SCORING: 1 Least Effective/Most Disruptive
2
3
4 Most Effective/Least Disruptive

		Alternative 1		Alternative 2		Alternative 3		Alternative 4	
SOCIAL/CULTURAL									
Aesthetics	Visual appearance of proposed SWM measures. Consideration is given to likely materials, and the location of the works relative to both transportation & recreation corridors and residential areas.	No new SWM facilities.	2.5	Proposed pond is designed as passive recreational feature and is landscaped to enhance visual appeal. Proposed pond is relatively small and isolated in the southwest site corner, which makes it less prominent as an aesthetic feature. On-site SWM controls are located underground to maximize the use of each serviced block, eliminating associated opportunities for aesthetic enhancement.	2.5	Proposed pond is designed as passive recreational feature and is landscaped to enhance visual appeal. Proposed pond block is significantly larger than the Alternative 2 pond, making it a more visible feature. is relatively small and isolated in the southwest site corner, which makes it more prominent as an aesthetic feature. The larger block size will permit more opportunities for unique landscape design.	3.0	Proposed ponds are designed as passive recreational features and are landscaped to enhance their visual appeal. SWM 2 is located in a prominent focal point of the proposed site. The proposed location will allow SWM 2 to be viewed from all sides.	4.0
Public Health And Safety	Creation/reduction of potential safety hazards such as deep standing pools of water, steep banks, etc. Effects of the proposed solution on the quality of life of local residents and businesses. Effects on the movement of pedestrians and traffic.	Some portions of the existing site likely flood during large storm events. Existing potential flood hazard located at the Highbury Avenue low point, and on the overland flow routes located west of Highbury Avenue. Overland flow across Highbury Avenue could present a traffic hazard.	1.0	Proposed site development eliminates flood-prone areas located within the site. The magnitudes of overland flows that cross Highbury Avenue are reduced. This alternative presents the SWM facility with the least surface area, and consequently the least associated safety risk.	3.0	Proposed site development eliminates flood-prone areas located within the site. The magnitudes of overland flows that cross Highbury Avenue are reduced. The proposed SWM pond area is greater than the Alternative 2 pond, and thus has a higher associated safety risk. However, this can be mitigated by incorporating barrier vegetation into the proposed pond landscaping plan.	2.5	Proposed site development eliminates flood-prone areas located within the site. The magnitudes of overland flows that cross Highbury Avenue are reduced. Due to its location, SWM 2 is relatively accessible, and thus has the highest associated safety risk. However, this can be mitigated by incorporating barrier vegetation into the proposed pond landscaping plan.	2.0
Proximity Impacts	Effect on land values.	Since the site remains in its existing state, there is no effect on current land values.	1.0	The proposed site is developed, raising the land values of the site area and adjacent properties. A SWM pond constructed as a site amenity typically helps to raise the land values of adjacent properties in residential areas. However, the proposed SWM pond relatively small and isolated. The smallest pond footprint (~1.2 ha) allows the most site development. On-site SWM requirements may devalue development land.	2.5	The proposed site is developed, raising the land values of the site area and adjacent properties. A SWM pond constructed as a site amenity typically helps to raise the land values of adjacent properties in residential areas. The larger pond footprint (~1.7 ha) allows less site developent than Alternative 2.	3.0	The proposed site is developed, raising the land values of the site area and adjacent properties. A SWM pond constructed as a site amenity typically helps to raise the land values of adjacent properties in residential areas. SWM 2 is a prominent site amenity. The largest pond footprint (~2.3 ha) allows the least site developent.	3.5
	SOCIAL/CULTURAL AVERAGE SCORES:		1.5		2.7		2.8		3.2
NATURAL ENVIRONMENT									
Natural Heritage	Impacts of proposed solution on significant local natural resources.	No change to the existing natural heritage features.	4.0	All existing natural heritage features are protected by implementing the recommendations of the site EIS.	4.0	All existing natural heritage features ae protected by implementing the recommendations of the site EIS.	4.0	All existing natural heritage features ae protected by implementing the recommendations of the site EIS.	4.0
Aquatic Wildlife and Vegetation	Effects on the quantity and quality of aquatic habitat.	No enhancement of habitat, but no detrimental effects either.	2.0	The proposed solution includes the creation of a SWM pond, which provides habitat opportunities for aquatic species not currently found within the study area. The proposed pond footprint is relatively small, compared to Alternatives 3 & 4, and consequently the opportunites for habitat creation are the most limited.	3.0	The proposed solution includes the creation of a SWM pond, which provides habitat opportunities for aquatic species not currently found within the study area. The proposed pond footprint is significantly larger than the Alternative 2 pond, and thus provides more opportunities for habitat creation.	3.5	The proposed solution includes the creation of a SWM pond, which provides habitat opportunities for aquatic species not currently found within the study area. Since this solution includes two separate SWM facilities, it provides the opportunity to create two entirely different aquatic habitats, and thus offers the most aquatic habitat opportunities.	4.0
