



**City of Grand Junction
Public Works Department
Division of Public Works
Engineering**

Having been duly posted on the 1st day of May 2001 and the public having the opportunity to comment on the propriety of the following regulation will be duly promulgated and become effective on the 8th day of May 2001.

RE: ADMINISTRATIVE REGULATION NO. 11-01
Zoning and Development Code
City of Grand Junction

ISSUED BY: /s/ Mark Relph
Mark Relph, Public Works and Utilities Director

4/27/01
Date

Topic:

This administrative regulation concerns the Grading and Stormwater Management Plan described in the Submittal Standards for Improvements and Development (S.S.I.D.). Its purpose is to further explain what is required for typical lot grading, and to describe the detail necessary to demonstrate appropriate stormwater management. This Grading and Stormwater Management Plan does not eliminate or reduce any other requirements for individual lot grading plans.

Background:

Heavy rainfall of the past summers has identified problems associated with grading and drainage within some areas of the City of Grand Junction. The Public Works Department has received numerous complaints, from contractors and homeowners alike, concerning lot grading or the lack thereof. In most instances, the failure to identify the overall concept for stormwater management/grading for the subdivision leads to improper interpretation when setting finished floor elevations and grading around individual buildings.

When a new home is constructed, it is essential that the lot be graded properly so that water will not accumulate near the foundation and will not adversely impact adjacent

property. Improper lot grading can result in poor surface drainage, ponding, settling, and damage to neighboring property.

Protecting property from damage due to improper lot grading and stormwater management is of paramount concern. The intent of this Administrative Regulation is to provide further clarification of what is required on a Grading and Stormwater Management Plan to cover the vast majority of lots, and to define when individual lot grading plans will be required.

Administrative Interpretation:

Page IV-05 of the Submittal Standards for Improvements and Development (S.S.I.D.) requires a Grading and Stormwater Management Plan to be submitted as part of the Major Subdivision review process. Page IX-17 of the S.S.I.D. manual provides further clarification of what shall be shown on the Grading and Stormwater Management Plan. Of particular importance are items 2, 3, 4, and 5.

Item 2 requires the Grading and Stormwater Management Plan to show proposed contouring for cuts, fills, basins, swales, channels, etc. Adding proposed contours, swales and channels to a Grading and Stormwater Management Plan will illustrate how each lot will drain in relation to the rest of the subdivision. There are two different types of lot grading schemes that can be used to assure that surface drainage is directed towards public right-of-way (public road, public lane, or any easement where the City is party to an agreement granting the City interest in the land) and away from neighboring private property:

- a) Back to front – For this type of lot grading to work, the rear lot line must be higher in elevation than the street grade in front of the property. Back to front provides for a ridge (high point) along the rear lot lines allowing each lot to slope directly towards the street. Finished floor elevations of adjacent buildings must be set high enough to allow for a side swale or channel to be formed between the homes.
- b) Split – For this type of lot grading to work, the house is set at the high point on the lot. The lot is graded so that a portion of the surface drainage flows toward the street with the remaining drainage flowing to the rear lot line. The drainage that collects along the rear lot line will require an easement and maintainable conveyance facility to properly deliver the accumulated runoff to a street. A property line should not split the conveyance facility and related easement. Finished floor elevations of adjacent buildings must be set high enough to allow for a side swale or channel to be formed between the homes.

Some amount of overlot grading will be required in most subdivisions to allow the contractor or homeowner to incorporate one of the above mentioned schemes into their lot grading. Easements and sufficient longitudinal slope to carry runoff from the rear property lines to the public right-of-way must be provided and shown on the Grading and Stormwater Management Plan. Unique topographic situations and design concepts may

suggest grading schemes other than the two recommended above. Specially designed lots that vary from the above may be analyzed on a case by case basis. No developed lot should discharge on to another property in a physically or legally uncontrolled manner outside of a natural drainage way.

Item 3 requires the Grading and Stormwater Management Plan to show proposed retaining walls, cut and fill slopes and other significant grading factors. Some developable parcels within the City of Grand Junction present unique topographic constraints that require sloping, benches, and/or retaining walls to hold back the earth and provide a reasonably sized building envelope. Proposed cut and fill slopes along with the location of retaining walls must be shown on the Grading and Stormwater Management Plan. In addition to showing the location of a proposed retaining wall, sufficient detail must be provided to demonstrate how runoff will drain around and away from the wall and into drainage facilities.

