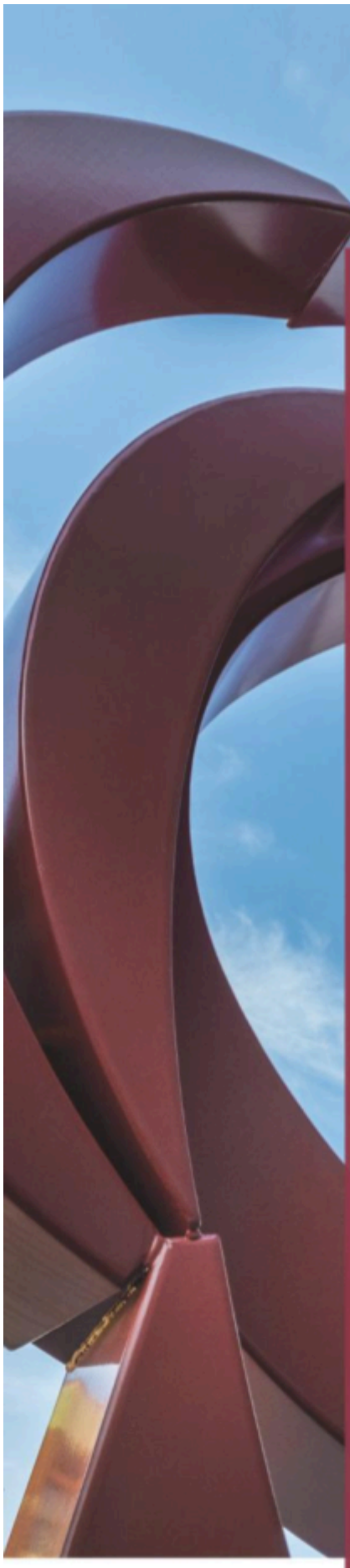

City of Edmonton

Commercial Lot Grading Guidelines

Development Services - Lot Grading
edmonton.ca/**lotgrading**

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Introduction

The Commercial Lot Grading Guidelines apply to all non-residential (commercial, industrial, institutional) developments, residential developments with Major Development Permits (apartments, row houses and other residential developments with multiple buildings), mixed-use (a mix of residential and non-residential) developments, and temporary structures such as storage sheds and sea cans. Exceptions may apply.

The purpose of lot grading is to shape the land to direct stormwater away from buildings and towards a private drainage system or City right-of-way. This assists in protecting buildings and properties from stormwater drainage issues, and is regulated through Drainage Bylaw 18093.

This document is intended to assist property owners, developers, builders and contractors with successful planning and execution of lot grading approvals, inspections and compliance with Drainage Bylaw 18093.

This document includes information on site grading during the land development process, the Lot Grading Approval Process, and the Lot Grading requirements for all non-residential, large scale residential, mixed-use and temporary structure developments.

For small scale residential developments please refer to the Residential Lot Grading Guidelines.

Bylaws

Drainage Bylaw 18093 - This bylaw regulates surface drainage on public and private property, and establishes the requirements for lot grading approval during the development process. This supports the objectives of protecting people and properties from stormwater drainage while fostering environmental well-being through effective stormwater management.

EPCOR Wastewater Services Bylaw 20865 - EPCOR Water Services Inc. (EWSI) owns and operates public drainage infrastructure in the City of Edmonton. This bylaw establishes the terms and conditions for the protection and use of this drainage infrastructure. For the purposes of lot grading approvals, the bylaw regulates how stormwater is discharged from a private property to the public system.

Site Grading in the Land Development Process

Land Development is the process which takes land from its original state to its built form and ultimate land use. A key part of this process involves the engineered planning and construction of features to assist in stormwater management, including drainage infrastructure and site grading.

Managing stormwater near its source reduces the impact and capacity requirements on downstream infrastructure. Site grading can reduce flow rates by providing local ponding and storage areas while also protecting the public and properties. Lot grading is an important aspect in conveying stormwater from private property to public infrastructure without causing issues on neighbouring properties and helps to ensure properties meet stormwater management objectives.

This section provides an overview of the different grading stages in the land development process and how lot grading plans help achieve stormwater management objectives.

Grading Stages

Subdivision Grading - This is the initial grading stage of a new subdivision prior to the construction of buildings. Completion of this stage is the responsibility of the developer and it provides the overall template for the following stages of grading.

Rough Grading - This stage occurs after a building is constructed and involves shaping the lot, using clay or other equivalent material native to the site, to conform to the approved Lot Grading Plan. A well-prepared rough grade provides a solid base and template for the Final Grade material. Completion of this stage is the responsibility of the property owner, developer or builder.

Final Grading - This stage includes placement of topsoil and hard surfacing on top of the rough graded lot to conform to the approved Lot Grading Plan. This provides the final layer before landscaping materials are placed. Completion of this stage is the responsibility of the property owner, developer or builder.

Landscaping - This final stage includes the placement of sod and other decorative materials such as mulch, woodchips, rocks, shrubs and trees. Completion of this stage is the responsibility of the property owner, developer or builder.

Figure 1 - Example of Final Grade (Landscaped)

Figure 2 - Example of Final Grade (Landscaped)

Lot Grading Plans

Lot Grading Plans are designed with stormwater management objectives in mind to convey stormwater away from buildings and towards the private drainage system or City right-of-way.

Lot Grading Plans are approved by the City of Edmonton and are required for all new developments. They specify design elevations, surface gradients, catch basins, swale locations and other drainage related information. A Lot Grading Plan establishes the grading relationship between adjacent properties. Approval of the plan is an effective basis for the control of stormwater drainage.

