HillsideDevelopment

Requirements For Technical Reports

Minimum requirements for:

- Grading plans
- Geology reports
- Geotechnical reports
- Hydrology reports
- Revegetation plans
- Engineer's summary reports
- Post construction reports

Created by the

Hillside Professional Advisory Committee for the Development Community

Adopted by Boise City Council

January 8, 2002

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Acknowledgements

In March 2000, the City of Boise Public Works Department formed a Hillside Professional Advisoroy Committee. The Committee is made up of engineers, geologists, developers, and representatives from several neighborhood associations. The purpose of this Committee was to assist City staff in identifying minimum report requirements of the technical reports required by the Hillside and Foothill Areas Development Ordinance (Chapter 11-14). The Committee was also asked to identify which professionals are qualified to prepare these reports.

The City of Boise thanks the members for their valuable contributions, and donations of their time and expertise. Members of the Committee who actively participated in the development of the standards contained in this manual include:

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How to Use This Manual

This manual applies to lands within the hillside areas of the City of Boise that are subject to the requirements of the Hillside and Foothill Areas Development Ordinance (Chapter 11-14). The provisions of this manual apply to all developments with slopes that exceed 15% or where adverse conditions associated with slope stability, expansive soils, high water table and springs, erosion, or sedimentation are present as determined by the Boise City Planning Director or Boise City Engineer.

This manual is intended to be a reference source, providing the instructions and information necessary to allow developers, consultants, and property owners to develop the preliminary and final reports necessary to obtain a development permit. This manual incorporates code standards and requirements with recommended guidelines.

The manual answers the following questions in order to guide the user to comply with the City's development process for hillside areas:

A. What is the review process?
B. What are the permit categories?
C. What is required to be submitted?

If you have suggestions or comments regarding the manual, please contact the Hillside Coordinator, Public Works Department, P.O. Box 500, Boise, Idaho, 83701-0500 or telephone (208) 384-3900.

Boise City has recognized that the foothills and hillsides areas should be developed in a way that reduces or minimizes adverse environmental impacts and that these impacts should be mitigated when they are unavoidable. An objective of the Foothills Policy Plan is that foothills development should be designed to avoid hazardous areas and engineered to minimize risk to structures and life.

This is achieved through evaluation of the geotechnical, geologic, geomorphic, and hydrologic characteristics of a proposed foothills development so that natural and potential hazards induced by development are identified, and further, that these hazards are avoided or mitigated. The Foothills Ordinance requires that the following technical reports be submitted:

Preliminary Required Information

A. Geotechnical Report
B. Geology Report
C. Hydrology Report
D. Grading and Drainage Plans
E. Revegetation Plan

Final Reports

A. Geotechnical Report
B. Geology Report
C. Hydrology Engineering Report
D. Grading and Drainage Plans and Specifications
E. Revegetation Plan and Report
F. Project Engineers Summary Report
G. Post Construction Report

This manual outlines the information needed for these reports, and incorporates code standards and requirements with recommended guidelines. The Erosion, Sediment and Fugitive Dust Control Ordinance also requires that an Erosion Control Plan be submitted for review and approval. The requirements for this plan are outlined in a separate guidance document.

Reports shall be stamped by a licensed Idaho professional competent to practice in the subject matter of the report. Further, if more than one licensed discipline is involved in the report/plan preparation, each responsible licensed professional shall stamp the report and identify those areas of the report they are responsible for. Based upon the report requirements outlined in the manual, we expect that the reports will be prepared by the following professionals:

Type of Report	Preliminary Report	Final Report
Geotechnical Report	PE	PE
Geology Report	PG	PG
Hydrology Report	PE	PE
Grading & Drainage Plans	Ordinance does not specify	PE
Final Engineer's Report	PE	PE
Revegetation Plan/Report	LA	LA

PE = Professional Engineer
PG = Professional Geologist
LA = Landscape Architect

The report requirements described in this manual were developed by an advisory committee of local engineers, geologists, developers, and residential representatives familiar with hillside development. These minimum requirements are intended to ensure that adequate information is provided to the City for project review.

A concern of the committee was the potential for unqualified licensed professionals to submit substandard reports or reports out of their area of expertise to practice. While the City will not judge who may or may not be qualified to submit reports, the City may refer substandard or inadequate reports, or individuals submitting reports who appear to be out of their area of expertise, to the appropriate Board of Registration for investigation of possible infractions.

Hillside Development

Plan Review Process

All developments in the foothills require a Hillside Development Permit. Prior to commencement of work, a Hillside Development Permit Application must be approved by the City of Boise. Permits are initiated and processed through the Planning and Development Services Department (PDSD) and the application and conditions of approval establish the project design parameters. Residential/ commercial applications establish criteria for placement, layout, construction, and grading. Subdivision applications establish criteria for lot layout, street pattern, and drainage design. System review categories were developed to facilitate the processing of residential plans. This is more specifically defined below. Because of the potential impacts of subdivision development, all subdivisions are required to be processed as a Category II Permit.

All subdivisions do not require submittal of a Planned Unit Development (PUD) Application. However, if a PUD is required, it must be accompanied by a Hillside and Foothill Development Permit Application in either a detailed or conceptual form. Developers with projects that require conditional use approval must submit a Conditional Use Application and a Hillside and Foothills Development Permit Application.

Hillside and Foothill Development Permits are reviewed concurrently with other zoning and development applications requiring Planning and Zoning Commission action whenever possible. The PDSD coordinates the scheduling of related applications to streamline the review process to the greatest extent possible.

Permit Categories

A system of permit categories was developed to provide a level of review commensurate with the proposed project. There are three categories of permits as described below. Categories I and III apply to single family residences. Category II may apply either to a residence, commercial development, or subdivision.

Category I Permit

This permit applies to all requests for exterior additions to existing structures, for new construction or for grading involving significant modification of the approved topography. A Category I Hillside Permit is for a proposed development that contains significant grading and disturbance or site problems, but falls within the parameters identified in the Hillside Ordinance Section 11-14-03.1.A. A Category I Permit is required for:

A. Retaining walls over four (4) feet in height, or for more than one (1) retaining wall when the horizontal distance between retaining walls is less than ten (10) feet and the sum total of all retaining walls exceeds four (4) feet in height.

B. Proposed cuts exceeding those described in Uniform Building Code Appendix Section 7003(b)8 and fills exceeding those described in Section 7003(b)9.

C. An excavation that either is less than two (2) feet in depth or that does not create a cut slope greater than five (5) feet in height and steeper than one and one-half (1 ½) horizontal to one (1) vertical.

D. A fill less than one (1) foot in depth and placed on natural terrain with a slope flatter than five (5) horizontal to one (1) vertical, or less than three (3) feet in depth, not intended to support structures, which does not exceed 50 cubic yards on any one lot and does not obstruct a drainage course.

E. Access roads or driveways in excess of 100 feet in length or in excess of 15% grade.

Staff may request additional information to verify the safety and adequacy of the proposal. Staff may also work with the applicant to reduce the amount of proposed grading, but not require the applicant to undergo a public hearing before the Planning and Zoning Commission.

Category II Permit

A Category II Hillside Permit is for proposed developments such as subdivisions, commercial development, or single lot developments proposing major disturbance or grading to a given site. These types of proposals may generate significant neighborhood or community interest and approval must come from the Planning and Zoning Commission after an appropriate public hearing. Criteria identified in the Hillside Ordinance Section 11-14-03.1B include requests for PUDs, conditional use permits, preliminary subdivision plats, or for grading on any lot(s) involving modification of the approved topography that is beyond that allowed under Categories I and III Permits including, but not limited to the following:

A. Projects where the PDSD determines that a lot or parcel may be subject to slope stability or drainage problems;

B. Projects involving modification of pre-graded lots in excess of 30% of the volume of previous excavation or fill, or 30% of the surface area by square footage.

C. Projects involving modification of lots with natural topography in excess of 30% of the surface area of the lot.

D. Projects not defined as a Category I or III Permit.

Category III Permit

A Category III Hillside Permit is for minor, routine single family residential construction on prepared building pads and other single lot projects that do not involve significant grading on a previously prepared lot pad with minimal cuts or fills. Criteria are identified in the Hillside Ordinance Section 11-14-03.1C. This category streamlines the building permit process. Examples of Category III Projects are:

A. A single-family residential structure or accessory structure that is placed upon a prepared lot pad without significant modification and within a development that has previously been granted a Category II Permit.

