Project No.
4748.002.024

May 15, 2025

Schaefer Ranch Geologic Hazard Abatement District Board of Directors:
President Sherry Hu
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Schaefer Ranch Geologic Hazard Abatement District
100 Civic Plaza
Dublin, CA 94568

Subject: Schaefer Ranch Development
Dublin, California

GEOLOGIC HAZARD ABATEMENT DISTRICT MONITORING – SPRING 2025

Dear Mr. McCorriston:

ENGEO is pleased to submit this monitoring report for the Schaefer Ranch Geologic Hazard Abatement District (GHAD). As described in the Schaefer Ranch 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 Schaefer Ranch development, which is shown in the Vicinity Map, Figure 1, and the Site Plan, Figure 2. We conducted the Spring 2025 monitoring event on May 7 and May 8, 2025.

SCOPE OF SERVICES

Site monitoring included observation of the following items.

- Open-space slopes adjacent to improvements
- Drainage courses
- Detention basins and water quality basins
- Emergency vehicle access, maintenance, and access roads
- Open-space concrete structures
- Subdrain outlets installed during mass grading
- Concrete-lined surface drainage ditches
- Open-space storm drain inlets

OPEN-SPACE SLOPES, DEBRIS BENCHES, AND SWALES

Slope Instability

Open-space slopes, debris benches, and swales were observed for evidence of slope instability, including landslides, mudflows, erosion, diverted drainage, or standing water. During our site visit, we did not observe significant distress to the slopes adjacent to the site improvements.

During our heavy rain monitoring event in January 2023, we observed a landslide that occurred along and north of Dublin Boulevard that impacted a concrete-lined drainage ditch, sidewalk, and portion of the road. Repair recommendations for this landslide were provided in Reference 5. The GHAD initiated an emergency clean-up of the landslide debris that impacted the road and sidewalk on September 13, 2023. The permanent repair was completed on November 8, 2023. The landslide was stabilized with angular riprap and regraded to match the existing slope. A subdrain was installed in the keyway of the repair that outfalls into the existing concrete-lined drainage ditch at the toe of the slide. The repaired slope was covered with an erosional mat and straw waddles for runoff control. At the time of this monitoring event, the slope was stable and no longer impacting GHAD improvements. Annual grasses have become established across the repair area. We will continue to monitor the performance of the repair and newly installed subdrain in future monitoring events.

During the 2023 to 2024 wet season, landslides also occurred in locations within the open space south of Albert Drive and within the open space north of Dublin Boulevard. Two landslides north of Dublin Boulevard are not impacting improvements and do not present a current concern. As of this monitoring event, the scarps appear to have partially vegetated. The landslide southwest of 9492 Albert Drive appears to be a slump-type failure. We do not consider the slump to be a concern for the nearby improvements at this time. At a second location in this area, three narrow earthflows were observed near the GHAD/Caltrans property line. The earthflows occurred just upslope of an off-site concrete-lined drainage ditch. At the time of this monitoring event, the drainage ditch was clear of soil debris. The GHAD will continue to monitor these impacted areas.

A shallow landslide was observed during our Spring 2022 monitoring event on the slope northeast of the trailhead at the Donlon Point Staging Area (Site Condition A). At the time of this monitoring event, hairline longitudinal cracks were observed within the downslope concrete drainage ditch and the slide area appeared dry. The GHAD will continue to monitor this slope and cracking in the drainage ditch to ensure the earth movement does not impact the integrity of nearby improvements.

There are several unrepaired landslides within the ungraded portions of the GHAD-owned parcels. These landslides have moved in the past and will likely do so in the future when wet conditions occur. Except as described above, the landslides within the ungraded portion of the site appeared to be in a similar condition to that described during development of the site.

On October 20, 2024, a brush fire spread from Interstate 580 onto Caltrans and GHAD-owned land west of Dublin Boulevard. During this monitoring event, the fire-damaged slopes appeared to be in stable condition from a geologic/geotechnical standpoint. However, the loss of vegetation due to the fire and tracking of heavy equipment across the slope has created increased vulnerability to surficial erosion (Site Condition H). The GHAD will continue to monitor these fire-damaged slopes and schedule revegetation maintenance if necessary.