A Lot Grading Plan must be submitted to the City for Commercial and Multi-unit developments. The person responsible shall ensure that the Lot Grading Plan is approved following the application of the development permit and prior to the construction of any buildings, additions to buildings, or alterations of surface drainage on the premises. The person responsible shall make a request to EPCOR for the installation of new water and/or sewer services, or modification of existing services, at the owner's expense.

For current Lot Grading Plan requirements please visit Lot Grading Plan Approval.

Lot Grading Approval

Newly developed sites receive a lot grading inspection once Final Grade is complete. Lot grading approval is granted when the inspection passes. This section provides information on the inspection fees, lot grading certificate requirements, grading approval time frames and the grading approval process.

Lot Grading Inspection Fees

A Lot Grading Fee is collected at the time of Development Permit application and covers the **first two Final Grade** inspections for Commercial and Multi-Unit Residential developments. Failed inspections will require re-inspection. Each inspection in excess of the two included final grade inspections is subject to a re-inspection fee.

Current lot grading inspection fees are found on the Planning and Development Fee Schedules.

Lot Grading Certificate (As-built) Requirements

A Lot Grading Certificate (as-built) must be submitted to support the Final Grade inspection.

Lot Grading Certificates (as-builts) are plans, prepared by an acceptable professional, that provide information about the as-constructed grading and drainage of a lot. This includes design elevations from the approved Lot Grading Plan, existing (as-built) elevations at the time the survey was conducted, the location of buildings, parking stalls, walkways, catch basins, swales, retaining walls, etc. within the lot and other important information regarding the grading of the lot. The certificate provides the Lot Grading Inspector with information required to verify the grading of the lot and also helps to identify any problems that may exist.

For the current Lot Grading Certificate requirements please visit Lot Grading Certificates.

Grading Approval Time Frames

The person responsible shall ensure that lot grading approval is achieved in a timely manner. Drainage Bylaw 18093 establishes these time frames for Commercial and Multi-Unit developments as follows:

Final Grade must be approved within:	• **18 months** of the building permit being issued for the premises. • **18 months** of the development permit being issued for the premises, in the event that no building permit is required or issued.

Table 1 - Grade Approval Timeframe

All exterior construction, including buildings, concrete curbs, walkways and drainage systems must be completed before applying for final grade approval. It is the builder's responsibility to ensure that roof leaders (downspouts) and private drainage systems are installed according to the approved engineering drawings and servicing requirements.

Grading Approval Process

The Grading Approval Process for Final Grade is as follows:

1. The applicant completes the grading work and has an acceptable professional prepare a Lot Grading Certificate (as-built). As-built information must be presented on the approved Lot Grading Plan.

2. The applicant submits the as-built to the City of Edmonton to initiate the lot grading inspection.

   Prior to inspection, please ensure the site is accessible (gates are unlocked), any materials/objects that would impede the grading inspection or make it difficult to inspect the grading are removed and the topsoil is smoothly spread out, compacted and ready for sod, liners, rocks, etc.

3. A Lot Grading Inspector will conduct a site inspection to verify that the lot is graded in accordance with the approved Lot Grading Plan, Lot Grading Requirements and Drainage Bylaw 18093.

4. The applicant will receive an Inspection Report indicating whether the inspection has **Passed** (approved) or **Failed** (deficiencies exist).
   a. If the Inspection has passed:
      i. The Inspection Report will indicate approval. This approval is based on the site conditions observed at the time of the lot grading inspection.
   b. If the Inspection has failed:
      i. The Inspection Report will indicate the list of deficiencies to be corrected. Deficiency item locations are labeled "**left**", "**right**", "**front**" and "**back**". The "**front**" of a lot is defined when facing the property from the City street. Depending on the site, these locations may still be unclear and cardinal directions or notes will be used to help locate the area of the deficiency.
      ii. The applicant must correct the deficiencies within **60 days** (unless otherwise noted) and book their reinspection. If resubmission of a Lot Grading Certificate (as-built) is indicated or reinspection fees are outstanding, the reinspection cannot be successfully booked until these are resolved.

Commercial, Industrial, Institutional, Large Scale Residential, Mixed Use and Stacked Rowhouse Buildings:
To initiate a Final Lot Grading Inspection (or Reinspection) and submit the Lot Grading Certificate (as-built), apply by emailing lot.grading@edmonton.ca. To pay a re-inspection fee, call 311 to be transferred to payments.

Rowhouse and Bareland Condo Residential Buildings:
To initiate a Final Lot Grading Inspection (or Reinspection) and submit the Lot Grading Certificate or pay a re-inspection fee, go to: https://selfserve.edmonton.ca/residentiallotgrading

Please be aware that under Drainage Bylaw 18093, the person responsible is ultimately accountable for all grading activities and approvals, regardless of who submits the application.

After Final Grade Approval has been issued, the person responsible is required to maintain the surface grades in perpetuity. The City of Edmonton may at any time, require maintenance or enforcement of repairs on the lot grading if alterations or settlements result in lot grading problems.

If there is a discrepancy between the Lot Grading Guidelines and Drainage Bylaw 18093, the Drainage Bylaw 18093 will prevail.

Lot Grading Requirements

Lot Grading Requirements establish the minimum standard to efficiently and effectively direct drainage to a private drainage system or City right-of-way. This supports the protection of properties from stormwater while minimizing the impact to neighbouring properties. These requirements are intended to support compliance with Drainage Bylaw 18093.