Water Quality	Effects on the water quality in Pottersburg Creek	Since the site remains in its existing state, there is no change in water quality	4.0	Proposed SWM pond & on-site SWM controls will mitigate the volume of suspended sediment entering Pottersburg Creek and the Thames River.	3.0	Proposed SWM pond & on-site SWM controls will mitigate the volume of suspended sediment entering Pottersburg Creek and the Thames River.	3.0	Proposed SWM pond & on-site SWM controls will mitigate the volume of suspended sediment entering Pottersburg Creek and the Thames River.	3.0
	NATURAL ENVIRONMENT AVERAGE SCORES:		3.3		3.3		3.5		3.7
TECHNICAL									
Design Discharges	Effects of the proposed solution on design discharges in Pottersburg Creek and the downstream storm sewers.	No Change.	3.0	Peak discharges to Potterburg Creek remain unchanged. The peak discharges in the existing storm sewer are reduced. The major system discharges on Highbury Avenue are reduced.	4.0	Peak discharges to Potterburg Creek remain unchanged. The peak discharges in the existing storm sewer are reduced. The major system discharges on Highbury Avenue are reduced.	4.0	Peak discharges to Potterburg Creek remain unchanged. The peak discharges in the existing storm sewer are reduced. The major system discharges on Highbury Avenue are reduced.	4.0
Downstream Erosion	Effects of the proposed solution on the erodibility of the bed and banks of Pottersburg Creek	No Change.	3.0	The proposed SWM pond incorporates erosion control storage, in accordance with the guidelines presented in the Pottersburg Creek Subwatershed Study.	4.0	The proposed SWM pond incorporates erosion control storage, in accordance with the guidelines presented in the Pottersburg Creek Subwatershed Study.	4.0	The proposed SWM ponds incorporate erosion control storage, in accordance with the guidelines presented in the Pottersburg Creek Subwatershed Study.	4.0
Design Complexity	Complexity of the proposed solution and the associated effects constructing, operating and maintaining the proposed SWM infrastructure.	No new SWM facilities.	4.0	Due to the significant portion of the proposed site that is serviced by on-site SWM controls, this solution is the most complex. This solution requires the most effort to operate and maintain the proposed SWM measures.	1.0	This is the least complex alternative. Most of the study area is serviced by a single regional SWM pond.	3.0	Because this solution employs two regional SWM ponds, it is more complex than Alternative 3.	2.0
	TECHNICAL AVERAGE SCORES:		3.3		3.0		3.7		3.3
PLANNING									
Approvability	Likely acceptability of the proposed measures to approval agencies. Consideration of the time/effort required to obtain the required approvals.	No permits required, but desire to develop the land exists. Land is serviceable and located within the urban growth boundary, and should be properly managed.	1.0	The SWM design for each individual property with on-site controls will require review and approval, which will increase the costs and time required to complete the site design process.	2.0	This solution incorporates the least number of individual SWM measures that must be designed, reviewed and approved.	4.0	This solution includes an additional SWM pond, compared to Alternative 3, that must be designed, reviewed and approved.	3.0
Compatibility	Overall compatibility with landuse concepts, effective use of land and compatibility with heritage plan.	No growth concept is incompatible with current concept plans.	1.0	SWM pond occupies minimal area and its location is compatible with concepts	3.5	SWM pond occupies more area than Alternative 2, but is still compatible with concepts.	3.5	Both SWM pond locations are compatible with the proposed concepts. SWM 2 particularly compliments the proposed placemaking and urban design concepts that will be integrated into the proposed site design.	4.0
Growth	Effects of the proposed solution on growth in the study area.	No growth.	1.0	Growth can occur within the study area. In some cases, individual sites with on-site SWM controls can be developed prior to implementation of the overall site SWM strategy.	4.0	Growth can occur within the study area. In some cases, individual sites with on-site SWM controls can be developed prior to implementation of the overall site SWM strategy. However, there are less on-site SWM controls than in Alternative 2.	3.5	Growth can occur within the study area. In some cases, individual sites with on-site SWM controls can be developed prior to implementation of the overall site SWM strategy. However, there are less on-site SWM controls than in Alternative 2.	3.5
	PLANNING AVERAGE SCORES:		1.0		3.2		3.7		3.5
Capital Cost	Cost of on-site SWM controls Cost of regional SWM ponds **TOTAL COST:**	$0 $0 $0	4.0	$3,470,000 $1,370,000 $4,840,000	1.0	$1,040,000 $2,170,000 $3,210,000	2.0	$1,040,000 $2,470,000 $3,510,000	1.8
Annual Operation & Maintenance Cost	On-site SWM monitoring & cleaning SWM pond monitoring & cleaning **TOTAL COST:**	$0 $0 $0	4.0	$51,000 $5,000 $56,000	1.0	$19,000 $6,000 $25,000	2.7	$19,000 $10,000 $29,000	2.4
	ECONOMICS AVERAGE SCORES:		4.0		1.0		2.3		2.1

