Commercial and Multi-Family Residential Lot Grading Guidelines

City of Edmonton

Edmonton

COMMERCIAL AND MULTI-FAMILY RESIDENTIAL PROPERTIES

Introduction

Drainage Bylaw 18093 came into effect on January 1, 2018, replacing Drainage Bylaw 16200. This Bylaw requires that all land that is zoned for Commercial, Industrial, Multi-Family Residential, and Urban Services be graded in accordance with an Approved Lot Grading Plan.

Lot Grading slopes away from a Multi-Family buildings

Surface drainage is controlled to drain towards private catch basins

Definition

Lot grading for Commercial and Multi-family properties is the shaping or sloping of the land to direct surface drainage away from buildings and to control it within the property in a manner that does not impact adjacent properties and City right-of-ways.

Purpose

The purpose of lot grading is to provide control of stormwater runoff with slope down and away from buildings on private property in a manner that eliminates impact on abutting properties and City right-of-ways The Drainage Bylaw, Approved Grading Plans and the required inspection process and approval by the City Manager on all new developments allow the City to regulate this control.

Lot grading with slope away from a building on soft landscaping.

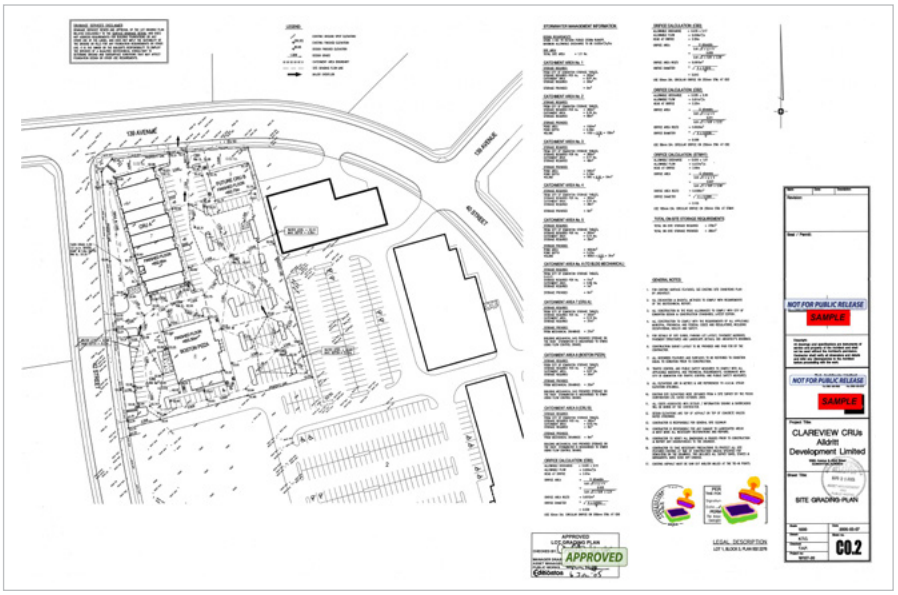
Lot grading with slope away from a building on hard surface.

