Manning Road Secondary Plan Area – Stormwater Management Study Class EA Environmental Study Report

Final Report

April 2010

Corporation of the Town of Tecumseh

04-4139-8000

Submitted by

Dillon Consulting Limited
3200 Deziel Drive, Suite 608
Windsor, Ontario N8W 5K8
Telephone: (519) 948-5000
Facsimile: (519) 948-5054
E-mail: windsor@dillon.ca

TABLE OF CONTENTS

LIST OF TABLES

Table No.

LIST OF FIGURES
(Following the Report)

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 Study Purpose

The Town of Tecumseh has initiated a Class Environmental Assessment (Class EA) to evaluate the impact of one or more stormwater management (SWM) facilities to service land owners within the Manning Road Secondary Plan Area. The study area, illustrated in **Figure 1.0 - Study Area**, is bounded by Essex County Road 22 to the north, Manning Road (Essex County Road 19) to the east, the Canadian Pacific Railway to the south, and the westside of St. Anne Street and Lesperance Road to the west. The study area is compromised of nearly 250 hectares, approximately 150 hectares of which are undeveloped lands. Development applications have been submitted for the majority of the undeveloped parcels, which have multiple owners. Ultimately, within approximately ten years, as many as 800 new residential units and approximately 5 hectares of commercial development are anticipated within the study area.

1.2 Problem Statement

To ensure consistency and quality in evaluation and identifying infrastructure improvements to support the proposed development, the Town of Tecumseh is coordinating the study of stormwater needs for the full development of the study area through the Class EA process.

The purpose of this study is to identify the best possible solution for addressing the stormwater drainage needs to accommodate future development in the Manning Road Secondary Plan Area in the Town of Tecumseh.

1.3 Class Environmental Assessment Process

The stated purpose of the Environmental Assessment Act (EAA) is the "betterment of the people of the whole or any part of Ontario by providing for the protection, conservation and wise management in Ontario of the environment" where the broad environment includes the natural, social, cultural, built, and economic environments.

The provisions of the EAA require all municipalities to undertake an environmental assessment for virtually all public works projects. The procedures and requirements under the EAA are described in the document entitled *Municipal Class Environmental Assessment* that was prepared by the Ontario Municipal Engineers Association (June 2000). The Municipal Class EA process is

a five phased decision-making framework for the planning and design of municipal stormwater projects that are undertaken on a frequent basis, are normally limited in scale and have a predictable range of environmental impacts.

The Class EA document also serves as the public statement of the decision-making process followed by the municipalities in the planning and implementation of the needed infrastructure.

Studies conducted using this framework are considered to have satisfied the requirements of the Ontario Environmental Assessment Act by virtue of having followed the key principles of environmental planning outlined below:

- Consultation with affected parties early in and throughout the process, such that the planning process is a cooperative venture.
- Consideration of a reasonable range of alternatives, both the functionally different "alternatives to" and the "alternative methods" of implementing the solution.
- Identification and consideration of the effects of each alternative on all aspects of the environment.
- Systematic evaluation of alternatives in terms of their advantages and disadvantages to determine their net environmental effects.
- Provision of clear and complete documentation of the planning process followed, to ensure "traceability" of decision-making with respect to the project.

The five Phases of the Class EA process, as described in the *Municipal Class Environmental Assessment* (June, 2000) document and considered essential for the fulfillment of the EAA requirements, are described below:

- *Phase 1* – Identification of the problem or opportunity;
- *Phase 2* – Identification of alternative solutions to the problem which take into account the existing environment, and the establishment of the preferred solution with public

and agency consultation; this phase also includes the confirmation of the appropriate project schedule;

- *Phase 3* - Examination of alternative means of implementing the preferred solution based on the existing environment, potential environmental effects, methods for minimizing effects, input from government agencies and the public, and opportunities for maximizing positive effects;

- *Phase 4* – Preparation of an Environmental Study Report that documents the rationale for the undertaking, and the planning, design and consultation process that was followed; and the placement of the document on the public record for review and comment by government agencies and interested parties; and,

- *Phase 5* – Completion of engineering drawings and documents, followed by the construction and operation of the project, with appropriate monitoring to ensure compliance with environmental provisions and commitments.

In a meeting on February 15, 2005 with Dr. Ron Griffiths, Regional Class EA Co-ordinator, Southwestern Region of the Ministry of Environment (MOE), it was confirmed that a Class EA must be initiated for the SWM facilities within the Manning Road Secondary Plan Area if:

- the SWM facility cannot be included within the applicant's lands which are the subject of an application under the Planning Act (e.g., Plan of Subdivision), or

- the SWM facility will service two or more properties with different ownerships.

It was also confirmed during this meeting that SWM facilities may no longer be constructed as "on-line" facilities within municipal drains designated under the Drainage Act.

The Municipal Class EA document classifies projects into three separate categories: "Schedule A, B, or C". The Manning Road Secondary Plan Area Stormwater Management Study was originally conducted as a "Schedule B" Class EA under the definition of MOE. As described further in this report, the Town of Tecumseh made the decision to go forward with a "Schedule C" project after the first Public Information Centre and upon reviewing and confirming the schedule. "Schedule C" projects require the completion of Phases 1 through 5 of the EA process.

Such projects include "the establishment of new stormwater retention / detention ponds and appurtenances or infiltration systems including outfall to receiving water body."

In brief, the specific objectives of this Class EA study are as follows:

- define the purpose and description of the undertaking;
- identify and evaluate alternative solutions;
- conduct a Public Information Centre;
- identify and evaluate alternative design concepts;
- conduct a second Public Information Centre;
- document study findings in an Environmental Screening Report; and
- respond to a Part II Order, if required.

Refer to **Figure 2.0 Class Environmental Assessment Process** for a visual description and flow chart of the requirements of the "Schedule C" Class EA process.

1.4 Report Organization

The remainder of the report is organized into the following sections:

Section 2 – Existing Conditions – This section presents a summary of existing conditions that constitutes the 'Problem Statement' under Phase 1 of the Class Environmental Assessment process, including a description of the Drainage System and existing land use, as well as a summary of previous studies of the study area. Additional existing conditions characteristics including fisheries, natural heritage, and hydrological considerations are also summarized.

Section 3 – Stormwater Management (SWM) – This section describes the potential stormwater management measures and design criteria that are being considered. These measures include lot-level BMPs, conveyance controls, and centralized and local end-of-pipe facilities with various operational requirements and configurations.

Section 4 – Alternative Solutions – Recommendations in this section form the basis of the Class EA. Each alternative solution is considered via a review of existing system characteristics, and an evaluation of feasible alternatives. Alternative solutions are subject to environmental criteria including social, economic, and natural considerations. The identification and evaluation of alternative solutions addresses key requirements of Phase 2 the Class EA process. This section also summarizes the public and agency consultation activities that are required under Phase 2 of the Class EA.

Section 5 – Alternative Design Concepts – A preferred solution was selected, and the alternative design concepts for the preferred solution were formulated. Each alternative design concept was considered via a review of existing system characteristics, and an evaluation of feasible alternatives. Alternative design concepts, like the alternative solutions, are also subject to environmental criteria including social, economic, and natural considerations. The identification and evaluation of alternative design concepts addresses key requirements of Phase 3 of the Class EA process. This section also summarizes the public and agency consultation activities that are required under Phase 3 of the Class EA.

Section 6 – Development of Preferred Design – This section provides details of the preferred design concept with an indication of the recommended elements of improvement to the degree of development that has been completed during this Environmental Assessment Study.

Section 7 – Project Implementation and Mitigation of Environmental Impacts During Construction – This section provides details of the project construction schedule, mitigation of environmental impacts during construction, and the required construction approvals.

Section 8 – Cost Estimates and Cost Sharing Methodologies – This section describes the proposed cost estimates and cost sharing methodologies for implementation and construction of the project.

1.5 Public Consultation Program

Public and agency consultation is a key element of the EA planning process, and accordingly, extensive efforts have been made to provide the public and agencies with information on the study and to solicit input.

A contact list of potential stakeholder groups and agencies was established in consultation with the Town of Tecumseh in order to identify interested parties. The contact list for this project includes Federal agencies, Provincial Ministries, local agencies, and interest groups, as well as over five hundred property owners within the study area (see **Appendix A: Comprehensive Mailing List** for the complete list).

A Notice of Project Initiation, as shown in **Appendix B: Notice of Project Initiation**, was published in the Windsor Star on June 30, 2005 to notify the public of the proposed undertakings. Notices were also mailed to property owners within the study area and agencies with an interest in the project or study area.

Two Public Information Centres (PICs) were held on March 22, 2006 and December 5, 2006 at the Town of Tecumseh Council Chambers. The first PIC consisted of an informal walk-in session with displays summarizing the work completed to date and the recommended solution. The second PIC was held in order to provide property owners in the study area with a recommended design concept based on the preferred alternative solution. The PIC results are further described in Sections 4.3 and 5.3 of this report.

2.0 EXISTING CONDITIONS

2.1 Existing Land Use

The majority of the undeveloped area is agricultural land and vacant lots. Developed land within the study area includes commercial properties along County Road No. 22 and Manning Road. A developed light industrial area also exists along Manning Road. Developed residential properties lie at the western edge of the study area along Lesperance Road. More specifically, land situated within the study area can be described as follows:

- undeveloped and non-subdivided tracts of land between Manning Road and the existing limits of Tecumseh Hamlet primarily consist of relatively large parcels of land that are currently owned by ten individuals and/or corporations and the parcels range in size from 2.5 to 26.2 ha.

- within the Manning Road Business Park, individual lots were created along Sylvestre Drive and Desro Drive, ranging in area size 0.2 to 3.3 ha. Additional lots have already been created and built along Jamsyl Drive; the majority will require severance applications to create additional highway commercial and/or light industrial building lots north of Sylvestre Drive.

- Immediately south of the Manning Road Business Park, two parcels of land had been severed and zoned for institutional purposes (a new church and school). No construction, on either site, has commenced to date.

Refer to **Figure 3.0 Official Plan Designation** for the former Township of Sandwich South land use designations in the study area. Refer to **Figure 4.0 Existing Land Use** for existing land use in the study area. Refer to **Figure 5 Secondary Plan** showing the limits of the Manning Road Secondary Plan Area

2.2 Drainage System

The study area lies within the East Townline Drain subwatershed.

Local drains within the study area and their drainage boundaries, including the East Townline Drain drainage area, are depicted in **Figure 6.0 Drainage Areas**.

2.2.1 East Townline Drain

The East Townline Drain, which is shown on Figures 7 to 12, extends from the former Township of Sandwich South, through the former Town of Tecumseh along the west side of the Manning Road right-of-way from the Canadian Pacific Railway to Lake St. Clair where it is pumped into Lake St. Clair. The pump station contains two axial flow pumps with a total capacity of 1.9 m^3/s. Maintaining pump operation at a satisfactory level with the proposed development in place is one of the considerations in evaluating various stormwater management measures.

Following the recommendation of the *Storm Drainage Study for the Township of Sandwich South, Tecumseh Hamlet* (Dillon, June 1979), the drainage area within the former Township of Sandwich South, to the East Townline Drain, was reduced from 285 to 260 ha.

2.3 Previous Studies

The following sections describe previous studies conducted within and around the study area including recommendations for improvements.

2.3.1 Storm Drainage Study for the Township of Sandwich South, Tecumseh Hamlet, June 1979

In recognizing the need for a comprehensive master drainage plan for this area, the *Storm Drainage Study for the Township of Sandwich South, Tecumseh Hamlet* (M.M. Dillon, July 1979) was prepared to assist the Township in setting requirements for storm drainage as new development occurs. The report provides design criteria recommendations including that the storm sewers be designed for the 2-year storm event using runoff coefficients of 0.35 for Residential, 0.65 for Industrial and 0.20 for Park Land uses.

With respect to the Baillargeon Drain drainage area, the report recommends that it would be desirable to extend the drainage area westerly. This would require major improvements to the outlet drain east of Lesperance Rd. A Drainage Report for this outlet drain was prepared by C.G.R. Armstrong (November 5, 1975). The report found that due to development that had taken place in the drainage area draining into the upper portion of the Baillargeon Drain, the drain is neither sufficiently deep nor large enough to afford proper drainage to the lands and roads affected. The report recommends that the open portion of the drain (from the east of Lesperance to its outlet at the East Townline Drain) be deepened and improved. The drainage study (M.M. Dillon, July 1979) notes that these recommendations have been implemented.

2.3.2 Improvements and Reassessment to East Townline Drain and Pumping Station (1982)

An assessment of the East Townline Drain and the pumping station was conducted to determine improvements necessary as a result of changes in land use and drainage characteristics within the watershed (*Drainage Report, Improvements and Reassessment to East Townline Drain and Pumping Station*, M.M. Dillon Limited , January 1982). Minor improvements to the pumping station and culvert crossings, as well as cleaning of the drain to provide greater hydraulic capacity were recommended.

The East Townline Drain is located along the west side of the Manning Road (County Road 19) right-of-way. It extends, primarily as an open drain from County Road 42 to Lake St. Clair, except between County Road 42 and St. Gregory's Road where it has been enclosed with a precast concrete culvert. The drain services a total of 440 hectares of mixed agricultural, residential, commercial and light industrial land uses, which includes lands within the Cyr, Baillargeon Drains and the Manning Road Drain (in Lakeshore).

An internal storm drainage network is currently in place for the Jamsyl Business Park. A 675 mm storm sewer stub with a capacity of 0.3 m^3/s extends from Jamsyl Drive to the western edge of the business park to service approximately 12.1 ha of currently vacant agricultural land abutting the Jamsyl Business Park.

2.2.2 Baillargeon Drain

The Baillargeon Drain traverses the study area, south of the developed Jamsyl Business Park and conveys storm drainage from the built-up residential area west of the undeveloped portion of the study area as well as the abutting vacant agricultural lands.

The drain, which services approximately 90 hectares of developed residential lands and vacant agricultural lands, is primarily an open channel except for a small portion of enclosed drain within the residential areas near Lesperance Road. The Baillargeon Drain outlets to the East Townline Drain at Manning Road.

2.2.3 Cyr Drain

The Cyr Drain is located along the western limit of the study area, as shown on Figures 7 to 12.

The drain is located approximately 300 meters east of Lesperance Road along the boundary between residential and vacant farm lands and extends from County Road 22 southerly approximately 800 metres. The drainage area, which includes approximately 65 hectares of residential, commercial and agricultural land uses, outlets northerly as an open drain to the County Road 22 right-of-way and then easterly along the south side of the right-of-way to the East Townline Drain at Manning Road. A short portion of the Cyr Drain immediately south of County Road 22 is enclosed.

2.3.3 Township of Sandwich South Master Drainage Plan, 1987

The Township of Sandwich South lies at the headwaters of various watersheds, one being the East Townline Drain subwatershed. The *Township of Sandwich South Master Drainage Plan* (N.K. Becker and Associates Ltd., 1987) was conducted for ERCA to identify present and future storm drainage problems based on established land use trends and to identify improvements to the drainage system to maintain storm runoff at predevelopment levels.

Key recommendations that emerged from this study with respect to the East Townline Drain drainage area include:

- For residential and industrial infilling and new subdivisions, on-site stormwater management measures should be implemented to reduce post-development 2-year event flow rate to the pre-development 2-year flow rate.

- The Baillargeon Drain lends itself to channelization for the purposes of creating on-line stormwater detention. Off-line storage would also be possible in this area. (Recent Provincial legislation prohibits on line stormwater detention in municipal drains – see page 3).

- An outlet structure for the Baillargeon Drain would be required to limit runoff to pre-development conditions where it drains to the East Townline Drain. The outlet structure would be required once development applications are approved for these lands.

2.3.4 Manning Road Secondary Plan, 1996

The Manning Road Secondary Plan (Prince Silani & Associates Ltd. and MM. Dillon Ltd., 1996) was prepared to provide the necessary background information to be used during the preparation of new land use policies and designations for the lands that lie in the geographic area defined by County Road No. 22 to the north, Manning Road to the east, the east limit of the existing residential lands along the east side of Lesperance Road to the west, and the CP Rail line to the south (see Figure 5.0). The Secondary Plan was used to identify and describe land use, transporation and servicing policies; specifically, it established servicing policies and design standards for all lands to be developed (i.e., storm , sanitary and water supply systems).

With respect to storm drainage, the Secondary Plan requires that stormwater management practices are required to restrict post-development flows to pre-development levels for the 2-year and 100-year storm events. New development must provide individual stormwater facilities to comply with this requirement. Stormwater management studies which address the impact of the new development on stormwater quantity and quality (using the *Stormwater Management Planning and Design Manual* (MOE, March 2003) for direction) must be prepared for all new development to confirm compliance with the Township of Sandwich South Master Drainage Plan and Provincial guidelines.

More detailed requirements of the Secondary Plan are as follows:

- Open municipal drains within the study are to be subject to easements and special building setback requirements for maintenance purposes as set out in the Township's Comprehensive Zoning By-Law.

- Stormwater quality objectives are to be applied to all new developments and can best be satisfied in single, large facilities that become an integral part of the overall passive open space network.

- For the Cyr Drain drainage area, it was recommended that the downstream portion of the drain (which is an open channel) be adapted to satisfy Provincial water quantity and quality requirements. (Not done).

- For the Baillargeon Drain and East Townline Drain drainage areas, a single stormwater facility at the west side of the study area was recommended to address both quality and quantity issues. It was also recommended that the actual size and location of this facility be established through a separate stormwater management study which would consider the built-up portion of the Baillargeon Drain drainage area (approximately 100 ha) (this facility has not been constructed).

2.3.5 Partial Enclosure of the Baillargeon Drain Report (1996)

A report describing the repair and improvement of part of the Baillargeon Drain was prepared by Bruce D. Crozier Engineering Inc. (November, 1996). The report provides details and specifications and costs for the proposed enclosure of approximately 420 m of the drain which was deemed necessary to require proper drainage for the proposed institutional development

on lands owned by James Sylvestre Developments Ltd. The report concludes that it would be possible to provide an enclosed system that would adequately replace the existing open drainage system within the northerly portion of the proposed service road for this development. Further, it was recommended to access the development across the East Townline Drain by installing a 1800 mm corrugated steel access culvert. (Not done).

2.3.6 Partial Enclosure of the East Townline Drain (2004)

In the *Tecumseh Road/Manning Road Environmental Report (May 2004)*, the Town of Tecumseh proposed a partial enclosure of the East Townline Drain north of Tecumseh Road, downstream of the study area. ERCA advised that the enclosure would require authorization from the Department of Fisheries and Oceans (DFO) and that appropriate habitat compensation would also be required. With the approval of DFO and ERCA, the Town provided fish compensation measures in a nearby watershed so that the East Townline Drain enclosure (from Tecumseh Road to north of St. Gregory Road) could be completed. The drain enclosure was subsequently completed.

2.3.7 Partial Enclosure of the East Townline Drain (2005)

In the *County Road 19 Environmental Study Report (Dec. 2005)*, road and drainage improvements were proposed along Manning Road (County Road 19), from County Road 22 north to the Canadian National Railway line. As a result, the East Townline Drain, from County Road 22 to the CNR line was enclosed with a concrete box culvert.

2.4 Soils

The principle surficial soil in the study area is described as Brookston clay or clay loam which belongs to the Hydrologic Soil Group of C. The Soil Conservation Service curve number for crop and other improved land within this soil group is 82 which indicates a low infiltration capacity and high runoff potential.

2.5 Terrestrial Environment

A site visit of the study area was conducted by a Dillon Consulting Biologist on April 6, 2005 to investigate natural vegetation and aquatic potential within the study area. In areas where vegetation is regenerating naturally and of sufficient size, Ecological Land Classification (Lee et

al. 1998) has been used for classification purposes. Due to the small size and semi-natural state of vegetation along hedgerows, vegetation is only described in generic terms. Representative photographs of the study area vegetation were documented during the field visit and depicted in **Appendix C: Study Area Vegetation and Aquatic Constraints.**

2.5.1 Methods

Vegetation was characterized using the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al. 1998) during field investigations. Where present, vegetation community boundaries were determined through the review of aerial photograph, and then ground-truthed and a vegetation or community classification assigned.

The ELC system recommends that a vegetation community be a minimum of 0.5 ha in size before it is defined. As a result, patches of vegetation less than 0.5 ha or vegetation which have been disturbed were described to the community level only. In some instances, where vegetation was less than 0.5 ha but appeared relatively undisturbed and clearly fit within an ELC vegetation type, the more refined classification was used. Remnant semi-natural vegetation along hedgerows and drains were described in generic terms.

The potential for natural areas and rare species to occur in the study area was examined using the Natural Heritage Information Centre database.

2.5.2 Results

The majority of the study area consists of agricultural fields planted with a mixture of corn and soybean. Semi-natural vegetation in the study is limited to the perimeter of agricultural fields, along municipal drains and a small area along the eastern boundary. Vegetation, along agricultural field perimeters and the three existing municipal drains, ranges from isolated trees mixed with herbaceous pioneer species to small mixed deciduous hedgerows. On the western perimeter of the study area a small section of naturally regenerating vegetation exists.

The Baillargeon Drain is located in approximately the middle of the study area and flows from the west side of the study area, east towards the East Town Line Drain. Dominant vegetation along the western portion of this drain consists of American elm, Manitoba maple and balsam poplar species (***Plate 1***). In the eastern portion of the drain, agricultural fields extend to within

half a metre of the top of bank. Drain slopes are vegetated with a Cultural Old Field Meadow (CUM 1-1), which includes grass species, goldenrod and other pioneer species.
The Cyr Drain is located along the west limit of the study area flowing north and adjacent to the southern limits of County Road 22, flowing west to east. Drain slopes are vegetated with a Cultural Old Field Meadow (CUM 1-1) including grass species, goldenrod and red osier dogwood. A new storm outlet has been created to service commercial development to the west (***Plate 2***) and outlets to the main drain which is enclosed for approximately 200 metres south from County Road 22.

The East Town Line Drain is located along the east limit of the study area within the western limit of the Manning Road right-of-way. Similar to vegetation along other drains, vegetation consists of a Cultural Old Field Meadow (CUM 1-1) dominated by grass and invasive species typical of roadside environments.

Hedgerow 1 is situated in a north south orientation, slightly east of the existing residential development. The type and quality of vegetation along in this hedgerow varies, but, dominant species include hawthorn, white oak, bur oak, balsam poplar, Manitoba maple, American elm, gray dogwood and red-osier dogwood (***Plate 3***). Just south of the middle of the hedgerow, two large oak specimen trees exist.

Hedgerow 2, located south of the western extent of the Baillargeon Drain, is dominated by trembling aspen.

The remaining vegetation located between agricultural fields consists of Cultural Old Field Meadow (CUM 1-1) with isolated white ash, balsam poplar, Manitoba maple, buckthorn and hawthorn species, generally in poor condition (***Plate 4***).

Between Hedgerow 1 and the residential development, a few semi-natural vegetation types have begun regenerating. The northern and southern third consist of typical pioneer Cultural Old Field Meadow (CUM 1-1) vegetation (***Plate 5***). Within the southern third, there is a small inclusion of Mineral Shallow Marsh (MAS) dominated by common reed (***Plate 6***). During fieldwork, blue-winged teal, spring peepers and leopard frogs where observed using the meadow marsh. The middle third is comprised of a Gray Dogwood Cultural Thicket (CUT 1-4) dominated by gray dogwood, red-osier dogwood, hawthorn, wild carrot, golden rod, with isolated swamp rose, sugar maple and green ash individuals (***Plate 7***).

According to the Natural Heritage Information Centre, no natural areas occur in the study area. There is a potential for the Elusive clubtail (S2) and Eastern amberwing (S3) to occur in the surrounding area. Although these species were searched for during fieldwork, neither species nor appropriate habitat were observed in the study area.

2.5.3 Conclusions

Agriculture is the dominant land use in the area and remnant vegetation is isolated and heavily impacted as a result of this current and other historical land uses. Vegetation associated with the drains, is limited to Cultural Old Field Meadows (CUM 1-1) with isolated woody vegetation. The two small hedgerows are dominated by relatively young common deciduous species with the exception of two old specimen trees. In the western portion of the site vegetation has begun to regenerate naturally. Vegetation in this area consists of a mix of Cultural Old Field Meadow (CUM 1-1), Gray Dogwood Mineral Cultural Thicket (CUT 1-4) with a small inclusion of Shallow Meadow Marsh (MAS) dominated by common reed.

According to the Natural Heritage Information Centre, no natural areas occur in the study area. No rare species were observed during fieldwork.

2.6 Aquatic Environment

The East Townline Drain is located on the west side of Manning Road, adjacent to the road shoulder. Potential cover for fish within the drain is minimal, as a result of maintenance to keep it free of debris and obstructions. There appears to be no section of the East Townline Drain that possesses aquatic habitat similar to a natural watercourse. The entire length of the drain is highly altered and is essentially a roadside ditch.

Fish access from Lake St. Clair to the East Townline Drain may be possible through the open gate at the pumping station though this drain is considered a "pumped" system with no gravity outlet to the lake. There are no barriers to upstream fish migration, such as perched culverts, within the study area. It is possible that some pools persist within the lower reaches of the drain that are of sufficient size and depth to support a few small fish. However, the extent of potential fish habitat is unknown and is likely quite limited.

Correspondence from Essex Region Conservation Authority, dated January 26, 2006, confirmed that the reaches of the East Townline Drain, south from the Canadian National Railway line, and upstream, are not considered fist habitat. A copy of this letter is also included in Appendix C.

2.7 Social Environment

As described in Section 2.1 of this report, the existing social environment of the study area is agricultural and light industrial/business park in nature, with a presence of low density residential land uses. Linear open space recreation also exists along the Canadian Pacific Railway line west of the study area.

2.8 Economic Environment

Economic activity, within the study area, includes commercial and light industrial business such as Tecumseh Truss, Marquis Tile, Evergreen Landscaping, Rapid Machine & EDM, J&F Industrial Systems, Superior Seal, Case Construction Equipment Rental, Lock-It Public Storage, and Wayne Dalton Garage Doors. Other economic activities within the study area, include agricultural operations, the majority of which is cash crop farming.

2.9 Cultural Resources

In August 2005, March 2006, November 2006, and April 2007, Dillon submitted letters and notices to the Heritage Planner and Regional Archaeologist of the Ministry of Culture indicating the Town's proposed undertaking and the upcoming public consultation dates. The Ministry did not contact Dillon or the Town indicating any potential for the discovery of archaeological or cultural resources.

3.0 STORMWATER MANAGEMENT (SWM)

3.1 Stormwater Management Design Considerations

3.1.1 Design Criteria

Proposed stormwater management measures for the new development will adhere to the principles of the MOE as documented in the *Stormwater Management Planning and Design Manual*

(March 2003). Only those types of stormwater management controls that are deemed suitable for mitigating the impacts of urban development are considered. Lot level and conveyance controls that are applied at the individual lot level, controls which serve multiple lots (< 2 ha) and end-of-pipe controls that receive stormwater from a conveyance system and discharge to a receiving water will be incorporated into the proposed development. Lot level and conveyance controls maintain the natural hydrologic cycle to the greatest extent possible, while end-of-pipe facilities are required for flood control and water quality treatment. It should be noted that lot level and conveyance controls are not feasible in the Study Area and were not carried forward for consideration.

3.1.2 End-of-Pipe Controls

Examples of end-of-pipe controls include wet and dry ponds, constructed wetlands, green corridors, and oil/grit separators. With the exception of oil/grit separators which can be applied for drainage areas less than 2 ha, the minimum drainage area for the end-of-pipe facilities is 5 ha. The minimum area requirement is a function of sizing the outlet to ensure that it is large enough to prevent clogging.

Dry ponds can be effective for erosion or flood control, but offer little in the way of water quality control. A longer detention time can result in higher suspended solids removal. However, achieving this for smaller drainage areas may be difficult because of outlet size considerations. Therefore, the use of dry ponds, for water quality purposes, remains largely to retrofits or situations where other controls are not feasible.

Wet facilities are those have a permament pool with an extended detention component because of their multi-purpose design (i.e. water quality and quantity and erosion control). Resuspension of settled solids, in the pond's effluent, is minimized due to the permament pool. Extended detention refers to the portion of storage which fills during a rainfall event, then subsequently drains.

The bottom of wet ponds are consistently flat to maximize sedimentation removal of pollutants. Constructed wetlands are contoured to vary in depth between shallow and deep pools to maximize contact time with bacterial colonies clustered on the plants and remove dissolved pollutants. The permanent pool water volume remains the same in both configurations, yet to maximize efficiency, constructed wetlands can be more land intesive than wet ponds.

A green corridor is an open space block that provides linkage between terrestrial or aquatic habitats so that plants and animals may migrate between habitats to carry out their reproductive cycle or to expand their territory. In the urban environment, this can mean a park or other open space (SWM pond, trail) system that links two or more woodlots, a river system, wetland or ravine. Green corridors should have a high density of tree cover, broad diversity of habitats and receive a minimum amount of maintenance, yet should be protected within the policy of framework of a Secondary Plan, and as part of an Official Plan. Though green corridors should be considered for their stormwater management and recreational/natural environment benefits, they are not applicable within the Study Area lands.

To maximize the area available for development, stormwater facilities may be allowed to be designated parkland, offering recreational opportunities such as trails and playing fields.

Post-development flow rates will be reduced to pre-development levels for storms with return periods ranging from 2 to 100 years.

3.1.3 Treatment Options

Three levels of water quality treatment are prescribed by the MOE with the goal to maintain or enhance existing aquatic habitat based on the removal of suspended solids. The level of protection is based on a relationship between the long-term average suspended solid removal and the lethal and chronic effects of suspended solids on aquatic life. The habitat characteristics corresponding to three levels are as follows:

- Enhanced Protection - required when sensitive aquatic habitat will be impacted by end-of-pipe discharge. Conditions which will require this level of treatment include areas with high permeability soils (SCS Groups A and B) which are not conducive to infiltration which reduces suspended solids loading from the post-development site; downstream habitats sensitive to sediment and siltation; high base flow discharge areas; high upstream sediment loads. Enhanced protection corresponds to an average removal of 80% of suspended solids.

- Normal Protection - required when conditions for enhanced treatment do not exist. Conditions may include areas with moderate, natural upstream sediment loads and spawning habitat less sensitive to suspended solids loadings. Normal protection corresponds to an average removal of 70% of suspended solids.

- Basic Protection - acceptable only where the receiving aquatic habitat is demonstrated to be insensitive to stormwater impacts and has little potential for immediate or long-term rehabilitation. Conditions where basic protection may be applied include areas where downstream aquatic habitat has adapted to high suspended solid loading and areas where downstream watercourses have been significantly altered (due to urbanization or agriculture), are hardened, polluted and with little short or long-term potential for rehabilitation. Basic protection corresponds to an average removal of 60% of suspended solids.

In the case of the Manning Road stormwater facility, a Normal Level of protection will be provided based on the discharge criteria established above. This level of treatment will be enhanced however, by the sculpting of shallow and deep zones, intended to force water through the aquatic vegetation providing a greater time of interface between the water-borne pollutants and the micro-organisms which colonize the surface of aquatic plants. It is the microbes, which transform the hydrocarbons into harmless bi-products, uptake heavy metals and then expose harmful pathogenic bacteria to the UV spectrum in sunlight, sterilizing the bacteria to halt their reproduction.

The Manning Road facility will be designed, therefore, to go beyond the minimum requirements mandated in the MOE SWMP Manual, treating the water to a higher level through multiple ecological processes capable of converting pollutants into less harmful by-products – all within a facility that is aesthetically attractive with a recreational trail built around the perimeter to put the public in close contact with the flora and fauna, and therefore the ecosystem processes that drive the system.

3.1.4 Overland Flow Routing

Overland flow routing for larger event storms (> 1:100 year) to the stormwater management facility is the preferred scenario. However, the study area is relatively flat; lands slope gently from south to north (average fall = 0.83m) and west to east (average fall = 0.57m). Considering existing site constraints (i.e. land use, infrastructure, etc.), this objective may be difficult to satisfy.

3.2 SWM Facility Design Considerations

The design of the stormwater management facility is based on the Ministry of the Environment's "Stormwater Management Planning and Design Manual, March 2003" as well as criteria established by the Town. Generally, the highest level of performance criteria was selected where possible.
The following facility design considerations were taken into account:

- Detention time (2 days) (Town standard).
- Permanent pool side slopes (5:1) (Town and MOE standard).
- Capacity of the East Townline Drain as an outlet.
- Typical soil particle in runoff is a fine clay, slow to settle from solution
- Provide storage capacity in the facilities to enhance stormwater quality for existing built up areas.
- Minimize the number of stormwater facilities (and pump stations).
- Range of storm events to receive quantity or quality treatment.
- Level of treatment.
- Land requirements.

3.3 Community-Based Design Considerations

The SWM facilities are also required to address social and land use issues consistent with the Town's planning and development practices.

The following issues were also considered.

- SW facilities must provide community value as an amenity.

- SW facilities must mitigate the attraction of waterfowl which may result in hazards to aircraft due to proximity to the Windsor Airport, approximately 5 km away.

- SW facilities design should include mosquito control measures to minimize the potential for the spread of West Nile virus.

3.4 SWM Facilities – Advantages and Disadvantages

The advantages and disadvantages of various types of end-of-pipe treatment facilities were assessed with respect to various considerations, presented earlier in this section, and are pertinent to the study area. The results of this assessment were summarized in **Table 3.1 – Stormwater Management Facilities, Evaluation Matrix.**

It was concluded that wet pond and wetland end-of-pipe treatment options could best address the criteria established by the MOE and the Town.

Table 3.1

Stormwater Management Facilities Evaluation Matrix				
Design Requirements / Issues	**Dry Pond**	**Wet Pond**	**Wetland**	**Green Corridors**
Treatment Level	can achieve Basic* Protection Level only (may not be suitable for warmwater receiving watercourses)	can achieve up to Enhanced Protection Level	can achieve up to Enhanced Protection Level	may achieve Basic Protection Level only (not a standard measure)
Volume Requirement (for impervious level of approximately 45%)	120 m^3/ha (for Basic Protection Level)	100 m^3/ha (for Normal Protection Level)	65 m^3/ha for Normal Protection Level	120 m^3/ha (for Basic Protection Level, as per Dry Ponds)
Surface Area of Feature	results in a large footprint due to volume requirement and maximum storage depth	similar surface area as required for wetland (tradeoff between larger volume requirement and deeper permanent pool)	similar surface area as required for wet pond (tradeoff between smaller volume requirement and shallower permanent pool)	results in the largest footprint - due to land required for side slopes
Attraction to Birds	limited potential to attract birds due to elimination of permanent pool	higher potential to attract birds due to largest open water space; shallow, gently sloped edges attract Canadian Geese	shallow, gently sloped edges attract Canadian Geese; taller vegetation results in deterrent to birds landing	limited potential to attract birds due to elimination of permanent pool

Stormwater Management Facilities Evaluation Matrix				
Design Requirements / Issues	**Dry Pond**	**Wet Pond**	**Wetland**	**Green Corridors**
Potential for West Nile Virus	limited potential for standing water reduces potential for breeding mosquitoes	deeper standing water somewhat reduces conditions suitable for breeding mosquitoes	fringe areas with emergent vegetation with shallow water suitable for fish that will eat mosquito larvae	limited potential for standing water reduces potential for breeding mosquitoes
Integration with Development Plan (Amenity Value)	limited potential to naturalize feature and integrate into park space/ trail network	opportunity to naturalize feature and integrate into park space network	greatest opportunity to naturalize feature and integrate into park space network	greatest opportunity to naturalize feature and integrate into trail network

Note:
** Basic, normal and enhanced treatment achieves 60%, 70% and 80% long term suspended solids removal, respectively.*

Facilities which best meet the intent of the design requirement/issue.

4.0 ALTERNATIVE SOLUTIONS

A series of alternative solutions were considered to address the Problem Statement. The following sections include a description of the alternative solutions, the assessment and evaluation criteria that were used, and the results of the comparative evaluation of alternatives.

4.1 Identification and Description of Alternative Solutions

Prior to development of the alternative solutions, a number of informal meetings were held with local Developers, local homeowners and the Essex Region Conservation Authority. As a result, the following facility design and community-based criteria were selected.

4.1.1 SWM Facility Design Criteria

The following criteria were selected:

- A 2 day detention time was selected to minimize the pump station size and impact on the East Townline Drain (ETLD).

- 5:1 permanent pool side slopes were selected to provide a satisfactory level of public safety but also to minimize the land requirements for the facility (Town approved 5:1 side slopes which still meets MOE guidelines).
- The existing capacity of the ETLD (1.9m³/sec) was maintained.
- The pond would not have storage capacity to service existing built up lands.
- One regional SWM facility is considered as the optimum condition; however, no more than two separate SWM facilities will be evaluated. Land requirements, per unit of storage required, are optimized with a single regional pond.
- All facilities will be designed to store the entire 1:100 year event (without pumping).
- "Normal" level of quantity treatment will be provided for all storms up to and including the 1:100 year event.

4.1.2 Community-Based Design Criteria

The following criteria were adopted:

- The SWM facility location and configuration would be developed to ensure that the facility could be integrated into a future trail/walkway system and that the public would have safe access to and around the SWM facility.
- The SWM facility design would incorporate waterfowl control features such as grassed shorelines to prevent nesting, tree planting and shallow grassed water areas to discourage landing as well as raptor perches to encourage nesting by predators such as hawks and ospreys.
- The SWM facility design would include mosquito control features such as reducing stagnant pool areas, maximizing large open area surfaces which can react with prevailing winds and introducing small predator fish, dragonfly larvae, frogs and other invertebrates which prey on mosquito larvae.

4.1.3 Other Development Controls

The following additional controls were also adopted:

- Overland flow routes for all development plans will provide temporary storage for storm runoff within the road allowances up to the 1:100 year storm.
- Eaves trough downspouts and lot drainage will be connected to future storm sewers.

- Storm sewer collection systems will be designed based on the Environment Canada AES 5 year storm curve.

As a result of these conclusions, the following alternative solutions to address the problem were identified:

Alternative Solution #1 – Do Nothing
Stormwater management in the study area would remain at the present conditions, with no work done to improve or maintain the current situation. Refer to **Figure 7.0.**

Alternative Solution #2 – Regional Central Wet Pond
A single regional pond, centrally located, would service the drainage area, where the East Town Line drain would serve as the main outlet for the pond. Refer to **Figure 8.0.**

Alternative Solution #3 – Regional Wet Pond at CPR Railway
A single regional pond located at the southern end of the study area at the CPR Railway would service the drainage area. The area of this pond would need to be greater since the pond would be at the highest point of the drainage area. Refer to **Figure 9.0.**

Alternative Solution #4 – Dual Wet Ponds (Centrally Located)
Two wet ponds, centrally located, would service the drainage area, while also providing flexibility with phasing of future development. Two pumping stations and greater land areas would be required to construct two ponds. Refer to **Figure 10.0.**

Alternative Solution # 5 – Dual Wet Ponds
Two wet ponds, one centrally located and one at the CPR Railway, would service the drainage area, while also providing flexibility with phasing of future development. Two pumping stations and greater land areas would be required to construct two ponds. Refer to **Figure 11.0.**

Alternative Solution #6 – Developers' Alternative
Two wet ponds, one located in the eastern portion of the drainage area and one located at the CPR Railway, would service a portion of the drainage area. Drainage for the remainder of the study area (Cyr Drain Lands) is excluded. Refer to **Figure 12.0.**

4.1.4 Modelling Results

Using the criteria developed earlier in this section, six alternatives were evaluated using Visual OTTHYMO, Version 2.0 hyrologic modelling software. This software enables both quantity and quality requirements for a SWM facility to be determined.
Each alternative also included several variations requested by the Developers. These variations provided for the potential development of small parcels within the study area using their own SWM measures to meet Provincial and local requirements (i.e., alternatives a) to d) of Table 4.1 in Appendix D).

The results of the modelling are presented in **Table 4.1 – Examination of Various Alternatives – Quantity Requirements** and included in **Appendix D – Modelling Results for Various Alternatives.**

As expected, the land area (footprint) of a single regional pond was the lowest of all the alternatives considered.

It should also be noted, that the modelling results for only the primary alternatives (no variations) were carried forward as part of the assessment process at the request of the Town.

4.2 Assessment of Alternative Solutions

Evaluation Criteria:

Alternatives solutions were evaluated and compared based on their impacts on various aspects of the environment including technical, economic, natural, cultural, and social environment and capital and maintenance costs.

Each alternative solution was evaluated against the following criteria:

- Technical Impacts
  - Area of Facility/Facilities
  - Level of Water Treatment
  - Stormwater Detention Time
  - Integration with Overland Flow Routes
  - Capacity of the East Town Line Drain

  - Treatment for Existing Developed Areas
- Economic Impacts
  - Disruption to Existing & Proposed Businesses
  - Loss of Developable Land
- Environmental Impacts
  - Impact on Terrestrial Environment
  - Impact on Aquatic Environment
  - Control of Waterfowl Communities
  - Control of Mosquito Larvae
- Cultural Impacts
  - Effect on Cultural Resources
- Social Impacts
  - Disruption of Existing Land Use
  - Integration of Ponds as a Community Amenity
  - Public Safety of the Ponds
- Cost
  - Capital Cost of Treatment Facility/Facilities
  - Capital Cost of Trunk Sewers
  - Capital Cost of Pump Station(s)
  - Operational and Maintenance Cost of Pump Station(s)
  - Operational and Maintenance Cost of Treatment Facility/Facilities

Evaluation of Alternative Solutions:

The evaluation of the alternative solutions is summarized in **Table 4.2 – Alternative Solution Evaluation Matrix.**

The results of the evaluation indicate that **Alternative Solution #2 – Regional Central Wet Pond** or **Alternative Solution #3 – Regional Wet Pond at CPR Railway** are equally preferred solutions and short-listed for further evaluation.

4.3 Public and Agency Input (PIC No. 1)

A contact list of potential stakeholder groups and agencies was established in consultation with the Town of Tecumseh in order to identify interested parties (refer to **Appendix A: Comprehensive Mailing List** for the complete list). The list has been updated to include

TABLE 4.2 – ALTERNATIVE SOLUTION EVALUATION MATRIX

Description / Evaluation Criteria	Alternative 1 Do Nothing	Alternative 2 Regional Wet Pond	Alternative 3 Regional Wet Pond at CPR Railway	Alternative 4 Dual Wet Ponds	Alternative 5 Dual Wet Ponds	Alternative 6 Developers' Proposal
Technical Impacts						
Area of Facility (or Facilities)	Low • No stormwater facility	Low • Efficiency of single pond reduces total lands required	Medium • Efficiency of single pond reduces total lands required • Total area increases over Alternative 2 since pond is at the highest point of drainage area	High • Dual ponds require more land area than a single pond	High • Dual ponds require more land area than a single pond	High • Dual ponds require more land area than a single pond
Level of Water Treatment	Low • No stormwater facility	High • Wet pond meets Provincial treatment level requirements for stormwater quality	High • Wet pond meets Provincial treatment level requirements for stormwater quality	High • Wet ponds meets Provincial treatment level requirements for stormwater quality	High • Wet ponds meets Provincial treatment level requirements for stormwater quality	High • Wet ponds meets Provincial treatment level requirements for stormwater quality
Stormwater Detention Time	Low • No stormwater facility	High • Wet pond meets Provincial requirements for stormwater detention time	High • Wet pond meets Provincial requirements for stormwater detention time	High • Wet ponds meets Provincial requirements for stormwater detention time	High • Wet ponds meets Provincial requirements for stormwater detention time	High • Wet ponds meets Provincial requirements for stormwater detention time
Integration with Overland Flow Routes	Low • No stormwater facility	High • Wet pond can be integrated with overland stormwater flow routes	High • Wet pond can be integrated with overland stormwater flow routes	High • Wet ponds can be integrated with overland stormwater flow routes	High • Wet ponds can be integrated with overland stormwater flow routes	High • Wet ponds can be integrated with overland stormwater flow routes
Capacity of the East Town Line Drain	Low • No stormwater facility	High • East Townline Drain can serve as an adequate outlet for the pond	High • East Townline Drain can serve as an adequate outlet for the pond	High • East Townline Drain can serve as an adequate outlet for the ponds	High • East Townline Drain can serve as an adequate outlet for the ponds	High • East Townline Drain can serve as an adequate outlet for the ponds
Treatment for Existing Developed Areas	Low • No stormwater facility	High • Some treatment of existing stormwater flows can be provided in the Baillargeon Drain	Low • No treatment of existing stormwater flows can be provided in the Baillargeon Drain	High • Some treatment of existing stormwater flows can be provided in the Baillargeon Drain	Medium • Less treatment of existing stormwater flows can be provided in the Baillargeon Drain	Medium • Less treatment of existing stormwater flows can be provided in the Baillargeon Drain
Economic Impacts						
Disruption to Existing & Proposed Businesses	Low • No disruption	Low • Little or no disruption	Low • Little or no disruption	Low • Little or no disruption	Low • Little or no disruption	Low • Little or no disruption
Loss of Developable Land	Low • No loss of land	High • Prime residential property in the central area would be required for this alternative	Low • Land at the CPR Railway may be difficult to market as residential, therefore the impact of losing this land for a pond is low	High • Prime residential property in the central area would be required for this alternative	Medium • Some prime residential property in the central area would be required, and some less marketable land along the CPR railway would also be required	Medium • Some prime commercial property along the County Rd 19 and some unmarketable land along the CPR railway would be required
Environmental Impacts						
Impact on Terrestrial Environment	Low • No impact on existing vegetation	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area
Impact on Aquatic Environment	Low • No loss of fish habitat	Low • No loss of fish habitat or fish refuge in the existing drainage systems	Low • No loss of fish habitat or fish refuge in the existing drainage systems	Low • No loss of fish habitat or fish refuge in the existing drainage systems	Low • No loss of fish habitat or fish refuge in the existing drainage systems	Low • No loss of fish habitat or fish refuge in the existing drainage systems
Control of Waterfowl Communities	Low • Existing waterfowl conditions to remain unchanged	Low • Central location of pond adjacent to proposed parkland may encourage the development of waterfowl communities	Medium • Location of pond away from proposed parkland may discourage the development waterfowl communities	Low • Central locations of ponds near proposed parkland may encourage the development of waterfowl communities	Medium • Location of ponds away from and adjacent to proposed parkland may discourage the development of waterfowl communities	Medium • Scattered location of ponds away from and adjacent to proposed parkland may be a deterrent for waterfowl communities
Control of Mosquito Larvae	Low • Existing mosquito conditions to remain unchanged	High • A fountain can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae	High • A fountain can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae	High • Fountains can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of	High • Fountains can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae	High • Fountains can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae

Evaluation Criteria:
Low = Low Impact
Medium = Medium Impact
High = High Impact

TABLE 4.2 – ALTERNATIVE SOLUTION EVALUATION MATRIX

Description / Evaluation Criteria	Alternative 1 Do Nothing	Alternative 2 Regional Wet Pond	Alternative 3 Regional Wet Pond at CPR Railway	Alternative 4 Dual Wet Ponds	Alternative 5 Dual Wet Ponds	Alternative 6 Developers' Proposal
				larvae		
Cultural Impacts						
Effect on Cultural Resources	Low • No cultural resources will be affected	Low • No cultural resources will be affected	Low • No cultural resources will be affected	Low • No cultural resources will be affected	Low • No cultural resources will be affected	Low • No cultural resources will be affected
Social Impacts						
Disruption of Existing Land Use	Low • No disruption	Medium • Loss of existing agricultural land	Medium • Loss of existing agricultural land	Medium • Loss of existing agricultural land	Medium • Loss of existing agricultural land	Medium • Loss of existing agricultural land
Integration of Wet Ponds as a Community Amenity	Low • No benefit to community value	High • Integration of pond with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity	High • Integration of pond with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity	High • Integration of ponds with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity	High • Integration of ponds with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity	High • Integration of ponds with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity
Public Safety of the Ponds	Low • Existing conditions to remain unchanged	High • Gradual side slope of pond promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education	High • Gradual side slope of pond promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education	High • Gradual side slope of ponds promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education	High • Gradual side slope of ponds promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education	High • Gradual side slope of ponds promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education
Cost						
Capital Cost of Treatment Facilities	Low • No stormwater facility	Low • A single pond reduces the cost of construction	Medium • A larger single pond at the highest point of the drainage area increases the cost of construction	High • Dual ponds will increase the cost of construction	Higher • Dual ponds, one being at the highest point of the drainage area, will increase the cost of construction	Highest • Dual ponds, one being at the highest point of the drainage area, will increase the cost of construction
Capital Cost of Trunk Sewers	Low • No stormwater facility	Low • Size and length of trunk sewers will be minimized for centrally located pond	High • Size and length of trunk sewers will be increased for pond located at the highest point of the drainage area	Low • Size and length of trunk sewers will be minimized for centrally located dual ponds	Medium • Size and length of trunk sewers will be increased for centrally located pond and at the highest point of the drainage area	Medium • Size and length of trunk sewers will be increased for centrally located pond and at the highest point of the drainage area
Capital Cost of Pump Station(s)	Low • No stormwater facility	Low • Construction of one stormwater pumping station is required	Low • Construction of one stormwater pumping station is required	Low • Construction of one stormwater pumping station is required	High • Construction of two stormwater pumping stations is required	High • Construction of two stormwater pumping stations is required
Operational & Maintenance Cost of Pump Station(s)	Low • No stormwater facility	Low • One stormwater pumping station needs to be operated and maintained	Low • One stormwater pumping station needs to be operated and maintained	Low • One stormwater pumping station needs to be operated and maintained	Low • Two stormwater pumping stations need to be operated and maintained	Low • Two stormwater pumping stations need to be operated and maintained
Operational & Maintenance Cost of Treatment Facilities	Low • No stormwater facility	Low • One stormwater facility needs to be operated and maintained	Low • One stormwater facility needs to be operated and maintained	High • Two stormwater facilities need to be operated and maintained	High • Two stormwater facilities need to be operated and maintained	High • Two stormwater facilities need to be operated and maintained
Concluding Comments		**RECOMMENDED SOLUTION**	**RECOMMENDED SOLUTION**			

Evaluation Criteria:
Low = Low Impact
Medium = Medium Impact
High = High Impact

interested parties who responded to the Project Initiation Notice or who attended either of the Public Information Centres and requested to be informed of project activities.