B. A single-family residential structure or accessory structure that is placed upon an existing lot of record, complies with previously approved building envelopes and limits to grading, and for which the criteria identified in the Category I Permit are not exceeded.

The City of Boise Planning Director, with input from the City of Boise City Engineer, determines whether an application may be processed as a Category III Permit. Upon submittal of documentation that a project is not a Category I or II Permit, approval may be granted by the Planning Director without a work session, public hearing, or formal application review.

The categories are not based upon technical requirements, although some of the criteria for category determination come from certain sections in the Uniform Building Code (UBC) or City Code. For example, the UBC defines when a grading permit is required and the exceptions, the Hillside Ordinance identifies that retaining walls over four (4) feet in height require engineering design, and the Zoning Ordinance requires that fences or vertical walls in excess of six (6) feet require a variance.

These existing codes were used in developing evaluation criteria for proposed hillside application categories. Most of the evaluation criteria, however, are based

on Foothill Plan Advisory Committee and staff recommendation as to what is appropriate from a land disturbance and grading standpoint. Additional site evaluation studies are required when the situation warrants.

Application Procedure

A preapplication conference is suggested in cases involving large developments (greater than ten acres), redevelopment where special conditions or problems have become apparent during the site evaluation or development review process, or where alternative controls are being considered. The applicant should contact the City of Boise to schedule a conference.

A Hillside and Foothill Development Permit is obtained by submitting an application in one or two stages:

A. As a detailed hillside and foothill development plan on an application form provided by the PDSD and including all the required information. (On single family residences this is typically processed with the building permit application.)

B. As a conceptual master plan (typically for subdivisions or commercial developments):

1. On the application form the applicant must specify that concept approval is being requested and this must be accompanied by a request for rezoning if the land is not zoned for the intended use. A concept approval is a statement by the City of Boise that a general development plan including the general arrangement of uses, density, location of major streets, open spaces, utilities, etc. is acceptable. A concept review allows the applicant to obtain approval of a general development plan without incurring the expense of preparing detailed plans until after the concept approval. It provides the developer and the City with guidelines for the design of each phase of a project. The Planning Director determines what supporting information is for concept applications.

2. A concept plan for a foothills development will require more detailed engineering studies than the concept plans in less sensitive areas. Therefore, at least generalized plans for drainage, grading, and utility service should be provided with the application.

3. Each phase of a concept approval requires detailed hillside and foothill development approval through a new application, fee, and public

hearing. Conditions attached to applications for detailed hillside and foothill approval do not exceed the parameters of the conditions of approval attached to the concept plan as long as the concept plan has not expired. Submittal requirements are the same as for a detailed hillside and foothill development application that is processed and reviewed in one step.

The concept and detailed Hillside and Foothill Development Applications are both subject to the public hearing requirements. The Planning Director may waive the requirement for a public work session on phases of a conceptual master plan if the detailed submittal conforms to the approved concept plan and the phase of the project involves development on slopes less than 15%.

Review Procedure

The review process for each permit category is as follows:

Category I Permit

The Planning Director reviews all Category I Permit Applications and must approve or deny the application within fifteen (15) calendar days of receipt and acceptance of a complete application. Notice of approval of a Category I Permit is sent to property owners and residents within 300 feet of the boundaries of the project advising them of the approval and of their appeal rights. Property owners and residents have ten (10) calendar days from the date on the approval letter to appeal the decision to the Planning and Zoning Commission.

Category II Permit

A Category II Permit involving more than one (1) lot requires a public work session before the Planning and Zoning Commission. The work session is held approximately thirty-three (33) calendar days after acceptance of a completed application. A public hearing is held no later than sixty-six (66) calendar days after acceptance of a completed application. Deferrals due to a lack of commission quorum or a request by the applicant extend the time during which the hearing must be held.

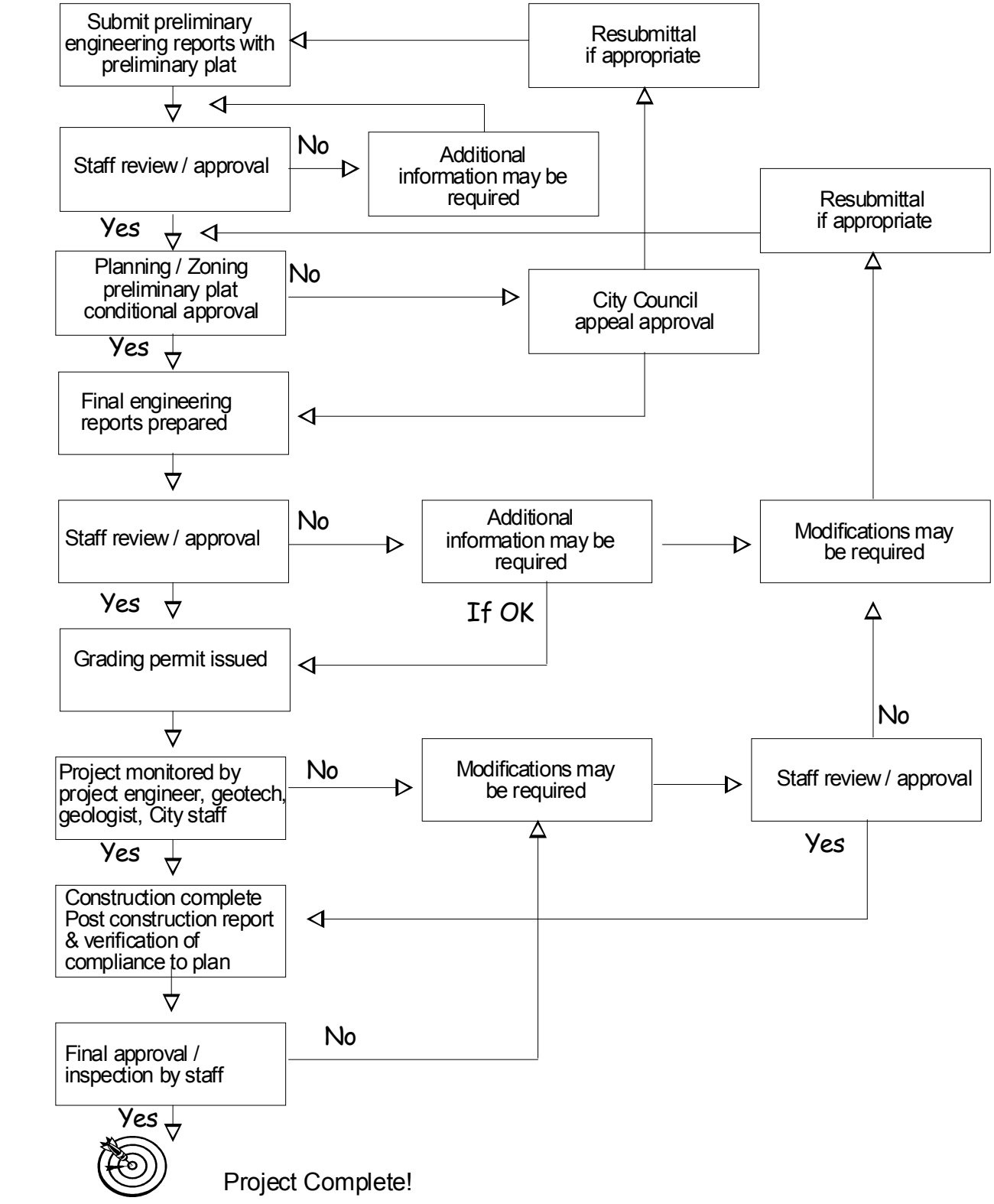
A Category II Permit involving a single-family dwelling on a single lot does not require a work session but is subject to the notice and public hearing requirements of other Category II Permits.

At least 15 days prior to the work session and public hearing, notice of the time and place and a summary of the proposal are published in a newspaper of general circulation within the City of Boise. Notice is provided to property owners, purchasers of record, and residents within 300 feet of the external boundaries of the project. The PDSD also notifies known interested parties such as organized neighborhoods, public agencies including land management agencies and environmental organizations (e.g., the Foothills Coalition, the Wetlands Coalition, the Friends of Military Reserve Park, etc.), City of Boise departments, etc.

