ORDINANCE NO. 2019-16

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF HESPERIA, CALIFORNIA, REPEALING AND ADOPTING CHAPTERS 15.04 AND 15.06 OF THE HESPERIA MUNICIPAL CODE, AND ADOPTING BY REFERENCE THE 2019 CALIFORNIA BUILDING CODE, 2019 CALIFORNIA RESIDENTIAL CODE, 2019 CALIFORNIA ELECTRICAL CODE, 2019 CALIFORNIA MECHANICAL CODE, 2019 CALIFORNIA PLUMBING CODE, 2019 CALIFORNIA FIRE CODE, 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, 2019 CALIFORNIA ENERGY CODE, 2019 CALIFORNIA HISTORICAL CODE, 2019 CALIFORNIA EXISTING BUILDING CODE, 2019 CALIFORNIA ADMINISTRATIVE CODE, AND 2019 CALIFORNIA REFERENCED STANDARDS CODE

WHEREAS, The City of Hesperia has the authority and responsibility to regulate building construction to protect the public health, safety, and welfare; and

WHEREAS, Title 15, Chapters 15.04 and 15.06 of the Hesperia Municipal Code were adopted for that purpose, and contain such building regulations and grading regulations for the City of Hesperia; and

WHEREAS, The California Building Standards Commission published the 2019 California Building Code, 2019 California Residential Code, 2019 California Electrical Code, 2019 California Mechanical Code, 2019 California Plumbing Code, 2019 California Fire Code, 2019 Administrative Code, 2019 California Green Building Standards Code, 2019 California Energy Code, 2019 California Historical Code, the 2019 California Existing Building Code, 2019 California Administrative Code, and 2019 California Referenced Standards Code, (hereafter, 2019 Building Codes) on July 1, 2019; and

WHEREAS, The City of Hesperia wishes to make certain changes and amendments to the 2019 suite of California Building Codes; and

WHEREAS, The California Building Standards Commission voted to establish January 1, 2020 as the effective date for the 2019 Building Codes; and

WHEREAS, The California Government Code, Section 50022.2 authorizes cities to adopt Building Codes by reference; and

WHEREAS, The California Health and Safety Code, Section 17922, 17958.5, and 17958.7 allows modifications to the 2019 Building Codes when they are reasonably necessary to better protect the public safety by reducing the risk of hazards to life and property of the citizens of Hesperia due to:

1. Topographic conditions. The City of Hesperia is situated in the High Desert Region of the Western Mojave Desert. The elevation rises from three thousand two hundred (3,200) feet in the north to about four thousand (4,000) feet above sea level to the south. Isolated from the population centers of the Los Angeles basin by the San Gabriel and San Bernardino Mountains. The only access to timely mutual aid response is through the Cajon Pass. In the event of a major fire or earthquake in the Pass, assistance from the south would be unable to reach the City. The City of Hesperia covers a large geographical area of over seventy-three square miles, is bisected by the BNSF Railway, the Southern Pacific Railroad, the California aqueduct, the Interstate 15 Freeway, and two major electrical

transmission corridors which cause limited access across and through the City. The limited access slows emergency response times for public safety personnel.

2. Geologic conditions. The City of Hesperia is located within fifteen (15) kilometers of the San Andreas Fault and within ten (10) kilometers of the Cleghorn and North Frontal fault systems. The proximity to these local earthquake faults creates an increased potential for severe ground shaking and surface ruptures which can cause personal and property damage, utility interruptions, fire hazards and hazardous materials releases. Additionally, significant roadway, bridge structure, water supply and communications systems are subject to failure, thereby causing a detriment to emergency services response times and fire suppression delivery.

3. Climatic conditions. The City of Hesperia lies within the High Desert Region of the Western Mojave Desert, an area subject to extremely strong winds, commonly known as "Santa Ana Winds" which can reach speeds in excess of 80 miles per hour. Extensive damage frequently accompanies these winds, such as blowing sand and debris, downed power lines, fallen trees and structural damage to buildings. These conditions result in increased demand for fire services, blocked or delayed emergency vehicle access and impaired water supplies and building emergency systems. During summer months, the Santa Ana Winds produce periods of extremely low humidity, thereby reducing the moisture content of vegetative fuels and increasing the possibility and severity of fire from dry vegetation and other common combustibles. Also during the summer months, the City of Hesperia experiences prolonged periods of temperatures in excess of one hundred degrees Fahrenheit (100^0F). When coupled with sustained severe Santa Ana Winds, an increase in the threat from rapidly moving wildfires exists. The City of Hesperia does not have a storm drainage system and therefore during the winter months, heavy rains occasionally cause damage to roadways or leave built-up mud and debris, rendering them completely impassible, or with limited access, sometimes for extended periods.

WHEREAS, A copy of the 2019 Building Codes identified in this Ordinance have been filed with the City Clerk of the City of Hesperia and are kept in the office of the Building Official in accordance with California Government Code Section 50022.6; and

WHEREAS, On December 17, 2019 the City Council of the City of Hesperia conducted a duly noticed Public Hearing as required by Government Code Section 50022.3 and concluded said hearing on that date; and

WHEREAS, All legal prerequisites to the adoption of this Ordinance have occurred.

NOW THEREFORE, THE HESPERIA CITY COUNCIL DOES ORDAIN AS FOLLOWS:

Section 1. All of the facts set forth in the forgoing recitals are true, correct and are adopted as findings.

Section 2. Chapter 15.04 of the Hesperia Municipal Code entitled "Building Codes", adopted by Ordinance No. 2016-08 is hereby repealed, provided that said repeal shall not apply to or excuse any violations thereof occurring prior to the effective date of this Ordinance and provided further that the building regulations as adopted by reference and amended by Ordinance 2016-08 shall be applicable to construction projects for which plans have been submitted for plan review and the plan review fees paid as of December

31, 2019; provided that neither the plan review nor permits issued for construction of the structure expire.

Section 3. Chapter 15.04 of the Hesperia Municipal Code entitled “Building Codes” is hereby added as set forth in “Exhibit A” attached hereto and incorporated herein by this reference.

Section 4. Chapter 15.06 of the Hesperia Municipal Code entitled “Grading” adopted by Ordinance No. 2016-08 is hereby repealed, provided that said repeal shall not apply to or excuse any violations thereof occurring prior to the effective date of this Ordinance and provided further that the building regulations as adopted by reference and amended by Ordinance 2016-08 shall be applicable to construction projects for which plans have been submitted for plan review and the plan review fees paid as of December 31, 2019; provided that neither the plan review nor permits issued for construction of the structure expire.

Section 5. Chapter 15.06 of the Hesperia Municipal Code entitled “Grading” is hereby added as set forth in “Exhibit B” attached hereto and incorporated herein by this reference.

Section 6. This Ordinance shall take effect on January 1, 2020.

Section 7. The City Council of the City of Hesperia hereby declares that should any provision, section, paragraph, sentence, or word of this Ordinance hereby adopted be rendered or declared invalid by any final court action in a court of competent jurisdiction, or by any reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences, and words shall remain in full force and effect.

Section 8. The City Clerk shall certify to the adoption of the Ordinance and shall cause the same to be posted in three (3) public places within the City of Hesperia pursuant to the provisions of Resolution 93-78.

ADOPTED AND APPROVED this 17th day of December, 2019.

_____
Larry Bird, Mayor

ATTEST_____
Melinda Sayre, City Clerk

EXHIBIT A

CHAPTER 15.04
BUILDING CODES

SECTIONS:

15.04.010 California Codes Adopted

The 2019 California Building Code, Volumes 1 and 2, the 2019 California Residential Code, the 2019 California Electrical Code, the 2019 California Mechanical Code, the 2019 California Plumbing Code, the 2019 California Fire Code, the 2019 California Green Building Standards Code, and the 2019 California Referenced Standards Code, are hereby adopted as the Building Regulations for the City of Hesperia, together with the amendments, additions, deletions, and exceptions set forth in this Section.

