

**LEONA QUARRY
GEOLOGIC HAZARD ABATEMENT DISTRICT**

TO: Leona Quarry GHAD
Board of Directors

FROM: GHAD Manager Eric Harrell
GHAD Attorney Patricia Curtin

BOARD MEETING DATE: June 2, 2020

SUBJECT: Leona Quarry GHAD Resolution No. 2020/01

RECOMMENDATION(S):

ADOPT Leona Quarry GHAD Resolution No. 2020/01: 1) adopting the GHAD budget for fiscal year 2020/21; 2) updating GHAD Manager payment limit under the Consulting Services Agreement, as recommended by the GHAD Attorney and GHAD Manager; and 3) reduce the levy on each residential unit in the GHAD to \$928 per unit for fiscal year 2020/21.

FISCAL IMPACT:

The GHAD is funded 100% through assessments levied on properties within the GHAD; therefore, there is no impact on the City of Oakland General Fund. For fiscal year 2020/21 the GHAD anticipates assessment income of \$389,760 from 420 residential properties with total revenue of \$549,760 including investment income. Expenses for fiscal year 2020/21 are estimated at \$266,265. The current Program Budget projects that at the beginning of the 2020/21 fiscal year (July 1, 2020), the cumulative reserve will be about \$4,961,721 and about \$5,245,216 at the end of the 2020/21 fiscal year (June 30, 2021).

A Reserve Fund Study for the Leona Quarry GHAD was completed in May 2020. As concluded in the Reserve Fund study, it appears that an adequate fiscal reserve has been achieved; therefore, the GHAD Manager had recommended, and the current budget reflects, a reduced levy for fiscal year 2020/21 of \$928 per residential unit. As provided in the 2005 Engineer's Report, the annual assessment and assessment limit will continue to be adjusted for inflation. Ongoing assessments, even at an amount lower than the assessment limit, will allow the GHAD to continue funding its other administration, maintenance, and monitoring functions including a larger repair, if necessary.

BACKGROUND:

The Plan of Control states that approximately 83 acres of open space property will be transferred to the GHAD three years after the recordation of the first final map(s) affecting the GHAD property. The applicable final maps were filed on July 19, 2005 (Tract 7351 & 7493) and

December 9, 2005 (Tract 7492). The open space property was transferred to the GHAD on January 28, 2011.

The Plan of Control also dictates when the monitoring, maintenance and repair activities will be transferred to the GHAD. As set forth in the Plan of Control, the transfer automatically occurs on the “...day exactly two years after the first occupancy permit for the Leona Quarry project is issued by the City, or exactly two years after the completion and City approval of the grading described in Condition of Approval 13, Construction, Phase B of the Conditions of Approval for the Leona Quarry project, whichever is later, and provided the improvements required by the Condition of Approval for the Leona Quarry Project have been accepted.”

The City approved grading for the Leona Quarry project on January 25, 2007. In a letter dated January 14, 2010, the City confirmed that the maintenance responsibilities were ready to be transferred to the GHAD. The Interim GHAD Manager inspected the improvements and, on March 17, 2011, confirmed that they were in a condition to allow the GHAD to accept responsibility as required by the Plan of Control.

The following are the improvements that are owned and/or maintained by the GHAD:

- Detention basin, including structures, vegetation and sediment removal
- Concrete-lined drainage ditches
- Storm drain inlets, outfalls and pipelines within the open space property
- Subdrains
- Debris bench maintenance
- Piezometers and inclinometers
- Settlement monuments
- Rock catchment fences
- Trail maintenance including trash removal
- Potential Alameda County Whipsnake habitat – fencing and sign maintenance
- Emergency vehicle access and maintenance roads
- Erosion management

As of January 28, 2011, the GHAD became the owner of the open space property within the GHAD boundaries and as of March 17, 2011 the maintenance responsibilities for the improvements in the Plan of Control were transferred to the GHAD. The proposed budget for fiscal year 2020/2021 must be approved in order to fund the GHAD responsibilities. The budget is attached (Attachment A) and reflects an annual payment limit to the GHAD Manager of \$94,200. The proposed budget also reflects a reduction in the per unit levy from \$1,544.36 for fiscal year 2019/20 to \$928.00 per unit for fiscal year 2020/21 based upon the results of the Reserve Fund Study prepared by the GHAD Manager, dated May 1, 2020.

As provided in the approved 2005 Engineer’s Report, the assessment limit will continue to be adjusted for inflation annually. The proposed reduction in the annual levy does not preclude the GHAD Board in the future from increasing or decreasing the levy of the assessment up to the inflation adjusted assessment limit without a vote of property owners within the GHAD. At a minimum, it is anticipated that the reduced levy, \$928.00 for fiscal year 2020/21, will be adjusted by inflation annually as projected in the attached Reserve Study.

CONSEQUENCE OF NEGATIVE ACTION:

The GHAD will not be able to continue operation if the budget is not approved.

**THE BOARD OF DIRECTORS OF LEONA QUARRY
GEOLOGIC HAZARD ABATEMENT DISTRICT**

Adopted this Resolution on June 2, 2020, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

RESOLUTION NO. 2020/01 (LEONA QUARRY GHAD)

SUBJECT: Adopting the annual GHAD budget for fiscal year 2020/21 , updating GHAD Manager payment limits under the existing consulting services agreement, and reducing the per residential unit levy.

WHEREAS, on December 3, 2002, the Oakland City Council adopted Resolution No. 77545 approving the formation of the Leona Quarry Geologic Hazard Abatement District (GHAD) and appointing itself to serve as the GHAD Board of Directors;

WHEREAS, on June 21, 2011, the GHAD Board of Directors adopted Resolution No. 11, confirming the transfer of the GHAD Property and GHAD Improvements as defined in the Plan of Control dated March 9, 2005, to the GHAD;

WHEREAS, the GHAD Board of Directors desires to adopt the budget for fiscal year 2020/21 prepared by the GHAD Manager, ENGEO Inc., attached hereto as Exhibit A;

WHEREAS, the GHAD Board of Directors has reviewed the Reserve Fund Study prepared by the GHAD Manager, ENGEO Inc, dated May 1, 2020 (attached hereto as part of Exhibit A), and authorized the reduction of the levy from \$1,544.36 per residential parcel in fiscal year 2019/20 to \$928.00 per residential parcel in fiscal year 2020/21;

WHEREAS, on March 15, 2005, pursuant to Resolution No. 1 (City Council Resolution 79103), the GHAD Board approved the consultant services agreement with ENGEO Inc., to act as Manager for the GHAD. This Agreement, in Section 5.1, requires the GHAD Board to determine by resolution each fiscal year the payment limits for GHAD Manager services. The budget attached in Exhibit A identifies this limit at \$94,200.

The Board of Directors of the GHAD HEREBY RESOLVES THAT:

1. The GHAD Board approves the GHAD budget for fiscal year 2020/21 attached as Exhibit A and incorporated herein by this reference.

2. The GHAD Board adopts the payment limit for the GHAD Manager services at \$94,200 for fiscal year 2020/21 as set forth in Exhibit A, and incorporates this payment limit into the consulting services agreement.

3. The GHAD Board hereby approves the reduction of the levy from \$1,544.36 per residential parcel in fiscal year 2019/20 to \$928.00 per residential parcel in fiscal year 2020/21.

4. The recitals are incorporated herein by this reference.

This Resolution shall become effective immediately upon its passage and adoption.

Attachment:

A: Leona Quarry Geologic Hazard Abatement District Budget for Fiscal Year 2020/21

**LEONA QUARRY GEOLOGIC HAZARD ABATEMENT DISTRICT
BUDGET FOR FISCAL YEAR 2020/21**

May 20, 2020

Leona Quarry Geologic Hazard Abatement District Board of Directors
Chair Loren Taylor
Boardmember Rebecca Kaplan
Boardmember Dan Kalb
Boardmember Nikki Fortunato Bas
Boardmember Lynette Gibson McElhaney
Boardmember Shen Thao
Boardmember Noel Gallo
Boardmember Larry Reid

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

Subject: Leona Quarry Geologic Hazard Abatement District
Oakland, California

BUDGET FOR FISCAL YEAR 2020/21

Reference: ENGEO; Reserve Fund Study, Leona Quarry Geologic Hazard Abatement District, Oakland, California; May 1, 2020; Project No. 5188.002.019.

Dear Chair Taylor and Boardmembers:

Attached is the proposed budget for the Leona Quarry Geologic Hazard Abatement District (GHAD) for fiscal year (FY) 2020/21. The FY for the Leona Quarry GHAD is from July 1 through June 30. The budget as proposed is \$269,265. The budget expenses break down into the following approximate percentages of the total receivables.

Major Repair	0 percent
Preventive Maintenance and Operations	30 percent
Special Projects	0.2 percent
Administration and Accounting	9 percent
Additional - Outside Professional Services	9 percent
Reserve	52 percent

The budget anticipates FY 2020/21 revenue of \$549,760 with an estimated contribution of \$280,495 to the reserve fund. A summary of the expenses is shown on Table 4 followed by a brief description of each budget item on the following pages.

If you have any questions regarding the contents of this letter, please contact us.

