-Use Planning Objectives
2. Natural Heritage Features
3. Social Environment
4. Cultural Environment
5. First Nations/Aboriginal Peoples
6. Economic Environment
7. Property

The preferred alternative is identified as Alternative 4-1 Option B. This servicing scenario presents an interim and long-term solution and includes upgrades to the HWPS. Area A1 is serviced by existing gravity sewer to the HWPS, and an interim flow of approximately 47L/s is serviced from the DSPS to the HWPS. Accordingly, any combination of lands within the yellow area (Figure 5.6) can be serviced until a flow of 47L/s is reached at the DSPS or the HWPS reaches its rated capacity of 309L/s.

In conclusion, the Phase II Doon South Community can be serviced using one sewage pumping station as the preferred solution describes, Alternative 4-1 Option B. The DSPS pumping station will be serviced on a temporary basis with a small diameter forcemain to the HWPS. However, ultimately the DSPS will be serviced to the Schneider Trunk Sanitary Sewer by 2-300mm dia. forcemains.
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1. Introduction

1.1 Background

The City of Kitchener is responsible for operating and maintaining the sanitary sewer networks and pumping stations within its boundaries. The City’s 2004 Development Charge Background studies (Development Charges By-Law, 2004-156) identified the need to establish new sanitary sewer pumping station(s), trunk sewer(s) and forcemain(s) to provide wastewater servicing for Phase II of the Doon South Community Plan.

Phase II of the Doon South Community Plan is located in the southernmost portion of the City as seen in Figure 1.1. A large portion of these lands are within the Blair Creek sub-watershed boundary. The Blair Creek sub-watershed has been designated as environmentally significant or sensitive. Accordingly, it is the intent of this study to evaluate wastewater servicing alternatives to allow growth and development of the Phase II Doon South Community Plan, and to provide recommendations for mitigation measures during construction in order to preserve the natural features of this area.

![Figure 1.1: Location of Study Area](image-url)
1.1.1 Objectives of the Class Environmental Assessment

The primary goal of this study is to identify and define a publicly acceptable solution which will provide Phase II of the Doon South Community Plan and potentially future developments beyond the Urban Boundary, with a means of delivering their sanitary wastewater to the Region of Waterloo's, Kitchener Wastewater Treatment Plant. The following objectives are to be achieved within the purpose of this study:

- Protection of the environment, as defined in the Environmental Assessment Act, through the wise management of resources. This goal will be met through monitoring (i.e. groundwater), mitigation, and extensive consultation with all affected and interested parties;
- Minimal disruption to existing residents and travellers during construction;
- Participation of a broad range of stakeholders in the study process to allow for sharing of ideas, education, testing of creative solutions, and development of alternatives; and
- Documentation of the study process in compliance with all phases of the Municipal Class Environmental Assessment process.

This study has been completed as a Schedule “B” Class Environmental Assessment in accordance with Municipal Engineers Association document “Municipal Class Environmental Assessment, October 2000, as amended in 2007”.

1.1.2 Related Studies and Background Information

To initiate the project, AECOM met with City of Kitchener Engineering, Operations and Planning staff to identify, review and catalogue all available background information. This information included but was not limited to:

- Operating records for Homer Watson Pumping Station;
- Oral history of the existing system;
- As-recorded drawings;
- Operating and maintenance manuals for Homer Watson Pumping Station;
- Agency policies and codes; and
- Municipal records.

Additional reports reviewed, included but were not limited to:

- South Strasburg Gravity Trunk Sanitary Sewer Schedule “B” Class Environmental Assessment – Final Report, Stantec Consulting Ltd., September 2008;
- Doon South Community Plan, City of Kitchener, Development and Technical Services Department, PD 97/16, Consolidation January 2003;
- Doon South Lands, Environmental Implementation Report, Ecoplans Limited, April 2006;
- Wastewater Treatment Master Plan, Region of Waterloo, August 2007;
- Hydrogeology Study, Doon South Phase 2, New Dundee Road and Dodge Drive, Kitchener, May 12, 2006;
• Hydrogeology Study, Stauffer Woods Subdivision, Stauffer Drive and Groh Drive, Kitchener, March 2007;
• Design Calculations, Upper Doon Sewage Pumping Station, KMK Limited, May 12, 1998;
• Upper Doon Sewage Pumping Station, Service Area Expansion Study, KMK Limited, March 1998; and,
• Horner Watson Pumping Station Evaluation, AECOM, December 9, 2008.

1.1.3 Wastewater Treatment Master Plan

In 2004, the Region initiated the Wastewater Treatment Master Plan (WWTMP) study update. The primary objective of the WWTMP (completed in 2007) was to develop a wastewater treatment strategy for approximately 35 years to ensure capacity is available to support existing and future growth throughout the Region. The WWTMP evaluated treatment projects, technologies and servicing strategies to meet the long-term needs of residents and businesses up to 2041. The WWTMP identified lands within the approved Urban Boundary, including Phase II of the Doon South Community Plan, to be serviced by the Kitchener Wastewater Treatment Plant, and as such, this study has been initiated to determine how the wastewater generated from Phase II of the Doon South Community Plan will reach the Kitchener WWTP.
2. Methodology

2.1 Project Organization

The Doon South Sanitary Pumping Station Class Environmental Assessment was conducted by AECOM Canada Ltd. in coordination with the City of Kitchener. The overall project organization and key evaluation considerations are outlined in Figure 2.1 below.

![Project Organization Diagram]

**Figure 2.1: Project Organization**
2.1.1 Project Team

The project team was made up of individuals who were responsible for "day-to-day" activities involved in the project. The project team included:

- Binu Korah  
  City of Kitchener
- Sharon Daniel  
  City of Kitchener
- Duncan McLeod  
  AECOM Canada Ltd.
- Joe Gemin  
  AECOM Canada Ltd.
- Stefan Mayirou  
  AECOM Canada Ltd.

2.2 Public and Agency Consultation Program

2.2.1 Overview

The Class Environmental Assessment (Class EA) process included consultation with the public, agencies and stakeholders through the issuance of a Notice of Commencement, the development and regular updating of a contact list and two Public Information Centres (PICs) to present the findings and receive comments. A process map of the Class EA process is provided in Figure 2.2.

The public and agency consultation program was multi-faceted and involved the following:

- Team Meetings;
- Public and Agency Notifications;
- Project Mailing List;
- An Internal Project Workshop; and
- Public Information Centres (PICs).

Further details on the public and agency consultation program are provided in Sections 2.2.2 to 2.2.4.

2.2.2 Purpose Statement

The Purpose Statement is the principle starting point in the undertaking of a Class EA study and becomes the central theme and integrating element of the project. It also assists in setting the scope of the project. Based on these considerations, the purpose statement for the Doon South Pumping Station Class EA is defined as follows:

- The City is preparing a development strategy for the development of the Doon South Planning area in the City of Kitchener. This study will consider current system capacities, future service area demands and future growth strategies;
- With input from the general public and interested stakeholders, the City of Kitchener is developing a sanitary sewer strategy for the design of a sanitary sewer pumping station(s) that will accept flows from the local catchments and deliver the flows through a forcemain(s) to an existing or proposed sanitary sewer system so that flow can be transported to the Kitchener Wastewater Treatment Plant;
Figure 2.2: Class Environmental Assessment Planning Process
• The design and location of the sanitary sewer pumping station will be designed in a manner which:
  • Protects human health and property;
  • Protects and enhances significant aspects of the natural environment;
  • Addresses current and anticipated regulatory requirements/changes;
  • Is fiscally responsible;
  • Provides a collection system of sanitary sewer flows that supports re-urbanization and targeted Greenfield development within the Doon South Planning area; and
  • Provides security of collection systems for future urbanization.

2.2.3 Public and Agency Notifications

Notice of Commencement

A Notice of Commencement was issued October 2, 2008. The Notice of Commencement was advertised in the local newspaper, on the City of Kitchener website and by direct mail to all stakeholders. The Notice of Commencement included contact information of key project team members to assist the public with questions and concerns.

Federal, provincial and municipal agencies, along with stakeholders, were also notified of the project by letter. The Notice of Commencement Letter is included in Appendix A. Table 2-1 outlines agencies and stakeholders who were notified throughout the project.

There were no responses from the Public regarding the Notice of Commencement.

There were no responses from the Agencies regarding the Notice of Commencement.

Notice of Public Information Centres

The Public Information Centres (PICs) were advertised in advance on the City of Kitchener’s website, as well as twice in the local newspaper.

A Notice of the PICs was also sent to those on the project mailing list. A record of attendees has been included in Appendix A.

Notice of Completion

A Notice of Completion, including the compilation of the Doon South Pumping Station Class Environmental Assessment Study Report and the availability of the draft report for public review and comment, was published in the local newspaper.

A Notice of Completion was also mailed to all those on the project mailing list. The Notice of Completion was advertised in advance on the City of Kitchener’s website, as well as twice in the local newspaper.
### Table 2-1: List of Agency and Stakeholder Contacts

<table>
<thead>
<tr>
<th>Category</th>
<th>Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal/Provincial</td>
<td>Environment Canada&lt;br&gt;Grand River Conservation Authority&lt;br&gt;Ministry of the Environment&lt;br&gt;Ministry of Natural Resources&lt;br&gt;Ministry of Municipal Affairs and Housing&lt;br&gt;Ministry of Tourism and Recreation&lt;br&gt;Ministry of Agriculture and Food&lt;br&gt;Ministry of Culture&lt;br&gt;Ministry of Transportation&lt;br&gt;Fisheries and Oceans Canada&lt;br&gt;Ontario Power Generation Inc.&lt;br&gt;Hydro One Inc.</td>
</tr>
<tr>
<td>Municipal</td>
<td>Region of Waterloo&lt;br&gt;City of Cambridge&lt;br&gt;City of Kitchener&lt;br&gt;City of Waterloo&lt;br&gt;Township of North Dumfries&lt;br&gt;Township of Wellesley&lt;br&gt;Township of Wilmot&lt;br&gt;Township of Woolwich</td>
</tr>
<tr>
<td>Utilities</td>
<td>Kitchener Utilities&lt;br&gt;Union Gas Limited&lt;br&gt;Kitchener-Wilmot Hydro&lt;br&gt;Rogers Cable TV&lt;br&gt;Bell Canada</td>
</tr>
<tr>
<td>First Nations</td>
<td>Six Nations of the Grand River Territory&lt;br&gt;Mississaugas of the New Credit First Nation</td>
</tr>
<tr>
<td>Environmental Groups</td>
<td>The Waterloo Stewardship Network&lt;br&gt;Kitchener Environmental Advisory Committee</td>
</tr>
<tr>
<td>Agricultural Groups</td>
<td>Waterloo Federation of Agriculture</td>
</tr>
<tr>
<td>Business Groups</td>
<td>Greater KW Chamber of Commerce&lt;br&gt;Cambridge Chamber of Commerce&lt;br&gt;Waterloo Region Home Builders Association</td>
</tr>
</tbody>
</table>

#### 2.2.4 Project Discussion Meetings

A total of 12 Project Discussion meetings were held with interested stakeholders such as the Project Team, Operations and Maintenance staff, local municipal Engineering and Planning staff and other interested parties. The meetings occurred as follows:
Table 2-2: Project Discussion Meetings

<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Purpose of Meeting</th>
</tr>
</thead>
</table>
| July 7, 2008       | • Establish lines of communication
| Meeting No. 1      | • Discuss scope of work and deliverables
| (Start-Up Meeting) | • Request background reports and drawings                                           |
| August 20, 2008    | • Meet with developers, engineer to discuss background of area                     |
| Meeting No. 2      |                                                                                     |
| November 5, 2008   | • Discuss Class EA requirements, Notice of Commencement and Problem Statement       |
| Meeting No. 3      | • Confirm work program and schedule                                                 |
| December 10, 2008  | • Project update                                                                    |
| Meeting No. 4      |                                                                                     |
| January 8, 2009    | • Project Update                                                                    |
| Meeting No. 5      | • Meet and discuss project with the City of Cambridge                               |
| January 19, 2009   | • Provide background information to stakeholder                                     |
| Meeting No. 6      | • Discuss possible solutions and project schedule                                   |
| (Stakeholder Meeting) |                                                                                   |
| April 8, 2009      | • Project Update                                                                    |
| Meeting No. 7      | • Discuss South Strasburg Class EA and Homer Watson PS                               |
| April 27, 2009     | • Provide background information                                                    |
| Meeting No. 8      | • Discuss alternative options and requirement for Homer Watson PS emergency storage |
| (GRCA Meeting)     |                                                                                     |
| June 8, 2009       | • Project Update                                                                    |
| Meeting No. 9      |                                                                                     |
| June 11, 2009      | • Discuss cost estimate for project including upgrades to Homer Watson PS           |
| Meeting No. 10     | • Discuss land requirements and alternative locations for the Doon South PS         |
| June 15, 2009      | • Discuss proposed forcemain alignment on Homer Watson Blvd.                        |
| Meeting No. 11     |                                                                                     |
| (Region of Waterloo) |                                                                                   |
| June 17, 2009      | • Discuss evaluation of alternatives and preferred alternative                      |
| Meeting No. 12     | • Discuss project issues                                                            |
| (Stakeholder Meeting) |                                                                                   |

2.2.5 Public Information Centres (PICs)

PICs were held at the following locations to provide an opportunity for the public to review the results of the work completed to date and to provide comments on the Class EA.

**PIC #1**

City of Kitchener

Date: Wednesday, February 11, 2009

Time: 6:00-8:00 PM

Location: J.W. Gerth Public School
171 Apple Ridge Drive
Kitchener, ON
City of Kitchener
Date: Tuesday, June 23, 2009
Time: 6:00-8:00 PM
Location: J.W. Gerth Public School
171 Apple Ridge Drive
Kitchener, ON

A copy of the notification for the PICs is provided in Appendix A. Agencies and stakeholders on the project mailing list were also sent a letter notifying them of the PIC.

Project Team members were available to provide information, answer questions and discuss comments. Sign-in sheets were provided at both PICs. Original copies of the sign-in sheets are in the AECOM file copy. They have not been included in this report to safeguard privacy.

A copy of all of the display board materials is included in Appendix A. The display boards were used to provide the general public with some of the pertinent findings of the study. The details described on the display boards at each PIC were derived from the study results and recommendations.
3. Wastewater Projections

3.1 Service Area

The Doon South Community Plan was approved by City Council in 1997. The Phase I lands are now either developed or are the subject of applications for proposed development. The Phase II lands were originally planned to be developed as "Limited Service Residential" (or Estate Residential) on individual septic systems rather than City sanitary sewers, as they could not be serviced by the City’s gravity sewer system. It is now proposed that the Phase II lands be developed with City sewers by means of a pumping station(s) and force main(s). The Phase II lands as shown in Figure 3.1 are bounded by, New Dundee Road and Highway 401 to the south and east, Riedel Road to the west and Stauffer Drive to the north.

![Figure 3.1: Doon South Community Plan Phase II](image)

In an effort to minimize the operation and maintenance cost that is ultimately passed on to the tax payers through Municipal Taxes, AECOM recommended expanding the service limits of the study to include future development beyond the approved Urban Boundary. Accordingly, the study limits for the proposed pumping station(s) were expanded to include the lands bounded by Riedel Road to the east, Blair Creek to the north, New Dundee Road to the south and the South Strasburg Class EA boundary to the west (area A6 in Figure 3.2). Catchment Area A6 was identified in the 2007 Stantec “South Strasburg Gravity Trunk Sanitary Sewer” Class EA as external to the gravity catchment area for the South Strasburg Trunk sanitary sewer.
3.1.1 Population Projections

The population projection for Phase II of the Doon South Community Plan is based on a zoning of “Low Density Residential”, and 56 persons per hectare (ppha), as identified in the (Homer Watson Pumping Station Evaluation, December 9, 2008). The population projections for Phase II of the Doon South Community Plan including the additional study area have been tabulated below. The individual catchment areas are shown in Figure 3.3.

Table 3-1: Population Projections

<table>
<thead>
<tr>
<th>Catchment Area</th>
<th>Area (ha)</th>
<th>Density (ppha)</th>
<th>Population (n)</th>
<th>Cumulative Population (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 (by gravity to HWPS)</td>
<td>56.0</td>
<td>56</td>
<td>3,136</td>
<td>3,136</td>
</tr>
<tr>
<td>A2</td>
<td>65.9</td>
<td>56</td>
<td>3,690</td>
<td>6,826</td>
</tr>
<tr>
<td>A3</td>
<td>9.6</td>
<td>56</td>
<td>538</td>
<td>7,364</td>
</tr>
<tr>
<td>A4</td>
<td>41.9</td>
<td>56</td>
<td>2,347</td>
<td>9,711</td>
</tr>
<tr>
<td>A6</td>
<td>159.0</td>
<td>56</td>
<td>8,904</td>
<td>18,615</td>
</tr>
</tbody>
</table>

The catchment areas have been identified and designated by geographic location, as will be discussed in Section 4.4. The Homer Watson Pumping Station Evaluation discussed extending the service limits of the HWPS. Accordingly, the sanitary flow created by the area identified as A1 will drain by gravity to the HWPS. The remaining areas will be serviced by the DUPS. Area A5 has not been included, as will be discussed in Section 4.4. The total projected population is 18,615 people. Area A6 is beyond the urban boundary, and therefore, the projected population is not anticipated until beyond 2041. However, as development pressures increase the timing for development could change.

3.1.2 Wastewater Projections

Wastewater flow is based on projected population, wastewater generation per person and infiltration allowances. The design criteria and a sample calculation are presented below:

Table 3-2: Design Criteria

<table>
<thead>
<tr>
<th>Design Criteria</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Wastewater Generation Rate</td>
<td>0.004L/s/cap</td>
</tr>
<tr>
<td>Infiltration Allowance</td>
<td>0.15L/s/ha</td>
</tr>
</tbody>
</table>
CATCHEMENT AREAS

FIGURE 3.3

- Existing Pumping Station
- Undevelopable Area
- Environmentally Sensitive or Protected Area
- Draft Plan Approved
- Additional Areas to be Serviced by Gravity to the Homer Watson PS
- Area Serviced by Doon South PS outside Urban Boundary
- Area Serviced by Doon South PS within Urban Boundary

City of Kitchener

Homer Watson Pumping Station

Urban Boundary as per South Strasburg Class DA

Row Dundee Road (Regional Road No. 52)

Township of North Dumfries

City of Cambridge
SAMPLE CALCULATION

\[ Q_{ww} = \left[ \sum P \cdot \left(\frac{(0.004)}{1000}\right) \cdot PF \right] + IN \]

Where:

- \( Q_{ww} \) = Wastewater flow (m³/s)
- \( \sum P \) = Total Population (people)
- \( PF \) = Harmon Peaking Factor
- \( IN \) = Infiltration Rate (m³/s)

\[ \begin{align*}
\sum P &= 18,615 - 3,136 = 15,479^* \\
PF &= 1 + \left[\frac{14}{1 + (\sum P/1000)^{1/2}}\right] \\
&= 2.76 \\
IN &= (\sum Area \cdot 0.15)/1000 \\
&= 0.040 \text{m}^3/\text{s}
\end{align*} \]

Therefore:

\[ Q_{ww} = 0.211 \text{ m}^3/\text{s} \]

*Note: Area A1 will be serviced by HWPS. Therefore, area A1 is subtracted from total population.

The total wastewater generation from Phase II of the Doon South Community Plan and additional lands beyond the Urban Boundary is approximately 0.211 m³/s. Detailed calculations for each catchment have been included in Appendix C.

