

Site Grading, Erosion Control, Servicing & Stormwater Management Guidelines

SECTION 41 DEVELOPMENT AGREEMENTS (Site Plans)



Development & Technical Services

Engineering Development Division

Revised April 2003

REPORT FORMATS/SUBMISSION REQUIREMENTS

PURPOSE

The following information is to be included as part the submission requirements to be provided to the City of Kitchener – Development & Technical Services Department (Engineering), in order to satisfy the Grading, Servicing, and Storm Water Management (SWM) conditions as stated in the Section 41 Development Agreement.

ENGINEER'S QUALIFICATIONS

A “registered” Professional (Civil) Engineer, specializing in Municipal/Hydrology must endorse all design drawings and reports for Grading, Erosion Control, Site Servicing and Storm Water Management. A “registered” Professional Engineer, specializing in hydrogeological studies must endorse any geotechnical analysis. All engineers must be operating under a Certificate of Authorization issued by the Professional Engineers of Ontario.

All drawings and reports prepared by the professional engineer are to be sealed, signed & dated.

As the grading and storm water management designs are inter-related it is required that the engineer and/or engineering firm that designed the site grading also develop the storm water management scheme.

COORDINATION OF DRAWINGS

It is imperative that the engineer responsible for storm water management coordinate all related drawings, details and specifications through the prime consultant to ensure they are compatible with the approved site plan, architectural plans, and landscaping plans, etc. Drawings that are not compatible with the other disciplines may result in undue delays in clearing the conditions of the Development Agreement.

SUBMISSIONS REQUIREMENTS

In order for Development & Technical Services (Engineering) to commence the review of a development proposal the following number of reports and drawings are required:

- SWM Reports** (2 copies – see note 1)
- SWM Plans** (2 copies – see note 2)
- Existing Conditions Plans** (2 copies – see note 3)
- Grading & Erosion Control Plans** (2 copies – see note 2)
- Site Servicing Plans** (2 copies – see note 2)
- Soils Investigation Report** (1 copy – see note 4)

NOTES:

1. *All reports are to be bound with a pocket provided at the rear of the report for insertion of plans.*
2. *May be incorporated into one legible plan, standard size (2' x 3'). The City reserves the rights to return all reports and plans that are deemed incomplete or onerous to review.*
3. *The existing conditions plan must be separate drawing.*
4. *Soils report must be supplied by a geotechnical firm operating under appropriate authorizations (professional engineer).*

GRADING AND DRAINAGE CONTROL (AGREEMENT SECTION 3)

This section deals with the grading, and erosion control requirements of the proposed development. The following drawings are to be enclosed with the SWM Report that is submitted to Development & Technical Services (Engineering Development Division):

EXISTING CONDITIONS PLAN

This plan will be used as a benchmark for all future development on the site and is required in order that the City may familiarize themselves with the present site conditions. In addition, this plan will be used to validate the pre-development parameters to be used in the **pre-development** storm water management modeling. The professional responsible for the preparation of this plan must seal the plan with their professional seal (ie. Professional Engineer, OLS, CET). **The requirement for this plan may not be substituted by information illustrated jointly or wholly on other required plans.**

The following information is required to be shown on this plan:

- 1) Drawing to be completed in Metric (SI Units) to a measurable scale on D-Size (24"x36" / 610mmx914mm)
- 2) Geodetic Benchmark
- 3) Legend
- 4) North Arrow
- 5) Municipal Address
- 6) Professional seal (signed & dated)
- 7) Key Plan
- 8) Legal Property Description
- 9) Property lines and all applicable bearings and distances of each property line
- 10) Street Names
- 11) Site Area (in hectares)
- 12) Contours to be drawn to 0.5m intervals minimum. Flat areas may require contours to be drawn at closer intervals in order to define drainage patterns. Contours to extend beyond the property line to a point which confirms the drainage on the neighbouring property will not be impeded by the proposed development.
- 13) Spot elevations are required at all lot corners and should be used to delineate depressions and ridges within the site.
- 14) Show all existing **site** surface features such as:
buildings, sheds, walkways, driveways, trees, fences, major drainage channels, surface texture (i.e. concrete, gravel, asphalt)
- 15) All existing above ground and underground services, within the **municipal road** allowance, fronting the site:
 - dimensions of road allowance/carriage ways/boulevards
 - location of sidewalks/hydrants/trees/utility poles/signs/storm & sanitary sewers/infiltration galleries/water & gas mains/manholes/catchbasins/curbs & gutters
 - diameter/length/slope/inverts of all storm and sanitary sewers
 - location and depth of all telephone and hydro ducts
 - elevations along centreline, top/bottom of curbs, and property line
- 16) Pre-development drainage boundaries and corresponding areas
- 17) Drainage patterns on neighbouring properties

NOTE: This plan will not be required if the proposed development is located within a registered plan of subdivision with an approved lot grading control plan.