In preparation for the first Public Information Centre, several notices were placed on the public record. The newspaper and publication dates are identified below (also refer to **Appendix E: Notice of Public Information Centre #1**):

- The Windsor Star: Wednesday, March 8, 2006
- The Tecumseh Tribune: Thursday, March 9, 2006
- The Tecumseh Shoreline: Wednesday, March 8, 2006

The first PIC notice was also mailed to those on the Mailing List, including property owners and affected agencies (refer to **Appendix E** for further details on the Notice and mailing).

The first Public Information Centre was held on Wednesday, March 22, 2006 at the Town of Tecumseh Council Chambers and consisted of an informal walk-in session with displays summarizing the work completed to date. Staff from the Town of Tecumseh and Dillon Consulting were available to explain the displays, answer questions and record comments.

The first PIC was held in order to provide necessary background information and study context as well as the evaluation of alternatives and preliminary recommendations. The displays related to the Class EA included text, graphics and maps showing:

- Class EA Study Process;
- Location and existing land use;
- Description of alternatives; and
- Evaluation of alternatives.

This presentation material is included in **Appendix F: PIC #1 Presentation Material.**

As shown in **Appendix G: Public Input at PIC #1**, approximately twenty-five (25) individuals attended the PIC. The following is a break-down of this total:

- Thirteen (13) residential property owners residing and/or owning property in the study area.
- Four (4) representatives of local agencies.
- Eight (8) local developers and/or representatives of local developers.

Comment sheets were received from fourteen (14) individuals at PIC #1. **Table 4.3 - Summary of Public Information Centre #1 Comments** is a general summary of the comments received at the PIC or shortly thereafter either via email or facsimile.

Table 4.3 – Summary of Public Information Centre #1 Comments
March 22, 2006

Address	Name	General Comments
1614 Lesperance	Richard & Deborah St. Louis - Fairlane Developments	• Stated that the lands owned by this developer should be able to drain into the Cyr Drain, and that the small development of 40 homes would not greatly affect the Cyr Drain. • Also stated that they would like to rezone a portion of their land for commercial and would like to do so immediately in order to start development.
1815 Deslippe Dr	Dawn Stallard	• In support of Alternative #2 Regional Wet Pond. • Recommends the Town purchase the corner lot on Candlewood & construct an alternate route to Lesperance to help with traffic congestion on Gouin.
1754 Lesperance	Rick DeMarse	• Opposes Alternative #6 Developers' Proposal because it excludes their property and may create future problems. • Stated that the Cyr Drain has serviced rear lots east of Lesperance for years as it is a natural flow north and east to the East Townline Drain. • Also stated the amount of land affected is a minimal burden to the Cyr Drain. • Alternative #2 Regional Wet Pond would be their second choice to serve their land.
12401 Renaud St	Lena DeMarse	• Assumed the Cyr Drain was capable of handling their future land development needs. • In support of Alternative #2 Regional Wet Pond to service the entire area.

Address	Name	General Comments
		• Opposes Alternative #6 Developers' Proposal because it excludes their property.
12364 DeMarse Ct	Gale DeMarse	• Opposes Alternative #6 Developers' Proposal since it excludes their property. • Stated that if the Cyr Drain could accommodate their needs, then that would be their choice. • However, in support of Alternative #2 Regional Wet Pond to minimize capital and maintenance costs.
25 Amy Croft Dr	Valente Group	• Stated that the Cyr Drain Developers (St. Louis & DeMarse) should be accommodated by that drain. • Alternative #3 Regional Wet Pond at CPR Railway is beneficial since it allows for immediate opportunities for development. • Stated the Town should share in the cost of constructing Alternative #2 Regional Wet Pond since it serves a large existing area of the Town. • In support of Alternative #6 Developers' Proposal – the installation and infrastructure costs are the developers' responsibility; it will allow the freedom to develop at their own schedules; new municipal taxes created by the developments will offset the increased maintenance costs; the increased costs for pumping are insignificant; the SWM facilities will be integrated into the proposed park system. • Stated that capital costs in the matrix should be excluded since this is the responsibility of the developers, not the Town's.
1865 Manning Rd	James Sylvestre Developments Ltd	• Operational & maintenance costs are not the responsibility of the Town. • Strongly oppose Alternative #2 Regional Wet Pond
3100 Temple Dr	Richard Spencer	• The differences in environmental impacts between Alternatives #2, #3, & #6 are not significant. • In support of Alternative #6 Developers' Proposal (less geese, more developer flexibility)
1957 St. Anne's St	Ms. Pelankas	• As a taxpayer, does not want to pay for this through increased property taxes. • Is hoping that her drainage issues in her rear yard will be addressed.
1921 Lesperance	Paul Morand	• In support of Alternative #3 Regional Wet Pond at

Address	Name	General Comments
		CP Railway. • Opposes a wet pond near residential the neighbourhoods for safety reasons.
Essex OPP	Constable Steve Johnson	• Concerned with street closures during construction (for emergency access purposes)
2084 St. Anne's St 2089 St. Anne's St	Ron Hartigan & Linda Proctor	• Recommends drainage improvements for residential property on St. Anne's Street. • In support of Alternative #2 Regional Wet Pond and Alternative #4 Dual Wet Ponds. • Recommends integration of the pond(s) within a parks and recreation system. • Does not want to pay for this through increased property taxes.
12378 Funaro St.	Janet Frankowski	• Recommends drainage improvements for residential property on Funaro St, especially hers. • In support of Alternatives #2 & #3 - any single pond option that includes her neighbourhood into the drainage system.
1855 Deslippe & 1885 Deslippe	Joe Sperduti & Jim Brown	• In support of Alternative #3 Regional Wet Pond at the CP Railway. • Prefers more technical improvements, rather than a community amenity. • Concerned with location of Alt #2 in the flight path. • Concerned with mosquito larvae and recommends installation of a water fountain. • Recommends the Town purchase the corner lot on Candlewood and construct an alternate route to Lesperance to help alleviate traffic congestion on Gouin.

4.4 Rationale for Selection of Preferred Solution(s)

After reviewing input from public agencies and the public at large, **Alternative Solution #2 – Regional Central Wet Pond** and **Alternative Solution #3 – Regional Wet Pond at CPR Railway** were chosen as the preferred solutions to be carried forward in the evaluation process considering design concepts.

In summary, the preferred solutions consist of:

Table 5.1
Alternative Design Concept Evaluation Matrix

Aternative Design Concept Evaluation Matrix		
	Alternative Design Concept #1	**Alternative Design Concept #2**
Description / **Evaluation Criteria**	Regional Central Pond	Regional CPR Pond
Technical Impacts		
Area of Facility (or Facilities)	Low • Efficiency of single pond reduces total lands required	Medium • Efficiency of single pond reduces total lands required • Total area increases over recommended design 1 since pond is at the highest point of drainage area
Level of Water Treatment	High • Wet pond meets Provincial treatment level requirements for stormwater quality	High • Wet pond meets Provincial treatment level requirements for stormwater quality
Stormwater Detention Time	High • Wet pond meets Provincial requirements for stormwater detention time	High • Wet pond meets Provincial requirements for stormwater detention time
Integration with Overland Flow Routes	High • Wet pond can be integrated with overland stormwater flow routes	High • Wet pond can be integrated with overland stormwater flow routes
Capacity of the East Town Line Drain	High • East Townline Drain can serve as an adequate outlet for the pond	High • East Townline Drain can serve as an adequate outlet for the pond
Treatment for Existing Developed Areas	Low • Some treatment of existing stormwater flows can be provided in the Baillargeon Drain	Low • No treatment of existing Baillargeon Drain stormwater flows can be provided
Economic Impacts		
Disruption to Existing & Proposed Businesses	Low • Little or no disruption	Low • Little or no disruption
Loss of Developable Land	High • Prime residential property in the central area would be required for this alternative	Low • Land at the CPR Railway may be difficult to market as residential, therefore the impact of losing this land for a pond is low
Environmental Impacts		
Impact on Terrestrial Environment	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area
Impact on Aquatic Environment	Low • No loss of fish habitat or fish refuge in the existing drainage systems	Low • No loss of fish habitat or fish refuge in the existing drainage systems
Control of Waterfowl Communities	Low • Central location of pond adjacent to proposed parkland may encourage the development of waterfowl communities	Medium • Location of pond away from proposed parkland may discourage the development of waterfowl communities
Control of Mosquito Larvae	High • A fountain can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae	High • A fountain can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae
Cultural Impacts		
Effect on Cultural Resources	Low • No cultural resources will be affected	Low • No cultural resources will be affected
Social Impacts		
Disruption of Existing Land Use	Medium • Loss of existing agricultural land	Medium • Loss of existing agricultural land
Integration of Wet Ponds as a Community Amenity	High • Integration of pond with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity	High • Integration of pond with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity
Public Safety of the Ponds	High • Gradual side slope of pond promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education	High • Gradual side slope of pond promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education
Cost		
Capital Cost of Treatment Facilities	Low • A single pond reduces the cost of construction	Medium • A larger single pond at the highest point of the drainage area increases the cost of construction
Capital Cost of Trunk Sewers	Low • Size and length of trunk sewers will be minimized for centrally located pond	Medium • Size and length of trunk sewers will be increased for pond located at the highest point of the drainage area
Capital Cost of Pump Station(s)	Low • Construction of one stormwater pumping station is required	Low • Construction of one stormwater pumping station is required
Operational & Maintenance Cost of Pump Station(s)	Low • One stormwater pumping station needs to be operated and maintained	Low • One stormwater pumping station needs to be operated and maintained
Operational & Maintenance Cost of Treatment Facilities	Low • One stormwater facility needs to be operated and maintained	Low • One stormwater facility needs to be operated and maintained
Concluding Comments		**Recommended Design Concept**

Evaluation Criteria:

Low	=	Low Impact
Medium	=	Medium Impact
High	=	High Impact

- One regional stormwater management pond at two possible locations;
- A vast improvement to the existing local drainage system;
- Integration of the pond within a community parks and trail system;
- Control over mosquito and waterfowl habitat; and
- Integration of pond features to promote community safety.

4.5 Confirmation of Class EA Project Schedule

Although the preferred solution did not produce a single outcome, it essentially consists of a single regional stormwater management pond. Regardless of location, certain elements are essential to the final design, and therefore the Town decided that further study was required prior to implementing the preferred solution. Taking into account input from Town administration, the public, land developers with an interest in the area, and agencies, the project schedule was, therefore, confirmed as a "Schedule C" in order to move forward with design concepts for the preferred solution.

5.0 ALTERNATIVE DESIGN CONCEPTS

Once the preferred solution was chosen: one regional wet pond, a series of alternative design concepts for the preferred solution were considered. The following sections include a description of the alternative design concepts, the evaluation criteria that were used in their assessment, and the results of the comparative evaluation of design concepts.

5.1 Identification and Description of Alternative Design Concepts

The following alternative design concepts for the preferred alternative solution were identified:

Alternative Design #1 – Regional Central Pond
Further design and details for the centrally located pond are included, such as landscaping, open water forebays and basins, shallow areas with wetland plants, a cattail split, and an integrated path network. Details regarding depth and inflow are also included. Refer to **Figures 13.1 – 13.3**

Alternative Design #2 – Regional CPR Pond

Further design and details for the pond located at the CPR Railway are included, such as landscaping, open water forebays and basins, shallow areas with wetland plants, and an integrated path network. Details regarding depth and inflow are also included. Refer to **Figures 14.1 – 14.3**

5.2 Assessment of Alternative Design Concepts

As with the alternative solutions, the alternative design concepts were evaluated and compared based on their impacts on various aspects of the environment including technical, economic, natural, cultural, and social environment, and capital and maintenance costs.

To confirm the storage requirements for Alternative Designs 1 and 2, further stormwater analysis was carried out examining existing drainage areas west of Lesperance Road, the conveyance capacity of the East Townline Drain, and a final analysis of the expected development and related runoff. This work was summarized in memos dated November 24, 2006 and February 6, 2007 which can be found in **Appendix D**.

The evaluation of the alternative design concepts is summarized in **Table 5.1 – Alternative Design Concept Evaluation Matrix.**

The results of the evaluation indicate that **Alternative Design #2 – Regional CPR Pond** is the recommended design which best addresses existing deficiencies.

5.3 Public and Agency Input (PIC No. 2)

In preparation for the second Public Information Centre, several notices were placed on the public record. The newspaper and publication dates are identified below (also refer to **Appendix H: Notice of Public Information Centre #2**):

- The Windsor Star: Wednesday, November 22, 2006
- The Tecumseh Shoreline: Wednesday, November 29, 2006
- The Tecumseh Tribune: Thursday, November 30, 2006

The second PIC notice was also mailed to those on the Mailing List, including property owners and affected agencies (refer to **Appendix H**).

The second Public Information Centre was held on Tuesday, December 5, 2006 at the Town of Tecumseh Council Chambers and consisted of an informal walk-in session with displays summarizing the work completed to date. Staff from the Town of Tecumseh and Dillon Consulting were available to explain the displays, answer questions and record comments.

The second PIC was held in order to provide an evaluation of design concepts and preliminary recommendations. The displays related to the Class EA included text, graphics and maps showing:

- Background information to date, including the recommended Pond Solution
- Description of Design Concepts; and
- Evaluation of Design Concepts.

This presentation material is included in **Appendix I: PIC #2 Presentation Material.**

As shown in **Appendix J: Public Input at PIC #2**, approximately ten (10) individuals attended the PIC. The following is a break-down of this total:

- Five (5) residential property owners residing and/or owning property in the study area;
- Two (2) representatives of local agencies; and
- Three (3) local developers and/or representatives of local developers.

Comment sheets were received from four (4) individuals at the PIC #2. **Table 5.2 - Summary of Public Information Centre #2 Comments** is a general summary of the comments received at the second PIC or shortly thereafter either via email or facsimile.

Table 5.2 – Summary of Public Information Centre #2 Comments
December 5, 2006

Address	Name	General Comments
1921 Lesperance	Paul Morand	• In support of Design Concept #2 Regional CPR Pond.
12378 Funaro	Janet Frankowski	• Stated that she is experiencing flooding in her basement, her sump pump is overworking because her property is lowest than neighbouring properties. • Expresses concern over which drain will accommodate the water flow and where overland water will be flowing.
2045 Lesperance	Demitri Latridis	• Preference for Design Concept #2 Regional CPR Pond. • Expressed support over park amenity. • Also stated that he is experiencing flooding issues in his backyard and that hopefully these proposals will help with flooding.
1863 St. Anne's St	Fran Ferguson	• Stated that a well organised PIC and side by side comparison helped her decide that Design Concept #2 Regional CPR Pond is the better choice. • Also stated that although not immediately affected by the proposed development, she is grateful to be able to voice her opinion.

5.4 Rationale for Selection of the Preferred Design Concept

After reviewing the input from public agencies and the public at large, **Alternative Design #2 – Regional CPR Pond** was chosen as the preferred design concept.

The preferred design concept addresses the comments and concerns of the Town and many of the residents and developers. In summary, the preferred design concept consists of:

- A single, efficient regional stormwater management pond;
- A vast improvement to the existing local drainage system;

- Highest levels of water treatment, stormwater detention time, and integration with overland flow routes;
- Minimal impact to loss of developable land;
- Integration of the pond within a community parks and trail system;
- Control over mosquito and waterfowl habitat; and
- Integration of pond features to promote community safety.

6.0 DEVELOPMENT OF PREFERRED DESIGN

6.1 Introduction

This section of the report provides details of the preferred design concept with the incorporation of the preferred elements of design, which have been recommended in this Class Environmental Assessment Study. **Figure 15.0 - Final Design – Plan & Profile** depicts the preferred final design concept in further detail.

6.2 Selected Storage Design Parameters

To confirm the storage requirements for the Preferred Design, the stormwater analysis carried out previously and reported in the November 24, 2006 memo was updated. This revised data was then summarized in a further memo dated February 6, 2007 which can also be found in **Appendix D**.

6.2.1 Hydraulic Components

- Proposed development : 107 ha; Rainfall 108.9 mm, Runoff 74.7 mm, Volumetric runoff fraction 69%.
- Inlet Structures pipe set at 0.1 % slope with minimum 1.0 m cover over 2,300 m starting at the upstream ground elevation of 180.6, entering the facility at the northwest end
- Pipe sized to convey the 5 year event: 1650 mm dia conc. 2,300 m long at 0.1% slope meeting the pond at an outlet elevation of 175.00 m. Obvert of pipe 176.65 m. Single inlet location at west end of the pond.
- Pipe Outlet Invert / Normal Water Level (NWL): Elev 175.0 no surcharging of pipe at NWL.

- Extended Detention water volume: 4,200 m^3 pumped out at a rate of 45 L/sec. based on 25 mm runoff from the 103 ha area / pump down period 26 hours. ED Water level: 175.08.
- 2 Year event water volume: 15,000 m3 at elevation 175.60. Pumped down at a rate of 500L/sec will take an additional 6 hours over that of the ED portion.
- Minimum permanent pool water volume of wet pond below NWL: 5,900 m^3 to meet MOE SWMP criteria. The Preliminary design provided has a volume of 5900m^3 used to maximize sedimentation and enhance pollutant removal through biological processes.
- Maximum (peak) storage volume at 100 year storm: 59,900 m^3. 100 yr water level: 177.09 m.
- Peak storage to be pumped out at a rate of 500 L/sec for a drawdown period of approximately 41 hours.

6.2.2 Structural Components for Outlet Structure

- Intake should be an inverse sloped pipe to avoid siltation and take water from below the surface.
- Two stage electric pump sized for 0.045 m3/sec below an elevation of 175.08 m then, 0.50 m^3/sec above that – outlets north to East Townline Drain. Suggested location of pump house is shown on Figure 15.0. Pump to shut off when it draws the water down to 175.00 m.
- Allow for an adjustable water level in concrete outlet weir to meet desired elevations or make corrections – either mechanically or electronically.
- Allow for a gate at the bottom so the entire pond can be pumped down for maintenance
- Allow for pipes to connect each basin to allow pump down. These pipes should have valves to give flexibility over isolating the separate areas to avoid a full pump-down.
- Coir cloth over marsh meadow mix in 4 m band around the perimeter of the pond covering the normal water level and above the Extended Detention level – stops wind setup waves from eroding soils around the perimeter at the normal water level.
- Pump down rate for the extended detention volume of 4,200 m^3, 26 hours is 0.045 m3/sec.
- Pump down rate for the 100 year storm volume of 59,900 m^3, 41 hours is 0.50 m3/sec.

6.3 Biological Components

- Incorporate shallows and wetland plants into the flow patterns to increase the retention time and contact time – three shallow areas proposed, one very large to give the impression of a large marsh – this minimizes the utilization by geese.
- Tall, dense plants, some woody, surrounding the waters edge to minimize the intrusion of geese.
- Add in bird and bat boxes to help consume mosquitoes.
- Add in habitat pockets for fox to help keep away geese and raccoons.
- Stock fish: Largemouth Bass (50 pair) and fathead minnow (250 pair) at a minimum – to control nuisance species – mosquitoes, biting midges, coarse fish, goldfish and carp.
- Bottoms should be quite deep – upwards of 4 m deep to ensure high oxygen levels during winter.

6.4 Recreational / Residential Components

- Incorporate a trail around the periphery and a bench 2/3 of the way up the slopes – above the 100 yr water level of 177.10 m – 2.5 m wide, asphalt surface – three connections to the area currently proposed at: south east, south west and north ends of the facility.
- No boardwalk / crossing through the facility.
- Ensure public safety by maintaining slopes at 5:1 or shallower wherever practical – note that design is currently calculated at 5:1 slopes.
- Landscaping trees, shrub beds spot the landscape, making interesting viewpoints, planting beds and sitting areas.
- Western side slopes can be reduced in height by up to 4.0 m making walkouts for properties that back onto the pond leaving 1.0 m for freeboard.
- Width of top buffer: 3 m.

6.5 Maintenance Components

- Include a clean out ramp and roadway to the nearest road.
- Allow for trash racks on the inlet of the outlet structure to avoid aquatic weed problems
- Sediment forebag may be left unhardened given the low cleanout frequency.

- High Density PolyEthylene (HDPE) piping (300 mm dia) to be installed between each basin – 2 required. Pipes to be valved to provide flexibility for maintenance draw-down.
- Screen Common Reed Grass from topsoil and minimize spread through ongoing maintenance.
- Low maintenance, low grow, drought and flood tolerant grasses on the side slopes.

6.6 Preferred Facility Design

6.6.1 Pond Details

The preferred facility design is presented on **Figures 15.0 and 16.0 – Manning Road CPR Stormwater Pond, Plan and Profiles** and represents a modified wet pond / wetland design to optimize the treatment and environmental / aesthetic objectives of this study. The final design and construction of this facility will follow the conceptual design presented in Figures 15.0 and 16.0.

Approximately 300,000 m^3 of excavated material will result from the construction of this facility. There may be construction uses for this excavated material within the greater Windsor area (i.e. Highway 401 improvements, Detroit River Third Crossing improvements, etc.) which may help to defray the cost of constructing the pond.

6.6.2 Pumping Facilities

As noted earlier, a pump station and sewer outlet to the ETLD will be required. The sewer diameter will be established at the time of pump design and selection.

The pumps will be housed within a building structure with sloped or peaked roof, and exterior finishes including brick or architectural masonry block, stucco or natural wood finishes.

No emergency generator will be required for this pump station.

6.6.3 Site Setbacks

The facility should provide for a minimum 20m setback from existing and future residential lot lines.

The setback along the CPR property will be 5 m.

The setback from the Manning Road (County Road 19) right-of-way will be 45 m.

6.6.4 Overland Flood Routing

It is not possible to route overland flows from the entire Study Area to the stormwater facility owing to the natural gradients of the Study Area. This will only be possible for lands immediately surrounding the facility. Overland flow routing will be addressed as outlined in the following sections.

The road network will be designed to encourage storage of flows on roadway pavements for storm frequencies up to and including the 1:100 year storm. Storage depths will be restricted to no more than 250 mm. All stored flows will be conveyed by the storm sewer system to the stormwater facility which has been designed to receive these flows.

For the overland flows resulting from storms greater than the 1:100 year and unable to be stored on the roadways, these flows will be directed by the major collector roads northerly to the Cyr Drain which is located along the south side of the County Road 22 road allowance. The overland flows reaching County Road 22 would then be conveyed easterly to the East Townline Drain or the proposed stormwater management facility planned for the improvements to Manning Road and County Road 22.

6.7 Trails

The preferred design concept includes an integrated community parks and trail system. As described in Section 6.3.5, the final design of the stormwater management pond is meant to function both technically and as a community amenity park. The 2.5 m wide trail system within the boundaries of the stormwater management pond links to the existing trail system located to the west of the site as well as to the proposed trail system as depicted in the Manning Road Secondary Plan. The trail system surrounding the stormwater management pond will, therefore, provide a valuable community amenity to residents of the existing neighbourhoods to the west and future residents of the proposed Manning Road Secondary Plan area.

6.8 Planting & Habitat Design Brief

The planting design is an integral component of stormwater management ponds. When effectively implemented, vegetation in and around stormwater facilities are able to improve their overall performance while enhancing the ecological and structural stability of the entire area. By selecting native species based upon habitat requirements such as soil type, chemistry and moisture, it not only greatly increases their chances of survival, but also enhances slope stability.

6.8.1 Construction Phasing

The tall surrounding slopes of this facility and the imperfectly drained soil conditions of the area present a challenge to successfully stabilize the surficial soils of the facility following construction. Experience on ponds of a similar nature in the Essex Region, has demonstrated the need for a two or three stage approach to seeding and planting. The most important strategy for keeping the soils on the slopes and out of the pond is to seed the area immediately after topsoil is applied, cover it with a suitable erosion control blanket, such as Curlex 'Quickgrass' by American Excelsior, and let it grow in for at least a full year, preferably two, before the shrubs and trees are planted. The normal contracting sequence of the general contractor 'sub-contracting' the work to a landscape contractor at the end of the project has proven to be problematic for similar projects and is not recommended. A separate tender and contract should be set up for planting the slopes and surrounding lands with trees and shrubs well after the grass is established. The more structural components such as the trail system, the perimeter bioengineering, the seeding and the in-water plants should be completed as part of the primary earthworks contract.

6.8.2 Waterfowl and Mosquito Control

Wildlife habitat requirements also need to be considered. Canada Geese are a significant nuisance in Essex Region, both following construction (eating the plants) and as an ongoing problem fouling the grass and pathways. Stormwater ponds make natural habitats for geese, particularly those where the grass is kept short for recreational purposes – this provides a good food source for the birds and they can take refuge on the water when threatened. A community of tall, dense plants, either herbaceous or woody shrubs around the perimeter reduces the desirability of the pond habitat for geese to lay eggs and raise their young. Additionally, building den habitat structures to attract small mammal predators like fox makes

an effective deterrent for Canada geese, yet these species need to be isolated from the human population by keeping them, on the slopes adjacent to the CP railway.

Underwater habitat structures are also recommended to support a mixed population of fish and aquatic organisms. Mosquitoes and common carp can be a nuisance when SWM pond development has not included habitat and ecosystem processes. Recently, mosquitoes have presented a more significant threat to the human population due to the spread of the West Nile viral disease. The species of mosquitoes that are the disease vectors, are usually found in very shallow, stagnant water, which is seldom found in SWM ponds, yet the public perception is that all mosquitoes carry the disease and need to be controlled. Stocking the facility with Fathead Minnow and placing bat and bluebird /swallow bird boxes around the perimeter have been found to provide around-the-clock predation of all mosquito species and can significantly alleviate potential problems due to the West Nile virus.

Breeding pairs of Large Mouth Bass are to be stocked after the second season of growth to control nuisance fish species. Residents often will dispose of unwanted tropical fish in the stormwater ponds, in particular goldfish. The goldfish will over winter well and as they grow and reproduce, reverting to their carp genetic heritage. Several species of carp are also available live in food stores and are used by some ethnic groups for religious ceremonies where they release the fish into the SWM pond waters. Carp and other non-desirable fish species can also enter the system as sticky eggs, attached to waterfowl. With the proximity to Lake St Clair, this is very possible in this location. Carp are a significant problem in a SWM system as they constantly mix the bottom searching for food organisms, re-suspending the sediments that are intended to accumulate in the facility forebay. Large Mouth Bass are territorial and predatory and when in a large enough population, will consume the goldfish and young carp to keep the population in check. Unfortunately, they will also eat the beneficial fat head minnow so they are stocked well after the fat head have had a chance to breed several times and multiply.

The objective is to make for an increasingly dynamic ecosystem that would achieve long-term functionality and improve the aesthetic objectives. The species present however, must be considered as contaminated and not for human consumption. During the periodic cleanouts, these species should be land-filled along with the collected sediments and wetland plant biomass.

6.8.3 Soil Preparation

The following Planting Design outlines the species, density requirements, actual community plantings and rationale of each to ensure the form and function of the stormwater pond located within the Manning Road planning area.

To ensure seeding and planting success, proper soil preparation is an essential step in the rehabilitation process. All areas of the stormwater management pond that are proposed to be seeded or planted will have to be dressed with varying depths of topsoil to be conducive of plant growth. Recommended minimum topsoil depths for a particular vegetation community are as follows:

- Tree pits: 60cm (minimum amount of topsoil may be put into an oversized tree planting pit and not spread over the entire tree planting area)
- Shrub beds: 40cm (minimum amount of topsoil may be put into oversized shrub beds and not spread over the entire shrub planting area)
- Seeded areas: 30cm
- Aquatic planting areas: 30cm of high organic (black) topsoil; preferably retained from another wetland

The topsoil may require scarification or tilling to ensure the proper loose and friable density that is ideal for supporting plant growth. Depending on the weed species present at the source, a pre-treatment of an approved weed inhibitor is recommended to avoid weed problems. Areas that contain Common Reed Grass (*Phragmites australis*) should be avoided at all cost. If used, however, the topsoil shall be screened to a 20 mm maximum size and sterilized before application.

6.8.4 Seeding

Seeding will also be completed in these upland areas. Topsoil areas that will be seeded must be scarified prior to seeding. After application of seed, wood fibre Curlex II Quickgrass should be placed over the seeded areas to decrease wind blown removal of seeds, animals feeding on seeds. The Quickgrass also traps moisture in the topsoil to aid germination and then degenerates over a two year period. Seed mixtures are selected according to soil conditions and intended biological function. Seed mixtures are described in the following table. As described

above, the seed should be placed and covered following the major earthworks and then left to grow for at least two seasons before trees and shrubs are planted.

Table 6.1
Typical Recommended Seed Mixtures According to Area

Recommended Upland Seed Mixes	
Scientific Name	Common Name
Andropogon gerardii	Big Bluestem
Andropogon scoparius	Little Bluestem
Elymus canadensis	Canada Wild Rye
Panicum virgatum	Switchgrass
Sorghastrum nutans	Indian Grass
Spartina pectinata	Prairie Cord Grass
Sporobolus cryptandrus	Sand Dropseed
Recommended Semi-moist Seed Mixes	
Scientific Name	Common Name
Iris pseudoacorus	Blue Flag Iris
Lobelie cardinalis	Cardinal Flower
Scirpus cyperinus	Wool Grass
Scirpus validus	Softstem Bulrush
Carex stipata	Tussock Sedge
Carex volpinea	Fox Sedge
Agrostis stolinifera	Creeping Bentgrass
Elymus riparius	Riverbank Wild Rye
Elymus viginicus	Virginia Wild Rye
Glyceria striata	Fowl Mana Grass
Juncus tenius	Path Rush
Poa palustris	Fowl Bluegrass

The semi-moist seed mix will be planted in the 4 m perimeter band around the pond, laid underneath the 400 gm/m^2 coir cloth. This zone provides immediate erosion protection from wind induced wave action as well as creates a tall band of herbaceous plants that geese do not appreciate. It takes at least two years to grow to a sufficient height to be effective in this regard.

Direct planted 50 mm (2") plugs of the moist species are to be planted in the lower 3 m of the coir cloth band, intended to initiate faster growth within this area. Care must be taken to avoid the geese eating these small plugs before they take root. All planting of this nature should be undertaken in early spring before the geese have had a chance to hatch their eggs. Plantings completed during the fall will almost assuredly be eaten by the large flocks of migratory geese present at that time.

6.8.5 Terrestrial Planting

For the upland areas of the Manning Road stormwater management pond (SWP) a combination of appropriate native trees, seed mixes and shrubs are recommended to provide an ideal amount of ground cover and slope stability. To achieve each of these goals, minimum recommended planting densities are indicated in the following table.

Minimum Recommended Tree Planting Densities

Slope	Minimum Density	Plants/m²
5:1	25%	1
4:1	50%	2
3:1	100%	4

The majority of trees planted above the 1 and 100 year flood line at the Manning Road SWP are recommended to be planted at no less than a density of 1 tree/50m². However, in areas immediately adjacent to the railroad tracks a higher density of trees would reduce noise levels and greatly benefit wildlife, including birds. Birds along with many amphibians rely on songs and calls for breeding and are generally very sensitive to noise. In additional, the vibrations caused by passing trains may fracture the soils of the 7 m tall slopes over time and potentially promote erosion. An increased density of deciduous tap-rooted trees would yield a more complex root system and would decrease the potential of such erosion over time. Therefore, in the interest of maximizing the wildlife diversity and decreasing potential erosion factors, rail-side tree densities should be no less than 1 tree/20m².

Tree species are selected according to their location within the SWP area, the soil type and the amount of moisture to which they are exposed. Recommended tree species for the upland areas consist of Sugar Maple (*Acer saccharum*), Tulip Tree (*Liriodendron tulipifera*), Sycamore/Plane Tree (*Platanus occidentalis*), White Oak (*Quercus alba*), Red Oak (*Quercus rubra*), Eastern White

Pine (Pinus strobes). Trees on the lower slopes that would be exposed to a higher moisture level should consist of Balsam Fur (*Abies balsamea*), Red Maple (*Acer rubrum*), White Birch (*Betula papyrifera*), Butternut (*Juglans cinerea*), Black Walnut (*Juglans nigra*). Deciduous trees selected for planting should have a calliper measurement of no less than 40 mm, and coniferous trees should be no less than 1.8 m in height.

6.9 Public Safety Issues

Water depths will vary greatly throughout the various areas, ranging from 15 cm to over 4 m deep. This range of depths is necessary to provide the ecological functions desired in the facility, but these must be tempered with public education and an expectation of common sense. Stormwater management facilities are no longer designed as steeply-sloped water filled pits with fencing around the perimeter as it has been appreciated that the public will gain access through the fence and then be prone to slipping down the steep, often wet slopes. Facilities are now designed with the public in mind, inviting them down to the water's edge to chase a frog or observe a bird, while keeping safety foremost.

Integration of pond features, such as a shallow-sloped, contoured footprint, assists with community safety. The pond side slopes, nearest the water, have been designed with ever-shallowing slopes, to minimize the possibility of someone slipping into the water. The bioengineered coir cloth edge, is also designed to be quite thickly colonized with tall plants and flatly sloped, so accidentally falling through it is unlikely.

Ice cover during the winter is likely to be intermittent in the Tecumseh area and the public may be exposed to thin ice if using the facility for skating or hockey. The area should be posted "Thin Ice – No Skating" and life ring stations positioned around the perimeter every 100 m.

7.0 PROJECT IMPLEMENTATION AND MITIGATION OF ENVIRONMENTAL IMPACTS DURING CONSTRUCTION

7.1 Schedule

The construction of the pond will be subject to the resolution of any issues and concerns after the 30-day review period for this Environmental Study Report, and require that the necessary zoning and construction agreements are in place.

7.2 Environmental Impacts

During the course of construction, the project will be monitored for environmental provisions and commitments.

7.2.1 Natural Environment

Mitigation of impacts to waterfowl during construction will not generally be necessary as there are none residing in the area presently. Geese can be a significant problem with a newly seeded and planted pond. The prevalent problem is predation of the transplanted aquatic plant species by the geese themselves, causing a considerable and expensive delay to construction. This may be avoided by planting in the early spring while the birds are nesting and are in relatively low densities. Planting late in the summer or fall will most likely result in a total loss of plant material as the waterfowl populations are flocking together in preparation for the fall migration. Therefore, the plants need to be planted in early spring, preferably May, and be firmly established prior to the fall flocking period.

Mitigation of mosquito larvae during construction will not be necessary until the pond fills with water and is colonized with plants. Until that time, there will be too much silt entrainment and water movement due to common wind action for the larvae to survive. Fathead minnow will be stocked as part of the primary contract and the bird / bat boxes will be installed at the same time.

7.2.2 Social Environment

Construction operations will occur during the daytime (7am to 7pm) to minimize noise impacts to abutting properties. Construction will not occur in the late evenings and there is no planned weekend work. The construction site will be closed off with fencing to prevent trespassing and to ensure the safety of the public. Traffic routing for detours will not be required since access to Manning Road (County Road 19) will remain open at all times. Other accesses for abutting agricultural properties will be maintained throughout construction. Emergency vehicles will have site access throughout the construction period.

7.2.3 Cultural Resources

Although the Ministry of Culture has been notified on several occasions of the proposed undertakings, comments were not received indicating archaeological potential in the study area. However, should artifacts of geological or archaeological interest be discovered on site during construction, the Ministry of Culture will be immediately contacted.

7.3 Construction Approvals

No construction should proceed without the necessary zoning, MOE and Essex Region Conservation Authority approval/permits and development agreements are in place.

8.0 COST ESTIMATES AND COST SHARING METHODOLOGIES

The SWM facility will provide stormwater storage and treatment for only undeveloped lands within the study area. The cost of the stormwater facility, including the trunk sewer to the facility, the construction of the SWM facility including the land footprint and stormwater pumping station with outlet to the ETLD, will be assessed to all the benefiting lands on a prorata area basis.

8.1 Storm Trunk Sewer

Only sewer pipes, with diameters greater than 1800 mm, are eligible for cost-sharing by the benefitting lands in accordance with the Town's General Policy Guidelines for Oversizing of Subdivision Services.

8.2 Stormwater Facility

The construction of the stormwater facility includes the excavation and disposal of all fill, including site grading and berming, construction of the inlet and outlet works, piping between treatment zones, special in water structures for fish and raptors, placement of topsoil and special and conventional grass plantings, the forebay maintenance lane, land, permits and engineering costs.

The entire cost will be assessed against the benefiting lands on a prorata area basis.

8.3 Pumping Station

The cost of the pumping station includes the structure's access road, below ground works (wet and/or dry wells), pumps and appurtenances, structure mechanical and electrical systems, SCADA, inlet and outlet storm sewers, land, permits and engineering costs.

The entire cost will be assessed against the benefiting lands on a prorata area basis.

