PLAN OF CONTROL
FOR

WILDER
GEOLOGIC HAZARD ABATEMENT DISTRICT

GATEWAY VALLEY, ORINDA, CALIFORNIA

SUBMITTED

TO

OG PROPERTY OWNER, LLC

VALLEJO, CALIFORNIA

PREPARED

BY

ENGEO INCORPORATED

PROJECT NO. 4365.108.005

MARCH 4, 2008

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

TABLE OF CONTENTS (Continued)

I. Authority and Scope

The Geologic Hazard Abatement District for the Wilder Project in Gateway Valley, Orinda, California ("Wilder GHAD", "GHAD", or "District") is proposed to be formed under authority of the California Public Resources Code, Division 17, commencing with Section 26500. Geologic Hazard Abatement Districts are a political subdivision of the state and are not subject to local ordinances. The boundaries of the GHAD include a total of approximately 867.5 acres. (See Appendix A, Exhibit 1).

Conditions for formation as well as the scope of the GHAD are included within the Second Amendment and Restatement of the Development and Pre-annexation Agreement for Gateway Valley ("Development Agreement"), (Appendix B, Exhibit 1), Development Agreement Condition of Approval ("DA COA") No. 23 (Appendix B, Exhibit 2), Vesting Tentative Map/Final Development Plan Condition of Approval ("Vesting Tentative Map (VTM)/Final Development Plan (FDP) COA") No. 31, the Resource Management Plan ("RMP") (Appendix C) and the Conservation Easements and Long-Term Management Plans for the Development Buffer Area, Quarry Hill Open Space Area, Eastern Hills Open Space Area and Western Hills Open Space Area (Appendix D).

Pursuant to Section 4.10 of the Development Agreement, the formation of the GHAD will occur prior to the filing of the first Final Map for the Wilder Project. In addition, Section 4.10 provides that the GHAD is authorized to accept the dedication of the Development Buffer Area, Quarry Hill Open Space Area, and Eastern Hills Open Space Area, ("GHAD Preserve Areas") consistent with the Long-Term Management Plans and the San Francisco Bay Regional Water Quality Control Board ("Water Board") required stormwater facilities. Pursuant to DA COA No. 23, prior to transfer of title of the GHAD Preserve Areas, the City Council must approve the terms and amount of the endowment established by OG Property Owner, LLC as a successor in interest to Orinda Gateway, LLC ("Developer") to fund the long-term management of these areas. Pursuant to VTM/FDP COA No. 31, this Plan of Control must, "... require the GHAD, at a

minimum, to maintain the graded slopes and associated facilities, the detention basins, water quality ponds and related stormwater drainage facilities described in the Stormwater Management Plan...", for the Project, including the Operations and Maintenance Plan (Appendix E). As provided in this Plan of Control, the monitoring and maintenance activities of graded slopes and associated facilities are listed in Section XII.

To satisfy these requirements, the Developer is submitting the GHAD Plan of Control as required for the District to permanently monitor and maintain slopes, detention and water quality basins, storm drainage facilities and other improvements within the GHAD, as described below. The GHAD, as the fee title owner of certain properties within the GHAD Boundary described in Table XIII-1 and shown on Figure 2, will have certain long-term monitoring, maintenance and reporting responsibilities related to the site's biotic resources. These responsibilities are set forth in the Long Term Management Plan. As described below, these activities will be funded by a long-term endowment and not through assessments. The activities funded by the endowment are included in the Plan of Control for ease of future implementation.

Development of a Plan of Control is a requirement for formation of a GHAD. Pursuant to Section 26509 of the California Public Resources Code, an Engineering Geologist certified pursuant to Section 7822 of the Business and Professions Code prepared this Plan of Control. As required by Section 26509, it describes potential geologic hazards within the proposed District boundaries and 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.

Property Identification

The proposed District boundary ("Wilder Property") is shown on the District Boundary Map in Appendix A, Exhibit 1, and further described in the District Boundary Description in Appendix A, Exhibit 2.

II. Background

Existing Site Conditions

The project site is located south of Highway 24 just east of the Caldecott tunnel at the end of Gateway Boulevard in Orinda, California. The site is bordered on the west by the Sibley Volcanic Preserve, on the east by various residential subdivisions in Orinda and Moraga, and on the north by Highway 24.

Site topography is characterized by a prominent northwest-southeast trending valley. The valley is flanked by slopes that transition from relatively gently sloping at the lower elevations, to more steeply sloping at the higher elevations. The lowest elevation on the site is approximately 540 feet above mean sea level (msl) and is located along the base of the northeast-trending drainage at the eastern site boundary. The highest elevation on site is approximately 1,600 feet above msl, along the ridge along the western property boundary.

Proposed Development

Based on the Development Agreement, Vesting Tentative Map No. 9074-05, and Final Development Plan, the proposed development includes a 245-lot single-family residential subdivision on a development area of approximately 230 acres with five community playfields, a community art and garden center, a private swim center, interior subdivision roads, retaining walls, utilities, detention basins and water quality basins. In addition, a public trail system will be constructed within the development and adjacent open space areas. Vehicular access to the site will be via Gateway Boulevard from Highway 24.

As indicated on the Vesting Tentative Map, grading for the proposed development will involve cuts of up to approximately 90 feet in depth, and fills up to approximately 60 feet deep. ENGEO

completed a geotechnical exploration for the site and additional site reports provided in the reference section of the Plan of Control. Geotechnical corrective recommendations provided in these reports have been incorporated into plans labeled, "Geotechnical Corrective Grading Plans, OG Property Owner, Contra Costa County, California and dated March 2007". Grading planned within and around the perimeter of the residential development will include debris benches, two detention basins, three water quality basins, a sedimentation basin, and cut or fill slopes extending from the adjacent open space (ungraded) areas.

Resource Agency Requirements

Pursuant to the requirements of the RMP, the Developer will transfer conservation easement protected areas to the GHAD, East Bay Regional Park District ("EBRPD"), and East Bay Municipal Utilities District ("EBMUD"). Two of the areas being transferred to EBMUD, the Moraga Creek Open Space Area (130.3 acres) and the Indian Valley Preserve (214.7 acres) will be outside the GHAD boundary. In addition, as required by the state and federal permits issued to the City for development of community playfields on the former EBMUD property near Highway 24, the Developer is transferring in fee to EBMUD two properties totaling 112 acres, which properties are also subject to a conservation easement and management plan.

The GHAD Preserve Areas and Western Hills Open Space Area, totaling approximately 560 acres are contained within the proposed GHAD boundary. A number of resource agencies have issued permits or approvals that include requirements related to the ownership, management, monitoring and funding mechanisms for parcels within the GHAD Preserve Areas and the Western Hills Open Space Area. These resource agency permits and approvals include the following.

Wilder Property			
Resource Agency	Permit	Document	Date of Issuance
California Department of Fish and Game	Section 1602, Lake and Streambed Agreement	File No. R3-2001-0094	February 2, 2004
California Regional Water Quality Control Board	Waste Discharge Requirements and Water Quality Certification/Section 401 Certification	Order No. R2-2204-0049; File No. 2118.03/2119.1242 (ECM); Site No. 02-07-C0108	June 24, 2004
United States Department of the Army, Corps of Engineers	Clean Water Act Section 404	File No. 25907S	January 18, 2005
United States Department of the Interior, Fish and Game Service	Endangered Species Act, Section 7, Biological Opinion	File No. 1-1-02-F-0168	October 8, 2004
State of California, Department of Fish and Game	Section 2080.1 Consistency Determination	File No. 2080-2004-017-03	November 12, 2004
City Property			
California Department of Fish and Game	Notification of 1602 Lake and Streambed Alteration	File No. 1600-2005-0552-3	September 15, 2005
California Regional Water Quality Control Board	Waste Discharge Requirements and Water Quality Certification/Section 401 Certification	Order No. R2-2204-0049; File No. 2118.03/2119.1242 (ECM); Site No. 02-07-C0108	June 24, 2004
United States Department of the Army, Corps of Engineers	Clean Water Act Section 404 Nationwide 18 (Non-reporting)	N/A	N/A
United States Department of the Interior, Fish and Game Service	Endangered Species Act, Section 7, Biological Opinion	File No. 1-1-02-F-0168; as amended by File No. 1-1-02-F-0168	July 17, 2006
State of California, Department of Fish and Game	Section 2080.1 Consistency Determination	File No. 2080-2006-019-03	September 8, 2006

These resource agency permits were used to develop the RMP (Appendix C), which will govern the GHAD Preserve Areas and the Western Hills Open Space Area for the Initial Monitoring Period, which is defined in the RMP as the longer of ten years from Project groundbreaking (which was June 26, 2006) or until such time as the success criteria in the RMP have been met or otherwise approved by the Resource Agencies. According to the terms of the RMP and VTM/FDP COA No. 23, the Long-Term Management Plans (Appendix D) will supersede the RMP in its entirety after the Initial Monitoring Period, and once the GHAD Preserve Areas and Western Hills Open Space Area have been transferred in fee to the GHAD and EBRPD respectively. See Section XIII, Table XIII-1 (Long-Term Ownership and Management Matrix). The Long-Term Management Plan tasks include land management related to grazing practices and fuel management. Other tasks within the Long-Term Management Plan relate to site trails, long-term species management, site maintenance and vehicle use. All activities required by the Long-Term Management Plan will be funded by an endowment that is Developer-funded, as required by the RMP. The GHAD will be authorized to use these endowment generated funds to implement the Long-Term Management Plan. Accordingly, these activities will not be included in the budget in the Engineer's Report.

After the Initial Monitoring Period, EBRPD will be the long-term owner of the Western Hills Open Space Area. EBRPD will implement the Long-Term Management Plan using a similar endowment established by the Developer. EBRPD will also provide other trail management and maintenance services that will be funded by a Zone of Benefit. The GHAD will provide funding for landslide repair and erosion control within the Western Hills Open Space Area, including, management and maintenance of the earth roads installed for Pacific Gas & Electric to access the above-ground power line ("PG&E Access Roads") (see Appendix F), in accordance with the provisions in Section VI of this Plan of Control.

As the open space within and immediately adjacent to subdivision tracts is an amenity that benefits all of the property owners within those subdivisions, the funding of the maintenance of the open space shall be shared by all current and future property owners within recorded subdivision tracts in the GHAD's boundaries. The Covenants, Conditions and Restrictions (CC&Rs) of the Wilder Home Owners Association ("HOA") are to include provisions requiring cooperation and coordination with both the GHAD and natural lands managers such as allowing access to private property to allow for monitoring and mitigation activities of the GHAD. All HOA activities in GHAD-owned open space parcels shall be subject to approval by the GHAD.

III. Geology

Regional Geology and Geologic Maps

The site is located within the Coast Ranges geologic province of California, a series of northwest-southeast trending ridges and valleys. The Wilder Project is located in the southern portion of Siesta Valley just to the north of Moraga Valley on the east side of Gudde Ridge. The Siesta Valley lies within the East Bay Hills structural domain, a block of folded and uplifted rocks east of the active Hayward Fault and west of the active Calaveras Fault systems. Near the site, sedimentary and volcanic rocks of Tertiary age predominate. The Siesta Valley is underlain by the northwest-trending axis of an "overturned" syncline. Regional geologic maps identify an anticline on the northeast edge of the property.

The site is not located within a State of California Earthquake Fault Zone for active faults (CDMG, 1982). The nearest mapped active fault is the Hayward fault located approximately 2 miles southwest of the western side of the site. There are no known active faults passing through the Wilder Property.

Previous regional and site mapping has identified shear zones that offset geologic structures on site. In many locations within the project, shearing along fractures has developed into minor faults that have significantly offset bedrock layering. The most common minor fault trend includes many sub-parallel shears with right-lateral sense of displacement that strike on a northeasterly trend and dip at near-vertical inclinations east and west. Bedding is offset along these shears from a few feet to a few hundred feet. Shear zones mapped on the project are considered local features related to the folding and uplift of the site bedrock.

Site Geology

The geologic units mapped on the site include bedrock and surficial deposits consisting of artificial fill, alluvium, colluvium and landslides that are described below. The geologic units described below are adapted from the 2005 Geotechnical Exploration Report - Montanara ("Project Geotechnical Exploration Report") completed by ENGEO Incorporated for the site in 2005.

Geologic Units

Artificial Fill. There are numerous deposits of fill mapped on the property, the most extensive being the Caltrans fill in the northern valley. In addition, quarry spoils and fills are associated with ranch roads, stock pond dams, and existing structures (Figure 1). The Caltrans fill is composed of a mixture of rock fragments and clay excavated from the north Caldecott Tunnel bore. Over the former center of the valley, the fill is as much as 80 to 100 feet thick, based on review of the pre-grading topography. As reported in the Project Geotechnical Exploration Report, the fill was apparently compacted but no documentation of compaction testing was available. The testing and compaction methods in the mid-1960s would not comply with current standards for fills intended to support residential structures. Also, it is unlikely that any existing compressible soils were removed prior to placement of the fill.

Quarry spoils occur throughout the formerly quarried area and typically appear to consist of relatively granular mixtures of sandy clay and angular basalt fragments. The spoils were identified as sliver fills along roadways and at the downslope edges of excavations. It is estimated that the biggest spoil deposits could locally be up to 20 or 30 feet thick. The quarry spoils were placed as uncontrolled "sidecast" fills and appear to be weak, compressible, and unstable.

Other fills occur across the site associated with ranch roads, structures, and the desilting basins in the unnamed tributary of Brookside Creek. These fills appear to consist mainly of uncompacted clay. The stock pond dam has impounded sediment from the creek.

Alluvium. Minor deposits of alluvium occur in the lower reaches of Brookside Creek, extending from just above the confluence with Quarry Creek and the east project boundary. The alluvium appears to consist mainly of silty clay. Alluvium has also accumulated as pond fines in the quarry de-silting basin.

Colluvium. Mantling the bedrock and filling swales at the site are colluvial deposits. These sediments are derived from weathering of the underlying bedrock, consist mostly of a silty clay matrix with sand, and rock fragments. This material generally is moderately expansive and has low strength. Where colluvium is located on sloping ground, it may be characteristically unstable. Within swales, the colluvial deposits tend to be relatively thicker and may be subject to flow or slip downslope.

Landslides. Landslide deposits consist of masses of unconsolidated material and/or bedrock that have moved downslope under the influence of gravity by sliding, falling, or flowing. Landslides ranging in size from very small to relatively large are located within the limits of the site. The landslides include debris flows, earth flows, earth flow complexes or slumps/translational landslides, large predominantly rotational slumps, and translational slides.

Bedrock

Siesta Formation. The rocks in the low-lying portions of the site valleys are identified as the Siesta Formation. The Siesta Formation is of upper Miocene-age and is interpreted to consist of sedimentary rocks of continental and lacustrine origin. This unit consists of interbedded weak volcanoclastic sandstone, siltstone and weak claystone, with minor thin limestone beds. In

addition, thin beds of resistant basaltic volcanic rocks and volcanoclastic sandstone are interbedded with the Siesta Formation. As discussed below, the weaker rock of the Siesta and Mullholland Formations may require facing when higher 2:1 (horizontal:vertical) cut slopes are planned.

Moraga Formation. The upper Miocene age Moraga Formation is mapped in the steeper ridge areas of the site. The Moraga Formation consists largely of layers of relatively hard, competent flow basalt and andesite interbedded with more friable layers of tuff, agglomerate and minor volcanoclastic sandstone. In many places, the volcanic rocks are highly fractured. Because of its relatively high shear strength, as needed, select engineered fill derived from the Moraga Formation will be used to veneer 2:1 slopes of the weaker Siesta and Mullholland Formations.

Mullholland Formation. The upper Miocene age Mullholland Formation is mapped east of the shear zone in the Brookside Creek area. The Mullholland Formation statigraphically overlies the Moraga Formation, and consists of interbedded non-marine sandstone, siltstone and claystone.

Groundwater

Groundwater on the site has been identified as being contained within shallow unconsolidated stream deposits and in the pores and fractures of bedrock aquifers. The bedrock aquifers typically consist of very complex and internally compartmented systems of fractures separated by impermeable zones. Experience from groundwater explorations for domestic wells has shown that shallow groundwater is commonly residing in "perched" localized aquifers that are underlain at much greater depth by perennially saturated bedrock. Subsurface explorations for geotechnical and groundwater resource studies have shown that shallow perched groundwater exists at depths of 20 to 40 feet and that the perennial groundwater is typically located at depths of 150 to 400 feet or more.

Fluctuations in groundwater levels may occur seasonally and over a period of years because of precipitation, changes in drainage patterns, irrigation and other factors. Future irrigation may cause an overall rise in groundwater levels.

Seismic Sources

The nearest State-of-California-zoned, active[1] fault is the Hayward fault located about 2 miles west of the site. While the probability of ground rupture is considered low, as described in the Project Geotechnical Exploration Report, there is a high probability that the site and any improvements will be subject to strong ground shaking during the lifetime of the Project.

[1] An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 10,000 years) (Hart, 1994). The State of California has prepared maps designating zones for special studies that contain these active earthquake faults.

IV. Slope Stability Considerations During Mass Grading

As shown on the Geotechnical Corrective Grading Plans for the Wilder Project (March 2007), existing artificial fills within the graded area will be removed and as required, replaced with subdrained engineered fills with the exception of portions of the existing Caltrans fill. In graded or repaired areas, the unsuitable materials including alluvium, colluvium and/or landslide debris will be overexcavated to firm undisturbed materials below the unsuitable material as determined by the Geotechnical Engineer or Engineering Geologist at the time of grading.

Surface and subsurface drains will be installed at selected locations to collect the surface and subsurface waters which may have otherwise caused instability. The configuration of each subdrainage system will be tailored to the individual area at the time of grading. The Geotechnical Engineer and/or the Engineering Geologist will determine the location and depths of subdrains at that time. The location and elevation of subdrains and outlets will be surveyed and mapped during construction. Each subexcavation will then be reconstructed to final grade by keying and benching below the landslide plane with compacted, drained engineered fill.

It is important to note that to preserve the natural topography, wildlife habitat and vegetation of the site, stabilization of landslide masses is currently planned only for landslides that directly threaten the proposed improvements. During mass grading of the site, slope instability in open-space parcels which does not have the potential to directly or imminently affect the GHAD-accepted homesites, roadways, or other improvements will not be repaired, as provided in Section VI.

The cuts will be viewed by ENGEO during grading to provide mitigation schemes for unsuspected slope conditions which could decrease the slope stability. Such conditions include unfavorable bedrock attitudes, shear zones and seepage conditions. Recommendations have

been provided in the referenced ENGEO Project Geotechnical Exploration Report for the placement of higher shear strength veneers on higher 2:1 (horizontal:vertical) cut slopes. The field-verified geologic map, prepared as a site requirement, shall be provided to the GHAD for its use.

V. Geologic Hazards

Geologic hazards identified for the site in the 2005 Project Geotechnical Exploration Report include the following items. These geologic hazards are not expected to be entirely eliminated by site grading or other proposed mitigation measures.

- Slope instability
- Seismically induced ground shaking
- Expansive soils
- Compressible soils
- Rockfall
- Creek channel erosion

Slope Instability

During mapping for the Project Geotechnical Exploration Report, and in previous studies, 95 designated landslide areas were identified. The geologic map showing the location of each of the landslide areas is included as Figures 1A through 1E. The table below identifies each of the landslide areas and the proposed corrective measures. The proposed corrective measures were identified in the Project Geotechnical Exploration Report or from the current version of the Geotechnical Corrective Grading Plan. Potential District monitoring or maintenance activities for the specific areas listed in the table below are discussed in Section VIII of this Plan of Control.

TABLE V-1
MAPPED AREAS OF SLOPE INSTABILITY
AND PROPOSED CORRECTIVE MEASURES

AREA DESIGNATION	TYPE OF FEATURE	ESTIMATED DEPTH (FT)	RECOMMENDED MITIGATION METHOD
1	Translational Bedrock Landslide	120	Buttress and Debris Catchment

AREA DESIGNATION	TYPE OF FEATURE	ESTIMATED DEPTH (FT)	RECOMMENDED MITIGATION METHOD
2	Translational Bedrock Landslide	100	Buttress and Debris Catchment
3	Earth Flow	20 to 30	Buttress and Debris Catchment
4	Earth Flow	15 to 20	Buttress and Debris Catchment
5	Earth Flow	15 to 20	Remove and Replace
6	Earth Flow	20 to 30	Remove and Replace
7	Earth Flow	10 to 15	None Required
8a - h	Earth Flow	10 to 15	Remove and Replace
9	Slump/Earth Flow	30 to 60	Remove and Replace
10a - b	Earth Flow Complex	10 to 30	Remove and Replace
11	Earth Flow Complex	10 to 20	Remove by Design Cut/Remove and Replace
12a - c	Earth Flow	10 to 15	Remove and Replace
13	Earth Flow	10 to 15	Remove by Design Cut/Remove and Replace
14	Earth Flow	10 to 15	Daylight Key
15	Earth Flow	30 to 50	None Required
16	Earth Flow	20 to 30	None Required
17	Earth Flow	20 to 30	None Required
18a	Earth Flow/Bedrock Slump	30 to 50	None Required
18b	Earth Flow	10 to 15	None Required
18c	Earth Flow	10 to 15	None Required
19	Earth Flow	10 to 15	None Required
20	Earth Flow	10 to 15	None Required
21	Earth Flow	20 to 30	None Required
22	Earth Flow	10 to 15	None Required
23	Earth Flow	10 to 15	None Required
24	Earth Flow	20 to 30	None Required
25	Earth Flow	10 to 15	None Required
26	Earth Flow	10 to 15	None Required
45	Earth Flow	20 to 30	Buttress and Debris Catchment
46	Earth Flow	10 to 15	None Required
47	Earth Flow	10 to 20	None Required
48	Earth Flow	10 to 20	None Required
49	Earth Flow	10 to 20	None Required
50	Slide Debris	20 to 30	None Required

AREA DESIGNATION	TYPE OF FEATURE	ESTIMATED DEPTH (FT)	RECOMMENDED MITIGATION METHOD
51	Earth Flow	30 to 40	Remove and Replace/Daylight Key
52	Earth Flow	10 to 20	None Required
53	Earth Flow	15 to 20	None Required
54a	Earth Flow	10 to 15	None Required
54b	Earth Flow	10 to 15	None Required
54c	Earth Flow	10 to 15	None Required
55	Earth Flow	10 to 15	Remove and Replace/Daylight Key
56	Earth Flow	20 to 25	Remove and Replace
57	Earth Flow	10 to 15	Remove and Replace
58	Earth Flow	10 to 15	None Required
59	Earth Flow	20 to 30	Buttress and Debris Catchment
60a	Earth Flow	15 to 20	Remove and Replace/Debris Catchment
60b	Landslide Debris	15 to 20	Remove and Replace/Daylight Key
61	Earth Flow/Bedrock Slump	20 to 40	Remove and Replace/Daylight Key
62	Earth Flow	20 to 30	Remove and Replace/Daylight Key
63	Earth Flow	20 to 25	Remove and Replace/Daylight Key
64	Earth Flow	10 to 15	None Required
65a	Earth Flow	10 to 15	None Required
65b	Earth Flow	10 to 15	Remove and Replace/Daylight Key
66	Earth Flow	20 to 50	Remove and Replace/Daylight Key
67	Earth Flow	20 to 30	None Required
68a	Earth Flow	20 to 30	Buttress and Debris Catchment Basin
68b	Earth Flow	20 to 30	Buttress and Debris Catchment Basin
69	Earth Flow	30 to 60	Remove and Replace/Debris Catchment/Daylight Key
70	Earth Flow	10 to 15	Remove and Replace
71	Earth Flow	20 to 30	Debris Catchment Basin
72	Earth Flow	20 to 30	Debris Catchment Basin
73	Earth Flow	15 to 25	Remove and Replace
74	Earth Flow	15 to 25	Remove and Replace
75	Earth Flow	10 to 15	Remove and Replace
76	Earth Flow	10 to 15	Remove and Replace
77	Earth Flow	10 to 15	None Required
78a - d	Earth Flow	15 to 20	Remove and Replace/Debris Catchment

AREA DESIGNATION	TYPE OF FEATURE	ESTIMATED DEPTH (FT)	RECOMMENDED MITIGATION METHOD
79a - c	Earth Flow	10 to 15	Remove and Replace
80a	Earthflow	15 to 20	Remove and Replace
80b, c	Earth Flow	10 to 15	Buttress and Debris Catchment
81a, b	Earth Flow	10 to 15	Remove and Replace
82	Earth Flow	10 to 15	Remove and Replace
83	Earth Flow	10 to 15	Remove and Replace
84	Earth Flow	15 to 25	Remove and Replace/Daylight Key
85	Earth Flow	30 to 40	Remove and Replace/Daylight Key
86	Earth Flow	10 to 15	None Required
87	Earth Flow/ Bedrock Landslide	30 to 60	Toe Buttress
88	Earth Flow	10 to 15	None Required
89	Earth Flow	10 to 15	None Required
90	Earth Flow	20 to 30	None Required
91	Earth Flow	10 to 15	None Required
92	Earth Flow	10 to 15	None Required
93	Earth Flow	10 to 15	None Required
94	Bedrock Slump	60 to 80	None Required
95	Bedrock Slump* Complex	80 to 100?	Daylight Key

*Main Portion of Landslide Complex Off-Site

In addition to the landslides listed above, other areas of slope instability or landsliding will likely be identified during the life of the development. Since earth stability is a concern of the District, this section describes several types of slope instability that may be within the District's area of responsibility, subject to Section VI of this Plan of Control. Slope instability is not unique to this Project, but is of importance for hillside projects throughout the San Francisco Bay Area. Future stability of these areas depends on various factors, including any introduction of natural or artificial groundwater, future grading and earthquake ground shaking.

A landslide is defined as a mass of rock, soil and other debris that has been displaced downslope by sliding, flowing or falling. Landslides include cohesive block glides and disrupted slumps

that have formed by displacement along a planar slip surface or rotation (displacement along a curved slip surface). Undercutting and erosion of hillside slopes trigger many slope failures.

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 the 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 be higher than average on a hillslope and groundwater pressures may become dangerously high. Under these conditions, hillside movement can be activated.

Areas of thicker soil cover on the hillslopes are known as colluvium (Qc). Colluvial deposits are typically the result of soil creep and may be in a weak, unconsolidated state, making them susceptible to landsliding if undercut. Colluvium is generally approximately ten to fifteen feet in thickness. Landslides and colluvial deposits located within open space areas are natural landforms that do not require mitigation except where they affect fabricated improvements. Potential mitigation and repair measures for District areas near development are discussed in Section VIII of this Plan of Control.

Seismically Induced Ground Shaking

As identified in the Project geotechnical report, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking at the site, similar to that which has occurred in the past. As stated in the Project Geotechnical Exploration Report, seismic slope stability has been considered in preparation of the Geotechnical Corrective Grading Plans. Therefore, the probability of seismically generated slope failures in engineered fill slopes is considered low. Seismically generated slope failures could occur in open-space areas outside the development limits. Antecedent rainfall and resulting slope saturation would influence the effect of ground shaking in both engineered fill and open space slopes.

