

Chapter 19.10. Hillside Development Ordinance.

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19.10.01. Purpose.

1. The provisions of this Chapter are enacted in order to provide standards, guidelines, and criteria for minimizing flooding, erosion, and other environmental hazards that may result from the development of hillsides within the City. In addition, these standards are intended to protect the natural scenic character of hillsides and especially sensitive lands that may not be suitable for development.
2. This Chapter outlines the requirements for the development of areas within the City limits that contain slopes equal to or greater than fifteen percent. No development shall occur on slopes equal or greater than fifteen percent except as specifically allowed in this Chapter. Slope maps at the end of this section identify applicable areas.
3. To achieve the intent of this Chapter, it is required that professionals, qualified in each of the disciplines addressed herein, be used to provide creative and appropriate designs in hillside areas.

(Ord. 20-25, Ord. 12-9, Ord. 11-9)

19.10.02. Definitions.

1. **“Buildable Area”** means the portion of a lot upon which buildings may be placed in compliance with required setbacks, lot coverage restrictions, and other applicable provisions of City Code.
2. **“Development Activity”** means the definition as specified in Utah Code Section 10-9a-103.
3. **“Engineering Standards”** means the current version of the City of Saratoga Springs Standard Technical Specifications and Drawings Manual.
4. **“Landslide”** means the movement of a mass of rock, debris, or earth down a slope. Landslides are a type of “mass wasting,” which denotes any down-slope movement of soil and rock under the direct influence of gravity.

5. **“Limits of Disturbance”** means the specific area on a site where construction and development activity shall be contained, except as otherwise provided in this Chapter.
6. **“Low Impact Development (LID)”** means principles that mimic nature by using techniques that infiltrate, evapotranspire, and/or harvest/reuse the runoff generated from storm water to partially retain precipitation onsite, per City storm water regulations.
7. **“Maximum Extent Practicable”** means:
 - a. able to be constructed or implemented consistent with sound science and engineering principles; and
 - b. economically and otherwise reasonable in light of the societal and environmental benefits to be gained.
8. **“Slope Map”** means a topographical map portraying the steepness or degree of inclination of a feature relative to the horizontal plane.
9. **“Terracing or Terraces”** means grading of slopes, typically long and linear, to accommodate flat buildable areas. Terracing, also referred to as benching or stepping, leaves steps on the side of the excavation that can either be a single or multiple terrace.
10. **“Topographical Survey”** means a survey that gathers data about the elevation of points on a piece of land and presents them as contour lines on a plot. The purpose of a topographic survey is to collect survey data about the natural and man-made features of the land, as well as its elevations.
11. **“Vegetation, invasive or noxious weeds”** means a non-native plant which grows aggressively, spreads, and displaces other plants, and/or is harmful or poisonous vegetation. Refer to Utah Noxious Weed Act and Engineering Standards to determine which species are considered to be noxious or invasive.
12. **“Vegetation, native or adapted”** means plants that are indigenous to a specific area or have special features that allow them to live in a particular habitat in the City. This includes plants that have developed, occur naturally, or existed for many years in an area. Refer to Engineering Standards for a list of specific species.
13. **“Vegetation Preservation Plan”** means the identification, preservation and protection of existing native vegetation that minimizes exposed soils and erosion.

(Ord. 20-25)

19.10.03. Scope and Application.

1. The provisions of this Chapter are intended to supplement those set forth in this Title 19 and the City’s Engineering Standards. In the event of conflict, the more restrictive provision shall apply.

2. The provisions of this chapter shall apply to all plats, site plans, building permits, development, Community Plans, Village Plans, and Neighborhood Plans within the City, which shall demonstrate compliance with this Chapter
3. The provisions of this Chapter provide regulations for grading, filling, and excavating in order to avoid risks of erosion, flooding, landslide, or any other unsafe condition.
4. Detailed reports and plans are required for new developments as outlined in this Chapter and must be approved by City Staff before any construction will be permitted in designated hillside areas.