8.4 Cost Estimates

Cost estimates for the works total $7,807,000.00 excl. GST. The costs are detailed in **Table 8.1 – Alternative Design #2 – Regional CPR Pond Cost Estimates** and included in **Appendix K – Regional CPR Pond Cost Estimates.**

FIGURES

LEGEND

MANNING ROAD SECONDARY PLAN AREA (107 ha)

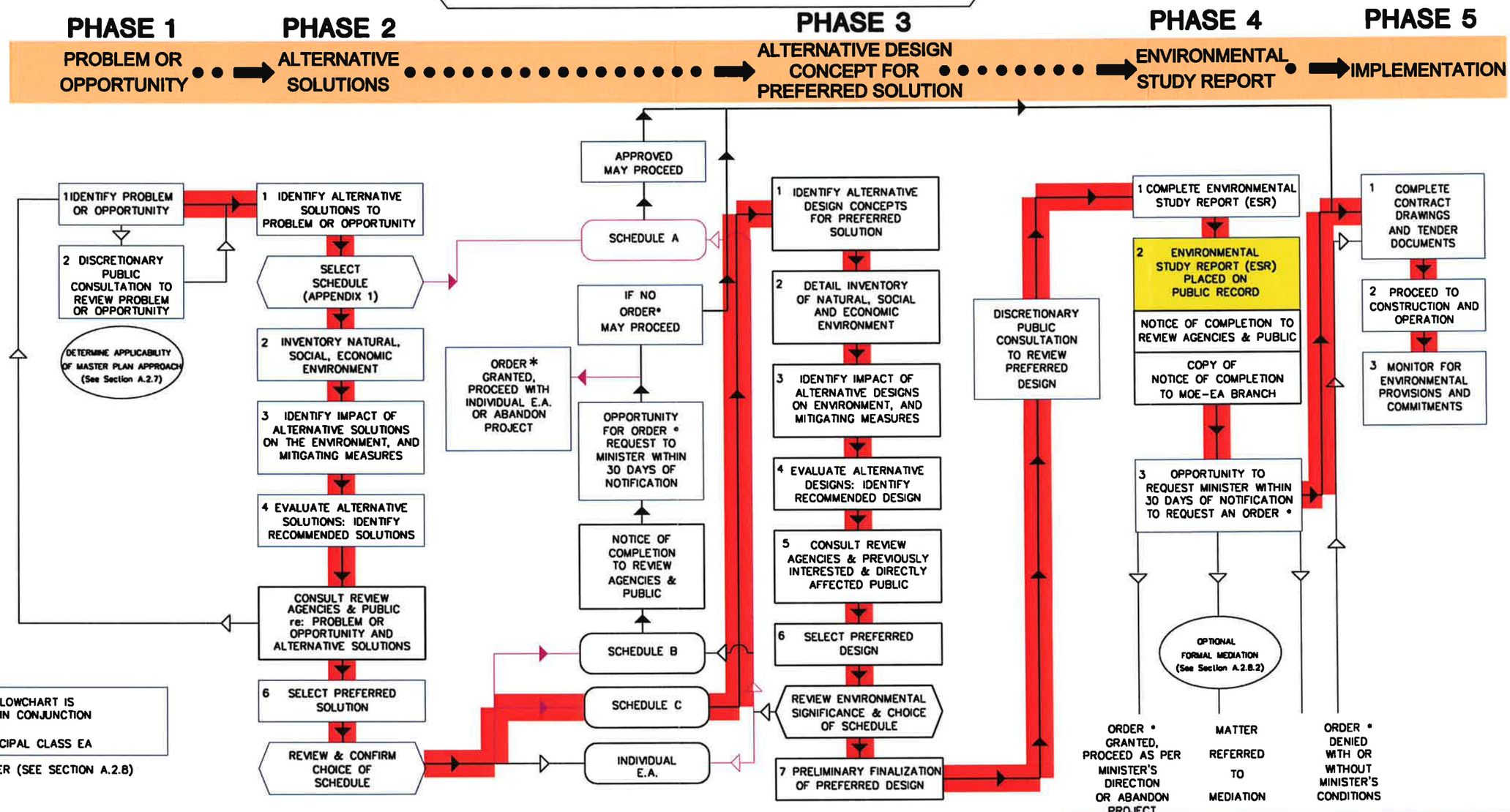
OTHER LAND (143 ha)

STUDY AREA LIMITS

DILLON CONSULTING	July 2008	MANNING ROAD SECONDARY PLAN AREA STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	Project No. 04-4139	
	FIGURE 1.0	STUDY AREA

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

(JUNE 2000 AS REVISED IN 2007)



NOTE: THIS FLOWCHART IS TO BE READ IN CONJUNCTION WITH PART A OF THE MUNICIPAL CLASS EA

* PART II ORDER (SEE SECTION A.2.8)

- INDICATES POSSIBLE EVENTS
- INDICATES MANDATORY EVENTS
- INDICATES PROBABLE EVENTS
- PROCESS TO BE FOLLOWED FOR SCHEDULE 'C' PROJECTS
- MANDATORY PUBLIC CONTACT POINTS
- DECISION POINTS ON CHOICE OF SCHEDULE
- OPTIONAL

DILLON CONSULTING

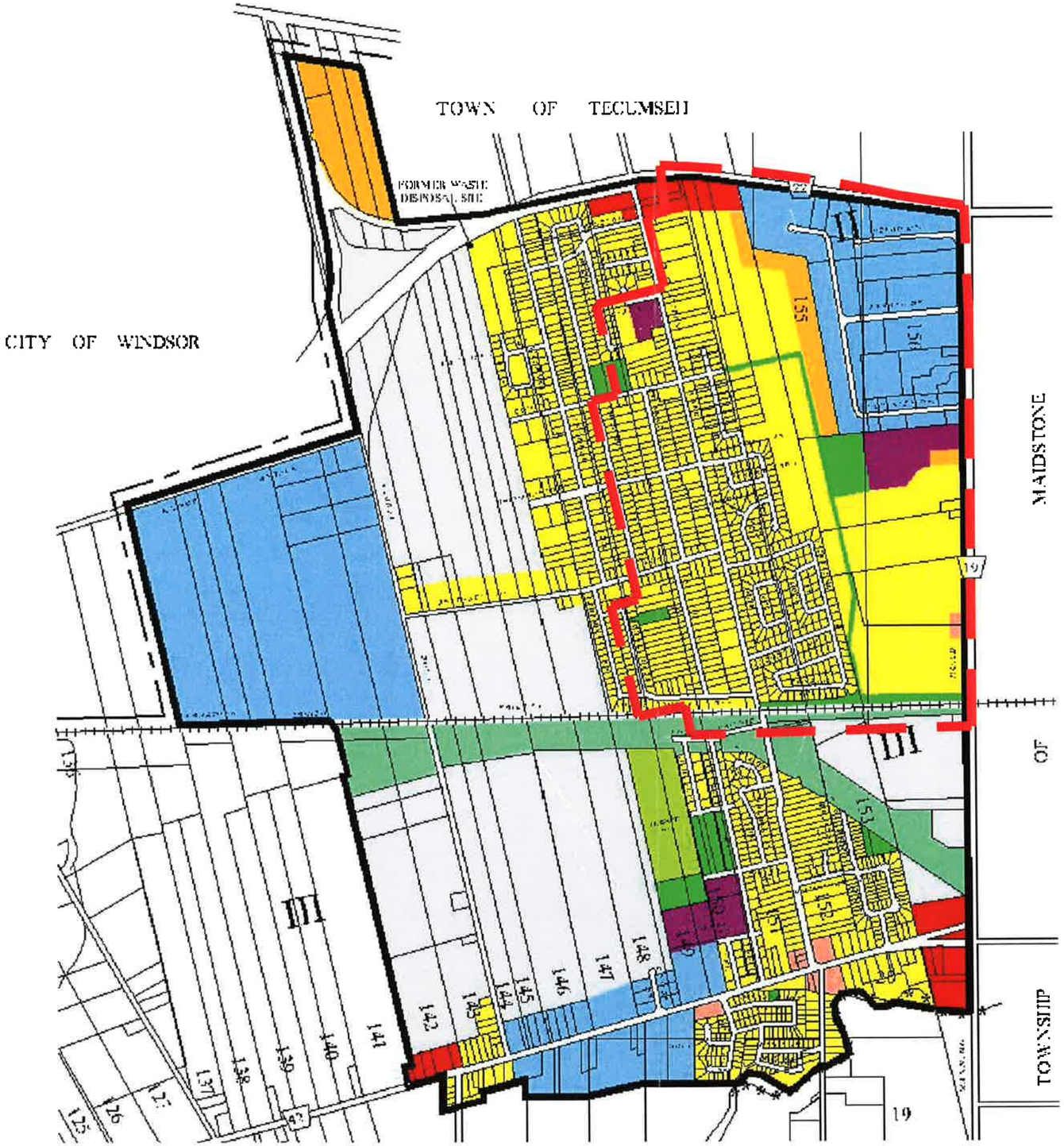
July 2008 | Project No. 04-4139

Manning Road Secondary Plan Area
Stormwater Management Study
Class Environmental Assessment

CLASS EA PROCESS
FIGURE 2.0

Jul 31, 2008 - 1:21pm G:\CAD\04139\Report\July 2008\Figure 2 - EA Process.dwg

SCHEDULE "A-1"
TOWNSHIP OF SANDWICH SOUTH
OFFICIAL PLAN
TECUMSEH HAMLET
URBAN AREA
LAND USE PLAN



- Urban Area Boundary
- Low Density Residential
- Medium Density Residential
- Neighbourhood Commercial
- General Commercial
- Business Park
- Community Facility
- Natural Environment
- Recreational
- Hamlet Development
- Ontario Hydro Right of Way
- * * * * Floodway

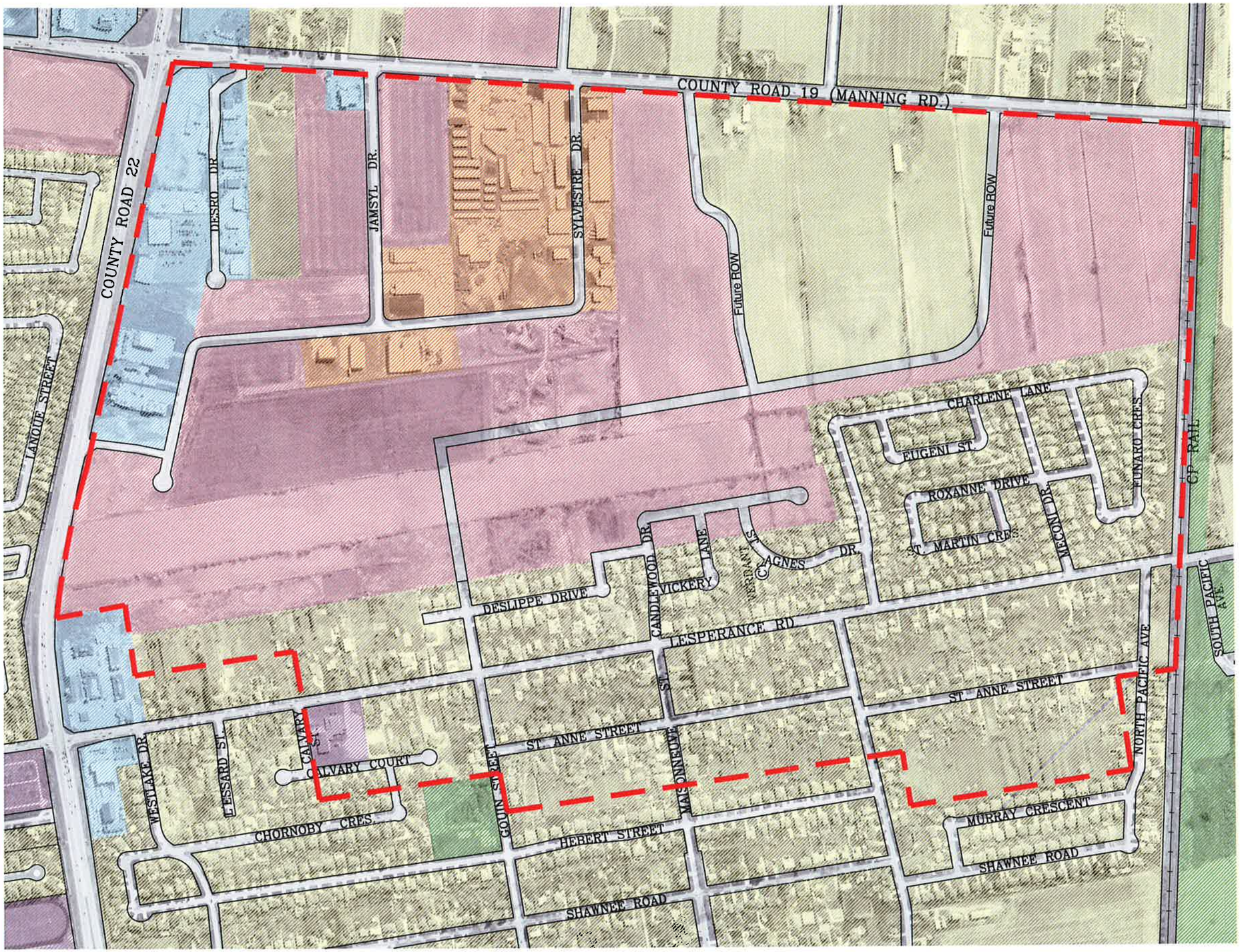
DILLON CONSULTING

July 2008
Project No. 04-4139-7000

Manning Road Secondary Plan Area
Stormwater Management Study
Class Environmental Assessment
in the Town of Tecumseh

FIGURE 3.0
OFFICIAL PLAN DESIGNATIONS

Jul 31, 2008 - 1:21pm G:\CAD\044139\Report\July 2008\Figure 3.dwg



LEGEND

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- OPEN SPACE
- VACANT
- STUDY AREA

DILLON CONSULTING

July 2008

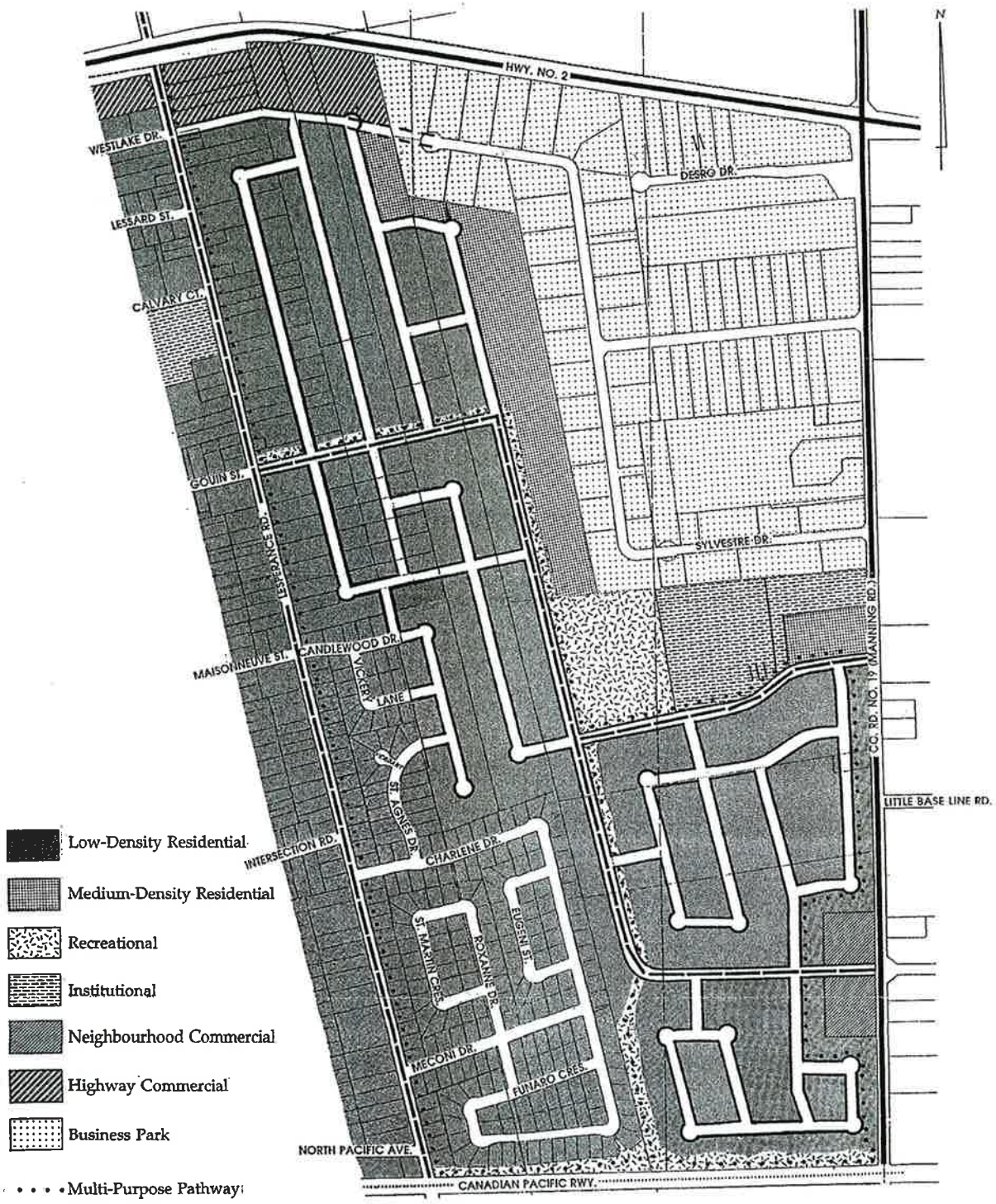
Project No. 04-4139-7000

Manning Road Secondary Plan Area
Stormwater Management Study
Class Environmental Assessment
in the Town of Tecumseh

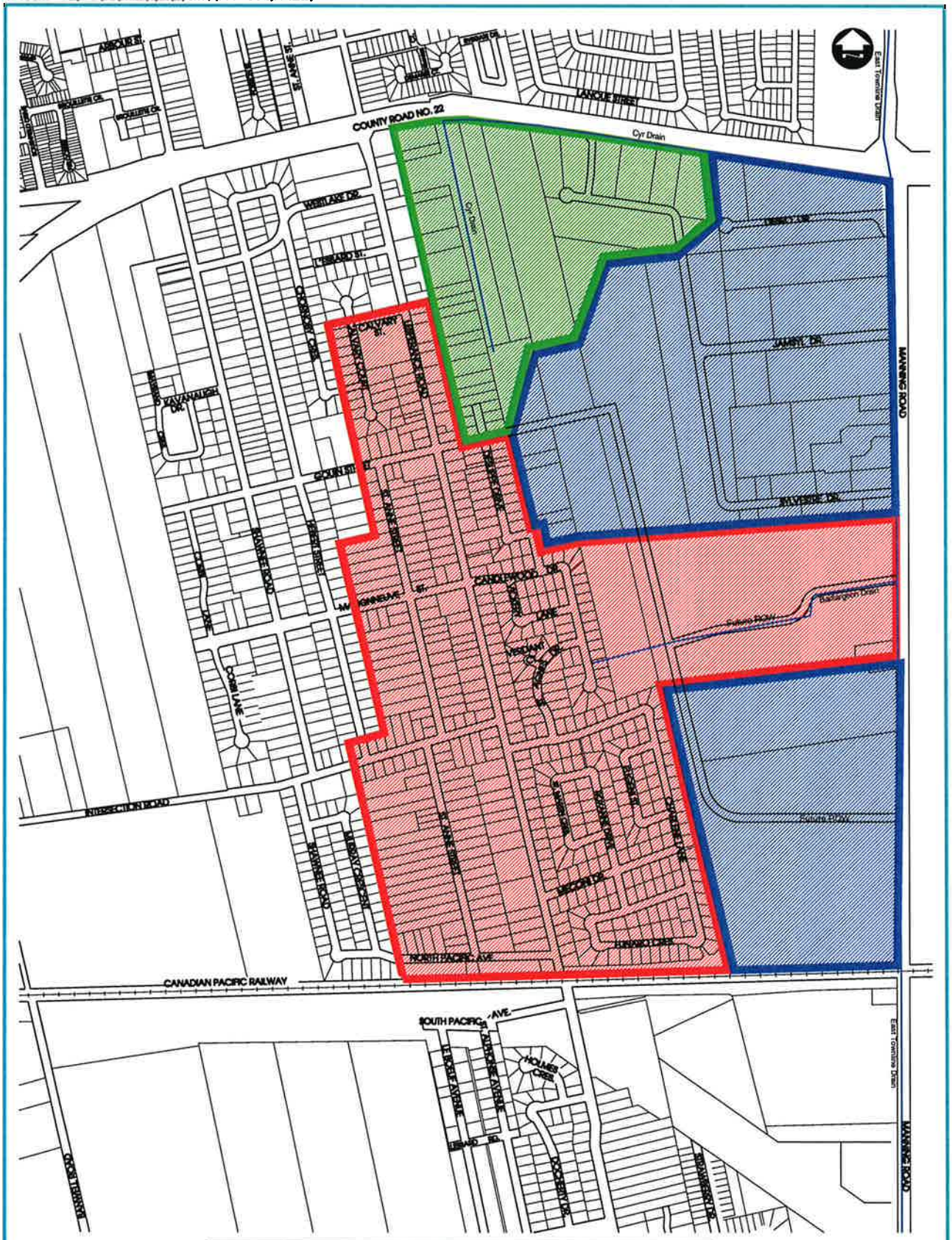
FIGURE 4.0
EXISTING LAND USE

Jul 31, 2008 - 1:21pm C:\CAD\04139\Report\July 2008\Figure 4.dwg

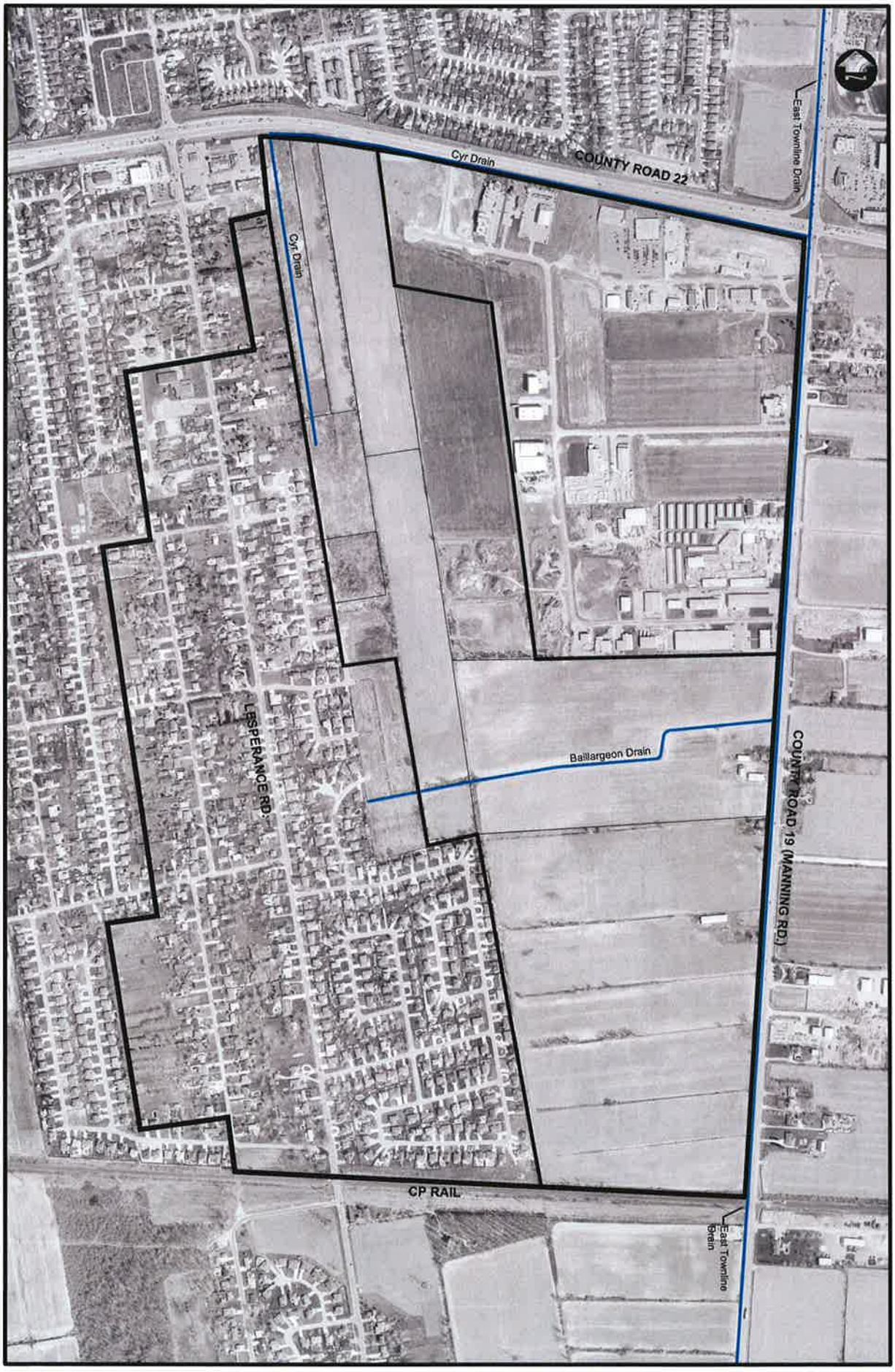
TOWNSHIP OF SANDWICH SOUTH
MANNING ROAD SECONDARY PLAN STUDY
CONCEPT PLAN



DILLON CONSULTING	July 2008	MANNING ROAD SECONDARY PLAN AREA STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	Project No. 04-4139	
	FIGURE 5.0	SECONDARY PLAN

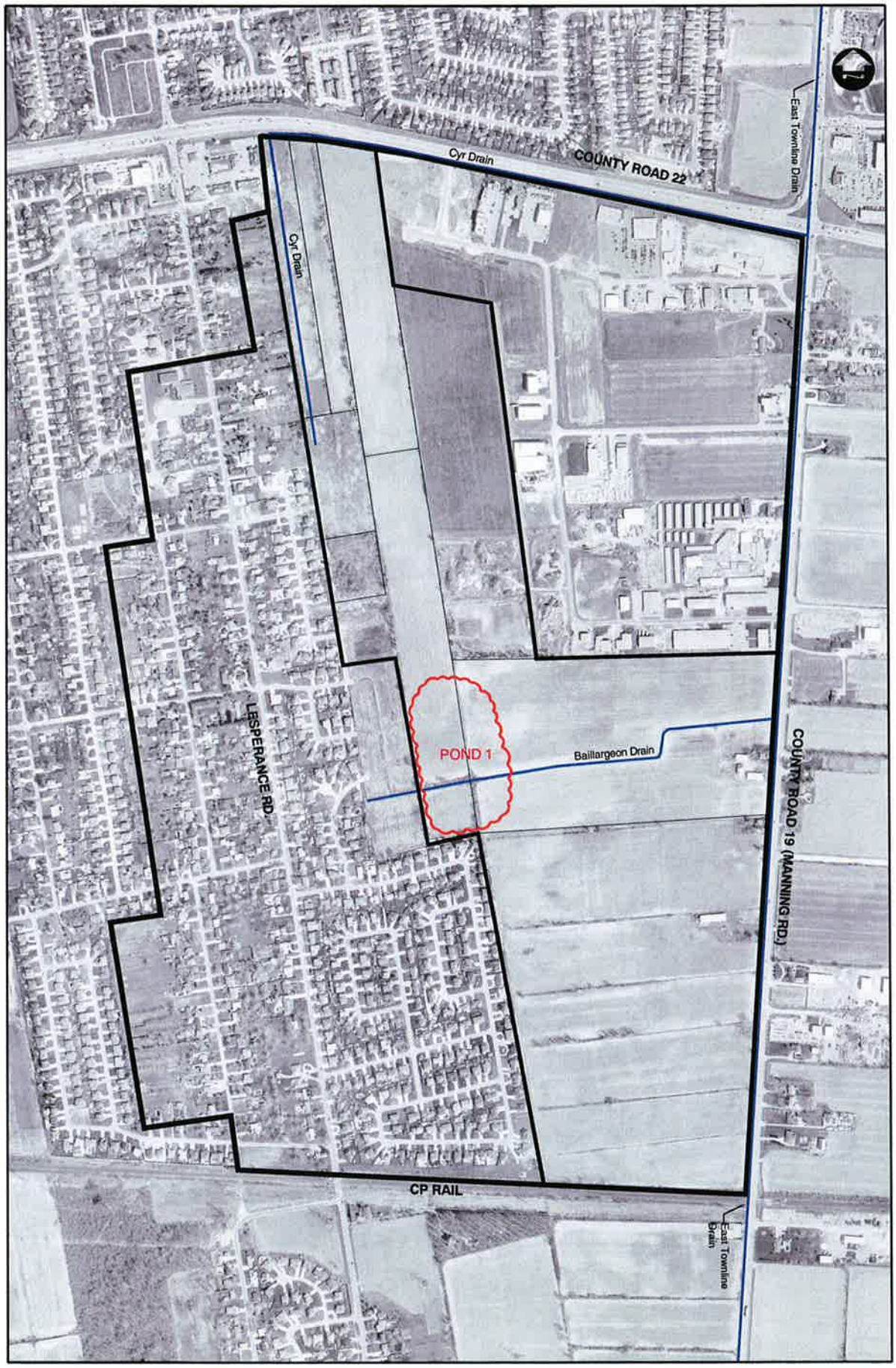


DILLON CONSULTING	
July 2008	MANNING ROAD SECONDARY PLAN AREA
Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
FIGURE 6.0	DRAINAGE AREAS



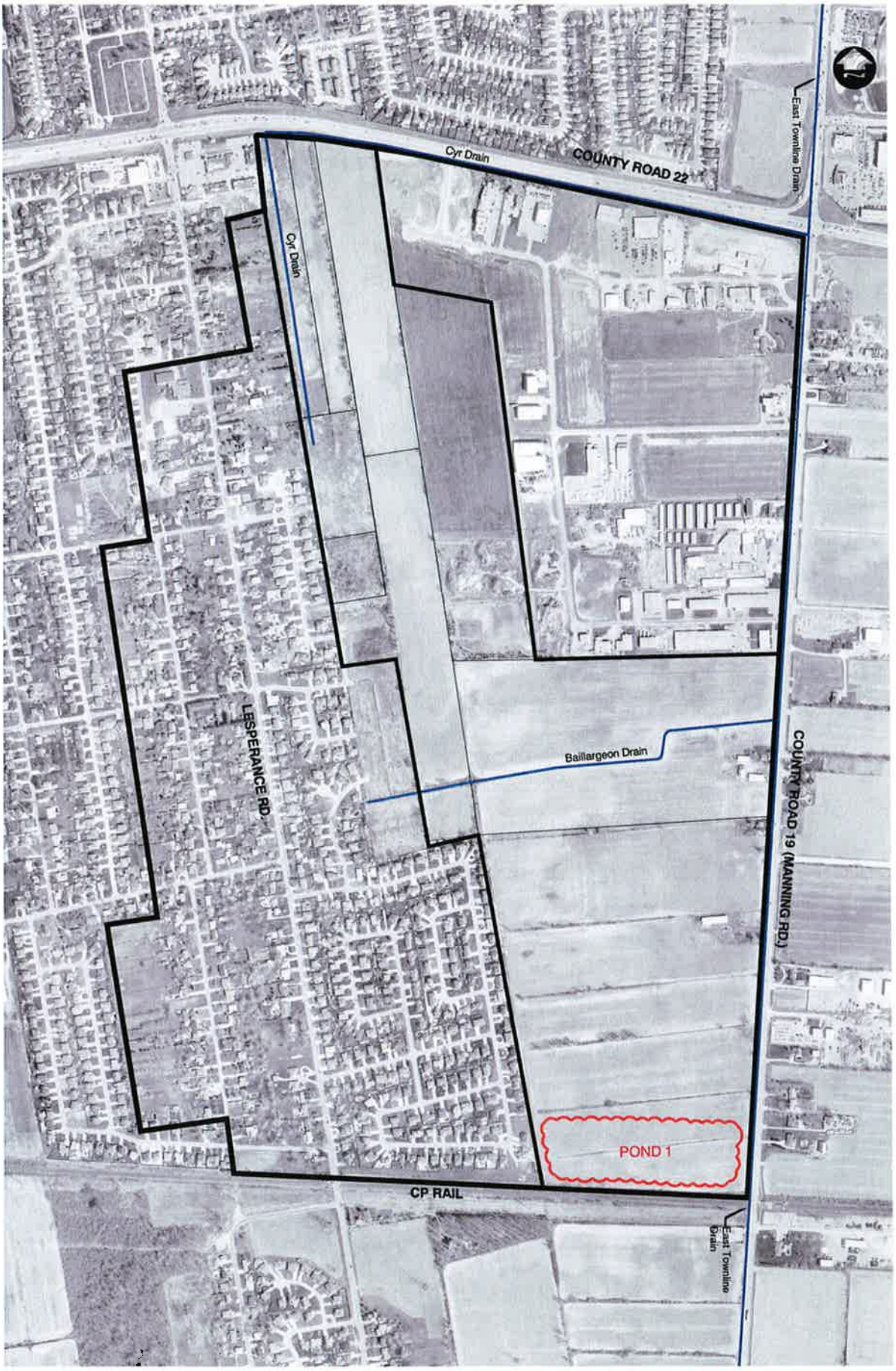
DILLON CONSULTING

JULY 2008	MANNING ROAD SECONDARY PLAN AREA STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
Project No. 04-4139	
FIGURE 7.0	ALTERNATIVE SOLUTION #1 - DO NOTHING

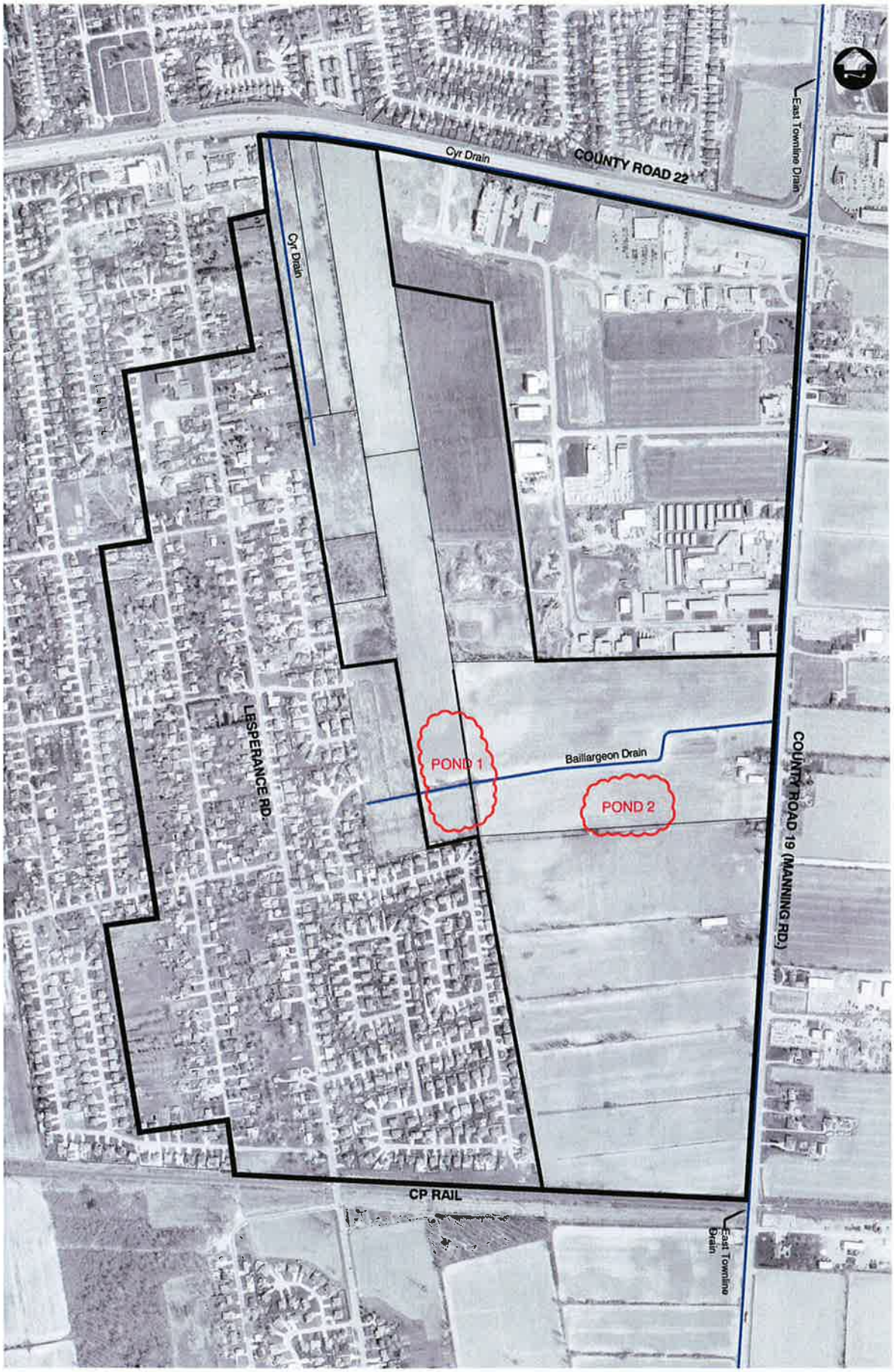


DILLON CONSULTING

July 2008	MANNING ROAD SECONDARY PLAN AREA STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
Project No. 04-4139	
FIGURE 8.0	ALTERNATIVE SOLUTION #2 - REGIONAL CENTRAL WET POND



DILLON CONSULTING	July 2008	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	FIGURE 9.0	ALTERNATIVE SOLUTION #3 - REGIONAL WET POND AT CPR RAILWAY



DILLON CONSULTING

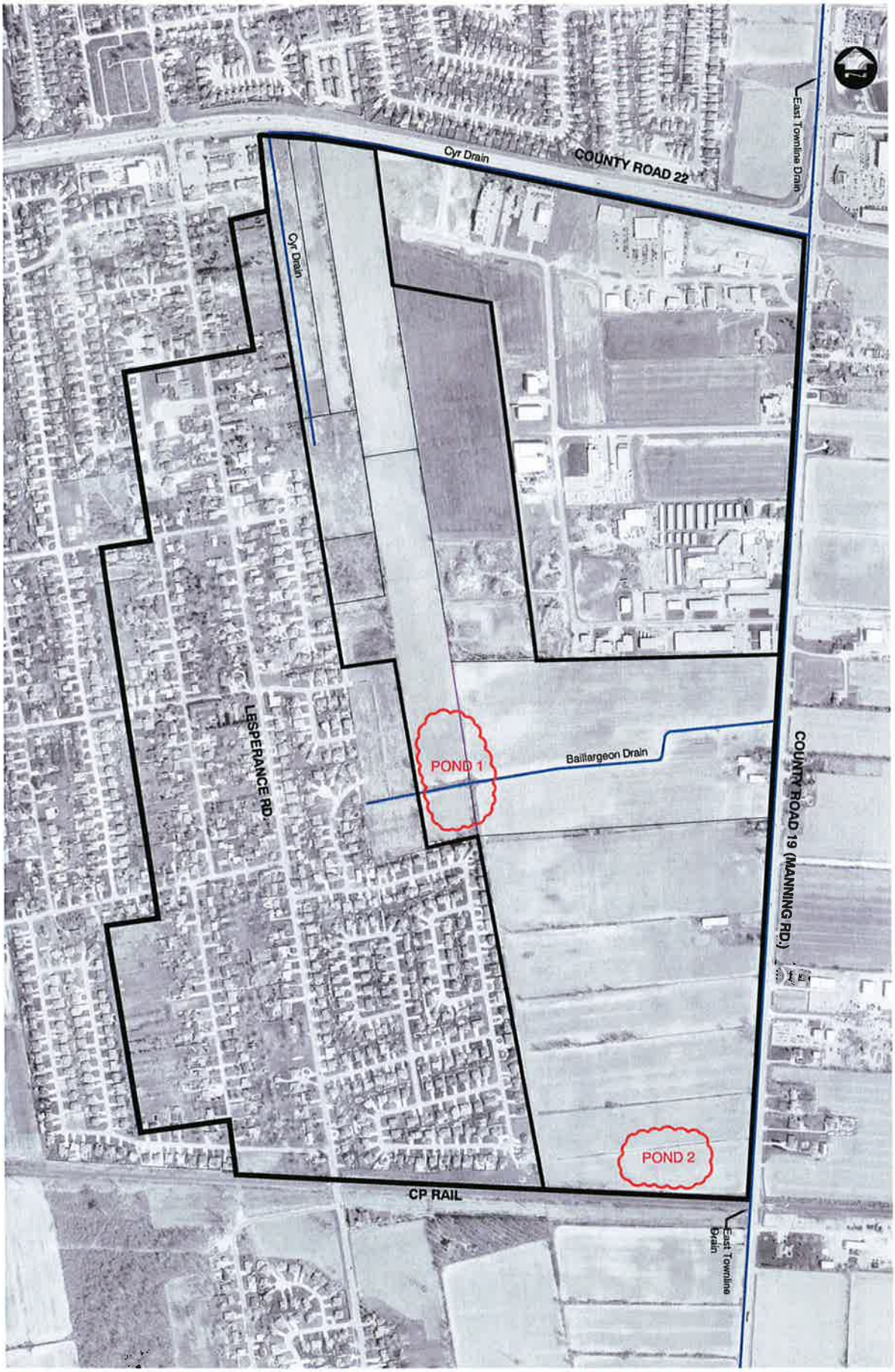
July 2008

Project No. 04-4139

FIGURE 10.0

MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT

ALTERNATIVE SOLUTION #4 - DUAL WET PONDS



DILLON CONSULTING

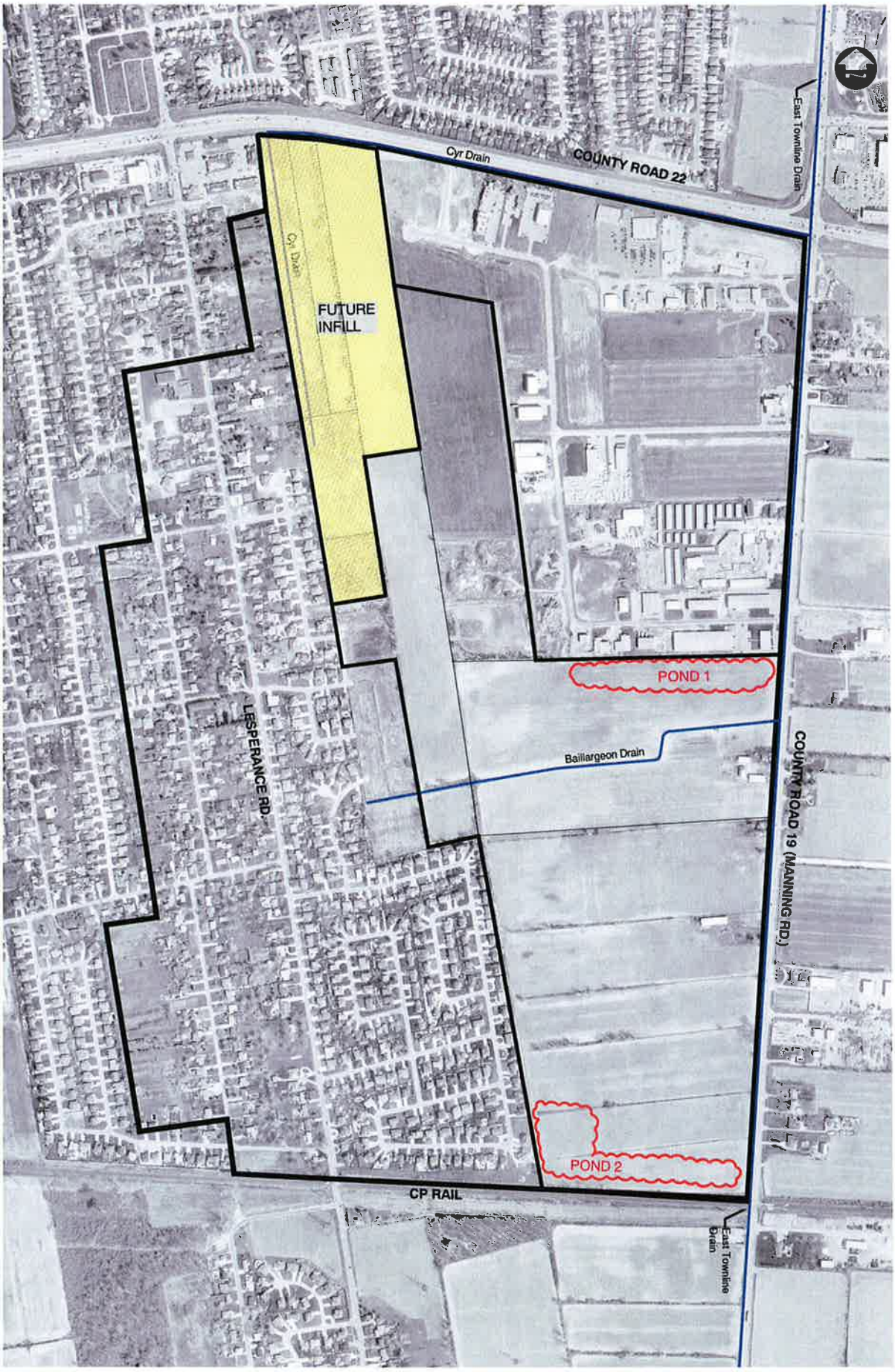
July 2008

Project No. 04-4139

FIGURE 11.0

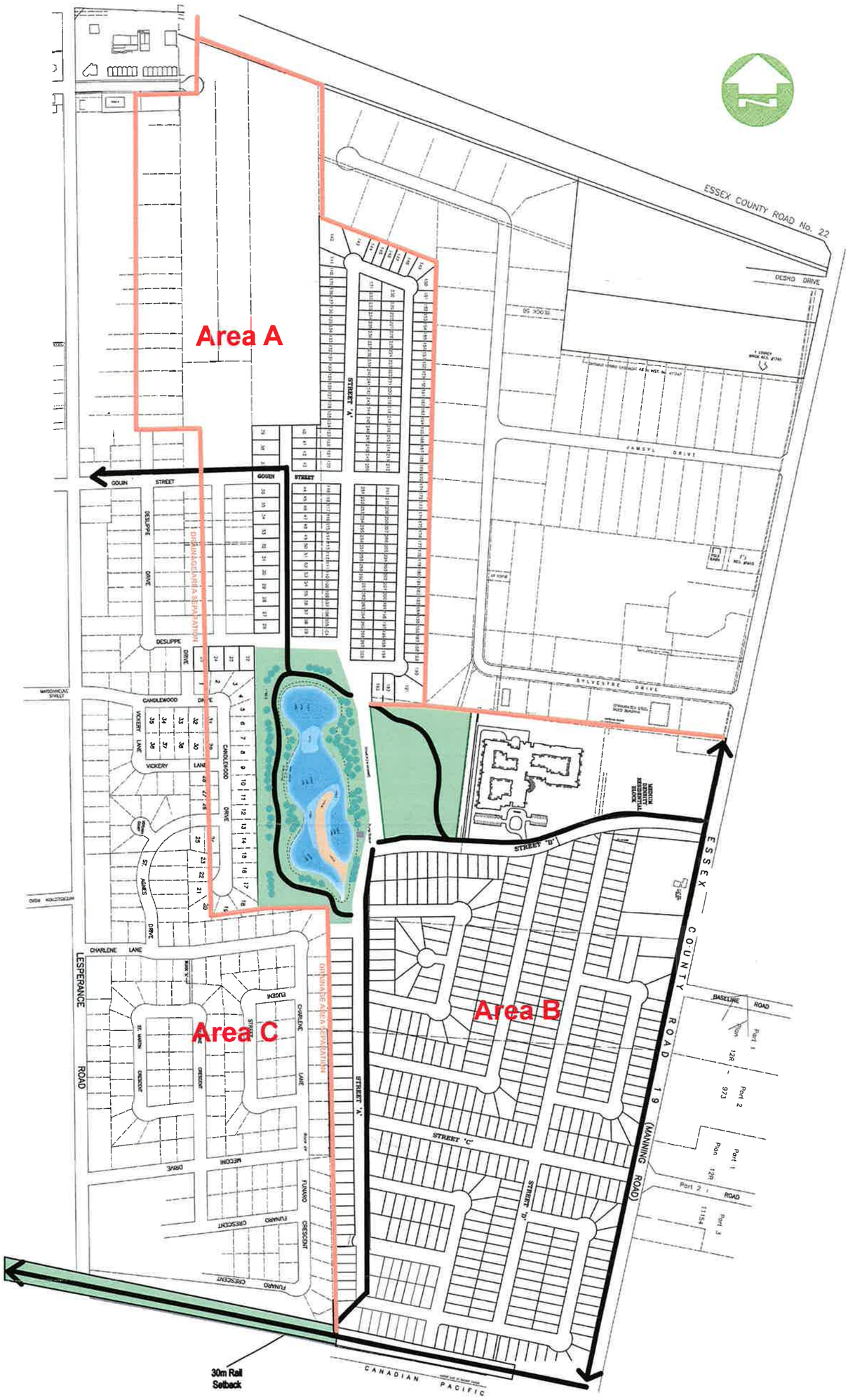
MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT

ALTERNATIVE SOLUTION #5 - DUAL WET PONDS



DILLON CONSULTING

July 2008	MANNING ROAD SECONDARY PLAN AREA
Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
FIGURE 12.0	ALTERNATIVE SOLUTION #6 - DEVELOPERS' ALTERNATIVE



DILLON CONSULTING	JULY 2008	MANNING ROAD SECONDARY PLAN AREA STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT
	Project No. 04-4139	
	FIGURE 13.1	ALTERNATIVE DESIGN #1 - REGIONAL CENTRAL POND

North Inlet

Street A (re-located)

Pump Station

South Inlet

Outlet

Landscaping (trees)

Open Water (forebays)

Shallow Area (wetland plants)

Open Water (basin)

Cattail Spit

Open Water (basin)

Shallow Area (wetland plants)

Open Water (forebays)

N.W.L. (175.4')

Normal Water Level

H.W.L. (177.4')

+182.0

Deeper pools below water surface: May be stocked with habitat structures

Cattail Spit: very shallow water to separate inflow from outflow basin.

