

Project No.
5188.002.022

June 30, 2023

Mr. Kevin Jenkins
Leona Quarry Geologic Hazard Abatement District
Oakland City Hall
One Frank Ogawa Place
Oakland, CA 94612

Subject: Monte Vista Villas and Campus Drive Residences
Oakland, California

**GEOLOGIC HAZARD ABATEMENT DISTRICT
MONITORING – SPRING 2023**

Dear Mr. Jenkins:

ENGEO is pleased to submit this monitoring report for the Leona Quarry Geologic Hazard Abatement District (GHAD). As described in the Leona Quarry Plan of Control (Reference 1), the purpose of this monitoring is to observe and report on the conditions of the open space and associated improvements within the Monte Vista Villas development and adjacent residences on Campus Drive. This monitoring event was conducted on May 9, 2023, and included the following parcels.

TABLE 1: Assessor's Parcel Numbers

ASSESSOR'S PARCEL NUMBER	PARCEL DESIGNATION (VESTING TENTATIVE MAP)	TRACT
37A-3163-9	A	7351
37A-3163-2	C	7351
37A-3163-3	D	7351
37A-3163-4	E	7351
37A-3163-5	F	7493
37A-3163-11	R	7493

SCOPE OF SERVICES

Site monitoring included the observation of the following items.

- Open-space slopes and debris benches
- Concrete-lined, asphaltic, and earthen surface drainage ditches
- Fencing, locks, and signage
- Rockfall protection barriers
- Emergency vehicle access and maintenance roadways
- Designated trails
- Drainage courses
- Subdrain outlets
- Storm drain inlets, outfalls, and pipelines

- Debris basin
- Detention basin
- Piezometers and inclinometers
- Settlement monuments

OPEN-SPACE SLOPES AND DEBRIS BENCHES

The open-space slopes and debris benches were observed for evidence of slope instability, including landslides, mudflows, rockfall hazards, or erosion. During our site visit, we did not observe significant distress to the slopes or debris benches within the six parcels that were accepted by the Leona Quarry GHAD with the exception of the conditions described below on Parcel F.

Slopes on Parcel F and along the edge of Parcel R are in an oversteepened condition and are subject to shallow slope instability, erosion, and raveling. We previously noted in fall 2022 that an erosion gully was located on Parcel F above the concrete-lined drainage ditch and wood-lagging debris wall (Figure 1, Site Condition G, Photo 2). Access to this portion of the slope was prevented by fallen tree debris (Figure 1, Site Condition D, Photo 1). Additional overgrowth made access dangerous for the field tech and observations made in previous years could not be completed. It is assumed conditions are as they were fall of last year. These are that soil material from this erosion gully continues to deposit in the concrete-lined drainage ditch below these slopes. In particular, these oversteepened slopes shed debris, leaves, soil, and fallen trees into the concrete-lined drainage ditch located below the erosion gully and also near the intersection of concrete-lined drainage ditches on Parcel F. If this erosion process continues and debris is allowed to accumulate within the concrete-lined drainage ditch, the capacity of the ditch will be reduced. At that time, the GHAD will consider extending the nearby existing debris wall to assist with debris capture. While the GHAD will remove the accumulated material as part of normal ditch maintenance, we expect the shedding of material from these slopes will continue.

On the western side of Parcel R, a fire occurred on September 26, 2017, that burned approximately 16 acres of slope (“Burn Area”). A portion of the Burn Area was revegetated as part of the Leona Quarry Slope Revegetation Plan (Reference 3) (Figure 1, Site Condition A). During this monitoring event, we observed that the Burn Area was revegetated well with minimal erosion. We will continue to monitor the Burn Area for any distress during future monitoring events.

ROCKFALL PROTECTION BARRIERS AND WALLS

Rockfall barriers were installed to protect a portion of Skyview Drive along with the adjacent residences and improvements from unstable materials on the oversteepened uphill slope. There appears to be adequate catchment capacity behind these rockfall barriers. There were no rocks in the nets, the nets were not damaged, and braking elements had not been engaged. There were no rubble or debris ramps observed behind the system. The GHAD will remove material that collects behind the debris walls and barriers as it accumulates to maintain the catchment capacity and reduce the risk of jump platforms forming.