If this plan is prepared by someone other than the Engineer responsible for the SWM design it is the Engineer's responsibility to ensure the accuracy of the Existing Conditions Plan for which the SWM design is based upon.

Each Existing Conditions Plan shall bear a note making reference to all other plans included with the SWM Report. Reference should also be made to the SWM Report itself, the date of the report and the Landscaping Plan (e.g. *This plan to be read in conjunction with the Grading and Erosion Control Plan, Site Servicing Plan, Storm Water Management Plan, Landscaping Plan, and the Storm Water Management Report dated _____*)

GRADING AND EROSION CONTROL PLAN

The Grading and Erosion Control Plan must illustrate how the site will be graded to provide erosion protection during the construction phase; how the final grading will ensure positive drainage away from all buildings; how the rainfall runoff will be directed to an approved outlet; and that the site grading is compatible with the neighbouring properties.

The site grading is to be implemented in a fashion to allow SWM to be implemented using both the minor and major drainage systems.

All grading of SWM facilities to be completed in accordance with the City of Kitchener's "*Design Principles for Storm Water Management Facilities - August 1996*" (available under separate cover from Development & Technical Services - Engineering).

The following information is required to be shown on this plan:

- 1) Drawing to be completed in Metric (SI Units) to a measurable scale
- 2) Geodetic Benchmark
- 3) Legend
- 4) North Arrow
- 5) Municipal Address
- 6) Professional Engineer's seal (signed & dated)
- 7) Key Plan
- 8) Legal Property Description
- 9) Property lines and all applicable bearings and distances of each property line
- 10) Street Names
- 11) Proposed grades
- 12) Top of foundation and/or finished floor elevation
- 13) Location of all proposed manholes and catch basins
- 14) Clear indication of where existing grades are to be matched
- 15) Direction of flow with corresponding gradient
- 16) Swales with corresponding gradient (see typical swale detail)
- 17) Top and bottom elevations of all curbing, retaining walls and embankments
- 18) Embankments 6: 1 or steeper to be shown using a series of alternating long and short lines with corresponding slope ratio.
- 19) Easements both aerial and land:
storm/sanitary/water/gas/hydro/Bell/cable/environmentally significant areas, etc.
- 20) Drainage patterns on neighbouring properties
- 21) Trees to be retained/protected, or removed
- 22) Location of all proposed stockpiles
- 23) Table of revisions
- 24) Silt Fencing
- 25) Sedimentation ponds
- 26) Check dams
- 27) Diversion swales
- 28) Erosion protection for catch basins and manholes
- 29) Construction details for swales, silt fencing, sedimentation ponds, check dams, diversion swales, erosion protection for catchbasins and manholes, mud mats, etc.

GRADING AND EROSION CONTROL PLAN (Continued)

EROSION CONTROL NOTES

Erosion control measures to be implemented in accordance with Grand River Conservation Authority (GRCA) guidelines entitled "Guidelines on Erosion and Sediment Control for Construction Sites -May 3, 1990." Sites may require diversion swales and a temporary sedimentation basin unless it is shown that the erosion index factor is low enough that such a facility is not warranted. The following standard notes are to be placed on the Grading and Erosion Control Plan along with the erosion control details:

- 1) All silt fencing to be installed prior to commencement of any area grading, excavating, or demolition.
- 2) Erosion control fencing to be placed around the base of all stockpiles. All stockpiles to be kept a minimum of 2.5m from all property lines.
- 3) Erosion protection to be provided around all storm and sanitary manholes and/or catchbasins as per the attached details.
- 4) Additional erosion control measures may be required as site development progresses. Contractor to provide all additional erosion control structures.
- 5) Erosion control structures to be monitored regularly by (Owners Representatives Name) and any damage repaired immediately. Sediments to be removed when accumulations reach a maximum of one third (1/3) the height of the silt fence.
- 6) All erosion control structures to remain in place until all disturbed ground surfaces have been re-stabilized either by paving or restoration of vegetative ground cover.
- 7) No alternate methods of erosion control protection shall be permitted unless approved by (Owners Representatives Name) and the City of Kitchener's Development & Technical Services Department (Engineering).
- 8) The Contractor is responsible for removing sediments from the municipal roadway and sidewalks at the end of each work day.
- 9) Mud mats to be provided on site at all locations where construction vehicles exit the site. Mud mats shall be a minimum of 3.0m wide, 15.0m long (length may vary depending on site layout) and 0.3m deep and shall consist of 200mm clear stone material or approved equivalent. Contractor to ensure all vehicles leave the site via the mud mat and that the mat is maintained in a manner to maximize its effectiveness at all times.
- 10) (Owners Representatives Name) to monitor the site development to ensure all erosion controls are installed and maintained to City requirements.
Contractor to comply with the Engineer's instructions to install, modify, or maintain erosion control works.

