City of Belleville
Engineering and Development

Lot Grading and Drainage Information

Proper lot grading will ensure all properties have complied with the developments lot grading plan's surface drainage standards in order to prevent flooding and other water related damage to their own or neighbouring properties.

Proper lot grading will direct stormwater runoff from rain or snow away from homes and permanent structures to drainage points identified in the plan. The plan takes into consideration drainage discharge points and the rate of flow entering the public roads and storm sewer system.

These guidelines are intended to provide information to homeowners to help ensure proper lot drainage.

Establishing a Grading Plan

Lot grading and drainage plans are part of the approval process for residential lots. All new development requires a grading plan approved by the Municipality.

An effective Lot grading and drainage plan can be outlined by the following:

- Eliminating low areas that allow water to pool.
- Preserving the design/structure of drainage swales.
- Placing splash pads or stones at downspout discharge locations to prevent erosion.
- Maintaining adequate slope away from buildings.

Lot Grading Process

When creating new residential lots by plan of subdivision or by land severance, preparation of an overall grading plan for the entire land is required by the developer's Professional Engineer. The Municipality reviews and approves the overall grading plan to ensure that the land when subdivided incorporates proper grading design that takes existing drainage patterns, neighbouring property elevations, and storm water outlets into account.

Each new lot must have its own separate plot plan when applying for a building permit, which is based on the overall approved grading plan for the subdivision or severed properties. The particular grading design for each new lot and the general position of the house to be built are both shown in further detail on the individual plot plan.

Interim lot grading: is carried out shortly after sod has been laid. The developer will provide a certification to the Municipality stating the lot has been graded in accordance with the approved grading plans.

Final lot grading: is carried out by the builder following completion of house construction and must be verified onsite by a professional engineer and certified to the Municipality that the lot has been graded in accordance with the grading plans approved by the Municipality.

Once final grading has occured, the homeowner is now responsible to maintain the approved grading plan. Any changes made by the homeowner to the lot's grading should not impede with the drainage flow within or around thier lands. Drainage problems often occur with the addition of fences, decks, landscaping, swimming pools and the like.

Before issuing a building permit, the Municipality reviews and approves this plan.

Who is responsible?

The Property Owner's Role

The property owner is responsible for:

- Maintaining all lot grades approved by the Municipality.
- Ensuring that any surface water does not cause property damage to surrounding neighbours.

Note: Alterations may result in civil liability.

The Builder's Role

The builder is responsible for the design and construction of individual lot grades and drainage, in conformance to the approved lot grading plan. Builder obligations with respect to the lot grading plan are outlined below:

- To fine grade and sod each lot within the timeframes specified in the Subdivision Agreement.
- To ensure the grading of each lot has been certified by a Professional Engineer.
- To repair any grading or sodding deficiencies until the subdivision has been assumed.

The Developer's Role

For lots within current plans of subdivision, a subdivision lot grading plan showing elevations and the overall drainage pattern is prepared by the developer. This plan is reviewed by the City prior to release of the building permit. Other responsibilities include:

- Providing an overall lot grading and drainage design of the subdivision and is responsible for setting elevations and lot grades.
- Hiring a site Engineer to be responsible for certifying that each lot has been graded in accordance with the proposed plan.

At the time of building permit application an individual plot plan is prepared by a builder's Engineer or Surveyor for each new lot based on the overall approved grading plan for the subdivision or severed lands. The individual plot plan shows in greater detail specific grading design for each new lot and the outline of the actual house to be constructed. This plan is reviewed by the City prior to release of the building permit.

Lot Grading Design

Swales

Swales are shallow grassed drainage channels with gently sloping sides and are used to collect and direct storm water away from the building foundation to a suitable outlet.

- **Side yard swale** is considered to be the swale located on the side lot line of a dwelling.
- **Rear yard swale** is considered to be the swale located on or near the rear lot line.
- **Rear apron swale** is the depression located at the rear of a dwelling, typically no closer than 4.0m from the rear foundation wall.

Example of a rear yard swale

Example of a side yard swale

Rear Lot Catch Basins

A rear lot catch basin is a concrete inlet chamber with a metal grate at the top which is flush with the ground surface.

Rear lot catch basins are located at low points along the rear property line to allow storm water to enter through the metal grate and discharge to the City's sewer system.

Slopes around a rear lot catchbasin are typically greater than 1%.

Wherever there is a rear lot catch basin, there is an underground pipe connected to it that connects to the City's sewer on the road. It is the homeowners responsibility when constructing a fence or digging to ensure this pipe is not damaged.

It is the homeowner's responsibility to ensure that a rear lot catchbasin is not blocked in any way that would prevent rain water from entering and discharging to the sewer system.

Disposal of any liquid or material is NOT permitted in a rear lot catchbasin, other than surface runoff water.

Examples of a catch basins.

Definitions

Lot Grading

Lot grading consists of sloping the land within a lot to direct the flow of surface water away from a building's foundation. Proper grading ensures water is discharged towards a suitable outlet safely and according to the approved lot grading plan without negatively affecting adjacent properties.

Lot Grading Plan

Lot grading plans are required for all new developments and show the drainage relationship between adjacent properties included within the plan. They specify design elevations, surface gradients, lot types, swale locations and other drainage information required for grading.

Final Certificate of Grading Conformity

A final lot grading certificate issued by the City that certifies the lot is graded in accordance with the overall lot grading plan. Prior to the City issuing the certificate, the Owner shall deliver to the City a plan showing as-constructed elevations and grades for all major swales and shall deliver a certificate signed by a Professional Engineer or Ontario Land Surveyor certifying that the grading works have been completed in strict accordance with the approved plans. If satisfied with same, the City shall issue the Final Certificate of Grading Conformity.

Rough Grade

Is the base and first step towards establishment of approved lot grades with native material (clay).

Final Grade

Is the second step for approved lot grades (typically topsoil/sod).