15.04.020 Appendix Chapters Added

The following appendix chapters are specifically adopted:

A. Appendix Chapter I of the 2019 California Building Code titled “Patio Covers”, is hereby adopted in its entirety.
B. Appendix Chapter A of the 2019 California Plumbing Code titled “Recommended Rules for Sizing the Water Supply System”, is hereby adopted in its entirety.
C. Appendix Chapter I of the 2019 California Plumbing Code titled “Installation Standards”, is hereby adopted in its entirety.
D. Appendix Chapter H of the 2019 California Plumbing Code titled “Private Sewage Disposal Systems”, is hereby adopted in its entirety.
E. Appendix Chapter B of the 2019 California Fire Code titled “Fire Flow Requirements for Buildings” is hereby adopted in its entirety.
F. Chapter 1 of the 2019 California Building Code is hereby adopted in its entirety.

15.04.030 Automatic Fire Sprinklers

In addition to the requirements of Section 903 of the 2019 California Building Code, an automatic fire extinguishing system shall be installed in every building of Group A, B ,E, F, H, I, L, M, S or U with 5,000 or more square feet of floor area or two or more stories in height.

EXCEPTIONS:

1. Buildings separated into fire areas of less than 5,000 square feet by one or more four (4) hour separation walls constructed in accordance with Table 721.1(2) of the California Building Code, containing no openings and extending from the foundation to a point at least 30-inches above the roof line.
2. Canopies constructed entirely of non-combustible materials with no enclosing walls and spaced at least ten (10) feet from adjacent buildings or structures.

3. Mini-storage buildings constructed entirely of non-combustible materials and not containing hazardous materials.
4. Buildings with a single, small, low occupancy room on the second floor, when approved by the Fire Chief and Building Official.
5. Detached garages two stories in height.

15.04.040 Previously Constructed Buildings- Sprinkler Systems

Previously constructed buildings with a floor area of 5,000 square feet or more and which are proposing to add floor area, change their occupancy classification to a more hazardous classification, or significantly alter or remodel the building, shall install an automatic fire extinguisher system.

EXCEPTIONS:

1. Minor tenant improvements, maintenance and repair such as interior and exterior painting, carpeting, interior window coverings, drapes, interior non-bearing partitions, surface re-roofing or plumbing, mechanical and electrical repairs.

15.04.050 Swimming Pool Barriers and Safety Devices

A. General. Swimming pools shall comply with the requirements of this section and other applicable sections of the California Building Code.

B. Definitions. The following words and terms shall, for the purposes of this section and as used elsewhere in this chapter, have the meaning shown herein.

APPROVED SAFETY POOL COVER means a manually or power-operated safety pool cover that meets all of the performance standards of the American Society for Testing and Materials (ASTM), in compliance with Standard F 1346-91.

BARRIER (ENCLOSURE) means a fence, wall, or other barrier that isolates a swimming pool from access to the home or other buildings and grounds.

EXIT ALARMS means devices that make audible, continuous alarm sounds when any door or window that permits access from the residence to the pool area that is without any intervening enclosure, is opened, or is left ajar. Exit alarms may be battery operated or may be connected to the electrical wiring of the building.

PRIVATE SWIMMING POOL means a swimming pool located on the grounds of a single-family home.

PUBLIC SWIMMING POOL means a swimming pool for the use of the general public with or without charge, or for the use of the members and guests of a private club. Public swimming pool does not include a swimming pool located on the grounds of a private single-family home.

SWIMMING POOL means any structure intended for swimming, recreational bathing, or wading that contains water over 18 inches (457 mm) deep. This includes in-ground, above-ground, and on-ground pools; hot tubs, spas, portable spas, and fixed-in-place wading pools.

C. BARRIERS (ENCLOSURES)

1. **Barrier Height and Clearances.** The top of the barrier shall be at least 60 inches (1524 mm) above grade measured on the side of the barrier that faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) measured on the side of the barrier that faces away from the swimming pool. Where the top of the pool structure is above grade, the barrier is authorized to be at ground level or mounted on top of the pool structure, and the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).

2. **Openings.** Openings in the barrier shall not allow passage of a 4-inch-diameter (102 mm) sphere.

3. **Solid Barrier Surfaces.** Solid barriers which do not have openings shall not contain indentations or protrusions except for normal construction tolerances and tooled masonry joints.

4. **Closely Spaced Horizontal Members.** Where the barrier is composed of vertical and horizontal members and the distance between the tops of the horizontal members is less than 45 inches (1143 mm), the horizontal members shall be located on the swimming pool side of the fence. Spacing between vertical members shall not exceed 1 ¾ inches (44 mm) in width. Where there are decorative cutouts within vertical members, spacing within cutouts shall not exceed 1 ¾ inches (44 mm) in width.

5. **Widely Spaced Horizontal Members.** Where a barrier is composed of horizontal and vertical members and the distance between the tops of the horizontal members is 45 inches (1143 mm) or more, spacing between vertical members shall not exceed 4 inches (102 mm). Where there are decorative cutouts within vertical members, spacing within cutouts shall not exceed 1 ¾ inches (44 mm) in width.

6. **Chain Link Dimensions.** Maximum mesh size for chain link fences shall be 2 ¼ inch square (57 mm square) unless the fence is provided with slats fastened at the top or the bottom which reduce the openings to no more than 1 ¾ inches (44 mm) in width.

7. **Diagonal Members.** Where the barrier is composed of diagonal members, the maximum opening formed by diagonal members shall be no more than 1 ¾ inches (44 mm).

8. **Gates.** Access doors or gates shall be equipped to accommodate a locking device. Pedestrian access doors or gates shall open outward away from the pool and shall be self-closing and have a self-latching device. Doors or gates other than pedestrian access doors or gates shall have a self-latching device. Release mechanisms shall be in accordance with Section 1010.1.9, 1132A and 11B-404 of the California Building Code. Where the release mechanism of the self-latching device is located less than 54 inches (1372 mm) from the bottom of the door or gate, the release mechanism shall be located on the pool side of the door or gate at least 3 inches (76 mm) below the top of the

door or gate, and the door or gate and barrier shall have no opening greater than ½ inch (12.7 mm) within 18 inches (457 mm) of the release mechanism.

9. **Dwelling Wall as a Barrier.** Where a wall of a dwelling serves as part of the barrier, one of the following shall apply:
    1) Doors with direct access to the pool through that wall shall be equipped with an alarm that produces an audible warning when the door and/or its screen, if present, are opened. The alarm shall be listed and labeled in accordance with UL 2017. In dwellings not required to be *Accessible Units, Type A units, or Type B units,* the deactivation switch shall be located 54 inches (1372 mm) or more above the threshold of the door. In dwellings required to be *Accessible units, Type A units, or Type B units*, the deactivation switch(es) shall be located at 54 inches (1372 mm) maximum and 48 inches (1219 mm) minimum above the threshold of the door.
    2) The pool shall be equipped with a power safety cover that complies with ASTM F 1346.
    3) Other means of protection, such as self-closing doors, with self-latching devices, which are approved, shall be accepted so long as the degree of protection afforded is not less than the protection afforded by Item 1 or 2 above.

10. **Pool Structure as Barrier.** Where an above-ground pool is used as a barrier or where the barrier is mounted on top of the pool structure, and the means of access is a ladder or steps, then the ladder or steps either shall be capable of being secured, locked, or removed to prevent access, or the ladder or steps shall be surrounded by a barrier which meets the requirements of this section. When the ladder or steps are secured, locked or removed, any opening created shall not allow the passage of a 4-inch diameter (102 mm) sphere.

11. **Indoor Swimming Pools.** Walls surrounding indoor swimming pools shall not be required to comply with this section.

12. **Prohibited Locations.** Barriers shall be located so as to prohibit permanent structures, equipment, or similar objects from being used to climb the barriers.

D. Safety Features Required. Whenever a building permit is issued for remodeling of an existing pool or spa, at a private, single-family home, it shall be equipped with at least one of the following drowning prevention safety features:

1. The pool shall incorporate removable mesh pool fencing that meets American Society for Testing and Materials (ASTM) Specifications F 2286 standards in conjunction with a gate that is self-closing and self-latching and can accommodate a key lockable device.
2. The pool shall be equipped with an approved safety pool cover that meets all requirements of the ASTM Specifications F 1346.
3. All doors providing direct access from the home to the swimming pool shall be equipped with a self-closing, self-latching device with an exit alarm and a release mechanism placed no lower than 54 inches (1372 mm) above the floor.

