

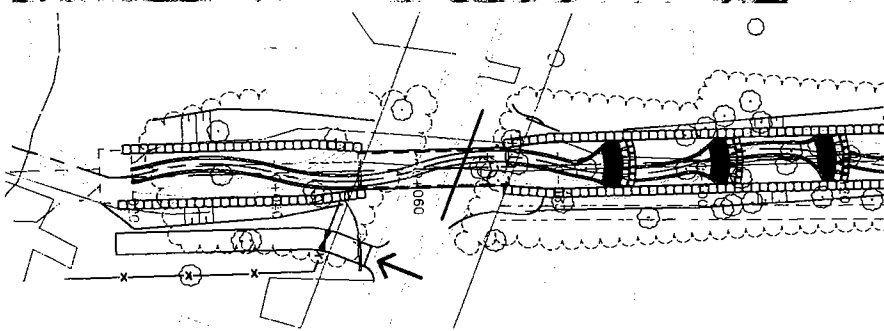
**Watercourse No. 7**



**Hamilton**

**CREEK SYSTEM  
IMPROVEMENTS**

**CLASS  
ENVIRONMENTAL  
ASSESSMENT**



**September 2003**

**WATERCOURSE NO. 7 – CREEK SYSTEM IMPROVEMENTS**

**CLASS ENVIRONMENTAL ASSESSMENT  
COMMUNITY OF STONEY CREEK**

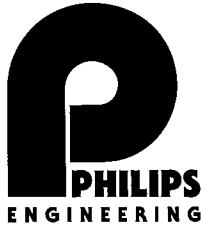
**CITY OF HAMILTON**

**September 2003**

**PHILIPS ENGINEERING LTD.  
P.O. BOX 220, 3215 NORTH SERVICE ROAD  
BURLINGTON, ON L7R 3Y2**

**TEL: 905-335-2353  
FAX: 905-335-1414**

**E-Mail Address: [admin@philipseng.com](mailto:admin@philipseng.com)**



3215 North Service Road, Box 220, Burlington, Ontario L7R 3Y2

September 11, 2003  
Our File: 100046

City of Hamilton  
Public Works Department  
320-77 James Street North  
Hamilton, ON

ATTENTION: Jillian Stephen, P. Eng.

Dear Madam:

RE: Watercourse No. 7 Creek System Improvements  
Class Environmental Assessment – Final Report  
City of Hamilton

We are pleased to submit to the City the Final Report for the Watercourse No. 7, Creek System Improvements, Class Environmental Assessment; to be filed in the Project File concurrently with the advertising of the Notice of Completion. We are also providing a copy of the Final Report to the Ministry of the Environment, as well as to the Hamilton Conservation Authority.

We would like to thank you and Sonya Kapusin for the assistance you provided to us in the completion of the Class Environmental Assessment portion of this study.

We look forward to both the financial assessment and final design stages of the proposed works.

Yours very truly,

PHILIPS ENGINEERING LTD.

Per: Brian E. Bishop, M. Eng., P. Eng.

Per: Ronald B. Scheckenberger, M. Eng., P. Eng.

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**WATERCOURSE NO. 7 – CREEK SYSTEM IMPROVEMENTS  
CLASS ENVIRONMENTAL ASSESSMENT  
COMMUNITY OF STONEY CREEK**

**CITY OF HAMILTON**

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**1. INTRODUCTION**

**1.1 Background**

The City of Hamilton (former City of Stoney Creek) has identified lands proposed for industrial development in an area north of Barton Street, south of the QEW, east of Fruitland Road and west of Lewis Road. The lands proposed for development (i.e. Development Area) fall within the Industrial Corridor Master Drainage Plan Area No.'s 5, 6 and 7 (ref. Figure 1).

The City of Stoney Creek (now part of the City of Hamilton) and Ministry of Natural Resources (MNR), together with Environment Canada and the Hamilton Region Conservation Authority, undertook a study of flood potential across the municipality under the guise of the Flood Damage Reduction Program (FDRP) in 1986. This study identified flood potential for various watercourses in the City.

Due to development pressures, the City prepared a Master Drainage Plan (MDP) in 1990 for its Industrial Corridor, to address existing drainage constraints (e.g. flat topography, undersized culverts and inadequate outlets to Lake Ontario), principally drained by Watercourse No.'s 5, 6 and 7 (ref. Figure 1).

A detailed design of the watercourse system improvements, based upon the MDP concept was prepared for the City in the early 1990's for Watercourse No. 7 from Barton Street to Lake Ontario. Due to reduced development pressures in the mid-1990's, this project was never implemented. In 1998, the City, due to local concerns regarding erosion, had a revised design prepared for the portion of Watercourse No. 7 north of the QEW to Lake Ontario. No part of this design has been implemented to this date, with the exception of the culvert works under the QEW, which were completed by the MTO in 1994, consistent with the MDP.

Information on the health of the existing municipal watercourse systems (including Watercourse No. 7) has been collected within the study area, as part of the "Stormwater Quality Management Strategy, Community of Stoney Creek - Master Plan" (January 2003 - Draft) (ref. Appendix B for excerpts).

## **1.2 Purpose**

The primary purpose of this Class Environmental Assessment study (Class EA) has been to determine the preferred watercourse system improvement solution for Watercourse No. 7 between Barton Street and Lake Ontario.

Given the changes that have occurred to the Environmental Assessment Act and various Provincial and Federal government mandates related to watercourse management and design, the City is required to update the previous design of Watercourse No. 7 to current standards.

Current legislation regarding the protection of fisheries habitat (“no net loss”), administered by the Department of Fisheries and Oceans, as well as the Stormwater Quality Management and Natural Channel Design guidelines, advocated by the Ministry of the Environment and Ministry of Natural Resources, has been the “driving force” behind updating the previously conceived watercourse system management strategies. In light of the foregoing, a comprehensive strategy for addressing flooding, erosion, terrestrial and aquatic habitat, as well as social compatibility of channel improvements for Watercourse No. 7 has been advocated by the City of Hamilton.

## **1.3 Class Environmental Assessment Process**

The undertaking(s) associated with this project are covered under sections within the June 2000, MEA Municipal Class Environmental Assessment document, specifically Section C.1.3 Stormwater Management Projects. The preferred solution is a Schedule B undertaking.

The purpose of the Class EA process is to promote the protection and conservation of the environment, through good planning and informed decision-making. It allows for the evaluation of the environmental impacts of a project and its alternatives.

## **1.4 Study Area**

Figure 1 outlines the location of the subject reach within the Watercourse No. 7 watershed. The Watercourse No. 7 watershed outfalls to Lake Ontario, west of McNeilly Road generally flowing in a northerly direction. The drainage systems to the west and east are part of Watercourses 6 and 9 respectively in the City of Hamilton, in the Community of Stoney Creek, all draining northerly to Lake Ontario.

The focus of this assessment is Watercourse No. 7. Of the 422 ha +/- drainage area, the majority of the land north of the QEW has been developed, with most of the future development potential between the QEW and Highway #8 to the south.

Impact limits of the Study (i.e. study area) correspond to the local Watercourse No. 7 watershed, which is a tributary to Lake Ontario (ref. Figure 1). The watershed basis for the study area definition is considered appropriate, as it includes all areas which contribute surface flow to the Industrial Area. The specific focus of the study area, however, is Highway #8 northerly to Lake Ontario.

## 1.5 Study Team and Steering Committee

This study has been undertaken by a Study Team consisting of:

- Philips Engineering Ltd.*
- *Project Management*
  - *Water Resources Engineering*

Specialist environmental subconsultants include:

- C. Portt & Associates (Fisheries Biology-Inventory and Detailed Design)*  
*Dougan & Associates (Terrestrial Biology-Inventory and Detailed Design)*  
*Parish Geomorphic (Stream Morphology-Detailed Design)*

Guidance has been provided to the Study Team by a Steering Committee consisting of the following staff:

*City of Hamilton – Jill Stephen, Paul Cripps*

## 2. PUBLIC CONSULTATION

Public consultation is mandatory at three points under the Class EA:

- (i) Study Notice at Commencement
- (ii) Public Information Centre to Review Alternative Solutions
- (iii) Notice of Completion

A combined Notice of Study and Notice of Public Information Centre of was circulated to the directly affected public, interested public groups and government agencies and advertised in the Stoney Creek News.

The majority of the information contained in this report was presented at a Public Information Centres in October 2000, and June 2003, in support of the second component of public consultation for this study.

Input received from the public, stakeholders and government review agencies has subsequently been used in the final recommendation of a Preferred Solution. A copy of all public comment forms submitted to the City have been included in Appendix C.

This study details the final recommendation and forms part of the Project File, which is available for public review and comment, as part of the Notice of Completion.



### 3. PROBLEM STATEMENT

Watercourse No. 7 has historically been identified as flood prone, with wide shallow floodplains (ref. FDRP, 1989). The unnaturally large floodplain is a result of undersized culverts, poor channel and flood plain definition/form and mild overall gradients.

Future development potential has been identified within the Watercourse No. 7 watershed area (ref. Figure 2). Without proper creek system improvements, or flood control measures, the lands would not be able to fully develop, as identified in the current Official Plan. In addition, in-stream flows will increase, as will erosion potential. The foregoing will lead to degraded in-stream and riparian habitat conditions.

### 4. SUMMARY OF BASELINE INVENTORY

In accordance with requirements of the Class EA process, an inventory of the existing environment has been undertaken. The key characteristics of the area include:

#### *Land Use*

- The Official Plan of the City of Stoney Creek identifies the majority of the vacant lands between Barton Street and the QEW for Industrial usage.
- According to the August 1999 land use map prepared by the City (ref. Figure 2), approximately 156 ha or 35% of the Industrial Corridor in the Watercourse No. 7 watershed is undeveloped.

#### *Hydrogeology*

- The upper portions of the Watercourse No. 7 watershed area function to recharge the groundwater system which provides water to Watercourse No. 7 through infiltration of rainfall.
- The relatively impermeable clay and silt soils which occur in the development area, in conjunction with the close proximity of bedrock to the ground surface provide limited opportunities for infiltration dependant stormwater management practices.

#### *Water Resources*

- The study area, defined by the Watercourse No. 7 watershed, consists of an area of approximately 422 ha. The drainage area is located primarily below the Niagara Escarpment and includes approximately 60 ha of existing residential development within the former City of Stoney Creek, as well as 194 ha of agricultural land located south of Barton Street (ref. Figure 1, Appendix A).

TABLE 1 SUMMARY OF EXISTING LAND USE IN WATERCOURSE #7 (ha)								
Total Area	AGRIC	RES	RES-H	COM	IND	INST	OPEN	HWY/Roads
421.1	194.3	59.9	17.3	2.0	16.3	9.9	111.35	10.0

TABLE 2 CHANGES IN LAND USE (ha) RESULTING FROM FUTURE DEVELOPMENT (OP)						
AGRIC	RES	RES-H	COM	IND	INST	OPEN
-14.7	-5.3	0.0	0.0	60.35	-40.35	0.0

- Table 3 summarizes the various flow rates at a number of locations within Watercourse No. 7 (ref. Hydrology Appendix A, Figure 1):

TABLE 3 SUMMARY OF PEAK FLOWS (m <sup>3</sup> /s)							
Location	Land Use	Frequency (years)					
		2	5	10	20	50	100
Lake Ontario (7.7)	Future Zoning with Recommended works in place (including SWM storage at Arvin and Barton)	7.57	10.69	12.88	15.04	17.90	20.07
QEW (7.6)		7.52	10.63	12.80	14.93	17.79	19.99
Highway 8 West (7.1)		0.86	1.57	2.20	2.91	3.98	4.89
Highway 8 East (7.3)		2.13	3.33	4.27	5.28	6.73	7.91

- In addition to the analysis completed as part of the FDRP study, Watercourses 5, 6 and 7 have been subject to additional study (ref *Industrial Corridor – Master Drainage Plan Areas 5,6 and 7, Philips Planning and Engineering, 1990*). Several works recommended within this study have been constructed:
  - QEW and Service Road Culvert replacements (1994)
  - Diversion of drainage from Watercourses 6.4, 7.2 and 7.3 to Watercourse No. 7, and the associated channel works, immediately south of the South Service Road (1994)
- Remaining works from the Master Drainage Plan include:
  - Completion of MDP proposed channel works for Watercourses 5, 6 and 7 upstream and downstream of the QEW (South Service Road)
  - Siting and construction of stormwater management storage facilities which have been recommended, upstream of Barton Street for Watercourses 5, 6 and 7 (i.e. for “Ultimate” development beyond current OP).
- There are currently two stormwater quantity control facilities identified for the Watercourse No. 7 watershed: a dry SWM facility at Arvin Avenue (11,800 m<sup>3</sup>) and a dry SWM facility south of Barton Street (26,200 m<sup>3</sup>) for “ultimate” land use. Both facilities have been identified as potential sites for quality treatment, as part of the “Stormwater Quality Management Strategy, Community of Stoney Creek - Master Plan” (January 2003 - Draft).

## ***Transportation***

The study area is crossed by two major transportation corridors: the Queen Elizabeth Way (QEW) and Canadian National Railway (CNR).

Since the time of the *Industrial Corridor – Master Drainage Plan Areas 5, 6 and 7*, the Ministry of Transportation has completed reconstruction of the QEW corridor. This reconstruction has included culvert replacements, as well as local diversion of flows from minor watercourses along the QEW corridor to the larger watercourse systems.

The Watercourse No. 7 crossing of the QEW and service roads was completed in 1994 with twin 2.4 m by 1.8 m concrete box culverts, 104 m in length.

Table 4 provides a summary of the drainage system changes that have occurred as a result of the Ministry of Transportation works:

<b>TABLE 4 SUMMARY OF WATERCOURSE DIVERSIONS COMPLETED AS PART OF THE QEW CORRIDOR IMPROVEMENTS FOR WATERCOURSES 5, 6 AND 7</b>	
<b>Diverted Watercourse (WC)</b>	<b>Receiving watercourse</b>
WC 6.1	WC 6.2
WC 6.3	
WC 5.1	WC 6
WC 6.4	
WC 7.1	WC 7
WC 7.2	
WC 7.3	

## ***Fisheries***

- Contributions by the streams of the Community of Stoney Creek to fish production in Lake Ontario are made through providing spawning and nursery habitat to fish which spend their adult life in Lake Ontario. During April 1999, young-of-the-year (YOY) white suckers were captured in Watercourse 7.
- The fisheries resources within Watercourse No. 7 upstream of the QEW are significantly limited by the intermittent nature of surface flow within the creek and by the significant barrier to movement provided by the QEW culvert. The reach downstream of the QEW provides greater fisheries habitat potential than the upstream reach.
- In the 1999 sampling program, white sucker were found in Watercourse No. 7 between Barton Street and Lake Ontario. The western branch of Watercourse No. 7, upstream of the confluence at Arvin Street, has been classified as having intermittent flow, and the eastern branch as having perennial flow.

### ***Benthic Resources***

- Water quality improves in a downstream direction in Watercourse 7, likely a result of assimilative processes within the creek improving the water quality with distance from the discharge point (a substantial fraction of the baseflow in this stream originates from a discharge from within the E.D. Smith & Sons factory property)

This was also identified in the “Stormwater Quality Management Strategy, Community of Stoney Creek - Master Plan” (January 2003 - Draft), and in comments received from Hamilton Conservation Authority both on the information presented at Watercourse 7 Public Information Centre in October 2000, and on the Strategy. The issue has been forwarded to the City Water/Wastewater Division for further review/input. The Water/Wastewater Division has subsequently advised that the Ministry of the Environment would be the agency responsible for water quality issues related to discharges from the E. D. Smith & Sons property to Watercourse No. 7.

- Improvements to water quality should be explored (either source treatment or pond or marsh treatment after discharge but near the source) while attempting to maintain the existing flow.
- With water quality stability, this watercourse has the potential to become good fish habitat, though artificially sustained.
- Habitat within this stream is fairly diverse, though it is likely that this watercourse was straightened in the past.

### ***Water Quality***

- The model approach is based on the Event Mean Concentration (EMC) for each constituent and land use category. Combined with typical annual rainfall values for the geographic area, contaminant loading for the study area subwatersheds has been calculated.
- The mass balance model for Study Area includes estimation of annual pollutant loads for the following parameters (which have been interpreted as the primary pollutants associated with urban and agricultural land usage):
  - *ammonia*
  - *biochemical oxygen demand (BOD<sub>5</sub>)*
  - *copper*
  - *fecal coliform*
  - *poly-aromatic hydrocarbons (PAH)*
  - *total kjeldahl nitrogen (TKN)*
  - *total phosphorus (TP)*
  - *total suspended solids (TSS)*
  - *zinc*

TABLE 5 SUMMARY OF ANNUAL POLLUTANT LOADINGS (kg/yr) FOR FUTURE LAND USE CONDITIONS (WITH NO STORMWATER QUALITY CONTROL)								
Ammonia	BOD <sub>5</sub>	Copper	Fecal Coli. (counts/yr)	PAH	TKN	TP	TSS	Zinc
444.5	9470.3	34.7	1.26E+14	1.4	1880.1	271.9	198177	174.6

TABLE 6 PERCENTAGE CHANGE IN ANNUAL POLLUTANT LOADINGS UNDER FUTURE LAND USE CONDITIONS								
Ammonia	BOD <sub>5</sub>	Copper	Fecal Coli.	PAH	TKN	TP	TSS	Zinc
24.8	49.0	53.7	34.2	60.5	25.6	17.9	29.5	69.5

### *Terrestrial Resources*

- According to the “Stoney Creek Open Space and Natural Areas Inventory”, City of Stoney Creek, 1999, there is an existing Riparian Corridor along the Watercourse No. 7. This corridor is listed as being in “fair health”, with weeping willows, and black maples as the dominant tree species, and the eastern kingbird and American toad have been identified in these sites (C4-4 and C4-5, ref. Appendix B).
- The Niagara Escarpment is registered as the Stoney Creek Environmentally Significant Area (ESA) STCK-76 Devil’s Punch Bowl/ Escarpment. There are three Class 3 Open Spaces (Rehabilitation Areas) listed between Highway #8 and Barton Street, along the riparian corridor.

### *Heritage Resources*

- The study area contains a number of buildings of historic significance, however none of these are located in the Watercourse No. 7 flood plain, and hence would not be affected by the proposed creek system improvements.

## 5. SCREENING OF CREEK SYSTEM MANAGEMENT ALTERNATIVES

Based on consideration of the baseline environmental conditions and the work completed as part of the Master Drainage Plan and Flood Damage Reduction Program, a variety of creek system management solutions have been generated and subjected to an initial screening process. The purpose of this process has been to determine a range of reasonable management alternatives directed at addressing the issues stated in the Problem Statement, namely mitigating erosion and flood potential in Watercourse No. 7, while maintaining or improving in-stream and riparian habitat.

Each creek system management alternative has been assessed in terms of its functional effectiveness to address the following:

- flooding,
- erosion,
- water quality, and,
- aquatic/creek corridor habitat.

The creek system management alternative strategies, which have been proposed for screening include:

### A. Do Nothing (i.e. no creek improvements)

This alternative would involve no creek system improvements. Erosion potential within the watercourse would continue as development proceeds. This approach (i.e. Do Nothing) would not address potential impacts on flooding, water quality or associated fisheries habitat, as required by Provincial and Federal policies, therefore, it has been considered unacceptable. In addition, the existing floodplain defined as part of the FDRP significantly constrains future development opportunities, thereby negatively affecting implementation of the Municipality's Official Plan.

### B. Watercourse Conveyance Improvements

Improvements to the watercourse have been considered to address existing and future land use flooding and erosion potential. Based on field inspection of the existing watercourse form, implementation of watercourse improvements would address flooding and erosion concerns by increasing the existing channel and floodplain capacity and its ability to resist channel erosion through alteration of the stream cross-section and alignment, as necessary to provide a stable stream form.

Improving the watercourse's capacity and ability to resist erosion may be implemented in one or more of the following ways:

- (i) Enclosure (piping and culverts), offering no aquatic habitat and limited terrestrial habitat.
- (ii) Channelization (hardening) of the watercourse bed and banks with concrete, armour stone, gabion lining or rip rap material. Impacts on the existing land usage would be minimized by straightening the proposed watercourse alignment and normalizing cross-section characteristics. This form of watercourse improvement offers limited natural habitat potential.
- (iii) Naturalized channel design, which would involve realignment of the low-flow and bankfull flow watercourse location and changes to the watercourse channel cross-section and floodplain to establish a stable stream form. This method would provide a natural stream form with high natural habitat potential. The requirements for alteration of the watercourse location and channel/floodplain relationship may impose constraints on the adjacent development lands. Armour stone or gabion structures may be used where required for vertical grade control, subject to appropriate vegetation being integrated with the stone.

*Sample Channel Design Photos:*



*Armour Stone*



*Gabion Stone Baskets*



*Vegetative Bioengineering*

### **C. Flood and Erosion Control Storage**

The storage alternative would involve construction of stormwater management facilities to control flooding and erosion, by reducing the flow rates.

In order to be effective in controlling peak flows and volumes, and hence reducing flooding potential on the downstream development lands, the flood storage system will need to be an on-line system located upstream of the development lands.

Reduction of peak flow rates would reduce the cost of downstream infrastructure improvements (i.e. channel and culvert sizes could be reduced).

