

STORM SEWER OUTFALLS AND CONNECTING OUTFALL CHANNELS

The following checklist has been compiled to assist the applicant in preparing their application for approval pursuant to Ontario Regulation 162/06. This checklist is valid for a period of six months following issuance. The level of detail required in the application will be dependent on the proposed works as well as the natural hazards, and environmental conditions on site. We recommend that applicants contact Conservation Halton staff prior to submitting the application to determine what level of detail is deemed appropriate. **Note: Please be advised that even after all the information requested below is submitted and the application is deemed complete, additional information may be identified as the review progresses or as a result of changes to regulatory requirements.**

This checklist **must be returned** with the Permit application indicating in the appropriate spaces that all required information has been provided.

PROJECT TITLE:	DATE:
LOCATION:	FILE #:

		Applicable	Provided
General Submission Requirements			
Application Form	Completed and signed application form. <i>At a minimum, the landowner must sign the form. If an agent is representing the landowner, the agent must also sign the form.</i>	<input type="checkbox"/>	<input type="checkbox"/>
Application Fee	Non-refundable administrative fee as per category RM(b) on the fee schedule attached to permit application.	<input type="checkbox"/>	<input type="checkbox"/>
Electronically Submitted	All materials submitted electronically either through email or digital transfer.	<input type="checkbox"/>	<input type="checkbox"/>
Project Description	Description of, and rationale for, the proposed works including discussion of other alternatives considered. If a replacement structure is proposed, details regarding the current conditions of the existing structure are requested.	<input type="checkbox"/>	<input type="checkbox"/>
Photographs	Photographs of the watercourse, valley slope, adjacent vegetation and/or representative vegetation communities (if applicable) during ice-free conditions.	<input type="checkbox"/>	<input type="checkbox"/>
Drawings	Digital drawings and ____ () hard copy sets of all drawings, folded to 8½" x 11" instandard metric scale. See 'Drawing Requirements' section.	<input type="checkbox"/>	<input type="checkbox"/>
Reports	Digital reports and ____ () hard copy of reports listed under 'Technical Study Requirements'.	<input type="checkbox"/>	<input type="checkbox"/>
Qualified Persons	Where a drawing or report is required to be prepared by a P.Geo., P.Eng., OALA, or OLS, it must be stamped, dated and signed.	<input type="checkbox"/>	<input type="checkbox"/>

		Applicable	Provided
Drawing Requirements			
Digital Copies	<p>Technical drawings and plans provided in pdf format unless requested otherwise (i.e. the most recent version of AutoCAD).</p> <p>GIS data and mapping should be submitted in an acceptable ESRI format and be properly georeferenced to real world coordinates (i.e., NAD83, UTM, Zone 17). It is highly desirable that mapping related data be submitted in ArcGIS Geodatabase format, containing all spatial, attribute, metadata and spatial joins/data rules. ESRI shape file format is an acceptable alternative.</p>	<input type="checkbox"/>	<input type="checkbox"/>
Topographic Survey	<p>Detailed topographic survey of the site by an OLS or qualified P.Eng. extending a minimum 15m upstream and downstream of the project footprint, with information collected at 1m intervals along the creek. The survey is to identify/confirm/include items such as:</p> <ul style="list-style-type: none"> • Creek inverts, creek thalweg • Location of channel banks • Existing infrastructure/utilities • Observed water level • Slopes /valley walls/retaining walls (top and bottom of bank) 	<input type="checkbox"/>	<input type="checkbox"/>
Plan View(s)	<p>Plan view(s) showing existing conditions and proposed development conditions including:</p> <ul style="list-style-type: none"> • Detailed grading (clearly illustrate how the proposed works will blend in with the undisturbed areas) • Limit of work/disturbance • Watercourse (bankfull width) • Culvert/Bridges • Location of approximated regulated limits (ARL) and applicable natural hazards, specifically: <hr/> <hr/>	<input type="checkbox"/>	<input type="checkbox"/>
Aerial Photograph(s)	<p>Plan view of the proposed works and limits of disturbance (or other, specifically _____), superimposed over top of a recent aerial photograph of the site. Please specify date of imagery.</p>	<input type="checkbox"/>	<input type="checkbox"/>
Profile View(s)	<p>Existing and proposed longitudinal profile view(s) of the storm sewer and outfall channel along the centreline to the bottom of the bed of the main channel.</p>	<input type="checkbox"/>	
Cross-sectional View(s)	<p>Existing and proposed cross sectional views of the outfall structure and connecting channel.</p>	<input type="checkbox"/>	