4. Swimming pool alarms that, when placed in pools, will sound upon detection of accidental or unauthorized entrance into the water. These pool alarms shall meet and be independently certified to the ASTM Standard F 2208 “Standard Specification for Pool Alarms” which includes surface motion, pressure, sonar, laser, and infrared type alarms. For purposes of this article, “swimming pool alarms” shall not include swimming protection alarm devices designed for individual use, such as an alarm attached to a child that sounds when the child exceeds a certain distance or becomes submerged in water.
5. Other means of protection, if the degree of protection afforded is equal to or greater than that afforded by any of the devices set forth in items 1-4, and have been independently verified by an approved testing laboratory as meeting standards for those devices established by the ASTM or the American Society of Testing Mechanical Engineers (ASME).

E. Construction Requirements. Whenever a building permit is issued for the construction of a new swimming pool or spa:

1. It shall have at least two circulation drains per pump that shall be hydraulically balanced and symmetrically plumbed through one or more “T” fittings, and that are separated by a distance of at least three feet in any dimension between the drains. Suction outlets that are less than 12 inches across shall be covered with anti-entrapment grates, as specified in the ASME/ANSI Standard A 112.19.8 that cannot be removed except with the use of tools. Slots or openings in the grates or similar protective devices shall be of a shape, area, and arrangements that would prevent physical entrapment and that would pose a suction hazard to bathers. Suction outlets shall be designed and installed in accordance with ANSI/APSP-7.

15.04.060 Permit Expiration

Every permit issued by the building official under the provisions of this code shall expire by limitation and become null and void if the building or work authorized by such permit is not commenced within 180 days from the date of issuance of such permit, or if a period of ninety (90) days lapses between each inspection approval. Before such work can be recommenced, a new permit shall be first obtained to do so, and the fee therefor shall be one half the amount required for a new permit for such work, provided no changes have been made or will be made in the original plans and specifications for such work, and provided further that such suspension or abandonment has not exceeded one year. In order to renew action on a permit after expiration of more than one year, the permittee shall pay a new full permit fee.

EXHIBIT B

CHAPTER 15.06
GRADING

Sections:

15.06.010 General provisions.

A. Scope. The provisions of this chapter apply to grading, excavation and earthwork construction, including fills and embankments and the control of grading site runoff, including erosion and transport of sediments and construction-related pollutants.

The purpose of this chapter is to safeguard life, limb, property, and the public welfare by regulating grading on private property.

B. Flood Hazard Areas. The provisions of this chapter shall not apply to grading, excavation and earthwork construction, including fills and embankments, in floodways within flood hazard areas established in California Building Code (CBC) Section 1612.3 or in flood hazard areas where design flood elevations are specified but floodways have not been designated, unless it has been demonstrated through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that the proposed work will not result in any increase in the level of the base flood.

C. General Hazards. Whenever the Building Official or designee determines that any existing excavation or embankment or fill on private property has become a hazard to life and limb, or endangers property, or adversely affects the safety, use or stability of a public way or drainage channel, the owner of the property upon which the excavation or fill is located, or other person or agent in control of said property, upon receipt of notice in writing from the Building Official or designee shall within the period specified therein repair or eliminate such excavation or embankment to eliminate the hazard and to be in conformance with the requirements of this code.

D. Safety Precautions. If at any stage of the work the Building Official or designee determines by inspection that further grading as authorized is likely to endanger any public or private property or result in the deposition of debris on any public way or interfere with any existing drainage course, the Building Official or designee may order the work stopped by notice in writing served on any persons engaged in doing or causing such work to be done, and any such person shall immediately stop such work. The Building Official or designee may authorize the work to proceed if the Building

Official or designee finds adequate safety precautions can be taken or corrective measures incorporated in the work to avoid the likelihood of such danger, deposition or interference. If the grading work as done has created or resulted in a hazardous condition, the Building Official or designee shall give written notice requiring correction thereof as specified in Section 15.06.050 of this chapter.

E. Protection of Utilities. The owner of any property on which grading has been performed and that requires a grading permit under Section 15.06.030 shall be responsible for the prevention of damage to any public utilities or services.

F. Protection of Adjacent Property. The owner of any property on which grading has been performed and that requires a grading permit under Section 15.06.030 is responsible for the prevention of damage to adjacent property and no person shall excavate on land sufficiently close to the property line to endanger any adjoining public street, sidewalk, alley, or other public or private property without supporting and protecting such property from settling, cracking or other damage that might result. Special precautions approved by the Building Official or designee shall be made to prevent imported or exported materials from being deposited on the adjacent public way and/or drainage courses.

G. Storm Water Control Measures. The owner of any property on which grading has been performed and that requires a grading permit under Section 15.06.030 shall put into effect and maintain all precautionary measures necessary to protect adjacent water courses and public or private property from damage by erosion, flooding, and deposition of mud, debris, and construction-related pollutants originating from the site during grading and related construction activities.

H. Maintenance of Private Devices. The owner of any property on which grading has been performed pursuant to a permit issued under the provisions of this code, or any other person or agent in control of such property, shall maintain in good condition and repair all drainage structures and other protective devices when they are shown on the grading plans filed with the application for grading permit and approved as a condition precedent to the issuance of such permit.

I. Conditions of Approval. In granting any permit under this code, the Building Official or designee may include such conditions as may be reasonably necessary to prevent creation of a nuisance or hazard to public or private property. Such conditions may include, but shall not be limited to:

1. Improvement of any existing grading to comply with the standards of this code;
2. Requirements for fencing of excavations or fills which would otherwise be hazardous.

15.06.020 Definitions.

For the purposes of this chapter, the terms, phrases, and words listed in this section and their derivatives have the indicated meanings.

"BENCH" means the relatively level step excavated into earth material on which fill is to be placed.

“BEST MANAGEMENT PRACTICES (BMPs)” Defined at 8.30.030.

"BORROW" means earth material acquired from an off-site location for use in grading on a site.

"CIVIL ENGINEER" means a professional engineer registered in the state of California to practice in the field of civil works.

"CIVIL ENGINEERING" means the application of the knowledge of the forces of nature, principles of mechanics, and the properties of materials to the evaluation, design, and construction of civil works.

"COMPACTIONS" means the densification of a fill by mechanical means.

“CONSTRUCTION GENERAL PERMIT (CGP)” means the current version of the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities. The Construction General Permit (CGP) is issued by the Storm Water Resources Control Board (SWRCB) for storm water discharges associated with construction projects over one acre, or smaller sites that are part of a larger common plan of development or sale. (Also Defined in HMC 8.30.030).

“CUT”. See "Excavation.**"**

"**DESIGN ENGINEER"** means the civil engineer responsible for the preparation of the grading plans for the site grading work.

"DESILTING BASINS" means physical structures constructed for the removal of sediments from surface water runoff.

"DOWN DRAIN" means a device for collecting water from a swale or ditch located on or above a slope, and safely delivering it to an approved drainage facility.

"EARTH MATERIAL" means any rock, natural soil, or fill or any combination thereof.

"EROSION" means the wearing away of the ground surface as a result of the movement of wind, water, or ice.

“EROSION AND SEDIMENT CONTROL PLAN” means a site-specific plan which identifies and describes the best management practices proposed to control erosion and prevent sediment and construction-related pollutants from being carried off-site by storm water

"EXCAVATION" means the removal of earth material by artificial means, also referred to as a cut.

"FIELD ENGINEER" means the civil engineer responsible for performing the functions as set forth in Section 15.06.050(B)

"FILL" means the deposition of earth materials by artificial means.

"GEOTECHNICAL ENGINEER" means a professional engineer, registered in the state of California, and experienced and knowledgeable in the practice of geotechnical engineering.

"GEOTECHNICAL HAZARD" means an adverse condition due to landslide, settlement, and/or slippage. These hazards include but are not limited to loose debris, slope wash, and mud flows from natural or graded slopes.

"GRADE" means the vertical location of the ground surface.

"GRADE, EXISTING" "Existing grade" means the grade prior to grading.

"GRADE, FINAL" See Section 15.06.050(F)(4).

GRADE, FINISHED. "Finished grade" means the grade of the site at the conclusion of all grading efforts.

GRADE, INITIAL. See Section 15.06.050(F)(2).

