

**THE BOARD OF DIRECTORS OF HAYWARD
GEOLOGIC HAZARD ABATEMENT DISTRICT**

RESOLUTION NO. 16-03

**RESOLUTION APPROVING THE HAYWARD GEOLOGIC HAZARD ABATEMENT
DISTRICT PLAN OF CONTROL FOR THE LA VISTA DEVELOPMENT**

WHEREAS, on March 1, 2016, the Hayward City Council adopted Resolution No. 16-030 approving the formation of the Hayward Geologic Hazard Abatement District (“GHAD”) and appointing itself to serve as the GHAD Board of Directors;

WHEREAS, on October 25, 2016, the GHAD Board held a public hearing to consider the Plan of Control for the La Vista development (“Plan of Control”); the Plan of Control describes in detail the geologic hazards, there location and the area affected thereby, and a plan for the prevention, mitigation, abatement and/or control thereof as required by Public Resources code section 25609 and is attached as Attachment A;

WHEREAS, the Plan of Control is exempt from the provisions of the California Environmental Quality Act (Pub. Res. Code §§ 21000 *et seq.*) in accordance with Public Resources Code sections 21080(b)(4) and 26559.

NOW THEREFORE, the GHAD Board of Directors resolves and orders that:

1. The Hayward GHAD Plan of Control for the La Vista development, dated October 17, 2016, is hereby approved and adopted.
2. This Resolution shall become effective immediately upon its passage and adoption.

HAYWARD, CALIFORNIA, OCTOBER 25, 2016

PASSED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSENT:

ABSTAIN:

Attachments: Attachment A (Hayward GHAD Plan of Control for La Vista Development)

**PLAN OF CONTROL
FOR LA VISTA DEVELOPMENT**

**HAYWARD GEOLOGIC HAZARD
ABATEMENT DISTRICT (GHAD)
HAYWARD, CALIFORNIA**

The logo for ENGEEO is rendered in large, white, 3D block letters. The letters are set against a background of a green, rolling hill under a blue sky. The 'E' and 'O' are particularly prominent. The logo is positioned in the center of the page, overlapping a blue vertical bar on the left and a blue horizontal bar at the top.

Expect Excellence

Submitted to:
Mr. Jim Summers
La Vista, L.P.
11555 Dublin Boulevard
Dublin, CA 94568

Prepared by:
ENGEEO Incorporated

October 17, 2016

Project No:
6671.105.001

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Project No.
6671.105.001

October 17, 2016

Mr. Jim Summers
La Vista, L.P.
11555 Dublin Boulevard
Dublin, CA 94568

Subject: La Vista Development
Hayward Geologic Hazard Abatement District (GHAD)
Hayward, California

**GEOLOGIC HAZARD ABATEMENT DISTRICT (GHAD)
PLAN OF CONTROL**

Dear Mr. Summers:

Attached is the proposed Plan of Control for the La Vista development (Tract 7620) within the Hayward Geologic Hazard Abatement District (GHAD). This proposed Plan of Control satisfies portions of Condition of Approval Number 84 related to GHAD formation.

We are pleased to be of service to you on this project. If you have any questions concerning the contents of our report, please do not hesitate to contact us.

Sincerely,

ENGEO Incorporated



Eric Harrell, CEG
eh/pcg/bvv



Paul C. Guerin, GE

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1.0 AUTHORITY AND SCOPE

Under Condition of Approval No. 84 for the La Vista Quarry project, Tract 7620 (“Project”), the City of Hayward has required that a GHAD be formed for the La Vista development prior to issuance of the 50th residential building permit. To satisfy this requirement, the current owner of the La Vista development, La Vista, L.P., has petitioned the Hayward City Council to form the Hayward GHAD (“GHAD” or “District”). The term Developer as used herein, shall mean La Vista, L.P. and its successors and assigns. The Hayward GHAD is proposed to be formed under authority of the California Public Resources Code (Division 17, commencing with Section 26500).

Section 26509 of the Public Resources Code requires a Plan of Control, prepared by a State-Certified Engineering Geologist, as a prerequisite to formation of a GHAD. Pursuant to Section 26509, this Plan of Control was prepared by an Engineering Geologist certified pursuant to Section 7822 of the Business and Professions Code and describes, in detail, the geologic hazards, their location, and the area affected by them. It also provides a plan for the prevention, mitigation, abatement, or control thereof.

As used in this Plan of Control, and as provided in Section 26507, “geologic hazard” means an actual or threatened landslide, land subsidence, soil erosion, earthquake, fault movement, or any other natural or unnatural movement of land or earth.

1.1 PROPERTY IDENTIFICATION

The land within the proposed GHAD boundary (“GHAD Boundary”) and the offsite GHAD-maintained easement areas “M” and “TBD” are shown on the GHAD Boundary Plat (Appendix B, Exhibit A). The GHAD Boundary includes all areas within the proposed Project. The legal description of the land to be included within the GHAD Boundary is included in Appendix B, Exhibit A. Legal descriptions of easement areas “M” and “TBD” are included in the Permanent Easement Agreements “M” and “TBD”.

2.0 BACKGROUND

2.1 SITE CONDITIONS AND HISTORY

The La Vista Quarry site was mined for aggregate products and borrow material for offsite projects beginning in the 1950s. Mining was essentially completed by the early 2000s. Prior to mining, the quarry pit area consisted of a steep west-facing slope inclined at approximately 2:1 (horizontal:vertical) or steeper for a height of approximately 350 feet. The lower portions of the property sloped gradually to the west, down to Mission Boulevard. The transition between steep and gradual slopes occurred approximately at the location of the active traces of the Hayward Fault. The mining created a west-facing slope that is up to approximately 350 feet high. In 2002, final quarry reclamation slopes were graded from the ridge crest at approximately 780 feet to an elevation of approximately 500 feet, near the upper extent of the steep quarry wall. The quarry

reclamation slopes were graded at inclinations of generally between 2.5:1 and 2:1, or locally flatter, with drainage benches at approximately 40-foot vertical intervals. At that time, concrete V-ditches were installed on the upper four benches.

The proposed development area and portions of adjacent slopes were rough graded between June 2006 and November 2007. The proposed Project grading is depicted in the Precise Development Plan and the approved grading plans. The plans indicate that fills up to about 50 feet from the existing grades were placed. Fill slopes within the development area around and west of the lots are depicted at inclinations of 2:1 to 3:1. Graded slopes east of the lots are depicted at inclinations of 2.5:1.

The grading also included repair of a landslide that had developed on the reclamation slope in 2005 and installation of a system of subsurface drains throughout the Project. The as-built locations of the drain system are shown on Appendix A, Figure 3.

2.2 LA VISTA DEVELOPMENT

The Project includes 179 single-family residential lots arranged on three level terraces separated by 2:1 (horizontal:vertical) slopes up to approximately 25 feet high served by Mountain View Drive, Cantera Drive, and Vista Grande Drive. Additional improvements include a park, trails, a water quality pond, a dual use detention basin and a water quality/detention basin.

Site access to La Vista will be via an extension of Tennyson Road through the center of the site and Alquire Parkway from the south. Mountain View Drive is a proposed single-loaded street bounded on the east by a 50-foot-wide debris bench. The other streets are largely double-loaded with lots separated by rear yard 2:1 slopes with retaining walls at the base. The western lots are located at the top of a fill slope that is up to about 55 feet high, inclined at between 2.5:1 and 3:1. The plan shows the quarry slope east of the project at an inclination of 2.5:1 for heights of up to about 220 feet. Lots on Cantera Drive are separated from the slope by a 50-foot-wide debris bench. The vertical thickness of fill below the lots are indicated as great as 40 to 50 feet, generally decreasing in thickness in the vicinity of the southern ends of Mountain Vista Drive and Cantera Drive to near zero or in cut. The approved grading plans indicate that approximately 2.3 million cubic yards of fill was placed.

2.3 OPEN SPACE

Title for parcels within the GHAD Boundary labeled B, C, D, N, O, U, V, Unsurveyed Remainder, La Vista L.P. 2006-301610 and La Vista L.P. 2007-408664 (collectively, the "GHAD Parcels") – as such Parcels are shown on Appendix B, Exhibit A – will be conveyed to the GHAD as provided in Sections 6.3 and 6.4 herein below. As the open space within and immediately adjacent to the Project is an amenity that benefits all of the property owners within the Project, the funding of the maintenance of the open space will be shared by all current and future owners of residential parcels within the GHAD Boundary.