(Ord. 20-25, Ord. 13-16, Ord. 11-9)

19.10.04. Required Plans and Reports for All Development in the City.

1. **Requirements at Concept Plan, Village Plan, and Neighborhood Plan.** The following reports and plans shall be prepared at the expense of the applicant and shall be submitted as part of a Concept Plan, Village Plan, and Neighborhood Plan application in addition to all other City Code requirements. All reports and plans submitted herein shall be prepared by persons or firms licensed or certified to practice their specialty in the State of Utah.
 - a. **Slope Survey.** Detailed slope map derived from data no older than 5 years with a minimum of two-foot contour intervals:
 - i. The map shall identify and delineate all disturbed and undisturbed areas.
 - ii. The map shall include a color legend of the site with the existing slopes identified in increments of 0-14.99 percent, 15-29.99 percent, and 30 percent or greater.
 - b. **Lotting Plan.** Plan showing overall project layout, including:
 - i. lots with setbacks;
 - ii. limits of disturbance and buildable areas;
 - iii. open spaces; and
 - iv. roads, highways, and rights-of-way
 - c. **Conceptual Grading and Drainage Plan.** Plan which identifies at a minimum all existing and proposed drainages, areas of proposed cuts and fills, and the proposed size and scale of such areas and activities.
2. **Requirements of Development Activity, Subdivision, and Site Plan.** The following reports and plans shall be prepared at the expense of the applicant and shall be submitted as part of the Preliminary Plat or Site Plan application in addition to all other Preliminary Plat or Site Plan requirements. All reports and plans submitted herein shall be prepared by persons or firms licensed or certified to practice their specialty in the State of Utah.
 - a. **Grading and Drainage Plan.** A Grading and Drainage Plan shall be prepared by an engineer, land surveyor, or landscape architect licensed by the State of Utah. Such plan shall comply with applicable provisions of the City's Engineering Standards. All

developments within the hillside overlay shall comply with the Hillside Standards in this Chapter and are subject to all of the following requirements, which compliance shall be further detailed in the Grading and Drainage Plan:

- i. A slope classification map and analysis for the development site. Two maps shall be prepared. The first shall represent the *pre-development* slope districts and the second shall represent *post-development* slope districts.
- ii. Balanced cut and fill shall be implemented to the maximum extent practicable. Balanced cut and fill measures include the following:
 1. avoiding stockpiling material on-site; and
 2. minimizing the export and import of material
- iii. All roof drainage that cannot be drained to a roadway or approved drainage system shall be managed on site via Low Impact Development principles, per City storm water regulations.
- iv. Topsoil stockpile areas shall be designated.
- v. Access or haul road locations, designs, and maintenance requirements shall be designated on the grading plan.
- vi. A written statement addressing the Hillside Development Guidelines found in 19.10.05 of this Chapter shall be submitted with the grading plan.

b. Slope Protection Plan and Requirements. A Slope Protection Plan shall be prepared by an engineer, land surveyor, or landscape architect licensed by the State of Utah and shall identify areas within the project with contiguous slopes greater than 30 percent that are required to be protected from disturbance. These areas may be located within lots if the provisions of this chapter can be met, otherwise they shall be placed in protected open space. In either case, these areas shall be identified on the development application, subdivision plan, site plan, and building plan as areas that may not be disturbed. The following standards apply to the slope protection plan:

- i. Provide a detailed slope map derived from a physical survey no older than 5 years with a minimum of two-foot contour intervals.
 1. The map shall identify all disturbed and undisturbed areas.
 2. The map shall include a color legend of the site slope percentages in increments of 0-14.99 percent, 15-29.99 percent, and 30 percent or greater.
- ii. Contiguous slopes of 30 percent or greater are to be protected, except for the following exceptions:
 1. Areas with slopes that exceed 30 percent may be disturbed if:
 - A. they are smaller than one-half (0.50) acre in size;
 - B. they are isolated from other areas that exceed 30 percent;
 - C. they are less than 100 feet in length and width; and
 - D. their disturbance or removal will not create unstable geologic or drainage conditions that result in damage to public or private property.
 2. Man-made slopes exceeding 30 percent may be disturbed if it is determined, per the geotechnical report, that the change in grade will restore the area and will improve the stability of a previously disturbed area.