COMMERCIAL AND MULTI-FAMILY RESIDENTIAL PROPERTIES *(CONT.)*

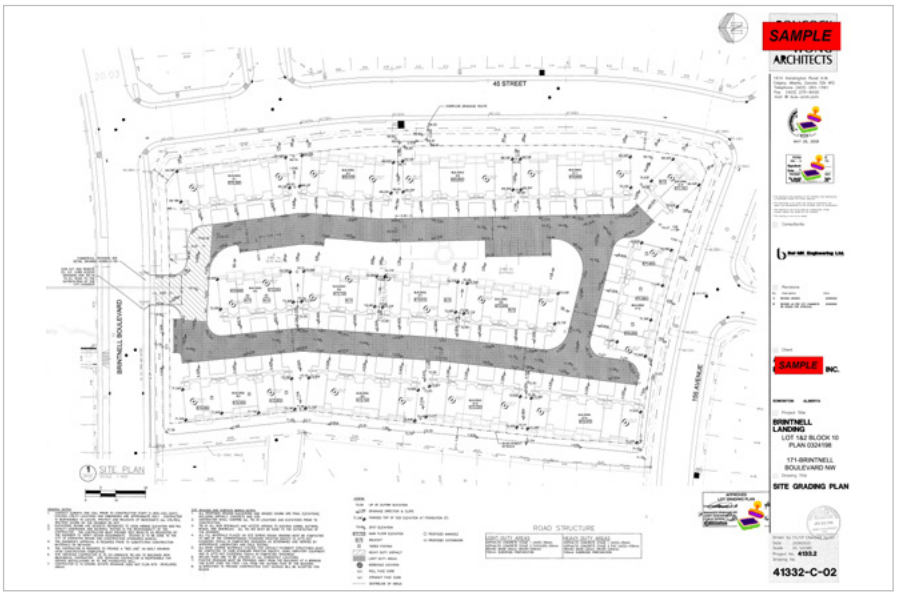
Lot Grading Plan

A Lot Grading Plan has been part of the approval process for commercial and multi-family properties since 1993. A plan is required for all new developments and is approved by the City of Edmonton. A Lot Grading Plan specifies design elevations, surface gradients, swale locations, and other drainage information required for lot grading

A Lot Grading Plan establishes the grading relationship between adjacent properties and its approval is an effective basis for the control of surface drainage.



Example of a commercial (Shopping Centre) Lot Grading Plan



Example of a multi-family Lot Grading Plan

COMMERCIAL AND MULTI-FAMILY RESIDENTIAL PROPERTIES *(CONT.)*

Restrictive Covenants and Stormwater Facilites

As per EPCOR Drainage Services and Wastewater Treatment Bylaw 19627, property owners must comply with the terms and conditions of any restrictive covenant, easement agreement, utility right-of-way, or any other document that is registered on the certificate of title for their property. These encumbrances are intended to protect ravines, natural areas, structures, ditches, swales, overflow areas, or other drainage features like Stormwater Facilities. Such encumbrances are usually in the form of Right-of-Ways, Easements, and Restrictive Covenants; these legal documents can be obtained from a licensed registry agent or Government of Alberta Spatial Information System sign in with an account or as a guest. Any and all such encumbrances should be checked prior to construction, planting, grading, or building in these locations

NOTE: The owner of a premises shall not install, or permit to be installed, any water retention structure or irrigation system on any slope unless the installation has been approved by the City Manager (Sec 12, Bylaw 18093).

NOTE: As of September 1, 2017 Stormwater Facilities are owned and operated by EPCOR Water Services Inc.. For more information visit https://www.epcor.com/products-services/drainage/stormwater/

Stormwater Facility at a Commercial/Industrial Area

Lot Grading Inspection Fee

A lot grading inspection fee will be assessed for Commercial and Multi-Family Residential land use. Current inspection fees are found on the Lot Grading website and are outlined in Drainage Bylaw 18093.

Documentation

- Drainage Bylaw 18093
- EPCOR Drainage Services and Wastewater Treatment Bylaw 19627
- Alberta Building Code
- City of Edmonton Design and Construction Standards Manual

A typical sign located at a Stormwater Facility at normal water level

LOT GRADING PLAN APPROVAL

Under provisions of the City of Edmonton Drainage Bylaw and EPCOR Drainage Services and Wastewater Treatment Bylaw 19627 the owner of a premises shall ensure that a Lot Grading Plan for the premises is approved within 60 days of the application of the development permit prior to the construction of any buildings, additions to buildings, or alterations of surface drainage on the premises. It is the owner's/developer's responsibility to 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.