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Stantec Consulting Ltd.
800-171 Queens Avenue
London ON Canada
N6A 5J7
Tel. 519.645.2007
Fax. 519.645.6575
www.stantec.com

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Figure No.
5.1

Title
DECISION MATRIX

6.0 Preferred Solution

The preferred SWM servicing strategy is shown on Figure 6.1.

6.1 ON-SITE SWM CONTROLS

Runoff from the approximately 10.9 ha of the proposed site that drains to the Highbury Avenue and Dundas Street right-of-ways is treated by on-site SWM controls.

6.1.1 Peak Discharge Attenuation

The proposed on-site SWM controls are designed to attenuate the post-development peak discharges from all design events up to and including the 100-year design storm to the 2-year existing condition magnitudes. This level of peak flow attenuation is necessary since the stormwater from this drainage area is discharged to the existing local storm sewer.

The required storage volume can be provided by underground, rooftop, or parking lot storage. The design storage and discharge requirements are summarized in the following table.

Table 6.1 – On-Site SWM Control Summary

Parameter	Outlet	
	Highbury Avenue Storm Sewer	Dundas Street Storm Sewer
Design Drainage Area (ha)	8.0	1.9
Target Discharge (cms)	1.03 [1]	0.036 [2]
Design Discharge (cms/ha)	0.129	0.019
Total Estimated Storage Volume (m^3)	1,900	800
Design Storage Volume (m^3/ha)	238	421

Notes:
[1] Estimated Highbury Avenue storm sewer capacity – 2-year peak discharge from DND lands.
[2] Calculated existing condition 2-year peak discharge to the Dundas Street storm sewer.

6.1.2 Water Quality Treatment

Water quality treatment is likely most easily provided by on-site oil/grit separators that are designed to provide 70% total suspended solids removal.

6.2 SWM POND

The proposed SWM pond is designed to meet the stormwater management control criteria presented in the Pottersburg Creek Subwatershed Study. The proposed pond is presented on Figure 6.2, and described in the following table.

Table 6.2 – Regional SWM Pond Design

Parameter	SWM 1
Total Contributing Area	61.4 ha
Water Quality Service Area [1]	52.8 ha
Total Impervious Area (Water Quality Service Area)	50%
Permanent Pool	
Volume Required[2]	3,400 m^3
Depth	1.0 m
Water Surface Elevation	258.35 m
Extended Detention	
Erosion Control Volume Required[3]	6,200 m^3
Quality & Erosion Peak Release Rate	0.17 m^3/s
Quality & Erosion Detention Time	24 hrs
Water Quantity Storage	
Quantity Volume required	14,800 m^3
Forebay	
Length	50 m
Sediment Accumulation Depth	0.3 m
Basin Bottom Elevation	257.35 m
Top of Pond Elevation	260.65 m
High Water Level	260.35 m

Notes:
1. Water quality treatment is not provided runoff from the external drainage areas, since these portions of the service area contribute only major system flows to the proposed SWM pond.
2. Calculated based on the total connected percent impervious area, as per direction provided by the City of London, and the storage volumes presented in Table 3.2 of the MOE Stormwater Management Planning and Design Manual (2003).
3. Storage volume required to detain the runoff from the 25 mm design storm event for 24 hours.

