

Chapter 23.105 GRADING, EXCAVATION, FILL AND LANDSCAPING 2018 EDITION

23.105.101 General.

23.105.101.1 Scope.

The provisions of this chapter apply to earthwork construction, including excavation, fills, embankments, grading, landscaping, and isolated retaining walls.

(AO No. 2020-85, § 1, 10-27-20)

23.105.101.2 Flood hazard areas.

The provisions of this chapter shall not apply in floodways within flood hazard areas established by Anchorage Municipal Code, Title 21, unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed work will not result in any increase in the level of the base flood.

23.105.102 Definitions.

23.105.102.1 Definitions.

For purposes of this chapter, the terms, phrases, and words listed in this section and their derivatives shall have the indicated meanings.

APPROVAL. The proposed work or completed work conforms to the requirements of this chapter in the opinion of the building official.

APPROVED PLAN. The site plan and/or sections showing the extents of grading operations, existing grade and the proposed final grade after being reviewed for code compliance by the building official and accepted as conforming to this and other applicable codes and laws.

AS-GRADED. The extent of surface conditions on completion of grading; see also GRADE, FINISH.

BEDROCK. In-situ solid rock.

BENCH. A relatively level step excavated into a slope of earth material onto which fill is to be placed.

BORROW. Earth material acquired from an off-site source for use in grading.

BORROW SITE. The location where borrow material is taken.

COMPACTION. The densification of a fill section by mechanical means.

EARTH MATERIAL. Any rock, natural soil, fill, or any combination thereof.

EXCAVATION. The removal of earth material by artificial means; also referred to as a cut.

FILL. Deposition of earth material by artificial means.

GRADE. The vertical location of the ground surface.

GRADE, EXISTING. The grade of the site prior to grading.

GRADE, FINISH. The grade of the site at the conclusion of all grading efforts.

GRADE, ROUGH. The stage at which the grade of the site approximately conforms to the approved plan.

GRADING. An excavation or fill, or a combination thereof.

GRADING QUANTITY. The total amount of excavated earth material removed and fill placed on the site.

KEY. A compacted fill placed in a trench excavated in earth material beneath the toe of a proposed fill slope.

LANDSCAPING. Finish grading using organic soils for the placement of surface vegetation, including annual and perennial plants, grasses, shrubs, and trees.

RETAINING WALL. A wall or structure used to resist lateral earth pressures.

RETAINING WALL, SEGMENTAL. A retaining wall constructed entirely of individual modules or blocks, which are not cast or grouted together.

SITE. Any lot or parcel of land or contiguous combination thereof, under the same ownership, where grading is performed or permitted.

SLOPE. An inclined surface. The inclination of which is expressed as a ratio of horizontal distance to vertical distance.

SOIL. Naturally-occurring superficial deposits overlying bedrock.

TERRACE. A relatively level step constructed in the face of a graded slope surface for drainage and maintenance purposes.

UTILITY. Building or site services that include water, wastewater, natural gas, electric, or telecommunications. Stormwater drainage is not considered a utility under this code.

(AO No. 2020-85, § 1, 10-27-20)

23.105.103 Permits required.

23.105.103.1 Permits required.

Except as exempted in Section 23.105.103.2, no grading shall be performed without first having obtained a permit from the building official. A grading permit issued under this chapter shall include isolated retaining walls, but does not include other structures, or any retaining walls connected to another structure. Separate permits shall be required for each individual site.

23.105.103.2 Exceptions.

A grading permit shall not be required for the following work:

1. When approved in advance by the code official, grading in an isolated, self contained area if there is no danger to private or public property.
2. Cemetery graves.
3. Refuse disposal sites controlled by other regulations when not intended to be developed to carry structural loads after the site is closed for further refuse disposal.
4. Excavation for wells or utilities.