Design Elevation Tolerance

Approved Lot Grading Plans identify design elevations at specific locations for each property. The Lot Grading Certificate identifies as-built elevations at the same specific locations, as well as additional critical point locations. Grading between design points must be consistent without obstructions or low areas, while maintaining a minimum slope. See Table 4 for minimum slope requirements.

The table below establishes the acceptable design elevation tolerances for grading approval:

Grading Stage	Tolerance from Approved Final Grade Design Elevations
Final Grade on topsoil and hardscaping	Between −10 cm and 0 cm
Final Grade on finished landscaping	Between −10 cm and +10 cm

Table 2 - Design Elevation Tolerances

If rocks, wood chips, mulch or other porous decorative material are to be used for final landscaping, then the underlying Rough Grade material must be raised to Final Grade elevations. A proper Final Grade surface for stormwater flow must be established before adding these decorative materials, as stormwater can easily flow through these materials and create ponding at transition areas. See Figure 3 for a diagram of the issue.

In order for the surveyor to record accurate information, decorative materials should not be placed at or near the design or critical as-built elevation locations. As-built elevations provided on these materials may be subject to recertification to validate drainage functionality and conformance with design tolerance.

A Lot Grading Inspector has the discretion to accept elevations that are not within tolerance when:

- A lot is graded to match an existing walkway, lake, park, curb, sidewalk, road or lane while maintaining positive surface drainage.
- A lot is graded to match an adjacent property and has proper on-site surface drainage (sloping towards the private drainage system) that also functions with the adjacent property.
- The developer has provided adequate slope to protect the buildings and the on-site surface drainage and swales meet the minimum slope requirements to convey surface drainage to the on-site catchment facility.

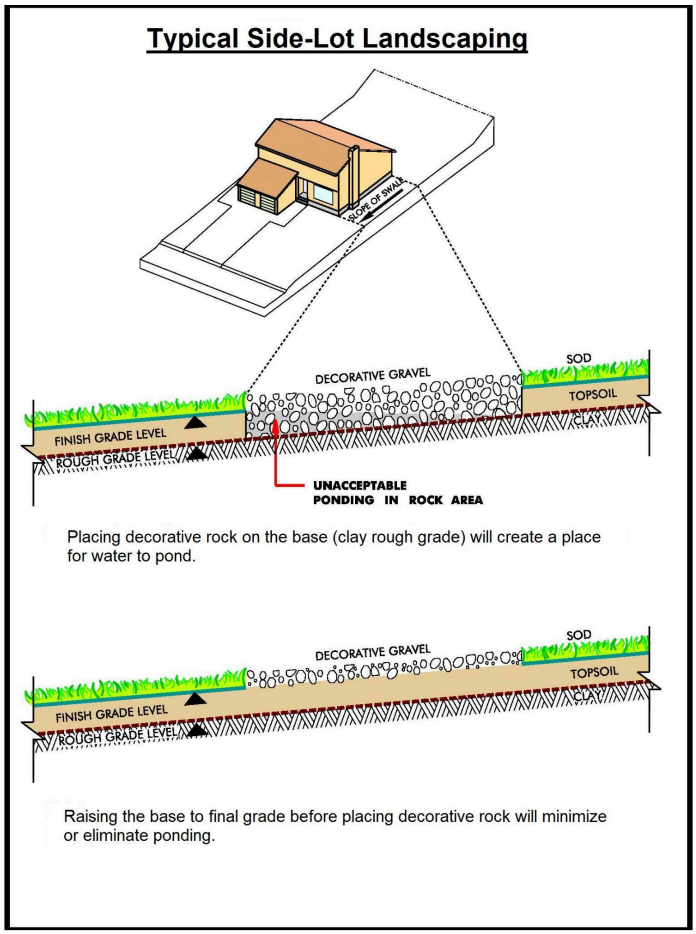

Figure 3 - Decorative Material on Grade

Minimum Slope from Buildings

A sloped (graded) surface is required to effectively drain water away from a building. This reduces the potential for flooding by protecting the foundation walls, weeping tile systems and building openings from stormwater.

Table 3 establishes the requirements for minimum slope and distance away from buildings, which varies depending on the type of surface adjacent to the building. It also establishes a minimum drop between the building and the drainage swale to help achieve an adequate slope away from the building where minimum slope-distance cannot be attained (i.e. the side yard). See Figures 4 to 7 that illustrate these requirements.

Surface Type	Minimum Slope from Building	Minimum Drop from Building to Drainage Swale
Soft Surface/Landscaping - Foundation Walls	5.0% Slope for 2 m	15 cm Drop
Soft Surface/Landscaping - Slab on Grade (i.e. Detached Garages and Parking Pads)	5.0% Slope for 2 m	10 cm Drop
Hard/Impermeable Surface	1.0% Slope	15 cm Drop No minimum drop required if paved from building-to-building (See Figure 7)