Sincerely,

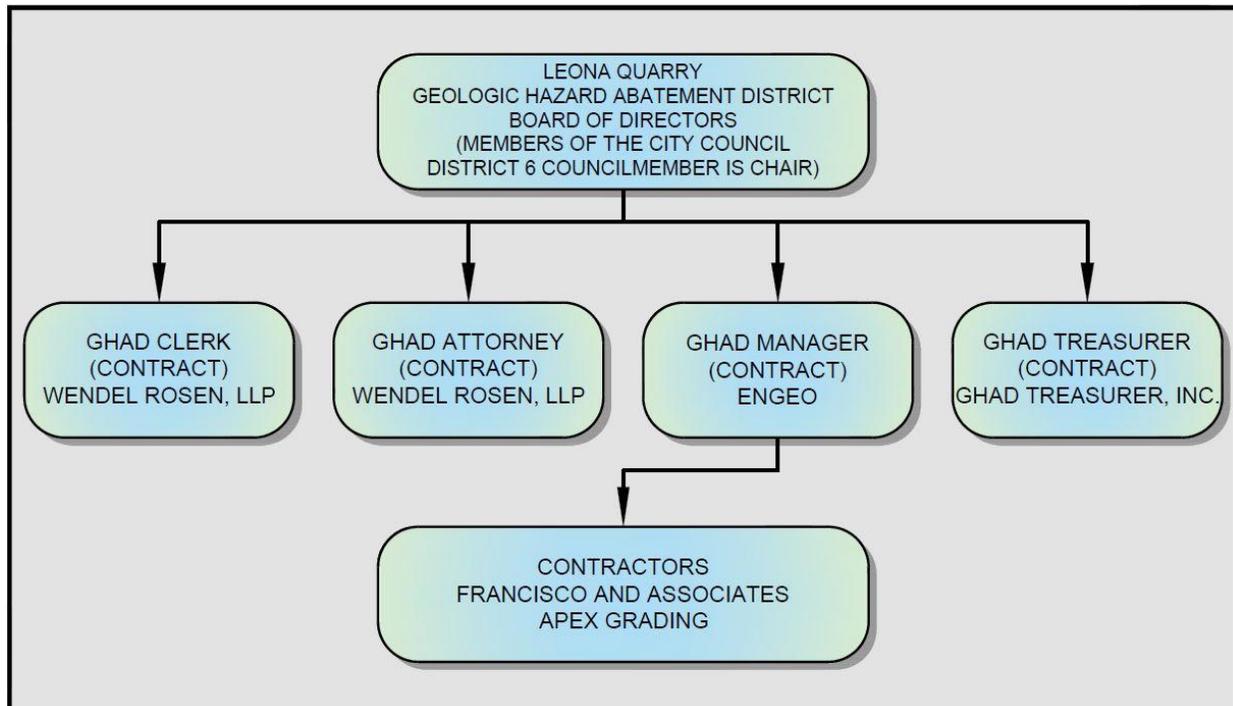
Leona Quarry Geologic Hazard Abatement District
ENGEO Incorporated, General Manager
1630 San Pablo Ave., Suite 200
Oakland, CA 94612
ENGEO Project No. 5188.002.019


Haley Trindle
ht/eh/cjn


Eric Harrell

**Leona Quarry Geologic Hazard Abatement District
 Program Budget
 Fiscal Year 2020/21**

The following budget summarizes the anticipated revenue and expenditures for FY year 2020/21 for the Leona Quarry Geologic Hazard Abatement District (GHAD), which currently includes the Monte Vista Villas development. The structure of the Leona Quarry GHAD is shown below.



The Leona Quarry GHAD has maintenance and monitoring responsibilities and is the property owner for the following parcels within the District. It is anticipated that additional parcel may be offered to the GHAD in FY 2020/21.

TABLE 1: GHAD-Maintained Parcels

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

The GHAD is funded through real property assessments. The 2019/20 assessment limit was set at \$1,544.37 per residential unit adjusted up 3.72% from the 2018/19 assessment level of \$1,426.09. The assessment limit annual adjustment is based on the 2005 Engineer's Report using the San Francisco-Oakland-Hayward consumer price index (CPI) plus one-half of one

percent. The final assessment roll prepared for the 2019/20 fiscal year and submitted to the Alameda County Assessor's Office identifies 408 properties subject to the levy of the GHAD assessment. The total levy amount for the 2019/20 FY was \$630,098.88.

TABLE 2: Assessment Limit Inflation Adjustments

FISCAL YEAR	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
ANNUAL CPI (JUNE)	618.4	642.7	664.421	692.68	693.839	701.273	718.293	737.231
SF/OAK, 1967=100		3.93%	3.38%	4.19%	0.23%	1.07%	2.43%	2.64%
ADDITIONAL 0.5%		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
TOTAL CPI		4.43%	3.88%	4.69%	0.73%	1.57%	2.93%	3.14%
ASSESSMENT LIMIT (SINGLE FAMILY)	\$983.00	\$1,026.54	\$1,066.37	\$1,116.39	\$1,124.51	\$1,142.18	\$1,175.61	\$1,212.48
COMMERCIAL (per square foot)	\$0.25000	\$0.26107	\$0.27120	\$0.28393	\$0.28599	\$0.29048	\$0.29899	\$0.30836

FISCAL YEAR	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
ANNUAL CPI (JUNE)	756.074	778.767	796.597	817.884	846.360	879.435	907.709
SF/OAK, 1967=100	2.56%	3.00%	2.29%	2.67%	3.48%	3.91%	3.22%
ADDITIONAL 0.5%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
TOTAL CPI	3.06%	3.50%	2.79%	3.17%	3.98%	4.41%	3.72%
ASSESSMENT LIMIT (SINGLE FAMILY)	\$1,249.54	\$1,293.29	\$1,329.37	\$1,371.51	\$1,426.09	\$1,488.98	\$1,544.37
COMMERCIAL (per square foot)	\$0.31779	\$0.32891	\$0.33809	\$0.34881	\$0.36269	\$0.37868	\$0.39277

Based on the CPI figures reported through April 2020, for budgeting purposes, we estimate a FY 2020/21 inflation rate adjustment of 1 percent. With the additional adjustment of one-half of one percent, as specified in the Engineer's Report, the assessment limit adjustment for FY 2020/21 is estimated at 1.5 percent. We estimate that 420 residential units will be subject to assessment in the FY 2020/21. The actual CPI adjustment for the FY 2020/21 assessment limit will be based on the inflation rate through June 30, 2020, for the past 12 months.

As discussed in the attached Reserve Fund Study for the Leona Quarry GHAD dated May 15, 2020, the GHAD Manager has recommended that the GHAD Board of Directors consider lowering the levy on residences within the GHAD for FY 2020/21 to \$928 per residential unit since it appears that the desired reserve target has been reached. The revenue estimates in the FY 2020/21 budget reflect an assessment level of \$928, which is lower than the projected assessment limit.

TABLE 3: Estimated Revenue

	FY 2020/21 ESTIMATE
Residential Units	420
Assessments	\$389,760
Interest	\$148,000
Total Revenues	\$537,760

The budget amounts listed are based on the Engineer's Report approved by the Leona Quarry GHAD Board of Directors in 2005. The budget amounts have been inflation adjusted to provide the listed budget estimates. In the 2020/21 fiscal year, we estimate approximately 420 parcels will be subject to a levy of the assessment out of a total of 427 units originally planned within the Monte Vista Villas development at build-out. Parcels are subject to a levy of the assessment the first fiscal year following issuance of a building permit.

The budget is divided into four categories including Major Repair, Preventive Maintenance and Operations, Special Projects, and Administration and Accounting.

MAJOR REPAIR

Included within the major repair category are those repair or improvement projects that are intermittent and, by their nature, do not fit within a scheduled maintenance program. Minor slope repair and erosion control items are generally funded within the Preventive Maintenance and Operations category. For the purposes of this budget, we define major repairs as those estimated at over \$50,000.

PREVENTIVE MAINTENANCE AND OPERATIONS

Preventive maintenance and operations include slope stabilization, erosion protection, and professional services within the District. Professional services include site-monitoring events as scheduled in the GHAD Plan of Control. Slope stabilization and erosion protection responsibilities include the open space slopes and creek channels. GHAD-maintained improvements generally include the District's slopes, concrete-lined drainage ditches, retaining walls, subsurface drainage facilities, monitoring instruments including settlement monitoring devices, storm drain facilities, and the creek channels.

SPECIAL PROJECTS

The Special Projects category allows the GHAD to budget for projects beneficial to the GHAD that are not included in one of the other three categories. Special Projects can include items such as global positioning system (GPS)/geographic information system (GIS) development for GHAD maintained improvements; website development and maintenance; and reserve studies to reevaluate the financial condition of the GHAD.

ADMINISTRATION AND ACCOUNTING

Administrative expenses include the General Manager duties related to the operation and administration of the GHAD. The administrative budget category includes tasks of the General Manager, clerical and accounting staff.

A summary of the proposed budget through the end of FY 2020/21 is shown in Table 4.

TABLE 3: Summary of Use of Funds

USE OF FUNDS				
	FY 2019/20 ESTIMATE*	FY 2019/20 BUDGET	FY2020/21 PROPOSED	PERCENT CHANGE FROM FY 2019/20
Major Repairs				
Subtotal	\$0	\$0	\$0	0.0%
Preventive Maintenance and Operations - Professional Services				
Scheduled Monitoring Events	\$16,689	\$10,200	\$12,000	
Heavy Rainfall Monitoring Event	\$0	\$4,000	\$4,000	
Subtotal	\$16,689	\$14,200	\$16,000	12.7%
Preventive Maintenance and Operations - Maintenance and Operations				
Concrete-Lined Drainage Ditches	\$7,150	\$7,500	\$10,500	
Trail, Fire Break and Fence Maintenance	\$42,298	\$44,000	\$45,000	
Detention and Sedimentation Basin Maintenance	\$1,100	\$2,500	\$3,000	
Erosion Control including Creek Channels	\$4,586	\$30,000	\$30,000	
Slope Stabilization	\$4,303	\$50,000	\$60,000	
Subtotal	\$59,436	\$134,000	\$148,500	11.0%
Special Projects				
GPS/GIS Development	\$759	\$5,000	\$0	
Web Site Maintenance/Updates	\$2,728	\$2,000	\$1,000	
Reserve Study	\$5,344	\$5,000	\$0	
Subtotal	\$8,831	\$12,000	\$1,000	-91.7%
Administration – GHAD Manager				
Administration	\$52,234	\$54,000	\$48,000	
Budget Preparation	\$4,000	\$4,000	\$4,000	
Subtotal	\$56,234	\$58,000	\$52,000	-10.3%
Administration and Accounting – Outside Professional Services				
Assessment Roll and Levy Update	\$2,675	\$4,000	\$2,675	
Legal Counsel	\$7,806	\$12,000	\$15,000	
Treasurer and Investment Manager	\$11,442	\$11,500	\$22,500	
Clerk	\$0	\$3,000	\$3,000	
Alameda County Assessor's Fees	\$10,533	\$11,100	\$6,630	
California Association of GHADs Membership	\$202	\$210	\$210	
Insurance – Directors and Officers	\$786	\$800	\$800	
Insurance – General Liability	\$964	\$775	\$950	
Subtotal	\$34,888	\$43,385	\$51,765	19.3%

