

Grading Plan Correction List

The following lists are the most common requirements for the grading plans.

General

1) Incomplete Plans; please resubmit completed plans. Your recheck will have a 10-working day turnaround time.

2) Show Assigned project address on the Title Sheet of plan.

2.1) The following note is to appear on the Title Sheet of every Approved Grading Plan:

"There shall be no trenches nor excavations five (5) or more in depth, into which a person is required to descend; or obtain a permit from the State of California, Division of Occupational Safety, and Health Administration (Cal/OSHA). This permit and any other safety permit shall be obtained prior to the commencement of any work."

Contact Cal/OSHA at 714-558-4451 for additional information.

3) Show site acreage and earthwork quantities on title sheet of plans:

- 3.1 Site Acreage _____ Acres
- 3.2 Disturbed Areas _____ Acres
- 3.3 Impervious Areas including pool area _____ Square Foot
- 3.4 Landscape Areas _____ Square Foot
- 3.5 Cut _____ cu. yds.
- 3.6 Overexcavation _____ cu. yds.
- 3.7 Fill _____ cu. yds.
- 3.8 Import _____ cu. yds.; Export _____ cu. yds.
- 3.9 Remedial _____ cu. yds.

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4) Each sheet of all plan sets must be stamped and wet signed by the Civil Engineer or Architect of Record for the project.

5) Show location of all existing and proposed structures, buried tanks, wells, etc.

6) Submit an itemized summary of the unit and total cost of all drainage devices, grading, paving, erosion and sediment control devices; plus a 10% contingency and round up to the nearest whole thousand-dollar amount.

7) Show on Plans:

- 7.1 North Arrow
- 7.2 Scale
- 7.3 Grading Legend
- 7.4 Vicinity Map
- 7.5 Building Number
- 7.6 Record Tract or Parcel Map lot Numbers
- 7.7 Tentative Tract or Parcel Map Lot Numbers
- 7.8 Grading Limits and Off-Site Grading Limits (Clearly labeled)
- 7.9 Permit Limits (Clearly labeled)
- 7.10 Property Lines (Clearly labeled with P.L. symbols)
- 7.11 Tract Boundaries with Number

8) A notarized letter of "Permission to Grade Upon" from adjacent property owner(s) is required for slope encroachment or other off-site grading or work. Include off-site legal description and Assessor's Parcel Number. Permission to Grade Upon Form, download available on website: <http://ocpublicworks.com>.

9) Show location of retaining walls on the grading plan plus top of wall elevations, adjacent finished surface elevations, top of footing elevations, provide a cross section detail showing subdrain design,

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indicate drainage outlet for all retaining walls, to scale. Retaining walls are not a part of the grading permit. Submit for separate building permits; show connection of subdrain to storm drain. Note on plans.

10) Show all Cut/Fill transitions and daylight lines.

11) Show existing and proposed elevations using contours and/or spot elevations.

12) Indicate disposition of excess earth materials. A separate permit may be required. OC Traffic Engineering must approve haul routes over public roadways.

13) Add the following to the plans:

- 13.1 Grading, Erosion, Sediment, and Chemical Control Notes (see attached sheets).
- 13.2 Detail sheet for: _____

14) Show street width and centerline. Include cross-section detail, with street paving.

15) Show all easements with dimensions and ownerships (e.g. drainage, access, utilities, maintenance, etc.)

16) Extend existing contours or spot elevations to reflect off-site areas and identify drainage patterns, minimum fifteen (15) feet beyond property lines.

17) Planning Commission/Subdivision Committee review of grading plan(s) is required prior to issuance of grading permit.

18) Approved erosion and sediment control measures are to be installed and functional throughout the construction period. Justify design with hydrology and hydraulic calculations. Submit six (6) copies of Erosion and Sediment Control Plan (ESCP) ESCP must be available at the job site all the time.

19) Show detail on plan how finished grades meet adjoining properties.