3.1.3 Pumping Station Design Criteria

The design criteria for pumping station and / or pumping station upgrades is based on the City of Kitchener “Design Standards and Procedures Manual Wastewater Pumping Facilities dated August 2003, revised March 2006”. The City of Kitchener design criteria generally mirror the design criteria as set out by the Ministry of the Environment for Wastewater Servicing Facilities with a few minor variances such as the need for a one hour emergency storage tank. The Kitchener specifications were utilized in the design or upgrades of pumping facilities within this report.
4. Infrastructure Review

A review of the existing infrastructure within and around the Doon South area was undertaken in an effort to identify a suitable outlet location for the wastewater generated from Phase II of the Doon South Community Plan. To determine the available residual capacity within the existing infrastructure, relevant data such as engineering drawings, reports and design calculation where made available by City Staff for the AECOM project team to review. The relevant infrastructure reviewed is discussed below.

4.1 Topographic Review

A topographic review of the Doon South Phase II Community was completed. The review was conducted to identify the number of pumping stations that might be required to service the study area, the location of the pumping station(s) and the additional lands that can be serviced by the HWPS.

Based on previous studies, the City of Kitchener’s Development Charge Background study had allocated funding for two pumping stations in the Doon South Phase II Community. However, from an environmental and economic approach, it is in the best interest of the City to own and operate the least number of pumping stations as possible.

The project team reviewed a number of servicing alternatives to determine the best location of the catchment sanitary sewers, the potential location of servicing pumping station(s) and the location of a forcemain outlet from the pumping station(s) to the downstream servicing sewers.

Two locations for a pumping station(s) were identified from the topographic and catchment area review. The first location is identified as Location A for the Alternative concepts. It is situated on the north side of New Dundee Road approximately 200 metres east of Dodge Drive on the south side of Blair Creek.

The second location is identified as Location B. Location B presents two options. The first optional location is on the south side of New Dundee Road east of Reichert Drive near Robert Ferrie Drive. The second optional location for Location B is on the north side of New Dundee Road west of Robert Ferrie Drive. This location would be subject to slightly higher excavation costs as it is approximately 2-3 metres higher than the south side of New Dundee Road.

The sanitary sewer catchment areas identified in this study have been divided or described by the following Areas: A1, A2, A3, A4, A5 and A6. Each of the areas has been separated by physical constraints such as topography, creeks and other environmental features.

- Area A1 is the area as previously discussed and can be serviced by gravity to the HWPS.
- Area A2, A3 and A4 will be serviced by the DOPS and are physically separated by Blair Creek and Tributaries of Blair Creek.
- Area A5 is located north of Stauffer Drive. During the topographic review it was determined that to service area A5, the sewer below Upper Blair Creek would push the trunk sewer to a
depth of 15 metres. In addition, the area could be serviced by gravity to the Biehn Drive Trunk Sewer. This would be the best solution as servicing by gravity does not require pumping. AECOM made recommendation to consider including these lands when the City initiates the dynamic hydraulic model of the Strasburg Direct and Pioneer Drive Trunk Sanitary Sewer.

- Area A6 is separated by Reidel Drive and is located outside of the current approved Urban Boundary.

The areas as described above can be seen in Figure 4.1.

4.2 Doon South Trunk Sanitary Sewer

The existing trunk sewer within the Doon South Phase I Community was reviewed to determine theoretical and residual capacity of the trunk sewer. The trunk sewer extends from the HWPS at the low elevation to Thomas Slee Drive at the high elevation as seen in Figure 4.2. The sanitary trunk sewer along Doon South Drive is comprised of a 375mm dia. PVC pipe from Thomas Slee Drive to Robert Ferrie Drive, a 450mm dia. PVC pipe from Robert Ferrie Drive to approximately 150 north on Doon Mills Drive. The sewer then enters a service easement between municipal addresses 78 and 82 Doon Mills Drive. Through the easement, the sanitary sewer is a 525mm dia. concrete pipe. It exits the service easement and reconnects onto Doon South Drive north of municipal address 201 Doon South Drive near Winding Woods Crescent. The last section of the trunk sanitary sewer is a 600mm dia. concrete pipe that runs from Winding Woods Crescent to the HWPS.

To determine the available residual capacity within the trunk sewer, AECOM reviewed the as-recorded engineering drawings and the relevant design calculations.

The as-recorded drawings presented limiting capacity within the system. The sewer reach at Doon South Drive and Robert Ferrie Drive transitions from a 375mm dia. pipe with a bed slope of 2.75% to a 450mm dia. pipe with a bed slope of 0.4%. The 375mm dia. pipe has a capacity of 291L/s and the 450mm dia. pipe has a capacity of 180L/s. Therefore, the limiting upstream capacity of the sanitary sewer system is 180L/s. Surcharging of sewers was not considered during the design review when evaluating the residual capacity of the sanitary sewer system.

The original service area for the HWPS was 425ha in area with a zoning density of 56ppha. It included lands within the Doon Creek sub-watershed (Doon South Community, Phase I). The Ministry of Environment (MOE) rated capacity of the HWPS is 309L/s. The report Homer Watson Pumping Station Evaluation, discussed actual flow, theoretical wastewater generation, the residual capacity within the system and additional lands that could be serviced by the HWPS. It identified that 79 ha of pumped flow can be accommodated within the system and concluded that;

"there is limited capacity to increase the service area and accommodate additional growth beyond the limits established in the Upper Doon Sewage Pumping Station Service Area Expansion Study (KKM, 1998) without significant upgrades to the sewer system or without diverting flow around the Doon South Drive trunk sewer".
Figure 4.2: Doon South Trunk Sanitary Sewer

The limits established in the *Upper Doon Sewage Pumping Station Service Area Expansion Study*, included the 79ha of pumped flow and an additional 6ha of gravity flow from Phase II.

In an effort to expand the servicing limits of the HWPS, the trunk sewer from Robert Ferrie Drive to Thomas Slee Drive has been constructed to a maximum depth of approximately 8 metres. This additional sewer depth expanded the gravity sewer serviceable area by an additional 56ha of land that could be conveyed to the HWPS. The 56ha of land would potentially generate 51.4L/s of wastewater. Based on existing population data, the existing wastewater flows generated from the current development (Phase I) are approximately 210L/s.

Therefore, to maximize the use of the existing infrastructure (180L/s) and the rated capacity of the HWPS (309L/s), the DSPS can convey approximately 47L/s into the Doon South Trunk Sewer. At the zoning density of 56ppha this flow equates to approximately 30 ha of land that can be serviced by the HWPS.
4.3 Homer Watson Pumping Station

A review of the HWPS was completed to determine the upgrade requirements of the station to accept additional flow and take the station to its rated capacity of 309L/s.

As noted previously, the City of Kitchener Design Standards and Procedures for Wastewater Pumping Facilities, August 2003, Revised March 2006, was used as the basis of the design criteria. One of the primary differences between the City of Kitchener Standards and the MOE standard is the requirement for the addition of one hour emergency storage. This provision has been implemented by the City of Kitchener to increase protection and reduce environmental damage in an emergency situation. The Emergency Storage exceeds Ministry of Environment (MOE) requirements.

To accommodate one hour emergency storage of wastewater when the rated capacity is 309L/s, an emergency storage tank of 1,120m³ is required. The footprint of the tank would be approximately 18 metres by 12 metres and can be constructed on the existing HWPS site. However, the site for the pumping station is located on a raised area of land adjacent to the Strasburg Creek flood plane. The site location makes it almost impossible to build in the raised areas surrounding the existing building. Upon review of the site, a location within the flood plane but adjacent to the existing building was determined as a suitable location. As part of the design review, the City of Kitchener met with the Grand River Conservation Authority (GRCA) to discuss the project and in particular the location of the emergency storage tank to the HWPS. From the meeting with GRCA, special design considerations will need to be taken into account, including; water proofing, weight of the structure to resist the effects of buoyancy, dewatering of the excavation during construction and due to limitations of the site, the type of construction (i.e. sheet pile vs. trench sloping), and timing of construction. Since the construction is within the GRCA regulated area, appropriate environmental approvals will be part of the final design requirements.

In addition to the emergency storage tank, the HWPS building must be expanded in order to accommodate a washroom facility, a larger diesel generator set and electrical requirements. The upgrades to the HWPS have been tabulated in Table 4-1 below:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Construct emergency storage tank</td>
</tr>
<tr>
<td>2</td>
<td>Install 50mm water service</td>
</tr>
<tr>
<td>3</td>
<td>Building expansion including washroom and shower facility</td>
</tr>
<tr>
<td>4</td>
<td>Reconfigure inlet chamber</td>
</tr>
<tr>
<td>5</td>
<td>Upgrade wet-well components including piping, new check valves and knife gates</td>
</tr>
<tr>
<td>6</td>
<td>Upgrade Motor Control Centre (MCC)</td>
</tr>
<tr>
<td>7</td>
<td>Supply and install new soft starters</td>
</tr>
<tr>
<td>8</td>
<td>Install two swab launch ports</td>
</tr>
<tr>
<td>9</td>
<td>Install Mag Metre including wiring and communication</td>
</tr>
</tbody>
</table>
### Upgrade Requirements

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Install two pressure gauges and transmitters including wiring</td>
</tr>
<tr>
<td>11</td>
<td>Remove existing pumps and install three new 52 kW submersible pumps</td>
</tr>
<tr>
<td>12</td>
<td>Construct flow metre chamber around existing forcemain</td>
</tr>
<tr>
<td>13</td>
<td>Install new 300 kW diesel generator set</td>
</tr>
<tr>
<td>14</td>
<td>Upgrade ventilation system for new diesel generator</td>
</tr>
</tbody>
</table>

A cost estimate and example construction photos of a tank using sheet piling have been included in Appendix D. In addition, a figure proposing the preferred location of the emergency storage tank has been included in Appendix D.

#### 4.4 Strasburg Direct Trunk Sanitary Sewer

The 2007 Stantec report *South Strasburg Gravity Trunk Sanitary Sewer Schedule ‘B’ Class Environmental Assessment*, studied the lands in the southwest quadrant of Kitchener. It identified the lands to be serviced by a gravity trunk sanitary sewer to the Strasburg Direct Trunk Sanitary Sewer. One of the recommendations of the Stantec report stated "That further capacity analysis/study be undertaken on the downstream receiving trunk sewer network (including flow monitoring) concurrent with or prior to any proposal (future) urban boundary expansion in the subject sewer/area to identify any necessary upgrades related to same". The Project Team prepared a static hydraulic model of the sewers downstream of the South Strasburg study area to review the sewer capacity and to determine if there was any residual capacity to accommodate flow from the Doon South Phase II Community. The results from the AECOM review concur with the Stantec report that the capacity of the downstream Strasburg Direct sanitary sewer should be reviewed to determine actual sewer capacities.

Accordingly, AECOM made the following recommendations to the City:

- Further increase the study area for the DPSS to include lands from the South Strasburg Class EA; or
- Conduct dynamic hydraulic modelling of the downstream Strasburg Direct and Pioneer Trunk Sanitary Sewer Systems.
- Identify hydraulic deficiencies, and recommend remedial actions necessary to upgrade the trunk sewers systems where required.

It has been confirmed by the City that a dynamic hydraulic model of the trunk sewer system for the Strasburg Direct and Pioneer Trunk Sanitary Sewer systems will be completed. They will be included as part of the City wide hydraulic model that is anticipated to be initiated in 2009.
5. Identification and Evaluation of Servicing Alternatives

5.1 Evaluation Criteria

Guidelines for evaluation criteria have been set out in the Class EA document, Municipal Class Environmental Assessment, October 2000, as amended in 2007. As part of the evaluation process the key considerations as set out in the Class EA document are taken into account. The key considerations for wastewater projects have been listed below:

1. Land-Use Planning Objectives

The Ontario Planning Act required that municipal Official Plans contain “goals, objectives, and policies established primarily to manage and direct physical change and the effects on the social, economic, and natural environment”. The Planning Act prescribes a rigorous process by which Official Plans are to be developed and periodically reviewed, including opportunities for extensive public consultation. Once adopted by local municipal council, Official plans are formerly approved by the Ontario Minister of Housing and Municipal affairs and, where applicable, are required to be in conformity with provincial objectives. Once in place, Official Plans are legal documents, and therefore, provide the specific municipal policies and objectives that need to be considered including, but not limited to, those for: urban areas, growth areas/corridors, rural areas, neighbourhoods and residential areas, employment areas, transit and transit-supportive development, commercial, institutional, recreational, natural, open space, agricultural, and special policy areas.

2. Natural Heritage Features

The Natural Environment consists of the following typical elements:

- Landsforms (including valleylands)
- Groundwater
- Surface water and fisheries
- Terrestrial Vegetation and wetlands
- Wildlife and habitat; and
- Connections provided by, or between these, resources.

Within this natural environment framework, significant natural heritage features may be identified at the local, regional, provincial or federal level reflecting municipal, Conservation Authority, provincial or federal designations/policies. Key elements such as valleylands, fish habitat, evaluated wetlands (including Provincially Significant Wetlands), significant portions of the habitat of threatened and endangered species, Area of Natural and Scientific Interest (ANSI), and Environmentally Sensitive Areas (ESAs) will constitute significant natural heritage features. Woodlands and wildlife habitat may also constitute significant features if certain criteria are met.
Natural heritage features should be identified early in the EA process to determine significant features and potential impacts. Significant natural heritage features should be avoided where possible. Where they cannot be avoided, then effects should be minimized where possible, and every effort made to mitigate adverse impacts.

3. **Social Environment**

The Social Environment includes existing communities, residential areas and recreational areas. Significant negative impacts to the social environment should be avoided where possible. Where they cannot be avoided, then effects should be minimized where possible, and every effort made to mitigate adverse impacts. Key considerations are the overall community impacts to residential property and access, community facilities and access, recreational facilities and access, pedestrians, cyclists, noise impacts and air quality.

4. **Cultural Environment**

Cultural Environment refers to cultural heritage and archaeological resources in the environment. They are defined as follows:

**Archaeological resources** include artefacts, archaeological sites and marine archaeological sites. The identification and evaluation of such resources are based upon archaeological fieldwork undertaken in accordance with Ontario Heritage Act.

**Areas of archaeological potential** mean areas with the likelihood to contain archaeological resources. Criteria for determining archaeological potential are established by the Province, but municipal approaches which achieve the same objective may be applied. Archaeological potential is confirmed through archaeological fieldwork undertaken in accordance with the Ontario Heritage Act.

**Built heritage resources** means one or more significant buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic or military history and identified as being important to a community. These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions.

**Cultural heritage landscape** means a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves grouping(s) of individual heritage features such as structures, spaces, archaeological sites, and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act; and villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways, and industrial complexes of cultural heritage value.

**Cultural heritage resources** including built heritage, cultural heritage landscapes, and marine and other archaeological sites. The Minister of Culture (MCL) is responsible for the administration of the Ontario
Heritage Act and is responsible for determining policies, priorities and programs for the conservation, protection and preservation of Ontario's heritage, which includes cultural heritage landscapes, built heritage and archaeological resources.

5. First Nations/Aboriginal Peoples

This includes, but is not limited to:
- First Nations lands
- Aboriginal Peoples' Treaty Rights or use of land and resources for traditional purposes
- Aboriginal Peoples' industry
- Pre-historic and historic Aboriginal Peoples' archaeological sites
- Aboriginal Peoples' rights claims

6. Economic Environment

Economic Environment includes commercial and industrial land uses and activities. It also includes the financial costs associated with the alternatives, including construction, operation, maintenance, and property costs.

7. Property

Significant impacts to property should be avoided where possible. Where they cannot be avoided, the effects should be minimized where possible, and every effort made to mitigate adverse effects. Property impacts include direct impacts on: access, parking, and buildings, and indirect impacts where by relocating property lines the property owner is placed out of compliance with local standards (e.g. building setback requirements, etc.).

5.2 Evaluation of Alternative Solutions

When evaluating alternative solutions, the following considerations should be kept in mind:
- Many of the potential alternative solutions may resolve more than one problem.
- The feasibility of the alternative solutions will depend, in part, on the nature and location of the transportation system, the nature and location of the opportunity and/or problem(s) being addressed, the comparative cost of the alternative solutions, and on the municipality's capacity to finance the extension of services.

The evaluation criteria discussed above has been suggested by the Municipal Class EA process and is reflected is the evaluation process for the DSPS. The evaluation criteria consider for this EA include; Public Health and Safety, Natural Environment, Social/Cultural, Economic/Financial, Legal/Jurisdictional, and Technical. The detailed evaluation has been included in Appendix B.
To ensure the management of resources is realized and a prudent design concept would be reached, AECOM reviewed various alternatives including additional considerations as requested by stakeholders. The alternative design concepts are discussed below.

5.2.1 Alternative 1

The “Do Nothing” alternative is described as Alternative 1 of the solutions presented. As described within the Class EA requirements, this alternative must present what would happen if the project was to not proceed. In the case of this study, the “Do Nothing” approach would mean that any development within this area would have to be estate lots with individual septic systems as well as individual wells for each of the properties to be developed. This approach is not consistent with respect to the City of Kitchener Planning requirements for higher density development within the area. In addition, it does not meet prudent environmental consideration for development adjacent to wetlands and other environmentally sensitive areas. This alternative was not considered as a viable option and it was dismissed.

5.2.2 Alternative 2

5.2.2.1 Option 2A & 2B

Alternative 2 identifies that all new sanitary flows generated from Phase II of the Doon South Community Plan and the area identified beyond the urban boundary, would be sent to the new DSPS, at either Location A or Location B, and then pumped around the Doon South Trunk Sanitary Sewer and the HWPS directly to the Schneider Trunk Sanitary Sewer.

This alternative under-utilizes the existing infrastructure, including, the HWPS and the gravity sanitary sewer constructed at a depth of approximately 8 metres to increase the service area to the HWPS. Option 2A and 2B are shown in Alternative 2, Figure 5.1.

The forcemain length is approximately 5,000 metres from Location A and 4,200 metres from Location B to the Schneider Trunk outlet. It is proposed to follow New Dundee Road to Homer Watson Boulevard, follow Homer Watson Boulevard and discharge to the Schneider Trunk Sanitary Sewer. In order to utilize the forcemain, an auto-flusher would need to be installed to produce enough flow to fill the forcemain. The auto-flusher needs to stay in operation until there is enough development to generate the required wastewater to fill the forcemain.

Alternative 2 is inefficient because it underutilises the existing infrastructure (i.e. Area A1 by gravity to the HWPS). Therefore, Alternative 2 was not considered further. Complete evaluation tables have been included in Appendix B.
Option 2A
- All new flows (Area A1, A2, A3, A4 and A6) directed to the proposed Doon South PS (Location A) and pumped through a proposed forcemain to the Schneider Trunk Sanitary Sewer.

Option 2B (Similar to Option 2A with Pump Station at Location B)
- All new flows (Area A1, A2, A3, A4 and A6) directed to the proposed Doon South PS (Location B) and pumped through a proposed forcemain to the Schneider Trunk Sanitary Sewer.
5.2.3 Alternative 3

5.2.3.1 Alternative 3-1

Alternative 3-1 outlines Option 3A and 3B which include upgrading the HWPS to accommodate gravity flow from area A1 and building the DSPS and forcemain to accept wastewater from area A2, A3, A4 and A6. Option 3A and 3B can be seen in Figure 5.2. The difference between Option 3A and 3B is the location of the pumping station. In Option 3A, the pumping station is situated at Location A while for Option 3B, the pumping station is situated at Location B. At Location A, the wastewater from A2 and Dodge Drive would have to cross Blair Creek twice, once flowing by gravity to the pumping station and a second time from the pumping station through the forcemain. In addition, Location A is approximately 800 metres longer, increasing the head losses in the system and therefore the energy requirements to push the wastewater through the forcemain. A concern for this alternative is the wastewater generation rate. In order to operate the pumping station effectively, there must be enough wastewater for the pumps to operate. Therefore, during the staging of development, an auto-flushing devise would need to be installed to produce enough flow for the station to operate. In this scenario, the City would then pay for "clean water" to be used to fill the wet-well to the operating range as well as the additional cost of treating the “clean water” that would be required for supplementation of wastewater flows until such time as the development generated sufficient flows to properly operate the pumps and the forcemain. In addition, a small forcemain would have to be installed for short-term flow parallel to the large forcemain for long-term flow. Due to the water consumption, additional forcemain and energy requirements, this alternative was not considered further.