NOTE: It is the Site Owners' responsibility to ensure that all sediment controls are implemented and maintained in accordance with the above criteria.

The following additional notes are to be placed on all Grading and Erosion Control Plans:

- 1) The property owner is responsible for restoration of all damaged and/or disturbed property within the municipal right-of-way to City of Kitchener standards.
- 2) If, for unforeseen reasons, the Owner and/or his/her representative must encroach onto private lands to undertake any works, he/she must obtain written permission from the adjacent property owners prior to entering upon the private property to perform any works. Copies of these letters of consent must be submitted to the Development & Technical Services - Engineering Development Division, prior to any work being performed. Failure to comply with the above is at the property owners own risk.
- 3) Each Grading and Erosion Control Plan shall bear a note making reference to all other plans included with the SWM Report. Reference should also be made to the SWM Report itself, the date of the report, and the Landscaping Plan (e.g. This plan to be read in conjunction with the Existing Conditions Plan, Site Servicing Plan), Storm Water Management Plan, Landscaping Plan, and the Storm Water Management Report dated _____).

SITE SERVICING & SEWER CONNECTIONS (AGREEMENT SECTION 3)

This section of the agreement deals with the removal of any redundant service connections and the installation of all new connections to the property, all of which must be addressed prior to issuance of the Building Permit or opening of the facility to public use.

A Site Servicing Plan is to be completed which illustrates the location of all existing and proposed storm, sanitary, and water services from the street sewer or main to the property line. For developments which are implementing SWM measures the servicing plan shall show the entire storm system within the site. Termination of existing service connections and/or installation of new service connections will be completed, at the owners expense, by City forces unless otherwise specified by Development & Technical Services (Engineering). An application for the termination and/or installation of services and/or inspection fees is to be made to Development & Technical Services (Engineering). Upon receipt of all funds for the service connections and/or inspection fees, a work order will be generated authorizing the work to proceed.

SITE SERVICING PLAN

A Site Servicing Plan showing all internal site services for storm sewers and the location of sanitary manholes or cleanouts is to be included as part of the SWM report so that the City may assess the impact of the storm water management measures on these services and be satisfied that proper engineering practices have been applied to the design of the storm sewers.

NOTE: All sanitary manholes located within the storm water management ponding areas to be fitted with water tight covers, as per OPSD 401.050.

The following information is required to be shown on the Site Servicing Plan:

- 1) Drawing to be completed in Metric (SI Units) to a measurable scale
- 2) Geodetic Benchmark
- 3) Legend
- 4) North Arrow
- 5) Municipal address
- 6) Professional Engineer's seal (signed & dated)
- 7) Key plan
- 8) Street Names
- 9) All existing underground services to the **site** such as:
 - storm/sanitary laterals
 - water/gas services
- 10) Distance from curb to property line
- 11) Tie in dimensions for the position of new services to ensure connections are placed in the proper location
- 12) Notation of all existing services to be removed or disconnected
- 13) Proposed services from the street to the building including the following:
 - size and slope of all sewers and laterals, top of grate elevations and sewer inverts of all manholes and catch basins
- 14) Pipes located within frost zones to be insulated. Detail to be provided on plan.
- 15) Details for all appurtenances related to servicing to include the following:
 - all specialized engineered structures, pipe bedding, insulation, flow control device (see Section 3(d), for details, regarding orifice installations), weirs, rip rap
- 16) Specifications for all on-site storm sewers and sanitary/ water services to the property line (i.e. pipes, grates, manholes, catchbasins, seepage collars, etc.)
- 17) Location and size of all easements
- 18) Clear identification of works to be completed, within the municipal right-of-way, by the Developers Contractor (i.e. closing of redundant driveway entrances, curb & gutter replacement, curb cuts, sidewalks, boulevard restoration, etc.)