EPCOR Water Services Inc., Infill Water and Sewer Servicing reviews the Lot Grading Plan on behalf of the City of Edmonton along with Site Mechanical Plans for Commercial and Multi-Family Service Connections. For more information contact 780-496-5444 or wass.drainage@epcor.com

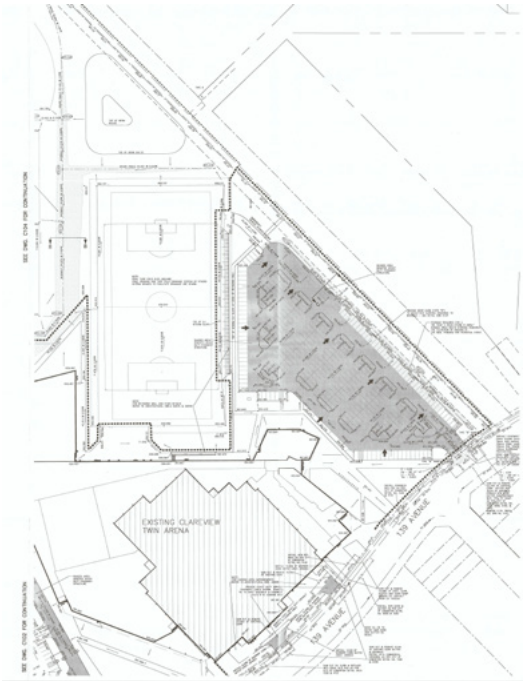
- Lot Grading Plan Requirements:
  - A scale drawing of the property in metric units, designed and certified by a professional acceptable to the City Manager (i.e. Professional Engineer, Registered Architect, or Professional Technologist)
  - Existing surface elevations, contours, and surface grades of the property based on geodetic datum
  - Proposed geodetic surface elevations at the property corners and at intervals around the perimeter of the property
  - Proposed geodetic surface elevations adjacent to the foundation walls or concrete slab-on-grade for proposed buildings
  - Proposed direction of surface drainage flow, indicated by arrows
  - Proposed locations and gradients of swales
  - Lot Grading details, indicating acceptable drainage patterns for commercial and multi-family developments.
  - Cross-section details of proposed swales
  - Proposed surface conditions (i.e. sod, asphalt, concrete, gravel, etc.)
  - Facilities and means demonstrating compliance with the stormwater management controls and storage requirements (Maximum 5% of hard surface area allowed to spill directly to City right-of-way)
  - Provisions for accommodating overland flows from adjacent undeveloped lands
  - Site Contained, private storm drainage system demonstrating compliance with the Drainage Bylaw and EPCOR Drainage Services and Wastewater Treatment Bylaw 19627
  - Information referring to Geotechnical Reports produced by a Geotechnical Engineer when unusual or special requirements are needed
  - Property Information: Legal description, subdivision or neighbourhood, property address or road names, and north arrow
  - Project Information: Project Name, applicant information, development boundary, revision box, legend, and notes
  - Space near the bottom right hand corner of the plan for the Approval Stamp
- Once a proposed Lot Grading Plan has been

LOT GRADING PLAN APPROVAL

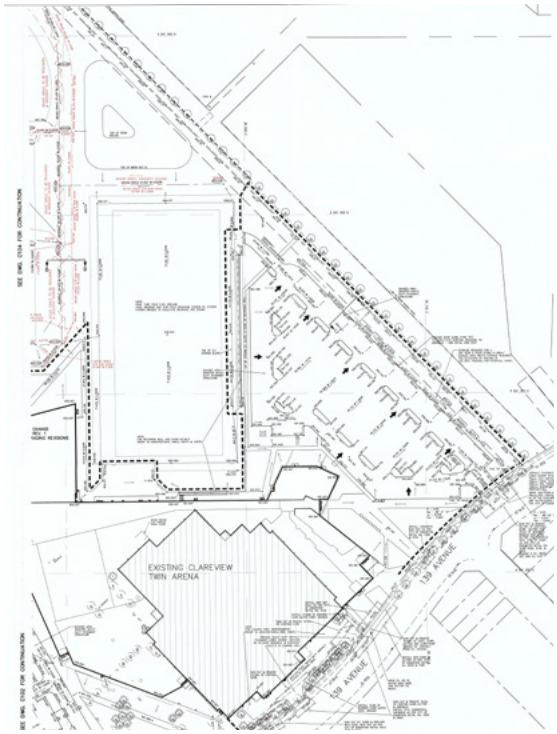
reviewed, the applicant will be notified if the plan is approved or if revisions are required. If revisions are to be made, a list will be sent to the applicant to address the comments and to submit a revised Lot Grading Plan for further review.