The GHAD installed wood-lagging debris walls between the concrete-lined drainage ditch and the uphill oversteepened slope, where significant raveling is occurring, including on Parcel F above Blue Rock Court. We previously noted in spring 2020 that there were significant raveling and erosion from the uphill slope, and there was no longer any catchment capacity behind the wood-lagging debris wall. As previously noted, we were unable to access this portion of the Parcel. The GHAD will clear the soil material from behind the debris wall and out of the ditch to allow proper drainage during routine maintenance.

We previously noted that approximately 90 feet of the wood-lagging debris wall on the western side of Parcel R needs to be replaced due to fire damage in 2017. The GHAD will replace the wood debris wall to its original condition.

MAINTENANCE ROADWAYS AND DESIGNATED TRAILS

We observed the condition of the maintenance roadway paralleling Interstate 580 at the southern end of the site, as well as the maintenance roadway surrounding the detention basin in that same area. The gravel-surfaced roadways appeared to be in good condition. As part of the ongoing GHAD maintenance activities, vegetation will be removed on and along the maintenance roadways.

A trail is located along the southeastern edge of Parcel R that extends from Bayview Drive to Campus Drive. The trail alignment also serves as an access route to debris benches located along the slope. We did not observe significant erosion or slope instability on the trail segment.

DRAINAGE COURSES

Chimes Creek located in the eastern portion of Parcel F was observed for potential creek-bank failures. In general, the creek has moderate to dense vegetation cover and appears to be in stable condition. Water was not flowing at the time of our visit. We did not observe areas of significant creek-bank failure or creek channels that could potentially impact site improvements.

SURFACE DRAINAGE DITCHES

Concrete, asphaltic, and earthen surface drainage ditches were viewed for evidence of sediment accumulation and distress, such as cracking or shifting. As shown in Figure 1, there are approximately 22,500 lineal feet of concrete-lined drainage ditches within the GHAD-maintained parcels. The concrete-lined drainage ditches were relatively free of vegetation and debris. Portions of the concrete-lined ditches on the slopes of Parcels F and R are in need of vegetation trimming to allow access and proper monitoring. All branches and plants should be trimmed 6 inches back from the ditch on either side to allow proper access for monitoring. We observed some minor cracking in the concrete drainage ditches that did not appear to significantly impair ditch integrity and several ditches collected debris from the raveling of the oversteepened uphill slopes. As part of the ongoing GHAD maintenance activities, debris will be removed from the drainage ditch. We also noted an excess of trash and building debris in the concrete lined ditch near the housing development in Parcel R (Figure 1, Site Condition E, Photo 4).

We previously observed in fall of 2019 that runoff from excess irrigation applied to the homeowner’s yard on 13565 Campus Drive. The runoff saturated the rear yard slope and the adjacent GHAD-owned property. We observed water penetrating through the expansion joint of the concrete-lined drainage ditch. The GHAD notified the homeowner and the excessive irrigation ceased. The grasses and vegetation on the slope appeared to be healthy and revegetated during this monitoring event. We noted that vegetation was overgrown in the concrete-lined drainage ditch. As part of the ongoing GHAD maintenance activities, vegetation will be removed from the drainage ditches. The GHAD will monitor this area for any erosion and reseal the expansion joint to prevent water infiltration below the ditch.

SUBDRAIN OUTLETS

Table 2 below presents subdrain flow rates as measured during this monitoring event. In general, the subsurface drains located appeared to be in good order and free of obstructions and debris.

TABLE 2: Subdrains

LABEL	FLOW (gallons/day)	COMMENTS
SD1	0	Dry
SD2	Unable to monitor	Sediment control fabric cover
SD3	0	Dry
SD4	11.4	Estimate
SD5	<22	Estimate
SD6	0	Dry
SD7	0	Dry
SD8	1200	Estimate
SD9	0	Dry
SD10	0	Dry
SD11	0	Moss growth observed in V-Ditch
SD12	0	Dry
SD13	0	Dry
SD14	Unable to monitor	Dense vegetation blocking path
SD15	0	Dry
SD16	0	Dry
SD17	0	Dry
SD18	0	Dry
SD19	0	Dry
SD20	<22	Estimate

We have not had access to Subdrain Outlet SD14 during our monitoring events since 2018. The GHAD will clear the dense vegetation to provide access to Subdrain Outlet SD14.