NOTE: It is the Engineer's responsibility to ensure the accuracy of the existing plant shown on the drawings submitted to the City for review. The City does not guarantee the accuracy of the information presented on any drawings that are obtained from the City, for design purposes.

SITE SERVICING PLAN (Continued)

STANDARD NOTES

The following notes are to be placed on all Site Servicing Plans:

- 1) The property owner is responsible for restoration of all damaged and/or disturbed property within the municipal right-of-way to City of Kitchener standards.
- 2) If, for unforeseen reasons, the Owner and/or his/her representative must encroach onto private lands to undertake any works, he/she must obtain written permission from the adjacent property owners prior to entering upon the private property to perform any works. Copies of these letters of consent must be submitted to Development & Technical Services – Engineering Development Division, prior to any work being performed. Failure to comply with the above is at the property owners own risk.
- 3) Each Site Servicing Plan shall bear a note making reference to all other plans included with the SWM Report. Reference should also be made to the storm water management report itself, the date of the report, and the Landscaping Plan (e.g. This plan to be read in conjunction with the Existing Conditions Plan, Grading and Erosion Control Plan, Storm Water Management Plan, Landscaping Plan, and the Storm Water Management Report dated _____.)

LETTERS OF PERMISSION

If it is shown on the plans that site servicing works will have to encroach onto neighbouring lands, the City of Kitchener will require letters of permission from each property owner affected by the proposed works. These letters must be received by Development & Technical Services – Engineering Development Division prior to receiving approval of the grading and erosion control plan, site servicing plan, storm water management plan, and storm water management report.

SITE STORMWATER MANAGEMENT (AGREEMENT SECTION 3)

This section of the agreement deals with the SWM requirements to be implemented into the engineering design for each property. In order to satisfy site plan conditions, a detailed SWM Report complete with all aforementioned drawings and a SWM Plan will be required. Listed below are the applicable studies and policies which dictate the SWM criteria for each development area. The project technologist assigned to your file will establish the criteria on a site specific basis. General information that is to be contained within the SWM brief is also provided for your reference.

All developments with a lot area of 0.1 hectares or greater in size are required to incorporate storm water management measures into the site engineering design.

STUDIES

There are several watershed studies/SWM Reports available for reference purposes. Certain new development areas may have been included within a registered plan of subdivision. The project technologist assigned your file can arrange for review of any relevant design information.

The following documents are available for review, in conjunction with any SWM Reports completed as part of a plan of subdivision, to establish the specific details relating to your development site:

- DETWEILER DRAINAGE STUDY**
- IDLEWOOD CREEK MASTER DRAINAGE PLAN**
- LAURENTIAN WEST MASTER DRAINAGE PLAN**
- STRASBURG CREEK MASTER WATERSHED PLAN -SEPTEMBER 1996**
- LAUREL CREEK WATERSHED STUDY**
- DOON SOUTH CREEK SUB-WATERSHED MANAGEMENT PLAN**
- BLAIR, BECHTEL & BAUMAN CREEKS SUB-WATERSHED PLAN**
- URBAN DRAINAGE POLICY -CITY OF KITCHENER**
- MASTER STORMWATER MANAGEMENT POLICY – JANUARY 2001**

Reference should be made to the "SCHNEIDER CREEK FLOODLINE MAPPING STUDY", completed on behalf of the Grand River Conservation Authority (GRCA), in conjunction with the nine aforementioned studies, for supplementary details regarding SWM criteria for those watersheds which are tributaries of the Schneider Creek.

DESIGN PARAMETERS FOR SWM FACILITIES

The City has developed a policy detailing the parameters that are to be incorporated into the engineering designs for all SWM facilities. Reference should be made to "*DESIGN PRINCIPLES FOR STORM WATER MANAGEMENT FACILITIES -AUGUST 1996*" for details. In the absence of sub-watershed planning, and for additional design details regarding SWM practices, the Ministry of Environment & Energy's (MOEE) "*STORM WATER MANAGEMENT PRACTICES, PLANNING AND DESIGN MANUAL - 1994*" is to be read in conjunction with the aforementioned policy.

PRE-ENGINEERING DESIGN MEETING

Development & Technical Services – Engineering Development Division recommends that an informal meeting be held with the storm water management engineer and the project technologist assigned your file in order to confirm the criteria to be applied to the development site prior to commencement of detailed design and drawing preparation.