DRAINAGE AREA SEPARATION

Area C

CHARLENE LANE

EUGENI STREET

CRESCENT

CANDLEWOOD DRIVE

LEGEND

Path Network

Pump Station

Trees

MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT

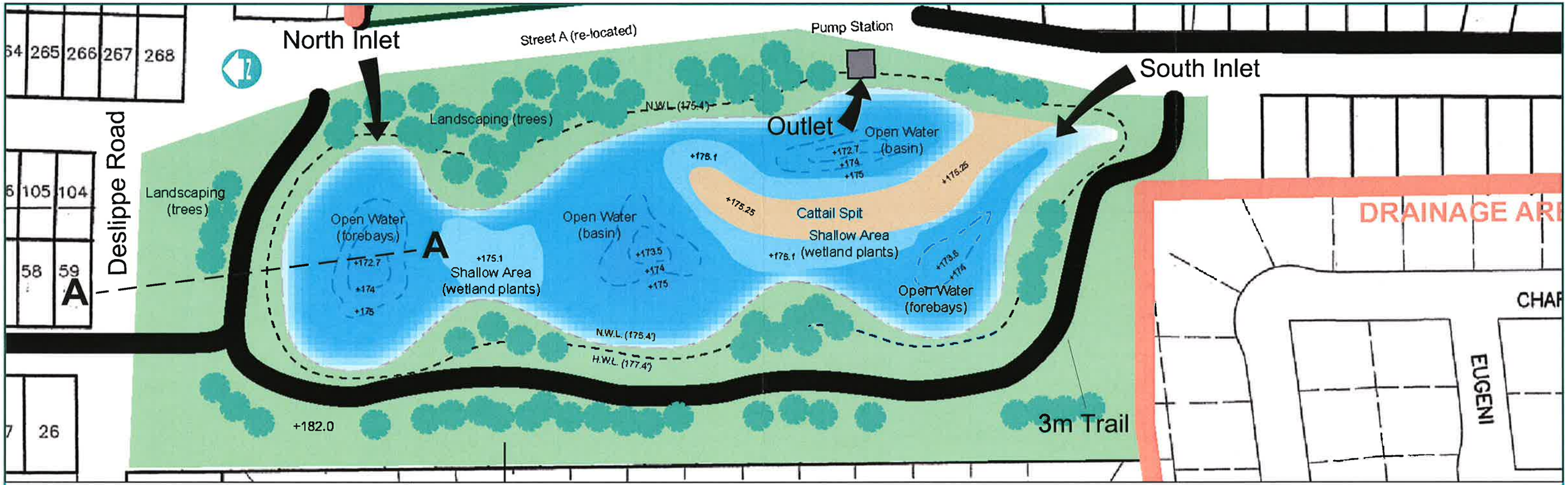
ALTERNATIVE DESIGN #1 - REGIONAL CENTRAL POND DETAILS

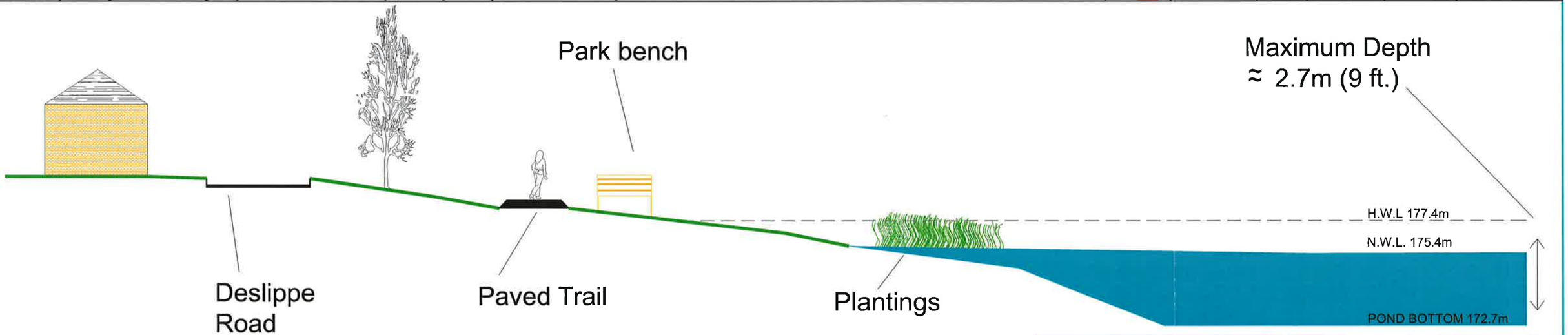
JULY 2008

Project No. 04-4139

FIGURE 13.2

DILLON CONSULTING





CROSS SECTION A - A
(From Deslippe Road to Pond)

DILLON CONSULTING

TECUMSEH

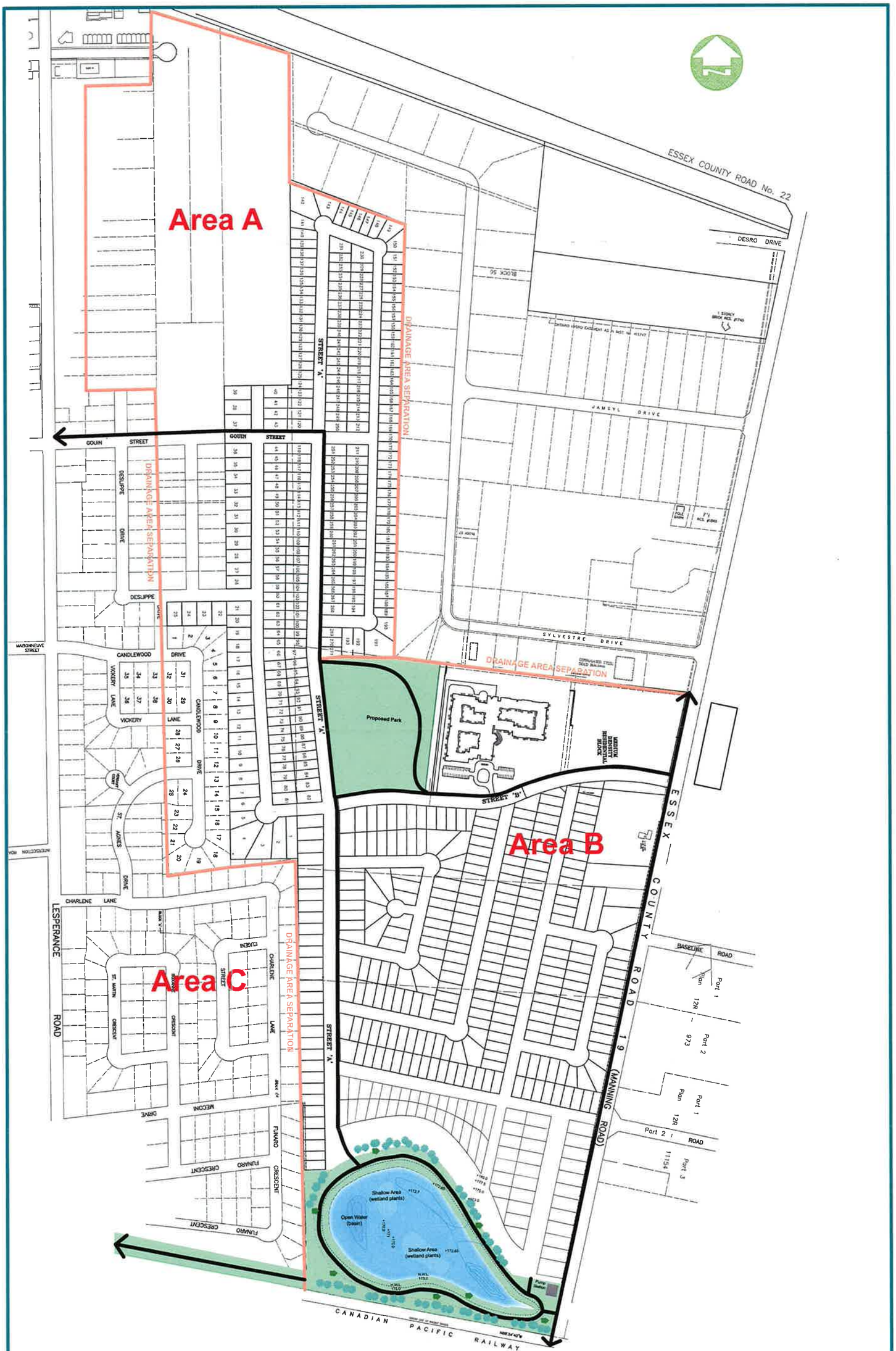
July 2008 | Project No. 04-4139-8000

Manning Road Secondary Plan Area
Stormwater Management Study

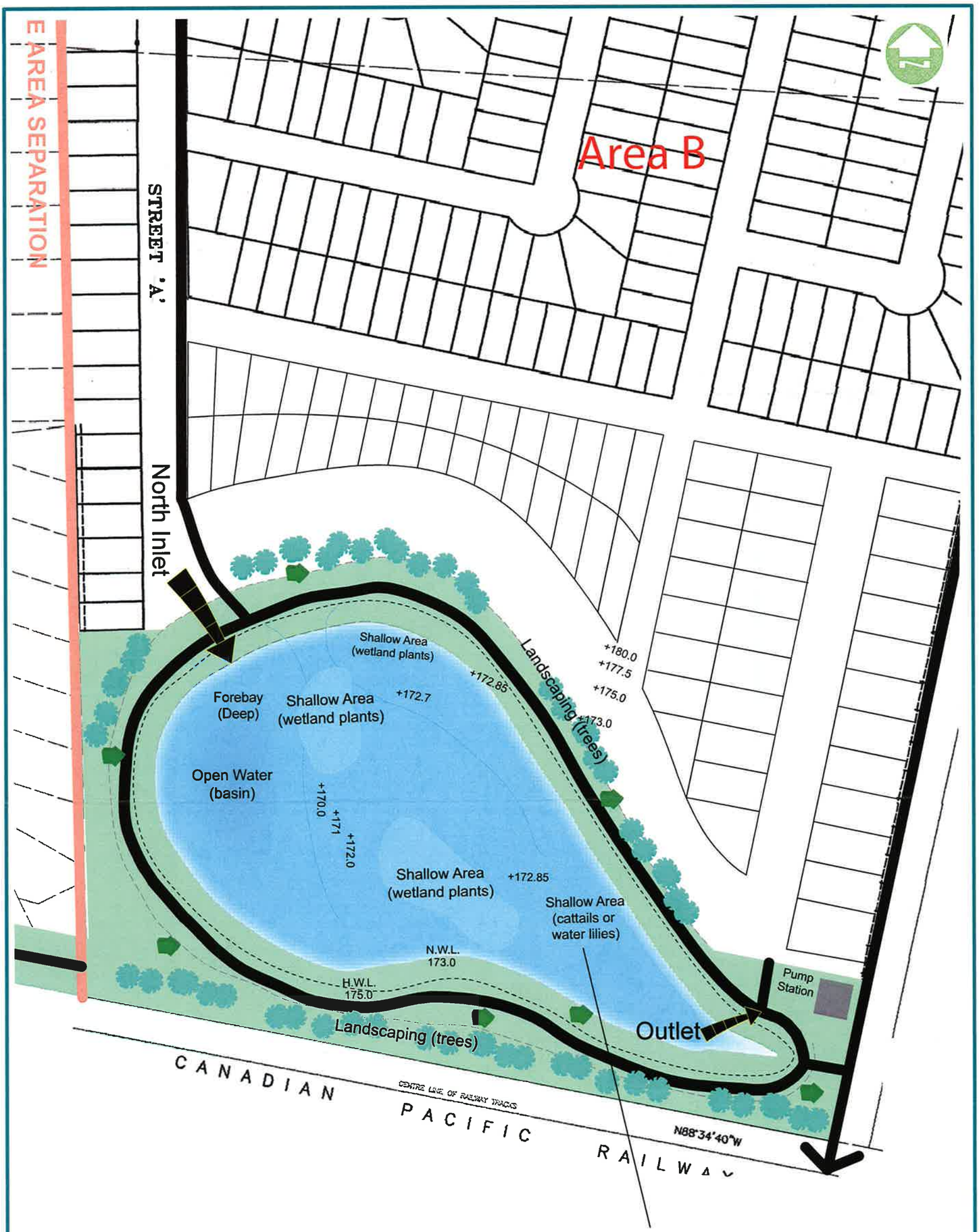
FIGURE 13.3

ALTERNATIVE DESIGN # 1
REGIONAL CENTRAL POND
PROFILE VIEW

Jul. 31, 2008 – 2:41pm G:\CAD\044139\Report\July 2008\Figure 13.3 & 14.3.dwg



DILLON CONSULTING	JULY 2008	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT
	FIGURE 14.1	ALTERNATIVE DESIGN #2 - REGIONAL CPR POND

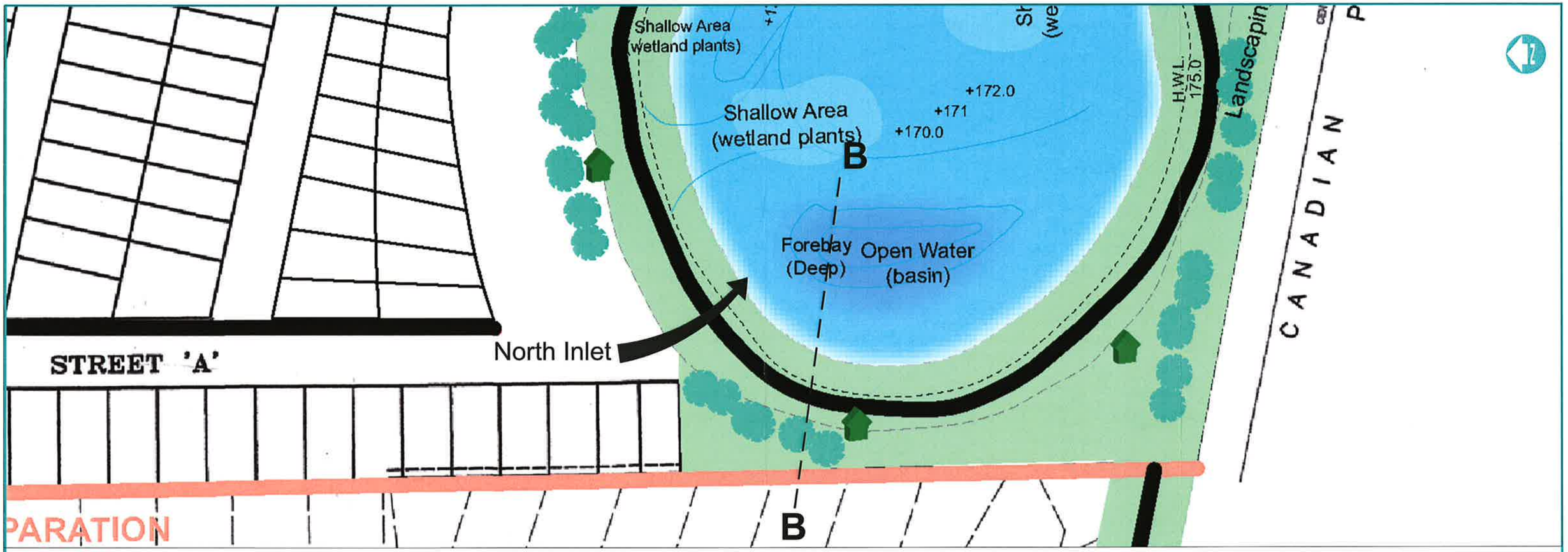


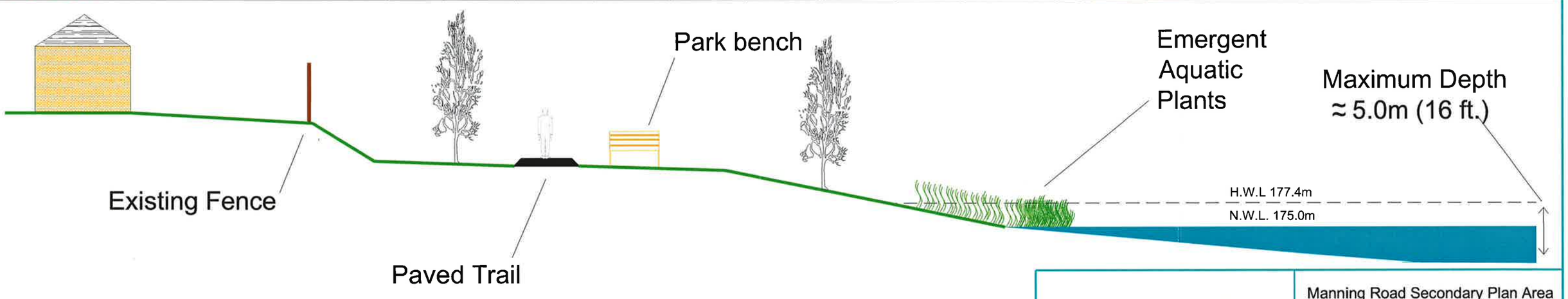
Cattails:
Large area of cattails to minimize landing area of geese.

Information:

- Habitat Feature: Bird, Bat Boxes
- Path Network
- Pump Station
- Trees

DILLON CONSULTING	JULY 2008	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT
	FIGURE 14.2	ALTERNATIVE DESIGN #2 - REGIONAL CPR POND DETAILS





CROSS SECTION B- B
(From Existing Lot to Pond)

DILLON CONSULTING

FECUNDED

July 2008

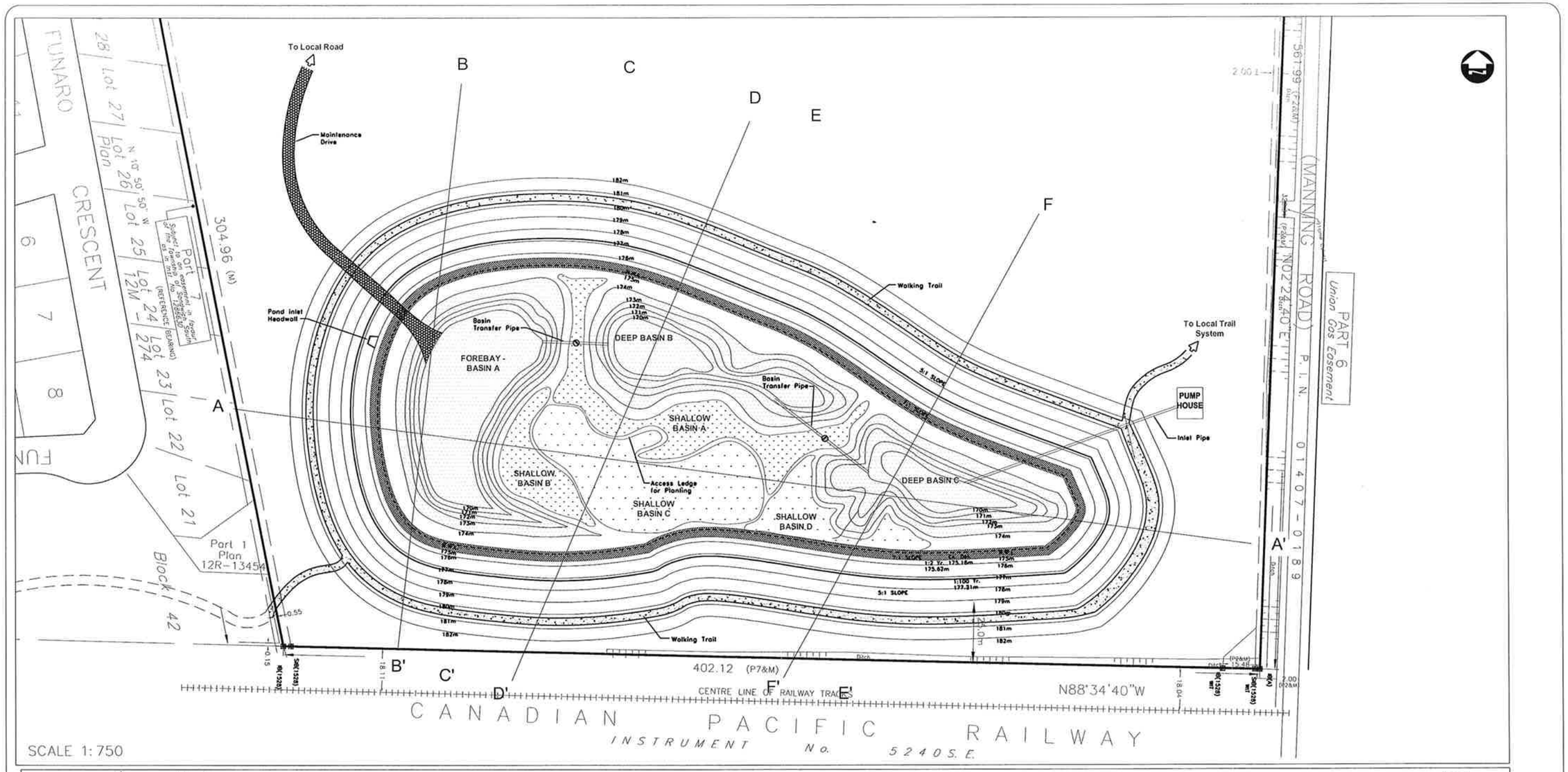
Project No. 04-4139-8000

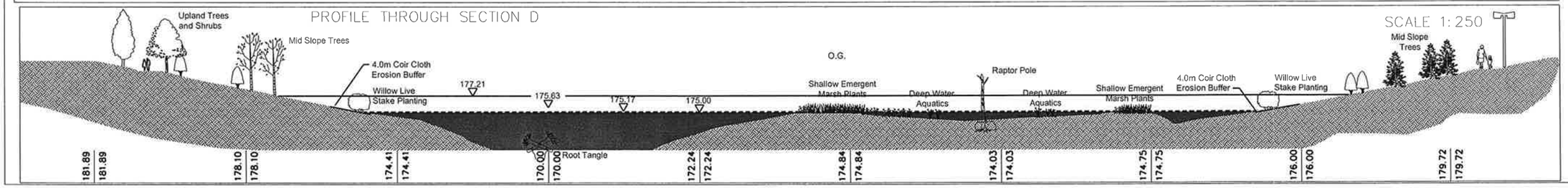
Manning Road Secondary Plan Area
Stormwater Management Study

FIGURE 14.3

ALTERNATIVE DESIGN # 2
REGIONAL CPR POND
PROFILE VIEW

Jul 31, 2008 – 2:41pm G:\CAD\04139\Report\July 2008\Figure 13.3 & 14.3.dwg





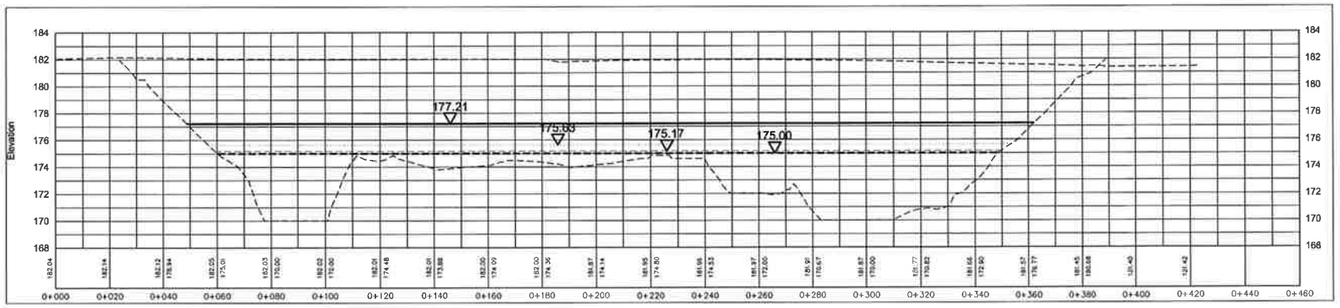
DILLON CONSULTING

Legend:

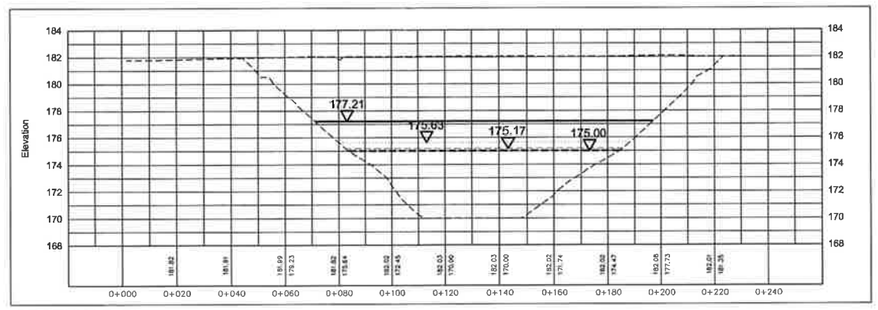
- Open Water Area
- Shallow Emergent Marsh Plants
- Deep Water Aquatic Plants
- Normal Water Level 175.0m
- Extended Detention 175.17m
- 1:2 Year Storm 175.63m
- 1:100 Year Storm 177.21m
- Walking Trail 2.5m
- Maintenance Access 5.0m
- Basin Transfer Pipe with Valve

MANNING ROAD CPR STORMWATER POND PLAN AND PROFILE

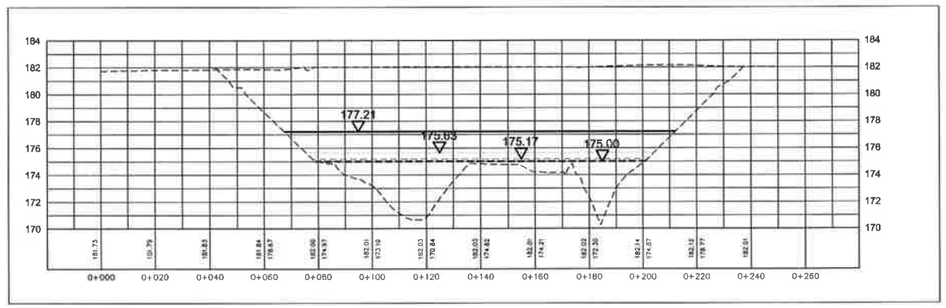
Proj. Manager: JB		Drawn By: ITR	Figure No.
Scale: AS SHOWN		Checked By: SRT	FIG 15
Date Issued: July 2008		Project No: 04 4139	
Location: G:\CAD\2004\04 4139 MANNING...		File Name: PONDS_Milton.dwg	



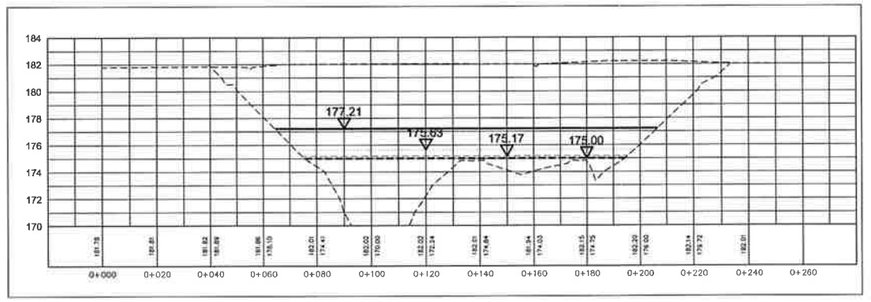
SECTION A-A'



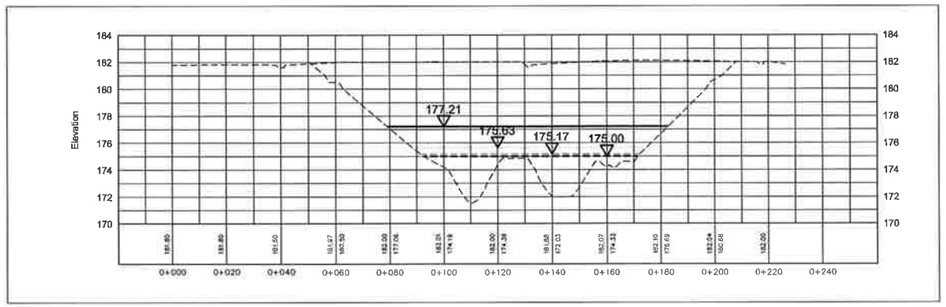
SECTION B-B'



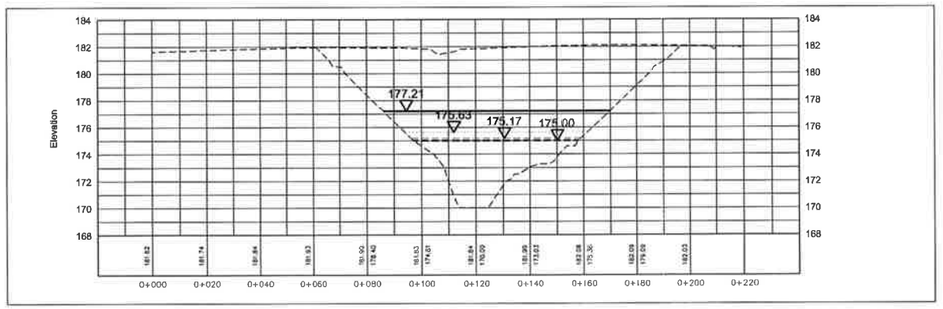
SECTION C-C'



SECTION D-D'



SECTION E-E'



SECTION F-F'

DILLON CONSULTING

Legend:

- Open Water Area
- Shallow Emergent Marsh Plants
- Deep Water Aquatic Plants
- Normal Water Level 175.0m
- Extended Detention 175.17m
- 1:2 Year Storm 175.63m
- 1:100 Year Storm 177.21m
- Walking Trail 2.5m
- Maintenance Access 5.0m
- Basin Transfer Pipe with Valve

MANNING ROAD CPR STORMWATER POND SECTIONS

Proj. Manager: JB		Drawn By: ITR	Figure No.
Scale: AS SHOWN		Checked By: SRT	FIG 16
Date Issued: July 2008		Project No: 04 4139	
Location: G:\CAD\2004\04 4139 MANNING..		File Name: PONDS_Milton.dwg	

APPENDIX A

COMPREHENSIVE MAILING LIST

Manning Road Secondary Plan Area
Class Environmental Assessment
Mailing Lists

PART A – AGENCIES

Agency	Contact Person/Address	Telephone/Fax/Email
Ministry of Natural Resources	Mr. Fred Johnson Ministry of Natural Resources, 870 Richmond Street West, Chatham, ON N7M 5J5	Fax: (519) 354-0313
Ministry of the Environment	Dr. Ron Griffiths, EA Review Coordinator Ministry of the Environment, Southwestern Region 733 Exeter Road London, ON N6E 1L3 Mr. Kim Ferguson, P. Eng. Ministry of the Environment 4510 Rhodes Drive, Windsor, ON N8W 5K5	Tel: (519) 873-5015 Fax: (519) 873-5025 ron.griffiths@ene.gov.on.ca Fax: (519) 948-2396
Ministry of Culture	Mr. Neal Ferris, Heritage Planner/Regional Archaeologist Ministry of Culture 900 Highbury Avenue, London, ON N5Y 1A4	Tel: (519) 675-6898 Fax: (519) 675-7777 neal.ferris@mcl.gov.on.ca
Ministry of Municipal Affairs and Housing	Mr. Scott Oliver Ministry of Municipal Affairs and Housing, Community Planning & Development 659 Exeter Road, 2nd Floor London, ON N6E 1L3	Fax: (519) 873 - 4018
Ministry of Transportation	Mr. James Cocoran Ministry of Transportation 659 Exeter Road, London, ON N6E 1L3	Fax: (519) 873 - 4388
Transport Canada Surface	Mr. Doug Vollick, Senior Signal Systems Officer Transport Canada Surface 4900 Young Street, Suite 400 North York, ON M2N 6A5	
NAV Canada	Mr. Ron Humphrey, Technical Supervisor, NAV Canada 2530 Blair Blvd,	

	London, ON N5V 3Z9	
Canadian Pacific Railway	Mr. David Lukianow, P. Eng. Manager, Public Works Canadian Pacific Railway 1290 Central Parkway West, Suite 600 Mississauga, ON L5C 4R3	Tel: (905) 803-5971 Fax: (905) 803-3322
Essex Region Conservation Authority	Mr. Rebecca Belanger, Planner Essex Region Conservation Authority 360 Fairview Avenue West, Essex, ON N8M 1Y6 Mr. Tim Byrne, Senior Water Management Technician Essex Region Conservation Authority 360 Fairview Avenue West, Essex, ON N8M 1Y6	Tel: (519) 776-5209 Fax: (519) 776-8688 vbelanger@erca.org Tel: (519) 776-5209 Fax: (519) 776-8688 regs@erca.org
Essex Powerlines Corporation	Mr. Mark Alzner, Essex Powerlines Corporation 360 Fairview Avenue West, Essex, ON N8M 1Y6	Fax: (519) 776 - 5747
Union Gas Limited	Ms. Diane Mastronardi, Union Gas Ltd, Windsor Admin Office 650 Division Road, Windsor, ON N9A 6N7	Fax: (519) 250 - 2289
Essex County Active Living Coalition	Ms. Karen Lukic Essex County Active Living Coalition 360 Fairview Avenue West, Essex, ON N8M 1Y6	Fax: (519) 776 - 6102
Town of Tecumseh	Mr. Rob Tapak, Fire Chief Town of Tecumseh Fire Department 985 Lesperance Road, Tecumseh, ON N8N 1W9 Mr. George De Groot, C.E.T., Director of Public Works and Environmental Services Town of Tecumseh Public Works 1189 Lacasse Blvd, Tecumseh, ON N8N 2C7	Fax: (519) 735 – 6712 Fax: (519) 735 - 6712
Town of Lakeshore	Mr. Mike Phipps, Chief Administrative Officer Town of Lakeshore 419 Notre Dame, Belle River, ON N0R 1A0	Fax: (519) 728 – 9530

Last revised: April 6, 2006

	Mr. Alex Shinas, Municipal Planner Town of Lakeshore 419 Notre Dame, Belle River, ON N0R 1A0 Mr. Dan Piescic, P. Eng. Director of Public Works Town of Lakeshore 419 Notre Dame, Belle River, ON N0R 1A0	Fax: (519) 728 – 9530 Fax: (519) 728 - 9530
County of Essex	Mr. W.J. King, MCIP County Planner Corporation of the County of Essex 360 Fairview Avenue West, Essex, ON N8M 1Y6 Mr. Thomas Bateman, P. Eng. County Engineer, Roads Corporation of the County of Essex 360 Fairview Avenue West, Essex, ON N8M 1Y6	Tel: (519) 776-6441 Fax: (519) 776-4455 bking@countyofessex.on.ca Tel: (519) 776-6441 Fax: (519) 776-1253 tbateman@countyofessex.on.ca
Ontario Provincial Police	Sgt. Rick Tonial, Tecumseh OPP 963 Lesperance Road, Tecumseh, ON N8N 1W9 Sgt. Larry Schollenberger, Lakeshore OPP 875 Notre Dame, Belle River ON N0R 1A0 Constable Steve Johnston Essex OPP Hwy 401, Interchange 21, PO Box 910 Essex, ON N8M 2Y2	Fax: (519) 735 – 2415 Fax: (519) 728 - 1992 Tel: (519) 723-2491 Fax: (519) 723-2497
Windsor-Essex County Health Unit	Mr. Neil Mackenzie Windsor-Essex County Health Unit 1005 Ouellette Ave, Windsor, ON N9A 4J8	Fax: (519) 776 - 6102
Student Transportation	Mr. Frank Vergunst Student Transportation Services	Fax: (519) 776 - 4457

Services	360 Fairview Avenue West, Suite 112 Essex, ON N8M 3G4	
Sun Parlour Emergencies Inc.	Mr. Ed Jacobs, Manager Sun Parlour Emergencies Inc. 46 Seacliffe Drive West, Leamington, ON N8H 3X9	Fax: (519) 326 - 1807
Bell Canada	Ms. Janine Mailloux Bell Canada 1149 Goyeau St., PO Box 1601 Windsor, ON N9A 6R8	Fax: (519) 258 - 4543
Cogeco Cable	Mr. Steve Meser Cogeco Cable Solutions 2525 Dougall Avenue, Windsor, ON N8X 5A7	Fax: (519) 972 - 6688
Windsor-Essex Catholic District School Board	Mr. Michael Moher, Director of Education Windsor-Essex Catholic District School Board 1325 California Ave. Windsor, Ontario N9B 1Y8	Fax: (519) 253 - 4819
Greater Essex County District School Board	Ms. Mary Jean Gallagher, Director of Education Greater Essex County District School Board 451 Park Street West, Windsor, ON N9A 6K1	Fax: (519) 255 - 7053
Conceil Scolaire de District Des Ecoles Catholiques due Sud Ouest	Mssr. Michel Serre, Director of Education Conceil Scolaire de District Des Ecoles Catholiques due Sud Ouest 7515 Forest Glade Drive, Windsor, ON N8T 3P5	Fax: (519) 948 - 1091
Fisheris and Oceans Canada (Sarnia Office)	Joe Delaronde 201 Front Street North, Suite 703, Sarnia, Ontario N7T 8B1	Fax: (519) 383 – 0699
MOE - EAAB	Paul Henney 2 St. Clair Avenue West, Floor 12A, Toronto, Ontario M4V 1L5	Fax: (416) 314 – 8452
Windsor Airport	Phil Roberts 3200 County Road 42, RR#1, Windsor, Ontario, N9A 6J3	Fax: (519) 969 – 8827
Windsor Essex County Development commission	Roman Dzuz City Centre, Suite 215, Windsor, Ontario N9A 5K4	Fax: (519) 255 – 9987

Last revised: April 6, 2006

Fist Nations	Walpole Island First nation Chief Dean Jacobs & Band Council Memebers Heritage Centre RR#3 Wallaceburg, Ontario N8A 4K9 Caldwell First Nation Chief Larry Johnson and Band Council Members 10297 Talbot Trail Blenheim, Ontaio N0P 1A0 Moravian of the Thames Chief John Stonefish and Band Council Members RR#3 Thamesville, Ontario N0P 2K0	Phone: (519) 627 – 1475 Fax: (519) 627 – 1530 Phone: (519) 676 – 5499 Fax: (519) 676 – 5899 Phone: (519) 692 – 3936 Fax: (519) 692 – 5522
Ontario Secretariat for Aboriginal Affairs	Mr. doug Carr, Assistant Deputy Minister 720 Bay Street 4th Floor Toronto, Ontario M5G 2K1 Mr. Richard Suanders, Director, Negotiations, 720 Bay Street, 4th Floor Toronto, Ontario M5G 2K1	Phone (416) 326 – 4741 Fax: (416) 326 – 2361 Doug.carr@jus.gov.on.ca Phone: (416) 326 – 4771 Fax: (416) 326 – 4017 Richard.saunders@jus.gov.on.ca

PART B – PROPERTY OWNERS (RESIDENTIAL)

Property Owner(s)	Mailing Address	Telephone/Fax/Email
Ian Naisbitt	399 Woodridge Drive Tecumseh, ON N8N 3A7	
Felice & Anotonia Mainella	1786 Lesperance Rd. Windsor, ON N8N 1Y3	
Iva Mustapic	1790 Lesperance Rd.	

Last revised: April 6, 2006

	Windsor, ON N8N 1Y3	
Domenic & Yolanda Lombardi	1734 Lesperance Rd. Windsor, ON N8N 1Y3	
Richard Demarse & Diane Vincent	1754 Lesperance Rd. Windsor, ON N8N 1Y3	
Romano & Jadranka Zohil	1762 Lesperance Rd. Windsor, ON N8N 1Y3	
Barbara Kathleen Biggar	1778 Lesperance Rd. Windsor, ON N8N 1Y3	
Bernard & Diana McGraw	1662 Lesperance Rd. Windsor, ON N8N 1Y3	
Karl & Eva Koeser	1670 Lesperance Rd. Windsor, ON N8N 1Y3	
Susan Geraldine Fitzpatrick	1686 Lesperance Rd. Windsor, ON N8N 1Y3	
Phillipe & Maureen LeBlanc	1706 Lesperance Rd. Windsor, ON N8N 1Y3	
Venance & Emilienne Paquette	1712 Lesperance Rd. Windsor, ON N8N 1Y3	
Steven & Janet Wright	1732 Lesperance Rd. Windsor, ON N8N 1Y3	
Richard & Lena Demarse	12401 Renaud St. Windsor, ON N8N 1P5	
Mary Dragicevic & Mary Lesperance	230 St. Charles St. Victoria , BC V8S 3M7	
Leonard & Elizabeth Sylvestre	1791 Hebert Windsor, ON N8N 4G3	
Guy Mantha & Cheryl Demarse	13395 Desro Dr. Windsor, ON N8N 2L9	
Louis & Yvonne Reaume	13385 Desro Dr. R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
Karen Jean Holdstock	13300 Tecumseh Road East Box 360 Windsor, ON N8N 4R8	
Mario Valente	25 Amy Croft, Suite 23B Tecumseh, ON N9K 1C7	735-2237

Daniel & Mary Marion	1845 Manning Road R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
Michelle & Sandra Webster	R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
Jeannette Sylvestre	R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
Richard St. Louis	1614 Lesperance Rd. Windsor, ON N8N 1Y3	
Rocco & Anna Lecce	1850 Lesperance Rd. Windsor, ON N8N 1Y3	
Petar & Bozica Despenic	1770 Deslippe Dr. Windsor, ON N9K 1C6	
Bhupinder & Surinder Bisla	1780 Deslippe Dr. Windsor, ON N9K 1C6	
Pietro & Angelo Duronio	1775 Deslippe Dr. Windsor, ON N9K 1B6	
Carlo & Maria DiCocco	1794 Lesperance Rd. Windsor, ON N8N 1Y3	
Gino Facca	1795 Deslippe Dr. Windsor, ON N9K 1C6	
Douglas & Patricia Jolliffe	1790 Deslippe Dr. Windsor, ON N9K 1C6	
Nillo Piccinin	1850 Deslippe Dr. Windsor, ON N9K 1C6	
Michael & Anna Pierre	1840 Deslippe Dr. Windsor, ON N9K 1C6	
Keri & Ani Ashekian	1830 Deslippe Dr. Windsor, ON N9K 1C6	
Savre & Zagorka Ristovski	1820 Deslippe Dr. Tecumseh, ON N9K 1C6	
Elio & Agnes Lisi	1810 Deslippe Dr. Windsor, ON N9K 1C6	
Elie Baillargeon Jr. & Zorka Baillargeon-Rosic	1800 Deslippe Dr. Windsor, ON N9K 1C6	
Domenico & Carollee Ferrarelli	3806 Hillcrest Windsor, ON N9C 2E3	

Julian & Mirela Aftim	1893 Deslippe Dr. Windsor, ON N9K 1C6	
Maximiliam & Robin DeAngelis	1895 Deslippe Dr. Windsor, ON N9K 1C6	
Gino & Daniela Vitella	1897 Deslippe Dr. Windsor, ON N9K 1C6	
Mark & Linda Scholl	1835 Deslippe Dr. Windsor, ON N9K 1C6	
Scott & Gabriele Klepacki	1845 Deslippe Dr. Windsor, ON N9K 1C6	
Guiseppe Sperduti & Maria Domenica	1855 Deslippe Dr. Windsor, ON N9K 1C6	
Donald & Staci Tazzman	1865 Deslippe Dr. Windsor, ON N9K 1C6	
Mathew & Lissa Scholl	1875 Deslippe Dr. Windsor, ON N9K 1C6	
Persa & Nade Nedinic	1805 Deslippe Dr. Windsor, ON N9K 1C6	
Stanley & Dawn Stallard	1815 Deslippe Dr. Windsor, ON N9K 1C6	
Alfonso & Anna Mazza	1825 Deslippe Dr. Windsor, ON N9K 1C6	
David & Sandra Hart	1887 Deslippe Dr. Windsor, ON N9K 1C6	
James & Kathleen Brown	1885 Deslippe Dr. Windsor, ON N9K 1C6	
Borce & Dina Ristovski	1870 Deslippe Dr. Windsor, ON N9K 1C6	
Angelo & Giuseppa Cavallaro	1860 Deslippe Dr. Windsor, ON N9K 1C6	
James & Ellen Desjardins	1722 Lesperance Rd. Windsor, ON N8N 1Y3	
Normand & Rosemary Kennette	1726 Lesperance Rd. Windsor, ON N8N 1Y3	
Mr. Nillo Piccinin, Deslippe/Lesperance Homeowners	1850 Deslippe Dr. Tecumseh, ON N9K 1C6	

Wendy-Lynn Cargnelli	2035 Roxanne Dr.	

Last revised: April 6, 2006

	Windsor, ON N9K 1A5	
Gerald & Debra Hebert	2031 Roxanne Dr. Windsor, ON N9K 1A5	
Lawrence & Rose Chittle	1825 Lesperance Rd. Windsor, ON N8N 1Y4	
Donald & Priscilla Lemire	1831 Lesperance Rd. Windsor, ON N8N 1Y4	
Roch & Rachelle Ethier	1833 Lesperance Rd. Windsor, ON N8N 1Y4	
Wayne & Gladys Lemire	1837 Lesperance Rd. Windsor, ON N8N 1Y4	
Gary & Elaine Newton	1843 Lesperance Rd. Windsor, ON N8N 1Y4	
Andrew & Maryanne Brown	1956 St. Anne St. Tecumseh, ON N8N 1V6	
Paul & Joseph Lankin	1952 St. Anne St. Tecumseh, ON N8N 1V6	
Frederick & Tammy Stibbard	12322 Funaro Cres. Windsor, ON N9K 1B2	
Filippo & Maria Maltese	12318 Funaro Cres. Windsor, ON N9K 1B2	
George & Alma Staudt	12331 Charlene Lane Windsor, ON N9K 1A6	
Bartolomeo & Marisa Notarangelo	2038 St. Martin Cres. Windsor, ON N9K 1A4	
Jack & Helen Schwab	2034 St. Martin Cres. Windsor, ON N9K 1A4	
Susan Patricia Poonia	1990 St. Agnes Cres. Windsor, ON N9K 1A2	
Tino & Gordana Mihaljevic	2000 St. Agnes Cres. Windsor, ON N9K 1A2	
Ana Brajak	2010 St. Agnes Cres. Windsor, ON N9K 1A2	
Simone & Serafina Iaquinta	2009 St. Agnes Cres. Windsor, ON N9K 1A1	
Steve & Nanette Riolo	12314 Charlene Lane. Windsor, ON N9K 1A9	

George & Hannelore Istl	12332 Charlene Lane. Windsor, ON N9K 1B1	
Neil Wightman	2016 St. Agnes Cres. Windsor, ON N9K 1A2	
Iulain & Daniela Untaru	12307 Charlene Lane. Windsor, ON N9K 1A6	
John & Dragica Solic	12313 Charlene Lane. Windsor, ON N9K 1A6	
Nikola & Kata Janes	12319 Charlene Lane. Windsor, ON N9K 1A6	
Ivan & Ana Rados	12325 Charlene Lane. Windsor, ON N9K 1A6	
Larry & Joyce Reaume	1973 St. Agnes Cres. Windsor, ON N9K 1A1	
Donato & Maria Paglionico	12300 Candlewood Dr. Windsor, ON N9K 1B5	
Gurmit & Jashvir Sehmbi	12310 Candlewood Dr. Windsor, ON N9K 1B5	
Raymond & Antoinette Graveline	12316 Candlewood Dr. Windsor, ON N9K 1B6	
James & Joan Collins	1957 Lesperance Rd. Windsor, ON N8N 1Y5	
Leonardo & Guiseppina Cammalleri	12301 Candlewood Dr. Windsor, ON N9K 1B5	
Donato & Adriana Luciani	1910 Lesperance Rd. Windsor, ON N8N 2N3	
Dianne Marie Jean	1918 Lesperance Rd. Windsor, ON N8N 2N3	
David & Mary-Ann Bower	1926 Lesperance Rd. Windsor, ON N8N 2N3	
Pietro & Francesca Distefano	12240 Maisonneuve Ave. Windsor, ON N8N 4P7	
John Kopcok	1879 Lesperance Rd. Windsor, ON N8N 1Y4	
Ludmila Stular	1905 Lesperance Rd. Windsor, ON N8N 1Y5	
Linda Alice Pelletier	1913 Lesperance Rd. Windsor, ON	

	N8N 1Y5	
Burtram & Stephanie Soulliere	1935 Lesperance Rd. Windsor, ON N8N 1Y5	
Norman & Jeannette Bellemore	1929 Lesperance Rd. Windsor, ON N8N 1Y5	
Micke Lunghi	1925 Lesperance Rd. Windsor, ON N8N 1Y5	
Paul & Geraldine Morand	1921 Lesperance Rd. Windsor, ON N8N 1Y5	
Gregory Gosling & Heather Holding	1941 Lesperance Rd. Windsor, ON N8N 1Y5	
Vojislav & Lorella Pavlovski	12317 Vickery Lane Windsor, ON N8N 1B5	
Jagtar & Rajni Sehmbi	12319 Vickery Lane Windsor, ON N8N 1B5	
Sharon Morris	12314 Vickery Lane Windsor, ON N8N 1B5	
Roger & Ann St. Louis	12240 Gouin St. Windsor, ON N8N 1P9	
John & Diana Robinson	1949 Lesperance Rd. Windsor, ON N8N 1Y5	
George & Antonia Corro	1855 St. Anne St. Windsor, ON N8N 1V3	
John & Cecile Cinkocki	1967 St. Anne St. Windsor, ON N8N 1V5	
Jean Claude & Ruth Anne Begin	12310 Intersection Rd. Windsor, ON N8N 1R3	
Christos & Marilyn Doskoris	1963 St. Anne St. Windsor, ON N8N 1V5	
Mark & Dawn Beneteau	12116 Intersection Rd. Windsor, ON N8N 1R3	
Charles Leo Mayea	12122 Intersection Rd. Windsor, ON N8N 1R3	
Roy & Ingrid Crawford	12105 Intersection Rd. Windsor, ON N8N 1R4	
Michael & Diane Cundari	12095 Intersection Rd. Windsor, ON N8N 1R4	
David & Shirlee Marceau	12233 Gouin St.	