Based on discussions with CP Rail staff, a ditch located between the proposed SWM facility and the existing railroad is required. The purpose of the ditch is to capture liquids in the event of a spill, to mitigate the possibility of contaminants entering the proposed SWM facility. CP Rail staff did not provide a required ditch volume.

6.2.1 Existing Storm Sewer Outlet Capacity

A energy gradeline analysis was performed to verify that the existing storm sewer located at the southeast corner of the London Psychiatric Hospital lands that conveys runoff to Pottersburg Creek has sufficient capacity to convey the design peak discharges from SWM 1. The calculations are presented in Appendix D.

The calculation results show that the proposed permanent pool elevation is higher than the downstream calculated 2-year EGL elevation at the pond outlet. Consequently, the downstream system has sufficient capacity to convey the peak discharges from the smaller design events. Similarly, the results show that the proposed pond 100-year water surface elevation is higher than the downstream calculated 100-year EGL elevation at the pond outlet. Thus, the downstream system has sufficient capacity to convey the peak discharges from the larger design events. Additional hydraulic analysis should be completed at the conceptual design stage to verify that the existing pipe can convey the design discharges from the intermediate design events.

6.2.2 Emergency Overflow Route

The SWM 1 emergency overflow weir is located near the southwest facility corner. If the pond water surface elevations rise higher than the 100-year design water surface elevation, stormwater from the overflow weir is conveyed westward by the existing ground surface, through the existing DND lands, and is conveyed over the Highbury Avenue low point to the existing overland flow route that conveys stormwater to the existing Mornington SWM pond. This route currently conveys stormwater from all events that result in peak discharges greater than the 2-year event.

The results of the hydrologic modelling were used to verify that the proposed SWM 1 overflow route does not contribute more runoff to the DND lands than occurs under existing conditions. The calculated existing and post-development peak discharges and volumes that enter the DND site from external sources are summarized in the following table. Since the post-development peak discharges and runoff volumes are less than the existing condition values, the proposed SWM 1 emergency overflow route will not exacerbate flooding conditions on the DND site.

Table 6.3 – Calculated External Discharges to DND Site

Design Event	Existing		Post-Development	
	Peak Discharge (cms)	Volume (m^3)	Peak Discharge (cms)	Volume (m^3)
25 mm	0	0	0	0
2-year	0	0	0	0
5-year	0.61	2,114	0	0
10-year	1.02	3,691	0	0
25-year	1.57	5,537	0	0
50-year	1.98	6,990	0	0
100-year	2.33	8,485	0	0
250-year	3.12	13,614	2.85	8,766

6.2.3 Pond Footprint

Based on the information presented in the subwatershed study, approximately 56% of the Pottersburg Creek watershed is urbanized and runoff from the majority of the existing development does not receive stormwater treatment (Paragon, 1995). In contrast, the proposed SWM pond has been designed to provide water quality control, erosion control, and peak flow control in accordance with the stormwater management criteria developed through the subwatershed study. Regardless, City staff are concerned that the runoff from the future development of the LPH lands poses a threat to the stability of the Pottersburg Creek channel downstream of the site outlet. In the absence of an additional fluvial geomorphological study that reconfirms the erosion control storage criteria presented in the subwatershed study, City staff have instructed that a safety factor of 25% should be applied to the proposed pond footprint as a contingency in the event that future work suggests additional stormwater storage is necessary.

The required SWM block area estimated through the hydrologic analysis completed for this study is approximately 1.7 ha. With the additional 25% contingency, the proposed pond footprint is 2.1 ha.

6.3 OVERLAND FLOW OUTLETS

The results of the hydrologic modelling were used to verify that the post-development peak discharges and runoff volumes conveyed by the existing overland flow outlets from the study area are less than or equal to the existing condition values. The calculated existing and post-development peak discharges and volumes that are conveyed by Overland Flow Routes 2 and 3 are summarized in the following table. The summarized results show that the proposed SWM strategy results in lower peak discharges and runoff volumes conveyed by the existing major system.