Within the GHAD Parcels, the GHAD will assume responsibilities that relate to its position as a GHAD and also duties as a responsible land owner. The GHAD is charged with responsibilities that relate to the prevention, mitigation, abatement, or control of geologic hazards, which includes the maintenance of drainage facilities and associated improvements. This will include the monitoring and maintenance of drainage facilities which, if subject to improper care, could result in decreased slope stability, the prime concern of the GHAD. The drainage facilities to be maintained by the GHAD include water quality and water detention basins, Best Management Practice (BMP) water quality treatment facilities, concrete-lined drainage ditches, and open space storm drain facilities.

The GHAD will mitigate or abate landslide or erosion hazards that could directly affect improved, developed, and accepted properties (as defined in Section 6) within the Project or on Easement "M" or "TBD", in accordance with Section 5. The GHAD will also perform maintenance of water control and conveyance facilities and assume other peripherally related open-space responsibilities, such as vegetation management for fire suppression, trail maintenance, and selected other maintenance associated with the GHAD Parcels. On Easements "M" and "TBD", the GHAD will perform vegetation management for fire suppression, due to the potential for erosion caused by improper vegetation management. Additionally, the GHAD shall have the right to approve any construction, maintenance or repair in the GHAD Parcels which the GHAD determines has the potential to impact geologic stability.

3.0 SITE GEOLOGY – LA VISTA

3.1 GEOLOGIC SETTING

La Vista is located within the Coast Ranges geologic province of California, a series of northwest-trending ridges and valleys. Bedrock in the province has been folded and faulted during regional uplift beginning in the Pliocene period, roughly 4 million years before present. A geologic map of the area prepared by Dibblee (1980) indicates the La Vista property is underlain by Franciscan greenstone, serpentinitized gabbro-diabase, serpentinite, and Knoxville formation (Berlogar Geotechnical Consultants (BGC), 2000).

3.1.1 Artificial Fill

Areas of pre-existing fills have been mapped at the La Vista property (BGC, 2000). The grading completed in 2006 and 2007 included removal of undocumented fill from the quarry floor based on an overexcavation plan prepared by BGC. The plan indicates that removal of non-engineered fill of up to about 20 feet below the quarry floor was anticipated. BGC indicates that all encountered non-engineered fill below the proposed lots, slopes and other improvements was removed and replaced with engineered fill within the areas completed at that time.

3.1.2 Residual Soil

Residual natural soils, derived by weathering of the underlying parent bedrock, were reported at the margin of the quarry excavations. The residual soils generally consisted of dark brown to red-brown dry, medium-stiff to stiff silty clay and sandy clay (BGC, 2000).

3.1.3 Landslide Deposits

Regional landslide mapping by Nilsen (1975) shows two landslide areas on the eastern portion of the La Vista property that appear to have been removed during quarry operations. Several additional landslides were identified by BGC during a previous study (2000). As shown on Appendix A, Figure 2, a number of additional landslides were mapped by BGC. During site grading, landslides were mitigated as shown on Table 4.1-1.

3.2 BEDROCK

As mentioned above, the La Vista property is underlain by Franciscan greenstone, serpentinitized gabbro-diabase, serpentinite, and Knoxville formation.

3.2.1 Franciscan Greenstone

Most of the western portion of the quarry is reportedly underlain by hard, gray-green, fine-grained metamorphosed greenstone. The greenstone contains veins of quartz and is cut by numerous typically northwest-striking and northeast-dipping tectonic shear planes and associated zones of closely fractured to crushed rock. The rock reportedly has a gravel-like appearance with an average particle size generally less than 1 inch, although there are scattered areas of larger intact particles (including boulder size). The greenstone has reportedly performed well in relatively steep slopes (BGC, 2000).

3.2.2 Franciscan Sheared Rock

A zone of sheared Franciscan rock was mapped near the serpentinite. This material consists of highly sheared shale with lenses or inclusions of serpentinite. The shale is reportedly dark gray in color, friable, and contains abundant clay seams. The structure has been disrupted by extensive shearing. The shearing is reportedly northwest striking and northeast dipping (BGC, 2000).

3.2.3 Serpentinite and Serpentinitized Gabbro

Much of the east-central portion of the La Vista property is reportedly underlain by serpentinite and serpentinitized gabbro. These materials are reportedly dark green, friable to weak, are generally highly sheared, and contain abundant clay seams. Additionally, the rock structure is reportedly complex with predominantly northwest striking with northeast-dipping slickensided sheared zones in many exposures (BGC, 2000).

3.2.4 Knoxville Formation

Most of the quarry slopes are reportedly underlain by interbedded brown to black shale and brown to greenish-gray greywacke sandstone identified as Knoxville formation. Exposures of the Knoxville formation are reported to be generally weak to moderately strong, highly fractured to crushed, and thinly bedded (BGC, 2000).

3.3 GROUNDWATER

Several springs were observed in the vicinity of quarry cut slopes during previous field reconnaissance activities, but no free water was encountered in test pits excavated at the La Vista property (BGC, 2000). Groundwater was encountered during a geotechnical exploration performed in November 1988 at depths ranging between 11 and 45 feet below the ground surface (BGC, 2000). It should be noted that fluctuations in groundwater levels occur seasonally and over a period of years because of variations in precipitation, temperature, irrigation, and other factors.

3.4 SEISMIC SOURCES

The Project lies within the mapped Alquist-Priolo Earthquake Fault Hazard Zone for the Hayward Fault, established by the California Geological Survey (CGS). A geologic map of the quarry, including the location of the Hayward Fault zone as determined by site-specific mapping, is shown on Appendix A, Figure 2. As discussed above, the active Hayward Fault zone generally occurs at the base of the historic steeper ridge slopes that existed prior to quarry excavations. The fault zone consists of a band of sheared soil and rock designated by BGC as the “concentrated fault zone” that varies in width from roughly 300 feet at the southern side of the property to 100 feet at the north side. BGC performed refined mapping of the concentrated fault zone at the east and west boundaries of the zone by excavating and logging a series of trenches. BGC logged additional shear zones in four trenches outside the main “concentrated fault zone” and outside the 50-foot setback zone designated from the edge of the “concentrated shear zone” (Trenches T-3, T-4, T-14 and T-15) some of which appear to have exposed sheared contacts between greenstone and soil (Trenches T-14 and T-15); however, these shear zones were not designated as active by BGC or depicted on the geologic map in the design-level report. BGC interpreted these zones as not active based on reported lack of continuity or inconsistent orientations between trenches. BGC designated a “special building foundation zone” which includes Lots 147 through 159 and 164 through 171. This zone was designated to mitigate the risk of “minor sympathetic rupture” in the event of rupture along the adjacent main fault zone. BGC does not provide a specific estimate of the expected magnitude of the “minor sympathetic rupture” or the type of movement that can be expected in terms of vertical, horizontal or shear displacement. They recommend post-tensioned slab foundations to mitigate the risk in the special foundation zone, but do not provide specific slab design recommendations.

An earthquake of moderate to high magnitude generated within the San Francisco Bay Region, similar to those that have occurred in the past, could cause considerable ground shaking at the

La Vista property. The Hayward Fault is considered capable of generating an earthquake with a maximum moment magnitude of 7.1. Other seismic sources near the La Vista property include the Calaveras Fault (approximately 7 miles to the northeast) and the San Andreas Fault (approximately 16 miles to the southwest). The Calaveras Fault is considered capable of generating an earthquake with a maximum moment magnitude of 6.8, and the San Andreas Fault is considered capable of generating an earthquake with a maximum moment magnitude of 7.9.

4.0 GEOLOGIC HAZARDS

The following geologic hazards were identified for the Project in the previous studies and are expected to remain to some extent after site grading has been completed.

- Slope instability
- Fault rupture and creep
- Seismically induced ground shaking

4.1 SLOPE INSTABILITY

Earth stability is the GHAD's prime geotechnical concern within the GHAD Boundary and Easements "M" and "TBD". This is not unique to this project, but is of importance for hillside projects in the San Francisco Bay Area. This section describes several types of slope instability which are within the GHAD's responsibility, subject to the provisions of Sections 6 and 7.

Landslides are a common geologic phenomenon and are part of the process of mass wasting. Weathered or fractured bedrock and soil are transported downslope over geologic time as a result of gravitational and hydrostatic forces. A landslide is a deposit of soil and/or bedrock moving downward from its original position under the influence of gravity. Landslides include a variety of morphologies and are further defined by type of materials, wetness, and mode of movement. They can consist of mass movements of earth materials that are primarily intact, and occur along discrete shear surfaces. These surfaces (shear or slip planes) can be rotational (conchoidal or concave), such as for earth slumps, or planar, as for translational earth slide or bedrock block slides. Most landslides are truly "complex landslides", sliding, falling and flowing with more than one type of movement and/or material.