- Approved Lot Grading Plans are stamped and signed by the City of Edmonton and returned to the applicant. This approved plan then becomes the Lot Grading Plan for the site.

- If revisions to the approved Lot Grading Plan are required, then a revised drawing (red-line revision) must be sent to EPCOR Water Services Inc. Infill Water and Sewer Servicing and the City of Edmonton Development Services Lot Grading for review and approval. An approved revised Lot Grading Plan will supersede the previously approved Lot Grading Plan.



Example of an approved Lot Grading Plan (for reference only).



Example of a revised Lot Grading Plan (for reference only).

LOT GRADING APPROVAL PROCEDURE

Grading Approval Process

Within 18 months of the issuance of the building permit, the development should be graded to conform to the approved Lot Grading Plan. The following steps are required to obtain Final Grade Approval:

1. The developer/applicant has a Lot Grading Certificate prepared by a professional acceptable to the City Manager. As-built information ***must be*** presented on the approved Lot Grading Plan.

2. The Lot Grading Certificate is submitted to the City of Edmonton for approval. The applicant must provide information for their preferred method of contact (fax, email, or mail) to receive a Lot Grading Inspection Report.

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 and Drainage Bylaw 18093. The inspection is usually done within ***10 working days*** of processing of the certificate, depending on workload and weather conditions.

4. The applicant will receive an Inspection Report indicating whether the site grading has ***Passed*** (approved) or ***Failed*** (deficiencies exist).

5. If the Inspection Report indicates a failure, it will identify the deficiencies and their locations. Please note, deficiency items are labeled "left," "right," "front," and "back." The "front" of a lot is typically determined when facing the property from the City street. In the case of a corner lot, the front property line is the shortest of the two that abut the City street.

6. The applicant must correct any deficiencies within ***60 days*** (unless otherwise noted) and call ***311*** to request a reinspection from the City of Edmonton. Applicable fees apply. If resubmission of a Lot Grading Certificate is indicated, reinspection cannot occur until receipt of the new Lot Grading Certificate.

7. The applicant will be notified when the site grading is approved. This approval is based on the site conditions observed at the time of the lot grading inspection.

Final Grading in progress at a condominium / multi-family site

LOT GRADING REQUIREMENTS

Site Servicing

As per Drainage Bylaw 18093 and EPCOR Drainage Services and Wastewater Treatment Bylaw 19627, all commercial and multi-family properties must provide private drainage systems for stormwater and subsurface water. Surface drainage must be controlled within the property.

Elevation Tolerance at Final Grade

- Acceptable as-built tolerances from the approved grades (provided minimum slopes are achieved):
  - ***Between 0 cm and 10 cm below final grade for topsoil (black dirt).*** Note: "0" is at approved design grade.
    Example: Design Grade 682.25 m, Existing Grade 682.20 m = 5 cm below design grade.
  - ***Between 10 cm below and 10 cm above final grade for finished landscaping (sod or concrete).***
    Example: Design Grade 682.25 m, Existing Grade 682.30 m = 5 cm above design grade.

NOTE: Where decorative ground covers are used (rock, wood chips, etc.) all elevation measurements must be taken from the surface underlying the decorative material.

- The Lot Grading Inspector has the discretion to accept elevations that are not within tolerance when the following occurs:
  - The developer has provided adequate slope to protect the buildings and the on-site surface drainage and swales meet the minimum slope requirement to convey surface drainage to the on-site catchment system.
  - The property is graded to match adjacent properties and it appears that on-site surface drainage complies with the requirements of Drainage Bylaw 18093.