#### **D. Combination of Watercourse Improvements with Flood and Erosion Storage**

This alternative would involve the implementation of watercourse improvements, as noted in the foregoing (Alternative "B"), in conjunction with stormwater quantity controls (Alternative "C"), in order to address flood and erosion control requirements in accordance with Provincial standards. The storage would reduce peak flows downstream, decreasing erosion and flooding as well as reducing the cost of watercourse improvements.



## 6. EVALUATION OF STORMWATER MANAGEMENT ALTERNATIVES

Based on screening the foregoing alternatives, the following short-list of Creek System Management Alternatives have been advanced to resolve the flood protection, erosion control and habitat issues previously identified. They include:

- Alternative A*            *“Do Nothing” (i.e. Base of Existing Condition)*
- Alternative B (iii)*   *Watercourse Conveyance Improvements (Employing Naturalized Channel Design)*
- Alternative D*           *Combination of Watercourse Improvements with Flood and Erosion Storage*

Each of the alternatives to address the problem statement has been assessed, initially, through a screening process, whereby less feasible or less functional alternatives have been screened from further consideration. Once screened, a more advanced evaluation of the short-listed alternatives is conducted.

While the “Do Nothing” alternative does not address the study goals and objectives, it is carried forward to allow for a comparison of alternatives to existing conditions.

### 6.1 Alternatives Screened from Further Consideration

#### *Alternatives B (i), B (ii) – Enclosure or Hardening of the Bed and Banks of the Watercourse*

These alternatives do not address the study goals and objectives. This type of channelization is not environmentally beneficial, on account of the loss of aquatic and riparian habitat, and is not included on the short list of alternatives.

#### *Alternative C – Flood and Erosion Control Storage*

This alternative only partly addresses a major cause of flooding and channel instability. This alternative does not address the existing undersized culverts, and existing flood plain. In order to achieve the full development potential of the study area, storage controls (without channel and culvert improvement works) would have to be significantly larger than proposed in the MDP.

Storage as a stand-alone solution has been screened out, however there remains a benefit to implementing storage as part of an integrated solution of storage and channel system improvements which provides both the preferred approach for downstream geomorphic protection, and a net benefit for fisheries functions within the creek.

## 6.2 Short-List Screening Considerations

In order to assess the alternatives, it has been necessary to employ an evaluation system to determine the suitability of each alternative, against appropriate “evaluation factors”. The evaluation factors consist of a two-tier hierarchy of impacts/issues organized by Evaluation Category, which have been supplemented by more detailed and specific Evaluation Criteria.

A broad description of the type of impacts or issues under consideration, includes:

- (i) **Functional** – Impacts that an alternative may have on how a system is intended to work
- (ii) **Biophysical Environment** – Impacts that an alternative has on the physical environment (i.e. hydrology, hydraulics, vegetation, aquatic habitat)
- (iii) **Social** – Impacts/issues relating to the interaction of the community/neighbourhood with the implementation of the proposed alternatives
- (iv) **Economic** – Immediate and future costs and cost-benefit of the alternatives presented including maintenance

**TABLE 7  
EVALUATION APPROACH**

Evaluation Category	Evaluation Criteria	Criteria Description
Functional	1. Impact on the Conveyance of Existing Storm Water Runoff from the Watershed Area	This criterion relates to how effective the respective alternatives are in improving the conveyance of stormwater runoff (i.e. does it reduce peak flows and flood levels?).
	2. Opportunity to Improve "Structural" Deficiencies at Crossings Located Along the Watercourse	Each alternative can, to varying degrees, address the problem of erosion along the directly affected watercourse.
Biophysical Environment	1. Ability to Mitigate Future Erosion and Scouring	Through either reduced duration of erosive flows and or stabilization.
	2. Impacts on Terrestrial Habitat & Vegetation	Terrestrial habitat and vegetation will be affected in the short-term through construction and in the long-term associated with the configuration of the works. If creek erosion will continue unabated, this is also considered to be negative, given that there will be an inherent loss of vegetation.
	3. Impacts on Aquatic Habitat and Water Quality	Depending on the alternative, there may be an enhancement of aquatic habitat in either Watercourse 7 or Lake Ontario.
Social	1. Opportunity to Improve on Informal Recreational Use of Watercourse	Depending on the configuration of the preferred solution, informal recreational access (trails) may be afforded.
	2. Ability to Improve Public Safety	Depending on the configuration of the alternative, the site may be considered safer.
	3. Impacts on Properties Adjacent to the Watercourse	Depending on the solution, properties adjacent to the works will not only have property benefit (smaller floodplain) but they may also have certain benefits from a landscape perspective. Near the proposed SWM facilities, there may also be a perceived negative impact to landowners from the threat of disease such as the West Nile Virus.
Economic	1. Capital Costs	High costs are negative. Low costs are positive.
	2. Maintenance Costs	High costs are negative. Low costs are positive.

Based on the foregoing evaluation methodology, each of the proposed design alternatives have been qualitatively assessed as to their potential impacts on each of the Evaluation Criteria using a "positive", "neutral", and "negative" rating system. Table 8 presents the evaluation matrix developed for these alternatives:

**TABLE 8  
CREEK SYSTEM IMPROVEMENT ALTERNATIVES  
QUALITATIVE SCREENING EVALUATION**

<b>Evaluation Category</b>	<b>Evaluation Criteria</b>		<b>Alternative A Do Nothing</b>	<b>Alternative B (iii) Watercourse System Improvements</b>	<b>Alternative D Combination of Alternatives B (iii) (Conveyance) and C (Storage)</b>
Functional	1.	Impact on the Conveyance of Existing Storm Water Runoff from Subwatershed Area	Negative	Positive	Positive
	2.	Opportunity to Improve "Structural" deficiencies at Crossings located along the Watercourse	Negative	Positive	Positive
Physical Environment	1.	Ability to Mitigate Future Erosion and Scouring	Negative	Neutral (offers some resistance, but only addresses the symptoms)	Positive (addresses the cause)
	2.	Impacts on Terrestrial Habitat & Vegetation (short term)	Neutral (neither destroys nor enhances habitat)	Neutral/Negative	Neutral/Negative
	3.	Impacts on Terrestrial Habitat & Vegetation (long term)	Neutral (neither destroys nor enhances habitat)	Positive	Positive
	4.	Impacts on Aquatic Habitat and Water Quality	Neutral/Negative (neither destroys nor enhances habitat, but would continue to degrade)	Positive	Neutral (positive for watercourse but negative for on-line facility)
Social	1.	Opportunity to Improve on Informal Recreational Use of Watercourse	Negative	Neutral	Neutral
	2.	Ability to Improve Public Safety	Negative	Neutral	Neutral/Negative (detention facility in industrial setting)
	3.	Impacts on Properties Adjacent to Watercourse	Neutral	Neutral (Positive for improvement, but negative for land consumption if storage not employed)	Neutral/Positive (Positive for land and aesthetics, but negative for potential perceived health concerns)
Economic	1.	Capital Costs	Positive	Negative	Neutral/Negative (lower flows = smaller culvert sizes)
	2.	Maintenance Costs	Negative (future maintenance problems)	Neutral	Neutral/Negative

## 7. PREFERRED CREEK SYSTEM MANAGEMENT ALTERNATIVE

### 7.1 Short List

The remaining alternatives: “Alternative B (iii)”, and “Alternative D” for stormwater management, have been considered for further detailed investigation.

These alternatives address the primary concerns, noted in the problem statement, of:

- Providing floodplain management,
- Addressing the erosion potential (i.e. from urbanized runoff) through stormwater management,
- Rehabilitating degraded and/or erosion-prone stretches of the channel with natural channel design, enhancing existing aquatic and terrestrial habitat.

The advantages and disadvantages of the short-listed alternatives are summarized in Table 9:

TABLE 9 COMPARATIVE ASSESSMENT OF SHORT-LIST		
Alternative	Pros	Cons
B (iii). Watercourse System Improvements	<ul style="list-style-type: none"> <li>• Improved conveyance</li> <li>• Addresses flooding and erosion</li> <li>• Natural channel design is less expensive to construct per metre than hardened channel designs</li> </ul>	<ul style="list-style-type: none"> <li>• larger channel and culverts required to convey peak flows: overall more expensive to construct</li> <li>• more land required for channel</li> <li>• erosion concerns must be addressed through watercourse stabilization, only as opposed to in combination with flow control</li> <li>• Localized impacts on terrestrial habitat and vegetation (especially existing low-flow channel)</li> <li>• Cannot be used to help address City and MOE stormwater quality treatment requirements for new development</li> </ul>
D. Watercourse System Improvements and Flood & Erosion Control Storage	<ul style="list-style-type: none"> <li>• Improved conveyance</li> <li>• Addresses flooding and erosion</li> <li>• Reduced potential for future erosion, scouring, and down-cutting</li> <li>• Smaller channel and culverts required to convey peak flows: overall less expensive to construct</li> <li>• less land required for channel</li> <li>• Opportunity for improved aquatic habitat</li> <li>• Can provide stormwater quality treatment, using flood control facility footprint</li> </ul>	<ul style="list-style-type: none"> <li>• Localized impacts on terrestrial habitat and vegetation (especially existing low-flow channel)</li> <li>• Need for public safety protection measures due to ponding water</li> <li>• Potential barrier to fish migration if on-line</li> <li>• SWM facility requires land, capital and maintenance</li> </ul>

Based on the foregoing factors, as well as input received from the agencies and public, Alternative D has been advanced as the Preferred Solution.

## 7.2 Watercourse System Improvement & Flooding and Erosion Control Storage

A preliminary design of the Watercourse 7 improvements has been completed, including a detailed design for the reach between Lake Ontario and the South Service Road (ref. Appendix G).

Key design considerations include:

### *Environmentally "Current" Design Features*

In order to achieve a net gain of both aquatic and terrestrial habitat, the watercourse improvements will require a mixture of natural channel design techniques. The watercourse can incorporate habitat structures and plantings to enhance the existing conditions, while creating a stable system from a hydraulic perspective. Although the QEW culvert poses a barrier to fish movement, the watercourse will be designed to promote fish migration throughout its entire length. All culverts (Seabreeze, CNR, and Arvin) will be designed as short as possible, and with a natural substrate bottom (either open-footing or embedded design).

### *Property Constraints North of Seabreeze*

The channel design has been constrained horizontally through this reach, on account of property requirements. The channel cross-section, while u-shaped, will convey the flows through a series of drop structures, while retaining in-stream fish habitat and addressing fish passage concerns (the design has been previously approved by the DFO ref. Appendix G).

### *Tunneling/Jacking Under the CN Railway*

The CNR culvert will need to be designed to meet the specific CNR railway crossing criteria. Engineering practice suggests that this culvert would need to be tunneled, or jacked under the railway, to avoid rail service interruption. Special pipe and flagging controls are required.

The proposed invert of the watercourse under the CNR would need to be set at the maximum height allowed by the combination of the hydraulic and cover constraints (i.e. culvert sized to convey the design flows without flooding, overtopping, or backwater effects). A deeper culvert would be technically feasible to construct, however the costs would outweigh the benefits of lowering the entire watercourse. The ultimate elevation of the watercourse will be addressed at the final design stage. The proposed elevation allows for full drainage of the study area, however it may be impacted by development constraints (e.g. landowners wishing to lower the channel to limit grading requirements on their properties).

### *Arvin Avenue Stormwater Facility Decommissioning*

The small, existing stormwater quantity control facility (City-owned) west of Watercourse No. 7 can be decommissioned when the full Arvin Avenue facility is constructed.

## Facility Design for Stormwater Quality

At the time of the MDP (1989), there were no requirements for new development to address stormwater quality. The Watercourse No. 7 design will reflect the current agency requirements, by allowing the potential for retrofit of the proposed quantity facility for quality management purposes. The details of the stormwater quality requirements are found in the "Stormwater Quality Management Strategy, Community of Stoney Creek - Master Plan" (January 2003 - Draft).

### 7.3 Agency and Public Comments

A total of 11 members of the public attended the Public Information Centre. One comment sheet was completed and submitted to the City. One watershed resident expressed their concerns in a subsequent letter, responding to the advertised Notice of Public Information Centre.

Subsequent to the Public Information Centre, the following Agencies and members of the Public responded in writing:

TABLE 10 AGENCY AND PUBLIC COMMENTS			
Agency/Public	Address	Concerns	How Does The Preferred Solution Address The Concern?
Hamilton Region Conservation Authority	Hamilton	Can the QEW culvert, currently acting as a barrier, be removed?  Can SWM ponds reduce projected pollutant loadings?  Will the proposed on-line ponds negatively affect fish habitat?  (Other minor comments have been addressed in the body of the report).	The QEW culvert design was carried out by the MTO in the early 1990's. Any changes to the culvert would come through the MTO. A fisheries study accompanied the design.  Proposed stormwater ponds are also identified in the City's Water Quality Management Strategy for stormwater quality treatment, through retrofit, at the time of development.  The Arvin facility will have an unrestricted low-flow channel for fish passage (the Barton facility is at the head of the open channel system). Stormwater quality design will also protect for fish passage.
Ministry of the Environment	Hamilton	Would like to see more screening details, and a comparison of advantages and disadvantages of the short-listed alternatives.	Both have been added to the Class EA report (ref. Sections 6 & 7).
Ministry of Transportation	Toronto	Request to be circulated on detailed design	A copy of the final analysis and design will be circulated.
Public	McNeilly Road	Local drainage	The Watercourse 7 design will allow for functional drainage of the watershed, in accordance with the Master Drainage Plan, and no existing residents will be negatively impacted from a flooding, erosion, or habitat perspective.  Local development around the resident will have to comply with the overall drainage grading requirements, as well as the City's site-specific guidelines for development.
Public	Barton Street	Alignment of watercourse from Barton Street north to the CNR	Alignment has been modified as per of the landowner request.
Public	McNeilly Road	Local drainage issues	The Watercourse 7 design will allow for functional drainage of the watershed, in accordance with the Master Drainage Plan, and no existing residents will be negatively impacted from a flooding, erosion, or habitat perspective.  Local development around the resident will have to comply with the overall drainage grading requirements, as well as the City's site-specific guidelines for development.  Several comments can be addressed through providing the resident with access to a copy of the approved Master Drainage Plan.

## 7.4 Preliminary Cost Estimate

The cost for the Watercourse No. 7 works was first identified and estimated in the 1989 Master Drainage Plan. As noted in the introduction, a detailed design of the proposed works followed in the early 1990's. The City (at that time Stoney Creek) entered into cost-sharing negotiations with the Ministry of Transportation (1991). The QEW widening, including the core lane and South Service Road culvert replacement, and watercourse diversions, was constructed in 1994.

The then City of Stoney Creek divided the works into three Phases, and updated the construction cost estimate in 1997, accounting for inflation, and improvements in construction methods and materials. The City of Stoney Creek then advanced the detailed design of the first Phase from Lake Ontario to the South Service Road. The design was modified to reflect the changes in Agency regulations and permitting with respect to fisheries and terrestrial habitat. The modified design of that particular reach was estimated to be less costly than the original design. The design for the downstream section was fully approved in 1998 (ref. Appendix G).

The following estimate for the entire works is a compilation of previous cost estimates, with consideration given to the costs associated with naturalized channel design.

TABLE 11 PRELIMINARY COST ESTIMATE		
Phase/Section	Length (m)	Total \$
Lake Ontario to South Service Road (SSR)	318	387,500
QEW and SSR culvert (City Share)	100	81,000
SSR to 130 m south of CNR	557	600,000
130 m south of CNR to Barton	365	400,000
SWM facility	120	100,000
<b>Subtotal</b>		<b>1,568,500</b>
Contingency (Engineering and Legal 15%)		235,275
<b>Total Estimated Cost</b>		<b>\$ 1,803,775</b>

The above cost estimate does not include land. The City has secured the necessary easements for construction of the portion of the Watercourse from the South Service Road to Lake Ontario.

Negotiations have not yet commenced for the purchase of the balance of the required land and/or easements. Once the Class EA for Watercourse 7 is complete, the City of Hamilton will begin to obtain the necessary land and/or easements.



## 8. CONCLUSIONS AND RECOMMENDATIONS

A short list of alternatives was developed, and screened through the Class EA process. These alternatives address the primary concerns, noted in the problem statement, of:

- Providing floodplain management,
- Addressing the erosion potential (i.e. from urbanized runoff) through stormwater management,
- Rehabilitating degraded and/or erosion-prone stretches of the channel with natural channel design, enhancing existing aquatic and terrestrial habitat.

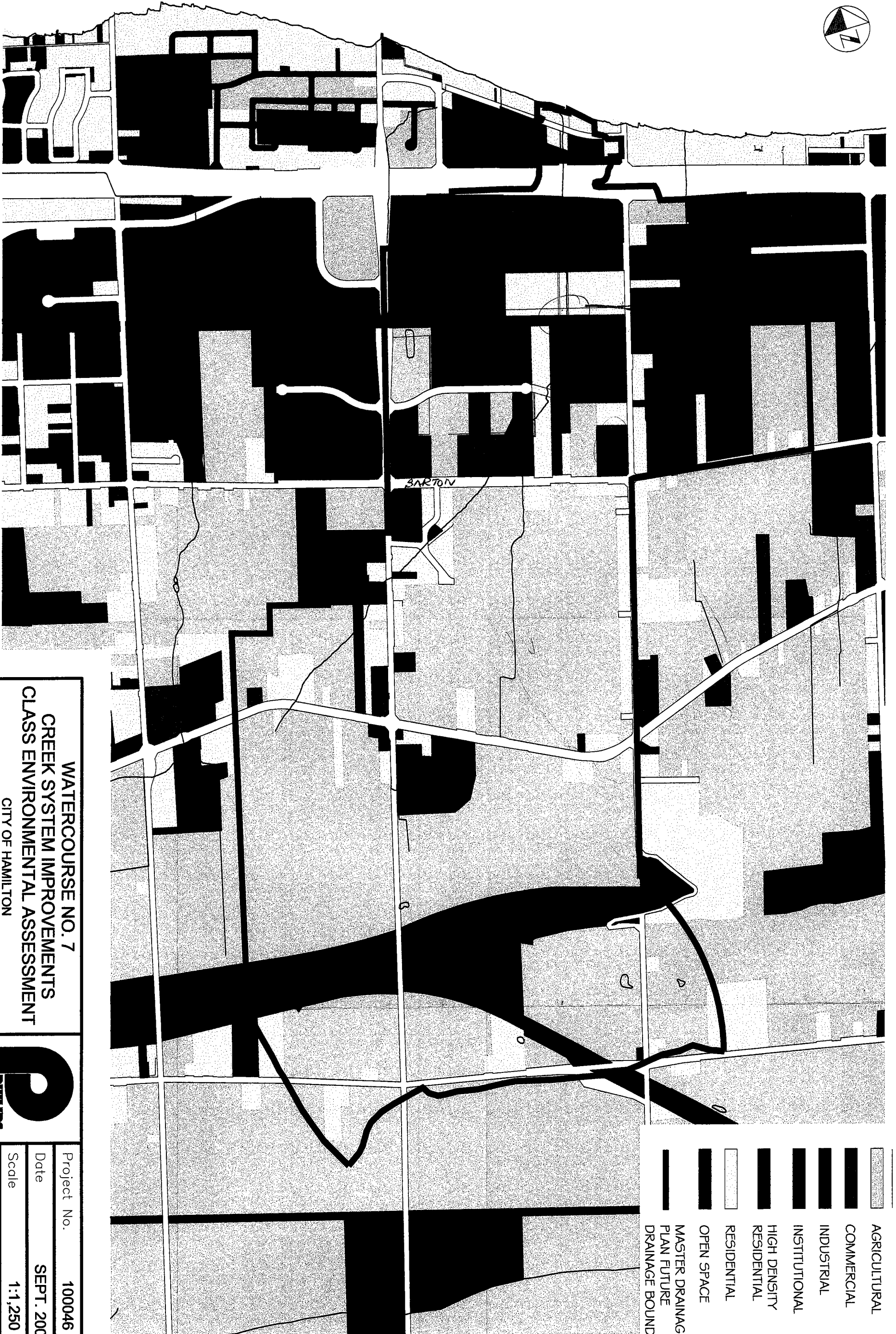
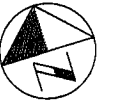
The advantages of combining storage and watercourse system improvements are as follows:

- Improved conveyance
- Addresses flooding and erosion
- Reduced potential for future erosion, scouring, and down-cutting
- Smaller channel and culverts required to convey peak flows: overall less expensive to construct
- less land required for channel
- Opportunity for improved aquatic habitat
- Can provide stormwater quality treatment, using flood control facility footprint

Based on the foregoing factors, as well as input received from the agencies and public, Alternative D "Combination of Watercourse Improvements with Flood and Erosion Storage" has been advanced as the Preferred Solution.

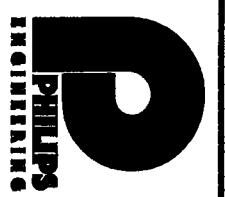
The total estimated cost of the works is \$ 1.8 million.