Expansive Soils

Near-surface landslide material, colluvium, alluvium and fine-grained bedrock at the site could exhibit a moderate to high potential for expansion. These potentially expansive soils and bedrock materials could affect the planned site development. Expansive soils shrink and swell as a result of moisture changes. This can cause heaving and cracking of slabs-on-grade, pavements and structures founded on shallow foundations. The potential for expansive soils has been identified in previous reports for the property. Shrink and swell of expansive soils on slopes is a portion of the mechanism of creep movement which can result in shallow slope instability.

Compressible Soils. Settlement of compressible material was identified in the Project geotechnical report in two areas; the existing Caltrans fill and within deeper areas of planned engineered fill placement. As identified in the Project geotechnical report , the existing Caltrans fill in the northern portion of the site will be subject to consolidation due to the placement of up to an additional 20 to 40 feet of engineered fill in this area of the site. It is our understanding that the Developer may instrument this area to allow an evaluation of the settlement prior to construction of the site improvements. While we expect that the settlement will be substantially complete by the time the GHAD assumes responsibility for the prevention, mitigation, abatement, or control of geologic hazards within the Wilder Project, the GHAD may assume some monitoring of the settlement instruments as described in Section XII (Maintenance and Monitoring) if it provides a benefit to the GHAD.

Rockfall. The potential for rockfalls has been identified on the subject site in the Geotechnical Evaluation of Rockfall Hazards report for existing and planned cut slopes within the quarry area. Rockfalls would most likely occur during earthquakes, but natural rock weathering, unusual rainfall events, freezing of water in the rock joints in natural rock outcrops or human activity could also cause or contribute to rockfalls at the site. Recommendations within the Project

Geotechnical Exploration Report have recommended slope heights corresponding to slope inclination with minimum debris bench widths. The width and location of the debris benches was based on an analysis of the slope potential rockfall hazard from the existing and graded slopes. Monitoring and maintenance of the proposed debris benches at the base of the quarry area slopes, including debris removal is discussed the Monitoring and Maintenance Section (Section XII).

Creek Channel Erosion. As identified in the Project Geotechnical Exploration report, unimproved creek channel slopes on the site are subject to soil instability. The banks have been oversteepened by erosion and consist of relatively weak materials. A number of existing slope failures are identified that impact the creek channel and adjacent upslope areas. The RMP includes several stream mitigation requirements to alleviate the most severe of these instabilities. Developer is responsible for completing these mitigation requirements during the Initial Monitoring Period.

After the Initial Monitoring Period, the GHAD will be responsible for all future monitoring and maintenance of the creek channels within the GHAD Preserve Areas. The GHAD will comply with the requirements of the Conservation Easement and Long-Term Management Plan for the Montanera Preserve Areas and will obtain all necessary City, State and federal permits required before performing any maintenance that affects the bed, bank or riparian habitat associated with the creeks. Prior to accepting creek monitoring and maintenance responsibilities, the GHAD will receive records documenting expenditures for the 10-year period related to the creek channels as described in the Section VII.

VI. Areas of District Responsibility

Scope of Activities

The GHAD, upon taking title to the GHAD Preserve Areas and stormwater facilities, will assume responsibilities that relate to its position as a GHAD and other duties of a responsible land owner. The GHAD is charged with responsibilities that relate to the prevention, mitigation, abatement, and control of geologic hazards. This includes, but is not limited to, the monitoring and maintenance of the facilities that enhance site stability such as drainage facilities and associated improvements. It also includes monitoring and maintenance of biotic resources, but does not include maintenance of ornamental landscaping. If these facilities and resources are subject to improper care, decreased slope stability could result. As described on Page 2 and in Table XIII-1 (pp. 42-43), the GHAD responsibilities related to the biotic resource monitoring and maintenance will be funded through the proceeds from an endowment.

In addition, the GHAD will be responsible for control of erosion and repair of landslide damage to the public trails within the Western Hills Open Space Area, as well as management and maintenance of the PG&E Access Roads (Appendix F). Based on the general steepness of the site in the area of the proposed roadways, significant grading will be required with steep cut and fill slopes. Improper maintenance of the trail system and graded areas for the PG&E Access Roads could cause erosion, a concern for the GHAD.

The extent of the GHAD-maintained trails as approved by the City Director of Parks and Recreation will be based on a trail plan provided by the Developer prior to the transfer of monitoring and maintenance responsibilities to the GHAD. The GHAD Manager shall be responsible for revising this trail plan if trails are added or eliminated.

GHAD activities are discussed in greater detail in Section VIII.

Specific GHAD responsibilities identified within VTM/FDP COA No. 31 include the following:

- Graded slopes and associated facilities.
- Detention basin maintenance.
- Water quality ponds and related stormwater facilities described in the Stormwater Management Plan including the Operation and Maintenance Plan ("Stormwater System").
- Perpetual maintenance of the Stormwater System at the level specified in the Stormwater Management Plan and Operation and Maintenance Plan and in accordance with Provision C.3. of the RWQCB Order for the issuance of the Contra Costa Countywide NPDES Municipal Storm Water Permit.
- Identification of a contact person from the Board of Directors, or its designee, whom downstream property owners can contact with any maintenance related concerns or comments. The GHAD shall provide the name, phone number, and mailing address of the contact person to all residents in the Project. The GHAD Board of Directors shall appoint the contact person after formation of the GHAD and appointment of a GHAD Manager.
- An annual report to the City on implementation of the Plan of Control, including the Stormwater Management Plan and Operation and Maintenance Plan.

Prevention, Mitigation, Abatement and/or Control of Geologic Hazards

The primary mission of the District shall be the prevention, mitigation, abatement and/or control of geologic hazards within its boundaries that have damaged, or that pose a significant threat of damage to site improvements or biotic resources within the developed areas of the Project. As used herein, the term "site improvements" means buildings and outbuildings, roads, sidewalks, improved paths, utilities, improved trails, swimming pools, tennis courts, gazebos, cabanas, geologic stabilization features or similar improvements. The District may also take any action necessary to prevent, mitigate, abate or control damage to property or site improvements for which, in the sole judgment of the GHAD Manager, the District would be legally responsible as

a property owner, such as damage to property or improvements outside the GHAD boundaries resulting from geologic hazards within the GHAD boundaries. Further, the District is responsible for the maintenance of the entire stormwater system as depicted in Figure 4 and described in the Stormwater Operations & Maintenance Manual (Appendix E).

Exceptions

The intent of this Plan of Control is not to require, or to create the expectation, that the District will take action to address every threatened or actual geologic hazard. The District may decline to prevent, mitigate, abate or control geologic hazards under the following circumstances:

Isolated or Remote Slope Instability. The District shall not have responsibility to monitor, abate, mitigate or control slope instability that does not involve damage to or pose a significant threat to site improvements.

Single Property. The District shall not prevent, mitigate, abate or control geologic hazards which are limited in area to a single parcel of private property unless the geologic hazard has damaged, or poses a significant threat of damage, to site improvements located on other property within the District boundaries. This exclusion does not apply to geologic hazards existing on common area property owned or maintained by the HOA or within open space owned by the District.

Hazard(s) or Failure(s) Resulting From Negligence. The District may decline to prevent, mitigate, abate or control geologic hazards or failures if, in the sole judgment of the GHAD Manager, such hazards occur as the result of negligence of a property owner and/or a property owner's contractors, agents or employees in developing, grading, constructing, or maintaining any work on the subject property. If the GHAD bears expense as the result of negligence described in this section, the GHAD may pursue reimbursement from the negligent parties.

Geologic Hazards Not Located Within District Boundaries. The District shall not prevent, mitigate, abate or control geologic hazards located on property that is not located within the District boundaries ***unless*** all or any portion of a geologic hazard existing on property located outside the District boundaries has damaged or poses a significant risk of damage to site improvements located on property within the District boundaries. Work conducted on property located outside of the District boundaries shall be strictly limited to that which, in the sole judgment of the GHAD Manager, is necessary to prevent, mitigate or control the damage, or threat of damage, to property located within the boundaries of the District. Should the District be required to respond to a geologic hazard outside the boundaries of the District, 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.

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 GHAD expenditure will exceed the value of the structure(s) and site improvement(s) threatened with damage or loss.

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 damage. The GHAD may decline to provide any funding, or reimbursement to a property owner for the repair or replacement of a structure, site improvement or landscaping damaged by a geologic hazard where at its construction or installation, the structure, site

improvement, or landscaping violated any provision of the City's Building Code or Ordinances that was operative when the structure, site improvement, or landscaping was constructed..

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.

VII. Funding and Acceptance of Responsibility by the District

1. Activation of Assessment

Ultimately, an annual assessment shall be levied on residential or nonresidential parcels with habitable building areas (Art and Garden Center and visitor center/future community center) within the Wilder development. For building permits issued on or between July 1 and December 31, the assessment shall be levied by the GHAD on each individual parcel beginning the first fiscal year following issuance of a building permit. For building permits issued on or between January 1 and June 30 the assessment shall be levied by the GHAD on each individual parcel beginning the fiscal year starting in the calendar year following issuance of the building permit. The community playfields will be assessed as a unit cost per field. An assessment will also be levied on the City of Orinda for trail maintenance.

2. Responsibility for GHAD Activities

The party that, on the date each Final Map within the boundaries of the GHAD is approved by City of Orinda, owns the developable parcels shown on that Final Map shall have the responsibility to perform all the activities of the GHAD on property within that Final Map. Such responsibility shall automatically transfer to the GHAD at 9:00 a.m. on the day exactly three years after the first residential building permit is issued ("Transfer Eligibility Date") by the City of Orinda provided that the items listed under item No. 5 in Section VII have been completed. This turn-over date may be extended at the sole discretion of the Developer provided that the assessments shall continue to be levied during the extension period and that notice of such extension is delivered to the GHAD Manager at least 30 days prior to the turn-over date. The petitioners for formation of the GHAD intend that the approximately three-year period between the levying of the GHAD assessment and the GHAD becoming responsible to perform

activities on property within each Final Map will allow the District to accumulate reserve funds without incurring significant expenses.

3. Ownership of the Open Space Excluding the Stormwater Facilities

Ownership of the GHAD Preserve Areas will pass from the Developer to the GHAD at the end of the Initial Monitoring Period, which shall be the date the GHAD commences its activities under the Long-Term Management Plan and becomes responsible for oversight of the actual physical maintenance of the open space as provided in this section, consistent with the Conservation Easement and Long-Term Management Plan.

4. Ownership of the Stormwater System

Ownership of the GHAD Stormwater System (as defined in the Glossary)will pass from the Developer to the GHAD upon acceptance as defined in Section VII (2.), which shall be the date the GHAD commences its activities and becomes responsible for oversight of the actual physical maintenance of the storm drain improvements as provided in the Operations and Maintenance Manual for the Wilder Project.

5. Process for Transferring Responsibility for GHAD Activities

After the Transfer Eligibility Date for parcel(s), the process for transferring responsibility for performing GHAD activities on such parcel(s) shall be as follows:

(a) In the calendar year 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 for parcel(s) to the District.

(b) Within 45 days of receiving such notice, a representative of the GHAD shall verify that all the facilities for which the GHAD will have maintenance responsibility have been

constructed and maintained according to the City-approved plans and specifications for the individual improvements, and that such facilities are operational and in good working order.

(c) 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.

(d) The developer shall notify the GHAD when it has completed the items identified on the Punch list.

(e) Within 30 days of receipt of such notice, the GHAD 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 the parcel(s).

(f) As provided for in the Development Agreement (Condition No. 4.5.4.(a)), the Developer has maintained in good condition and repair each public improvement constructed or installed by the Developer until 1 year after acceptance of Dedication of such public improvement by the GHAD.

(g) The GHAD shall confirm that the reserve requirement defined in the Engineer's Report dated March 4, 2008 has been met.

As part of the transfer activities, the developer of parcel(s) to be transferred shall provide the GHAD, for its use, copies of the applicable geotechnical exploration reports, grading plans, corrective grading plans, improvement plans, field-verified geologic maps, as-built subdrain plans and other pertinent documents as requested by the GHAD.

VIII. GHAD Responsibilities

The GHAD will assume monitoring and maintenance responsibilities for the following site improvements and activities.

- Perpetual maintenance of the Stormwater System.
- Debris benches and berms.
- Subdrains.
- Restored and unaltered creek channels including grade control structures.
- Settlement instruments.
- Retaining walls shown on Figure 5.
- Slopes, with the exceptions noted in Section VI.
- Slopes and graded areas for the PG&E Access Roads.
- Landslide and erosion control of trails and fire roads within the Western Hills Open Space Area.
- Annual report to the City of Orinda on implementation of the Plan of Control.
- Emergency Vehicle Access Roads located outside of private residential lots.

The GHAD's maintenance, monitoring and repair responsibilities for slopes, which will include repaired or partially repaired landslides, as shown on the attached remedial grading plan, are discussed below in additional detail.

Monitoring and maintenance of the detention basin, mechanical treatment units and bioretention areas will be conducted in accordance with the Wilder Operation and Maintenance Manual (Appendix E). Implementation of monitoring and maintenance elements within the manual are intended to meet the provision in VTM/FDP COA No. 31 that requires the stormwater system be

maintained in accordance with Provision C.3. of the RWQCB issuance of a Contra Costa Countywide NPDES Municipal Stormwater Permit.

While the majority of GHAD activities are conducted in open space areas or on designated improvements outside of privately owned parcels, shallow subdrains may be constructed that are located within privately owned parcels. Typically, these subdrains will be located between about 1 to 4 feet below the ground surface. This drain must not be obstructed or damaged under any circumstances, nor may any other drain line be connected to this drain. If the subdrain is damaged or obstructed, serious damage may result to the rear yard and/or rear yard slope of the lot or neighboring lots. In the event repair is required, it is the responsibility of the homeowner to complete the work under the observation of the GHAD. Therefore, if damage occurs to the subdrain, the GHAD must be notified in a timely manner before repair work is initiated. If the repair is not completed to the satisfaction of the GHAD, the GHAD may elect to undertake the repair and seek reimbursement for the cost of the repair from the property owner.

A copy of each recorded Notice of Restriction regarding the existence of a shallow subdrain on a private lot shall be provided by the Developer to the GHAD prior to the acceptance of these areas by the GHAD. A sample Notice of Restriction for shallow subdrains form is provided in Appendix G.

IX. Geotechnical Techniques for Mitigation of Landslide and Erosion Hazards

Landslide Mitigation for Existing Debris Flows and Landslides

For existing debris flows and landslide areas, the following mitigation measures have been proposed and shown on the corrective grading plans. Mitigation measures for slope instability include avoiding placement of structures in slide areas, removing the landslide debris to bedrock, buttressing the toes of landslides with engineered fill, and constructing keyways and debris benches with surface and subsurface drainage. To reduce the potential for landslides, spring activity should be controlled in development areas using subdrains. It should be noted that some landslides will be completely removed by proposed site grading and will not require additional mitigation measures other than topsoil placement and revegetation.

It is important to note that to preserve the natural topography, wildlife habitat, and vegetation of the site, stabilization of slide masses is planned only for slides that directly threaten the proposed improvements. Open-space slides that do not currently threaten the proposed improvements will not be repaired and may reactivate in the future.

Proposed landslide mitigation measures are described below. Table V-1 lists landslides identified in the Project Geotechnical Exploration Report and numbered on Figure 1 and describes general mitigation measures for each landslide.

Remove and Replace. Landslide debris will be overexcavated to competent bedrock and replaced with engineered fill in accordance with the slope recommendations presented earlier. Where removal and replacement of a landslide is recommended, the excavation should be observed by the project Engineering Geologist to verify complete removal of the landslide debris. Where appropriate and as recommended in the field by ENGEO, a keyway and subsurface drainage will be provided during grading.

Remove by Design Cut. Several landslide deposits will be completely removed by design cuts, and therefore, will not require further mitigation.

Buttress by Design Fill. The proposed site grading includes placing fill at the toes of several landslides. Placing fill at the toe of a landslide provides additional resisting forces that act to stabilize the landslide mass. Where sufficient fill is placed at the toe of an existing landslide, the potential for future movement is substantially reduced and no further mitigation is required if the landslide debris is not compressible. Compressible material should be removed prior to placement of fill as recommended in the field by ENGEO, or monitored for post-construction settlement prior to construction.

Buttress and Debris Catchments. Several landslides at the periphery of the development will be mitigated by construction of a buttress key designed to retain the portions of the landslides that extend beyond the development envelope. The actual depth and width of the keyway will be determined by the Geotechnical Engineer during grading. In addition, subdrainage may be required in the unrepaired portion of the landslide to provide further stabilization. The portions of the landslide remaining outside the development envelope will be mitigated by a catchment area designed to stop any upslope failures from encroaching into improved areas. As planned, the debris catchments can consist of a creek or other open space, a debris bench or a catchment basin.

Daylight Keyway. At several locations within the project, improvements are proposed near the edge of "daylight cuts" in potentially unstable soils or landslide deposits. Mitigation of these edge conditions will require construction of "daylight keyways" to protect improvements. Depending on local slope conditions, these keyways might also include geogrid or buried walls to prevent upslope encroachment of landslides. General landslide mitigation measures are shown below.

General Landslide Mitigation

The techniques the District may employ to prevent, mitigate or abate landsliding or adverse erosion damage might include, but are not necessarily limited to:

- Removal of the unstable earth mass.
- Stabilization (either partial or total) of the landslide by removal and replacement with compacted drained fill.
- Construction of structures to retain or divert landslide material or sediment.
- Construction of erosion control devices such as gabions, rip rap, geotextiles, or lined ditches.
- Placement of drained engineered buttress fill.
- Placement of subsurface drainage devices (e.g. underdrains, or horizontal drilled drains).
- Slope correction (e.g. gradient change, biotechnical stabilization, and slope trimming or contouring).
- 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. Maintenance shall be provided for lined surface drainage ditches and drainage terraces including debris catchment structures or drop inlets, and unlined and vegetated swales.

X. Biotechnical Recommendations for Prevention and Mitigation of Existing or Potential Erosion Hazards

Fill slopes within the boundaries of the District are expected to be erodible as will cut slopes in bedrock; therefore, the maintenance of vegetative cover is especially important. Vegetation provides a protective role on soil and exposed rock. It absorbs the impact of raindrops, reduces the velocity of runoff and retards erosion.

In many instances, adequate erosion protection for slopes can be accomplished with carefully selected and placed biological elements (plants) without the use of structures (e.g. brush layering and willow waddling).

In other areas, biotechnical slope protection may involve the use of mechanical elements or structures in combination with biological elements to provide erosion control and help prevent small-scale slope failures. Locally, crib walls, welded-wire walls, gabion walls, rock walls, riprap and reinforced earth walls used in combination with carefully selected and planted vegetation can provide high quality slope protection. The vegetation may be planted on the slope above a low retaining structure or toe wall, or the interstices of the structure can be planted.

XI. Priority for District Funded Repairs

Emergency response and scheduled repair expenditures are to be prioritized by the GHAD Manager, utilizing its discretion, based upon available funds, a prudent reserve and the approved operating budget. In addition, the GHAD shall support the priorities of the Resource Manager (as defined in the Resource Management Plan), and the protection of biotic resources, in compliance with the Resource Management Plan, or Long-Term Management Plan.

The GHAD shall only use the Long-Term Endowment to implement the Long-Term Management Plan for the GHAD Preserve Areas and shall not use the funds for any other purpose. Also, funds generated through assessments from within the GHAD will not be used to support the activities defined in the Long Term Management Plan.

Should available funds not be sufficient to undertake all of the activities identified in the Plan of Control and funded through the GHAD assessment including monitoring, management, remedial and preventive measures, the expenditures shall be prioritized as follows in descending order of priority: Activities outlined below do not include those required in the Long-Term Management Plan since they are not funded through the GHAD assessment.

A. The 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. The prevention, mitigation, abatement or control of geologic hazards that have either damaged or pose a significant threat of damage to private or community recreation facilities (e.g. pools, spas, playfields etc.).

C. The prevention, mitigation, abatement or control of geologic hazards that have either damaged or pose a significant threat of damage limited to loss of landscaping or other similar non-essential amenities.

D. The 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.

XII. Maintenance and Monitoring Schedule

The site inspections should be undertaken at appropriate intervals as determined by the GHAD Manager using supporting documents including, but not limited to, the Wilder Operation and Maintenance Manual for the detention basin, mechanical treatment units and the bio-retention areas and the Long-Term Management Plan. Maintenance of the basins and open-space drainage facilities shall be conducted by the GHAD in accordance with the Operation and Maintenance Manual provided in Appendix E.

For geologic hazard abatement, the GHAD budget should provide for an adequate number of inspections in years of heavy rainfall. Generally, inspections should take place in September, 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. Site inspections should increase sufficiently to provide for mitigation of potential hazards. The GHAD Manager shall keep these written monitoring reports on file in the records of the GHAD. The following are guidelines for a monitoring plan. The actual scope and frequency of monitoring events shall be at the discretion of the GHAD Manager based on schedules provided in the Wilder Operation and Maintenance Manual for the detention basin, mechanical treatment units and the bioretention areas provided in Appendix E and the Long-Term Management Plan (Appendix D). Sediment removed during monitoring and maintenance activities should be removed from the site unless a suitable on site disposal location is identified as determined by the GHAD Manager.

- An Engineer and/or Geologist should carry out a geologic reconnaissance of the site slopes for indications of erosion or slope failures. Open space slope area monitoring would include observation of debris benches and trails. 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.

- An Engineer and/or Geologist should carry out an inspection of lined and unlined surface ditches at least twice a year. One inspection should be in the fall prior to the onset of winter rains. The inspection shall check for sedimentation and cracking or shifting of the concrete-lined 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. The inspections should take place at least twice annually, preferably in the fall and spring. Any suspicious interruption in flow may signal a need to unplug or clean by flushing the affected drain.

- Piezometers to measure groundwater levels, or instruments such as inclinometers or tiltmeters measuring potential slope instability should be monitored quarterly, if installed.

- Settlement monitoring devices should be measured annually and tracked. In the event of anomalous readings or excessive settlement, the monitoring frequency should be increased to once per quarter.

- Inlets, outfalls or trash racks, if used, must be kept free of debris and spillways maintained. It is anticipated that initially at least once every year, cleanup of vegetation and removal of silt would be in order. At a minimum, the facilities should be cleaned in September and as obstructed conditions are identified after heavy storm events. Attention should be given to plantings or other obstructions which may interfere with access by power equipment.

- The creek corridors should be inspected in accordance with the Wilder Operation and Maintenance Manual for GHAD-Maintained Drainage Facilities a copy of which is provided in Appendix E. Monitoring of the creek banks will be performed on a regular basis to identify areas of possible instability or future erosion. Creek bank erosion that does not directly threaten site improvements including flood control capacity, as provided in Section VI, will not be repaired, and the creeks will be allowed to mature naturally. All necessary permits will be obtained before work proceeds.

- The trails should be inspected twice a year. Monitoring of the unpaved trail system should include observing the trail for excess vegetation growth, eroded areas or areas of instability. It is anticipated that mowing of the trails would occur annually in late spring and that recontouring of portions of the trail may be necessary approximately every 3 to 5 years. Paved portions of the trail should also be inspected twice a year and it is expected that surface treatment of the paved trails would occur every 8 to 10 years.

- An annual inspection shall be made by the Engineer and/or Engineering Geologist to assess the effectiveness of the preventive maintenance program and to make recommendations as to which landslide repair or erosion control 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 shall be prepared by the GHAD Engineer and/or Engineering Geologist and distributed to the GHAD Board of Directors and the Orinda City Manager.

Biological Resources

The Long-Term Management Plan attached in Appendix D provides the details of the mitigation, management and monitoring requirements within the open space areas of the GHAD. The GHAD shall retain a qualified Biologist, for a minimum contract interval of 3 years, to perform monitoring and maintenance as required under the terms of the Long-Term Management Plan.

Intra-District Communication

While the site inspections outlined in the maintenance and monitoring schedule provide the GHAD Manager with an assessment of the site conditions, input or queries from property owners may provide additional information on site conditions within the District. These may be observations regarding the individual parcels, which the GHAD will not routinely monitor or observe, or conditions in the common areas or the Preserve Areas that may have occurred between monitoring events. To facilitate awareness of the Wilder GHAD and contact with the Board of Directors or GHAD Manager, the GHAD Manager shall develop and maintain a communications plan. At a minimum, the communications plan shall include an emergency response protocol, an incident response plan, and a District education and outreach program that may include a website, newsletters, brochures etc. In addition, the communications plan shall include a method by which the GHAD Manager can be contacted on a 24-hour basis.

XIII. Open Space Ownership and Management

Ownership, funding sources and maintenance responsibilities shall be as shown on the following table.

TABLE XIII-1
WILDER
Long-Term Ownership and Management Matrix

FACILITY/FUNCTION	MAINTENANCE ENTITY	FUNDING	TENTATIVE ACCEPTANCE DATE OR MINIMUM INITIAL MONITORING TERM	OWNERSHIP
1. Development Area				
a. Residential Areas I through IV	HOA/Private	HOA/Private	2008 - 2010	HOA/Private
b. Swim Club	HOA	HOA	Not Applicable[2]	HOA
c. Neighborhood Common Areas (Including connector trails)	HOA	HOA	Not Applicable	HOA
d. Playfields	City of Orinda	City of Orinda	Not Applicable	City of Orinda
e. Art and Garden	City of Orinda	City of Orinda	2008	City of Orinda
f. Water quality basins	GHAD	Assessment	3 Years	GHAD
g. Detention basins	GHAD	Assessment	3 Years	GHAD
h. Sedimentation basin	GHAD	Assessment	3 Years	GHAD
i. Stormwater System	GHAD	Assessment	2008 - 2010	GHAD
j. East Bay Municipal Utility District (EBMUD) Reservoir	EBMUD	EBMUD	Not Applicable	EBMUD
k. Public Roads	City of Orinda	City of Orinda	Not Applicable	City of Orinda
l. Private Roads	HOA	HOA	Not Applicable	HOA

[2] The GHAD is not involved in the maintenance, funding or ownership of the facility or improvement. Therefore, a acceptance date or minimum monitoring period is not listed in the Plan of Control.