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5. Mining, quarrying, excavating, processing, or stockpiling of rock, sand, gravel, aggregate, or clay, where established and provided by law, provided such operations do not increase the stresses in or pressure upon any adjacent or contiguous property.
 6. Exploratory excavations under the direction of soils engineers or engineering geologists.
 7. An excavation that does not adversely affect drainage, and is:
 - a. less than 2 feet (610 mm) in depth; or
 - b. does not create a cut slope greater than 3 feet (914 mm) in height or greater than 1 unit vertical in 2 units horizontal (50% slope).
 8. A fill that does not adversely affect drainage, and is not more than:
 - a. 1 foot (305 mm) in depth placed on natural terrain with a slope not exceeding 1 unit vertical in 5 units horizontal (20% slope); or
 - b. 3 feet (914 mm) in depth that does not exceed 50 cubic yards (38.3 m³) on any site that does not obstruct a draining course, and is not intended to support structural loads.
 9. An isolated retaining wall not supporting a surcharge where the retained height measured from the bottom of the footing to the top of the retained soil at the face of the wall is not more than 4 feet (1,219 mm) and the top of the wall above the retained soil is not more than 1 foot (305 mm).
 10. Landscaping that does not alter an existing drainage course.
- Exemption from the permit requirements of this chapter shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code, or any other laws or ordinances of the Municipality of Anchorage.

(AO No. 2020-85, § 1, 10-27-20)

23.105.104 Hazards.

23.105.104.1 Hazardous conditions.

When the code official has determined any existing excavation, fill, or landscaping on private property has become a hazard to life and limb, endangers property, or adversely affects the safety, use, or stability of a public way, the owner of the property upon which the excavation or fill is located, or other person or agent in control of the property, upon receipt of notice in writing from the code official, shall within the period specified therein abate by repair or elimination such excavation or fill to remove the hazard and be in conformance with the current requirements of this code.

(AO No. 2020-85, § 1, 10-27-20)

23.105.104.2 Abatement.

Abatement of hazardous conditions shall be in accordance with this code and AMC 23.70.

(AO No. 2020-85, § 1, 10-27-20)

23.105.105 Permit application and submittals.

23.105.105.1 Grading designation.

All earthwork construction shall be designated in accordance with this section.

23.105.105.1.1 Regular grading.

Regular grading is defined as meeting all of the following requirements:

1. Grading quantities shall not exceed 5,000 cubic yards;
2. Existing slopes do not exceed 1 unit vertical in 5 units horizontal (20% slope);
3. Does not include retaining walls not exempted per Section 23.105.103.2 that are adjacent to property lines or structures where the distance from the face of the retaining wall to the property line or structure is less than twice the height of the retained soil; and
4. Does not include retaining walls not exempted per Section 23.105.103.2 that are located in Seismically-Induced Ground Failure Zones 4 or 5, as defined by AMC 23.15.1613.2.

(AO No. 2020-85, § 1, 10-27-20)

23.105.105.1.2 Engineered grading.

Engineered grading is defined as all other grading not meeting the requirements of Section 23.105.105.1.1 for regular grading, or where the building official determines that special conditions or unusual hazards exist that requires professional engineering. Landscaping that does not qualify as regular grading shall be an engineered grading.

(AO No. 2020-85, § 1, 10-27-20)

23.105.105.2 Submittal requirements.

In addition to the requirements of AMC 23.10, the applicant shall state the estimated quantities of excavation and fill, and the estimated length of isolated retaining walls.

(AO No. 2020-85, § 1, 10-27-20)

23.105.105.2.1 Site plan requirements.

The construction documents submitted with the application for permit shall be accompanied by a site plan showing, to scale, the size and location of new construction and existing structures on the site, distances from lot lines, and elevations at all lot corners, based on ties to a recovered Benchmark identified in the MOA Benchmark Network. Assumed elevations shall only be allowed with prior written consent of the department. The site plan shall also show existing and proposed drainage patterns, identifying any location where drainage is proposed to be transported off-site; and, as applicable, flood hazard areas, floodways, and design flood elevations; and it shall be drawn in accordance with an accurate boundary line survey. In the case of demolition, the site plan shall show construction to be demolished, and the location and size of existing structures and construction to remain on the site or plot. The building official is authorized to waive or modify the requirement for a site plan when the application for permit is for alteration or repair or when otherwise warranted.

(AO No. 2020-85, § 1, 10-27-20)

23.105.105.2.2 Soils engineering report.

Where grading is designated as engineered in accordance with Section 23.105.105.1.2, a soils engineering report shall be required. The report shall be prepared in accordance with Section 1803 of the International Building Code.

(AO No. 2020-85, § 1, 10-27-20)

23.105.105.2.3 Statement of special inspections.

Where special inspections are required under Section 23.105.106.2, a statement of special inspections shall be provided on the plans or as a separate document. The statement shall comply with the requirements of Section 1705.2 of the International Building Code.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106 Inspections.