Example of asphalt grading on a condominium parking lot

Ponding area around a catch basin on private property during a storm event

LOT GRADING REQUIREMENTS *(CONT.)*

Minimum Grade from Foundation Walls and Concrete Slab-on-Grade Buildings

A sloped surface is required to effectively drain water away from all foundation walls and concrete slab-on-grade buildings. This includes areas underneath steps and decks (see the Lot Grading Detail Drawings for more information).

- Minimum grade requirements:
  - 10% for the first 2 m – Minimum 20 cm drop for final grade on soft landscaping.
  - 5% for the first 2 m (slab-on-grade) - Minimum 10 cm drop for final grade on soft landscaping.
  - 0.75% for concrete, asphalt, or other impervious surface treatment provided a minimum 15 cm drop occurs between a building and an on-site drainage swale.

Positive slope away from building

Grading away from the wall on a row housing project

Grading away from a Commercial Building with Slab on Grade

Grading away from a Commercial Building on hard surface

LOT GRADING REQUIREMENTS *(CONT.)*

Drainage Swales

Swale: *a shallow, and often wet, tract of land that is sloped to convey surface drainage toward the catchment facilities on the site.*

Swales are located between or around buildings and are graded to intercept and convey surface drainage to the on-site stormwater management and catchment system. See the Lot Grading Detail Drawings.

- Minimum swale slope requirements:
  - 1.5% for a grass drainage swale
  - 0.75% for a concrete drainage swale

Internal drainage swale

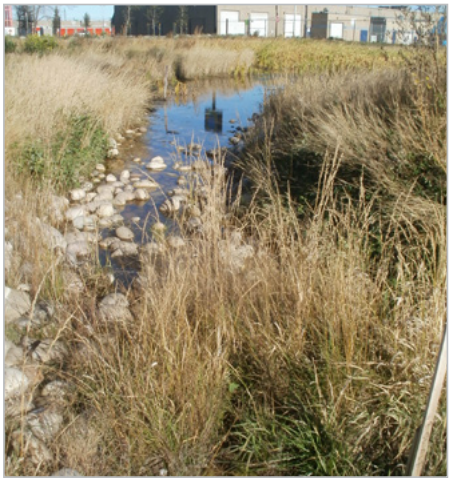
Concrete drainage swale

Concrete swale in a parking lot

Condominium site concrete drainage swale that drains into a catch basin

LOT GRADING REQUIREMENTS *(CONT.)*

Grading of hard surface (paving stones) with slope towards a catch basin



Internal swale (bioswale) sloping towards Private Stormwater Management Lake

Grass swale and catch basin at an apartment site

Typical grading of a commercial parking lot with a catch basin

Drainage into a catch basin during a storm

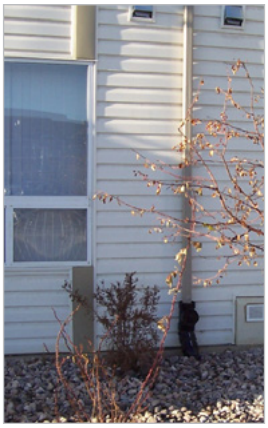
Apartment parking lot with a catch basin

LOT GRADING REQUIREMENTS *(CONT.)*

Downspouts

Downspouts convey roof water to the on-site storm sewer service by direct connection or overland via on-site drainage swales. If the downspout is discharging to the ground, then the downspout must have an elbow and a hinged extension or concrete splash pad.

The downspout elbows should be directed away from the foundation walls towards the drainage swales. Downspout extensions or splash pads must not project past property lines.



