

## CHAPTER 10: GRADING

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**CHAPTER 10: GRADING**

**10.01 Intent**

- (A) It is the city's intent to safeguard the health, safety, and welfare of Elm Springs citizens by implementing standards and procedures for the physical alteration of land. It is not the city's intent to supersede federal or state regulations such as, but not limited to, the Occupational Health & Safety Act.
- (B) The purpose of this chapter is to control grading, clearing, filling, and cutting (or similar activities) which alone or in combination cause landslides, flooding, degradation of water quality, erosion and sedimentation in storm sewer systems and water storage basins. It is also the intent of this chapter that through the implementation of the guidelines and regulations contained herein, the existing scenic character and quality of the neighborhood and city as a whole not be diminished.

**10.02 General Requirements**

- (A) *Protection.* Persons engaged in land alteration activities regulated by this chapter shall take measures to protect public and private properties from damage by such activities.
- (B) *Site conditions.* Development shall generally conform to the natural contours of the land, natural drainage ways, and other existing site conditions.
- (C) *Adjacent properties.* All developments shall be constructed and maintained so that adjacent properties are not unreasonably burdened with surface waters as a result of such development. More specifically, new development may not unreasonably impede water runoff from higher properties nor may it unreasonably channel water onto lower properties.
- (D) *Restoration.* Land shall be revegetated and restored as close as practically possible to its original conditions so far as to minimize runoff and erosion are concerned.

**10.03 Permits Required/Exceptions**

- (A) *Permit required.* No grading, filling, excavation, or land alteration of any kind shall take place without first obtaining:
  - (1) A grading permit pursuant to this chapter except as specified in §10.03(B);
  - (2) An Arkansas Department of Environmental Quality Stormwater Construction Permit and

incorporated Stormwater Pollution Prevention Plan, if required by state law.

- (B) *Exceptions where no grading permit is required.* Grading permits are not required for the following:
  - (1) *Excavation below finish grade.* Excavations below finished grade for basements, swimming pools, hot tubs, septic systems, retaining walls under 4 feet in height, and like structures authorized by a valid building permit.
  - (2) *Cemetery graves.* Cemetery graves.
  - (3) *Refuse disposal.* Refuse disposal sites controlled by other regulations.
  - (4) *Single-family/duplex.* Construction of one single-family residence, or duplex not located within the 100 year flood plain.
  - (5) *Building additions.* Building additions of less than 2,000 square feet where associated land alteration activities are not beyond the scope of what is necessary to construct said addition and are not located within the 100 year flood plain.
- (C) *Grading permit application and approval.* No grading permit shall be issued until the grading plan, endorsed by a registered architect, landscape architect, or engineer, is approved by the City. A separate permit shall be required for each site; it may cover both excavations and fills. Grading permits may be issued jointly for parcels of land that are contiguous, so long as erosion control measures are in place until project completion. Any application for a required grading permit under this chapter shall be submitted concurrently with the calculations for drainage such is required by §12.03.
- (D) *Permit posted.* A copy of the grading permit shall be posted at or near the street right-of-way line and shall be clearly visible from the street.

**10.04 Minimal Erosion Control Requirements**

If exempt under 10.03, a grading permit is not required. However, exempt as well as non-exempt activities shall be subject to the following minimal erosion and sedimentation control measures.

- (A) *Natural vegetation.* The potential for soil loss shall be minimized by retaining natural vegetation wherever possible.

(B) *Stabilization.* A record of the dates when grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the erosion and sediment control plan. Except as provided in (1) and (2) below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

(1) Where the initiation of stabilization measures by the 14<sup>th</sup> day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

(2) Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g. the total time period that construction activity is temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of the site by the 14<sup>th</sup> day after construction activity temporarily ceased.

(3) Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, and preservation of mature vegetation and other appropriate measures.