		Applicable	Provided
Enhancement Features	Plan, section and profile details of proposed enhancement features (e.g. wetland pocket, vegetation enhancements, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Substrate Materials	Type, size/gradation, and depth of appropriate substrate material along the outfall channel and tie in point to the natural feature. Details of how granular or native materials will be mixed into the substrate to fill the void spaces must also be included.	<input type="checkbox"/>	<input type="checkbox"/>
Existing Vegetation	A vegetation inventory is required (including scientific names)). A Tree Preservation Plan is also required. Tree protection fencing location and details must be illustrated on the drawings. Follow applicable municipal guidelines, by-laws and Conservation Halton's <i>Guidelines for Landscaping and Restoration Plans (2021)</i> , available at www.conservationhalton.ca .	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Vegetation	Details on restoration, including a locally native, non-invasive seed mix for disturbed areas as well as compensatory trees and/or shrubs must be indicated on the drawings (including scientific names). Follow Conservation Halton's <i>Guidelines for Landscaping and Restoration Plans (2021)</i> , available at www.conservationhalton.ca . unless as directed below: _____ _____ _____	<input type="checkbox"/>	<input type="checkbox"/>
	Include a copy of the Landscaping Checklist (Table 5-1 Drawing Requirements). Follow Conservation Halton's Guidelines on Landscaping and Rehabilitation Plans (2021), available at www.conservationhalton.ca .	<input type="checkbox"/>	<input type="checkbox"/>
Staging, Phasing and Access Route Plans	Details regarding the sequence of construction with consideration of site management, best management practices, and construction timing. The construction sequence should consider: <ul style="list-style-type: none"> • Vegetation removal, • In-stream works, • Seasonal timing of landscaping and bioengineering, • Stockpiling operations, etc. <p>The full limits of disturbance for access to the site must be delineated with details regarding temporary crossings (if applicable). Efforts to minimize the extent of the disturbance must be demonstrated.</p>	<input type="checkbox"/>	<input type="checkbox"/>

		Applicable	Provided
Erosion and Sediment Control Plans	Details regarding sediment and erosion control measures, site dewatering, equipment, materials, access to and from work area, monitoring, site supervision, etc. See <i>Erosion & Sediment Guidelines for Urban Construction</i> prepared by the Greater Golden Horseshoe Area Conservation Authorities (www.sustainabletechnologies.ca) for additional guidance.	<input type="checkbox"/>	<input type="checkbox"/>
	Above plan is to be prepared by a qualified professional (i.e. CISEC, CPESC or an approved equivalent).	<input type="checkbox"/>	<input type="checkbox"/>
Technical Study Requirements			
<i>Studies pertaining to flooding and erosion hazards must be completed in accordance with the Ministry of Natural Resources & Forestry (MNRF) Technical Guidelines (MNR, 2002).</i>			
Stormwater Management	Detailed Stormwater Management Plan. Please refer to the local municipality for design standards and reporting requirements. At a minimum, details of existing and proposed catchment areas must be provided as well as details for proposed , water quantity and erosion controls.	<input type="checkbox"/>	<input type="checkbox"/>
Outfall Channel Design	Assessment of discharge flows and corresponding velocities at the end of pipe and within the outfall channel under the design storm events. Calculations for proposed substrate sizing within the outfall channel, stabilization plantings and consideration of flows in the main channel (where appropriate).	<input type="checkbox"/>	<input type="checkbox"/>
Geotechnical Assessment (Slope Stability)	A geotechnical slope assessment by a qualified P.Eng to ensure the proposed works will not negatively impact slope stability of the valley wall. In situations where a storm sewer outfall is required to be constructed on valley walls greater than 6 metres in height, consideration must be given to a drop shaft and tunnel design in order to protect the natural integrity of the valley wall.	<input type="checkbox"/>	<input type="checkbox"/>
Fluvial Geomorphic Assessment	A fluvial geomorphological assessment by a qualified licenced professional.	<input type="checkbox"/>	<input type="checkbox"/>
Hydrogeological Assessment	A hydrogeological assessment by a qualified P.Eng. or P.Geo. to study the potential impacts to surface/groundwater interactions at the site related to dewatering and discharge activities. The assessment must provide adaptive management, mitigation and monitoring strategies with considerations for discharge (quality and quantity of water), construction phasing, etc.	<input type="checkbox"/>	<input type="checkbox"/>