Soil Seeps

Seeps were observed in several locations, as shown in Figure 2. No indications of slope instability were associated with these seeps; however, saturated soil can significantly reduce slope stability and performance over time and can lead to slope failures. The GHAD will continue to monitor the slope areas with seeps for indications of slope instability and provide additional subsurface drainage as slope conditions warrant.

Evidence of previous wet soil from a seep was observed in the area in the open space south of Ridgeline Drive (Site Condition B.1) for the first time during the Fall 2021 monitoring. The soil in the area was wet, and ponding water was observed in the concrete-lined ditch. At the time of this monitoring, the soil in the area was wet, and standing water from the seep was observed in the drainage ditch. The slope adjacent to the seep appeared to be performing well; however, there were a large amount of animal burrows present. The GHAD will continue to monitor this area in future monitoring events.

A significant seep was previously observed east of Marshall Canyon Court (Site Condition B.2). This seep appeared to be active since grading was completed in this area in 2007 (Reference 3). As part of the mass grading, Subdrain SD-40 was installed in this area and the subdrain outlet is located in a storm drain inlet on Marshall Canyon Court. During the previous monitoring event, water was observed in the storm drain inlet, indicating proper function of the subdrain. We noted the soil at the uphill slope remained wet and provided habitat to moisture-tolerant vegetation. During this monitoring event, the slope did not appear to display signs of significant movement. Continuous water flow was observed in the concrete-lined drainage ditch at the toe of the slope. The GHAD will continue to monitor this area.

During the previous monitoring event, we observed an active seep or possible leaking irrigation line (Site Condition B.3) east of Schaefer Ranch Way, within Assessor's Parcel Number (APN) 941-2832-20. The seep had an approximate flow rate of 400 gallons per day, which was being captured by an earthen swale containing lively vegetation. The water flows approximately 120 feet until it is discharged into a catch basin at the end of the swale. The GHAD will further investigate the cause of this water and manage repairs as needed. During the Spring 2025 monitoring event, we observed that the seep is still active.

During the current monitoring event, we observed another active seep or possible leaking irrigation line (Site Condition B) north of the previously noted condition (Site Condition B.3), also within APN 941-2832-20. The active seep was discharging water onto the sidewalk and down the road into a storm drain. Directly south of this site condition, an additional, less significant, seep was observed (Site Condition B.2). These close by seeps appear to be of the same source. The GHAD will further investigate the cause of this water and manage repairs as needed.

We previously noted a seep south of 10138 Lilly Pad Lake Court. The seep showed signs of increased flow during our Fall 2020 monitoring, and we noticed animal rooting and a depression at the base of the slope. During the most recent monitoring event, the seep area was wet and vegetated. No active flow of water was observed on the slope or in the earthen swale behind 10138 Lilly Pad Lake Court. The GHAD will continue monitoring this area and surface runoff, if any, in the future to ensure that ponding water does not accumulate behind the lot.

Animal Burrows

There are several areas with dense concentrations of animal burrows. Animal burrows allow for rapid infiltration of water into the near-surface soil, which can cause the loss of soil cohesion and lead to unstable slope conditions. Areas with significant animal burrows are shown in Figure 2. The GHAD will consider burrowing animal population control if we identify signs of slope instability in accordance with the requirements of the Final Mitigation and Monitoring Plan and Perpetual Conservation Easement Deed (References 6 and 7). During this monitoring event, we did not observe that the animal burrowing activity was destabilizing the slopes. The GHAD will continue to monitor these areas.

Vegetation

Vegetation was not observed within vegetation management zones during this monitoring event. As part of scheduled routine maintenance, the GHAD will continue to remove vegetation from within the vegetation management zones, as necessary.

DRAINAGE COURSES

Several unnamed tributaries to Hollis Canyon cross the GHAD open space. In general, the creeks have slightly to moderately incised channels with a moderate to dense vegetation cover. Some segments of the creek banks are oversteepened due to previous downcutting and generally in a marginally stable condition. We expect that creek bank failures will continue to occur in the future as the creek banks adjust to lowered creek bed levels. As stated in the plan of control, the GHAD shall not have responsibility to control isolated or remote slope instability that does not involve damage to or pose a significant threat of damage to site improvements. In our most recent monitoring, we did not observe areas of the creek channel with the potential to affect site improvements.