Item 4 requires the Grading and Stormwater Management Plan to provide a detail of typical lot grading for each lot within a proposed subdivision. The attached exhibits show the various lot grading schemes that can be employed to drain stormwater away from private property and into the public right-of-way. Each lot shown on the Grading and Stormwater Management Plan must be designated as a Type A, Type B or Specially Designed lot. Designating each lot as a Type A, Type B or Specially Designed lot will provide the homebuilder the information needed to grade the lot per the approved Grading and Stormwater Management Plan.

Item 5 requires the Grading and Stormwater Management Plan to provide minimum finished floor (lowest top of foundation) elevations for each lot. The lowest top of foundation elevations must be at least 1.0 feet above the 100-year flood plain level and least 1.0' above the lot outfall. The lot outfall is defined as the highest point on the property boundary where runoff will discharge. For Lot Grading Type A and B, the outfall is the elevation of the property pin on the high side of the lot adjacent to the public right-of-way. The finished floor elevation must also be set high enough to allow a swale or channel to be formed between the homes per the discussion in Item 2, above.

In addition to requiring contours, swales, channels, cut and fill slopes, typical lot grading and finished floor elevations, the City Development Engineer may require individual lot grading plans. Individual lot grading plans will be required in those instances where overlot grading cannot be accomplished due to significant site constraints (rock outcroppings, areas of no disturbance, etc.), or when lot grading must be designed to accommodate historic runoff from an adjacent property.

Individual lot grading plans will be required to contain the following information:

- a) One plot plan on 8 ½ “ x 11” paper showing all existing and proposed structure locations, parking, setbacks to all property lines, driveway location, and width of all easements and rights-of-way which about the parcel.
- b) Existing elevations around the lot perimeter
- c) Minimum elevation of the top of foundation wall (6” above adjacent finished grade, 0.5’ above the lot outfall, and at least 1.0’ above the 100-year floodplain)
- d) Minimum slope away from the house for at least 5 feet – 8% (approximately 1” per foot)
- e) Minimum slope on lot except as above – 2% (approximately ¼” per foot)
- f) Show location of swales and drainage channels
- g) Show locations of fencing proposed for the lot. The bottom of fences placed in or across swales must be kept above the normal water surface elevation within the swale.
- h) Minimum depth of swales – 6”
- i) Minimum transverse slope of swales– 1%
- j) Maximum side slopes of swales – 3:1

The result of a well planned and properly executed grading and drainage plan will help in protecting the public from property damage due to improper lot grading and stormwater management.

The critical step in this process is that the right information gets to the people who will be using it. The end result of this portion of the subdivision review process should be that the person issuing a building permit will know that the structure planned for a particular lot will be protected from all runoff. This means that this plan must be delivered to the Mesa County Building Department in a form they can readily use.

Once the Grading and Stormwater Management Plan is approved by the City of Grand Junction development review staff two items must be delivered to the Mesa County Building Department:

- 1. A copy of the plan itself (24” x 36” format)
- 2. A tabulation of the lots, top of floor elevations referenced to a subdivision benchmark and the designer’s determination of the range of variation allowable for each lot. (8 ½” x 11” format, see example)

Upon receipt of this information the Mesa County Building Department will deliver a letter acknowledging this information to the City of Grand Junction Community Development Department. Receipt of this letter from Mesa County will fulfill this portion of the subdivision approval process.

\lot-grading

EXAMPLE OF TOP OF FOUNDATON TABULATION:

NAME OF	BENCHMARK	Top of Hydrant, NE
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SUBDIVISION	LOCATION:	Corner of 1 st & Adams
Example Subdivision	BENCHMARK ELEVATION:	4552.56
LOT#, BLOCK #	RECOMMENDED MINIMUM TOP OF FOUNDATION	RECOMMENDED MAXIMUM TOP OF FOUNDATION
Lot 1, Block 1	4551.5	Not Applicable
“ 2, “ “	4550.2	“ “
“ 3, “ “	4548.7	“ “
“ 1, “ 2	4552.2	4555.3
“ 2, “ 2	4553.6	4560.0

For proposed Top of Foundation elevations outside of the recommended range, the Mesa County Building Department may require an individual lot grading plan signed by a registered Professional Engineer to certify compatibility with the approved Grading and Stormwater Management Plan.