Following the hearing, the Planning & Zoning Commission will act on the application and may impose conditions of approval to ensure conformance with the technical requirements of this chapter. The Planning & Zoning Commission may also approve changes from the base zoning district standards except for uses and density.

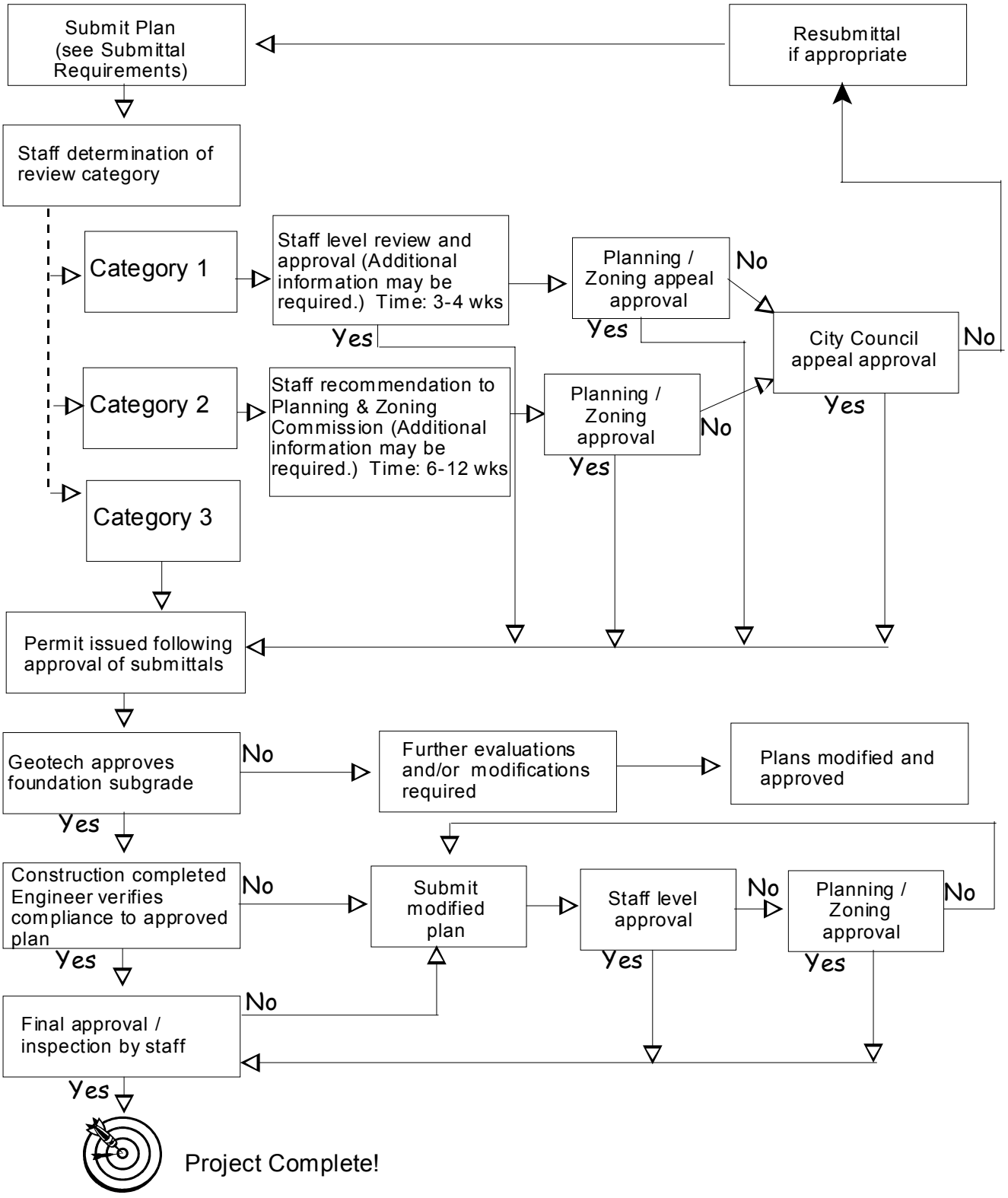
Subdivision Development Flow Chart

Hillside and Foothills



Residential Development Flow Chart

Hillside and Foothills



Subdivisions

Grading Plans

Introduction

This section discusses the requirements for preliminary and final grading plans for subdivisions. To reduce review/approval time, applicants should submit complete plans. Incomplete plans increase review time, and consequently, project costs. Thoroughly review plans before submitting them to the City of Boise to ensure that all necessary information is included. Grading plan requirements for single family residential and commercial developments are detailed in another chapter.

Please note: Applicants must have an approved Erosion and Sediment Control Permit before any construction can take place. The permit is issued by the City of Boise Planning and Development Services Department (PDSD) and will be required as part of the subdivision grading plan. Please consult the City of Boise Construction Site Erosion, Sediment, and Fugitive Dust Control Ordinance for more information.

Preliminary Grading and Drainage Plans

The preliminary grading and drainage plan shall be submitted with each preliminary plat proposal and conceptual hillside application. The plan shall be designed to ensure that the lots within the development are able to comply with Appendix Chapter 33, of the Uniform Building Code (as amended), the City of Boise Construction Site Erosion, Sediment, and Fugitive Dust Control Ordinance, and the City of Boise Hillside and Foothill Areas Development Ordinance. To submit a preliminary grading and drainage plan, provide the following information:

A. Plans that are prepared, dated and sealed by an Idaho-registered professional competent to practice in the subject matter.

B. Existing surface contours:

1. On slopes less than or equal to 50%, use two (2) foot contour intervals.

2. On slopes greater than 50%, use ten (10) foot contour intervals.

For Your Information

The contour intervals shown at left are minimum standards. The engineer can provide additional information at their own discretion.

3. Use a horizontal scale of 50 feet per inch or less to show detailed intent of the proposed grading.

C. The location of existing buildings, structures, and other visual features on the property. Show geologic and hydrologic features as indicated in the geology/geotechnical reports that may have an impact on the development. Examples of these geologic features are landslides, faults, problem soils, springs, existing drainages, and rock outcrops. In addition, you must show the location of existing structures, improvements, and features on adjacent land within 100 feet of the proposed development and areas that may be affected by proposed grading operations. All recorded easements and known onsite utilities should be shown on the site plan.

D. The approximate limiting dimensions, elevations and finish contours to be achieved by the grading. Include proposed elevations at lot corners, at 100' maximum intervals along center line of street, delineation of cut and fill areas, steepness of all cut and fill slopes, proposed drainage channels, and related construction.

For Your Information

Applicants may be asked to submit additional information as part of preliminary grading plans. The plans, by themselves, may not adequately convey proposed land form modifications to a non-technical reviewer/ approver.

E. The approximate locations for all surface and subsurface drainage devices in the preliminary drainage plans. Include retaining walls, dams, sediment basins, storage reservoirs, and other protective devices to be constructed with, or as a part of the proposed work both onsite and offsite.

The drainage plan should include a map showing the drainage area and the complete drainage network. Also, include outfall pipes/structures, and natural drainage ways that may be affected by the proposed development and the estimated runoff of the area served by the drains. (Drainage area maps, network, and natural drainage way information can be included in the hydrology study portion of the work.)

F. A preliminary plan for sediment and erosion control. Show erosion control BMPs used during and after (e.g., long term) construction as required by the erosion and sediment control permit. The permit is issued by the PDSD and must be approved by the PDSD before any construction can take place.

G. Estimated cut and fill amounts (cubic yards).

H. Profile of street centerlines.

I. Additional information, as needed, to assist in the review/approval process. Examples include 3-D drawings, cross sections, and photos.

Final Grading and Drainage Plans and Specifications

The final grading and drainage plan shall be submitted and designed to ensure that the lots within the development are able to comply with Appendix Chapter 33, of the Uniform Building Code (as amended), the City of Boise Construction Site Erosion, Sediment, and Fugitive Dust Control Ordinance, and the City of Boise Hillside and Foothill Areas Development Ordinance. To submit a final grading and drainage plan, you must provide the following information and ensure it is complete and accurate. Plans shall be in sufficient detail so that a contractor has enough information to undertake and complete construction. Final grading and drainage plans and specifications must include the following:

A. Plans that are prepared, dated, and sealed by an Idaho-registered professional competent to practice in the subject matter.