Table 4.1-1 summarizes the landslide areas identified at the La Vista property by BGC (2000), the proposed corrective measures and areas remaining undisturbed to maintain the existing slope profiles.

TABLE 4.1-1
La Vista
Select Areas of Slope Instability

Identification	Proposed Action
Landslide 1	Removal and replacement of landslide with subdrained engineered fill.
Landslide 2	Removal and replacement of landslide with subdrained engineered fill.
Landslide 3	No planned remediation; located outside limits of the proposed quarry reclamation.
Landslide 4	Landslide removed by a design cut.
Landslide 5	Landslide removed by a design cut.
Landslide 6	Landslide removed by a design cut.
Landslide 7	Landslide removed by a design cut.
Landslide 8	Landslide removed by a design cut.
Landslide 9	Landslide removed by a design cut.
Landslide 10	Landslide removed by a design cut.
Landslide 11	Landslide removed by a design cut.
Landslide 12	Landslide removed by a design cut.
Landslide 13	Landslide removed by a design cut.
Landslide 14	Landslide removed by a design cut.
Landslide 15	Landslide removed by a design cut.
Landslide 16	Landslide removed by a design cut.
Landslide 17	Portion of the landslide removed by the proposed cuts of the quarry reclamation.
Landslide 18	Removal and replacement of landslide with subdrained engineered fill.
Landslide 19	Removal and replacement of landslide with subdrained engineered fill.
Landslide 20	Landslide removed by a design cut.

Falls are an abrupt free-fall of earth materials off cliffs, steep cuts, or steep stream banks while earthflows are mass movements of earth materials in which the type of movement is one of flowing. When composed of soil finer than gravel size, the flowing material is commonly called a mudflow. A debris flow/debris avalanche is composed of natural earth materials, artificial fill, and/or organic debris which flow downslope with speed. Most of the material is transported away from the area of initial ground failure.

Slope failures are also often triggered by increased pore water pressure due to the infiltration of rainwater. The resulting decrease of shear resistance (internal resistance to deformation by shearing) can cause the slope to move. The level of groundwater table varies with the amount of rainfall for the area. If rainfall is higher than average during the winter season, the water table will become higher than average on a hillslope and groundwater pressures may become sufficiently high to initiate slope movement.

Landslides located within open space areas are natural landforms that do not require mitigation except where they affect man-made improvements. Debris catchment areas are the principal mitigation method used within the GHAD for areas between potentially unstable slopes and improvements. The debris catchment structures include debris benches, debris berms, and runout areas. GHAD maintenance of the areas will be critical to maintain adequate protection for the Site Improvements (as such term is defined in Section 5.1). Maintenance and monitoring of these areas is described in Section 9. Potential mitigation and repair measures for GHAD areas near development are discussed in Section 7. A copy of the as-built subdrain plan is shown on Appendix A, Figure 3.

Soil creep is the slow, often imperceptible, deformation of slope materials under low stress levels, which normally affects the shallow portion of the slopes, but can be deep seated where a weak zone of soil or bedrock exists. It results from gravitational and seepage forces, and may be indicative of conditions favorable for landsliding. Creep can be caused by wetting and drying of clays, by solution and crystallization of salts, by the growth of roots, by burrowing animals and by downslope movement of saturated ground. Colluvium refers to the mantle of loose soil and weathered bedrock debris that progresses down hillsides by creep.

The GHAD shall also be concerned with erosion and sedimentation in open space or affecting developed lots or improvements. Erosion is defined as the process by which earth materials are loosened and removed by running water on the ground surface or in the subsurface. Sedimentation is the depositing or settling of soil or rock particles from a state of suspension in a liquid.

Hilly terrain open space either in a natural condition or particularly on excavated slopes can be subject to erosion. Landslide deposits which are sometimes in a loosened condition are particularly prone to erosion. Earth flow-, debris flow- and mud flow-type landslides typically have an area of deposition or accumulation (sedimentation area) at their base. Graded slopes in the GHAD, particularly those in excess of 20 feet in vertical height or those not sufficiently vegetated, can be subject to erosion and therefore a source of transported sediment.

4.1.1 Fault Rupture and Creep

Given the proximity of the La Vista property to the Hayward Fault, there is a hazard of primary fault rupture in the event of an earthquake on the Hayward Fault. A moderate to strong earthquake could result in lateral and/or vertical offset, which could pose an adverse impact to structures and improvements. Additionally, the Hayward Fault may experience slow-moving

offset, or creep, during the design life of the development. To mitigate the hazard of fault rupture and creep beneath proposed structures, a 50-foot-wide structural setback has been established on both sides of the fault. Practical measures to reduce the potential for disruption of utilities due to fault creep at fault crossings should be undertaken. Additionally, all structures and improvements should be designed using sound engineering judgment and the latest building code requirements, as a minimum.

4.1.2 Seismically Induced Ground Shaking

As identified in the geologic and geotechnical reports pertaining to the project, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the La Vista property, similar to that which has occurred in the past. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the latest building code requirements, as a minimum.

Seismic slope stability analysis was incorporated in the corrective grading plans for the graded portions of the properties; however, seismically generated slope failures could occur in open space areas outside of the development limits. The proposed catchments, including debris benches, berms, and runout areas, will be maintained to reduce the potential for impacts to the project from upslope failures.

5.0 CRITERIA FOR GHAD RESPONSIBILITY

In forming the GHAD and establishing the assessment levels and budgets for the District, including offsite Easements “M” and “TBD” (which will be maintained by the GHAD but will not be assessed by the GHAD), it is important to clearly define the limits of the GHAD’s responsibilities. The GHAD will accept responsibility for property as described in Section 6 of this Plan of Control; however, the intent of this Plan of Control is not to extend the GHAD’s responsibilities to every potential situation of instability; rather, the following are exclusions from GHAD responsibility.

5.1 ISOLATED OR REMOTE FEATURE REQUIRING MITIGATION

The GHAD shall not have responsibility to monitor, abate, mitigate or control slope instability that does not involve damage to or pose a significant threat to damage Site Improvements. As used herein, the term “Site Improvements” means buildings, public and private roads (including, but not limited to, Tennyson Road where such road adjoins Easement “TBD” and the private road cut bordering Easement “TBD”), sidewalks, utilities, improved trails, swimming pools, tennis courts, gazebos, cabanas, geologic stabilization features, or similar improvements.

5.2 SINGLE PROPERTY

The GHAD will not prevent, mitigate, abate or control geologic hazards which are limited in area to a single parcel of property unless the geologic hazard has damaged, or poses a significant

threat of damage to Site Improvements located on other property within the GHAD Boundary. This exclusion does not apply to geologic hazards existing on (i) open space property owned by any homeowner's associations, (ii) Easement "M" and Easement "TBD", or (iii) the GHAD Parcels.

5.3 GEOLOGIC HAZARDS RESULTING FROM NEGLIGENCE OF PROPERTY OWNER

The GHAD may, in the GHAD Manager's sole discretion, decline to prevent, mitigate, abate or control geologic hazards which occurred or resulted from any negligence of the homeowner and/or the homeowner's contractors, agents or employees in developing, investigating, grading, constructing, maintaining or performing or not performing any post-development work on the subject property as long as the geologic hazard is limited to a single lot, pursuant to the single-property exclusion noted above. If the GHAD bears expense as the result of negligence described in this section, the GHAD may pursue reimbursement from the negligent parties.

The GHAD Manager is an entity employing a licensed Geotechnical Engineer who will oversee the operations of the GHAD, including preparation of GHAD budgets. The GHAD Manager is appointed by and reports to the GHAD Board of Directors.

5.4 PROPERTY NOT ACCEPTED

The GHAD shall not have responsibility to repair damage, which is situated on a parcel of real property, which the GHAD has not accepted in accordance with Section 6, below. The GHAD, however, may monitor, abate, mitigate or control geologic or hydrogeologic hazards on a parcel of real property which the GHAD has not accepted in accordance with Section 6 and is not excluded from GHAD responsibility by Sections 5.1, 5.2, and 5.3; provided, however, that GHAD responsibility on such parcel shall be limited to the extent necessary to address damage to, or a significant threat of damage to, Site Improvements which are within a parcel of real property which the GHAD has accepted in accordance with Section 6. Should the District be required to respond to a geologic hazard outside the GHAD Boundary, the District may take such actions as may be appropriate to recover costs incurred as a result of preventing, mitigating, abating or controlling such geologic hazard from the responsible party, if any.