GRADE, ROUGH. See Section 15.06.050(F)(3).

"GRADING" means an excavation or fill or combination thereof.

"KEY" means a compacted fill placed in a trench excavated in earth material generally constructed at the toe of the slope.

"LANDSCAPE ARCHITECT" means a person who holds a certificate to practice landscape architecture in the state of California under the applicable landscape architecture provisions of Division 3, Chapter 3.5 of the Business and Professions Code.

"PRIVATE SEWAGE DISPOSAL SYSTEM" means a septic tank with effluent discharging into a subsurface disposal field, into one or more seepage pits or into a combination of subsurface disposal field and seepage pit or such other facilities as may be permitted.

"PROFESSIONAL INSPECTION" means the inspection required by this code to be performed by the project consultants. Such inspections shall be sufficient to form an opinion relating to the conduct of the work.

"PROJECT CONSULTANTS" means the professional consultants required by this code which may consist of the design engineer, field engineer, geotechnical engineer, engineering geologist, and landscape architect as applicable to this chapter.

"SITE" means a lot or parcel of land or contiguous combination thereof, under the same ownership, where grading is performed or permitted.

"SLOPE" means an inclined ground surface, the inclination of which is expressed as a ratio of horizontal distance to vertical distance.

"SOIL" means naturally occurring superficial deposits overlying parent bedrock.

"SOIL TESTING AGENCY" means an agency regularly engaged in the testing of soils and rock under the direction of a civil engineer experienced in soil testing.

"STORM DRAIN SYSTEM" means a conveyance or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, and man-made channels, designed or used for collecting and conveying storm water.

"STORM WATER POLLUTION PREVENTION PLAN (SWPPP)" means a site drawing with details, notes and related documents that identify the measures proposed by the permittee to (1) control erosion and prevent sediment and construction-related pollutants from being carried off-site by storm water, and (2) to prevent non-storm water discharges from entering the storm drain system.

"Storm Water Pollution Prevention Plan (SWPPP)" means a pollution control plan documenting site activities, pollutant sources; and all stormwater and non-stormwater BMPs used at the site, required under 40 CFR Part 122, the Clean Water Act (CWA), the CGP, Industrial General Permit (IGP), and most Municipal Separate Storm Sewer Systems (MS4) Permits. A plan to minimize and manage Pollutants to minimize Pollution from entering the MS4, identifying all potential sources of Pollution and describing planned practices to reduce Pollutants from discharging off the site.

"SURFACE DRAINAGE" means flows over the ground surface.

"TERRACE" means a relatively level step constructed in the face of a graded slope for drainage and maintenance purposes.

15.06.030 Permits required.

A. Permits Required. Except as exempted in this section, no grading shall be performed without first having obtained a permit from the Building Official or designee. A grading permit does not include the construction of retaining walls or other structures. A separate permit shall be obtained for each site and may cover both excavations and fills. Any engineered grading as described in Section 15.06.040 shall be performed by a contractor licensed by the state of California to perform the work described herein. Regular grading less than five thousand (5,000) cubic yards may require a licensed contractor if the Building Official or designee determines that special conditions or hazards exist.

B. Exemptions. A grading permit shall not be required for the following:

1. When approved by the Building Official or designee, grading in an isolated, self-contained area, provided there is no danger to the public, and that such grading will not adversely affect adjoining properties;
3. Cemetery graves;
4. Refuse disposal sites controlled by other regulations;

5. Excavations for wells, or trenches for utilities;
6. Mining, quarrying, excavating, processing or stockpiling rock, sand, gravel, aggregate, or clay controlled by other regulations, provided such operations do not affect the lateral support of, or significantly increase stresses in, soil on adjoining properties;
7. Exploratory excavations performed under the direction of a geotechnical engineer. This shall not exempt grading of access roads or pads created for exploratory excavations. Exploratory excavations must be restored to existing conditions, unless approved by the Building Official or designee;
8. An excavation that does not exceed fifty (50) cubic yards (38.3 m^3) and complies with one of the following conditions:
a. Is less than two feet (0.6 m) in depth,
b. Does not create a cut slope greater than five feet (1.5 m) measured vertically upward from the cut surface to the surface of the natural grade and is not steeper than two units horizontal to one unit vertical (fifty (50) percent slope);
9. A fill not intended to support a structure, that does not obstruct a drainage course and complies with one of the following conditions:

a. Is less than one foot (0.3 m) in depth and is placed on natural terrain with a slope flatter than five units horizontal to one unit vertical (twenty (20) percent slope),

b. Is less than three feet (0.9 m) in depth at its deepest point measured vertically upward from natural grade to the surface of the fill, does not exceed fifty (50) cubic yards, and creates a fill slope no greater than two units horizontal to one unit vertical (fifty (50) percent slope),

c. Is less than five feet (1.5 m) in depth at its deepest point measured vertically upward from natural grade to the surface of the fill, does not exceed twenty (20) cubic yards, and creates a fill slope no steeper than two units horizontal and one unit vertical (fifty (50) percent slope).

Exemption from the permit requirements of this appendix shall not be deemed to grant authorization for any work to be done in any manner in violation of the provisions of this code or any other laws or ordinances of this jurisdiction.

C. Unpermitted Grading. A person shall not own, use, occupy or maintain any site containing un-permitted grading. For the purposes of this code, unpermitted grading shall be defined as any grading that was performed, at any point in time, without the required permit(s) having first been obtained from the Building Official or designee, pursuant to subsection A of this section.

D. Availability of Permit at Site. No person shall perform any grading that requires a permit under this chapter unless a copy of the grading permit and approved grading plans is in the possession of a responsible person and available at the site for the Building Official or designee.

15.06.040 Permit application submittals.

A. Submittal Requirements. In addition to the provisions of CBC, Section 105.3, the applicant shall state the estimated quantities of excavation and fill.

B. Site Plan Requirements. In addition to the provisions of CBC Section 107, a grading plan shall show the existing grade and finished grade in contour intervals of sufficient clarity to indicate the nature and extent of the work and show in detail that it complies with the requirements of this code. The plans shall show the existing grade on adjoining properties in sufficient detail to identify how grade changes will conform to the requirements of this code.

C. Grading Designation. Grading in excess of five thousand (5,000) cubic yards (three thousand eight hundred twenty-five ((3,825) m^3) shall be performed in accordance with the approved grading plan prepared by a civil engineer, and shall be designated as "engineered grading." Grading involving less than five thousand (5,000) cubic yards (three thousand eight hundred twenty-five ((3,825) m^3) shall be designated "regular grading" unless the permittee chooses to have the grading performed as engineered grading, or the Building Official or designee determines that special conditions or unusual hazards exist, in which case grading shall conform to the requirements for engineered grading.

D. Regular Grading Requirements. In addition to the provisions of CBC Section 105.3 and subsection B of this section, an application for a regular grading permit shall be accompanied by two sets of plans in sufficient clarity to indicate the nature and extent of the work. The plans shall give the location of the work, the name of the owner, and the name of the person who prepared the plan. The plan shall include the following information:

1. General vicinity of the proposed site;
2. Limits and depths of cut and fill;
3. Location of any buildings or structures where work is to be performed and the location of any buildings or structures within fifteen (15) feet (4.6 m) of the proposed grading;
4. Contours, flow areas, elevations, or slopes which define existing and proposed drainage patterns.

E. Engineered Grading Requirements. In addition to the provisions of CBC Section 105.3 and subsection B of this section, an application for an engineered grading permit shall be accompanied by four sets of plans and specifications, and supporting data consisting of a geotechnical report. The plans and specifications shall be prepared and signed by an individual licensed by the state to prepare such plans or specifications when required by the Building Official or designee.

Specifications shall contain information covering construction and material requirements. Plans shall be drawn to scale upon substantial paper or cloth and shall be of sufficient clarity to indicate the nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and all relevant laws, ordinances, rules, and regulations. The first sheet of each set of plans shall give location of the work, the name and address of the owner, and the person by whom they were prepared.