Downspouts at an apartment connected to storm service

Downspout at a commercial property connected to storm service

Downspouts with extensions at condominium

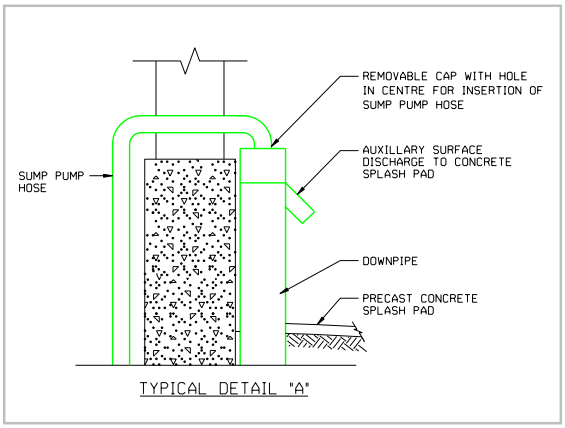
Downspout and extension at an apartment

Downspout at a commercial building

LOT GRADING REQUIREMENTS *(CONT.)*

Foundation Drainage

The sump pump is part of a building's foundation drainage system and it has been a requirement since 1988. The sump pump discharges subsurface water from the weeping tile to the on-site storm sewer system by a direct connection.



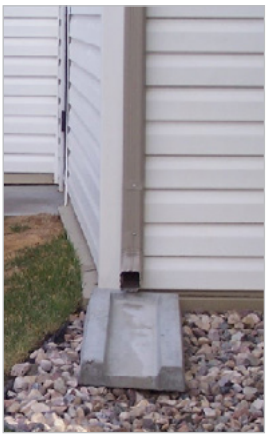
Typical detail of Sump Pump Discharge to storm service

Sump Pump to storm service multi-family site

Splash Pads

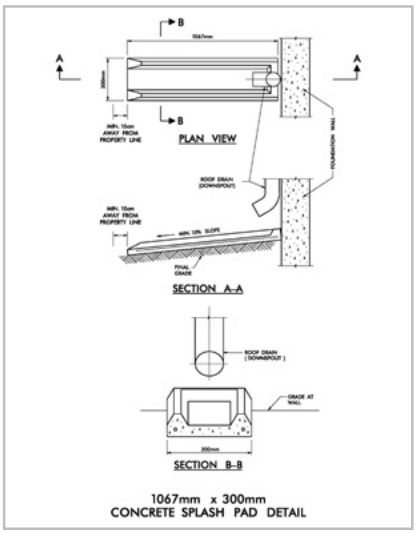
Splash pads convey roof water away from foundation walls and concrete slab-on-grade buildings. They minimize soil erosion and recycling of water through the foundation drainage system. The recommended standard concrete splash pad is 30 cm x 107 cm. Please refer to the splash pad detail below.

- Where direct connections to the storm sewer are not utilized, splash pads may be placed underneath downspouts draining onto soft landscaping (sod, topsoil, and/or gravel).



Splash pad at an apartment

Splash pad at a commercial property



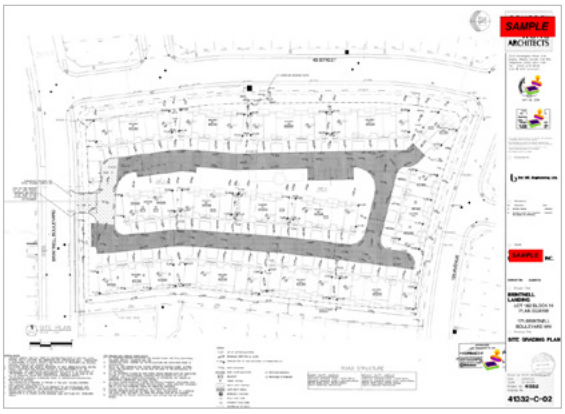
Splash pad detail

LOT GRADING REQUIREMENTS *(CONT.)*

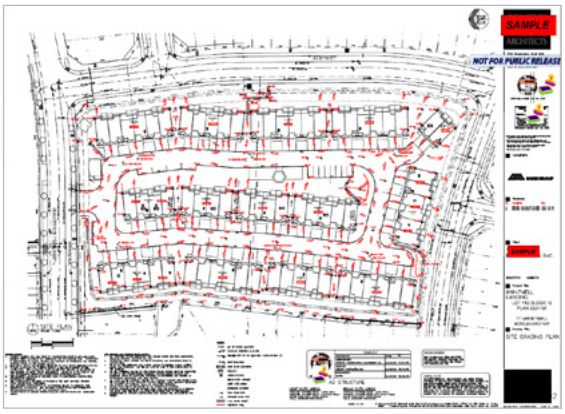
Lot Grading Certificate (As-Built Plan) Requirements