The forcemain is proposed to follow New Dundee Road to Homer Watson Boulevard, then follow Homer Watson Boulevard and discharge to the Schneider Trunk Sanitary Sewer.

5.2.3.2 Alternative 3-2

Alternative 3-2 outlines Options 3C and 3D. This alternative discusses upgrading the HWPS to accommodate wastewater flow from area A1 and using the existing infrastructure to outlet the wastewater from Phase II. Locations A and B are identical to that of Alternative 2. In order to utilize the capacity of the Doon South Trunk Sewer, a holding tank at the pumping station site would have to be constructed in order to hold the wastewater so it could be discharged during low flow periods.

Although this alternative reduces the length of the forcemain from either location (Location A or B), there are a number of concerns presented with this Alternative.

- The holding tank would have to have sufficient capacity to accommodate wastewater until low flow periods at the HWPS.
- In addition to 1. above, during low flow periods at the HWPS, the DSPS can discharge wastewater at the residual capacity rate of the outlet sewer within Doon South Trunk Sanitary Sewer. The outlet sewer, assuming completely empty during low flow periods has a capacity of 115L/s and as previously discussed the flow into the proposed DSPS is anticipated to be in the order of 211L/s (0.211m³/s). Therefore the outflow would never keep up with the inflow.
- It is inefficient to design a system that pumps wastewater from one pumping station to another pumping station when other options are available.
The DSPS would be dependant on the HWPS. A SCADA system would have to be developed to monitor flows at the HWPS. Flows from the DSPS would only be allowed at the residual capacity of HWPS. If there is a power failure at the HWPS, the environmental damage could be compounded. An emergency shutdown of the HWPS would also create a second emergency at the DSPS creating a major problem for maintenance staff.

Lastly, lands requirements increase to accommodate the holding tank and in addition the holding tank would require aeration to prevent the wastewater from becoming septic and causing odour issues. The holding tanks would also require increased maintenance as retaining the wastewater for extended periods will allow suspended solids to settle.

Due to the complexity of a system such as this, extremely high initial capital cost, operational and maintenance considerations and increased potential for adverse environmental affects, this alternative was not considered further.
**Option 3A**
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS and Forcemain
- Flows A2, A3, A4 and potentially A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS (Location A) to accept flow from Areas A2, A3 and A4
- Pump flow from Doon South PS through proposed forcemain (large enough to accept future flows Area A6) to Schneider Trunk Sanitary Sewer

**Intermediate Term**
- Upgrade Doon South PS to accept flows from potential Area A6
- Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

**Long Term**
- Upgrade Doon South PS to accept flow from potential future developable areas outside of urban boundary
- Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

**Option 3B** (Similar to Option 3A but with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS and Forcemain
- Flows A2, A3, A4 and potentially A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS (Location B) to accept flow from Areas A2, A3 and A4
- Pump flow from Doon South PS through proposed forcemain (large enough to accept future flows from Areas A6) to Schneider Trunk Sanitary Sewer

**Intermediate Term**
- Upgrade Doon South PS to accept flows from potential Area A6
- Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

**Long Term**
- Upgrade Doon South PS to accept flow from potential future developable areas outside of urban boundary
- Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

**FIGURE 5.2**

- Undevelopable Area
- Environmentally Sensitive or Protected Area
- Draft Plan Approved
- Additional Areas to be Serviced by Gravity to the Homer Watson PS
- Area Serviced by Doon South PS outside Urban Boundary
- Area Serviced by Doon South PS within Urban Boundary

**AECOM**
**ALTERNATIVE 3-2**

**Option 3C**
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS and Force main
- Flows A2, A3, A4 and potentially A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS (Location A) with holding tank to accept flow from Area A2, A3 and A4
- Pump flow from Doon South PS during low flow periods through proposed force main (large enough to accept future flows from Area A6) to Homer Watson PS

**Intermediate Term**
- Upgrade Doon South PS and holding tank to accept flows from Area A6
- Pump flow from Doon South PS during low flow periods through force main (large enough to accept future flows) to Homer Watson PS

**Long Term**
- Upgrade Doon South PS and holding tank to accept flow from potential future developable areas outside urban boundary
- Pump flow from Doon South PS during low flow periods through force main to Homer Watson PS

**Option 3D** (Similar to Option 3C with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS and Force main
- Flows A2, A3, A4 and potentially A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS (Location B) with holding tank to accept flow from Area A2, A3 and A4
- Pump flow from Doon South PS during low flow periods through proposed force main (large enough to accept future flows) to Homer Watson PS

**Intermediate Term**
- Upgrade Doon South PS and holding tank to accept flows from Area A6
- Pump flow from Doon South PS during low flow periods through force main (large enough to accept future flows) to Homer Watson PS

**Long Term**
- Upgrade Doon South PS and holding tank to accept flow from potential future developable area outside urban boundary
- Pump flow from Doon South PS during low flow periods through force main to Homer Watson PS

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**FIGURE 5.3**

- Proposed Gravity Sanitary Sewer
- Proposed Force main
- Existing Trunk Sewer
- Proposed Pumping Station
- Existing Pumping Station
- Holding Tank

**Legend**
- Undevelopable Area
- Environmentally Sensitive or Protected Area
- Draft Plan Approved
- Additional Areas to be Serviced by Gravity to the Homer Watson PS
- Area Serviced by Doon South PS outside Urban Boundary
- Area Serviced by Doon South PS within Urban Boundary

**AECOM**
5.2.4 Alternative 4

5.2.4.1 Alternative 4-1

Alternative 4-1 outlines Options 4A and 4B. The difference between Options 4A and 4B is the location of the pumping station. As discussed in previous sections, Alternative 4-1 includes upgrades to HWPS to its rated capacity of 309L/s. This upgrade will allow the HWPS to accept wastewater flow from area A1 in addition to a pumped flow of approximately 47L/s from the DSPS. The conveyance of wastewater flows from the DSPS to the HWPS is proposed as an interim condition only. Once theoretical flows to the HWPS reach the rated capacity; flows from the DSPS would be switched from the temporary forcemain to the large forcemain that will convey flows directly to the Schneider Trunk Sanitary Sewer. Switching forcemains is necessary so the HWPS does not exceed its rated capacity. In addition, it provides immediate service requirements for the large forcemain, so an auto-flusher is not required. Once the large forcemain is in use, the smaller forcemain can be decommissioned or maintained as emergency backup for the forcemain to the Schneider Trunk Sanitary Sewer and the HWPS will have residual capacity available for future development requirements. The timing for installation of the small forcemain depends on the rate of development.

5.2.4.2 Alternative 4-2

Alternative 4-2 outlines Options 4C and 4D and is similar to Alternative 3-2. This alternative discusses upgrading the HWPS to its rated capacity of 309L/s. To utilize the capacity of the Doon South Trunk Sewer, a holding tank at the pumping station site would have to be constructed so the wastewater can be discharged during low flow periods. The main difference between Alternative 4-2 and Alternative 3-2 is timing of development. In this alternative, it is proposed that the DSPS will outlet to the HWPS as in Alternative 3-2. However, once the HWPS reaches its rated capacity, the wastewater from Doon South catchment area flowing to the DSPS would have to be stored in a holding tank. Although this alternative is slightly different from Alternative 3-2, it presents the same concerns. The holding tank will have to be significantly large to hold the wastewater until a low flow period at the HWPS and both stations would have to be connected through SCADA to maximize utilization of infrastructure. During a low flow period, the pumping station can only discharge as much as the outlet sewer can accommodate. The outlet sewer, assuming completely empty during low flow periods has a capacity of 115L/s and as previously discussed the flow into the proposed DSPS is anticipated to be in the order of 211L/s (0.211m³/s). It is inefficient to design a system that pumps to another pump when other options are available. Another concern is that the DSPS would be dependant on the HWPS, so if there is a power failure at the HWPS, the environmental damage would be compounded. Lastly, land requirements increase to accommodate the holding tank, and in addition, the holding tank will require aeration to prevent the wastewater from becoming septic and causing odour issues. The holding tank will also require increased maintenance as retaining the wastewater for extended periods will allow suspended solids to settle.
**Option 4A**
- Upgrade Homer Watson PS to accommodate flow from Area A1, A2 and A3
- Build Doon South PS and Interim Force Main
- Flows from Area A2, A3, A4 and potentially A6 to Doon South

  **Short Term**
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS (Location A) to accept flow from Area A2 and A3 (yellow)
  - Pump flow from Doon South PS to Homer Watson PS

  **Intermediate Term**
  - Build Force Main to bypass Homer Watson PS
  - Upgrade Doon South PS to accept flows from Area A4
  - Redirect pump flows from Doon South PS to Schneider Trunk Sanitary Sewer

  **Long Term**
  - Upgrade Doon South PS to accept flows from area A6
  - Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer

**Option 4B** (Similar to Option 4A with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate flow from Area A1, A2 and A3
- Build Doon South PS and Interim Force Main
- Flows from Area A2, A3, A4 and potentially A6 to Doon South

  **Short Term**
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS (Location B) to accept flow from Area A2 and A3 (yellow)
  - Pump flow from Doon South PS to Homer Watson PS

  **Intermediate Term**
  - Build Force Main to bypass Homer Watson PS
  - Upgrade Doon South PS to accept flows from Area A4
  - Redirect pump flows from Doon South PS to Schneider Trunk Sanitary Sewer

  **Long Term**
  - Upgrade Doon South PS to accept flows from area A6
  - Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer

---

**FIGURE 5.4**

- Proposed Gravity Sanitary Sewer
- Proposed Force Main
- Existing Trunk Sewer
- Proposed Pumping Station
- Existing Pumping Station

- Undeveloped Area
- Environmentally Sensitive or Protected Area
- Draft Plan Approved
- Additional Areas to be Serviced by Gravity to the Homer Watson PS
- Area Serviced by Doon South PS outside Urban Boundary
- Area Serviced by Doon South PS within Urban Boundary

---

**AECOM**
**Option 4C**
- Upgrade Homer Watson PS to accommodate gravity flow (A1)
- Build Doon South PS and Force main
- Flows A2, A3, A4 and potentially A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS at (Location A) to accept wastewater flow from Areas A2 and A3 (yellow)
- Pump flow from Doon South PS to Homer Watson PS

**Intermediate Term**
- Upgrade Doon South PS and build holding tank large enough to accommodate flows from Area A4
- Pump flows from Doon South PS during low flow periods through forcemain to Homer Watson PS (through existing Doon South Infrastructure)

**Long Term**
- Upgrade Doon South PS and holding tank to accommodate Area A6
- Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS

---

**Option 4D** (Similar to Option 4A with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate gravity flow (A1)
- Build Doon South PS and Force main
- Flows A2, A3, A4 and potentially A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS at (Location B) to accept wastewater flow from Areas A2 and A3 (yellow)
- Pump flow from Doon South PS to Homer Watson PS

**Intermediate Term**
- Upgrade Doon South PS and build new holding tank large enough to accommodate flows from Area A4
- Pump flows from Doon South PS during low flow periods through forcemain to Homer Watson PS (through existing Doon South Infrastructure)

**Long Term**
- Upgrade Doon South PS and holding tank to accommodate Area A6
- Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS
5.3 Remarks

The estimate Capital Cost for each alternative has been included with the Economic/Financial evaluation in Appendix B. In each alternative, Location A is higher in cost. The difference can be attributed to the additional 800 metres of gravity sewer and forcemain that would be required to situate the DSPS at Location A.

For transparency, the following discussion of the estimated capital cost for each alternative has been provided. The capital cost for all of the alternatives except Alternative 2, include the cost to upgrade the HWPS. In addition, 20% engineering and 20% contingency allowance is included in the capital cost, however, GST has not been included. The life cycle cost is based on a 20 year cycle.

The capital cost for Alternative 2 is the least, followed by Alternative 3-1. However, Alternative 2 does not include upgrades to the HWPS since all new wastewater generated would be sent to the proposed DSPS. Note that a temporary auto-flusher would be required. The estimated annual operating and maintenance cost described in the evaluation matrix does not consider the cost for the water usage and wastewater treatment while the auto-flusher is in operation. As an example, a sample calculation of the initial operation and maintenance cost including the Auto-Flusher is presented below.

The unit price for water and sewer usage is $1.47/m$^3$ and $1.53/m$^3$ respectively. Therefore, for every cubic metre of potable water, the City will pay $3.00. The length of forcemain is approximately 4,500 metres.
SAMPLE CALCULATION

Assumptions:
5 starts/hour with 50% run time
Velocity is 0.8m/s
80% of flow is clean water
Auto-flusher is removed after 2 years
Forcemain is 300mm dia.

Determine Area:
\[ A = \pi r^2 \]
\[ = 0.063m^2 \]

Determine Flow Rate:
\[ Q = 0.063m^2 \times 0.8m/s \]
\[ = 0.050m^3/s \]

Determine Cost/day:
\[ \text{Cost/day} = 0.050m^3/s \times 0.8 \times 60\text{min/hr} \times 24\text{hr/day} \times \$3.00/m^3 \]
\[ = $5,225.00/day \]

Determine Cost of Total Water Usage:
\[ \text{Total Cost Based on 2 years} = $5,225.00/day \times 365 \text{days/year} \times 2 \text{years} \]
\[ = $3,815,000.00 \]

Therefore, based on this calculation, and that Alternative 2 and Alternative 3-1 will require potable water to supplement wastewater in the wet-well, and in addition, Alternative 3-2 and 4-2 require large amounts of water to supplement wastewater in the holding tank during development, using an interim solution with a temporary small diameter forcemain is an economical solution.

The capital cost for Alternative 2 is the least. Although it is the lowest cost, other evaluation criteria, including poor utilisation of existing infrastructure forced this alternative out. Alternatives 3-2 and 4-2 are the highest capital cost with an overall poor evaluation. Alternative 3-1 and 4-1 are the closest in capital cost with Alternative 3-1 being slightly less. Although Alternative 3-1 is less, it also does not fully utilise the existing infrastructure. Therefore, as a result of all the evaluation criteria Alternative 4-1 has been chosen as the preferred alternative. The estimated capital cost for each alternative has been provided in Appendix B.
6. Preferred Alternative

The preferred alternative is identified as Alternative 4-1 Option B. The servicing scenario presents an interim solution and includes upgrades to the HWPS. Area A1 is serviced by existing gravity sewer to the HWPS, and an interim flow of approximately 47L/s is serviced from the DSPS to the HWPS. Accordingly, any combination of lands within the yellow area can be serviced until a flow of 47L/s is reached at the DSPS or the HWPS reaches its rated capacity of 309L/s.

Area A5 has been identified to be serviced by gravity to the Strasburg Direct Trunk Sanitary Sewer. However, AECOM recommends a dynamic hydraulic model be completed to confirm if the wastewater flow can be accommodated and determine the upgrade requirements to service the lands identified in the South Strasburg Class EA in conjunction with Area A5.

Area A6 is currently beyond the approved Urban Boundary. As a proactive measure it has been included in this study to identify a servicing solution in preparation of future development. The gravity trunk sewer to service this area is required to be 450mm dia. pipe at 0.5%. The trunk sewer will reach a maximum depth of approximately 12 metres near Reidel Road. In addition, earth movement will be required along the sewer alignment to reduce the average depth to 5-8 metres in Area A6 and A4. The trunk gravity sewer will cross the main channel of Blair Creek once, and tributaries of Blair Creek twice. Another local gravity sewer to service the low lying lands of Area A3 will also cross the main channel of Blair Creek once. Three of the four creek crossings will be constructed using trenchless technology in order to not disturb the natural features of the surrounding area. The fourth creek crossing, where the trunk sewer crosses the main channel of Blair Creek at Dodge Drive, will be constructed by the open cut method. The GRCA had already identified the culvert at this location as being undersized and in need of replacement. Therefore, during construction, as backfilling operations are being performed the culvert will be replaced, accomplishing both goals. The size of the culvert and the final alignment for the gravity trunk sanitary sewer will be determined during the detail design phase of the project.

The DSPS will be situated at Location B, on either the north or south side of New Dundee Road. The north side of the road will require additional excavation as the land is approximately 2-3 metres higher than the south side of the road. If the City chooses to purchase the lands on the south side of New Dundee Road, it will need to be purchased from the current owner. The interim forcemain will be small diameter pipe, approximately 100-200mm dia. and discharge in the Doon South Trunk Sanitary Sewer at Robert Ferrie Drive and Thomas Slee Drive. The forcemain will be 2-300mm dia. pipes with an alignment along two Regional roads, New Dundee Road and Homer Watson Boulevard. Discussions with the Region indicate a sewer easement will be available for the City of Kitchener along both Regional roads. The receiving gravity sewer on Homer Watson Boulevard may require upgrades to accommodate flow from the HWPS and the DSPS. The upgrade requirements, if any, will be identified during the detail design phase of the project.

Construction will be completed in stages to mitigate traffic disruptions and environmental impact including dust and noise. In addition, construction staging and phasing will also depend on the rate of development and the timing of lands to be developed. Additional mitigation measures for the preferred alternative have been provided in Table 6-1 below.
Table 6-1: Mitigation Measures

<table>
<thead>
<tr>
<th>Potential Impacts</th>
<th>Mitigating Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Aquatic Habitat, Fisheries and Water Quality:</strong></td>
<td></td>
</tr>
<tr>
<td>Loss, alteration or disruption to fish habitat</td>
<td>• The proposed creek crossings follow either an existing or proposed future municipal right-of-way.</td>
</tr>
<tr>
<td></td>
<td>• Potential impacts of groundwater movement within the sewer trench will be mitigated with clay cut-off collars.</td>
</tr>
<tr>
<td></td>
<td>• Areas downstream from the excavation will be protected by erosion and sediment controls during construction.</td>
</tr>
<tr>
<td></td>
<td>• Proposed creek crossings will be constructed within the Cold Water Fisheries 'window of opportunity'.</td>
</tr>
<tr>
<td>Reduced water quality of nearby surface water</td>
<td>• Install, monitor and maintain adequate erosion and sediment controls during all phases of construction, especially where dewatering is required.</td>
</tr>
<tr>
<td>Staging effects of construction on aquatic species</td>
<td>• Avoid spawning periods where creek crossings are required.</td>
</tr>
<tr>
<td><strong>2. Terrestrial Habitat and Species</strong></td>
<td></td>
</tr>
<tr>
<td>Removal or disturbance of significant trees or other vegetation</td>
<td>• Minimal tree removal or disturbance is anticipated as the proposed work is within municipal right-of-way.</td>
</tr>
<tr>
<td>Stress on biological communities</td>
<td>• Stress on wildlife is not anticipated to increase significantly from the proposed work.</td>
</tr>
<tr>
<td></td>
<td>• Sensitive wildlife periods, such as the migratory and breeding bird season will be avoided.</td>
</tr>
<tr>
<td>Intrusion into sensitive or significant habitat</td>
<td>• No encroachment, disturbance or construction is proposed within any of the significant natural features within the study area.</td>
</tr>
<tr>
<td><strong>3. Wetlands</strong></td>
<td></td>
</tr>
<tr>
<td>Loss of contiguous area</td>
<td>• No encroachment into the wetland areas is proposed.</td>
</tr>
<tr>
<td>Impacts on hydrologic function or conditions supporting the wetlands</td>
<td>• No changes to the existing water regime supporting the wetlands are anticipated, as a result of the pumping station and proposed sewer.</td>
</tr>
<tr>
<td></td>
<td>• Where the sewer is to built below the ground water table, clay cut-off collars will be installed.</td>
</tr>
</tbody>
</table>

Detailed mitigation and restoration measured should be further developed during the detailed design process.
Sewage Pumping Station (Typ)
7. Conclusion and Recommendations

In conclusion, the Doon South Phase II Community can be serviced by one sewage pumping station by the preferred solution, Alternative 4-1 Option B. The pumping station will be serviced on a temporary basis with a small diameter forcemain to the Homer Watson Pumping Station, and ultimately to the Schneider Trunk Sanitary Sewer by 2-300mm dia. forcemains. The lands identified as A1 can be serviced by gravity through the Doon South Trunk Sanitary Sewer to the Homer Watson Pumping Station, maximizing its approved rated capacity. The proposed trunk gravity sewer and forcemain alignments are within existing or proposed right-of-ways, with the exception of creek crossings. Area A6 is currently beyond the approved Urban Boundary and can be serviced by the proposed Doon South Pumping Station.