# LAKE ONTARIO



- LEGEND**
- AGRICULTURAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - HIGH DENSITY RESIDENTIAL
  - RESIDENTIAL
  - OPEN SPACE
  - MASTER DRAINAGE PLAN FUTURE DRAINAGE BOUNDARY

**WATERCOURSE NO. 7**  
**CREEK SYSTEM IMPROVEMENTS**  
**CLASS ENVIRONMENTAL ASSESSMENT**  
 CITY OF HAMILTON  
 EXISTING LAND USE



Project No.	100046
Date	SEPT. 2003
Scale	1:1,250
Figure No.	4

PK 01

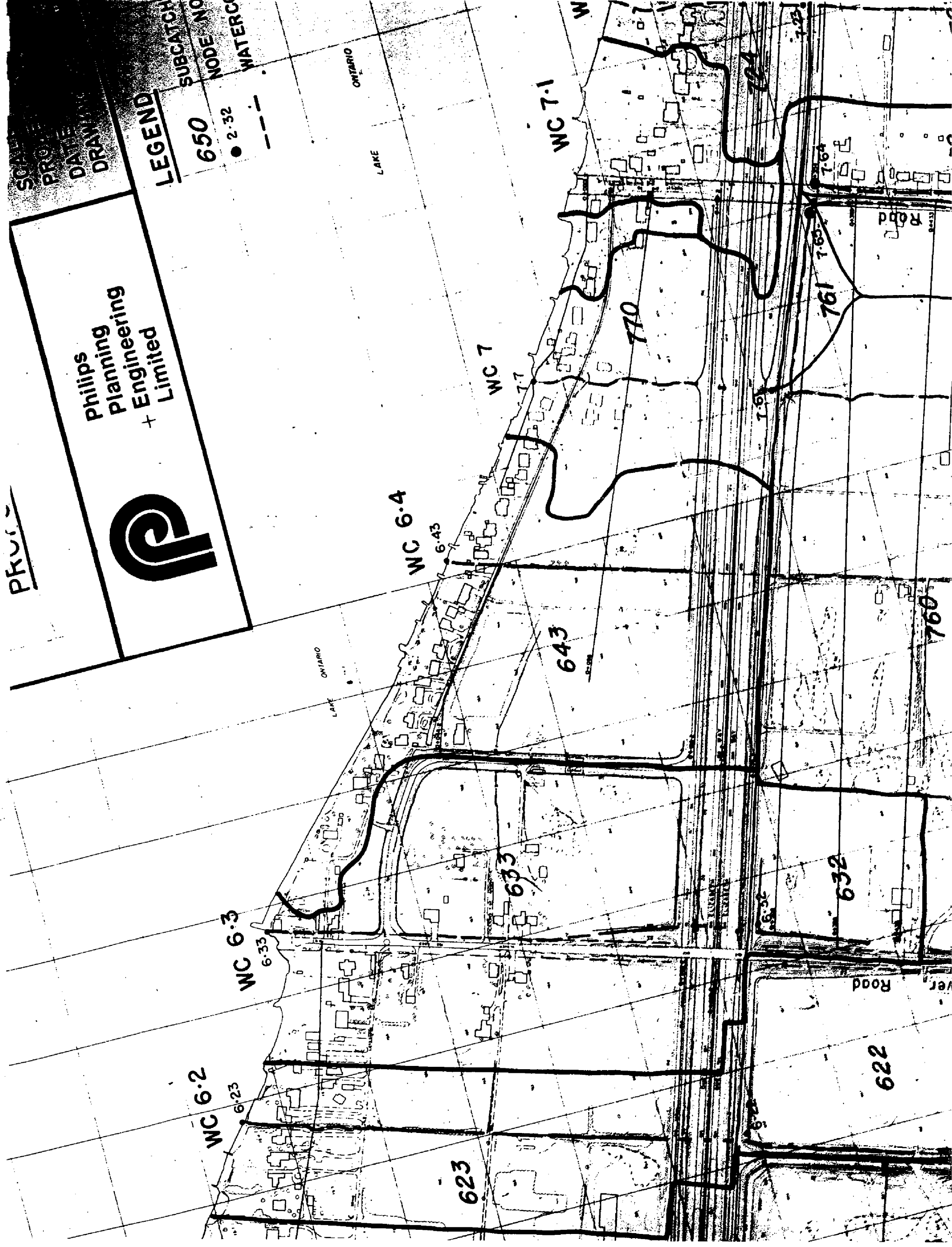
Philips  
Planning  
+ Engineering  
+ Limited



SCALE  
PROJECT  
DATE  
DRAWING

**LEGEND**

- SUBCATCH 650
- NODE NO ● 2.32
- WATERCUT ---



**APPENDIX C**

**Public Record**



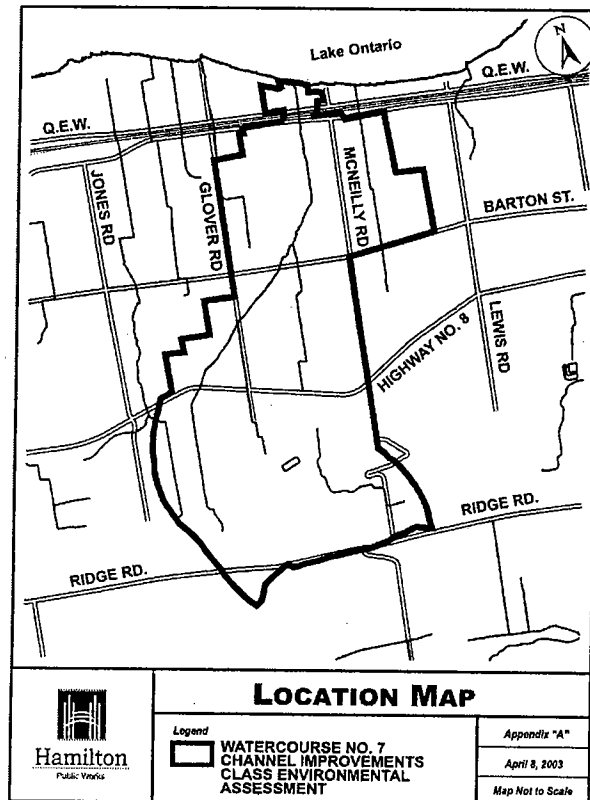


Hamilton

## NOTICE OF PUBLIC INFORMATION CENTRE Watercourse No. 7 Creek System Improvements

### THE STUDY

The City of Hamilton initiated the Class Environmental Assessment (EA) process in 2000 to determine the best solution for improvements to Watercourse No. 7 Creek that would address flooding, erosion and habitat concerns within this watercourse. Watershed No. 7 outfalls to Lake Ontario west of McNeilly Road, generally flowing in a northerly direction. (see map).



Based on the changes that had taken place in provincial and federal regulations, the designs that had been previously prepared for Watercourse No. 7 needed updating to reflect current standards. Several alternatives have been identified to resolve flooding, erosion and habitat issues, including watercourse system improvements and flood and erosion control storage.

## **THE PROCESS**

The project is being planned under the planning and design process for **Schedule B** projects as defined in the Municipal Engineers Association's *Municipal Class Environmental Assessment* document (June 2000).

Upon completion of the study, a Project File Report will be available for public review and comment. Another advertisement will be published at that time, indicating where and how the public can have access to the report.

## **PUBLIC INFORMATION CENTRE**

The following Public Information Centre will be held to present this project and receive public input:

DATE: Wednesday June 18, 2003

TIME: 5:00 p.m. to 8:00 p.m.

LOCATION: Stoney Creek Municipal Centre, 777 Highway No. 8

## **PUBLIC COMMENTS INVITED**

There is an opportunity at any time during this process for interested persons to review outstanding issues and bring concerns to the attention of the Project Manager. If you have any questions or comments or wish to be added to the study mailing list, please contact:

Jill Stephen P. Eng.  
Project Manager (Watershed Planning)  
Capital Planning and Implementation Division  
Public Works Department  
City of Hamilton  
Hamilton, ON, L8R 3M8  
Tel: (905) 540-6392  
Fax: (905) 546-4435  
E-mail: [jstephen@hamilton.ca](mailto:jstephen@hamilton.ca)

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

This Notice issued May 28, 2003.



**Hamilton**

**WATERCOURSE No. 7  
CREEK SYSTEM IMPROVEMENTS**

**“ALTERNATIVE ASSESSMENT &  
PREFERRED SOLUTION”**

***Introduction***

The City of Hamilton intends to undertake works to address the problem of the impacts of urbanization on flooding, water quality and erosion in Watercourse No. 7, between Barton Street and Lake Ontario. The works were previously documented as part of an approved Master Drainage Plan (1989). Given the changes that have occurred to the Environmental Assessment Act and various Provincial and Federal government mandates related to watercourse management and design, the City is required to update the design of Watercourse No. 7 to current standards. This evening's meeting presents the findings and recommendations of the environmental study, as well as a preliminary design which includes features requested by both the agencies and the Public at an earlier Information Centre.

***Alternative Assessment***

**LONG LIST OF ALTERNATIVES**

Based on consideration of the baseline environmental conditions and the work completed as part of the Master Drainage Plan and Flood Damage Reduction Program, a variety of creek system management solutions have been generated and subjected to an initial screening process.

Each creek system management alternative has been assessed in terms of its functional effectiveness to address the following:

- flooding,
- erosion,
- water quality, and,
- aquatic/creek corridor habitat.

The creek system management alternative strategies, which have been proposed for screening include:

- A. Do Nothing (i.e. no creek improvements)**
- B. Watercourse Conveyance Improvements**
- C. Flood and Erosion Control Storage**
- D. Combination of Watercourse Improvements with Flood and Erosion Storage**

**SCREENING OF ALTERNATIVES**

In order to assess the alternatives, it has been necessary to employ an evaluation system to

determine the suitability of each alternative, against appropriate "evaluation factors": **Functional, Biophysical Environment, Social, Economic, & Constructability.**

**PREFERRED SOLUTION**

Undertaking a combination of watercourse system improvements and flood & erosion control storage (Alternative D) has been selected as the preferred solution.

The advantages and disadvantages of the preferred alternative are summarized below:

**PROS**

- Improved conveyance
- Addresses flooding and erosion
- Reduced potential for future erosion, scouring, and down-cutting
- Smaller channel and culverts required to convey peak flows: overall less expensive to construct
- less land required for channel
- Opportunity for improved aquatic habitat
- Can provide stormwater quality treatment, using flood control facility footprint

**CONS**

- Localized impacts on terrestrial habitat and vegetation (especially existing low-flow channel)
- Need for public safety protection measures due to ponding water
- Potential barrier to fish migration if on-line
- SWM facility requires land, capital and maintenance







**Hamilton**

**WATERCOURSE No. 7  
CREEK SYSTEM IMPROVEMENTS**

**“ALTERNATIVE ASSESSMENT &  
PREFERRED SOLUTION”**

**Technical Steering Committee**

- City of Hamilton
- Hamilton Conservation Authority

**Study Team**

- Philips Engineering Ltd. (Water Resources)
- Parish Geomorphics (Fluvial Geomorphology)
- C. Portt and Associates (Fisheries Resources)
- Dougan and Associates (Terrestrial Resources)

**Overall Study Process**

The Municipal Class Environmental Assessment document describes the decision making process that the Study Team must follow to select a preferred solution. The Class EA process provides:

- A reasonable mechanism for proponents to fulfill their responsibilities to the public for the provision of services in an efficient, timely, economic, and environmentally responsible manner;
- A consistent, streamlined and easily understood process for planning and implementing projects; and
- The flexibility to tailor the planning process to a specific project taking into account the environmental setting, local public interests and unique project requirements.

**Next Steps**

Following this meeting, the Class EA will be updated based on your input. It will then be made available to the Public for final review through a formal Notice of Completion. Subject to comments received, the City of Hamilton intends to proceed with the final detailed design of this project by Fall 2003.

**Request for Comments**

Members of the Public are encouraged to comment on the information presented at tonight's Public Information Centre. It is requested that comments be submitted in writing prior to July 4, 2003, to either the parties listed below. If you wish to receive additional information or wish to provide input to the study, please contact:

Jillian Stephen, P.Eng.  
Project Manager (Watershed Management)  
City of Hamilton  
Transportation, Operations and Environment  
Department  
Infrastructure and Environmental Planning Division  
320-77 James Street N., Hamilton, ON L8R  
2K3

Phone: 905-546-2424 ex.6392 Fax: 905-546-4435  
[jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)

or,

Brian Bishop  
Project Engineer, Philips Engineering Ltd.  
3215 North Service Road, P.O. Box 220  
Burlington, Ontario L7R 3Y2

Phone: 905-335-2353 Fax: 905-335-1414  
[bbishop@philipseng.com](mailto:bbishop@philipseng.com)

**Thank-you.**



## NOTICES

# NOTICE OF PUBLIC INFORMATION CENTRE Watercourse No. 7 Creek System Improvements

### THE STUDY

The City of Hamilton initiated the Class Environmental Assessment (EA) process in 2000 to determine the best solution for improvements to Watercourse No. 7 Creek that would address flooding, erosion and habitat concerns within this watercourse. Watershed No. 7 outfalls to Lake Ontario west of McNeilly Road, generally flowing in a northerly direction. (see map).

Based on the changes that had taken place in provincial and federal regulations, the designs that had been previously prepared for Watercourse No. 7 needed updating to reflect current standards. Several alternatives have been identified to resolve flooding, erosion and habitat issues, including watercourse system improvements and flood and erosion control storage.

### THE PROCESS

The project is being planned under the planning and design process for **Schedule B** projects as defined in the Municipal Engineers Association's *Municipal Class Environmental Assessment* document (June 2000).

Upon completion of the study, a Project File Report will be available for public review and comment. Another advertisement will be published at that time, indicating where and how the public can have access to the report.

### PUBLIC INFORMATION CENTRE

The following Public Information Centre will be held to present this project and receive public input:

**DATE:** Wednesday, June 18, 2003  
**TIME:** 5:00 p.m. to 8:00 p.m.

**LOCATION:** Stoney Creek Municipal Centre,  
777 Highway No. 8

### PUBLIC COMMENTS INVITED

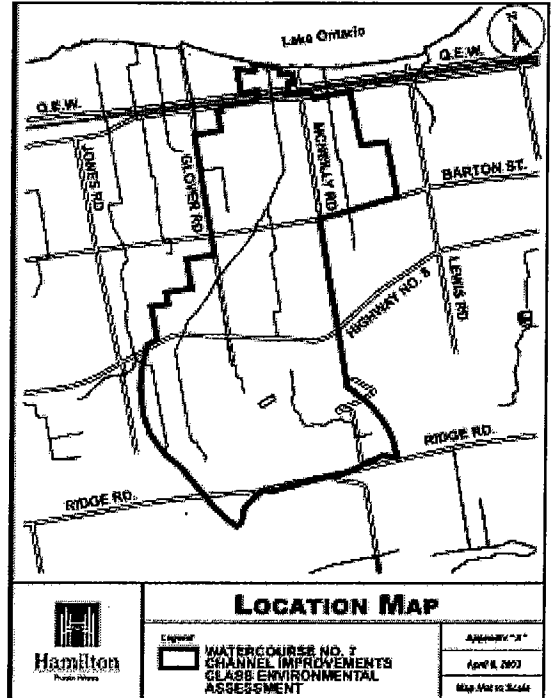
There is an opportunity at any time during this process for interested persons to review outstanding issues and bring concerns to the attention of the Project Manager. If you have any questions or comments or wish to be added to the study mailing list, please contact:

Jill Stephen, P. Eng.  
Project Manager (Watershed Management)  
Capital Planning and Implementation Division  
Public Works Department  
77 James St. N., Suite 320, Hamilton, ON, L8R 2K3  
Tel: (905) 540-6392 Fax: (905) 546-4435  
E-mail: jstephen@hamilton.ca

Ron Scheckenberger, M. Eng., P. Eng.  
Project Manager, Phillips Engineering Ltd.  
3215 North Service Rd., P.O. Box 220,  
Burlington, ON L7R 3Y2  
Tel: (905) 335-2535 Fax: (905) 335-1414  
E-mail: rscheckenberger@phillipseng.com

Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record.

This Notice issued May 28 and June 4, 2003.



## NOTICE OF PUBLIC MEETING OF THE HEARINGS SUB-COMMITTEE

**Date:** Monday, June 23, 2003  
**Time:** 7:00 p.m.  
**Location:** Council Chambers, 1st floor, City Hall  
777 Highway No. 8, Stoney Creek, ON

### Amendment to Regional Official Plan Amendment No.12 (ROPA 12) – Establishment and Addition of new Environmentally Significant Areas.

The Public Meeting notice, and the subsequent Notice of Adoption advertised in the City Connections flyer on March 26, 2003, and May 7, 2003, respectively, incorrectly identified the location of 2 Environmentally Significant Areas. The correct locations are as follows:

1. The Environmentally Significant Areas on lands identified as **Big Creek Headwaters Complex** are located:
  - North of Governor's Road, South of Concession 2 West, East of Woodhill Road, West of Highway No. 52.
2. The Environmentally Significant Areas on lands identified as **North Seneca Wetland** are located:
  - North of Haldibrook Road, South of Chippewa Road West, East of Glancaster Road, and West of Highway No. 6.

An Amendment to ROPA No.12 will be considered at this meeting to correct the location errors contained in the Amendment.

### Public Input

The Hearings Sub-Committee will consider this City Initiative at a Public Meeting at the above noted time and location. You are invited to attend at that time to express your views about the proposal. You may also submit written comments to the City Clerk, Hearings Sub-Committee, City of Hamilton, 71 Main Street West, Hamilton, ON, L8P 4Y5.

### Appeals

In accordance with the provisions of the Planning Act, if a person or public body that files an appeal of a decision of the City of Hamilton with respect to the proposed Official Plan Amendments, and does not make oral submissions at a public meeting or make written submissions to the City of Hamilton before the proposed Official Plan Amendments are adopted, the Ontario Municipal Board may dismiss all or part of the appeal.

### Additional Information

The staff report will be available to the public on or after June 20, 2003, and may be obtained from the Planning and Development Department, Long Range Planning and Design Division, 777 Highway No. 8 (corner of Jones Road), Stoney Creek between 8:30 a.m. and 5:00 p.m. If you require additional information, please contact Cathy Plosz at (905) 643-1262 Ext. 231 or Kyle MacIntyre at (905) 643-1262 Ext. 288.

Co-ordinator,  
Hearings Sub-Committee

May 28, 2003

## NOTICE OF PUBLIC MEETING

The Building and Licensing Division, Planning & Development Department, is scheduled to meet with members of the public to receive input on a proposed by-law to prevent unsightliness of property by prohibiting the placement of graffiti and requiring that property be kept free of graffiti.

The public meeting to receive input on the proposed by-law will be held on Tuesday, June 3, 2003 at 7:00 p.m. to 9:00 p.m. Room 110, 1st floor City Hall, 71 Main Street West, Hamilton.

If interested in making a presentation, please register with Sylvia Bishop or Gail Stevenson at (905) 546-4697 or (905) 546-2724, in the Standards and Licensing Division. Please note there is a five (5) minute time limit per speaker. Written submissions will be accepted and must be received by June 2, 2003. Send to:

Building & Licensing Division  
Standards & Licensing Section  
City Hall, 71 Main Street West, 3rd floor  
Hamilton, ON L8P 4Y5

Attention: Sylvia Bishop





# Hamilton

City of Hamilton  
City Hall, 71 Main Street West  
Hamilton, Ontario,  
Canada L8P 4Y5  
www.hamilton.ca

Capital Planning and Implementation Division  
Public Works Department  
Physical Address: 320 - 77 James Street North, Hamilton ON L8R 2K3  
Phone: 905.546.2424 extension 6392 Fax: 905.546.4435  
Email: jstephen@hamilton.ca

**Subject: Watercourse No. 7 Channel Improvements**

Thank you for attending the June 18, 2003 Public Information Centre for the proposed Watercourse No. 7 Channel Improvements. Your comments have been forwarded to the City of Hamilton's Coordinator of Standards and Licensing for his review. The City of Hamilton will continue to work to find the answers to the questions you raised.

Thank you for participating in the Class Environmental Assessment process. If you require any additional information in this regard, please do not hesitate to contact me at 905-546-2424 extension 6392.

Yours truly,

A handwritten signature in cursive script, appearing to read "J. Stephen for.".

Jillian Stephen, P.Eng.  
Acting Senior Project Manager, Strategic Planning

Copy - City of Hamilton, Attn: Randy Charlton  
- Philips Engineering Ltd., Attn: Brian Bishop

sk





**Hamilton**

City of Hamilton  
City Hall, 71 Main Street West  
Hamilton, Ontario,  
Canada L8P 4Y5  
www.hamilton.ca

Capital Planning and Implementation Division  
Public Works Department  
Physical Address: 320 - 77 James Street North, Hamilton ON L8R 2K3  
Phone: 905.546.2424 extension 6392 Fax: 905.546.4435  
Email: jstephen@hamilton.ca

September 5, 2003

**Subject: Watercourse No. 7 Channel Improvements**

Thank you for attending the June 18, 2003 Public Information Centre for the proposed Watercourse No. 7 Channel Improvements.

The proposed improvements to Watercourse No. 7 will be in the area north of Barton Street, generally along the existing alignment of the watercourse. Improvements to Watercourse No. 7 south of Barton Street are not proposed as part of this Class Environmental Assessment.

Your comments, and in particular your concerns regarding West Nile Virus, have been forwarded to the City of Hamilton's Drainage Superintendent for his review.

Thank you for participating in the Class Environmental Assessment process. If you require any additional information in this regard, please do not hesitate to contact me at 905-546-2424 extension 6392.