As shown in Figure 1, Subdrain Outlets SD1, SD2, SD7 through SD13, and SD20 are located within GHAD parcels but have not yet been acquired by the GHAD for monitoring and maintenance responsibilities. When monitoring and maintenance responsibilities for the parcels containing these subdrain outlets are acquired, data will be collected and included in future monitoring letters.

PIEZOMETERS

Table 3 below presents piezometer groundwater levels measured during this monitoring event.

TABLE 3: Piezometers

LABEL	GROUNDWATER LEVEL FROM BOTTOM OF PIEZOMETER (FEET)	COMMENTS
PZ-1	Unable to Monitor	Pressure reading did not stabilize
PZ-2	Unable to Monitor	No return flow detected
PZ-5	Unable to Monitor	Pressure reading did not stabilize
PZ-6	Unable to Locate	
PZ-7	Unable to Locate	
PZ-8	Unable to Locate	
PZ-9	29.88	
PZ-10	Unable to Monitor	Pressure reading did not stabilize

We have not located Piezometers PZ-6 through PZ-8 since 2018. The GHAD will locate these piezometers in the field for future monitoring.

As shown in Figure 1, Piezometers PZ-3 and PZ-4 are located within GHAD parcels where the GHAD has not yet acquired monitoring and maintenance responsibilities. When monitoring and maintenance responsibilities for the parcels containing these piezometers are acquired, data will be collected and included in future monitoring letters.

INCLINOMETERS

There are four inclinometers within the GHAD, as shown in Figure 1. The GHAD obtained readings for Inclinometers SI-1, SI-2, and SI-3. A review of the readings of Inclinometers SI-1 and SI-2 did not show displacement indicative of slope movement. Due to abnormalities in previous readings from SI-3, possibly due to deformation of the casing, the October 2022 reading will be used as a new baseline. The inclinometer data from SI-3 obtained during this monitoring event indicates there is no apparent downslope movement. The GHAD will continue monitoring the inclinometers periodically for indications of slope movement during scheduled monitoring events or as needed.

DETENTION BASIN AND DEBRIS BASIN

A detention basin (located in Parcel C) and a debris basin (located in Parcel F) were observed for evidence of trash and debris within the inlets, outfalls, and trash racks, and to see that vegetation within the basins did not exceed 5 feet in height. There was minimal litter and debris at the inlets within the basins. As part of the scheduled maintenance, the GHAD will cut and remove vegetation, and remove litter and debris from the basins. Attached is the monitoring report form for the detention basin located on Parcel C. Other than annual vegetation growth, the debris basin on Parcel F appeared to be in good condition.

FENCING, LOCKS, AND SIGNAGE

Fences, locks, and signage were observed for damage within the GHAD.

We previously noted in spring 2018 that a section of fence along the maintenance roadway on the southwestern portion of Parcel E, paralleling Interstate 580, was pulled back allowing access (Figure 1, Site Condition C). This damage to the fence remained during this monitoring event. Since the fence borders Interstate 580 and is within State of California property, the GHAD put in a maintenance request in 2018 with Caltrans to have the fence repaired. The work has yet to be completed at the time of this monitoring, and the GHAD will follow up with Caltrans on the status of this work.

If you have any questions concerning the observations made during this reconnaissance, please do not hesitate to contact us.

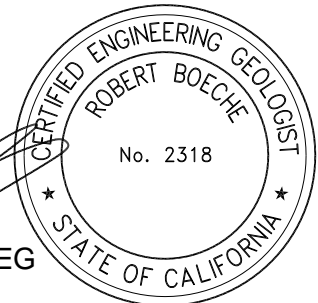

Sincerely,

ENGEO Incorporated



Nick Inserra

ni/kk/rhb/ca



Robert H. Boeche, CEG

Attachments: List of Selected References
Site Photographs
Parcel C Water Quality/Detention Pond, Site Monitoring and Maintenance Form
Figure 1 – Site Plan

