



## Residential Lot Grading Guide

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## Definitions:

1. **Certified Surveyor:** An Alberta Land Surveyor, Professional Engineer or Registered Architect.
2. **Curb Stop Valve:** The water valve on the Town owned portion of the water service connection, located between the Town water main and the property or building line, installed for the purpose of enabling the Town to turn on or off the water supply to a consumer's premises, also know as a curb cock or curb stop valve.
3. **Downspout:** A pipe that connects to the eavestrough and down the side of the home to allow for the redirection of the roof water.
4. **Easement:** An agreement, usually registered on the certificate of title to the property, that gives the Town the right to use a landowner's property in some way, such as to access a utility. Easements also partially restrict a landowner's use of the affected portions of land.
5. **Eavestrough:** Gutters that line the edge of a roof, used to collect and relay water to the downspouts.
6. **Infill Housing:** New housing that is built on a lot in an already developed and mature neighborhood.
7. **Lot Grading:** Lot grading is the shaping or sloping of the land so that surface drainage from rainstorms, snowmelt or ground water is directed away from the buildings and is controlled in a manner that eliminates or minimizes the impact on adjacent properties.
8. **Lot Grading Certificate (Plan of Certification of as-built grades):** A lot grading certificate is a plan that complies with requirements set out in the lot grading guidelines, signed and certified by a registered Alberta Land Surveyor, Professional Engineer or

Architect as accurately representing the existing surface elevations and surface grades of a lot.

9. **Low Density Residential:** Land that has, or is planned to have one single or semi-detached dwellings.

10. **Medium Density Residential:** Land that has or is planned to have at least one building with three or more dwelling units, such as row housing, three-plex, or fourplexes, and zero-lot line housing.

11. **Overall Lot Grading Plan:** Overall lot grading plans are required for all new developments, they specify the design elevation, surface grades, lot types, swale locations and other drainage information required for lot grading. An Overall Lot Grading Plan establishes the drainage relationship between the properties within a defined area and its approval is a bases for the control of lot grading.

12. **Restrictive Covenant:** An agreement registered against a title of a property, typically during the development stage, that restricts, limits, or prohibits certain uses of land or actions on the property.

13. **Splash Pad:** A pad typically made of concrete and placed under the downspout, or sump pump discharge that helps to prevent erosion.

14. **Storm Water Management Facility:** A man-made or natural body of water such as a pond or lake that is used to collect and store the stormwater for an area.

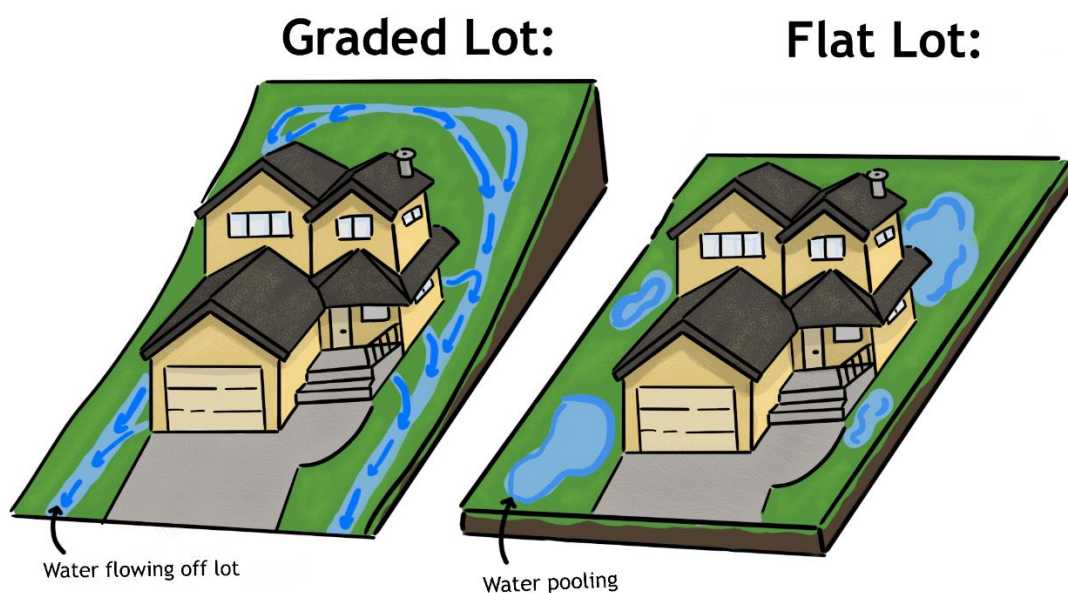
15. **Sump Pump:** A pump used to remove water that has accumulated in a water-collecting sump basin, commonly found in the basement of homes. The water may enter via the perimeter drains of a basement waterproofing system, funneling into the basin or because of rain or natural ground water, if the basement is below the water table level.