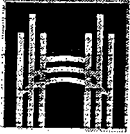
Yours truly,

  
Jillian Stephen, P.Eng.  
Acting Senior Project Manager, Strategic Planning

Copy - City of Hamilton, Attn: Bob Paul  
- Philips Engineering Ltd., Attn: Brian Bishop

js





320 - 77 James Street North  
Hamilton ON Canada L8R 2K3  
www.hamilton.ca

Public Works Department  
Capital Planning & Implementation  
905-546-2424 Ext. 6399 (Telephone) ~ 905-546-4435 (Facsimile)

Hamilton

September 4, 2003

Planning & Engineering Initiatives Ltd.  
69 John Street South  
Suite #200  
Hamilton, ON  
L8N 2B9

**Attention: Mr. Brian Enter**

Dear Mr. Enter:

**RE: Public Information Centre – Watercourse No. 7 Creek System Improvements City of Hamilton**

Thank you for attending the Public Information Centre for Watercourse 7 Creek System Improvements held on June 18, 2003.

Philips Engineering Ltd. is undertaking the detail design of the Watercourse 7 Creek System Improvements from Barton Street north to Lake Ontario, on behalf of the City of Hamilton.

In the comments sheet submitted, you requested the following:

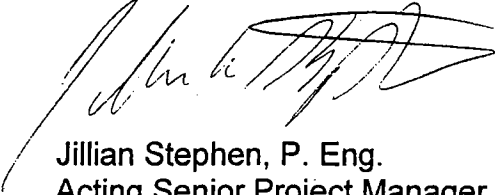
(i) *Lateral Drainage to Watercourse No. 7*

The design of lateral drainage elements, whether in storm sewers or open channels, is the responsibility of the landowner/developer. The Master Drainage Plan established the profile for Watercourse No. 7, and also set preliminary easterly and westerly limits of drainage using reasonable (0.5% or greater) slopes. This has been discussed at length with your office (Planning & Engineering Initiatives Ltd.) on at least two occasions (Ristic, Falcone, Manchia – July 5, 2002 and Falcone, Ness – March 6, 2003).



We trust that this letter addresses your concerns. Should you require further clarification, please do not hesitate to call this office.

Yours truly,

A handwritten signature in black ink, appearing to read "Jillian Stephen". The signature is stylized with a large, sweeping flourish at the end.

Jillian Stephen, P. Eng.  
Acting Senior Project Manager, Strategic Planning

cc: Philips Engineering Ltd., Attn: Brian Bishop



Hamilton

City of Hamilton  
City Hall, 71 Main Street West  
Hamilton, Ontario,  
Canada L8P 4Y5  
www.hamilton.ca

Capital Planning and Implementation Division  
Public Works Department  
Physical Address: 320 - 77 James Street North, Hamilton ON L8R 2K3  
Phone: 905.546.2424 extension 6392 Fax: 905.546.4435  
Email: jstephen@hamilton.ca

**Subject: Watercourse No. 7 Channel Improvements**

Thank you for attending the June 18, 2003 Public Information Centre for the proposed Watercourse No. 7 Channel Improvements.

The proposed improvements to Watercourse No. 7 will be in the area north of Barton Street, generally along the existing alignment of the watercourse. Improvements to Watercourse No. 6 (which runs past the Stoney Creek Municipal Centre) are not proposed as part of this Class Environmental Assessment.

The comments that you provided on June 18, 2003 do not relate specifically to this study. However they have been forwarded to the City of Hamilton's Drainage Superintendent for his review.

Thank you for participating in the Class Environmental Assessment process. If you require any additional information in this regard, please do not hesitate to contact me at 905-546-2424 extension 6392.

Yours truly,

A handwritten signature in cursive script, appearing to read "J. Stephen".

Jillian Stephen, P.Eng.  
Acting Senior Project Manager, Strategic Planning

Copy - City of Hamilton, Attn: Bob Paul  
- Philips Engineering Ltd., Attn: Brian Bishop

js





# Hamilton

City of Hamilton  
City Hall, 71 Main Street West  
Hamilton, Ontario,  
Canada L8P 4Y5  
www.hamilton.ca

Capital Planning and Implementation Division  
Public Works Department  
Physical Address: 320 - 77 James Street North, Hamilton ON L8R 2K3  
Phone: 905.546.2424 extension 6392 Fax: 905.546.4435  
Email: jstephen@hamilton.ca

**Subject: Watercourse No. 7 Channel Improvements**

Thank you for attending the June 18, 2003 Public Information Centre for the proposed Watercourse No. 7 Channel Improvements. Your comments have been forwarded to the City of Hamilton's Coordinator of Standards and Licensing for his review.

Thank you for participating in the Class Environmental Assessment process. If you require any additional information in this regard, please do not hesitate to contact me at 905-546-2424 extension 6392.

Yours truly,

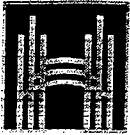
A handwritten signature in cursive script, appearing to read "J. Stephen".

Jillian Stephen, P.Eng.  
Acting Senior Project Manager, Strategic Planning

Copy - City of Hamilton, Attn: Randy Charlton  
- Philips Engineering Ltd., Attn: Brian Bishop

sk





320 - 77 James Street North  
Hamilton ON Canada L8R 2K3  
www.hamilton.ca

Public Works Department  
Capital Planning & Implementation  
905-546-2424 Ext. 6399 (Telephone) ~ 905-546-4435 (Facsimile)

Hamilton

September 4, 2003

**RE: Public Information Centre – Watercourse No. 7 Creek System Improvement City of Hamilton**

Thank you for attending the Public Information Centre for Watercourse 7 Creek System Improvements held on June 18, 2003.

Philips Engineering Ltd. is undertaking the detail design of the Watercourse 7 Creek System Improvements from Barton Street north to Lake Ontario, on behalf of the City of Hamilton.

In the comments sheet submitted, you requested information regarding the following:

- (i) *The proposed route of the drainage channel*

The proposed improvement/realignment of the watercourse follows two basic guidelines: the watercourse has improved hydraulics to convey the design flows without flooding; and the proposed alignment follows the existing alignment as closely as possible. The public have been invited to comment on the alignment, such as you did at the first Public Information Centre in October 2000. Where possible, the watercourse may be realigned slightly to better serve the needs of the Public.

Upon reviewing the preliminary design in October 2000, you requested of the former City of Stoney Creek that the watercourse be shifted to the western limit of your property, north of Arvin Avenue, to remove the impact of the existing diagonal watercourse alignment. When realigning the watercourse there are several governing criteria, such as: hydraulics, length, cost, and property. The net impact to property must be balanced between the existing and proposed

alignments. For example, if the entire creek is contained on an individual property, then the proposed creek alignment must also be entirely within the same property.

For this reason, we are unable to shift the proposed alignment of the watercourse any further west, north of Arvin Avenue.

However, south of Arvin Avenue, we propose to adjust the alignment to minimize the impact on the existing golf operation. Sketch #1 (enclosed) shows the alignment presented at the June 18, 2003 Public Information Centre. Sketch #2 demonstrates the proposed change which maintains the net length/area of watercourse on each individual property.

*(ii) Proposed Payment Mechanism*

We currently anticipate that the Class Environmental Assessment process will be completed this fall. Following that, a cost sharing strategy will be developed. A public meeting regarding the cost sharing strategy will be held following the completion of the Class Environmental Assessment process.

We trust that this letter addresses your concerns. Should you require further clarification, please do not hesitate to call this office.

Yours truly,



Jillian Stephen, P. Eng.  
Acting Senior Project Manager, Strategic Planning

encl.

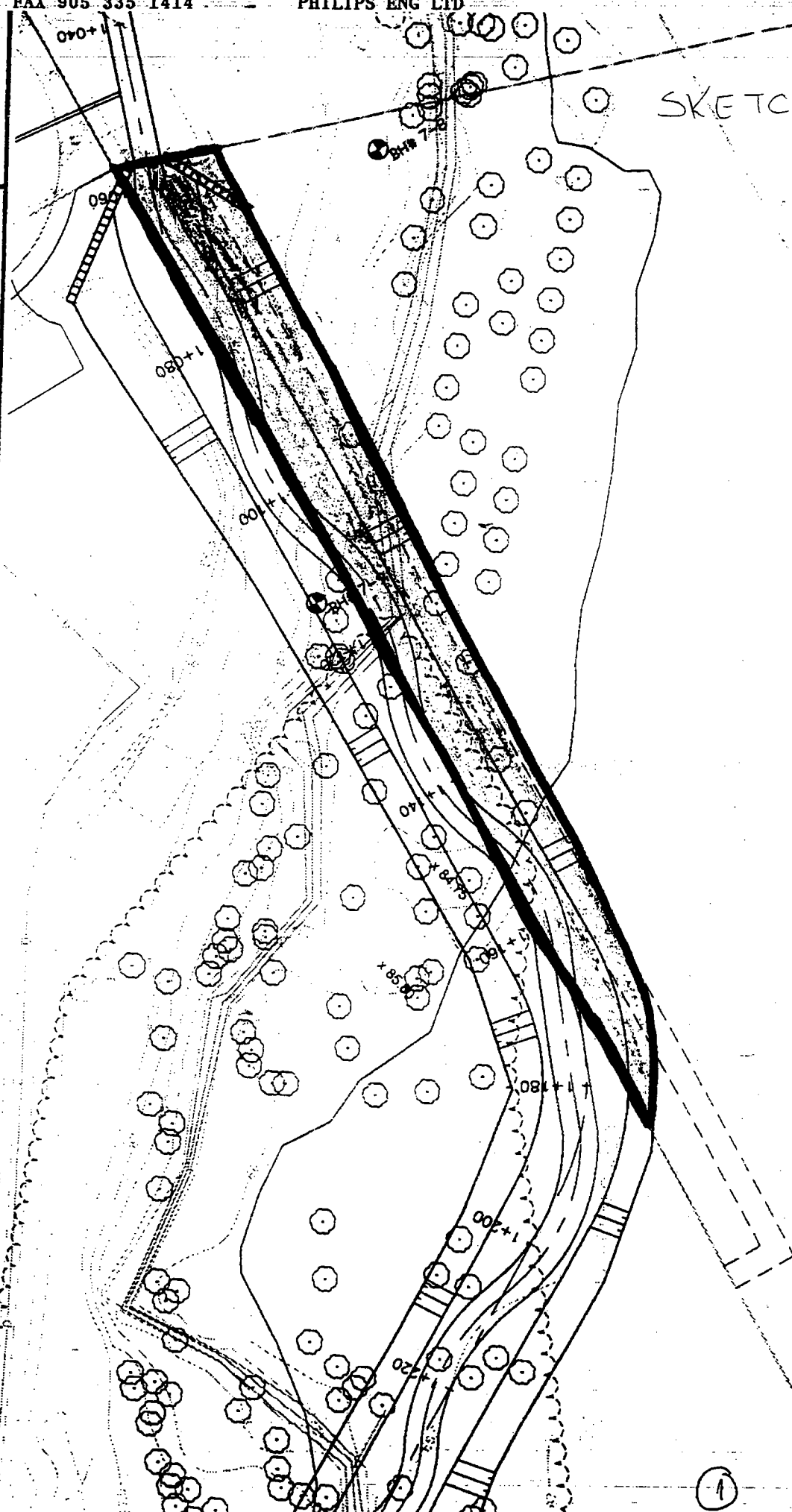
cc: Philips Engineering Ltd., Attn: Brian Bishop

SKETCH #1

87

88

EXISTING GROUND ALONG  
C PROPOSED CHANNEL



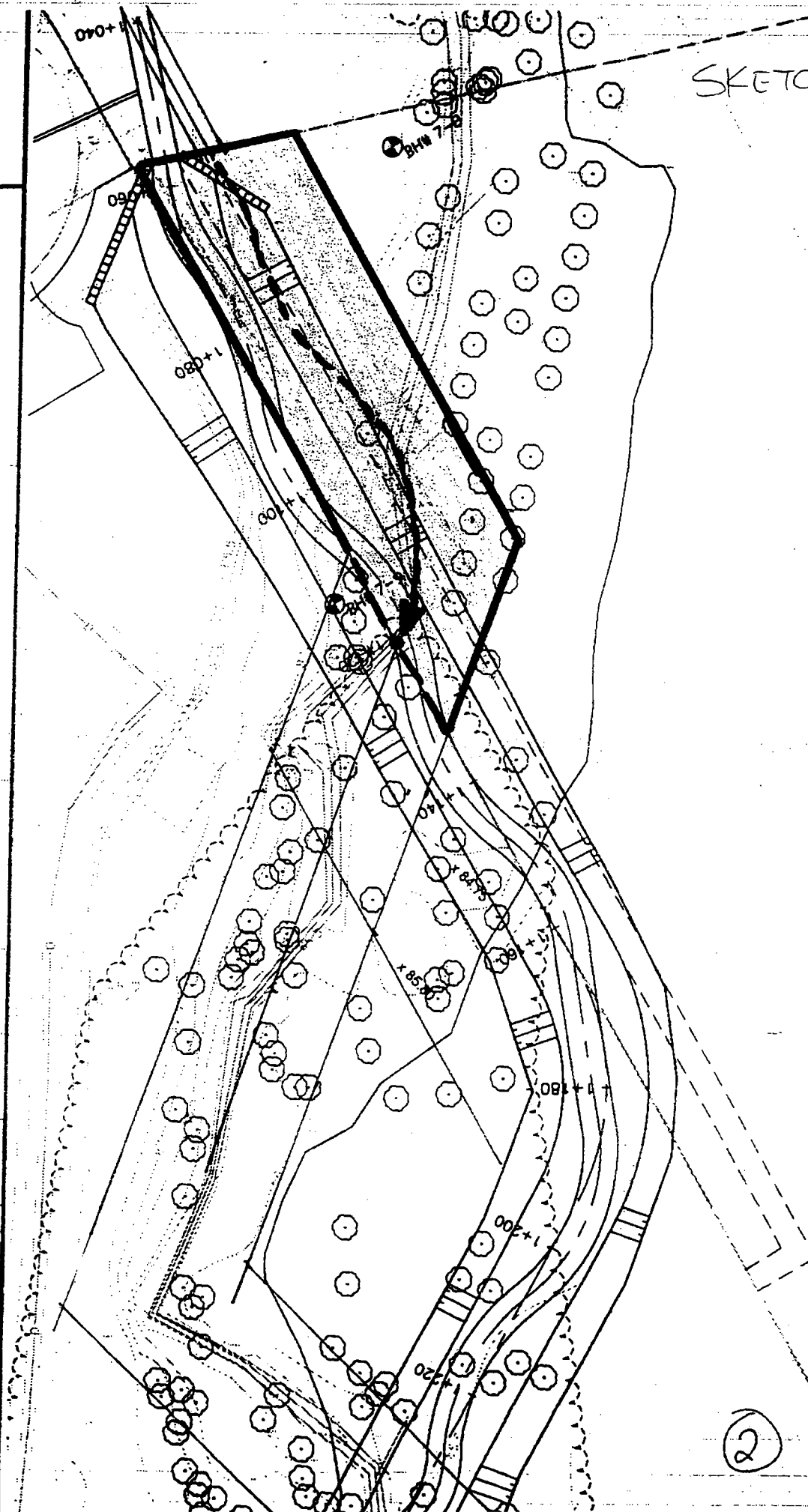


SKETCH #2

87

88

EXISTING GROUND ALONG  
C PROPOSED CHANNEL





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Capital Planning & Implementation  
905-546-2424 Ext. 6399 (Telephone) ~ 905-546-4435 (Facsimile)

Hamilton

September 4, 2003

**RE: Public Information Centre – Watercourse No. 7 Creek System Improvements City of Hamilton**

Thank you for attending the Public Information Centre for Watercourse 7 Creek System Improvements held on June 18, 2003.

Philips Engineering Ltd. is undertaking the detail design of the Watercourse 7 Creek System Improvements from Barton Street north to Lake Ontario, on behalf of the City of Hamilton.

In the comments sheet submitted, you requested the following:

- (i) *Lack of defined watercourse north of Barton Street and standing water south of Barton Street*

The proposed watercourse improvements will include modification to the low flow channel, up to Barton Street. The culverts under Barton Street, and watercourse upstream, or south of Barton Street are not proposed to be modified as part of this study, hence the low flow conditions south of Barton Street are not likely to be affected by this work. The improvements will improve flooding levels downstream of Barton Street. At the detailed design stage, the future flood levels will be calculated to demonstrate the effects of the improvements.

In the interim, your comments regarding standing water south of Barton Street will be forwarded to our drainage superintendent for his review.

We trust that this letter addresses your concerns. Should you require further clarification, please do not hesitate to call this office.

Yours truly,

A handwritten signature in black ink, appearing to read "Jillian Stephen". The signature is stylized with a large, sweeping flourish at the end.

Jillian Stephen, P. Eng.  
Acting Senior Project Manager, Strategic Planning

cc: Philips Engineering Ltd., Attn: Brian Bishop  
City of Hamilton, Attn: Bob Paul



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Public Works Department  
Capital Planning & Implementation

905-546-2424 Ext. 6399 (Telephone) ~ 905-546-4435 (Facsimile)

**Hamilton**

**RE: Public Information Centre – Watercourse No. 7 Creek System Improvements City of Hamilton**

Thank you for attending the Public Information Centre for Watercourse 7 Creek System Improvements held on June 18, 2003.

Philips Engineering Ltd. is undertaking the detail design of the Watercourse 7 Creek System Improvements from Barton Street north to Lake Ontario, on behalf of the City of Hamilton.

In the comments sheet submitted, you requested copies of the presentation boards, and preliminary design.

Attached are reproductions of the boards presented. A copy of the Class Environmental Assessment Report, including the preliminary design, will be available for viewing at the Stoney Creek Municipal Service Centre on 777 Highway #8, when a Notice of Completion is issued in the local newspaper. Local residents will receive a notice in the mail.

The lands south of Barton Street are not currently within the Urban Boundary. The City does not have any development information for these lands.

We trust that this addresses your concerns. Should you require further clarification, please do not hesitate to call this office.

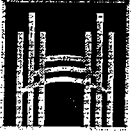
Yours truly,

  
Jillian Stephen, P. Eng.  
Acting Senior Project Manager, Strategic Planning

encl.

cc: Philips Engineering Ltd., Attn: Brian Bishop



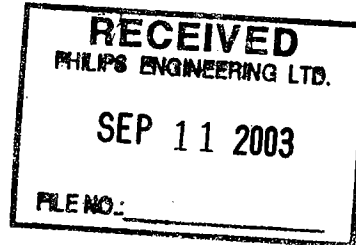


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Hamilton

September 4, 2003



President

**RE: Public Information Centre – Watercourse No. 7 Creek System Improvements City of Hamilton**

Thank you for attending the Public Information Centre for Watercourse 7 Creek System Improvements held on June 18, 2003.

Philips Engineering Ltd. is undertaking the detail design of the Watercourse 7 Creek System Improvements from Barton Street north to Lake Ontario, on behalf of the City of Hamilton.

In the comments sheet submitted, you requested the following:

(i) *Funding for this Project*

We currently anticipate that the Class Environmental Assessment process will be complete this fall. Following that, a cost sharing strategy will be developed. A public meeting regarding the cost sharing strategy will be held following the completion of the Class Environmental Assessment process.

(ii) *What is the mechanism for cost sharing re owners who benefit versus those who do not?*

Only those lands which derive a benefit from the improvements will be required to share in the cost.

(iii) *What is the cost estimated to be?*

The estimated cost of the improvements is \$1.8 million.

(iv) *When can we understand to be the completion date?*

The works are proposed to be designed in the fall/winter of 2003 and constructed in late 2004, subject to the completion of the Class Environmental Assessment.

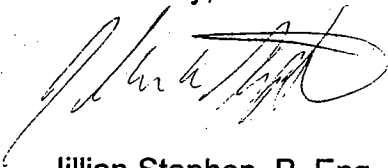
(v) *What is the exact location of the 26,200 m<sup>3</sup> pond?*

The stormwater management quantity control facility(ies) required south of Barton Street have not been located as part of this study. The preliminary volume (26,200 m<sup>3</sup>) is from the Master Drainage Plan, and represents an estimate of the volume required to control future development runoff peak flows to pre-development levels.

The configuration of this storage and any other required controls (e.g. stormwater quality) will be the responsibility of the potential future developers, and subject to the approval from the City and all other affected agencies.

We trust that this letter addresses your concerns. Should you require further clarification, please do not hesitate to call this office.

Yours truly,



Jillian Stephen, P. Eng.  
Acting Senior Project Manager, Strategic Planning

cc: Philips Engineering Ltd., Attn: Brian Bishop



# Hamilton

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**Subject: Watercourse No. 7 Channel Improvements**

Thank you for attending the June 18, 2003 Public Information Centre for the proposed Watercourse No. 7 Channel Improvements.

The proposed improvements to Watercourse No. 7 will be in the area north of Barton Street, generally along the existing alignment of the watercourse. Improvements to Watercourse No. 7 south of Barton Street and improvements to Watercourse No. 6 (which runs parallel to the east side of Jones Road) are not proposed as part of this Class Environmental Assessment.

The comments that you provided on June 18, 2003 do not relate specifically to this study. However they have been forwarded to the City of Hamilton's Drainage Superintendent for his review.

Thank you for participating in the Class Environmental Assessment process. If you require any additional information in this regard, please do not hesitate to contact me at 905-546-2424 extension 6392.

Yours truly,

A handwritten signature in black ink, appearing to read "Jillian Stephen".