The plans shall include but shall not be limited to, the following information:

1. General vicinity of the proposed site;
2. Property limits and accurate contours of existing ground and details of terrain and area drainage;

3. Limiting dimensions, elevations, or finish contours to be achieved by the grading, proposed drainage channels, and related construction;
4. Detailed plans of all surface and subsurface drainage devices, walls, cribbing, dams, and other protective devices to be constructed with, or as a part of, the proposed work. A map showing the drainage area and the estimated runoff of the area served by any drains shall also be provided;
5. Location of any existing or proposed buildings or structures on the property where the work is to be performed and the location of any buildings or structures on land of adjacent owners who are within fifteen (15) feet (4.6 m) of the property that may be affected by the proposed grading operations;
6. Recommendations in the geotechnical engineering report shall be incorporated into the grading plans or specifications. When approved by the Building Official or designee, specific recommendations contained in the geotechnical engineering report that are applicable to grading may be included by reference;

7. The dates of the geotechnical engineering reports together with the names, addresses, and phone numbers of the firms or individuals who prepared the reports;
8. A statement of the earthwork quantities of material to be excavated and/or filled. Earth work quantities shall include quantities for geotechnical and geological remediation. In addition, a statement of material to be imported or exported from the site;
9. A statement of the estimated starting and completion dates for work covered by the permit;
10. A statement signed by the owner acknowledging that a field engineer, or geotechnical engineer when appropriate, will be employed to perform the services required by this code, whenever approval of plans and issuance of permit are to be based on the condition that such professional persons be so employed. These acknowledgements shall be on a form furnished by the Building Official or designee;
11. A drainage plan for that portion of a lot or parcel to be utilized as a building site (building pad), including elevations of floors with respect to finish site grade and locations of proposed stoops, slabs and fences that may affect drainage;
12. Location and type of any proposed private sewage disposal system;
13. Location of existing and proposed utilities, drainage facilities, and recorded public and private easements; and
14. Location of all recorded natural drainage courses and drainage easements.

F. Geotechnical Report. The geotechnical report required by 15.06.040E shall include data regarding the nature, distribution and strength of existing soils, conclusions and recommendations for grading procedures and design criteria for corrective measures, including buttress fills, when necessary, and opinion on adequacy for the intended use of sites to be developed by the proposed grading as affected by geotechnical engineering factors, including the stability of slopes and liquefaction. Supplemental reports and data may be required as the Building Official or designee may deem necessary. Recommendations included in the reports and approved by the Building Official or designee shall be incorporated in the grading plan or specifications.

The geotechnical report required by subsection E of this section shall also include an adequate description of the geology of the site, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy for the intended use of sites to be developed by the proposed grading, as affected by geologic factors. The geotechnical report shall include a geologic map and cross sections utilizing the most recent grading plan as a base. Supplemental reports and data may be required as the Building Official or designee may deem necessary. Recommendations included in the reports and approved by the Building Official or designee shall be incorporated in the grading plan or specifications.

G. NPDES Permit Documents. For applicable projects**,** a SWPPP and a Water Quality Management Plan, each approved by the City, shall be provided with the grading permit application. Projects for which a SWPPP is not required shall provide a City-approved Erosion and Sediment Control Plan (ESCP).

15.06.050 Grading inspection.

A. General. Grading inspections shall be governed by CBC Section 110 and as indicated herein. Grading operations for which a permit is required shall be subject to inspection by the Building Official or designee and professional inspection of grading operations shall be provided by the field engineer or geotechnical engineer retained to provide such services in accordance with this section for engineered grading and as required by the Building Official or designee for regular grading.

B. Special and Supplemental Inspections. The special inspection requirements of CBC Section 1704 shall apply to work performed under a grading permit where required by the Building Official or designee. In addition to the called inspections specified in subsection F of this section, the Building Official or designee may make such other inspections as may be deemed necessary to determine that the work is being performed in conformance with the requirements of this code. Investigations and reports by an approved soil testing agency, geotechnical engineer, and field engineer may be required. Inspection reports shall be provided when requested by the Building Official or designee.

Continuous inspection of drainage devices by the field engineer in accordance with this section may be required when the Building Official or designee determines the drainage devices are necessary for the protection of the structures in accordance with Section 15.06.090 of this chapter.

C. Field Engineer. The field engineer shall provide professional inspection within such engineer's area of technical specialty, oversee and coordinate all field surveys, set grade stakes, and provide site inspections during grading operations to ensure the site is graded in accordance with the approved grading plan and the appropriate requirements of this code. During site grading, and at the completion of both rough grading and final grading, the field engineer shall submit statements and reports required by Subsections J, K and L. If the revised grading plans are required during the course of work, they shall be prepared by a civil engineer and approved by the Building Official or designee.

D. Geotechnical Engineer. The geotechnical engineer shall provide inspection within such engineer's area of technical specialty, which shall include professional inspection

of the excavation to determine if conditions encountered are in conformance with the approved report and observation during grading and testing for required compaction. The geotechnical engineer shall provide sufficient observation during the preparation of the natural ground and placement and compaction of the fill to verify that such work is being performed in accordance with the conditions of the approved plan and the appropriate requirements of this chapter. Revised recommendations relating to conditions differing from the approved geotechnical engineering reports shall be submitted to the permittee, the Building Official or designee and the field engineer.

E. Permittee. The permittee shall be responsible for the work to be performed in accordance with the approved plans and specifications and in conformance with the provisions of this code and the permittee shall engage project consultants, if required, to provide professional inspections on a timely basis. The permittee shall act as a coordinator between the project consultants, the contractor, and the Building Official or designee. In the event of changed conditions, the permittee shall be responsible for informing the Building Official or designee of such change and shall provide revised plans for approval.

F. Building Official or designee. The Building Official or designee shall inspect the project site at the following various stages of work requiring approval to determine that adequate control is being exercised by the project consultants.

1. Pre-Grade. Before any construction or grading activities occur at the site. The permittee shall schedule a pre-grade inspection with the Building Official or designee. The permittee is responsible for coordinating that all project consultants are present at the pre-grade inspection;

2. Initial. When the site has been cleared of vegetation and unapproved fill and it has been scarified, benched, over excavated, or otherwise prepared for fill. No fill shall have been placed prior to this inspection;

3. Rough. When approximate final elevations have been established; drainage terraces, swales, and other drainage devices necessary for the protection of the building sites from flooding are installed; berms are installed at the top of the slopes; and the statements required by subsection L of this section have been received;

4. Final. When grading has been completed; all drainage devices necessary to drain the building pad are installed; slope planting is established, irrigation systems are installed; and the as-graded plans and required statements and reports have been submitted.

G. Notification of Non-Compliance. If, in the course of fulfilling their respective duties under this chapter, the field engineer, or the geotechnical engineer finds that the work is not being done in conformance with this chapter or the approved grading plans, the discrepancies and corrective measures which should be taken shall be reported immediately in writing to the permittee and to the Building Official or designee.

H. Transfer of Responsibility. If the field engineer, or the geotechnical engineer of record is changed during the grading, the work shall be stopped until the replacement has agreed in writing to accept their responsibility within the area of technical competence for approval upon completion of the work. It shall be the duty of the

permittee to notify the Building Official or designee in writing of such change prior to the recommencement of such grading.

I. Non-Inspected Grading. No person shall own, use, occupy, or maintain any non-inspected grading. For the purpose of this code, non-inspected grading shall be defined as any grading for which a grading permit was first obtained, pursuant to Section 15.06.030, but which has progressed beyond any point requiring inspection and approval by the Building Official or designee without such inspection and approval having been obtained.

J. Routine Field Inspections and Reports. Unless waived by the Building Official or designee, routine inspection reports shall be provided by the field engineer for all engineered grading projects. The field engineer shall file these reports, with the Building Official or designee as follows:

1. Weekly during all times when grading of more than ten-thousand (10,000) cubic yards per week is occurring on the site.
2. Bi-weekly during all times when grading of four hundred (400) cubic yards or more per week is occurring on the site;
3. Monthly, at all other times; and
4. At any time when requested in writing by the Building Official or designee.
5. Such reports shall certify to the Building Official or designee that the field engineer has inspected the grading site and related activities and has found them in compliance with the approved grading plans, the building code, grading permit conditions, and other applicable ordinances and requirements.