5.5 GEOLOGIC HAZARD WHICH REQUIRES EXPENDITURE IN AMOUNT EXCEEDING THE VALUE OF THE THREATENED OR DAMAGED IMPROVEMENT

The GHAD may elect not to prevent, mitigate, abate or control a geologic hazard where, in the GHAD Manager's sole discretion, the anticipated expenditure required to be funded by the GHAD to prevent, mitigate, abate or control the geologic hazard will exceed the value of the structure(s) and site improvement(s) threatened with damage or loss.

5.6 GHAD FUNDING OR REIMBURSEMENT FOR DAMAGED OR DESTROYED STRUCTURES OR SITE IMPROVEMENTS

In the event a residence or any other structure, Site Improvement or landscaping is damaged or destroyed due to, or as a result of, a geologic hazard, the GHAD may fund or reimburse the property owner for the expenses necessary to repair or replace the damaged or destroyed structure, Site Improvement or landscaping. Unless authorized by the Board of Directors, the dollar amount of the GHAD funding or reimbursement may not exceed ten percent (10%) of the costs incurred by the GHAD in preventing, mitigating, abating or controlling the geologic hazard responsible for the damage¹. In the event the geologic hazard damaged or destroyed a structure, Site Improvement or landscaping which violated any provisions of the City Building Code or City Ordinance Code at the time of its installation or improvement, the GHAD may decline to provide any funding, or reimbursement to the property owner, for repair or replacement of the damaged structure, Site Improvement or landscaping.

5.7 NO REIMBURSEMENT OF EXPENSES INCURRED BY PROPERTY OWNERS

The GHAD will not be obligated to reimburse a property owner for expenses incurred for the prevention, mitigation, abatement, or control of a geologic hazard absent a written agreement between the property owner and the GHAD to that effect, which agreement has been executed prior to the property owner incurring said expenses, and following an investigation conducted by the GHAD.

6.0 ACCEPTANCE

6.1 ACTIVATION OF ASSESSMENT

An annual assessment shall be promptly authorized on all residential parcels within the GHAD Boundary as shown on Appendix B, Exhibit A. Easements "M" and "TBD" are not residential parcels within the GHAD Boundary and, as such, will not be assessed by the GHAD. The assessment shall be levied by the GHAD on each individual parcel beginning the first fiscal year following issuance of a building permit for that parcel.

6.2 RESPONSIBILITY FOR GHAD ACTIVITIES

On June 23, 2015, the City of Hayward approved the Final Map within the boundaries of the proposed Hayward GHAD. La Vista, L.P. currently owns the developable parcels shown on the Final Map and shall have the responsibility to perform all the activities of the GHAD on property within the Final Map and Easements "M" and "TBD". Such responsibility shall be eligible for transfer to the GHAD at 9:00 a.m. on the day exactly one year after the first residential building

¹ For example, if a landslide causes \$10,000 in structural damage to each one of four neighboring homes for a total of \$40,000 in structural damage and it costs the GHAD \$100,000 to design and install a new retaining wall to abate the slide, the District may only reimburse each property owner \$2,500 of their \$10,000 in structural damage.

permit is issued by the City of Hayward ("Transfer Eligibility Date"). The period between the levying of the GHAD assessment and the GHAD accepting maintenance responsibility of the GHAD activities as defined in Section 7 below will allow the District to accumulate reserve funds without incurring significant expenses.

6.3 OWNERSHIP OF THE OPEN SPACE

Ownership of the GHAD Parcels shown on Appendix B, Exhibit A will be conveyed by the Developer to the GHAD at the end of the transfer process described in Section 6.4, which shall be the date the GHAD becomes responsible for oversight of the actual physical maintenance of the GHAD Parcels as provided in this Section. The Developer shall record a grant deed transferring fee title to the GHAD for the GHAD Parcels. The grant deed(s) must first be reviewed and approved by the GHAD Manager and GHAD Attorney.

6.4 PROCESS FOR TRANSFERRING RESPONSIBILITY FOR GHAD ACTIVITIES

After the Transfer Eligibility Date for one or more GHAD Parcels, the process for transferring responsibility for performing GHAD Activities on such Parcel(s) shall be as follows:

1. Up to one year in advance of the Transfer Eligibility Date or in any subsequent year, at its discretion, the Developer may apply to the GHAD ("Transfer Application") to transfer the responsibility for performing GHAD Activities (as such term is defined in Section 7.0 herein below) for such Parcel(s) to the District.
2. Within 30 days of receiving such Transfer Application, the GHAD Manager shall verify that all the facilities for which the GHAD will have maintenance responsibility have been approved, constructed and maintained according to the City of Hayward approved plans and specifications for the individual improvements, and that such facilities are operational and in good working order.
3. Within 15 days of such inspection, the GHAD will send the Developer a list ("Punch list") of all of the items that need to be constructed, repaired or otherwise modified in order to comply with the city-approved plans and specifications.
4. The Developer shall notify the GHAD Manager when it has completed the items identified on the Punch list. Within 30 days of receipt of such notice, the GHAD Manager shall verify that all Punch list items have been completed and notify the Developer that the District accepts responsibility for performing all future GHAD activities on such Parcel(s).
5. The GHAD Manager shall confirm that the reserve requirement defined in the Engineer's Report approved by the GHAD Board has been met. The Engineer's Report is the document that establishes the individual property owners' GHAD assessment limit based on the projected expenses (budget) of the GHAD.

6. Prior to the GHAD accepting any responsibility for GHAD Activities, the Developer shall record a Declaration of Restrictive Covenants, Right of Entry and Disclosures Regarding Geologic Hazard Abatement District (“Declaration”) as approved by the GHAD Manager and GHAD Attorney and as discussed in Section 10.
7. Any monies owed to the GHAD by the Developer have been paid.
8. Prior to the GHAD accepting any responsibility for GHAD Activities, Developer shall provide necessary documentation, to the satisfaction of the GHAD Manager and GHAD Attorney, providing a property interest in Parcels “M” and “TBD” to allow the GHAD the ability to monitor and maintain slopes and drainage facilities within these parcels as set forth in Section 7.0.

As part of the transfer, the Developer of the GHAD Parcel(s) to be transferred will provide the GHAD, for its use, copies of the applicable geotechnical exploration reports, as-built grading plans, as-built corrective grading plans, as-built improvement plans, as-built subdrain plans or other pertinent documents as requested by the GHAD.

The GHAD is not responsible for maintaining any GHAD Activities until it accepts such responsibilities pursuant to this section. Developer will remain responsible for all GHAD Activities until the GHAD accepts responsibility pursuant to this section.

7.0 HAYWARD GHAD MAINTENANCE AND MONITORING RESPONSIBILITIES

Several entities shall have ownership and maintenance duties of common space within the Project. Other than the GHAD, these entities include a Homeowner’s Association (“HOA”), a Landscape, Lighting, and Irrigation District (“LLID”), the City of Hayward (“City”), and the Hayward Area Recreation District (“HARD”). Landscaping and irrigation within a 100-foot-wide fire break in open space and adjacent to the residential units shall be maintained by the LLID. A Facility Maintenance Exhibit (FME) delineating ownership and maintenance responsibilities is presented in Appendix A, Figure 1.

The GHAD will assume monitoring and maintenance responsibilities for the following site facilities and activities (“GHAD Activities”):

- General maintenance of the surface drainage improvements within the GHAD Boundary and Easements “M” and “TBD”, such as the concrete V-ditches. The GHAD is also responsible for general maintenance of storm drain inlets and outlets in open space, subdrain outlets, and risers. Inspection and maintenance of concrete-lined drainage ditches.
- Monitoring and maintenance of measurement devices, such as piezometers, inclinometers, and tiltmeters, if any.

- Maintenance of existing property line/boundary fencing.
- Inspection and maintenance of surface water quality treatment, water quality pond, and detention basins within the Project.
- Retaining wall east of Alquire Parkway at the northwest corner of the Moita property.
- Maintenance of two CDS™ water quality treatment units along Tennyson Road.
- Maintenance roads associated with the water quality pond and the detention basins.
- Maintenance roads/trails over public water mains on the GHAD Parcels.
- Debris benches and walls.
- Subdrains, including, but not limited to, those shown on Appendix A, Figure 3.
- Storm drain inlets, outfalls and pipelines within the GHAD Parcels and a portion of the public park area as shown on Appendix A, Figure 1.
- Maintenance including trails (other than City-owned public trails) within the GHAD Parcels.
- Slopes including Hayward Concentrated Fault Zone.
- Vegetation control for fire suppression.
- Maintenance of slopes including subdrains and surface drainage within Easements “M” and “TBD”.

