Stormwater Management Submission Requirements

Modeling Method

The following information must be included in the stormwater management submission from the Engineering Consultant on behalf of the Developer and shall be completed in accordance with the **Windsor/Essex Region Stormwater Standards Manual**, including any addendums issued thereafter. Additionally, the submission shall adhere to the City's **Standard Specifications** & **Engineering Best Practices**. **Stormwater management review fees** will be collected with the SWM plan submission for review by the City.

Please Note: This checklist **does not apply** to sites less than 2 hectares that have not been modeled. Please reference the Stormwater Management Submission Requirements - **Rational Method** for further information.

Total Site Area: m^2	**Total Number of Drainage Areas**

Check all boxes to confirm information has been provided within the submission:

COVER LETTER AND DESIGN BRIEF
Include the following:
☐ Summary of existing drainage conditions and flows from the site
☐ Assumptions made, general explanation of the proposal and the recommended storm conveyance/SWM control measures related to water quality & water quantity
☐ A description of the SWM design criteria with reference to regional standards relating to, at a minimum, the following: ▪ Conveyance system Level of Service; ▪ Quality control; ▪ Quantity control; ▪ Stress test/climate change requirements (if applicable) ▪ Erosion control (if applicable)

DRAWINGS
SITE SERVICING
☐ Drainage/catchment areas (size, elevations, etc.)
☐ All proposed and existing connections to municipal sewers and watermains. ▪ All redundant connections to be abandoned as per Best Practice BP1.3.3 ▪ Wye connections to combined sewers as per Best Practice BP1.1.1 ▪ Windsor Utilities Commission (WUC) approval is required for any water works
☐ Sanitary sampling manhole (non residential only) ▪ In accordance with Best Practice BP1.1.2
☐ Existing and new pipe information, including the diameter, slope, material & intended use (storm, sanitary, water, etc.)
☐ Any quantity and/or quality control measures identified with the model number
☐ Location, elevation and description of all catchbasins, manholes, underground storage units and any other structures, labelled existing or new
☐ Dimensions of all driveways at the property line and curb line ▪ Straight flares, with no raised curbs in the ROW as per AS-204 ▪ If the subject site fronts a rural cross section, AS-203 may be acceptable ▪ Ditch fills and culverts in accordance with AS-209A and Best Practice BP3.3.3
☐ Poles, pedestals and other vertical obstructions within the right-of-way (if applicable)
☐ Any removals within the right-of-way, including encroachments, sidewalks/leadwalks and redundant driveway approaches
☐ Property lines, including any required land conveyances
LOT GRADING
☐ Existing and proposed elevations, drainage areas, surface ponding, with maximum depths (5 & 100 year ponding elevations)
☐ All catchbasins, manholes, underground storage units and any other structures, labelled existing or new

DESIGN METHOD

Include the following in the main body of the document:

☐ Pre Development Condition Modelling and Analysis provided with the following:
- Existing drainage characteristics of the site, including soil type, adjacent watercourses/sewers.
- Modelling methodology and site input parameters.
- Model analysis results for uncontrolled flows from the site during the governing 2, 5 and 100-year storm events.
- Determined allowable site release rate and the associated calculations for the site.
- Sanitary flows must be taken into consideration when determining the allowable release rate for any development that outlets to a municipal combined sewer.

☐ Post Development Condition Modelling and Analysis provided with the following:
- Proposed drainage characteristics of the site, including recommended drainage outlet.
- Modelling methodology and site design input parameters.
- Assumptions made for boundary conditions at the storm outlet to account for backwater conditions on the future system.
- Model analysis results for uncontrolled flows from the site during the governing regional storm events.

☐ Stormwater Management Design with the following:
- Proposed outlet control structure design and model outlet flows for storms up to and including the 100-year event.
- Documentation of required and provided quantity control site storage.
- Considerations for stress test on the system & Climate Change, if applicable.
- Site Hydraulic Gradeline Elevations for the 100-year event and Climate Change event, if applicable in comparison to proposed finished floor elevations and minimum building openings.
- Proposed water quality control design strategy and technical design information.

☐ Hydrologic/Hydraulic Modelling
- SWM Model Schematic showing a plan view of the model setup, including drainage areas, conduits, junctions, storage nodes and orifices, with IDs.
- Modelling input files
- Modelling output files for the 5 and 100-year storm event

ADDITIONAL INFORMATION