Table 6.4 – Overland Flow Outlet Calculated Discharges

	Overland Flow Route 2				Overland Flow Route 3			
	Existing		Post-Development		Existing		Post-Development	
Design Event	Peak Discharge (cms)	Volume (m^3)	Peak Discharge (cms)	Volume (m^3)	Peak Discharge (cms)	Volume (m^3)	Peak Discharge (cms)	Volume (m^3)
25 mm	0	0	0	0	0.02	84	0	0
2-year	0	0	0	0	0.04	157	0	0
5-year	0.85	3,073	0	0	0.07	289	0	0
10-year	1.42	5,188	0.22	1,218	0.10	381	0	0
25-year	2.26	7,613	0.74	2,287	0.13	488	0	0
50-year	2.84	9,498	1.10	3,089	0.15	571	0	0
100-year	3.44	11,415	1.54	3,895	0.17	658	0	0
250-year	4.36	17,796	4.04	15,164	0.28	943	0.15	296

6.4 EFFECTS OF ADDITIONAL DRAINAGE AREA ON POTTERSBURG CREEK

City of London staff have expressed concerns that, under the preferred alternative, the portion of the proposed site that contributes runoff to Pottersburg Creek is greater than the existing condition drainage area. Staff are concerned that the additional drainage area will generate additional runoff volumes that could have detrimental effects on Pottersburg Creek. Thus, the amount of additional drainage area was compared to the total watershed drainage area upstream of the site outlet to check if the additional drainage area is significant and whether additional analysis is warranted.

Under the preferred servicing solution, the drainage area to Pottersburg Creek will increase by approximately 20 ha. Based on the information presented in the Pottersburg Creek

Subwatershed Study, the total drainage area upstream of the LPH site outlet to Pottersburg Creek is approximately 3,930 ha. So, the preferred servicing solution will increase the Pottersburg Creek drainage area by approximately 0.5%. Since this increase in drainage area is negligible compared to the total upstream watershed area, the corresponding additional runoff volume will be insignificant compared to the annual flow volumes in the creek. Consequently, the additional drainage area is unlikely to have any tangible impact on the portion of Pottersburg Creek located downstream of the LPH lands.

6.5 AYERSWOOD DEVELOPMENT

The Ayerswood Development is immediately downstream of Hamilton Road, east of Pottersburg Creek. A gabion wall was constructed along the east streambank during 1989 to protect the bank from erosion. Additional gabions were added during construction to accommodate site plan changes. City staff first became aware that the gabion wall was failing in 1998. Since then, a portion of the wall has collapsed, and upslope services are now threatened (Belch, 2007).

City staff have expressed concern that the runoff from the proposed London Psychiatric Hospital development could exacerbate the existing bank failure at the Ayerswood Development Property. However, based on the available information, the existing problems are related to the design and construction of the gabion wall, rather than stream processes within Pottersburg Creek. Consequently, the existing bank failure will not be influenced by the proposed London Psychiatric Hospital stormwater management strategy.

6.6 WATER BALANCE

A water balance calculation was performed to evaluate the effects of the proposed London Psychiatric Hospital development on the local hydrology. The calculation results presented in Appendix D suggest that the total precipitation on the site is approximately 734,000 m^3/yr. Due to the low permeability of the soils, only 14% of this total, or 105,000 m^3/yr are infiltrated under pre-development conditions. The proposed land development may cause the average annual local infiltration volume to decrease to approximately 2% of total precipitation or 17,600 m^3/yr.

The Pottersburg Creek Subwatershed Study states that roof runoff from rainfall events 25 mm and smaller should be infiltrated where sufficient permeable soils exist. The effects of this recommendation on the site water balance were estimated. If the proposed development includes approximately 12.1 ha of rooftops, and the resulting runoff from all rainfall events 25 mm and smaller are directed to infiltration galleries, the post-development infiltration rate would be approximately 113,400 m^3/yr, which represents an infiltration surplus of approximately 8%.

However, the following site conditions are necessary for infiltration augmentation:

1. The site soils must be sufficiently permeable,

2. The permeable soils must be sufficiently deep to accommodate infiltration galleries,

3. The groundwater elevations must be lower than the bottoms of the proposed infiltration galleries.

The available site geotechnical information suggests that portions of the site may have suitably sandy soil to accommodate rooftop infiltration measures. However, the available groundwater information suggests that the local groundwater levels are relatively high. Thus, the feasibility of implementing rooftop infiltration measures should be evaluated in further detail at the subdivision design stage.