DETENTION AND WATER QUALITY BASINS

Three detention basins are located within the boundaries of the Schaefer Ranch GHAD. In the referenced Water-Quality Detention Basin Monitoring and Maintenance letter, the basins are identified as Basin “A” (APN 941-2837-5), Basin “B” (APN 941-2832-18), and Basin “C” (APNs 941-2833-1 and 941-2833-2). Monitoring of the detention basins (Figure 2) was conducted as part of the open-space monitoring. The observed conditions for the detention basins are described in the attached monitoring reports.

ACCESS ROADWAYS

We observed the condition of the gravel-surfaced access roadways within the GHAD, and the gravel-surfaced roadways generally appeared to be in good condition, except for the following area. Due to the significant amount of rainfall that occurred in 2021, rilling was observed east of Schaefer Ranch Way along the gravel-surfaced maintenance road during the Fall 2021 monitoring event (Site Condition E). The rill extends adjacent to the sidewalk along Schaefer Ranch Road and is beginning to undermine the sidewalk. In general, the eroded feature remains relatively minor; however, erosion can create a positive feedback loop in which erosion leads to further erosion. These areas will continue to be monitored and, as needed, eroded slopes will be repaired as a part of regular GHAD maintenance. Vegetation removal, ongoing vegetation management, and erosion repairs are included in the GHAD’s routine scheduled maintenance.

SUBDRAIN OUTLETS

The subdrain outlets listed in Table 1 were observed and monitored during the site visit. In addition, discharge levels flowing from the subdrain outlets are summarized in Table 1. The locations of the subdrain outlets are approximately shown in Figure 2. Location of the subdrain outlets labeled “Unable to Locate” in Table 1 is included as part of the scope of services within the current GHAD request for proposals.

TABLE 1: Subdrains

LABEL	FLOW (gallons/day)	COMMENTS
SD-1	0	Outlet located off GHAD property, partially buried
SD-2	0	Standing water; partially submerged
SD-3	228*	Outlets onto slope below maintenance path
SD-4	0	Outlets to slope
SD-5	0	Outlets approx. 30 feet upslope from barbed-wire fence
SD-6	23*	Outlets on slope
SD-7	23*	Outlets to pond
SD-8	0	Outlets to slope
SD-9	0	Outlets on slope
SD-10	0	Minimal flow within adjacent storm drain located downslope of outfall
SD-11	0	Outlets to slope
SD-12	0	Outlets to slope
SD-13	0	Outlets to slope
SD-14	0	Outlets to slope
SD-15	--	Unable to locate
SD-16	0	Outlets to slope
SD-17	0	Outlets to slope. UTM - buried. Seepage flow measured on slope.
SD-18	0	Outlets in storm drain inlet in earthen-lined drainage ditch
SD-19	0	Outlets in storm drain inlet; partially blocked with debris
SD-20	--	UTM - subdrain pipe partially submerged in storm drain inlet
SD-21	228	Outlets in storm drain inlet
SD-22	-	Unable to locate; if in manhole - unable to open
SD-23	228*	Outlets in storm drain inlet
SD-24	46*	Outlets in storm drain inlet
SD-25	456	Outlets in storm drain inlet
SD-26	114*	Outlets to slope
SD-27	228*	Outlets in storm drain inlet
SD-28	0	Outlets in storm drain inlet at end of concrete-lined drainage ditch
SD-29	--	Unable to locate; no visible pipe in catch basin
SD-30	--	Unable to locate, outlet buried or submerged
SD-31	0	Unable to locate; Partially buried. Requires staked monument
SD-33	--	Outlets in storm drain inlet. Wet
SD-34	160*	Outlets in storm drain inlet
SD-35	0	Outlets in storm drain inlet. Soil in bottom of catch basin.
SD-36	684	Outlets in Detention Basin B
SD-37	228	Outlets in storm drain inlet
SD-38	0	Located within swale
SD-39	0	Outlets in storm drain inlet
SD-40	0	Outlets in storm drain inlet
SD-41	0	Outlets in storm drain inlet, wet, standing water in inlet
DBS Repair	0	Outlets to slope

