

PORTOLA CENTER AREA PLAN

CHAPTER THREE

LANDFORM AND GRADING PLAN

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- 3.2 GRADING PLAN**
- 3.3 RETAINING WALLS**
- 3.4 GRADING DEVELOPMENT STANDARDS**
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3.1 EXISTING LANDFORM

The Portola Center Project site has a combination of steep hillsides and large graded pads in its existing state. Onsite elevations range from 1,260 Above Mean Sea Level (AMSL) in the northeastern corner of the site to 890 AMSL in the southeastern corner of the site. Much of the 196-acre property has been previously cleared and rough graded as part of the development of the existing Portola Hills Planned Community. The site currently supports a mix of native and non-native habitat as well as incidental foot trails, a stretch of the Aliso Serrano Regional Riding and Hiking Trail, the trailhead and portion of the Whiting Ranch Coyote Brush Trail, an earthen flood control basin, and limited storm water, potable water, wastewater, and communication facilities.

3.2 GRADING PLAN

The site underwent preliminary grading activities primarily in the Northwest and Northeast Planning Areas as part of the development of the Portola Hills Community. Exhibit 3-1 ("Existing Topography & Previous Grading") shows the site in its existing state in three dimensions. The development of the Project site would result in the Northwest and Northeast Planning Areas retaining their highest existing elevations of 1,150 feet and 1,260 feet AMSL, respectively. The grades of the intersection and those of Glenn Ranch Road and Saddleback Rancho Road would remain unchanged with the development of the Project. The development of the South Planning Area would result in a peak elevation at the top of the site (near Glenn Ranch Road) of approximately 1,075 feet AMSL. All three Planning Areas are designed with neighborhoods that terrace down from the highest elevations to the lower elevations of the site. The Perimeter Trail along the southern perimeter of the site generally traverses the ridge of the site at elevations ranging from 980 feet to 1040 feet AMSL. The southeastern edge of the site is approximately 890 feet AMSL. The grading plan does not impact the previously dedicated open space areas. All areas offsite will retain their natural form and function.

The grading plan anticipates that each of the major planning areas, the Northwest, Northeast, and South, will be mass graded in distinct phases. The grading operation for the Portola South Planning Area involves a total amount of approximately 2.25 million cubic yards of cut and fill; the Portola Northwest Planning Area involves a total amount of approximately 370,000 cubic yards of cut and fill; and the Portola Northeast Planning Area involves a total amount of approximately 1.5 million cubic yards of cut and fill. Each Planning Area is designed to balance the cut and fill areas internally, however approximately 550,000 cubic yards of select fill material located on the Portola South site will be exchanged with fill material on the Portola North sites. This select fill material will be used as backfill material behind the MSE retaining walls planned throughout the Project site. In order to minimize impacts to traffic circulation on Glenn Ranch Road and Saddleback Ranch Road, the exchange of fill material between the Planning Areas shall be confined to manned and signal-controlled construction crossing points with the soil hauling restricted to occur outside of the peak hours of traffic.

Exhibits 3-2, 3-3, and 3-4 show the proposed grading concept for the Project in three dimensions. A major component of the Project Grading Plan includes the use of MSE and conventional retaining walls. These design components are discussed in more detail below. The Project's grading and development phasing plan and the logistics of moving dirt from one planning area to another are discussed in more detail in the Project's Public Facilities Financing & Phasing Plan (Appendix A to this Area Plan).

3.3 RETAINING WALLS

The Portola Center Project site presents excellent view opportunities and the potential for unique hillside neighborhoods. The Project utilizes a balance of slopes, landscaping, and a hierarchy of retaining walls to create a hillside community that fits with the context of the site and the surrounding natural landscape. The Project utilizes Mechanically Stabilized Earth (MSE) and conventional retaining walls to create terraced hillside neighborhoods in the Portola North Planning Areas and to create larger development areas for a mix of neighborhoods, park and trail uses, and public view areas in the Portola South Planning Area. In addition to serving as an integral component of the site's grading and landform design, the Project's retaining walls preserve the prominent off-site views for its neighborhoods and create new public view opportunities along its parks and trails. Along open space areas, MSE retaining walls have the added benefit of enhancing the defensibility of the Project's neighborhoods from wildland fires. Exhibits 3-5 and 3-6 below show the layout of the Project's various retaining walls.

