About this Overview

This document summarizes the information and format requirements of a typical Conceptual Stormwater System Report. The purpose of the report is to identify the recommended conceptual design for storm/drainage and stormwater management (SWM) servicing for a proposed development. This overview is intended to standardize the content and limit scope creep at the conceptual design level stage promoting consistency in submitted studies.

About Conceptual Stormwater System Designs

The requirement to complete a Conceptual Stormwater System Report may be identified at the Proposal Review Meeting and clearly noted in the Record of Consultation.

Conceptual Stormwater System Reports determine the land requirements for proposed SWM infrastructure by confirming that appropriate criteria, drainage areas and outlet assumptions have been applied. Conceptual SWM designs must support engineering evaluations and calculations. Other relevant information must be in accordance with the standards, requirements, policies, Acts/Regulations, and/or By-laws of the City of London and all applicable approval agencies.

Separate detailed technical guidelines and design standards are listed at the end of this document and are available online through the File Manager Web Resource at www.london.ca and navigate to Home > Business > Planning > File Manager.

Preparing a Conceptual Stormwater System Report

If required, Conceptual Stormwater System Reports will be submitted to the City as part of a Complete Draft Plan of Subdivision Application package. The report should provide sufficient information regarding stormwater system land and outlet demands to craft appropriate conditions of Draft Plan Approval.

When preparing a Conceptual Stormwater System Report, Applicants are encouraged to maintain open dialogue with the Stormwater Management Division. Applicants should follow this overview and the Conceptual Stormwater System General Requirements Checklist. This ensures the appropriate level of supporting detail is attained and provided for each required section. Every application is unique with its own servicing challenges.

Additional information requirements may be requested at the Proposal Review Meeting. However, the City must follow this template when requesting information ensuring that functional level detail does not creep into conceptual level reviews. Defining appropriate levels of detail is expected to expedite processing of applications and avoid delays in approvals.
Hydrologic/Hydraulic Modelling

Existing and post-development condition modelling is a critical component of a Conceptual Stormwater System Report providing the foundation for the conceptual design through hydrologic, hydraulic and erosion control analysis. All modelling input and output files must be included as an appendix to the report with a digital copy included on an attached CD or DVD. A modelling schematic must also be provided showing the various commands applied in simulating the stormwater basin. Sample model schematics for both existing and post-development scenarios have been provided in this overview as Figures 1 & 2.

All modelling parameters should be consistent with the Council Approved Standards identified in the City of London Design Specifications and Requirements Manual, available online through the Subdivision Approvals Process Web Resource.

Developments Served by Existing External SWM Infrastructure

Where a development is served by an off-site Stormwater Management system that has been constructed or designed by others, it is not necessary to complete a full Conceptual Stormwater System Report. Applicants can provide a Stormwater Letter of Confirmation referencing the design study for the existing SWM infrastructure and confirming sufficient capacity and conveyance is available to serve the proposed development. If the proposed development alters the drainage area or does not reflect the parameters assumed for the existing facility, it may be necessary to provide updated modelling to support the claim of available capacity.

Comments received at the Proposal Review Meeting and the Record of Consultation will identify when a Stormwater Letter of Confirmation is acceptable for inclusion in a Complete Draft Plan of Subdivision Application.

Required sections of a Conceptual Stormwater System Report

A complete Conceptual Stormwater System Report must provide supporting background and design information as outlined in each required section described in this overview. This document also provides samples of required exhibits and modelling schematics illustrating preferred format and necessary elements.

A Conceptual Stormwater System Report contains the following required components:

- Title Page
- Executive Summary
- Table of Contents
- General Requirements Checklist – Include printout of Checklist marking applicable items.
- Introduction/Background
- Main Body – Required sections described herein. (1.0 -4.0)
- Conclusions/Recommendations
- Appendices
  - Required Exhibits: samples provided herein
  - Modelling Input/Output Files and Schematics
  - Note supporting reports

The main body required sections of a Conceptual Stormwater System Report are described below (1.0-4.0).
1.0 Introduction/Background

Provide a brief overview of the subject area and proposed stormwater management system report and provide a short background summary for the proposed SWM infrastructure. Referencing the appropriate Subwatershed Area Study, provide summary and background information for the subject lands.

Reference any completed Master Servicing Plan and/or Municipal Class EA studies applicable to the subject land and related to the proposed SWM infrastructure. Include the approval status of these studies.

2.0 Existing Conditions

The existing conditions section provides a descriptive inventory of the pre-development water resources conditions, functions and features for the subject lands. This section should summarize the existing hydrologic, hydraulic, geotechnical, topographic conditions and fluvial morphological (if applicable).

Provide an exhibit outlining the existing sub-catchment areas. This drawing should also illustrate other hydraulically significant features such as culverts, swales, creeks, and rivers. In addition, arrows outlining the general direction of existing drainage patterns for minor and major flows should be included.

Modeling is a critical component of the existing conditions hydrologic/hydraulic and erosion control analyses. Each catchment area should be given a unique identification code that corresponds to the hydrological model and accompanying schematic. A sample Existing Conditions Exhibit is included in this overview as Figure 3.

Describe the key elements of the existing conditions models noting the applied modelling parameters and assumptions. All modelling parameters should be consistent with the Council Approved Standards identified in the City of London Design Specifications and Requirements Manual. Provide existing condition modelling input and output files and model schematic in the appendices of the report.

3.0 Proposed Post-Development Stormwater Servicing Works

This section should summarize the proposed hydrologic, hydraulic, geotechnical, topographic conditions and fluvial morphological (if applicable). A water balance assessment may be required and will be noted at the Proposal Review Meeting if that is the case.

Provide a drawing outlining the post-development sub-catchment. This drawing should also include other hydraulically significant features that will continue to remain and those features that are to be changed as part of the development. In addition, arrows outlining the general direction of the proposed minor and major flow regime should also be included.

Modeling the post-development hydrologic conditions is a critical component of the conceptual design. Each catchment should be given a unique identification code that corresponds to the hydrological model and the model’s schematic. An example of a Post-development Conditions Exhibit has been included as Figure 4.

Describe the key elements of the post-development conditions models noting the applied modelling parameters and assumptions. All modelling parameters must be consistent with City standards. Provide post-development condition modelling input and output files and model schematic in the appendices of the report.

The proposed SWM infrastructure location and layout should be illustrated in the Post-development Conditions Exhibit.
4.0 Conclusions
Summarize the conclusions and recommendations based on the findings of the Conceptual Stormwater System Report. Note any special considerations to be reflected in the proposed draft plan or future functional and detailed designs.

Appendices
The following appendices should be included in complete Conceptual Stormwater System Report:

- Exhibits: include clear graphics following the samples provided in this overview
- Hydrologic/Hydraulic input and output modelling files: include model schematic and copies of digital modelling files on CD/DVD
- References: note any supporting background reports (ie. Geotechnical, Hydrogeotechnical, Environmental Impact, etc.)

Submitting a Conceptual Stormwater System Report
Two spiral/cerlox-bound hard copies of the Conceptual Stormwater System Reports and its electronic (.pdf) equivalent must be submitted to the City as part of a complete Draft Plan of Subdivision Application. Digital modelling files are to be provided on a separate CD/DVD and included in each of the paper copies of the report.

Resources
The following additional resources are available through the Environmental and Engineering Services Department as well as online at through the File Manager Web Resource www.london.ca and navigate to Home > Business > Planning > File Manager.

- Conceptual Stormwater System General Requirements Checklist
- City of London Design Specifications and Requirements Manual
- City of London Stormwater Management Pond Design Guidelines