

**CITY OF TUCSON
DEVELOPMENT STANDARD NO. 9-01.0
HILLSIDE DEVELOPMENT ZONE**

HILLSIDE DEVELOPMENT ZONE

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9-01.0.0 HILLSIDE DEVELOPMENT ZONE.

9-01.1.0 GENERAL.

Purpose. This Standard has been established to provide a listing of criteria for analysis and development of property affected by the Hillside Development Zone (HDZ), Sec. 2.8.1, of the Tucson *Land Use Code (LUC)*, and to inform applicants of the preparation, submittal, and review requirements for HDZ projects so that proper and adequate information is presented in a consistent manner, thereby providing the basis for an efficient and timely review. It is intended that this Development Standard provide support and clarification to the HDZ provisions of Sec. 2.8.1 of the *LUC*.

This Standard does not waive any applicable City regulations or codes.

- 1.2 Definitions. Definitions for words used in this Standard are found in the Development Standards Glossary or in Sec. 6.2.0 of the *LUC*.

9-01.2.0 HDZ PLAN FORMAT AND CONTENT.

- 2.1 HDZ Plan Requirement. The information required as part of the HDZ submittal will be shown graphically or provided by notes on a plan. The HDZ requirements are in addition to the plan requirements of the applicable process, such as, but not limited to, a plat, a development plan, a site plan, or a plot plan. The information may be provided as part of the drawing required through the applicable process or as a separate drawing. The plan may comprise several sheets showing various elements of required data.

- 2.2 Format. If the HDZ information is provided as a separate drawing, the format, sheet size, scale, margins, lettering, and similar requirements are the same as those for the applicable process, i.e., tentative plat, development plan, site plan, or plot plan.

- 2.3 Content. The following information is to be provided for all projects affected by the HDZ.

- A. Grading information, including proposed grading area, amount of grading by square feet and percentage of lot area, proposed contours, and locations of all areas of cut and fill.
- B. Topographic information of the existing terrain, prior to any grading, grubbing, clearing, excavation, or modification, with contour intervals as specified in Development Standard 9-01.0.

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- C. The location, size, color, and textural treatment of all retaining walls, riprapped slopes, or other constructed means of slope stabilization must be shown on one (1) of the plans submitted.
- D. The following slope analysis information must be provided on the plan. For specific information on calculations of slope, refer to Development Standard 9-01.0.
 - 1. The average natural cross slope (ACS) analysis must be submitted with the plat or plan, and the ACS must be listed in the general notes on the plat or plan.
 - 2. If the development criteria of Sec. 2.8.1.6 of the *LUC* require an analysis of sloped areas, those areas of fifteen (15) percent or greater slope must be shown on a topographic map.
- E. A note must be added to the plan or plat listing those lots which are subject to HDZ grading requirements.
- F. All protected peaks and ridges must be shown and labeled, and the three hundred (300) foot setback area must be delineated.

9-01.3.0 HDZ PLAN SUBMITTAL REQUIREMENTS.

- 3.1 Submittal Requirements. The plan which includes the HDZ information is to be provided with the initial submittal under the applicable process, such as, but not limited to, a plat, development plan, site plan, or plot plan.

If the HDZ information is provided as a separate drawing, submit three (3) copies.

- 3.2 Review. HDZ compliance applications are reviewed by the Zoning Review Section and the Engineering Section at the Development Services Department (DSD).

9-01.4.0 SLOPE ANALYSIS STANDARD.

- 4.1 Average Natural Cross Slope Analysis. The Average Natural Cross Slope (ACS) of a site is determined in the following manner.
 - A. The site is depicted on a topographic map of the existing terrain, prior to any grading, grubbing, clearing, excavation, or modification, utilizing a scale no smaller than one (1) inch equals one hundred (100) feet, with the following contour intervals.
 - 1. For parcels less than five (5) acres, a contour interval of two (2) feet;
 - 2. For parcels five (5) acres and greater, a contour interval of ten (10) feet.
 - B. The length of each contour line contained within the site boundaries on the map is measured by means of a mechanical device such as a map wheel or digitizer. This actual length is converted to scale length in feet. For example, at a scale of one inch equals forty feet (1" = 40'), a contour line with an actual map length of six

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and one-half (6½) inches represents a line two-hundred sixty (260) feet long (6.5 x 40 = 260).

- C. The sum of the lengths (L) of all contour lines is multiplied by the contour interval (I) in feet.
- D. The result is multiplied by the factor .0023, which converts the square footage of the scale map to acres.
- E. This result is then divided by the area (A) of the site in acres.
- F. This result is multiplied by a linear adjustment factor which equals the number of contour lines less one line (N - 1), divided by the number of contour lines (N).
- G. This process is mathematically represented by the formula:

$$ACS = \frac{(I)(L)(.0023)}{(A)} \times \frac{(N-1)}{(N)}$$

- H. The answer is the percentage of the ACS for the site.