As a result of the Doon South Pumping Station Class EA and review of past reports the following recommendation are made:

1. The servicing scenario Alternative 4-1 Option B is recommended as the Preferred solution for the Doon South Community Area
2. The City of Kitchener confirms the site for the DSPS at Location B.
3. City of Kitchener confirms a servicing corridor on New Dundee Road and Homer Watson Boulevard with the Region of Waterloo.
4. The City of Kitchener initiates the upgrade requirements to the HWPS to bring the pumping station to its MOE Certificate of Authorization rated capacity of 309 L/s.
5. The City of Kitchener undertakes dynamic hydraulic modelling of the Strasburg Direct and Pioneer Trunk Sanitary Sewer System to confirm or determine if upgrades are required to service the lands identified in the South Strasburg Class EA and Area A5 of this report.
6. The design of the catchment area and related gravity sewers to the west of the Doon South Pumping Station includes for the land (Area A6) outside of the current urban boundary
7. The design of the interim forcemain from the DSPS directs wastewater flows to the existing sanitary sewer on Robert Ferrie Drive up to a maximum of 118L/s. The maximum wastewater flow should be based on theoretical design flows from the catchment area.
8. Once the design flows to the HWPS reach a maximum of 118 L/s, all flows from the gravity catchment area (except flows from Area A1) will be directed to the forcemain from the DSPS directly to the Schneider Creek Trunk Sanitary Sewer.
Appendix A

Public Consultations

Notice of Commencement

Notice of Public Information Centre No.1
Sign-In Sheet
Display Boards
Comment Sheets

Notice of Public Information Centre No. 2
Sign-In Sheet
Display Boards
Comment Sheets

Response to Comments
Notice of Commencement
NOTICE OF STUDY COMMENCEMENT
CLASS ENVIRONMENTAL ASSESSMENT
Doon South Wastewater Servicing
PLAINS ROAD CLOSURE – HURON ROAD TO LIMIT OF SUBDIVISION 30T-07205

The Study
The City of Kitchener is undertaking a Class Environmental Assessment (CEA) study for the closure of Plains Road between Huron Road and the limit of subdivision 30T-07205. Plains Road is a portion of the Regional Road 18. The CEA study will determine the need for the closure and whether any mitigation measures are required. The study will consider the impacts of the proposed closure on traffic, transportation and the environment.

The Process
The process, in accordance with the National Environment Assessment Act (NEAA) and the Ontario Environmental Assessment Act, will be conducted in four phases:
1. Public Information Centre (PIC)
2. Public Review
3. Public Consultation
4. Decision

The PIC
The Public Information Centre (PIC) will be held at the City of Kitchener’s headquarters on September 4, 2008 from 6:30 PM to 9:00 PM. The PIC will provide an opportunity to discuss the proposed changes and to ask questions about the study. Attendees are encouraged to come prepared with questions.

Public Review
The public review period is scheduled for September 5, 2008. During the public review period, the public will be able to provide feedback on the proposed changes. Feedback can be provided in writing or at the PIC.

Public Consultation
Once the public review period is complete, the City of Kitchener will hold a public consultation meeting to discuss the proposed changes. The consultation will provide an opportunity for the public to provide feedback on the proposed changes.

Decision
The decision on the proposed closure will be made by the City of Kitchener’s planning and development committee. The committee will consider the feedback received during the public review and consultation periods.

Comments
Comments on the proposed changes can be submitted in writing to the City of Kitchener or by attending the PIC.

For more information, please contact:

City of Kitchener
500 Vine Street West
Kitchener, ON N2G 4H7
Phone: 519-741-2200
Fax: 519-741-4454
Email: info@kitchener.ca
Public Information Centre No. 1
NOTICE OF PUBLIC INFORMATION CENTRE
Wednesday, February 11th, 2009
SCHEDULE B CLASS ENVIRONMENTAL ASSESSMENT STUDY
DOON SOUTH WASTEWATER SERVICING FACILITY

The Study
The City of Kitchener is proceeding with a Schedule “B” Class Environmental Assessment (EA) Study to determine the wastewater servicing requirements for the Doon South area in the City of Kitchener. The limits of the study are bound by the Doon South Phase 1 Subdivision to the north, Highway 401 to the east, New Dundee Road to the south and Reidel Drive to the west. The purpose of this study is to review existing wastewater infrastructure and to prepare options and alternatives for future works to control or direct wastewater from this area to appropriate treatment facilities.
A comprehensive and environmentally sound planning process that incorporates public consultation and involves a variety of stakeholders is required. The study area is shown on the plan provided below.
The Process
This study will be in accordance with the Municipal Engineers' Association document entitled "Municipal Class Environmental Assessment" October 2000, as amended in 2007. The Class EA process involves public and review agency consultation, an evaluation of alternatives, an assessment of the impacts of the proposed alternatives, and identification of a preferred solution.

Upon completion of this study, an Environmental Study Report (ESR) documenting the process will be submitted to the Ministry of the Environment (MOE) and will be available for public review for a period of 30 calendar days. Before any decisions are made on the recommendation, or acceptance of the preferred solution, all interested parties will have an opportunity to attend a future Public Information Centre (PIC) meeting. Notification of the PIC will be provided at the appropriate time by means of a similar advertisement in this newspaper.

Public Information Centre
As part of this study, a first Public Information Centre (PIC) planned to present the project to the public and government agencies for review and comment. The PIC will provide background information on the study and the various issues being considered and potential solutions being pursued. Representatives from the City and the Consultant will be present at the PIC to answer questions and discuss the next steps in this study. All interested parties are invited to attend the Public Information Centre (PIC) to be held at the following location:

J.W. Gerth Public School
171 Apple Ridge Drive
Wednesday February 11th, 2009
6:00 p.m. to 8:00 p.m.

Comments
We are interested in hearing any comments that you may have about the study. With the exception of personal information, all comments will become part of the public record.

Ms. Sharon Daniel, EIT, MBA
Engineering Technologist
Development Engineering
City of Kitchener
200 King Street W
Kitchener, ON N2G 4G7
Telephone: 519-741-2419
Fax: 519-741-2747
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Mr. Duncaun McLeod, P. Eng.
Senior Project Manager
AECOM
101 Frederick Street, Suite 702
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Fax: 519-570-3379
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<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
<th>EMAIL ADDRESS</th>
<th>AFFILIATION</th>
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</thead>
<tbody>
<tr>
<td>Rob Kelly</td>
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<td>J T RIS AY ENTERPRISE</td>
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<td>C C K</td>
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<td>AECOM - MENDHAM CORP</td>
</tr>
<tr>
<td>Glenn Sambell</td>
<td>GSP Group, 72 Victoria St</td>
<td><a href="mailto:gks@mct85.com">gks@mct85.com</a></td>
<td></td>
</tr>
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<td>CITY OF CAMBRIDGE</td>
</tr>
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<td>Ted Kane</td>
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<td><a href="mailto:trowe@mct85.com">trowe@mct85.com</a></td>
<td>MTE</td>
</tr>
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<td>Vaughan Sander</td>
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<td><a href="mailto:univir@univir.com">univir@univir.com</a></td>
<td>R &amp; S INVESTORS</td>
</tr>
<tr>
<td>Bill Green</td>
<td>201-72 Victoria St. 5th fl</td>
<td><a href="mailto:bgreen@gipgroup.ca">bgreen@gipgroup.ca</a></td>
<td>GSP Group</td>
</tr>
</tbody>
</table>
Schedule B Class Environmental Assessment Study
Doon South Pumping Station
The City of Kitchener
Public Information Centre #1
February 11th 2009
Welcome to Public Information Centre #1

- Please sign in on the sheet provided. Then feel free to walk around and view the displays.

- If you have any questions, our representatives will be pleased to discuss the project with you.

- Comment sheets are provided for those who wish to provide comments in writing. Please place your completed sheets in the Comment Box or send them to one of the identified Project Team Members listed below.

- Please contact one of the following Team Members for additional information:

  Ms. Sharon Daniel, EIT, MBA  
  Engineering Technologist  
  Development Engineering  
  City of Kitchener  
  200 King Street, ON, N2G 4G7  
  Telephone: (519) 741-2419  
  Fax: (519) 741-2747  
  Email: sharon.daniel@kitchener.ca

  Mr. Duncaun McLeod, P. Eng.  
  Senior Project Manager  
  AECOM  
  101 Frederick Street, Suite 702  
  Kitchener, ON N2H 6R2  
  Telephone: (519) 570-2853  
  Fax: (519) 570-3379  
  Email: duncaun.mcleod@aecom.com

Doon South Pumping Station  
AECOM
Background

The City of Kitchener is responsible for operating and maintaining the sanitary sewer networks and pumping stations within its’ boundaries. The City’s 2004 Development Charge Background studies (Development Charges By-Law, 2004-156) have identified the need to establish new sanitary sewer pumping station(s), trunk sewermain(s) and forcemain(s) to provide wastewater servicing for the Doon South Community Plan area. In order to establish the sanitary sewer facilitates, the City has to complete a Schedule “B” Class Environmental Assessment study in accordance with Municipal Engineers Association document, October 2000, as amended in 2007

- In 2006 the Region of Waterloo conducted a study titled ‘Region of Waterloo Wastewater Master Plan’. The Doon South lands have been included to be serviced by the Kitchener Wastewater Treatment Plant including flows to 2041. The overall servicing area for the Kitchener Wastewater Treatment Facility is shown as Figure 2.1 on the following board.
Future Populations/Flows to 2041

Region of Waterloo
WASTEWATER TREATMENT MASTER PLAN

Legend
- PLUM Zones (Population Land Use Model)
- WWTP
- WWSA - Mature State (2041 Presumed)
- WWSA - Existing

WWTP Service Areas
Existing
- Ayr
- Baden/New Hamburg
- Elmira
- Galt
- Kitchener
- Kitchener
- Preston
- St. Jacobs
- Waterloo
- Wellesley

EXISTING AND FUTURE (2041) WWTP SERVICE AREAS/FLows

Scale: N.T.S
Date: July 2006
FN: 78146

EarthTech
A Tyco International Ltd. Company

Doon South Pumping Station

Source: Region of Waterloo, Wastewater Master Plan, 2006
<table>
<thead>
<tr>
<th>Q: What is a Class EA (Environmental Assessment)?</th>
<th>Q: What is a forcemain sewer?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A:</strong> A Class EA sets out the planning process to be followed for municipal improvement projects. The process ensures that environmental effects are considered for each project. Proponents are required to follow the planning and design procedures set out in the approved Class EA including public consultation.</td>
<td><strong>A:</strong> Forcemain sewers are pipelines that convey wastewater under pressure from the discharge side of a pump to a discharge point downstream. Pumps located in the pumping station provide the energy for wastewater conveyance in the forcemain.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q: What is a Greenfield Development?</th>
<th>Q: What is a holding tank?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A:</strong> A Greenfield development is a new development taking place on previously undeveloped sites. They are most often comprised of lands last used for agriculture.</td>
<td><strong>A:</strong> A holding tank is a tank used at a pumping station when there is insufficient capacity in the sewer system. The sewage is retained in the tank until it can be released during low flow or off peak hours.</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Q: What is a pumping station?</th>
<th>Q: What does off-peak hours mean?</th>
</tr>
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<tbody>
<tr>
<td><strong>A:</strong> A pumping station is designed to take the flow from a gravity sewer system and boost it through a forcemain, over a hill or up some other grade where the installation of gravity sewer lines is impossible or impractical.</td>
<td><strong>A:</strong> Off-peak hours or low flow periods are times during a 24 hour cycle when the expected flow in the sewer system is less than maximum capacity. For example: 1:00am to 5:00am could be considered a flow period.</td>
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<tr>
<th>Q: What is a gravity sewer?</th>
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<tr>
<td><strong>A:</strong> A gravity sewer is a sewer pipeline that uses a declining grade to induce the flow of wastewater.</td>
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Class Environmental Assessment Planning Process

PHASE 1
Identify & Describe the Problem or Opportunity

PHASE 2
Evaluate Alternative Solutions & Establish the Preferred Solution

PHASE 3
Evaluate Alternative Design Concepts, Identify Environmental Effects, Mitigation & Preferred Concept

PHASE 4
Prepare Environmental Study Report Documenting Phases 1-3

Environmental Study Report

PHASE 5
Complete Drawings & Documents – Proceed to Construct, Operate & Monitor Project

Notice of ESR Completion and 30-Day Review Period

Mandatory Review Agency/Public Notification

Directory Review Agency/Public Consultation

Mandatory Review Agency/Public Consultation

Doon South Pumping Station

KITCHENER
Purpose Statement

The Purpose Statement is the principle starting point in the undertaking of a Class EA study and becomes the central theme and integrating element of the project. It also assists in setting the scope of the project. Based on these considerations, the purpose statement for the Doon South PS (Pumping Station) Class EA is defined as follows:

- The City is preparing a development strategy for the development of the Doon South Planning area in the City of Kitchener. This study will consider current system capacities, future service area demands and future growth strategies.

- With input from the general public and interested stakeholders, the City of Kitchener is developing a sanitary sewer strategy for the design of a sanitary sewer pumping station that will accept flows from the local catchments and deliver the flows through a forcemain to an existing or proposed sanitary sewer system so that flows can be transported to the Kitchener Wastewater Treatment Facility.

- The design and location of the sanitary sewer pumping station facility will be designed in a manner which:
  - Protects human health and property;
  - Protects and enhances significant aspects of the natural environment;
  - Addresses current and anticipated regulatory requirements/changes;
  - Is fiscally responsible;
  - Provides a collection system of sanitary sewer flows that supports reurbanization and targeted greenfield development within the Doon South Planning Area; and
  - Provides security of collection systems for future urbanization.
Alternative Solutions

- **Alternative 1**: Do Nothing

- **Alternative 2**: Build Doon South PS and direct all new flows to Schneider Trunk Sanitary Sewer.

- **Alternative 3**: Build Doon South PS with *minor* upgrades to the Homer Watson PS

- **Alternative 4**: Build Doon South PS with *major* upgrades to the Homer Watson PS
Alternative 1: Do Nothing

- A Do Nothing solution is typically made when the costs of all other alternatives, both financial and environmental, outweigh the benefits.

- No improvements or changes are made to solve the identified problem(s).

- May be implemented at any time during the design process prior to the start of construction.
**Option 2A**
- All new flows (Area A1 through A6) directed to the proposed Doon South PS (Location A) and pumped through a proposed forcemain to the Schneider Trunk Sanitary Sewer.

**Option 2B** (Similar to Option 2A with Pump Station at Location B)
- All new flows (Area A1 through A6) directed to the proposed Doon South PS (Location B) and pumped through a proposed forcemain to the Schneider Trunk Sanitary Sewer.
Option 3A
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- Short Term
  - Area A1 (yellow hatched) by gravity to Homer Watson PS
  - Build Doon South PS (Location A) to accept flow from Areas A2, A3 and A4
  - Pump flow from Doon South PS through proposed forcemain (large enough to accept future flows from Areas A5 and A6) to Schneider Trunk Sanitary Sewer

- Intermediate Term
  - Upgrade Doon South PS to accept flows from potential Area A5
  - Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

- Long Term
  - Upgrade Doon South PS to accept flow from Area A6
  - Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

Option 3B (Similar to Option 3A with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- Short Term
  - Area A1 (yellow hatched) by gravity to Homer Watson PS
  - Build Doon South PS (Location B) to accept flow from Areas A2, A3 and A4
  - Pump flow from Doon South PS through proposed forcemain (large enough to accept future flows from Areas A5 and A6) to Schneider Trunk Sanitary Sewer

- Intermediate Term
  - Upgrade Doon South PS to accept flows from potential Area A5
  - Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

- Long Term
  - Upgrade Doon South PS to accept flow from Area A6
  - Pump flow from Doon South PS through forcemain to Schneider Trunk Sanitary Sewer

Legend:
- Possible Gravity Sanitary Sewer
- Proposed Gravity Sanitary Sewer
- Proposed Forcemain
- Existing Trunk Sewer
- Proposed Pumping Station
- Existing Pumping Station

Areas A1 - A5: Within Urban Boundary
Areas A6: Outside Urban Boundary

- Undevelopable Area
- Environmentally Sensitive or Protected Area
- Draft Plan Approved
- Developable Areas
- Developable Areas
- Developable Areas
Option 3C
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Flow A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- Short Term
  - Area A1 (yellow hatched) by gravity flow to Homer Watson PS
  - Build Doon South PS (Location A) with holding tank to accept flow from Area A2, A3 and A4
  - Pump flow from Doon South PS during low flow periods through proposed forcemain (large enough to accept future flows from Area A5 and A6) to Homer Watson PS

- Intermediate Term
  - Upgrade Doon South PS and holding tank to accept flows from Area A5
  - Pump flow from Doon South PS during low flow periods through forcemain (large enough to accept future flows from Area A5) to Homer Watson PS

- Long Term
  - Upgrade Doon South PS and holding tank to accept flow from area A6
  - Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS

Option 3D (Similar to Option 3C with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Flow A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- Short Term
  - Area A1 (yellow hatched) by gravity flow to Homer Watson PS
  - Build Doon South PS (Location B) with holding tank to accept flow from Area A2, A3 and A4
  - Pump flow from Doon South PS during low flow periods through proposed forcemain (large enough to accept future flows from Area A5 and A6) to Homer Watson PS

- Intermediate Term
  - Upgrade Doon South PS and holding tank to accept flows from Area A5
  - Pump flow from Doon South PS during low flow periods through forcemain (large enough to accept future flows from Area A5) to Homer Watson PS

- Long Term
  - Upgrade Doon South PS and holding tank to accept flow from area A6
  - Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS
**Option 4A**
- Upgrade Homer Watson PS to accommodate flow from Area A1, A2 and A3
- Build Doon South PS
- Flows from Area A2, A3 and A4 and potentially A5 and A6 to Doon South

  **Short Term**
  - Area A1 (yellow hatched) by gravity to Homer Watson PS
  - Build Doon South PS (Location A) to accept flow from Area A2 and A3 (yellow).
  - Pump flow from Doon South PS to Homer Watson PS

  **Intermediate Term**
  - Upgrade Doon South PS to accept flows from Area A4 and A5
  - Redirect pump flows from Doon South PS to Schneider Trunk Sanitary Sewer

  **Long Term**
  - Upgrade Doon South PS to accept flows from area A6
  - Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer

**Option 4B** (Similar to Option 4A with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate flow from Area A1, A2 and A3
- Build Doon South PS
- Flows from Area A2, A3 and A4 and potentially A5 and A6 to Doon South

  **Short Term**
  - Area A1 (yellow hatched) by gravity to Homer Watson PS
  - Build Doon South PS (Location B) to accept flow from Area A2 and A3 (yellow).
  - Pump flow from Doon South PS to Homer Watson PS

  **Intermediate Term**
  - Upgrade Doon South PS to accept flows from Area A4 and A5
  - Redirect pump flows from Doon South PS to Schneider Trunk Sanitary Sewer

  **Long Term**
  - Upgrade Doon South PS to accept flows from area A6
  - Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer
Option 4C
- Upgrade Homer Watson PS to accommodate gravity flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- Short Term
  - Area A1 (yellow hatched) to flow by gravity to Homer Watson PS
  - Build Doon South PS at (Location A) to accept wastewater flow from Areas A2 and A3 (yellow)
  - Pump flow from Doon South PS to Homer Watson PS

- Intermediate Term
  - Upgrade Doon South PS and build new holding tank large enough to accommodate flows from Areas A4 and A5
  - Pump flows from Doon South PS during low flow periods through forcemain to Homer Watson PS (through existing Doon South Infrastructure)

- Long Term
  - Upgrade Doon South PS and holding tank
  - Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS

Option 4D (Similar to Option 4A with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate gravity flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- Short Term
  - Area A1 (yellow hatched) to flow by gravity to Homer Watson PS
  - Build Doon South PS at (Location B) to accept wastewater flow from Areas A2 and A3 (yellow)
  - Pump flow from Doon South PS to Homer Watson PS

- Intermediate Term
  - Upgrade Doon South PS and build new holding tank large enough to accommodate flows from Areas A4 and A5
  - Pump flows from Doon South PS during low flow periods through forcemain to Homer Watson PS (through existing Doon South Infrastructure)

- Long Term
  - Upgrade Doon South PS and holding tank
  - Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS
## Evaluation Criteria of Alternative Solutions

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<thead>
<tr>
<th></th>
<th>Alternative 1</th>
<th>Alternative 2</th>
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<td>Overall Evaluation</td>
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### Level of Impact

- ○ **Low Impact** *(Most Desirable)*
- ◇ **Low to Moderate**
- ○ **Moderate Impact**
- ◇ **Moderate to High**
- ◇ **High Impact** *(Least Desirable)*

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Doon South Pumping Station

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AECOM
Project Schedule

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<tr>
<td>Notice of Project Initiation</td>
<td>Public Information Centre</td>
<td>Notice of Completion &amp; Public Review</td>
<td></td>
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<tr>
<td>October, 2008</td>
<td>February 2009 April 2009</td>
<td>Prepare Project File documentation</td>
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<tr>
<td>- Introduce Study</td>
<td>- Input required on:</td>
<td>- Ongoing Consultation as Required</td>
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<tr>
<td>- Request early input</td>
<td>- Evaluation &amp; analysis of alternatives</td>
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<tr>
<td>- Identify stakeholders - prepare mailing list</td>
<td>- Project impacts mitigation</td>
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<td>- Implementation</td>
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Doon South Pumping Station

AECOM
Next Steps

Following the PIC, comments received from agencies & the public will be reviewed for consideration.