*FY2019/20 Estimate Includes Actual Expenses through May 1, 2020

TABLE 4: Summary of Proposed Fiscal Year 2020/21 Budget

BUDGET ITEM	LABEL	BUDGET AMOUNT	PERCENT OF TOTAL BUDGET (FY 2020/21)	PERCENT OF TOTAL BUDGET (FY 2019/20)
MAJOR REPAIRS				
Major Projects	TOTAL	\$0	0%	0%
PREVENTIVE MAINTENANCE AND OPERATIONS				
Professional Services				
Scheduled Monitoring Events				
Open Space Scheduled Monitoring Events		\$12,000		
Heavy Rainfall Monitoring Event		\$4,000		
	Subtotal	\$16,000		
Maintenance and Operations				
Concrete-Lined Drainage Ditches		\$10,500		
Trail, Fire Break and Fence Maintenance		\$45,000		
Detention and Sedimentation Basin Maintenance		\$3,000		
Erosion Control including Creek Channels		\$30,000		
Slope Stabilization		\$60,000		
	Subtotal	\$148,500		
	TOTAL	\$164,500	30%	20%
SPECIAL PROJECTS				
Web Site Maintenance/Updates		\$1,000		
	TOTAL	\$1,000	0.2%	2%
ADMINISTRATION – GHAD Manager				
Administration		\$48,000		
Budget Preparation/Annual Reporting		\$4,000		
	Subtotal	\$52,000	9%	8%
Outside Professional Services – Nontechnical				
Assessment Roll and Levy Update Preparation		\$2,675		
Legal Counsel		\$15,000		
Treasurer		\$22,500		
Clerk		\$3,000		
Alameda County Assessor’s Fees		\$6,630		
California Association of GHADs Membership		\$210		
Insurance – Directors and Officers		\$800		
Insurance – General Liability		\$950		
	Subtotal	\$51,765	9%	6%
	TOTAL	\$103,765		
ESTIMATED EXPENDITURES	TOTAL	\$269,265	48%	36%
ESTIMATED RECEIVABLES				
Beginning Balance				
Balance (June 30, 2019)		\$4,369,449		
Estimated FY 2019/20 Revenue				
Estimated Revenue through 6/30/2020		\$630,099		
Estimated Investment Income through 6/30/2020		\$137,951		
Estimated Expenses 2019/20 Expenses				

BUDGET ITEM	LABEL	BUDGET AMOUNT	PERCENT OF TOTAL BUDGET (FY 2020/21)	PERCENT OF TOTAL BUDGET (FY 2019/20)
Estimated Expenses through 6/30/2020		\$175,778		
ESTIMATED RESERVE ON JUNE 30, 2020		\$4,961,721		
Estimated 2020/21 Revenue				
Estimated FY 2020/21 Assessment		\$389,760		
Estimated FY 2020/21 Investment Income		\$160,000		
Estimated 2020/21 Expenses				
Expenses through June 30, 2021		\$269,265		
ESTIMATED RESERVE ON JUNE 30, 2021		\$5,242,216		

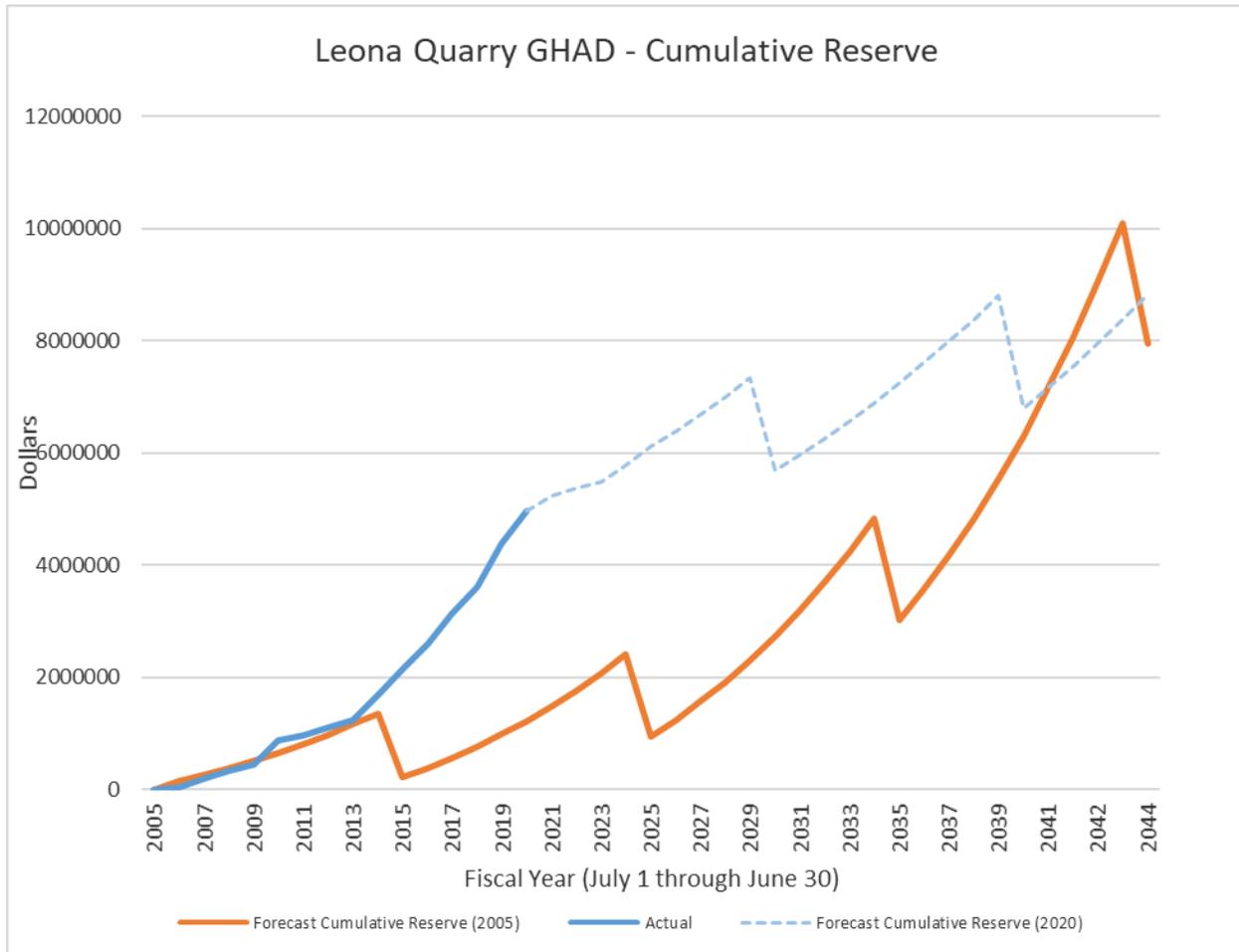
Section 5.1 of the approved GHAD Management Agreement provides that a payment limit shall be determined each fiscal year by the GHAD Board of Directors by resolution. For fiscal year 2020/21 (July 1, 2019, through June 30, 2020), the payment limit is set at \$94,200. The tasks included within the payment limit may include site monitoring events, report preparation, oversight of maintenance and repair projects, administration, and assessment roll updates.

TABLE 5: Payment Limit

TASK	AMOUNT
Scheduled Monitoring Events	\$12,000
Heavy Rainfall Monitoring Event	\$4,000
Concrete-Lined Drainage Ditches	\$2,100 ¹
Trail, Fire Break, and Fence Maintenance	\$9,000 ¹
Detention and Sedimentation Maintenance	\$600 ¹
Erosion Control Including Creek Channels	\$4,500 ¹
Slope Stabilization	\$9,000 ¹
Special Projects (Web, GIS, and Reserve Study)	\$1,000
Administration and Accounting	\$48,000
Budget Preparation	\$4,000

¹Dependent on maintenance and/or repair activities by the GHAD during FY 2020/21. ENGEO payment limit is up to 20% of the total budget item.

The current Program Budget projects that at the beginning of the 2020/21 fiscal year (July 1, 2019), the cumulative reserve will be about \$4,961,721 and about \$5,242,216 at the end of the 2020/21 fiscal year (June 30, 2019). Graph 2 provides the forecast and actual account balances for the GHAD from the initial levy of assessments in FY 2006/07 to the present, based on the approved 2005 Engineer's Report. The cumulative reserve was forecast to reach approximately \$2,500,000 by 2044 in 2005 dollars (approximately \$8,800,000 in 2044 dollars). The GHAD reserve is intended to fund unanticipated expenses that may occur.



In general, expenses have been lower than estimated in the approved 2005 Engineer's Report. We attribute the additional reserve accumulation to a number of factors including (1) The Leona Quarry GHAD has not accepted monitoring and maintenance responsibilities for all of the improvements within Monte Vista Villas development, (2) seven of the past 9 years since the GHAD accepted maintenance responsibilities for open space parcels have had below-average rainfall; therefore, there has been a reduced level of slope instability and erosion, (3) a large-scale repair (estimated at \$1,000,000 in 2005 dollars every 10 years) has not yet been necessary within the GHAD-maintained areas.

MAJOR REPAIRS (MAJOR)

There are currently no ongoing major repair projects, and none are anticipated for the 2020/21 fiscal year within the GHAD-maintained areas of the Leona Quarry GHAD. Minor slope repair and erosion control items are generally funded within the Preventive Maintenance and Operations category. While no major repairs are ongoing at this time, by their nature, major repairs such as landslides are unpredictable and could occur during the 2020/21 fiscal year. The reserve portion of the budget allows for funding toward these unpredictable events.