16. **Swale:** Shallow sided, sloped ditches intended to convey the surface run off.

17. **Zero Lot Line Housing:** Rather than having the home centered on a lot, zero lot line homes are off set and placed against the property edge.

## Introduction

During heavy precipitation and snowmelt, excess water needs somewhere to go. If your property cannot effectively redirect water, it could cause flooding in your home. To prevent flooding and related issues, we design Lot Grading Plans. These Lot Grading Plans involve the reshaping of land to guide water away from a building's foundation and off the lot. Lot Grading Plans can come in all styles like back to front drainage or split drainage. By taking preventative measures such as being aware of the easements and surface drainage on your property, it could save you time, money, and effort spent on fixing water damage. The purpose of the following document is to provide general insight on lot grading requirements and surface drainage.



## Lot Grading Approval Procedure

The lot grading procedure is typically completed in two stages, a rough grade, and a final grade. The rough grade stage is the responsibility of the homebuilder. Whereas the final grade stage is generally the responsibility of the homeowner.

## Rough Grade Stage

The rough grade stage includes backfilling the foundation and shaping the lot to follow the overall lot grading plan. At this stage the surface material should be clay. The rough grade approval procedure should occur within **12 months of the issuance of a building permit for a lot or before occupancy of the home.**

### Rough Grade Approval Process

- 1) The builder has the lot surveyed by a certified surveyor who then prepares and submits a Lot Grading Certificate to the Town of Stony Plain, Engineering department through the email: [lotgrading@stonyplain.com](mailto:lotgrading@stonyplain.com)
- 2) A Lot Grading Inspector from the Town conducts a visual site inspection to verify that the lot is graded according to the approved Lot Grading Plan. Additionally, the curb stop valve will be visually inspected for any damages.
- 3) An inspection report is sent to the builder, indicating that the Rough Grade has been approved or that deficiencies exist.
  - If deficiencies exist, the **builder must correct it within 60 days** and notify Engineering for re-inspection.
- 4) When the Rough Grade is approved, the builder and the property owner are notified and work for the Final Grade may begin.

## Final Grade Stage

The Final Grade Stage usually includes overlaying the clay base with topsoil, following the contours set in the Rough Grade Stage. Topsoil is the preferred material because if deficiencies are found in the lot grading it's easier to fix the mistakes on topsoil before landscaping is done.

This stage should be initiated by the homeowner **within 12 months of the Rough Grade Approval.**

### **Final Grade Approval Process**

- 1) The homeowner has the lot surveyed on topsoil by an Alberta Land Surveyor, Professional Engineer or Registered Architect who prepares and submits a Lot Grading Certificate to the Town of Stony Plain. The homeowner must provide contact information to receive a Lot Grading Inspection Report through the email: [lotgrading@stonyplain.com](mailto:lotgrading@stonyplain.com)
- 2) A Lot Grading Inspector from the Town conducts a visual site inspection to verify that the lot is graded according to the approved Lot Grading Plan. Additionally, the curb stop valve will be inspected to ensure that it is visible at the surface.
- 3) An inspection Report from the Town is sent to the homeowner, indication that the final grade has been approved or that deficiencies exist.
- 4) If deficiencies exist, the **homeowner must correct it within 60 days or within an approved timeline** and notify Engineering for re-inspection. The lot grading inspector may request the lot be re-surveyed and a re-submission of a Lot Grading Certificate or additional information to verify the corrections. If so, the re-inspection cannot occur until receipt of the new Lot Grading Certificate are submitted.
- 5) When the Final Grade is approved, the owner will be sent an approval report and copy of the lot grading certificate.



## General Lot Grading Requirements

The following describes requirements that must be met before a grade approval. Any requirements that are not met will be marked as a deficiency on the Lot Grading Inspection Report.

### Acceptable As-built Tolerance from Design Grades

#### **Rough Grade:**

- The rough grade must be clay between 10 to 20cm **below** the final design grade

#### **Final Grade:**

- The final grade should be topsoil between 0 and 10cm **below** the final design grade. Topsoil is the preferred material because if the grades are found to be unacceptable it's much easier and cheaper to the owner to have the deficiencies corrected on topsoil rather than sod or decorative material.
- If you choose to have the final grade inspection done on landscaping, the final elevation should be 10cm below or above the final design grade.
- **Decorative Material:** For landscaping such as sod, the grading must be done as described above. In the case of decorative materials such as rocks or wood chips, the clay base should be brought up to the final design grade.