(C) *Intermittent/perennial streams.* No intermittent or perennial stream, including a 25 foot perimeter strip measured from the top of the bank, shall be graded, developed, channeled, or physically altered unless adequate guarantees are made for erosion and sedimentation control both during construction and post construction. Likewise, cuts or fills shall be setback sufficiently from intermittent and perennial streams and other stormwater drainage systems to guarantee that there will be no damage from erosion or sedimentation. Final erosion and sedimentation control measures shall be approved by the City.

(D) *Excavation material.* Excavation material shall not be deposited in or so near streams and other stormwater drainage systems where it may be washed downstream by high water or runoff. All excavation material shall be stabilized immediately with erosion control measures.

(E) *Fording streams.* Fording of streams with construction equipment or other activities which destabilize stream banks shall not be permitted.

(F) *Debris, mud, and soil in public streets.* Debris, mud and soil shall not be allowed on public streets but if any debris, mud, or soil from development sites reaches the public street it shall be immediately removed via sweeping or other methods of physical removal. Debris, mud, or soil in the street may not be washed off the street or washed into the storm drainage system. Storm drainage systems downstream of a development site should be protected from debris, mud, or soil in the event that debris, mud, or soil reaches the drainage system.

### 10.05 One-Time Approvals

(A) *Stockpiling materials.* One-time approval may be obtained by public or private entities for the stockpiling of fill material, rock, sand, gravel, aggregate, or clay at particular locations, subject to Zoning, Chapters 1 through 6.

### 10.06 Land Alteration Requirements

(A) *Grading plan evaluation.* Grading and drainage plans shall be evaluated by the City for conformance with the minimal erosion control requirements of §10.04 and the following requirements.

(B) *Requirements varied.* Variances of this chapter's requirements may be approved by the City. The extent to which variations may be made will depend on the soil types encountered, planned slopes, planned vegetation, and investigative engineering reports. In no case shall the City waive or modify any of the minimum erosion control requirements as given in §10.04.

(C) *Cut or fill slopes.*

(1) *Finish grade.* Cut or fill slopes shall have a finish grade no steeper than 33% (3.00 horizontal to 1 vertical), unless otherwise approved by the City.

(2) *Maximum length.* The maximum length of any cut or fill slope without a terrace (as described in 10.06 (D) below) shall be 100 feet as measured along the ground. The terrace shall be at least six feet (6') wide.

(3) *Existing topography.* Cut or fill slopes shall be constructed to eliminate sharp angles of intersection with the existing terrain and shall be rounded and contoured to blend with the existing topography.

(4) *Setback requirements.* The following setback requirements shall be reviewed by the City for purposes of assessing safety,

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stability, and drainage problems: (See illustrations).

are not needed to protect property, utilities, or the integrity of property lines.

- (a) *Setback from top or toe of cut or fill.* Buildings shall be setback from the top or toe of a cut or fill in accordance with Zoning, Chapters 1 through 6; or the approved grading and drainage plan, whichever is greatest.
- (b) *Setbacks from property lines.* The required setback of retaining walls, cut slopes, and fill slopes from property lines shall be as given in the illustrations. Property lines may be filled over or cut if a grading plan for the cut or fill is submitted jointly by the owner of both properties or with written permission from the adjacent property owner and if no utility easements are involved. If utility easements are involved, approval is required as given in (c) below in addition to the joint submittal requirement.
- (c) *Setbacks from the edge of an easement.* The required setback of retaining wall, cut slopes, and fill slopes from the edge of easements shall be as given in the illustrations. Where no utilities are present in an easement, or where utilities are planned to be relocated, and where such action is approved by all utilities, in writing, then easements may fall within a cut or fill section.
- (d) *Setbacks from structures.* The required setback of retaining walls, cut slopes, and fill slopes from structures shall be as given in the illustrations. If a structure forms an integral part of the retaining wall, then the setbacks do not apply to that structure.
- (e) *Calculating setbacks.* For the purpose of calculating setbacks, any cut or fill section which is on a slope of one to one or greater shall be considered a retaining wall.
- (f) *Administrative variance.* Setbacks from easement lines and structures may be varied administratively by the City if geotechnical and/or structural information is provided that in the opinion of the City justifies the variance.
- (g) *Additional information required.* The City may require further geotechnical and/or structural information to show that setbacks greater than those given