PREVENTIVE MAINTENANCE AND OPERATIONS (PREVM&O)

Professional Services

Scheduled Monitoring Events (SCMON)

As provided in the Plan of Control, there are two scheduled monitoring events within the GHAD during each calendar year. **Estimated budget \$12,000**

Heavy Rainfall Events (HRMON)

We have budgeted for one heavy-rainfall monitoring event during the 2020/21 winter season. **Estimated budget \$4,000**

Maintenance and Operations

Concrete- and Asphalt-Lined Drainage Ditches (DITCH)

This budget item is to provide for the selected removal of vegetation and cleaning of concrete- and asphalt-lined drainage ditches within the GHAD-owned parcels, as needed. We expect to undertake one complete ditch-cleaning event in 2020/21 fiscal year. Approximately 22,500 lineal feet of concrete-lined ditch are located within the six GHAD-owned parcels. **Estimated budget \$10,500**

Open Space Maintenance (OMAIN)

This budget item includes vegetation management on gravel-surfaced maintenance roadways, vegetation maintenance on debris benches, trail maintenance, litter collection and removal, annual fire-break mowing, and unanticipated trail maintenance or fence repairs, which may occur during the 2020/21 fiscal year. **Estimated budget \$45,000**

Detention and Sedimentation Basin Maintenance (DETBA)

The budget allows for ongoing maintenance activities within the detention and sedimentation basins. **Estimated budget \$3,000**

Erosion Control (ERCON)

Anticipated tasks under this budget item include the repair of slope or creek erosion and removal of debris from the creek channel. Cleaning and vegetation management of the detention basin, if necessary, will be a task within this budget item. **Estimated budget \$30,000**

Slope Stabilization (SLOPE)

This is for minor repairs, including slope instability or erosion, which may occur during the 2020/21 fiscal year. Purchase of emergency stabilization supplies will be included within this budget item. **Estimated budget \$60,000**

SPECIAL PROJECTS (SPEPROJ)

Web Site Maintenance and Updates (WEB)

To allow for greater access to information about the Leona Quarry GHAD, the GHAD has provided a budget item to update and maintain the existing website launched during the 2013/14 fiscal year. **Estimated budget \$1,000**

ADMINISTRATION AND ACCOUNTING (ADMIN)

Administration (ADACC)

Administrative expenses include the General Manager duties related to the operation and administration of the GHAD. The budget estimate for the accounting and administrative services is derived from the original GHAD budget used to prepare the GHAD Engineer's Report. **Estimated budget \$48,000**

Annual Report and Budget Preparation (BDGET)

This budget provides for the preparation of the annual report and budget. The budget estimate for the accounting and administrative services is derived from the original GHAD budget used to prepare the GHAD Engineer's Report. **Estimated budget \$4,000**

Assessment Roll and Levy Update (ASSESS)

This budget item allows for preparation of the assessment roll for the District and the updated levy based on the Consumer Price Index adjustment. **Estimated budget \$2,675**

GHAD Attorney (LEGAL)

This budget item allows the GHAD to seek review and comment from GHAD counsel for the District. **Estimated budget \$15,000**

GHAD Treasurer (TREAS)

This budget item accounts for fees related to treasurer services, investment of the GHAD reserve funds, and processing of accounts payable. **Estimated budget \$22,500**

GHAD Clerk (CLERK)

This budget item accounts for fees to provide clerical staffing and support services for the GHAD Board of Directors and to keep and provide interested parties with accurate records and documents relative to Board actions. **Estimated budget \$3,000**

Alameda County Assessor's Fees (ALAAS)

This budget item accounts for commission charged by the Alameda County Assessor's Office (currently 1.7 percent of total annual assessment amount) for collection of assessments within the Leona Quarry GHAD. **Estimated budget \$6,630**

[Association Membership \(CGHAD\)](#)

The GHAD maintains membership in the California Association of GHADs.

Estimated budget \$210

[Directors and Officers Insurance \(INSUR\)](#)

The GHAD maintains directors and officers insurance for the Board of Directors.

Estimated budget \$800

[General Liability Insurance \(INSURGL\)](#)

The GHAD maintains general liability insurance for open space areas within the District.

Estimated budget \$950

Attachment: ENGEO, Reserve Fund Study, Leona Quarry Geologic Hazard Abatement District, Oakland, California, May 1, 2020; Project Mo 5188.002.019.

Project No.
5188.002.019

May 1, 2020

Leona Quarry Geologic Hazard Abatement District Board of Directors
Chair Loren Taylor
Boardmember Rebecca Kaplan
Boardmember Dan Kalb
Boardmember Nikki Fortunato Bas
Boardmember Lynette Gibson McElhaney
Boardmember Shen Thao
Boardmember Noel Gallo
Boardmember Larry Reid

Subject: Leona Quarry Geologic Hazard Abatement District
Oakland, California

RESERVE FUND STUDY

Dear Chair Taylor and Boardmembers:

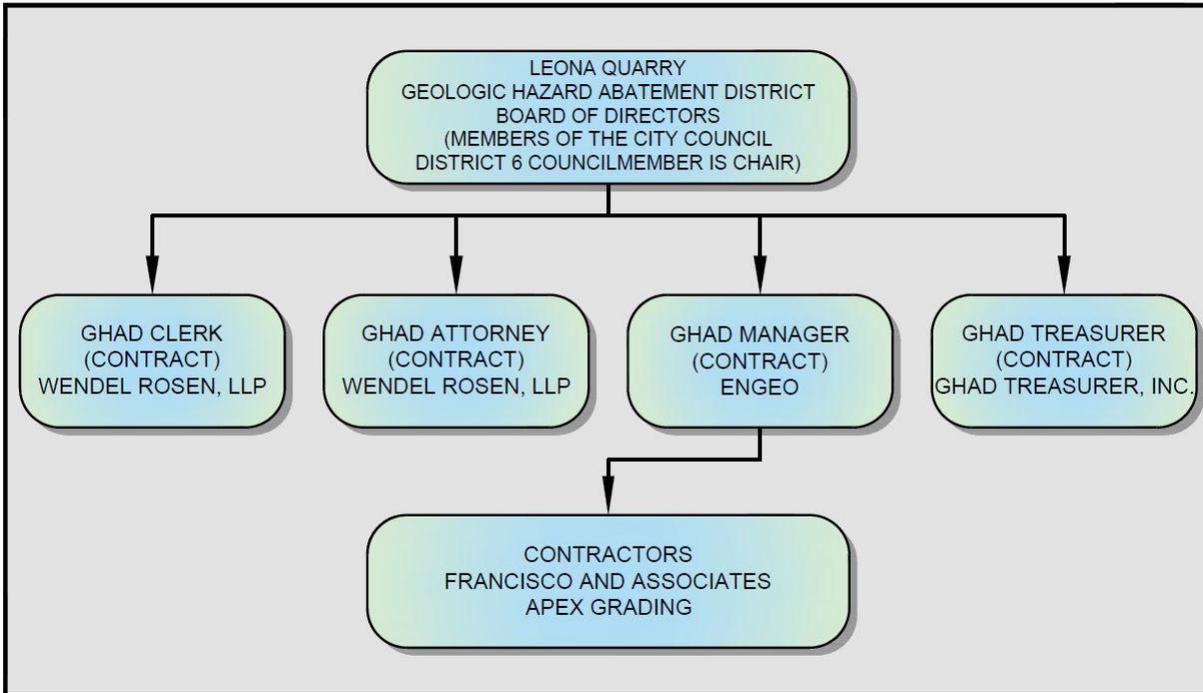
ENGEO is pleased to provide this Reserve Fund Study for the Leona Quarry Geologic Hazard Abatement District (GHAD) in Alameda County, California. The Leona Quarry GHAD was formed on December 3, 2002, with the approval of Resolution 77545 and includes the Monte Vista Villas development in addition to 23 single-family residences on Campus Drive. The initial assessment limit was approved on May 3, 2005. The GHAD accepted monitoring, maintenance, and ownership responsibilities for selected open space parcels in 2011.

The Leona Quarry GHAD performed this reserve study to forecast expenses that it can reasonably expect to incur in the decades ahead and to confirm that sufficient funds are being set aside in the GHAD's reserve to pay for these expenses.

The reserve fund study is based on:

- Expenditures expected to address future monitoring, maintenance, and repair responsibilities as outlined in the Plan of Control (Reference 2).
- Long-term reserves to address larger geologic events. The projected long-term reserve requirement is based on the published work, "Estimating an Appropriate Geologic Hazard Abatement District (GHAD) Reserve" and is provided as an attachment to this study.

The structure of the Leona Quarry GHAD is shown below.



REVENUE

GHAD Assessments

As listed in the approved Engineer’s Report (Reference 1) for FY 2005/2006, initial assessment limits for the GHAD were established at \$974 for single-family residences and \$0.25 per square foot of habitable non-residential building areas. The initial assessment limits for residential units are adjusted annually on June 30 to reflect the percentage change in the San Francisco-Oakland-Hayward Consumers Price Index for All Urban Consumers. The inflation adjustments to the assessment limits are shown on Table 1.

TABLE 1: Assessment Limit Inflation Adjustments

FISCAL YEAR	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
ANNUAL CPI (JUNE)	618.4	642.7	664.421	692.68	693.839	701.273	718.293	737.231
SF/OAK, 1967=100		3.93%	3.38%	4.19%	0.23%	1.07%	2.43%	2.64%
ADDITIONAL 0.5%		0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
TOTAL CPI		4.43%	3.88%	4.69%	0.73%	1.57%	2.93%	3.14%
ASSESSMENT LIMIT (SINGLE FAMILY)	\$983.00	\$1,026.54	\$1,066.37	\$1,116.39	\$1,124.51	\$1,142.18	\$1,175.61	\$1,212.48
COMMERCIAL (per square foot)	\$0.25000	\$0.26107	\$0.27120	\$0.28393	\$0.28599	\$0.29048	\$0.29899	\$0.30836

FISCAL YEAR	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
ANNUAL CPI (JUNE)	756.074	778.767	796.597	817.884	846.360	879.435	907.709
SF/OAK, 1967=100	2.56%	3.00%	2.29%	2.67%	3.48%	3.91%	3.22%
ADDITIONAL 0.5%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
TOTAL CPI	3.06%	3.50%	2.79%	3.17%	3.98%	4.41%	3.72%
ASSESSMENT LIMIT (SINGLE FAMILY)	\$1,249.54	\$1,293.29	\$1,329.37	\$1,371.51	\$1,426.09	\$1,488.98	\$1,544.37
COMMERCIAL (per square foot)	\$0.31779	\$0.32891	\$0.33809	\$0.34881	\$0.36269	\$0.37868	\$0.39277

The average annual inflation rate since approval of an assessment limit in 2005 has been 2.78 percent. With the prescribed additional 0.5 percent, the average annual assessment limit has increased by an average of 3.28 percent since establishment of the assessment limit (FY 2005/06 through 2019/20).