B. Plans that are based on a field survey, topographical map, or an aerial photograph of sufficient accuracy showing the following:

1. On slopes less than or equal to 50% - two (2) foot contour intervals, and

2. On slopes greater than 50% - ten (10) foot contour intervals.

C. All recorded easements and known onsite utilities should be shown on the site plan.

D. The project benchmark location and elevation. In certain cases, project monitoring may be needed and the City of Boise City Engineer may require the applicant submit a development survey control grid.

E. The plan scale of 50 feet or less per inch. Include lot lines and proposed lot numbers.

F. A vicinity map identifying the location of the property.

G. Limiting dimensions, elevations, and finished contours to be achieved by the grading. Include areas of cut and fill, steepness of cut and fill slopes, proposed drainage channels and related construction. Clearly designate cut and fill slopes on the plans, indicating the work limits and the slopes of

cut or fill. Show finish grade elevations at each lot corner, each lot pad corner, and at maximum 100' intervals on center line of streets. Include the location and height of retaining walls with detailed plans for each wall.

H. Locations of all surface and subsurface drainage devices, retaining walls, dams, sediment basins, water table, storage reservoirs, and other protective devices to be constructed with, or as a part of the proposed work on the drainage plan. Include a map showing the drainage area and the complete drainage network, with outfall lines and natural drainage ways that may be affected. Include profiles of drainage pipelines or channels.

I. The location of all geologic hazards on the site as identified by the final geology/geotechnical report. You must show geologic and hydrologic features as indicated in the geology/geotechnical report that may have an impact on the development. Examples of these geologic features are landslides, faults, problem soils, springs, and rock outcrops. In addition, you must show the location of these existing structures, and features on adjacent land within 100 feet of the proposed development and areas that may be affected by proposed grading operations.

J. Specifications for clearing and grubbing, topsoil handling, preparation of existing ground for placement of fill, compaction requirements, and finish grading.

K. A detail sheet showing all details necessary for grading and drainage related work. Construction details include, but are not limited to:

For Your Information

Attempt to separate and retain all top soil for landscaping and non-structural use.

1. Cross sections of fill slopes showing dimensions of benches and keys,

2. Cross sections of drainage swales,

3. Street and maintenance road sections,

4. Details of pond/dam embankments,

5. Structural details,
   a. Inlet, outlet structures
   b. Riprap/channel protection
   c. Retaining walls
   d. Reinforced earth

6. Cross sections of typical pad showing tier between pads, berm at the top of the tier and location of property line, and

7. Profiles of street center lines.

The professional who prepares the geotechnical report shall supply documentation stating that the grading plan conforms with the recommendations in the geotechnical report.

Residential

Grading Plans

Introduction

This section discusses the requirements for residential and commercial grading plans. To reduce approval time, applicants should submit complete plans. Incomplete plans increase review time and, consequently, project costs. Thoroughly review plans before submitting them to the City of Boise to ensure that all necessary information is included. Grading plan requirements for subdivisions are detailed in another chapter.

Please note: Applicants must have an approved Erosion and Sediment Control Permit before any construction can take place. The permit is issued by the City of Boise Planning and Development Services Department (PDSD) and will be required as part of the residential grading plan. Please consult the City of Boise Construction Site Erosion, Sediment, and Fugitive Dust Control Ordinance for more information.

Final Grading and Drainage Plans and Specifications

The requirements for a final grading and drainage plan are listed below. All engineered grading and drainage plans are required to be drawn to scale and of sufficient clarity to indicate the nature and extent of work proposed, and shown in detail that they will conform to the provisions of the City of Boise Hillside and Foothill Areas Ordinance, the City of Boise Construction Site Erosion, Sediment, and Fugitive Dust Control Ordinance, the applicable subdivision overall drainage plan, and Appendix Chapter 33, 1997 Uniform Building Code (as amended). Final grading and drainage plans and specifications must contain the following:

For Your Information

When roof drains and foundation drains are interconnected, the roof drainage may surcharge the system forcing water back into foundation drains.

A. Plans and specifications that are prepared, dated, and sealed by an Idaho-registered professional competent to practice in the subject matter.

B. The location of the work, the name of the lot owner, and the name of the design firm on the plans.

C. A general vicinity map for the proposed site. All recorded easements and known onsite utilities should be shown on the site plan.

D. Property limits and accurate contours (at two foot intervals) of existing ground and details of terrain and area drainage.

E. The limiting dimensions, elevations, and finish contours (at two foot intervals) to be achieved by the grading. Include proposed drainage channels and related construction.

F. All proposed surface and subsurface drainage devices including: roof drains, foundation drains, swales, curbing, dams, and other protective devices. Indicate discharge locations of all pipes or swales. Avoid interconnecting roof and foundation drains.

G. The drain field design if subsurface disposal of storm water is proposed. The design must include cross sections and details.

For Your Information

We recommend the project engineer consult all subdivision improvement plans, geotechnical reports, and geology reports before designing the lot drainage system. In addition, the project engineer may wish to consult with the subdivision engineer with the Public Works Department for more information.

H The location of any buildings or structures on the property where the work is to be performed. In addition, show the location of any buildings or structures on land of adjacent owners that are within 15 feet of the property or that may be affected by the proposed grading operations.

I. The location of existing subdivision drainage systems complete with locations of existing storm drains, interceptor drains, area drains, etc. that will be used by the lot drainage systems.

J. The setback distance of slopes and/or cuts and fills from boundaries (individual lot property lines) shown in compliance with the requirements of the Appendix 33, 1997 Uniform Building Code (as amended).

K. The quantity of the proposed excavation or fill (cubic yards). Indicate the amount of excavated material to be removed from the site and/or the amount of excavated material to be used as fill on the site.

L. The location of any proposed cuts or fills. Show the proposed elevations of the cuts and the fills and specify the soils to be used as fill material.

M. The detailed sections for stabilizing fill slopes (e.g., benching, terracing, retaining walls, etc.). Specify the manner of ground preparation of the existing slopes to receive fill as well as soil compaction requirements.

N. Prepare and maintain the faces of cut and fill slopes to control soil erosion as required by the Erosion and Sediment Control Permit. Fill slopes should

not exceed 2:1. Cut slopes should not exceed 2:1, unless justified in the geotechnical analysis.

O. The grading plan shall include the following notes:

1. Subgrade shall be inspected by the project engineer responsible for the geotechnical aspects of the project prior to installation of footings or slabs.

2. Final grading shall be inspected by the site design engineer. Prior to occupancy, the site design engineer shall evaluate all grading activities for compliance with approved plans. A summary of this grading evaluation and compliance determination shall be sent to the PDSD. Any revisions to the approved grading plan must be approved by both the site design engineer and the PDSD. If the grading differs from what was originally approved, a revised grading plan shall be submitted and approved before any modified grading is undertaken.

P. How the runoff will be directed away from structures and retained within the boundaries of the lot or discharged to an approved drainage system. Include cross sections of proposed berms or swales.

Q. The following grade elevations on the plan at the following locations:

1. Corners of lot,
2. All corners of structures,
3. Edges of pads, and
4. Tops and bottoms of retaining walls.

Subdivisions

Geology/Geotechnical Reports

Introduction

This section discusses the requirements for geology/geotechnical reports for subdivisions. These standards pertain to subdivision development only. In situations where building or development should not occur due to special site conditions, the determination to proceed is left up to the design professional. However, the City of Boise may obtain an independent review if building or development in these areas is recommended. To reduce approval time, applicants should submit complete reports. Incomplete reports increase review time and, consequently, project costs. Thoroughly review reports before submitting them to the City of Boise to ensure that all necessary information is included.

For Your Information

Examples of geotechnical/ geologic hazards are mud and debris flows, rock outcrops, landslides, expansive soils, seeps, high ground water, surface flooding, alluvial fans, active and inactive faults, etc.

Geotechnical Engineering Reports

Preliminary Geotechnical Engineering Report

A preliminary geotechnical engineering report is required for all proposed development in the Boise foothill areas that represents a change from existing physical conditions. The report will identify geotechnical issues that may influence the proposed development design and will provide the developer/project engineer and the City of Boise sufficient information to determine the suitability of the proposed area for the planned project. The City of Boise may also require additional information prior to or after a review of the preliminary geotechnical engineering report.