3. Prior to disturbance of the slope a geotechnical report shall be prepared by a licensed engineer and shall be approved by the City Engineer, along with a grading plan.

c. Vegetation Preservation and Slope Stabilization Plan. A Slope Stabilization Plan shall be prepared by a qualified professional licensed by the state of Utah and shall contain all of the following:

- i. Location of existing vegetation on the development site, including noxious and invasive weeds, and areas of native vegetation to be preserved, containing the following details:
 1. A delineation of the area to be developed or remain as permanent native open space;
 2. An inventory or survey of the vegetation species or a subset of species (such as noxious weeds) present;
 3. A map showing the area and the location of populations of each species; and
 4. A characterization of each identified plant species as native versus non-invasive or noxious.
- ii. For open space or common areas of the development proposed to remain native and cleared of existing vegetation in the course of construction, a plan for replanting with native vegetation possessing erosion control characteristics at least equal to the existing native vegetation, which was removed, in compliance with the Engineering Standards. Existing non-invasive vegetation shall be replaced in kind;
- iii. A plant schedule listing the plant species and seed mixes to be used for revegetation in accordance with City standards for revegetation species;
- iv. A plan showing how the planting and installation of revegetation will be supervised by a person or firm having expertise in the practice of revegetation (e.g., licensed landscape architects) and how the revegetation will be protected with mulch and fertilized and watered in conjunction with a planting and maintenance schedule;
- v. Slope stabilization and erosion control measures while new vegetation is being established;
- vi. Temporary irrigation as needed until established;
- vii. Plans shall comply with Utah Wildland-Urban Interface Code.

d. Geology Report. A Geology Report shall be prepared by a Geotechnical Engineer or Geologist licensed by the State of Utah. A geologic map shall accompany the report. Mapping shall reflect careful attention to the rock composition, structural elements, and surface and subsurface distribution of the earth materials exposed or inferred within both bedrock and surficial deposits. The map shall clearly distinguish the difference between observed and inferred features or relationships. The Geology Report shall contain, at a minimum, the following:

- i. Identification of any zones of deformation with respect to active faults and other mass movements of soil and rock;
- ii. Alluvial fans and other areas with debris and flood flow hazards;

- iii. Identification of anomalies of the terrain or characteristics of the geological materials which would have any potential impact upon the use of the site;
 - iv. Active or inactive landslide areas;
 - v. Identification of all rock fall zones; and
 - vi. Written recommendations for construction of proposed structures or public improvements to minimize or avoid impacts of potential geologic hazards (as prepared by a Geotechnical Engineer).
- e. Fire Protection Report.** A Fire Protection Report, approved by the Fire Marshall, shall be prepared to assess fire probability and potential hazards. The plan shall be prepared by a person or agency qualified by training and experience and approved by the City Fire Marshall. The Fire Protection Report is a separate and independent obligation from the Fire Protection Plan that may be required by the Fire Marshall or Building Official in the Wildland-Urban Interface Code, Fire Code, or Building Code. The Fire Protection Report shall include the following:
- i. The width and approximate location of any easement required for access of fire protection equipment;
 - ii. The width and approximate location of recommended fuel breaks on the development site; and
 - iii. A letter from the Fire Marshall specifying required fire protection measures and fire suppression flow.
- f. Physical Constraints Report.** A report prepared by a licensed geologist or geotechnical engineer demonstrating that buildings, structures, or building envelopes shall not be placed on or within any of the following areas:
- i. natural or manmade slopes exceeding 30 percent with the exception of terracing to accommodate walk-out basements;
 - ii. within the distance recommended by the Geology Report of any fault line;
 - iii. areas considered as navigable, interstate waters, or areas having an significant nexus to such waters per federal law, within the jurisdiction of the United States or State of Utah such as wetlands, drainages, streams, rivers, and lakes, whether or not ephemeral, without the proper permits (or letter exempting the area from such jurisdiction) through the Utah Division of Water Rights and United States Army Corps of Engineers or other state or federal entity having jurisdiction;
 - iv. landslide hazard areas, except that lots, but not buildings or building envelopes, may be included in landslide areas if supported by the required geotechnical report;
 - v. an area of flood hazard as defined and specified in Chapter 18.02;
 - vi. areas of springs, seeps, or surface water areas.
 - 1. These areas are defined as follows:
 - A. Spring: A spring is any natural situation where water flows from an aquifer.
 - B. Seep: A seep is a moist or wet place where water, usually ground, reaches the earth's surface from an underground aquifer.