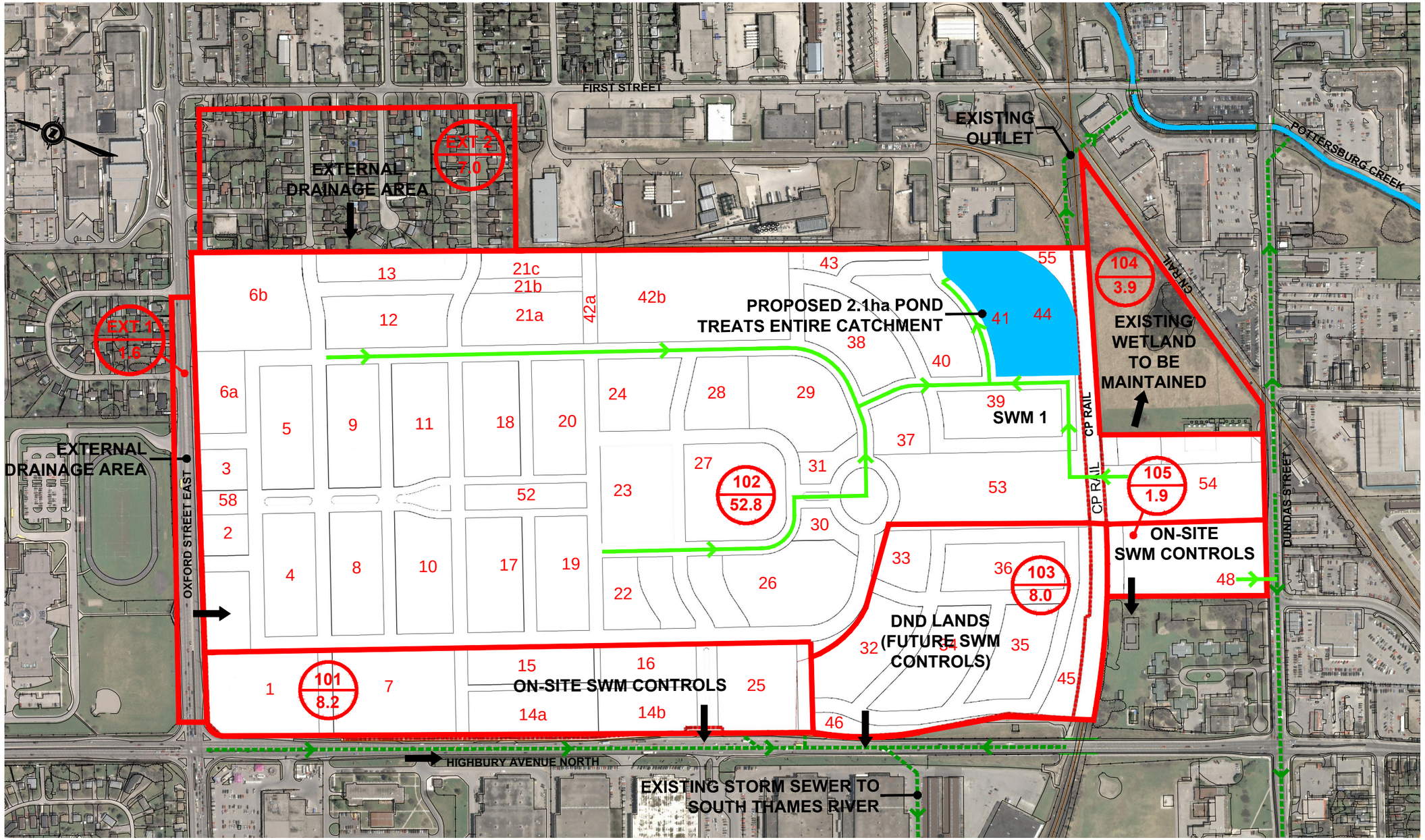
6.7 PRELIMINARY COST ESTIMATE

The estimated costs of the preferred SWM servicing solution are summarized in the following table.