(D) *Cuts.*

- (1) *Vertical height.* Cuts shall be limited to 10 feet in vertical height unless information demonstrating slope stability, erosion control, and drainage control is provided together with a re-vegetation plan. For nonsolid rock cuts, terraces shall be required for cuts greater than 10 feet in height. It is recommended that terracing be at a maximum ratio of one foot of horizontal terrace for every foot of vertical surface.
- (2) *Maximum vertical cut.* In solid rock, as determined by geotechnical and engineering data approved by the City, the maximum vertical cut shall be 30 feet.
- (3) *Fill material.* In no case shall a cut be allowed primarily for the purpose of obtaining fill material to a different site.

(E) *Fills.*

- (1) *Rocks/fill.* All imported fill shall be free of rocks greater than 12 inches in diameter and any detrimental organic material or refuse debris.
- (2) *Compaction.* Fill shall be placed and compacted as to minimize sliding or erosion of soil. Fill compaction shall equal the compaction of undisturbed, adjacent soil, except fills covered by Building Regulations, or other structural fills. The City may require soil tests during compaction work or upon its completion at the expense of the permittee.
- (3) *Grade.* Fill shall not be placed on existing slope with a grade steeper than 15% (6.67 horizontal to 1 vertical) unless keyed into steps in the existing grade and thoroughly stabilized by mechanical compaction.
- (4) *Vertical height.* Fills shall be limited to 10 feet in vertical height unless information demonstrating slope stability, erosion control, and drainage control is provided together with a re-vegetation plan.
- (5) *Terraces.* Terraces shall be required for fills greater than 10 feet in height. It is recommended that terracing be at a maximum ratio of one foot of horizontal terrace for every foot of vertical surface.

(F) *Erosion and sedimentation control.*

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(1) *Permanent improvements.* Permanent improvements such as streets, storm sewers, curb and gutters, and other features for control of runoff shall be scheduled coincidental to removing vegetative cover from the area so that large areas are not left exposed beyond the capacity of temporary control measures.

(2) *Phased Construction.* The area of disturbance onsite at any one time shall be limited to 20 acres. An additional 20 acres (a maximum of 40 acres of disturbance at any one time) may be stripped with the permission of the City in order to balance cut and fill onsite. No additional area may be open without the permission of the City until the previously disturbed areas have been temporarily or permanently stabilized.

(3) *Stockpiling of top soil.* Top soil shall be stockpiled and protected for later use on areas requiring landscaping. All storage piles of soil, dirt or other building materials (e.g. sand) shall be located more than 25 feet from a roadway, drainage channel or stream (from top of bank), wetland, and stormwater facility. The City may also require top soil stockpiles to be located up to fifty (50) feet from a drainage channel or stream, as measured from the top of the bank to the stockpile, for established TMDL water bodies; streams listed on the State 303(d) list; an Extraordinary Resource Water, Ecologically Sensitive Waterbody, and/or Natural and Scenic Waterbody, as defined by Arkansas Pollution Control and Ecology Commission Regulation No. 2; and/or any other uses at the discretion of the City.

Topsoil piles surfaces must be immediately stabilized with appropriate stabilization measures. Stabilization practices may include: temporary seeding (i.e. annual rye or other suitable grass), mulching, and other appropriate measures. Sediment control measures such as silt fence shall be provided immediately for stockpiles and remain in place until other stabilization is in place. Storm drain inlets must be protected from potential sedimentation from storage piles by silt fence or other appropriate barriers.

(4) *Existing vegetation.* Every means shall be taken to conserve and protect existing vegetation.