4.2 Sloped Area Analysis. The slope of any topography is determined by the following method.

- A. The site or lot is depicted on a map with a scale and contour interval conforming to Development Standard 2-03.2.3.F or Development Standard 2-05.2.3.E.
- B. A slope gauge is prepared at the same scale as the map to be analyzed, as follows.
 - 1. On a straight edge of a piece of stiff paper, such as an index card or other straight-edged material, a straight line representing one hundred (100) linear feet is marked parallel to the edge.
 - 2. This line is divided into fifteen (15) equal divisions, with the sixteen (16) marks between the divisions being numbered. Marks zero (0) and fifteen (15) will fall at each end of the scale one hundred (100) foot line. These marks represent the distance between one (1) foot contour intervals at a fifteen (15) percent slope for the scale used.
- C. The contours on the map are compared to the slope gauge by placing the gauge perpendicular to the contour lines. When the contour lines are equal to or are closer together than the corresponding interval marks on the gauge, a slope of fifteen (15) percent or greater is indicated.

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- D. All slopes of fifteen (15) percent or greater are then outlined and so indicated on the map. Submittal of slope information is required to allow the Zoning Review Section at the Development Services Department (DSD) to review, comment upon, and make recommendations concerning the appropriateness of the location of the grading.

Exception. Any sloped area no greater than fifteen (15) feet in any horizontal direction and no greater than seven and one-half (7½) feet vertically may be excluded from compliance with this section. Adjacent exempted areas are not cumulative.

9-01.5.0 SITE IMPROVEMENT.

5.1 Grading.

- A. *Site or Lot Grading.* All development subject to the provisions of the HDZ ordinance must have a grading scheme approved by the City Engineer or designee. The review process for the grading plan may coincide with either the subdivision plat review process or the development plan review process. The grading scheme may be shown on a site plan or as a separate grading plan. All development must meet the following criteria.
1. The portions of the site or lot to be graded will be clearly shown by the developer's engineer or land surveyor, both on a site or grading plan and by staking on the site or lot. The site or grading plan and the grading staking will be approved by the City Engineer or designee prior to any grubbing, grading, or clearing. Grubbing, grading, and clearing are to occur only within the areas identified on the grading plan and staked on the site or lot.
 2. The portions of the site or lot to be left ungraded are to remain undisturbed and are not to be used for stockpiling of materials or excess fill, construction vehicle access, storage of vehicles during construction, or similar uses. If natural areas are designated on a site or lot, temporary fencing will be installed where they abut construction areas in order to prevent encroachment into the natural areas.
- B. *Cut and Fill.* Cut and fill slopes must meet the following requirements.
1. The maximum amount of cut is not to exceed thirty (30) feet.
 2. The uppermost point of an exposed cut slope is to be no higher than fifteen (15) feet above design grade.
 3. The uppermost point of a nonexposed cut slope is to be no higher than the highest point of any building set into the cut, provided that:
 - a. This cut is concealed from view by a method such as backfilling;
and

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- b. The backfilled area is revegetated in compliance with Development Standard 9-01.5.2.B.
- 4. The vertical distance of exposed fill and/or exposed retaining material is not to exceed fifteen (15) feet.
- 5. Exposed cut and fill slopes will either be revegetated or protected by constructed means, such as riprapping or retaining walls.
- 6. Any cut or fill slopes which encroach into a floodplain must be approved by the City Engineer or designee.

5.2 Vegetation Retention and Revegetation.

A. *Vegetation Retention.*

- 1. Existing trees with four (4) inch or greater trunk diameter and cacti will be preserved in their original locations, except for building sites and access and utilities serving building sites.
- 2. When retention of the above trees and cacti in their original locations is not possible due to building site location, the trees and cacti will be salvaged and replanted in areas requiring revegetation, whenever possible.

B. *Revegetation.* All cut or fill slopes which are no steeper than three horizontal to one vertical (3:1) and all utility trenches or septic leaching fields which are not located in parking or driveway areas will be revegetated in compliance with the following requirements.

- 1. All plants used in revegetation must be the same as the native vegetation on the site or any adjacent site prior to grading or clearing.
- 2. Revegetation will be accomplished with the following minimum requirements for plants.
 - a. Desert trees, a minimum of fifteen (15) gallon size with a minimum trunk diameter of two (2) inches measured at the soil level, or large specimen cactus will be placed at the same vegetation density found on the site prior to any clearing, grubbing, or grading.
 - b. Seeds for trees, desert shrubs, and grasses will be planted with a density adequate to control erosion and may use one of the following methods of planting or any other method approved by the Zoning Review Section at DSD.
 - 1) Raked into the soil with appropriate mulch materials;
 - 2) Hydroseeding;
 - 3) Anchored mulches; or

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- 4) Established on jute, rolled straw, or similar material.
- 3. A temporary watering system must be installed until the revegetation materials are established.
- 5.3 Slope Stabilization. All slopes steeper than a ratio of three horizontal to one vertical (3:1), with the exception of retaining walls, will be stabilized with properly engineered stone riprapping or sculptured rock as follows.
 - A. Stone riprapping will be hand-placed on the slope.
 - B. The stabilizing material used will blend with the natural appearance of the site or lot and the surrounding terrain.
 - C. Vegetation retention and revegetation should be used in conjunction with riprapping.