23.105.106.1 Municipal inspections.

All grading, landscaping, and retaining wall construction for which a permit is required shall be subject to inspections by the building official and shall remain exposed and accessible until approved by the building official.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106.1.1 Municipal inspection schedule.

Municipal inspections shall be scheduled at 50-percent and 100-percent completion for all grading work.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106.1.2 Additional engineered grading inspections.

Additional municipal inspections for engineered grading shall be scheduled at the start of work, and for every 25,000 cubic yards, or portion thereof, beyond 50,000 cubic yards.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106.1.3 Retaining wall inspections.

Municipal inspections shall be scheduled at regular intervals based on the type of retaining wall system utilized.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106.1.3.1 Concrete or masonry retaining walls.

Municipal inspections shall be scheduled at completed excavation, prior to concrete pouring or masonry grouting, and at backfill.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106.1.3.2 Segmental retaining walls.

Municipal inspections shall be scheduled for segmental retaining walls at completed excavation, and at each lift between geosynthetic reinforcing.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106.1.3.3 Other retaining wall systems.

Municipal inspections shall be scheduled as required by the building official.

(AO No. 2020-85, § 1, 10-27-20)

23.105.106.2 Special inspections.

Special inspections are required for all engineered grading. Special inspections shall be performed in accordance with Chapter 17 of the International Building Code.

(AO No. 2020-85, § 1, 10-27-20)

23.105.107 Excavations.

23.105.107.1 General.

Unless otherwise recommended in the approved soils engineering report, excavations shall conform to the provisions of this section.

Exception: The provisions of this section may be waived for excavations where final slopes are less than 1 unit vertical in 2 units horizontal (50% slope), where the excavation is isolated from existing structures and property lines, and the slopes of the excavation are not intended to support structures or surcharges.

(AO No. 2020-85, § 1, 10-27-20)

23.105.107.2 Slope.

The slope of excavation surfaces not be steeper than is safe for intended use, and shall not be steeper than 1 unit vertical in 2 units horizontal (50% slope) unless a slope stability analysis shows that a steeper slope is stable for static and seismic conditions, and does not create a hazard to public or private property.

(AO No. 2020-85, § 1, 10-27-20)

23.105.108 Fills.

23.105.108.1 General.

Unless otherwise recommended in the approved soils engineering report, fills shall conform to the provisions of this section.

Exception: The provisions of this section may be waived for fills where final slopes are less than 1 unit vertical in 2 units horizontal (50% slope), where the fills are isolated from existing structures and property lines, and are not intended to support structures or surcharges.

23.105.108.2 Preparation of ground.

Fill slopes shall not be constructed on natural slopes steeper than 1 unit vertical in 2 units horizontal (50% slope). The ground surface shall be prepared to receive fill by removing vegetation, topsoil and other organics, non-complying fill, and other unsuitable or deleterious material.

(AO No. 2020-85, § 1, 10-27-20)

23.105.108.2.1 Parking lots over organic soils.

Structural fill for parking lot sections may be placed over peat and other organic soils where an approved geotechnical report provides recommendations for fill placement, and the site is designed by a registered design professional.

(AO No. 2020-85, § 1, 10-27-20)

23.105.108.3 Fill material.

Fill material shall not include organic, frozen, or other deleterious material. No rock or similar irreducible material with a maximum dimension of 12 inches shall be buried or placed in fills.

Exception: Organic soils may be used within the top 6 inches for surface landscaping.

(AO No. 2020-85, § 1, 10-27-20)

23.105.108.4 Compaction.

All fills shall be placed in lifts not exceeding 12 inches in thickness and compacted to a minimum of 90 percent of maximum density. Fills under structures, driveways, and parking lots shall be compacted to a minimum of 95 percent of maximum density.

(AO No. 2020-85, § 1, 10-27-20)

23.105.108.5 Slope.

The slope of fill sections shall not be any steeper than is safe for intended use, and shall be not be steeper than 1 unit vertical in 2 units horizontal (50% slope) unless a slope stability analysis shows that a steeper slope is stable for static and seismic conditions, and does not create a hazard to public or private property.