For Your Information

Italicized text indicates discretionary action.

Bold text indicates mandatory action.

The report is intended as a reconnaissance level overview. However, the applicant should provide sufficient information for a reviewer to determine appropriateness of the project. The report shall be prepared by an Idaho registered professional competent to practice in the subject matter. The following information must be included in the report:

A. A description of the project (e.g., number of lots, terrain, etc.)

B. A literature search and summary of appropriate geotechnical documents including any previous reports or maps existing for the area that may impact the proposed project.

C. A field reconnaissance of the proposed project shall be performed, noting any surface features that may impact development. A test pit, test trench, or bore hole exploration

program may be necessary to identify or verify problems that could require additional exploration or testing. The findings should be included in a field reconnaissance report along with the following items:

1. General geotechnical characteristics.

2. Identified geotechnical hazards that may impact development. A project would normally have a geotechnical hazard if the project would cause or accelerate hazards (either within the project area or surrounding areas) and would result in structure or infrastructure damage, or expose people to risk of injury.

D. Future geotechnical exploration recommendations with an evaluation and a summary of findings.

E. Preliminary recommendations for project planning and design. Identify and provide preliminary recommendations to address hazards.

For Your Information

Italicized text indicates discretionary action.

Bold text indicates mandatory action.

Final Geotechnical Engineering Report

A final geotechnical engineering report is required for all proposed development in the Boise foothill areas that represents a change from existing physical conditions. The report shall be prepared by an Idaho-registered professional competent to practice in the subject matter. This report will provide the design engineer with sufficient information to safely undertake the proposed development or construction activity.

Before submitting the final report, the applicant should be fully aware of the proposed design of the development, including proposed cuts, fills, and anticipated use. The report establishes the basis for a safe and stable design.

The report shall discuss geotechnical engineering and engineering geology issues relevant to subdivision design and construction. The report may address preliminary information for individual lot planning, design, and construction (e.g., soil bearing capacity, lateral earth pressure, earthwork, and drainage). Additional testing, such as subsurface exploration and field and laboratory testing, will be required to provide sufficient information about site conditions. The report may also address the limitations of how the information should be used for individual lot development.

The final geotechnical engineering report must contain the following information:

A. Subsurface exploration and testing information with sufficient detail to represent the condition of the entire parcel. All reports are to contain essential information:

1. Summary of all subsurface exploration data, including subsurface soil profile, exploration logs, laboratory or in-situ test results, and ground water information.

2. Interpretation and analysis of the subsurface data.

3. Specific engineering recommendations for design that includes addressing identified hazards.

4. Discussion of conditions that may be encountered during construction, including recommendations for solving anticipated problems.

5. In-situ dry density and moisture content of each soil unit.

B. Provide laboratory test information (include the following as appropriate):

1. Classification tests, using the Unified Soil Classification System.

2. Sheer strength tests (industry standard).

3. Consolidation tests.

4. Expansion tests.

5. Compaction tests.

6. Permeability testing.

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7. Idaho Transportation Dept. R-value Test (Idaho T-8-71) or California Bearing Ratio Test (CBR) (ASTM-D-1883) for subgrade supporting pavement sections.

8. Resistivity and pH testing for buried metal pipes or piles.

9. Other tests, as appropriate, to determine engineering properties of soils encountered or to be used at the site.

C. Analysis of areas:

1. Field and laboratory tests of the proposed area that will be covered with fill (to determine bearing value of the existing in-place soils and consolidation potential).

2. Field and laboratory soil analysis of the proposed fill material, including its source and expansive quality and a statement concerning its suitability. The analysis shall also include the gradation, maximum density, and optimum moisture content in accordance with ASTM, AASHTO standards, or other approved tests standard to the industry.

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3. Field and laboratory soil analysis of existing soil conditions in proposed cut locations, including saturated strength, expansive qualities, and bearing values. Quantitative stability analysis generally should be performed for any proposed slopes steeper than 3:1 or other critical slopes. Slope stability analysis shall include a pseudo-static analysis, or other accepted seismic analysis, using seismic criteria that includes vertical and horizontal acceleration. Existing or potential excess pore pressure shall be taken into consideration.

4. Field and laboratory soil analysis of all identified active and dormant landslides as well as significant bodies of colluvium on and immediately adjacent to the parcel. Sampling and testing shall be sufficient to evaluate saturated strength of materials, depth to slide surface, potential for future movement, and risks to proposed structures or roadways. The evaluation should include a numerical slope stability analysis. Minimum psuedostatic factor of safety shall be 1.5 or greater under saturated conditions. Minimum dynamic factor of safety shall be 1.1 or greater under saturated conditions.

5. *Seismic analysis should include site period and ground response and should provide design parameters. Acceptable values may be taken from the appropriate section of current UBC standards, as may be modified by the City of Boise. The values do not need to be developed for the specific site unless the nature of the proposed facility warrants. Critical facilities may require a dynamic site response analysis. Recommendations shall be made regarding building setback distances from identified nearby active faults and foundation and grading design required due to expected seismic activity.*

D. *Effect of ground water on soils strength, consolidation, or slope stability.*

E. *Appropriate laboratory analysis and associated data to support any proposals to replace, rework, blend, or to stabilize or modify with additives either the natural site soils or the proposed fill materials.*

F. An evaluation of the long-term effects of landscape, irrigation water (if present or will be present) on the project and adjacent or down gradient properties.

G. Professional conclusions and recommendations for grading and subdivision infrastructure shall include any design and construction recommendations as appropriate to the site, including:

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1. *Foundation type and bearing capacity.*

2. *Short and long-term settlement potential, including expected magnitude of settlement and time variation.*

3. *Mitigation measures for adverse soils.*

4. *Lateral loads (passive, active, at rest) for current and proposed site conditions.*

5. **Slope stability (include factor of safety) for any proposed engineered slopes including site specific specifications.**

6. **Settlement caused by engineered fills.**

7. Shrink/swell factors.

8. The maximum acceptable stable slope inclinations for proposed cut and fill slopes, assuming adequate terracing, drainage, and erosion control planting.

9. Surface and subsurface drainage necessary to ensure long term stability of cut and fill slopes, including recommendations for disposal of runoff from streets, driveways and roofs or from areas that the natural drainage pattern has been altered by the subdivision development.

10. Recommendations for detention pond infiltration if a detention pond is proposed. If ponds are to have an impermeable liner installed, design and specifications shall be included. If ponds are to be unlined the report shall include a certification that the subgrade soils have the capacity to adequately infiltrate the runoff without adverse impacts to adjacent or downslope properties.

11. Any additional site specific evaluations that need to be undertaken at the time the building is constructed.

12. Structural section design recommendations for private roads and emergency access.

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H. A complete and detailed specification for clearing, grubbing, and all aspects of grading, including utility trench backfill and retaining wall backfill, with special emphasis on the depth of fill layers, benching into native materials, preparation of areas to receive fill, compaction tests, and minimum density in the field as related to laboratory tests. Include shoring or stability recommendations for utility trench excavations greater than 5.0 ft. in depth, using criteria established by OSHA.

Construction Monitoring/Report Modifications

The professional shall closely monitor the progress of earthwork of the development. Examples of earthwork activities are structural fill placement, cut slopes, and bearing surfaces for fill placements. If earthwork activities expose any situation that could potentially impact development design, a modified report shall be required and submitted to the design engineer and the City of Boise City Engineer.

Post-Construction Geotechnical Report

A post construction report is required after all grading and drainage related work is completed. The report will include final grading, utility, and road work information (relevant to geotechnical engineering issues). The professional will review the initial geotechnical report and will document any changes and all geotechnical hazards exposed by the excavation process.

The professional shall affirm that the work (within their area of responsibility) was done according to the approved geotechnical report or any approved modification. At a minimum, the post-construction report shall address the following items:

A. Verification of engineering characteristics of exposed soil and USC soil classifications.

B. Deviations from UBC standards and the approved plan.

C. Design changes and justification for the changes.

D. Undocumented fill.

E. Adverse soil conditions such as shrink-swell, hydrocompactable, or expansive.

F. Slope stability problems due to temporary construction cuts, excess pore pressure or grading.

G. Verification of cuts and fills.

H. Locations and elevations of field density test, summaries of field and laboratory test, other substantiating data, and comments on any changes made during grading and their effect on the recommendations made in the approved geotechnical engineering report.