Table 3 - Minimum Slope from Buildings

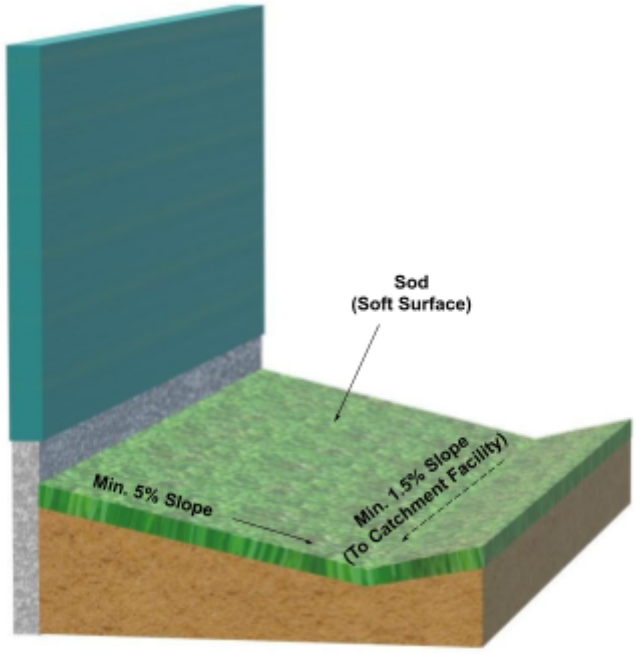

Figure 4 - Grass Swale (Soft Surface)

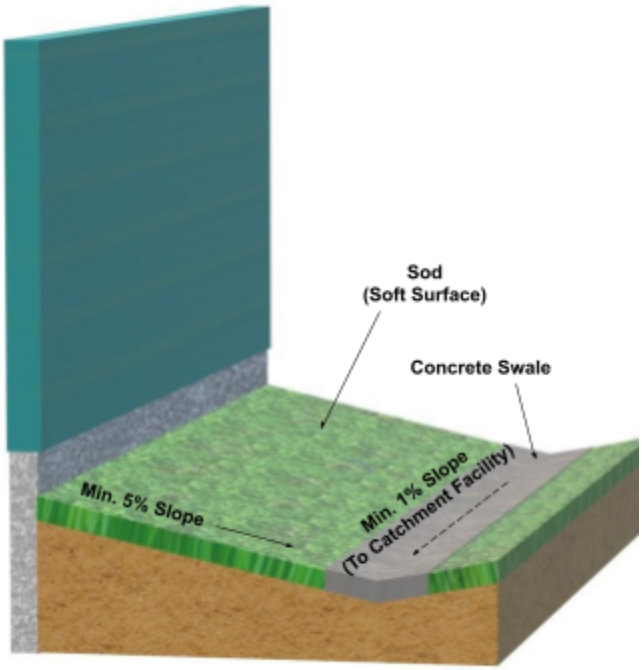

Figure 5 - Concrete Swale

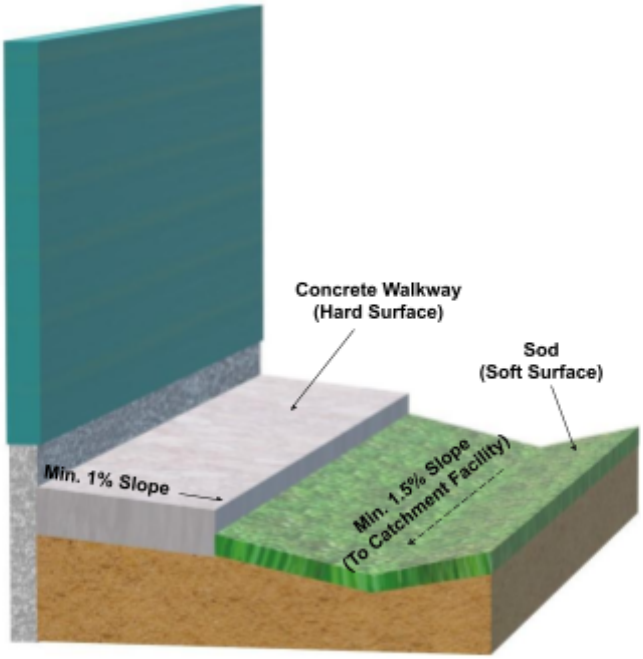

Figure 6 - Grass Swale with Concrete Walkway

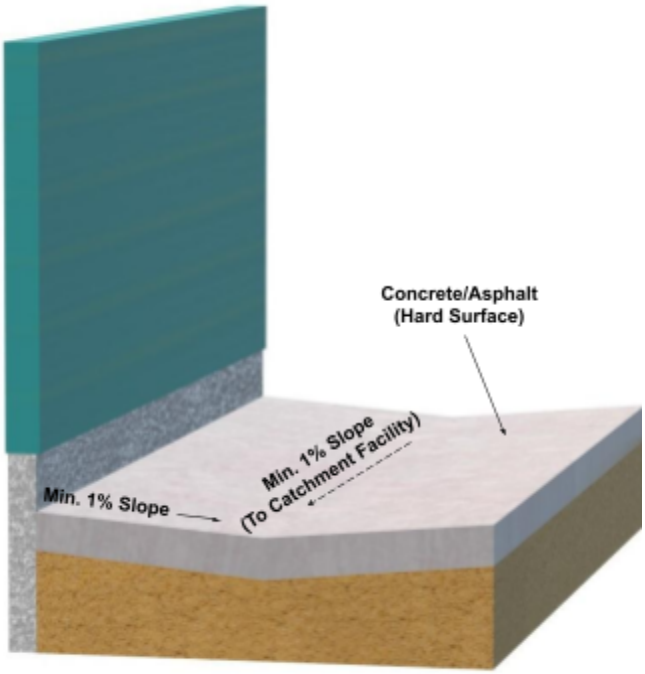

Figure 7 - Swale on Hard Surface

Drainage Swales

A drainage swale is a shallow, sloped linear depression (a shallow ditch) made of grass (permeable) or concrete (impermeable), which carries stormwater towards the catchment facilities of the private drainage system.