FACILITY/FUNCTION	MAINTENANCE ENTITY	FUNDING	TENTATIVE ACCEPTANCE DATE OR MINIMUM INITIAL MONITORING TERM	OWNERSHIP
m. Visitor Center (future community center)	Developer	Private Funding	Not Applicable	City of Orinda (leased to developer)
2. Development Buffer, Eastern Hills and Quarry Hill Open Space Areas				
a. Resource Management Plan Activities (Initial Monitoring Period)	Developer	Private Funding	10 Years	Developer
b. Long-Term Management Plan Activities (Post Initial Monitoring Period)	GHAD	Endowment	Perpetual	GHAD
c. Plan of Control Defined Activities (Initial owner maintenance period)	Developer	Private Funding	3 years	Developer
d. Plan of Control Defined Activities (Post initial owner maintenance period)	GHAD	Assessment	Perpetual	GHAD
2. Western Hills Open Space				
a. Resource Management Plan Activities (Initial Monitoring Period)	Developer	Private Funding	10 Years	Developer
b. Long-Term Management Plan Activities (Post Initial Monitoring Period)	EBRPD	Endowment	Perpetual	EBRPD
c. PG&E Access Roads and Other Landslide Repair within Watershed (Initial owner maintenance period)	Developer	Private Funding	3 years	Developer
d. PG&E Access Roads and Other Landslide Repair within Watershed (Post initial owner maintenance period)	GHAD	Assessment	Perpetual	EBRPD

XV. Glossary

Biotic Resources – Includes wetlands, streams, riparian habitat and special-status species, including the Alameda Whipsnake, California Red-Legged Frog and the Foothill Yellow-Legged Frog as identified in the Resource Management Plan and the Long Term Management Plan.

Associated Facilities – This term is used in VTM/FDP COA No. 31 in conjunction with slopes and, for the purposes of this Plan of Control, includes lined and unlined drainage ditches, open-space storm drain improvements, debris benches, subdrains and other geotechnical slope improvements.

Endowment - A principal monetary sum that is accepted and is subject to a requirement that the principal be maintained intact and invested to create a source of income for the functions provided in the Long Term Management Plan.

Engineer's Report – The document that establishes the individual property owners' GHAD assessment based on the projected expenses (budget) of the GHAD.

Geological Hazard Abatement District (GHAD) Manager – An entity employing a licensed Geotechnical Engineer who will oversee the operations of the GHAD including preparation of GHAD budgets. The GHAD Manager is hired by and reports to the GHAD Board of Directors.

Initial Monitoring Period (GHAD Preserve Areas and the Western Hills Open Space Area) – The longer of ten years from project groundbreaking (which was June 26, 2006) or until such time as the success criteria in the RMP have been met or otherwise approved by the Resource Agencies.

Stormwater System – Includes the storm drain system plan depicted in Figure 4 and mechanical treatment units, grassy swales, bio-retention areas, detention and water quality basins as identified in the Operations and Maintenance Manual (Appendix E).

XVI. Right-Of-Entry

District officers, employees, consultants, contractors, agents, and representatives shall have the right to enter upon all lands within the District boundary, as shown on Exhibit 2, for the purpose of performing the activities described in this Plan of Control. Such activities include, but are not limited to: (1) the inspection, maintenance, monitoring or replacement of site improvements including detention, water quality and sedimentation basins, maintenance roads, deflection walls, drainage ditches, storm drains, outfalls and pipelines, (2) the monitoring, maintenance and repair of slopes, including repaired or partially repaired landslides, and (3) the management of erosion and geologic hazards within the open space areas shown on Exhibit 1. 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 and indemnity provision shall be recorded in the chain of title for all residential parcels and common area lots, and it shall be included in all CC&Rs and homebuyer disclosure statements prepared for parcels within the District boundary. A sample right–of-entry disclosure statement is included in Appendix H.

REFERENCES

California State of, Department of Fish and Game, 1602 Lake and Streambed Alteration Agreement, Gateway/Montanera, Contra Costa County, Notification Number R3-2001-0094, dated February 2, 2004.

California, Regional Water Quality Control Board, Order No. R2-2004-0049, Waste Discharge Requirements and Water Quality Certification for the Montanera Project, City of Orinda, Contra Costa County, File No. 2118.03/2119.1242 (ECM), Site No. 02-07-C0108; dated June 24, 2004.

ENGEO Inc, 2003, Geotechnical Exploration, Montanera, Orinda, California; June 23, 2005; Project Number 4365.1.080.03.

ENGEO Inc, 2006, Response to Darwin Meyers Associates (DMA) Comments, Montanera, Orinda, California; March 22, 2006; Project Number 4365.1.080.05.

ENGEO Inc, 2006, Select Fill Veneers, Montanera, Orinda, California; March 29, 2006; Project Number 4365.1.080.05.

ENGEO Inc, 2006, Geotechnical Evaluation of Rockfall Hazards, Montanera, Orinda, California; March 29, 2006; Project Number 4365.1.080.05.

ENGEO Inc, 2006, Select Fill Slopes, Montanera, Orinda, California; May 8, 2006; Project Number 4365.1.080.05.

ENGEO Inc, 2006, Review of Proposed PG&E Tower Access Road Grading, Orinda Gateway, Orinda, California; September 6, 2006; Project Number 4365.1.090.02.

ENGEO Inc., 2006, Review of Revised EVA Grading, Orinda Gateway, Orinda, California, September 28, 2006, Project No. 4365.1.090.02.

ENGEO Inc, 2007, Geotechnical Corrective Grading Plans, Wilder, Contra Costa County, California; March 2007; Project Number 4365.1.080.03.

Hart Howerton, 2005, Final Development Plan, Gateway Valley, Orinda, Contra Costa County, California; November 18, 2005.

MCE Corporation, Operation and Maintenance Manual for the Wilder Project, City of Orinda, Contra Costa County, California, April 2007.

Orinda, City of, 2005, Second Amendment and Restatement of the Development and Pre-Annexation Agreement for Gateway Valley and Orinda Gateway, LLC, Orinda, California, Approved March 15, 2005.

REFERENCES (Continued)

Orinda, City of, 2005, Conditions of Approval, Montanera Project, Orinda, California, Approved November 29, 2005.

Orinda Gateway LLC, Conservation Easement Deed, Eastern Hills Open Space Area, Quarry Hill Open Space Area and Development Buffer Area, Montanera Project, Gateway Valley, Orinda, Contra Costa County, California, Revised March 2, 2006 (Draft).

P/A Design Resources, Inc., 2005, Stormwater Management Plan (Draft), Orinda Gateway EBMUD, Orinda, California,

P/A Design Resources, Inc., 2005, Vesting Tentative Map, Orinda Gateway-Subdivision 0000-05, Orinda, California, Dated June 30, 2005 and revised November 4 and 18, 2005.

P/A Design Resources, Inc., 2006, Grading Plans, Tract 9074-05, Orinda, California, Dated January 17, 2006.

Wildlife Heritage Foundation, Conservation Easement Deed (Draft), Eastern Hills Open Space Area, Quarry Hill Open Space Area and Development Buffer Area, Montanera Project, Gateway Valley, Orinda, Contra Costa County, California, Revised March 2, 2006.

WRA Environmental Consultants, Final Resource Management Plan for the Montanera Project, Orinda, California, Dated April 21, 2006 with Final Conforming Changes dated June 23, 2006.

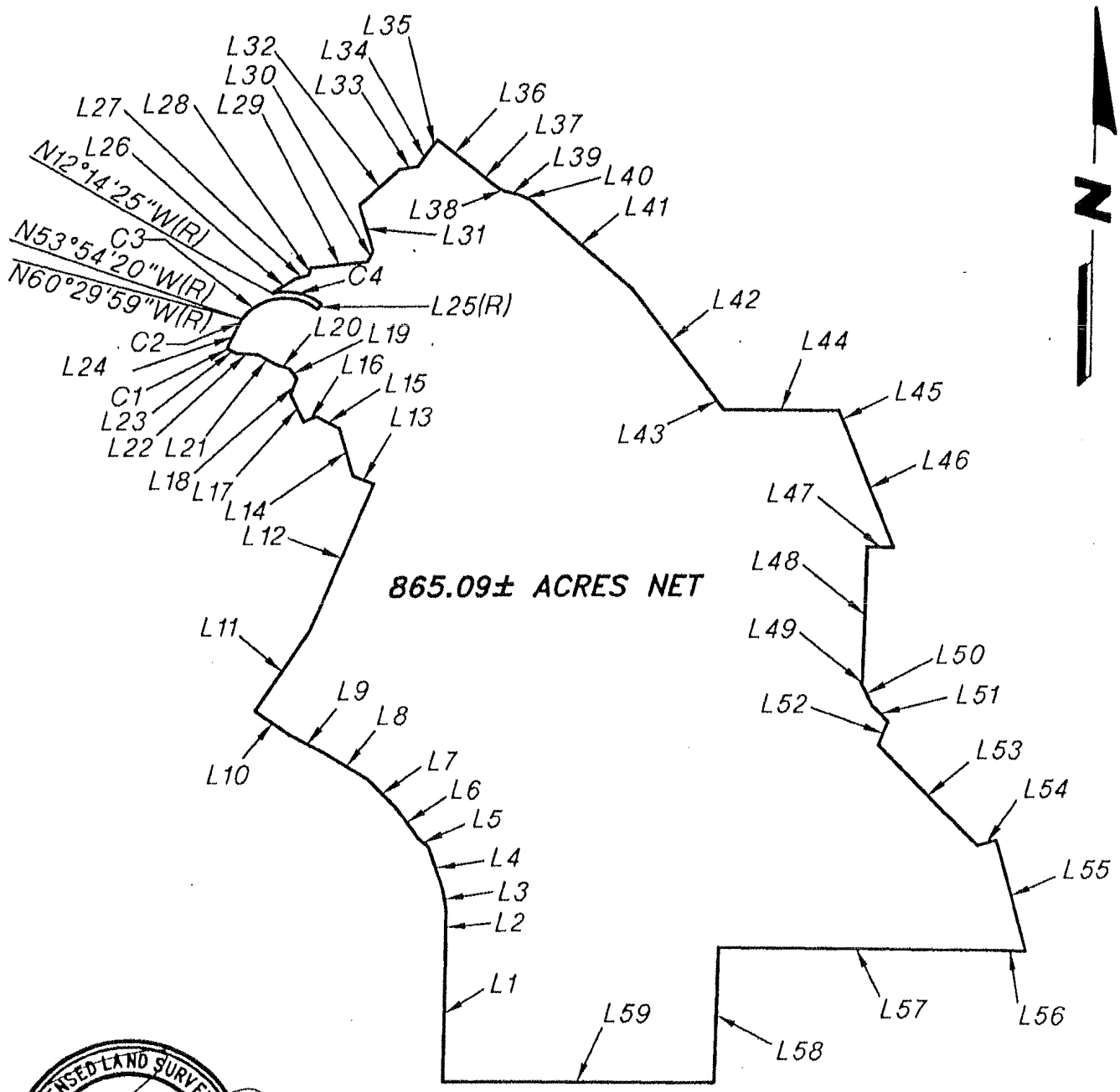
WRA Environmental Consultants, Long-Term Management for the Montanera Project, Preserve Areas, Orinda, California, Dated April 21, 2006 with Final Conforming Changes dated June 23, 2006.

WRA Environmental Consultants, 2006, Wetland, Stream and Riparian Mitigation, Grading and Erosion Control Plans, Indian Valley, Orinda, California, Project No. 00914, Dated February 2006.

APPENDIX A

Exhibits and Figures

Exhibit 1	District Boundary Map
Exhibit 2	District Boundary Description
Figures 1A – 1E	Geologic Map
Figure 2	Land Use Summary Plan
Figure 3	Final Map - Draft
Figure 4	Storm Drain System Plan
Figure 5	GHAD Maintained Retaining Walls



LICENSED LAND SURVEYOR
JAMES W. WEIR
No. 4246
Exp. 6/30/08
STATE OF CALIFORNIA

01-30-08

NOTE:
THE NET ACREAGE SHOWN REFLECTS THE FEE TRANSFERS TO E.B.M.U.D. (2007-117383 & 2007-117385) EXCEPTED FROM WITHIN THIS BOUNDARY.

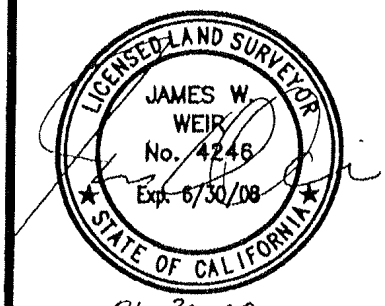
DATE:	01-30-08
SCALE:	1" = 1500'
SHEET	1
OF	3 SHEETS
PROJ. NO.	20021

EXHIBIT '1'
G.H.A.D. BOUNDARY MAP
WILDER
TRACT 9074-05
ORINDA, CALIFORNIA

P/A Design Resources, Inc.
Planning ▪ Engineering ▪ Surveying
2700 Ygnacio Valley Road, Suite 100
Walnut Creek, California 94598-3462
TEL (925) 210-8300

LINE TABLE		
LINE	BEARING	LENGTH
L1	N00°40'16"E	1315.15
L2	N00°01'44"W	363.00
L3	N09°11'59"W	192.77
L4	N18°42'09"W	435.52
L5	N47°59'39"W	133.31
L6	N35°14'39"W	369.81
L7	N43°29'39"W	384.58
L8	N57°42'29"W	478.20
L9	N61°12'29"W	374.50
L10	N54°08'25"W	395.41
L11	N32°42'11"E	910.20
L12	N22°17'29"E	1549.32
L13	N67°42'48"W	214.77
L14	N15°42'48"W	478.86
L15	N61°42'48"W	245.01
L16	N67°17'12"E	123.79
L17	N25°42'48"W	288.15
L18	N19°17'12"E	167.72
L19	N36°52'48"W	118.80
L20	N70°52'48"W	131.69
L21	N60°52'48"W	191.91
L22	N85°49'10"W	196.01
L23	N64°40'51"W	88.00
L24	N25°19'09"E	249.52
L25(R)	N39°25'18"E	60.00

LINE TABLE		
LINE	BEARING	LENGTH
L26	N57°28'17"E	250.53
L27	N75°19'18"E	123.71
L28	N17°28'51"E	77.65
L29	N84°23'21"E	529.71
L30	N25°48'26"E	107.71
L31	N16°23'11"W	456.18
L32	N47°36'37"E	500.00
L33	N81°18'00"E	180.28
L34	N33°24'11"E	195.57
L35	N40°25'44"E	106.84
L36	N52°09'58"W	405.64
L37	N52°19'03"W	349.20
L38	N65°11'09"W	65.88
L39	N76°56'22"W	138.94
L40	N66°15'18"W	131.87
L41	N48°59'56"W	1287.00
L42	N37°30'28"W	1255.30
L43	N36°33'43"W	209.55
L44	N89°28'34"W	1087.84
L45	N22°58'07"W	189.47
L46	N21°51'48"W	1245.62
L47	N88°52'30"W	249.33
L48	N01°00'53"E	1318.95
L49	N89°02'45"W	15.85
L50	N26°29'03"W	250.04
L51	N43°21'37"W	220.84
L52	N22°05'44"E	240.48
L53	N43°58'16"W	1372.20
L54	N74°11'11"E	184.35
L55	N15°48'49"W	1124.20
L56	N87°43'26"W	312.16



01-30-08

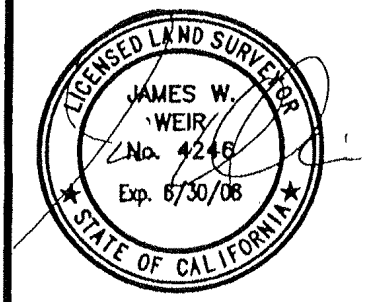
DATE: 01-30-08
SCALE:
SHEET 2 OF 3 SHEETS
PROJ. NO. 20021

EXHIBIT '1'
G.H.A.D. BOUNDARY MAP
WILDER
TRACT 9074-05
ORINDA, CALIFORNIA

P/A Design Resources, Inc.
Planning • Engineering • Surveying
3100 Ygnacio Valley Road, Suite 100
Walnut Creek, California 94598-3463
TEL (925) 210-9300

LINE TABLE		
LINE	BEARING	LENGTH
L57	N89°18'33"W	2613.16
L58	N01°08'39"E	1310.06
L59	N89°25'17"W	2624.83

CURVE TABLE			
CURVE	DELTA	RADIUS	LENGTH
C1	90°00'00"	7.00'	11.00'
C2	4°10'52"	903.97'	65.97'
C3	93°19'38"	476.00'	775.34'
C4	51°39'43"	536.00'	483.29'



01-30-08

DATE: 01-30-08 SCALE: SHEET 3 OF 3 SHEETS PROJ. NO. 20021	**EXHIBIT '1'** **G.H.A.D. BOUNDARY MAP** **WILDER** **TRACT 9074-05** **ORINDA, CALIFORNIA**	P/A Design Resources, Inc. Planning • Engineering • Surveying 3100 Ygnacio Valley Road, Suite 100 Walnut Creek, California 94598-3462 TEL (925) 210-9300

P:\Drawings\20021-20-Montanera\20021-20 GHAD BNDRY EXHBT.DWG, 1/30/2008 9:32:59 AM, station e, P/A Design Resources, Inc.

EXHIBIT 2

WILDER G.H.A.D. BOUNDARY LEGAL DESCRIPTION

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE CITY OF ORINDA, COUNTY OF CONTRA COSTA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

BEING A PORTION OF SECTIONS 3, 4, 9, 10, 11 AND 15, TOWNSHIP 1 SOUTH, RANGE 3 WEST, MOUNT DIABLO BASE AND MERIDIAN ALSO BEING A PORTION OF THE RECORD OF SURVEY, RS 3172, FILED JUNE 22, 2007, IN BOOK 137 OF LICENSED SURVEYOR'S MAPS, AT PAGE 4, SAID COUNTY RECORDERS, ALSO BEING A PORTION OF THE DEED TO OG PROPERTY OWNER, LLC., RECORDED FEBRUARY 2, 2007, SERIES NO. 2007-0033358, SAID COUNTY RECORDS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE SOUTHEASTERLY RIGHT OF WAY LINE OF STATE HIGHWAY 24 AT THE MOST EASTERLY CORNER AS DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED DECEMBER 16, 1953, IN BOOK 2209, PAGE 340, SAID COUNTY RECORDS, SAID POINT ALSO BEING ON THE SOUTHWESTERLY LINE OF LOT 33 AS SHOWN ON THE MAP OF OAK SPRINGS UNIT NO. 4, FILED IN DECEMBER, 1926, IN BOOK 20 OF MAPS PAGE 540, SAID COUNTY RECORDS; THENCE ALONG SAID SOUTHWESTERLY LINE (20 M 540), SOUTH 52°09'58" EAST, 405.64 FEET TO THE WESTERLY CORNER OF PARCEL "D", AS SHOWN ON THE PARCEL MAP OF M.S. 188-71, FILED DECEMBER 21, 1972, IN BOOK 25 OF PARCEL MAPS, PAGE 45, SAID COUNTY RECORDS; THENCE, ALONG THE SOUTHWESTERLY LINE OF SAID PARCEL MAP (25 PM 45), SOUTH 52°19'03" EAST 349.20 FEET; SOUTH 65°11'09" EAST, 65.88 FEET; SOUTH 76°56'22" EAST, 138.94 FEET; SOUTH 66°15'18" EAST, 131.87 FEET AND SOUTH 48°59'56" EAST, 559.90 FEET TO THE SOUTHERLY CORNER OF PARCEL "A" OF SAID PARCEL MAP (25 PM 45)' THENCE, SOUTH 48°59'56" EAST, 727.10 FEET; THENCE, SOUTH 37°30'28" EAST, 618.60 FEET TO THE WESTERLY CORNER OF LOT 76 AS SHOWN ON THE RECORD OF SURVEY, RS 2740, FILED NOVEMBER 14, 2003, IN BOOK 127 OF LICENSED SURVEYORS MAPS, AT PAGE 25, SAID COUNTY RECORDS; THENCE, ALONG THE SOUTHWESTERLY LINE OF SAID RECORD OF SURVEY (127 LSM 25), SOUTH 37°30'28" EAST, 636.70 FEET AND SOUTH 36°33'43" EAST 209.55 FEET TO THE NORTHERLY CORNER OF PARCEL "B" AS SHOWN ON THE PARCEL MAP, MSO 4-90, FILED JANUARY 16, 1991, IN BOOK 150 OF PARCEL MAPS AT PAGE 32, SAID COUNTY RECORDS; THENCE, ALONG THE NORTHERLY, EASTERLY AND SOUTHERLY LINES OF SAID PARCEL MAP (150 PM 32), SOUTH 89°28'34" EAST, 1087.84 FEET; SOUTH 22°58'07" EAST, 189.47 FEET; SOUTH 21°51'48" EAST, 1245.62 FEET; NORTH 88°52'30" WEST, 249.33 FEET; SOUTH 01°00'53" WEST, 1318.95 FEET; NORTH 89°02'45"WEST, 15.85 FEET; SOUTH 26°29'03" EAST, 250.04 FEET; SOUTH 43°21'37" EAST, 220.84 FEET; SOUTH 22°05'44" WEST, 240.48 FEET; SOUTH 43°58'16" EAST, 1372.20 FEET; NORTH 74°11'11" EAST, 184.35 FEET; SOUTH 15°48'49" EAST, 1124.20 FEET; NORTH 87°43'26" WEST, 312.16 FEET AND NORTH 89°18'33" WEST, 2613.16 FEET TO THE NORTH ONE-QUARTER CORNER OF SAID SECTION 15 (T. 1 S., R. 3 W.); THENCE, ALONG THE EASTERLY, SOUTHERLY AND WESTERLY LINES OF THE NORTHEAST AND NORTHWEST ONE-QUARTERS OF THE NORTHWEST ONE-QUARTER OF SAID SECTION 15 (T. 1 S., R. 3 W.), SOUTH 01°08'39" WEST 1310.06 FEET; NORTH 89°25'17" WEST, 2624.83 FEET AND NORTH 00°40'16" EAST, 1315.15 FEET TO THE NORTHWEST CORNER OF SAID SECTION 15 (T. 1 S., R. 3 W); THENCE; ALONG THE EAST LINE OF SAID SECTION 9 (T. 1 S., R. 3 W.), NORTH 00°01'44" WEST, 363.00 FEET TO A POINT ON AN EASTERLY LINE AS SHOWN ON THE RECORD OF SURVEY FILED FEBRUARY 20, 1968, IN BOOK 50 OF LICENSED SURVEYORS MAPS AT PAGE 45; THENCE, ALONG SAID EASTERLY LINE (50 LSM 45), NORTH 09°11'59" WEST, 192.77 FEET; NORTH 18°42'09" WEST, 435.52 FEET; NORTH 47°59'39" WEST, 133.31 FEET; NORTH 35°14'39" WEST,

369.81 FEET; NORTH 43°29'39" WEST, 384.58 FEET; NORTH 57°42'29" WEST, 478.20 FEET; NORTH 61°12'29" WEST, 374.50 FEET; NORTH 54°08'25" WEST, 395.41 FEET; NORTH 32°42'11" EAST, 910.20 FEET AND NORTH 22°17'29" EAST, 1549.32 FEET; THENCE, LEAVING SAID EASTERLY LINE (50 LSM 45), ALONG THE SOUTHWESTERLY LINE OF THE 27.34 ACRE, PLUS OR MINUS, PARCEL OF LAND TO BE CONVEYED BY THE EAST BAY MUNICIPAL UTILITY DISTRICT TO THE CITY OF ORINDA AS DEPICTED ON THE PLAT AND DESCRIBED IN EXHIBIT "A", LAFCO 05-24, MONTANERA/GATEWAY REORGANIZATION DOCUMENTS SOON TO BE RECORDED, NORTH 67°42'48" WEST, 214.77 FEET; NORTH 15°42'48" WEST, 478.86 FEET; NORTH 61°42'48" WEST, 245.01 FEET; NORTH 67°17'12" EAST, 123.79 FEET; NORTH 25°42'48" WEST, 288.15 FEET; NORTH 19°17'12" EAST, 167.72 FEET; NORTH 36°52'48" WEST, 118.80 FEET; NORTH 70°52'48" WEST, 131.69 FEET; NORTH 60°52'48" WEST, 191.91 FEET AND NORTH 85°49'10" WEST, 196.01 FEET TO A POINT ON THE SOUTHEASTERLY LINE OF THE PARCEL OF LAND DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED SEPTEMBER 6, 1967, IN BOOK 5447, AT PAGE 106 OF SAID COUNTY RECORDS; THENCE ALONG SAID SOUTHEASTERLY LINE (5447 OR 106), NORTH 64°40'51" WEST, 88.00 FEET; NORTHWESTERLY, NORTHERLY AND NORTHEASTERLY ALONG THE ARC OF A TANGENT CURVE, CONCAVE EASTERLY, HAVING A RADIUS OF 7.00 FEET, A DELTA OF 90°00'00", A LENGTH OF 11.00 FEET; TANGENT, NORTH 25°19'09" EAST, 249.52 FEET; NORTHEASTERLY, ALONG THE ARC OF A TANGENT CURVE, CONCAVE SOUTHEASTERLY, HAVING A RADIUS OF 903.97 FEET, A DELTA OF 04°10'52", A LENGTH OF 65.97 FEET TO A POINT OF NON-TANGENT CURVATURE; NORTHEASTERLY, EASTERLY AND SOUTHEASTERLY, ALONG THE ARC OF A NON-TANGENT CURVE, THE RADIUS POINT OF WHICH BEARS SOUTH 53°54'20" EAST, CONCAVE SOUTHERLY, HAVING A RADIUS OF 476.00 FEET, A DELTA OF 93°19'38", A LENGTH OF 775.34 FEET; RADIAL, NORTH 39°25'18" EAST, 60.00 FEET; NORTHWESTERLY AND WESTERLY ALONG THE ARC OF A NON-TANGENT CURVE, THE RADIUS POINT OF WHICH BEARS SOUTH 39°25'18" WEST, HAVING A RADIUS OF 536.00 FEET, A DELTA OF 51°39'43", A LENGTH OF 483.29 FEET; NON-TANGENT, NORTH 57°28'17" EAST, 250.53 FEET AND NORTH 75°19'18" EAST, 123.71 FEET TO A POINT ON THE SOUTHEASTERLY LINE AS DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED SEPTEMBER 24, 1973, IN BOOK 7053, AT PAGE 286, SAID COUNTY RECORDS; THENCE, ALONG SAID SOUTHEASTERLY LINE (7053 OR 286), NORTH 17°28'51" EAST, 77.65 FEET AND NORTH 84°23'21" EAST 111.13 FEET TO A POINT ON THE SOUTHEASTERLY LINE AS DESCRIBED IN THE DEED TO THE STATE OF CALIFORNIA, RECORDED JANUARY 3, 1962, IN BOOK 4027, AT PAGE 90, SAID COUNTY RECORDS; THENCE, ALONG SAID SOUTHEASTERLY LINE, NORTH 84°23'21" EAST, 418.58 FEET; NORTH 25°48'26" EAST, 107.71 FEET; NORTH 16°23'11" WEST, 456.18 FEET; NORTH 47°36'37" EAST, 500.00 FEET; NORTH 81°18'00" EAST, 180.28 FEET AND NORTH 33°24'11" EAST, 195.57 FEET TO A POINT ON THE SOUTHEASTERLY LINE OF SAID STATE OF CALIFORNIA DEED (2209 OR 340); THENCE ALONG, SAID SOUTHEASTERLY LINE (2209 OR 340), NORTH 40°25'44" EAST, 106.84 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM:

THAT PORTION THEREOF AS CONVEYED OT THE EAST BAY MUNICIPAL UTILITIES DISTRICT, BY INSTRUMENT RECORDED APRIL 20, 2007, SERIES NO. 2007-117383, OFFICIAL RECORDS.