The FY 2019/20 assessment roll identifies 408 residences levied at a rate of \$1,544.36 per unit. The total levy for the 2019/20 FY is \$630,098.88. No commercial structures have been constructed within the GHAD nor are any anticipated in the future based on current development plans.

Assessments are levied on the first fiscal year after issuance of a building permit for a residential parcel. Based on a review of planned construction, an additional 18 multi-family residential units and 1 single-family residential unit will ultimately be subject to the levy of an assessment. With these additional units, the residences subject to assessment would total 427, the same unit count anticipated in the initial approved Engineer's Report (Reference 1).

Investment Earnings

As indicated in the 2005 Engineer's Report, the long-term real rate of return on GHAD reserves was estimated at 2.75% with an average inflation rate of 3.0% and an investment return of 5.75%. Table 2 shows the investment returns from fiscal year 2016/17 through 2019/20 (year-to-date) in addition to the inflation rate and real rate of return since the current treasurer was appointed in 2015.

TABLE 2: Investment Returns

Fiscal Year (July 1 – June 30)	2016/17	2017/18	2018/19	2019/20 (through April 30, 2020)	Average
Investment Return	3.18%	1.66%	7.14%	4.55%	4.13%
Inflation	3.48%	3.91%	3.22%	1.5% ¹	3.03%
Real Rate of Return	-0.30%	-2.25%	3.92%	3.05%	1.10%

¹June 2019 through February 2020

Based on discussions with the GHAD Treasurer for the Leona Quarry GHAD, we are estimating an annual inflation rate of 2.25 percent for the 40-year pro forma budget. This is near the inflation target of 2 percent adopted by the Federal Open Market Committee in January 2012 (Reference 6). Real rate of return is estimated by the GHAD Treasurer to average

approximately 2.25 to 2.5 percent for the GHAD reserves. For this analysis, we are using the lower end of the range, 2.25 percent.

GHAD RESPONSIBILITIES

Based on the District's Plan of Control (Reference 2), GHAD responsibilities include:

- Open space slopes
- Concrete-lined drainage ditches
- Debris benches
- Retaining walls
- Detention basins
- Bioretention facilities
- Creek banks
- Storm drain inlets and outlets
- Subdrain outlets

In addition to GHAD responsibilities to abate, mitigate, prevent, and control geologic hazards, the GHAD has responsibilities as a landowner within the GHAD-owned parcels, including:

- Vegetation management for fire suppression
- Litter and debris collection
- Fencing

PROJECTED EXPENSES

ENGEO prepared the initial Engineer's Report used to establish the assessment limit for the GHAD. By resolution, the GHAD Board of Directors approved the Engineer's Report and ordered the assessment in 2005. Since the GHAD was formed, ENGEO has completed bi-annual site-monitoring events (Reference 4) to observe and summarize site conditions. To prepare the current GHAD reserve amount, we reviewed the initial Engineer's Report, the existing site conditions, and revenue and expense information provided by the GHAD. Most of the initial expense estimates remain valid, but some amounts have been adjusted to account for site performance over the past 9 years and contracted expenses.

In general, expenses have been lower than estimated in the approved 2005 Engineer's Report. We attribute the additional reserve accumulation to a number of factors including: (1) The Leona Quarry GHAD has not accepted monitoring and maintenance responsibilities for all of the improvements within Monte Vista Villas development, (2) seven of the past 9 years since the GHAD accepted maintenance responsibilities for open space parcels have had below-average rainfall; therefore, there has been a reduced level of slope instability and erosion, (3) a large-scale repair (estimated at \$1,000,000 in 2005 dollars every 10 years) has not yet been necessary within the GHAD-maintained areas.

The Leona Quarry GHAD has maintenance and monitoring responsibilities and is the property owner for the following parcels within the District.

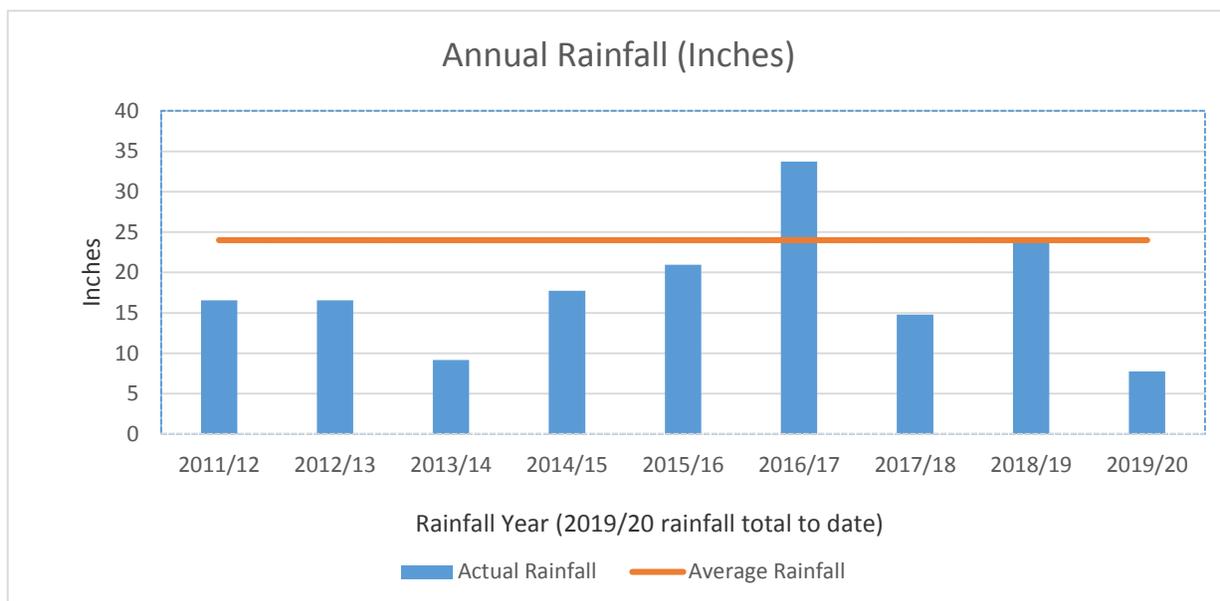
TABLE 3: GHAD-Owned and Maintained Parcels

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

Parcels within the development envelope have not yet been transferred from the developer to the GHAD. As residential construction within the Monte Vista Villas nears completion, we anticipate that the remaining parcels within the GHAD will be offered for transfer from the developer to the Leona Quarry GHAD in FY 2020/21. The transfer of the remaining parcels from the developer to the GHAD will result in additional GHAD expenses that were anticipated in the 2005 Engineer's Report and are included in this reserve study.

Annual Rainfall data for the Oakland area are shown on Graph 1. The readings are from measurements taken at the Oakland Museum monitoring station with the exception of the 2017 to 2018 and 2018 to 2019 rainfall years (July 1 to June 30), which were reported from other nearby monitoring stations. The average rainfall in the Oakland area is approximately 24 inches per year. Since the GHAD accepted maintenance responsibilities for open-space parcels, seven of the 9 years have had below-average rainfall, where 2018/19 had average rainfall and 2016/17 had above-average rainfall. Since 2011, when the GHAD accepted maintenance responsibilities, rainfall has averaged approximately 25 percent below normal. The projected expenses used in this reserve study assume average rainfall totals which may include more slope instability than has been observed in the past 9 years.