Notes: * - Estimated Flow Rate
UTM – Unable to measure

A segment of the outfall pipe for Subdrain SD-3 has been damaged by cattle (Site Condition D.1). The area appeared wet and the outfall was still performing properly. During the last monitoring event, we observed slight damage to the outfall riprap at SD-31, which appeared to have been driven over by the tractor used for weed abatement. During this monitoring event, the subdrain was unable to be located due to tall brush. A previously observed gully beneath Subdrain SD-1 outfall has been repaired; however, the outfall is now partially buried by soil. The tip of outfall SD-8 was observed to be cracked and moistly buried in soil (Site Condition D.2). The GHAD will address the damaged subdrains and remove debris and overgrown vegetation from subdrain outfall area, as necessary, to allow for future flow monitoring.

LINED SURFACE DRAINAGE DITCHES

Concrete-lined drainage ditches were checked for accumulation of debris/sediment and for obvious distress, such as cracking or shifting of the concrete. As shown in Figure 2, there are approximately 50,000 linear feet of concrete-lined drainage ditches within the Schaefer Ranch GHAD. As part of the scheduled routine site maintenance, the GHAD will remove sediment, vegetation, and other unwanted material from the concrete-lined ditches. We observed minor cracks in the concrete-lined ditches. These minor cracks did not appear to compromise the integrity of the concrete-lined drainage ditches at this time.

STORM DRAIN INLETS

Storm drain inlets within the open-space area of the GHAD appeared to be relatively clear of debris. Storm drain inlets within the GHAD will be cleaned as part of routine vegetation maintenance.

FENCES, LOCKS, AND SIGNAGE

Fences, locks, and signage within the GHAD were checked for function, damage, and misplacement, and they generally appeared to be in good condition during this site visit.

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

Sincerely,

ENGEO Incorporated

Angelo Campiglia Robert H. Boeche, CEG

ac/rhb/ar

Attachments: Selected References
Appendix A – Site Conditions Summary with Photographs
Figures 1 and 2
Detention Basin Monitoring Reports

SELECTED REFERENCES

1. ENGEO. 2006. Plan of Control for Schaefer Ranch Geologic Hazard Abatement District (GHAD), Dublin, California. November 1, 2006. Project No. 4748.1.500.01.

2. ENGEO. 2006. Water Quality – Detention Basin Monitoring and Maintenance, Schaefer Ranch, Dublin, California. November 1, 2006. Project No. 4748.1.500.01.

3. ENGEO. 2008. Final Testing and Observation during Mass Grading, Schaefer Ranch, Phase I and Phase II, Tract No. 6765, Dublin, California. February 15, 2008. Project No. 4748.110.101.

4. ENGEO. 2023. Geologic Hazard Abatement District Monitoring – Fall 2023, Schaefer Ranch Development, Dublin, California. December 21, 2023. Project No. 4748.002.023.

5. ENGEO. 2023. Landslide Repair Recommendations, Schaefer Ranch Geologic Hazard Abatement District (GHAD), Schaefer Ranch Development, Dublin, California. October 16, 2023. Project No. 4748.002.023.

6. LSA and Balance Hydrologics, Inc. 2005. Final Mitigation and Monitoring Plan (Revised), Schaefer Ranch Project, Dublin, California. Corps File 23054S, RWQCB File Nos. 2198.11 and 2199.9446. September 14, 2005.