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Engineering Geology Report

Preliminary Engineering Geology Report

A preliminary engineering geology report is required for all proposed development in the Boise foothill areas that represents a change from existing physical conditions. The report will identify potential engineering geology issues that may influence the proposed development design and will provide the developer/project engineer

and the City of Boise sufficient information to determine the suitability of the proposed area for the planned project. The City of Boise may also require additional information prior to or after a review of the preliminary engineering geology report. The report shall be prepared by an Idaho-registered professional competent to practice in the subject matter.

The report should be brief and the information is intended as a reconnaissance level overview. However, the applicant should provide sufficient information for a reviewer to determine appropriateness of the project. The following information must be included in the report:

A. A literature search and summary of appropriate geotechnical documents, including any previous reports or maps existing for the area that contain information that may impact the proposed project. See "Reference Resources" for suggested additional readings.

B. A field reconnaissance of the proposed project, noting any surface features that may impact development. A test pit or bore hole exploration program may be necessary to identify or verify problems that could require additional exploration or testing. The findings should be included in a field reconnaissance report along with the following items:

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1. General engineering geology characteristics.

2. Identified engineering geology hazards that may impact development. A project would normally have a geologic hazard if the project would cause or accelerate hazards (either within the project area or surrounding areas) and would result in structure or infrastructure damage, or expose people to risk of injury.

C. Recommendations for future engineering geology exploration or evaluation and a summary of findings.

Final Engineering Geology Report

Engineering geology reports will identify potential geologic issues that may influence design of the proposed project. Additional testing such as subsurface exploration and field and laboratory testing will be required to provide sufficient information about site conditions. The report shall be prepared by an Idaho registered professional, competent in the subject matter. Engineering geology reports shall include the following:

A. Geologic map - prepared at a scale not smaller than 1" to 100' unless otherwise stipulated or agreed upon, but always at the same scale as the subdivision plat. The geologic map shall have an attached overlay showing the proposed development. Interpretations of subsurface conditions shall be illustrated in one or more structure cross-sections. The geologic map should include the following items:

1. **The site geologic features. If possible, extend mapping into areas adjacent to the subject property.**

2. **A base map of appropriate scale with satisfactory horizontal and vertical control, usually a detailed topographic map (photo-geologic). In addition, submit interpretation of historic or recent aerial photographs that includes coverage of the study area.**

3. **A map of bedrock units, including lithology, structural elements, and three-dimensional distribution of material exposed or inferred within the area. Clearly distinguish between observed and inferred features and relationships.**

4. An illustration of subsurface geologic relationships by one or more appropriately positioned cross-sections clearly referenced on the map.

5. The locations of test holes and other sources of subsurface information on the geologic map and cross-sections. Include copies of all test pit and drill hole logs.

B. Geologic description shall contain a brief but complete description of all geologic materials and structural features recognized or inferred. State where interpretations are made based on direct observations. The geologic description shall address the following items in detail:

1. **Location and size of subject area and its general setting with respect to major geographic and geologic features.**

2. **The person who performed the geologic mapping, upon which the report is based, and when the mapping was done.**

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3. Topography and drainage in the subject areas.

4. Abundance, distribution, and description of geologic exposures within the area.

5. Nature and source of available subsurface information. Suitable explanations will indicate the degree of accuracy of the information submitted to the reviewing body.

6. Inferred depth to bedrock.

7. Bedrock, including: identification, relative age, dimensional features, distribution, special physical or chemical features, distribution and extent of weathered zones, response to natural surface and near-surface processes.

8. Structural features including: occurrence and distribution of structural features, dimensional characteristics, orientation, and type (e.g., faults, joints, folds, etc.).

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9. The location of and effects of active or inactive faults that may affect the proposed development. This analysis would normally includes a tabulation of active or inactive faults, their distance from the site, their expected seismicity (magnitude and recurrence interval), and expected level of ground shaking (peak accelerations) at the site. Hazards of ground shaking, surface fault rupture, liquefaction, changes in engineering soil characteristics, and seismically-induced landsliding shall be considered and addressed as applicable.

10. Surficial deposits (unconsolidated): distribution, occurrence, and relative age relationships with present topography, identification of materials, dimensional characteristics, surface expression, physical characteristics, distribution and extent of weathered zones, response to natural surface and near-surface processes.

11. Drainage (surface water and groundwater): distribution and occurrence, relationship to geologic features or structure.

12. The long term effects of landscape irrigation water on the project and adjacent or downgradient properties.

13. Features of special significance: subsidence or settlement, fissures, scarps, offset reference features, creep, hummocky ground, slump and slide masses in bedrock or surficial deposits. Historic records and measurements should also be considered.

C. Conclusion and recommendations shall include recommendations as it may affect any design and construction. Include the following topics:

1. General compatibility of geologic features, relationships, and processes with proposed land use (e.g., topographic limitations, general stability of slopes and earth material, problems caused by features or conditions in adjacent properties, other problems or hazards that may adversely affect the intended use of the land, or that may be aggravated by the change in land use).

2. Areas with proposed cuts shall include predictions of what materials and structural features will be encountered, prediction of stability, and problems of excavation.

3. Areas with proposed fill shall include a general evaluation of planning with respect to canyon-filling or significant fills on side hills, suitability of existing natural materials for fill under engineering control.

4. Special recommendations (e.g., areas to be left as natural ground, alternative measures for avoiding, controlling or minimizing geologic hazards, recommendations for additional investigations or testing that is most likely to provide data needed by the design engineer, and areas having unique geologic features, rock exposure, or fossil occurrences).

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Construction Monitoring/Report Modifications

The professional shall affirm that the work (within their area of responsibility) was accomplished according to the approved engineering geology report or any approved modification. The professional shall monitor the progress of construction

of the development. A modified report shall be required and submitted to the design engineer and the City of Boise City Engineer if construction activities expose any of the following situations that could potentially impact development design:

A. Landslide or slope stability problems related to differing geologic conditions.

B. Design changes due to geologic hazards and justification for the changes.

C. Adverse soil or rock conditions such as hydrocompactable sediments, expansive clays, or shrink-swell sediments.

D. Faulting exposed by excavation, noting attitude and if faulting has affected soil or rock strength.

E. Bedrock exposure, noting discontinuity in-fillings such as expansive clay.

F. Groundwater, if present, noting any spring discharge, including quantity and location. Note if groundwater discharge or flows will result in future soil or rock instability problems or areal impacts.

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Post-Construction Report

A post construction report is required after all grading and drainage related work is completed. The report will include final grading, utility, and road work information (relevant to engineering geology issues). The geologist will review the final engineering geology report and will document any changes and engineering geology hazards exposed by the excavation process.

Residential

Geology/Geotechnical Reports

Introduction

A geology/geotechnical engineering report is required for all Boise foothill areas proposed for any type of development that represents a change from existing physical conditions. These standards pertain to residential development only. To reduce approval time, applicants should submit complete reports. Incomplete reports increase review time and, consequently, project costs. Thoroughly review reports before submitting them to the City of Boise to ensure that all necessary information is included.

Geology/Geotechnical Engineering Report

The report will identify potential geology/geotechnical engineering issues that may influence design of the proposed structure. It will provide the developer, builder, project engineer, lot owner, and the City of Boise sufficient information needed to determine the suitability of the proposed construction site. The report will include the following information:

A. References to technical background information, including prior reports, literature, and technical resources used to complete the report.

B. Plot plan showing the location of all test borings, excavations, and/or monitoring piezometers, if used.

C. Boring or test pit logs, including description and classification of the materials encountered.

D. Water table elevation, if encountered.

E. Foundation type and design criteria recommendations, including bearing capacity, provision to minimize the effects of expansive and collapsible soils and the effects of adjacent loads.

F. Expected total and differential settlement.

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G. Data regarding the nature, distribution, and engineering properties of existing soils.

H. Conclusions and recommendations regarding the adequacy of the site to be developed as proposed in the construction and grading plans, including the stability of slopes.