- C. Surface water areas: Surface water is water on the surface such as in a river, lake, or wetland.
- vii. existing or master planned detention basins, roads, and utility corridors.

(Ord. 20-25, Ord. 13-16, Ord. 12-9, Ord. 11-9)

19.10.05. Hillside Development Guidelines.

- 1. General Guidelines.** A written statement addressing the following guidelines shall be submitted with the grading plan:
 - a. Development shall be concentrated in the flattest areas of the site in order to preserve as much of the natural terrain as possible.
 - b. Varied lot sizes and designs shall be utilized in order to reduce the amount of grading required and preserve natural landforms.
 - c. Building pads shall be located in order to preserve as much of the natural terrain as possible.
 - d. Lots and buildings shall be designed to fit the natural contour of the site rather than the site being altered to fit a particular structure type.
 - e. Large flat pads shall be avoided in favor of stepped pads, or split-level structures that follow the general contours of the site.
- 2. Limits of Disturbance.** No building or other structure is allowed on slopes greater than 30 percent. No excavation, grading, or permanent clearing shall be allowed on slopes greater than 30 percent, without the necessary plans and methods implemented as outlined in this Chapter.
- 3. Limits on grading.** Grading shall comply with the following standards, in addition to the standards within other applicable Chapters:
 - a. All cut, filled, and graded slopes and transitions shall be re-contoured to blend into the grade of surrounding land.
 - b. The outside corners or edges of all permanent cut and fill slopes shall be rounded to eliminate sharp corners and shall have a minimum curvature radius of at least five feet.
 - c. All permanent cuts and fills shall be constructed and stabilized to prevent settlement, sliding, and erosion.
 - d. Mass grading and benching of hillside areas to create large flat building envelopes for multiple homes shall be avoided. Instead, smaller stepped envelopes for each home shall be used that follow the existing topography.
 - e. Cut and fill slopes exceeding 50 percent shall be retained.
 - f. The maximum slope of driveways shall not exceed 15 percent and shall minimize disturbance to natural terrain.
 - g. Terracing shall be used to facilitate the completion of balanced cut and fill slopes as well as to reduce overall impacts to slopes.

- 4. Limits on changes to established lot grades.** The elevation of an established lot shall not be permanently raised or lowered more than 6 feet at any point for construction of any structure or improvement, except:
 - a. Areas outside the building pad but within the lot may be raised or lowered more than 6 feet if a retaining wall or other slope protection measure is used to reduce the steepness of man-made slopes, provided that the retaining wall complies with the provisions of this Chapter.

- 5. Limits on man-made slopes.**
 - a. Maximum cuts and fills shall not exceed 25 feet in height unless it is determined, per a geotechnical report, that the change in grade will restore the area and will improve the stability of a previously disturbed area.
 - b. The grade of man-made slopes shall not exceed 50 percent without being retained.
 - c. All cut, filled, and graded slopes shall be re-contoured and stabilized, as per this Chapter, to blend into the natural grade of surrounding land.
 - d. All permanent fills shall be constructed and stabilized to prevent settlement, sliding, or erosion damage to streets, curbs, gutters, sidewalks, or buildings.

- 6. Terracing and retaining walls.** Use of retaining walls is encouraged to reduce the steepness of man-made slopes as outlined herein. Cutting terraces combined with the use of retaining walls may be implemented to create buildable areas, to minimize or alleviate potential erosion to hillsides, and to establish planting pockets conducive to revegetation of hillsides. The following standards shall apply:
 - a. Individual retaining walls may be permitted to support steep slopes but shall not exceed 10 feet in height measured from adjacent finished grade.
 - b. When the overall retained height would exceed ten feet, the retaining wall shall be segmented into a maximum of three stepped walls with no individual wall exceeding six feet in height as measured from the lowest adjacent grade to the top of the wall.
 - c. Retaining walls taller than 4 feet shall be separated from any other retaining wall by a minimum distance of 3 horizontal feet or half the height of the highest wall, whichever is greater. Terraces created between retaining walls shall be permanently landscaped or re-vegetated per City Code.
 - d. A building permit shall be obtained if required by the Building Code. The lot owner or developer may be required to obtain documentation from the building official that a building permit is not required.
 - e. The parabolic slip plane mode of failure of the retaining wall system shall be used to determine height and wall separation. (See Figure 10.1.)