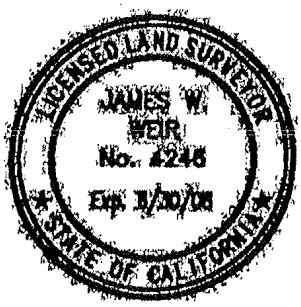
ALSO EXCEPTING THEREFROM:

THAT PORTION THEREOF AS CONVEYED TO THE EAST BAY MUNICIPAL UTILITIES DISTRICT, BY INSTRUMENT RECORDED APRIL 20, 2007, SERIES NO 2007-117385, OFFICIAL RECORDS.

SAID PARCEL CONTAINS 865.09 ACRES NET, PLUS OR MINUS.

BEARINGS AND DISTANCES ARE BASED ON THE CALIFORNIA COORDINATE SYSTEM, ZONE III, NAD 83. TO OBTAIN GROUND DISTANCES, MULTIPLY DISTANCES SHOWN BY 1.0000708.

PREPARED UNDER THE DIRECTION OF:



01-30-08

JAMES W. WEIR, L.S. 4246 *DATED*
EXPIRES 06/03/08

Parcel name: GHAD DIST BNDY

North: 2135206.9546 East : 6074135.1875
Line Course: N 00-40-16 E Length: 1315.15
North: 2136522.0144 East : 6074150.5917
Line Course: N 00-01-44 W Length: 363.00
North: 2136885.0143 East : 6074150.4087
Line Course: N 09-11-59 W Length: 192.77
North: 2137075.3047 East : 6074119.5893
Line Course: N 18-42-09 W Length: 435.52
North: 2137487.8277 East : 6073979.9379
Line Course: N 47-59-39 W Length: 133.31
North: 2137577.0395 East : 6073880.8784
Line Course: N 35-14-39 W Length: 369.81
North: 2137879.0635 East : 6073667.4750
Line Course: N 43-29-39 W Length: 384.58
North: 2138158.0549 East : 6073402.7760
Line Course: N 57-42-29 W Length: 478.20
North: 2138413.5254 East : 6072998.5359
Line Course: N 61-12-29 W Length: 374.50
North: 2138593.8960 East : 6072670.3337
Line Course: N 54-08-25 W Length: 395.41
North: 2138825.5283 East : 6072349.8722
Line Course: N 32-42-11 E Length: 910.20
North: 2139591.4452 East : 6072841.6398
Line Course: N 22-17-29 E Length: 1549.32
North: 2141024.9794 East : 6073429.3234
Line Course: N 67-42-48 W Length: 214.77
North: 2141106.4290 East : 6073230.5971
Line Course: N 15-42-48 W Length: 478.86
North: 2141567.3934 East : 6073100.9101
Line Course: N 61-42-48 W Length: 245.01
North: 2141683.4995 East : 6072885.1573
Line Course: S 67-17-12 W Length: 123.79
North: 2141635.7016 East : 6072770.9675
Line Course: N 25-42-48 W Length: 288.15
North: 2141895.3179 East : 6072645.9482
Line Course: N 19-17-12 E Length: 167.72
North: 2142053.6251 East : 6072701.3452
Line Course: N 36-52-48 W Length: 118.80
North: 2142148.6525 East : 6072630.0485
Line Course: N 70-52-48 W Length: 131.69
North: 2142191.7873 East : 6072505.6232
Line Course: N 60-52-48 W Length: 191.91
North: 2142285.1784 East : 6072337.9702
Line Course: N 85-49-10 W Length: 196.01
North: 2142299.4675 East : 6072142.4817
Line Course: N 64-40-51 W Length: 88.00
North: 2142337.1016 East : 6072062.9350
Curve Length: 11.00 Radius: 7.00
Delta: 90-00-00 Tangent: 7.00
Chord: 9.90 Course: N 19-40-51 W
Course In: N 25-19-09 E Course Out: N 64-40-51 W
RP North: 2142343.4292 East : 6072065.9286
End North: 2142346.4228 East : 6072059.6011
Line Course: N 25-19-09 E Length: 249.52
North: 2142571.9738 East : 6072166.3108
Curve Length: 65.97 Radius: 903.97
Delta: 4-10-52 Tangent: 33.00

```
          Chord: 65.95                Course: N 27-24-35 E
     Course In: S 64-40-51 E     Course Out: N 60-29-59 W
     RP  North: 2142185.3817          East : 6072983.4451
     End North: 2142630.5217          East : 6072196.6718
 Curve  Length: 775.34               Radius: 476.00
          Delta: 93-19-38            Tangent: 504.48
          Chord: 692.42               Course: N 82-45-29 E
     Course In: S 53-54-20 E     Course Out: N 39-25-18 E
     RP  North: 2142350.1015          East : 6072581.3022
     End North: 2142717.8084          East : 6072883.5730
 Line  Course: N 39-25-18 E  Length: 60.00
          North: 2142764.1580          East : 6072921.6743
 Curve  Length: 483.29               Radius: 536.00
          Delta: 51-39-43            Tangent: 259.47
          Chord: 467.09               Course: N 76-24-33 W
     Course In: S 39-25-18 W     Course Out: N 12-14-25 W
     RP  North: 2142350.1015          East : 6072581.3022
     End North: 2142873.9167          East : 6072467.6638
 Line  Course: N 57-28-17 E  Length: 250.53
          North: 2143008.6318          East : 6072678.8914
 Line  Course: N 75-19-18 E  Length: 123.71
          North: 2143039.9790          East : 6072798.5640
 Line  Course: N 17-28-51 E  Length: 77.65
          North: 2143114.0429          East : 6072821.8890
 Line  Course: N 84-23-21 E  Length: 529.71
          North: 2143165.8332          East : 6073349.0611
 Line  Course: N 25-48-26 E  Length: 107.71
          North: 2143262.8006          East : 6073395.9521
 Line  Course: N 16-23-11 W  Length: 456.18
          North: 2143700.4511          East : 6073267.2575
 Line  Course: N 47-36-37 E  Length: 500.00
          North: 2144037.5360          East : 6073636.5457
 Line  Course: N 81-18-00 E  Length: 180.28
          North: 2144064.8053          East : 6073814.7514
 Line  Course: N 33-24-11 E  Length: 195.57
          North: 2144228.0708          East : 6073922.4176
 Line  Course: N 40-25-44 E  Length: 106.84
          North: 2144309.3986          East : 6073991.7037
 Line  Course: S 52-09-58 E  Length: 405.64
          North: 2144060.5895          East : 6074312.0751
 Line  Course: S 52-19-03 E  Length: 349.20
          North: 2143847.1286          East : 6074588.4356
 Line  Course: S 65-11-09 E  Length: 65.88
          North: 2143819.4803          East : 6074648.2331
 Line  Course: S 76-56-22 E  Length: 138.94
          North: 2143788.0826          East : 6074783.5790
 Line  Course: S 66-15-18 E  Length: 131.87
          North: 2143734.9829          East : 6074904.2857
 Line  Course: S 48-59-56 E  Length: 1287.00
          North: 2142890.6161          East : 6075875.5806
 Line  Course: S 37-30-28 E  Length: 1255.30
          North: 2141894.8234          East : 6076639.8940
 Line  Course: S 36-33-43 E  Length: 209.55
          North: 2141726.5100          East : 6076764.7212
 Line  Course: S 89-28-34 E  Length: 1087.84
          North: 2141716.5634          East : 6077852.5157
 Line  Course: S 22-58-07 E  Length: 189.47
          North: 2141542.1148          East : 6077926.4520
 Line  Course: S 21-51-48 E  Length: 1245.62
          North: 2140386.0864          East : 6078390.3133
 Line  Course: N 88-52-30 W  Length: 249.33
          North: 2140390.9816          East : 6078141.0314
 Line  Course: S 01-00-53 W  Length: 1318.95
```

	North: 2139072.2385		East : 6078117.6736
Line	Course: N 89-02-45 W	Length: 15.85	
	North: 2139072.5024		East : 6078101.8258
Line	Course: S 26-29-03 E	Length: 250.04	
	North: 2138848.7022		East : 6078213.3313
Line	Course: S 43-21-37 E	Length: 220.84	
	North: 2138688.1403		East : 6078364.9564
Line	Course: S 22-05-44 W	Length: 240.48	
	North: 2138465.3217		East : 6078274.4993
Line	Course: S 43-58-16 E	Length: 1372.20	
	North: 2137477.7631		East : 6079227.2117
Line	Course: N 74-11-11 E	Length: 184.35	
	North: 2137528.0001		East : 6079404.5847
Line	Course: S 15-48-49 E	Length: 1124.20	
	North: 2136446.3474		East : 6079710.9391
Line	Course: N 87-43-26 W	Length: 312.16	
	North: 2136458.7449		East : 6079399.0254
Line	Course: N 89-18-33 W	Length: 2613.16	
	North: 2136490.2518		East : 6076786.0553
Line	Course: S 01-08-39 W	Length: 1310.06	
	North: 2135180.4530		East : 6076759.8958
Line	Course: N 89-25-17 W	Length: 2624.83	
	North: 2135206.9599		East : 6074135.1997

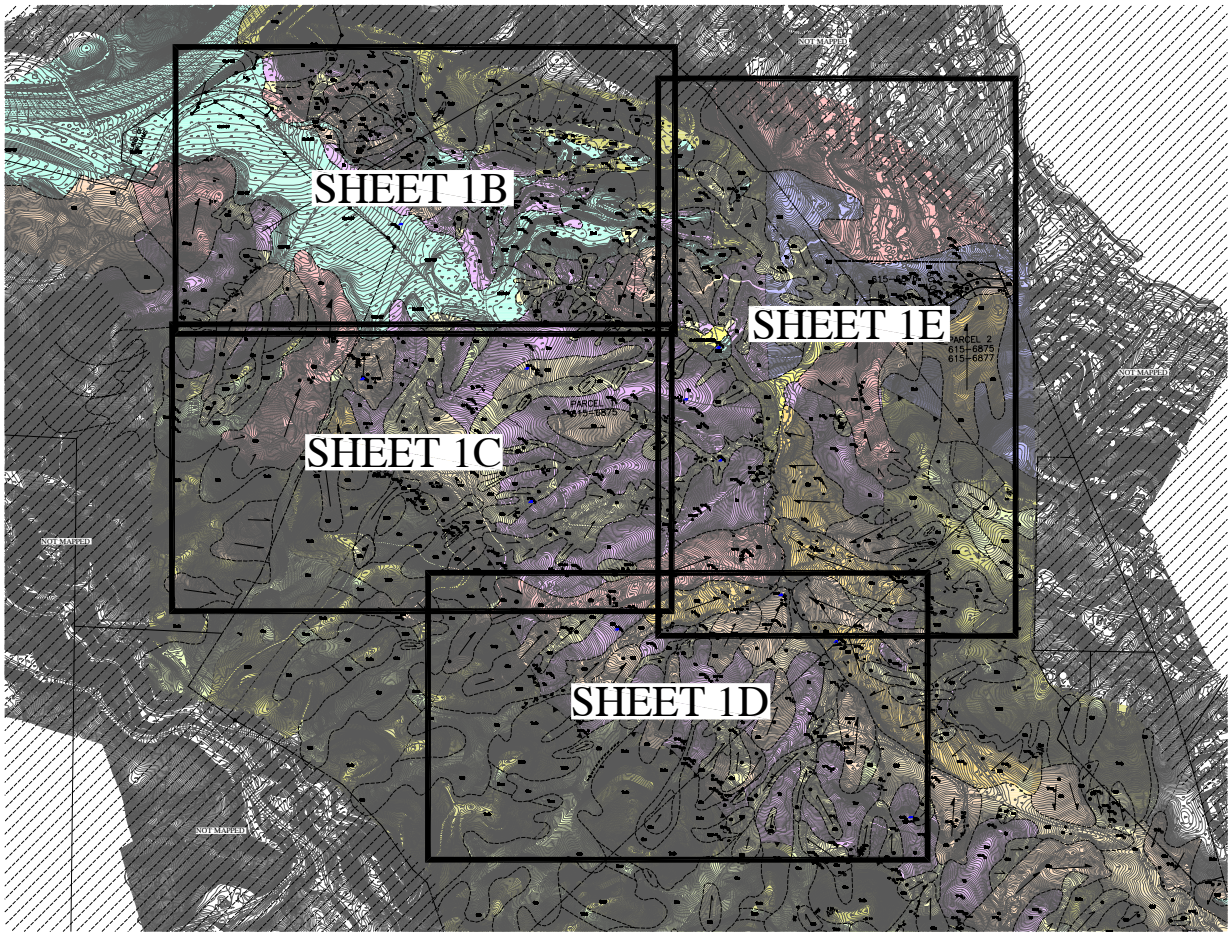
Perimeter: 31522.53 Area: 37,782,626 sq. ft. 867.37 acres

Mapcheck Closure - (Uses listed courses, radii, and deltas)
Error Closure: 0.0132 Course: N 66-33-17 E
Error North: 0.00526 East : 0.01213
Precision 1: 2,388,071.97

867.37 AC GROSS
- 0.11 " EBMUD

867.26
- 2.17 EBMUD

865.09 ± AC. NET



EXPLANATION

PROJECT LIMITS

GEOLOGIC CONTACT, APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

THRUST FAULT, APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

FAULT, APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

AXIS OF SYNCLINE, APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

AXIS OF OVERTURNED SYNCLINE, APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

AXIS OF ANTICLINE, APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

LANDSLIDE, WITH NUMBER DESIGNATION (SEE TEXT)

STRIKE AND DIP OF BEDDING

STRIKE AND DIP OF OVERTURNED BEDDING

STRIKE AND DIP OF SHEAR PLANE

ROCK OUTCROP; mr = MUDROC, sl = SILTSTONE, ss = SANDSTONE, ba = BASALT, tf = TUFT

TREADWELL-ROLLO / GILPIN GEOSCIENCES (1996-1998):

B-00 BORING

TP-01 TEST PIT

CPT-S-3 CONE PENETROMETER SOUNDING

BA-20 LARGE DIAMETER BORING

T-S TRENCH

HARDING-LAWSON ASSOCIATES :

B-1 BORING, 1989 (EBMUD)

B-10 BORING, 1989 (ZUCKERMAN)

B-8 BORING, 1988

TP-89 TEST PIT, 1989

TP-87 TEST PIT, 1988

SL-9 SEISMIC SURVEY, 1989

SL-8 SEISMIC SURVEY, 1988

ENGEO:

B-6 BORING, 2004

B-5 BORING, 2003

B-1 BORING, JULY 1998

B-2 BORING, JUNE 1998

TP-12 TEST PIT, 2004

TP-14 TEST PIT, 2003

T-3 TRENCH, 2004

LIMITS OF MAPPING

DEPTH TO WATER, IF ENCOUNTERED

B-00 BORING DETAIL
DEPTH TO ROCK
BEDROCK UNIT

TP-14 TEST PIT DETAIL
DEPTH TO ROCK
BEDROCK UNIT

BA-20 LARGE DIAMETER BORING DETAIL
ATTITUDE AND DEPTH MEASURED
BEDROCK UNIT

Qcaf-Cf CALTRANS FILL

Qcaf UNDOCUMENTED FILL

Qal ALLUVIUM

Qc COLLUVIUM

Qls EARTHFLOW, ESTIMATED MAXIMUM DEPTH 5' - 15'

Qls EARTHFLOW, ESTIMATED MAXIMUM DEPTH 15' - 25'

Qls EARTHFLOW, ESTIMATED MAXIMUM DEPTH 25' - 40'

Qls SLUMP/EARTHFLOW, ESTIMATED MAXIMUM DEPTH >40'

Qld EARTHFLOW LOBES AND EROSIONAL REMNANTS

Tml MULLHOLLAND FORMATION

Tmb MORAGA FORMATION

Tmc MORAGA FORMATION SEDIMENTARY ROCKS

Ts SIESTA FORMATION

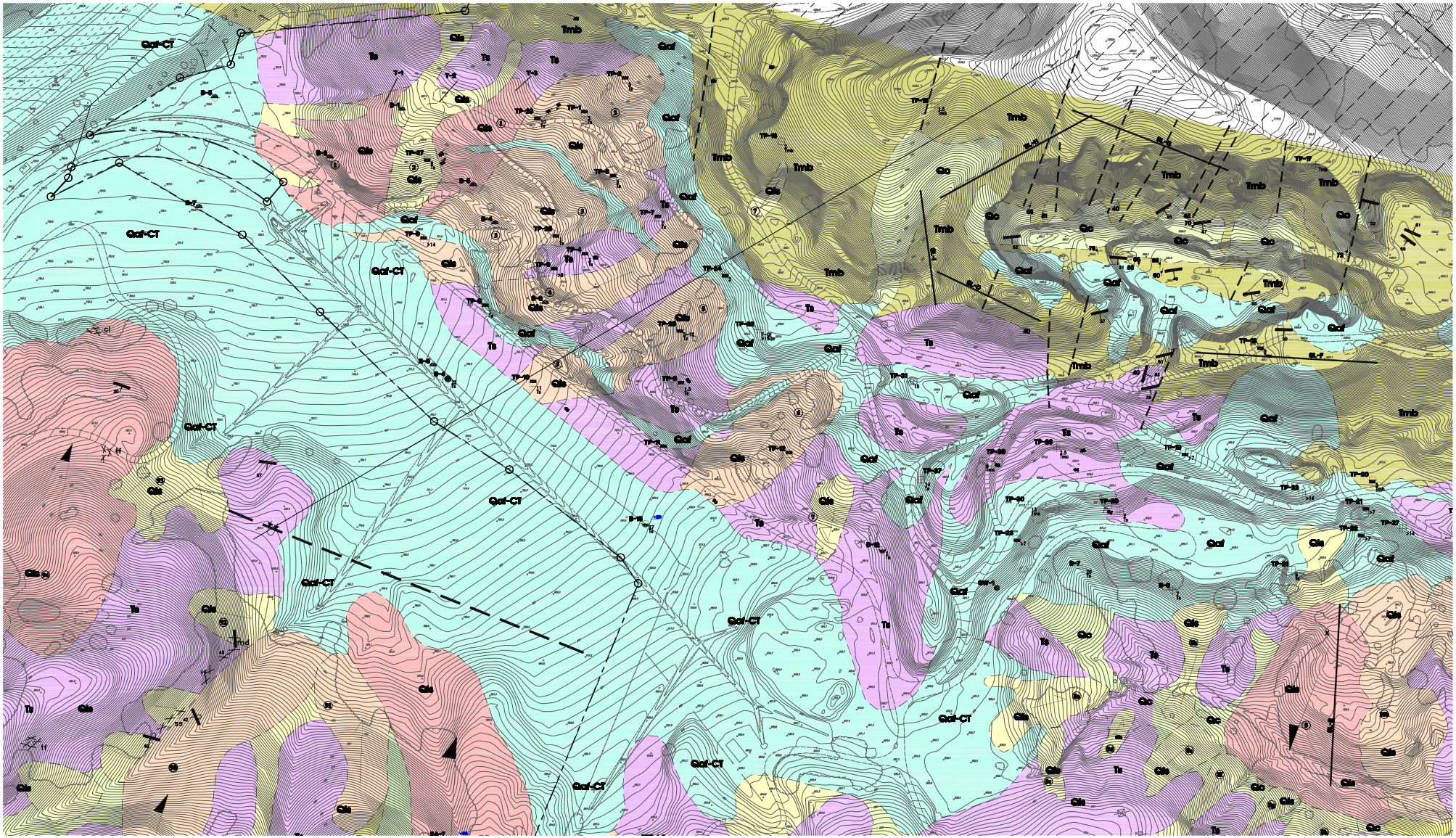
BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