Jillian Stephen, P.Eng.  
Acting Senior Project Manager, Strategic Planning

Copy - City of Hamilton, Attn: Bob Paul  
- Philips Engineering Ltd., Attn: Brian Bishop

js





**WATERCOURSE No. 7 CREEK SYSTEM IMPROVEMENTS**

PUBLIC INFORMATION CENTRE - JUNE 18, 2003

**SIGN-IN SHEET**

NAME	ADDRESS	TELEPHONE
E. HAVEMAN		
BEN. F. DESROCHE		
WAYNE CLAYTON		
G. SIMONE		
T. D'ANDREA		
G. POTELLA		
B. PUZZI		
A. STUBB		
S. FARMYER		
JOAN KUSTRA		
HOWELL		
DILL		
NEIL PALMER		
GINA BUONACCORI		
TONY DESANTIS		
DAVID L. MITCHELL		
Mrs. S. Soto		
W. GARDNER		
N. CALCAGNI		





CITY OF HAMILTON  
CLASS ENVIRONMENTAL ASSESSMENT

**WATERCOURSE No. 7 CREEK SYSTEM IMPROVEMENTS**

PUBLIC INFORMATION CENTRE - JUNE 18, 2003

**PUBLIC COMMENT SHEET**

The City of Hamilton intends to undertake works to address the problem of the impacts of urbanization on flooding, water quality and erosion in Watercourse No. 7, between Barton Street and Lake Ontario. The works were previously documented as part of an approved Master Drainage Plan (1989). Given the changes that have occurred to the Environmental Assessment Act and various Provincial and Federal government mandates related to watercourse management and design, the City is required to update the design of Watercourse No. 7 to current standards. This evening's meeting presents the findings and recommendations of the environmental study, as well as a preliminary design which includes features requested by both the agencies and the Public at an earlier Information Centre.

Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

RE: THE CREEK JUST BELOW (NORTH) BARTON ST

THIS AREA DOES NOT HAVE A DEFINED, GOOD WATER PATH. OVER THE YEARS, TREES, SHRUBS AND SILT HAVE TAKEN OVER.

RE: CREEK JUST SOUTH OF BARTON ST

MOST OF THE WATER GOES UNDER BARTON ST BUT NOT ALL BY ANY MEANS. THIS CAUSES WATER TO LIE IN THE CREEK FOR MANY YARDS UNTIL THE NEXT RAINFALL RAISES THE LEVEL, AND THEN BACK TO THE FERT RETURN.

Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
SHS  
\_\_\_\_\_

Please l

box provided or mail to:

City of Hamilton  
Department  
Division

2K3  
Phone: 905-546-2424 ex.6392 Fax: 905-546-4435  
e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



Hamilton

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CITY OF HAMILTON  
CLASS ENVIRONMENTAL ASSESSMENT

**WATERCOURSE No. 7 CREEK SYSTEM IMPROVEMENTS**

PUBLIC INFORMATION CENTRE - JUNE 18, 2003

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Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

We are wondering as to how the sub-trunks will be designed from the main watercourse, ie from the watercourse to McNally Road along the North side of the CNR. Is the city planning to perform any preliminary analysis and/or is the developer to prepare this?

Name and Address:

BRIAN ENTER (PELL)

Please leave your completed Comment Sheet in the drop box provided or mail to:

Jillian Stephen, P.Eng.  
Project Manager (Watershed Management), City of Hamilton  
Transportation, Operations and Environment Department  
Infrastructure and Environmental Planning Division  
320-77 James Street North, Hamilton, ON L8R 2K3  
Phone: 905-546-2424 ex.6392 Fax: 905-546-4435  
e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



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**WATERCOURSE No. 7 CREEK SYSTEM**

PUBLIC INFORMATION CENTRE -

**PUBLIC COMMENT SHEET**

The City of Hamilton intends to undertake works to address the problem of the impacts of urbanization on flooding, water quality and erosion in Watercourse No. 7, between Barton Street and Lake Ontario. The works were previously documented as part of an approved Master Drainage Plan (1989). Given the changes that have occurred to the Environmental Assessment Act and various Provincial and Federal government mandates related to watercourse management and design, the City is required to update the design of Watercourse No. 7 to current standards. This evening's meeting presents the findings and recommendations of the environmental study, as well as a preliminary design which includes features requested by both the agencies and the Public at an earlier Information Centre.

Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

Before consideration can be given to the project, I would like  
to know

- (A) Will it fall under the Drainage Act or the Municipal Act?
- (B) What is the mechanism for cost sharing re/ owners who benefit vs those who do not.
- (C) What is the cost estimated to be?
- (D) When can we understand to be the completion date?
- (E) What is the exact location of the 26,200 m<sup>3</sup> pond?

All this must be made clear before approval is given.

Name and Address:

Please leave your completed Comment Sheet in the drop box provided or mail to:

Jillian Stephen, P.Eng.  
Project Manager (Watershed Management), City of Hamilton  
Transportation, Operations and Environment Department  
Infrastructure and Environmental Planning Division  
320-77 James Street North, Hamilton, ON L8R 2K3  
Phone: 905-546-2424 ex.6392 Fax: 905-546-4435  
e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



**WATERCOURSE No. 7 CREEK SYSTEM IMPROVEMENTS**

PUBLIC INFORMATION CENTRE – JUNE 18, 2003

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Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

Could you please send me copies of ALL bill board displays as well as a copy of the unfinalized design for the improvement of Watercourse No. 7. Thank-you.  
Lisa Rudolph

developing ~~property~~ properties directly south of Barton St. and the affects of the water course it would also be greatly appreciated.  
Thank-you

Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Comment Sheet in the drop box provided or mail to:

Stephen, P.Eng.  
(Environmental Management), City of Hamilton  
Planning and Environment Department  
Environmental Planning Division  
100 King Street West, Hamilton, ON L8R 2K3

Phone: 905-546-2424 ex.6392 Fax: 905-546-4435

e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



Hamilton

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CITY OF HAMILTON  
CLASS ENVIRONMENTAL ASSESSMENT

**WATERCOURSE No. 7 CREEK SYSTEM IMPROVEMENTS**

PUBLIC INFORMATION CENTRE – JUNE 18, 2003

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Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

BECAUSE THE WATER DOESN'T FLOW <sup>CLEARLY</sup> ~~SEET~~  
WE ARE CONCERNED ABOUT THE MOSQUITOES  
POPULATION AND THE SPREAD OF WEST NILE, ETC.  
WE HAVE COMPLAINED OF THE PROBLEM MANY  
TIMES OVER THE YEARS AND THE CITY OF  
STONEY CREEK HAS A FILE ON THIS PROBLEM  
WHICH AFFECTS THE FAMILIES ON GLOVER ROAD  
BETWEEN #8 AND BARTON. PLEASE LOOK INTO  
CLEANING THE WATER WAY FROM WHERE YOU ARE  
WORKING TO THE SOUTH END OF THE WATERWAY.

Name and Address: \_\_\_\_\_

\_\_\_\_\_  
AND  
\_\_\_\_\_  
BE 5H6.

Put Sheet in the drop box

Stephen, P.Eng.  
(City and Environment D  
Environmental Planning Division  
Hamilton, ON L8R 2K3

Phone: 905-546-2424 ex.6392 Fax: 905-546-4435

e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



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Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

I have lived on my property since 1957. There was a 35 acre farm next to me which extend to the railroad tracks. I live at 343 Mc Nully Rd. The property next to me was sold to Padlock Trucking about 25 years ago + then sold again. There was a lot of dumping of concrete old tires + it is quite a eye sore. My property is 125' x 348 ft. This property, which is right next to mine drains water on to my property. I do hope that this problem can be improved resolved. I know that whom ever did the dumping had to come back + remove some of the concrete because it was above the flood line.

Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please

\_\_\_\_\_  
\_\_\_\_\_  
544

rop box provided or mail to:

City of Hamilton  
Environment Department  
Planning Division  
L8R 2K3

Phone: 905-546-2424 ex.6392 Fax: 905-546-4435

e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



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Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

The stream or the ditch running from escarpment down east side of Jones Rd. South of No 8400 needs to be controlled each and every year when the snow melts or after heavy rain. All you have to do is just look at it. The ditch is wide and deep at some places that it creates danger for the children. The ditch is not cleaned up to the escarpment which was done properly in the Township of Saltfleet. Also there is a big sign of part of my property which is neglected for years and years. The runoff should be addressed properly so the damage will be eliminated.

Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: 905-546-2424 ex.6392 Fax: 905-546-4435  
e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



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Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

CREEK CUTS PROPERTY IN HALF.  
NO EASEMENT PROVIDED.  
CAN'T GET TO OTHER SIDE OF CREEK TO FLOW  
PROPERTY TAXES INCREASED \$500 RE-ASSESSMENT  
DUE TO INABILITY TO FARM.

Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Please l

520-11 James Street North, Hamilton, ON L8R 2K3  
Phone: 905-546-2424 ex.6392 Fax: 905-546-4435  
e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



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CITY OF HAMILTON  
CLASS ENVIRONMENTAL ASSESSMENT

**WATERCOURSE No. 7 CREEK SYSTEM IMPROVEMENTS**

PUBLIC INFORMATION CENTRE - JUNE 18, 2003

**PUBLIC COMMENT SHEET**

The City of Hamilton intends to undertake works to address the problem of the impacts of urbanization on flooding, water quality and erosion in Watercourse No. 7, between Barton Street and Lake Ontario. The works were previously documented as part of an approved Master Drainage Plan (1989). Given the changes that have occurred to the Environmental Assessment Act and various Provincial and Federal government mandates related to watercourse management and design, the City is required to update the design of Watercourse No. 7 to current standards. This evening's meeting presents the findings and recommendations of the environmental study, as well as a preliminary design which includes features requested by both the agencies and the Public at an earlier Information Centre.

Your views are important to us. Please take a moment to provide your comments on the baseline inventory, the selection of the preferred solution, and the preliminary design (Please Print):

I AM CONCERNED ABOUT THE DITCH THAT RUNS THRU OUR PROPERTY & (THE SAME ONE AS RUNS BESIDE ST CREEK MUNICIPAL CENTRE) JUST PAST OUR PLACE & BEFORE THE CENTRE THERE IS VACANT PROPERTIES WITH BROKEN & PLUGGED CULVERTS WHICH MEANS IF I DON'T CLEAN THEM OUT ON A REGULAR BASIS OUR YARD FLOODS. ALSO AT THE FRONT OF PROPERTY IS ALWAYS VERY WET BECAUSE NEIGHBOUR TO WEST PROPERTY IS HIGHER THEN OURS. THANKS E.H.

Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CREEK (FRUITLAND)

in the drop box provided or mail to:

P.Eng.  
(Environment), City of Hamilton  
Environment Department  
Planning Division  
Hamilton, ON L8R 2K3

Phone: 905-546-2424 ex.6392 Fax: 905-546-4435

e-mail: [jstephen@city.hamilton.on.ca](mailto:jstephen@city.hamilton.on.ca)



The information on this comment sheet is collected under the authority of the Environmental Assessment Act and will become public information, documented in the Class EA Study Report by the City of Hamilton and made public at the conclusion of the study. Personal information will not be disclosed at any time during the study.



# NOTICE OF INTENT AND PUBLIC INFORMATION CENTRE

## BACKGROUND

The City of Stoney Creek is currently proceeding with the planning and design of the following undertaking:

### **Study and Design of Watercourse No. 7 Channel Improvements City of Stoney Creek**

The appended figure outlines the location of the subject reach within the Watercourse No. 7 watershed. Watershed No. 7 outfalls to Lake Ontario west of McNeilly Road, generally flowing in a northerly direction. The drainage systems to the west and east are part of Watercourses 6 and 9 respectively in the City of Stoney Creek, all draining northerly to Lake Ontario.

The focus of this assessment is Watercourse No. 7. Of the 470 ha +/- drainage area, approximately 60% of the industrial land between the Q.E.W. and Barton Street has been developed, with most of the future development potential being between the Q.E.W. and Highway #8 to the south.

Watercourse No. 7 has been previously studied, in the 1980's and 1990's; various recommendations for watercourse management have been prescribed in these studies. The current initiatives of the City of Stoney Creek and Regional Municipality of Hamilton-Wentworth have provided the impetus for the City of Stoney Creek to co-ordinate the implementation of specific improvements for Watercourse No. 7.

## PUBLIC INFORMATION CENTRE

**PLACE:** CITY OF STONEY CREEK  
City Hall, Saltfleet Meeting Room

**DATE:** Tuesday October 3, 2000

**TIME:** 5:00 p.m. to 7:00 p.m.

Please feel free to contact either of the individuals listed below if you have any questions or input on any aspect of this study. It is preferred that comments in writing be directed to the City of Stoney Creek.

Mr. M. Paul Cripps, P. Eng. Study Co-ordinator	City of Stoney Creek 777 Highway No. 8, 3 <sup>rd</sup> Floor P.O. Box 9940 Stoney Creek, ON L8G 4N9	(905) 643-1261 (Ext. 245)
Mr. Ron Scheckenberger, M. Eng., P.Eng. Project Team Manager	Philips Engineering Ltd., Box 220, Burlington, ON L7R 3Y2	(905) 335-2353

September 25, 2000  
Our File: 100046-10

Dear Sir/Madame:

RE: Study and Design of Watercourse No. 7 Channel Improvements  
City of Stoney Creek

---

The intent of this letter is to notify you of the foregoing Municipal initiative, and to request input either through direct involvement in this study's Public forums and/or through the provision of background information on the study area's resources. Input on specific issues or concerns you feel should be addressed as the study proceeds or questions/input on any aspect of the study, is strongly encouraged.

The following has been organized such that it provides you with an understanding of the study area, purpose, proponents, Project Team, input opportunities, and key contacts.

We strongly encourage your involvement in this process, in order that the Project Team can effectively address your concerns. If you require further notification please indicate this in writing to the Municipality by October 16, 2000.

### **PROCESS**

This study has been undertaken according to the requirements of the Municipal Engineers Association Class EA. The purpose of the Class EA process is to promote the protection and conservation of the environment, through good planning and informed decision making. It allows for the evaluation of the environmental impacts of a project and its alternatives.

### **STUDY AREA**

The appended figure outlines the location of the subject reach within the Watercourse No. 7 watershed. Watershed No. 7 outfalls to Lake Ontario west of McNeilly Road, generally flowing in a northerly direction. The drainage systems to the west and east are part of Watercourses 6 and 9 respectively in the City of Stoney Creek, all draining northerly to Lake Ontario.

The focus of this assessment is Watercourse No. 7. Of the 470 ha +/- drainage area, approximately 60% of the industrial land between the Q.E.W. and Barton Street has been developed, with most of the future development potential being between the Q.E.W. and Highway #8 to the south.

### **BACKGROUND/PURPOSE:**

Watercourse No. 7 has been previously studied, in the 1980's and 1990's; various recommendations for watercourse management have been prescribed in these studies. The current initiatives of the City of Stoney Creek and Regional Municipality of Hamilton-Wentworth have provided the impetus for the City of Stoney Creek to co-ordinate the implementation of specific improvements for Watercourse No. 7.

Recent legislation regarding the protection of fisheries habitat (“no net loss”), administered by the Department of Fisheries and Oceans, as well as the Stormwater Quality Management and Natural Channel Design guidelines, advocated by the Ministry of Natural Resources and Ministry of the Environment (1994), has been the “*driving force*” behind updating watercourse management strategies developed prior to 1991. In light of the foregoing, a comprehensive strategy for addressing flooding, erosion, terrestrial and aquatic habitat, as well as social compatibility of channel improvements for Watercourse No. 7 has been advocated by City of Stoney Creek staff.

**TECHNICAL STEERING COMMITTEE:**

This study, funded by the City of Stoney Creek, is being managed by a Steering Committee consisting of representation from the Municipality, Region, and Hamilton Region Conservation Authority.

**PROJECT TEAM:**

Philips Engineering Ltd. is the lead firm in this undertaking, providing expertise in water resources management and design. Specialty subconsultants, also on the Project Team, include C. Portt & Associates (Fisheries), Dougan & Associates (Terrestrial), and Parish Geomorphic (Stream Morphology).

**INPUT OPPORTUNITIES:**

This study process initiated in July 2000, is anticipated to require approximately 7 months to complete (December 2000). By way of this letter, we are requesting written input by October 16, 2000. A Public information Meeting is proposed to be held October 3, 2000 at City Hall, at which time additional input specifically on the system resources and preliminary watercourse alternatives will be requested. Detailed final design and tender specifications preparation is anticipated to commence sometime following agency review in November or December 2000.

**KEY CONTACTS:**

Please feel free to contact either of the individuals listed below if you have any questions or input on any aspect of this study. It is preferred that comments in writing be directed to the City of Stoney Creek.

Mr. M. Paul Cripps, P. Eng. Study Co-ordinator	City of Stoney Creek 777 Highway No. 8 3 <sup>rd</sup> Floor P.O. Box 9940 Stoney Creek, On L8G 4N9	(905) 643-1261 (Ext. 245)
Mr. Ron Scheckenberger, M. Eng., P.Eng. Project Team Manager	Philips Engineering Ltd. 3215 North Service Road Box 220 Burlington, ON L7R 3Y2	(905) 335-2353

Thank you for your time; we look forward to your involvement.

Yours very truly,

CITY OF STONEY CREEK

Per: M. Paul Cripps, P. Eng.

RBS/ad





PUBLIC INFORMATION SESSION  
COMMENT SHEET

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

TELEPHO \_\_\_\_\_

Do you live in the Study Area? yes

Do you own property in the Study Area? Yes

Do you have any concerns or comments regarding study objectives, process, or findings?

Hopefully, with proposed improvements,  
my property will be relieved of drainage  
from other higher properties around me

Please deposit in the box, or return to:

Mr. M. Paul Cripps, P. Eng.  
Study Co-ordinator  
City of Stoney Creek  
777 Highway No. 8, 3<sup>rd</sup> Floor  
P.O. Box 9940  
Stoney Creek, On L8G 4N9  
(905) 643-1261 (Ext. 353)

October 3, 2000



*File we #7*  
*cc Ron SHERKMAN*

The City of Stoney Creek  
777 Highway No. 8, Box 9940  
Stoney Creek, On. L1R8G 4N9  
Fax: 643-6161

*SC*  
*PHILIPS ENGINEERING LTD.*  
OCT 27 2000  
*100046-10A*

CITY OF STONEY CREEK Development Engineering Services	
OCT 18 2000	
Refer to	
Copy to	
File <input type="checkbox"/>	

October 5<sup>th</sup>, 2000

RE: Study and design of Watercourse No. 7 Channel Improvements

Attn: M. Paul Cripps, P. Eng.

In reference to your notice of September 27<sup>th</sup>, 2000 we would like to be notified of future opportunities when we may provide input into the above noted discussion.

As mentioned in our telephone discussion of September 29<sup>th</sup> the map dated August 2000 (provided by Philips Engineering) of the alleged affected area is inaccurate and does not reflect the changes to the areas drainage created by the City of Stoney Creek May 1998; which substantially increased the area being serviced by Water Course 7.

Further more the area bounded by Barton St., McNeilly Rd. and the South Service Road is not serviced by Watercourse 7 but by Watercourse 6 to the east of McNeilly Rd. Since the beginning of time water has tended to flow down hill not up and on any given day it is clear that the swail in the west ditch at the train tracks diverts water east under McNeilly Rd. to Watercourse 6 long before there is sufficient water to flow through the ditch to Watercourse 7. As for the cross channel under McNeilly Rd. and the South Service Rd. this is another example of the City of Stoney Creek tampering with drainage patterns since the water normally flows east to Watercourse 6.) These facts are easily documented by visual inspection on a rainy day.

Your exclusion and inclusion of large areas of a map date August 2000 clearly indicates that neither you or Philips Engineering are in touch with reality but are fostering a careless attitude as the City of Stoney Creek winds down or you are promoting some other agenda.

Considering engineering's involvement in

1. File No. A19/98
2. Planning Committee Agenda 91-3 and subsequent meetings and personal conversations
3. The excessive infilling of the Kings Ford sight during the construction of the Dewitt road Postal sorting facility. The use of this sight by the City of Stoney Creek and the Regional Municipality of Hamilton-Wentworth as a dump sight during Sewer and water construction and your involvement in sight plan approval for 21 industrial lots etc.

4. Your involvement in drainage concerns for a sight known as Paddock lands is but another indication of your knowledge of drainage concerns and affected areas which are not reflected in Philips August 2000 Map.

As a resident of nearly 50 years we have never had a natural drainage or flooding problem. I have watched the engineering department tamper with drainage causing more problems than they are solving. Since I can not raise my house out of the ground to match the ever increasing elevations of McNeilly Rd. and the Kings Ford sight your continual inaccuracies are of grave concern.

As long as engineering's inaccuracies and tampering with the drainage do not cause financial damage to our property we intend to continually be on record voicing our concerns and strengthening our position for repeated future damages.

Please advise us of future meetings.

Yours truly

**APPENDIX D**  
**Agency Correspondence**

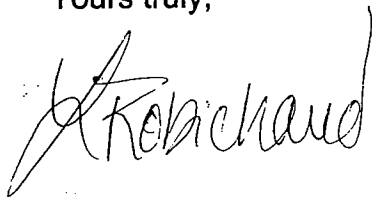




On a related note, I would like to advise you that I have received confirmation from the Environmental Assessment and Approvals Branch that the Minister approved the new MEA *Class EA for Road, Water and Wastewater Projects* (it is now a combined document) on October 4, 2000. I understand that there is a six month transition period to permit the MEA to print the document and make it available to its members and consultants, as well as to allow proponents to make the change to the new document. It is not expected that the transition will be a difficult one for proponents as the planning process remains relatively the same.