Alternative solution will be evaluated and a preferred solution established.

Review agencies & the public will be notified and a second PIC will be held in April to present the preferred solution.

Once a preferred alternative has been selected, an Environmental Study Report (ESR) will be completed. Review agencies & the public will be notified of the ESR and will be provided the opportunity to comment during the 30 day Public Review Period. If agencies &/or the public do not agree with the preferred solution, they can contact the Ministry of Environment and request a ‘Bump Up’ for additional studies to be completed. If the Ministry agrees, a Part II Order will be issued and the proponent will be required to further the study.

Upon completion of the 30 day review period and no comments from agencies or the public, the study will be complete. The project may proceed to detailed design, tender & construction.

Doon South Pumping Station
THANK YOU FOR ATTENDING!

Your comments will be considered.

Please remember to place your completed sheets in the Comment Box provided.

Doon South Pumping Station
September 5, 2008

Mr. Binu Korah
City of Kitchener
200 King Street West
Kitchener, Ontario N2G 4G7

Dear Mr. Korah:

Re: Homer Watson Pumping Station Upgrades and Doon South Sanitary Servicing Environmental Assessment / Our File Y202S/8784AG

I am writing as a follow-up to our recent meeting.

You mentioned the report regarding the upgrades to the Homer Watson Pumping Station has been finalized.

Please provide me with a copy of the report. Please confirm the additional units which can be built/accommodated based on the initial upgrades. Please confirm the ultimate units which can be accommodated based on the subsequent upgrades. Please confirm the upgrades are intended as development charge eligible items.

Finally please ensure I am notified of the public information centre regarding the Doon South Sanitary Servicing Environmental Assessment.

Thank you.

MHBC PLANNING

[Signature]

Paul R. Britton, M.C.I.P., R.P.P.
PRB:mc
March 5, 2009
File: C31029-800

Mr. Binu Korah
City of Kitchener
200 King Street West 9th Floor
Kitchener, ON N2G 4G7

Dear Mr. Korah:

Re: Doon South Pumping Station EA PIC#1

Further to the recent Public Information Centre held on February 11, 2009 and our subsequent review of the available presentation material, we provide the following comments on behalf of our clients, Hallman Construction Limited and Activa Holdings Inc. for your review and consideration as it relates to the above noted project.

SERVICING ALTERNATIVES/OPTIONS

1. All of the proposed alternatives, with the exception of "do nothing", are based on a single sewage pump station and associated forcemain outlet concept, notwithstanding, the current City of Kitchener Development Charges By-law has provision for two sewage pump stations to provide sanitary service for the proposed service area. We strongly believe a two station option is very feasible and request that this option be formally assessed as part of the EA process.

2. All options must consider utilizing the available infrastructure that has been constructed in anticipation of future development (i.e. existing HWSPS and associated gravity sewers).

3. Options 2A and 2B propose the "re-direction" of future development lands indicated as "A1" to the new SPS whereas these lands fall within the gravity drainage limits of the existing HWSPS. Imminent upgrades proposed for the HWSPS will provide the capacity to service these lands. Furthermore, the receiving downstream infrastructure has been sized to accommodate these lands. Therefore, these alternatives should be "screened out" and not considered further.

4. It is our understanding that the identified servicing alternatives have not yet been evaluated and need to be fully assessed as part of the EA process. We request the opportunity to provide input on the evaluation criteria prior to the alternatives being assessed.

MTE Consultants Inc.
520 Bingemans Centre Drive
Kitchener, Ontario N2B 3X9
Tel: 519-743-6500 Fax: 519-743-6513

www.mte85.com
5. The future development lands currently within the existing City Urban Area identified as "A4" should be classified the same as those lands identified as "A3" (i.e. yellow and not brown) as capacity within the downstream HWSPS is available for these lands based on proposed land use and densities. Applying different classifications for these lands suggests that they do not have the same development status. Please make the necessary revisions to the relative figures.

6. The South Strasburg trunk sanitary sewer gravity catchment area as previously defined through its EA process (Stantec 2008), is included on all presentation figures for the various alternatives. However, the associated Beih Drive trunk sanitary sewer gravity catchment area is not indicated. Furthermore, future development lands identified as "A5" fall within the gravity drainage catchment of the Beih Drive trunk Sanitary sewer. Please make the necessary revisions to the relative figures and mapping.

7. The Region of Waterloo WWTP service area boundary is incorrectly shown on all presentation figures for the various alternatives. Figure 2.1 "Existing and Future (2041) WWTP Service Areas/Flows, Region of Waterloo Wastewater Treatment Master Plan" includes lands currently outside the existing City Urban Area. Please make the necessary revisions.

MTE has completed a sanitary servicing review for the Kitchener Southwest area and has provided copies previously to the City and its consultant AECOM. We would be more than happy to meet to discuss this report in the context of the EA process as we believe this information is useful and pertinent.

We trust the above is in order. Should you require any additional information, please call.

Sincerely,

MTE CONSULTANTS INC.

Ted Rowe, P.Eng.
Vice President

cc: Mr. Paul Britton, MHBC
Mr. Rob Howe, Goodmans LLP
Mr. Larry Masseo, Active Holdings Inc.
Mr. Paul Grespan, Hallman Construction Limited
Mr. Duncan MacLeod, AECOM
COMMENT SHEET

We want to hear from you!!

You are invited to provide comments on the materials presented today as well as any other issues that you feel are important to the Doon South Pumping Station Schedule B Class Environmental Assessment. Please complete this comment sheet and leave it with us today or send it to Mr. Duncan McLeod, Senior Project Manager, AECOM, 101 Frederick Street, Suite 702, Kitchener, ON N2H 6R2, Telephone: (519) 570-2853, Email: duncan.mcleod@aecom.com or Ms. Sharon Daniel, Engineering Technologist, Development Engineering, City of Kitchener, 200 King Street, ON, N2G 4G7, Telephone: (519) 741-2419, Email: sharon.daniel@kitchener.ca

Notice of Collection
Personal information contained on this form is collected by The City of Kitchener in accordance with the Freedom of Information and Protection of Privacy Act and will be used by The City in making a decision on this project. All names, addresses and comments will be included in material available to the public.

COMMENTS:

I support Alternatives 2, 3 or 4 for the Pumping station, which will allow us to develop our property, owned by JT Risty Enterprises Ltd on New Dundie Rd, which is part of the study area.

NAME: Bob Kelly
ADDRESS: 398 New Dundee Rd, Kitchener
TELEPHONE: 519 572 5811
NOTICE OF PUBLIC INFORMATION CENTRE
Thursday, May 7th, 2009
SCHEDULE B CLASS ENVIRONMENTAL ASSESSMENT STUDY
DOON SOUTH WASTEWATER SERVICING FACILITY

The Study
The City of Kitchener is proceeding with a Schedule “B” Class Environmental Assessment (EA) Study to determine the wastewater servicing requirements for the Doon South area in the City of Kitchener.

The limits of the study are bound by the Doon South Phase 1 Subdivision to the north, Highway 401 to the east, New Dundee Road to the south and Reidel Drive to the west.

The purpose of this study is to review existing wastewater infrastructure and to prepare options and alternatives for future works to control or direct wastewater from this area to appropriate treatment facilities.

A comprehensive and environmentally sound planning process that incorporates public consultation and involves a variety of stakeholders is required. The study area is shown on the plan provided below.
The Process
This study will be in accordance with the Municipal Engineers' Association document entitled "Municipal Class Environmental Assessment" October 2000, as amended in 2007. The Class EA process involves public and review agency consultation, an evaluation of alternatives, an assessment of the impacts of the proposed alternatives, and identification of a preferred solution.

Upon completion of this study, an Environmental Study Report (ESR) documenting the process will be submitted to the Ministry of the Environment (MOE) and will be available for public review for a period of 30 calendar days.

Public Information Centre
As part of this study, a first Public Information Centre (PIC) was held on Wednesday February 11th, 2009. The PIC presented the project to the public and government agencies for review and comment. The PIC provided background information on the study and the various issues being considered and potential solutions being pursued. A second PIC will be held on Thursday May 7th, 2009 to present the evaluation of the alternative solutions, and identify the preferred solution. Representatives from the City and the Consultant will be present at the PIC to answer questions and discuss the next steps in this study. All interested parties are invited to attend the PIC to be held at the following location:

J.W. Gerth Public School
171 Apple Ridge Drive
Thursday May 7th, 2009
6:00 p.m. to 8:00 p.m.

Comments
We are interested in hearing any comments that you may have about the study. With the exception of personal information, all comments will become part of the public record.

Ms. Sharon Daniel, EIT, MBA
Engineering Technologist
Development Engineering
City of Kitchener
200 King Street W
Kitchener, ON N2G 4G7
Telephone: 519-741-2419
Fax: 519-741-2747
Email: sharon.daniel@kitchener.ca

Mr. Duncaun McLeod, P. Eng.
Senior Project Manager
AECOM
101 Frederick Street, Suite 702
Kitchener, ON N2H 6R2
Telephone: 519-570-2853
Fax: 519-570-3379
Email: duncaun.mcleod@aecom.com
**NOTICE OF PUBLIC INFORMATION CENTRE**

**Tuesday, June 23, 2009**

**SCHEDULE B CLASS ENVIRONMENTAL ASSESSMENT STUDY DOON SOUTH WASTEWATER SERVICING FACILITY**

**The Study**

The City of Kitchener is proceeding with a Schedule “B” Class Environmental Assessment (EA) Study to determine the wastewater servicing requirements for the Doon South area in the City of Kitchener.

The original limits are bound by the Doon South Phase 1 Subdivision to the north, Highway 401 to the east, New Dundee Road to the south and Reidel Drive to the west. The limits of the study have been revised to include the Homer Watson Parkway, Station Hill Boulevard and the Homer Watson Boulevard Right-of-Way. The purpose of this study was to review existing wastewater infrastructure and to prepare options and alternatives for future works to control or direct wastewater from this area to appropriate treatment facilities.

A comprehensive and environmentally sound planning process that incorporated public consultation and involved a variety of stakeholders was completed. The study area is shown on the plan provided below.

**The Process**

This study process was completed in accordance with the Municipal Engineers’ Association document entitled “Municipal Class Environmental Assessment” October 2000, as amended in 2007. The Class EA process involved public and review agency consultation, an evaluation of alternatives, an assessment of the impacts of the proposed alternatives, and identification of a preferred solution.

Upon completion of this study, an Environmental Study Report (ESR) documenting the process will be submitted to the Ministry of the Environment (MOE) and will be available for public review for a period of 30 calendar days (Review period). All interested parties are invited to attend this Public Information Centre (PIC) meeting to discuss the recommendations and the preferred solution.

**Public Information Centre**

As part of the study, an initial Public Information Centre was held on February 11th, 2009 to provide information and to request input from the public. This second Public Information Centre (PIC) is being held to present the results of the project information and valuation to the public and government agencies. The PIC will provide background information on the study, the various issues that were considered throughout the process, an evaluation of the individual alternatives reviewed, and a preferred solution. Representatives from the City and the Consultant will be present at the PIC to answer questions and discuss the next steps in this study. All interested parties are invited to attend the Public Information Centre (PIC) to be held at the following location:

**Date:** June 23, 2009  
**Time:** 6:00 p.m. to 8:00 p.m.  
**Location:** J.W. Gerth Public School  
171 Apple Ridge Drive  
Kitchener, Ontario

**Comments**

We are interested in hearing any comments that you may have about the study. With the exception of personal information, all comments will become part of the public record.

If you are unable to attend the PIC, and would like to provide comments, please contact either of the following Project Team members:

- **Ms. Sharon Daniel, EIT, MBA**  
  Engineering Technologist  
  Development Engineering  
  City of Kitchener  
  200 King Street W  
  Kitchener, ON N2G 4G7  
  Telephone: 519-741-2419  
  Fax: 519-741-2747  
  Email: sharon.daniel@kitchener.ca

- **Mr. Duncan McLeod, P.Eng.**  
  Senior Project Manager  
  AECCOM  
  101 Frederick Street, Suite 702  
  Kitchener, ON N2H 6R2  
  Telephone: 519-570-2853  
  Fax: 519-570-3379  
  Email: duncnmac@aeccom.com

**NOTICE OF PUBLIC INFORMATION CENTRE**

**Thursday, June 25th, 2009**

**CLASS ENVIRONMENTAL ASSESSMENT HURON ROAD FROM STRASBURG ROAD TO FISCHER-HALLMAN ROAD**

**The Study**

The City of Kitchener is initiating a Class Environmental Assessment (EA) Study for Huron Road from Strasburg Road to Fischer-Hallman Road. Huron Road is a major east-west secondary arterial road is experiencing increasing traffic pressures. As a result, improvements have been recommended which could include a combination of road widening, intersection improvements, horizontal and vertical realignment, servicing and street lighting/utility works, rehabilitation, and replacement or expansion of watercourse crossing structures.

A comprehensive and environmentally sound planning process that incorporates public consultation and involves a variety of stakeholders is required. The Study Area is shown on the plan provided below.

**The Process**

The city is conducting this study in accordance with Schedule ‘C’ of the Municipal Engineers Association (MEA) document, Municipal Class Environmental Assessment, October 2000, as amended in 2007. The Class EA process includes public and review agency consultation, an evaluation of alternatives, an assessment of the impacts of the proposed improvements, and identification of measures to mitigate any adverse impacts.

Upon completion of this study, an Environmental Study Report (ESR) documenting the process will be submitted to the Ministry of the Environment (MOE) and will be available for public review for a period of 30 calendar days

**Public Information Centre**

A second Public Information Centre (PIC) is planned for Thursday, June 25th from 5:00pm to 7:00pm at the Huron Heights Secondary School. The PIC will highlight the Project Team’s recommendation for the preferred solution for the upgrade of Huron Road. The preferred solution was selected by the project team based on a variety of technical merits, and comments and suggestions received since the first Public Information Centre held Tuesday, October 28, 2008. Representatives from the City and the Consultant will be present at the PIC to answer questions and discuss the next steps in this study.

If you are unable to attend the PIC, information will be posted on the City’s website at www.kitchener.ca.

**Huron Heights Secondary School**  
1825 Strasburg Road  
Thursday, June 25th, 2009  
5:00 p.m. to 7:00 p.m.

**Comments**

We are interested in hearing any comments that you may have about the study. With the exception of personal information, all comments will become part of the public record.

To provide your comments or to request additional information concerning this project, please contact either of the Project Team members:

- **Mr. Binu J. Korah, P.Eng.**  
  Manager, Development Engineering  
  City of Kitchener  
  200 King Street West,  
  Kitchener, ON, Canada N2G 4G7  
  Phone: 519 741 2974  
  Fax: 519 741 2747  
  TTY: 519 741 2385  
  Email: binu.korah@kitchener.ca

- **Mr. Duane Lindner, P.Eng.**  
  Manager, Municipal Division  
  MTE Consultants Inc.  
  520 Bingemans Centre Drive  
  Kitchener, ON N2B 3X9  
  Phone: 519-743-6500  
  Fax: 519-743-8513  
  Email: dlinnder@mte85.com
<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
<th>EMAIL ADDRESS</th>
<th>AFFILIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roland Haddell</td>
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<tr>
<td>Bob Elliott</td>
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<td>Al Peister</td>
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<td><a href="mailto:al@mcleanpeister.com">al@mcleanpeister.com</a></td>
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<tr>
<td>Brandon Peister</td>
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<td><a href="mailto:Brandon@mcleanpeister.com">Brandon@mcleanpeister.com</a></td>
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<td>MTE</td>
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<td>Ana Pankovich</td>
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<tr>
<td>Dave Wilhelm</td>
<td>520 Bingeman Centre Dr</td>
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Schedule B Class Environmental Assessment Study

Doon South Pumping Station

The City of Kitchener

Public Information Centre #2

Tuesday June 23rd, 2009

Kitchener
Welcome to Public Information Centre #2

- Please sign in on the sheet provided, then feel free to walk around and view the displays.

- If you have any questions, our representatives will be pleased to discuss the project with you.

- Comment sheets are provided for those who wish to provide comments in writing. Please place your completed sheets in the Comment Box or send them to one of the identified Project Team Members listed below.

- Please contact one of the following Team Members for additional information:

  | Ms. Sharon Daniel, EIT, MBA                      | Mr. Duncaun McLeod, P. Eng.                     |
  | Engineering Technologist                          | Senior Project Manager                          |
  | Development Engineering                           | AECOM Canada Ltd.                                |
  | City of Kitchener                                 | 101 Frederick Street, Suite 702                  |
  | 200 King Street, ON, N2G 4G7                      | Kitchener, ON N2H 6R2                            |
  | Telephone: (519) 741-2419                         | Telephone: (519) 570-2853                        |
  | Fax: (519) 741-2747                               | Fax: (519) 570-3379                              |
  | Email: sharon.daniel@kitchener.ca                  | Email: dunciaun.mcleod@aecom.com                  |

Doon South Pumping Station
Background

The City of Kitchener is responsible for operating and maintaining the sanitary sewer networks and pumping stations within its’ boundaries. The City’s 2004 Development Charge Background studies (Development Charges By-Law, 2004 -156) have identified the need to establish new sanitary sewer pumping station(s), trunk sewermain(s) and forcemain(s) to provide wastewater servicing for the Doon South Community Plan area. In order to establish the sanitary sewer facilitates, the City has to complete a Schedule “B” Class Environmental Assessment study in accordance with Municipal Engineers Association document, October 2000, as amended in 2007.