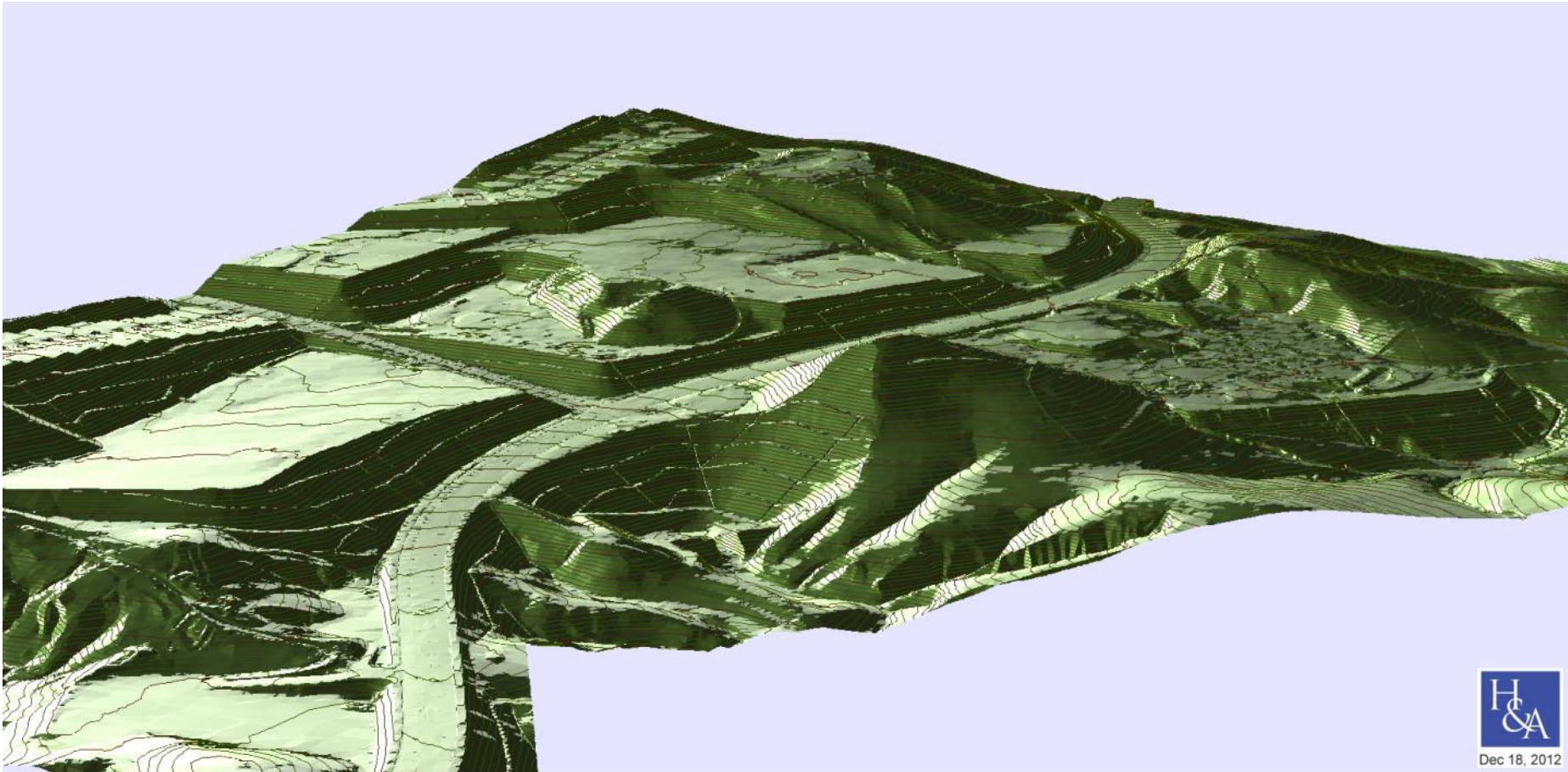


Exhibit 3-1
Existing Topography & Previous Grading