I. Recommendations for roof, foundation, and retaining wall drain systems. If subsurface disposal is proposed, discuss the permeability of the soils and evaluate potential adverse impacts to adjacent or downslope properties.

J. Lateral earth pressures to be used if retaining wall design is higher than four feet.

K. Recommendation for foundation and structure setbacks from slopes. If prescriptive Uniform Building Code (UBC) setbacks are recommended, the required minimum setback shall be stated in the report. If a reduced setback is recommended, the engineer's justification for the reduction shall be included, as discussed in current UBC.

L. Suitability of excavated material for use as compacted fill and specifications for this materials placement, compaction, and testing of fill. Specifications shall also be provided for imported fill.

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Geotechnical Review During Construction

Following foundation excavation and prior to placement of structures of form work, an Idaho-registered professional competent to practice in the subject matter shall provide a letter documenting that the foundation excavation was inspected for any geotechnical hazards that would adversely impact construction or the proposed design. The letter shall be sent to the City of Boise City Engineer, City of Boise Building Department, and the applicant's design engineer stating the soils and design are adequate for the site. If changes are recommended, document the proposed changes and, if any, additional investigation or testing is required.

A review of the geology/geotechnical report, if previously prepared for the development, shall be made. Changed conditions or geotechnical hazards exposed by the excavation shall be documented. The review may include, but not be limited to:

A. Verification of engineering characteristics of exposed soil.

B. Deviations from UBC or design standards.

C. Undocumented fill.

D. Adverse soil conditions such as shrink-swell, hydrocompactable, or expansive soils.

E. Slope stability problems due to temporary construction cuts, excess pore pressure, groundwater discharge, or grading.

F. Verification of retaining wall design parameters.

Engineering Geology Review During Construction

(This section applies only to building sites without previous geologic review.)

Following foundation excavation and prior to placement of structures or form work, an Idaho registered professional competent to practice in the subject matter shall inspect the excavation for any geologic hazards that would adversely impact construction or the proposed design. A letter shall be sent to the City of Boise City Engineer, City of Boise Building Department, and the applicant's design engineering documenting those findings, stating if the site and design are adequate and providing any additional investigation or testing recommendations.

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Subdivisions/Commercial Development

Hydrology Report

Introduction

This section discusses the requirements for hydrology reports for subdivisions and commercial developments in the City of Boise foothills. To reduce approval time, applicants should submit complete reports. Incomplete reports increase review time and, consequently, project costs. Thoroughly review reports before submitting them to the City of Boise to ensure that all necessary information is included.

Preliminary Hydrology Report

A preliminary hydrology report is required for all subdivision development projects in the City of Boise regulated by the Hillside Ordinance. The preliminary hydrology reports will be prepared by an Idaho-registered professional competent to practice in the subject matter and in the techniques of hydrologic investigation. The preliminary report will present conclusions and opinions regarding the current and proposed hydrology of the site. The report will include the following information:

A. A description of the project hydrology including: analysis or comments on characteristics of upslope drainage areas, the provision for drainage through the project, drainage from the project area (both for pre-development and post-development conditions), current condition of downslope drainage area and conveyance systems, and the effects that the new project will have on the downslope drainage system.

B. The preliminary report will also include conclusions and preliminary recommendations for development of the project including proposed methods of controlling or routing storm water discharges from the project. Conclusions will also be made regarding how development of this project can be accomplished without increasing peak flows above the pre-development hydrograph for the drainage basin below the project site. The report will also include recommendations on estimated sizes and locations of drainage control improvements.

C. All storm water design requirements will be as specified in the City of Boise Storm Water Management Design Manual. All right-of-way improvements including drainage features are also subject to Ada County Highway District approval. The most restrictive requirements will apply.

D. The report will be cross-referenced to the preliminary geology/geotechnical reports. If onsite drainage facilities are proposed, a commentary on suitability of the site to accommodate proposed drainage features from a geotechnical perspective will be evaluated.

E. The report will contain a description of hydrologic hazards, if any, that may impact the subject site or adjacent areas.

Final Hydrology Report

A final hydrology report is required for all subdivision development projects and for commercial developments in the City of Boise regulated by the Hillside Ordinance. The final hydrology report will be prepared by a professional registered in the State of Idaho, competent in the practice of hydrology and in the techniques of hydrologic investigation. Final hydrology reports will be prepared in accordance with minimum standards, as specified in the City of Boise Storm Water Design Manual. All right-of-way improvements, including drainage features, are also subject to Ada County Highway District approval. The most restrictive requirements will apply. The report will include but not be limited to the following information:

A. A full and complete description of the project hydrology including: analysis or comments on characteristics of upslope drainage areas, the provision for drainage through the project, drainage from the project area (both for pre-development and post-development conditions), current condition of downslope drainage area and conveyance systems, and the effects that the new project will have on the downslope drainage system.

B. A full discussion of pre-development and post-development peak runoff rates and volumes. Supporting documentation in the form of calculations, computer program input and output data, and drainage maps of the project drainage basin will be included.

C. The location and size of drainage control facilities and a description of methods for controlling runoff from the new development.

D. A description of how hydrologic hazards, if present at the site, will be mitigated to the point where development can be allowed.

E. A discussion of the effects that onsite detention and discharge will have on the downslope drainage basin. Specifically, the report will contain a pre-

development hydrograph, which is generated for the most downslope point in the project. A post-development hydrograph will also be provided. The post-development hydrograph will show that the peak discharge, as a result of new development, is no greater than pre-development peak flow at the most downslope point in the development for all storm events up to and including the one hundred (100) year storm.

Hydrologic Design Restrictions

Hydrologic design must comply with other City of Boise ordinance requirements and restrictions. Design restrictions include but are not limited to the following:

A. Waste material from construction, including soil and other solid materials, will not be deposited within the one hundred (100) year flood plain (defined as lands subject to the one hundred [100] year flood).

B. With the exception of utility construction, road crossings, approved drainage structures, recreation, and open space uses that do not involve the destruction of vegetal cover or loss of conveyance, development will be prohibited within the one hundred (100) year floodway.

C. Alterations of floodways will not be made unless these alterations are accomplished in accordance with the City of Boise Floodplain Ordinance and the requirements of the U.S. Army Corp. of Engineers and the State of Idaho Department of Water Resources.

D. Natural streams or improved open channels will be preserved. Conduits may be permitted at roadway or other channel crossings. In minor catchments, drainage may be permitted to be enclosed in conduits.

E. Flow rates from a newly developed site will not exceed the flow rate from the site in its natural condition prior to development. Exceptions may be allowed if compliance with the above creates more adverse impacts to the overall drainage area than other drainage alternatives.

F. Drainage facilities will be designed to coordinate with any Master Drainage Plan for the drainage basin where the proposed development is located, if one is available and has been approved by the City of Boise.

G. Special drainage facilities and/or an overflow path for floodwater will be designated in all locations where there is a sag in the profile of the street or at the end of a cul-de-sac that is lower than the intercepting street. Restriction will be placed to protect the overflow path from the future building of any fence, shed, dwelling, or other obstruction that would impede flood flows.

Revegetation Plans

Discussion Background

Introduction

The Hillside and Foothills Areas Development Ordinance contains the following hillside revegetation requirements that apply to areas disturbed during subdivision development. Revegetation plans may be required for individual lots when conditions warrant. To reduce approval time, applicants should submit complete plans. Incomplete plans increase review time and, consequently, project costs. Thoroughly review plans before submitting them to the City of Boise to ensure that all necessary information is concluded.

Preliminary Revegetation Plan

The preliminary revegetation plan/report shall identify the areas to be revegetated, existing vegetation, slope preparation, top soil conditioning and placement, seed mix and application rate, mulch application rate, time of seeding, and proposed method of providing moisture for germination of seed and plant growth.

The plan/report shall be prepared by an Idaho-registered professional competent to practice in the subject matter and with knowledge of vegetation, soils, and climate of the Boise foothills.

Revegetation Plan Report

A. A revegetation plan and report shall be completed by an Idaho-registered professional competent to practice in the subject matter. Unless otherwise approved by the City Engineer, the recommendations in the Idaho Department of Transportation Surveys and Plans Manual, Section 14-529 Seeding and Planting Design (as amended) shall be followed.