The sanitary flows from the Doon South lands have been included to be serviced by the Kitchener Wastewater Treatment Plant including flows up to 2041 as per the Region of Waterloo’s study titled “Region of Waterloo Wastewater Treatment Master Plan” (ROW WWTMP), August 2007. The overall servicing area for the Region of Waterloo is shown in Figure 2.1 of the ROW WWTMP on the next display.
Future Populations/Flows to 2041

Source: Region of Waterloo, Wastewater Master Plan, August 2007

Doon South Pumping Station

FIGURE 2.1
EXISTING AND FUTURE (2041) WWTP SERVICE AREAS/FLOWS

WASTEWATER TREATMENT MASTER PLAN

Legend

- PLLM Zones (Population Land Use Model)
- WWTP - Mature State (2041 Presumed)
- WWPSA - Existing

WWTP Service Areas

Existing

Ayr
Baden/New Hamburg
St. Jacobs
Waterloo
Wellington

Mature State

Ayr
Baden/New Hamburg
St. Jacobs
Waterloo

Scale: H.T.S

Date: July 2006

EarthTech
A Tyco International Ltd. Company

AECOM
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
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<tbody>
<tr>
<td>Q: What is a Class EA (Environmental Assessment)?</td>
<td>A: A Class EA sets out the planning process to be followed for municipal improvement projects. The process ensures that environmental effects are considered for each project. Proponents are required to follow the planning and design procedures set out in the approved Class EA including public consultation.</td>
</tr>
<tr>
<td>Q: What is a forcemain sewer?</td>
<td>A: Forcemain sewers are pipelines that convey wastewater under pressure from the discharge side of a pump to a discharge point downstream. Pumps located in the pumping station provide the energy for wastewater conveyance in the forcemain.</td>
</tr>
<tr>
<td>Q: What is a Greenfield Development?</td>
<td>A: A Greenfield development is a new development taking place on previously undeveloped sites. They are most often comprised of lands last used for agriculture.</td>
</tr>
<tr>
<td>Q: What is a holding tank?</td>
<td>A: A holding tank is a tank used at a pumping station when there is insufficient capacity in the sewer system. The sewage is retained in the tank until it can be released during low flow or off peak hours.</td>
</tr>
<tr>
<td>Q: What is a pumping station?</td>
<td>A: A pumping station is designed to take the flow from a gravity sewer system and boost it through a forcemain, over a hill or up some other grade where the installation of gravity sewer lines is impossible or impractical.</td>
</tr>
<tr>
<td>Q: What is a gravity sewer?</td>
<td>A: A gravity sewer is a sewer pipeline that uses a declining grade to induce the flow of wastewater.</td>
</tr>
<tr>
<td>Q: What does off-peak hours mean?</td>
<td>A: Off-peak hours or low flow periods are times during a 24 hour cycle when the expected flow in the sewer system is less than maximum capacity. For example: 1:00am to 5:00am could be considered a flow period.</td>
</tr>
</tbody>
</table>

Doon South Pumping Station
Class Environmental Assessment Planning Process

PHASE 1
Identify & Describe the Problem or Opportunity

PHASE 2
Evaluate Alternative Solutions & Establish the Preferred Solution

PHASE 3
Evaluate Alternative Design Concepts, Identify Environmental Effects, Mitigation & Preferred Concept

PHASE 4
Prepare Environmental Study Report Documenting Phases 1-3

PHASE 5
Complete Drawings & Documents – Proceed to Construct, Operate & Monitor Project

Mandatory Review Agency/Public Notification

Notice of Commencement

Schedule 'A', 'B' & 'C' Projects

Optional Review Agency/Public Consultation

Mandatory Review Agency/Public Consultation

Directory Review Agency/Public Consultation

Mandatory Review Agency/Public Notification

Environmental Study Report

Opportunity for Part II Order Request

Notice of ESAR Completion and 30 Day Review Period

Doon South Pumping Station | AECOM
Purpose Statement

The Purpose Statement is the principle starting point in the undertaking of a Class EA study and becomes the central theme and integrating element of the project. It also assists in setting the scope of the project. The purpose statement for the Doon South PS (Pumping Station) Class EA is defined as follows:

- The City is preparing a development strategy for the development of the Doon South Planning area in the City of Kitchener. This study will consider current system capacities, future service area demands and future growth strategies.

- With input from the general public and interested stakeholders, the City of Kitchener is developing a sanitary sewer strategy for the design of a sanitary sewer pumping station that will accept flows from the local catchments and deliver the flows through a forcemain to an existing or proposed sanitary sewer system so that flows can be transported to the Kitchener Wastewater Treatment Facility.

- The design and location of the sanitary sewer pumping station facility will be designed in a manner which:
  - Protects human health and property;
  - Protects and enhances significant aspects of the natural environment;
  - Addresses current and anticipated regulatory requirements/changes;
  - Is fiscally responsible;
  - Provides a collection system of sanitary sewer flows that supports reurbanization and targeted greenfield development within the Doon South Planning Area; and
  - Provides security of collection systems for future urbanization.
Alternative Solutions

- **Alternative 1**: Do Nothing

- **Alternative 2**: Build Doon South PS and direct all new flows to Schneider Trunk Sanitary Sewer.

- **Alternative 3**: Build Doon South PS with *minor* upgrades to the Homer Watson PS

- **Alternative 4**: Build Doon South PS with *major* upgrades to the Homer Watson PS

---

KITCHENER

Doon South Pumping Station

AECOM
Alternative 1: Do Nothing

- No improvements or changes are made to solve the identified problem(s).

- A Do Nothing solution is typically made when the costs of all other alternatives, both financial and environmental, outweigh the benefits.

- May be implemented at any time during the design process prior to the start of construction.
Option 2A
- All new flows (Area A1 through A6) directed to the proposed Doon South PS (Location A) and pumped through a proposed forcemain to the Schneider Trunk Sanitary Sewer.

Option 2B
(Similar to Option 2A with Pump Station at Location B)
- All new flows (Area A1 through A6) directed to the proposed Doon South PS (Location B) and pumped through a proposed forcemain to the Schneider Trunk Sanitary Sewer.
**Option 3A**
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

  **Short Term**
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS (Location A) to accept flow from Areas A2, A3 and A4
  - Pump flow from Doon South PS through proposed force main (large enough to accept future flows from Areas A5 and A6) to Schneider Trunk Sanitary Sewer

  **Intermediate Term**
  - Upgrade Doon South PS to accept flows from potential Area A5
  - Pump flow from Doon South PS through force main to Schneider Trunk Sanitary Sewer

  **Long Term**
  - Upgrade Doon South PS to accept flow from Area A6
  - Pump flow from Doon South PS through force main to Schneider Trunk Sanitary Sewer

**Option 3B** (Similar to Option 3A with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

  **Short Term**
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS (Location B) to accept flow from Areas A2, A3 and A4
  - Pump flow from Doon South PS through proposed force main (large enough to accept future flows from Areas A5 and A6) to Schneider Trunk Sanitary Sewer

  **Intermediate Term**
  - Upgrade Doon South PS to accept flows from potential Area A5
  - Pump flow from Doon South PS through force main to Schneider Trunk Sanitary Sewer

  **Long Term**
  - Upgrade Doon South PS to accept flow from Area A6
  - Pump flow from Doon South PS through force main to Schneider Trunk Sanitary Sewer
### Option 3C
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS (Location A) with holding tank to accept flow from Area A2, A3 and A4
- Pump flow from Doon South PS during low flow periods through proposed forcemain (large enough to accept future flows from Area A5 and A6) to Homer Watson PS

**Intermediate Term**
- Upgrade Doon South PS and holding tank to accept flows from Area A5
- Pump flow from Doon South PS during low flow periods through forcemain (large enough to accept future flows from Area A5) to Homer Watson PS

**Long Term**
- Upgrade Doon South PS and holding tank to accept flow from area A6
- Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS

### Option 3D (Similar to Option 3C with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate Gravity Flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

**Short Term**
- Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
- Build Doon South PS (Location B) with holding tank to accept flow from Area A2, A3 and A4
- Pump flow from Doon South PS during low flow periods through proposed forcemain (large enough to accept future flows from Area A5 and A6) to Homer Watson PS

**Intermediate Term**
- Upgrade Doon South PS and holding tank to accept flows from Area A5
- Pump flow from Doon South PS during low flow periods through forcemain (large enough to accept future flows from Area A5) to Homer Watson PS

**Long Term**
- Upgrade Doon South PS and holding tank to accept flow from area A6
- Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS
Option 4A
- Upgrade Homer Watson PS to accommodate flow from Area A1, A2 and A3
- Build Doon South PS
- Flows from Area A2, A3 and A4 and potentially A5 and A6 to Doon South
  
  Short Term
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS (Location A) to accept flow from Area A2 and A3 (yellow).
  - Pump flow from Doon South PS to Homer Watson PS

  Intermediate Term
  - Upgrade Doon South PS to accept flows from Area A4 and A5
  - Redirect pump flows from Doon South PS to Schneider Trunk Sanitary Sewer

  Long Term
  - Upgrade Doon South PS to accept flows from area A6
  - Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer

Option 4B (Similar to Option 4A with Pump Station at Location B)
- Upgrade Homer Watson PS to accommodate flow from Area A1, A2 and A3
- Build Doon South PS
- Flows from Area A2, A3 and A4 and potentially A5 and A6 to Doon South

  Short Term
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS (Location B) to accept flow from Area A2 and A3 (yellow).
  - Pump flow from Doon South PS to Homer Watson PS

  Intermediate Term
  - Upgrade Doon South PS to accept flows from Area A4 and A5
  - Redirect pump flows from Doon South PS to Schneider Trunk Sanitary Sewer

  Long Term
  - Upgrade Doon South PS to accept flows from area A6
  - Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer

Legend:
- Possible Gravity Sanitary Sewer
- Proposed Gravity Sanitary Sewer
- Proposed Force Main
- Existing Trunk Sewer
- Proposed Pumping Station
- Existing Pumping Station

Areas A1 - A5: Within Urban Boundary
Areas A6: Outside Urban Boundary

Undevelopable Area
Environmentally Sensitive or Protected Area
Draft Plan Approved
Developable Areas
Developable Areas
Developable Areas
**Option 4C**
- Upgrade Homer Watson PS to accommodate gravity flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- **Short Term**
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS at *(Location A)* to accept wastewater flow from Areas A2 and A3 (yellow)
  - Pump flow from Doon South PS to Homer Watson PS

- **Intermediate Term**
  - Upgrade Doon South PS and build new holding tank large enough to accommodate flows from Areas A4 and A5
  - Pump flows from Doon South PS during low flow periods through forcemain to Homer Watson PS (through existing Doon South infrastructure)

- **Long Term**
  - Upgrade Doon South PS and holding tank
  - Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS

**Option 4D** *(Similar to Option 4A with Pump Station at Location B)*
- Upgrade Homer Watson PS to accommodate gravity flow (A1)
- Build Doon South PS
- Flows A2, A3 and A4 and potentially A5 and A6 to Doon South PS

- **Short Term**
  - Area A1 (yellow hatched) will be sent by gravity to the Homer Watson PS
  - Build Doon South PS at *(Location B)* to accept wastewater flow from Areas A2 and A3 (yellow)
  - Pump flow from Doon South PS to Homer Watson PS

- **Intermediate Term**
  - Upgrade Doon South PS and build new holding tank large enough to accommodate flows from Areas A4 and A5
  - Pump flows from Doon South PS during low flow periods through forcemain to Homer Watson PS (through existing Doon South infrastructure)

- **Long Term**
  - Upgrade Doon South PS and holding tank
  - Pump flow from Doon South PS during low flow periods through forcemain to Homer Watson PS
Preferred Alternative

• **Short-Term**
  – Upgrade Homer Watson PS to Rated Capacity of 309 L/s
  – Area A1 to Homer Watson PS by Gravity (51 L/s)
  – Build Doon South PS and Interim Forcemain outlet on Robert Ferrie Dr.
  – Pump up to 46 L/s from Doom South PS to Homer Watson PS

• **Intermediate Term**
  – Build Forcemain on New Dundee Rd. & Homer Watson Blvd.

• **Long-Term**
  – Upgrade Doon South PS to include flow from Area A6
  – Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer
  – Decommission Forcemain outlet on Robert Ferrie Dr.

*Installation and timing of Intermediate and Long-Term solutions dependant on rate of development and funding arrangements
- **Short Term**
  - Upgrade Homer Watson PS to rated capacity of 309 L/S
  - Area A1 (yellow hatched) can be sent by gravity to the Homer Watson PS
  - Build Doon South PS (Location B) with interim forcemain outlet to Robert Ferrie Dr
  - Pump up to 45 L/S from Doon South PS to Homer Watson PS

- **Intermediate Term**
  - Build Forcemain on New Dundee Rd. & Homer Watson Blvd

- **Long Term**
  - Upgrade Doon South PS to include flow from Area A6
  - Pump flow from Doon South PS to Schneider Trunk Sanitary Sewer
  - Decommission forcemain outlet on Robert Ferrie Dr

Areas A1 - A5: Within City of Kitchener Urban Boundary
Areas A6: Outside City of Kitchener Urban Boundary

Legend:
- Blue: Proposed Gravity Trunk Sanitary Sewer
- Red: Proposed Intermediate Forcemain
- Existing Trunk Sanitary Sewer
- Proposed Pumping Station
- Existing Pumping Station

- Undevelopable Area
- Environmentally Sensitive or Protected Area
- Draft Plan Approved
- Additional Areas to be Serviced by Gravity to the Homer Watson PS
- Area Serviced by Doon South PS Outside Urban Boundary
- Area Serviced by Doon South PS within Urban Boundary
Cost Estimate

• Upgrades to Homer Watson PS – $5,463,500.00*
  * Includes 20% Engineering and 20% Contingency

• Doon South PS - $16,265,040.00**
  ** Includes 20% Engineering and 20% Contingency
    Cost estimate includes emergency storage tank, land acquisition costs, upstream gravity sewer and forcemain

GST Not Included

Doon South Pumping Station  AECOM
# Evaluation Criteria of Alternative Solutions

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<tr>
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<th>Alternative 1</th>
<th>Alternative 2</th>
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<td>Overall Evaluation</td>
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**Level of Impact**
- Low Impact (Most Desirable)
- Low to Moderate
- Moderate Impact
- Moderate to High
- High Impact (Least Desirable)

*Preferred Alternative*

---

Doon South Pumping Station

AECOM
Project Schedule

October 2008

Notice of Project Initiation
October, 2008

- Introduce Study
- Request early input
- Identify stakeholders - prepare mailing list

February & June 2009

Public Information Centre
February 11, 2009
June 23, 2009

- Input required on:
  - Evaluation & analysis of alternatives
  - Project impacts - mitigation
  - Implementation

June-July 2009

- Prepare Project File documentation

July-August 2009

Notice of Completion & Public Review

Ongoing Consultation as Required

Doon South Pumping Station

AECOM
Next Steps

Following the PIC, comments received from agencies & the public will be reviewed for consideration.

Once public and agencies comments have been reviewed and implemented, an Environmental Study Report (ESR) will be completed. Present study findings to City Council for approval to file ESR. Public is invited to attend Council. Review agencies & the public will be notified of the ESR and will be provided the opportunity to comment during the 30 day Public Review Period. If agencies &/or the public do not agree with the preferred solution, they can contact the Ministry of Environment and request a ‘Bump Up’ for additional studies to be completed. If the Ministry agrees, a Part II Order will be issued and the proponent will be required to further the study.

Upon completion of the 30 day review period and no comments from agencies or the public, the study will be complete. The project may proceed to detailed design, tender & construction.

Doon South Pumping Station
THANK YOU FOR ATTENDING!

Your comments will be considered.

Please remember to place your completed sheets in the Comment Box provided.
DOON SOUTH PUMPING STATION
SCHEDULE B CLASS ENVIRONMENTAL ASSESSMENT STUDY

COMMENT SHEET

We want to hear from you!!

You are invited to provide comments on the materials presented today as well as any other issues that you feel are important to the Doon South Pumping Station Schedule B Class Environmental Assessment. Please complete this comment sheet and leave it with us today or send it to Mr. Duncan McLeod, Senior Project Manager, AECOM Canada Ltd., 101 Frederick Street, Suite 702, Kitchener, ON N2H 6R2, Telephone: (519) 570-2853, Email: duncnaun.mcleod@aecom.com or Ms. Sharon Daniel, Engineering Technologist, Development Engineering, City of Kitchener, 200 King Street, ON, N2G 4G7, Telephone: (519) 741-2419, Email: sharon.daniel@kitchener.ca

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COMMENTS:

As a resident of Dodge Drive, we are very concerned about the quality of water in our wells.

It is imperative that a guarantee from the relevant party that our wells will not be affected if this development proceeds, and we would appreciate receiving such a guarantee in writing.

Also of concern is the impact on the environmentally sensitive lands in the event of water taking.

As a lifelong resident of Kitchener, we appreciate receiving a response to our concerns.

Not to be overlooked is what happens in the event of a power failure.

Thank you!

NAME: Keith & Carol Johnston
ADDRESS: 121 Dodge Drive
TELEPHONE: 519-748-5718
Also, we attended a meeting about 15 years ago regarding the proposed development in this area and Tom Galloway said if they had known 40 years ago what they knew at that time (15 years ago), there would never be any development at all in this area because it is so environmentally sensitive.

I am wondering how such a huge development could be taking place and why the official plan could not have been changed when the extreme environmental sensitivity of this area came to light.

Cecil Johnston
DOON SOUTH PUMPING STATION
SCHEDULE B CLASS ENVIRONMENTAL
ASSESSMENT STUDY

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COMMENTS:

WE OWN A 7 ACRE SITE ON THE SOUTH SIDE OF NEW DUNDEE RD JUST EAST OF THOMAS SLEE DRIVE. WITH FRONTAGE ON THE 401,

THIS ACREAGE IS NOT CURRENTLY SERVICED AND NEEDS TO BE INCLUDED IN THE PREFERRED PLAN. 

NOTE: NONE OF THE CURRENT PROPOSALS ADDRESS OUR PROPERTY.

THIS MUST BE AN OMISSION OF SOME KIND.

PLEASE ADVISE NOW THIS WILL BE HANDLED.

NAME: AL PEISTER, McLEAN-PEISTER LTD.
ADDRESS: 3328 KING ST. EAST KITCHENER
TELEPHONE: 519-893-1350 EXT. 223
DOON SOUTH PUMPING STATION
SCHEDULE B CLASS ENVIRONMENTAL ASSESSMENT STUDY

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COMMENTS:

* Sewers Down Dodge Drive: Is it possible to be installed under the existing roadway?

* This presentation showed sewer only. What about the installation of water and gas at the same time?

NAME: Tim Hasebflug
ADDRESS: 230 Dodge Drive
TELEPHONE: 519-893-9488
COMMENTS:

As a resident of Dodge Drive, we are concerned with the quality of water in our wells. We require a guarantee from the relevant party that our wells will not be affected if the development proceeds. We would appreciate receiving such a guarantee in writing.

Also concerned with power failure, and lack of treatment techniques.

