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**Appendix “E”**

**EXECUTIVE SUMMARY**

**Background and Study Objectives**

The proposed Dingman Creek B-4 Stormwater Management Facility (SWMF) is to service new land developments. The B-4 SWMF is identified as required under the 2005 Dingman Creek Subwatershed Study Update (DCSSU) and draft 2014 DCSSU as well as the 2008 Development Charge Study (DC) and ongoing 2014 DC Update. The SWMF is contained within Tributary B of the Dingman Creek Subwatershed.

The lands are currently undeveloped. The proposed SWMF has been identified for construction in 2015 in the draft Stormwater Development Charges Study Update for 2014. York Developments has already prepared a draft storm/drainage servicing strategy for their site at 3493 Colonel Talbot Road along with a draft Environmental Impact Statement (EIS) and geotechnical information, although these have not yet been accepted by Council. The facility is to be delivered under the City of London’s “Just in Time” Design and Construction Process as the developer has requested acceleration of the construction from the original GMIS estimated delivery date of 2018.

**Study Area Description**

The representative drainage area for this Municipal Class Environmental Assessment (EA) Study is approximately 150 hectares in size and situated along Pack Road within the City of London (“the City”). The site is bounded by Colonel Talbot Road to the east, Dingman Creek to the west, and the North Lambeth residential development to the south. The Study Area encompasses the portion of the drainage area that is within the City’s Urban Growth Boundary and has been proposed for development in the near future.

**Existing Environmental Conditions**

An assessment of the Study Area’s existing environmental conditions revealed the following key items:

- Archaeological sites which are recommended for further assessment prior to development;
- Mathers Stream, a tributary to Dingman Creek running through the Immediate Study Area, which contains fish habitat and currently has unimpaired water quality;
- The Lower Dingman Creek Environmentally Sensitive Area (ESA), found along the Mathers Stream and Dingman Creek corridors, which includes both the watercourses themselves and adjacent natural habitats;
- Bird, reptile, and plant Species at Risk (SAR) associated with forest and wetland habitats in the Mathers Stream corridor;
- Potentially significant wildlife habitat features associated with the wetland area in the Mathers Stream corridor; and
- A former landfill site located north of Pack Road in close proximity to the Study Area.

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**Existing Technical Conditions**

Mathers Stream originates within the Talbot Village development and is fed from the wetland within the Talbot Village site. After flowing through a 1200 mm culvert under Pack Road, the watercourse forms a U shape as it flows through the proposed development area within the Study Area. Prior to reaching Dingman Creek, Mathers Stream flows through a further private property where it is detained to form a small pond. It then flows into Dingman Creek prior to Dingman Creek crossing under Pack Road.

A hydrologic model was created using SWMHYMO software to simulate runoff within the drainage area. Runoff is routed using ROUTE CHANNEL or ROUTE PIPE commands within SWMHYMO. To account for storage behind culverts, the ROUTE RESERVOIR command was used.

The 2005 Dingman Creek Subwatershed Study Update (DCSSU) determined that the 24-hour SCS storm distribution was the critical storm for the Dingman Creek channel. However the response in the tributaries may be different and a critical storm will need to be confirmed in order to size any control measures and ensure that peak flow targets for the tributary are met. Four storm distributions were assessed, namely the 1-hr AES, 24-hr SCS and the 3-hr and 6-hr Chicago Storms.

The peak flows for the post development condition with Official Plan land uses are lower than existing (1995) condition peak flows. The introduction of development and associated stormwater management controls on the lands at Talbot Village has had a significant impact on the flows in Mathers Stream.

A water balance was completed by Golder Associates and is contained in Appendix A. The total annual infiltration and runoff rates for the drainage area under existing conditions are estimated to be approximately 261,000 and 287,000 m<sup>3</sup> respectively.

**Opportunities and Constraints**

The following items were considered the key constraints and considerations for this study:

- Targets for peak flow attenuation, erosion control and water quality set out in the 2005 DCSSU, which must be met by each tributary in order to maintain the existing condition of Dingman Creek;
- A requirement set out in the DCSSU for the 25 mm storm event to be detained for 72 hours as part of the stormwater management for Mathers Stream;
- The inclusion of Permanent Private Systems (PPS) for proposed Medium and High Density Residential, Institutional, Commercial and Industrial land uses (a mandatory requirement by the City of London);
- The UTRCA floodline and associated regulated lands;
- The key environmental factors noted above and the associated ecological buffers that will be required to maintain the integrity and function of these features;
- Maintenance of unimpaired water quality in Mathers Stream;
- Bank erosion and slope stability considerations for Mathers Stream; and

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- The future increase in impervious surfaces resulting from development and the associated decrease in infiltration.