(5) *Re-vegetation.* Re-vegetation shall be required to meet the following performance standards (sediment controls shall remain in

place until re-vegetation is established) unless otherwise allowed by the City:

(a) *Topsoil.* A minimum of 4 inches of topsoil shall be required to be either existing or installed in areas to be re-vegetated. Any application of topsoil and seeding under the drip line of a tree should be minimized to 3 inches so as not to damage the trees root system.

(b) *Zero to 10% grade:* Re-vegetation shall be a minimum of seeding and mulching. Said seeding shall provide complete and uniform coverage that minimizes erosion and runoff in no more than two growing seasons.

(c) *10:1 up to 4:1 grade:* Re-vegetation shall be a minimum of hydro-seeding with mulch and fertilizer, sod, or groundcover. Said planting shall provide complete and uniform coverage in no more than two growing seasons.

(d) *4:1 to 3:1 grade:* The slope shall be covered with landscape fabric and hydro-seeded with mulch and fertilizer, or staked sod, or groundcover. Said planting shall provide complete and uniform coverage in no more than two growing seasons.

(e) *More than 3:1 grade:* Any finish grade over 3:1 shall be stabilized with one or more of the following:  
1) Retaining walls;  
2) Cribbing with landscape fabric;  
3) Terracing with groundcover;  
4) Riprap;  
5) Staked Sod (up to 2:1 slope)  
If Cribbing, Terracing, or Riprap is used, the slope's stability and erodibility must be equivalent to or better than its predevelopment state.

(6) *Permanent erosion control.* The developer shall incorporate permanent erosion control features at the earliest practical time. Temporary erosion control measures will be used to correct conditions that develop during construction that were unforeseen during the design stage, that are needed prior to installation of permanent erosion control features, or that are needed temporarily to control erosion that develops during normal construction projects, but are not associated with permanent control features on the project.

(G) *Required retaining wall and rock cut design.*

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- (1) *Design/inspection.* Any retaining wall more than four feet in height shall be designed by a registered professional engineer, and shall be field inspected by the design engineer. The design engineer shall provide proof of inspection and certify that the wall was constructed in conformance with the design. The City may require retaining walls less than four feet in height to be designed by a professional engineer.
- (2) *Investigation/report.* All proposed rock cuts and any cut or fill 10 feet or greater will require a geotechnical investigation and a formal report submitted by a registered professional engineer qualified to make such investigations.
- (3) *Safety railings.* Safety railings may be required on any retaining wall 2.5 feet or higher. The decision as to whether to require safety railing shall be based on potential pedestrian and public access to the retaining wall and applicable building codes. This requirement for safety rails shall also apply to vertical or near vertical rock cuts and to steep (greater than 3:1) cut or fill slopes.