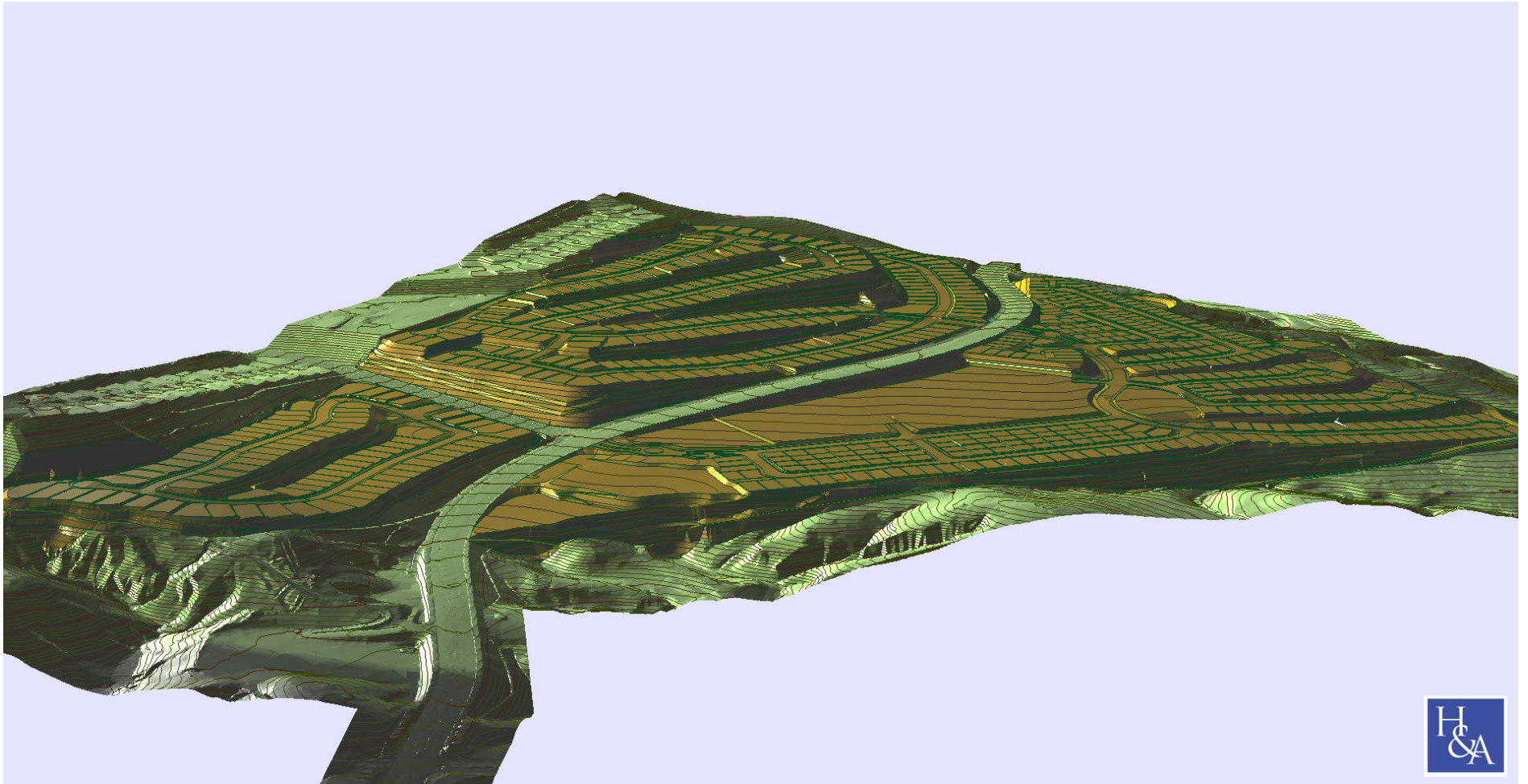


Exhibit 3-2
Grading Concept (View Looking East)