Any swales constructed of grass must be fully contained within each property and have a minimum 1.5% slope to direct surface runoff towards the private drainage system.

Any swales constructed of concrete must be fully contained within each property and have a minimum 1.0% slope to direct surface runoff towards the private drainage system.

Swale Type	Minimum Longitudinal Slope
Grass Swale	1.5%
Concrete Swale	1.0%

Table 4 - Drainage Swale Requirements

Figure 8 - Example of Internal Concrete Swale

Figure 9 - Example of Internal Grass Swale

Figure 10 - Example of Concrete Pad with Swale

Retaining Walls

Retaining walls are required to support substantial differences in elevation within the site and between adjacent properties.

All retaining walls that exceed 1.2 m in height and/or are attached to a building are required to be of an engineered design. *Refer to the Alberta Building Codes and Standards for more information.*

Retaining Wall Requirements: (less than 1.2 m in height)	• Constructed of concrete or minimum 10 cm x 15 cm (4" x 6") pressure treated timbers. ○ Timber walls require a dimpled waterproof membrane. • Must be self supporting. Cannot touch or be supported by any existing structures or fences. • Must project below the adjacent surface elevation. • The top of the wall must be a minimum 15 cm above the bottom of the internal swale and 5 cm above adjacent surface grade. • Stormwater drainage must be conveyed to a private drainage system or City right-of-way. • Internal swales must be located entirely within the property.

Table 5 - Retaining Wall Requirements

Fences and other structures are not retaining walls *and cannot be used to retain soil in raised beds or other landscape features. However, if there is no existing fence, one may be built on top of the newly constructed retaining wall provided that the retaining wall is constructed in accordance with the above requirements.*

Figure 11 - Concrete Retaining Wall

Figure 12 - Stone Retaining Wall

Figure 13 - Concrete Curb as Retaining Wall

Window Wells

Window wells may be required to minimize the risk of flooding when the bottom of a window is at or below Final Grade. Window wells must extend a minimum of 5 cm above the adjacent Final Grade elevation. If this minimum cannot be achieved then the window well will need to be raised or extended.

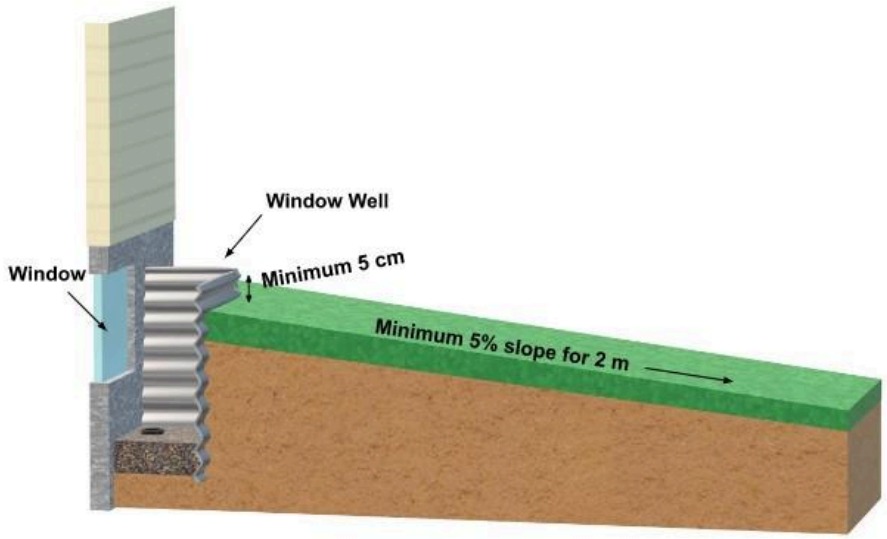

Figure 14 - Window Well

Right-of-Ways, Easements and Restrictive Covenants

Many lots have a right-of-way, easement or restrictive covenant registered on Title which often contains development restrictions. The person responsible is required to ensure these restrictions are followed during and after the lot grading process. Title documents are available from an Alberta Registry Agent.

These restrictions may include (but are not limited to) the following:

- Prohibiting the planting of trees and shrubs within a right-of-way or easement.
- Prohibiting the placement of other landscaping features, objects or structures within a right-of-way or easement.

Figure 15 - Major concrete drainage swale easement

Figure 16 - Major grass drainage swale easement

Site Servicing Requirements

All Commercial properties must be storm serviced and provide private drainage systems for stormwater and subsurface water according to Drainage Bylaw 18093 and EPCOR Drainage Services and Wastewater Treatment Bylaw 19627. Surface drainage must be controlled solely within the property.

Storm Service

Site service systems determine how roof and foundation water are removed from a property. Below are the storm service requirements that must be followed.

Servicing	Service Requirements
Storm Service	• The weeping tile system must be connected to the storm service provided. • All downspouts must be connected to the storm service provided or directed away from the building to the catchment facilities of the private drainage system where no public safety hazards exist. • All storm risers must be above the Final Grade elevation.

Table 6 - Storm Service Requirements

For more information about site servicing requirements, refer to EPCOR Service Connections or contact EPCOR Infill Water and Sewer Servicing at 780-496-5444 or email wass.drainage@epcor.com.

Private Drainage System

A private drainage system is located solely within the property and is made up of a series of on-site facilities including catch basins, area drains, storm sewer pipes and/or LID facilities. This system collects and manages all surface drainage and runoff prior to being released to City infrastructure.