As listed above, the GHAD will monitor and maintain slopes and drainage facilities within Easements “M” and “TBD” (Appendix B, Exhibit A). Although this area is outside the GHAD Boundary, the maintenance of these slopes (including vegetation management for erosion control) is necessary to reduce the potential for uncontrolled stormwater infiltration, erosion, and other potential geologic hazards that could affect properties and Site Improvements within the GHAD Boundary and, therefore, will be protective of facilities within the GHAD Boundary. Prior to the GHAD providing monitoring and maintenance for the slopes and drainage facilities within Easements “M” and “TBD”, Developer must transfer and assign its rights, duties, obligations and burdens under Easements "M" and "TBD" to the GHAD and the GHAD must be the beneficiary of a permanent easement by Hayward Tennyson, LLC acceptable to the GHAD. The GHAD is not responsible for installation, maintenance, or repair of any landscape or landscape related irrigation improvements within Easements “M” and “TBD”. In addition, the GHAD is not responsible for maintenance of other areas or improvements within Assessor’s Parcel Number 78C-461-1-13.

7.1 GEOTECHNICAL TECHNIQUES FOR MITIGATION OF LANDSLIDE AND EROSION HAZARDS

The techniques which may be employed by the GHAD to prevent, mitigate, abate, or control geologic hazards include, but are not limited to, the following.

- A. Removal of the unstable earth mass.
- B. Stabilization (either partial or total) of the landslide by removal and replacement with compacted, drained fill.
- C. Construction of structures to retain or divert landslide material or sediment.
- D. Construction of erosion control devices such as gabions, riprap, geotextiles, or lined ditches.
- E. Placement of drained engineered buttress fill.
- F. Placement of subsurface drainage devices (e.g. underdrains, or horizontal drilled drains).
- G. Slope correction (e.g. gradient change, biotechnical stabilization, slope trimming or contouring).
- H. Construction of additional surface ditches and/or detention basins, silt fences, sediment traps, or backfill or erosion channels.

Potential landslide and erosion hazards can often best be mitigated by controlling soil saturation and water runoff and by maintaining the surface and subsurface drainage system.

8.0 PRIORITY OF GHAD EXPENDITURES

Emergency response and scheduled repair expenditures by the GHAD are to be prioritized by the GHAD Manager, utilizing his or her discretion, based upon available funds and the approved operating budget. When available funds are not sufficient to undertake all of the identified remedial and preventive stabilization measures, the expenditures are to be prioritized as follows in descending order of priority:

- (A) Prevention, mitigation, abatement or control of geologic hazards that have either damaged or pose a significant threat of damage to residences, critical underground utilities or paved streets.
- (B) Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage to ancillary structures, including but not limited to water quality facilities, pool cabanas or restroom buildings.

- (C) Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage to open space amenities.
- (D) Prevention, mitigation, abatement or control of geologic hazards which have either damaged or pose a significant threat of damage limited to loss of landscaping or other similar non-essential amenities.
- (E) Prevention, mitigation, abatement or control of geologic hazards existing entirely on open-space property and which have neither damaged nor pose a significant threat of damage to any Site Improvements.

In performing its duties as described above, the GHAD may seek reimbursements from public and private entities including, but not limited to, FEMA, City and County agencies, insurance companies, etc.

9.0 MAINTENANCE AND MONITORING SCHEDULE

Geologic features and GHAD-maintained improvements defined in Section 7.0, including Easements "M" and "TBD", should be inspected by GHAD staff or GHAD-assigned consultants as presented below. The site inspections should be undertaken at appropriate intervals as determined by the GHAD Manager using supporting documents prepared for the Project and the Site Improvements. The GHAD budget should provide for three or more inspections in years of heavy rainfall. Generally, the inspections should take place in October, prior to the first significant rainfall; mid-winter as necessary during heavy rainfall years; and in early April at the end of the rainy season. The frequency of the inspections should increase, depending upon the intensity and recurrence of rainfall.

The Developer shall provide to the GHAD copies of geologic or geotechnical exploration reports related to site development and the GHAD shall retain these reports in the records of the GHAD. In addition, copies of any earthwork-related testing and observation reports that will be finalized at the completion of grading, when as-built drawings are available, shall be provided to the GHAD by the Developer and maintained as part of the GHAD records.

Following are guidelines for a monitoring plan. The actual timing, scope, frequency and other details regarding such maintenance, inspection and similar activities shall be at the discretion of the GHAD Manager.

- A State-licensed Professional Engineer and/or Professional Geologist should carry out a geologic reconnaissance of the slopes for indications of erosion or slope failures. Open space slope area monitoring would include observation of debris benches. The removal of accumulated debris from the bench, including rockfall material, should be undertaken in a manner that maintains the capacity of the bench to protect Site Improvements.

- A State-licensed Professional Engineer and/or Professional Geologist retained by the District should carry out an inspection of lined surface ditches. Repairs and maintenance, as needed, should be undertaken including removal of excess silt or sediment in ditches and patching or replacement of cracked or broken ditches, prior to the beginning of the next rainy season.
- Subsurface drain outlets and horizontal drilled drain outlets, if any, should be checked. Water flowing from these outlets should be measured and recorded during each inspection.
- Piezometers to measure groundwater levels, or instruments such as inclinometers or tiltmeters measuring potential slope instability should be monitored as recommended, if installed.
- Settlement monitoring devices, if any, should be measured periodically and tracked. In the event of anomalous readings or excessive settlement, the monitoring frequency should be increased.
- Inlets, outfalls or trash racks, if used, must be kept free of debris and spillways maintained. Additionally, water detention facilities and water quality facilities should be inspected and maintained. It is anticipated that initially at least once every two (2) years, cleanup of vegetation and removal of silt would be in order. Attention should be given to plantings or other obstructions which may interfere with access by power equipment.
- Monitoring of the paved and unpaved trail system should include observing the trail for excess vegetation growth, eroded areas or areas of instability.
- Retaining walls should be inspected for evidence of distress, such as tilting and/or structural failure. Repairs and maintenance would be undertaken only in the event that the structural integrity of the wall has been compromised or if the wall distress poses a threat to the integrity of adjacent structures.
- The water quality/detention basins and associated improvements should be monitored on a semi-annual basis; once prior to and once following the rainy season. Repairs and maintenance, as needed, should be undertaken, including removal of excess silt or sediment. Monitoring of the pond/basin access roads should include observing the access road for eroded areas or areas of instability, pavement competency, and encroaching vegetation.
- An annual inspection shall be made by a State-licensed Professional Engineer and/or Certified Engineering Geologist to assess the effectiveness of the preventive maintenance program and to make recommendations as to which landslide or erosion measures should be undertaken in the next fiscal year. Any appropriate site-specific study of landslide or erosion conditions shall be determined at that time. Consultants, if necessary, will be retained to undertake the needed studies. An annual inspection report to the GHAD shall be prepared by the Professional Engineer and/or Certified Engineering Geologist.

10.0 RIGHT-OF-ACCESS

The GHAD Board of Directors, officers, employees, consultants, contractors, agents, and representatives shall have the right to enter upon all lands within the GHAD Boundary as shown on Appendix B, Exhibit A, for the purpose of performing the GHAD Activities defined in this Plan of Control. Such GHAD Activities include, but are not limited to the inspection, maintenance and monitoring of those improvements listed in Section 7.0. Should the District need to access private residential lots to fulfill its duties under the Plan of Control, the District shall provide the affected landowner and/or resident with 72 hours advanced notice unless, in the reasonable judgment of the District, an emergency situation exists which makes immediate access necessary to protect the public health and safety, in which case no advanced notice is required, but the District shall inform the landowner and/or resident as soon as reasonably possible.

The foregoing right-of-entry provision shall be recorded in the chain of title for all Project residential parcels and common area lots, and it shall be included in all Covenants, Conditions and Restrictions (CC&Rs) and homebuyer disclosure statements prepared for parcels within the GHAD Boundary, but not on Easements "M" and "TBD".