		Applicable	Provided
Hydrologic Evaluation	Assessment of the impact of hydrologic changes to wetlands using a multi-disciplinary approach by Qualified Person(s).	<input type="checkbox"/>	<input type="checkbox"/>
Ecological Study	An Ecological Study. Reference must be made to Conservation Halton's <i>Guidelines for Ecological Studies</i> , available at: www.conservationhalton.ca .	<input type="checkbox"/>	<input type="checkbox"/>
Other Requirements			
Fisheries Act	If works are proposed in/near water, the proponent is responsible for avoiding Harmful, Alteration, Disruption or Destruction (HADD) to fish and fish habitat under the <i>Fisheries Act</i> . Please refer to the Fisheries and Oceans Canada (DFO) website for additional information. Questions can be directed to DFO by phone 1 855 852-8320 or email FisheriesProtection@dfo-mpo.gc.ca .		
Endangered Species	The Ministry of Environment, Conservation and Parks (MECP) may have concerns with respect to species listed on the Species at Risk in Ontario list as it pertains to the <i>Endangered Species Act</i> (ESA). Please contact MECP and DFO directly to determine if there is potential for Species at Risk on, or adjacent, to your project site. The MECP will determine if detailed project information will be required to begin the ESA approval process: SAROntario@ontario.ca		
Timing Windows	Please be advised that regulatory agencies such as the MECP and DFO (mentioned above), as well as other agencies such as the MNR (scp.aurora@ontario.ca or scp.guelph@ontario.ca) may have seasonal timing restrictions which dictate when in-water work can occur. Please be sure to contact regulatory agencies as appropriate.		
Prepared by: _____		Signature: _____	

Additional Design Considerations

- The time of year that work is proposed may impact permit requirements for in-water works. Seasonal Design Considerations (SDCs) associated with works to occur during times of higher expected flow (e.g. freshet) may include enhanced ESC measures or increased monitoring and mitigation measures. Changes in work schedules may require a revised permit to address SDCs
- Natural channel design and landscape features must be utilized
- Substrate material must be appropriate at the tie in location. Natural substrate should be utilized where appropriate. Voids of new substrate material should be filled to avoid subsurface flow.
- Work area should be isolated from flowing water. Phasing of works should allow construction to be performed in the dry.
- Settling or filtering of water pumped from work area must be addressed.
- For dewatering of the work area to facilitate construction, a Permit to Take Water (PTTW) is required from the Ministry of the Environment & Climate Change if dewatering is in excess of 50,000 litres per day http://www.ene.gov.on.ca/environment/en/industry/assessment_and_approvals/water_taking/STDPROD_075554.html
- In order to reduce the spread of invasive species, equipment should be thoroughly cleaned before being brought onsite. For guidance in this regard, please refer to the Clean Equipment Protocol for Industry, available online (http://www.ontarioinvasiveplants.ca/files/CleanEquipmentProtocol_Mar152013_D3.pdf).
- Enhanced sediment and erosion controls should be implemented in sensitive areas.
- Monitoring by the proponent after construction is crucial to verify the success of the project.
- Outfall channel should be angled downstream and headwall recessed appropriately.