	Windsor, ON N8N 1R1	
Ivo & Milka Klajajic	1979 St. Anne St. Windsor, ON N8N 1V5	
Brian & Marie Keegan	2025 St. Anne St. Windsor, ON N8N 1V8	
Donald & Elaine Damphouse	2021 St. Anne St. Windsor, ON N8N 1V8	
Donald Pflanzner & Colleen Bensette	2017 St. Anne St. Windsor, ON N8N 1V8	
Alberto & Guilana Deppi	2015 St. Anne St. Windsor, ON N8N 1V8	
Walter Murphy	12135 Intersection Rd.- Apt. 322 Windsor, ON N8N 1R4	
Theresa Maxine Blair	12134 Intersection Rd. Windsor, ON N8N 1R3	
Sandra Kravets	12115 Intersection Rd. Windsor, ON N8N 1R4	
Terri Lynn Guilbeault	12121 Intersection Rd. Windsor, ON N8N 1R4	
Timothy & Betty Mc Closkey	2033 St. Anne St. Windsor, ON N8N 1V8	
Branko & Bojana Dimitrijevic	12303 Vickery Lane Windsor, ON N9K 1B5	
Joseph & Ana Fric	12307 Vickery Lane Windsor, ON N9K 1B5	
Antonio & Ivana Leonetti	12311 Vickery Lane Windsor, ON N9K 1B5	
Robert Jr. & Tiffany Galli	2091 St. Anne St. Windsor, ON N8N 1V8	
Bruno & Holly Di Loreto	12315 Vickery Lane Windsor, ON N9K 1B5	
Rene & Nicole Beaulieu	2093 St. Anne St. Windsor, ON N8N 1V8	
Eugene Leonard Ouellette	2090 St. Anne St. Windsor, ON N8N 1V7	
Filippo & Maria Rocca	2088 Lesperance Rd. Windsor, ON N8N 2N4	

Lap-Fai & Philomena Ng	12315 Candlewood Dr. Windsor, ON N9K 1B5	
Aldo & Loretta Conflitti	1790 Calvary Crt. Windsor, ON N8N 5A1	
Sam & Maria Tsihas	1779 Lesperance Rd. Windsor, ON N8N 1Y2	
Nick & Mary Giswein	1763 Lesperance Rd. Windsor, ON N8N 1Y2	
Tina Fantetti & Nicola Mucciaccio	12311 Verdant Cres. Windsor, ON N9K 1B4	
Robert & Patricia Wales	12315 Verdant Crt. Windsor, ON N9K 1B4	
Luigi & Lily Conflitti	1789 Lesperance Rd. Windsor, ON N8N 1Y2	
Domenic & Yolanda Lombardi	1734 Lesperance Rd. Windsor, ON N8N 1Y3	
Douglas & Carol Delisle	1793 Lesperance Rd. Windsor, ON N8N 1Y2	
Dorde Sekulic	1797 Lesperance Rd. Windsor, ON N8N 1Y2	
Piero & Adelina Deblasis	1750 Calvary Crt. Windsor, ON N8N 4X1	
Liberino & Antonnella Travo	1775 Calvary Crt. Windsor, ON N8N 4X1	
Francesco & Rafaella Falsetta	1765 Calvary Crt. Windsor, ON N8N 5A1	
Michael & MaryBraccio	1760 Calvary Crt. Windsor, ON N8N 5A1	
Carlo & Sherry Falsetta	1770 Calvary Crt. Windsor, ON N8N 5A1	
Christine Denise Wass	12232 Gouin St. Windsor, ON N8N 1P9	
Donald & Leah Renaud	1936 St. Anne St. Windsor, ON N8N 1V6	
David Allen Ratko	1729 Calvary Crt. Windsor, ON N8N 4X1	
Glenn & Angela Hewitt	1733 Calvary Crt. Windsor, ON	

	N8N 4X1	
Ana Maria Sisti	1737 Calvary Crt. Windsor, ON N8N 5A1	
Gerge & Patricia Krakana	1757 Lesperance Rd. Windsor, ON N8N 1Y2	
David & Pamela Harris	1775 Lesperance Rd. Windsor, ON N8N 1Y2	
Lisa Russo	1780 Calvary Crt. Windsor, ON N8N 4X1	
Habib & Rabia Kamouni	1799 Lesperance Rd. Windsor, ON N8N 1Y2	
Tomislav & Branka Stajduhar	12324 Meconi Dr. Windsor, ON N9K 1A8	

Carolyn Joyce Moldovan	12330 Meconi Dr. Windsor, ON N9K 1A8	
Giavanni Cipparrone	12325 Meconi Dr. Windsor, ON N9K 1A7	
Genesio & Matilde Maola	12319 Meconi Dr. Windsor, ON N9K 1A7	
Tonino & Filomena Colella	12310 Funaro Cres. Windsor, ON N9K 1B2	
Lisa Maria Miller	12308 Funaro Cres. Windsor, ON N9K 1B2	
Blaze & Anka Ristovski	12314 Funaro Cres. Windsor, ON N9K 1B2	
Francesco & Suzanne Bonadonna	12316 Funaro Cres. Windsor, ON N9K 1B2	
Maura Liburdi	12331 Meconi Dr. Windsor, ON N9K 1A7	
Ika Zdunich	12337 Meconi Dr. Windsor, ON N9K 1A7	
Rodney & Vera Little	12319 Funaro Cres. Windsor, ON N9K 1B2	
Kenneth & Laura Wilder	2049 St. Anne St. Windsor, ON N8N 1V8	
Ronald & Lorette Jackson	12080 Intersection Rd. Windsor, ON N8N 1R3	

John Vukojevic	12110 Intersection Rd. Windsor, ON N8N 1R3	
Robert & Suzanne Bond	12100 Intersection Rd. Windsor, ON N8N 1R3	
Robert & Debra Latremouille	12090 Intersection Rd. Windsor, ON N8N 1R3	
Roy & Leah Poisson	12075 Intersection Rd. Windsor, ON N8N 1R4	
Jure & Marica Zivicic	12085 Intersection Rd. Windsor, ON N8N 1R4	
Frank & Manuela Perissinotti	1817 Lesperance Rd. Windsor, ON N8N 1Y4	
Viola Charron	1805 Lesperance Rd. Windsor, ON N8N 1Y4	
John & Renee Mailloux	1822 St. Anne St. Windsor, ON N8N 1V4	
Lily May MacKinnon	1828 St. Anne St. Windsor, ON N8N 1V4	
Edward & Dellene Vermette	1834 St. Anne St. Windsor, ON N8N 1V4	
Valerie Anne Menzel	1860 St. Anne St. Windsor, ON N8N 1V4	
Carol Lynn Fasano	1850 St. Anne St. Windsor, ON N8N 1V4	
Wayne Kevin O'Brien	1842 St. Anne St. Windsor, ON N8N 1V4	
Vijay Vasantgadkar & Nalini Ghanekar	1749 Calvary Crt. Windsor, ON N8N 5A1	
Marija Antic	1911 St. Anne St. Windsor, ON N8N 1V5	
Gerald Vincent Corrigan	1909 St. Anne St. Windsor, ON N8N 1V5	
Robert & Mirena Vujcic	12145 Maisonneuve Ave. Windsor, ON N8N 4P8	
Giovanni & Rita Luciani	12127 Maisonneuve Ave. Windsor, ON N8N 4P8	
Frank & Palma Chirappa	1745 Calvary Crt. Windsor, ON	

	N8N 4X1	
Gojko & Maryann Cucuz	12109 Maisonneuve Ave. Windsor, ON N8N 4P8	
Onkar & Kuldip Aujla	1755 Calvary Crt. Windsor, ON N8N 4X1	
Larry & Karen Silani	1741 Calvary Crt. Windsor, ON N8W 4X2	
Daniel & Martha Chevalier	1921 St. Anne St. Windsor, ON N8N 1V5	
Kenneth & Jennifer Price	1906 St. Anne St. Windsor, ON N8N 1V6	
Russel & Florence Bechard	1916 St. Anne St. Windsor, ON N8N 1V6	
Beverley Noonan	1920 St. Anne St. Windsor, ON N8N 1V6	
Robert & Barbara Loughridge	1924 St. Anne St. Windsor, ON N8N 1V6	
Hope Flora Legault	1926 St. Anne St. Windsor, ON N8N 1V6	
Grace Jane Trembley	1925 St. Anne St. Windsor, ON N8N 1V5	
Vincent Leon Boismier	1870 St. Anne St. Windsor, ON N8N 1V4	
Stella Elizabeth Langlois	1878 St. Anne St. Windsor, ON N8N 1V4	
Christine Ouellette	1951 St. Anne St. Windsor, ON N8N 1V5	
Gabrio & Elizabeth Mulatti	1939 St. Anne St. Windsor, ON N8N 1V5	
Daniel & Carol Bellemore	1931 St. Anne St. Windsor, ON N8N 1V5	
Ronald Nicolas Onuch	1735 Cadillace St. Windsor, ON N8Y 2V7	
Tracy Lynn Sweet	12231 Gouin St. Windsor, ON N8N 1R1	
William & Annette Kelly	1816 St. Anne St. Windsor, ON N8N 1V4	
Paul & Penny Morand	1810 St. Anne St.	

	Windsor, ON N8N 1V4	
Roger & Rose Sweet	1804 St. Anne St. Windsor, ON N8N 1V4	
Aleksander Ajdinovic	12110 Gouin St. Windsor, ON N8N 1P9	
Beatrice Kate Gerard	12200 Gouin St. Windsor, ON N8N 1P9	
Lawrence & Noella Courneya	1825 St. Anne St. Windsor, ON N8N 1V3	
Danny Sr. & June Bennett	1821 St. Anne St. Windsor, ON N8N 1V3	
Andreina Cervini	2028 Lesperance Rd. Windsor, ON N8N 2N4	
Michael & Beverly Hutnik	1803 St. Anne St. Windsor, ON N8N 1V3	
Gerard LeBlanc & Maria Farina	12230 Gouin St. Windsor, ON N8N 1P9	
Gilles & Angelina La Flamme	1827 St. Anne St. Windsor, ON N8N 1V3	
Aldo & Irma Bortolotto	12146 Maisonneuve Ave. Windsor, ON N8N 4P8	
James & Katherine Coumoundouros	1905 St. Anne St. Windsor, ON N8N 1V5	
Randy Joseph Hines	1879 St. Anne St. Windsor, ON N8N 1V3	
Frank & Halina Karpala	1871 St. Anne St. Windsor, ON N8N 1V3	
Edwin & Frances Ferguson	1863 St. Anne St. Windsor, ON N8N 1V3	
Larry & Ingrid Larking	1864 St. Anne St. Windsor, ON N8N 1V4	
Peter & Renee Sperdutti	1845 St. Anne St. Windsor, ON N8N 1V3	
Mirko & Ranka Dobrich	1833 St. Anne St. Windsor, ON N8N 1V3	
Francesco & Vincenza Piazza	12128 Maisonneuve Ave. Windsor, ON N8N 4P8	

Harminder & Charan Singh	12339 Charlene Lane Windsor, ON N9K 1A6	
Gurcharan & Bikramjeet Multani	12335 Charlene Lane Windsor, ON N9K 1A6	
Robert & Karen Seigner	12334 Charlene Lane Windsor, ON N9K 1B1	
Mark Semperger & Janice Breault	12338 Charlene Lane Windsor, ON N9K 1B1	
Veliko & Mirjana Antovski	12344 Charlene Lane Windsor, ON N9K 1B1	
Mario & Loretta Muscedere	12110 Maisonneuve Ave. Windsor, ON N8N 4P8	
Milan & Cathy Pecarski	12350 Charlene Lane Windsor, ON N9K 1B1	
Frank & Lida Naccarato	12345 Charlene Lane Windsor, ON N9K 1A6	
Robert & Tracey Roy	2022 Roxanne Dr. Windsor, ON N9K 1B9	
Livio & Florence Pullo	2011 St. Martin Cres. Windsor, ON N9K 1A3	
David Berardo & Lisa Maver	2016 Roxanne Cres. Windsor, ON N9K 1B9	
Dennis & Angela Rados	2037 Eugeni St. Windsor, ON N9K 1B3	
Grant & Cherie Gagnon	2030 Roxanne Cres. Windsor, ON N9K 1B9	
Louis & Dobrila Stankovich	2036 Roxanne Cres. Windsor, ON N9K 1B9	
Baldev & Jaswinder Sehmbi	2040 Roxanne Cres. Windsor, ON N9K 1B9	
Dora Law	2039 Roxanne Cres. Windsor, ON N9K 1A5	
Dragutin & Stefanie Petrinac	2017 St. Martin Cres. Windsor, ON N9K 1A3	
Richard Terrence Dittman	2053 Lesperance Rd. Windsor, ON N8N 1Y6	
John & Donna Benotto	2030 St. Martin Cres.	

	Windsor, ON N9K 1A4	
Luigi & Ida Nardonello	2037 St. Martin Cres. Windsor, ON N9K 1A3	
Ivan & Angela Zivcic	2033 St. Martin Cres. Windsor, ON N9K 1A3	
Christa Helen Bader	2029 St. Martin Cres. Windsor, ON N9K 1A3	
Donald & Paulette Ducharme	2013 St. Martin Cres. Windsor, ON N9K 1A3	
Robert & Marianne Machalik	2021 St. Martin Cres. Windsor, ON N9K 1A3	
Bill & Inez Popovich	2025 St. Martin Cres. Windsor, ON N9K 1A3	
Renato & Maria Maurovic	2059 Lesperance Rd. Windsor, ON N8N 1Y6	
Arduino & Diane Colasanti	2046 St. Martin Cres. Windsor, ON N9K 1A4	
Guiseppe & Rosa Vesco	2043 Rosanne Dr. Windsor, ON N9K 1A5	
Glen & Sheila Myers	2020 Lesperance Rd. Windsor, ON N8N 2N4	
Tripun & Ruza Veljanovski	2016 Lesperance Rd. Windsor, ON N8N 2N4	
Guiseppina Carlesimo	2010 Lesperance Rd. Windsor, ON N8N 2N4	
Thomas & Gail Senay	2042 St. Martin Cres. Windsor, ON N9K 1A4	
Branko & Mara Sladic	2045 St. Martin Cres. Windsor, ON N9K 1A3	
Antonio & Maria Colasanti	2041 St. Martin Cres. Windsor, ON N9K 1A3	
Richard & Kathleen Lebrecque	2097 Lesperance Rd. Windsor, ON N8N 1Y6	
Robert & Michelle Bouma	2095 Lesperance Rd. Windsor, ON N8N 1Y6	
Steven & Lilian Henrikson	12317 Funaro Cres. Windsor, ON N9K 1B2	

Ruth Birnstingl	2049 St. Martin Cres. Windsor, ON N9K 1A3	
Roy & Nida Olegario	2064 Lesperance Rd. Windsor, ON N8N 2N4	
Michael & Madeline Blais	2060 Lesperance Rd. Windsor, ON N8N 2N4	
Gerald & Anne Laliberte	2056 Lesperance Rd. Windsor, ON N8N 2N4	
William & Araceli Bunagan	2052 Lesperance Rd. Windsor, ON N8N 2N4	
Joseph & Charlene Gerard	2048 Lesperance Rd. Windsor, ON N8N 2N4	
Archie & Dora Cashaback	2044 Lesperance Rd. Windsor, ON N8N 2N4	
Douglas Fred Herrmann	2057 St. Martin Cres. Windsor, ON N9K 1A3	
Donald & Lilliane Freeman	2053 St. Martin Cres. Windsor, ON N9K 1A3	
Gamal & Adele Ibrahim	2068 Lesperance Rd. Windsor, ON N8N 2N4	
Zvonko & Ana Prskalo	2048 Roxanne Cres.. Windsor, ON N9K 1B9	
Robert & Janine McMillen	2084 Lesperance Rd. Windsor, ON N8N 2N4	
Massimo & Antonienta Borrelli	2080 Lesperance Rd. Windsor, ON N8N 2N4	
Erwin & Emma Krutzler	12313 Meconi Dr. Windsor, ON N9K 1A7	
Antonio & Lou-Ann Tosti	12306 Meconi Dr. Windsor, ON N9K 1A8	
Bruno Jechalke	12307 Meconi Dr. Windsor, ON N9K 1A7	
Gaston & Rose Pelletier	12301 Meconi Dr. Windsor, ON N9K 1A7	
Mile & Linda Pocrnic	12312 Meconi Dr. Windsor, ON N9K 1A8	
Theodore Paterson	2047 Roxanne Cres.. Windsor, ON	

	N9K 1A5	
Robert & Deborah Smith	2062 St. Anne St. Windsor, ON N8N 1V7	
Thomas & Jennifer St. Louis	2060 St. Anne St. Windsor, ON N8N 1V7	
Aaron & Carole Schauber	2054 St. Anne St. Windsor, ON N8N 1V7	
Kenneth & Janet Hebert	2050 St. Anne St. Windsor, ON N8N 1V7	
Leonard & Mildred Andrus	12318 Meconi Dr. Windsor, ON N9K 1A8	
Alexander & Diane Gyemi	2069 St. Martin Cres. Windsor, ON N9K 1A3	
Brian & Dawn Doyle	2065 St. Martin Cres. Windsor, ON N9K 1A3	
Guiseppe & Francesca Pipitone	2061 St. Martin Cres. Windsor, ON N9K 1A3	
Rose-Marie Hennin	2064 St. Anne St. Windsor, ON N8N 1V7	
Tamara Lynn Toro	2082 St. Anne St. Windsor, ON N8N 1V7	
Dragan & Christina Jovanovic	2080 St. Anne Blvd. Windsor, ON N8N 1V7	
Fredrick & Donna Hayes	2078 St. Anne St. Windsor, ON N8N 1V7	
Ronald & Bernice Girard	2074 St. Anne St. Windsor, ON N8N 1V7	
Edward & Patricia Ball	2070 St. Anne St. Windsor, ON N8N 1V7	
Daniel & Georgette Oates	2063 Lesperance Rd. Windsor, ON N8N 1Y6	
Ulric & Bertha Caza	1982 St. Anne St. Windsor, ON N8N 1V6	
Lorenzo & Maureen Ferrato	12234 Intersection Rd. Windsor, ON N8N 1N5	
David McLeod Campbell	12224 Intersection Rd. Windsor, ON N8N 2N5	
Elizabeth Theresa Dufrene	12214 Intersection Rd.	

	Windsor, ON N8N 2N5	
Kevin & Argia Bleyendaal	2073 Lesperance Rd. Windsor, ON N8N 1Y6	
Lawrence & Beatrice Caza	1973 Lesperance Rd. Windsor, ON N8N 1Y5	
Joseph & Nada Brinac	1961 Lesperance Rd. Windsor, ON N8N 1Y5	
Oscar & Claire Marie Lanoue	2081 Lesperance Rd. Windsor, ON N8N 1Y6	
Fernando & Anna Saurini	1972 St. Anne St. Windsor, ON N8N 1V6	
Jean Claude & Geraldine Marmus	2030 St. Anne St. Windsor, ON N8N 1V7	
Frederick & Lisa Brannagan	2024 St. Anne St. Windsor, ON N8N 1V7	
Richard & Valerie Vicary	2022 St. Anne St. Windsor, ON N8N 1V7	
Jackie & Penelope Regnier	12225 Intersection Rd. Windsor, ON N8N 1R5	
Michael & Barbara Girard	12215 Intersection Rd. Windsor, ON N8N 1R5	

Giovanni & Francesca Distefano	1982 Lesperance Rd. Windsor, ON N8N 2N3	
Charles Frank Marsh	12131 North Pacific Ave. Windsor, ON N8N 1R6	
Kirk & Sylvia Drew	12125 North Pacific Ave. Windsor, ON N8N 1R6	
Ronald Dupuis & Patti Marcotte	12115 North Pacific Ave. Windsor, ON N8N 1R6	
Dimitrios & Irene Iatridis	2045 Lesperance Rd. Windsor, ON N8N 1Y6	
John Howard & Donna Sears-Howard	2037 Lesperance Rd. Windsor, ON N8N 1Y6	
Evangeline Comartin	2025 Lesperance Rd. Windsor, ON N8N 1Y6	
Kevin Guilbeault	2021 Lesperance Rd. Windsor, ON	

	N8N 1Y6	
Raymond & Anne Robinet	1990 Lesperance Rd. Windsor, ON N8N 2N3	
Peter & Sandra Gauder	2005 Lesperance Rd. Windsor, ON N8N 1Y6	
Ernest George & Mary Demers	2002 Lesperance Rd. Windsor, ON N8N 2N4	
N. Edwin & Marilyn McDermid	2011 Lesperance Rd. Windsor, ON N8N 1Y6	
Rocco & Carol D'Amico	3923 Woodward Blvd. Windsor, ON N8W 2Z5	
Jeannette Lorraine Brown	12323 Funaro Cres. Windsor, ON N9K 1B2	
Giusseppe & Georgina Cappellino	12325 Funaro Cres. Windsor, ON N9K 1B2	
Anil & Sudha Mehta	12329 Funaro Cres. Windsor, ON N9K 1B2	
Harvey & Maria Bondyski	2100 Lesperance Rd. Windsor, ON N8N 2N4	
Petrus & Nevena Tomoski	2092 Lesperance Rd. Windsor, ON N8N 2N4	
Ronald Dupuis & Patti Marcotte	12115 North Pacific Ave. Windsor, ON N8N 1R6	
Kenneth Burton Pringle	2101 Lesperance Rd. Windsor, ON N8N 1Y6	
Edward & Dorothy Janisse	2099 Lesperance Rd. Windsor, ON N8N 1Y6	
John & Annette Bardoel	12321 Funaro Cres. Windsor, ON N9K 1B2	
Quirino & Andreina Cervini	2028 Lesperance Rd. Windsor, ON N9K 2N4	
John& Linda Trella	2024 Lesperance Rd. Windsor, ON N9K 2N4	
Danilo & Elizabeth Alfonso	12306 Charlene Lane Windsor, ON N9K 1A9	
Diane Grace LeBlanc	2093 Lesperance Rd. Windsor, ON N9K 1Y6	
Sithone Luangkhot &	12333 Funaro Cres.	

Noy Pathammavong	Windsor, ON N9K 1B2	
Jovan & Laura Jendroski	2091 Lesperance Rd. Windsor, ON N9K 1Y6	
Noe & Elsie Olegario	2001 St. Agnes Cres. Windsor, ON N9K 1A1	
Andre & Solange Plante	1991 St. Agnes Cres. Windsor, ON N9K 1A1	
Kamilo & Dana Nuic	1983 St. Agnes Cres. Windsor, ON N9K 1A1	
Trpimir & Mitana Jendroski	2089 Lesperance Rd. Windsor, ON N9K 1Y6	
Michael Jendroski	2089 Lesperance Rd. Windsor, ON N9K 1Y6	
Joseph & Anna Omahen	2032 Lesperance Rd. Windsor, ON N9K 2N4	
Norman & Karen Presello	2075 St. Anne St. Windsor, ON N9K 1V8	
Noreen Elizabeth Cote	2071 St. Anne St. Windsor, ON N9K 1V8	
Antonio & Edna Bagayawa	2036 Lesperance Rd. Windsor, ON N9K 2N4	
Gilles & Sheila Marcoux	2081 St. Anne St. Windsor, ON N9K 1V8	
Daniel & Elizabeth Vaillancourt	2086 St. Anne St. Windsor, ON N9K 1V7	
Ronald & Jill Hartigan	2084 St. Anne St. Windsor, ON N9K 1V7	
Keith & Kathleen Mitchell	2024 Lesperance Rd. Windsor, ON N9K 2N4	
Jon & Sandra Edwards	2069 St. Anne St. Windsor, ON N9K 1V8	
Joseph & Wanda Letourneau	2079 St. Anne St. Windsor, ON N9K 1V8	
Carl Edward & Katherine Bull	12096 North Pacific Avenue Windsor, ON N8N 4S6	
Ivan & Marica Gojmerac	12080 North Pacific Avenue Windsor, ON N8N 4S6	
Elizabeth Piorkowska-	12085 North Pacific Ave.	

Loch	Windsor, ON N9K 1R6	
Gerald & Margaret Gerard	2020 St. Anne St. Windsor, ON N9K 1V7	
Francis & Bonita Matton	2016 St. Anne St. Windsor, ON N9K 1V7	
Neil & Terrilyn Reaume	2041 St. Anne St. Windsor, ON N9K 1V8	
Denis & Patricia Janisse	2036 St. Anne St. Windsor, ON N9K 1V7	
Linda Irene Proctor	2089 St. Anne St. Windsor, ON N9K 1V8	
Onorina Fregonese	12132 North Pacific Avenue Windsor, ON N8N 4S6	
Timothy & Valerie Jarison	2049 Eugeni Street Windsor, ON N9K 1B3	
Sam Ausilio & Marianna Magliaro	2033 Eugeni Street Windsor, ON N9K 1B3	
Antonio Fontana	2027 Eugeni Street Windsor, ON N9K 1B3	
Lovro & Andjela Crep	12351 Charlene Lane Windsor, ON N9K 1A6	
Vincenzo & Angela Marazita	12356 Charlene Lane Windsor, ON N9K 1B1	
Angela Mae Goulet	12065 North Pacific Avenue Windsor, ON N8N 1R6	
Rosemary Mastronardi	12095 North Pacific Avenue Windsor, ON N8N 1R6	
Joseph Vito & Rachelle Julie Genna	12075 North Pacific Avenue Windsor, ON N8N 1R6	
Emmanuele Mario & Teresa Novelletto	2045 Eugeni Street Windsor, ON N9K 1B3	
Peter Joseph Dottermann	2059 St. Anne Street Windsor, ON N8N 1V8	
Michael Joseph Comartin	1962 St. Anne Street Windsor, ON N8N 1V6	
Gerald Oliver Bechard	1978 Lesperance Road Windsor, ON N8N 2N3	

Andrew & Anne Palenkas	1957 St. Anne Street Windsor, ON N8N 1V5	
Mark Douglas & Sally Lou Baeker Charlton	12371 Funaro Cres. Windsor, ON N9K 1B2	
Robert Andre & Diana Rina Van Hooren	2041 Eugeni Street Windsor, ON N9K 1B3	
Kenneth Norman & Alfonsa Siggia Pearsall	2066 Roxanne Drive Windsor, ON N9K 1B9	
Ernest Andrew & Theresa Mary Kuharski	2056 Roxanne Drive Windsor, ON N9K 1B9	
Veronika Stephanie Dottermann	1580 Stoneybrook Cres. Windsor, ON N9G 2Z4	
Vincenzo & Rosa Maria Russo	12324 Candlewood Drive Windsor, ON N9K 1B6	
Madeleine Morand	2012 St. Anne Street Windsor, ON N8N 1V7	
Eugene M. & Yvette Marie Krawchuk	2006 St. Anne Street Windsor, ON N8N 1V7	
Pietro & Annie Brescacin	2063 St. Anne Street Windsor, ON N8N 1V8	
Robert Daniel & Lisa Jane Dixon	12105 North Pacific Avenue Windsor, ON N8N 1R6	
Leonardo & Francesca Seu	3399 Turner Road Windsor, ON N8W 3M4	
Baden Michael & Sonja Diana Powell	2067 St. Anne Street Windsor, ON N8N 1V8	
Gerald & Catherine Famula	2065 St. Anne Street Windsor, ON N8N 1V8	
Jove & Anica Ristovski	12323 Vickery Lane Windsor, ON N9K 1B5	
Angela Pipitone & Brian Mark Durand	12350 Funaro Cres. Windsor, ON N9K 1B2	
Vincent & Stephanie Ann Mannina	12346 Funaro Cres. Windsor, ON N9K 1B2	
Wayne Kevin & Denise Christine Garant	12355 Meconi Drive Windsor, ON N9K 1B2	
Michael Lee & Mary Teresa Coutts	12351 Meconi Drive Windsor, ON	

	N9K 1B2	
Milan & Mirjana Zdunic	12345 Meconi Drive Windsor, ON N9K 2B2	
Fiorina & Frank John Falsetta	12341 Meconi Drive Windsor, ON N9K 1B2	
Timothy Alan & Nicole Marie Peters	12323 Candlewood Drive Windsor, ON N9K 1B6	
Vincenzo & Loretta Diponio	12382 Funaro Cres. Windsor, ON N9K 1C4	
Christopher Robert & Mimma Wojcik	12373 Funaro Cres. Windsor, ON N9K 1B2	
Allen & Jocelyne Rivait	12365 Meconi Drive Windsor, ON N9K 1B2	
Kevin Charles & Claudie Lamoureux	12390 Funaro Cres. Windsor, ON N9K 1C4	
Peter & Lenka Dostal	12386 Funaro Cres. Windsor, ON N9K 1C4	
Michael & Renee Viselli	12366 Meconi Drive Windsor, ON N9K 1B3	
Abdulmunaim & Yazi Ablahad	2079 Eugeni Street Windsor, ON N9K 1B3	
Domenic & Patrizia Viselli	12383 Funaro Cres. Windsor, ON N9K 1C4	
Karabet Celik	12377 Funaro Cres. Windsor, ON N9K 1B2	
Wieslaw & Katarzyna Leszczynski	12381 Funaro Cres. Windsor, ON N9K 1B2	
Orville & Yvonne Teno	2091 Funaro Cres. Windsor, ON N9K 1C4	
Michael & Marianna Safta	2082 Funaro Cres. Windsor, ON N9K 1C4	
Jammie Darren & Carolyn Angela Cecile	2078 Funaro Cres. Windsor, ON N9K 1C4	
Costanzo Coletti	2074 Funaro Cres. Windsor, ON N9K 1C4	
Hrair & Annig Darakdjian	2070 Funaro Cres. Windsor, ON N9K 1C4	
Larry Arthur & Elaine	12391 Funaro Cres.	

Joyce Seguin	Windsor, ON N9K 1C4	
Gordon W. & Anne L. Ruggaber	2066 Charlene Lane Windsor, ON N9K 1B1	
Michael Stephen & Jacqueline Anne Milani	2060 Charlene Lane Windsor, ON N9K 1B1	
Nikola & Vera Kardum	2054 Charlene Lane Tecumseh, ON N9K 1B1	
Krsto & Blaga Trpcevski	2086 Funaro Cres. Windsor, ON N9K 1C4	
Zeljko & Georgina Durdica Tkalcevic	12357 Charlene Lane Windsor, ON N9K 1A6	
Robert James & Dawn Marie Gail Redmond	12362 Charlene Lane Windsor, ON N9K 1B1	
Mark Anthony & Lisa Ann Beaulieu	12368 Charlene Lane Windsor, ON N9K 1B1	
Anthony & Gloria Guistina Liut	2026 Charlene Lane Windsor, ON N9K 1B1	
Francesco & Maria Sirizzotti	2022 Charlene Lane Windsor, ON N9K 1B1	
Kenneth Wulff Holm	2018 Charlene Lane Windsor, ON N9K 1B1	
Milka Pasic	2030 Charlene Lane Tecumseh, ON N9K 1B1	
George Edward & Maria Knehler	2010 Charlene Lane Windsor, ON N9K 1B1	
Loreto & Albina Maceroni	12365 Charlene Lane Windsor, ON N9K 1A6	
Giuseppe Ricardo & Pauline Vernuccio	2053 Eugeni Street Windsor, ON N9K 1B3	
Michael John Bonnici	2049 Charlene Lane Windsor, ON N9K 1B7	
Paul Richard & Rose Marie Graham	2045 Charlene Lane Windsor, ON N9K 1B7	
John Paul & Sophie White	2041 Charlene Lane Windsor, ON N9K 1B7	
Leonardo Giuseppe Caro & Gioia Maria Gerace	2015 Eugeni Street Windsor, ON N9K 1B3	

Nikola & Kristina Gacesa	2037 Charlene Lane Windsor, ON N9K 1B7	
Loris John & Carol Anne Villalta	2033 Charlene Lane Windsor, ON N9K 1B7	
Janko & Ann Galinac	2021 Eugeni Street Windsor, ON N9K 1B3	
Sammy & Jacqueline Lopez	2032 Eugeni Street Windsor, ON N9K 1B3	
Amilcar & Georgina Nogueira	2046 Charlene Lane Windsor, ON N9K 1B1	
Zarko & Laurie Milosevski	2040 Charlene Lane Windsor, ON N9K 1B1	
Matthew Lawrence & Susan Leslie Renaud	2034 Charlene Lane Windsor, ON N9K 1B1	
Victoria Lynn & Michael Anthony Cowell	2036 Eugeni Street Windsor, ON N9K 1B3	
Gerald David & Maria Teresa Malofey	12372 Charlene Lane Windsor, ON N9K 1B1	
Pasquale & Margaret D'Accriscio	2048 Eugeni Street Windsor, ON N9K 1B3	
Genolino Duronio	2044 Eugeni Street Windsor, ON N9K 1B3	
Giuseppe & Rosetta Piunno	2040 Eugeni Street Windsor, ON N9K 1B3	
Issam & Nadia Fakhuri	2050 Charlene Lane Windsor, ON N8N 1B1	
David Leonard & Katharine Jane Cowgill	12338 Meconi Drive Windsor, ON N9K 1B3	
Ambrose Michael & Gail Ann Theresa Taylor	2075 Eugeni Street Windsor, ON N9K 1B3	
Gregory Kenneth & Monique Jeanne Prieur	2071 Eugeni Street Windsor, ON N9K 1B3	
David & Mirjana Jelich	2059 Eugeni Street Windsor, ON N9K 1B3	
Maria Belcastro	1540 Buckingham Drive Windsor, ON N8T 2A4	
Kathleen Ann & Donald Kent Gifford	2065 Eugeni Street Windsor, ON	

	N9K 1B3	
Gaetano & Rosa Piraine	12361 Meconi Drive Windsor, ON N9K 1B2	
Rosa Belcastro	2096 Funaro Cres. Windsor, ON N9K 1C4	
Rina & Joseph Ibrahim	12346 Meconi Drive Windsor, ON N9K 1B3	
Christopher George & Donna Robillard	12358 Funaro Cres. Windsor, ON N9K 1C4	
Leslie & Patricia Chapski	12354 Funaro Cres. Windsor, ON N9K 1C4	
Bruno Giuseppe & Christina Ann Gatto	12366 Funaro Cres. Windsor, ON N9K 1C4	
Janet Frankowski	12378 Funaro Cres. Windsor, ON N9K 1B2	
Stojan & Ivana Dordevski	12374 Funaro Cres. Windsor, ON N9K 1B2	
Leonardo D. Miceli	12370 Funaro Cres. Windsor, ON N9K 1B2	
Stanko & Mira Bezarevic	12352 Meconi Drive Windsor, ON N9K 1B3	
John Mark & Annette Marie Reid	12358 Meconi Drive Windsor, ON N9K 1B3	
Ted Richard & Mary Ann Catherine Wypych	12387 Funaro Cres. Windsor, ON N9K 1C4	
David Michael Barlow	12351 Funaro Cres. Windsor, ON N9K 1B2	
Tony & Kimberley Viselli	12347 Funaro Cres. Windsor, ON N9K 1B2	
Grant Alexander & Ronni Ellen Dwyer	12343 Funaro Cres. Windsor, ON N9K 1B2	
Wayne Arthur & Krista Lee Daniher	12339 Funaro Cres. Windsor, ON N9K 1B2	
Shawn Wesley & Charlene Laura Clarke	12338 Funaro Cres. Windsor, ON N9K 1B2	
Suad Odish	12355 Funaro Cres. Windsor, ON N9K 1C4	
Germaine Rita Paese	2100 Funaro Cres.	

	Windsor, ON N9K 1C4	
Eugenio & Rosa Ferlaino	12342 Funaro Cres. Windsor, ON N9K 1B2	
Charles Janisse & Mary Colasanti	12367 Funaro Cres. Windsor, ON N9K 1C4	
Drago & Helen Markovic	12329 Candlewood Drive Windsor, ON N9K 1B6	
Ivan & Katica Pacur	12327 Vickery Lane Windsor, ON N9K 1B5	
Antonietta & Joseph Pirillo	12325 Vickery Lane Windsor, ON N9K 1B5	
Fabio & Marina Arfiero	12359 Funaro Cres. Windsor, ON N9K 1C4	
Gregory Roderick & Deborah Anne Mitchell	12320 Vickery Lane Windsor, ON N9K 1B5	
Raymond Erwin & Pauline Lesley Bloch	12328 Vickery Lane Windsor, ON N9K 1B5	
Linda Anne Trojand	2090 Funaro Cres. Windsor, ON N9K 1C4	
Frank & Gina Bonadonna	12363 Funaro Cres. Windsor, ON N9K 1C4	
Paul & Ann Pignal	12319 Verdant Court Windsor, ON N9K 1B4	
Anna Maria Goodfellow	1940 Lesperance Road Windsor, ON N8N 2N3	
Nicola Anthony & Nicolina Mary Papasodaro	1932 Lesperance Road Windsor, ON N8N 2N3	
Mark Anthony & Sandra Domenica Rotondi	12307 Verdant Court Windsor, ON N9K 1B4	
James Richard & Linda Eileen Schooff	1982 St. Agnes Cres. Windsor, ON N9K 1A2	
John Michael & Janice Lee Kaschak	1972 St. Agnes Cres. Windsor, ON N9K 1A2	
Lucy Beltrame	1968 St. Agnes Cres. Windsor, ON N9K 1A2	
Allan Thomas & Donna Denise Callery	12325 Verdant Court Windsor, ON N9K 1B4	

Steve & Teresa Jovcevski	1965 St. Agnes Cres. Windsor, ON N9K 1A1	
Stefano & Loredana Vagnini	1948 Lesperance Road Windsor, ON N8N 2N3	
Mark Charles & Laura Ann Williams	1814 Lesperance Road Tecumseh, ON N8N 1Y3	
Grant Kevin & Cheryl Anne Marie Hardcastle	1863 Lesperance Road Windsor, ON N8N 1Y4	
Jan Brabec	1857 Lesperance Road Windsor, ON N8N 1Y4	
Eric Lee & Sherry Lee Ann Barrette	1851 Lesperance Road Windsor, ON N8N 1Y4	
Robert Joseph & Michelle Marie Labreche	1880 Lesperance Road Tecumseh, ON N8N 1Y3	
Natale & Nancy Cascio	1956 Lesperance Road Windsor, ON N8N 2N3	
Douglas Cameron & Caroline Rose McArthur	1962 Lesperance Road Windsor, ON N8N 2N3	
Margaret Lydia Herbert	1970 Lesperance Road Windsor, ON N8N 2N3	
Greg Lanoue & Alison McGregor	1818 Lesperance Road Windsor, ON N8N 1Y3	
Richard Gordon Andrews	1862 Lesperance Road Windsor, ON N8N 1Y4	
Rocco & Anna Diana Lecce	1850 Lesperance Road Windsor, ON N8N 1Y3	
Patricia Bland & Kathleen Laprise	1802 Lesperance Road Windsor, ON N8N 1Y3	
Vito & Francesca Tassielli	1810 Lesperance Road Windsor, ON N8N 1Y3	
Polydore J. & Dorota Girard	1826 Lesperance Road Windsor, ON N8N 1Y3	
Patrick Stonge & Joyce Haskell	1842 Lesperance Road Windsor, ON N8N 1Y3	
David MacKinnon	1838 Lesperance Road Windsor, ON N8N 1Y3	
Roger Andre & Julie Christine LaChance	1832 Lesperance Road Windsor, ON	

	N8N 1Y3	
James Arthur & Ellen Desjardins	1722 Lesperance Road Windsor, ON N8N 1Y3	
Normand Lenard & Rosemary Anne Kennette	1726 Lesperance Road Windsor, ON N8N 1Y3	

PART C – PROPERTY OWNERS (COMMERCIAL)

Property Owner	Mailing Address	Telephone/Fax/Email
1461791 Ontario Ltd.	3975 Wyandotte St. E. Windsor, ON N8Y 1G4	
Chalut Holdings Inc.	1735 Sylvestre Dr. R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	

Jamsyl Group Inc.	1865 Manning Road Windsor, ON N8N 2L9	
Clairmont Financial Group Inc.	1610 Sylvestre Dr. R.R.#1 Tecumseh, ON N8N 2L9	
851381 Ontario Ltd. **Jeannette Sylvestre**	1865 Manning Rd., R.R.#1 Windsor, ON N8N 1Y3	
Teddan Investments Inc.	13401 Desro Dr. Windsor, ON N8N 2L9	
944792 Ontario Ltd.	1123 Matthew Brady Blvd. Windsor, ON N8S 3K2	
Louis Power Sewing	13375 Desro Dr. Windsor, ON N8N 2L9	
2036610 Ontario Ltd.	473 Wyandotte St. East Windsor, ON N9A 3H8	
James Sylvestre Development	1865 Manning Rd. R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
M. Mutter & Associates Ltd.	6 County Road 42 R.R.#2 Maidstone, ON N0R 1K0	
QWR Ltd.	1775 Sylvestre Dr. R.R.#2 Tecumseh, ON N8N 2L9	
1099099 Ontario Ltd.	1755 Sylvestre Dr. R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
Pioneer Hydraulics Inc.	1093 East Ruscom River Rd. St. Joachim, ON N0R 1S0	
1560896 Ontario Inc.	13390 Sylvestre Dr. R.R.#1 Windsor, ON N8N 2L9	
1627093 Ontario Ltd.	13325 Sylvestre Dr. Windsor, ON N8N 2L9	
JD & DD Enterprises	1608 Sylvestre Dr. Unit #1 Windsor, ON N8N 2L9	
593116 Ontario Inc.	1745 Manning Rd. R.R.#2 Stn. Tecumseh Windsor, ON N8N 2M1	
851312 Ontario Ltd.	300 Eugenie St. East	

	Suite D Windsor, ON N8N 2Y1	
Manning Road Building Centre Ltd.	1855 Manning Rd. R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
Superior Seal Inc.	R.R.#1 Stn. Tecumseh Windsor, ON N8N 2L9	
4004663 Canada Inc.	808-200 Elgin St. Ottawa, ON K2P 1L5	
905388 Ontario Ltd.	13480 Sylvestre Dr. Windsor, ON N8N 2L9	
1403440 Ontario Inc.	1825 Manning Rd. R.R.#1 Windsor, ON N8N 2L9	
Fairlane Towne Centre Inc.	1614 Lesperance Rd. Windsor, ON N8N 1Y3	
Canada Turf Inc.	1614 Lesperance Rd. Windsor, ON N8N 1Y3	
860831 Ontario Ltd.	1355 Langlois Ave. Windsor, ON N8X 4L8	
1046399 Ontario Ltd.	3052 Walker Rd. Windsor, ON N8W 3R3	
Ontario Hydro Networks Co. Inc.	P.O. Box 4300 Markham, ON L3R 5Z5	
387840 Ontario Ltd.	2458 Cadillac St. Windsor, ON N8W 3Y5	
1433261 Ontario Ltd.	10874 Riverside Dr. East Windsor, ON N8P 1A4	
387840 Ontario Ltd.	2458 Cadillac St. Windsor, ON N8W 3Y5	

APPENDIX B

NOTICE OF PROJECT INITIATION

Town of Tecumseh
NOTICE OF PROJECT INITIATION

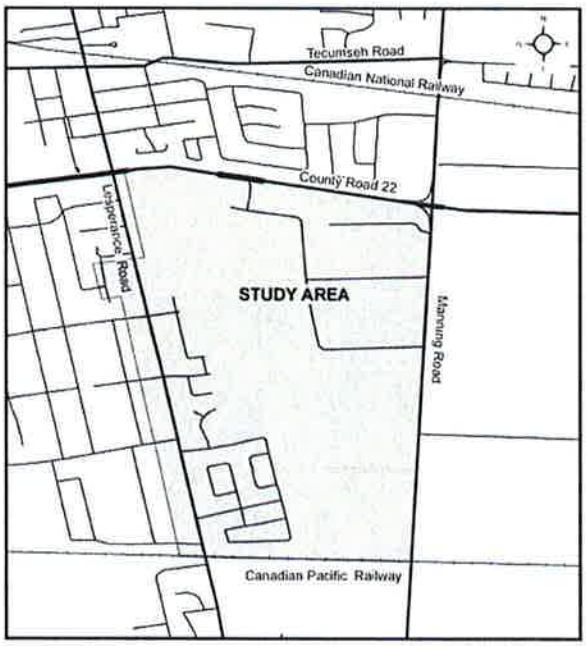
Manning Road Secondary Plan Area – Stormwater Management Study
Class Environmental Assessment

The Manning Road Secondary Plan Area is located to the west of Manning Rd/south of County Rd 22. In anticipation of these lands being developed in the near future, the Town of Tecumseh is initiating a Class Environmental Assessment Study to develop a stormwater management (SWM) system to service this future development area. This Class EA is being undertaken in advance of development applications being approved for this area. The project is being planned under Schedule B of the Municipal Class Environmental Assessment.

As a Schedule B project, this Class EA will examine alternative solutions or ways of managing stormwater from the various land parcels in the study area. Both centralized and multiple SWM facility concepts are to be examined. Natural environment, social, technical and cost considerations are to be taken into account in this evaluation. Opportunities for integrating the SWM facilities with green space will be explored.

A public information centre is planned to present study findings to the public. This event will be publicly advertised. Once the evaluation of alternatives is completed, a study report will be made available for the public to review and comment. A Notice of Project Completion will be advertised.