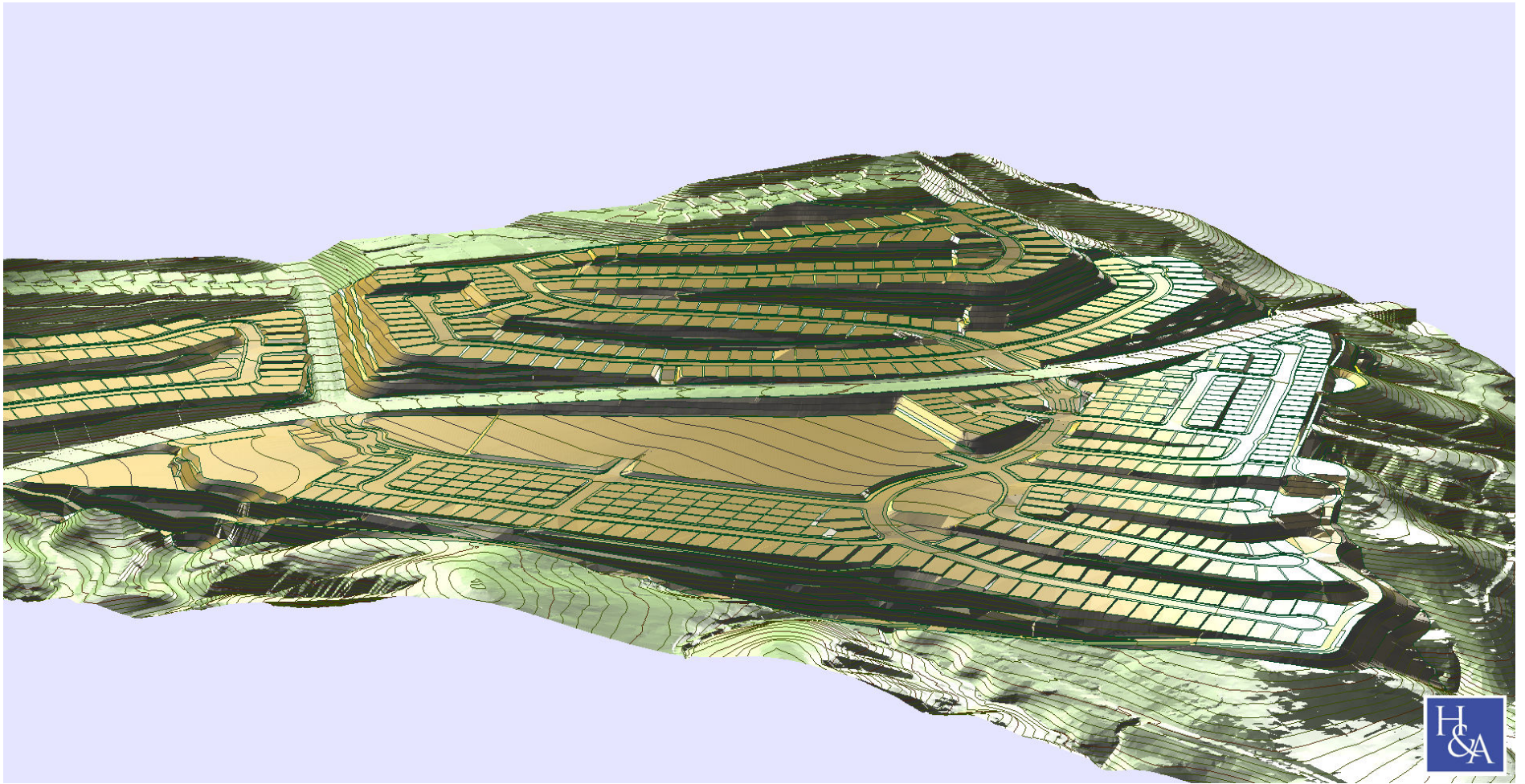


Exhibit 3-3
Grading Concept (View Looking Northeast)