ENGEO INCORPORATED CONSULTING ENGINEERS AND GEOSCIENTISTS 1971

GEOLOGY MAP - INDEX SHEET
WILDER GHAD
ORINDA, CALIFORNIA

PROJECT NO.: 4365.108.005 FIGURE NO.
DATE: MARCH 2008 1A
DRAWN BY: DLB CHECKED BY: EH

ORIGINAL FIGURE PRINTED IN COLOR



N

0 1122 100
0 METERS 70

SEE SHEET 1A FOR EXPLANATION

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

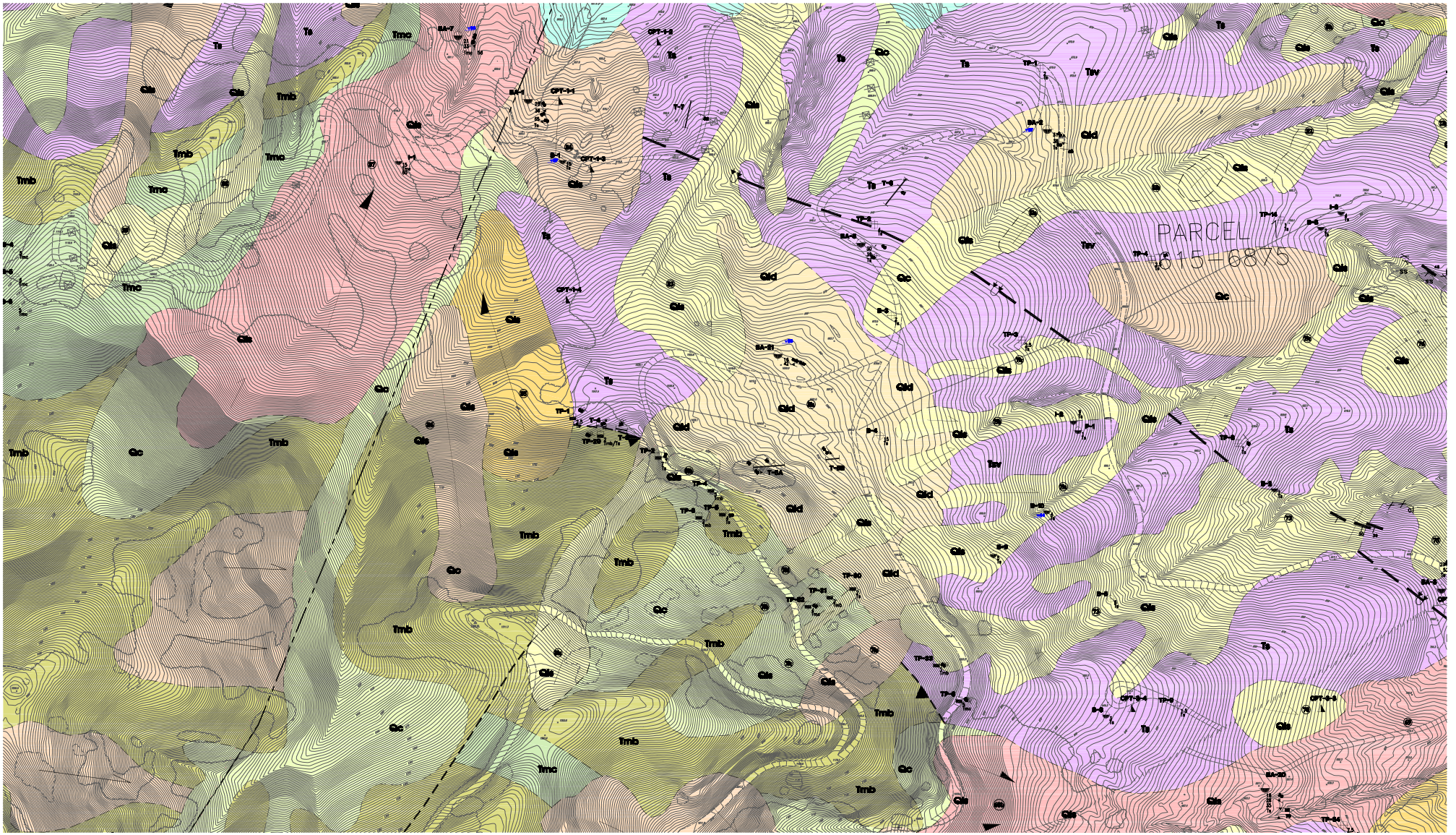
ENGEO INCORPORATED
ENGINEERING GEOLOGY ENVIRONMENTAL

GEOLOGY MAP
WILDER GHAD
ORIND A, CALIFORNIA

PROJECT NO: 4365.108.005
DATE: MARCH 2008
DRAWN BY: DLD
CHECKED BY: EH

PLATE NO. 1B

ORIGINAL PLOTTED PLATE IS IN COLOR



N

0 1122 100
0 METERS 70

SEE SHEET 1A FOR EXPLANATION

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

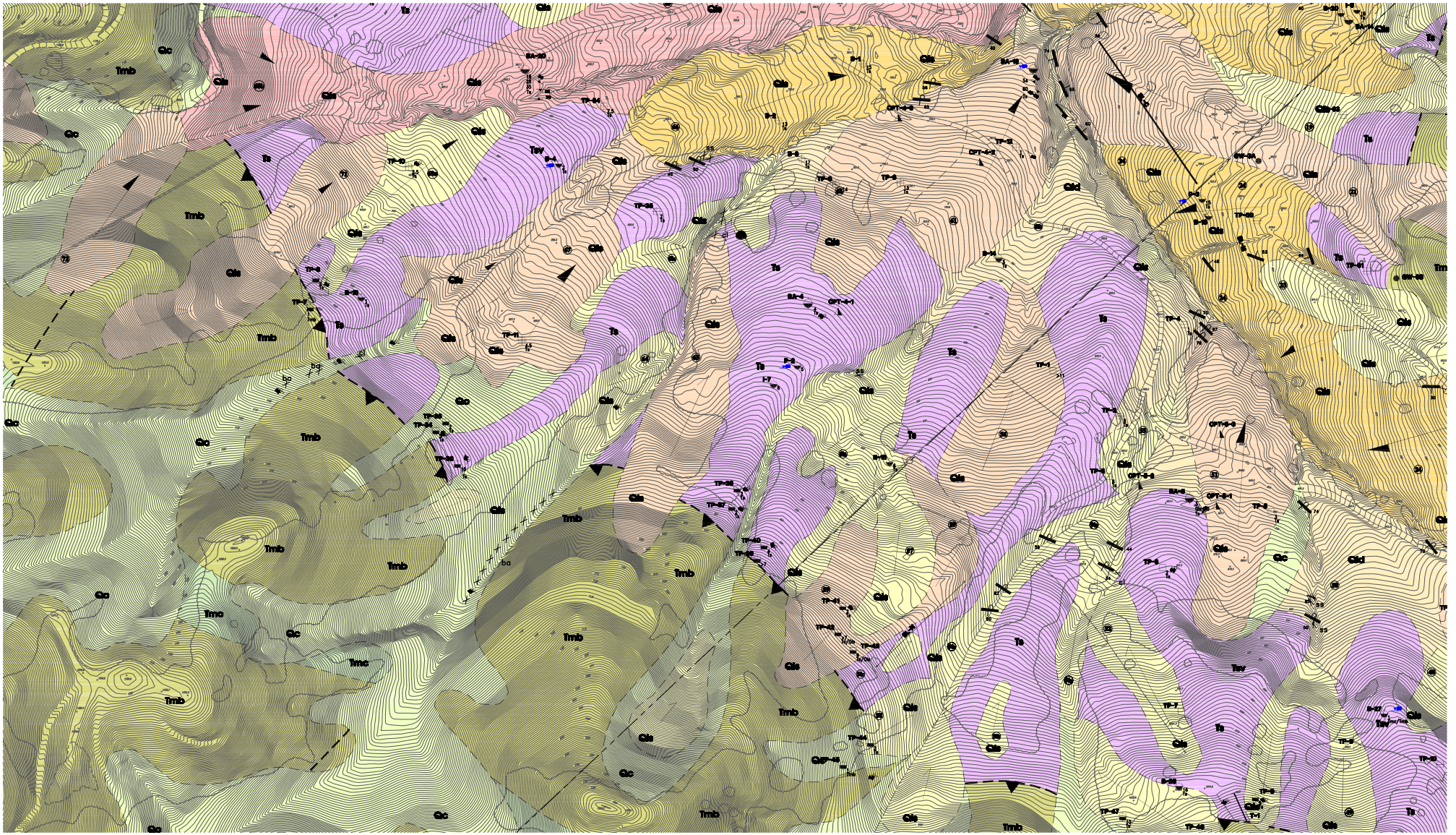
ENGEO INCORPORATED
ENGINEERING GEOLOGY ENVIRONMENTAL SCIENCES

GEOLOGY MAP
WILDER GHAD
ORIND A, CALIFORNIA

PROJECT NO: 4365.108.005
DATE: MARCH 2008
DRAWN BY: DLD
CHECKED BY: EH

PLATE NO. 1C

ORIGINAL PLATE PRINTED IN COLOR



N

0 1322 100
0 METERS 30

SEE SHEET 1A FOR EXPLANATION

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

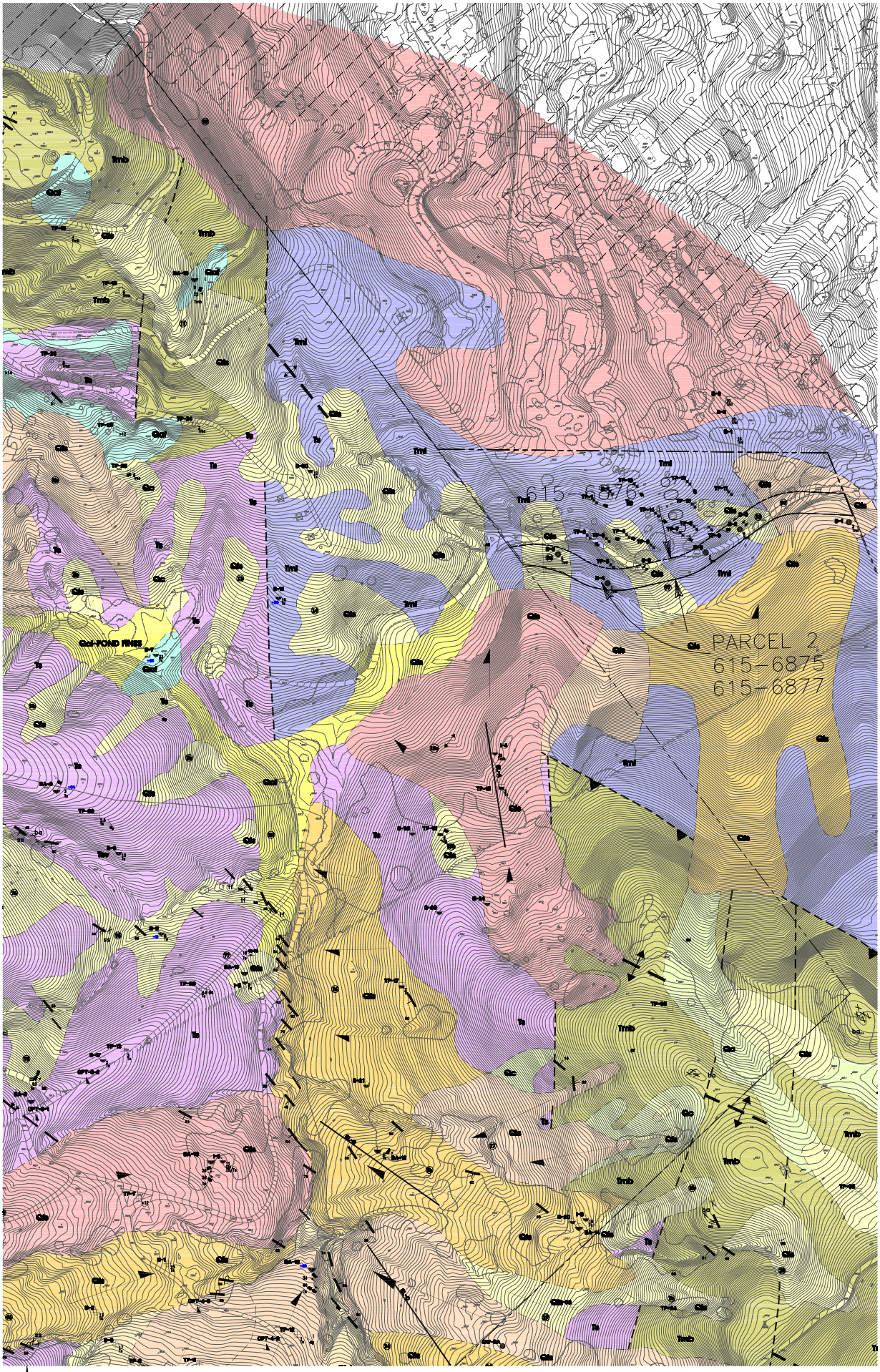
ENGEO INCORPORATED

GEOLOGY MAP
WILDER GHAD
OROVILLE, CALIFORNIA

PROJECT NO. 4365.108.005
DATE MARCH 2008
DRAWN DLD CHECKED DH

PLATE NO. 1D

ORIGINAL PLANS PRINTED IN COLOR



N

SEE SHEET 1A FOR EXPLANATION

0 FEET 100
0 METERS 50

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

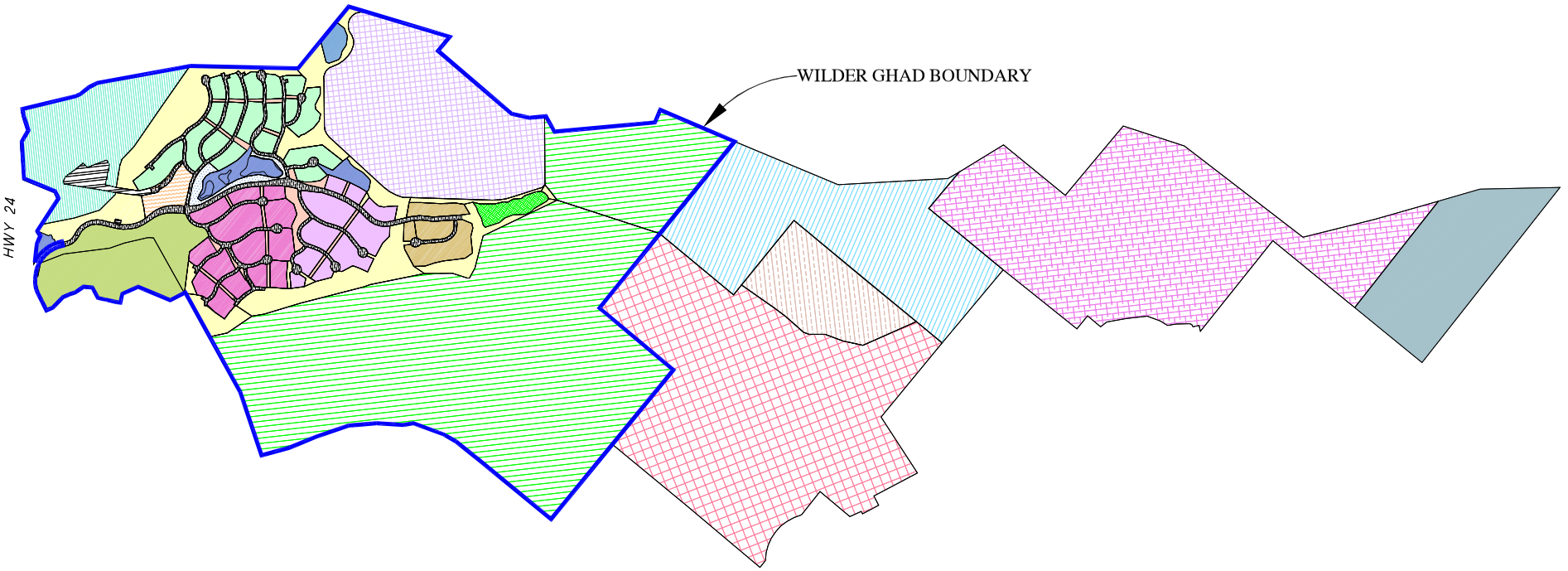
ENGEO INCORPORATED
ENGINEERING & ENVIRONMENTAL SCIENCE

GEOLOGY MAP
WILDER CHAD
ORINDA, CALIFORNIA

PROJECT NO. 4365.108.005
DATE MARCH 2008
DRAWN BY DLB CHECKED EH

FIGURE NO. 1E

ORIGINAL PAGE PRINTED IN COLOR



- 214.7± AC - INDIAN VALLEY PRESERVE (EBMUD)
- 246.9± AC - TEXAS PARCEL (EBRPD)
- 44.7± AC - MORAGA CREEK OPEN SPACE EXTENSION (EBMUD)
- 67.9± AC - UPPER SAN LEANDRO OPEN SPACE (EBMUD)
- 77.4± AC - DEVELOPMENT BUFFER AREA (GHAD)
- 53.2± AC - QUARRY HILL OPEN SPACE (GHAD)
- 117.8± AC - EASTERN HILLS OPEN SPACE (GHAD)
- 130.3± AC - MORAGA CREEK OPEN SPACE (EBMUD)
- 389.1± AC - WESTERN HILLS OPEN SPACE (EBRPD)
- 43.8± AC - COMMUNITY PLAYFIELDS & PASSIVE AREA (CITY/PUBLIC) (INCLUDING 27.4± AC EBMUD PARCEL)
- 5.0± AC - ART & GARDEN CENTER (CITY/PUBLIC)
- 4.1± AC - THE DETENTION PONDS PARK (GHAD/HOA) (PARCEL R)
- 8.8± AC - NEIGHBORHOOD COMMON AREAS & CONNECTOR TRAILS & PATHS (HOA) (PARCELS A, B, C, D, E, F, G, H, I, J, K, L, M, N, P, Q, T, U, V, W, X, Y, Z, AA & BB)
- 14.0± AC - STORMWATER DETENTION/WATER QUALITY AREAS (GHAD) (PARCELS O, S, CC & EE)
- 30.7± AC - ROADS (CITY/HOA)
- 5.0± AC - EBMUD RESERVOIR (EBMUD) (PARCELS DD & FF)
- 5.1± AC - SWIM CLUB (PRIVATE)
- 39.5± AC - RESIDENTIAL AREA I
- 36.0± AC - RESIDENTIAL AREA II
- 25.1± AC - RESIDENTIAL AREA III
- 13.8± AC - RESIDENTIAL AREA IV

N

0 FEET 1400

0 METERS 700

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

LAND USE SUMMARY PLAN

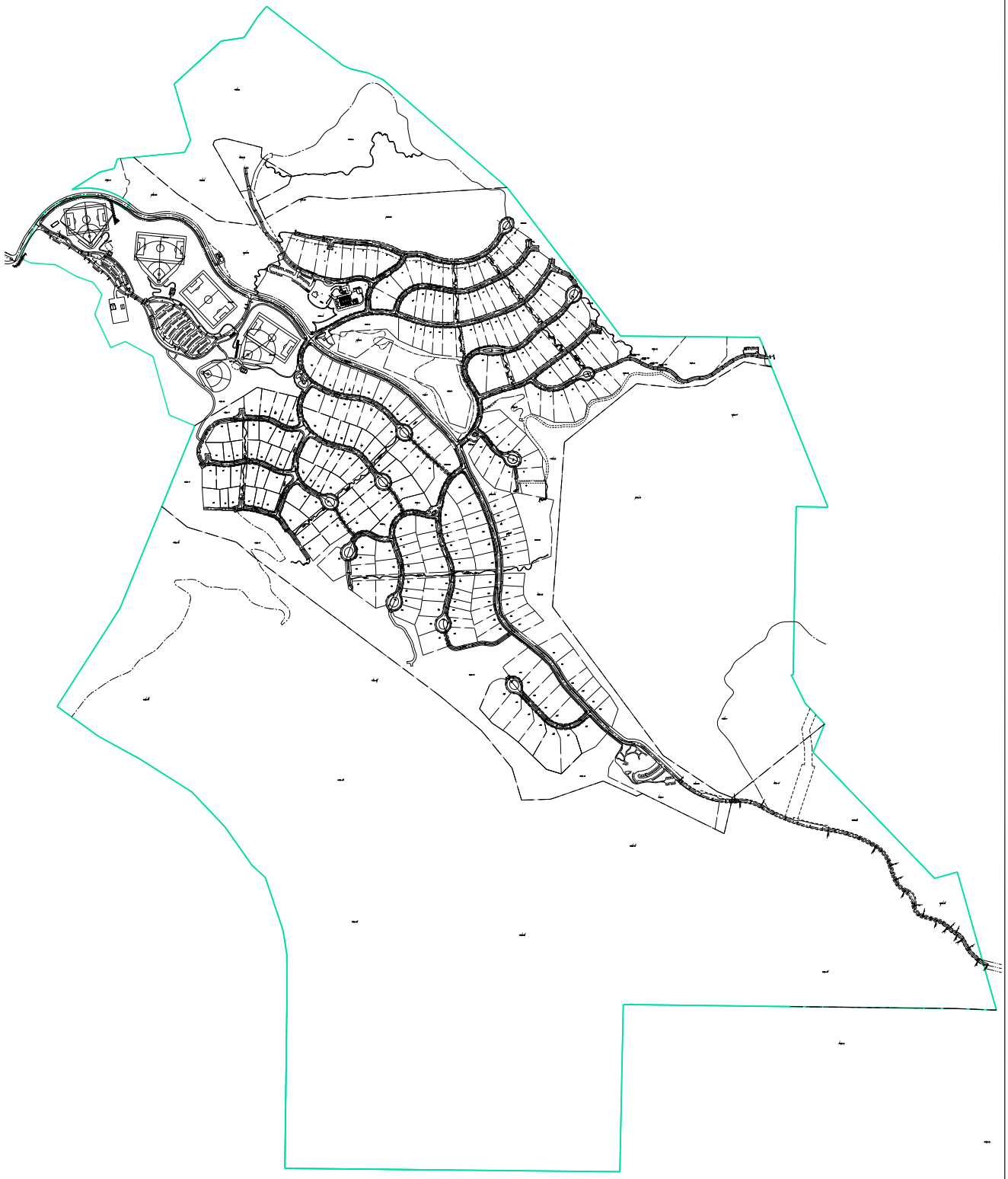
WILDER GHAD

ORINDA, CALIFORNIA

PROJECT NO.: 4365.108.005	FIGURE NO. 2
DATE: MARCH 2008	
DRAWN BY: DLB	CHECKED BY: EH

G:\Drafting\DRAFTING2_Dwg\4365\108\GHAD\4365108005-GHAD-2LanduseSummaryPlan-0308.dwg 4-24-08 02:38:47 PM rsalls

ORIGINAL FIGURE PRINTED IN COLOR



N

0 FEET 350
0 METERS 175

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

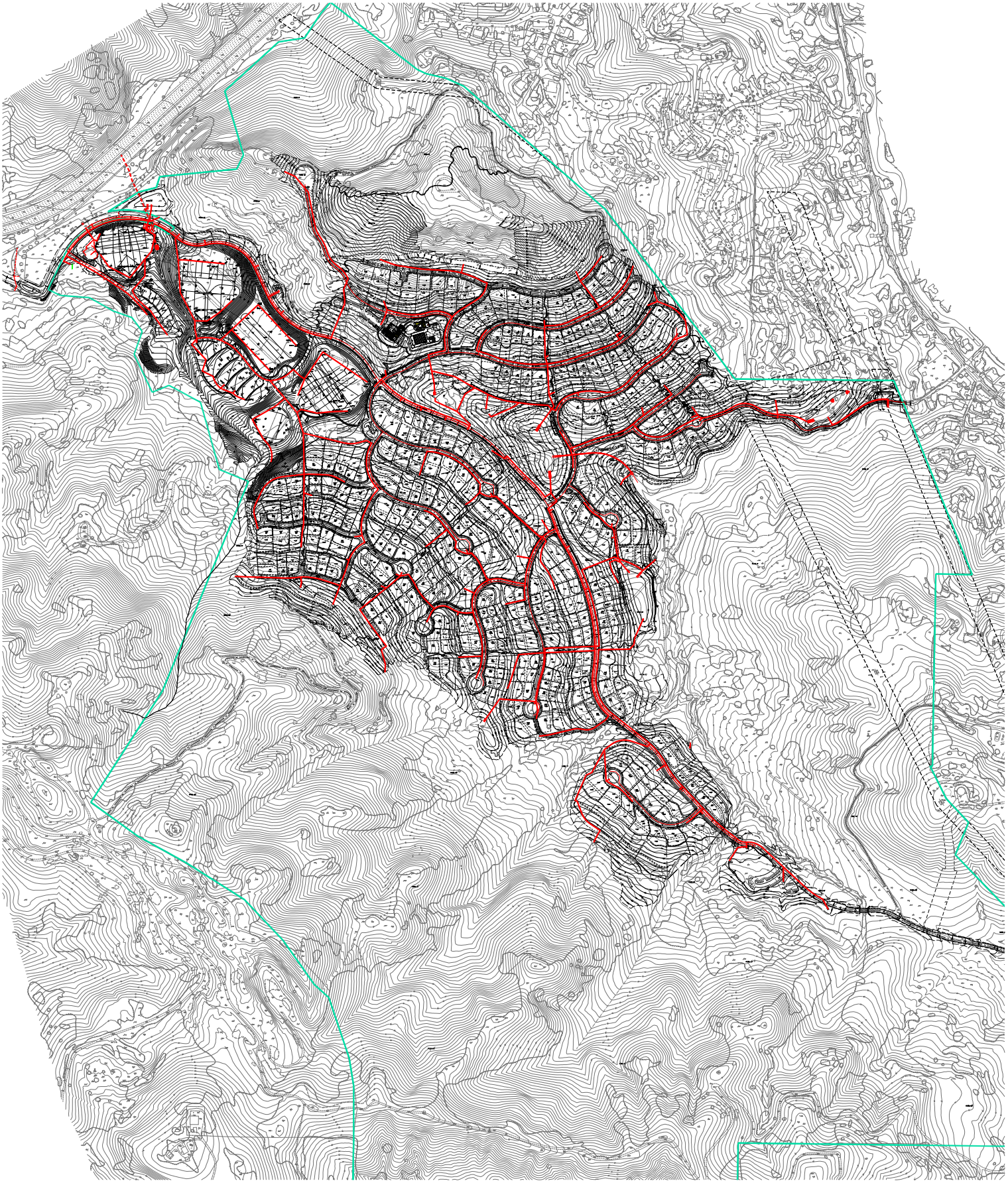
ENGEO INCORPORATED

FINAL MAP
WILDER GHAD
ORINDA, CALIFORNIA

PROJECT NO. 4365.108.005
DATE MARCH 2008
DRAWN DLB CHECKED EH

FIGURE NO. 3

ORIGINAL PLOT PRINTED IN COLOR



EXPLANATION

APPROXIMATE LOCATION OF GHAD MAINTAINED STORM DRAIN SYSTEM

N

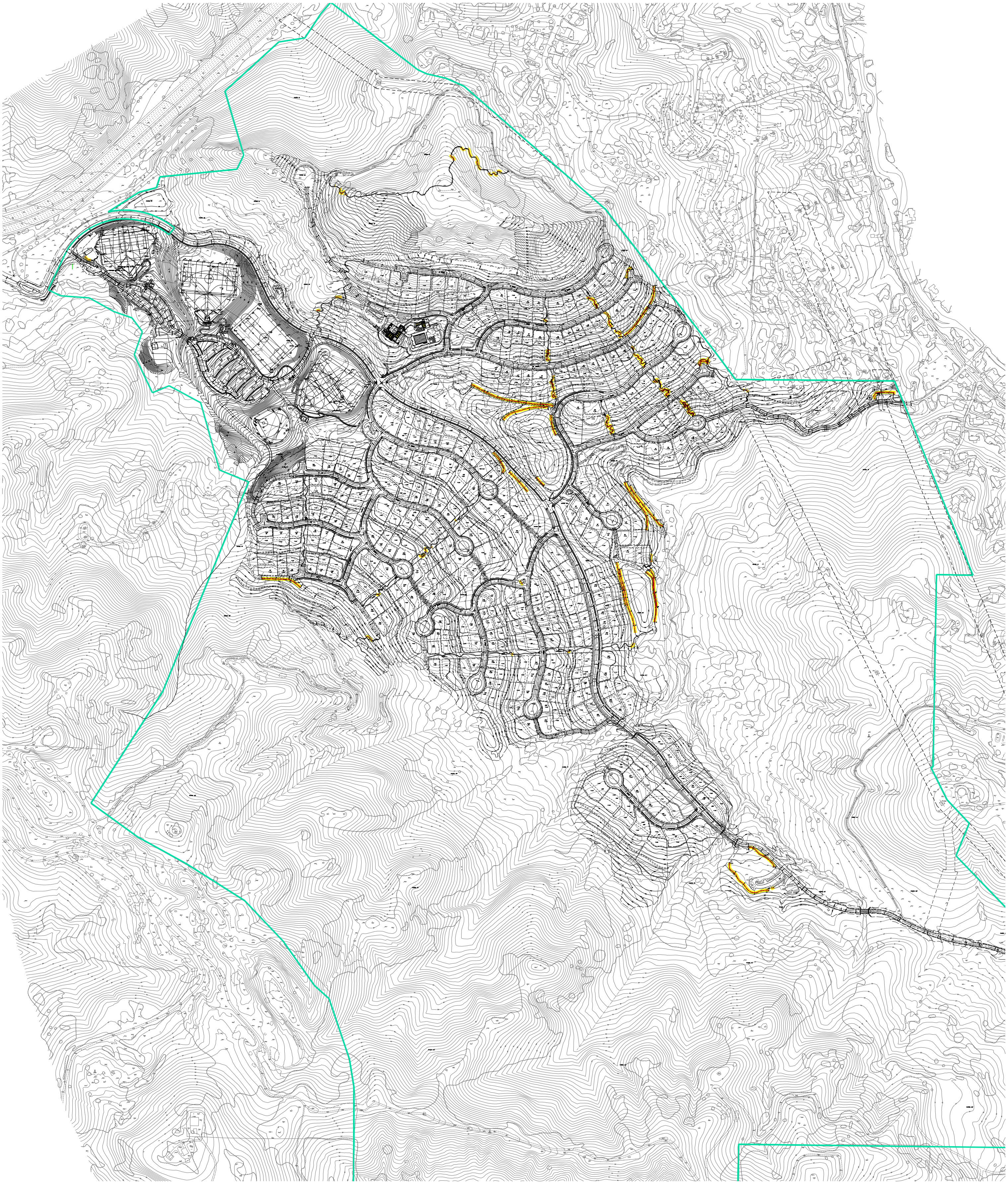
0 1000 2000
METERS 0 3500

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

ENGEO Incorporated

STORM DRAIN SYSTEM PLAN
WILDER GHAD
ORINDA, CALIFORNIA

4



EXPLANATION

APPROXIMATE LOCATION OF GHAD MAINTAINED RETAINING WALL

N

0 FEET 200
0 METERS 100

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

GHAD MAINTAINED RETAINING WALLS
WILDER GHAD
ORINDA, CALIFORNIA

PROJECT NO.: 4365.108.005		FIGURE NO. 5
DATE: MARCH 2008		
DRAWN BY: DLB	CHECKED BY: EH	

ORIGINAL FIGURE PRINTED IN COLOR

G:\Drafting\DRAFTING2_Dwg\4365\108\GHAD\4365108005-GHAD-5GhadMaintainedRetWalls-0308.dwg 4-24-08 03:05:00 PM

APPENDIX B

Exhibit 1	Development Agreement Sections 4.10 and 4.10.1
Exhibit 2	Development Agreement Condition of Approval No. 23
Exhibit 3	Vesting Tentative Map/Final Development Plan Condition of Approval No. 31

RECORDING REQUESTED BY
AND WHEN RECORDED, RETURN TO:

City of Orinda
P.O. Box 2000
Orinda, California 94563
Attention: City Manager

CONTRA COSTA Co Recorder Office
STEPHEN L. WEIR, Clerk-Recorder
DOC- 2005-0221295-00
Friday, JUN 17, 2005 09:52:32
FRE $0.00
Ttl Pd $0.00 Nbr-0002751439
lrc/R9/1-176

(Space Above This Line for Recorder's Use Only)
Exempt from recording fee per Gov. Code § 27383

SECOND AMENDMENT AND RESTATEMENT OF THE DEVELOPMENT AND PRE-ANNEXATION AGREEMENT FOR GATEWAY VALLEY BETWEEN CITY OF ORINDA AND ORINDA GATEWAY, LLC

Approved: March 15, 2005

4.10. Formation Of Districts.

Prior to filing the first Final Map on the Project Site, Orinda Gateway, LLC shall initiate and the City shall complete formation of the GHAD in accordance with and subject to the terms specified in this Section 4.10 and the Resource Agency Permits.

4.10.1. GHAD.

The GHAD shall cover the broadest scope of property within the Project Site as is permitted under the Law and the Resource Agency Permits pursuant to which the GHAD may be formed and shall be authorized to accept the dedication of those portions of the Montanera Preserve Areas that are consistent with the Long Term Management Plan and the Water-Board required stormwater facilities. Upon initiation of proceedings by Orinda Gateway, LLC to form the GHAD hereunder, the City shall thereafter take all actions as may be required by the Laws pursuant to which the GHAD is formed, and if the City Council has not previously adopted a resolution declaring that the City is subject to such Laws and forwarded a copy of such resolution to the State Controller, as required by Public Resources Code Section 26550, then the City Council shall do so. Orinda Gateway, LLC shall take such actions and execute such documents, instruments and waivers as may be necessary or appropriate under the Laws by which the GHAD is formed necessary to accomplish the formation of the GHAD. The City and Orinda Gateway, LLC shall cooperate in connection with the foregoing, in order to provide for establishment of the GHAD and its subsequent operations in accordance with the Laws by which the GHAD is formed, including designation of the initial board of directors, and other administrative matters. Upon formation, Orinda Gateway, LLC shall make such financial contributions to the GHAD as may be necessary in order for it to conduct its operations and perform its functions, until sufficient portions of the private property within the Project Site have been developed and are making payment of assessments and other amounts to the GHAD so that

it is financially self sustaining. Orinda Gateway, LLC may provide for assessments pursuant to the Master CC&Rs (or CC&Rs for individual Project components) to be paid to the GHAD as private contribution to finance the conduct of its operations and performance of its functions, in addition to any assessments or other levies which the GHAD may levy or assess in connection with its powers and functions under the Laws under which the GHAD is formed.