GRAPH 1: Oakland Area Rainfall 2011/12 to 2019/20



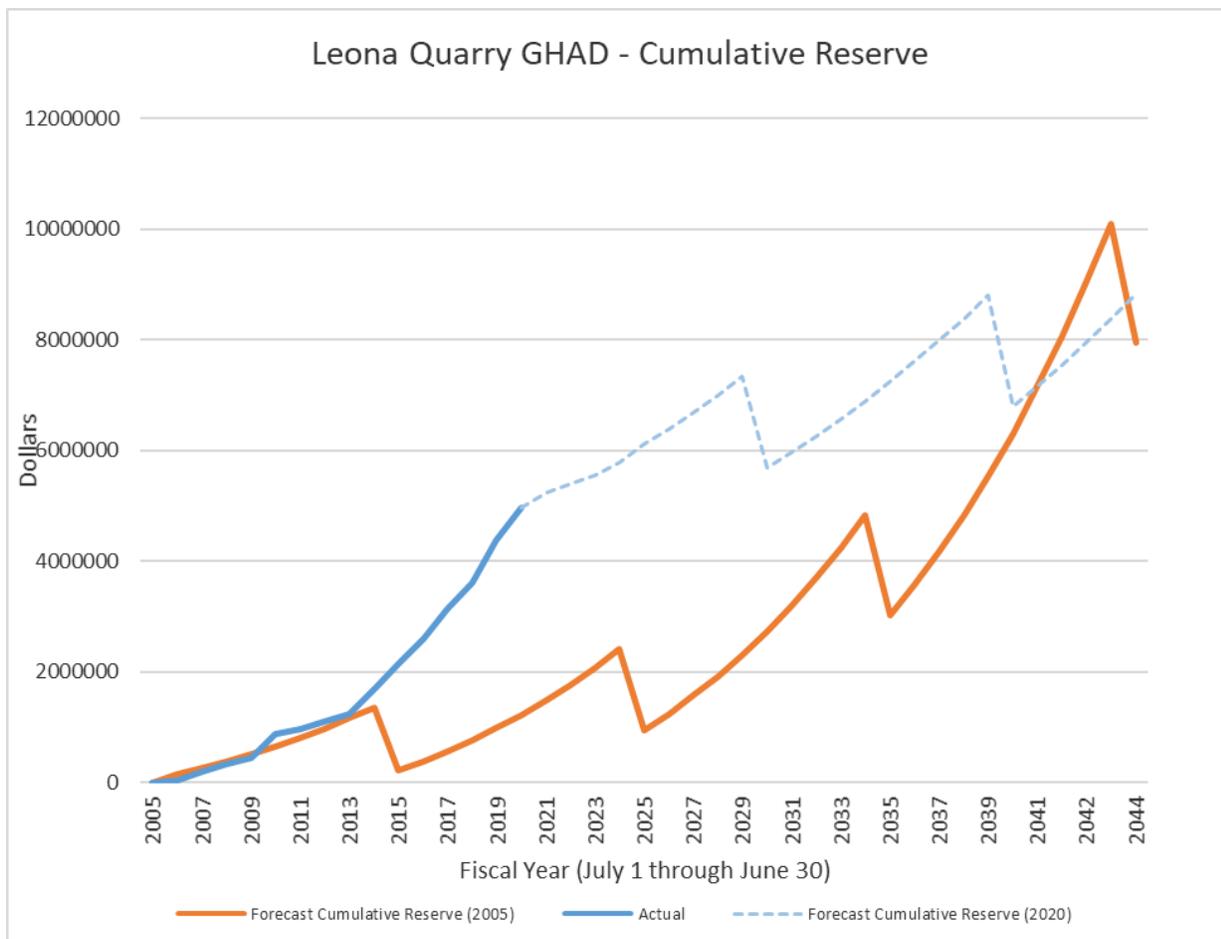
RESERVE ESTIMATION AND METHODOLOGY

For the 2005 Engineer’s Report, we estimated the reserve (R) appropriate for the Leona Quarry GHAD using the following factors from the attached paper titled, “Estimating an Appropriate GHAD Reserve” dated June 1999 (Exhibit C).

- Number of assessed units (n)
- Level of geotechnical risk within the development boundaries (g)
- Average value of assessed properties (v)
- Relative density of construction (d)

Graph 2 provides the forecast and actual account balances for the GHAD from the initial levy of assessments in FY 2006/07 to the present, based on the approved 2005 Engineer’s Report. The cumulative reserve was forecast to reach approximately \$2,500,000 by 2044 in 2005 dollars (approximately \$8,000,000 in 2044 dollars).

GRAPH 2: Forecast and Actual Account Balances FY 2006/07 through FY 2019/20 (to date)
Based on Approved 2005 Engineer’s Report



For the current reserve study, we updated the reserve calculation input. As assumed in the approved 2005 Engineer’s Report, 427 residential units are expected to be subject to the levy of a GHAD assessment.

Items considered in determining the level of geotechnical risk include:

- Site geology including seismic hazards
- Corrective grading and other geotechnical mitigation measures
- Proximity of geologic hazards to GHAD-maintained improvements
- Performance of the site improvements

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, possibly damaging GHAD-maintained improvement and causing seismically induced landslides. The Hayward fault is located approximately 750 feet southwest of the limits of the Leona Quarry GHAD. Residences are located within approximately 1,500 feet of the Hayward fault. Predictions for the Hayward fault indicate that there is a 31.7 percent chance of a 6.7 magnitude earthquake in the next 26 years.

The corrective grading and geotechnical mitigation improvements are not significantly different from those completed during the mass grading for the development and as accounted for in the initial Engineer's Report. Likewise, the proximity of geologic hazards to GHAD-maintained improvements does not appear significantly different from those encountered during mass grading for the site.

The average value of assessed properties is based on current values derived from web-based sources. In the initial Engineer's Report, it was estimated that the assessed values would track with inflation. The current survey of property values allows for an adjustment, as the value of assessed properties has not tracked with the consumer price index measure of inflation.

The existing configuration of the development footprint is similar to that on the site plans available at the time the initial Engineer's Report was prepared; therefore, the relative density value has not been adjusted.

Based on these parameters, we estimate that an appropriate long-term reserve for the GHAD for 427 units would be approximately \$4,500,000 in current dollars. A total of 427 units within the GHAD are still expected to be subject to the levying of an assessment at buildout. The \$4,525,000 reserve amount would allow the GHAD to repair the anticipated events within the GHAD, while still having funds to continue its other administration, maintenance, and monitoring functions.

DISCUSSION AND CONCLUSIONS

With a current GHAD account balance of approximately \$4,850,000, an adequate reserve appears to have been achieved. In 2005, it was forecast that an adequate reserve would be accumulated over approximately 40 years, but based on lower GHAD expenses, this has been achieved in a little under 15 years. Since the revised reserve target has been reached, the GHAD Manager recommends that the GHAD Board of Directors may consider lowering the levy on residences within the GHAD for FY 2020/21 to approximately \$950 per residential unit. The final FY 2020/2021 levy recommendation will be provided in the FY 2020/21 budget.

As provided in the 2005 Engineer's Report, the annual assessment and assessment limit will be adjusted for inflation. Ongoing assessments, even at an amount lower than the assessment limit, will allow the GHAD to continue funding its other administration, maintenance, and

monitoring functions including a larger repair. We are not recommending that the assessment limit be lowered at this time. The assessment limit would continue to be adjusted for inflation as provided in the approved Engineer's Report.

If you have any questions regarding the contents of this letter, please do not hesitate to contact us.

Sincerely,

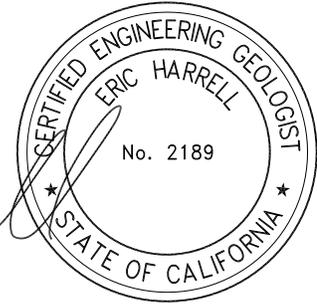
ENGEO Incorporated



Haley Trindle, GIT
ht/eh/jf



Eric Harrell, CEG



Attachments: List of Selected References

- Exhibit A: Expense Details
- Exhibit B: Pro Forma Budget with \$4,525,000 Reserve (2019/20 dollars)
- Exhibit C: Estimating an Appropriate GHAD Reserve

LIST OF SELECTED REFERENCES

1. ENGEO; Engineer's Report for Geologic Hazard Abatement District, Leona Quarry, City of Oakland, California; August 13, 2004, Latest Revision February 23, 2005; Project No. 5188.100.102.
2. ENGEO; Amendment 1 to the Plan of Control for Leona Quarry Geologic Hazard Abatement District, Alameda County, California; August 13, 2004, Latest Revision February 23, 2005; Project No. 5188.100.102.
3. ENGEO; Leona Quarry Geologic Hazard Abatement District, Budget for Fiscal Year 2019/20; May 6, 2019; Project No. 5188.002.018.
4. ENGEO; Geologic Hazard Abatement District – Fall 2019, Leona Quarry Geologic Hazard Abatement District (GHAD), Oakland, California; November 15, 2019; Project No. 4063.002.019.
5. National Oceanic and Atmospheric Administration (NOAA), National Centers for Environmental Information, Oakland Museum Station Details, July 1, 2001 through April 14, 2020.
6. United States Federal Reserve Board of Governors, Federal Open Market Committee Statement of Longer-Run Goals and Policy Strategy, Press Release, January 25, 2012

EXHIBIT A
Expense Details

Item No.	Description	Unit	Quantity	Unit Price	Total Cost	Reoccurrence Interval (Years)	Annual Total Budget	Comments
1	ADMINISTRATION							
a.	GHAD Staff							
	Administration	monthly	12	\$4,000	\$48,000	1.0	\$48,000	Based on estimate in approved 2005 Engineer's Report
	GHAD Treasurer and Investment Advisor Services	quarterly	4	\$5,625	\$22,500	1.0	\$22,500	This annual cost estimate is based on 0.5% of GHAD account balance which for this expense item is estimated at \$4,500,000. Includes 0.025% for GHAD Treasurer and 0.25% for the investment advisor services.
	GHAD Clerk	ls	1	\$3,000	\$3,000	1.0	\$3,000	This cost estimate is based on FY 2019/20 budget estimate.
	GHAD Attorney	ls	1	\$16,000	\$16,000	1.0	\$16,000	This cost estimate is based on FY 2019/20 budget estimate.
b.	Insurance and Memberships							
	Insurance for Open Space Areas - General Liability	acre	83	\$11.74	\$974	1.0	\$974	This cost estimate is based on proposed fees for the Leona Quarry GHAD in FY2020/21 through the California Association of GHADs.
	Insurance for Directors and Officers	ls	1	\$800.00	\$800	1.0	\$800	This cost estimate is based on premiums paid by the Leona Quarry GHAD in FY2019/20
	Membership dues for the California Association of Geologic Hazard Abatement Districts	per residential parcel	427	\$0.484	\$207	1.0	\$207	This cost estimate is based on membership fees currently charged by the California Association of GHAD. For 427 residential units.
c.	Assessment Roll Preparation and Fees							
	Assessment Roll and Levy Update	ls	1	\$2,675	\$2,675	1.0	\$2,675	This cost estimate is based on fees charged by Francisco & Associates.
	Alameda County Assessor's Fees	ls	1	\$11,212	\$11,212	1.0	\$11,212	Alameda County Assessor's fee at 1.7% of annual assessment amount. Based on 2019/2020 assessment adjusted for total number of units at buildout (427).
Subtotal for Section 1							\$105,368	

Item No.	Description	Unit	Quantity	Unit Price	Total Cost	Reoccurrence Interval (Years)	Annual Total Budget	Comments
2	Professional Services							
	GHAD Monitoring Event including instrumentation - April and October	per event	1	\$6,000	\$6,000	0.5	\$12,000	Monitoring budget estimates are based on the fees derived from the adopted Engineer's Report and current approved budget. Includes GIS database updates.
	Heavy Rainfall Event Monitoring	ls	1	\$4,000	\$4,000	1.0	\$4,000	Based on the anticipated frequency of heavy rainfall events as defined in the Plan of Control, one heavy rainfall event annually is included within the budget for estimating purposes. If a heavy rainfall event occurs in close proximity to a scheduled monitoring event, the GHAD manager will provide direction regarding the need for additional monitoring.
	Web Site Maintenance and Updates	ls	1	\$2,000	\$2,000	4.0	\$500	This cost estimate is based on FY 2019/20 budget estimate.
	Updated Reserve Study Preparation	ls	1	\$5,000	\$5,000	5.0	\$1,000	This cost estimate is based on FY 2019/20 budget estimate.
	Annual Report and Budget Preparation	ls	1	\$4,000	\$4,000	1.0	\$4,000	This cost estimate is based on FY 2019/20 budget estimate.
Subtotal for Section 2							\$21,500	