Table 6.5 – Estimated Cost Summary

Measures	Item	Requirement	Unit Cost	Total Cost
On-Site SWM Controls	Storage Volume [1]	2,700 m^3	$250/$m^3$	$675,000
	OGS [2]	10 EA	$36,000/EA	$360,000
			Subtotal	**$1,035,000**
SWM Pond	Storage Volume [3]	24,400 m^3	$53/$m^3$	$1,293,200
	Land Cost [4]	2.1 ha	$247,100/ha	$518,900
			Construction & Land Costs Subtotal	**$1,812,100**
			Contingency & Engineering [5]	$362,400
			Subtotal	**$2,174,500**
			TOTAL	**$3,209,500**

Notes:
1. On-site storage volume unit cost estimated based on typical underground storage system unit costs.
2. Assumed one OGS required per hectare of service area. Installed unit cost estimate provided by Hanson Pipe.
3. Storage volume unit cost provided by the City of London.
4. Includes 25% land contingency.
5. Based on 20% of construction and land costs, as per direction provided by City of London staff.



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Stantec Consulting Ltd.
800-171 Queens Avenue
London ON Canada
N6A 5J7
Tel. 519.645.2007
Fax. 519.645.6575
www.stantec.com

Legend

- PROPOSED DRAINAGE BOUNDARY
- EXISTING STORM SEWER
- OVERLAND FLOW DIRECTION
- PROPOSED STORM SEWER
- 44 BLOCK NUMBERS
- 101 / ha — CATCHMENT ID / DRAINAGE AREA (ha)

Scale

1:5000 — 0 50 150 250m

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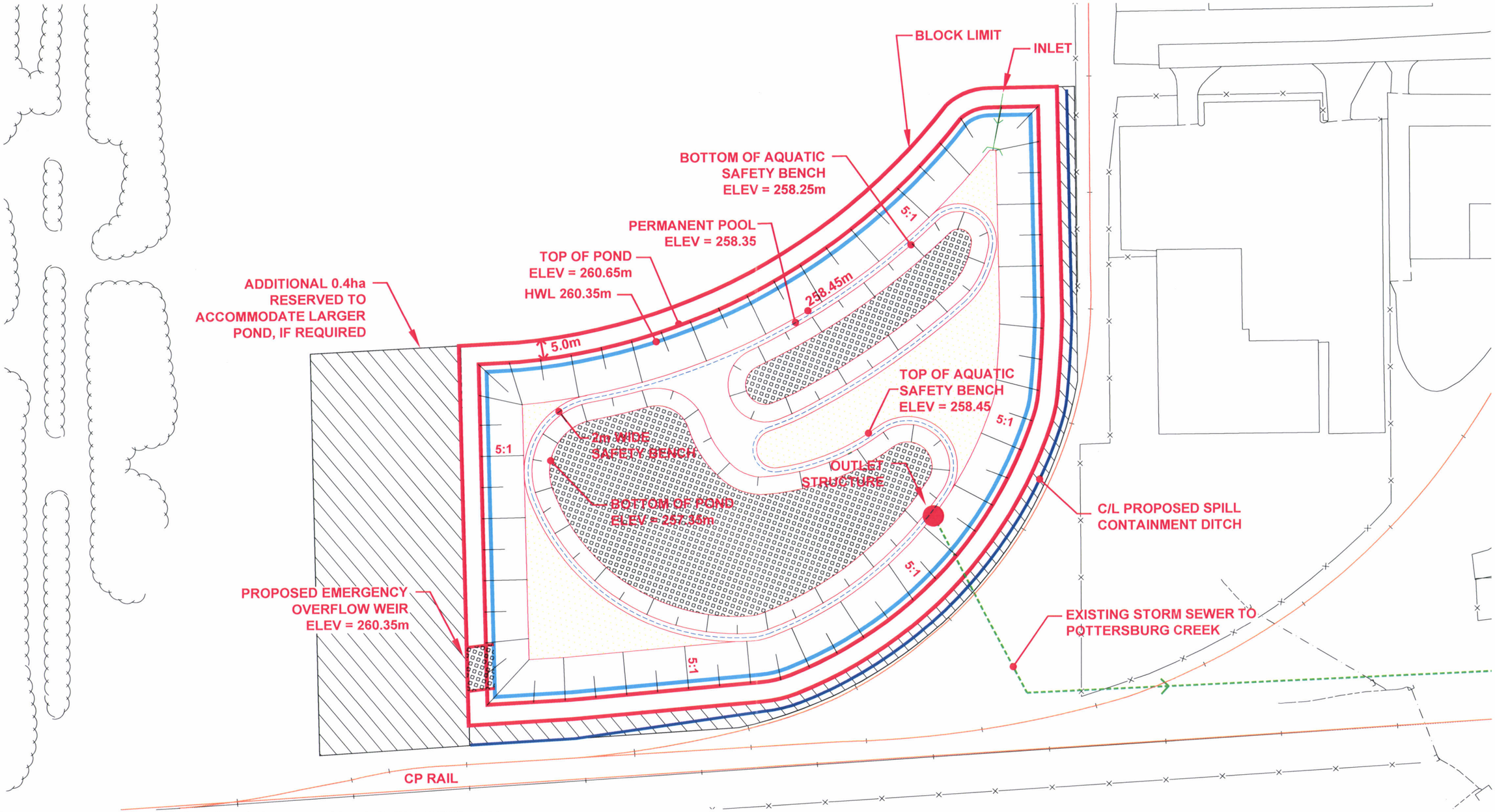
STORMWATER SERVICING
ENVIRONMENTAL ASSESSMENT