#### **Conditions for accepting out of tolerance points:**

- The landscape is going to be graded to match an existing fence, walkway, lake, park, curb, sidewalk, road or lane, and there is no impact on the surface drainage.
- The landscaping is graded to match an adjacent property and it appears to the Lot Grading Inspector that the water is redirected away from the foundation.

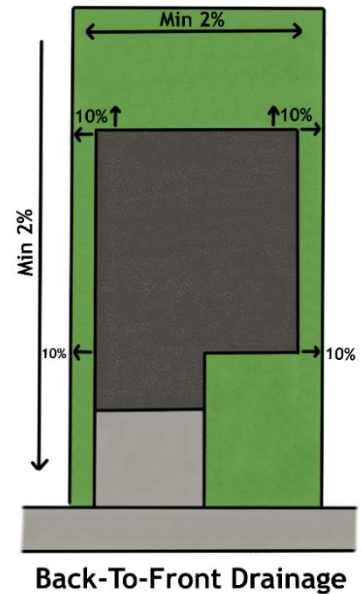
- A proposal is submitted by the design engineer to the Town to revise the design elevations on the approved Overall Lot Grading Plan to existing elevations, providing that there is no negative impact on surface drainage and any affected property owners agree to the revision.

## Minimum Grade from Foundation Walls

To guide the water away from the foundation, reducing the risk of surface water entering the basement during heavy rain and snowmelt, the ground must adequately slope away from your house foundation and window wells.

### Minimum Grade Requirements

- 10% for the first 1.5m from the foundation
- 2% for the overall or average grade of the lot



## Side yards

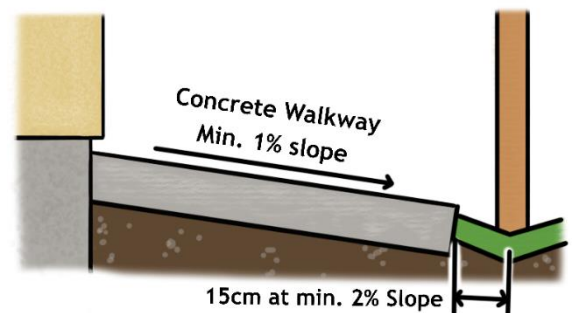
### Concrete Walkway

In the case that a concrete walkway is built against the house along the side yard, it is exempt from the typical minimum grade requirements from the foundation walls. The concrete walkway must maintain at least 15cm of unobstructed width from the centre of the common property swale.

### Minimum Grade Requirements

- 1% for the concrete walkway
- 2% for the slope of the sod or landscaping between the property and concrete

### Side Yard Walkway Cross Section



## **Fencing and Gate Clearance.**

The distance between the final grade and bottom of the fence must be a minimum of 7.5cm and the gate must swing into the lots fully without impediments.

## **Drainage Swales**

A drainage swale is essentially a shallow ditch made of grass or concrete which guides stormwater off your property. There are a couple types of swales:

Common Lot Line Swales are located along common property lines, they're used to guide the water that collects between two neighboring lots off the properties.

### **Common Property Swales:**

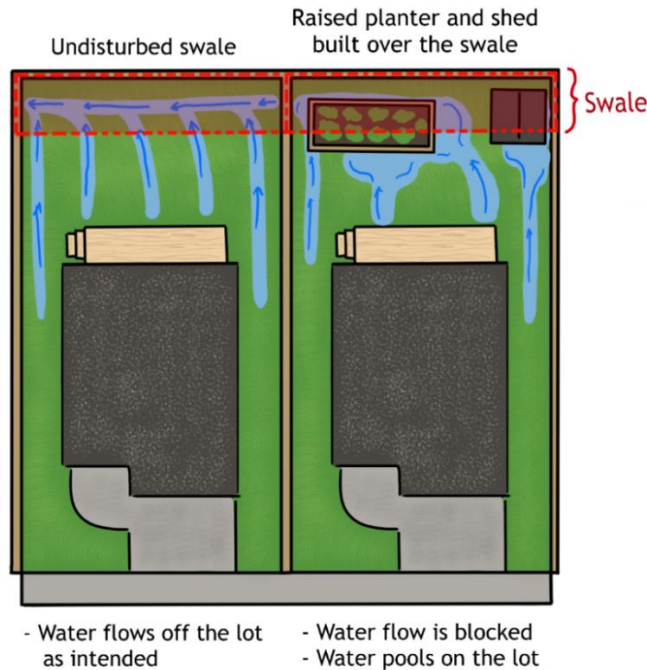
- Swales on a common property line must have a minimum unobstructed width from the centre line of the swale on each property of 15cm. The only exception to this rule would be fencing down the property line.
- Minimum longitudinal slope for a grass swale is 1.5%
- Minimum longitudinal slope for a concrete swale is 1.0%

Another type of swale is a Back of Lot swale, designed to collect and drain water that flows to the back of your property. These swales, especially when they're grass swales, require extra precautions as people will unintentionally build structures in the swale causing issues like water pooling or cross lot drainage.