Item No.	Description	Unit	Quantity	Unit Price	Total Cost	Reoccurrence Interval (Years)	Annual Total Budget	Comments
3	MAINTENANCE AND OPERATION							
a.	Contracted Services							
	Gravel-Surfaced Road Maintenance - Clearing of Vegetation	each	1	\$1,350	\$1,350	3.0	\$450	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Roadway Maintenance - Herbicide Treatment	each	1	\$2,800	\$2,800	1.0	\$2,800	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	GHAD-owned Parcels - Litter Removal	each	1	\$1,100	\$1,100	0.5	\$2,200	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Graffiti Overpainting	each	2	\$350	\$700	0.5	\$1,400	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Detention Basin Maintenance	each	1	\$600	\$600	1.0	\$600	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Detention Basin Maintenance - Sediment Removal	cubic yards	100	\$110	\$11,000	5.0	\$2,200	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Debris Basin Maintenance - Clearing Catchment Structures	each	1	\$600	\$600	0.5	\$1,200	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Wooden Debris Wall Maintenance	each	1	\$550	\$550	1.0	\$550	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Debris Bench Maintenance	each	1	\$1,650	\$1,650	1.0	\$1,650	Services currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Sediment/Debris Removal Concrete-lined Drainage Ditches	lf	29,200	\$0.35	\$10,220	1.0	\$10,220	Includes ditches on parcels not yet transferred from the developer to the GHAD (approximately 6,700 lineal feet)
	Sediment/Debris Removal Asphaltic Drainage Ditches.	lf	1,300	\$0.35	\$455	1.0	\$455	Currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Open Space Vegetation Management - Fire Suppression	ls	1	\$1	\$27,850	1.0	\$27,850	Currently contracted with the GHAD at the listed unit price with inflation adjustment.
	Trail Maintenance - clearing of vegetation.	each		\$650.00	\$650	1.0	\$650	Currently contracted with the GHAD at the listed unit price with inflation adjustment.

Item No.	Description	Unit	Quantity	Unit Price	Total Cost	Reoccurrence Interval (Years)	Annual Total Budget	Comments
b. Plan of Control Defined Responsibilities								
	Emergency Vehicle Access Road Maintenance/Overlay	ls	1	\$4,760	\$4,760	1.0	\$4,760	Approved Engineer's Report with inflation adjustment.
	Storm drain Pipeline Maintenance	ls	1	\$3,173	\$3,173	1.0	\$3,173	Approved Engineer's Report with inflation adjustment.
	Subdrains and Subdrain Outlets	each	18	\$45	\$810	4.0	\$203	We do not anticipate regular maintenance on the subdrain outfalls which tend to have low flow volumes, but this budget figure allows for maintenance or repair as may be necessary.
	Slope Stabilization (Including Minor Landsliding)	ls	1	\$63,470	\$63,470	1.0	\$63,470	Approved Engineer's Report with inflation adjustment.
	Potential Alameda County Whipsnake Habitat - Fences/Signs	ls	1	\$793	\$793	1.0	\$793	Approved Engineer's Report with inflation adjustment.
	Erosion Repairs	ls	1	\$31,735	\$31,735	1.0	\$31,735	Approved Engineer's Report with inflation adjustment.
	Sediment Removal Storm Drain Inlets	ls	1	\$14,281	\$14,281	1.0	\$14,281	Approved Engineer's Report with inflation adjustment.
	Sediment Removal Public Streets	ls	1	\$25,388	\$25,388	1.0	\$25,388	Approved Engineer's Report with inflation adjustment.
Subtotal for Section 3							\$196,028	

Item No.	Description	Unit	Quantity	Unit Price	Total Cost	Reoccurrence Interval (Years)	Annual Total Budget	Comments
4	Capital Improvements							
	Concrete-Lined Drainage Ditch Replacement	If	29,200	\$50	\$1,460,000	75.0	\$19,467	We have provided for a 75-year replacement cycle for the concrete lined drainage ditches. This replacement quantity applies to concrete lined drainage ditch that is not involved with slope instability. Drainage ditches that are involved with slope instability would be repaired or replaced during corrective work for the individual events.
	Storm drain Pipeline Replacement	Is	1	\$757,500	\$757,500	75.0	\$10,100	We have provided for a 75-year relining/replacement cycle for the storm drain pipelines and associated facilities.
	Geobruigg Catchment Fence Replacement	Is	1	\$416,550	\$416,550	75.0	\$5,554	We have provided for a 75-year replacement cycle for 25 percent of the retaining walls. This replacement quantity applies to retaining wall components that are not involved with slope instability. Retaining wall elements that are involved with slope instability would be repaired or replaced during corrective work for the individual events.
Subtotal for Section 4							\$35,121	
5	Major Repair (Annualized)	Is	1	\$1,586,740	\$1,586,740	10.0	\$158,674	This figure represents the annualized repair cost estimate for an approximately \$1,600,000 repair event that occurs on average every 10 years. As with the other cost estimate items this budget item is indexed to the Consumer Price Index. This figure is based on our experience, the geology of the site, the planned grading of the site and the configuration of the site improvements. The major repair cost estimate is not isolated from the slope instability and erosion control items which plan for an additional \$63,470 per year for slope maintenance and repair operations.
Subtotal for Section 5							\$158,674	
Subtotal for Sections 1 - 5							\$516,690	
10% Contingency (Sections 2 - 5)							\$37,620	
TOTAL							\$554,310	

EXHIBIT B

**Pro Forma Budget with \$4,525,000 Reserve
(2019/20 dollars)**

**Leona Quarry Geologic Hazard Abatement District (GHAD)
Reserve Study - April 21, 2020**

YEAR (Starting July 1)	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Actual No. of Units	427	427	427	427	427	427	427	427	427	427	427	427	427	427	427
A. INCOME															
Assessment	178,357	428,077	460,914	496,379	503,307	514,888	466,412	479,238	492,417	505,959	519,873	534,169	548,859	563,952	579,461
B. PROJECTED EXPENSES															
1. Administration	105,368	107,739	110,163	112,642	115,176	117,767	120,417	123,127	125,897	128,730	131,626	134,588	137,616	140,712	143,878
Alameda County Assessment Roll Fees	3,032	7,277	7,836	8,438	8,556	8,753	7,929	8,147	8,371	8,601	8,838	9,081	9,331	9,587	9,851
2. Professional Services	21,500	22,468	22,478	22,984	23,501	24,030	24,571	25,124	25,689	26,267	26,858	27,462	28,080	28,712	29,358
3. Maintenance & Operation	196,028	204,849	204,948	209,560	214,275	219,096	224,026	229,066	234,220	239,490	244,879	250,389	256,022	261,783	267,673
4. Slope-Creek Erosion Stabilization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Conservation Easement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Repair	-	-	-	-	-	-	-	-	-	-	1,982,161	-	-	-	-
7. Capital Improvement	37,620	39,313	39,332	40,079	38,390	39,254	40,137	41,040	41,964	42,908	43,873	44,860	45,870	46,902	47,957
8. Misc. Expenses	-	-	39,332	40,217	41,122	42,047	42,993	43,960	44,950	45,961	46,995	48,052	49,134	50,239	51,369
SUBTOTAL - EXPENSES	363,548	381,646	424,089	433,920	441,020	450,948	460,073	470,464	481,091	491,957	2,485,230	514,432	526,052	537,935	550,087
RESERVE	4,666,995	46,431	36,825	62,460	62,286	63,940	6,339	8,774	11,327	14,002	(1,965,357)	19,737	22,806	26,017	29,374
EARNINGS	-	210,015	221,555	233,182	246,486	260,381	274,975	287,634	300,972	315,026	329,832	256,234	268,652	281,768	295,618
CUMULATIVE RESERVE	4,666,995	4,923,441	5,181,821	5,477,463	5,786,235	6,110,556	6,391,869	6,688,277	7,000,576	7,329,604	5,694,079	5,970,049	6,261,508	6,569,293	6,894,285

ASSUMPTIONS

Equivalent No. of Residential Units	427
Annual Assessment per Unit	\$928
Habitable Non Residential Structures	0
Annual Assessment per square foot	\$0.39277
Annual Increase in Assessment	2.75%
Inflation	2.25%
Investment Earnings	4.50%
GHAD Reserve (April 17, 2020)	\$4,852,186
Amount Financed	\$0
Borrowing Rate	8.0%
Term of Loan (yrs.)	10
Frequency of Large-Scale Repair (yrs.)	10
Cost of Large-Scale Repair (current \$)	\$1,586,740
Expense Deferral Period (Yrs.)	0

<u>ESTIMATED ANNUAL EXPENSES IN 2020/21 DOLLARS</u>		<u>PROFORMA CATEGORY</u>	
Administration & Accounting	\$105,368	Administration & Accounting	
GHAD Monitoring and Professional Services	\$21,500	Professional Services	
Contracted Services & Plan of Control Responsibilities	\$196,028	Maintenance and Operation	
Ditch, Pipe, and Fence	\$35,121	Capital Improvement	
Major Repair (Annualized)	\$158,674	Major Repair	
Contingency and Miscellaneous (10%)	<u>\$37,620</u>	Miscellaneous Expenses	
TOTAL	\$554,311		