An LID is a type of stormwater management facility that incorporates plants, engineered soils, and natural processes to capture stormwater runoff close to its source. Stormwater enters the LID and flows into the engineered soil layers that have the ability to capture and filter the stormwater, while specially selected plants then absorb the water or it evaporates. Any excess water that isn't evaporated or used by the plants and soils then drains into the stormwater system. Common LID features include bioretention gardens (rain gardens), bioswales and soil cells.

Weeping tile and sump pumps are not to drain into LID features.

The City of Edmonton is not responsible for the approval of LID features. For more information about LID features and requirements visit EPCOR - Low Impact Development.

For more information about private drainage system requirements visit EPCOR - Service Connections or contact EPCOR Infill Water and Sewer Servicing at 780-496-5444 or email wass.drainage@epcor.com.

Downspouts

Downspouts are pipes that connect to a roof drainage system (eavestroughs or scuppers) to carry rainwater and snowmelt from the roof to the private drainage system. A clean and functional roof drainage system protects the roof, siding and foundation from water damage and helps prevent flooding.

Servicing	Downspout Requirements
Storm Service	• All downspouts must be connected to the storm service provided or directed away from the building to the catchment facilities of the private drainage system where no public safety hazards exist. • All downspouts must be complete with elbows no higher than 30 cm above Final Grade. • All downspouts must be complete with extensions or splash pads. • Discharge points must be a minimum of 1m away from the building.

Table 7 - Downspout Requirements

Splash Pads

Splash pads are solid objects (often concrete or plastic) placed under the discharge points of downspouts that direct water away from the foundation. This helps to minimize soil erosion around the foundation and prevents any discharged water from entering the weeping tile system.

If a direct connection to a storm service is not available, splash pads should be placed in the following areas:

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

Figure 17 - Splash pad under downspout

Sump Pump

The sump pump is part of the building's foundation drainage system that collects and discharges the water from the weeping tile. Once the water is collected, it is discharged to the storm service provided.

Figure 18 - Sump discharge detail

Lot Grading Issues and Maintenance

Lot grading issues can develop slowly over a period of years, such as settlement at the foundation walls, which can become evident after rainstorms or during snowmelt. Re-grading or re-development can also create stormwater drainage issues or highlight existing issues, which may result in flooding, property damage or disputes between neighbours.

There is always a potential for flooding to occur, even if it has never happened before. Persons responsible are encouraged to take preventive measures to avoid drainage issues and flooding such as:

- Ensuring eavestroughs are clear of debris and downspouts are extended past the foundation wall.
- Shoveling snow away from window wells, downspouts and foundation walls during snowmelt to provide a path for stormwater to flow to the City right-of-way.
- Repairing settlements that may have occurred to ensure water flows away from the foundation walls.
- Ensuring drainage swales are clear of debris, settlements and functioning properly.
- Contact a restoration company, professional landscaper, grading company/contractor, or foundation drainage/repair contractor if major issues arise.

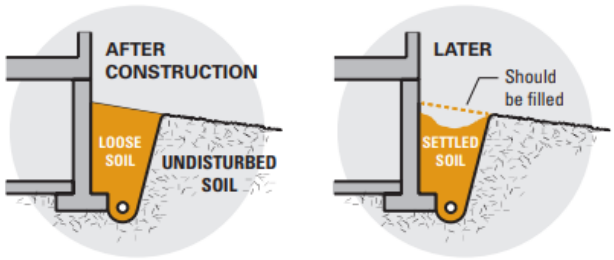

Figure 19 - Settlement

For answers to questions about common drainage disputes, please refer to the Frequently Asked Questions. For areas developed before 1989, please refer to Lot Grading Issues on how to deal with stormwater drainage problems.

Once Final Grade Approval has been issued, the person responsible is required to maintain the surface grades in perpetuity. The City of Edmonton may at any time, require maintenance or enforcement of repairs on the lot grading if alterations or settlements result in lot grading problems.

Enforcement

When a Lot Grading Inspector discovers or identifies a situation that is non-compliant with Drainage Bylaw 18093, the inspector may serve a notice to the person responsible for the premises.

Correction of the non-compliant issue must be completed before the deadline specified in the notice. Bylaw penalties and subsequent fines may be imposed for properties when compliance is not achieved by the specified deadline.

In consideration of enforcing Drainage Bylaw 18093, the City takes into account any damaging impact on adjacent properties.

For More Information

Contact Information

311
General Inquiries
7:00am - 7:00pm
Monday-Sunday (Closed Statutory Holidays)

Internet Resources

Residential Lot Grading:
www.edmonton.ca/lotgrading

Commercial & Multi-Unit Residential:
https://www.edmonton.ca/business_economy/lot-grading-commercial

EPCOR

EPCOR Water Services Inc.,
Infill Water and Sewer Servicing
780-496-5444
wass.drainage@epcor.com
Service Connections

EPCOR Drainage Services
780-412-4500
epcordrainage@epcor.com
EPCOR Drainage Services