K. Completion of Work. Upon completion of the rough grading work and at the final completion of the work, the following reports and drawings and supplements thereto are required for engineered grading or when professional inspection is required by the Building Official or designee:

1. An "as-built" grading plan prepared by the field engineer retained to provide such services in accordance with subsection C of this section showing all plan revisions as approved by the Building Official or designee. This shall include original ground surface elevations, as-built ground surface elevations, lot drainage patterns, and the locations and elevations of surface drainage facilities and the outlets of subsurface drains. As-built locations, elevations and details of subsurface drains shall be shown as reported by the geotechnical engineer.
The field engineer shall state in a report, to the Building Official or designee, that to the best of their knowledge, the work within their area of responsibility was done in accordance with the final approved grading plan;

2. A report prepared by the geotechnical engineer retained to provide such services in accordance with subsection D of this section including locations and elevations of field density tests, summaries of field and laboratory tests, other substantiating data, a final description of the geology of the site and any new information disclosed during the grading, and comments on any changes made during grading and their effect on the recommendations made in the approved geotechnical engineering report. Geotechnical engineers 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. The reports shall contain a finding regarding the safety of the completed grading and any proposed structures against hazard from landslide, settlement, or slippage, as well as a final as-built geologic map and cross sections depicting all the information collected prior to and during grading.

3. The grading contractor shall submit in a form prescribed by the Building Official or designee a statement of conformance to said as-built plan and the specifications.

L. Notification of Completion. The permittee shall notify the Building Official or designee 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, and the required reports have been submitted and approved.

M. Change of Ownership. If a grading permit has been issued on a property and the Building Official or designee has not approved the final grading when a property changes ownership, a new grading application and permit will be required from the new property owner.

15.06.060 Excavations.

A. General. Unless otherwise recommended in the approved geotechnical engineering, cuts shall conform to the provisions of this section. In the absence of an approved geotechnical engineering report, these provisions may be waived, as approved by the Building Official or designee, for minor cuts not intended to support structures or subject to a surcharge.

B. Maximum Cut Slope. The slope of cut surfaces shall be no steeper than is safe for the intended use and shall be no steeper than two units horizontal to one unit vertical (fifty (50) percent slope) unless the permittee furnishes a geotechnical engineering report, or both, stating that the site has been investigated and giving an opinion that a cut at a steeper slope will be stable and not create a hazard to public or private property. The Building Official or designee may require the excavation to be made with a cut face flatter in slope than two units horizontal to one unit vertical if the Building Official or designee finds it necessary for stability and safety.

C. Slope Surface Protection. All slopes must be stabilized against surface erosion. Stabilization may be accomplished through the application of erosion control blankets, soil stabilizers or other means as approved by the Building Official or designee.

15.06.070 Fills.

A. General. Unless otherwise recommended in the approved geotechnical engineering report, fills shall conform to the provisions of this section. In the absence of an approved geotechnical engineering report, and if approved by the Building Official or designee, these provisions may be waived for minor fills not intended to support structures.

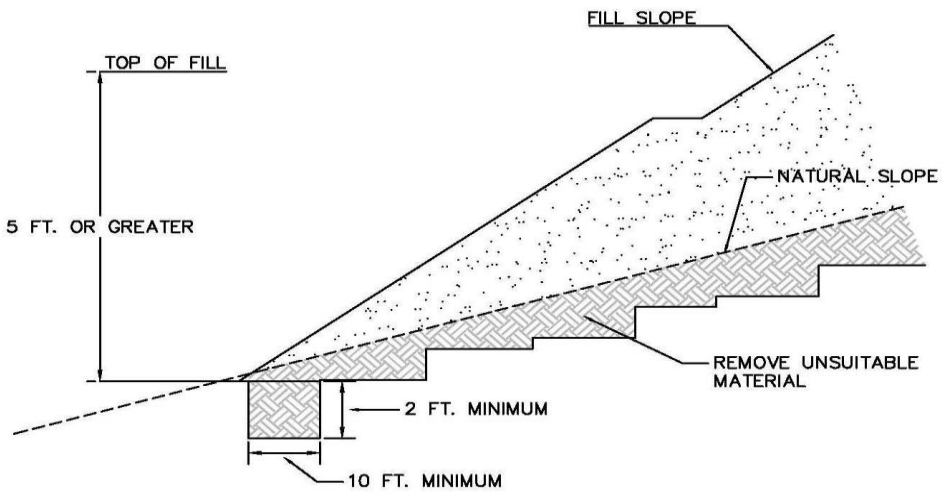
B. Preparation of Ground. Fill slopes shall not be constructed on natural slopes steeper than two units horizontal to one unit vertical (fifty (50) percent slope). The ground structure shall be prepared to receive fill by removing vegetation, non-complying fill, topsoil and other unsuitable materials scarifying to provide a bind with the new fill. Where slopes are steeper than five units horizontal to one unit vertical (twenty (20) percent slope) and the height is greater than five feet (1.5 m), the ground surface shall be prepared to receive fill by benching into sound bedrock or other competent material as determined by the geotechnical engineer. The ground preparation shall be in accordance with Figure 15.06.070 or as determined by the geotechnical engineer. The key under the toe of the fill on a slope steeper than five units horizontal to one unit vertical (twenty (20) percent slope) shall be at least ten feet (3.0 m) wide. The area beyond the toe of fill shall be sloped for sheet overflow or a paved drain shall be provided. When fill is to be placed over a cut, the key shall be at least ten feet (3.0 m) wide. The cut shall be made before placing the fill and the geotechnical engineer shall accept the cut as suitable for the foundation and placement of fill material.

C. Subdrains. Except where recommended by the geotechnical engineer as not being necessary, subdrains shall be provided under all fills placed in natural drainage courses and in other locations where seepage is evident. Such subdrainage systems shall be of a material and design approved by the geotechnical engineer and acceptable to the Building Official or designee. The geotechnical engineer shall provide continuous inspection during the process of subdrain installation to conform to the approved plans and the geotechnical engineer's recommendation. Testing of materials shall be done by a soil testing agency based on the geotechnical engineer's recommendation. The location of the subdrains shall be shown on a plan by the geotechnical engineer. Excavations for the subdrains shall be inspected by the geotechnical engineer when such subdrains are included in the recommendations of the geotechnical engineer.

D. Fill Material. Detrimental amounts of organic material shall not be permitted in fills. Unless approved by the Building Official or designee, no rock or similar irreducible material with a maximum dimension of greater than twelve (12) inches (0.3 m) shall be buried or placed in fills.

Exception: The Building Official or designee may permit placement of larger rock when the geotechnical engineer properly devises a method of placement, and continuously inspects its placement and approves the fill stability. The following conditions shall also apply:

1. Prior to issuance of the grading permit, potential rock disposal areas shall be delineated on the grading plan;
2. Rock sizes greater than twelve (12) inches (0.3 m) in maximum dimension shall be ten feet (3.0 m) or more below grade, measured vertically;
3. Rocks shall be placed so as to assure filling of all voids with well-graded soil;
4. The reports submitted by the geotechnical engineer shall acknowledge the placement of the oversized material and whether the work was performed in accordance with the engineer's recommendations and the approved plans;
5. The location of the oversized rock dispersal areas shall be shown on the as-built plan.



BENCHING REQUIRED WHEN: FILL IS 5 FT. OR GREATER AND SLOPE IS 5:1 TO 2:1.

FIGURE 15.06.070
BENCHING DETAILS

E. Compaction. All fills shall be compacted to a minimum of ninety (90) percent of maximum density. Fills shall be compacted throughout their full extent to a minimum relative compaction of ninety (90) percent of maximum dry density within forty (40) feet (12.19 m) below finished grade and ninety-three (93) percent of maximum dry density deeper than forty (40) feet (12.19 m) below finished grade, unless a lower relative compaction (not less than ninety (90) percent of maximum dry density) is justified by the geotechnical engineer. The relative compaction shall be determined by A.S.T.M soil compaction test D1557 where applicable. Where not applicable, a test acceptable to the Building Official or designee, shall be used unless the owner furnishes a geotechnical engineering report conforming with the requirements of Section 15.06.040(E), stating that the site has been investigated and giving an opinion that a fill at a steeper slope will be stable and not create a hazard to public or private property. Substantiating calculations and supporting data may be required where the Building Official or designee determines that such information is necessary to verify the stability and safety of the proposed slope. The Building Official or designee may require the fill slope be constructed with a face flatter in slope than two units horizontal to one unit vertical (fifty (50) percent slope) if the Building Official or designee finds it necessary for stability and safety.