If you have any questions regarding the information in this letter or the new Class EA document, please do not hesitate to contact me at (905) 521-7607.

Yours truly,

A handwritten signature in black ink, appearing to read "Lynn Robichaud". The signature is written in a cursive style with a large initial "L" and "R".

Lynn Robichaud  
EA Coordinator  
Air, Pesticides & Environmental Planning  
West Central Region



Ministry  
of the  
Environment

119 King Street West  
12th Floor  
Hamilton ON L8P 4Y7

Ministère  
de  
l'Environnement

119 rue King ouest  
12<sup>e</sup> étage  
Hamilton ON L8P 4Y7



November 3, 2000

Mr. Ron Scheckenberger, M.Eng., P.Eng.  
Project Manager  
Philips Engineering Ltd.  
3215 North Service Road  
Box 220  
Burlington, Ontario  
L7R 3Y2

RECEIVED

NOV 14 2000

FILE NO: 100046-10A

Dear Mr. Scheckenberger:

**RE: Watercourse No. 7, Creek System Improvements  
Class Environmental Assessment Study  
City of Stoney Creek**

Thank you for returning my telephone call yesterday to provide an update on the above noted undertaking in the City of Stoney Creek. As you confirmed during our conversation, the project is being planned under Schedule B of the Municipal Engineers Association's *Class Environmental Assessment for Municipal Water and Wastewater Projects* (Class EA).

I have had an opportunity to review the information that has been completed to-date. I note in Section 8 that alternatives B - Watercourse System Improvements and D - Combination of Watercourse System Improvements with Flood and Erosion Storage have been selected for further consideration. I would ask that in your final report, an explanation be provided illustrating the reasons why the other alternatives were screened out. It would be helpful to provide a comparison of the advantages and disadvantages between each of the alternatives. It is noted that Watercourse System Improvements are integral to both options while Flood and Erosion Storage may or may not be necessary, depending on the results of the study. Therefore, a comparison of the advantages and disadvantages would assist the reader to understand the reasons why alternative C - Flood and Erosion Storage as an option on its own was screened out.

Upon completion of the final screening report, I would ask that you circulate three copies of the report to my attention for the Ministry's review.



100046-10

PO Box 7099, 838 Mineral Springs Road, Ancaster L9G 3L3  
905-525-2181 FAX 905-648-4622

**Hamilton Region  
Conservation Authority**

**Fax**

**To:** R. Scheckenberger, M.Eng., P.Eng. **From:** Tony Horvat, P.Eng.  
Philips Engineering

**Fax:** 905-335-1414 **Pages:** 1

**Phone:** 905-335-2353 **Date:** 10/16/2000

**Re:** Class EA Watercourse No. 7, **CC:** Paul Cripps, P.Eng. FAX 905-628-5995  
City of Stoney Creek Engineering Dept., City of Stoney Creek

**Urgent**  **For Review**  **Please Comment**  **Please Reply**  **Please Recycle**

HRCA staff have reviewed the above noted document and provide the following comments:

- a) Page 1. The HRCA was a partner, as was Environment Canada in the FDRP study.
- b) Page 5. Are the dry ponds currently proposed on-line or off-line?
- c) Page 6. It is unclear why Watercourse No. 7 would NOT benefit from increased base flow – please clarify.
- d) Page 6. Can the barrier at the QEW be altered/removed to improve fish passage?
- e) Page 6. Does “all baseflow” originate from E.D. Smith at all times or just in the summer months?
- f) Page 7. How is low flow defined? Could not “first flush” flows from urbanized areas be considered low flows which increase pollutant loadings?
- g) Page 8. What is the significance of the projected increase in loadings on the aquatic habitat? Can the proposed SWM ponds reduce these loadings?
- h) Page 10. Will the on-line ponds considered under alternative C or D negatively impact fish passage and/or habitat? Will they treat quantity as well as quality?

HRCA staff have no objection to the advancements of the two alternatives B and D. Could altered land use or site controls not play a part in addressing these flooding, erosion and quality issues (i.e grass swales, increased buffers etc.?)

Please keep us informed on the progress of this Class EA.

Regards,

  
Tony Horvat

**Philips Engineering Ltd.**  
Hamilton Region Conservation Authority  
September 26, 2000  
Page 3

**KEY CONTACTS:**

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Thank you for your time; we look forward to your involvement.

Yours very truly,

PHILIPS ENGINEERING LTD.

Per: Ronald B. Scheckenberger, M. Eng.,  
P. Eng.

RBS/ad

G:\WORK\100046\CORRES\REPORT\001\noticefrompel.doc

Cc: M. Vincent, DFO  
J. Durst, MNR  
R. Ness, MTO  
B. Ryter, MOE

**Philips Engineering Ltd.**

Hamilton Region Conservation Authority

September 26, 2000

Page 2

The focus of this assessment is Watercourse No. 7. Of the 470 ha +/- drainage area, approximately 60% of the industrial land between the Q.E.W. and Barton Street has been developed, with most of the future development potential being between the Q.E.W. and Highway #8 to the south.

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Ministry of Culture  
Heritage & Libraries Branch  
Southwest Archaeological Field Office  
900 Hibury Avenue  
London, Ontario N5y 1A4

Ministère de la Culture



# Ontario

Tel: (519) 675-7742; Fax: (519) 675-7777

Mary Lou Tanner  
Project Manager  
Environmental Planning Management  
City of Hamilton  
320-77 James Street North  
Hamilton, Ontario  
L8R 2K3

**RE: Class Environment Assessment for Watercourses 7 Creek Improvements**

This office has had an opportunity to review the information provided in your letter of May 27, 2003 concerning the above-noted study. A principal concern of this office is the adverse effects that undertakings such as the above mentioned might have on cultural heritage resources. If there are areas of heritage potential that will be impacted by this project, then our office would recommend that an archaeological assessment be conducted as part of the EA. If any significant heritage or archaeological remains are identified, then any negative impacts will have to be mitigated by either avoidance or excavation.

Consequently, our office would wish to continue to be involved in this project. In particular, it would be useful to be provided with detailed information and maps outlining the extent and type of land disturbance anticipated and the extent of previous disturbance within the study area. With this information I will be able to determine what portions of the project, if any, may exhibit potential for impacting heritage resources, and thus would require an assessment to inventory all heritage resources present, and determine what mitigation work, if any, may be required.

I trust that this is of assistance. Please do not hesitate to contact me if you require further information.

Sincerely,



Shari Prowse  
Heritage Planner  
Southwestern Ontario Region



Ontario's  
Niagara  
Escarpment  
l'Escarpement  
du Niagara de  
l'Ontario

June 17, 2003

Mary Lou Tanner, MCIP, RPP  
Manager, Environmental Planning and Management  
Public Works Department, Capital Planning and Implementation Division  
City of Hamilton  
320 - 77 James Street North  
Hamilton, ON L8R 2K3



Niagara Escarpment Commission  
232 Guelph Street  
Georgetown ON L7G 4B1  
Tel. No. (905) 877-5191 - Fax No. (905) 973-7452

Commission de l'escarpement du Niagara  
232, rue Guelph  
Georgetown ON L7G 4B1  
N° de tel. (905) 877-5191 - Télécopieur (905) 973-7452  
www.escarpment.org

Dear Ms. Tanner:

**RE: CLASS ENVIRONMENTAL ASSESSMENT FOR WATERCOURSE 7  
CREEK IMPROVEMENTS**

Thank you for your circulation dated May 27, 2003.

I will be unable to attend your Public Information Centre scheduled for June 18<sup>th</sup> at the Stoney Creek Municipal Centre.

As a preliminary comment, I would advise that the southern reaches of the Watercourse 7 watershed (i.e. Highway 8 to Ridge Road) are located in the Niagara Escarpment Plan (NE Plan) Area. The area immediately below and above the Escarpment face is designated by the NE Plan as **Escarpment Protection Area**. The face is designated **Escarpment Natural Area**.

In either designation, watershed management and flood and erosion control projects carried out or supervised by a public agency are permitted, in principle.

To implement any remedial measures to counter flooding, erosion or habitat issues, the City will be required to obtain a Development Permit. Remedial measures should be designed to avoid or minimize the impact on wetlands, wildlife habitat, source areas, steep slopes, downstream water quality etc.

Should you have any questions, please contact me at ext. 243.

Yours truly

*for* *David Johnston*

David Johnston  
Acting Senior Planner

DJ/ES HW 15/gmm c:\EA\Hamilton\Class EA for Watercourse 7 Creek Improvements, comnt Ltr, 6-17-03

RECEIVED JUN 23 2003



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Coast Guard

Garde côtière

Central & Arctic Region

Région du Centre et de l'Arctique

201 N. Front Street, Suite 703  
Sarnia, Ontario  
N7T 8B1

Your file    Votre référence

Our file    Notre référence  
8200-03-7261

August 28, 2003

City of Hamilton  
City Hall, 71 Main Street West  
Hamilton, ON L8P 4Y5

Attention: Mary Lou Tanner

**FAX**

BRIAN BISHOP  
905-335-2353 1414  
JILL STEPHEN  
905-546-2424 6392  
 DATE: 3 Sept 2003



Dear Madam:

**RE: Navigability Enquiry of Watercourse 7 Creek, Community of Stoney Creek, City of Hamilton, Regional Municipality of Hamilton Wentworth, Province of Ontario.**

Reference is made to your letter dated July 17, 2003 regarding the above navigability inquiry.

In the opinion of Coast Guard officials, the waterway at the site indicated is considered **not navigable**. Consequently, we have no interest in any works at this site.

The project may cause adverse effects on fish and fish habitat and the proponent should contact Fisheries and Oceans, Fish Habitat Management, 3027 Harvester Road, Suite 304, PO Box 85060, Burlington, ON, L7R 4K3 for expert advice as it pertains to the Fisheries Act.

Should you have any questions, please contact our office at telephone number 519-383-1866.

Yours truly

Mark Wright  
A/NWP Inspections Officer  
Navigable Waters Protection

MW/dmp

cc: FHM Burlington

**Canada**

HEC 01111111 01111111 2003

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**APPENDIX E**  
**Meeting Minutes**





## Meeting Minutes

January 12, 2000

Our File: 90048A

**Subject:** Watercourse No. 7 Implementation Process

**Date:** January 11, 2000

**Time:** 11:00 a.m.

**Location:** Region of Hamilton-Wentworth Office

**In Attendance:**

Chris Murray	➤	Special Projects Office
Paul Cripps	➤	City of Stoney Creek
Ron Scheckenberger	➤	Philips Engineering Ltd. ✓

### MATTERS DISCUSSED

### ACTION BY:

1. Paul Cripps introduced the meeting indicating that it is currently the City of Stoney Creek's intent to proceed with the implementation of channel improvements works for Watercourse 7.

This objective was outlined in a report to the Planning and Development Department dated November 29, 1999 (Paul Cripps provided a copy of this during the course of the meeting).

The objective of this meeting was to determine the Environmental Assessment process for this planned undertaking, given the significant amount of background study which had predated the current design.

2. Ron Scheckenberger provided an outline of background information, citing the following:

- 1989 Flood Damage Reduction Study
- 1989 Master Drainage Plan for the Industrial Corridor
- 1990 Fisheries/Environmental Investigation for QEW Corridor
- 1991 Cost Benefit Assessment for MTO and City of Burlington related to QEW works
- 1994 – 1995 Winona Drain Implementation
- 1998 Cost Sharing Assessment Watercourse 5, 6 and 7

It was indicated that the proposed undertaking, as a watercourse relocation and channelization, would be a Schedule B undertaking under the current MEA Class EA documentation.

3. Chris Murray questioned whether or not the Municipality would be interested in completing the assessment for Watercourses 5, 6 and 7 concurrently. Subsequently, during the course of the meeting, it was suggested that perhaps a preliminary design level assessment could be completed for Watercourses 5 and 6 with Watercourse 7 being advanced to a detailed design.

Paul Cripps noted that there was a concern of potentially having to revise the design for Watercourses 5 and 6 in the future, if it is not implemented within the 5 year period. He noted that the funding opportunities and need for the Watercourses 5 and 6 works was less than Watercourse 7.

4. Chris Murray indicated that as a Schedule B undertaking, there would be one mandatory point of public contact in order to satisfy Phases 1 and 2 of the process. Once satisfied, the Municipality could proceed to Phase 5, namely construction and monitoring.
5. Paul Cripps outlined that the timing of the Implementation Plan has been loosely defined as completing the environmental assessment work in the year 2000 with a financing plan being established in the latter part of 2000 or early 2001 with construction to follow in the spring of 2001.

All of the foregoing though would be dependent on future governance issues within the Region of Hamilton-Wentworth.

6. Chris Murray questioned Ron Scheckenberger on the available options and alternatives to the undertaking. Ron indicated that the available options are generally limited and that the natural channel design approach, while not currently designed, will undoubtedly become the preferred solution.

Chris Murray suggested that Philips not 'screen out' the alternatives but rather provide some detailed assessment on the respective benefits of the various options.

**Philips**

Ron Scheckenberger also noted that the problem statement primarily related to the issue of flooding and erosion.

7. Ron Scheckenberger questioned whether or not a financial component should form part of the environmental assessment. Chris Murray indicated that generally this is not the case since it is not a specific element of EA. Notwithstanding, the economics of the system would need to be provided.

Ron Scheckenberger suggested that perhaps the financial plan and the Environmental Assessment could flow on concurrent processes whereby there is a property owners team established to deal with financing issues. Paul Cripps would consider this further.

**Stoney Creek**

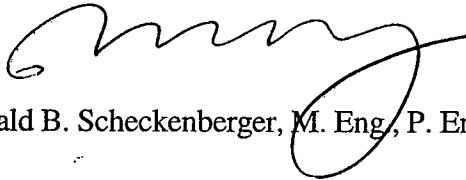
**MATTERS DISCUSSED**

**ACTION BY:**

8. Chris Murray noted that it would be beneficial to define the impacts of flooding now versus after the implementation of the design to clearly state the advantages. **Philips**
9. Ron Scheckenberger and Chris Murray agreed that the focussed Environmental Assessment, given the level of background information, could be completed between 4 and 6 months.
10. Paul Cripps requested that Philips prepare a proposal for the foregoing process, given the input provided by Chris Murray. **Philips**

Minutes prepared by,

PHILIPS ENGINEERING LTD



Per: Ronald B. Scheckenberger, M. Eng., P. Eng.

c.c. All Present



## Meeting Minutes

December 13, 2000

Our File: 100046  
Copy to 98040A

**Subject:** Watercourse No. 7 Implementation  
City of Stoney Creek/City of Hamilton

**Date:** December 11, 2000

**Time:** 10:30 a.m.

**Location:** Philips Engineering Ltd. – Burlington Offices

**In Attendance:**

Paul Cripps	➤	City of Stoney Creek
Brian Bishop	➤	Philips Engineering Ltd.
Ron Scheckenberger	➤	Philips Engineering Ltd.

### MATTERS DISCUSSED

### ACTION BY:

1. Ron Scheckenberger introduced the meeting indicating that it was the objective of the meeting to provide a status update, refine the schedule and also make decisions on the preliminary design and requisite analysis.
2. Ron Scheckenberger expressed concern with respect to implementation protocol/opportunities, given the pending Municipal amalgamation.

Paul Cripps indicated that the Township of Glanbrook has recently implemented the financing for a stormwater management facility through Section 221 of the Municipal Act. Frank Carroci was involved. The developer responsible was John Robinson.

3. Ron Scheckenberger noted that there are some components of the solution that are dependent on the future land use south of Barton Street.

To this end, Paul Cripps was requested to advise on the status of the urban boundary expansion in this location. He indicated that this is “on hold”, pending the Glanbrook expansion application which is currently at the OMB. The question that will need to be resolved at this hearing relates to “City wide” demand. The hearing is scheduled for February 2001 and planning representation will likely be made from the Region regarding the Region’s Official Plan.

**MATTERS DISCUSSED**

**ACTION BY:**

The concerns that have been cited include consumption of agricultural land and threat to growth in Stoney Creek. There are apparently 11 objectors. The Karst matter in the Davis Creek has also been raised, as it would affect the drainage in the Glanbrook expansion area.

- 4. Ron Scheckenberger questioned whether or not there was any land use fabric prepared for the urban boundary expansion south of Barton Street. Paul Cripps noted that this has not been developed.
- 5. Brian Bishop indicated that the proposed headwater storage south of Arvin Avenue was specifically designed (in 1989/90) to reduce the peak flows at the QEW core lane crossing.

Ron Scheckenberger noted that this was an optimized design attempting to maintain the Service Road culvert sizing, while only replacing the core lane culvert.

Ron Scheckenberger noted that Philips would re-evaluate the headwater storage with a possible opportunity of over-controlling south of Barton Street.

**Philips**

Paul Cripps expressed concern with respect to the potential impact on those lands south of Barton Street, in terms of the spatial impacts.

Ron Scheckenberger noted that water quality facilities would be required for these areas regardless and that storage systems would likely need to be offline, pending resolution of protection of these watercourses or not. Philips would investigate this matter further and report to Paul Cripps.

**Philips**

- 6. There is some discrepancy with respect to the drainage area tributary to the QEW culverts. Philips is to confirm the drainage areas based upon the UMA as-built drawings for the QEW and the correspondence file accordingly. Paul Cripps will forward information on the Kingsford Industrial Park.

**Philips**

**City**

- 7. Paul Cripps questioned whether or not the property issues have been appropriately resolved north of Seabreeze. Ron Scheckenberger indicated that this matter was last left with Bill Baxter at the City. Paul indicated that he would contact Bill Farquas (Ext. 325) to resolve the property matter directly.

**City**

- 8. Ron Scheckenberger stated that the DFO approvals have lapsed for the lower section north of the North Service Road, however, these could likely be renewed with minimal effort.

- 9. Philips is to confirm the QEW core lane culvert information (configuration and inverts) with respect to as-built drawings.

**Philips**

**MATTERS DISCUSSED**

**ACTION BY:**

10. Paul Cripps stated that the future Seaman crossing is to be removed, however, there may need to be provision for a possible private crossing in this area.

**Philips**

11. Brian Bishop reviewed the matter of the CN culvert crossing noting that as a jack and bore design, it need not be as low as the open cut scenario previously advanced in 1991. Notwithstanding, Paul Cripps requested that Philips review the opportunity to "pick up" the Kingsford Industrial Park drainage to this location and that this would setup the invert accordingly.

**Philips**

12. Paul Cripps indicated that the existing Arvin Avenue facility will likely be a candidate site for a retrofit. It was also questioned whether or not the facility could be used in some means for quantity control. Philips would evaluate this opportunity accordingly.

**Philips**

13. Brian Bishop presented the design alignment of the channel across the lands north of Arvin Avenue and south of Arvin Avenue. Some concern was expressed regarding the setback and "lost" lands adjacent to the railway.

Ron Scheckenberger noted this was largely due to flood conveyance and the inability to effectively move through two 90° bends over such a short distance. Notwithstanding, Philips would evaluate additional options to determine whether or not there are some minor opportunities to adjust the alignment. The headwall would be converted to a 90° headwall to allow for slight adjustments.

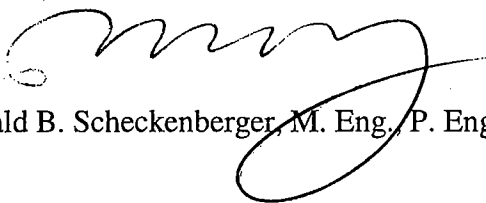
**Philips**

14. In terms of a schedule, Philips will address the issues identified above and then complete the package for a Public Notice of Completion. This is anticipated mid January 2001.

**Philips**

Minutes prepared by,

**PHILIPS ENGINEERING LTD**



Per: Ronald B. Scheckenberger, M. Eng., P. Eng.

RBS/mp

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c.c. All Present





**Subject:** Meeting Agenda  
 Review of Philips Engineering Ltd. Projects

**Date:** December 10, 2002

**Time:** 8:30 a.m.

**Location:** City of Hamilton – City Centre

**In Attendance:**

Rob Shames	➤	City of Hamilton
Jill Stephen	➤	City of Hamilton
Norman Schwartz	➤	City of Hamilton
Brian Bishop	➤	Philips Engineering Ltd.
Ron Scheckenberger	➤	Philips Engineering Ltd.

**MATTERS DISCUSSED**

**ACTION BY:**

**Watercourse No. 7 Class Environmental Assessment**

- (i) The City is currently in a process of securing the easement at the outlet. The Real Estate Department is negotiating with the local property owner. There was a question raised as to the need for Part 1 versus Part 4, as one of the parcels is considerably removed from the outlet. Given the current information, those present considered Part 4 not to be an issue. Jill Stephen would confirm this further with Paul Cripps. It was indicated that the easement could be acquired, based on its current course, within 2 to 3 months.
- (ii) Jill Stephen indicated that there is pressure from the Economic Development Department to complete this initiative, in order to open up industrial lands for development. Ron Scheckenberger noted that he had provided costing information to Paul Cripps in this regard in the last week or two.
- (iii) The Action Plan was reviewed as follows:
  - (a) Philips to complete the project file, circulate for City review, edit and update according to City input and publish Notice of Completion.
  - (b) Ron Scheckenberger indicated that a key outstanding

City

Philips/City

**MATTERS DISCUSSED**

**ACTION BY:**

concern relates to the grade required at the railway crossing, as this grade is somewhat flexible, depending on the needs of the development lands to the south and east (specifically Kingford Industrial Park). This information has previously been requested from the developers, however, nothing has been provided to date.