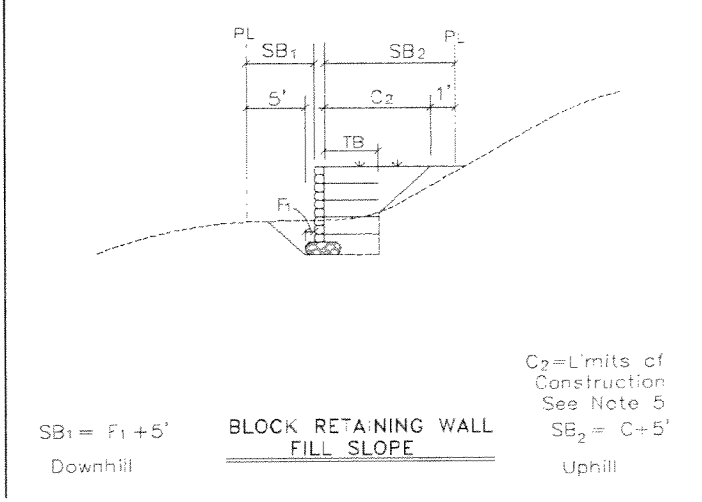
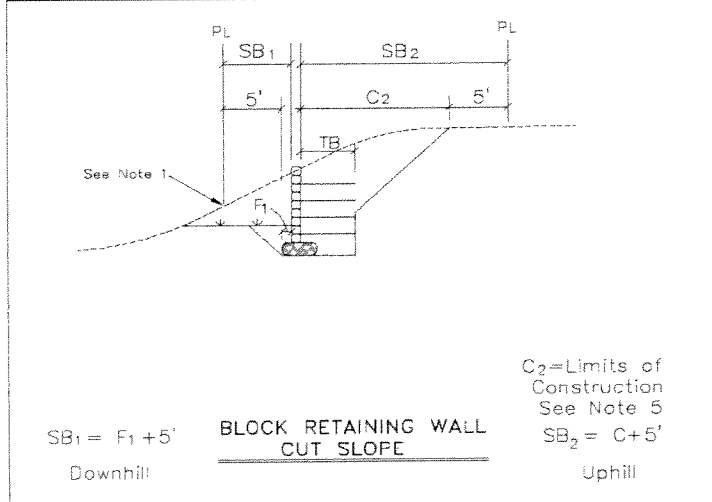
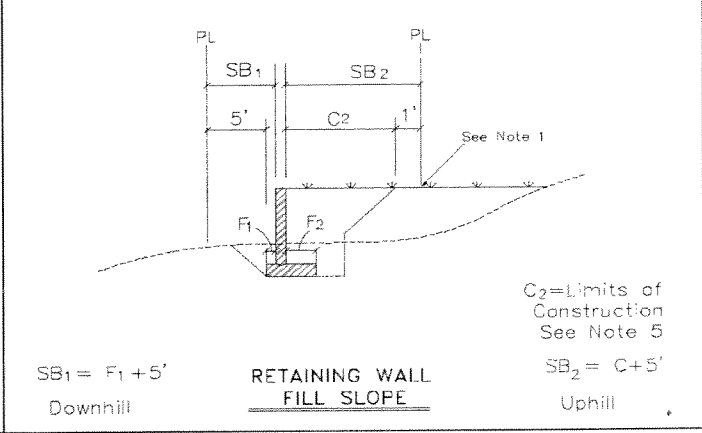
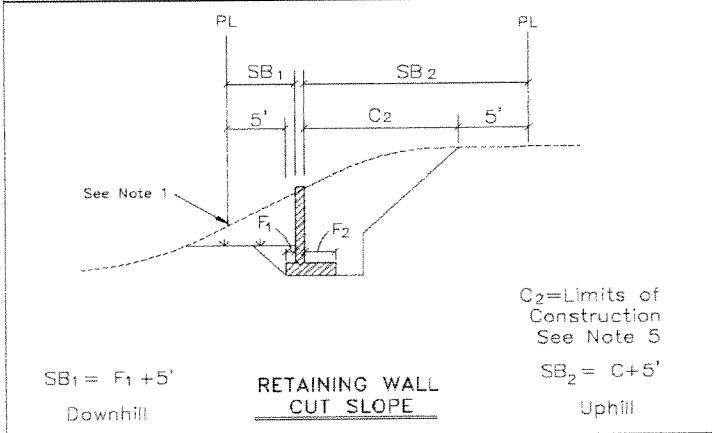
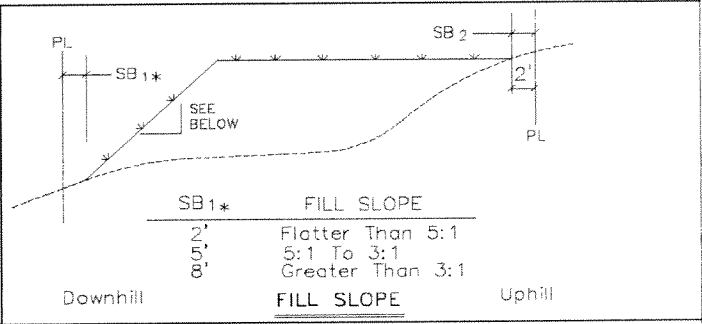
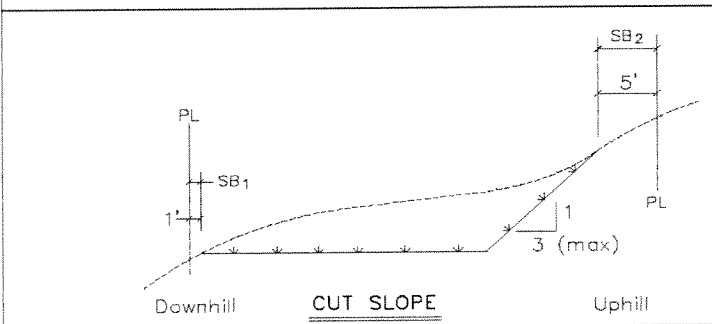
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**LEGEND**