### **Back of Lot Swales:**

- Back of Lot swales will have utility right of way registered to them, regulating that the area within the right of way must be clear of obstructions.

- Minimum longitudinal slope for a grass swale is 2.0%
- Minimum longitudinal slope for a concrete swale is 1.0%



### Swale Maintenance:

Maintaining a swale in a Utility Right-of-Way (URW) involves several key responsibilities for residents to ensure proper drainage and environmental benefits.

Here are some general guidelines:

1. **Regular Mowing:** Keep the grass in the swale at an acceptable height. Avoid mowing right after rain to prevent tire ruts.
2. **Debris Removal:** Keep the swale free of debris, rocks, grass clippings, and sediment to ensure water can flow freely. Fences installed in the drainage swale flow line will impede drainage.
3. **Avoid Obstructions:** Do not park vehicles or place structures in the swale, as this can impede water flow and cause drainage issues.
4. **Erosion Control:** Re-seed bare areas to prevent erosion and maintain the integrity of the swale.
5. **Minimize Chemicals:** Limit the use of fertilizers, pesticides, and herbicides to reduce pollution.

6. Inspect Regularly: Check the swale after heavy rains to ensure it is functioning properly and address any standing water issues promptly.

## Downspouts and Splash Pads

The downspouts must have an elbow hinge extension, pointed away from you and your neighbour's foundation and pointed towards a swale. Alternatively, a concrete splashpad could be used. In either case the downspout discharge point must be a **minimum of 1.0m away from the foundation.**

### **Downspout Discharge Minimum Distance from Property Line:**

- 15cm from adjacent private property
- 30cm from adjacent Town Property

### **Standard (30cm x 107cm) Splash Pad Placement:**

- Underneath all downspouts draining onto soft landscaping (sod, topsoil, or gravel)
- Underneath the sump pump discharge outlet where it is draining onto soft landscaping (sod, topsoil, or gravel)

## Lake, Ravine, or Top of Bank Lots

Properties located beside Stormwater Management Facilities, ravines or top of banks have a utility right-of-way, easement, or restrictive covenant registered in favour of the Town of Stony Plain, require the Lot Grading Certificates to display the location and elevation of all features constructed within the affected area. Features to note include decks, fire-pits, ponds, paths, bridges, retaining walls, buildings, raised planters, concrete pads, or unusual grade alterations. Including these details on the Lot Grading plan allows Engineering to evaluate the impact these

features have on drainage. This information must be included on the Lot Grading Certificate prior to the request for an inspection or reinspection.

### **Extreme Grade Differentials**

Lot Grading with large grade differences can occur on a variety of lot types, for example Walk-Out basements. Grading for large differences may require a retaining wall or some form of stabilization at the transition point(s) to prevent any land slides. For retaining walls taller than 0.6m, a building and development permit will be required. For walls taller than 4ft (or about 1.2m), engineering drawings stamped by a Professional Engineer are required as well as the permits. For Walk-Out basements, the grading of the drainage swale down the common property line follows the approved overall lot grading for the area.

### **Low and Medium Density Housing**

Low and medium density housing follows all the general guidelines mentioned above. Specific drainage features to be cautious about include swales at the back of the lot, you should be sure not to build in a manner that obstructs the drainage. Some common examples of problematic features include raised planters and sheds on top or in front of the swales.

### **Infill Housing**

Since infill housing is built within a mature neighborhood with existing neighbors, it is crucial that the grading of the new lot will not affect the overall Lot Grading Plan as well as existing homes. Infill housing will follow the same overall procedure and requirements, submitting both the rough

and final grade. Any changes made in the lot grading plan, such as building a retaining wall, must be submitted to and approved by Engineering for an approved Lot Grading Plan.

## Zero Lot Line Housing

On top of the general lot grading guidelines that must be met, special attention must be paid to the internal drainage easement that runs down one side of the lot. The swale must be a minimum of 1.5m wide with the side walls having a minimum slope of 10%. Nothing is to be built in the drainage easement, not even fencing. Fencing in zero lot line housing follows the scheme showed below, connecting the corner of one house to the corner of the next.

**Zero Lot Line Housing:**