Documentation

Drainage Bylaw 18093

EPCOR Drainage Services and Wastewater Treatment Bylaw 19627

City of Edmonton Design and Construction Standards Volume 3 Drainage

Alberta Building Code

Pamphlet Series

"Lot Grading Inspections"
Residential Properties

"Lot Grading Inspections"
Final Grade Stage

"Lot Grading Maintenance"
After Final Grade Stage

Definitions

Adjacent Property	➢ The neighbouring property that shares a common property line. Also referred to as the “abutting or flanking lot”.
Area Drain	➢ A surface drain that collects surface runoff and directs it to the provided storm service.
As-built Elevation	➢ The actual/existing elevation of a point based on a benchmark, as determined by a surveyor.
Benchmark	➢ A predetermined elevation (based on a datum) used to set other grade points with elevations.
Bylaw	➢ Rules created and enforced by a municipal government.
Catch Basin	➢ A surface drain that collects surface runoff and directs it to the provided storm service system
Catchment Facility	➢ A catch basin, area drain, or other feature that captures surface water and diverts it into a private drainage system
Common Property Line	➢ The property line that is shared between adjacent properties.
Downspout	➢ A pipe that connects an eavestrough to either a storm stand pipe or an elbow and extension and directs roof water. Also referred to as a “roof leader”.
Downspout Elbow	➢ A connection of the downspout that forms a bend to redirect the flow of water.
Downspout Extension	➢ A length of downspout (usually hinged) that directs water away from the building.
Drainage	➢ The gravity-assisted down and outward flow of water.
Easement	➢ A registered property interest that grants the easement holder the right of use or access on a designated portion of land.
Eavestrough	➢ A connected system of gutters that is used to collect and relay roof water to the downspouts.
Elevation	➢ A height defined by a benchmark.
Erosion	➢ The gradual wearing down of the land caused by flowing water.
Final Grading	➢ The final stage of shaping the lot by adding soil. The stage occurs after Rough Grading but before landscaping.
Foundation Service	➢ An underground pipe that connects a private foundation drainage system (weeping tile) to a storm sewer main and sump pump. This type of service is designed to collect groundwater only.
Foundation Wall	➢ The vertical walls of a foundation that supports the weight of a building or structure.
Grade	➢ The slope of the land or the surface itself.
Grade Differential	➢ A major difference in elevation between two areas. Also referred to as “Grade Separation”.
Grading	➢ The process of shaping the land to control stormwater surface drainage.

Greenfield	➢ A planned subdivision/construction area with an approved subdivision plan.
Hard Surface	➢ A type of hard, impermeable surface. (i.e. concrete, rock or asphalt)
Impermeable	➢ Not allowing water to flow through.
Internal	➢ Being located completely within a lot (i.e. inside the property lines).
Landscaping	➢ The final surface treatment where decorative materials such as sod, mulch and vegetation are installed. This stage occurs after Final Grading.
LID (Low Impact Development)	➢ A type of stormwater management facility that incorporates plants, engineered soils and natural processes to capture water runoff close to its source, reducing the volume entering the storm service.
Lot Grading	➢ The shaping and sloping of the ground to provide a surface for controlling stormwater that conforms to an approved design.
Lot Grading Certificate	➢ A plan showing the design grades and elevations, as-built grades and elevations, and overall structure of the buildings developed on a lot.
Lot Grading Inspector	➢ A City of Edmonton employee who, guided by approved Design Plans, the Drainage Bylaw 18093 and Lot Grading Guidelines in effect, inspects private properties for the overall ability to control stormwater by overland or below ground services.
Lot Grading Plan	➢ A plan showing the approved design grades and elevations of a subdivision or individual lot.
Low Area	➢ An area requiring “fill material” to restore or establish functional grade.
Negative Grade	➢ Land that slopes towards the foundation or reverse slope (grade) in a swale.
Permeable	➢ A type of surface that allows water to soak through it (i.e. grass, soil, or gravel).
Person Responsible	➢ Anyone responsible for the requirements of Drainage Bylaw 18093 including the owner, occupant, tenant, lessee, developer, and/or contractor of the premises.
Positive Grade	➢ Land or grade that slopes in the designed direction of flow (i.e. down and away from a foundation wall or in a swale).
Private Drainage System	➢ A system of catch basins, area drains and storm sewer pipes located solely with the property that manages on-site stormwater drainage before releasing to city infrastructure.
Redline Revision	➢ An accepted change or series of changes to the original drawings of an approved plan.
Restrictive Covenant	➢ A document registered against the title of a property that includes restrictions about how a property may be used and developed.
Retaining Wall	➢ A structure used to support the grade of one side of a swale and/or to retain material in situations requiring grade separation.
Right-of-Way	➢ A portion of land or property defined by ownership and use. It may be described as an easement which grants access rights to individuals to pass over or use the designated land in some way.
Rough Grading	➢ The first of two stages of shaping a lot by manipulating native materials (usually clay) to set the template for the Final Grading stage.

Scupper	➢ An outlet on the side of a building used for draining water on a flat roof.
Settlement	➢ The natural settling of grade over time forming flat areas or depressed (low) areas requiring maintenance.
Side Yard	➢ The side portion of a lot, typically between the house foundation wall and the side property lines.
Slope	➢ The gradient differential between two points of a known or designed elevation and the distance between those points.
Soft Surface	➢ A type of permeable surface such as grass and soil; also referred to as Soft Landscaping.
Splash Pad	➢ A pad, usually made of concrete or plastic, placed underneath a downspout or sump discharge point directing flow of water and preventing erosion.
Storm Riser	➢ A pipe that connects a downspout to the storm service; also referred to as a standpipe.
Storm Service	➢ Underground piping that connects both the roof (eavestroughs) and foundation drainage system (weeping tile) to a storm sewer main. This type of service collects both groundwater and roof water.
Stormwater	➢ Surface water resulting from rain and snow.
Stormwater Management Facility (SWMF)	➢ A parcel of land that is used to collect and contain stormwater.
Subdivision	➢ A parcel of land that is subdivided into two or more lots.
Subdivision Plan	➢ A plan showing the legal property boundaries of lots within a subdivision.
Sump Pit	➢ A low area or pit designed to collect groundwater. Generally it is the lowest point of a building or structure.
Sump Pump	➢ A mechanical pump that pumps water out of a sump pit.
Surface Runoff	➢ Water that flows across the land.
Swale	➢ A shallow, often wide, ditch or low lying area designed with slope, to collect and relay stormwater. Usually located on property lines or at defined locations on a lot.
Weeping Tile	➢ Perforated piping material laid horizontally at the base of the foundation and vertically at window well locations. It collects ground water and releases it to the internal sump pit or storm service

Quick Reference Guide

Lot Grading Approval

Grading Approval Time Frames

Final Grade must be approved within:	• **18 months** of the commercial final permit being issued for the premises. • **18 months** of the development permit being issued for the premises, in the event that no building permit is required or issued.