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2. Berlogar Geotechnical Consultants, Fault Investigation Report La Vista Quarry, Hayward, California, February 29, 2000.
3. Berlogar Geotechnical Consultants, Report Fault Investigation Marcotte Property, Alquire Parkway, Hayward, California, December 3, 2001.
4. Berlogar Geotechnical Consultants, Supplemental Fault Investigation Report, La Vista Quarry, Hayward, California, December 3, 2001.
5. Berlogar Geotechnical Consultants, Design Level Geotechnical Report Reclamation Plan Modifications, Hayward, California, April 7, 2004.
6. Berlogar Geotechnical Consultants, Geotechnical Recommendations, Reclamation Plan Modifications, La Vista Quarry Development, La Vista Quarry and Marcotte Property, Hayward, California, Volumes 1 through 3 March 24, 2005.
7. Berlogar Geotechnical Consultants, Overexcavation Plan, La Vista Quarry Development, La Vista Quarry, Hayward, California, November 9, 2005, revised May 2, 2006.
8. Berlogar Geotechnical Consultants, Supplemental Geotechnical Investigation, Tennyson Road Extension, La Vista Quarry Development, Hayward, California March 9, 2007.
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10. California Division of Mines and Geology, 1982, Revised official map of Alquist-Priolo Earthquake Fault Hazard Zones, Hayward Quadrangle: California Division of Mines and Geology, scale 1:24,000
11. Dibblee, T.W. and Minch, J.A., 2005, Geologic map of the Hayward quadrangle, Contra Costa and Alameda Counties, California: Dibblee Geological Foundation, Dibblee Foundation Map DF-163, scale 1:24,000.
12. Graymer, R.W., Jones, D.L., and Brabb, E.E., 1998, Geologic map of the Hayward fault zone, Contra Costa, Alameda, and Santa Clara Counties, California: a digital database: U.S. Geological Survey, Open-File Report OF-95-597, scale 1:50,000.
13. Liekaemper, J.J., 2006, Digital database of recently active traces of the Hayward fault, California: U.S. Geological Survey, Data Series DS-177, scale 1:12,000

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14. Nilsen, T. H., 1975, Preliminary Photointerpretation Map of Landslide and Other Surficial Deposits of the Hayward 7½' Quadrangle, Alameda and Contra Costa Counties, California; USGS Open File Map 75-277-14.
15. Ruggeri-Jensen Associates, 2005, Precise Development Plan
16. Ruggeri-Jensen Associates, Grading Plans La Vista Tact 7620 June 5, 2007

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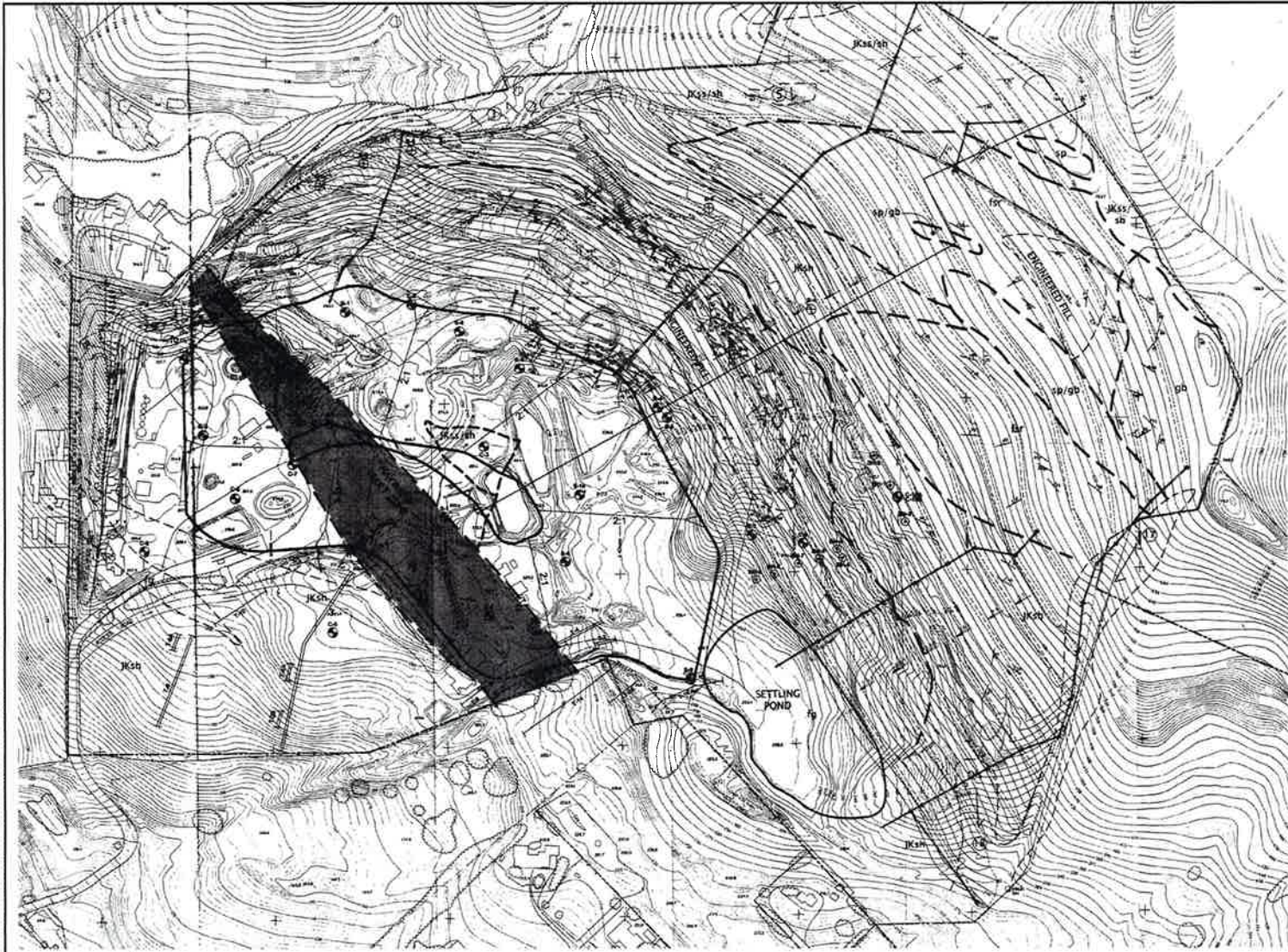
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APPENDIX A

- Figure 1 Facility Maintenance Exhibit
- Figure 2 Geologic Map
- Figure 3 As-Built Subdrain Map



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EXPLANATION
ALL LOCATIONS ARE APPROXIMATE

	BOUNDARY
	FAULT
	STREAM
	ROAD
	RAILROAD
	UTILITY LINE
	SPOT ELEVATION
	SPOT HEIGHT
	JKas/sh
	JKss/sh
	JKsh
	JKsah
	JKsash
	Jg
	Jsp
	Jpb
	Jfr
	CONTOUR
	SPOT ELEVATION
	SPOT HEIGHT