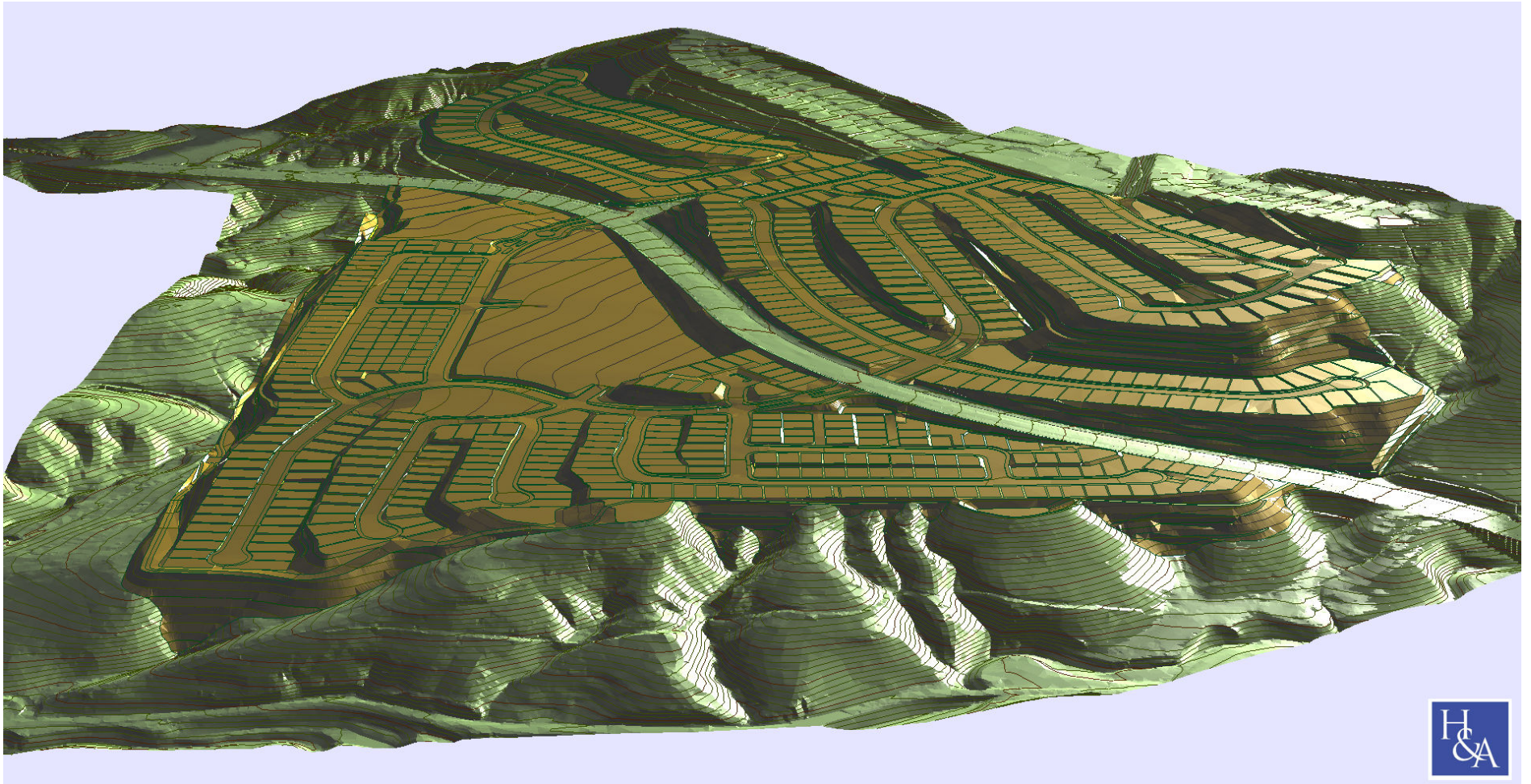
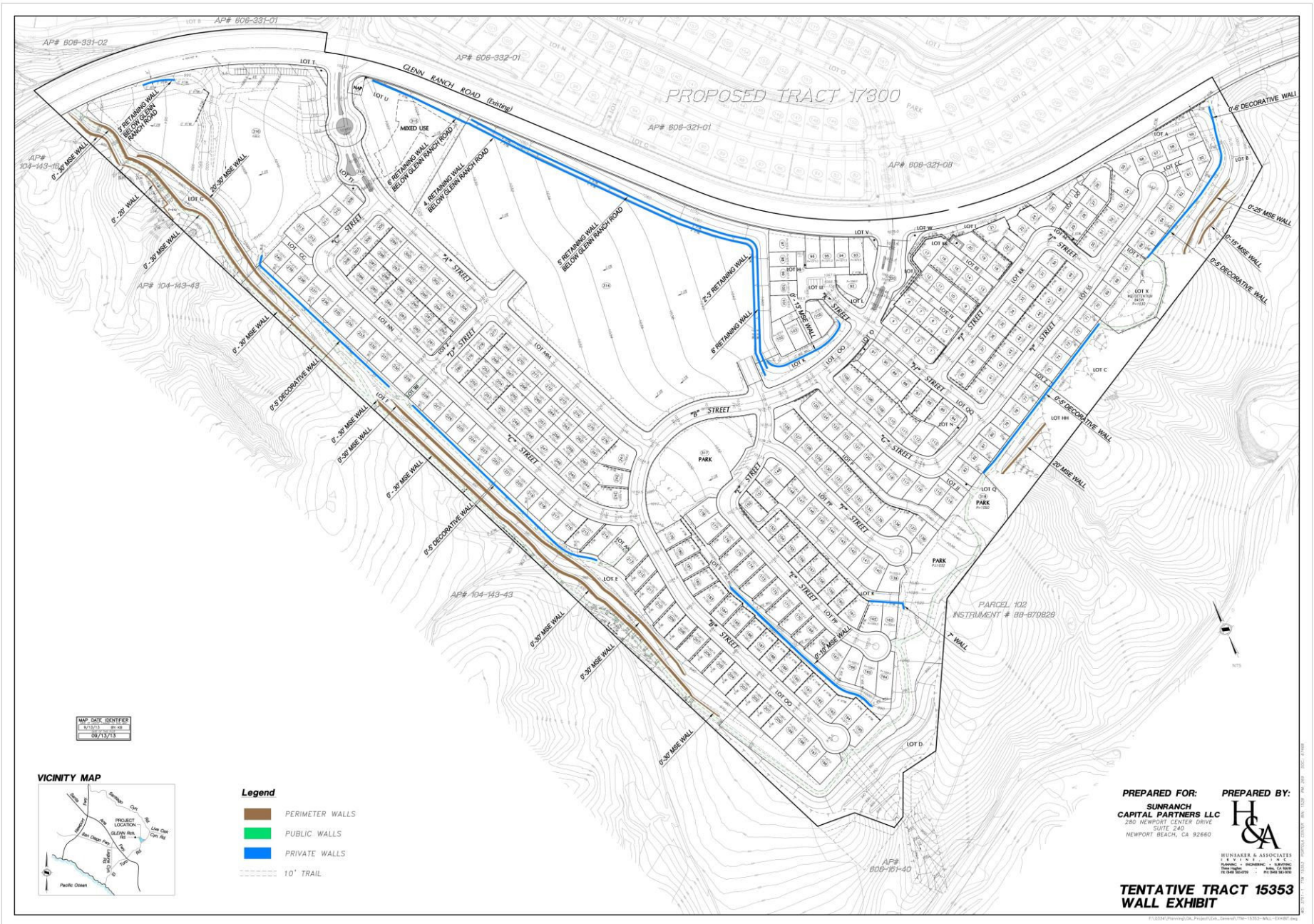
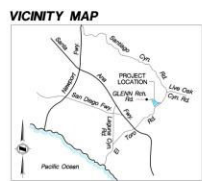