Table 1 - Grade Approval Timeframe

All exterior construction, including buildings, concrete driveways, walkways and drainage systems must be completed before applying for final grade approval. It is the builder's responsibility to ensure that roof leaders (downspouts) and foundation drainage systems are installed according to the approved engineering drawings and servicing requirements.

Grading Approval Process

Prior to inspection, please ensure the site is accessible (gates are unlocked), any materials/objects that would impede the grading inspection or make it difficult to inspect the grading are removed and ensure the topsoil is smoothly spread out, compacted and ready for sod, liners, rocks, etc.

Commercial, Industrial, Multi-unit Housing, Mixed Use and Stacked Rowhouse Buildings:
To initiate a Final Lot Grading Inspection (or Reinspection) and submit the Lot Grading Certificate (as-built) apply by emailing lot.grading@edmonton.ca. To pay a re-inspection fee, call 311 to be transferred to payments.

Rowhouse and Bareland Condo Residential Buildings:
To initiate a Final Lot Grading Inspection (or Reinspection) and submit the Lot Grading Certificate or pay a reinspection fee, go to: https://selfserve.edmonton.ca/residentiallotgrading

Please be aware that under Drainage Bylaw 18093, the person responsible is ultimately accountable for all grading activities and approvals, regardless of who submits the application.

After Final Grade Approval has been issued, the person responsible is required to maintain the surface grades in perpetuity. The City of Edmonton may at any time, require maintenance or enforcement of repairs on the lot grading if alterations or settlements result in lot grading problems.

If there is a discrepancy between the Lot Grading Guidelines and Drainage Bylaw 18093, the Drainage Bylaw 18093 will prevail.

Lot Grading Requirements

Design Elevation Tolerance

Grading Stage	Tolerance from Approved Final Grade Design Elevations
Final Grade on topsoil and hardscaping	Between −10 cm and 0 cm
Final Grade on finished landscaping	Between −10 cm and +10 cm

Table 2 - Design Elevation Tolerances

In order for the surveyor to record accurate information, decorative materials should not be placed at or near the design or critical as-built elevation locations. As-built elevations provided on these materials may be subject to recertification to validate drainage functionality and conformance with design tolerance.

Minimum Grade Requirements

Surface Type	Minimum Slope from Building	Minimum Drop from Building to Drainage Swale
Soft Surface/Landscaping - Foundation Walls	5.0% Slope for 2 m	15 cm Drop
Soft Surface/Landscaping - Slab on Grade (i.e. Detached Garages and Parking Pads)	5.0% Slope for 2 m	10 cm Drop
Hard/Impermeable Surface	1.0% Slope	15 cm Drop No minimum drop required if paved from building-to-building (See Figure 7)

Table 3 - Minimum Slope from Buildings

Drainage Swales

Swale Type	Minimum Longitudinal Slope
Grass Swale	1.5%
Concrete Swale	1.0%

Table 4 - Drainage Swale Requirements

Retaining Walls

All retaining walls that exceed 1.2 m in height and/or are attached to the house are required to be of an engineered design. *Refer to the Alberta Building Codes and Standards for more information.*

Retaining Wall Requirements: (less than 1.2 m in height)	• Constructed of concrete or minimum 10 cm x 15 cm (4" x 6") pressure treated timbers. ○ Timber walls require a dimpled waterproof membrane. • Must be self supporting. Cannot touch or be supported by any existing structures or fences. • Must project below the adjacent surface elevation. • The top of the wall must be a minimum 15 cm above the bottom of the internal swale and 5 cm above adjacent surface grade. • Stormwater drainage must be conveyed to a private drainage system or City right-of-way. • Internal swales must be located entirely within the property.

Table 5 - Retaining Wall Requirements

Fences and other structures are not retaining walls *and cannot be used to retain soil in raised beds or other landscape features. However, if there is no existing fence, one may be built on top of the newly constructed retaining wall provided that the retaining wall is constructed in accordance with the above requirements.*

Site Servicing Requirements

Foundation and Storm Service

Servicing	Service Requirements
Storm Service	• The weeping tile system must be connected to the storm service provided. • All downspouts must be connected to the storm service provided or directed away from the building to the catchment facilities of the private drainage system where no public safety hazards exist. • All storm risers must be above the Final Grade elevation.

Table 6 - Foundation and Storm Service Requirements

Downspouts

Servicing	Downspout Requirements
Storm Service	• All downspouts must be connected to the storm service provided or directed away from the building to the catchment facilities of the private drainage system. • All downspouts must be complete with elbows no higher than 30 cm above Final Grade. • All downspouts must be complete with extensions or splash pads. • Discharge points must be a minimum of 1m away from the building.

Table 7 - Downspout Requirements