7. Schaefer Ranch Holdings. 2012. LLC Perpetual Conservation Easement Deed, August 6, 2012.

APPENDIX A

Site Conditions Summary with Photographs

FIGURES

DETENTION BASIN MONITORING REPORTS

4748.002.024
May 15, 2025

MONITORING REPORT

APN 941-2837-5 (Basin "A")
Schaefer Ranch
Dublin, CA

DETENTION BASIN OPERATIONS AND MAINTENANCE
SITE MONITORING AND MAINTENANCE
REPORT FORM

Inspector: Angelo Campiglia **Date:** May 5, 2025
Weather Conditions: Sunny
Days since last rainfall: 13
Basin Water Level: 0
Dry season/Wet season: Dry
Noteworthy Sediment Accumulated since Last Monitoring Event: None

MONITORED CONTROL	YES	NO	N/A	COMMENTS/SUGGESTED MAINTENANCE
1. Are inlet and outlet structures functioning properly, allowing the basin to drain and are they in satisfactory condition?	X			
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. Is the embankment surrounding the basin in good condition without rills or failures?	X			
6. Is vegetation less than 5 feet in height?	X			
7. Are embankment slopes protected with mulch or vegetation?	X			

MONITORED CONTROL	YES	NO	N/A	COMMENTS/SUGGESTED MAINTENANCE
8. Has sediment removal been undertaken in the last 3 months?		X		
9. Is there evidence of chemical sheen or odor, contaminated runoff, litter or blowing debris in or near the basin?		X		
10. Do any basin 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 other remedial/repair tasks that should be undertaken in the near future?		X		
16. Is there any 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 corrective action.

MONITORING REPORT

APN 941-2832-18 (Basin "B")
Schaefer Ranch
Dublin, CA

DETENTION BASIN OPERATIONS AND MAINTENANCE
SITE MONITORING AND MAINTENANCE
REPORT FORM

Inspector: Angelo Campiglia **Date:** May 7, 2025
Weather Conditions: Sunny
Days since last rainfall: 13
Basin Water Level: Approximately 6"
Dry season/Wet season: Dry
Noteworthy Sediment Accumulated since Last Monitoring Event: None

MONITORED CONTROL	YES	NO	N/A	COMMENTS/SUGGESTED MAINTENANCE
1. Are inlet and outlet structures functioning properly, allowing the basin to drain and are they in satisfactory condition?	X			
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. Is the embankment surrounding the basin in good condition without rills or failures?	X			
6. Is vegetation less than 5 feet in height?		X		Some vegetation is over 5 feet in height and will be removed during GHAD scheduled maintenance.

MONITORED CONTROL	YES	NO	N/A	COMMENTS/SUGGESTED MAINTENANCE
7. Are embankment slopes protected with mulch or vegetation?	X			
8. Has sediment removal been undertaken in the last 3 months?		X		
9. Is there evidence of chemical sheen or odor, contaminated runoff, litter or blowing debris in or near the basin?		X		
10. Do any basin 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 other remedial/repair tasks that should be undertaken in the near future?		X		
16. Is there any 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 corrective action.

MONITORING REPORT

APNs 941-2833-1 and 941-2833-2 (Basin "C")
Schaefer Ranch
Dublin, CA

DETENTION BASIN OPERATIONS AND MAINTENANCE
SITE MONITORING AND MAINTENANCE
REPORT FORM

Inspector: Angelo Campiglia **Date:** May 7, 2025
Weather Conditions: Sunny
Days since last rainfall: 13
Basin Water Level: Approximately 6"
Dry season/Wet season: Dry
Noteworthy Sediment Accumulated since Last Monitoring Event: None

MONITORED CONTROL	YES	NO	N/A	COMMENTS/SUGGESTED MAINTENANCE
1. Are inlet and outlet structures functioning properly, allowing the basin to drain and are they in satisfactory condition?	X			
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. Is the embankment surrounding the basin in good condition without rills or failures?	X			
6. Is vegetation less than 5 feet in height?		X		Some vegetation is over 5 feet in height and will be removed during GHAD scheduled maintenance.
7. Are embankment slopes protected with mulch or vegetation?	X			

MONITORED CONTROL	YES	NO	N/A	COMMENTS/SUGGESTED MAINTENANCE
8. Has sediment removal been undertaken in the last 3 months?		X		
9. Is there evidence of chemical sheen or odor, contaminated runoff, litter or blowing debris in or near the basin?		X		
10. Do any basin 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 other remedial/repair tasks that should be undertaken in the near future?		X		
16. Is there any 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 corrective action.