4.10.2. Other Districts.

Notwithstanding the provisions of this Section 4.10, Orinda Gateway, LLC shall have the right from time to time, or at any time, to request that the City consider the formation of any other District, for the maintenance and repair of land and improvements within the Project Site. Orinda Gateway, LLC shall submit such request to the City in writing, together with a detailed explanation of the basis and justification for the formation of such District, the purposes and functions for which it would be formed, the physical benefits and burdens which such District would impose, and the sources from which such District would receive funding to carry out its purposes and functions. The City shall have the right in its sole discretion to permit Orinda Gateway, LLC to initiate proceedings to form such District, either on the basis requested by Orinda Gateway, LLC or such other basis as Orinda Gateway, LLC may request in response to any objections of the City to Orinda Gateway, LLC's request hereunder. Upon approval by the City of such request, Orinda Gateway, LLC shall initiate the necessary proceedings to form such District in accordance with the Laws governing such formation, and the City shall thereafter take such actions as may be required under such Laws to form such District. Orinda Gateway, LLC shall execute all necessary documents, waivers, and other instruments as may be necessary or required by Laws in connection with the formation of such District hereunder. Orinda Gateway, LLC shall provide Security or other financial assurances in connection with the funding of such District to ensure adequate financing to carry out its purposes and functions,

Exhibit 2 - Development Agreement Condition of Approval No. 23

Condition of Approval No. 23. Certain of the Resource Agency Permits and/or approvals issued by other public agencies identified in Condition 7, above, (e.g. approvals from the United States Fish and Wildlife Service and the San Francisco Bay Area Regional Water Quality Control Board ("Resource Agency Permits") provide for the Geologic Hazard Abatement District ("GHAD") to take title to certain open space preserve areas associated with the Project and further provide that OGLLC must establish an endowment fund that is adequate to fund the GHAD's long-term management of the open space to which it takes title. Before transferring any open space land to the GHAD, OGLLC shall obtain **City Council approval** for the terms and amount of the endowment fund established to fund the GHAD's long-term management of the open space.

31. OGLLC shall initiate and the City shall complete formation of the Geologic Hazard Abatement District ("GHAD") in accordance with the requirements of Development Agreement Section 4.10. Consistent with Section 4.10, the GHAD's Plan of Control shall require the GHAD, at a minimum, to maintain the Project graded slopes and associated facilities and maintain the detention basins, water quality ponds and related stormwater drainage facilities described in the Storm Water Management Plan, including the Operation and Maintenance Plan ("Stormwater System"). In addition, the Plan of Control and/or Engineer's Report (as appropriate), in addition to all other statutorily required elements, shall include:

A. Perpetual maintenance of the Stormwater System at the level specified in the Stormwater Management Plan and Operation and Maintenance Plan and in accordance with Provision C.3. of the RWQCB Order for the issuance of the Contra Costa Countywide NPDES Municipal Storm Water Permit.
B. A contact person from the Board of Directors, or its designee, who downstream property owners can contact with any maintenance related concerns or comments. The GHAD shall provide the name, phone number, and mailing address of the contact person to all residents in the Project.
C. A reserve fund shall be established in the GHAD budget to provide for residential work associated with a catastrophic event such as a landslide, or detention/water quality basin bank failure.
D. The GHAD budget shall separately identify the Project's costs associated with (1) geotechnical/slope stability maintenance work, (2) the Stormwater System, and (3) the reserve fund.
E. An annual report to the City on implementation of the Plan of Control, including the Stormwater Management Plan and Operation and Maintenance Plan.

APPENDIX C

Final Resource Management Plan for the Montanera Project
WRA, Incorporated
Dated April 21, 2006 with Final Conforming Changes dated June 23, 2006
(CD-ROM attached to back page)

APPENDIX D

Long-Term Management Plan for the Montanera Project Preserve Areas, WRA, Incorporated, Dated April 21, 2006 with Conforming Changes dated June 23, 2006.
Including:

Conservation Easement for the Eastern Hills Open Space Area, Quarry Hill Open Space Area and Development Buffer Area.

Long-Term Management Plan for the Eastern Hills Open Space Area, Quarry Hill Open Space Area and Development Buffer Area.

Conservation Easement for the Western Hills Open Space Area
(CD-ROM attached to back page)

APPENDIX E

MCE CORPORATION

Operations and Maintenance Manual for the Wilder Project, City of Orinda
Contra Costa County, California
April 24, 2007

Wilder

Operations and Maintenance Manual
for the
Wilder Project

City of Orinda
Contra Costa County
California

April, 2007

Manual Text
And
Exhibits

Prepared by:

MCE CORPORATION
6515 Trinity Court
Dublin, California 94568-2686

A report prepared for:

Wilder
OG Property Owner, LLC
900 Walnut Avenue, Quarters D
Mare Island
Vallejo, CA 94592

Operations and Maintenance Manual for Wilder, City of Orinda, California

Stanley P. Smalley, P.E.
Executive Vice-President

MCE Corporation
6515 Trinity Court
Dublin, California 94568-2686
(925) 803-4111

April 24, 2007

TABLE OF CONTENTS

EXHIBITS

Operations and Maintenance Plan
for the
Wilder Project

1.0 Introduction

1.1 Monitoring and Maintenance Goals

As with all stormwater management infrastructure, a framework for facilitating proper upkeep and for assessing ongoing performance of the Wilder Project (formerly "Montanera") detention and water quality basins is critical to the longevity and effective operation of the facility. A number of interrelated goals have guided the development of this plan and include the following:

- To monitor the basins to assess whether each continues to function as appropriate mitigation for the effects of urban non-point source pollution on receiving waters in a manner consistent with the highest regard for public safety:
- To set forth the expected routine maintenance functions and associated schedules that allow the basins to function as designed;
- To anticipate non-routine maintenance needs that may arise and suggest appropriate responses to these needs:
- To promote the operation and maintenance of the basins in conformance with Federal, State, and County guidelines;
- To identify the parties responsible for carrying out monitoring and maintenance of the basins as well as the sources of funding for these activities;
- To identify an appropriate monitoring schedule to meet the overall goals;
- To assist in creating a framework for formal reviews of the system functionality;
- To foster a sense of adaptive management that will allow the Plan to evolve in order to save costs, without compromising the goals of the Plan, and to adjust to changes at the site and/or in regulatory guidance.

2.0 Monitoring and Maintenance Elements

Specific guidance on the monitoring and maintenance of the detention and water quality basins is provided below. Suggested checklists to be used as monitoring forms are included in Exhibit A. As warranted, monitoring and maintenance may be adaptively managed in response to changing circumstances or unforeseen conditions as long as modifications are consistent with the goals and intentions of this Plan.

2.1 Drawdown Time and Water Level

Outflow from the basin will be controlled by the size and height of the outlet pipe. The depth and design of the outlet pipes will hold the appropriate water quality volume for the minimum 48 hour treatment time. One or more staff gauges will be installed in the vicinity of the outlet works so that the water surface elevation in the basin can be appropriately measured from a safe vantage point during each monitoring and maintenance visit.

2.2 Outlet Structure General

It is of the utmost importance that the outlet structure functions properly and is free of debris and other obstructions. Visual inspection of the outlet structure should be carried out during each monitoring visit to the basin. Maintenance roads will provide access to the outlet structure for inspection and maintenance purposes.

The outlet should be carefully inspected for signs of erosion at the edges of the structure. Any physical obstruction of either the low and high flow outlet works should be noted, whether from debris or encroaching vegetation. The outlet structure should be cleaned both as part of routine maintenance as well as on an as-needed basis if more than one-quarter of any of the key portions of the outlet structure are obstructed. During maintenance, careful attention should be given to removing all floatable debris near the outlet that may contribute to blockage. Trash racks should be completely cleared of all debris, inspected for signs of corrosion, and repaired as necessary to maintain proper functioning.

2.3 Overall Basin Integrity

Basin integrity is evaluated by the visual inspection of basin side slopes and embankments. The basin side slopes and embankments should be monitored in detail as part of routine monitoring, as well as during post-flood event inspections of the stormwater management system. Access roads are provided around the perimeter of the basin to allow visual and physical access to basin side slopes and embankments. The basin should be inspected for overall integrity, especially in the vicinity of the inlet and outlet structures.

During periodic monitoring visits, personnel should inspect the entire perimeter of the basin and note evidence of erosion or slope failures. The sides of the embankment should generally be free of erosion, rills, slumps, and landslides. Any irregularities exhibited by the basin slopes should be reported immediately and appropriate corrective measures employed within 48 hours for wet season inspections (October through April inclusive) and seven days during the dry season. Side slopes and embankments should be repaired with natural river stone, rip rap, or by re-vegetation. A geotechnical expert should be consulted if remedial actions are severe or deemed outside of the abilities or expertise of the monitoring and maintenance personnel.

2.4 Inlet Structures

A total of four diversion structures are currently planned to direct flow from the storm drain system into the water-quality and detention basins. Visual inspection of the inlet structures should be carried out during each monitoring and maintenance visit to the basin. The following items should be carefully observed and noted:

- Any physical obstruction of the inlet. If more than one-quarter of any of the key inlet structures is obstructed, remedial maintenance should be performed immediately or scheduled to take place within 48 hours during the wet season and within seven days during the dry season. It is of the utmost importance that the inlet structure functions properly and is kept reasonably free of debris and other obstructions.

- Special attention should be given to noting whether erosion is taking place around the edges of the structure as well as at or immediately downstream from the point of discharge into the basin.

- The energy dissipaters at the inlet structures should be inspected during monitoring visits for structural integrity, for signs of erosion or blockage, and repaired on an as-needed basis.

2.5 Sediment Accumulation

Four of the water quality ponds and detention basins have one inlet for water to enter and two ponds and basins have two inlets for water to enter (a total of 8). Stormwater runoff will enter the basin and pond discharging first into a concrete forebay structure and then entering the basin or pond. The design depth of the permanent pools will be at least 4 feet. The objective of the forebay structure is the settling of sediments and sediment-borne constituents by creating an area of low velocities, even if the inflow rates are high and the basin water level is low. Another key objective of the design is to trap coarse debris (plastic trash, bottles, cans, etc) in the forebays, thus keeping it out of the main basin or pond and making it easier to collect the debris. The basins and ponds in drainage area 1B will all have permanent pools of 4 feet minimum depth.

Although post-construction urban runoff typically transports fairly low volumes of sediment, at some point in the future, it may be necessary to remove excess sediment from the basins. Sediment removal is expected to occur no more frequently than every five years. A water depth monitoring station will be installed in each permanent pool and the rate of accumulation will be monitored during each routinely scheduled visit by physically measuring the depth of water at the monitoring station. If the amount of sediment that has collected is estimated to exceed a depth of 12 inches in the forebays or if the permanent pool depth is less than 4 feet, the sediment will be removed. The dry season is the time of year for sediment removal. Removed sediments will be tested for toxicity and sent to an appropriate land fill.

As with all active maintenance activities within the basin itself (including vegetation removal), activities must comply with the requirements of the Biological Opinion issued by the U.S. Fish and Wildlife Service and the Section 1603 Streambed Alternation Agreement issued by the Department of Fish and Game, including a pre-activity survey by a qualified biologist to minimize the potential for incidental take of any special status species, particularly the California red-legged frog and the Foothill yellow-legged frog. Sediment removal should be carried out using proven techniques familiar to the maintenance staff.

Prior to removal, sediment from the basin will need to be tested using the toxic characteristics leaching procedure (TCLP) per EPA regulations (40 CPR Part 261), or most current standard (refer to www.epa.gov). This procedure is needed to evaluate whether the sediment is clean enough for use as general fill. This is usually the case, but special disposal criteria per the Resource Conservation and Recovery Act (RCRA) may be needed in exceptional circumstances. If analytical laboratory testing results indicate that the sediment contains contaminants above regulatory thresholds, the affected sediment will be removed from the basin and transported off-site for remediation/disposal in accordance with all applicable laws and regulations. If no contamination is detected or if the sediment contains contaminants below regulatory thresholds, the sediment can be trucked off-site and disposed of in a legal manner, or placed and spread evenly in open space areas approved by both a geotechnical engineer and a natural resources specialist. Following sediment removal, re-contouring of the basin bottom will be required to return the basin to its original design grades or to an approved alternative design.

2.6 Vegetation Control

The planting and landscaping around the perimeter of the basin will be maintained on a regular schedule, most likely in coordination with adjacent landscaping areas.

Vegetation growth within the water-quality basin should be monitored during each visit, and excess undesirable vegetation should be removed as necessary. The basin may support non-woody wetland or emergent marsh vegetation that will require thinning on a periodic basis to reduce biomass within the basin. Woody vegetation will be removed regularly to discourage establishment and colonization by these species. All excess vegetation will be cleared with special attention given to the areas around inlet and outlet works. No herbicides or similar chemicals shall be applied within the basin.

Control of emergent vegetation in the basin will generally be required whenever more than 25 percent of the basin surface area is impacted, and this is not expected to be more frequently than every five years. Emergent vegetation removal is best accomplished by mechanical removal after the basin has been drained. Removed vegetation can be composted per local waste management guidelines.

Prior to any vegetation control activities, as required by the Biological Opinion issued by the U.S. Fish and Wildlife Service and the Section 1603 Streambed Alternation Agreement issued by the Department of Fish and Game, a pre-activity survey shall be conducted

by a qualified biologist to minimize the potential for incidental take of any special status species, particularly the California red-legged frog and the Foothill yellow-legged frog.

2.7 Access and Fencing

The access roads and ramps should be regularly maintained as designed to repair excessive bumps, cracks, and depressions so that maintenance vehicles can easily navigate the road. The road should be inspected during each monitoring visit and repaired as necessary to promote all-weather vehicular access. Any damage to or failures of the embankment near the road should be reported and addressed immediately.

Entry to the basin via the access road will be through a securely locked gate. Routine inspections should include careful observation of the condition of the perimeter fencing around the basin. The fence should be maintained such that all gaps, tears, sags, and breaks should be repaired in a timely manner to maintain public safety. Evidence of trespassing or improper use of the facility should be noted and appropriate measures taken to correct the situation. Access barriers and signage should be inspected for their integrity and for damage from vandalism or other causes. Evidence of pathways or other signs of encroachment into the basin should be given particular attention and remedial measures to further limit access should be implemented.

2.8 Coarse Debris Accumulation

Street and parking lot sweeping and landscape maintenance in the project should greatly reduce the amount of litter and trash that enters the stormwater basin. Monitoring personnel should qualitatively estimate the quantity of litter and coarse debris present in the basin as well as its distribution. Maintenance staff should plan to remove litter and debris from the basin as a whole as well as from the inlet and outlet structure trash racks during routine basin maintenance visits, and more often as needed. Any debris that has accumulated should be removed and the trash racks inspected for signs of corrosion and repaired as necessary to allow proper function.

2.9 Mechanical Treatment Units (MTUs)

MTUs are proposed only in those locations where it is not practical to use water quality ponds and/or grassy swales for treatment of stormwater because of steepness of terrain. The project proposes to install precast Storm Filter manufactured by Contech Stormwater Solutions. and to use the full maintenance services provided by Contech Stormwater Solutions to perform inspections, minor maintenance and major maintenance as detailed in the Operation and Maintenance Guidelines attached as Exhibit B.

2.10 Grassy Swale-Urban Curb Swale System

Grassy swales are being proposed along every portion of roadway that have longitudinal slope of 5% or less. To ensure proper, consistent maintenance, mowing

of the grassy swales will be performed by the responsible entity providing the drainage-related maintenance in this plan rather than adjacent property owners. Grassy swales will be mowed to no shorter than 4" height in the late spring or early summer after maximum growth from winter rains. Remove any areas of excess cuttings that will likely not decompose naturally. Inspections of the grassy swales should be performed after each major storm to check for erosion, ponding water and plugged driveway culverts. In the Fall of the year prior to the start of the rainy season, all grassy swales shall be inspected for any erosion, plugged driveway culverts, and damaged rock check dams. Reseed any areas as required. See Exhibit C.

2.11 Bio-Retention Areas

To the extent feasible, the parking areas, cul-de-sacs and other similar areas within the common areas of the project will incorporate bio-retention areas to decrease expanses of impervious surface and provide for vegetated infiltration. Inspection of the bio-retention areas should be performed after each major storm to check for any erosion, sediment accumulation, and to remove any collected debris. In the Fall of the year prior to the start of the rainy season, inspect all bio-retention areas for erosion, sediment accumulation and debris. See Exhibit D.

Routine maintenance should include turf mowing and any other vegetation maintenance. If infiltration rates decrease over the years to the point that ponding occurs for a minimum of five days, the soil above the filter fabric and the filter fabric itself would be removed and replaced with new material. Notify mosquito abatement personnel of any observed ponding.

3.0 Monitoring and Maintenance Schedule

The following schedule for monitoring the basins, mechanical treatment units, grassy swales and bio-retention areas for conducting routine maintenance is recommended. The schedule may be modified as needed as conditions change in order to fulfill the overall basin management goals. Complete stormwater monitoring visits will be performed on the following schedule:

Drainage Facility	Times/Year	Months
Detention & water quality basins	4	July, December, February, April
Mechanical Treatment Units	2	April, August
Grassy swales	1	September
Bio-retention areas	1	September

3.1 Routine Monitoring and Maintenance

Exhibits A, B, C and D include suggested standard inspection checklists that are to be used during both routine and non-routine basin monitoring and should be included in annual monitoring reports, as described in Section 4. See Section 2 for detailed descriptions of monitoring activities.

Comprehensive detention and water quality basin monitoring visits are recommended four times per year. It is suggested that three of the four comprehensive basin routine monitoring visits be scheduled during the wet season at times when the basin is not likely to be inundated so that unobstructed observations can be made of the entire basin, specifically during early December, early February, and early April. A more thorough inspection should be carried out in mid-summer, preferably by late July so that remedial actions can be completed prior to the ensuing rainy season. At this time, the discharge line and ultimate outfall should also be inspected.

Routine maintenance, including removal of litter and coarse debris, vegetation control, and cleaning of inlet and outlet structures may be performed either as part of regularly scheduled monitoring visits or carried out in a timely manner following monitoring visits.

3.2 Non-routine Monitoring and Maintenance

In addition to the routine monitoring and maintenance that can be scheduled at specific times, there are other monitoring and maintenance activities that should be scheduled based on certain events that are anticipated to occur and emergency repairs that may be required as a result of those events. These event-based monitoring and emergency or non-routine maintenance are discussed in more detail below:

3.2.1 Event-based monitoring

In addition to the routine monitoring schedule described above, special monitoring visits should be carried out during each large precipitation event within the contributing watershed. For these purposes, it is suggested that during the first year of basin monitoring a large precipitation event be defined as a storm that results in 1.0 inches or more of rainfall within a 24-hour period. Following the first year of monitoring and evidence that the water quality basins are functioning as designed, this threshold may be revised. If a new recommendation is made, it should be documented in the annual monitoring report.

During flood events, the focus of the monitoring should be on assessing whether the basins inlet and outlet structures are functioning properly. An initial precipitation-event monitoring visit should be carried out as soon as it becomes clear that a significant flood event is underway and weather conditions permit, with a follow-up visit approximately 24 hours later.

3.2.2 Non-routine maintenance

Non-routine maintenance should be carried out on an "as needed" basis for problems identified during the routine and event-based monitoring program. Examples of non-routine maintenance activities may include (but are not limited to) the following:

- *Emergency inlet or outlet maintenance.* The routine or event-based monitoring may identify serious problems with the inlet or outlet works, such as a major blockage by debris. These situations will need to be remedied immediately. It is of the utmost importance that the inlet and outlet structures function properly in order for the basins to fulfill its purpose as a water quality facility.

- *Basin embankment repairs.* Immediate action will need to be taken should monitoring indicate that the integrity of the basins are threatened due to excessive erosion or slumping. Techniques utilized may include (but are not limited to) stabilization of the embankments by removal and replacement with compacted and drained fill, placement of subsurface drainage devices (e.g. underdrains or horizontal drilled drains), slope correction, backfill of erosion channels, and/or construction of erosion control measures. Repairs deemed not to require immediate attention should be delayed until the dry season. Any repairs must be as directed by the geotechnical engineer.

3.3 Annual Work Program and Budget

Exhibit E is an annual work program and budget to perform the anticipated routine monitoring and maintenance and the non-routine monitoring and maintenance discussed above. It is based on specific activities of monitoring and maintenance activities. For each activity, an inventory of physical features to be inspected or maintained has been developed and a level of service has been established resulting in an anticipated annual quantity of work. Productivity rates have been established for each annual work quantity that is planned to be accomplished with in-house crews resulting in total planned labor hours. Unit costs for each activity that includes labor, equipment and material costs have been applied to the labor hours to develop a total planned budget.

This work is then distributed throughout the year to the months that each activity is scheduled or to the months in which the work is likely to occur. This workload distribution then creates a Planned versus Actual report which serves as a tool to monitor progress against the initial work program. Exhibit F is an example of an actual Planned versus Actual for a street drainage maintenance operation.

3.4 Long Range Capital Reserve Account Work

The previously detailed Annual Work Program and Budget provides the resource to perform the estimated annual workload but does not set up a reserve fund to perform those maintenance items which are cyclic in nature nor does it provide funds to replace infrastructure

items at the end of their useful life. Exhibit G is an example of a Long Range Capital Replacement Cost Analyses containing some of the infrastructure items that are currently in the draft design.

A couple examples of long cyclic maintenance items are discussed below and have been included in the Long Range Capitol Replacement Cost Analysis.

- *Sediment removal* . It is anticipated that sediment removal from the basin will be required infrequently. Monitoring records should be used to identify trends in sediment deposition, both to establish whether sediment removal is needed and to assist in locating upstream sediment sources that may be accelerating deposition in the basin. Section 2.5 gives detailed guidelines for initiating and carrying out sediment removal activities. For all sediment removal activities, as required by the Biological Opinion issued by the U.S. Fish and Wildlife Service and the Section 1602 Streambed Alternation Agreement issued by the Department of Fish and Game, a pre-activity survey shall be conducted by a qualified biologist to minimize the potential for incidental take of any special status species, particularly the California red-legged frog and the Foothill yellow-legged frog..

- *Bio-retention areas.* As previously discussed in Section 2.11, there will very likely be a time when soil and filter fabric will have to be removed and replaced. There is even a possibility that entire bio-retention installation would require replacement including the gravel curtain drain, optional sand filter, underdrain collection system, and gravel jacket.

The final decision on the number of years for which the Long Range Capital Replacement Analysis will be calculated should be established after the final design is completed and the responsible entity and funding choice is established.

3.5 Responsible Entity and Funding

The applicant is responsible for assuring initial construction, operation and maintenance of the stormwater system. Pursuant to the requirements of Section 4.10 of the Development Agreement between OGLLC and the City and Condition of Approval No 31 for Vesting Tentative Map requires OGLLC and the City to establish a Geologic Hazard Abatement District (GHAD) to take the title to certain lands within the project, including the stormwater system and to be responsible under its Plan of Control for funding the long term operation and maintenance requirements of the stormwater system by means of assessments on the homeowners. The City has required the GHAD to be established no later than the filing of the first Final Map for the project, and OGLLC, or its successors or assigns, shall be responsible for the installation, operation and maintenance of the stormwater system until dedication to the GHAD. The Plan of Control shall be submitted to the Water Board for review at least 60 days prior to the first public hearing on the GHAD. Following is a summary of the estimated annual inspection and maintenance costs as detailed in Exhibit E, and amount of annual contribution to the replacement reserve fund as detailed in Exhibit G.

Type of Activities	**Cost**
Monitoring Activities	$ 9,850
Storm Related Inspections	$ 16,650
Maintenance Activities	$ 86,700
Total Annual Inspection and Maintenance Cost	$113,200
Infrastructure Replacement Reserve Fund[1]	$121,950

[1]Reserve Fund is based on 2008 dollars annually to fund multi-year cyclic cost.

3.6 Mosquito and Vector Control

Mosquito and Vector Control is an important element of the O&M Plan. In order to facilitate the control of mosquitoes and vectors on the project site it is important that the Contra Costa Mosquito and Vector Control District (CCM&VCD) be informed of all O&M activities. In order to keep CCM&VCD informed, the following will occur:

- A copy of the O&M Plan will be provided to the CCM&VCD.
- Access to all potential vector-producing areas will be given to District Personnel.
- Copies of O&M reports will be supplied to the District.
- The District will be given advanced notice of O&M activities on the site
- Schedule of regular O&M activities will be given to the District.
- Activities that the District will be notified about will include routine and non-routine activities including but not limited to: silt and vegetation management and water management.
- O&M personnel will cooperated with District Personnel and adjust their activities when necessary to facilitate the control of mosquitoes and vectors.
- The O&M plan will adhere to the Mosquito and Vector Control requirements presented in the Wilder Stormwater Management Plan.

4.0 MCE Reporting and Documentation

Organized reporting and annual evaluation of the status and condition of the detention and water quality basins are key to achieving stormwater management goals at Wilder Project. A summary report of each year's monitoring and maintenance activities associated with the detention basin shall be prepared annually and submitted to the City of Orinda by September 25th of each year in order to demonstrate that the basin is ready to perform flood control functions during the coming rainy season.

At a minimum, the detention basins annual monitoring and maintenance report shall (a) include copies of all of the monitoring checklists used during every inspection visit to the basins, (b) describe and document any and all maintenance activities that were carried out, and (c) describe any recommended permanent modifications to the monitoring and maintenance guidelines put forth in this document.

Annual monitoring reports will also be made available to Regional Water Quality Control Board staff and to other regulatory agencies as requested. Copies of annual monitoring and maintenance reports should be maintained to aid in the review of the performance of the basin and to detect trends in maintenance needs.

Exhibit A

WILDER PROJECT

COMPREHENSIVE BASIN MONITORING AND MAINTENANCE

REPORT FORM

To be completed following each monitoring and maintenance visit to the basin and submitted as part of an annual report to the City of Orinda, Ca by September 25th of each year.

Inspector:_____ Date:_____ Basin #_____

Weather conditions:_____

Inspection (circle one): Jul. Dec. Feb. Apr.

Days since last rainfall:_____ Date of last visit:_____

Basin water level:_____Sediment depth:_____

Sediment accumulated since last monitoring visit:_____

ELEMENT	YES	NO	NA	COMMENTS/SUGGESTED MAINTENANCE
Drawdown time and water level				
Has significant Precipitation occurred in the last 24 hrs?				
Is the water surface elevation appropriate?				
Outlet Structure General				
Outlet structure functioning properly and in good condition?				
Are there cracks or structural damage to the structures?				
Is there any erosion around the outlet structures?				