STORM WATER MANAGEMENT PLAN

This plan will be used to validate the drainage patterns and parameters to be used in the **post-development** storm water management modeling.

The following information is required to be shown on this plan:

- 1.) Drawing to be completed in Metric (SI Units) to a measurable scale
- 2.) Geodetic Benchmark
- 3.) Legend
- 4.) North Arrow
- 5.) Municipal Address
- 6.) Professional Engineer's seal (signed & dated)
- 7.) Key Plan
- 8.) Legal Property Description
- 9.) Property lines and all applicable bearings and distances of each property line
- 10.) Street Names
- 11.) Post-development drainage boundaries and corresponding areas
- 12.) All proposed **site** surface features such as buildings, sheds, walkways, driveways, fences, surface materials (i.e. concrete, gravel, asphalt), patios
- 13.) Shade all limits of ponding water, including roofs. Label the maximum ponding elevation.
- 14.) Sanitary manholes located within the ponding limits are to be fitted with a water tight lid (OPSD 401.050)
- 15.) Location of all flow control roof drains and their applicable flow rates
- 16.) Overland flood route
- 17.) Maintenance access
- 18.) Design details for storm water management facilities: orifice installation, flow control structures, cross-sectional detail through pond, rip rap installation, soak-away pits, oil/grit separators, weirs
- 19.) Detailed maintenance recommendations.

For additional details regarding items 17 and 18 refer to "STORM WATER MANAGEMENT DETAILS" (page 11 of this document) and the City of Kitchener document "*Design Principles for Storm Water Management Facilities - August 1996.*"

STANDARD NOTES

Each SWM Plan shall bear a note making reference to all other plans included with the SWM Report. Reference should also be made to the storm water management report itself, the date of the report, and the Landscaping Plan (e.g. *This plan to be read in conjunction with the Existing Conditions Plan, Grading and Erosion Control Plan, Site Servicing Plan, Landscaping Plan, and the Storm Water Management Report dated _____*).

MAINTENANCE RECOMMENDATIONS

Your Section 41 Development Agreement, more specifically Section 6, requires that maintenance be provided (registered on title) for the life of the development. The Owner is responsible to ensure all storm water management facilities are functioning as designed. To aid property owners in complying with the development agreement a detailed maintenance recommendation must be included in the Storm Water Management Plan. The recommendation should include the following:

- 1.) Inspection of all structures and how often (minimum of once annually).
- 2.) Immediate repair or replacement of all worn, missing, and damaged structures.
- 3.) Removal of sediments and how often.
- 4.) Method of restabilization of all disturbed areas.
- 5.) Sediment disposal to be accordance with MOEE standards.

STORM WATER MANAGEMENT DETAILS

OIL/GRIT SEPARATORS

All fueling areas and loading docks where sediments and contaminants may collect are to be fitted with an accepted oil/grit separator. "Manhole" type OGS units are recommended.

Concrete separators used in areas subject to hazardous materials (i.e. petroleum, etc.) should be provided with an impermeable/resistant liner to guard against contamination of the concrete unit.