For further information on this project, to be added to the study mailing list, or to provide comments, please contact either of the following:



Mr. Brian Hillman
Director of Planning
Town of Tecumseh
917 Lesperance Rd
Tecumseh, Ontario
N8N 1W9
(519) 735-2184
bhillman@tecumseh.ca

Mr. Jim Breschuk, P.Eng.
Project Manager
Dillon Consulting
3200 Deziel Dr.
Windsor, Ontario
N8W5K8
(519)948-5000
jbreschuk@dillon.ca

Our File: 04-4139-7000

DILLON CONSULTING

August 10, 2005

3200
Deziel Drive
Suite 608
Windsor, Ontario
Canada
N8W 5K8
Telephone
(519) 948-5000
Fax
(519) 948-5054

Manning Road Secondary Plan Area, Stormwater Management Study
Class Environmental Assessment
Notice of Project Initiation

Dear Property Owner:

In anticipation of new land development in the area west of Manning Road and south of County Road 22, the Town of Tecumseh is utilizing the Class Environmental Assessment (Class EA) process to develop a stormwater management plan to service this area. This Class EA will examine alternative solutions or ways of managing stormwater from the various land parcels in the study area and determine which Class Environmental Assessment Schedule (B or C) the works will proceed under.

As a property owner in the Study Area, you will be notified of a Public Information Centre through an advertisement in the Windsor Star. The Public Information Centre will be held in September to review the alternatives, and where property owners and interested parties will have the opportunity to review and comment on the alternatives.

Please refer to the backside of this letter for the Notice of Project Initiation that was advertised in the Windsor Star on June 30, 2005.

Should you have any questions or comments, please contact Ms. Lori Mitri or the writer at 948-5000.

Yours truly,

DILLON CONSULTING LIMITED

Jim A. Breschuk, P.Eng.
Project Manager

Lori Mitri,
Class EA Co-ordinator
Senior Planner

LMM:ha

cc: Mr. Brian Hillman
Mr. George DeGroot, C.E.T.

Our File: 04-4139-7000

DILLON CONSULTING

August 12, 2005

3200
Deziel Drive
Suite 608
Windsor, Ontario
Canada
N8W 5K8
Telephone
(519) 948-5000
Fax
(519) 948-5054

Manning Road Secondary Plan Area, Stormwater Management Study
Class Environmental Assessment
Notice of Project Initiation

Dear Agency:

In anticipation of new land development in the area west of Manning Road and south of County Road 22, the Town of Tecumseh is utilizing the Class Environmental Assessment (Class EA) process to develop a stormwater management plan to service this area. This Class EA will examine alternative solutions or ways of managing stormwater from the various land parcels in the study area and determine which Class Environmental Assessment Schedule (B or C) the works will proceed under.

As an agency with an interest in the Study Area, you will be notified of a Public Information Centre, which will be held in September to review the alternatives, and where property owners and interested parties will have the opportunity to review and comment on the alternatives.

Please refer to the backside of this letter for the Notice of Project Initiation that was advertised in the Windsor Star on June 30, 2005.

Should you have any questions or comments, please contact Ms. Lori Mitri or the writer at 948-5000.

Yours truly,

DILLON CONSULTING LIMITED

Jim A. Breschuk, P.Eng.
Project Manager

Lori Mitri,
Class EA Co-ordinator
Senior Planner

LMM:ha

cc: Mr. Brian Hillman
Mr. George De Groot, C.E.T.

APPENDIX C

STUDY AREA VEGETATION

Plate 1

April 6, 2005

Baillargeon Drain

Notes:

Looking east

Plate 2

April 6, 2005

Cyr Drain Area

Notes:

Looking north towards Cyr Drain

Plate 3 April 6, 2005 Hedgerow 1 Notes: Looking south	
Plate 4 April 6, 2005 Limited vegetation along Agricultural Areas to the south Notes: Looking southeast	

Plate 5 April 6, 2005 Cultural Old Field Meadow (CUM 1-1) Notes: Looking south	
Plate 6 April 6, 2005 Common Reed Meadow Marsh (MAM) Notes: Looking northwest	

Plate 7

April 6, 2005

Gray
Dogwood
Mineral
Cultural
Thicket
(CUT)

Notes:

Looking north

APPENDIX D

MODELLING RESULTS FOR VARIOUS ALTERNATIVES

Table 4.1

Manning Road SWM Study
Examination of various SWM alternatives
Quantity Requirements

			Wet Pond	Wetlands
Pipe Slope	0.2 %	Active Depth	2	1
Minimum Cover	1.0	Perm Depth	1	0.5
HWL at pipe obvert		Length to width	3 :1	5 :1
Pumping Rate to Drain Ponds in 2 days		Side slope	5 :1	5 :1

	Pond Ground Elev	U/S Ground Elev	Reach Length	Elevations			Depths to			Required Storage Volume	Active Bottom Width	Active Bottom Length	Active Top Width	Active Top Length	Pond Volume (m3)	Ground Width (m)	Ground Length (m)	Ground Area (ha)
				HWL	Inv Active	Inv Perm	HWL	Inv Active	Inv Perm									
Option 1 - Main Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**69900**	102	306	122	326	**70811**	170	374	**6.36**
Option 1a - Main Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**67400**	100	300	120	320	**68227**	162	362	**5.86**
Option 1b - Main Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**61800**	95	285	115	305	**61978**	163	353	**5.75**
Option 1c - Main Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**65800**	99	297	119	317	**66953**	167	365	**6.10**
Option 1d - Main Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**55100**	90	270	110	290	**56028**	152	332	**5.05**
Option 2 - South Pond	181.4	181.4	800	178.8	176.8	175.8	2.6	4.6	5.6	**29100**	64	192	84	212	**29926**	110	238	**2.62**
Option 2 - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**40800**	76	228	96	248	**40965**	144	296	**4.26**
Option 2a - North Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**38300**	74	222	94	242	**39005**	136	284	**3.86**
Option 2b - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**32700**	68	204	88	224	**33413**	136	272	**3.70**
Option 2c - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**36700**	72	216	92	236	**37093**	140	284	**3.98**
Option 2d - North Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**26100**	60	180	80	200	**26630**	122	242	**2.95**
Option 3 - South Pond	181.4	181.4	600	179.2	177.2	176.2	2.2	4.2	5.2	**23500**	56	168	76	188	**23527**	98	210	**2.06**
Option 3 - South Wetland	181.4	181.6	200	180.2	179.2	178.7	1.2	2.2	2.7	**5600**	31	155	41	165	**5757**	53	177	**0.94**
Option 3 - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**40800**	76	228	96	248	**40965**	144	296	**4.26**
Option 3a - North Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**38300**	74	222	94	242	**39005**	136	284	**3.86**
Option 3b - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**32700**	68	204	88	224	**33413**	136	272	**3.70**
Option 3c - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**36700**	72	216	92	236	**37093**	140	284	**3.98**
Option 3d - North Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**26100**	60	180	80	200	**26630**	122	242	**2.95**
Option 4 - Main Pond	182	180.6	2300	175	173	172	7	9	10	**69900**	102	306	122	326	**70811**	192	396	**7.60**
Option 4a - Main Pond	182	181	2200	175.6	173.6	172.6	6.4	8.4	9.4	**67400**	100	300	120	320	**68227**	184	384	**7.07**
Option 4b - Main Pond	182	180.6	2300	175	173	172	7	9	10	**61800**	95	285	115	305	**61978**	185	375	**6.94**
Option 4c - Main Pond	182	180.6	2300	175	173	172	7	9	10	**65800**	99	297	119	317	**66953**	189	387	**7.31**
Option 4d - Main Pond	182	181	2200	175.6	173.6	172.6	6.4	8.4	9.4	**55100**	90	270	110	290	**56028**	174	354	**6.16**
Option 5 - CPR Pond	182	180.8	1000	177.8	175.8	174.8	4.2	6.2	7.2	**23100**	56	168	76	188	**23527**	118	230	**2.71**
Option 5 - South Pond	181.4	180.4	600	178.2	176.2	175.2	3.2	5.2	6.2	**12700**	40	120	60	140	**13033**	92	172	**1.58**
Option 5 - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**34000**	69	207	89	227	**34315**	137	275	**3.77**
Option 5a - North Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**31500**	66	198	86	218	**31646**	128	260	**3.33**
Option 5b - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**25800**	59	177	79	197	**25836**	127	245	**3.11**
Option 5c/d - South Pond	181.4	180.6	500	178.6	176.6	175.6	2.8	4.8	5.8	**8600**	32	96	52	116	**8939**	80	144	**1.15**
Option 5d - North Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**23300**	56	168	76	188	**23527**	118	230	**2.71**
Option 6 - CPR Pond	182	180.8	1000	177.8	175.8	174.8	4.2	6.2	7.2	**23100**	56	168	76	188	**23527**	118	230	**2.71**
Option 6 - South Pond	181.4	180.6	1300	177	175	174	4.4	6.4	7.4	**21000**	53	159	73	179	**21325**	117	223	**2.61**
Option 6 - North Pond	182.2	180.6	1100	177.4	175.4	174.4	4.8	6.8	7.8	**25700**	59	177	79	197	**25836**	127	245	**3.11**
Option 6a - North Pond	182.2	181	1000	178	176	175	4.2	6.2	7.2	**23200**	56	168	76	188	**23527**	118	230	**2.71**

Option 1 - All runoff to one central facility
Option 2 - Runoff to two facilities, one on each side (north and south) of the Baillargeon Drain
Option 3 - One facility on the north side of the Baillargeon Drain, one pond and one wetlands on the south side of the drain
Option 4 - All runoff to one central facility located just north of the CPR tracks
Option 5 - Runoff to three facilities, two on the north and south of the Baillargeon Drain and one just north of the CPR tracks
Option 6 - Runoff to three facilities, two on the north and south of the Baillargeon Drain and one just north of the CPR tracks (alternate drainage areas)

Alternative a - commercial site along Cyr Drain having own SWM (3.82 ha)
Alternative b - med. dens. resid. property on north side of B drain and beside industrial property having own SWM (12.48 ha)
Alternative c - institutional property on north side of B drain at Manning Road having own SWM (6.33 ha)
Alternative d - three above properties having own SWM (22.63 ha)

Table 4.1

Manning Road SWM Study
Examination of various SWM alternatives
Areas draining to ponds

Runoff Amount	0.0836
Pump reduction (78%)	0.0652

Total Area	107.1
Area to North Pond	62.5
Area to South Pond	44.6
Cyr Comm	3.82
Med. Dens. Resid.	12.48
Institutional prop	6.33
Wetland drainage area	8.6

Pond Location	Area	Volume	
		No pump	2 day pump
Option 1 - Main Pond	107.1	89600	69900
Option 1a - Main Pond	103.3	86400	67400
Option 1b - Main Pond	94.6	79200	61700
Option 1c - Main Pond	100.8	84300	65800
Option 1d - Main Pond	84.5	70700	55100
Option 2 - South Pond	44.6	37300	29100
Option 2 - North Pond	62.5	52300	40800
Option 2a - North Pond	58.7	49100	38300
Option 2b - North Pond	50.0	41900	32700
Option 2c - North Pond	56.2	47000	36700
Option 2d - North Pond	39.9	33400	26000
Option 3 - South Pond	36.0	30100	23500
Option 3 - South Wetland	8.6	7200	5700
Option 3 - North Pond	62.5	52300	40800
Option 3a - North Pond	58.7	49100	38300
Option 3b - North Pond	50.0	41900	32700
Option 3c - North Pond	56.2	47000	36700
Option 3d - North Pond	39.9	33400	26000
Option 4 - Main Pond	107.1	89600	69900
Option 4a - Main Pond	103.3	86400	67400
Option 4b - Main Pond	94.6	79200	61700
Option 4c - Main Pond	100.8	84300	65800
Option 4d - Main Pond	84.5	70700	55100
Option 5 - CPR Pond	35.5	29700	23200
Option 5 - South Pond	19.5	16400	12800
Option 5 - North Pond	52.1	43600	34000
Option 5a - North Pond	48.3	40400	31500
Option 5b - North Pond	39.6	33200	25900
Option 5c - South Pond	13.2	11100	8600
Option 5d - North Pond	35.8	30000	23400
Option 6 - CPR Pond	35.5	29700	23200
Option 6 - South Pond	32.2	27000	21000
Option 6 - North Pond	39.4	33000	25700
Option 6a - North Pond	35.6	29800	23300
Option 6b - South Pond	19.7	16500	12900
Option 6c - South Pond	25.9	21700	16900
Option 6d - South Pond	13.4	11200	8800

MEMO

DILLON
CONSULTING

5310
Canotek Road,
Suite 200,
Gloucester,
(Ottawa)
Ontario,
Canada
K1J 9N5
Telephone
(613) 745-2213
Fax
(613) 745-3491

TO: Jim Breschuck,

FROM: Bill Dwyer, P.Eng.

DATE: November 24, 2006

SUBJECT: Manning Road SWM
Summary of Storage Requirements

FILE NO.: 04-4139

I have completed the assessment of the storage requirements for the Manning Road Secondary Plan Area (called the Study Area) facility. The following was examined: capacity of the East Townline Drain; drainage of the area to the west of the Study Area; and the storage requirements.

East Townline Drain

The proposed development conveyed flows to three drains (Cyr Drain, East Townline Drain and the Baillargeon Drain), however all the runoff ultimately discharges to the East Townline Drain (ETLD). The ETLD flows north along Manning Road and then is pumped into Lake St. Clair. Based on information received, the ETLD catchment area is approximately 440 ha. The existing land use in the catchment area is mix of agricultural, residential, commercial and industrial.

Once flows reach the northern end of the ETLD, they are pumped into Lake St. Clair. Presently, there are two pumps at this location that have a total capacity of 1.9 m^3/s. If the allowable discharge rate from the drainage area was restricted based the above pumping capacity, then the allowable discharge rate pre unit area would be 4.3 L/s/ha.

Most of the ETLD drainage area does not have any stormwater management (SWM) and therefore, there is little attenuation of flows. As is typical in the region, the area is very flat and runoff tends to collect in streets prior to discharging into the minor system. However, quantifying any street storage for areas without stormwater management was difficult and so flows were conveyed to the ETLD without providing storage. Flows routing and storage capacity in the ETLD would reduce peak flows.

For those areas where SWM was implemented, the discharge rate was estimated to be the 2 year pre-development rate (i.e., from agricultural property). The runoff coefficient expected for agricultural lands is roughly 0.2 and runoff parameters were calibrated to obtain this approximate rate. Modelling results for 2 year event had pre-development rate of approximately 14.2 L/s/ha and was based on practices used in the area. This is more than three times the rate based on the pumping capacity of the ETLD.

Conveyance of flows in the ETLD will be discussed with modelling results.

Existing Area West of the Study Area

There is a large residential area located west of the Study Area that presently discharges through the Study Area via the Baillargeon Drain and is approximately 92.8 ha in size. Flows are conveyed through the minor system to the Baillargeon Drain, with excess flows being stored on streets prior to being conveyed through the minor system.

Based on information provided, the allowable discharge rate into the minor system was calculated as follows:

- 2 year pre-development rate for 31.7 ha; and
- 2 year post development rate for 61.1 ha.

The total rate for these areas was calculated at 2.70 m^3/s.

It is proposed to convey flows from this area in a closed system to the ETLD. This is so that the flows will not be conveyed through a facility servicing only the Study Area.

There is the possibility to divert runoff from a portion of above area to the west. This would reduce the amount of area that discharges at the 2 year post development rate from 61.1 ha to 22.8 ha (divert 38.3 ha). This would in turn reduce the total discharge rate into the Baillargeon Drain to 1.06 m^3/s.

Conveyance Capacity of the East Townline Drain

Existing conditions were simulated to determine the capacity of the ETLD, with both the 2 year 4 hour and the 100 year 24 hour Chicago events modelled.

With the pumping capacity of the ETLD being only 1.9 m^3/s, the flows generated from the design events are much greater. There is substantial storage capacity in the ETLD, but the total volume of runoff from the 440 ha catchment area was 79,300 m^3 and 335,400 m^3 for the 2 year and 100 year events respectively. The model was set up so that these flows were allowed to pond (i.e. no overtopping of roads and no loss of water). Resulting water levels at the downstream end of the system were slightly higher than the road in a few locations for the 2 year event and significantly higher at more locations for the 100 year event.

The effects of the proposed development on the drain will be detailed below.

Proposed Development

The Study Area is presently agricultural property that conveys flows to one of three municipal drains: the Cyr Drain, the Baillargeon Drain and the East Townline Drain. The proposed development is approximately 103 ha in size and will be serviced by one stormwater management facility. The location of this facility will either be in the middle of the site or located along the CPR at the southern edge of the site. Flows will be conveyed to the facility in the storm sewer system which will be designed to convey the 5 year event. Depending on the location of the facility, flows will either be discharged to the Baillargeon Drain or the ETLD. Due to the flat nature of the site, the facility will be pumped.

An imperviousness of 0.42 was used and infiltration parameters for clayey soils selected. The 100 year event was modelled and following are the runoff results for the Study Area:

DILLON
CONSULTING

5310
Canotek Road,
Suite 200,
Gloucester,
(Ottawa)
Ontario,
Canada
K1J 9N5
Telephone
(613) 745-2213
Fax
(613) 745-3491

Dillon Consulting
Limited

Area (ha)	Rainfall Amount (mm)	Runoff Amount (mm)	Volumetric Runoff Fraction
103	108.9	74.7	0.69

The total volume of runoff generated is 77,000 m^3 compared to 63,800 m^3 for the existing condition. It should be noted however, that the peak runoff rate is much larger and occurs more quickly for the developed condition (i.e. conveyed to the drain much faster).

Various pumping rates were simulated to determine the sensitivity of the ETLD and the storage volumes required. It was assumed that at the commencement of the event, the pumps would be discharging at the maximum rate.

With existing stormwater management facilities discharging at the 2 year pre-development rate, this same rate was calculated for this drainage area. Based on a rate of 14.2 L/s/ha, the peak rate from the facility would be 1.46 m^3/s, which is also the estimated 2 year pre-development rate. However, this is slightly less than the peak discharge rate for the ETLD pumps which have a maximum pumping rate of 1.9 m^3/s (for the entire drainage area of 440 ha).

The following peak discharge rates were selected for the facility:

- 1.46 m^3/s (based on the rate of 14.2 L/s/ha)
- 0.73 m^3/s (based on 50% of 14.2 L/s/ha)
- 0.49 m^3/s (based on 33% of 14.2 L/s/ha)

Following are the storage requirements based on discharging at the above rates:

Discharge Rate (m^3/s)	100 Year Storage Volume (m^3)
1.46	40,300
0.73	51,800
0.49	57,600

Also examined were the impacts of these rates on the ETLD at various locations downstream. Peak flows for the 100 year event at three locations were compared and following are the results:

Peak Flow Rates (m^3/s)				
Location	Existing Condition	Pumping Rate (m^3/s)		
		1.46	0.73	0.49
Hwy 2	7.76	7.03	6.92	6.85
St. Gregory Rd.	8.40	8.71	8.64	8.57
Riverside Dr.	4.70	4.74	4.75	4.74

The peak flow at Hwy 2 has reduced for all pumping rates. This is because the peak discharge rate from the Study Area has been reduced from the 100 year pre-development rate to the 2-year pre-development rate or less. However, the rates further downstream are higher because the total volume of runoff has increased and with the system not having sufficient conveyance capacity, runoff is stored in the ETLD and peak rates increase due to increased surcharging. The flows at the downstream end of the system have very minor changes because at that location, flows are limited to the capacity of the pumps which is constant. Once runoff reaches this area, it is stored prior to being pumped to the lake. Also, flows are still significantly above the available pump capacity in the ETLD. In order to reduce

DILLON CONSULTING

5310
Canotek Road,
Suite 200,
Gloucester,
(Ottawa)
Ontario,
Canada
K1J 9N5
Telephone
(613) 745-2213
Fax
(613) 745-3491

conditions in the ETLD, it is recommended to discharge from the facility at the rate of 0.50 m^3/s.

In addition to this, effects on the peak flows in the ETLD were assessed if a portion of the area in the existing development west of the Study Area was diverted to the west. Presently, runoff from 92.8 ha is conveyed to the Baillargeon Drain, and ultimately the ETLD. As was previously indicated, there is the potential to divert runoff for up to 38.3 ha of property, resulting in 54.5 ha to the ETLD and reducing the peak discharge rate from 2.70 m^3/s to 1.06 m^3/s. The following table compares the peak flow rates in the ETLD between existing conditions, with the full area from the west discharging to the Baillargeon Drain and with the reduced area discharging to the Baillargeon Drain. The recommended pumping rate from the proposed developed was used.

Peak Flow Rates (m^3/s)			
Location	Existing Condition	Drainage Area from the West (ha)	
		92.8	54.5
Hwy 2	7.76	6.85	6.31
St. Gregory Rd.	8.40	8.57	8.35
Riverside Dr.	4.70	4.74	4.73

As can be seen, peak rates in the upstream section of the study area reduce significantly when the area directed to the ETLD is reduced. As was seen before, the effects of this reduction in flows in not as evident further downstream towards the lake. Furthermore, the total runoff volume for the 100 year event from the drainage area west of the Study Area decreased from 69,200 m^3 to 40,600 m^3 (a reduction of 28,600 m^3). This potential reduction in volume would be a benefit to the ETLD and should be further examined.

Summary

In assessing the storage requirements for the Study Area, the capacity of the East Townline Drain was examined as was the effects of diverting flows from west of the Study Area.

The existing pumping rate in the ETLD is 1.9 m^3/s. The 2 year pre-development runoff rate for the contributing drainage area of 440 ha exceeds this rate substantially. There is significant storage in the ETLD, however modelling results indicate significant surcharging of roads occurs for major events. Therefore, means to reduce or delay flows to the ETLD should be examined.

Storage volumes for the Study Area were calculated. With the existing grades on the site being quite flat, any facility will have to be pumped. Various pumping rates were modelled, and using a pumping rate of 0.50 m^3/s resulted in a peak storage volume of 57,600 m^3. This is the recommended peak storage volume for the facility.

There is the possibility to redirect some drainage area away from the ETLD. If this could be implemented, it would reduce peak flows in the upstream section of the ETLD as well as the total runoff volume conveyed to the ETLD by approximately 28,600 m^3. This option should be further examined.

cc: Aaron Gillard, Jen Harris, Rob Muir, Shawn Taylor

DILLON
CONSULTING

5310
Canotek Road,
Suite 200,
Gloucester,
(Ottawa)
Ontario,
Canada
K1J 9N5
Telephone
(613) 745-2213
Fax
(613) 745-3491

Dillon Consulting
Limited

MEMO

TO: Jim Breschuck, Shawn Taylor

FROM: Bill Dwyer, P.Eng.

DATE: February 6, 2007

SUBJECT: Manning Road SWM
Revision of Storage Requirements

FILE NO.: 04-4139

DILLON CONSULTING

5310
Canotek Road,
Suite 200,
Gloucester,
(Ottawa)
Ontario,
Canada
K1J 9N5
Telephone
(613) 745-2213
Fax
(613) 745-3491

I have revised the storage requirements for the Manning Road Secondary Plan Area facility, which is to be located adjacent to the CPR tracks. These storage requirements were revised to allow for the 24 hour drawdown time for the extended detention volume. The capacity of the East Townline Drain and the discussion on the drainage of the area to the west of the Study Area remains the same as in the Memorandum dated November 24, 2006, and therefore were not discussed in this memo.

Several of the criteria identified below were the same as those implemented in the River Ridge Stormwater Management Plan in the Town of Lakeshore.

Revision of Storage Requirements

The peak storage requirements from the 100 year event will increase slightly from those indicated in the previous memorandum. This is because the pumping strategy identified would not allow for the 24 hour drawdown of the extended detention. However, as will be identified below, the increase in the 100 year peak storage volume is minimal.

Quality Storage Requirements

The drainage area conveyed to the facility is 103 ha and has an estimated imperviousness of 0.42. Assuming that the East Townline Drain requires a normal level of protection and with the facility being a wet pond, the water quality requirement is 97 m^3/ha of storage, with 40 m^3/ha in the extended detention and the remaining 57 m^3/ha required in the permanent pool. The quality storage volumes are indicated in the following table:

Drainage Area (ha)	Permanent Pool Volume (m^3)	Extended Detention Volume (m^3)
103	5900	4200

The extended detention volume of 4200 m^3 is to have a drawdown time of at least 24 hours (same criteria as River Ridge). With the facility not able to discharge by gravity, a pump with a rate of 45 L/s is required. This will result in a drawdown time of 26 hours.

The permanent pool will require a volume of at least 5900 m^3.

Storage Requirements for the 100 Year Event

The extended detention portion of the pond will be pumped out at a rate of 45 L/s. Once the extended detention volume of 4200 m^3 has been exceeded, the pond will have to pump out at the rate of 500 L/s as specified in the November 24, 2006 memo.

The storage volume requirements were recalculated as the start of the 500 L/s pumps will be delayed as the pond fills to the volume of 4200 m^3. This delay in the start of the 500 L/s pumps resulted in an increase in the storage volume from 57,600 m^3 to 59,900 m^3, a marginal amount of 2300 m^3.

When rainfall events occur that would result in a pond volume exceeding 4200 m^3 and would trigger the large pumps, they would have to cease operating once the volumes in the facility reduced to 4200 m^3, with the extended detention volume being discharged with the 45 L/s pump. The time that the large pumps would be operating for the 100 year event is approximately 41 hours.

Minor Storm System and the NWL

A conceptual minor storm sewer system was developed for the site. There was one outlet for the system and it was a 1650 mm diameter sewer with an invert at the facility of 175.00 m. The obvert of the sewer would be at 176.65 m.

During the design of the storm sewer for the River Ridge development in Lakeshore, the facility was to have sufficient storage under the 2 year event to keep the water levels below the sewer obverts. Using the same pumping system as identified above, the 2 year event was modelled and the peak storage volume was calculated at 15,000 m^3.

In reviewing the proposed stormsewer layout for River Ridge, several of the inverts were above the 2 year level with the remaining pipes having inverts below the 2 year peak elevation. The pipe obverts were within 0.4 m to 0.9 m of the 2 year level.

For the Manning Road facility, having a 2 year level of around 176.00 m would seem appropriate. Based on this elevation, the required storage volume and pond configuration, the normal water level can be determined during the design of the facility.

cc: Aaron Gillard, Jen Harris, Rob Muir, Lijing Xu

DILLON
CONSULTING

5310
Canotek Road,
Suite 200,
Gloucester,
(Ottawa)
Ontario,
Canada
K1J 9N5
Telephone
(613) 745-2213
Fax
(613) 745-3491

Dillon Consulting
Limited

APPENDIX E

NOTICE OF
PUBLIC INFORMATION CENTRE #1

Town of Tecumseh
NOTICE OF
PUBLIC INFORMATION CENTRE

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment

The Manning Road Secondary Plan Area is located west of Manning Road and south of County Rd 22. In anticipation of development of these lands in the future, the Town of Tecumseh has initiated a Class Environmental Assessment to develop a stormwater management (SWM) system to service this future development area. Dillon Consulting Limited has been retained to assist the Town in this undertaking.

The project has been planned under the Municipal Class Environmental Assessment (June 2000). Alternative ways of managing stormwater from the various land parcels in the study area, and both centralized and multiple SWM facility concepts, have been examined. Natural environment, social, technical and cost considerations have also been taken into account in this evaluation. In addition, opportunities for integrating the SWM facilities with green space have been explored.

The Town is proceeding with a Public Information Centre (PIC) to present project findings to the public and affected agencies for review and comment. The PIC is scheduled for Wednesday, March 22, 2006 from 2:00-5:00pm and 7:00-9:00pm at Town Hall Council Chambers, 917 Lesperance Road, in the Town of Tecumseh. Background information on the Study will be provided, allowing review of the alternative solutions and discussion of the impacts of the alternatives. Further opportunities for public comment will be determined following the selection of a preferred solution.

For further information on this project, to be added to the study mailing list, or to provide comments, please contact either of the following:

Mr. Brian Hillman
Director of Planning & Building Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario
N8N 1W9
Tel: (519) 735-2184
Fax: (519) 735-6712
bhillman@tecumseh.ca

Mr. Jim Breschuk, P.Eng.
Project Manager
Dillon Consulting
3200 Deziel Drive, Suite 608
Windsor, Ontario
N8W 5K8
Tel: (519) 948-5000
Fax: (519) 948-5054
jbreschuk@dillon.ca

This notice issued on March 8, 2006.

Town of Tecumseh
NOTICE OF
PUBLIC INFORMATION CENTRE

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment

The Manning Road Secondary Plan Area is located west of Manning Road and south of County Rd 22. In anticipation of development of these lands in the future, the Town of Tecumseh has initiated a Class Environmental Assessment to develop a stormwater management (SWM) system to service this future development area. Dillon Consulting Limited has been retained to assist the Town in this undertaking.

The project has been planned under the Municipal Class Environmental Assessment (June 2000). Alternative ways of managing stormwater from the various land parcels in the study area, and both centralized and multiple SWM facility concepts, have been examined. Natural environment, social, technical and cost considerations have also been taken into account in this evaluation. In addition, opportunities for integrating the SWM facilities with green space have been explored.

The Town is proceeding with a Public Information Centre (PIC) to present project findings to the public and affected agencies for review and comment. The PIC is scheduled for Wednesday, March 22, 2006 from 2:00-5:00pm and 7:00-9:00pm at Town Hall Council Chambers, 917 Lesperance Road, in the Town of Tecumseh. Background information on the Study will be provided, allowing review of the alternative solutions and discussion of the impacts of the alternatives. Further opportunities for public comment will be determined following the selection of a preferred solution.

For further information on this project, to be added to the study mailing list, or to provide comments, please contact either of the following:

Mr. Brian Hillman
Director of Planning & Building Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario
N8N 1W9
Tel: (519) 735-2184
Fax: (519) 735-6712
bhillman@tecumseh.ca

Mr. Jim Breschuk, P.Eng.
Project Manager
Dillon Consulting
3200 Deziel Drive, Suite 608
Windsor, Ontario
N8W 5K8
Tel: (519) 948-5000
Fax: (519) 948-5054
jbreschuk@dillon.ca

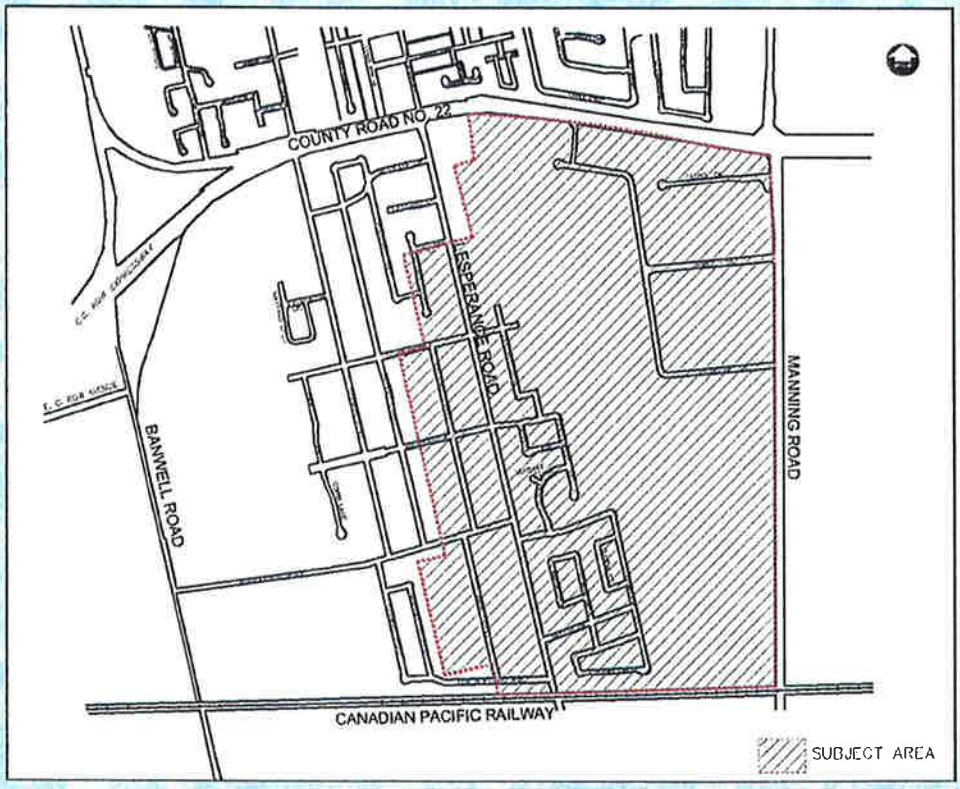
This notice issued on March 9, 2006.

APPENDIX F

PIC #1 PRESENTATION MATERIAL

DILLON CONSULTING

Welcome To The Public Information Centre for the Manning Road Secondary Plan Area Stormwater Management Study



Class Environmental Assessment

March 22, 2006

What Is The Class Environmental Assessment (Class EA) Process?

The Municipal Class EA process is a planning and design process that applies to municipal infrastructure projects, including roads, water and wastewater projects, as approved by the Ministry of the Environment in 2000. Depending on the degree of expected environmental impacts, projects are classified in the Class EA document in terms of Schedules.

The key principles of the Class EA process include:

- **Consultation with affected parties;**
- **Consideration of a reasonable range of alternatives;**
- **Consideration of the effects on all aspects of the environment (i.e. Natural, social/cultural, technical, economic);**
- **Systematic evaluation of the alternatives to determine their net environmental effects; and**
- **Provision of clear and complete documentation.**

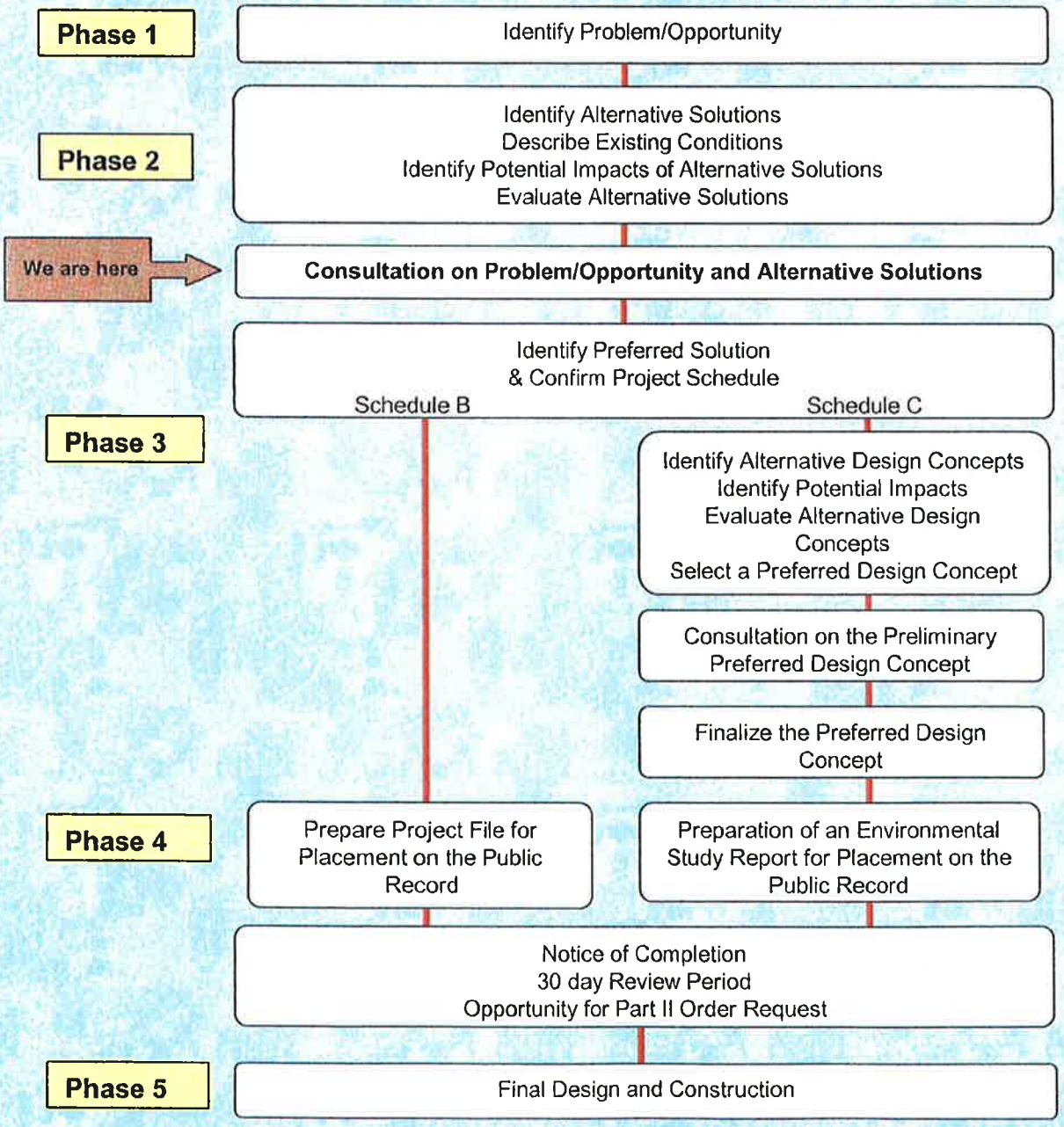
Further opportunities for public comment regarding alternative design concepts will be determined following this Public Information Centre.

TECUMSEH

DILLON CONSULTING

Where are we in the Environmental Assessment Process?

The project is being planned under the Municipal Class Environmental Assessment process



What Is The Purpose Of This Public Information Centre?

The Public Information Centre provides an opportunity for the public to review and comment on the preliminary results of this study. The information presented includes:

- **Background information on the Class EA process, the project, and the study area;**
- **Alternative solutions to the Problem Statement;**
- **The evaluation criteria and indicators; and**
- **The preliminary details of the recommended solution for stormwater management.**

Please review the information being presented and discuss your thoughts with members of the Project Team that are present. Your comments will be considered in finalizing our recommendations.

YOUR INPUT **IS** IMPORTANT TO THE SUCCESS OF THIS STUDY!

TECUMSEH

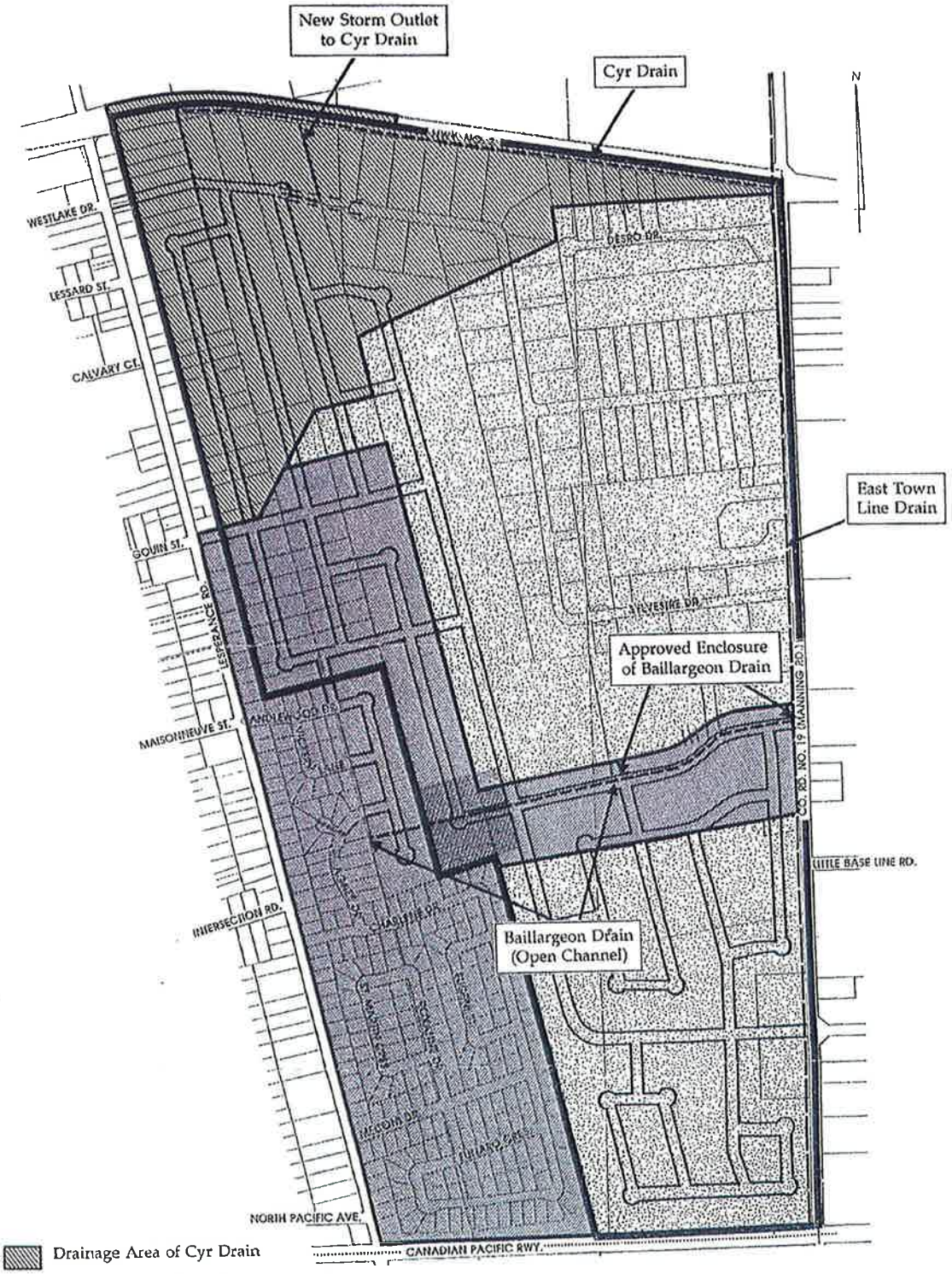
DILLON CONSULTING

MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
PIC FIGURE 1	LOCATION MAP

TOWNSHIP OF SANDWICH SOUTH
MANNING ROAD SECONDARY PLAN STUDY
CONCEPT PLAN

DILLON CONSULTING	MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	PIC FIGURE 2	SECONDARY PLAN AREA - CONCEPT PLAN

TOWNSHIP OF SANDWICH SOUTH
MANNING ROAD SECONDARY PLAN STUDY
STORM DRAINAGE



Drainage Area of Cyr Drain

Drainage Area of East Town Line Drain

Drainage Area of Baillargeon Drain

Stormwater Management Facility

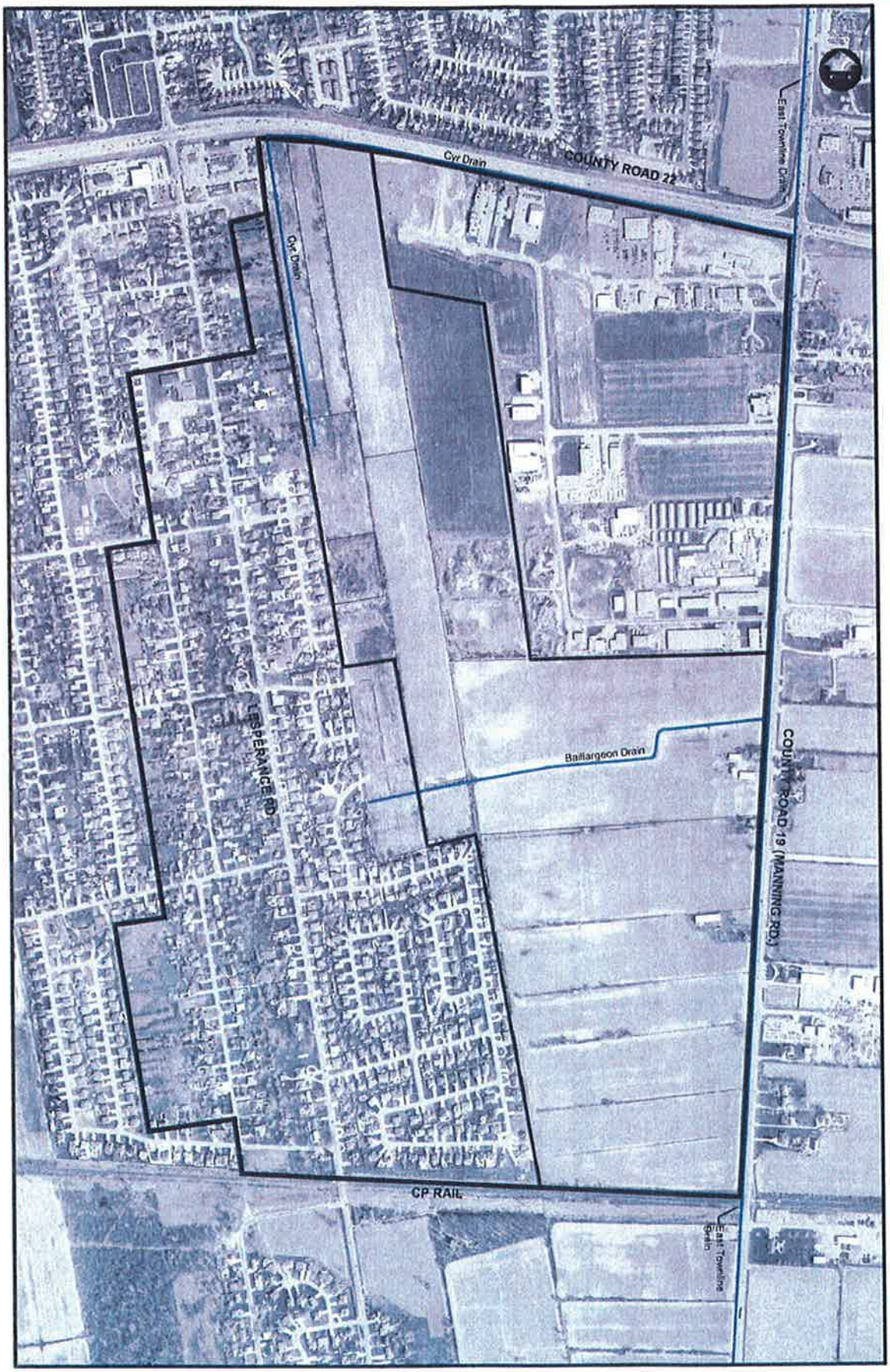
DILLON CONSULTING	MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	PIC FIGURE 3	SECONDARY PLAN AREA - STORM DRAINAGE MAP

DILLON CONSULTING	MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	PIC FIGURE 4	DRAINAGE AREAS

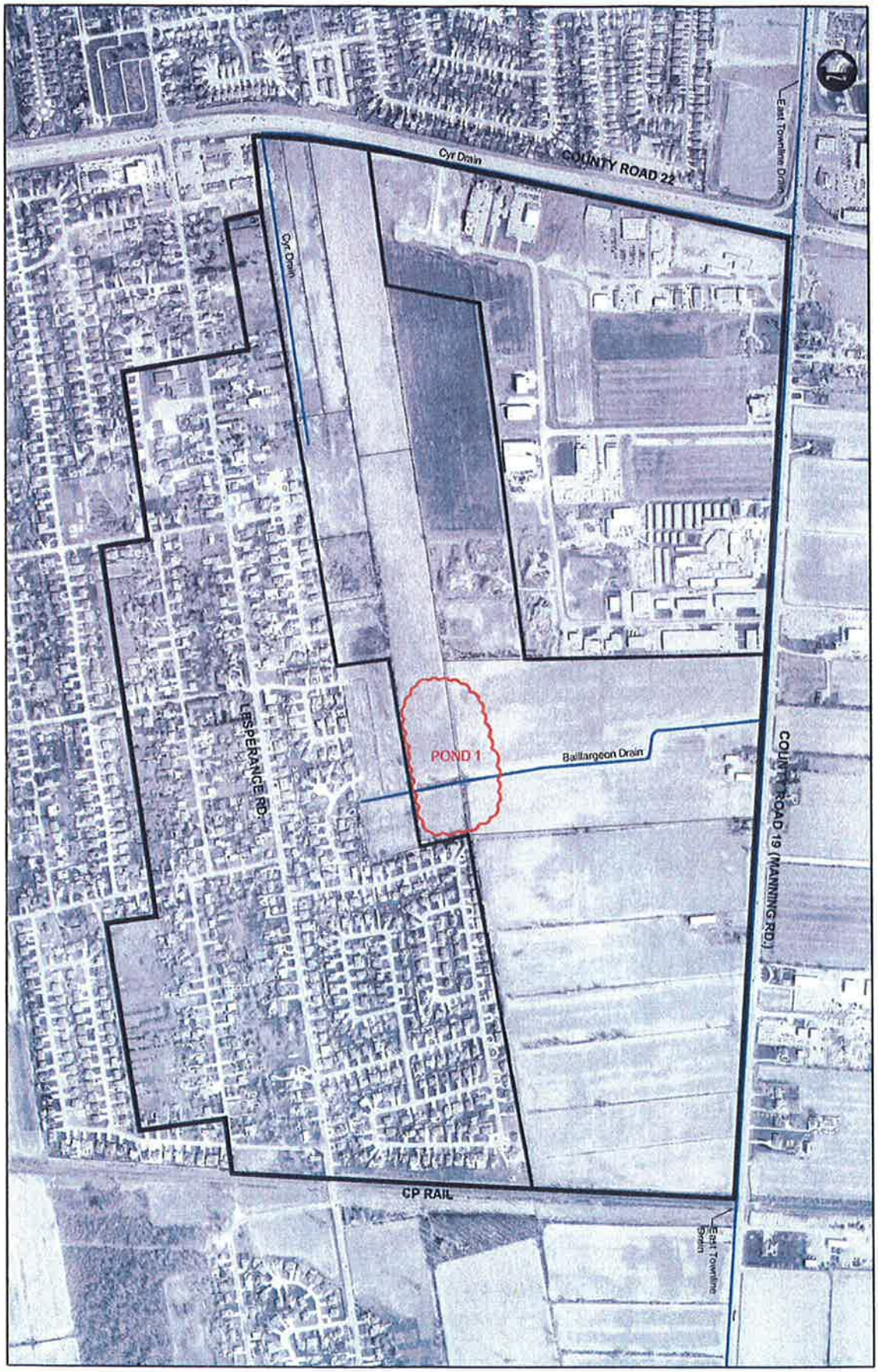
Problem Statement

To identify the best possible solution to addressing the stormwater drainage needs to accommodate future development in the Manning Road Secondary Plan Area in the Town of Tecumseh.