BASE MAP SOURCE: BERLOGAR



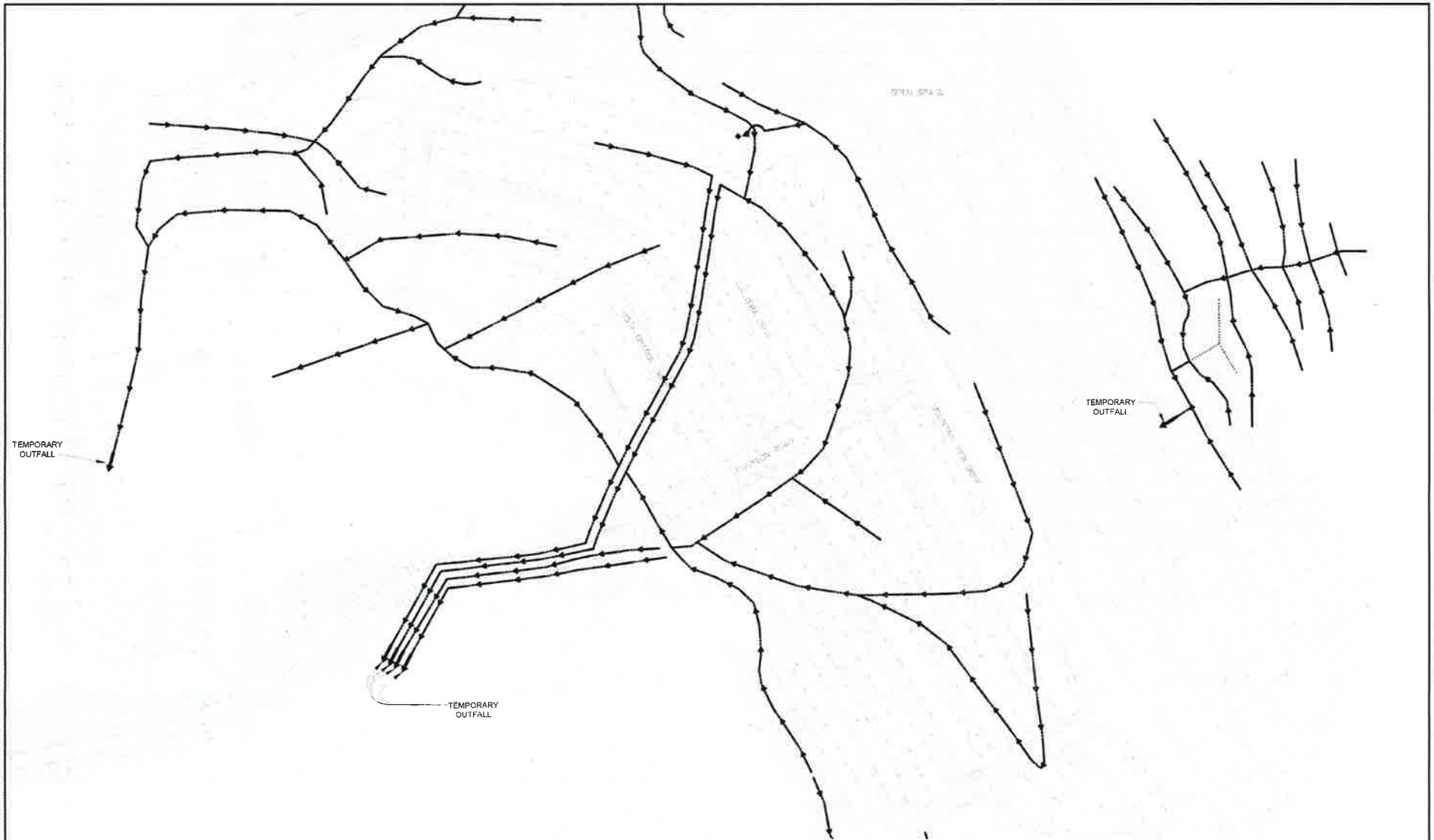
GEOLOGY MAP
LA VISTA QUARRY
HAYWARD, CALIFORNIA

PROJECT NO.: 6671.105.001	FIGURE NO.
SCALE: AS SHOWN	2
DRAWN BY: DLB	CHECKED BY: PJS

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ORIGINAL FIGURE PRINTED IN COLOR

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

—●—●—●— AS-BUILT SUBDRAIN

BASE MAP SOURCE: BERLOGAR



AS-BUILT SUBDRAIN PLAN
LA VISTA QUARRY
HAYWARD, CALIFORNIA

PROJECT NO.: 6671.105.001

SCALE: AS SHOWN

DRAWN BY: DLB

CHECKED BY: PJS

FIGURE NO.

3

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B**

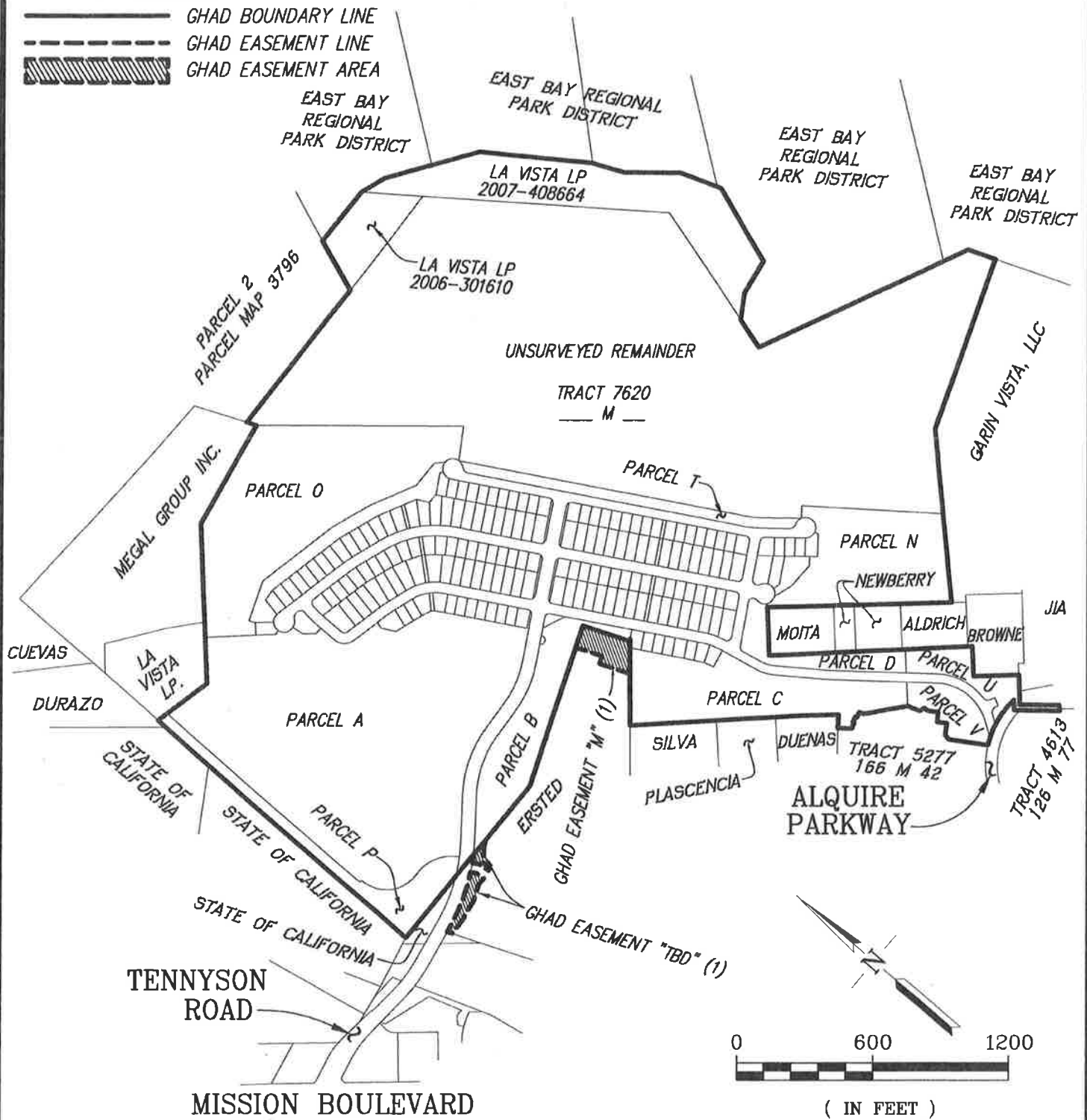
APPENDIX B

Exhibit A – Plat and Legal Description for GHAD Boundary



LEGEND

-  GHAD BOUNDARY LINE
-  GHAD EASEMENT LINE
-  GHAD EASEMENT AREA



(1) HAYWARD TENNYSON, LLC EASEMENTS MAINTAINED BY THE HAYWARD GHAD.

SHEET 1 OF 3 SHEETS

EXHIBIT A
PLAT TO ACCOMPANY LEGAL DESCRIPTION
FOR
GEOLOGIC HAZARD
ABATEMENT DISTRICT
CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

RJA
RUGGERI-JENSEN-AZAR
 ENGINEERS • PLANNERS • SURVEYORS
 4690 CHABOT DRIVE, SUITE 200 PLEASANTON, CA 94588
 PHONE: (925) 227-9100 FAX: (925) 227-9300