### **Alternative Solutions**

Three alternative SWM strategies were identified by this EA study:

- Alternative 1: Do Nothing
  - A baseline for comparison, with no quality, erosion or quantity control of stormwater runoff from the development areas.
- Alternative 2: SWMF with Open Tributary Channel
  - SWM pond in the northwest corner of the Study Area servicing lands north of Mathers Stream and west of the intermittent tributary;
  - Intermittent tributary channel north of Mathers Stream remains in its current state and is given a naturalized buffer area; and
  - PPS used east of Mathers Stream and for the isolated triangle of land between Mathers Stream and the intermittent tributary.
- Alternative 3: SWMF with Piped Tributary Channel and Mathers Stream Enhancements
  - SWM pond in northwest corner of the Study Area servicing all lands north of Mathers Stream;
  - Intermittent tributary channel north of Mathers Stream to be piped which would maximize the development area serviced by the SWMF;
  - Upstream portion of Mathers Stream channel to be enhanced and naturalized to mitigate for habitat lost along the intermittent tributary and provide additional water storage during high flow events; and
  - PPS used only east of Mathers Stream.

### **Evaluation of Alternatives**

The potential impacts of the alternatives were predicted based on the interaction of all phases of each alternative (planning and design, construction, and operation) with the existing environment. The evaluation involved the ranking of each alternative relative to the others, on a scale of least to most preferred based on the anticipated extent and severity of the potential impacts.

Alternative 3 was ranked highest of the three alternatives, and is considered the preliminary preferred alternative. Alternative 3 is generally consistent with provincial and municipal planning policy. It is however, less consistent with the 2005 DCSSU than the others, as it results in the loss of the intermittent tributary channel. The Alternative scored less in the “Environmental” category as it involves piping and burying the intermittent tributary, which will result in loss of potential habitat and removal of areas of floodplain. Alternative 3 however, allows for a greater developable area and improved site connectivity.

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**Design Refinement**

Two options for the SWM pond outlet were developed as a design refinement for Alternative 3. The first involves an open outlet channel created using natural channel design principles, which would discharge to Mathers Stream south of the pond. The second directs pond outflow along Pack Road directly to Dingman Creek.

An evaluation of these two design refinement alternatives was carried out using the same Evaluation Criteria that were used above (excluding those that were not applicable). The outlet to Mathers Stream was selected as the preliminary preferred refinement alternative based on the following factors:

- Reduced opportunity for water quality to be adversely affected by minimizing roadside runoff inputs;
- Easier constructability;
- Reduced disruption to archaeological resources; and
- Opportunities to create naturalized aquatic and riparian habitat along the SWMF outlet channel via natural channel design.

**Public Consultation**

Consultation and the exchange of information between the study team and affected parties were undertaken using a variety of methods including a Public Information Centre (PIC) with attendance by agency representatives and members of the public, and meetings with the study team and approval agencies. Parsons and the City of London has engaged First Nations that may have interest in the project; a copy of this EA report will be forwarded to both the Chippewas of the Thames First Nation and the Caldwell First Nation.

**Preferred Alternative Conceptual Design**

The Preferred Alternative Solution was confirmed following the PIC. This preferred solution incorporates the following components.

- A Stormwater Management Facility servicing the proposed low density residential development area north of Mathers Stream;
- A naturalized outlet channel from the SWMF to Mathers Stream;
- Permanent Private System servicing the land areas east of Mathers Stream;
- Piping of the intermittent tributary to maximise the land area serviced by the SWMF; and
- Enhancement of the Upper Reach of Mathers Stream.

Hydrologic analysis of the preferred alternative resulted in the required target flows with the controls in place under the proposed servicing strategy. Geomorphological assessment of the preferred alternative indicates that the proposed strategy will reduce erosion potential in Mathers Stream.

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The estimated cost of the preferred alternative is \$4,380,000 including professional fees and contingency.


**Impact Mitigation**


The SWM pond and related infrastructure will be designed and implemented with the benefit of contemporary planning, engineering, and environmental management practices. Regard shall be had for the legislation, policies, regulations, guidelines, and best practices of the day. Where possible, mitigation measures will be prescribed in the construction contracts and specifications. Key components of impact mitigation for this project include:

- Erosion and sediment controls (a detailed plan to be provided by the contractor prior to beginning any construction work);
- Archaeological assessment and monitoring (a Stage 3 Archaeological Assessment will be required on the identified sites prior to construction);
- Emission and dust control measures;
- Tree protection measures (in accordance with City of London Specifications for Construction Activities around Trees and the City's Tree Conservation By-Law);
- Surface water protection measures (e.g., control of potentially deleterious substances near watercourses, preparation of a Spill Response Plan)
- Protection of terrestrial animals and avifauna (e.g., installation of wildlife exclusion fencing around the work area perimeter, timing restrictions for vegetation removal)
- Management of contaminated materials, if such are discovered within the construction area;
- Butternut protection (a Butternut Health Assessment will need to be submitted for any Butternuts to be removed or harmed);
- Vegetation compensation (additional ecological investigations required to quantify vegetation loss from the ESA due to the SWMF outlet, confirm the absence of rare species in the affected area and confirm buffer and setback requirements. A landscape plan which identifies vegetation to be removed/retained, compensation, species selection and exclusionary fencing will be submitted to the City of London and the UTRCA for approval prior to the start of construction); and
- Hydrogeological concerns (detailed hydrogeological assessment required prior to construction to determine the need for a Permit to Take Water for construction dewatering, and evaluate groundwater conditions as related to potential contamination from the former landfill site).

### Dingman Creek SWM Facility B-4

Municipal Class Environmental Assessment





**Legend**

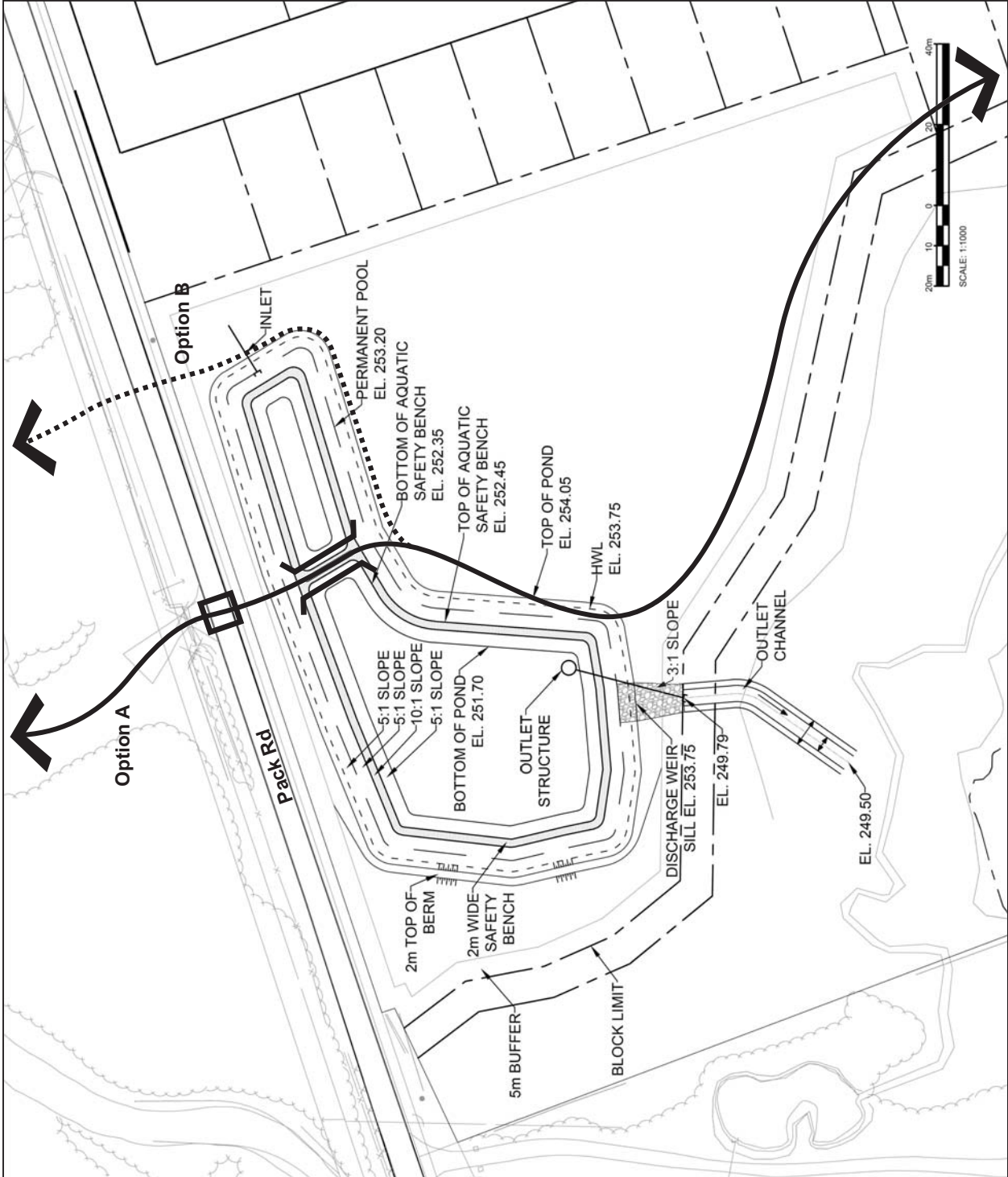
- Existing Property Parcels
- Proposed SWM Pond
- Proposed Land Use Blocks
- Proposed Outlet
- Proposed Outlet to Mathers Stream
- On-Site Stormwater Management Controls (Medium Density/Mixed Use)
- Stream Enhancement
- Pedestrian Linkages