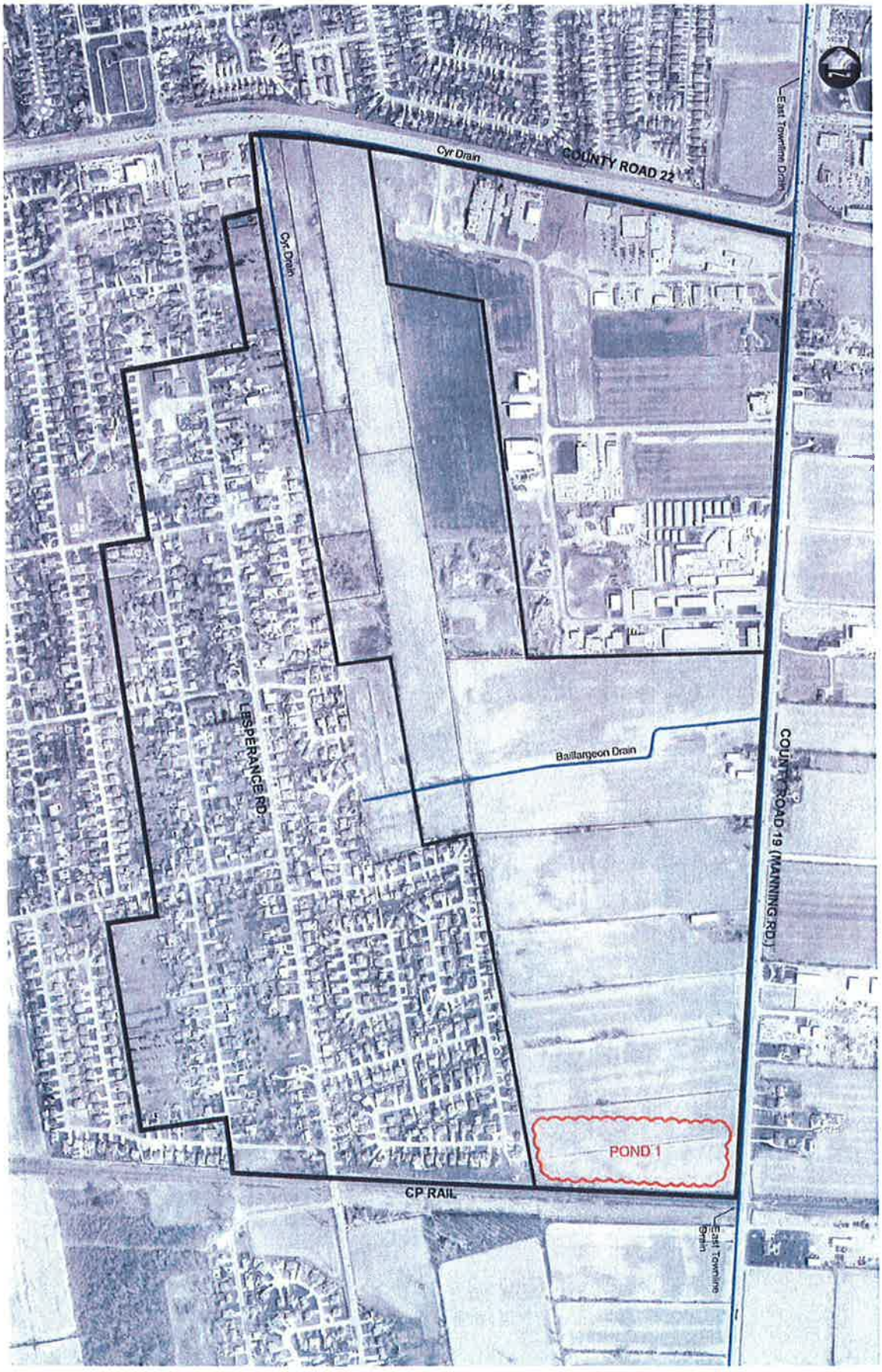
DILLON
CONSULTING



DILLON CONSULTING	MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	ALTERNATIVE 1.0	ALTERNATIVE 1 - DO NOTHING

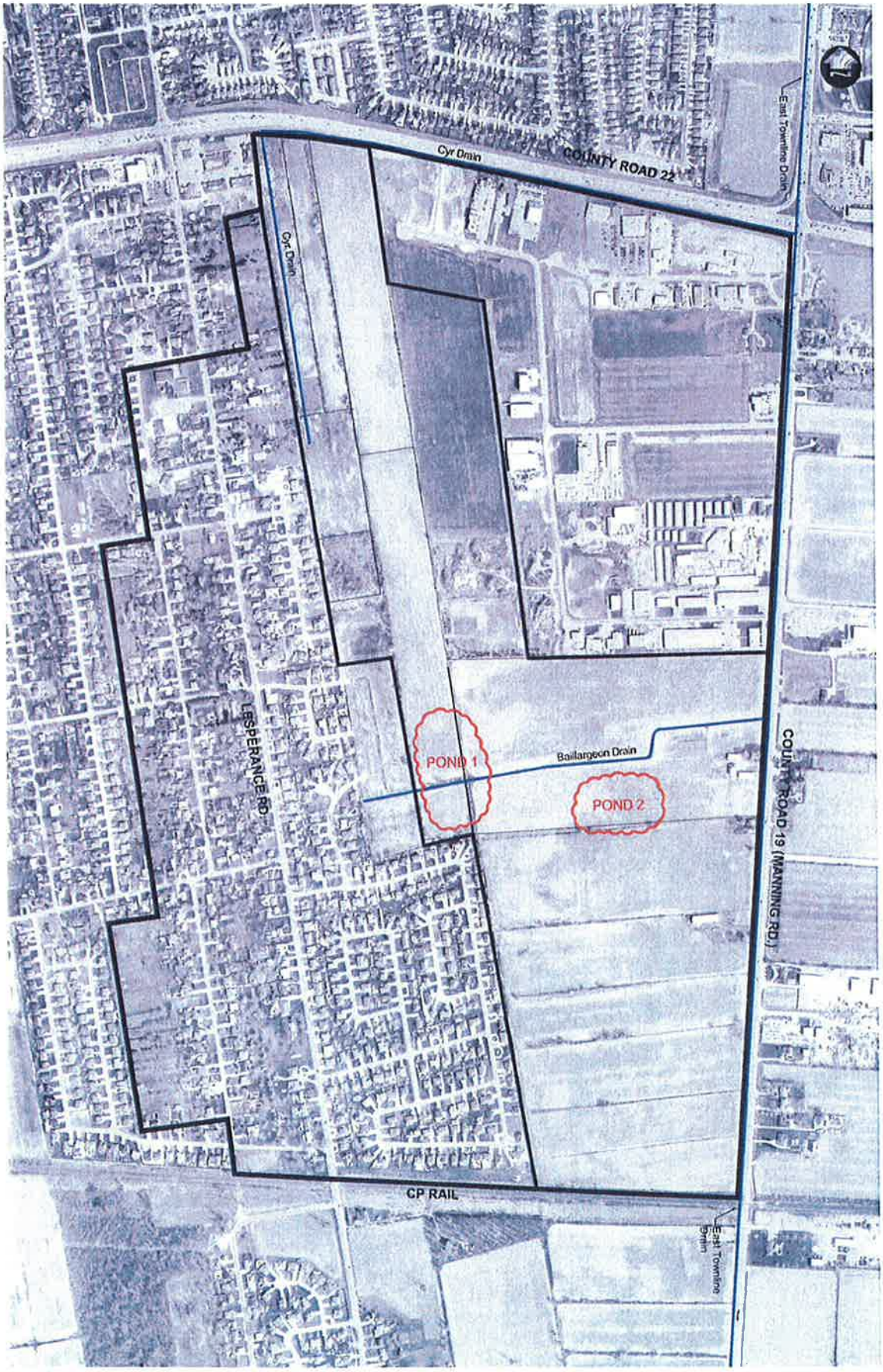


MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
ALTERNATIVE 2.0	ALTERNATIVE 2 - REGIONAL WET POND

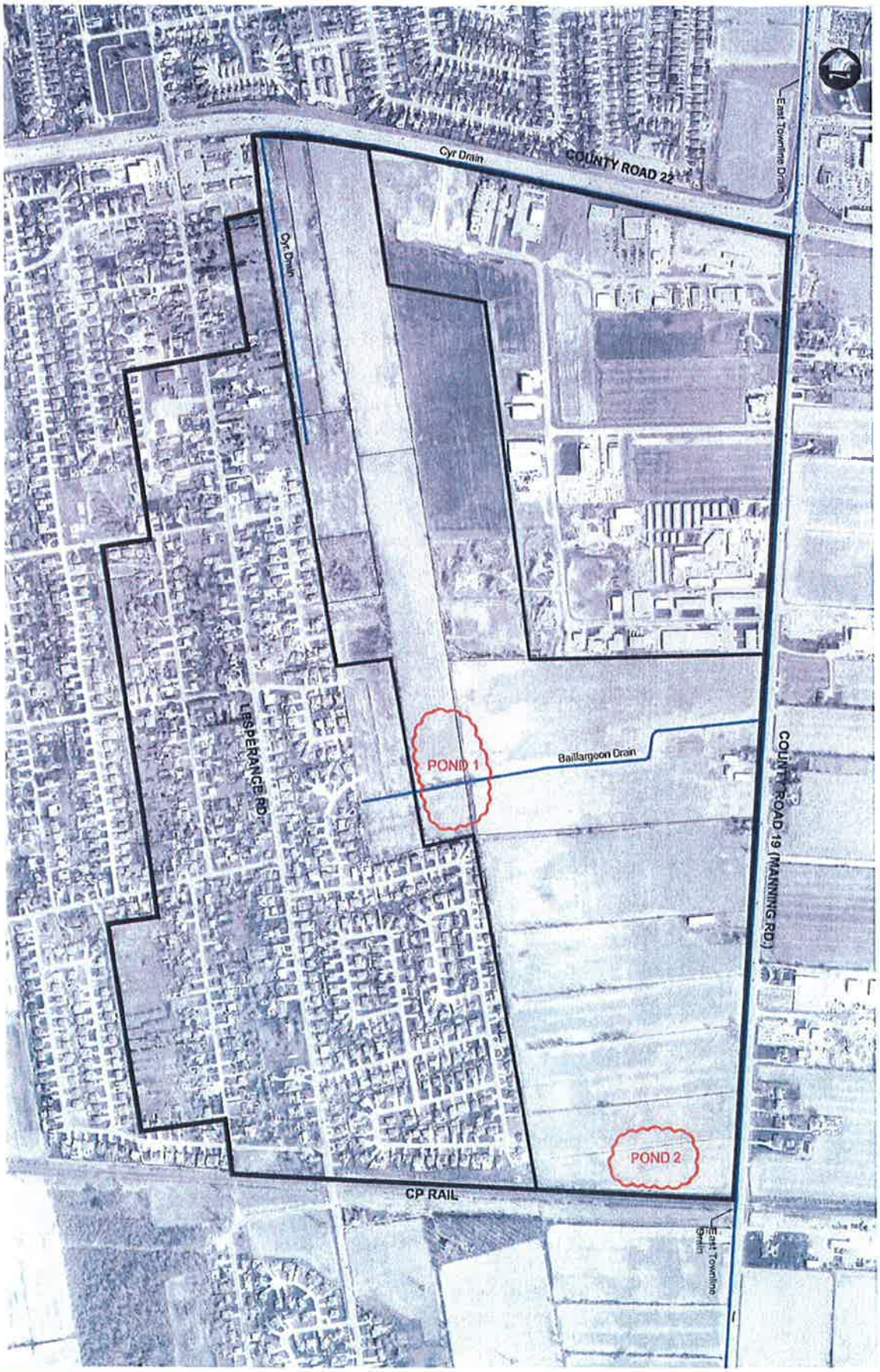


DILLON CONSULTING

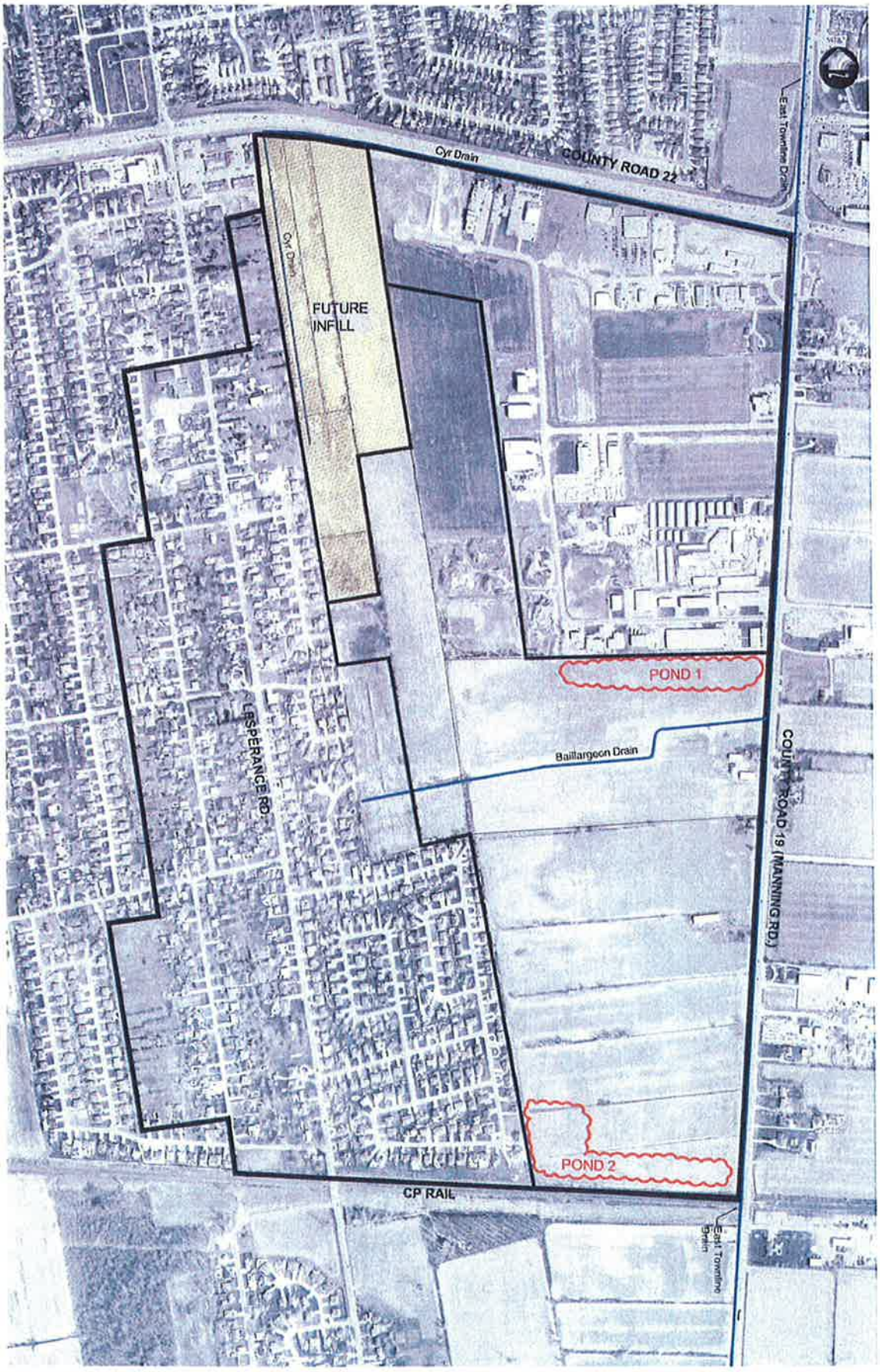
MARCH 2006	MANNING ROAD SECONDARY PLAN AREA STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
Project No. 04-4139	
ALTERNATIVE 3.0	ALTERNATIVE 3 - REGIONAL WET POND AT CPR RAILWAY



DILLON CONSULTING	MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	ALTERNATIVE 4.0	ALTERNATIVE 4 - DUAL WET PONDS



DILLON	MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	ALTERNATIVE 5.0	ALTERNATIVE 5 - DUAL WET PONDS



DILLON CONSULTING	MARCH 2006	MANNING ROAD SECONDARY PLAN AREA
	Project No. 04-4139	STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
	ALTERNATIVE 6.0	ALTERNATIVE 6 - DEVELOPERS' PROPOSAL

Evaluation Criteria

The Project Team has identified and applied the following criteria to evaluate the alternative solutions:

- **Technical Impacts**
  - Size/Area of Facility (or Facilities)
  - Level and Effectiveness of Water Treatment
  - Stormwater Detention Time
  - Integration with Overland Flow Routes
  - Capacity of the East Townline Drain
  - Treatment of Existing Developed Areas

- **Economic Impacts**
  - Disruption to Existing and Proposed Businesses
  - Loss of Developable Land

- **Environmental Impacts**
  - Impact on Terrestrial Environment
  - Impact on Aquatic Environment
  - Control of Waterfowl Communities
  - Control of Mosquito Larvae

- **Social Impacts**
  - Impact on Existing and Proposed Land Uses
  - Integration of Ponds as a Community Amenity
  - Public Safety of the Ponds

- **Cultural Resources**
  - Effect on Cultural Resources

- **Cost**
  - Capital Costs for Treatment Facilities, Pump Stations, and Trunk Sewers
  - Operating and Maintenance Costs

DILLON CONSULTING

Evaluation Matrix
Stormwater Management Facility Alternatives

Stormwater Management Facility Alternatives – Manning Road Secondary Plan Area

Evaluation Criteria / Description	Alternative 1: Do Nothing	Alternative 2: Regional Wet Pond	Alternative 3: Regional Wet Pond [illegible]	Alternative 4: Dual Wet Ponds	Alternative 5: Dual Wet Ponds	Alternative 6: Developers' Proposal
Technical Impacts						
[illegible]	Low • [illegible]	Low • [illegible]	Medium • [illegible] • [illegible]	High • Dual ponds require more land area than a single pond	High • Dual ponds require more land area than a single pond	High • Dual ponds require more land area than a single pond
Level of Water Treatment	Low • [illegible]	High • Wet pond meets Provincial [illegible] level requirements for stormwater quality	High • Wet pond meets Provincial treatment level requirements for stormwater quality	High • Wet ponds meets Provincial treatment level requirements for stormwater quality	High • Wet ponds meets Provincial treatment level requirements for stormwater quality	High • Wet ponds meets Provincial treatment level requirements for stormwater quality
Stormwater Detention Time	Low • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]
Integration with Overland Flow Routes	Low • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]
Capacity of the East Townline Drain	Low • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]
Treatment for Existing Developed Areas	Low • [illegible]	High • [illegible]	Low • [illegible]	High • [illegible]	Medium • [illegible]	Medium • [illegible]
Economic Impacts						
[illegible]	Low • [illegible]	Low • [illegible]	Low • Little or no disruption	Low • Little or no disruption	Low • Little or no disruption	Low • Little or no disruption
Loss of Developable Land	Low • No loss of land	High • [illegible]	Low • [illegible]	High • [illegible]	Medium • Some prime residential property in the central area would be required, and some [illegible] land along the CPR railway would also be required	Medium • Some prime commercial property along the County Rd [illegible] and some [illegible] land along the CPR railway would be required
Environmental Impacts						
Impact on Terrestrial Environment	Low • [illegible]	Low • [illegible] • [illegible]	Low • [illegible] • [illegible]	Low • [illegible] • [illegible]	Low • [illegible] • [illegible]	Low • [illegible] • [illegible]
Impact on Aquatic Environment	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]
[illegible]	Low • [illegible]	Low • [illegible]	Medium • [illegible]	Low • [illegible]	Medium • [illegible]	Medium • [illegible]
Control of Mosquito Larvae	Low • [illegible]	High • [illegible] • [illegible]	High • [illegible] • [illegible]	High • [illegible] • [illegible]	High • [illegible] • [illegible]	High • [illegible] • [illegible]
Cultural Impacts						
Effect on Cultural Resources	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]
Social Impacts						
Disruption to Existing Land Use	Low • [illegible]	Medium • [illegible]	Medium • [illegible]	Medium • [illegible]	Medium • [illegible]	Medium • [illegible]
[illegible]	Low • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]
Public Safety of the Ponds	Low • [illegible]	High • [illegible] • [illegible] • [illegible]	High • [illegible] • [illegible] • [illegible]	High • [illegible] • [illegible] • [illegible]	High • [illegible] • [illegible] • [illegible]	High • [illegible] • [illegible] • [illegible]
Cost						
Capital Cost of Treatment Facilities	Low • [illegible]	Low • [illegible]	Medium • [illegible]	High • [illegible]	Highest • [illegible]	Highest • [illegible]
Capital Cost of Trunk Sewers	Low • [illegible]	Low • [illegible]	High • [illegible]	Low • [illegible]	Medium • [illegible]	Medium • [illegible]
Capital Cost of Pump Station(s)	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	High • [illegible]	High • [illegible]
[illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]
[illegible]	Low • [illegible]	Low • [illegible]	Low • [illegible]	High • [illegible]	High • [illegible]	High • [illegible]
Concluding Comments		RECOMMENDED SOLUTION	RECOMMENDED SOLUTION			

DILLON CONSULTING

What Happens After This Public Information Centre?

After the PIC, the Project Team will...

- Address the comments received;
- Select the preferred solution;
- Confirm the project schedule and determine whether further opportunities for public comment regarding alternative design concepts are required.

Will There Be Another Opportunity for Public Comment?

YES...

- If the project is confirmed as a Schedule B, a Project File would be produced detailing the work completed. The availability of this report for review would be advertised at that time and the public could provide comments on the final conclusions and recommendations of the study.

- If the project is confirmed as a Schedule C, the public would be consulted at a second Public Information Centre to review alternative design concepts. Once the preferred design concept is chosen, an Environmental Study Report (ESR) would be produced detailing the work completed. The availability of this report for review would be advertised at that time and the public could provide their comments on the final conclusions and recommendations of the study.

TECUMSEH

DILLON CONSULTING

How Can I Provide My Comments On This Presentation?

After you have reviewed this information and talked to members of the Project Team, please take the time to complete a Comment Sheet. These are available at the front desk.

Your Input
IS
Important To The Success Of This Study

You may fill in your comment sheet and hand it in before you leave or mail it to the address indicated before April 5, 2006.

THANK YOU FOR
ATTENDING THIS PRESENTATION

DILLON
CONSULTING

APPENDIX G

PUBLIC INPUT AT PIC #1

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

A.M. SESSION

Record of Attendance
(Please Print Neatly)

Name	Mailing Address/Postal Code
RON HARTIGAN	2084 ST. ANNE TEC. ONT N8N1V7
Linda Proctor	2089 St. Anne Tec. N8N1V8
DAN MARION	1845 MANNING RD. N8N 2L9
MARY EDNA MARION	1845 MANNING RD. TEC N8N 2L9
TONY D. CIOCCO	49 Notre Dame St. Belle River Ont.
Fred Hayes	2078 St Anne St
Janet Frankowski Janet Frankowski	12378 Funaro. Tec.
GORD HARDING	2034 WILLISTEAD CR WINDSOR N8Y.1K5
Dave Strang STRANG	TECUMSEH OPP
PAUL MORAND	1921 LESPERANCE RD N8N 1Y5

DILLON CONSULTING

A.M. Session

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Record of Attendance
(Please Print Neatly)

Name	Mailing Address/Postal Code
WILLY KOESER	1670 Lesperance Rd.
IVAN PACUR	12327 VICKERY LANE N9K 1B5
Steve Johnston	P.O. Box 910 Essex, Ont N8M 2Y2.
MARIO VALENTE	6566 Reserve DR
PETER NETTE	COMMUNITY PLANNERS INC 2109 OTTAWA ST. P.O. BOX 24002 WINDSOR ON N8Y 4Y9
STEVE VALENTE	155 CATALINA COVE
MIKE JONES	STANTEC CONSULTING 3260 DEVON DRIVE WINDSOR, ONT.

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Record of Attendance
(Please Print Neatly)

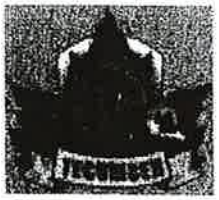
Name	Mailing Address/Postal Code
Holly DiLoreto	12315 Vickery Lane Tecumseh, Ontario N9K 1B5
Joe Sperduti	1855 Deslippe Tec. N9K 1C6
Dawn Stallard	1815 Deslippe Tec N9K 1C6
Rick Demarse	1754 Lesperance
Lena DeMarse	12401 Renaud St.
Gale Demarse	12364 Demarse court, Tec.

DILLON
CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Record of Attendance
(Please Print Neatly)

Name	Mailing Address/Postal Code
RICK SPENCER	HGS
JIM BROWN	1885 DESLIPPE DR. kmjbrown@sympatico.ca / N9K 1C6



DILLON
CONSULTING

From: "Deborah St.Louis" <cturfinc@mnsi.net>
To: <jbreschuk@dillon.ca>
Date: 06/04/2006 1:27:51 pm
Subject: Public Comments Diilon Town of Tecumseh 0406

Public Comments

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre, March 22, 2006

Name: Richard & Deborah St.Louis
Fairlane Developments 1614 Lesperance Rd
735-5300 office 796-1060 cell
Email : cturfinc@mnsi.net

April 6, 2006

Comments:

We have looked at the proposal with regards to our lands for development being called infill. We believe that our lands will not be developed for quite some time. Originally when we discussed our project we were told that there would be some sewer capacity to allow our development to proceed. Then we had a meeting about 6 months later stating we would have to wait until the City of Windsor and the Town of Tecumseh came to some agreement. This has taken place, now we are told we have to wait for a larger trunk line to be brought from Little River over to Lesperance for overflow. This line is supposed to be at Lesperance by the fall of 2006. I don't believe this will happen and the time frame is off.

I think there is sufficient vacant property in the area that are not being developed but are in the sewer zone. These areas should offset the capacity enough to allow our small development to proceed. With regards to the storm collection, we were told that the Cyr drain would be our collector drain.

I don't think that putting 40 homes into the area will affect the drain to any great extent
We have paid taxes to this drain for years and we should be allowed to drain our small development into this area, even if the highway is considering putting in another lane in the future. If you go out there and look at the addition of the new future lane of 10-12 ft the lane will be where the shoulder is and a new shoulder will be put in. Not too much taken from the drain. The drain has never held any water and drains well to the point where we cut the grass in the drain. The drain could be cleaned.

We also don't know why we can't rezone our lands to commercial and residential now and get this step done while the paperwork is being shuffled. We know from our water bills that we should be able to proceed with our last commercial building as the commercial contributes very little to the sanitary. Originally when we started developing we were told that the sanitary was not factored into the commercial development and we could rezone at a later date and decide how we wanted to proceed with our development. Now we are being told the opposite. Council should look at letting us proceed along with Rick Demaris and his land and start the development and getting our lands zoned, giving us the green light for this commercial area with the residential to follow suit.

The planning department made us put in the Westlake Road extension complete with lighting, hydro, sidewalk and now it is a road going nowhere. The road cost cannot be absorbed in the one building that was put up. We should be allowed to continue now rather than later. The Town is saying there is no development within the Town and we are ready and willing to move on this giving the Town more revenue.

We do see an economic down turn in the economy coming and would like to complete our last phase of our commercial development and then the residential to follow.

We have a lot of money sitting in the ground to accommodate this development and would like to proceed as soon as possible. We should all be able to change our lands and get it properly zoned now. In our commercial the parking lots are always designed to hold water if there ever was heavy rain and this should not be a concern for the storm water, and the sanitary on commercial contribute very little to the

main as the engineers probably already know.
I firmly believe the Town needs to let this development start.

Yours truly,

Richard & Deborah St.Louis
Fairlane Developments Inc.

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: Dawn Stallard Address: 1815 Deslippe Drive

Telephone: 979-3891 e mail: stallard@cogeco.ca

Comments: Alternative #2 is the storm water - Regional wet Pond choice I would choose, provided the Town looks @ having the corner lot on Candlewood go through (lots being sold right now by Mario Valente) providing an alternative route to Lesperance to help alleviate the flow of traffic to just one route via Gouin. Lets be honest the route at the top near County Rd 22 is not the way people will go - that far down residential streets they will look for a fast way to a large street (Lesperance). This alternative of using Candlewood to open up to the new residential areas is a very viable solution to having all the hundreds of houses come to Gouin to Lesperance and I would expect this to become a reality - Candlewood to open to new area via an opening in a lot (not built on) being left open for the road to be punched thru.

Dawn Stallard

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

DATE: APRIL 5/06

FROM: GALE DEMARSE

TO: DILLON CONSULTING LIMITED
" LORI MITRI "

FAX: 948-5054

PAGES: (4)

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: RICK DEMARSE Address: 1754 LESPERANCE

Telephone: 519 735-0065 e mail: _____

04-03-06

Comments: After LOOKING AT ALL PLANS SUBMITTED, ALTERNATIVE 6 DOES'NT INCLUDE OUR PROPERTY AND MIGHT CREATE FUTURE PROBLEMS FOR DEVELOPEMENT. THE CYR DRAIN HAS SERVICED REAR LOTS EAST SIDE OF LESPERANCE RD FOR YEARS. THE SANDWICH SOUTH TOWNSHIP HAD A PLAN TO WORK ON CYR DRAIN TO SERVICE RESIDENCE IN AREA. PROPERTIES HAVE BEEN CHARGED TAXES ON THE CYR DRAIN. IT IS A NATURAL FLOW TO THE NORTH + EAST TO MANNING. THE AMOUNT OF LAND AFFECTED IS A MINIMAL BURDEN FOR CYR DRAIN. ALTERNATIVE 2 WOULD ONLY BE OUR SECOND CHOICE TO SERVICE OUR LAND, KNOWING WE WOULD BE REVERSING THE NATURAL WATER FLOW FROM NORTH TO SOUTH.

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: LENA A. DEMARSE Address: 12401 RENAUD ST,

Telephone: 735-4646 e mail: _____

Comments: Since I purchased my property in May 1944 and have been paying taxes for over 60 years, we always had the understanding that the Cyr drain would be able to handle our developement needs. The developers with larger pieces of land that are now wanting to service their properties Alternative 2 seems to be the right choice for the Pond to be centrally located.

Alternative 6 does not include our property for development, therefore we are not in favour for this proposal.

Mrs. Lena A. DeMarse
04-04-06

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: GALE DEMARSE Address: 12364 DEMARSE CRT

Telephone: 979-6579 e mail: _____

Comments: PLAN 6 (ALTERNATIVE 6) IS NOT ACCEPTABLE BY MY FAMILY. WE DO NOT WANT OUR LAND CALLED "FUTURE INFILL", WE WOULD LIKE TO BE ABLE TO DEVELOPE THE PROPERTY AS THE MARKET NEEDS ARISE, IF THE CVR DRAIN CAN ACCOMADATE US, THAT WOULD BE OUR CHOICE (TO KEEP THE COSTS DOWN)

PLAN 2 (ALTERNATIVE 2) WITH ONE POND IN THE MIDDLE OF ALL LANDS, LOOKS TO BE THE BEST WAY TO GO, FOR ALL PIECES OF LAND TO MANNING ROAD, (1) LARGE POND AGAIN, TO KEEP ALL COSTS DOWN.

Dale DeMarse
04/05/06

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: VALENTE GROUP Address: 25 AMY CROFT DR.

Telephone: 735-2237 e mail: stevenv@valentegroup.com

Comments: ATTACHED, PLEASE FIND A COPY OF OUR COMMENTS. - 3 PAGES TOTAL.

THANK YOU,

MARIO VALENTE
THE VALENTE GROUP.

CC. BRIAN HILLMAN
TOWN OF TECUMSEH

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Valente Group
25 Amy Croft Dr. Suite 23 B
Lakeshore, ON
N9K 1C7

April 5, 2006

Upon review of the information presented at the information open house we offer our comments as follows:

1) Alternatives 2 & 3 are unacceptable to the "Cyr drain developers" (St. Louis and DeMarse) because their development will be deferred for many years depending on the 2 main developers. In addition, there are additional costs to service these low lands. These lands should drain to their assessed outlet.

2) With respect to Alternative 3, the location benefits us by allowing development of our lands sooner and at our own development schedule. However, this may not be palatable to the other developers.

3) With respect to Alternative 2, a large existing area of the Municipality will be served by the new SWM pond. The Town therefore will be responsible to significantly share (on an area basis) the costs to construct the pond. Is the Town prepared to fund and to do so up front these significant costs?

4) The developer's proposal (Alternative 6) insures all costs regarding installation of the infrastructure are the responsibility of the respected developers and will allow each the freedom to schedule their developments accordingly. Any concerns of increased maintenance costs are addressed easily with the new municipal taxes created by the developments. In our opinion, the increased costs for pumping are not significant. The developers acknowledge the required land dedication for the storm water management facilities. Further more the developer's proposal will integrate the SWM facilities into a park setting and act as nodes in the linked park system.

5) The capital costs presented in the matrix should not have been included. These costs are the developers responsibility not the municipality. By including these in the matrix the public may have the perception they are a municipal expense therefore not supporting the solutions with higher capitol costs.

Thank you the opportunity for us to express out concerns on this study. In closing, we support Alternative 6, the developer's proposal, as the preferred solution.

Thank you,

Mario Valente

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: Mario Valente Address: _____

Telephone: _____ e mail: _____

Comments: Thought our presentation was good. He supported Alt B. He has the most to benefit from that Alt.

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON
CONSULTING

JAMES SYLVESTRE DEVELOPMENTS LTD.
1865 Manning Road
Tecumseh, ON N8N 2L9
Tel: (519) 735-6606
Fax: (519) 735-1603

TRANSMITTAL SHEET

To: Jim Brechuk
Attn:
Fax #: 9485057

Date: April 5/06
Subject:
Pages: 1 – 3

Hi Jim Please acknowledge receipt of fax by signing + faxing back.

If you have any difficulty reading this fax, please contact the undersigned.

Thank You

Jeannette

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: James Sylvestre Development Ltd. Address: 1865 Manning Rd.

Telephone: 7356606 e mail: JSeLtd at mnsi.net.

Comments: See attached

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON
CONSULTING

JAMES SYLVESTRE DEVELOPMENTS LTD.
1865 Manning Road
Tecumseh, ON N8N 2L9
Ph (519) 735-6606
Fx (519) 735-1603

April 5, 2005

1. We note again that the Baillargeon Drainage area has not been corrected - of the original 45 acre farm only 20 acres are assessed and not 45.

2. As a point of clarification, in all our meetings and discussions, we made it clear that our stormwater solution redirected the stormwater flow from our lands out of the Baillargeon Drainage area to the new proposed SWM facilities. We would have no assessment or liability with respect to the Baillargeon Drainage area or any future improvements.

3. Any costs for future operation and maintenance of 2 SWM facilities or pump stations would be assessed to the users in the new drainage area not the town and these costs are minimal.

4. We were led to believe that our proposal for a SWM facility, to service the existing institutional area, would be approved and we spent time and money to that end. We received positive comments from our meetings but our proposal was not recommended.

5. Is the Cyr Drainage Area to be included in the 2 recommended solution areas? - <u>if not</u> – why not? - <u>if so</u> – how?

6. We strongly object to Solution # 2. This would compromise our position with respect to the Baillargeon Drainage area. We are creating 2 new drainage areas. The existing serviced land to the west would be responsible for any and all improvements to their drainage area and outlet.

We look forward to your comments.

Thank you

James Sylvestre
James Sylvestre Developments Ltd.

cc Town of Tecumseh

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: Richard Spencer HGS Limited
Address: 3100 Temple Drive
Telephone: 944-3090
e mail: hgs@bellnet.ca

Comments:

Alternative 2 - Regional W.P. *
" 3. " " @ CPR *
" 6 - Developers' Proposal

There doesn't appear to be significant differences in environmental impacts of 3 alternatives. Alternative 6 will have more costly maintenance, less geese nuisance and will provide developers more flexibility to proceed with development and adhere to existing municipal drainage reports.

* Recommended Solutions

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON
CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment

Telephone Discussion Record

Please complete the following information for our records *(Please print neatly)*.

Name: Ms. Pelankas Address: 1957 St. Annes

Telephone: _____ e mail: _____

Date: March 10, 2006

Comments:
- how will this project be funded
- will existing property owners have to pay for this through increased property tax
- will this project improve their drainage issues ex. rear yard
- she lives several blocks away, how will this affect her property

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON
CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: ____________________ Address: ____________________

Telephone: ____________________ e mail: ____________________

Comments:

~~[illegible]~~ - Paul Morand - prefers single pond @ CPR tracks
(Resp) - don't want it next to residential
- Safety issues - fencing, education
- dry pond is not preferred

Ivan Pocut - anything sewer related.

~~Essex OPP~~ - your interest - impact on road infrastructure

Inspector
~~[illegible]~~ Doug Babbitt → Essex OPP (instead of Chris Shaze).

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON
CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: _____ Address: _____

Telephone: _____ e mail: _____

Comments:

(1)
- St. Anne's St. drainage not good. - how will ponds effect my land?
- Safety issues - make sure to include in construction of pond.
- pond close to tracks dangerous for kids - not good.
- likes alternative 3 or 4 -
- wants community/park system/trails
- like Blue Heron.
- costs - how will it effect us (existing)? - it won't.

Fiorano Resident

(2)
- Storm sewers - no good - slopy/shady
- ponds: best option is her option
- taking in more water @ the quickest time.
- single pond is the best option.

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: Richard Spencer HGS Limited
Address: 3100 Temple Drive
Telephone: 944-3090
e mail: hgs@bellnet.ca

Comments:

Alternative 2 - Regional W.P. *
" 3. " " @ CPR *
" 6 - Developers' Proposal

There doesn't appear to be significant differences in environmental impacts of 3 alternatives. Alternative 6 will have more costly maintenance, less geese nuisance and will provide developers more flexibility to proceed with development and adhere to existing municipal drainage reports.

* Recommended Solutions

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment

Telephone Discussion Record

Please complete the following information for our records *(Please print neatly)*.

Name: Ms. Pelankas Address: 1957 St. Annes

Telephone: _____ e mail: _____

Date: March 10, 2006

Comments:
- how will this project be funded
- will existing property owners have to pay for this through increased property tax
- will this project improve their drainage issues ex. rear yard
- she lives several blocks away, how will this affect her property

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: Jim Brown / Joe Sperduti Address: _____

Telephone: _____ e mail: _____

Comments:

Prefers Alt #3, & 6 - Joe Jim Brown & Sperduti.

- want improvement more technical than community values
- flight path - keeps the seed away
- mosquitos - want fountain
- useless & degrades land, the earth
- cheaper option
-

☆ Matrix - send/email to Jim & Joe.

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre
March 22, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below.

Please complete the following information for our records *(Please print neatly)*.

Name: _____ Address: _____

Telephone: _____ e mail: _____

Comments: Traffic

Joe Sperduti / Jim Brown / Dawn Stallard
- Town should purchase access point from Candlewood (@ the end) all the way to "Future ROW"
- to encourage another east-west corridor
- Improve traffic condition
- should purchase Valente lands to do this
- "easing the traffic further south"
- keeps straight

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

APPENDIX H

NOTICE OF PUBLIC INFORMATION CENTRE #2

Town of Tecumseh
NOTICE OF
PUBLIC INFORMATION CENTRE

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment

The Manning Road Secondary Plan Area is located west of Manning Road and south of County Rd 22. In anticipation of development of these lands in the future, the Town of Tecumseh has initiated a Class Environmental Assessment to develop a stormwater management (SWM) system to service this future development area. Dillon Consulting Limited has been retained to assist the Town in this undertaking.

The project has been planned under the Municipal Class Environmental Assessment (June 2000). Alternative ways of managing stormwater from the various land parcels in the study area including both centralized and multiple SWM facility concepts have been examined.

From the first Public Information Center meeting held on March 11, 2006, two alternative regional SWM facility concepts were recommended for further examination: 1) Central location to the Baillargeon Drain, 2) Southern location adjacent to the CPR railroad. The SWM facility under review is a Regional Pond integrated with a trail system and natural features that will be a focal point in within the Study Area. Implementing a regional SWM facility under schedule C of the Environmental Assessment process requests that a second Public Information Centre be held.

The Town is proceeding with the second Public Information Centre (PIC) to present project findings to the public and affected agencies for review and comment. The PIC is scheduled for **December 5, 2006 from 4:00 - 8:00pm at Town Hall Council Chambers, 917 Lesperance Road, in the Town of Tecumseh**. Background information on the Study will be provided, allowing review and discussion of the two proposed design concepts and the impacts of these alternatives. Further opportunities for public comment will be determined following the selection of a preferred solution.

For further information on this project, or to be added to the study mailing list, or to provide comments, please contact either of the following:

Mr. Brian Hillman
Director of Planning & Building Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario
N8N 1W9
Tel: (519) 735-2184
Fax: (519) 735-6712
bhillman@tecumseh.ca

Mr. James Breschuk, P.Eng.
Project Manager
Dillon Consulting
3200 Deziel Drive, Suite 608
Windsor, Ontario
N8W 5K8
Tel: (519) 948-5000
Fax: (519) 948-5054
jbreschuk@dillon.ca

This notice issued on November 22, 2006.

Town of Tecumseh
NOTICE OF
PUBLIC INFORMATION CENTRE

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment

The Manning Road Secondary Plan Area is located west of Manning Road and south of County Rd 22. In anticipation of development of these lands in the future, the Town of Tecumseh has initiated a Class Environmental Assessment to develop a stormwater management (SWM) system to service this future development area. Dillon Consulting Limited has been retained to assist the Town in this undertaking.

The project has been planned under the Municipal Class Environmental Assessment (June 2000). Alternative ways of managing stormwater from the various land parcels in the study area including both centralized and multiple SWM facility concepts have been examined.

From the first Public Information Center meeting held on March 11, 2006, two alternative regional SWM facility concepts were recommended for further examination: 1) Central location to the Baillargeon Drain, 2) Southern location adjacent to the CPR railroad. The SWM facility under review is a Regional Pond integrated with a trail system and natural features that will be a focal point in within the Study Area. Implementing a regional SWM facility under schedule C of the Environmental Assessment process requests that a second Public Information Centre be held.

The Town is proceeding with the second Public Information Centre (PIC) to present project findings to the public and affected agencies for review and comment. The PIC is scheduled for **December 5, 2006 from 4:00 - 8:00pm at Town Hall Council Chambers, 917 Lesperance Road, in the Town of Tecumseh**. Background information on the Study will be provided, allowing review and discussion of the two proposed design concepts and the impacts of these alternatives. Further opportunities for public comment will be determined following the selection of a preferred solution.

For further information on this project, or to be added to the study mailing list, or to provide comments, please contact either of the following:

Mr. Brian Hillman
Director of Planning & Building Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario
N8N 1W9
Tel: (519) 735-2184
Fax: (519) 735-6712
bhillman@tecumseh.ca

Mr. James Breschuk, P.Eng.
Project Manager
Dillon Consulting
3200 Deziel Drive, Suite 608
Windsor, Ontario
N8W 5K8
Tel: (519) 948-5000
Fax: (519) 948-5054
jbreschuk@dillon.ca

This notice issued on November 29, 2006.