SCALE: 1" = 600'	DATE: 09-30-2015	JOB NO.: 053019
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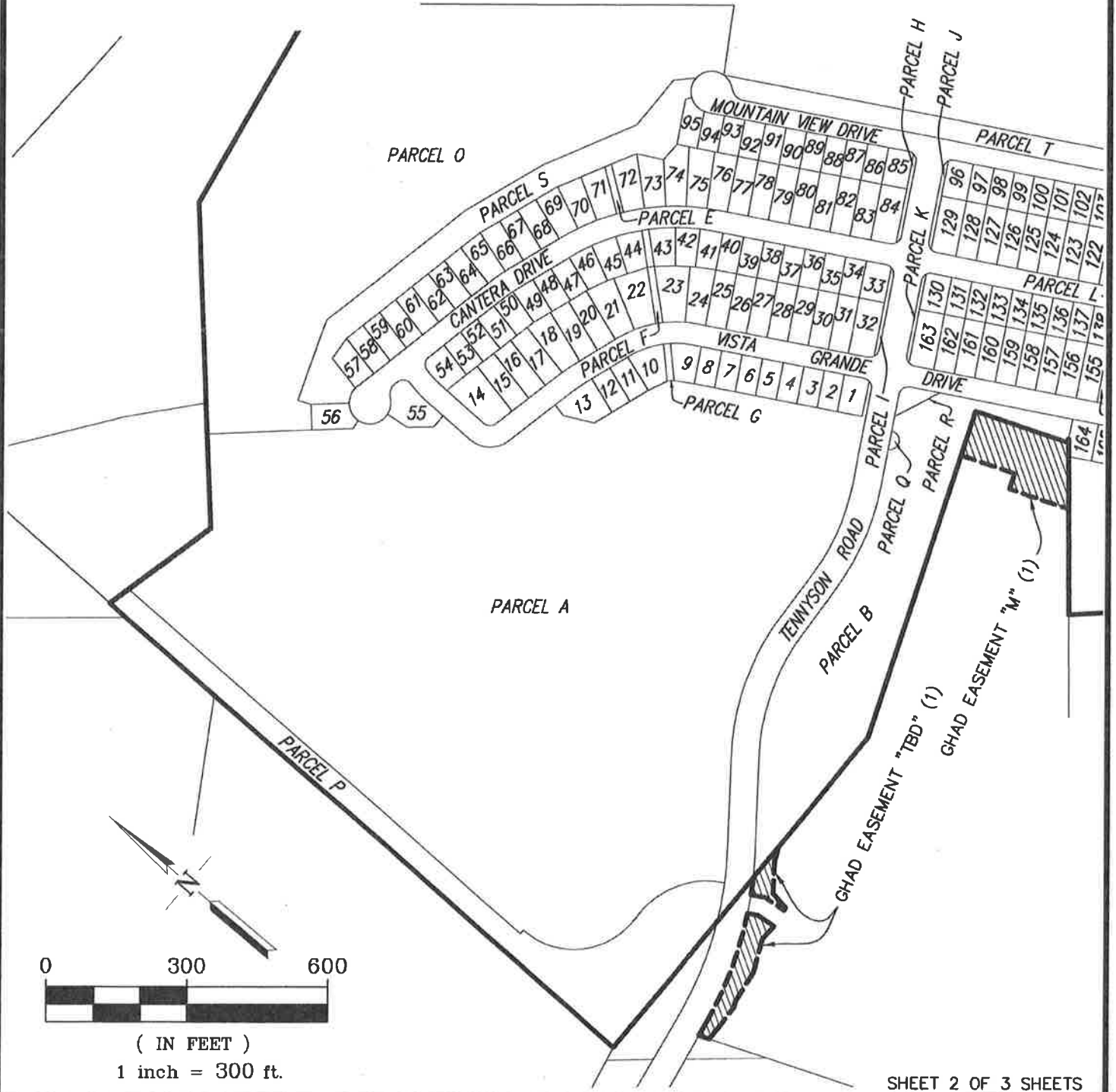
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LEGEND

-  GHAD BOUNDARY LINE
-  GHAD EASEMENT LINE
-  GHAD EASEMENT AREA

UNSURVEYED REMAINDER

TRACT 7620
— M —



SHEET 2 OF 3 SHEETS

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EXHIBIT A
PLAT TO ACCOMPANY LEGAL DESCRIPTION
FOR
GEOLOGIC HAZARD
ABATEMENT DISTRICT
CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

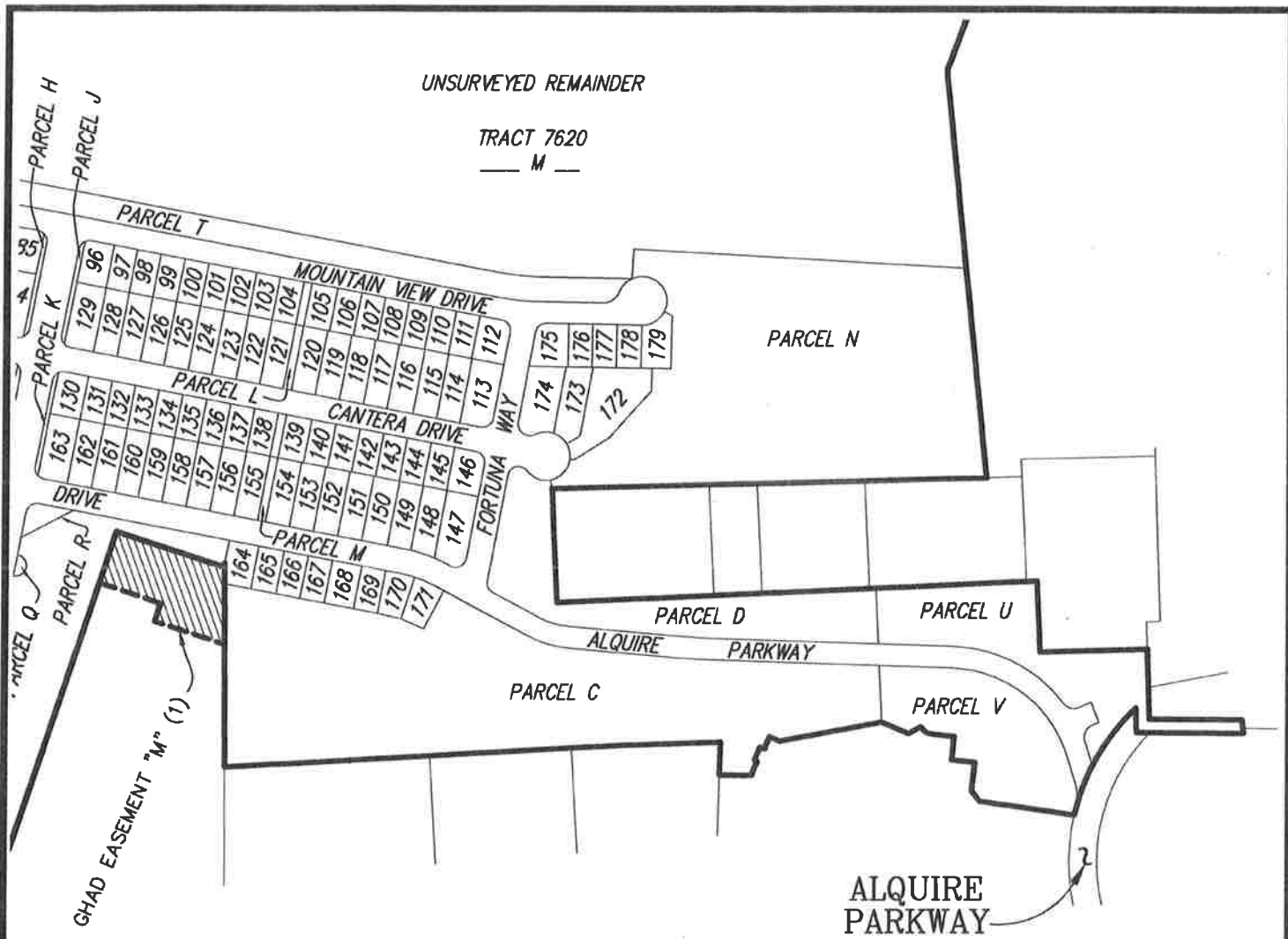


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SCALE:
1" = 300'

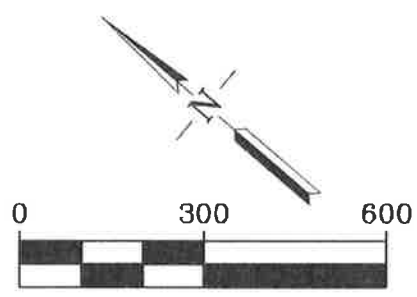
DATE:
09-30-2015

JOB NO.:
053019



LEGEND

-  GHAD BOUNDARY LINE
-  GHAD EASEMENT LINE
-  GHAD EASEMENT AREA



(IN FEET)
1 inch = 300 ft.

SHEET 3 OF 3 SHEETS

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EXHIBIT A
PLAT TO ACCOMPANY LEGAL DESCRIPTION
FOR
GEOLOGIC HAZARD
ABATEMENT DISTRICT
CITY OF HAYWARD, ALAMEDA COUNTY, CALIFORNIA

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 PHONE: (925) 227-9100 FAX: (925) 227-9300

SCALE: 1" = 300'	DATE: 09-30-2015	JOB NO.: 053019
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EXHIBIT "A"

Real Property situate in the City of Hayward, County of Alameda, and State of California; and being all of Lots 1 thru 179 & all of Parcels A thru V as created by that certain map entitled "Tract 7620" and filed on _____ and recorded in Book _____ of Maps at pages ____ through ____, Official Records of said County, and all of the certain parcel described as Parcel Two in a Grant Deed to La Vista L.P. recorded on August 7, 2006 under document number 2006-301610 Official Record of said County, and all of that certain parcel of land described in the Grant Deed to La Vista L.P. recorded on November 30, 2007 under document number 2007-408664 Official Records of said County.

End of Description

Prepared by:

Scott A. Shortlidge, L.S. 6441

Date