Field density shall be determined by a method acceptable to the Building Official or designee. However, not less than ten percent of the required density tests, uniformly distributed, shall be obtained by the sand cone method.

Fill slopes steeper than two units horizontal to one unit vertical (fifty (50) percent slope) shall be constructed by the placement of soil a sufficient distance beyond the proposed finish slope to allow compaction equipment to operate at the outer surface limits of the final slope surface. The excess fill is to be removed prior to completion or rough grading. Other construction procedures may be utilized when it is first shown to the

satisfaction of the Building Official or designee that the angle of slope, construction method and other factors will comply with the intent of this section.

F. Maximum Fill Slope. The slope of fill surfaces shall be no steeper than is safe for the intended use. Fill slopes shall be no steeper than two units horizontal in one unit vertical (fifty (50) percent slope) unless calculations are provided by a geotechnical engineer which indicate a steeper slope will be stable and approved by the Building Official or designee.

G. Slopes to Receive Fill. Where fill is to be placed above the top of an existing slope steeper than three units horizontal to one unit vertical (thirty-three (33) percent slope), the toe of the fill shall be set back from the top edge of the slope a minimum distance of six feet (1.8 m) measured horizontally or such other distance as may be specifically recommended by a geotechnical engineer and approved by the Building Official or designee.

H. Inspection of Fill. For engineered grading, the geotechnical engineer shall provide sufficient inspections during the preparation of the natural ground and the placement and compaction of the fill ensuring that the work is being performed in accordance with the conditions of plan approval and the appropriate requirements of this chapter. In addition to the above, the geotechnical engineer shall be present during the entire fill placement and compaction of fills that will exceed a vertical height or depth of thirty (30) feet (9.1 m) or result in a slope surface steeper than two units horizontal to one unit vertical (fifty (50) percent slope).

I. Testing of Fills. Sufficient tests of the fill soils shall be made to determine the density and to verify compliance of the soil properties with the design requirements. This includes soil types and shear strengths in accordance with referenced standards in Section 15.06.120.

15.06.080 Setbacks.

A. General. Cut and fill slopes shall be set back from the property lines in accordance with this section. Setback dimensions shall be horizontal distances measured perpendicular to the property line and shall be as shown in Figure 15.06.080 unless substantiating data is submitted justifying reduced setbacks is recommended by the geotechnical engineering report, approved by the Building Official or designee.

B. Top of Slope. The setback at the top of a cut slope shall not be less than that shown in Figure 15.06.080, or than is required to accommodate any required interceptor drains, whichever is greater. For manufactured slopes the grading design must be such that the property line between adjacent lots will be at the apex of the berm at the top of the slope. Property lines between adjacent lots cannot be located on a graded slope equal to five units horizontal to one unit vertical (twenty (20) percent slope).

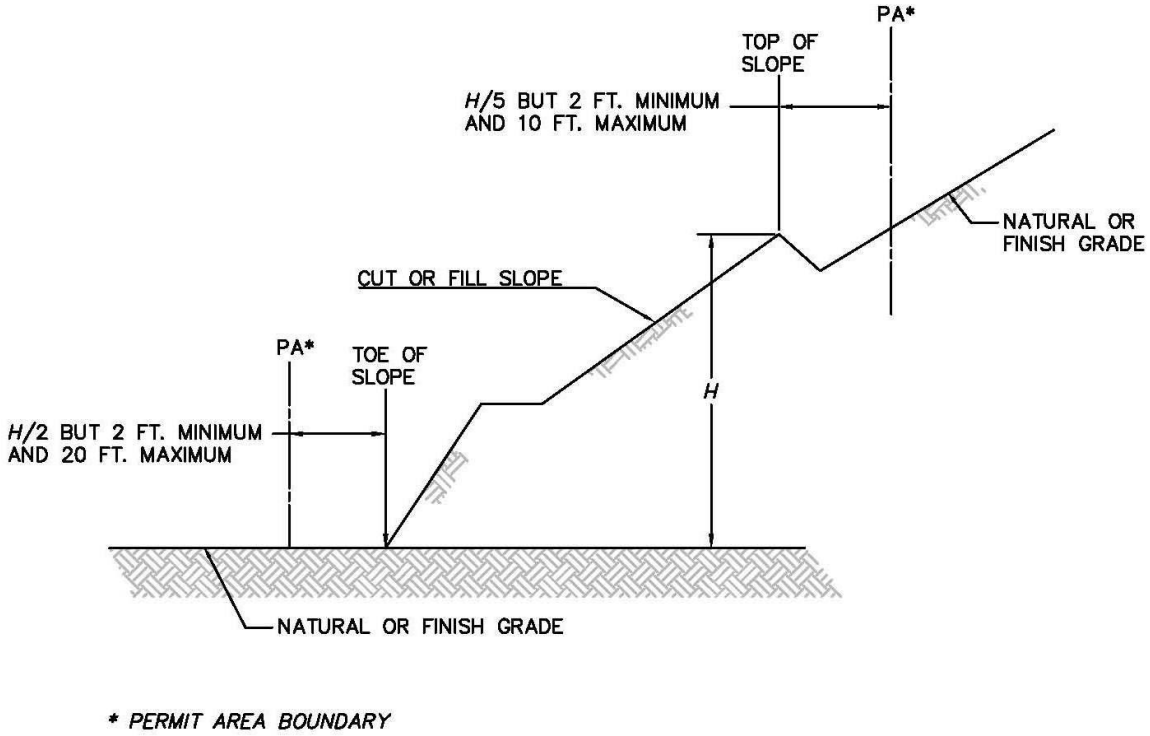


FIGURE 15.06.080
SETBACK DIMENSIONS

C. Toe of Fill Slope. The setback from the toe of a fill slope shall not be less than that shown by Figure 15.06.080. Where required to protect adjacent properties at the toe of a slope from adverse effects of the grading, additional protection, approved by the Building Official or designee, shall be included. Such protection may include but shall not be limited to:

1. Setbacks greater than those required by Figure 15.06.080;
2. Provisions for retaining walls or similar construction;
3. Erosion protection of the fill slopes;
4. Provision for the control of surface waters.

D. Alternate Setbacks. The Building Official or designee may approve alternate setbacks. The Building Official or designee may require an investigation and recommendation by a qualified geotechnical engineer to demonstrate that the intent of this section has been satisfied.

15.06.090 Drainage and terracing.

A. General. Unless otherwise recommended by a registered design professional, and approved by the Building Official or designee, drainage facilities and terracing shall be provided in accordance with the requirements of subsection B of this section for all cut

and fill slope where the ground slope is steeper than three units horizontal to one unit vertical (thirty-three (33) percent slope).
For slopes flatter than three units horizontal to one unit vertical (thirty-three (33) percent slope) and steeper than five units horizontal to one unit vertical (twenty (20) percent slope), a paved swale or ditch shall be provided at thirty (30) foot (9.1 m) vertical intervals to control surface drainage and debris. Swales shall be sized based on contributory area and have adequate capacity to convey intercepted waters to the point of disposal as defined in subsection E of this section. Swales must be paved with reinforced concrete not less than three inches (.08 m) in thickness, reinforced with six-inch (0.2 m) by six-inch (0.2 m) "No. 10 by No. 10" welded wire fabric or equivalent reinforcing centered in the concrete slab or an approved equal. Swales must have a minimum gradient of not less than five percent. There shall be no reduction in grade along the direction of flow unless the velocity of flow is such that slope debris will remain in suspension on the reduced grade.