NAME: "Kathy Schmitt"
ADDRESS: 173 Dodge Drive
TELEPHONE: (519) 748-9558
DOON SOUTH PUMPING STATION  
SCHEDULE B CLASS ENVIRONMENTAL  
ASSESSMENT STUDY

AECOM

COMMENT SHEET

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**COMMENTS:**

- concern with Dodge Dr residents well and guarantee for the protection of their water
- undertakings - if similar to St. Jno. over 3M litres per day what is impact on the Threaten Species habitat

**NAME:**  Yvonne Fernandes  
**ADDRESS:**  52 Kilbirnie Cr.
**TELEPHONE:**  519 748-1659
DOON SOUTH PUMPING STATION
SCHEDULE B CLASS ENVIRONMENTAL
ASSESSMENT STUDY

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COMMENTS:
I agree with the recommendation of the Civil Engineer.

NAME: Brian Tamkai
ADDRESS: 11-74 Audium Ridge, St. Catharines
TELEPHONE: 519-894-2319
July 20, 2009

Re: Doon South Pumping Station, Schedule B Class Environmental Assessment Study

I’d like to thank all those who helped me become better informed about the proposed upgrades to the Homer Watson Pumping station. However I would like to express our concerns in writing to ensure they are on record.

Please refer to the “Purpose Statement” contained in the The Environmental Assessment Study for the Doon South Pumping Station with regards to “fiscal responsibility.” The report I viewed does not outline the cost difference for the various options. Nor did it explain why the other alternatives are not a viable option. I feel I can’t make an informed decision without knowing the cost of all options. It does not seem fiscally responsible to have a force main and then later shut it down as suggested in Alternative 4. Why is the Homer Watson Station being used rather than the New Dundee Station? Why is the sewage from the whole development not being directed away from the creeks rather than towards them? Why was the development approved in the first place if the sewage was not already dealt with? Where does the sewage from Phase 1 go and why is that system not being utilized?

I noticed in the Strasburg trunk sanitary sewer study that gravity sewers are more efficient. I also found the reports prepared by Stantec much more detailed, complete and easy to understand compared to the report prepared by AECOM for the Doon Area.

Shouldn’t the Strasburg, Huron, and Doon South area be looked at as a whole and not independent of each other?

Please refer to 2.3.2.1 of the Ministry of Municipal Affairs and Housing Policy 1.6.4: “Planning for sewage and water services.”
   a) “Direct and accommodate expected growth in a manner that promotes the efficient use of existing services.”

Again please refer to the “Purpose Statement” which indicates that the purpose is to “protect human health and property: Protect and enhance significant aspects of the natural environment.”

I fear that the upgrades to the Homer Watson Pumping Station will damage or eliminate the mature trees on the property, which are necessary in this location to help control the excessive noise created by Homer Watson Blvd. What measures will be implemented to retain or improve the noise pollution from the roadway? These trees also help stabilize the creek bank and prevent further erosion caused by the flooding that frequently occurs. As you can see from the photos below, taken from the same vantage point on my property over a 10-year period, that there have been huge improvements towards the stability of the bank and reduction in noise.
Has consideration been given to the odour that may be created by the proposed volume of sewage moving through the station, which has already been a problem at my location on numerous occasions with the current capacity?

The GRCA has a fill and replace policy that will have to be adhered to, however I am sceptical this can be achieved without knowing where the overflow tank will be placed. Will it be in the flood plain or will it be beneath the driveway of the pumping station?

Hopefully the storm water flow from the pumping stations will be better directed away from our land so that we don’t have another cave in of the bank adjacent to our property caused by extreme weather that is apparent in the past photo and occurred again during the summer of 2008.

How will dust and noise be contained during construction so as not to interfere with the reasonable enjoyment of our property?

I have lived at 1314 Doon Village Rd for only 1 and ½ years and have already had to attend numerous public meetings in regards to the development in the area. I am saddened to learn that the reasons we purchased this property are not in fact what we thought. We believed that the heritage designation along with the protected lands in the area, and the GRCA control would have helped us avoid these problems, but we are finding that this is not the case. We refer to our property as Lake Alicia and Pete’s pond now that we have experienced the flooding in the area. I would surely hate to see a repeat of last year’s incident where Chrys Greenwood, operations supervisor for the City of Kitchener had to pull an 8-year-old boy from the floodwaters in our front yard.

I invite you all to come out and have a look at this beautifully natural piece of land with all of its green splendour, rather than viewing it from maps.

Please ensure that I am notified of any developments with this issue and the date of the Council meeting that this proposal will be presented.

Respectfully submitted by
Kim Huxted, & Peter Gordon
1314 Doon Village Rd
Kitchener, ON
N2P 1A5
(519)578-9114

cc: Jean Haalboom
   Sharon Daniel, City of Kitchener
   Kelly Galloway, City of Kitchener
   Duncan McLeod, AECOM
   Samantha Lawson, GRCA
   James Gothard, Q.C.
Responses to Comments
### Doon South Pumping Station Class EA
#### Public Consultation

**Public Information Centre # 1**  
**February 11, 2009**

<table>
<thead>
<tr>
<th>Author</th>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rob Kelly</td>
<td>I support Alternatives 2,3 and 4 for the pumping station, which will allow us to develop our property owned by JT Risty Enterprises Ltd on New Dundee Road which is part of the study area</td>
<td>No response</td>
</tr>
</tbody>
</table>
| MTE Consultants | ➢ All the proposed alternatives, with the exception of “do nothing” are based on a single sewage pump station and associated forcemain outlet concept, notwithstanding, the current City of Kitchener Development Charges By-law has provision for two sewage pumping stations to provide sanitary service for the proposed service area. We strongly believe a two station option is very feasible and request that this option be formally assessed as part of the EA process.  

➢ All options must consider utilizing the available infrastructure that has been constructed in anticipation of future development (i.e. existing WHSPS and associated gravity sewers)  

➢ Option 2A and 2B propose the re-direction of future development lands indicated as ‘A1’ to the new SPS whereas these lands fall within the gravity drainage limits of the existing HWSPS. Imminent upgrades proposed for the HWSPS will provide the capacity to service these lands. Furthermore, the receiving downstream infrastructure has been sized to accommodate these lands. Therefore, these alternatives should be screened out and not considered further.  

➢ It is our understanding that the identified servicing alternatives have not yet been evaluated and need to be fully assessed as part of the EA process. We request the opportunity to provide input on the | ➢ The use of two pumping stations was reviewed as part of the initial project review. The topographic relief within the study area allows for the use of a gravity sanitary service the developable lands to one location. The option of having two pumping stations in lieu of one pumping station was dismissed.  

➢ As part of the Class EA process all options must be reviewed. The option of utilizing the existing deep gravity sanitary sewer to HWSPS in lieu of shallow gravity sanitary sewers to the DSPS was reviewed as part of this process.  

➢ As noted above, as part of the EA process, all options must be explored. Through the study progress and the evaluation process, some alternatives will be “screened out”.  

➢ All potential servicing areas will be evaluated as part of this process |
evaluation criteria to the alternatives being assessed.

- The future development lands currently within the existing City Urban Area identified as “A4” should be classified the same as those lands identified as “A3” (i.e. yellow and not brown) as capacity within the downstream HWSPS is available for these lands based on proposed land use and densities. Applying different classifications for these lands suggest that they do not the same development status. Please make the necessary revisions to the related figures.

- The South Strasburg trunk sanitary gravity catchment area as previously defined through the EA process (Stantec2008) is included on all presentation figures for the various alternatives. However, the associated Biehn Drive trunk sanitary sewer gravity catchment area is not indicated. Furthermore, future development lands identified as “A5” fall within the gravity drainage catchment of the Biehn Drive Trunk Sanitary sewer. Please make the necessary revisions to the relative figures and mapping.

- The Region of Waterloo WWTP service area is incorrectly shown on all presentation figures for the various alternatives. Figure 2.1 “Existing and Future (2041) WWTP Service Area/Flows. Region of waterloo Wastewater Treatment Master Plan includes lands currently outside of the existing City Urban Area. Please make the necessary revisions.

- The colouration of the various areas was intended to be a graphical representation of the area of land that could potentially conveyed to the HWSPS and not to represent a “Status” of the lands. All lands within the Urban Boundary have the same opportunity to be developed based on timing and availability of existing infrastructure.

- The Biehn Drive Trunk Sanitary sewer in tributary to the South Strasburg Trunk Sanitary sewer. As noted in the Stantec 2008 report, there is some concern about the available capacity of the South Strasburg Trunk sewer. The City of Kitchener is preparing a hydraulic model of the entire City water collection system. The results of this study will determine the available capacity of all sewer system. As an interim measure, the catchment area A5 was routed to the DSPS in an effort to possibly relieve the capacity issues of the South Strasburg Trunk.

- Revisions have been made to correctly define the Urban Boundary as described in the Region of water WWTMP.

---

Public Information Centre #2
June 23, 2009

<table>
<thead>
<tr>
<th>Author</th>
<th>Comment</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al Piester</td>
<td>We own a 7 acre site on the south side of New Dundee Road just east of Thomas Slee Drive with frontage on 401. This acreage is not currently serviced and needs to be included in the preferred Plan. Note: None of the current proposals address our property. This must be an oversight of some kind.</td>
<td>All developable area within the urban boundary will be reviewed as part of this study. The lands in question will be added to the preferred solution</td>
</tr>
<tr>
<td>Name</td>
<td>Concern</td>
<td>Concern</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Jim Hasenpflug     | ➢ Sewers down Dodge Drive is it possible to be installed under the existing roadway  
➢ This presentation showed sewer only. What about the installation of water and gas at the same time | ➢ The intent of this plan is to place the sanitary sewer under the existing asphalt on Dodge Drive  
➢ This Class EA deals with the sanitary servicing of the Doon South area. The installation of water and gas will be part of thither development projects. |
| Ken and Cathy Schultz | ➢ As a resident of Dodge Drive we are concerned with the quality of water in our wells.  
➢ We require a guarantee from the relevant party that our wells will not be affected if development proceeds. We would appreciate receiving such a guarantee in writing | ➢ The City is area of the local residents and their wells. Prior to construction, the City will initiate a well testing and monitoring program (through a qualified hydrogeological company) to test each individual well for water quality and quantity. As part of the study, measures to mitigate any potential damage will be identified. The same tests will be taken after construction is completed to determine the impact, if any, of the construction on the wells.  
➢ As noted above, the City will use all available "Best Management Practices" prior to, during or after the construction process. When construction is immediately “in front of” a property or is adjacent to a wells site, there is a possibility of temporary changes to the water supply or quality depending on proximity and the extent of time of the construction disturbance. The City can not and will not guarantee “no effect”. The have made a commitment to mitigate any damage done to local wells because of construction  
➢ Power failure in your home will be repaired by your local hydro utility company. The pumping station will be protected from power failure by the back up generators that are part of the engineering design. In addition, the City of Kitchener mandates that a one hour emergency storage tank be in place at all pumping stations. |
| Yvonne Fernandez    | ➢ Concern with Dodge Drive residents wells and guarantee for the protection of their wells                                                                                                                                                                       | ➢ The City is area of the local residents and their wells. Prior to construction, the City will initiate a well testing and monitoring program (through a qualified |
Water taking - If similar to Tilt Dr over 3M litres per day. What is the impact on the Threaten Species habitat

Brian Tomkit
- I agree with the recommendations of the Civil Engineer

No Response

Keith and Carol Johnston
- As a resident of Dodge Drive, we are very concerned about the quality of water in our wells
- We require a guarantee from the relevant party that our wells will not be affected if this development proceeds and we would appreciate receiving such a guarantee in writing

The City is area of the local residents and their wells. Prior to construction, the City will initiate a well testing and monitoring program (through a qualified hydrogeological company) to test each individual well for water quality and quantity. As part of the study, measures to mitigate any potential damage will be identified. The same tests will be taken after construction is completed to determine the impact, if any, of the construction on the wells.

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Also of concern is the impact on the environmentally sensitive lands in the event of water taking.

As a lifetime resident of Kitchener, we appreciate receiving a response to our concerns.
Not to be overlooked is what happens in the event of a power failure.

Also, we attended a meeting about 15 years ago regarding the proposed development in this area and Tom Galloway said if they had known 40 years ago what they knew at that time (15 years ago), there would never be any development at all in this area because it is so environmentally sensitive.
I am wondering how such a huge development could be taking place and why the official plan could not have been changed when the extreme environmental sensitivity of the area came to light.

Kim Huxted and Peter Gordon

I'd like to thank all those who helped me become better informed about the proposed upgrades to the Homer Watson Pumping Station. However, I would like to express our concerns in writing to ensure that they are on record.
Please refer to the Purpose Statement contained in the Environmental Assessment Study for the Doon South Pumping Station with the regards to “fiscal responsibility”. The report I viewed does not outline the cost difference for the various options. Nor did it explain why other alternatives are not a viable option. I feel I can’t make an informed decision without knowing the cost of all options. It does not seem fiscally responsible to have a forcemain and then later shut it down as suggested in Alternative 4. Why is the Homer Watson Station under construction disturbance. The City can not and will not guarantee “no effect”. The have made a commitment to mitigate any damage done to local wells because of construction.

All Water Taking Permits, if required, are prepared by the Ministry of the Environment.

Power failure in your home will be repaired by your local hydro utility company. The pumping station will be protected from power failure by the back up generators that are part of the engineering design. In addition, the City of Kitchener mandates that a one hour emergency storage tank be in place at all pumping stations.

Changes to the Official Plan are beyond the scope of this project.

The financial cost of the project is one of many criteria that are evaluated in determining the Preferred Solution of any project. The evaluation table noted at the Public Meeting identified a comparison of the costs without actually displaying the individual alternative cost. This method was used so that a fair evaluation of the project could be obtained without a fixation on the financial cost only. Detailed cost were available at the Public meeting.
being used rather than the New Dundee Station. Why is the sewage from the whole development not being directed away from the creeks rather than towards them? Why was the development approved in the first place if the sewage was not already dealt with? Where does the sewage from Phase 1 go and why is that system not being utilized?

➢ I noticed in the Strasburg trunk sanitary sewer study that gravity sewers are more efficient. I also found the reports prepared by Stantec much more detailed, complete and easy to understand compared to the report prepared by AECOM for the Doon Area

➢ Please refer to 2.3.1 of the Ministry of Municipal Affairs and Housing Policy 1.6.4: “Planning for sewage and water services” a)” Direct and accommodate expected growth in a manner that promotes the efficient use of existing services”

➢ Again please refer to the Purpose Statement which indicates that the purpose is to “protect human health and property: Protect and enhance significant aspects of the natural environment”

➢ I fear that the upgrades to the Homer Watson Pumping station will damage or eliminate the mature trees on the property, which are necessary in this location to help control the excessive noise from the roadway. These trees also help stabilize the creek bank and prevent further erosion caused by the flooding that frequently occurs. As you can see from the photos below, that there have been huge improvements towards the stability of the bank and the reduction in the noise.

➢ Has consideration been given to the odour that may be created by the proposed volume of sewage moving through the station, which ha already been a problem at my location on numerous occasions with

with there were requested of staff. The Homer Watson Station is being used a method on maximizing the utilization of existing infrastructure and reducing overall costs. The sewage is not being directed toward the creeks. It is direct to the HWPS. Without an approved sanitary sewer solution, there will be no development. This process is to determine how the area can be developed prior to the beginning of any development. Sewage from Phase 1 of the South Community is directed largely to the Homer Watson Pumping station.

➢ Gravity sanitary sewers are more cost effective and efficient than pumping stations

➢ The use of the Homer Watson Pumping Station and related gravity sanitary sewers is intended to maximize the use of existing infrastructure

➢ The effective design and implementation of a sanitary sewer system promotes a healthier community and has a positive effect on the natural environment (as oppose to widely use septic systems)

➢ The changes to the Homer Watson Pumping station will have a minimal impact on any to local trees. The stability of the creek embankment is the responsibility of the GRCA who will oversee any development or work within the regulated area.

➢ Odour is always a design consideration item for the design or upgrade of any sewage facility.
the current capacity.
➢ The GRCA has a fill and replace policy that will have to be adhered to, however I am skeptical this can be achieved without knowing where the overflow tank will be placed. Will it be in the flood plain or will it be beneath the driveway of the pumping station?

➢ Hopefully the storm water flow from the pumping station will be better directed away from our land so that we don’t have another cave of the bank adjacent to our property caused by the extreme weather that is apparent in the past photos and occurred again during the summer of 2008.

➢ How will dust and noise be contained during construction so as to not interfere with the reasonable enjoyment of my property?

➢ I have lived at 1314 Doon Village Road for only 1 and 1/2 years and have already had to attend numerous public meetings in regard to the development in the area. I am saddened to learn that the reason we purchased this property are not in fact what we thought. We believed that the heritage designation along with the protected lands in the area, and the GRCA control would have helped us avoid these problems, but we finding that this is not the case. We refer to our property as Lake Alicia and Pete’s pond now that we have experienced the flooding in the area. I would surely hate to see a repeat of last years incident where Chrys Greenwood, operations supervisor for the City of Kitchener had to pull an 8 year old boy from the floodwaters in our front yard.

➢ I invite you to come out and have a look at this beautifully natural piece of land with all of its green splendor, rather than viewing it from amps.

➢ Please ensure that I am notified of any development with this issue and the date of the Council meeting that this proposal will be presented.

➢ The GRCA have control over any works within the regulated area. All design and construction activities have to meet with their approval. The City of Kitchener has already met and discussed this project with the GRCA. The emergency storage tank will probably be placed in the flood plain, Te changes to the pumping station structure will be adjacent to the existing structure.

➢ There will be not storm water directed as part of this project.

➢ The contractor will have to abide by all noise and pollution bylaws.

➢ The Study team has visited the Homer Watson Pumping Station site on a number of occasions.