(AO No. 2020-85, § 1, 10-27-20)

23.105.108.3 Temporary fills.

Where permitted under Title 21, placement of material for stockpiling or surcharging shall be permitted without meeting the provisions of this section where the following are met:

1. The slopes are not steeper than 1-unit vertical in 3 units horizontal (33% slope);

2. The soils are stabilized against erosion as required in AMC 21.07.040;
3. Soils are removed to existing grade at final inspection.

(AO No. 2020-85, § 1, 10-27-20)

23.105.109 Retaining walls.

23.105.109.1 Design.

Retaining wall design and construction shall be designed in accordance with Section 1807.2 of the International Building Code.

(AO No. 2020-85, § 1, 10-27-20)

23.105.109.2 Retaining wall setbacks.

Where multiple retaining walls are located on the same slope, the combined retaining wall shall be analyzed together.

Exception: Where the toe of the upper retaining wall is located more than twice the height of the lower retaining wall measured from the back face of the lower wall to the front face of the upper wall per Figure 23.105.109.2.

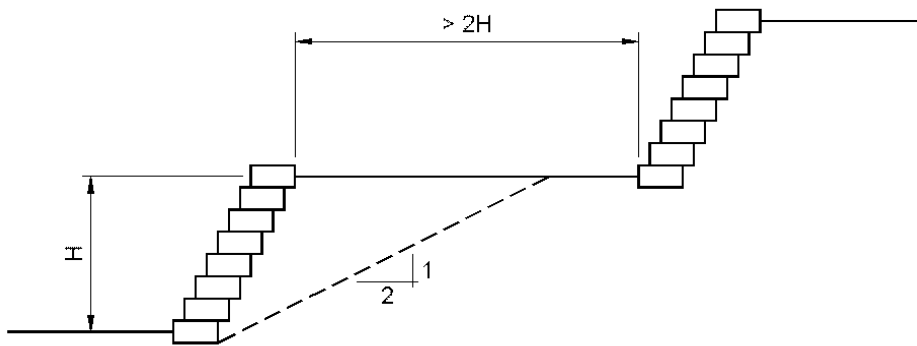


Figure 23.105.109.2 Retaining wall setbacks

(AO No. 2020-85, § 1, 10-27-20)

23.105.110 Setbacks.

23.105.110.1 General.

Excavation and fill slopes shall be set back from the site boundary in accordance with this section. Setback dimensions shall be measured horizontally and shall be perpendicular to the site boundary.

(AO No. 2020-85, § 1, 10-27-20)

23.105.110.2 Top of excavation slope.

The top of excavation slopes shall be set back from the site boundary not less than one-fifth the vertical height of the slope, but not less than 2 feet, and need not exceed 10 feet.

(AO No. 2020-85, § 1, 10-27-20)

23.105.110.3 Toe of fill slope.

The toe of fill slopes shall be set back from the site boundary not less than one-half the vertical height of the slope, but not less than 2 feet, but need not exceed 20 feet.

(AO No. 2020-85, § 1, 10-27-20)

23.105.110.3.1 Slope protection.

Where the fill slope is located near the site boundary and the adjacent off-site parcel is developed, special precautions shall be incorporated in the work as the building official deems necessary to protect the adjoining property from damage as a result of such grading. The precautions may include, but are not limited to:

1. Setback distances greater than those required by this section.
2. Provisions for retaining walls or similar construction.
3. Mechanical stabilization or chemical treatment of the fill slope surface to minimize erosion.
4. Provisions for the control of surface waters.

(AO No. 2020-85, § 1, 10-27-20)

23.105.110.4 Modification of slope location.

Setback locations may be modified when approved by the building official. Such modifications may require investigations and recommendations by a registered design professional and shall show the intent of the code has been satisfied.

(AO No. 2020-85, § 1, 10-27-20)

23.105.111 Benching and terracing.

23.105.111.1 General.

Terraces shall be provided where final excavation or fill heights exceed 60 feet (18,288 mm), and final slopes exceed 1 unit vertical and 3 unit horizontal (33.3 percent slope). Benching shall be provided where the existing slopes exceed 1 unit vertical in 5 units horizontal (20% slope).

(AO No. 2020-85, § 1, 10-27-20)

23.105.111.2 Terraces.

Terraces shall meet the minimum width and vertical spacing per Table 23.105.111.2. Terraces with a slope height greater than 120 ft shall be designed by a registered design professional and approved by the building official.