MAINTENANCE ACCESS

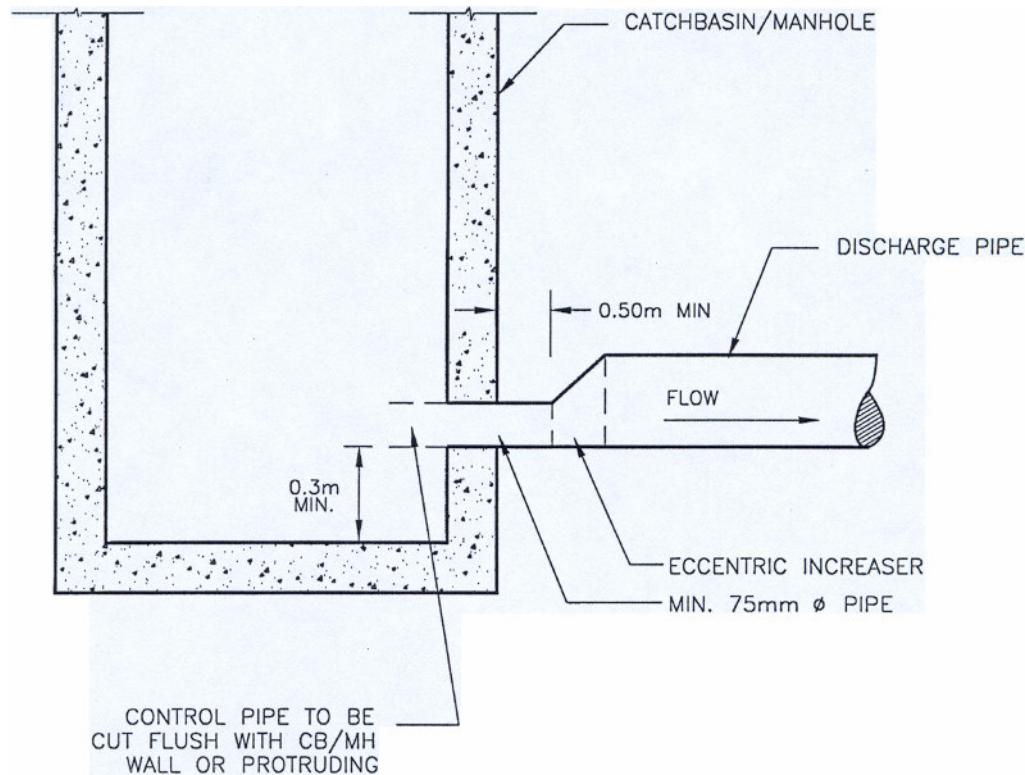
Maintenance accesses are required to any onsite SWM facilities. A minimum 4.0 metre wide hard surface (turfstone/asphalt) not exceeding 10% grade is preferred to allow for maintenance activities. Accesses should be designed to support heavy maintenance vehicles, with suitable turning radius for construction equipment (suggested 10.0 metre minimum).

ORIFICE INSTALLATIONS

Below are typical orifice installation details ranking in order of preference. These drawings are schematic and subject to detailed design by the engineer.

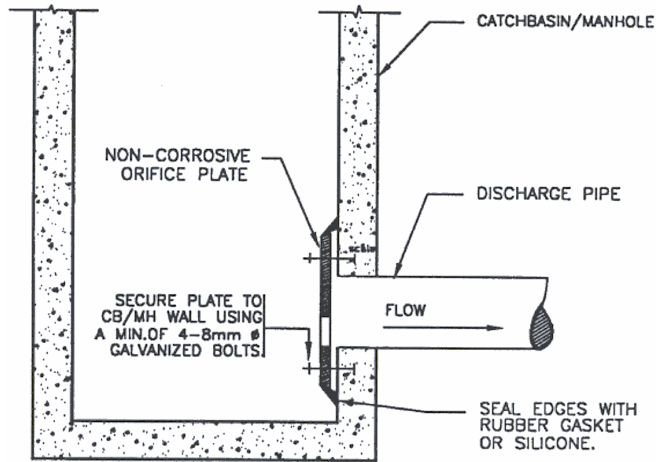
The minimum size of orifice to be used as an outlet control, without a trash rack, is 75mm. Orifices less than 75mm must be located within a perforated riser or trash rack that has smaller openings than the required orifice diameter.

ORIFICE DETAIL #1 -PIPE FLOW RESTRICTOR



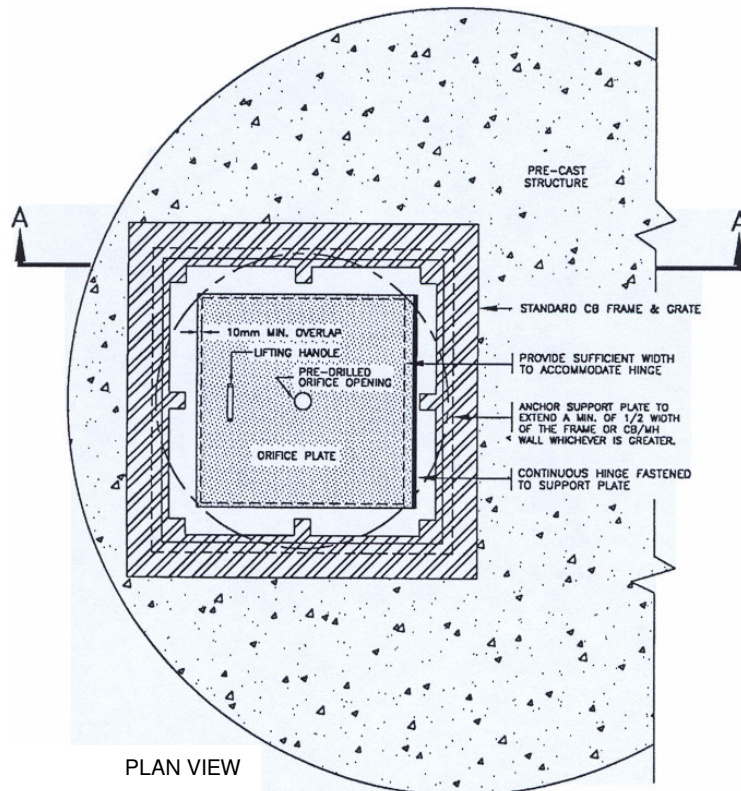
STORM WATER MANAGEMENT DETAILS (Continued)