Jill Stephen was requested to coordinate a meeting with PEIL mid January 2003 to discuss drainage area and grade considerations.

**City**

- (c) Ron Scheckenberger indicated that the previous proposal to the City did not include any cost sharing program and that this strategy would need to be developed at some point. Philips did produce preliminary information with respect to the former plan in 1994.

Minutes prepared by,

**PHILIPS ENGINEERING LTD**

Per: Ronald B. Scheckenberger, M. Eng., P. Eng.

RBS/mp

G:\WORK\102014\CORRES\MINUTES\MINDEC10-02.DOC

c.c. All Present  
Steve Chipps, Philips Engineering Ltd.  
Aaron Farrell, Philips Engineering Ltd.

**APPENDIX F**

**Cost Estimate**



The works were first costed in the 1989 Master Drainage Plan. Key changes to the design include:

- 2003 construction unit costs
- Natural Channel Design as opposed to Terrafix Block lining
- No culvert proposed for Seaman Avenue
- No storm sewer enclosure proposed from the SWM facility to the CNR
- New culvert proposed for Arvin Avenue

The design from Lake Ontario to the South Service Road was advanced to a contract stage in 1998, and hence the cost for that Phase has been completed to a more detailed level.

The QEW works have been constructed, and the cost-sharing was negotiated between the City of Stoney Creek and the MTO in 1996.

<b>COST ESTIMATE</b>		
<b>Phase/Section</b>	<b>Length (m)</b>	<b>Total \$</b>
Lake Ontario to South Service Road (SSR)	318	387,500
QEW and SSR culvert (City Share)	100	81,000
SSR to 130 m south of CNR	557	600,000
130 m south of CNR to Barton (incl. Arvin SWM facility)	465	500,000
<b>Subtotal</b>		<b>1,568,500</b>
Contingency (Engineering and Legal 15%)		235,275
<b>Total Estimated Cost</b>		<b>\$ 1,803,775</b>

MEMORANDUM

**TO:** Ian Neville, P.Eng.  
**FROM:** Ron Scheckenberger, M.Eng., P.Eng.  
Ray Guther, P.Eng.  
**DATE:** November 11, 1997  
**RE:** Watercourse # 7 (Lake Ontario to North Service Road)

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Further to our meeting of November 11, 1997 we have reviewed the current design of Watercourse # 7 with respect to potential design features and changes which may be necessary to secure DFO approval of the proposed watercourse reconstruction. In addition, we have prepared a preliminary construction cost estimate for the same, along with an associated work plan and budget for your consideration. As noted during our meeting, we would envision presenting this plan as a concept to DFO staff prior to initiating the final design.

**Environmental Design Features**

"Fish-Friendly" design features which may be considered consist primarily of elements which:

- Reduce/Eliminate barriers to movement
- Enhance current habitat characteristics of the channel

To this end we would suggest that the key features which should be incorporated into the design are:

- ⇒ Creation of a low flow channel with a natural substrate invert along the length of the watercourse to allow movement of fish
- ⇒ Redesign the proposed drop structures to allow movement of fish through the watercourse (Lake Ontario and See Breeze Crescent)
- ⇒ Incorporate riparian planting along the length of the low flow channel
- ⇒ Replace Terrafix™ lining with appropriate natural vegetated "floodplain" (grasses, shrubby woody vegetation etc..)
- ⇒ Widen channel section (2m +/-) to compensate for increase roughness to maintain conveyance
- ⇒ Recess the proposed drop structure from water's edge by 15 m +/- to avoid interference with the dynamics of the beach building processes and wave action
- ⇒ Lower one cell of the proposed twin cell culvert at Seabreeze Crescent, or replace with open footing pre-cast structure (natural substrate)

### **Cost (Construction and Re-Design)**

Estimates of construction and design costs for the "original" and "modified" watercourse works have been calculated and brought forward to 1997 dollars, and are provided for your consideration and budgeting purposes as outlined the following Table.

<b>Summary of Watercourse 7 Construction Costs (excludes Engineering and Contingency - 10%)</b>		
<b>Watercourse Design</b>	<b>Cost ( \$ - 1990 dollars)</b>	<b>Cost ( \$ - 1997 dollars)</b>
Original Design	\$360, 000	429,000
Proposed "Modified" Design	N/A	368,000

As illustrated in the foregoing table it is expected that Construction cost should decrease by approximately \$ 61,000 as a result of the proposed design changes. Engineering costs to re-design the watercourse, inclusive of presentation to agencies (HRCA, MNR, DFO), are estimated as \$ 10, 000 excluding GST.

### **Further Action**

If you are agreeable to proceeding with the proposed redesign, please advise us accordingly. We would suggest that the next step in the design process would be to arrange a meeting with DFO personnel to obtain an approval in principle to the proposed re-design concept.





# WATERCOURSE NO. 7

## CHANNEL RECONSTRUCTION - LAKE ONTARIO TO BARTON STREET

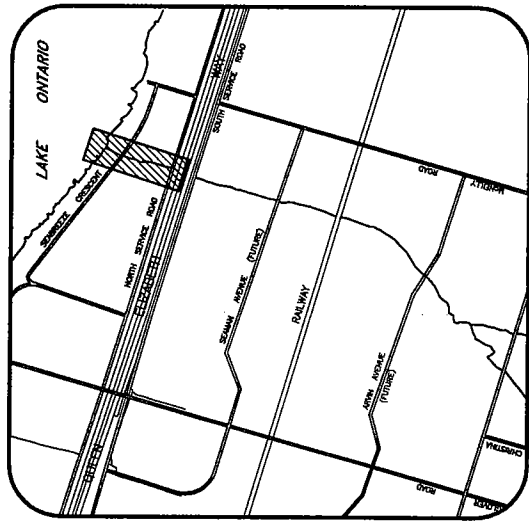
### CITY OF HAMMILTON

JOB NO. 1000046

CONTRACT NO. 03-000

### INDEX TO DRAWINGS

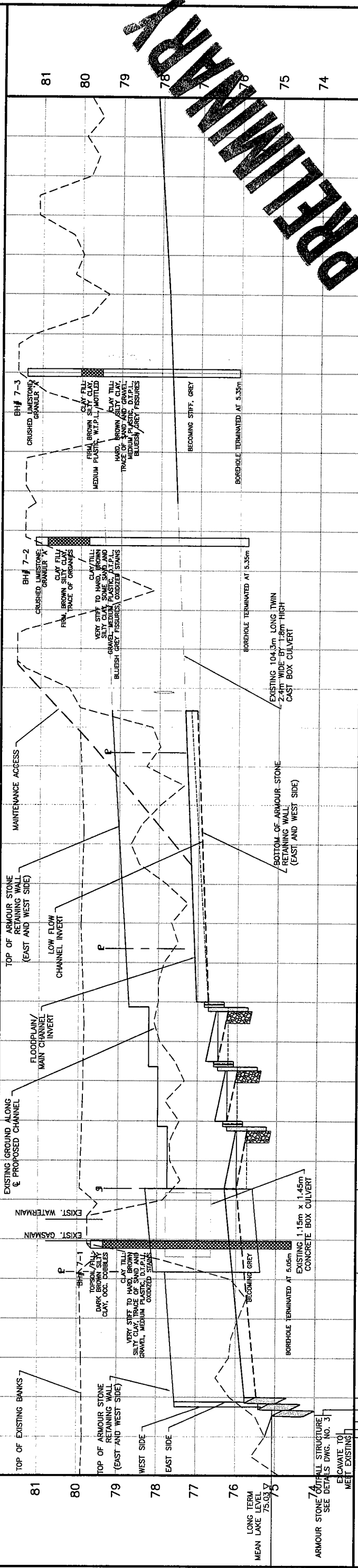
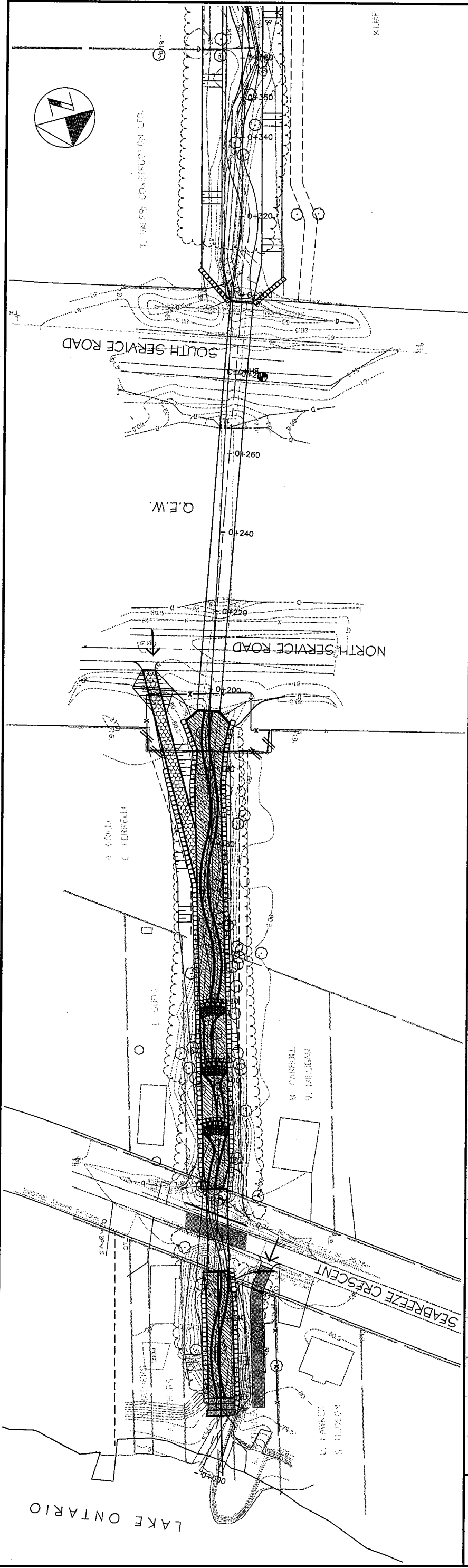
SHEET No.	DESCRIPTION
1	OVERALL PLAN
2	CHANNEL PLAN AND PROFILE STA. 0+000 TO STA. 0+350
3	CHANNEL PLAN AND PROFILE STA. 0+350 TO STA. 0+700
4	CHANNEL PLAN AND PROFILE STA. 0+700 TO STA. 1+200
5	CHANNEL PLAN AND PROFILE STA. 1+200 TO BARTON STREET
6	SECTIONS
7	TYPICAL SECTIONS AND DETAILS
8	VORTEX ROCK WEIR PLAN AND PROFILE
9	SEABREEZE CRESCENT CULVERT - GENERAL ARRANGEMENTS
10	EROSION AND SEDIMENTATION CONTROL PLAN
11	CHANNEL PLANTING PLAN 0+000 TO 0+100
12	CHANNEL PLANTING PLAN 0+100 TO 0+247
13	CHANNEL PLANTING DETAILS



KEY PLAN

**PRELIMINARY**





**PHILIPS ENGINEERING**

No.	DATE	BY	REVISIONS	MAN/CAD	APPROVALS				Design Drawn	BB	MS	Checked	Checked	Date
					?	?	?	?						
0+000	74.89													
0+007	75.17													
0+020	76.15													
0+040	75.94													
0+051.8	75.79													
0+060	77.93													
0+062	79.76													
0+072.9	76.00													
0+080	77.88													
0+085	75.74													
0+093	76.24													
0+100	77.33													
0+120	76.23													
0+120	77.99													
0+140	77.87													
0+160	78.70													
0+180	78.32													
0+194.3	77.06													
0+200	80.29													
0+210	81.50													
0+220	79.63													
0+240	78.22													
0+247	81.16													
0+260	80.70													
0+280	81.62													
0+300	79.34													
0+320	81.11													
0+340	79.92													
0+340	78.07													

**CHANNEL PLAN AND PROFILE**  
STA. 0+000 TO STA. 0+350

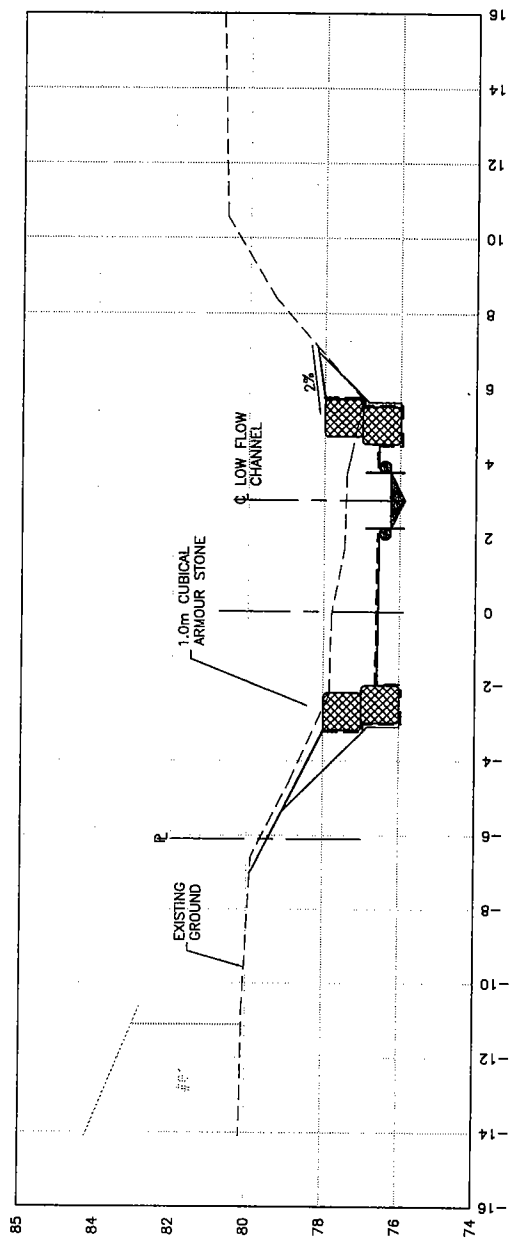
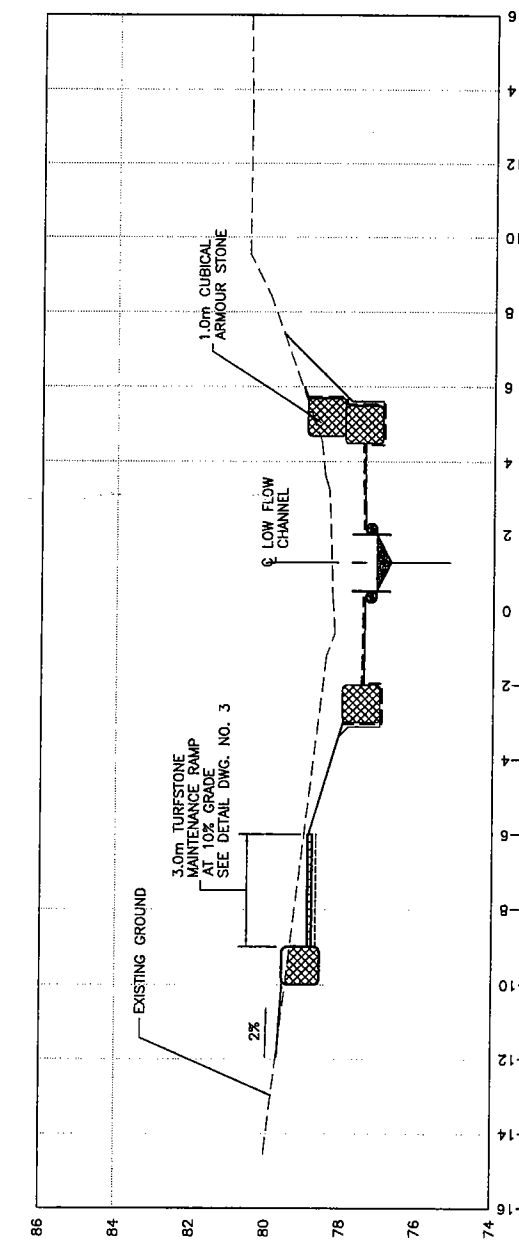
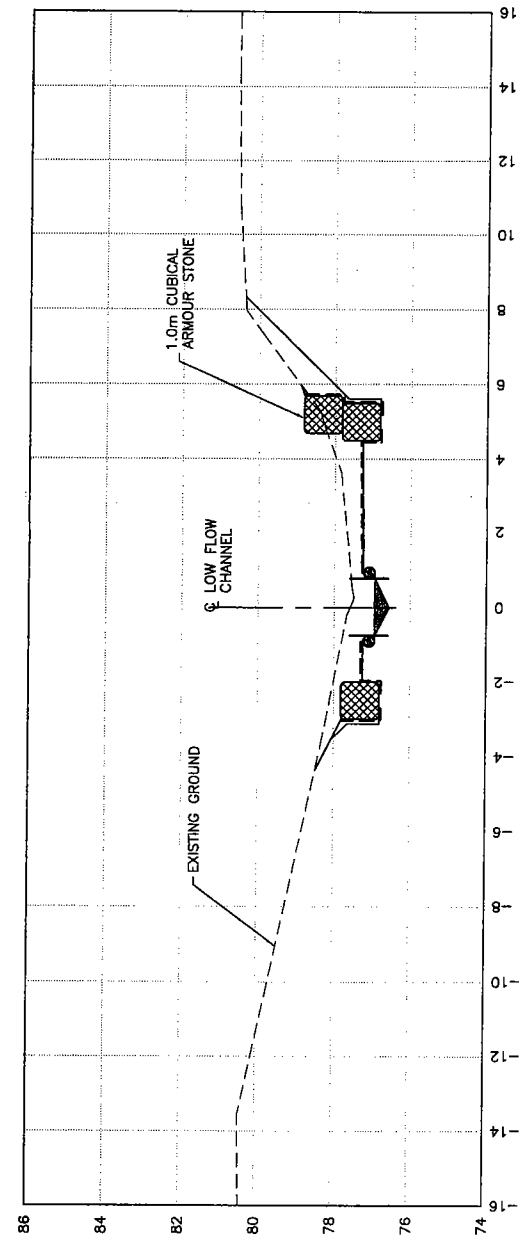
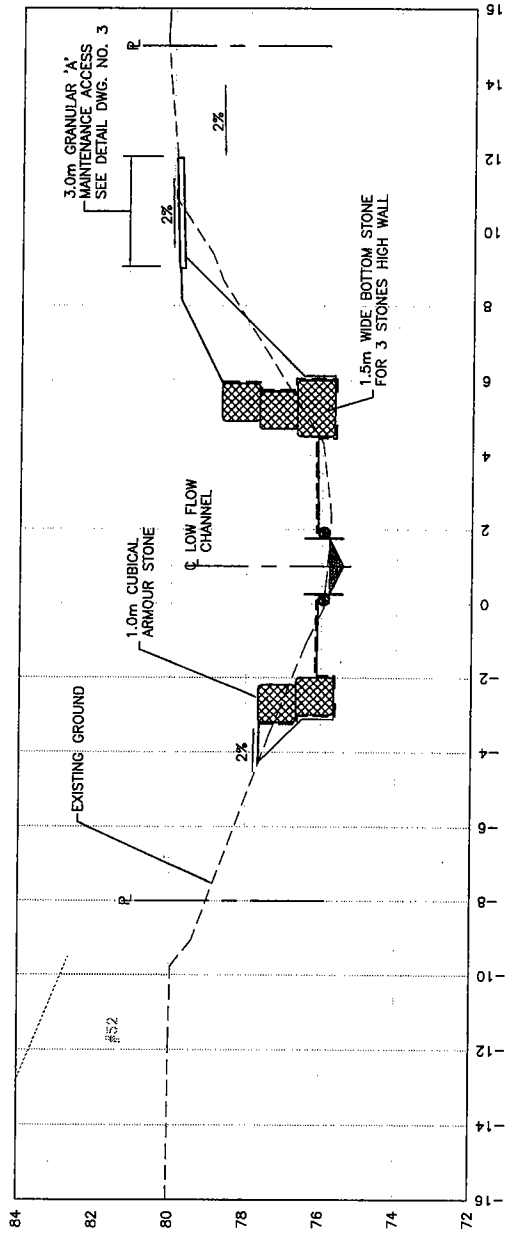
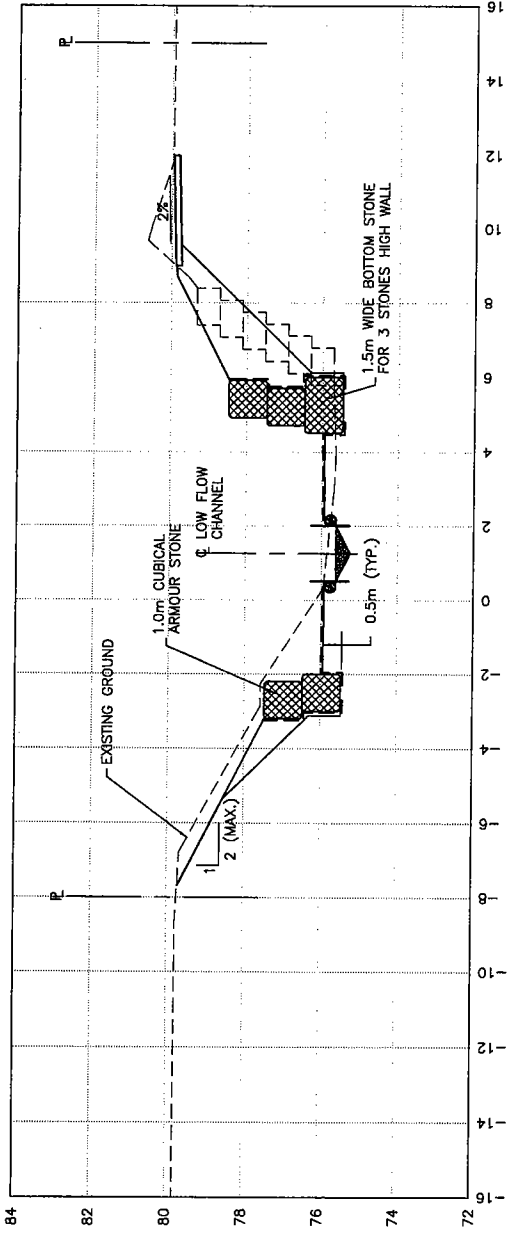
**WATERCOURSE NO.7**  
**CHANNEL RECONSTRUCTION**  
CITY OF HAMILTON

Contract No. \_\_\_\_\_  
Consultant File No. 100046  
Drawing No. SHEET 2 of ?