Table 23.105.111.2

Slope height	Terrace width	Vertical spacing
60 feet	6 feet	30 feet max.
Greater than 60 feet up to 120 feet	12 feet 6 feet	At mid-height of slope 30 feet max. above and below mid-height

(AO No. 2020-85, § 1, 10-27-20)

23.105.111.3 Benching.

Benches shall be excavated per Figure 23.105.111.3 into the existing slope to allow for proper compaction. Bench widths shall be a minimum of 5 feet in width and shall have a slope no greater than 1 unit vertical in 5 units horizontal (5% slope). Benches shall be spaced consecutively where the existing slope exceeds 1 unit vertical in 5 units horizontal (20% slope). Bench heights shall not exceed the lesser of one-half the bench width, or 10 feet, unless recommendations are provided by an approved soils report.

23.105.111.3.1 Keying.

Benches shall have a key at the toe of the slope where the slope height exceeds 5 feet. The key shall be a minimum depth of 2 feet and a length not less than 10 feet.

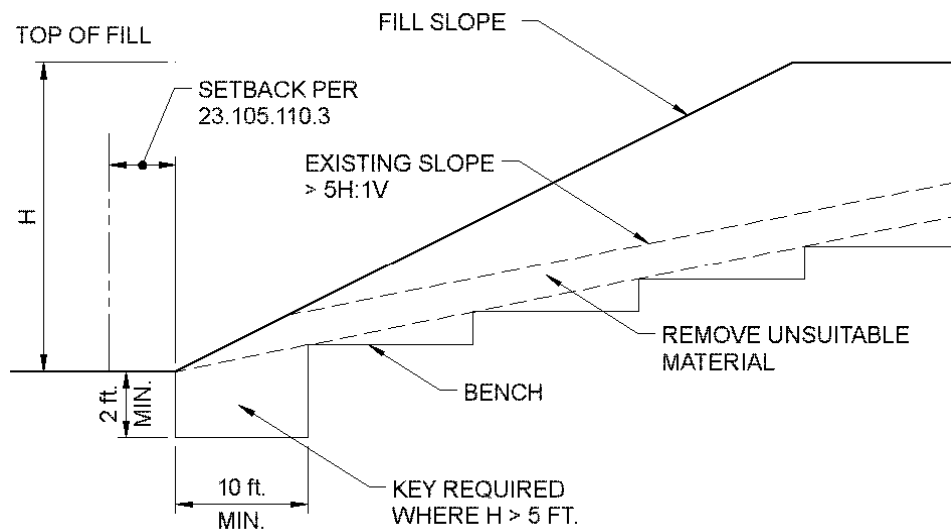


Figure 23.105.111.3 Benching detail

(AO No. 2020-85, § 1, 10-27-20)

23.105.112 Drainage and erosion control.

23.105.112.1 General.

Grading plans shall include a drainage plan conforming to the requirements of this code and AMC 21.07.040.

(AO No. 2020-85, § 1, 10-27-20)

23.105.112.2 Standards.

Drainage plans shall comply with the requirements of municipal code and the guidance of the Design Criteria Manual. Post-development drainage plans shall be designed such that there will be no adverse off-site impacts. Any net increase of water volumes shall be mitigated and/or directed to adjacent drainage systems or receiving waters that has the demonstrated capacity to handle the new flows. The Municipality may require a dedicated drainage easement(s) to ensure proper drainage is consisted and compatible with the surrounding drainage patterns.

(AO No. 2020-85, § 1, 10-27-20)

23.105.112.3 Drainage across property lines.

Drainage across property lines shall not exceed that which existed prior to earthwork construction. Excess or concentrated drainage shall be contained on site or directed to an approved drainage facility. Erosion of the ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices.

(AO No. 2020-85, § 1, 10-27-20)

23.105.112.4 Erosion control.

The faces of excavation and fill slopes shall be prepared and maintained to control against erosion. The protection shall be installed as soon as practicable and prior to scheduling final inspections. Where necessary, check dams, cribbing, riprap, or other suitable devices or methods shall be employed to control erosion and provide slope stability and safety.

Exception: Where cut slopes are not subject to erosion due to the erosion-resistant characteristics of the facing materials, such protection may be omitted.

(AO No. 2020-85, § 1, 10-27-20)

23.105.113 Referenced Standards.

ASTM D 1557-e01, Test method for Laboratory Compaction Characteristics of Soil Using Modified Effort

(AO No. 2020-85, § 1, 10-27-20)