ORIFICE DETAIL #2 -ON-LINE ORIFICE PLATE

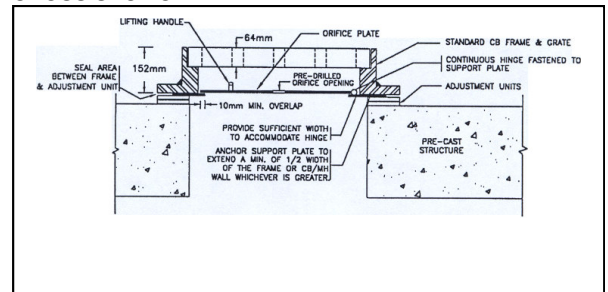


NOTE:
ORIFICE PLATES INSIDE A MH TO BE CURVED TO MATCH THE RADIUS OF THE MH WALL. ALL OPENINGS AROUND PERIMETER OF PLATE TO BE SEALED WITH COMPATIBLE SEALANT.

ORIFICE DETAIL #3- UNDER GRA TE ORIFICE PLATE



CROSS SECTION A-A



STORM WATER MANAGEMENT DETAILS (Continued)

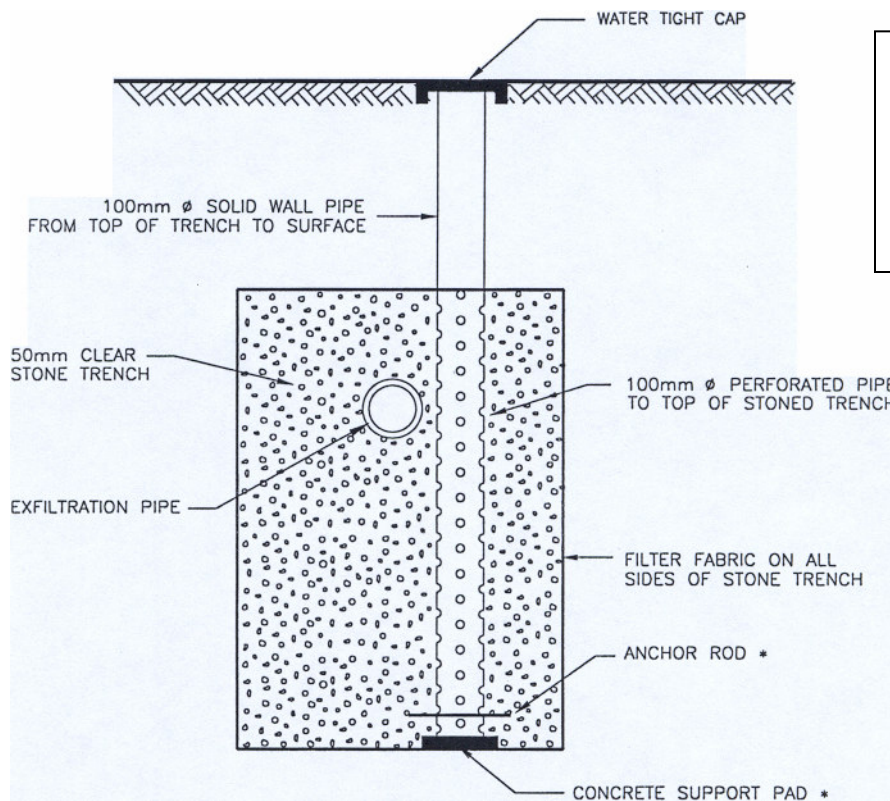
SOAK-AWAY PITS/INFILTRATION TRENCHES

Soak-away pits/infiltration trenches are to be incorporated into the storm water management design where the geotechnical report indicates the subsurface soils have a minimum percolation rate of 15mm/hr. Volumes to be infiltrated and trench configurations are derived from the area watershed study or the approved storm water management report completed as part of the subdivision, and/or the most recent guideline from the MOEE regarding storm water management. Please refer to the project technologist assigned to your file for further information.