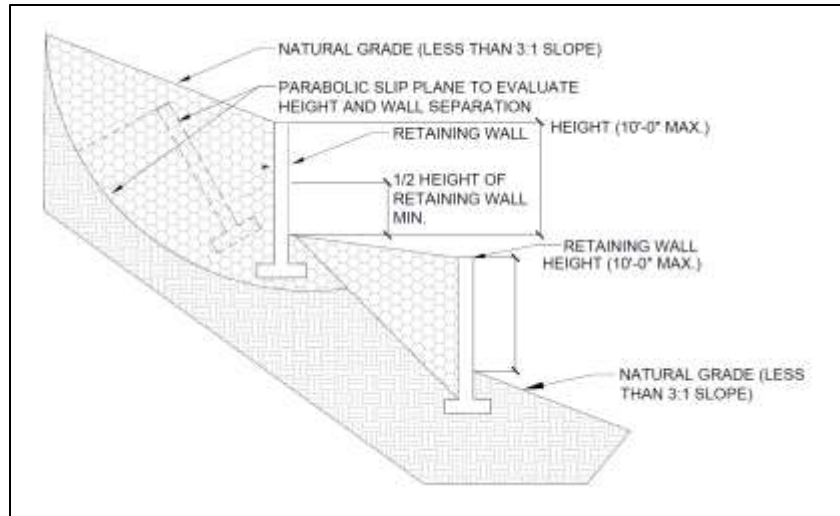


Figure 10.1

- 7. Structures.** Additional grading for structures shall be determined on an individual lot basis, shall be minimized by designing the house to fit the natural slopes, and shall meet the following requirements:
- a. The general location and magnitude of cuts and fills shall be identified with each site plan.
 - b. Where building masses orient against the lot's existing contours, the structures shall be stepped with the grade and broken into a series of individual smaller components. (See figures 10.2 & 10.3 below)
 - c. Structures and foundation types shall be utilized that are compatible with the existing hillside conditions and require less grading. Split-level, embedded structures, and stepped foundations shall be utilized. (See figures 10.2 & 10.3 below)
 - d. Building height shall comply with the requirements in the specific zone using the definition in 19.02.
 - e. No more than four feet of the foundation may be exposed on the fronts of the structure and no more than six feet on the sides and backs of the structure.

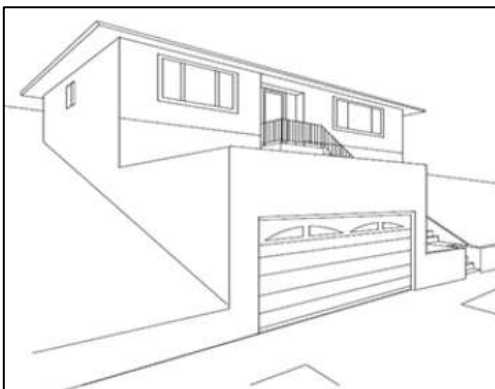


Figure 10.2



Figure 10.3

- 8. Preservation of existing vegetation.** Existing concentrations of significant trees and vegetation shall be preserved, except that noxious or invasive trees and vegetation and sage brush are not required to be preserved.
- a. For the purposes of this subsection, “significant trees and vegetation” means:
 - i. Large trees of 6-inch caliper or greater; and
 - ii. Groves of five or more smaller trees, or clumps of shrubs covering an area of 50 square feet or more measured at the drip lines.
 - b. Areas with significant trees and non-invasive vegetation may not be disturbed unless specifically approved by the City, based on a replacement plan as described in Chapter 19.06.

9. Revegetation.

- a. Any permanent slope exposed or created in new development shall be landscaped or revegetated with native or adapted trees and other native or adapted plant material.
- b. New vegetation shall be equivalent to, or exceed, the density and erosion-control characteristics of the original vegetation cover to mitigate adverse environmental and visual effects.
- c. All existing native or adapted vegetation within and adjacent to major drainage channels shall be preserved to the maximum extent practical.
- d. All areas of the site where removal of native or adapted natural vegetation in the course of development will occur shall be replanted with native or adapted trees and plants. The vegetation shall possess erosion control characteristics (such as fast growing and deep roots) at least equal to the native or adapted vegetation which was removed. These may be replaced within other areas of the site such as open space, common areas, or street trees.
- e. Use of fire-resistant plants for revegetation is strongly encouraged and shall be required if the area is located in a Wildland-Urban Interface area per the City’s Fire Code. (For a list of fire-resistant plants, refer to the Wildland-Urban Interface, contact the local Forest Service, or contact the Utah Division of Forestry, Fire, and State Lands.)
- f. All disturbed areas shall be stabilized no later than 30 days after the disturbance is complete. Reseeding may be delayed until the earliest planting season thereafter if temporary stabilization measures are implemented in the interim.

