Grading Plan

PURPOSE:

This document provides guidance for the completion of a Grading Plan which may be required for the submission of an application under the *Planning Act*. All Grading Plans shall follow the requirements referenced in this document.

A Grading Plan provides information demonstrating the interaction between the existing and proposed gradient of a building lot or development parcel and the adjacent lands. It is prepared to ensure that proper surface drainage, pedestrian and vehicular mobility patterns are established. Existing drainage patterns, neighboring property elevations and storm water outlets are to be taken into consideration in the preparation of a Grading Plan. The Grading Plan shall demonstrate the interaction between existing and proposed conditions and how it ties into the Functional Servicing and Stormwater Management design of the subject development while fully adhering to the City of Hamilton standards.

A Grading Plan may be a stand-alone drawing or be composed of multiple drawings dependent on the type of application and is to be prepared in conformance to all applicable City standards.

A Grading Plan is required for a Planning Application. A Grading Plan will be required in support of the following processes / development application types:

- Zoning By-Law Amendment;
- Draft Plan of Subdivision;
- Site Plan Control (MDA, SPA, DA);
- Consent to Sever; and,
- Site Alteration Permit.

The objectives of the Grading Plan are as follows:

- to ensure proper surface drainage is established to direct flow of surface water away from a building's foundation and towards a suitable outlet where water can be discharged safely without affecting abutting properties;
- to show proposed contours / elevation changes for each stage of grading;
- to show site boundary limits and the limits of all proposed land activities/uses;
- to show how the proposed grading will match into existing grades at the development boundaries.
- to show the elevations of a site or building(s) and their relationship to adjacent streets, boulevards, and properties;
- to show and establish proper elevations where existing trees and vegetation is to be preserved and retained/protected;
- to show and establish adequate grades as they relate to exterior and interior grades of dwellings or other buildings;
- to demonstrate that drainage for the subject lands / entire development shall be self-contained and directed to a suitable outlet;
- to ensure grading and drainage is designed in accordance and in compliance with all City guidelines and policies;
- to demonstrate conformance with the Functional Servicing and Stormwater Management designs for the development;
- to ensure that proper major storm and emergency overflow/outlets are established;
- to ensure that required ponding limits (e.g., 5-year or 100-year) are established and delineated for the development;
- the lot grading plan shall accommodate any external drainage, which is tributary to the development and must prevent ponding on adjacent lands bordering the subdivision;
- the establishment of independent and adequate drainage for each lot (this can be provided by either "back to front" drainage or "split" drainage intercepted by a rear yard swale); and,
- the establishment of lot and house grades which are generally compatible

with existing topography and surrounding development including existing trees, and without steep slopes or abrupt changes in grade with minimum terraces.

PREPARED BY:

A Grading Plan must be prepared by a qualified Civil Engineer (C.Eng.) and may require input of other engineers and scientists with expertise in: Water Resources, Geotechnical, Hydrogeology, Environmental Science, or Fluvial Geomorphology.

All Grading Plans must be sealed, dated, and signed by a licensed Professional Engineer (P.Eng.), except for Plot Plans prepared under the Building Permit process which can be sealed, dated, and signed by a licensed Ontario Land Surveyor (OLS).

CONTENTS:

The level of information required within a Grading Plan will vary depending on the following factors:

- Stage of Design (i.e., Functional or Detailed);
- Type of Development Application (i.e., Zoning Amendment, Site Plan Approval Application, Plan of Subdivision, Consent Application, Minor Development Application, etc.);
    - Grading Plans submitted in support of a Site Plan Approval Application shall include any additional information prescribed in the Grading Plan Requirements in Appendix 22 of the Site Plan Guidelines;
- Reference to section J of the City of Hamilton's Comprehensive Development Guidelines shall be made for specific reference to requirements for Grading Plans prepared under Plans of Subdivision, Infill Developments or Lots of Record, and Low Impact Development & Rural Lot Grading; and,
- Site specific issues and constraints to be identified through consultation with the City of Hamilton.