In order to assess feasibility of infiltrating roof runoff, boreholes or test pits must be drilled/excavated (minimum of 5.0m below grade). A geotechnical analysis of the site soils must be conducted by a licensed Engineer specializing in geotechnical appraisals (see section on SWM Reports for further details regarding geotechnical information).

All soak-away pits are to have a minimum of one observation well (for inspection/maintenance purposes). See detail below for an example of a typical well configuration.

OBSERVATION WELL DETAIL



SOAK AWAY PITS MUST BE LOCATED A MINIMUM OF 5.0 METRES FROM ANY FOUNDATION WALLS OR OTHER BURIED STRUCTURES.

GEOMETRY WILL VARY WITH INDIVIDUAL DESIGNS.

STORM WATER MANAGEMENT REPORT

Most developments will require a SWM report or design brief to be read in conjunction with the design drawings. **Reports are to be bound with a pocket at the rear for insertion of plans.** The following information is required to be incorporated into all storm water management reports.

- 1.) Name of the project, the municipal address, and date of the report to be shown on the front cover.
- 2.) A summation of the selected criteria along with references to governing documents and back ground reports researched.
- 3.) Geotechnical report should contain the following information; borehole/test pit logs (minimum of three boreholes or test pits, minimum depth 5.0m); water table elevation, soil types, hydrologic soil group along with percolation rate of predominant soil type (*mm/hr*), curve number (CN) and how determined, surface characteristics, percolation rate in *mm/hr*.
- 4.) Manning's '*n*' for impervious areas should be in the range of 0.013 -0.015. Gravel and crushed asphalt to be considered as pavement for post-development modeling purposes.
- 5.) Pond stage-storage-discharge table.
- 6.) Table of "Pre" and "Post" development catchment parameters.
- 7.) Computer printout of all modeling for quality and quantity control. All calculations to be completed in Metric (SI Units).
- 8.) Orifice and weir formula/calculations.
- 9.) Draw down time/calculations.
- 10.) Additional dead storage to be provided within water quality ponds. Calculations for sediment loading and life expectancy of dead storage area prior to sediments requiring removal.
- 11.) Report to be signed and stamped with a Professional Engineer's seal.

SOFTWARE

The following software may be used for hydrologic modeling: MIDUSS, Interhymo, Otthymo, SWMM. Models used for the site analysis are to coincide with the models used in the Watershed Study. Reports using other models or methods of calculation, not approved by the City of Kitchener, will be returned.

IDF CURVES

RETURN PERIOD (Years)	PARAMETERS			DURATION (Hours)
	a	b	C	
25mm	509	6	0.7989	4
2	743	6	0.7989	3
5	1593	11	0.8789	3
10	2221	12	0.9080	3
25	3158	15	0.9355	3
50	3886	16	0.9495	3
100	4688	17	0.9624	3

LETTER OF CERTIFICATION

The Section 41 Development Agreement, more specifically Section 5, requires that the Engineer who prepared the grading and SWM report certify to the City of Kitchener that the grading and SWM scheme has been constructed in conformance with the Cities Policies and Guidelines. Upon acceptance of the Letter of Certification by Development & Technical Services (Engineering Development Division), the funds posted in the Letter of Credit for the grading and SWM works may be released.

The following wording is to be used when certifying the grading and SWM works to Development & Technical Services (Engineering). Said letter is to be provided by each consultant responsible for the design, on their respective letter head.

Example Letter Only

DATE:
PROJECT NAME:
MUNICIPAL ADDRESS:
OWNERS NAME:

RE: Project Name/Civic Address

LETTER OF CERTIFICATION FOR GRADING, EROSION AND SWM

I _____ Engineer _____ of _____ Firm _____
 certify to the City of Kitchener that the grading and storm water management
 scheme, as submitted and subsequently reviewed by Development & Technical
 Services (Engineering) on _____ Acceptance Date _____ has been implemented
 and constructed in general accordance with all applicable Policies and Guidelines
 of the City of Kitchener.

Engineer's signature: _____



Engineers Seal



Please note all deviations from the design drawings (ie. increase in paved areas, shortage of pond volumes, roof drains, orifice installation, grade elevations at road right-of-way...etc). If no deviations exist please note as such. Additional details may be required prior to the City accepting the certification.