10. Buildable Area and Limits of Disturbance.

- a. Slopes greater than 30 percent shall be identified on the plat and restricted on the plat as protected, undisturbed areas. A lot may contain existing natural grades in excess of 30 percent if the following conditions are met:
 - i. The subdivision plat clearly identifies the limits of disturbance and each lot contains a buildable area that is:
 1. at least 2000 square feet of contiguous area;
 2. a minimum dimension of 30 feet in any direction;
 3. no greater than 30 percent in slope; and
 4. contained within the building setbacks of a proposed lot.

- ii. Slopes greater than 30 percent shall be recorded on the plat or site plan with a prohibition on their disturbance.
 - iii. No grading, building, accessory building, or structure will be allowed outside of the limits of disturbance as delineated on the respective plat or site plan.
 - iv. Access and driveways shall be included within the limits of disturbance for a lot.
 - v. No grading related to the construction of the structure shall occur outside the limits of disturbance.
- b. The buildable area and limits of disturbance must be recorded on the plat along with an easily identified location for clear access.

11. Streets and hard surface trail access and driveways.

- a. Streets and hard surface trails and driveways may cross slopes over 30 percent and up to 50 percent if deemed necessary by the Development Review Committee (DRC). Approval shall be based on the following findings:
 - i. No alternate location for access is feasible or available.
 - ii. No individual segment or increment of the street or trail crossing these slopes exceeds 1500 feet in length.
 - iii. Visual, environmental, and safety impacts from the street or trail crossing shall be mitigated as outlined in the revegetation, grading, and erosion sections of this chapter.
- c. The developer shall dedicate to the City a slope easement for any cut or fill slope created by construction of a street on a hillside which is not contained within the public right-of-way to allow for future road maintenance or reconstruction of the road.
- d. Points of access shall be provided to all developed and undeveloped land for emergency firefighting equipment.
- e. Emergency vehicle access shall be provided to trails in canyons, drainages, and natural washes shall be provided for developments that are located adjacent to such canyons, drainages, or washes.
- f. When open space, common area, or undeveloped land is behind lots, access between homes is required every 1000 feet for emergency access.
- g. Private driveways that are longer than 150 feet shall not exceed a grade of 10 percent at any point, so as not to hinder emergency service vehicles.
- h. Driveways longer than 150 feet shall require a fire truck turn around.
- i. Access via streets and driveways require approval by the Fire Chief and shall comply with the Fire Code.

12. Drainage corridor and flood zone protection.

- a. **Filling and dredging.** Filling or dredging of natural drainage channels as identified for protection by the City shall meet Engineering Standards.
- b. **Minimum setbacks.** Lots shall be setback 20 feet horizontally from the top of the required freeboard, whether ephemeral or not, of: (a) water courses; (b)

gullies; and (c) major drainages as identified for protection by the City as open channels in the Storm Drain Capital Facilities Plan.

13. Responsibility for construction and maintenance of improvements. The developer shall be fully responsible for making all improvements in accordance with accepted plans.

(Ord. 20-25, Ord. 17-17, Ord. 13-16, Ord. 12-9, Ord. 11-9)




19.10.06. Maps.

1. Slope Analysis Map
2. Slope Analysis (North) Map Enlargement
3. Slope Analysis (Central) Map Enlargement
4. Slope Analysis (South) Map Enlargement




(Ord. 20-25)

SLOPE ANALYSIS INSET THREE MAP



Legend

-  Property Parcels
-  City Boundary
-  Annex Boundary

Notes

-  0-14.99%
-  30% +
-  15-29.99%

1 Inch = 3,500 Feet



0 1,750 3,500
Feet

Adopted: October 2019