20) Show on title sheet of plans name, address, telephone number and license number of the following:

- 20.1 Owner

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- 20.2 Geotechnical/Soil Engineer
- 20.3 Architect
- 20.4 Engineering Geologist
- 20.5 Civil Engineer
- 20.6 Archaeologist
- 20.7 Paleontologist
- 20.8 Surveyor

21) Show benchmark and basis of bearing (reference based on Orange County Surveyor vertical datum and recorded map or survey, respectively). Note: Civil Engineers Authorized to Practice Land Surveying and Licensed Land Surveyors can establish Property Boundaries, set TBMs, etc.

22) Submit a Topography Survey map signed and stamped by a licensed land surveyors or a civil engineer authorized to practice land surveying.

23) Show percent grades of all driveways, at the centerline.

24) Show location of septic tanks and leach lines on the grading plan. A separate plumbing permit must be obtained from the Building Permit Section.

25) Additional comments may be made after field verification, that the plans and geotechnical report accurately reflects existing conditions.

26) Attach pertaining sheet from the "Preliminary" plans to each set of "Precise" plans upon request.

27) Grading concept proposed appears to require a separate site Development Permit; verify with Current Planning at the DPC Counter. If not required, please provide name of Planner who made the determination and the date.

28) Show location of sump pump on the grading plan. Design Civil Engineer of Record shall provide the Pump Specifications, Capacity Curves, Product Brochure, etc. Required separate electrical and plumbing permits must be obtained from the Building Permits Section, prior to installation.

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29) Show complete handicapped parking details, accessible routes, and landings on the plans. Clearly place a note on the approved grading plans stating all currently approved ADA minimum standards have been met.

30) Submit a Water Quality Control Plan (WQMP). See <http://ocpublicworks.com> for North and South Orange County WQMP requirements.

31) Complete the attached Model Water Efficient Landscape Ordinance (MWELO). Based on the provided information, a Landscape plan may be required. Grading permit will not be issued prior to receive an application for a Landscape permit.

Drainage Improvements

32) Submittal of an Agreement for Drainage Encumbrance is required from adjacent property owner(s) for acceptance of unnatural drainage. Include legal description and Assessor's Parcel Number. Applicant must have this document recorded. Agreement Form downloads available on the website: <http://ocpublicworks.com>.

33) Submit a hydrology study and hydraulic calculations for this project.

34) Show limits of Flood Plain and Finished Floor elevations.

35) Show existing off-site terrace and drainage features that could significantly affect this project.

36) Show typical detail for an earthen berm four (4) feet wide by one (1) foot high, which is required at top of all slopes.

37) Provide one (1) copy of recorded (pages) of CC&R's outlining the property owner's drainage rights and maintenance responsibilities, upon request.

38) Show location and provide complete details for all subdrain systems:

- 38.1 As recommended in the approved geotechnical/engineering geology report by _____ dated _____
- 38.2 Approved Standard Plans

39) Maximum Gradient, for Sheet Flow is 10%.

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40) Minimum, Acceptable Gradients:

- 40.1 Earth 1.00%
- 40.2 Asphaltic Concrete 1.00%
- 40.3 Concrete in Earth 0.50%
- 40.4 Concrete in Asphaltic Concrete 0.25%
- 40.5 Lots Sales and Preliminary Grading 2.00%
- 40.6 Terrace drains 6.0%

41) Show plan and section details of typical lot drainage. Minimum 5% away on pervious surfaces and 2% away on impervious surfaces from the building foundation within 10 feet of the building and maximum 20% away to a swale or other approved drainage devices is required.

42) Show drainage conducted to a street, natural watercourse, or other approved location.

43) Drainage over a manufactured slope is not permitted except in approved devices.

44) Show limits of roof gutters and location of downspouts (if discharged onto A.C. paving or onto a finished grade, a Portland Concrete Cement (PCC) splash block is required with minimum dimensions of one (1) foot wide by two (2) feet long); show locations and details on the Approved Grading Plans.