Figure No.
6.1

Title
PREFERRED SOLUTION



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Stantec Consulting Ltd.
800–171 Queens Avenue
London ON Canada
N6A 5J7
Tel. 519.645.2007
Fax. 519.645.6575
www.stantec.com

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STORMWATER SERVICING
ENVIRONMENTAL ASSESSMENT

Figure No.
6.2

Title
CONCEPTUAL SWM POND CONFIGURATION

7.0 Conclusions

An Environmental Assessment was conducted to develop a SWM servicing strategy for the future development of the London Psychiatric Hospital lands. Four alternative solutions were created, based on design criteria and constraints developed by Stantec, and a preferred solution was selected based on a set of relevant evaluation criteria. The preferred solution includes on-site SWM controls that discharge to an existing storm sewer and a regional SWM facility that discharges to Pottersburg Creek.

7.1 RECOMMENDATIONS

The preferred alternative should be implemented as described in this report. However, the preferred alternative was the result of a planning level analysis and the preliminary design presented in this report may be modified to accommodate more detailed site-specific information or to incorporate factors that were not identified in the background studies. Modifications to the proposed design will not necessitate a reanalysis of the design alternatives if the intent of this EA is met by the revised design. This means that the revised design should meet the EA problem statement and should comply with the design constraints identified in this report.

7.1.1 General

- Perform a detailed geotechnical assessment to better map the site soils. The results of the assessment should be used to verify hydrologic assumptions and to evaluate the feasibility of infiltrating rooftop runoff.

7.1.2 SWM Pond

The proposed SWM facility should be implemented in accordance with the following recommendations:

- City of London Parks Planning should be engaged in the design process to identify any potential to integrate the proposed SWM pond block with the City parks network.
- The design elevations and volumes should be verified as detailed design proceeds.
- Design criteria for the proposed spill containment ditch should be established through discussions with CP Rail.
- If on-site controls are implemented within the drainage area that is serviced by the proposed SWM facility, a hydrologic analysis should be completed to check whether the proposed pond size can be reduced.

7.1.3 On-Site SWM Controls/Rooftop Infiltration

The proposed on-site SWM controls should be implemented in accordance with the following recommendations:

- At the subdivision design stage, the developer's engineer should evaluate the feasibility of incorporating stormwater infiltration measures into the proposed subdivision. Site geotechnical assessments should include soil permeability measurements, and groundwater elevations to develop these evaluations, and assist in the design of infiltration measures.

- On-site SWM storage requirements for each individual site may be calculated using the Modified Rational Method, using design discharge rates prorated from the target discharge rate for the corresponding drainage area and the individual site area.

All of which is respectfully submitted.

STANTEC CONSULTING LTD.

Jeff Paul, P.Eng.
Managing Principal

8.0 References

Belch, Geoffrey. Report to City of London Board of Control. Agenda Item 8. February 14, 2007.

Cumming Cockburn Limited. 2003. Pottersburg Creek Storm Drainage and Channel Remediation Project, Environmental Study Report. Prepared for the City of London.

Municipal Engineers Association. 2007. Municipal Class Environmental Assessment.

Ministry of the Environment. 2003. Stormwater Management Planning and Design Manual.

Paragon Engineering Limited. 1995. Pottersburg Creek and Crumlin Drain Subwatershed Study.

Sendex Environmental Consulting Engineers and Scientists. 2006. Phase II Environmental Site Assessment, ORC Property D00014, 850 Highbury Avenue, London, Ontario. Prepared for the Ontario Realty Corporation

Ward, Andy and Jessica L. D'Ambrosio. 2008. Stream Classification. The Ohio State University.