- EXISTING GROUND
- PL----- PROPERTY OR EASEMENT LINE
- PROPOSED GROUND
- CONSTRUCTION LIMITS
- SB1 MINIMUM SETBACK FROM PROPERTY LINE DOWNHILL
- SB2 MINIMUM SETBACK FROM PROPERTY LINE UPHILL
- TB TIE BACK
- S SLOPE
- F1 FOUNDATION DOWNHILL
- F2 FOUNDATION UPHILL
- C1 LIMITS OF CONSTRUCTION-DOWNHILL
- C2 LIMITS OF CONSTRUCTION-UPHILL

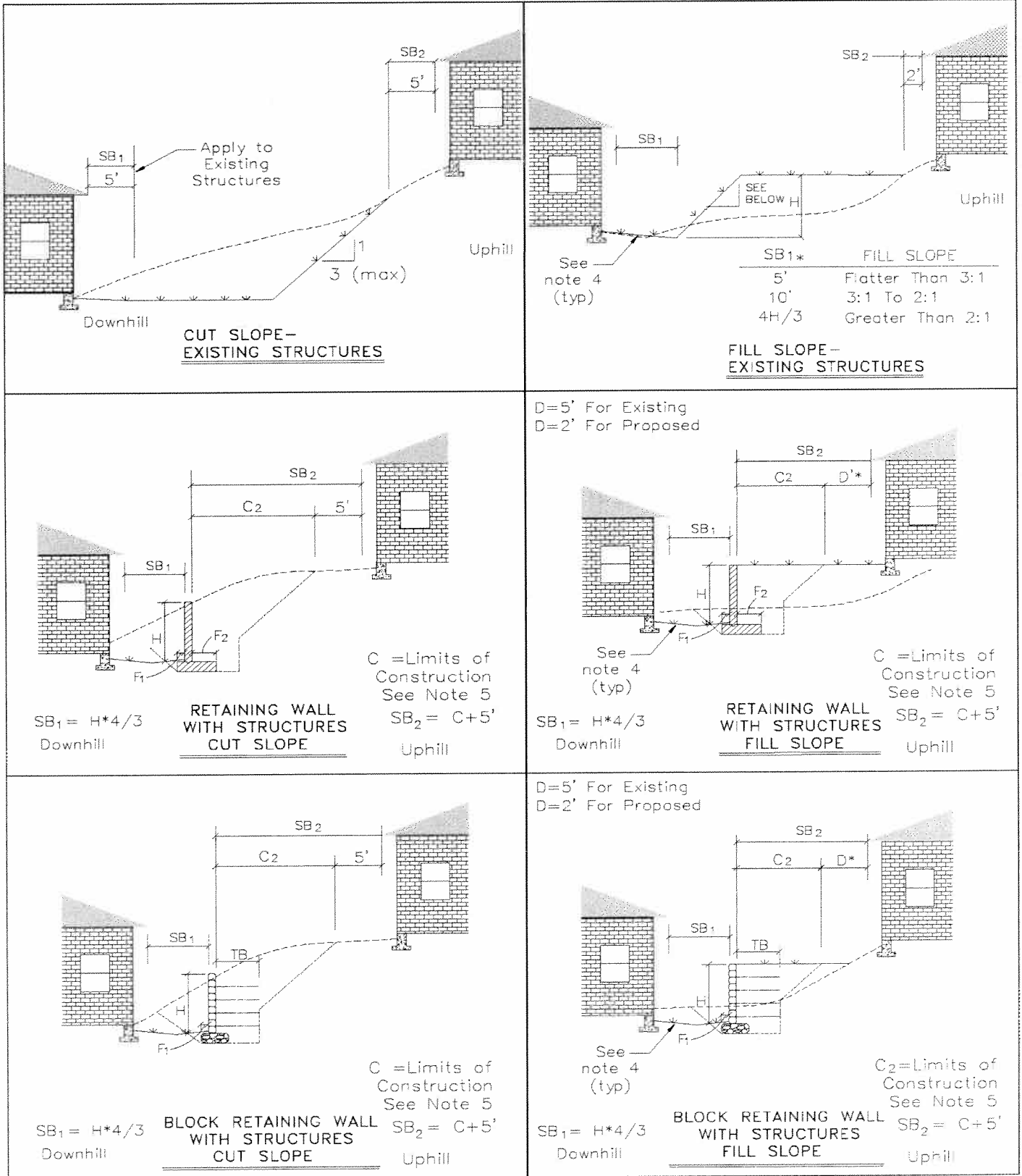
**NOTES**

1. WRITTEN PERMISSION FROM ADJACENT PROPERTY OWNER IS REQUIRED TO FILL OR EXCAVATE OVER EXISTING PROPERTY LINES.
2. CONSTRUCTION LIMITS INDICATED ARE FOR INITIAL CONSTRUCTION; RECONSTRUCTION; OR MAINTENANCE OF THE STRUCTURE IN THE FUTURE.
3. REVIEW ZONING & BUILDING SETBACK REQUIREMENTS, DEFER TO WHICHEVER MAY BE GREATER.
4. MINIMUM SLOPE AND DISTANCE FROM THE STRUCTURE PER STATE BUILDING CODE MUST NOT BE VIOLATED.
5. REFER TO THE OSHA TECHNICAL MANUAL SECTION 5 CHAPTER 2 FOR SOIL TYPES AND SLOPE EXCAVATION TO DETERMINE THE LIMITS OF CONSTRUCTION.





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**10.07 Grading and Drainage Plan Specifications**

- (A) *Grading plan.* The applicant shall prepare a grading and drainage plan as follows:
  - (1) *Site plan.* Site plan at a scale no smaller than one inch equals 50 feet, showing property lines; vicinity map; name of owner, developer and adjacent property owners.