The Grading Plan shall be drawn on a standard metric A1 size sheet or an imperial 24’ x 36’ sheet at a scale of 1:500 and shall include the following:

- all lots and blocks of the lands to be developed as well as adjoining lands for a minimum of 15 m beyond the limit of the lands to be developed and further if necessary to determine future and proposed drainage patterns;
- existing ground contours at 0.5m intervals over the entire development and sufficient area of adjacent lands to establish the overall drainage pattern;
- proposed ground elevations at all lot corners and at intermediate point of change in grade;
- elevations at locations where proposed grading will match into existing grading such as development boundaries and constraint limits (regulated areas and setbacks/allowances);
- proposed ground elevations at 15m spacing along the frontage of large blocks and at a reasonable spacing along the sides and rear of the block;
- proposed road centreline elevations at all changes in grade, at all intersections and opposite each proposed lot and block corner;
- the location of all existing trees, septic tanks and tile fields, wells, existing above ground utility structures and other structures on the subject lands, adjacent lands and rights-of-way;
- the location of existing and proposed retaining walls with proposed top and bottom elevations at appropriate intervals with sections and sub drain outlet locations;
- the location of drainage ponds or swales, and direction of surface drainage on each proposed lot and block and on all adjoining lands including cross-sections, as required;
- the location of rear yard catch basins and inlets, top of grate elevations and overland flow routes;
- proposed building envelopes with the following information:

    - front of house apron elevation (garage floor elevation);
    - back of house apron elevation, if different from front; and,
    - minimum basement floor elevation (shall be calculated based on the elevation of the sanitary private drain);
- roof leaders shall discharge onto splash pads, satisfactory to the City Engineer and then to a grassed or landscaped area at a minimum distance of 0.60 m away from the building face;
- adjacent lots having a combined side yard setback totalling 2.0 m or less shall have roof leaders restricted to front or rear yard discharge locations with drainage directed away from the house to minimize erosion and ponding;
- a key plan showing the proposed development and, for larger subdivisions, the location of the lots on the sheet in relation to the overall development;
- description of the nearest geodetic benchmark;
- horizontal and vertical datums and source of topographical information;
- typical lot drainage patterns;
- noise attenuation with details;
- acknowledgement of an agreement with neighbouring landowners where the proponent is proposing grading encroachments;
- subdrains, low impact development (LID), fire hydrants, and street furniture, sidewalks/pathways/spillways, driveway and sidewalk aprons, crushed miscellaneous base pads, manhole & catch basin lids;
- existing and proposed limits and depth of ponding; and,
- delineate and label Conservation Authority regulated hazards and wetland features and the associated regulatory limits/allowances.

Standalone Grading Plans for Stormwater Management Facilities

The overall Grading Plan for a Stormwater Management Facility shall be prepared in accordance with the following objectives:

- the drainage for the entire development shall be self-contained and directed to a suitable outlet; and,
- the lot grading plan shall accommodate any external drainage, which is tributary to the development land and must prevent ponding on adjacent lands bordering the subdivision.

OTHER INFORMATION:

City of Hamilton – Comprehensive Development Guidelines and Financial Policies Manual:

https://www.hamilton.ca/build-invest-grow/planning-development/planning-policies-guidelines/comprehensive-development

City of Hamilton – Site Plan Guidelines:

https://www.hamilton.ca/build-invest-grow/planning-development/planning-policies-guidelines/site-plan-guidelines

City of Hamilton – Barrier Free Guidelines:

https://www.hamilton.ca/build-invest-grow/planning-development/planning-policies-guidelines/barrier-free-guidelines

Ministry of the Environment, Conservation and Parks – Stormwater Management

Planning and Design Manual:

https://www.ontario.ca/document/stormwater-management-planning-and-design-manual-0

Transportation Association of Canada – Geometric Design Guide for Canadian Roads:

https://www.tac-atc.ca/en/knowledge-centre/technical-resources-search/publications/pkg-geodes17b-e/ (Purchase required)

Conservation Halton Policies and Guidelines for the Administration of Part VI of the Conservation Authorities Act and Ontario Regulation 41/24 and Land Use Planning Policy Document (last amended June 21, 2024, or as may be further amended:

Policies and Guidelines - Conservation Halton

REVIEWED AND APPROVED BY:

Development Planning and Development Approvals, Planning and Economic Development Department

Source Water Protection, Public Works

The Conservation Authority with regulatory authority over the subject lands, namely:

- Hamilton Conservation Authority
- Conservation Halton
- Niagara Peninsula Conservation Authority
- Grand River Conservation Authority

CONTACT:

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Niagara Peninsula Conservation Authority

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Grand River Conservation Authority

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APPENDIX:

Grading Plan – Summary Checklist