B. The revegetation report shall include a discussion of the following site factors and provide recommendations for the revegetation work:

1. Steepness, height, and aspect of slopes and topography of land above the slope.

2. Adequacy of topsoil on the site. The topsoil shall be tested to determine recommended fertilizer and amendments.

3. Recommended thickness of topsoil to be placed on cut and fill slopes.

4. Recommended preparation of slopes for placement of topsoil (e.g., minibenching and serration).

5. Recommended means of application of topsoil and preparation for seeding.

6. Seed mixture and application rate. Consideration shall be given to establishment of deep rooted plants.

7. Planting procedures and time of planting.

8. Use of supplemental watering.

9. Mulch type, application rate and means of application.

10. Minimum coverage/plant density needed to control erosion.

11. Erosion control measures to be used until vegetation becomes established.

C. The revegetation plan shall show the recommended revegetation and erosion control work for all of the slopes on the project site.

Standard Permit Conditions

The following conditions related to revegetation plans are currently included on every permit:

The professional responsible for revegetation shall be required to perform the following tasks:

A. Sample the stockpiled topsoil and make any recommendations for necessary soil amendments before the topsoil is redistributed on the disturbed slopes.

B. After the topsoil has been applied to the slopes, inspect and certify that the topsoil has been properly amended and spread at the minimum thickness recommended in the revegetation report.

C. Inspect and certify that the correct rates were applied after the hydroseed and mulch have been applied.

D. Write a report on the progress and success of the revegetation after the first year of revegetation. The report shall address the need for any remedial revegetation work that may be required. Periodic reports shall be required thereafter on an as-needed basis until the professional certifies that revegetation is complete. The revegetation bond shall then be released at this time.

Project Engineer & Engineers Summary Report

Introduction

Section 11-14-06 of the Hillside and Foothills Areas Development Ordinance states:

Project Engineer Responsibilities

A. To ensure the necessary coordination of the project, the developer shall retain a professional engineer registered in the State of Idaho to serve as a Project Engineer.

B. The developer must ensure that the Project Engineer:

1. Submits all required reports (see Sections 11-14-5 (A-E) and 11-14-7 (A-E).

2. Prepares the preliminary and final grading and drainage plans.

3. Incorporates into the grading and drainage plans all appropriate recommendations contained in the soils, geology/geotechnical, hydrology, and revegetation reports. The Project Engineer shall submit a detailed statement of how the recommendations of the various reports were incorporated in the final grading and drainage plans.

4. Reviews the working drawings and specifications for all work within the project for compliance with approved plans and specifications except that work done by independent utility companies not under the control of the developer.

5. Acts as coordinating agent if the need arises for liaison between other professionals, the developer, the City of Boise, and other government entities.

6. Monitors construction activity on a daily basis, reviews compaction test data, submits periodic reports, and holds periodic meetings as required by the City of Boise City Engineer.

7. Prepares and submits to the City of Boise City Engineer final reports (as-graded grading plan, soils-grading report, geologic grading report) per Section 7015 of Chapter 70 Uniform Building Code.

8. Provides field staking of the center line of streets, top and toe of cuts and fills, and other features shall be provided if requested by the City of Boise City Engineer or City of Boise Planning Director.

C. Prior to and during grading operations, compaction data, and any reports concerning changed conditions in soils, geology/geotechnical, and hydrology shall be submitted by the Project Engineer to the City of Boise City Engineer.

D. If in the course of fulfilling his/her responsibilities, the Project Engineer discovers that the work is being accomplished below the standards required by this chapter, or the latest approved plans and specifications, then he/she shall call them to the attention of the contractor and developer by written notice. If substantial progress toward correction has not begun within seven (7) calendar days, the problem shall be reported immediately in writing to the City of Boise City Engineer.

E. If the Project Engineer of record is changed during the course of work, the developer shall discontinue the work until the new Project Engineer has agreed to accept the responsibilities as herein defined.

F. In the event of work stoppage, protection shall be provided for all open, vulnerable, unfinished work on the project, including drainage.

Post Construction Reports

Post Construction Final Engineers Report

Introduction

The purpose of a Post Construction Report is to document the completion of the project and its suitability for the development purposes intended. For subdivision developments, this is the time to identify future individual lot evaluation requirements or restrictions. The Post Construction Report includes the as-built grading plan, and the geology/geotechnical reports. Each report shall identify special conditions. To reduce approval time, applicants should submit complete reports. Incomplete reports increase review time and, consequently, project costs. Thoroughly review reports before submitting them to City of Boise to ensure that all necessary information is included.

Report Requirements

The Post Construction Report should follow the requirements of Section 3318 of the current Uniform Building Code adopted by the City of Boise. Upon completion of the rough grading work, the project engineer will forward the following reports as part of the final report, as required for engineered grading or when professional inspection is performed for regular grading, as applicable.

A. An as-built grading plan prepared by an Idaho registered professional competent to practice in the subject matter retained to provide such services in accordance with Section 3317.5 showing original ground surface elevations, as graded ground surface elevations, lot drainage patterns, and the locations and elevations of surface drainage facilities and of the outlets of subsurface drains. As-constructed locations, elevations and details of subsurface drains shall be shown as reported by the soils (geotechnical) engineer. The professional shall state that to the best of their knowledge the work within their area of responsibility was done in accordance with the final approved grading plan.

B. A report prepared by an Idaho-registered professional competent to practice in the subject matter retained to provide such services in accordance with Section 3317.3, including locations and elevations of field density tests, summaries of field and laboratory tests, and other substantiating data, and comments on any changes made in the approved geotechnical engineering report. If this information has previously been submitted as required in previous sections, the post construction report may reference the earlier submittals. The professional shall submit a statement that, to the best of their knowledge, the work within their area of responsibilities is in accordance with the approved geotechnical engineering report and applicable provisions of this chapter.

C. A report prepared by an Idaho-registered professional competent to practice in the subject matter retained to provide such services in accordance with Section 3317.5. Include a final description of the geology of the site and any new information disclosed during the grading and the effect of same on recommendations incorporated in the approved grading plan. The professional shall submit a statement that, to the best of their knowledge, the work within their area of responsibility is in accordance with the approved engineering geology report and applicable provisions of this chapter.

Notification of Completion

Pursuant to Section 3318.2 of the Uniform Building Code, the permittee shall notify the Hillside Coordinator when the grading operation is ready for final inspection. Final approval shall not be given until all work, including installation of all drainage facilities and their protective devices, and all erosion-control measures have been completed (in accordance with the final approved grading plan, erosion, sediment, and fugitive dust control plan), and the required final engineering reports have been stamped and submitted.

Glossary

Bedrock: the solid, undisturbed rock in place either at the ground surface or beneath surficial deposits of gravel, sand or soil.

Cut: to grade into a hillside to create a flat area or to steepen a bank. It also means the mechanical removal of earth material.

Cut and fill: the excavation of earth material in one place and deposition of it as fill in different place.

Discretionary information: information that may or may not be necessary depending on the specific conditions of the project site. The professional preparing the report will determine whether discretionary information is needed and should be provided to the City. If the professional determines that certain "discretionary" information is not needed, he will explain why in the report.

Drainage basin: the tributary area through which drainage water is collected, regulated, transported, and discharged to receiving waters.

Engineer: a professional engineer competent to practice in the subject matter and licensed by the State of Idaho.

Engineering geology: the application of geological knowledge and principles in the investigation and evaluation of naturally occurring rock and soil for the purpose of assuring that geological factors are recognized and adequately interpreted in engineering practice.

Fill: a deposit of earth material placed by mechanical means.

Geologic hazard: any condition in naturally occurring earth materials which may endanger life, health, or property.

Geologist: a professional geologist competent to practice in the subject matter and licensed by the State of Idaho.

Geotechnical engineer: a professional engineer registered in the State of Idaho, who by training, education, and experience is competent in the practice of geotechnical engineering practices, soil mechanics, and slope stability analysis.

Grade: the ground surface elevation.

Grading: any excavation, filling, or movement of earth for purposes of changing the shape or topography of the land.

Landscape architect: a professional landscape architect competent to practice in the subject matter and licensed by the State of Idaho.

Percent slope: the vertical rise divided by the horizontal distance within which the vertical rise takes place.

Project engineer: a professional engineer registered in the State of Idaho responsible for coordination of the development as defined in the Boise Hillside and Foothill Areas Development Ordinance (11-14-06).

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