  - (2) *Existing grades.* Existing grades shall be shown with dashed line contours and proposed grades with solid line contours. Grading and Drainage plans shall be required to show both the proposed grade and the undisturbed area. Contour intervals shall be a maximum of two feet. Spot elevations shall be indicated.
  - (3) *Designation of grade.* Areas with 0 to 10%, 10 to 15%, 15 to 20% and more than 20% grade shall each be identified in a distinguishing manner.
  - (4) *Identify land to be disturbed.* Land areas to be disturbed shall be clearly identified.
  - (5) *Engineer/architect.* Seal of a registered engineer, architect, or landscape architect certifying that the plan complies with this chapter.
  - (6) *Cuts and fills.* All cuts and fills, including height and slope, shall be clearly shown on the plan.
  - (7) *Streets and rights-of-way.* Location and names of all existing or platted streets or rights-of-way within or adjacent to tract and location of all utilities and easements within or adjacent to the property shall all be indicated.
  - (8) *Lot/building, etc. identification.* The proposed location of lots, buildings, streets, parking lots and parks, playgrounds or green space shall be indicated. Also to be indicated is any existing or proposed building within 100 feet of the site.
  - (9) *Soil type.* Soil types shall be identified according to the Unified Soil Classification System.
  - (10) *Natural features.* Location of natural features such as drainage ways, ponds, rock outcroppings, and tree cover. Indication of 100 year floodplains as defined by FEMA.