➢ Your name will be added to the contact list.
| Michelle Ward | ➢ Thank you for providing this information. I understand that the preferred alternative will require upgrades to the Homer Watson Pumping Station. As the Homer Watson Pumping Station is located with the Upper Doon Heritage Conservation and therefore designated under Part V of the Ontario Heritage Act, I need to understand the scope of the upgrades in terms of the exterior alterations to the existing building and or other exterior inventions (e.g. new buildings, removal of vegetation, etc) Exterior alterations and or inventions may require a Heritage Permit Application under the Ontario Heritage Act. Please confirm if the details regarding the scope of the upgrades are available. | ➢ Your office will be contacted during the design stage of the project. To date and until the Class EA is finalized, we do not have details on building renovation or site alterations other than in general terms. ➢ Protocol for the site or building changes will be in compliance with the Ontario Heritage Act, if applicable and with consultation with your office. |
| Larry and Roberta Huggett | ➢ I am pleased to talk to you at the PIC meeting on June 23, 2009 about the development plans as they relate to my property at 687 New Dundee Road and the immediate community. ➢ As explained by yourself and the AECOM representative the 4B Option requires no large holding tanks, and sanitary sewer extensions on Dodge Drive and New Dundee Road are mid to longer term developments ➢ I would like to reiterate my concerns as I briefly discussed with you at the meeting, and as I outlined in my letter of Oct 12, 2007 to Julianne von Weterholt, Senior Planner, City of Kitchener Planning Department re: Draft Plan for Subdivision Application 30T-07202/03/04 ➢ During all construction phases and upon completion, principal concerns are as follows: 1 We would expect a guarantee that our water supply would remain in excellent quality and quantity | ➢ |
Appendix B

Evaluation of Alternative Options

Evaluation Summary
Public Health and Safety
Natural Environment
Social and Cultural
Economic and Financial
Legal
Technical
# Doon South Pumping Station Evaluation Matrix

**Summary**

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3-1</th>
<th>Alternative 3-2</th>
<th>Alternative 4-1</th>
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<tr>
<td>Public Health and Safety</td>
<td>Lease performance does not meet project requirements</td>
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<td>Moderate to High Impacts</td>
</tr>
<tr>
<td>Legal/Regulatory</td>
<td>Not an option</td>
<td>Moderate Impacts</td>
<td>Moderate Impacts</td>
<td>Moderate Impacts</td>
<td>Moderate to High Impacts</td>
<td>Moderate to High Impacts</td>
</tr>
<tr>
<td>Technical</td>
<td>Does not meet development requirements</td>
<td>Under utilizes existing infrastructure</td>
<td>Under utilizes existing infrastructure</td>
<td>Technical difficulties not acceptable</td>
<td>Least technically complex alternative</td>
<td>Technical difficulties not acceptable</td>
</tr>
</tbody>
</table>

**Overall Evaluation**

- Not an option: Moderate to High
- Moderate to High: Preferred Alternative

**Legend**

- Lowest Impact: Least Preferred
- Low to Moderate Impact: Moderate Impact
- Moderate to High Impact: Preferred Alternative
### DOON PUMPING STATION
### EVALUATION MATRIX
### NATURAL ENVIRONMENT

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3-1</th>
<th>Alternative 3-2</th>
<th>Alternative 4-1</th>
<th>Alternative 4-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Impact</td>
<td>Crossing of PWS will be within the existing Road Advance</td>
<td>Crossing of PWS will be within the existing Road Advance</td>
<td>Crossing of PWS will be within the existing Road Advance</td>
<td>Crossing of PWS will be within the existing Road Advance</td>
<td>Crossing of PWS will be within the existing Road Advance</td>
<td>Crossing of PWS will be within the existing Road Advance</td>
</tr>
<tr>
<td>No Impact</td>
<td>Minimal impact with Creek Crossing at RCEA</td>
<td>Minimal impact with Creek Crossing at RCEA</td>
<td>Minimal impact with Creek Crossing at RCEA</td>
<td>Minimal impact with Creek Crossing at RCEA</td>
<td>Minimal impact with Creek Crossing at RCEA</td>
<td>Minimal impact with Creek Crossing at RCEA</td>
</tr>
<tr>
<td>No Impact</td>
<td>Low impact, PEs to be located in existing greenfield</td>
<td>Low impact, PEs to be located in existing greenfield</td>
<td>Low impact, PEs to be located in existing greenfield</td>
<td>Low impact, PEs to be located in existing greenfield</td>
<td>Low impact, PEs to be located in existing greenfield</td>
<td>Low impact, PEs to be located in existing greenfield</td>
</tr>
<tr>
<td>No Impact</td>
<td>Schedule A’ Gold Water Stream crossings (July to September)</td>
<td>Schedule A’ Gold Water Stream crossings (July to September)</td>
<td>Schedule A’ Gold Water Stream crossings (July to September)</td>
<td>Schedule A’ Gold Water Stream crossings (July to September)</td>
<td>Schedule A’ Gold Water Stream crossings (July to September)</td>
<td>Schedule A’ Gold Water Stream crossings (July to September)</td>
</tr>
<tr>
<td>No Impact</td>
<td>Low Impact</td>
<td>Low Impact</td>
<td>Low Impact</td>
<td>Low Impact</td>
<td>Low Impact</td>
<td>Low Impact</td>
</tr>
<tr>
<td>Overall Evaluation</td>
<td>Not as great</td>
<td>Low to Moderate Impact</td>
<td>Low to Moderate Impact</td>
<td>Low to Moderate Impact</td>
<td>Low to Moderate Impact</td>
<td>Low to Moderate Impact</td>
</tr>
</tbody>
</table>

**Legend**
- **Lowest Impact Most Preferred**
- **Low to Moderate Impact**
- **Moderate Impact**
- **High to Extreme Impact**
- **Highest Impact Least Preferred**
<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3</th>
<th>Alternative 4</th>
<th>Alternative 5</th>
<th>Alternative 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential effects on short-term and long-term community growth (conformity with municipal and provincial planning policies)</td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
</tr>
<tr>
<td>Archaeological/Heritage resources</td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
<td><em>No Significant Impact</em></td>
</tr>
<tr>
<td>First Nation Considerations</td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
</tr>
<tr>
<td>Agricultural resources</td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
</tr>
<tr>
<td>Tourism/International reserves</td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
<td><em>No Impact</em></td>
</tr>
<tr>
<td>OVERALL EVALUATION</td>
<td><em>Low to Moderate Impact</em></td>
<td><em>Low to Moderate Impact</em></td>
<td><em>Low to Moderate Impact</em></td>
<td><em>Low to Moderate Impact</em></td>
<td><em>Low to Moderate Impact</em></td>
<td><em>Low to Moderate Impact</em></td>
</tr>
<tr>
<td>LEGEND</td>
<td><em>Lowest Impact Most Preferred</em></td>
<td><em>Least to Moderate Impact</em></td>
<td><em>Moderate to High Impact</em></td>
<td><em>Highest Impact Least Preferred</em></td>
<td></td>
<td></td>
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<tr>
<td>Evaluation Criteria</td>
<td>Alternative 1</td>
<td>Alternative 2</td>
<td>Alternative 3-1</td>
<td>Alternative 3-2</td>
<td>Alternative 4-1</td>
<td>Alternative 4-2</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------</td>
<td>---------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>&quot;Do Nothing&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Estimated Capital Cost</strong></td>
<td>$17,986,560.00</td>
<td>$16,884,083.00</td>
<td>$20,340,074.00</td>
<td>$19,238,425.00</td>
<td>$21,078,970.00</td>
<td>$21,222,079.00</td>
</tr>
<tr>
<td><strong>Estimated Annual Operating and Maintenance Cost</strong></td>
<td>$500,000.00</td>
<td>$200,000.00</td>
<td>$200,000.00</td>
<td>$300,000.00</td>
<td>$300,000.00</td>
<td>$200,000.00</td>
</tr>
<tr>
<td><strong>Estimated Life Cycle Cost</strong></td>
<td>$15,986,560.00</td>
<td>$16,884,083.00</td>
<td>$20,540,074.00</td>
<td>$21,138,425.00</td>
<td>$21,078,970.00</td>
<td>$21,222,079.00</td>
</tr>
<tr>
<td>Best Use of Infrastructure</td>
<td>No, leads to degredation, added costs</td>
<td>Does Not Utilize SWPPS &amp; Existing Infrastructure</td>
<td>Does not fully utilize SWPPS &amp; Existing Infrastructure</td>
<td>Does not fully utilize SWPPS &amp; Existing Infrastructure</td>
<td>Does not fully utilize SWPPS &amp; Existing Infrastructure</td>
<td>Does not fully utilize SWPPS &amp; Existing Infrastructure</td>
</tr>
<tr>
<td>Cost Impacts to surrounding waters (ie sewer rates and BCS)</td>
<td>No impact</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>OVERALL EVALUATION</td>
<td>Least Preferred, Not an option</td>
<td>Moderate Impacts</td>
<td>Moderate Impacts</td>
<td>Moderate Impacts</td>
<td>Moderate to High Impacts</td>
<td>Moderate to High Impacts</td>
</tr>
</tbody>
</table>

**Legend**
- LOWEST IMPACT MOST PREFERRED
- LOW TO MODERATE IMPACT
- MODERATE IMPACT
- MODERATE TO HIGH IMPACT
- HIGHEST IMPACT LEAST PREFERRED

**Notes:**
- Capital Cost excludes upgrading to Human Wastes Reuse Station.
- Only Applies to Doon South Pumping Station.
**DOON PUMPING STATION**

**EVALUATION MATRIX**

**LEGAL**

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Alternative 1</th>
<th>Alternative 2</th>
<th>Alternative 3-1</th>
<th>Alternative 3-2</th>
<th>Alternative 4-1</th>
<th>Alternative 4-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complexity of Approvals &amp; Regulatory Environment</td>
<td>No approvals required, easy for engineering</td>
<td>Three creek crossings</td>
<td>Three creek crossings</td>
<td>Three creek crossings</td>
<td>Three creek crossings</td>
<td>Three creek crossings</td>
</tr>
<tr>
<td>Land Requirements</td>
<td>No land required, Does not meet requirements</td>
<td>75x x 100y (Approximately 1.5ha)</td>
<td>75x x 100y (Approximately 1.0ha)</td>
<td>75x x 100y (Approximately 1.0ha)</td>
<td>75x x 100y (Approximately 1.0ha)</td>
<td>75x x 100y (Approximately 1.0ha)</td>
</tr>
<tr>
<td>Administrative Functionality</td>
<td>All require some emergency response to failures</td>
<td>All serve district and pump station</td>
<td>Complex System Could Cause Large Scale Oranges if WDFWS Breaks Down</td>
<td>Complex System Could Cause Large Scale Oranges if WDFWS Breaks Down</td>
<td>Complex System Could Cause Large Scale Oranges if WDFWS Breaks Down</td>
<td>Complex System Could Cause Large Scale Oranges if WDFWS Breaks Down</td>
</tr>
</tbody>
</table>

**OVERALL EVALUATION**

| | Not an option | Moderate Impact | Moderate Impact | Moderate to High Impact | Moderate to High Impact | Moderate to High Impact |

**LEGEND**

- LOWEST IMPACT MOST PREFERRED
- LOW TO MODERATE IMPACT
- MODERATE IMPACT
- MODERATE TO HIGH IMPACT
- HIGHEST IMPACT LEAST PREFERRED
<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
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<th>Alternative 2</th>
<th>Alternative 3-1</th>
<th>Alternative 3-2</th>
<th>Alternative 4-1</th>
<th>Alternative 4-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information, utility and energy requirements</td>
<td>No information supplied</td>
<td>Larger communication and utility requirements</td>
<td>Larger communication and utility requirements</td>
<td>Larger communication and utility requirements</td>
<td>Larger communication and utility requirements</td>
<td>Larger communication and utility requirements</td>
</tr>
<tr>
<td>Ability to meet short-term and long-term working demands</td>
<td>Does not meet demand</td>
<td>Does not meet demand</td>
<td>Does not meet demand</td>
<td>Does not meet demand</td>
<td>Does not meet demand</td>
<td>Does not meet demand</td>
</tr>
<tr>
<td>Ability to provide reliable and secure service</td>
<td>No service provided</td>
<td>No service provided</td>
<td>No service provided</td>
<td>No service provided</td>
<td>No service provided</td>
<td>No service provided</td>
</tr>
<tr>
<td>Ease of Implementation/Time to Implement/Feasibility</td>
<td>Emergency implementation at unknown times</td>
<td>Emergency implementation at unknown times</td>
<td>Emergency implementation at unknown times</td>
<td>Emergency implementation at unknown times</td>
<td>Emergency implementation at unknown times</td>
<td>Emergency implementation at unknown times</td>
</tr>
<tr>
<td>Innovative use of infrastructure technology</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Ditch of Sources</td>
<td>Minimum seven depth at Rockhills Road (approx. 12&quot;)</td>
<td>Minimum seven depth at Rockhills Road (approx. 12&quot;)</td>
<td>Minimum seven depth at Rockhills Road (approx. 12&quot;)</td>
<td>Minimum seven depth at Rockhills Road (approx. 12&quot;)</td>
<td>Minimum seven depth at Rockhills Road (approx. 12&quot;)</td>
<td>Minimum seven depth at Rockhills Road (approx. 12&quot;)</td>
</tr>
<tr>
<td>Difficulty of Construction</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Length of construction</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Operational and maintenance</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Optimization of existing capacity (optional projections)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Overall Evaluation</td>
<td>Least technically acceptable</td>
<td>Least technically acceptable</td>
<td>Least technically acceptable</td>
<td>Least technically acceptable</td>
<td>Least technically acceptable</td>
<td>Least technically acceptable</td>
</tr>
</tbody>
</table>

**Legend**
- **Lowest Impact Most Preferred**
- **Low to Moderate Impact**
- **Moderate to High Impact**
- **Highest Impact Least Preferred**
Appendix C

Wastewater Generation Calculations
### SANITARY SEWER DESIGN

**Minimum Design Flows**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>AREAS (%)</th>
<th>POPULATION (G)</th>
<th>POP PER P</th>
<th>PEAK FACTR</th>
<th>PEAK RES FLOW (m3/sec)</th>
<th>IND COMM AREA (%)</th>
<th>ACCUM AREA (%)</th>
<th>PEAK NON-RES FLOW (%)</th>
<th>TOTAL AREA (%)</th>
<th>ACCUM FLOW (m3/sec)</th>
<th>INFL FLOW (% Q)</th>
<th>PIPE DIA (mm)</th>
<th>SLOPE (%)</th>
<th>CAPACITY (L/sec)</th>
<th>VELOCITY (m/sec)</th>
<th>% FULL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catchment Area</td>
<td>56.00</td>
<td>3138</td>
<td>3132</td>
<td>3.43</td>
<td>0.0430</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>56.00</td>
<td>0.00860</td>
<td>0.0514</td>
<td>0</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

#### Additional Gravity Flow to Homer Watson Pumping Station

| Area | Area A1 | 56.00 | 3138 | 3132 | 3.43 | 0.0430 | 0.000 | 0.000 | 0.000 | 0.000 | 56.00 | 0.00860 | 0.0514 | 0        | 0.000           | 0.000           | 0.000  |

#### Doon South Pumping Station Service Areas

| Area | Area A6 | 159.00 | 8904 | 8904 | 3.60 | 0.1070 | 0.000 | 0.000 | 0.000 | 0.000 | 159.00 | 0.02385 | 0.1309 | 450      | 0.50%           | 0.202           | 1.268  |
| Area | Area A4 | 41.50  | 2546 | 11250 | 2.90 | 0.1597 | 0.000 | 0.000 | 0.000 | 0.000 | 41.50  | 0.00144 | 0.1608 | 450      | 0.50%           | 0.202           | 1.269  |
| Area | Area A5 | 9.60   | 538  | 11798 | 2.88 | 0.1350 | 0.000 | 0.000 | 0.000 | 0.000 | 9.60   | 0.03158 | 0.1675 | 450      | 0.50%           | 0.202           | 1.268  |
| Area | Area A2 | 65.90  | 3690 | 15478 | 2.75 | 0.1712 | 0.000 | 0.000 | 0.000 | 0.000 | 65.90  | 0.04002 | 0.2112 | 525      | 0.50%           | 0.304           | 1.405  |
| PS inlet | 0.00 | 0 | 15478 | 2.75 | 0.1712 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 266.80 | 0.04002 | 0.2112 | 525      | 0.50%           | 0.304           | 1.405  |

---

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Appendix D

Homer Watson Pumping Station

Emergency Storage Tank Location
Example Photographs
Cost Estimate
Emergency Storage Tank Location
Forming and Pouring
# Doon South Pumping Station Class EA
## Preliminary Cost Break Down

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Doon South Pumping Station</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Upstream Gravity Sewer</td>
<td>$1,500,000.00</td>
</tr>
<tr>
<td>b</td>
<td>Pumping Station including ultimate Servicing A2,A3, A4 and A6</td>
<td>$4,839,000.00</td>
</tr>
<tr>
<td>c</td>
<td>Land Acquisition (approx 2 acres)</td>
<td>$800,000.00</td>
</tr>
<tr>
<td>d</td>
<td>Emergency Storage Tank</td>
<td>$1,200,000.00</td>
</tr>
<tr>
<td>e</td>
<td>Forcemain</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>200 mm Outlet to Robert Ferrie</td>
<td>$231,000.00</td>
</tr>
<tr>
<td>ii</td>
<td>2x300mm Outlet to Schneider Trunk</td>
<td>$4,984,200.00</td>
</tr>
<tr>
<td>Subtotal (Including Engineering)</td>
<td>$13,554,200.00</td>
<td></td>
</tr>
<tr>
<td>Contingency (20%)</td>
<td>$2,710,840.00</td>
<td></td>
</tr>
<tr>
<td>Total Construction</td>
<td>$16,265,040.00</td>
<td></td>
</tr>
<tr>
<td>GST (5%)</td>
<td>$813,252.00</td>
<td></td>
</tr>
<tr>
<td>Total Project Cost</td>
<td>$17,080,000.00</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Homer Watson Pumping Station</td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Initial Upgrades</td>
<td></td>
</tr>
<tr>
<td>i</td>
<td>Remove existing pumps and supply and install two new 52 kW submersible pumps</td>
<td>$170,000.00</td>
</tr>
<tr>
<td>ii</td>
<td>Supply and install two pressure gauges and pressure transmitters complete, including wiring</td>
<td>$40,000.00</td>
</tr>
<tr>
<td>iii</td>
<td>*2x3x3 m deep cast-in-place chamber around existing forcemains for flow meter <em>(Initial estimate $40,000.00)</em></td>
<td>$65,000.00</td>
</tr>
<tr>
<td>iv</td>
<td>*Supply and install one Mag meter including all wiring and communications. Supply and install one spool piece for future Mag Meter <em>(Initial estimate $25,000.00)</em></td>
<td>$35,000.00</td>
</tr>
<tr>
<td>v</td>
<td>Cut-in two swab launch connection</td>
<td>$25,000.00</td>
</tr>
<tr>
<td>vi</td>
<td>*Supply and install two new soft starters <em>(Initial estimate $60,000.00)</em></td>
<td>$100,000.00</td>
</tr>
<tr>
<td>vii</td>
<td>*Upgrade MCC <em>(Initial estimate $20,000.00)</em></td>
<td>$60,000.00</td>
</tr>
<tr>
<td>viii</td>
<td>*Construct New 1120m³ emergency storage tank <em>(Initial estimate $900,000.00)</em></td>
<td>$2,400,000.00</td>
</tr>
<tr>
<td>ix</td>
<td>Provide 50mm water service from Doon Village Road</td>
<td>$7,500.00</td>
</tr>
<tr>
<td>x</td>
<td>*Building addition including washroom/shower facility <em>(Initial estimate $25,000.00)</em></td>
<td>$300,000.00</td>
</tr>
<tr>
<td>xi</td>
<td>**Wet Well upgrades including new check valves and knife gates</td>
<td>$150,000.00</td>
</tr>
</tbody>
</table>
# Doon South Pumping Station Class EA

## Preliminary Cost Break Down

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>xii</td>
<td><strong>Construct new wet well inlet chamber</strong></td>
<td>$100,000.00</td>
</tr>
</tbody>
</table>
# Doon South Pumping Station Class EA

## Preliminary Cost Break Down

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td>$3,452,500.00</td>
</tr>
<tr>
<td></td>
<td>Contingency (20%)</td>
<td>$690,500.00</td>
</tr>
<tr>
<td></td>
<td>Engineering (20%)</td>
<td>$690,500.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total Construction</strong></td>
<td>$4,833,500.00</td>
</tr>
<tr>
<td></td>
<td>GST (5%)</td>
<td>$241,675.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total Project Cost</strong></td>
<td>$5,075,175.00</td>
</tr>
</tbody>
</table>

**b Ultimate Upgrades**

1. Install third new 52 kW submersible pump                   $85,000.00
2. *Piping modification in wet-well*                         $100,000.00
3. New soft starter and MCC modifications                    $40,000.00
4. *Supply and install new 300 kW diesel generator set, including removal and disposal of existing gen-set*   $150,000.00
5. *Upgrade ventilation system to suit MOE requirements for new generator, including new exhaust stack*  $75,000.00

**Subtotal**                                                   $450,000.00

**Contingency (20%)**                                          $90,000.00

**Engineering (20%)**                                         $90,000.00

**Total Construction**                                         $630,000.00

**GST (5%)**                                                   $31,500.00

**Total Project Cost**                                         $661,500.00

*Revised estimate from Homer Watson Pumping Station Evaluation, December 9, 2008.

**New Item added by AECOM Canada Ltd. June 11th, 2009.*