**Leona Quarry Geologic Hazard Abatement District (GHAD)
Reserve Study - April 21, 2020**

YEAR (Starting July 1)	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
Actual No. of Units	427	427	427	427	427	427	427	427	427	427	427	427	427	427	427
A. INCOME															
Assessment	595,396	611,770	628,593	645,880	663,641	681,891	700,643	719,911	739,709	760,051	780,952	802,428	824,495	847,169	870,466
B. PROJECTED EXPENSES															
1. Administration	147,116	150,426	153,810	157,271	160,810	164,428	168,127	171,910	175,778	179,733	183,777	187,912	192,140	196,463	200,884
Alameda County Assessment Roll Fees	10,122	10,400	10,686	10,980	11,282	11,592	11,911	12,238	12,575	12,921	13,276	13,641	14,016	14,402	14,798
2. Professional Services	30,018	30,694	31,384	32,091	32,813	33,551	34,306	35,078	35,867	36,674	37,499	38,343	39,206	40,088	40,990
3. Maintenance & Operation	273,696	279,854	286,150	292,589	299,172	305,903	312,786	319,824	327,020	334,378	341,902	349,594	357,460	365,503	373,727
4. Slope-Creek Erosion Stabilization	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Conservation Easement	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6. Repair	-	-	-	-	-	2,476,122	-	-	-	-	-	-	-	-	-
7. Capital Improvement	49,036	50,139	51,268	52,421	53,601	54,807	56,040	57,301	58,590	59,908	61,256	62,634	64,044	65,485	66,958
8. Misc. Expenses	52,525	53,707	54,916	56,151	57,415	58,706	60,027	61,378	62,759	64,171	65,615	67,091	68,601	70,144	71,722
SUBTOTAL - EXPENSES	562,513	575,220	588,214	601,503	615,091	3,105,110	643,198	657,729	672,589	687,785	703,325	719,216	735,467	752,085	769,079
RESERVE	32,883	36,550	40,379	44,377	48,550	(2,423,218)	57,446	62,182	67,119	72,265	77,627	83,212	89,028	95,084	101,387
EARNINGS	310,243	325,684	341,984	359,190	377,351	396,516	305,315	321,639	338,911	357,182	376,508	396,944	418,551	441,392	465,533
CUMULATIVE RESERVE	7,237,412	7,599,645	7,982,008	8,385,575	8,811,475	6,784,774	7,147,534	7,531,355	7,937,386	8,366,833	8,820,968	9,301,123	9,808,702	10,345,177	10,912,097

ASSUMPTIONS

Equivalent No. of Residential Units	427
Annual Assessment per Unit	\$928
Habitable Non Residential Structures	0
Annual Assessment per square foot	\$0.39277
Annual Increase in Assessment	2.75%
Inflation	2.25%
Investment Earnings	4.50%
GHAD Reserve (April 17, 2020)	\$4,852,186
Amount Financed	\$0
Borrowing Rate	8.0%
Term of Loan (yrs.)	10
Frequency of Large-Scale Repair (yrs.)	10
Cost of Large-Scale Repair (current \$)	\$1,586,740
Expense Deferral Period (Yrs.)	0

ESTIMATED ANNUAL EXPENSES IN 2020/21 DOLLARS	
Administration & Accounting	\$105,368
GHAD Monitoring and Professional Services	\$21,500
Contracted Services & Plan of Control Responsibilities	\$196,028
Ditch, Pipe, and Fence	\$35,121
Major Repair (Annualized)	\$158,674
Contingency and Miscellaneous (10%)	<u>\$37,620</u>
TOTAL	\$554,311

**Leona Quarry Geologic Hazard Abatement District (GHAD)
Reserve Study - April 21, 2020**

YEAR (Starting July 1)	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060
Actual No. of Units	427	427	427	427	427	427	427	427	427	427	427
A. INCOME											
Assessment	894,403	919,000	944,272	970,240	996,921	1,024,336	1,052,506	1,081,450	1,111,189	1,141,747	1,173,145
B. PROJECTED EXPENSES											
1. Administration	205,404	210,025	214,751	219,583	224,523	229,575	234,741	240,022	245,423	250,945	256,591
Alameda County Assessment Roll Fees	15,205	15,623	16,053	16,494	16,948	17,414	17,893	18,385	18,890	19,410	19,943
2. Professional Services	41,912	42,855	43,819	44,805	45,813	46,844	47,898	48,976	50,078	51,204	52,357
3. Maintenance & Operation	382,136	390,734	399,525	408,515	417,706	427,105	436,714	446,540	456,588	466,861	477,365
4. Slope-Creek Erosion Stabilization	-	-	-	-	-	-	-	-	-	-	-
5. Conservation Easement	-	-	-	-	-	-	-	-	-	-	-
6. Repair	3,093,181	-	-	-	-	-	-	-	-	-	3,864,012
7. Capital Improvement	68,465	70,005	71,580	73,191	74,838	76,521	78,243	80,004	81,804	83,644	85,526
8. Misc. Expenses	73,336	74,986	76,673	78,399	80,163	81,966	83,810	85,696	87,624	89,596	91,612
SUBTOTAL - EXPENSES	3,879,638	804,228	822,402	840,986	859,991	879,425	899,299	919,623	940,406	961,660	4,847,406
RESERVE	(2,985,234)	114,771	121,870	129,254	136,931	144,911	153,207	161,827	170,783	180,087	(3,674,261)
EARNINGS	491,044	378,806	401,017	424,547	449,468	475,856	503,790	533,355	564,638	597,732	632,734
CUMULATIVE RESERVE	8,417,907	8,911,485	9,434,372	9,988,172	10,574,571	11,195,338	11,852,334	12,547,516	13,282,937	14,060,757	11,019,230

ASSUMPTIONS

Equivalent No. of Residential Units	427
Annual Assessment per Unit	\$928
Habitable Non Residential Structures	0
Annual Assessment per square foot	\$0.39277
Annual Increase in Assessment	2.75%
Inflation	2.25%
Investment Earnings	4.50%
GHAD Reserve (April 17, 2020)	\$4,852,186
Amount Financed	\$0
Borrowing Rate	8.0%
Term of Loan (yrs.)	10
Frequency of Large-Scale Repair (yrs.)	10
Cost of Large-Scale Repair (current \$)	\$1,586,740
Expense Deferral Period (Yrs.)	0

Reserve in
2,020
Dollars: 4,525,000

ESTIMATED ANNUAL EXPENSES IN 2020/21 DOLLARS	
Administration & Accounting	\$105,368
GHAD Monitoring and Professional Services	\$21,500
Contracted Services & Plan of Control Responsibilities	\$196,028
Ditch, Pipe, and Fence	\$35,121
Major Repair (Annualized)	\$158,674
Contingency and Miscellaneous (10%)	<u>\$37,620</u>
TOTAL	\$554,311

EXHIBIT C

Estimating an Appropriate GHAD Reserve

ESTIMATING AN APPROPRIATE GHAD RESERVE

Uri Eliahu G.E., ENGEO Incorporated, June 1999

An important parameter in establishing initial GHAD budgets and in assessing the financial health of mature GHADs is the appropriate level of reserve needed to address probable future geologic events. The reserve must be unique to each GHAD, and must consider several factors, not all of which are geotechnical in nature.

As an initial approach, a loss history can be compiled based on records of actual losses that have occurred in the region in the last 20 years. If the last 20 years can be assumed to be representative of future years, this loss history can be distilled to obtain a current net present value (NPV) of the statistically-expected loss over a given time period. This can be expressed per dwelling unit, per parcel, or per dollar value of improvements. If, based on historic geologic and rainfall records, it is believed that the last two decades do not represent the full range of expected geologic activity, a correction factor can be applied to the calculated risk to arrive at the expected loss rate.



In converting the expected loss rate to an estimated reserve (**R**), consideration must be given to the following factors.

Number of assessed units (**n**) in the GHAD.

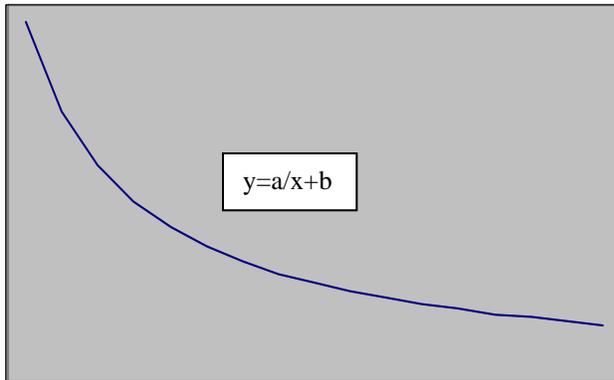
The reserve per dwelling unit (**R/n** or **average reserve**) should, in theory, diminish asymptotically with increasing unit count to a “floor” value.

Level of geotechnical risk (**g**) within the GHAD boundaries. Depending on geology, terrain, prior mitigation measures, grading techniques, irrigation and age, geotechnical risk may vary, even within a particular region.

Average value of assessed properties (**v**). In areas of high property values, repair or reconstruction of private improvements may be more costly and may require greater average reserves.

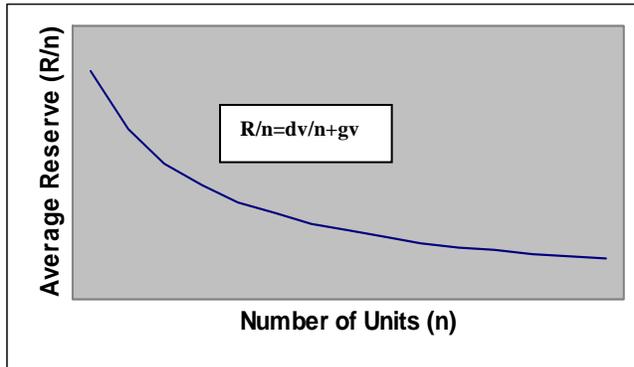
Relative density of construction (**d**). The number of units likely to be affected during a major geologic event will have an impact on the total reserve.

In consideration of the forgoing, an expression describing the average reserve may take the general hyperbolic form, $y = a/x + b$



Intuitively, this general expression may be applied to a GHAD reserve formula by substituting R/n for y , n for x , dv for a , and gv for b , to arrive at the relationship $R/n = dv/n + gv$ where:

- R** is the total reserve
- n** is the total number of assessed parcels
- v** is the average value of each residence
- g** is the geotechnical risk factor
- d** is a density factor related to the maximum number of units expected to be impacted in a major geologic event (eg. landslide)



This formula can be simplified to $R = dv + gvn$ or $R = v(d + gn)$

To apply this to a specific situation, g can be estimated based on historical data as described above, and d can be estimated by comparing regional landslide sizes to average lot sizes. Preliminarily, it appears that d may range from approximately 2 to 10 and g may range from 0.001 to 0.01, depending on the physical characteristics of the assessed areas as described above.