SELECTED REFERENCES

1. ENGEO.0 2005. Amendment 1 to the Plan of Control for Leona Quarry Geologic Hazard Abatement District (GHAD), Oakland, California. August 13, 2004; Latest Revision February 23, 2005. Project No. 5188.1.001.02.
2. ENGEO. 2010. Geologic Hazard Abatement District (GHAD) Plan of Control Transfer Monitoring, Leona Quarry Geologic Hazard Abatement District (GHAD), Monte Vista Villas, Oakland, California. October 28, 2010. Project No. 5188.002.010.
3. H. T. Harvey & Associates. 2004. Leona Quarry Slope Revegetation Plan, Prepared for the DeSilva Group. April 16, 2004. Project No. 1950-04.
4. ENGEO. 2023. Geologic Hazard Abatement District Monitoring – Fall 2022, Monte Vista Villas and Campus Drive Residences, Oakland, California. February 9, 2023. Project No. 5188.002.022.

SITE PHOTOGRAPHS

PHOTO 1: Site Condition D



Fallen tree and leaves from oversteepened slope deposited in the concrete-lined drainage ditch on Parcel F

PHOTO 2: Site Condition G



Erosion gully formed above drainage ditch and wood-lagging debris wall, eroded material deposited behind wall and in drainage ditch. From previous walk fall 2022 since access to this area was blocked.

PHOTO 3: Site Condition E



Trash and construction debris accumulated in concrete-lined ditch.

MONITORING REPORT

Leona Quarry
Oakland, California

**PARCEL "C" WATER QUALITY/DETENTION POND
OPERATIONS AND MAINTENANCE
SITE MONITORING AND MAINTENANCE REPORT FORM**

(TO BE COMPLETED QUARTERLY IN JANUARY, APRIL, JULY, AND
OCTOBER AND AS NECESSARY DURING HEAVY RAINFALL)

Inspector: Nick Inserra

Date: 05/09/2023

Weather Conditions: Sunny

Days since last rainfall: 6

Dry Season? X

Wet Season?