Exhibit A

ELEMENT	YES	NO	N/A	COMMENTS/SUGGESTED MAINTENANCE
Are there litter and coarse debris present in the basin?				
Have the outlet trash racks been cleaned and are they in good condition?				
Energy dissipater downstream from outlet in good condition?				
Overall basin integrity				
Are the side slopes and embankments in good condition?				
Are there rills, slides, piping or other erosion features?				
Inlet structures				
Are the inlet structures functioning properly and in satisfactory condition?				
Are there cracks or structural damage to the structure?				
Is there erosion around the structure footings?				
Is there erosion at the energy dissipater?				
Sediment accumulation				
Is the permanent pool depth less than 3 ft or has sediment accumulation exceeded 12 inches?				
Has sediment removal been carried out within the last 3 months?				
If so, was the sediment tested as required in the maintenance plan?				

Exhibit A

ELEMENT	YES	NO	NA	COMMENTS/SUGGESTED MAINTENANCE
Is sediment removal needed now?				
Vegetation control				
Are there trees, shrubs, and other woody plants growing in the basin?				
Is vegetation control needed?				
Access and fencing				
Is the gate in good condition?				
Is the perimeter fencing in good condition?				
Is there evidence of encroachment or improper use of the facility?				
Are the access roads and ramps in good condition?				
Vector control				
Are mosquitoes or mosquito larvae evident in significant quantities?				
Has mosquito abatement been undertaken since the last monitoring visit?				
Is mosquito abatement necessary at this time?				
Additional maintenance recommendations				
Do any basin structures require maintenance to provide more effective function?				

CONTECH® STORMWATER SOLUTIONS™

Operation and Maintenance

The Stormwater Management StormFilter®

Vault, Cast-In-Place, and Linear Units

Important: These guidelines should be used as a part of your site stormwater management plan.

Description

The Stormwater Management StormFilter® (StormFilter) is a passive, flow-through, stormwater filtration system. The system is comprised of one or more vaults that house rechargeable, media-filled, filter cartridges. The StormFilter works by passing stormwater through the media-filled cartridges, which trap particulates and adsorb materials such as dissolved metals and hydrocarbons. Once filtered through the media, the treated stormwater is directed to a collection pipe or discharged into an open channel drainage way.

The StormFilter is offered in multiple configurations, including vault, linear, catch basin, manhole, and cast-in-place. The vault, linear, manhole, and catch basin models utilize pre-manufactured units to ease the design and installation processes. The cast-in-place units are customized for larger flows and may be either covered or uncovered underground units.

Purpose

The StormFilter is a passive, flow-through, stormwater filtration system designed to improve the quality of stormwater runoff from the urban environment before it enters receiving waterways. It is intended to function as a Best Management Practice (BMP) to meet federal, state, and local requirements for treating runoff in compliance with the Clean Water Act.

Through independent third party studies, it has been demonstrated that the StormFilter is highly effective for treatment of first flush flows and for treatment of flow-paced flows during the latter part of a storm. In general, the StormFilter's efficiency is highest when pollutant concentrations are highest. The primary non-point source pollutants targeted for removal by the StormFilter are: suspended solids (TSS), oil and grease, soluble metals, nutrients, organics, and trash and debris.

Sizing

The StormFilter is sized to treat the peak flow of a water quality design storm. The peak flow is determined from calculations based on the contributing watershed hydrology and from a design storm magnitude set by the local stormwater management agency. The particular size of a StormFilter unit is determined by the number of filter cartridges (see Figure 1) required to treat this peak flow.

The flow rate through each filter cartridge is adjustable, allowing control over the amount of contact time between the influent and the filter media. The maximum flow rate through each cartridge can be adjusted to between 5 and 15 gpm using a calibrated restrictor disc at the base of each filter cartridge. Adjustments to the cartridge flow rate will affect the number of cartridges required to treat the peak flow.

Basic Function

The StormFilter is designed to siphon stormwater runoff through a filter cartridge containing media. A variety of filter media is available and can be customized for each site to target and remove the desired levels of sediments, dissolved phosphorus, dissolved metals, organics, and oil and grease. In many cases, a combination of media is recommended to maximize the effectiveness of the stormwater pollutant removal.

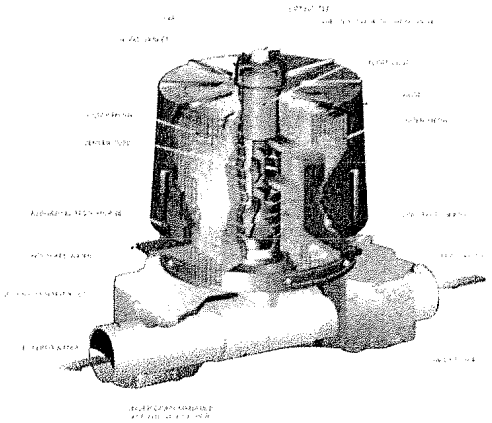


Figure 1. The StormFilter Cartridge

Priming System Function

When stormwater in the StormFilter unit enters a StormFilter cartridge, it percolates horizontally through the cartridge's filter media and collects in the center tube of the cartridge, where the float in the cartridge is in a closed (downward) position.

Water continues to pass through the filter media and into the cartridge's center tube. The air in the cartridge is displaced by the water and purged from beneath the filter hood through the one-way check valve located in the cap. Once the center tube is filled with water (approximately 18 inches deep), there is enough buoyant force on the float to open the float valve and allow the treated water in the center tube to flow into the under-drain manifold. This causes the check valve to close, initiating a siphon that draws polluted water throughout the full surface area and volume of the filter. Thus, the entire filter cartridge is used to filter water throughout the duration of the storm, regardless of the water surface elevation in the unit. This siphon continues until the water surface elevation drops to the elevation of the hood's scrubbing regulators.

The cartridges are connected to the under-drain manifold with a plastic connector. Since some media used is potentially buoyant, a threaded connector affixed to the under-drain manifold (with glue or other adhesive) is necessary to ensure that the cartridge isn't lifted out of place. For the heavier compost media, a slip connector is used.

The StormFilter is also equipped with flow spreaders that trap floating debris and surface films, even during overflow conditions. Depending on individual site characteristics, some systems are equipped with high and/or base flow bypasses. High flow bypasses are installed when the calculated peak storm event generates a flow that overcomes the overflow capacity of the system. This is especially important for precast systems. Base flow bypasses are sometimes installed to bypass continuous inflows caused by ground water seepage, which usually do not require treatment. All StormFilter units are designed with an overflow. The overflow operates when the inflow rate is greater than the treatment capacity of the filter cartridges.

Maintenance Guidelines

The primary purpose of the StormFilter is to filter out and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site.

Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is also good practice to inspect the system after severe storm events.

Types of Maintenance

Presently, procedures have been developed for two levels of maintenance:

- Inspection/minor maintenance
- Major maintenance.

Inspection/minor maintenance activities are combined since minor maintenance does not require special equipment and typically little or no materials are in need of disposal.

Inspection/minor maintenance typically involves:

- Inspection of the vault itself
- Removal of vegetation and trash and debris.

Major maintenance typically includes:

- Cartridge replacement
- Sediment removal

Important: Applicable safety (OSHA) and disposal regulations should be followed during all maintenance activities.

Maintenance Activity Timing

Two scheduled inspections/maintenance activities should take place during the year.

First, an inspection/minor maintenance activity should be done. During the minor maintenance activity (routine inspection, debris removal), the need for major maintenance should be determined and, if disposal during major maintenance will be required, samples of the sediments and media should be obtained.

Second, if required, a major maintenance activity (replacement of the filter cartridges and associated sediment removal) should be performed.

In addition to these two scheduled activities, it is important to check the condition of the StormFilter unit after major storms for damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the maintenance activity schedule depending on the actual operating conditions encountered by the system.

In general, minor maintenance activities will occur late in the rainy season, and major maintenance will occur in late summer to early fall when flows into the system are not likely to be present.

Maintenance Activity Frequency

The primary factor controlling timing of maintenance for the StormFilter is sedimentation.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media. The flow through the system will naturally decrease as more and more solids are trapped. Eventually the flow through the system will be low enough to require replacement of the cartridges. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on an as-needed basis in order to prevent material from being re-suspended and discharged to the system.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction should be inspected and maintained more often than those in fully stabilized areas.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after large storms.

Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system. It is recommended that the maintenance agency develop a database to properly manage StormFilter maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection/minor maintenance
- One time per year
- After Major Storms

Major maintenance
- One time per year
- In the event of a chemical spill

Frequencies should be updated as required.

The recommended initial frequency for inspection/minor maintenance is two times per year for precast units. StormFilter units should be inspected after all major storms. Sediment removal and cartridge replacement on an annual basis is recommended until further knowledge is gained about a particular system.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to two years, but inspection is warranted.

Maintenance Methods

Inspection/Minor Maintenance

The primary goal of a maintenance inspection is to assess the condition of the cartridges relative to the level of sediment loading. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, it is likely that the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct an inspection and/or minor maintenance:

Important: Maintenance must be performed by a utility worker familiar with StormFilter units.

1. If applicable, set up safety equipment to protect pedestrians from fall hazards due to open vault doors or when work is being done near walkways or roadways.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.

3. Open the doors to the vault and allow the system to air out for 5-10 minutes.

4. Without entering the vault, inspect the inside of the unit, including components.

5. Take notes about the external and internal condition of the vault.

   Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the level of water and estimate the flow rate per drainage pipe. Record all observations.

6. Remove large loose debris and trash using a pole with a grapple or net on the end.

7. Close and fasten the door.

8. Remove safety equipment.

9. Make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.

10. Finally, review the condition reports from the previous minor and major maintenance visits, and schedule cartridge replacement if needed.

Major Maintenance

Depending on the configuration of the particular system, a worker may be required to enter the vault to perform some tasks.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows exist. Standing water present in the vault should be regarded as polluted and should be contained during this operation by temporarily capping the manifold connectors.

Replacement cartridges will be delivered to the site. Information concerning how to obtain the replacement cartridges is available from CONTECH Stormwater Solutions.

Warning: In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect pedestrians from fall hazards due to open vault doors or when work is being done near walkways or roadways.

2. Visually inspect the external condition of the unit and take notes concerning defects/problems.

3. Open the doors to the vault and allow the system to air out for 5-10 minutes.

4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.

5. Make notes about the external and internal condition of the vault.

   Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.

6. Remove large loose debris and trash using a pole with a grapple or net on the end.

7. Using a boom, crane, or other device (dolly and ramp), offload the replacement cartridges (up to 150 lbs. each) and set aside.
8. Remove used cartridges from the vault using one of the following methods:

Important: This activity will require that workers enter the vault to remove the cartridges from the drainage system.

Method 1:

a. Using an appropriate sling, attach the cable from the boom, crane, or tripod to the cartridge being removed. Contact CONTECH Stormwater Solutions for specifications on appropriate attachment devices.

This activity will require that workers enter the vault to remove the cartridges from the drainage system and place them under the vault opening for lifting.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

b. Remove the used cartridges (250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Stormwater Solutions performs the maintenance activities and damage is not related to discharges to the system.

c. Set the used cartridge aside or load onto the hauling truck.

d. Continue steps a through c until all cartridges have been removed.

Method 2:

a. Unscrew the cartridge cap.

b. Remove the cartridge hood.

c. Tip the cartridge on its side.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

d. Empty the cartridge onto the vault floor.

e. Set the empty, used cartridge aside or load onto the hauling truck.

f. Continue steps a through e until all cartridges have been removed.

9. Remove deposited sediment from the floor of the vault and, if large amounts are present, from the forebay. This can usually be accomplished by shoveling the sediment into containers, which, once full, are lifted mechanically from the vault and placed onto the hauling truck. If Method 2 in Step 8 is used to empty the cartridges, or in cases of extreme sediment loading, a vactor truck may be required.

10. Once the sediments are removed, assess the condition of the vault and the condition of the manifold and connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude above the floor of the vault.
    a. If required, apply a light coating of FDA approved silicon grease to the outside of the exposed portion of the connectors. This ensures a watertight connection between the cartridge and the drainage pipe.
    b. Replace any damaged connectors.
11. Using the boom, crane, or tripod, lower and install the new cartridges. Once

again, take care not to damage connections.

12. Close and fasten the door.

13. Remove safety equipment.

14. Make notes about the local drainage area relative to ongoing construction, erosion problems, or high loadings of other materials to the system.

15. Finally, dispose of the residual materials in accordance with applicable regulations. Make arrangements to return the used cartridges to CONTECH Stormwater Solutions.

Related Maintenance Activities

(Performed on an as-needed basis)

StormFilter units are often just one of many components in a more comprehensive stormwater drainage and treatment system. The entire system may include catch basins, detention vaults, sedimentation vaults and manholes, detention/retention ponds, swales, artificial wetlands, and other miscellaneous components.
In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil and grease loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in a manner that will not allow the material to affect surface or ground water. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. It is not appropriate to discharge untreated materials back to the stormwater drainage system.

Part of arranging for maintenance to occur should include coordination of disposal of solids (landfill coordination) and liquids (municipal vacuum truck decant facility, local wastewater treatment plant, on-site treatment and discharge).

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals. CONTECH Stormwater Solutions will determine disposal methods or reuse of the media contained in the cartridges. If the material has been contaminated with any unusual substance, the cost of special handling and disposal will be the responsibility of the owner.

StormFilter Minor Maintenance and Inspection Data Sheet

Date: _____ **Personnel:** _____

Location: _____ **System Size:** _____

System Type: Vault Cast-In-Place Linear

System Observations

Media Months in Service: _____

Oil and Grease in Forebay: **Yes** **No** _____

Sediment Depth in Forebay: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Estimated Flow from Drainage Pipes (if available): _____

Cartridges Submerged: **Yes** **No** How Deep: _____

StormFilter Minor Maintenance Activities (check off if done and give description)

Trash and Debris Removal: _____

Minor Structural Repairs: _____

Drainage Area Report

Excessive Oil and Grease Loading: **Yes** **No** Source: _____

Sediment Accumulation on Pavement: **Yes** **No** Source: _____

Erosion of Landscaped Areas: **Yes** **No** Source: _____

Items Needing Further Work: _____

Other Comments: _____

Review the condition reports from the previous minor and major maintenance visits.

StormFilter Major Maintenance/Cartridge Replacement Data Sheet

Date: _____ **Personnel:** _____

Location: _____ **System Size:** _____

System Type: Vault Cast-In-Place Linear

List Safety Procedures and Equipment Used: _____

_____

_____

System Observations

Media Months in Service: _____

Oil and Grease in Forebay: **Yes** **No** _____

Sediment Depth in Forebay: _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Drainage Area Report

Excessive Oil and Grease Loading: **Yes** **No** Source: _____

Sediment Accumulation on Pavement: **Yes** **No** Source: _____

Erosion of Landscaped Areas: **Yes** **No** Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: **Yes** **No** Details: _____

Replace Cartridges: **Yes** **No** Details: _____

Sediment Removed: **Yes** **No** Details: _____

Quantity of Sediment Removed (estimate?): _____

Minor Structural Repairs: **Yes** **No** Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes: _____

Exhibit C

WILDER PROJECT

GRASSY SWALE REPORT FORM

Inspector: ______________________________ Date: ______________

Street Name: ______________________________ Length of Swale: ______________

Address	Erosion	Driveway Culvert	Rock Check Dam	Other

Exhibit D

WILDER PROJECT

BIO-RETENTION AREAS REPORT FORM

Inspector: ______________________________ Date: _______________

Area Number	Erosion	Sediment	Debris	Other

Exhibit E

WILDER STORMWATER MANAGEMENT
WORK PROGRAM ACTIVITIES
2008 Estimated Costs

1/31/2008

AREA - M1 - MONITORING ACTIVITIES

CODE	ACTIVITY	INVENTORY QTY.	INVENTORY UNIT	LEVEL OF SERVICE QTY	LEVEL OF SERVICE UNIT	ANNUAL QTY	ANNUAL UNIT	HOURS/ UNIT	TOTAL HOURS	UNIT COST	TOTAL COST
MONITORING ACTIVITIES											
R1-01	BASIN INSPECTION	6.00	Each	4.000	Times	24.00	Each	0.750	18.00	55.68	1002.24
R1-02	MTU INSPECTION	3.00	Each	2.000	Time	6.00	Each		0.00	161.47	968.82
R1-03	GRASSY SWALE INSPECTION	9.60	MLF	1.000	Time	9.60	MLF	0.750	7.20	55.68	400.90
R1-04	BIO-RETENTION AREA INSP.	19.00	Each	1.000	Time	19.00	Each	0.500	9.50	55.68	528.96
R1-05	CATCH BASIN INSPECTION	230.00	Each	1.000	Time	230.00	Each	0.200	46.00	55.68	2561.28
R1-06	MANHOLE INSPECTION	127.00	Each	1.000	Time	127.00	Each	0.250	31.75	55.68	1767.84
R1-07	TRASH AREA INSPECTION	12.00	Each	4.000	Times	48.00	Each	0.200	9.60	55.68	534.53
R1-08	ANNUAL REPORT	1.00	Each	1.000	Time	1.00	Each	24.000	24.00	87.00	2088.00
	SUBTOTALS:								146.05		9852.56
STORM RELATED INSPECTIONS											
S1-01	BASIN	6.00	Each	10.000	Times	60.00	Each	0.750	45.00	55.68	2505.60
S1-02	MTU	3.00	Each	10.000	Times	30.00	Each		0.00	161.47	4844.10
S1-03	GRASSY SWALE	9.60	MLF	10.000	Times	96.00	MLF	0.750	72.00	55.68	4008.96
S1-04	BIO-RETENTION	19.00	Each	10.000	Times	190.00	Each	0.500	95.00	55.68	5289.60
	SUBTOTALS:								212.00		16648.26
	MONITORING TOTAL:										26500.82

AREA - M2 - MAINTENANCE ACTIVITIES

CODE	ACTIVITY	INVENTORY QTY.	INVENTORY UNIT	LEVEL OF SERVICE QTY	LEVEL OF SERVICE UNIT	ANNUAL QTY	ANNUAL UNIT	HOURS/ UNIT	TOTAL HOURS		TOTAL COST
MAINTENANCE ACTIVITIES											
R2-01	CATCH BASIN CLEANING	230.00	Each	0.500	Times	115.00	Each	1.000	115.00	98.60	11339.00
R2-02	MANHOLE CLEANING	127.00	Each	0.100	Times	12.70	Each	1.500	19.05	98.60	1878.33
R2-03	FOREBAY CLEANING	8.00	Each	10.000	Times	80.00	Each	2.000	160.00	98.60	15776.00
R2-04	RISER CLEANING	5.00	Each	10.000	Times	50.00	Each	1.000	50.00	55.68	2784.00
R2-05	OUTLET CLEANING	4.00	Each	10.000	Times	40.00	Each	1.000	40.00	55.68	2227.20
R2-06	ENERGY DISS. CLEANING	3.00	Each	10.000	Times	30.00	Each	1.000	30.00	55.68	1670.40
R2-07	VEGETATION REMOVAL	1.00	System	60.000	Hours	60.00	Hours	1.000	60.00	41.76	2505.60
R2-08	EROSION REPAIRS	1.00	System	40.000	Hours	40.00	Hours	1.000	40.00	87.00	3480.00
R2-09	DEBRIS REMOVAL	1.00	System	100.000	Hours	100.00	Hours	1.000	100.00	41.76	4176.00
R2-10	VECTOR CONTROL	1.00	System	40.000	Hours	40.00	Hours	1.000	40.00	69.60	2784.00
R2-11	DRAINAGE STRUCTURE REPAIR	1.00	System	20.000	Hours	20.00	Hours	1.000	20.00	87.00	1740.00
R2-12	DRAIN BASINS	4.00	Each	1.000	Times	4.00	Each	4.000	16.00	55.68	890.88
R2-13	PATH & ROAD MAINTENANCE	1.00	System	20.000	Hours	20.00	Hours	1.000	20.00	69.60	1392.00
R2-14	MTU MINOR MAINTENANCE	3.00	Each	2.000	Time	6.00	Each		0.00	3450.00	20700.00
R2-15	STREET SWEEPING	5.44	Miles	12.000	Times	65.28	Miles		0.00	139.20	9086.98
R2-16	BIO-RETENTION REPAIRS	19.00	Each	2.000	Hours	38.00	Hours	1.000	38.00	55.68	2115.84
R2-17	GRASSY SWALE REPAIRS	9.60	MLF	4.000	Hours	38.40	Hours	1.000	38.40	55.68	2138.11
	MAINTENANCE TOTAL:								786.45		86684.34
	GRAND TOTALS:								1144.50		113185.16

Exhibit F

WILDER STORMWATER MANAGEMENT
PLANNED VS. ACTUAL

1/31/2008

AREA - M1 - MONITORING ACTIVITIES

CODE	ACTIVITY	ANNUAL QTY	UNIT	TOTAL HOURS	TOTAL COST		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals
MONITORING ACTIVITIES																			
R1-01	BASIN INSPECTION	24.00	Each	18.00	1002.24	Dist. Pcts.	0.250					0.250		0.250		0.250			1.000
						Dollars	250.56	0.00	0.00	0.00	0.00	250.56	0.00	250.56	0.00	250.56	0.00	0.00	1002.24
						Hours	4.50	0.00	0.00	0.00	0.00	4.50	0.00	4.50	0.00	4.50	0.00	0.00	18.000
						Qty	6.00	0.00	0.00	0.00	0.00	6.00	0.00	6.00	0.00	6.00	0.00	0.00	24.000
R1-02	MTU INSPECTION	6.00	Each	0.00	968.82	Dist. Pcts.		0.500								0.500			1.000
						Dollars	0.00	484.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	484.41	0.00	0.00	968.82
						Hours	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
						Qty	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	6.000
R1-03	GRASSY SWALE INSPECTION	9.60	MLF	7.20	400.90	Dist. Pcts.			1.000										1.000
						Dollars	0.00	0.00	400.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	400.90
						Hours	0.00	0.00	7.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.200
						Qty	0.00	0.00	9.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.600
R1-04	BIO-RETENTION AREA INSP.	19.00	Each	9.50	528.96	Dist. Pcts.			1.000										1.000
						Dollars	0.00	0.00	528.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	528.96
						Hours	0.00	0.00	9.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.500
						Qty	0.00	0.00	19.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.000
R1-05	CATCH BASIN INSPECTION	230.00	Each	46.00	2561.28	Dist. Pcts.		0.333	0.333	0.334									1.000
						Dollars	0.00	852.91	852.91	855.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2561.28
						Hours	0.00	15.32	15.32	15.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	46.000
						Qty	0.00	76.59	76.59	76.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	230.000
R1-06	MANHOLE INSPECTION	127.00	Each	31.75	1767.84	Dist. Pcts.		0.333	0.333	0.334									1.000
						Dollars	0.00	588.69	588.69	590.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1767.84
						Hours	0.00	10.57	10.57	10.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	31.750
						Qty	0.00	42.29	42.29	42.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	127.000
R1-07	TRASH AREA INSPECTION	48.00	Each	9.60	534.53	Dist. Pcts.	0.250			0.250			0.250			0.250			1.000
						Dollars	133.63	0.00	0.00	133.63	0.00	0.00	133.63	0.00	0.00	133.63	0.00	0.00	534.53
						Hours	2.40	0.00	0.00	2.40	0.00	0.00	2.40	0.00	0.00	2.40	0.00	0.00	9.600
						Qty	12.00	0.00	0.00	12.00	0.00	0.00	12.00	0.00	0.00	12.00	0.00	0.00	48.000
R1-08	ANNUAL REPORT	1.00	Each	24.00	2088.00	Dist. Pcts.				1.000									1.000
						Dollars	0.00	0.00	0.00	2088.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2088.00
						Hours	0.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	24.000
						Qty	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.000
STORM RELATED INSPECTIONS																			
S1-01	BASIN	60.00	Each	45.00	2505.60	Dist. Pcts.					0.100	0.200	0.200	0.200	0.200	0.100			1.000
						Dollars	0.00	0.00	0.00	0.00	250.56	501.12	501.12	501.12	501.12	250.56	0.00	0.00	2505.60
						Hours	0.00	0.00	0.00	0.00	4.50	9.00	9.00	9.00	9.00	4.50	0.00	0.00	45.000
						Qty	0.00	0.00	0.00	0.00	6.00	12.00	12.00	12.00	12.00	6.00	0.00	0.00	60.000
S1-02	MTU	30.00	Each	0.00	4844.10	Dist. Pcts.					0.100	0.200	0.200	0.200	0.200	0.100			1.000
						Dollars	0.00	0.00	0.00	0.00	484.41	968.82	968.82	968.82	968.82	484.41	0.00	0.00	4844.10
						Hours	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
						Qty	0.00	0.00	0.00	0.00	3.00	6.00	6.00	6.00	6.00	3.00	0.00	0.00	30.000

Exhibit F

WILDER STORMWATER MANAGEMENT
PLANNED VS. ACTUAL

1/31/2008

AREA - M1 - MONITORING ACTIVITIES

CODE	ACTIVITY	ANNUAL QTY	UNIT	TOTAL HOURS	TOTAL COST		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals
S1-03	GRASSY SWALE	96.00	MLF	72.00	4008.96	Dist. Pcts.					0.100	0.200	0.200	0.200	0.200	0.100			1.000
						Dollars	0.00	0.00	0.00	0.00	400.90	801.79	801.79	801.79	801.79	400.90	0.00	0.00	4008.96
						Hours	0.00	0.00	0.00	0.00	7.20	14.40	14.40	14.40	14.40	7.20	0.00	0.00	72.000
						Qty	0.00	0.00	0.00	0.00	9.60	19.20	19.20	19.20	19.20	9.60	0.00	0.00	96.000
S1-04	BIO-RETENTION	190.00	Each	95.00	5289.60	Dist. Pcts.					0.100	0.200	0.200	0.200	0.200	0.100			1.000
						Dollars	0.00	0.00	0.00	0.00	528.96	1057.92	1057.92	1057.92	1057.92	528.96	0.00	0.00	5289.60
						Hours	0.00	0.00	0.00	0.00	9.50	19.00	19.00	19.00	19.00	9.50	0.00	0.00	95.000
						Qty	0.00	0.00	0.00	0.00	19.00	38.00	38.00	38.00	38.00	19.00	0.00	0.00	190.000