45) Show details for interceptor drains (brow ditches) at top of manufactured slopes to intercept surface drainage.

46) Show detail of cut off walls at inlet of all paved drains, desilting basin spillways, paved outlets, inclined riprap pads, etc.

47) Show plan and detail of velocity reducers (i.e. energy dissipaters) where drains discharges onto natural ground. If riprap is to be used, specify class, size, strength, and dimensions of cut off walls.

48) Show the approved non-erosive devices where concentrated drainage exceeds 4% gradient. Use concrete, gunite, or other approved materials.

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- 49) Revise plans to show complete details of all drainage structures, i.e. _____
- 50) Show concrete device in asphalt section to carry concentrated water
- 51) Show detail and location of extra depth footing.
- 52) Show a seven (7) foot setback from top of slope to building to accommodate a graded drainage swale or five (5) feet setback when an approved drainage is used, see OC Grading Manual Figure 2 and currently adopted State Building Codes for guidance.
- 53) Show flow line elevations of all swales and other drainage devices.
- 54) Show retaining wall subdrain detail with disposal points, flow line elevations and pipe material. Subdrain pipe shall be SCH 40 PVC, with four (4) inch minimum diameter.
- 55) Show typical section of driveway and pavement section. Include type of surfacing material.
- 56) Show typical section of hardscape. Include type of surfacing material.

Slopes

- 57) Provide structure/slope setbacks as outlined in the OC Grading Manual and latest version of California building Code (CBC) or California Residential Code (CRC). See check print for specific non-compliance.
- 58) Show detail of typical slope benching preparatory to fill placement, see OC Grading Manual Figure 1.
- 59) Provide a minimum six (6) feet wide terrace, with maximum interval of 30 feet measured vertically. Maximum paved width to be five (5) feet and minimum depth of 18 inches (i.e. flow line to top of paved section).
- 60) Provide a minimum 12 feet wide terrace if slope exceeds 60 feet in height. Lowest terrace should be 12 feet wide when only two terraces are required. When three or more are required, the midslope terrace will be 12 feet wide. Show section details on the approved grading plans.
- 61) For slopes steeper than 20% (5:1), elimination of terracing will require Building Official approval

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62) Show a downdrain for every single run terrace drain that collects runoff from slope watershed area of 13,500 square feet.

63) Show the proposed location and fully dimensioned cross sectional detail of all buttress fills recommended by the project Geotechnical Engineer of Record and/or Certified Engineering Geologist.

64) Show top and toe of all cut and fill slopes

65) Incorporate the following hillside design criteria, or justify in writing why it does not apply to your project:

- 65.1 Slope Rounding
- 65.2 Slope Contouring at Daylight Line
- 65.3 Undulating Slopes with a Minimum of Long, Flat, Inclined Planes and Acute Angles
- 65.4 Maximum Slope Height: Type B - 35 Feet, Type C - 20 Feet, per the OC Subdivision Code and Manual
- 65.5 Ten (10) Feet Benches Exclusive of Drainage Facilities
- 65.6 Manufactured Cut and Fill Slopes Shall Have a Maximum Slope Ratio of 2:1 H:V

66) Submit report/calculations for the following, but not limited to: wall layout, wall profile, subdrains, geogrid pullout strengths, global stability, etc. for the proposed Mechanically Stabilized Earth (MSE) segmental retaining wall(s) see APPENDIX H of the OC Grading Manual.

Geotechnical

67) Obtain approval of geotechnical and/or engineering geology reports. Reports have been forwarded for their review.

68) Show rock disposal areas on the plans and provide details as recommended by the project Geotechnical Engineer of Record.

69) Show areas of overexcavation and recompaction as recommended by the Geotechnical Engineer of Record on the site plan and sections. Show volume details as a separate item where depth exceeds 12 inches.

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Geotechnical Engineer of Record shall verify recommended compaction in his final report.

70) The geotechnical report recommends two (2) or more options of site development. Show which option will be used on the approved grading plans.