- (11) *Streets and drainage ways.* Profiles and cross sections for proposed streets and drainage ways.
- (12) *Acreage/zoning.* Total acreage and zoning classification.
- (13) *Surface water.* Provisions for collecting and discharging surface water.
- (14) *Underground utilities.* Profiles and cross sections of streets, drainage systems, and underground utilities, if they are necessary to clarify the grading plan in terms of potential erosion or runoff, or if the grading on site has the potential of disturbing the utility line.
- (15) *Treatment of slopes and benches.* The method of treatment for all slopes and benches shall be indicated.
- (16) *Natural vegetation preservation.* Proposals for preserving natural vegetation and description of re-vegetation or other permanent erosion control strategy.
- (17) *Runoff/sedimentation.* Specification of measures to control runoff and sedimentation during construction indicating what will be used such as straw bales, silt dams, brush check dams, lateral hillside ditches, catch basins, and the like.

**10.08 Grading Plan Submittal**

- (A) *Preliminary grading plan.* A preliminary grading plan shall be submitted at the time of preliminary plat submission for subdivisions or plat submission for large scale development, whichever is applicable.
- (B) *Final grading plan.* No subdivision may be finalized, nor large scale development plat approved before a final grading plan has been submitted to the City and approved.
- (C) A copy of the Stormwater Pollution Prevention Plan (SWPPP) is required to be submitted with the grading plan for sites one acre or larger.

**10.09 Approval**

Approval of a grading and drainage plan is contingent on meeting all the requirements of this ordinance plus any set of varied requirements approved by the Planning Commission.

**10.10 Discovery Of Historic Resources**

Whenever, during the conduct of grading any historical, pre-historical, or paleontological materials are discovered, grading shall cease and the City shall be notified.

### **10.11 Certificate Of Occupancy**

All re-vegetation and grading and drainage plan improvements shall be in place before a certificate of occupancy shall be issued. When a property owner has finished building construction but has yet to install plant material, said owner may apply for a temporary certificate of occupancy. In evaluating whether or not to grant a temporary certificate of occupancy, the City shall consider weather conditions and temporary stabilization measures.

### **10.12 Owner Responsibility**

The property owner shall be responsible both for his or her employees and for all contractors and subcontractors from the onset of development until the property is fully stabilized. If property is transferred anytime between the onset of development and at the time it is fully stabilized, all responsibility and liability for meeting the terms of the chapter shall be likewise transferred to the new property owner.

### **10.13 Enforcement**

(A) *Stop-Work Order; Revocation of Permit*

In the event that any person holding a grading permit pursuant to this ordinance violates the terms of the permit or implements site development in such a manner as to materially adversely affect the health, welfare, or safety of persons residing or working in the neighborhood or development site so as to be materially detrimental to the public welfare or injurious to property or improvements in the neighborhood, the City may suspend or revoke the grading permit.

(B) *Violation and Penalties*

No person shall construct, enlarge, alter, repair, or maintain any grading, excavation, or fill, or cause the same to be done, contrary to or in violation of any terms of this ordinance. Any person violating any of the provisions of this ordinance shall be deemed guilty of a misdemeanor and each day during which any violation of any of the provisions of this ordinance is committed, continued, or permitted, shall constitute a separate offense. Upon conviction of any such violation, such person, partnership, or corporation shall be punished by a fine of not more than \$ 250.00 for each offense. Each day a violation is allowed to exist shall constitute a separate offense. In addition to any other penalty authorized by this section, any person, partnership, or corporation convicted of violating any of the provisions of this ordinance shall be required to bear the expense of such restoration.