Town of Tecumseh
NOTICE OF
PUBLIC INFORMATION CENTRE

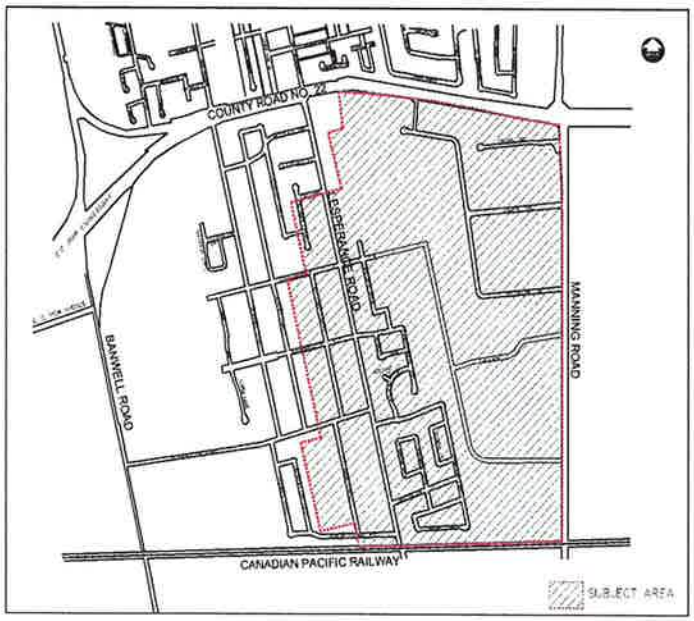
DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment

The Manning Road Secondary Plan Area is located west of Manning Road and south of County Rd 22. In anticipation of development of these lands in the future, the Town of Tecumseh has initiated a Class Environmental Assessment to develop a stormwater management (SWM) system to service this future development area. Dillon Consulting Limited has been retained to assist the Town in this undertaking.

The project has been planned under the Municipal Class Environmental Assessment (June 2000). Alternative ways of managing stormwater from the various land parcels in the study area including both centralized and multiple SWM facility concepts have been examined.

From the first Public Information Center meeting held on March 11, 2006, two alternative regional SWM facility concepts were recommended for further examination: 1) Central location to the Baillargeon Drain, 2) Southern location adjacent to the CPR railroad. The SWM facility under review is a Regional Pond integrated with a trail system and natural features that will be a focal point in within the Study Area. Implementing a regional SWM facility under schedule C of the Environmental Assessment process requests that a second Public Information Centre be held.



The Town is proceeding with the second Public Information Centre (PIC) to present project findings to the public and affected agencies for review and comment. The PIC is scheduled for **December 5, 2006 from 4:00 - 8:00pm at Town Hall Council Chambers, 917 Lesperance Road, in the Town of Tecumseh**. Background information on the Study will be provided, allowing review and discussion of the two proposed design concepts and the impacts of these alternatives. Further opportunities for public comment will be determined following the selection of a preferred solution.

For further information on this project, or to be added to the study mailing list, or to provide comments, please contact either of the following:

Mr. Brian Hillman
Director of Planning & Building Services
Town of Tecumseh
917 Lesperance Road
Tecumseh, Ontario
N8N 1W9
Tel: (519) 735-2184
Fax: (519) 735-6712
bhillman@tecumseh.ca

Mr. James Breschuk, P.Eng.
Project Manager
Dillon Consulting
3200 Deziel Drive, Suite 608
Windsor, Ontario
N8W 5K8
Tel: (519) 948-5000
Fax: (519) 948-5054
jbreschuk@dillon.ca

This notice issued on November 30, 2006.

The Corporation of the

MAYOR – MAIRE
GARY McNAMARA

DEPUTY MAYOR – SOUS MAIRE
TOM BURTON

917 LESPERANCE ROAD
TECUMSEH, ONTARIO • N8N 1W9

PHONE (519) 735-2184
FACSIMILE (519) 735-6712
www.town.tecumseh.on.ca

Town of Tecumseh

PLANNING AND BUILDING SERVICES DEPARTMENT

COUNCILLORS - CONSEILLERS
JOE BACHETTI
MARCEL BLAIS
GUY DORION
JOIE JOBIN
RITA OSSINGTON

Director of Planning and Building Services
BRIAN HILLMAN

Planning Technician
ENRICO DE CECCO

Secretary-Treasurer to the Committee of Adjustment
BARBARA O'NEIL

November 20, 2006

RE: Town of Tecumseh
Notice of Project Initiation and Public Information Centre
Manning Road Secondary Plan Area Stormwater Management Study
Class Environmental Assessment

Dear Resident / Property Owner / Affected Agency:

The Town of Tecumseh has initiated a Schedule C Class Environmental Assessment (Class EA) to evaluate the location of two stormwater management (SWM) facilities to service land owners within the Manning Road Secondary Plan Area.

From the first Public Information Center meeting held on March 11, 2006, two alternative regional SWM facility concepts were recommended for further examination: 1) Central location to the Baillargeon Drain, 2) Southern location adjacent to the CPR railroad. The SWM facility under review is a Regional Pond integrated with a trail system and natural features that will be a focal point within the Study Area. Implementing a regional SWM facility under schedule C of the Environmental Assessment process requests that a second Public Information Centre be held.

The Town of Tecumseh is now proceeding with Public Information Centre No. 2 in order to identify the best possible location for a regional stormwater management pond within the Manning Road Secondary Plan area. This process will outline both alternative design concepts to the problem, their associated environmental impacts and mitigating measures. After which, a decision will be made as to the location of the regional stormwater management pond.

Public input and comment are invited for incorporation into the planning and design of this project. Please refer to the backside of this letter for the Town's official Notice. The Town is proceeding with a **Public Information Centre** at:

Town of Tecumseh Council Chambers
917 Lesperance Road
Tuesday, December 5, 2006
4:00pm to 8:00pm

Should you be unable to attend, we invite your comments by telephone, e-mail or facsimile to one of the two persons listed on the reverse of this page.

Yours sincerely,

TOWN OF TECUMSEH

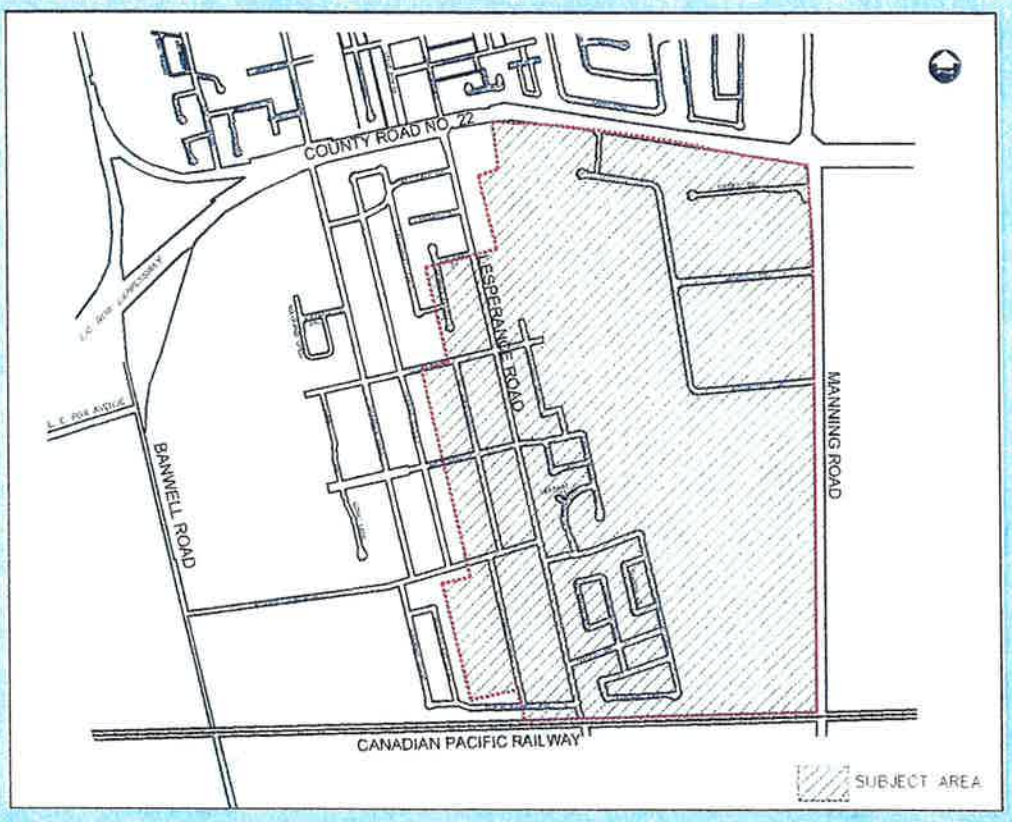
Enrico DeCecco

R/ **Mr. Brian Hillman**
Director of Planning and Building Services
Town of Tecumseh

APPENDIX I

PIC #2 PRESENTATION MATERIAL

Welcome
to the
Public Information Centre No. 2
for the
Manning Road Secondary Plan Area Stormwater Management Study



Class Environmental Assessment
December 5, 2006

TECUMSEH

DILLON CONSULTING

What Is The Purpose Of This Public Information Centre?

The Public Information Centre provides an opportunity for the public to review and comment on the preliminary results of this study. The information presented includes:

- **Background information on the Class EA process, the project, and the study area;**
- **Landscaping and construction design concepts for two regional pond locations;**
- **The design details of the recommended design concept for stormwater management.**

Please review the information being presented and discuss your thoughts with members of the Project Team that are present. Your comments will be considered in finalizing the preferred design.

YOUR INPUT **IS** IMPORTANT TO THE SUCCESS OF THIS STUDY!

TECUMSEH

DILLON CONSULTING

What Is The Class Environmental Assessment (Class EA) Process?

The Municipal Class EA process is a planning and design process that applies to municipal infrastructure projects, including roads, water and wastewater projects, as approved by the Ministry of the Environment in 2000. Depending on the degree of expected environmental impacts, projects are classified in the Class EA document in terms of Schedules.

The key principles of the Class EA process include:

- **Consultation with affected parties;**
- **Consideration of a reasonable range of alternatives;**
- **Consideration of the effects on all aspects of the environment (i.e. Natural, social/cultural, technical, economic);**
- **Systematic evaluation of the alternatives to determine their net environmental effects; and**
- **Provision of clear and complete documentation.**

TECUMSEH

DILLON CONSULTING

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

(JUNE 2000)

PHASE 1 PROBLEM OR OPPORTUNITY → **PHASE 2** ALTERNATIVE SOLUTIONS → **PHASE 3** ALTERNATIVE DESIGN CONCEPT FOR PREFERRED SOLUTION → **PHASE 4** ENVIRONMENTAL STUDY REPORT → **PHASE 5** IMPLEMENTATION

1 IDENTIFY PROBLEM OR OPPORTUNITY

2 DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PROBLEM OR OPPORTUNITY

DETERMINE APPLICABILITY OF MASTER PLAN APPROACH (See Section A.2.7)

1 IDENTIFY ALTERNATIVE SOLUTIONS TO PROBLEM OR OPPORTUNITY

SELECT SCHEDULE (APPENDIX 1)

2 INVENTORY NATURAL, SOCIAL, ECONOMIC ENVIRONMENT

3 IDENTIFY IMPACT OF ALTERNATIVE SOLUTIONS ON THE ENVIRONMENT, AND MITIGATING MEASURES

4 EVALUATE ALTERNATIVE SOLUTIONS: IDENTIFY RECOMMENDED SOLUTIONS

CONSULT REVIEW AGENCIES & PUBLIC re: PROBLEM OR OPPORTUNITY AND ALTERNATIVE SOLUTIONS

6 SELECT PREFERRED SOLUTION

REVIEW & CONFIRM CHOICE OF SCHEDULE

APPROVED MAY PROCEED

SCHEDULE A

IF NO ORDER* MAY PROCEED

ORDER * GRANTED, PROCEED WITH INDIVIDUAL E.A. OR ABANDON PROJECT

OPPORTUNITY FOR ORDER * REQUEST TO MINISTER WITHIN 30 DAYS OF NOTIFICATION

NOTICE OF COMPLETION TO REVIEW AGENCIES & PUBLIC

SCHEDULE B

SCHEDULE C

INDIVIDUAL E.A.

1 IDENTIFY ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED SOLUTION

2 DETAIL INVENTORY OF NATURAL, SOCIAL AND ECONOMIC ENVIRONMENT

3 IDENTIFY IMPACT OF ALTERNATIVE DESIGNS ON ENVIRONMENT, AND MITIGATING MEASURES

4 EVALUATE ALTERNATIVE DESIGNS: IDENTIFY RECOMMENDED DESIGN

5 CONSULT REVIEW AGENCIES & PREVIOUSLY INTERESTED & DIRECTLY AFFECTED PUBLIC

6 SELECT PREFERRED DESIGN

REVIEW ENVIRONMENTAL SIGNIFICANCE & CHOICE OF SCHEDULE

7 PRELIMINARY FINALIZATION OF PREFERRED DESIGN

DISCRETIONARY PUBLIC CONSULTATION TO REVIEW PREFERRED DESIGN

WE ARE HERE

1 COMPLETE ENVIRONMENTAL STUDY REPORT (ESR)

2 ENVIRONMENTAL STUDY REPORT (ESR) PLACED ON PUBLIC RECORD

NOTICE OF COMPLETION TO REVIEW AGENCIES & PUBLIC

COPY OF NOTICE OF COMPLETION TO MOE-EA BRANCH

3 OPPORTUNITY TO REQUEST MINISTER WITHIN 30 DAYS OF NOTIFICATION TO REQUEST AN ORDER *

OPTIONAL FORMAL MEDIATION (See Section A.2.8.2)

ORDER * GRANTED, PROCEED AS PER MINISTER'S DIRECTION OR ABANDON PROJECT

MATTER REFERRED TO MEDIATION

ORDER * DENIED WITH OR WITHOUT MINISTER'S CONDITIONS

1 COMPLETE CONTRACT DRAWINGS AND TENDER DOCUMENTS

2 PROCEED TO CONSTRUCTION AND OPERATION

3 MONITOR FOR ENVIRONMENTAL PROVISIONS AND COMMITMENTS

NOTE: THIS FLOWCHART IS TO BE READ IN CONJUNCTION WITH PART A OF THE MUNICIPAL CLASS EA

* PART II ORDER (SEE SECTION A.2.8)

INDICATES POSSIBLE EVENTS

INDICATES MANDATORY EVENTS

INDICATES PROBABLE EVENTS

PROCESS TO BE FOLLOWED FOR SCHEDULE 'C' PROJECTS

MANDATORY PUBLIC CONTACT POINTS

DECISION POINTS ON CHOICE OF SCHEDULE

OPTIONAL

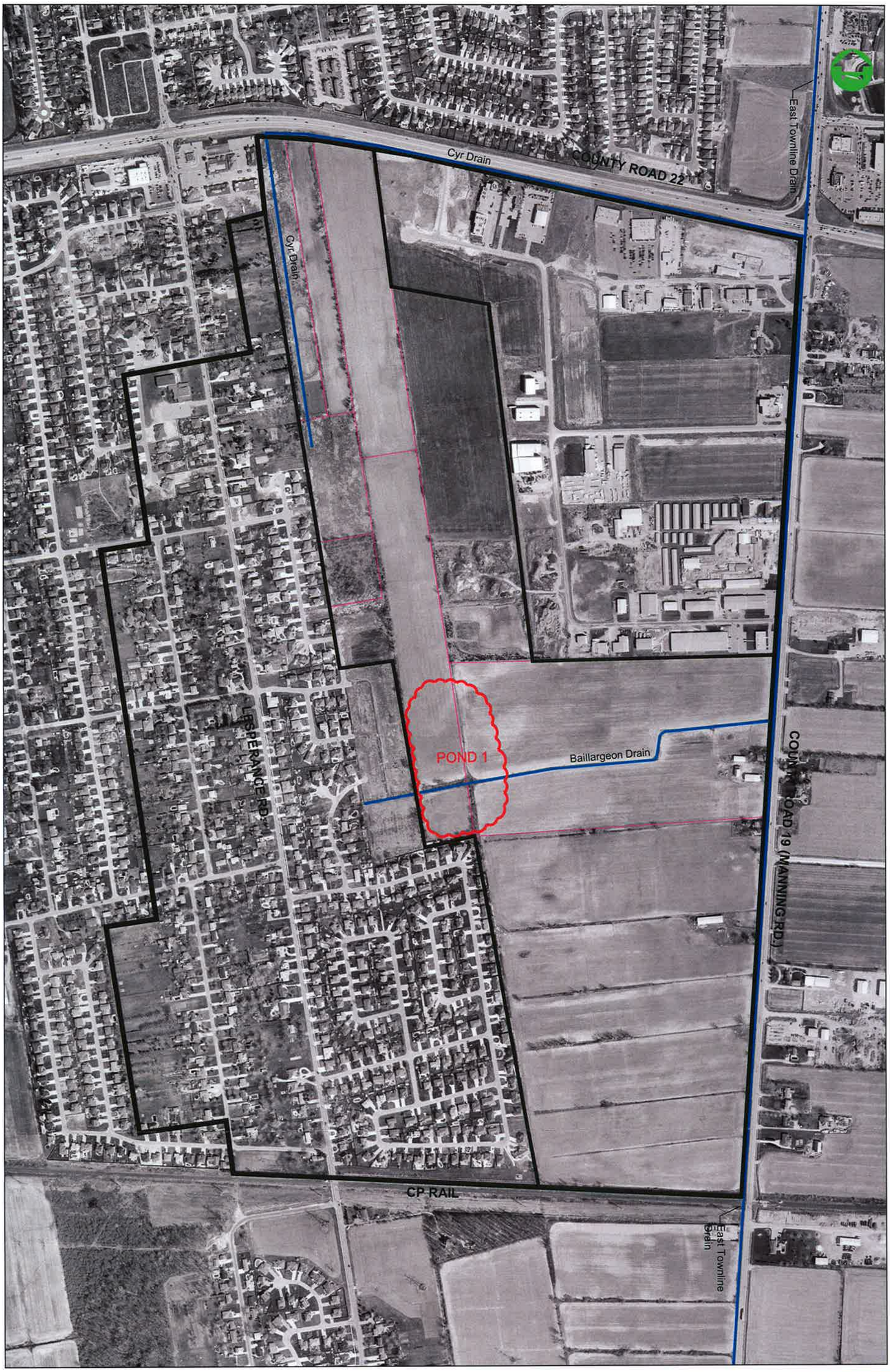
DILLON CONSULTING

Manning Road Secondary Plan Area
Stormwater Management Study
Class Environmental Assessment

CLASS EA PROCESS

DECEMBER 2006 | Project No. 04-4139

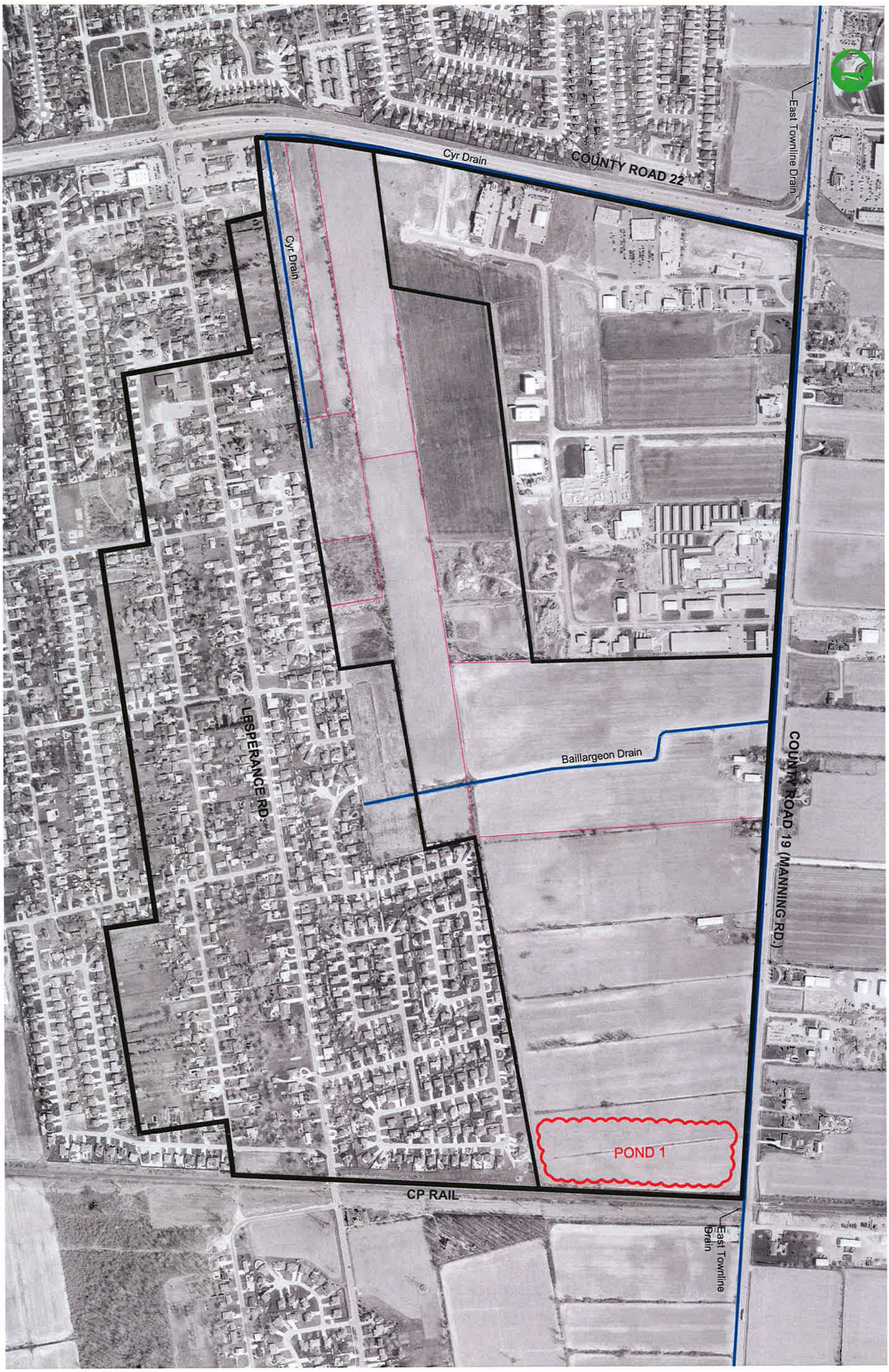
Dec 05, 2006 - 1:34pm G:\CAD\044139\PIC2\v4.39-EA Process.dwg



DILLON CONSULTING

TECUMSEH

DECEMBER 2006	MANNING ROAD SECONDARY PLAN AREA STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT
Project No. 04-4139	
PIC # 2	ALTERNATIVE SOLUTION 1 - REGIONAL CENTRAL POND



DILLON CONSULTING

TECUMSEH

DECEMBER 2006

Project No. 04-4139

PIC # 2

MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY - CLASS ENVIRONMENTAL ASSESSMENT

ALTERNATIVE SOLUTION 2 - REGIONAL CPR POND

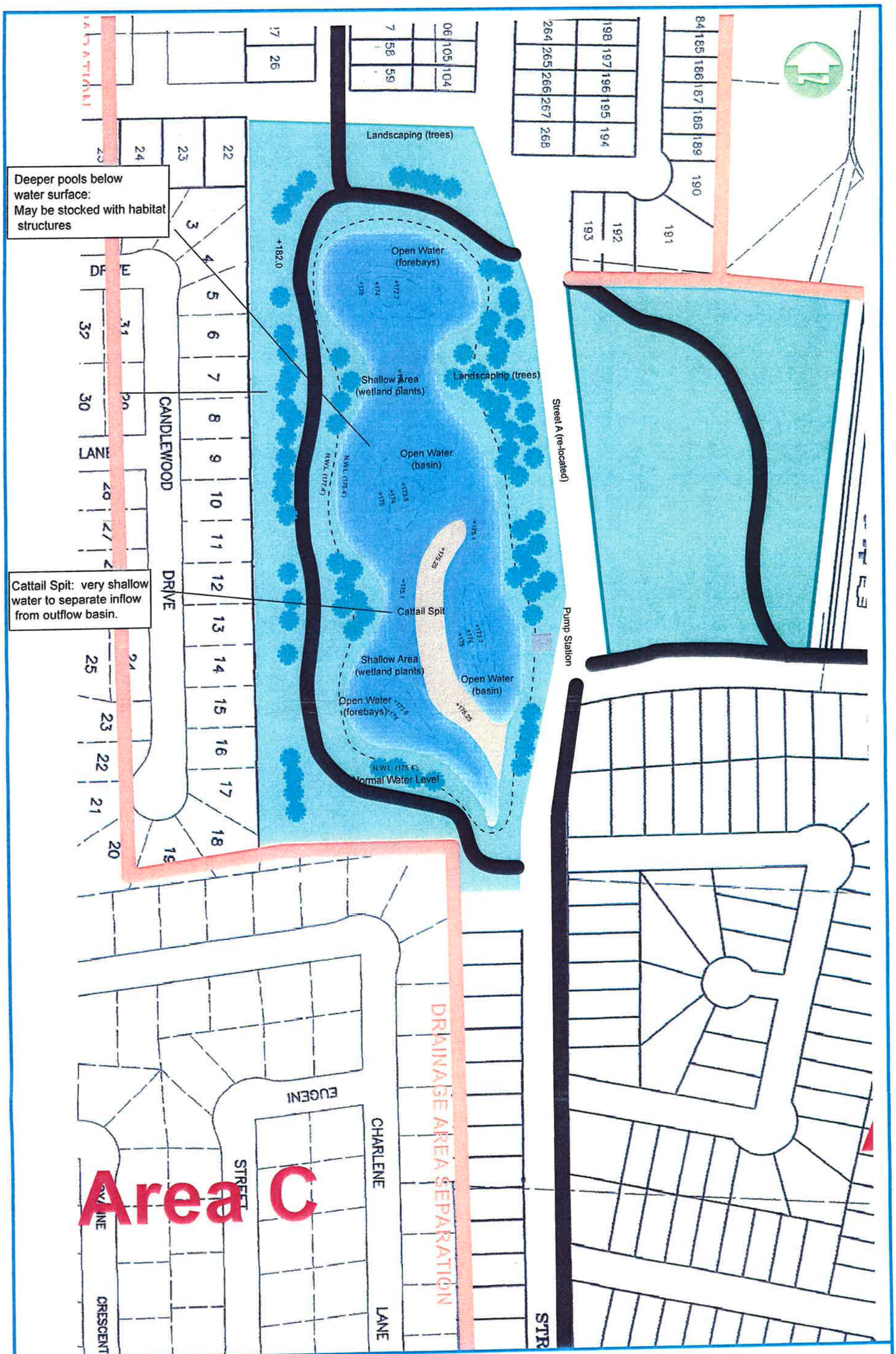
DILLON CONSULTING

DECEMBER 2006

Project No. 04-4139

MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN 1 - REGIONAL CENTRAL POND



DILLON CONSULTING

DECEMBER 2006

Project No. 04-4139

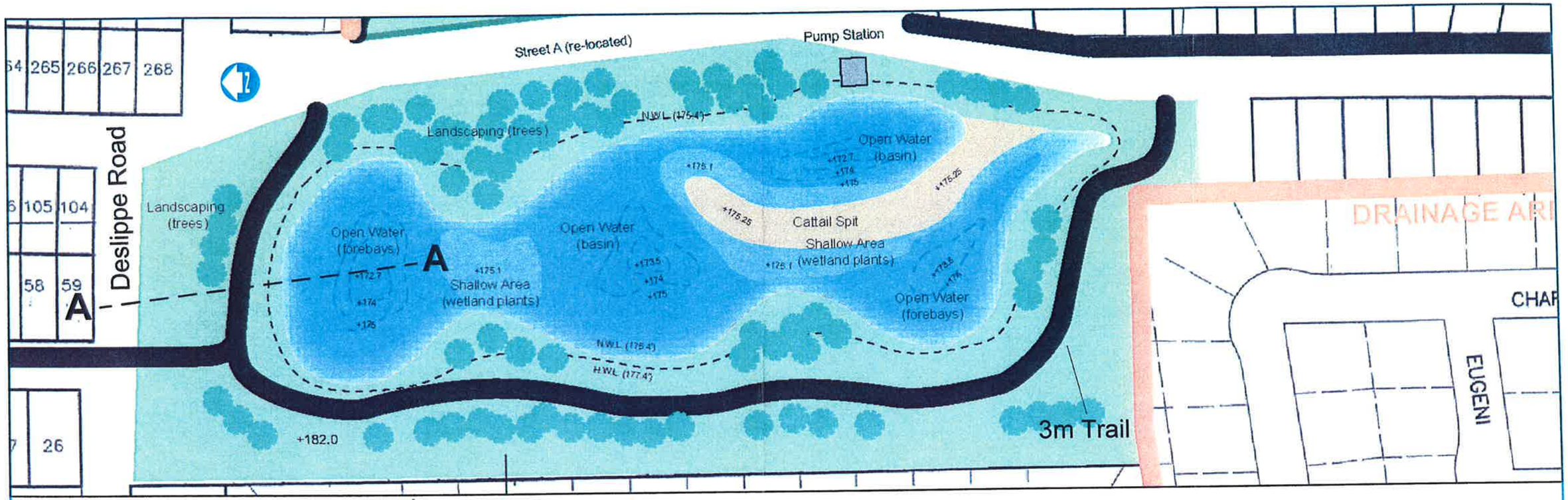
Path Network

Pump Station

Trees

MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN 1 - REGIONAL CENTRAL POND



CROSS SECTION A - A
(From Deslippe Road to Pond)

DILLON CONSULTING

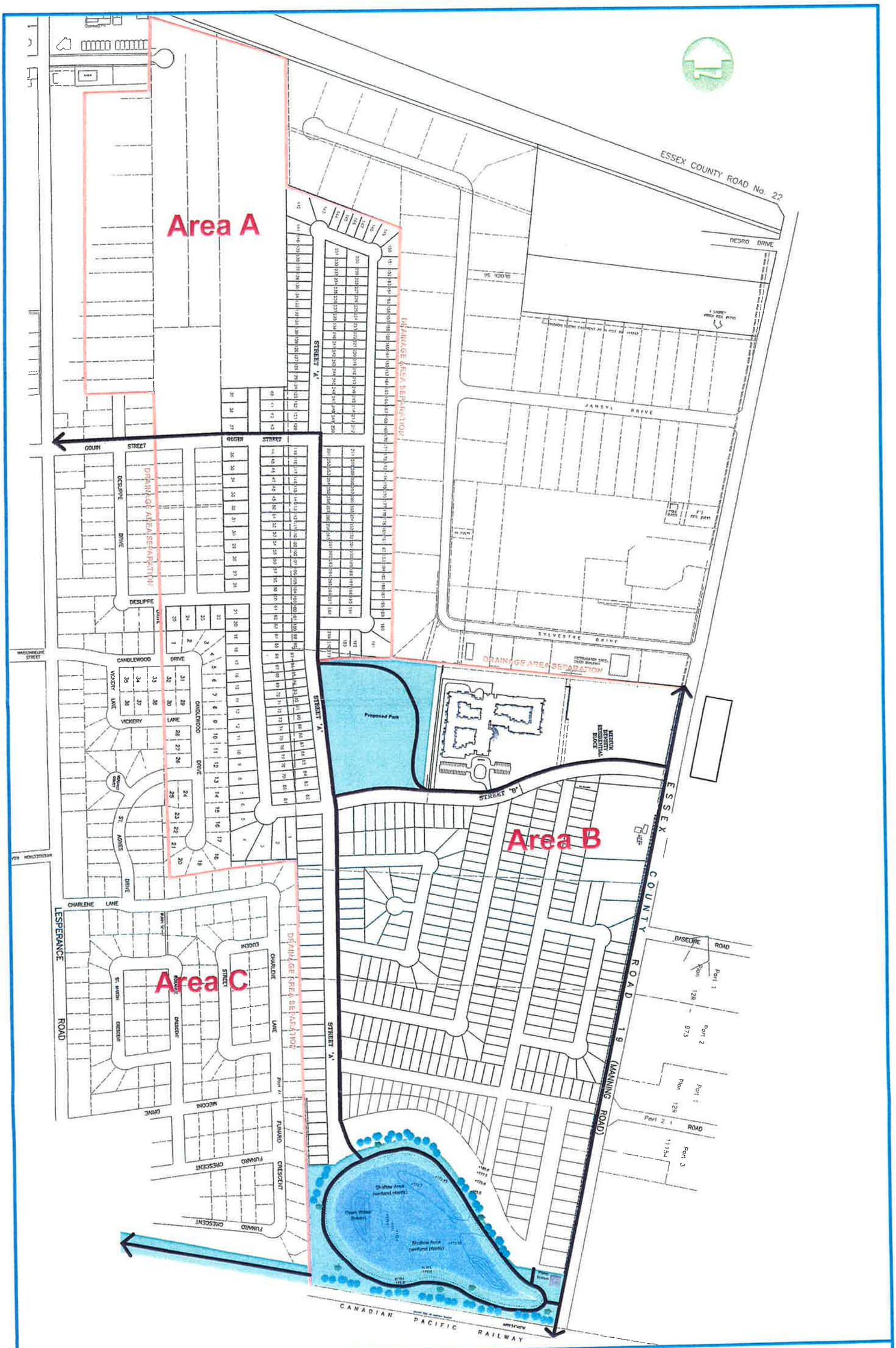
DECEMBER 2006

Project No. 04-4139-8000

Manning Road Secondary Plan Area
Stormwater Management Study

RECOMMENDED DESIGN 1
REGIONAL CENTRAL POND
PROFILE VIEW

Dec 05, 2006 - 1:35pm G:\CAD\044139\PIC2\Cross Section Alternative 2.dwg



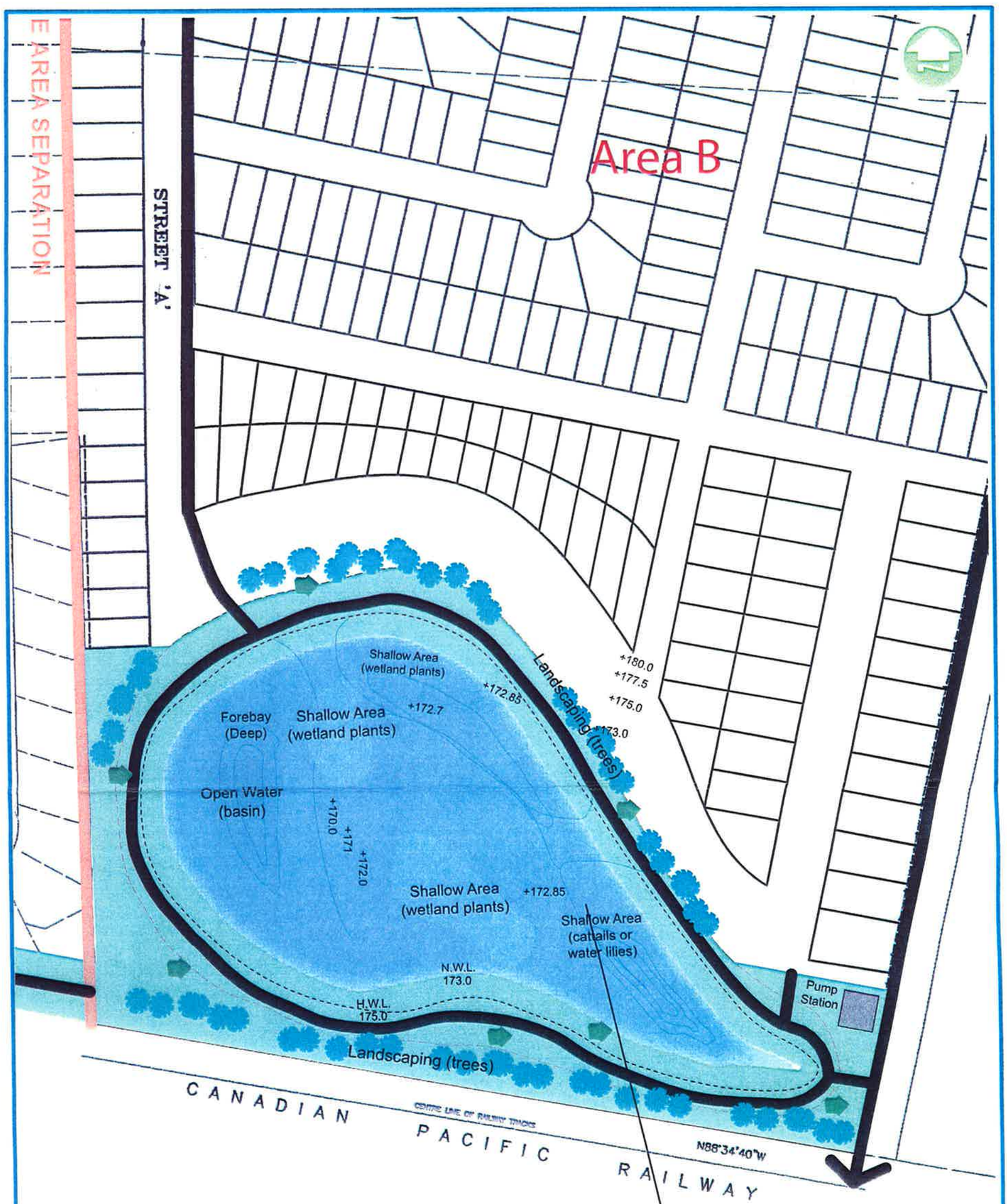
DILLON CONSULTING

DECEMBER 2006

Project No. 04-4139

MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN 2 - REGIONAL CPR POND



Cattails:
Large area of cattails to minimize landing area of geese.

Information:

- Habitat Feature: Bird, Bat Boxes
- Path Network
- Pump Station
- Trees

DILLON CONSULTING

DECEMBER 2006

Project No. 04-4139

MANNING ROAD SECONDARY PLAN AREA
STORMWATER MANAGEMENT STUDY CLASS ENVIRONMENTAL ASSESSMENT

RECOMMENDED DESIGN 2 - REGIONAL CPR POND

Manning Road Secondary Plan Area
Stormwater Management Study
Recommended Design Evaluation

Recommended Design Evaluation Matrix

Description / Evaluation Criteria	Recommended Design 1 Regional Central Pond	Recommended Design 2 Regional CPR Pond
Technical Impacts		
Area of Facility (or Facilities)	Low • Efficiency of single pond reduces total lands required	Medium • Efficiency of single pond reduces total lands required • Total area increases over recommended design 1 since pond is at the highest point of drainage area
Level of Water Treatment	High • Wet pond meets Provincial treatment level requirements for stormwater quality	High • Wet pond meets Provincial treatment level requirements for stormwater quality
Stormwater Detention Time	High • Wet pond meets Provincial requirements for stormwater detention time	High • Wet pond meets Provincial requirements for stormwater detention time
Integration with Overland Flow Routes	High • Wet pond can be integrated with overland stormwater flow routes	High • Wet pond can be integrated with overland stormwater flow routes
Capacity of the East Town Line Drain	High • East Townline Drain can serve as an adequate outlet for the pond	High • East Townline Drain can serve as an adequate outlet for the pond
Treatment for Existing Developed Areas	Low • Some treatment of existing stormwater flows can be provided in the Baillargeon Drain	Low • No treatment of existing Baillargeon Drain stormwater flows can be provided in the
Economic Impacts		
Disruption to Existing & Proposed Businesses	Low • Little or no disruption	Low • Little or no disruption
Loss of Developable Land	High • Prime residential property in the central area would be required for this alternative	Low • Land at the CPR Railway may be difficult to market as residential, therefore the impact of losing this land for a pond is low
Environmental Impacts		
Impact on Terrestrial Environment	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area	Low • Loss of common meadow-type vegetation and wildlife • No significant natural areas occur within the study area
Impact on Aquatic Environment	Low • No loss of fish habitat or fish refuge in the existing drainage systems	Low • No loss of fish habitat or fish refuge in the existing drainage systems
Control of Waterfowl Communities	Low • Central location of pond adjacent to proposed parkland may encourage the development of waterfowl communities	Medium • Location of pond away from proposed parkland may discourage the development of waterfowl communities
Control of Mosquito Larvae	High • A fountain can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae	High • A fountain can be installed to promote surface water action, which discourages growth of mosquito larvae • Use of natural wind patterns promotes surface water action, which discourages growth of larvae
Cultural Impacts		
Effect on Cultural Resources	Low • No cultural resources will be affected	Low • No cultural resources will be affected
Social Impacts		
Disruption of Existing Land Use	Medium • Loss of existing agricultural land	Medium • Loss of existing agricultural land
Integration of Wet Ponds as a Community Amenity	High • Integration of pond with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity	High • Integration of pond with proposed parkland and recreational open spaces, including bicycle and pedestrian connectivity
Public Safety of the Ponds	High • Gradual side slope of pond promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education	High • Gradual side slope of pond promotes public safety • Shoreline vegetation discourages public trespassing • Signage and pubic education
Cost		
Capital Cost of Treatment Facilities	Low • A single pond reduces the cost of construction	Medium • A larger single pond at the highest point of the drainage area increases the cost of construction
Capital Cost of Trunk Sewers	Low • Size and length of trunk sewers will be minimized for centrally located pond	Medium • Size and length of trunk sewers will be increased for pond located at the highest point of the drainage area
Capital Cost of Pump Station(s)	Low • Construction of one stormwater pumping station is required	Low • Construction of one stormwater pumping station is required
Operational & Maintenance Cost of Pump Station(s)	Low • One stormwater pumping station needs to be operated and maintained	Low • One stormwater pumping station needs to be operated and maintained
Operational & Maintenance Cost of Treatment Facilities	Low • One stormwater facility needs to be operated and maintained	Low • One stormwater facility needs to be operated and maintained
Concluding Comments		Recommended Solution

DILLON CONSULTING

How Can I Provide My Comments On This Presentation?

After you have reviewed this information and talked to members of the Project Team, please take the time to complete a Comment Sheet. These are available at the front desk.

Your Input
IS
Important To The Success Of This Study

You may fill in your comment sheet and hand it in before you leave or mail it to the address indicated before December 19th, 2006.

THANK YOU FOR
ATTENDING THIS PRESENTATION

TECUMSEH

DILLON
CONSULTING

APPENDIX J

PUBLIC INPUT AT PIC #2

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre #2
December 5, 2006

Record of Attendance
(Please Print Neatly)

Name	Mailing Address/Postal Code
Demitri Iatridis	2095 Lesperance
STEVEN VALENTE	25 Army Croft Dr. Suite 23B
Cheryl Haldenstile	Tecumseh Tribune
JANET FRANKOWSKI	12378 FUNARO CRES
PAUL MORAND	1921 LESPERANCE RD
Gerald Malofey	12372 Chanlene Lane
Jim Sylvestre	1865 manning
JEFF SYLVESTRE	" "
Fran Ferguson	1865 St Anne
Gray McNamara	Mayor c/o 917 Lesperance Rd.

DILLON
CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre #2
December 5, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below by December 19th 2006.

Please complete the following information for our records *(Please print neatly)*.

Name: Paul Morand Address: 1921 Lesperance

Telephone: _____ e mail: _____

Comments:

- in support of CPR Road

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre #2
December 5, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below by December 19th 2006.

Please complete the following information for our records *(Please print neatly)*.

Name: Janet Frankowski Address: 12378 Tunaro

Telephone: _____ e mail: _____

Comments: - flooding in her (~~front~~) basement
- sump pump is working - but over working
- slanting down into her yard?
- concerned w/ where (or to what drain) the water is going to

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre #2
December 5, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below by December 19th 2006.

Please complete the following information for our records *(Please print neatly)*.

Name: Demith lahidis   Address: 2045 Lesperance

Telephone: ______   e mail: ______

Comments:

- CPR Pond is preferred
- happy w/ park amenity
- currently have flooding in his back yard
- hopefully these proposals will help w/ flooding

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON
CONSULTING

L. Chadwick

Manning Road Secondary Plan Area - Stormwater Management Study
Class Environmental Assessment
Public Information Centre #2
December 5, 2006

Public Comments

Thank you for attending this public information centre. We trust you have found the information helpful in understanding the scope of this project. If you wish to provide further comments related to this project, you may complete this form and leave it at the door, or return to the address below by December 19th 2006.

Please complete the following information for our records *(Please print neatly)*.

Name: Fran Ferguson

Address: 1363 St Anne Street Tecumseh

Telephone: 519-979-5779

e mail: franferguson@yahoo.com

Comments: I found both the poster board presentation and the booklet very logical, informative, well thought out, well researched, well written, easy to understand without too much technical jargon. The side-by-side comparison was extremely well done and left no doubt in my mind. Of the second proposed is the better one!! Even though we are not directly affected by the Plan at this time, I found it very interesting to be able to come out to see what was going on and to be able to voice my opinion! It looks for a job well done!

Sincerely, Fran Ferguson.

Mr. Jim Breschuk, P.Eng.
Dillon Consulting Limited
3200 Deziel Drive
Suite 608
Windsor, Ontario
N8W 5K8
Telephone No.: (519) 948-5000
Fax No.: (519) 948-5054
email: jbreschuk@dillon.ca

DILLON CONSULTING

APPENDIX K

REGIONAL CPR POND - COST ESTIMATE

TABLE 8.1

PREFERRED DESIGN
REGIONAL CPR POND

COST ESTIMATE

1	**TRUNK STORM SEWERS**			
	a) 750 mm dia., Concrete A257.2 65-D	120m @ $400.00/m	$	48,000.00
	b) 1500 mm dia., Concrete A257.2 65-D	350m @ $1,000.00/m	$	350,000.00
	c) 1350 mm dia., Concrete A257.2 65-D	90m @ $900.00/m	$	81,000.00
	d) 1200 mm dia., Concrete A257.2 65-D	640m @ $700.00/m	$	448,000.00
	e) 1050 mm dia., Concrete A257.2 65-D	110m @ $600.00/m	$	66,000.00
	f) 900 mm dia., Concrete A257.2 65-D	330m @ $500.00/m	$	165,000.00
	g) 1650 mm dia., Concrete A257.2 65-D	210m @ $1,100.00/m	$	231,100.00
2	**STORM MAINTENANCE HOLES**			
	a) 1800mm dia, precast concrete	1 unit @ $7,000.00	$	7,000.00
	b) 2400mm dia, precast concrete	7 units @ 11,000.00	$	77,000.00
	c) 3000mm dia, precast concrete	6 units @ $14,000.00	$	84,000.00
3	**STORMWATER MANGEMENT POND**	300,000m^3 @ $10.00/$m^3$	$	3,000,000.00
4	**PLANTING, LANDSCAPING, TRAILS**		$	1,750,000.00
5	**STORMWATER PUMPING STATION**		$	750,000.00
		SUB-TOTAL	**$**	**7,057,100.00**
		PROFESSIONAL SERVICES	**$**	**750,000.00**
		TOTAL COST	**$**	**7,807,100.00**