PHILIPS ENGINEERING

JUNE 2003





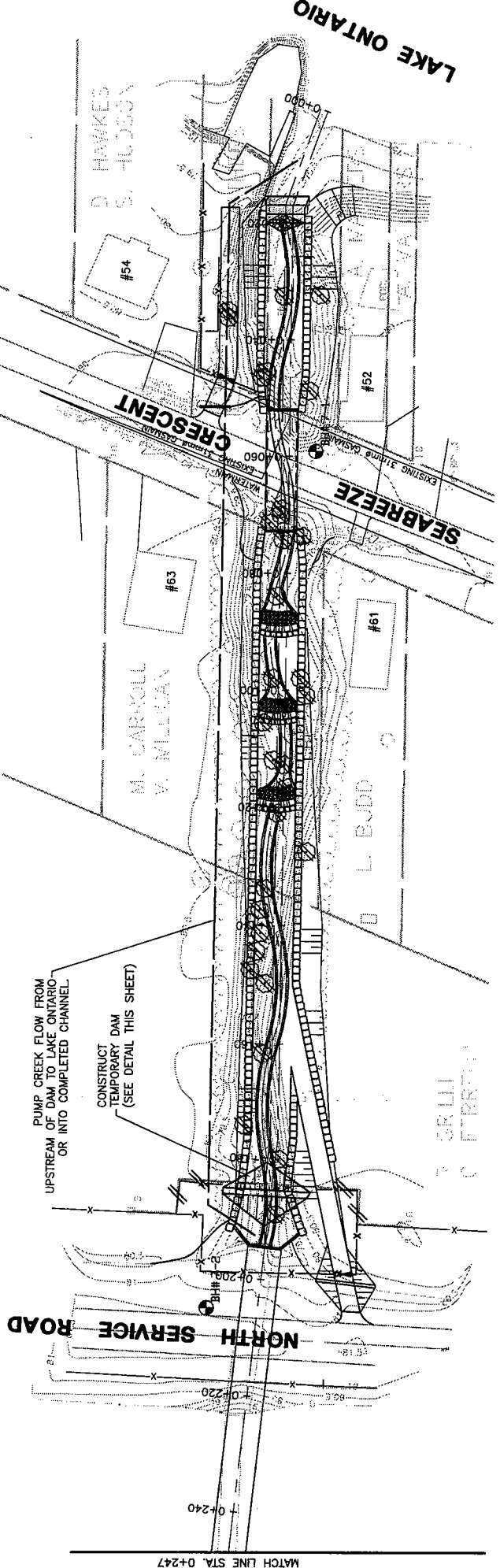
**PRELIMINARY**

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APPROVALS									
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Drawn		MS	Checked			Scale		1:100	
Date		JUNE 2003							
WATERCOURSE NO.7 CHANNEL RECONSTRUCTION CITY OF HAMILTON									
SECTIONS									
Contract No.		100046							
Consultant File No.		100046							
Drawing No.		SHEET 6 OF ?							



LIMIT OF CHANNEL CONSTRUCTION  
STA 0+194.3

LIMIT OF CHANNEL CONSTRUCTION  
STA 0+016.3



**NOTES:**

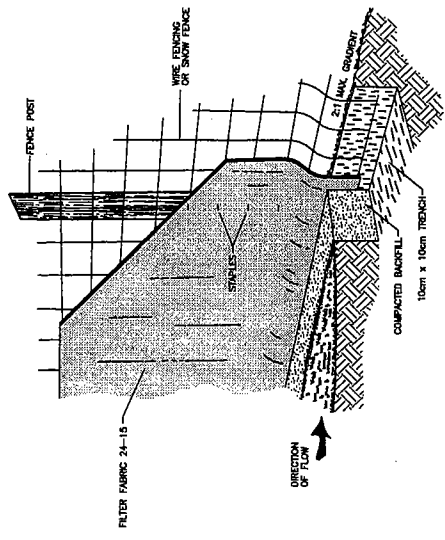
1. THE CONTRACTOR MUST ABIDE BY THE GUIDELINES SET OUT IN THE ONTARIO GOVERNMENT PUBLICATION "GUIDELINES ON EROSION AND SEDIMENTATION CONTROLS FOR URBAN CONSTRUCTION SITES" AND "HAMILTON REGION CONSERVATION AUTHORITY PUBLICATION "KEEPING SOIL ON CONSTRUCTION SITES".
2. THE ROCK FLOW CHECK DAM SHALL BE IN PLACE AT THE DOWNSTREAM END OF THE CHANNEL PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION WORK.
3. ALL ACCUMULATED SILT AND SEDIMENTS MUST BE REMOVED PRIOR TO REMOVING THE ROCK FLOW CHECK DAM.
4. ROCK FLOW CHECK DAM MUST BE MAINTAINED UNTIL SUCH TIME THE ENGINEER DEEMS THE MEASURE IS NO LONGER NECESSARY.
5. CONTRACTOR MUST DAM UP EXISTING CREEK TO ELEVATION 78.0 IMMEDIATELY DOWNSTREAM OF EXISTING NORTH SERVICE ROAD CULVERT. THE CREEK'S LOW FLOW MUST BE PUMPED FROM THE CULVERT TO LAKE ONTARIO AS SHOWN ON THE DRAWING.
6. THE TEMPORARY DAM SHALL BE CONSTRUCTED AS SHOWN ON THE DRAWING AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
7. ALL CHANNEL AND CULVERT WORK IS TO BE DONE IN THE DRY.
8. THE CONTRACTOR SHALL LIMIT HIS CHANNEL EXCAVATION/CONSTRUCTION SO THAT BY DAY'S END ALL WORKS WITHIN THE REACH INCLUDING BIOLOGS, TOPSOIL, AND EROSION CONTROL MATS, ARE TOTALLY COMPLETED.
9. THE CONSTRUCTION ACCESS FOR THE CHANNEL WORK WILL BE WITHIN THE CREEK VALLEY, EXCEPT FOR THE CONSTRUCTION OF THE CULVERT ON SEABREEZE CRESCENT.
10. THE CONTRACTOR SHALL MINIMIZE THE DISTURBANCE OF EXISTING VEGETATION. NO TREES ARE TO BE CUT WITHOUT PRIOR APPROVAL OF THE ENGINEER. ALL REQUIRED CLEARING SHALL BE MARKED BY THE ENGINEER.
11. THE CHANNEL SLOPES SHALL BE TOPSOILED, SEED, MULCHED, (EROSION CONTROL BLANKET PLACED WHERE REQUIRED), WITHIN 7 DAYS OF THE COMPLETION OF THE GRADING.
12. REFUELING AND MAINTENANCE OF EQUIPMENT AND STORAGE OF FUEL, OIL AND OTHER CHEMICALS SHALL BE UNDERTAKEN OUTSIDE OF THE WATERCOURSE CHANNEL AND FLOODPLAIN. SPILL CONTAINMENT EQUIPMENT SHALL BE MAINTAINED ON SITE THROUGHOUT THE CONSTRUCTION DURATION.

PRELIMINARY

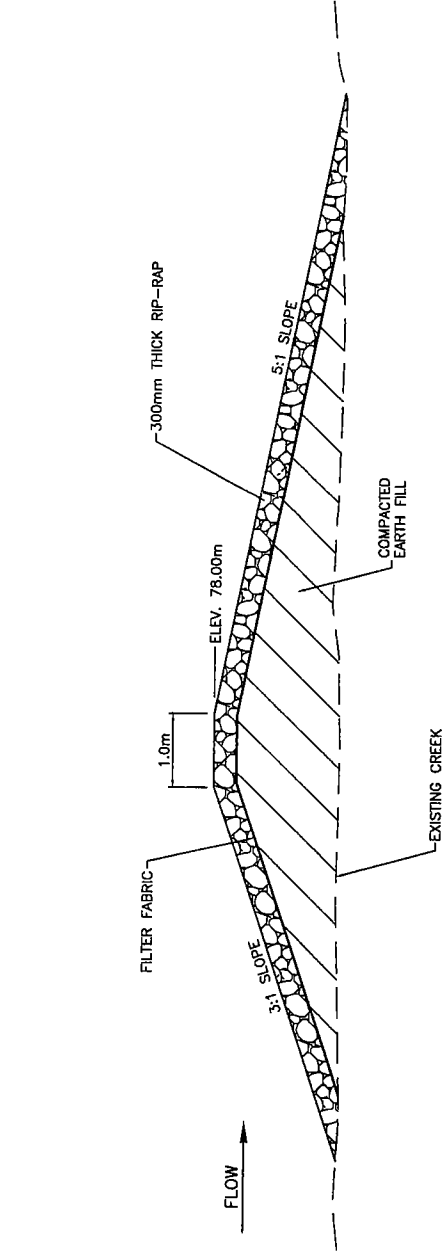
**LEGEND**



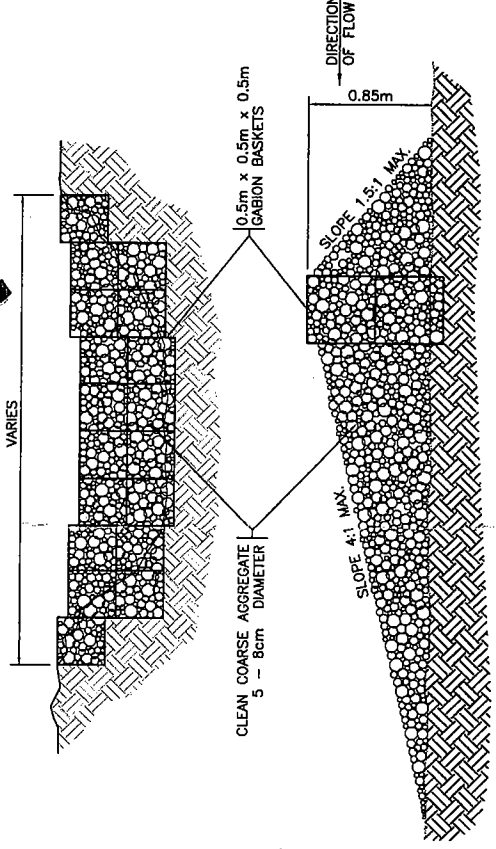
ROCK FLOW CHECK DAM



**SILTATION CONTROL FENCE DETAILS**  
SCALE 1:50

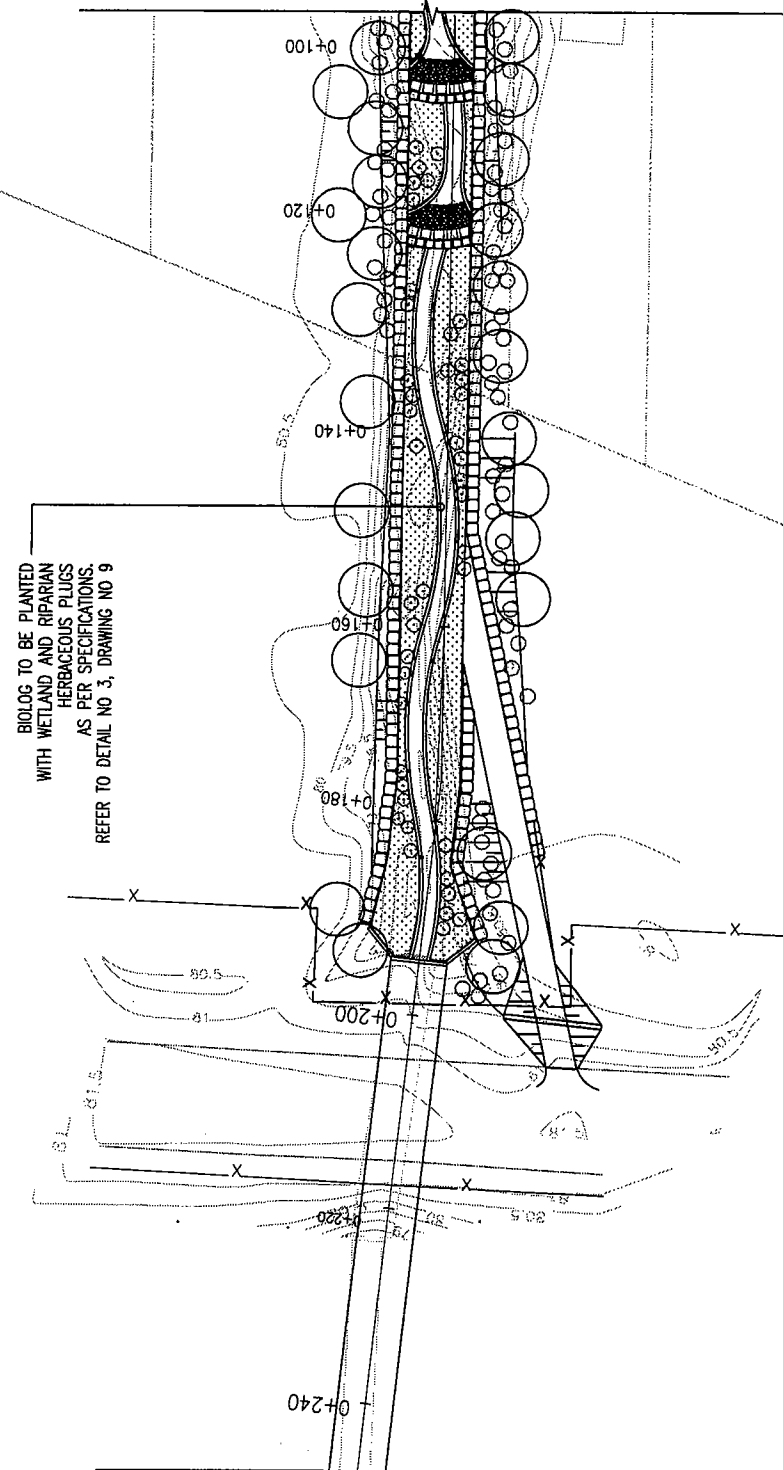
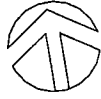


**TEMPORARY DAM**  
SCALE 1:50



**ROCK CHECK DAM (TYPICAL)**  
N.T.S.

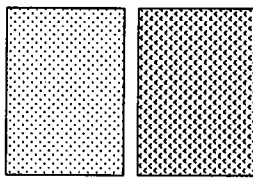
Contract No.		100046	
Consultant File No.		100046	
Drawing No.		10 of ?	
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<b>EROSION AND SEDIMENT CONTROL PLAN</b>			
<b>WATERCOURSE NO.7 CHANNEL RECONSTRUCTION</b>			
<b>CITY OF HAMILTON</b>			
APPROVALS		Design	WM/BB
		Drawn	MK/MS
		Scale	1:100
		Date	JUNE 2003
No.	DATE	BY	REVISIONS
			MAN/CAD



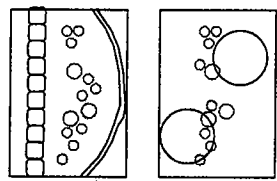
BIOLOG TO BE PLANTED WITH WETLAND AND RIPARIAN HERBACEOUS PLUGS AS PER SPECIFICATIONS. REFER TO DETAIL NO 3, DRAWING NO 9

**LEGEND**

**SEEDING**



**PLANTING**



FLOODPLAIN PICKSEED WETLAND MEADOW HYDRO SEEDING AS PER SPECIFICATIONS

UPLAND 100MM TOP SOIL + HYDROSEEDED AND MULCH AS PER SPECIFICATIONS

RIPIARIAN SHRUB PLANTINGS AREAS TO BE PLANTED WITH NATIVE RIPARIAN SHRUBS AS PER SPECIFICATIONS

UPLAND TREE AND SHRUB PLANTINGS AREAS TO BE PLANTED WITH NATIVE CREEPER, SHRUBS, AND TREES AS PER SPECIFICATIONS

**LIST OF UPLAND SLOPE TREES AND SHRUBS STATION 0 + 100 TO 0 + 200**

PLANTING MODULES	QUANTITY	SIZE	CONDITIONS	REMARKS
<b>SLOPE PLANTING MODULES</b> (ALLOCATION OF SPECIES AND SIZES IN PLANTING UNITS TO BE REVIEWED ON SITE WITH ECOLOGICAL CONSULTANT. SPACINGS ARE APPROXIMATE. PLANTINGS ARE TO BE IN NATURALISTIC GROUPINGS.)				
<b>PLANTING MODULES</b> ADJACENT TO LOW FLOW CHANNEL SHRUBS AVERAGE SPACING 1.0 -1.5 m. o.c. (2 TREES AND 12 SHRUBS PER MODULE)	24			
<b>SHRUBS</b>				
AMELANCHIER LAEVIS - JUNE BERRY (10%)	7	50 cm	Pot	
CELASTRUS SCANDENSIS - BITTERSWEET (15%)	10	2 yrs min.	Pot	
CORNUS RACEMOSA-GRAY DOGWOOD (30%)	20	50 cm	Pot	
PARTHENOCISSUS INSERTA-THICKET CREEPER(20%)	13	50 cm	Pot	
PRUNUS VIRGINIANA-CHOKE CHERRY (15%)	10	50 cm	Pot	
VIBURNUM LENTAGO-NANNYBERRY (10%)	7	50 cm	Pot	
<b>TOTAL</b>	<b>67</b>			
<b>TREES</b>				
ACER RUBRUM-RED MAPLE (10%)	3	200 cm	B&B	
CARYA OVATA?SHAGBARK HICKORY (5%)	1	200 cm	B&B	
FRAXINUS AMERICANA-WHITE ASH (30%)	8	200 cm	B&B	
TILIA AMERICANA-BASSWOOD(20%)	5	200 cm	B&B	
POPULUS TREMULOIDES-TREMBLING ASPEN (25%)	6	200 cm	B&B	
QUERCUS MACROCARPA?BUR OAK(5%)	2	200 cm	B&B	
QUERCUS ALBA?WHITE OAK (5%)	1	200 cm	B&B	
<b>TOTAL</b>	<b>26</b>			

**LIST OF RIPARIAN SHRUBS STATION 0 + 100 TO 0 + 200**

PLANTING MODULES	QUANTITY	SIZE	CONDITIONS	REMARKS
<b>RIPIARIAN SHRUB PLANTING MODULES</b> (ALLOCATION OF SPECIES AND SIZES IN PLANTING UNITS TO BE REVIEWED ON SITE WITH ECOLOGICAL CONSULTANT. SPACINGS ARE APPROXIMATE. PLANTINGS ARE TO BE IN NATURALISTIC GROUPINGS.)				
<b>PLANTING MODULES</b> ADJACENT TO LOW FLOW CHANNEL SHRUBS AVERAGE SPACING 1.0 -1.5 m. o.c. (6 SHRUBS PER MODULE)	7			
<b>SHRUBS</b>				
CORNUS STOLONIFERA-RED OSIER DOGWOOD (45%)	19	50 cm	Pot	
PARTHENOCISSUS INSERTA-THICKET CREEPER(10%)	5	2 yrs min.	Pot	
PHYSCOCARPUS OPULIFOLIUS-NINEBARK (10%)	4	50 cm	Pot	
SALIX EXIGUA-SAND BAR WILLOW (15%)	6	50 cm	Pot	
SAMBUCUS CANADENSIS - ELDERBERRY (5%)	2	50 cm	Pot	
SPIREA ALBA?NARROW?LEAVED MEADOWSWEET(5%)	2	50 cm	Pot	
VIBURNUM LENTAGO-NANNYBERRY (10%)	4	100 cm	Pot	
<b>TOTAL</b>	<b>42</b>			

**PRELIMINARY**

NO.	Date	BY	REVISIONS	MAN/CAD
Design	S.C.	Ch'kd	J.D.	Date
Drawn	S.C.	Ch'kd	J.D.	MAY 1998
Scale:	As shown			
References:	Field Notes			
Municipal Approvals:	Municipal			
City Engineer:	Date			
Regional:	Stamp			
<b>INDUSTRIAL CORRIDOR MASTER DRAINAGE PLAN AREA No. 7</b> CITY OF STONEY CREEK				
<b>TITLE</b> CHANNEL PLANTING PLAN STA. 0 + 100 TO 0 + 200				
Consultant File NO		Municipal Drawing NO		
90048		90048		
CONTRACT NO		Drawing_NO		
		SHEET 8 OF 9		