Figure 9-1:  
Preferred Alternative



<p><b>Dingman Creek SWM Facility B-4</b> Municipal Class Environmental Assessment</p>	<p style="text-align: center;">N </p> <p>Total Drainage Area: 25.9 ha            Inlet Elevation: 254.05 m            Extended Detention Outlet Elevation: 253.20 m            Discharge Weir: 253.75 m            Footprint Area: 0.72 ha            Total Pond Volume: 11.1 ha.m            Pedestrian Linkages </p>	<p><b>PARSONS</b> London Ontario</p>
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Figure 9-3:  
Conceptual Design



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**NOTICE OF COMPLETION**  
**Municipal Class Environmental Assessment Study for Storm/Drainage and SWM Servicing Works**  
**Dingman Creek No. B-4 SWM Facility and Tributary Channel Enhancements**

The City of London has completed a Municipal Class Environmental Assessment (EA) Study for the storm drainage and stormwater management servicing options for the Dingman Creek B-4 Stormwater Management Facility (SWMF), including improvements to the Dingman Creek tributary system. The Study has been undertaken in accordance with the requirements of a Schedule B project as outlined in the Municipal Class Environmental Assessment document (2000), as amended in 2007 and 2011.

The EA Study recommended solutions that would meet the stormwater management and erosion control requirements for the proposed future development of the lands within the study area. Main features of the preferred alternative solution for the Stormwater Management Facility include:

- A SWMF servicing the proposed low density residential development area of north of Mathers Stream;
- A naturalized outlet channel from the SWMF to Mathers Stream;
- Permanent Private System servicing the land areas east of Mathers Stream;
- Piping of the intermittent tributary to maximise the land area serviced by the SWMF; and
- Enhancement of the Upper Reach of Mathers Stream.

As part of the Municipal Class EA process, public, agency, and First Nations consultation was conducted in order to receive input valuable to this project. A public meeting was held on November 12, 2014 for stakeholders to provide their input into the project.

The EA report will be available for a 30 day public review period from **Wednesday, May 13, to Friday, June 12, 2015**. The report will be made available on the City website and at the following locations:

City of London  
 Clerk's Department  
 City Hall-3rd Floor  
 300 Dufferin Avenue  
 Monday to Friday 8:30 a.m. to 4:30 p.m

London Public Library - Lambeth Branch  
 7112 Beattie St  
 Sun / Mon: Closed  
 Tue / Thu: 1pm – 5pm & 6pm – 9pm  
 Wed / Fri / Sat: 9am – noon & 1pm – 5pm

Parsons  
 1069 Wellington Road South – Suite 214  
 London, Ontario  
 Monday to Thursday: 8:30 a.m. – 5:00 p.m.  
 Friday: 8:30 a.m. – 12:30 p.m.

London Public Library – Central Branch  
 251 Dundas Street  
 Sunday: 1 p.m. – 4 p.m.  
 Mon – Thu: 9 a.m. – 9 p.m.  
 Fri: 9 a.m. – 6 p.m.  
 Sat: 9 a.m. – 5 p.m.

If you have comments, concerns, or questions regarding the study, please provide written response to the City of London by June 12 to the address below. If concerns regarding the EA Report cannot be resolved through discussion with the City of London, a person or party may request that the Minister of the Environment and Climate Change (MOECC) make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order) which addresses individual environmental assessment. Written request must be received by the Minister at the following address Minister of the Environment, 135 St. Clair Avenue West, 12th Floor, Toronto, Ontario, M4V 1P5 by June 12, 2015. A copy of the request must also be sent to the City Clerk. If no Part II requests are received by June 12, 2015, the project will proceed as outlined in the EA Report.

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Personal information collected and recorded at the public information centre or submitted in writing on this subject is collected under the authority of the Municipal Act, 2011 and will be used by members of Council and City of London staff in their review of this matter. Any written submission, including names and contact information and the report of the meeting, will be made available to the public. Questions about this collection should be referred to Cathy Saunders, City Clerk, at 519-661-2500 ext. 4937.