Pond Water Level: Approximately 12 inches

Sediment Accumulated since Last Monitoring Event: 0

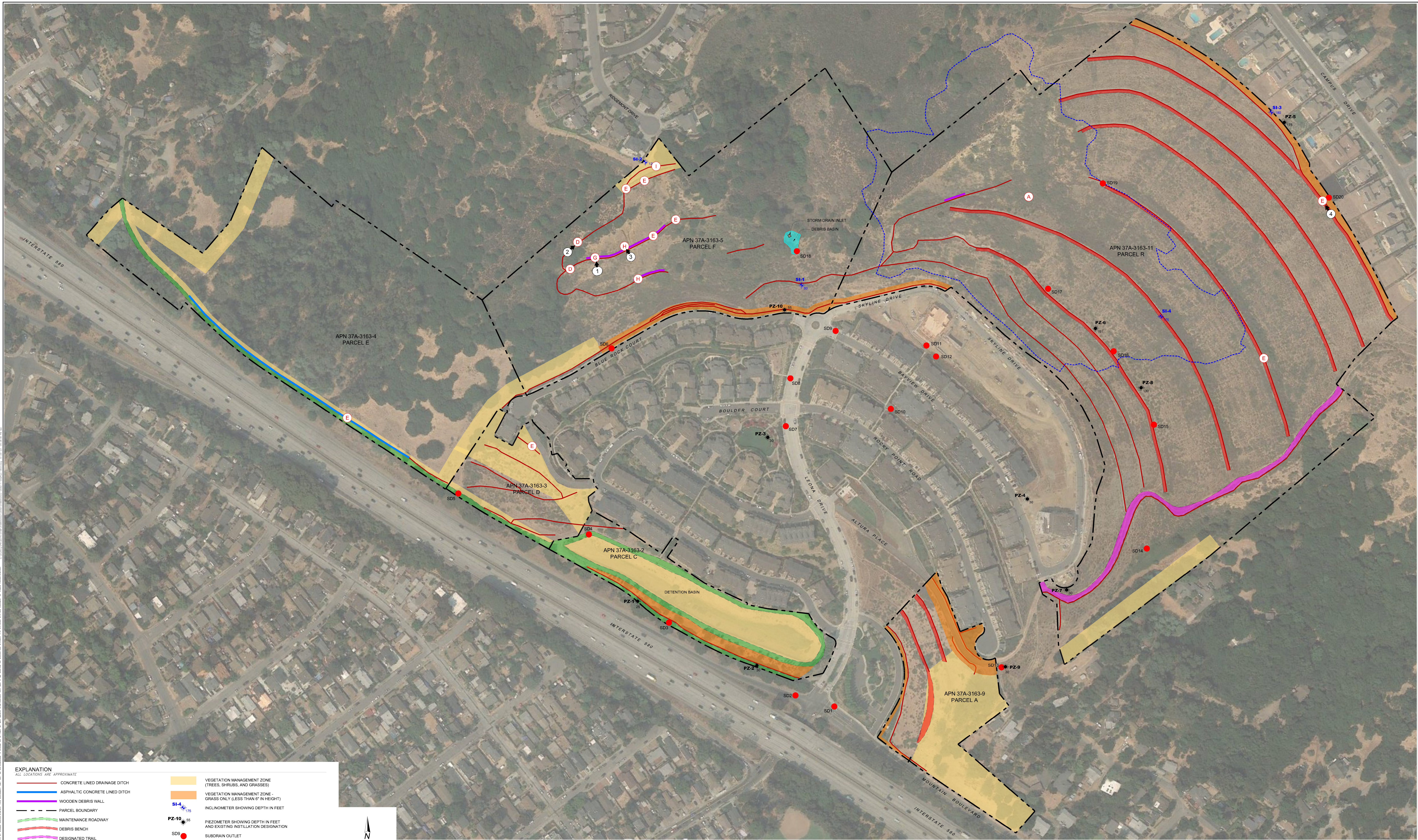
MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
1. Are inlet and outlet structures functioning properly, allowing the pond to drain and are they in satisfactory condition?	X			Parcel F uphill concrete lined ditches require cleaning
2. Are access roads in satisfactory condition?	X			
3. Is all perimeter fencing in good condition without breaks, gaps or damage?	X			
4. Have the debris racks been cleaned and are they in good condition?	X			
5. Are embankments surrounding the pond in good condition without rills or failures?	X			
6. Is the vegetation less than 5 feet in height?	X			
7. Are embankment slopes protected with mulch or vegetation?	X			
8. Has sediment removal been undertaken in the last 3 months?	X			

MONITORED CONTROL	YES	NO	N/A	COMMENTS/ SUGGESTED MAINTENANCE
9. Is there evidence of chemical sheen or odor, contaminated runoff, litter or blowing debris in or near the pond?		X		
10. Do any pond devices require maintenance to provide more effective function?			X	
11. Are there signs of leaking irrigation systems?		X		
12. Are there any signs of vandalism?		X		
13. Are mosquitoes evident?		X		
14. Has mosquito abatement been undertaken since the last monitoring event?		X		
15. Are there remedial/repair tasks that should be undertaken in the near future?		X		
16. Is there evidence or information received in the last 3 months to indicate a lengthy drain time?		X		

“No” answers to Items 1-7 or “Yes” answers to Items 8-16 may require a corrective action.

FIGURE 1

Site Plan



EXPLANATION
ALL LOCATIONS ARE APPROXIMATE

- CONCRETE LINED DRAINAGE DITCH
- ASPHALTIC CONCRETE LINED DITCH
- WOODEN DEBRIS WALL
- PARCEL BOUNDARY
- MAINTENANCE ROADWAY
- DEBRIS BENCH
- DESIGNATED TRAIL
- - - LEONA QUARRY BURN AREA
- - - PHOTO LOCATION AND DIRECTION

- VEGETATION MANAGEMENT ZONE (TREES, SHRUBS, AND GRASSES)
- VEGETATION MANAGEMENT ZONE - GRASS ONLY (LESS THAN 6" IN HEIGHT)
- SI-1 INCLINOMETER SHOWING DEPTH IN FEET
- PZ-10 PIEZOMETER SHOWING DEPTH IN FEET AND EXISTING INSTALLATION DESIGNATION
- SD0 SUBDRAIN OUTLET
- F SITE CONDITION