Exhibit 3-4
Grading Concept (View Looking Northwest)



PREPARED FOR: SUNRANCH CAPITAL PARTNERS LLC
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PREPARED BY: H&A
 HUNDIKER & ASSOCIATES
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 ANAHEIM, CA 92801
 714 951-8888

TENTATIVE TRACT 15353 WALL EXHIBIT



- Legend**
- PERIMETER WALLS
 - PUBLIC WALLS
 - PRIVATE WALLS
 - 10' TRAIL

MAP DATE IDENTIFIER
 09/13/13

Exhibit 3-5 Portola Center South Retaining Walls



**Exhibit 3-6
Portola Center North Retaining Walls**

Mechanically Stabilized Earth (MSE) Retaining Walls

The MSE Wall is a gravity and soil reinforced retaining wall system utilizing segmental concrete blocks along with geosynthetic reinforcement and compacted soils which depends on its weight and geometry to resist lateral earth pressures and other lateral forces, providing long-term durability and protection against landslides. Each MSE retaining wall block has an open "planting pocket" which will serve as a planter for vegetation to cover the face of the wall. This will allow the wall to blend into the nearby landscaping.

In the Portola Center Project, MSE retaining walls perform dual functions: as retaining walls to create hillside neighborhoods in the Portola North Planning Areas and as a fire protection in the Project's Fuel Modification Zones. The Project has been designed to use a balance of these walls in discrete areas and to minimize the individual heights of MSE walls in the more visible Portola North Planning Areas to 20 feet.

Pedestrian-Scale Decorative Retaining Walls

Smaller, pedestrian-scale conventional retaining walls are planned throughout the Portola Center Project. These walls are used for a variety of purposes, including: to create a modest but important vertical separation between private residential areas and public trail areas; to reduce the scale of the larger MSE walls; to facilitate the efficient design and layout of neighborhoods; and to enhance the aesthetic appeal of the built components of the Project through the use of decorative block walls in conjunction with landscaping. Pedestrian scale retaining walls can be found along the hillside edge of the Aliso Serrano Riding and Hiking Trail along Glenn Ranch Road, along the inside edge of the Perimeter Trail on the Portola South Planning Area, as private rear and side yard walls, and at various other locations in the Project.

3.4 GRADING DEVELOPMENT STANDARDS

The process of grading each Planning Area will require compliance with the detailed project grading and construction measures identified in the Geotechnical Reports prepared by Geocon, Inc. for each planning area. These reports are on-file with the City of Lake Forest. To minimize impacts on adjacent properties, grading and compaction work in areas immediately adjacent to existing Portola Hills residences (e.g., on the Portola Northeast site) will include the use of lighter weight grading equipment and static compaction equipment.

The Portola Center Grading Plan has been developed to comply with the City of Lake Forest Grading Ordinance, the County of Orange Grading Manual, and with the recommendations contained in the Geotechnical Reports for the Project. In addition to these requirements, the final grading plan for the Project will comply with the following guidelines:

Grading and Retaining Wall Guidelines:

- A balance between cut and fill within the total community should be maintained.
- Grading within each planning area shall provide for the safety and maintenance of other planning areas already developed or under construction.
- All grading and drainage system plans must be prepared under the direction of a licensed Civil Engineer.
- All permanent manufactured slopes shall be constructed at a maximum slope of two to one (2:1, horizontal to vertical) unless a higher ratio is approved by the Director of Public Works.
- Where manufactured slopes meet the existing landforms, the grading shall be contoured to the extent possible to provide a smooth and gradual transition with a minimum edge radius of twenty-five feet.
- MSE and conventional retaining walls shall be designed and constructed to substantially conform with the approved Tentative Tract Map and applicable Project Conditions pertaining to retaining wall design.

3.5 EROSION CONTROL

In accordance with local and state regulations, a Storm Water Pollution Prevention Plan (SWPPP) will be developed for the Project site. The SWPPP will address the erosion control Best Management Practices (BMP's) that will be implemented for the grading and construction phases of the Project. In conformance with the State's General Permit, BMP's will be identified in the SWPPP for implementation during the typically rainy season. BMP's for erosion control shall be used at all times during and after the grading of the site for the duration of Project construction. Plants and planting materials for the manufactured slope areas shall be planted immediately after grading activities are completed in a given area in order to allow the natural soil erosion control characteristics of their root systems to develop. Prior to the issuance of a grading permit for any development on the Portola Center Project, the Project applicant shall submit an Erosion Control Plan to the Director of Development Services and the Director of Public Works for review and approval. Post-construction storm water runoff BMPs shall be implemented as part of the Project's Water Quality Management Plans.