Lot Grading Certificates are required for grade approvals for all commercial, multi-family, and industrial developments and must follow these guidelines:

- Certification by a Professional acceptable to the City Manager (i.e. an Alberta Land Surveyor or a Professional Engineer). ***NOTE: any grading information relative to a legal boundary must be acquired and certified under the supervision and authority of an*** Alberta Land Surveyor.
- As-built elevations ***must be*** presented on the approved Lot Grading Plan.
- Existing geodetic surface elevations ***at the same locations*** as the design elevations on the approved Lot Grading Plan and any ***alterations*** to the proposed surface slopes and elevations such as a relocated high point.
- Existing surface elevations adjacent to the foundation walls and/or top of concrete slab on grade for each building.
- As-built provisions for accommodating overland flows from adjacent undeveloped lands.
- Private storm drainage system demonstrating compliance with the EPCOR Drainage Services and Wastewater Treatment Bylaw 19627.
- Property address, legal description, road names, and applicant contact information.
- Reference to the Alberta Survey Control Monuments that were used to obtain as-built elevations.



Example of an Approved Lot Grading Plan for a multi-family site



Example of an As-built Plan displayed on the approved Lot Grading Plan for a multi-family site

LOT GRADING REQUIREMENTS *(CONT.)*

Lot Grading Maintenance

After Final Grade Approval has been issued, it becomes the owner's responsibility to maintain the surface grades to the standards established at the time of Final Grade Approval in perpetuity. The City of Edmonton may, at any time, require maintenance on the surface grading if alterations or settlements result in surface drainage problems. This requirement is enforceable under the provisions of the Drainage Bylaw 18093.

Asphalt repair around the catch basin

Enforcement

Reports or Notices to Comply will be utilized to notify property owners of non-compliant grading and impending enforcement. Subsequently, bylaw penalties may then be imposed for those properties where grading does not comply with Drainage Bylaw 18093 and the Lot Grading Guidelines by the deadline date specified in a non-compliance notice.

In consideration of enforcing the bylaw, the City takes into account the damaging impact on properties related to non-compliant surface drainage.

The City does not provide any funding for repairing

Ponding on an internal swale at a condominium property

Settlement on parking lot on a commercial property

Settlement on private roadway near and around the catch basin at a multi-family property

FOR MORE INFORMATION

Lot Grading Details and Drawings

- "Commercial – Lot Types A & B"
  Final Grade Stage
- "Multi-Family – Lot Types A, B, C, D, F & W"
  After Final Grade Stage

Pamphlet Series

- "Lot Grading Inspections"
  Residential Properties
- "Lot Grading Inspections"
  Final Grade Stage
- "Lot Grading Maintenance"
  After Final Grade Stage

CONTACT INFORMATION

Urban Planning and Economy, Development Approvals and Inspections, Lot Grading

311 – General Inquiries
7:00 am – 7:00 pm
Monday—Sunday
(Closed Statutory Holidays)
– Reinspection Requests

Address

City of Edmonton
Urban Planning and Economy
Development Approvals and Inspections,
Lot Grading

Edmonton Service Centre
2nd Floor, Edmonton Tower
10111 104 Avenue NW
Edmonton, Alberta T5J 0J4

Internet Addresses

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

Residential Lot Grading:
www.edmonton.ca/lotgrading

Email Address

lot.grading@edmonton.ca

EPCOR

EPCOR Water Services Inc.,
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780-496-5444
wass.drainage@epcor.com
Service for New Developments

EPCOR Drainage Flood Prevention
Home Check-up Program
780-944-7777
Home Check-up Program
floodprevention@epcor.com

EPCOR Drainage and Customer Service
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