AREA - M2 - MAINTENANCE ACTIVITIES

MAINTENANCE ACTIVITIES

R2-01	CATCH BASIN CLEANING	115.00	Each	115.00	11339.00	Dist. Pcts.		0.333	0.333	0.334									1.000
						Dollars	0.00	3775.89	3775.89	3787.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11339.00
						Hours	0.00	38.30	38.30	38.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.000
						Qty	0.00	38.30	38.30	38.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	115.000
R2-02	MANHOLE CLEANING	12.70	Each	19.05	1878.33	Dist. Pcts.		0.333	0.333	0.334									1.000
						Dollars	0.00	625.48	625.48	627.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1878.33
						Hours	0.00	6.34	6.34	6.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.050
						Qty	0.00	4.23	4.23	4.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.700
R2-03	FOREBAY CLEANING	80.00	Each	160.00	15776.00	Dist. Pcts.						0.200	0.200	0.200	0.200			0.200	1.000
						Dollars	0.00	0.00	0.00	0.00	0.00	3155.20	3155.20	3155.20	3155.20	0.00	0.00	3155.20	15776.00
						Hours	0.00	0.00	0.00	0.00	0.00	32.00	32.00	32.00	32.00	0.00	0.00	32.00	160.000
						Qty	0.00	0.00	0.00	0.00	0.00	16.00	16.00	16.00	16.00	0.00	0.00	16.00	80.000
R2-04	RISER CLEANING	50.00	Each	50.00	2784.00	Dist. Pcts.						0.200	0.200	0.200	0.200			0.200	1.000
						Dollars	0.00	0.00	0.00	0.00	0.00	556.80	556.80	556.80	556.80	0.00	0.00	556.80	2784.00
						Hours	0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	10.00	0.00	0.00	10.00	50.000
						Qty	0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	10.00	0.00	0.00	10.00	50.000
R2-05	OUTLET CLEANING	40.00	Each	40.00	2227.20	Dist. Pcts.						0.200	0.200	0.200	0.200			0.200	1.000
						Dollars	0.00	0.00	0.00	0.00	0.00	445.44	445.44	445.44	445.44	0.00	0.00	445.44	2227.20
						Hours	0.00	0.00	0.00	0.00	0.00	8.00	8.00	8.00	8.00	0.00	0.00	8.00	40.000
						Qty	0.00	0.00	0.00	0.00	0.00	8.00	8.00	8.00	8.00	0.00	0.00	8.00	40.000
R2-06	ENERGY DISS. CLEANING	30.00	Each	30.00	1670.40	Dist. Pcts.						0.200	0.200	0.200	0.200			0.200	1.000
						Dollars	0.00	0.00	0.00	0.00	0.00	334.08	334.08	334.08	334.08	0.00	0.00	334.08	1670.40
						Hours	0.00	0.00	0.00	0.00	0.00	6.00	6.00	6.00	6.00	0.00	0.00	6.00	30.000
						Qty	0.00	0.00	0.00	0.00	0.00	6.00	6.00	6.00	6.00	0.00	0.00	6.00	30.000
R2-07	VEGETATION REMOVAL	60.00	Hours	60.00	2505.60	Dist. Pcts.	0.333										0.333	0.334	1.000
						Dollars	834.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	834.36	836.87	2505.60
						Hours	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.98	20.04	60.000
						Qty	19.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.98	20.04	60.000
R2-08	EROSION REPAIRS	40.00	Hours	40.00	3480.00	Dist. Pcts.	0.200	0.200			0.100	0.100	0.100	0.100	0.100	0.100			1.000
						Dollars	696.00	696.00	0.00	0.00	348.00	348.00	348.00	348.00	348.00	348.00	0.00	0.00	3480.00
						Hours	8.00	8.00	0.00	0.00	4.00	4.00	4.00	4.00	4.00	4.00	0.00	0.00	40.000
						Qty	8.00	8.00	0.00	0.00	4.00	4.00	4.00	4.00	4.00	4.00	0.00	0.00	40.000

Exhibit F

WILDER STORMWATER MANAGEMENT
PLANNED VS. ACTUAL

1/31/2008

AREA - M1 - MONITORING ACTIVITIES

CODE	ACTIVITY	ANNUAL QTY	UNIT	TOTAL HOURS	TOTAL COST		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals
R2-09	DEBRIS REMOVAL	100.00	Hours	100.00	4176.00	Dist. Pcts.	0.083	0.083	0.084	0.083	0.083	0.084	0.083	0.083	0.084	0.083	0.083	0.084	1.000
						Dollars	346.61	346.61	350.78	346.61	346.61	350.78	346.61	346.61	350.78	346.61	346.61	350.78	4176.00
						Hours	8.30	8.30	8.40	8.30	8.30	8.40	8.30	8.30	8.40	8.30	8.30	8.40	100.000
						Qty	8.30	8.30	8.40	8.30	8.30	8.40	8.30	8.30	8.40	8.30	8.30	8.40	100.000
R2-10	VECTOR CONTROL	40.00	Hours	40.00	2784.00	Dist. Pcts.	0.083	0.083	0.084	0.083	0.083	0.084	0.083	0.083	0.084	0.083	0.083	0.084	1.000
						Dollars	231.07	231.07	233.86	231.07	231.07	233.86	231.07	231.07	233.86	231.07	231.07	233.86	2784.00
						Hours	3.32	3.32	3.36	3.32	3.32	3.36	3.32	3.32	3.36	3.32	3.32	3.36	40.000
						Qty	3.32	3.32	3.36	3.32	3.32	3.36	3.32	3.32	3.36	3.32	3.32	3.36	40.000
R2-11	DRAINAGE STRUCTURE REPAIRS	20.00	Hours	20.00	1740.00	Dist. Pcts.	0.334										0.333	0.333	1.000
						Dollars	581.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	579.42	579.42	1740.00
						Hours	6.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	6.66	20.000
						Qty	6.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	6.66	20.000
R2-12	DRAIN BASINS	4.00	Each	16.00	890.88	Dist. Pcts.												1	1.000
						Dollars	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	890.88	890.88
						Hours	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	16.00	16.000
						Qty	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.000
R2-13	PATH & ROAD MAINTENANCE	20.00	Hours	20.00	1392.00	Dist. Pcts.	0.334										0.333	0.333	1.000
						Dollars	464.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	463.54	463.54	1392.00
						Hours	6.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	6.66	20.000
						Qty	6.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66	6.66	20.000
R2-14	MTU MINOR MAINTENANCE	6.00	Each	0.00	20700.00	Dist. Pcts.		0.500								0.500			1.000
						Dollars	0.00	10350.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10350.00	0.00	0.00	20700.00
						Hours	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
						Qty	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.00	6.000
R2-15	STREET SWEEPING	65.28	Miles	0.00	9086.98	Dist. Pcts.	0.083	0.083	0.084	0.083	0.083	0.084	0.083	0.083	0.084	0.083	0.083	0.084	1.000
						Dollars	754.22	754.22	763.31	754.22	754.22	763.31	754.22	754.22	763.31	754.22	754.22	763.31	9086.98
						Hours	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000
						Qty	5.42	5.42	5.48	5.42	5.42	5.48	5.42	5.42	5.48	5.42	5.42	5.48	65.280
R2-16	BIO-RETENTION REPAIRS	38.00	Hours	38.00	2115.84	Dist. Pcts.	0.334										0.333	0.333	1.000
						Dollars	706.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	704.57	704.57	2115.84
						Hours	12.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.65	12.65	38.000
						Qty	12.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.65	12.65	38.000
R2-17	GRASSY SWALE REPAIRS	38.40	Hours	38.40	2138.11	Dist. Pcts.	0.334										0.333	0.333	1.000
						Dollars	714.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	711.99	711.99	2138.11
						Hours	12.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.79	12.79	38.400
						Qty	12.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.79	12.79	38.400
	Totals:			1144.50	113185.16	Dollars	5713.36	18705.28	8120.77	9414.05	3344.73	9767.68	9634.70	9751.63	9517.12	14563.33	4625.79	10026.74	113185.16
						Hours	85.38	90.15	98.99	108.76	36.82	118.66	116.42	118.52	114.16	43.72	70.36	142.56	1144.50

Exhibit G

Wilder Contributions By Year
Adjusted to 3% Inflation

Year	Contribution	Inflation Multiplier	Contribution w/Inflation	Cumulative Contribution	Cumulative Required Reserves	Reserve Balance	Annual Interest @5%	Annual Interest @4%
2008	$ 121,946	1.000	$ 121,946	$ 121,946		$ 121,946	$ 6,097	$ 4,878
2009	$ 121,946	1.030	$ 125,604	$ 247,550		$ 247,550	$ 12,378	$ 9,902
2010	$ 121,946	1.061	$ 129,385	$ 376,935	$ 40,357	$ 336,578	$ 16,829	$ 13,463
2011	$ 121,946	1.093	$ 133,287	$ 510,222		$ 510,222	$ 25,511	$ 20,409
2012	$ 121,946	1.126	$ 137,311	$ 647,533	$ 83,171	$ 564,362	$ 28,218	$ 22,574
2013	$ 121,946	1.159	$ 141,335	$ 788,869	$ 182,004	$ 606,865	$ 30,343	$ 24,275
2014	$ 121,946	1.194	$ 145,604	$ 934,472	$ 227,425	$ 707,047	$ 35,352	$ 28,282
2015	$ 121,946	1.230	$ 149,994	$ 1,084,466		$ 1,084,466	$ 54,223	$ 43,379
2016	$ 121,946	1.267	$ 154,506	$ 1,238,971	$ 275,613	$ 963,358	$ 48,168	$ 38,534
2017	$ 121,946	1.305	$ 159,140	$ 1,398,111		$ 1,398,111	$ 69,906	$ 55,924
2018	$ 121,946	1.344	$ 163,895	$ 1,562,006	$ 441,310	$ 1,120,696	$ 56,035	$ 44,828
2019	$ 121,946	1.384	$ 168,773	$ 1,730,780		$ 1,730,780	$ 86,539	$ 69,231
2020	$ 121,946	1.426	$ 173,895	$ 1,904,675	$ 495,546	$ 1,409,129	$ 70,456	$ 56,365
2021	$ 121,946	1.169	$ 142,555	$ 2,047,229		$ 2,047,229	$ 102,361	$ 81,889
2022	$ 121,946	1.513	$ 184,504	$ 2,231,734	$ 553,085	$ 1,678,649	$ 83,932	$ 67,146
2023	$ 121,946	1.558	$ 189,992	$ 2,421,726	$ 1,152,627	$ 1,269,099	$ 63,455	$ 50,764
2024	$ 121,946	1.605	$ 195,723	$ 2,617,449	$ 1,213,671	$ 1,403,778	$ 70,189	$ 56,151
2025	$ 121,946	1.653	$ 201,577	$ 2,819,026		$ 2,819,026	$ 140,951	$ 112,761
2026	$ 121,946	1.702	$ 207,552	$ 3,026,578	$ 1,278,431	$ 1,748,147	$ 87,407	$ 69,926
2027	$ 121,946	1.754	$ 213,893	$ 3,240,471		$ 3,240,471	$ 162,024	$ 129,619
2028	$ 121,946	1.806	$ 220,234	$ 3,460,706	$ 1,527,122	$ 1,933,584	$ 96,679	$ 77,343
2029	$ 121,946	1.860	$ 226,820	$ 3,687,525		$ 3,687,525	$ 184,376	$ 147,501
2030	$ 121,946	1.916	$ 233,649	$ 3,921,174	$ 1,600,010	$ 2,321,164	$ 116,058	$ 92,847
2031	$ 121,946	1.974	$ 240,721	$ 4,161,895		$ 4,161,895	$ 208,095	$ 166,476
2032	$ 121,946	2.033	$ 247,916	$ 4,409,811	$ 1,677,338	$ 2,732,473	$ 136,624	$ 109,299
2033	$ 121,946	2.094	$ 255,355	$ 4,665,166	$ 1,855,841	$ 2,809,325	$ 140,466	$ 112,373
2034	$ 121,946	2.157	$ 263,038	$ 4,928,204	$ 1,937,877	$ 2,990,327	$ 149,516	$ 119,613
2035	$ 121,946	2.221	$ 270,842	$ 5,199,046		$ 5,199,046	$ 259,952	$ 207,962
2036	$ 121,946	2.288	$ 279,012	$ 5,478,058	$ 2,024,910	$ 3,453,148	$ 172,657	$ 138,126
2037	$ 121,946	2.357	$ 287,427	$ 5,765,485		$ 5,765,485	$ 288,274	$ 230,619
2038	$ 121,946	2.427	$ 295,963	$ 6,061,448	$ 3,305,999	$ 2,755,449	$ 137,772	$ 110,218
2039	$ 121,946	2.500	$ 304,865	$ 6,366,313		$ 6,366,313	$ 318,316	$ 254,653
2040	$ 121,946	2.575	$ 314,011	$ 6,680,324	$ 3,403,955	$ 3,276,369	$ 163,818	$ 131,055
2041	$ 121,946	2.652	$ 323,401	$ 7,003,725		$ 7,003,725	$ 350,186	$ 280,149
2042	$ 121,946	2.732	$ 333,156	$ 7,336,881	$ 3,507,876	$ 3,829,005	$ 191,450	$ 153,160
2043	$ 121,946	2.814	$ 343,156	$ 7,680,037	$ 3,747,769	$ 3,932,268	$ 196,613	$ 157,291
2044	$ 121,946	2.898	$ 353,400	$ 8,033,437	$ 3,858,020	$ 4,175,417	$ 208,771	$ 167,017
2045	$ 121,946	2.985	$ 364,009	$ 8,397,445		$ 8,397,445	$ 419,872	$ 335,898
2046	$ 121,946	3.075	$ 374,984	$ 8,772,429	$ 3,974,985	$ 4,797,444	$ 239,872	$ 191,898
2047	$ 121,946	3.167	$ 386,203	$ 9,158,632		$ 9,158,632	$ 457,932	$ 366,345
2048	$ 121,946	3.262	$ 397,788	$ 9,556,420	$ 4,424,148	$ 5,132,272	$ 256,614	$ 205,291
2049	$ 121,946	3.360	$ 409,739	$ 9,966,159		$ 9,966,159	$ 498,308	$ 398,646
2050	$ 121,946	3.461	$ 422,055	$ 10,388,214	$ 4,555,793	$ 5,832,421	$ 291,621	$ 233,297
2051	$ 121,946	3.565	$ 434,737	$ 10,822,951		$ 10,822,951	$ 541,148	$ 432,918
2052	$ 121,946	3.671	$ 447,664	$ 11,270,615	$ 4,695,455	$ 6,575,160	$ 328,758	$ 263,006
2053	$ 121,946	3.782	$ 461,200	$ 11,731,815	$ 6,150,701	$ 5,581,114	$ 279,056	$ 223,245
2054	$ 121,946	3.895	$ 474,980	$ 12,206,795	$ 6,303,314	$ 5,903,481	$ 295,174	$ 236,139
2055	$ 121,946	4.012	$ 489,247	$ 12,696,042		$ 12,696,042	$ 634,802	$ 507,842
2056	$ 121,946	1.132	$ 138,043	$ 12,834,085	$ 6,460,505	$ 6,373,580	$ 318,679	$ 254,943
2057	$ 121,946	4.256	$ 519,002	$ 13,353,087		$ 13,353,087	$ 667,654	$ 534,123
2058	$ 121,946	4.384	$ 534,611	$ 13,887,698	$ 20,522,035	$ (6,634,337)	$ 9,793,393	$ 7,834,715
			$ 13,887,698					

Wilder

ORIGINAL CONSTRUCTION DATE: 2008 Assessment Year 2008

Long Range Capital Replacement Costs

Element - Description	Unit of Measure	Estimated Quantity	Estimated Useful Life (Years)	Remaining Useful Life	Estimated Unit Cost	Basic Cost	Est. Cost Admin/ Or Design	Total Reserves	Projected Replace-ment Year
MTU System Major Maintenance	System	1	2	2	31,700	31,700	6,340	$38,040	2010
MTU System Major Maintenance - 4 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2012
MTU System Major Maintenance - 6 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2014
MTU System Major Maintenance - 8 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2016
MTU System Major Maintenance - 10 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2018
MTU System Major Maintenance - 12 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2020
MTU System Major Maintenance - 14 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2022
MTU System Major Maintenance - 16 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2024
MTU System Major Maintenance - 18 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2026
MTU System Major Maintenance - 20 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2028
MTU System Major Maintenance - 22 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2030
MTU System Major Maintenance - 24 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2032
MTU System Major Maintenance - 26 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2034
MTU System Major Maintenance - 28 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2036
MTU System Major Maintenance - 30 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2038
MTU System Major Maintenance - 32 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2040
MTU System Major Maintenance - 34 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2042
MTU System Major Maintenance - 36 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2044
MTU System Major Maintenance - 38 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2046
MTU System Major Maintenance - 40 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2048
MTU System Major Maintenance - 42 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2050
MTU System Major Maintenance - 44 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2052
MTU System Major Maintenance - 46 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2054
MTU System Major Maintenance - 48 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2056
MTU System Major Maintenance - 50 Years	System	1	2	2	31,700	31,700	6,340	$38,040	2058
Basin Sediment Removal	CY	2,000	5	5	22	43,720	8,744	$52,464	2013
Basin Sediment Removal - 10 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2018
Basin Sediment Removal - 15 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2023
Basin Sediment Removal - 20 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2028
Basin Sediment Removal - 25 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2033
Basin Sediment Removal - 30 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2038
Basin Sediment Removal - 35 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2043
Basin Sediment Removal - 40 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2048
Basin Sediment Removal - 45 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2053
Basin Sediment Removal - 50 Years	CY	2,000	5	5	22	43,720	8,744	$52,464	2058
Large Scale Vegetation Removal	CY	1,000	5	5	27	27,325	5,465	$32,790	2013
Large Scale Vegetation Removal - 10 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2018
Large Scale Vegetation Removal - 15 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2023
Large Scale Vegetation Removal - 20 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2028
Large Scale Vegetation Removal - 25 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2033
Large Scale Vegetation Removal - 30 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2038
Large Scale Vegetation Removal - 35 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2043
Large Scale Vegetation Removal - 40 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2048
Large Scale Vegetation Removal - 45 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2053
Large Scale Vegetation Removal - 50 Years	CY	1,000	5	5	27	27,325	5,465	$32,790	2058

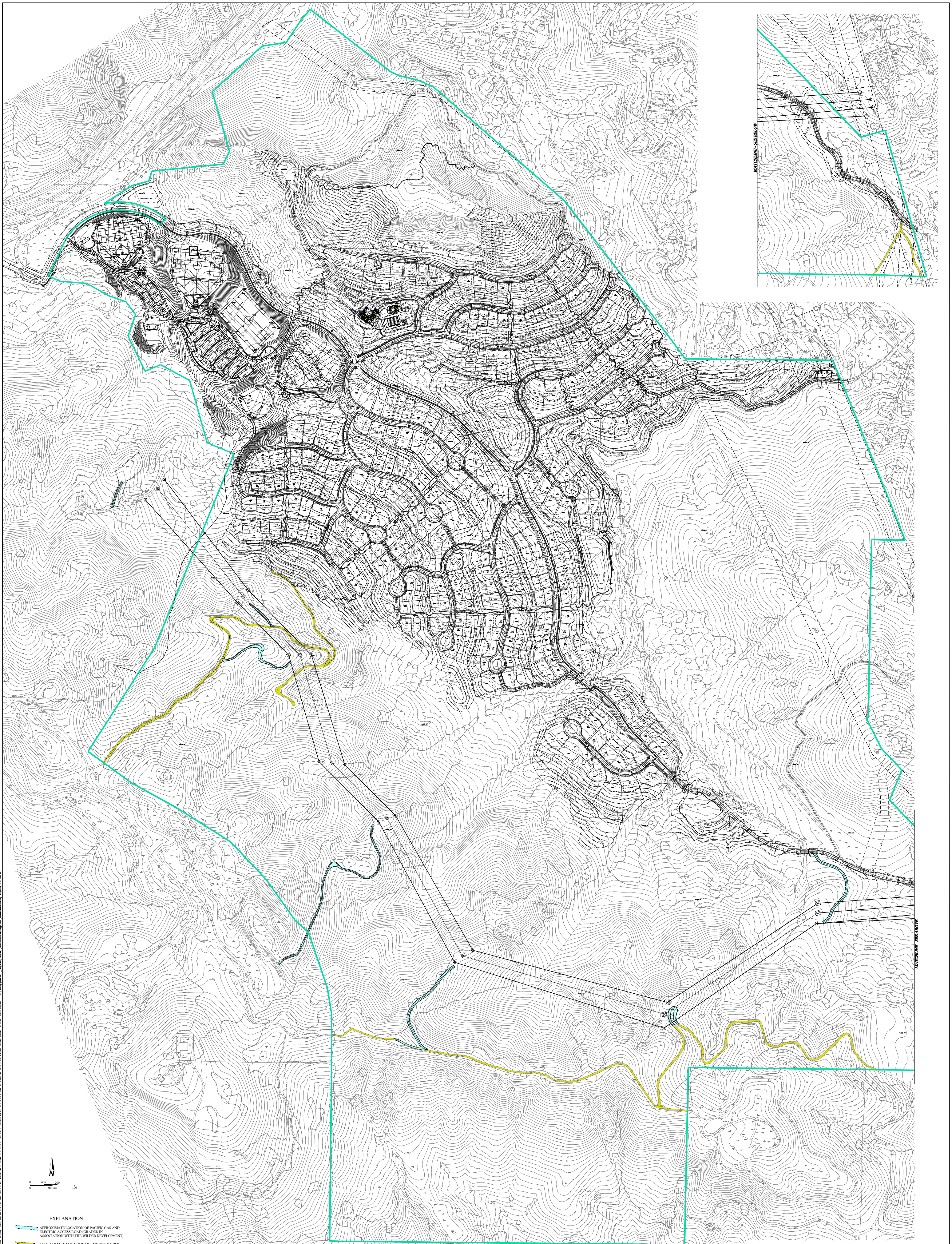
Wilder

ORIGINAL CONSTRUCTION DATE: 2008 Assessment Year 2008 Long Range Capital Replacement Costs

Element - Description	Unit of Measure	Estimated Quantity	Estimated Useful Life (Years)	Remaining Useful Life	Estimated Unit Cost	Basic Cost	Est. Cost Admin/ Or Design	Total Reserves	Projected Replace-ment Year
Replace Bio-Retention Areas	Ea	19	15	15	10930	207,670	41,534	$249,204	2023
Replace Bio-Retention Areas - 30 Years	Ea	19	15	15	10930	207,670	41,534	$249,204	2038
Replace Bio-Retention Areas - 45 Years	Ea	19	15	15	10930	207,670	41,534	$249,204	2053
Replace Grassy Swales	LF	9,600	15	15	4	41,971	8,394	$50,365	2023
Replace Grassy Swales - 30 Years	LF	9,600	15	15	4	41,971	8,394	$50,365	2038
Replace Grrassy Swales - 45 Years	LF	9,600	15	15	4	41,971	8,394	$50,365	2053
Replace Gate Valves	Ea	4	20	20	3000	12,000	2,400	$14,400	2028
Replace Gate Valves - 40 Years	Ea	4	20	20	3000	12,000	2,400	$14,400	2048
Replace Riser Structures	Ea	5	30	30	3279	16,395	3,279	$19,674	2038
Replace Forebay Structures	Ea	8	30	30	4372	34,976	6,995	$41,971	2038
Replace Outlet Structures	Ea	3	30	30	6558	19,674	3,935	$23,609	2038
Replace Energy Dissipator	Ea	3	30	30	5465	16,395	3,279	$19,674	2038
Replace Catch Basins	Ea	230	50	50	3279	754,170	150,834	$905,004	2058
Replace Storm Drains	LF	40,567	50	50	33	1,330,192	266,038	$1,596,230	2058
Replace ManHoles	Ea	127	50	50	3826	485,839	97,168	$583,006	2058
Grand Totals						4,933,514	986,703	5,920,217	

APPENDIX F

PG&E Access Roads



EXPLANATION

APPROXIMATE LOCATION OF PACIFIC GAS AND ELECTRIC ACCESS ROAD (GRADED IN ASSOCIATION WITH THE WILDER DEVELOPMENT)

APPROXIMATE LOCATION OF EXISTING PACIFIC GAS AND ELECTRIC ACCESS ROAD

GHAD BOUNDARY

BASE MAP SOURCE: PA DESIGN RESOURCES, INC.

ENGEO INCORPORATED
EXCELLENT SERVICE SINCE 1971

PACIFIC GAS AND ELECTRIC ACCESS ROADWAYS
WILDER GHAD
ORINDA, CALIFORNIA

PROJECT NO.: 4365.108.005
DATE: MARCH 2008
DRAWN BY: DLB
CHECKED BY: EH

APPENDIX F

ORIGINAL FIGURE PRINTED IN COLOR

APPENDIX G

Sample Notice of Restriction for Shallow Subdrains

Sample Notice of Restriction for Shallow Subdrains

The subject lot, Lot in Tract , contains a shallow sub-drain located between 1 and 4 feet below the ground surface, consisting of a perforated plastic pipe or drainage panel surrounded by gravel and/or sand. The location of the subdrain is shown on the plot plan provided as part of the disclosure documents for the subject lot. The drain is intended to provide drainage to reduce over-saturation of the rear yard and rear yard slope. This drain must not be obstructed or damaged under any circumstances, nor may any other drain line be connected to this drain. If the sub-drain is damaged or obstructed, serious damage may result to the rear yard and/or rear yard slope of the lot or neighboring lots. In the event repair is required, it is the responsibility of the homeowner to complete the work under the observation of the Geologic Hazard Abatement District (GHAD). Therefore, if damage occurs to the subdrain, the GHAD must be notified in a timely manner before repair work is initiated. If the repair is not completed to the satisfaction of the GHAD, the GHAD may elect to undertake the repair and seek reimbursement for the cost of the repair from the property owner.

APPENDIX H

Wilder Geologic Hazard Abatement District
GHAD Disclosure and Right of Access

Restrictive Covenant, **Right of Entry and Disclosures relating to the Wilder Geologic Hazard Abatement District.**

1. **Property**. The following "Right of Entry and Disclosures" regarding a Geologic Hazard Abatement District shall be recorded against all land within Tract as filed on _____ in Book ____of Maps at Pages _____, Official Records of Contra Costa County in the City of Orinda, County of Contra Costa, State of California ("Property").

2. **Geologic Hazard Abatement District.** Under authority of the California Public Resources Code Sections 26500 et seq., the Orinda City Council on , adopted Resolution forming the Wilder Geologic Hazard Abatement District ("GHAD") to establish a fund for maintenance of geotechnical improvements and a reserve fund in the event of a geologic-related failure of open-space slopes.

3. **Property Access.** All owners of Property and successors in interest grant the GHAD and its officials, employees, contractors, and agents access to the Grantor's property for the furtherance of the purposes of the GHAD.

4. **Binding.** These covenants and conditions are binding on all owners of the Property and their successors in interest.

5. **Deed Statement.** Any conveyance of all or a portion of the Property shall state on the deed "This conveyance is made subject to the Restrictive Covenant, Right of Entry and Disclosures Regarding a Geologic Hazard Abatement District recorded in Official Records of the Contra Costa County Recorder's Office as Instrument No. _____ on the ____ day of _____, 2____ in Book ____of Maps at Pages _____."

6. **GHAD Enforcement.** The GHAD has the right but not the obligation to enforce this "Right of Entry and Disclosures."

7. **Modification or Termination.** This Restrictive Covenant, Right of Entry and Disclosures shall not be modified or terminated without the written consent of the GHAD.

8. **Declarant.** This Restrictive Covenant, Right of Entry and Disclosures is made by OG Property Owner LLC, the owner of all lands within Final Map for the Wilder Project.