B. Drainage Terraces. Drainage terraces at least eight feet (2.4 m) in width shall be established at not more than thirty (30) foot (9.1 m) vertical intervals on all cut and fill slopes to control surface drainage and debris. When only one terrace is required, it shall be mid-height. For cut or fill slopes greater than one hundred (100) feet (30.5 m) and up to one hundred twenty (120) feet (6.1 m) in vertical height, one terrace at approximately mid-height shall be twenty (20) feet (6.1 m) in width. Terrace widths and spacing for cut and fill slopes greater than one hundred twenty (120) feet (36.6 m) in height shall be designed by the civil engineer and approved by the Building Official or designee. Suitable access shall be provided to permit proper cleaning and maintenance. Drainage swales on terraces shall have a longitudinal grade of not less than five percent and no more than twelve (12) percent and a minimum depth of one foot (0.3 m) at the flow line. There shall be no reduction in grade along the direction of flow unless the velocity of flow is such that slope debris will remain in suspension on the reduced grade. Such terraces must be paved with reinforced concrete not less than three inches (0.08 m) in thickness, reinforced with six-inch (0.2 m) by six-inch (0.2 m) "No. 10 by No. 10" welded wire fabric or equivalent reinforcing centered in the concrete slab or an approved equal paving. They shall have a minimum depth at the deepest point of one foot (0.3 m) and a minimum paved width of five feet (1.5 m). Drainage terraces exceeding eight feet (2.4 m) in width need only be so paved for a width of eight feet (2.4 m), provided such pavement provides a paved swale at least one foot (0.3 m) in depth. Down drains or drainage outlets shall be provided at approximately three hundred (300) foot (91.44 m) intervals along the drainage terrace or at equivalent locations. Down drains and drainage outlets shall be of approved materials and of adequate capacity to convey the intercepted waters to the point of disposal as defined in subsection E of this section.

C. Interceptor Drains and Overflow Protection. Berms, interceptor drains, swales, or other devices shall be provided at the top of cut or fill slopes to prevent surface waters from overflowing onto and damaging the face of a slope. Berms used for slope protection shall not be less than twelve (12) inches (3.0 m) above the level of the pad and shall slope back at least four feet (1.2 m) from the top of the slope.
Interceptor drains shall be installed along the top of manufactured slopes greater than five feet in height receiving drainage from a slope with a tributary width greater than thirty (30) feet (9.1 m) measured horizontally. They shall have a minimum depth of one foot (0.3 m) and a minimum width of three feet (0.9 m). The slope shall be approved by

the Building Official or designee, but shall not be less than fifty (50) horizontal to one vertical (two percent). The drain shall be paved with concrete not less than three inches (0.08 m) in thickness, or by other materials suitable to the application and reinforced as required for drainage terraces. Discharge from the drain shall be accomplished in a manner to prevent erosion and shall be approved by the Building Official or designee.

D. Drainage Across Property Lines. Drainage across property lines shall not exceed that which existed prior to grading. Excess or concentrated drainage shall be contained on site or directed to an approved drainage facility. Erosion of the ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices.

E. Disposal. All onsite drainage facilities shall be designed to carry runoff waters discharged from the site to the nearest practicable street, storm drain system, or natural watercourse drainage way approved by the Building Official or designee or other appropriate governmental agency jurisdiction, provided it is a safe place to deposit such waters. Erosion of ground in the area of discharge shall be prevented by installation of non-erosive down drains or other devices. Desilting basins, filter barriers or other methods, as approved by the Building Official or designee, shall be utilized to remove sediments from surface waters before such waters are allowed to enter streets, storm drains, or natural watercourses. If the drainage device discharges onto natural ground, riprap or a similar energy dissipater may be required.
Building pads shall have a minimum drainage gradient of two percent toward approved drainage facilities, a public street or drainage structure approved to receive storm waters unless waived by the Building Official or designee. A lesser slope may be approved by the Building Official or designee for sites graded in relatively flat terrain, or where special drainage provisions are made, when the Building Official or designee finds such modification will not result in unfavorable drainage conditions.

15.06.100 Slope planting and erosion control.

A. General. The faces of cut and fill slopes shall be prepared and maintained to control against erosion. This control shall consist of effective planting, erosion control blankets, soil stabilizers or other means as approved by the Building Official or designee.
Exception: Erosion control measures need not be provided on cut slopes not subject to erosion due to the erosion-resistant character of materials as approved by the project consultants to the satisfaction of the Building Official or designee.
Erosion control for the slopes shall be installed as soon as practicable and prior to calling for final inspection.

B. Other Devices. Where necessary, check dams, cribbing, riprap or other devices or methods shall be employed to control erosion and provide safety.

C. Planting. The surface of all cut slopes more than five feet (1.6 m) in height and fill slopes more than three feet (9.1 m) in height shall be protected against damage by erosion. Slopes exceeding fifteen (15) feet (4.6 m) in vertical height shall be planted with shrubs, spaced at not to exceed ten feet (3.0 m) on centers; or trees, spaced at not to exceed twenty (20) feet (6.1 m) on centers; or a combination of shrubs and trees at

equivalent spacings. The plants selected and planting methods used shall be suitable for the soil and climatic conditions of the site. Plant material shall be selected which will produce a coverage of permanent planting to effectively control erosion. Consideration shall be given to deep-rooted plant material needing limited watering, maintenance, high root to shoot ratio, wind susceptibility and fire retardant characteristics. All plant materials must be approved by the Building Official or designee.

Planting may be modified for the site if specific recommendations are provided by both the geotechnical engineer and a landscape architect. Specific recommendations must consider soils and climatic conditions, irrigation requirements, planting methods, fire retardant characteristics, water efficiency, maintenance needs, and other regulatory requirements. Recommendations must include a finding that the alternative planting will provide a permanent and effective method of erosion control. This modified planting shall be approved by the Building Official or designee.

D. Irrigation. Slopes required to be planted by subsection C of this section shall be provided with an approved system of irrigation that is designed to cover all portions of the slope. Irrigation system plans shall be submitted and approved prior to installation. A functional test of the system may be required. Specific recommendations must consider soils and climatic conditions, plant types, planting methods, fire retardant characteristics, water efficiency, maintenance needs, and other regulatory requirements. Modifications for irrigation systems shall be approved by the Building Official or designee.

E. Plans and Specifications. Planting and irrigation plans shall be submitted for slopes required to be planted and irrigated by subsections C and D of this section. Except as waived by the Building Official or designee for minor grading, the plans for slopes twenty (20) feet (6.1 m) or more in vertical height shall be prepared and signed by a civil engineer or landscape architect. If requested by the Building Official or designee, planting and irrigation details shall be included on the grading plan.

F. Release of Security. The planting and irrigation systems required by this section shall be installed as soon as practical after rough grading. Prior to final approval of grading and before the release of the grading security, the planting shall be well established and growing on the slopes.

15.06.110 National Pollutant Discharge Elimination System (NPDES) compliance.

A. General. All grading plans and permits shall comply with the provisions of this section for NPDES compliance.

All best management practices shall be installed before grading begins. All best management practices shall be updated as necessary to prevent erosion and control construction-related pollutants from discharging from the site. All best management practices shall be maintained in good working order to the satisfaction of the Building Official or designee unless final grading approval has been granted by the Building Official or designee and all permanent drainage and erosion control systems, if required, are in place.

B. Storm Water Pollution Prevention Plan (SWPPP). For project sites subject to the CGP, or when requested by the Building Official or designee, no grading permit shall be issued unless the plans for such work include a City-approved SWPPP with details of

best management practices, including desilting basins or other temporary drainage or control measures, or both, as may be necessary to control construction-related pollutants which originate from the site as a result of construction-related activities. For project sites not subject to the CGP, no grading permit shall be issued unless the plans for such work include a City-approved ESCP.

15.06.120 Referenced standards.

These regulations establish minimum standards and are not intended to prevent the use of alternate materials, methods or means of conforming to such standards, provided such alternate has been approved.

The Building Official or designee shall approve such an alternate, provided he or she finds that the alternate is, for the purpose intended, at least the equivalent of that prescribed in this code in quality, strength, effectiveness, durability and safety.

The Building Official or designee shall require that sufficient evidence or proof be submitted to substantiate any claims regarding the alternate.

The standards listed below are recognized standards.

Testing

TABLE INSET:

1.1	ASTM D 1557	Laboratory Characteristics Compaction of Soil Using Modified Effort
1.2	ASTM D 1556	Density and Unit Weight of Soils in Place by the Sand Cone Method
1.3	ASTM D 2167	Density and Unit Weight of Soils in Place by the Rubber--Balloon Method
1.4	ASTM D 2937	Density of Soils in Place by the Drive-Cylinder Method
1.5	ASTM D 2922	Density of Soil and Soil Aggregate in Place by Nuclear Methods
1.6	ASTM D 3017	Water Content of Soil and Rock in Place by Nuclear Methods