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Proposal P2008.G.0519
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Mr. Sherman Lewis
Hayward Area Planning Association
2787 Hillcrest Avenue,
Hayward, CA 94542

Subject: Proposed Development
Quarry Village
APNs: 445017001701, 445017002001, 445017003803, and 445018000100
Hayward, California
COST PROPOSAL FOR GEOLOGY AND GEOTECHNICAL INVESTIGATION

Dear Mr. Lewis:

At your request, we are pleased to submit herein our cost proposal for conducting a preliminary geology/geotechnical investigation for the above referenced site.

BACKGROUND

The subject property is located at the terminus point of Overlook Avenue in Hayward, California. The property consists of four Parcels (APNs: 445017001701, 445017002001, 445017003803, and 445018000100) owned by Caltrans and are approximately 35.11± acre in total area. The site is bounded by PG &E right-of-way to the east, Carlos Bee Boulevard and residential buildings to the south, residential buildings to the west and Ward Creek to the north. The site with APN 445018000100 (roughly 29.42 acres) was used as a quarry for an unknown period of time and currently is vacant and is covered with grasses in the middle, a hauling road, and several trees along the creek. The remaining parcels are occupied by several single-family one-story wood-framed houses which one or two of them were vacant.

Topographically, the site elevation ranges from 190 feet (Northern America Datum 83, NAD83) at the northeastern portion to 320 feet to the southern portion of the site.

The proposed project is understood to consist of demolishing/moving the existing buildings and developing the site for a total of 270 residential buildings. We understand that at this time, the layout of the residential development area is not known. Hence, we propose to perform our services in three phases, a preliminary geologic investigation phase followed by a preliminary geotechnical investigation phase, and finally design-level geologic/geotechnical investigation phase when building layouts and potential geologic/geotechnical constraints from the preliminary phase are known.

We have reviewed geologic maps published by California Geology Survey (Dibblee, 1980 and 2005). According to the maps, the site underlain by Knoxville Formation to the northern and central portions of the site and Coast Range Ophiolite Complex to the southern portion of the site. The Knoxville Formation consists of gabbro-diabase (gb) of late Jurassic age. The Knoxville Formation consists of clay shale and includes interbeds of greywacke, sandstone and dolomite of late Jurassic and Cretaceous age.

The site is not located within the Alquist--Priolo (AP) Earthquake Fault Zones. However, Dibblee (2005) shows a branch of the Hayward Fault transversing the southern portion of the site. Dibblee (2005) maps this portion of the fault using solid line indicating a high degree of confidence of presence of the fault. The same map shows extension of the Chabot Fault along the creek using dashed line indicating a less degree of confidence on the presence of the fault. The main trace of the Hayward fault is considered active and is located approximately 500 feet to the southwest of the site.

Several previous fault investigation reports performed to the northwest and to the southwest of the site along the main trace of the Hayward fault by Woodward-Clyde Consultants (WCC) in 1977 and 1978. Another fault investigation was performed prior to the WCC study by Judd Hall (JH) on Hayward Fault in this area in 1977. Based on the WCC reports, the main trace of the Hayward fault is active. The other branches correspond with line of surface rupture that accompanied a major earthquake that occurred in 1868. This eastern trace was not seen in the exploratory trenches in the previous work, but was identified on the combined bases of photogeologic evidence, topographic evidence, and abundant evidence of minor deformation along discontinuous clay-filled seams. WCC estimates the eastern lateral extent of the active portion of the Hayward fault approximately 200 feet west of the western boundary of the site. However, no confirmatory trench was excavated.

According to California Geological Survey Landslide Map for the Hayward area, there are portions of several slump/earthflow complex deposits on the sloping portion of the property. At risk properties require detailed engineering geologic investigations.

SCOPE OF SERVICES

A Register Geotechnical Engineer and a Certified Engineer Geologist have visited the site on February 20 and 22, 2008. Based on our site visit and our literature review, we divide our proposal into four phases.

Phase 1: Preliminary Geology Evaluation

The purpose of this task is to map the geology of the site including the existing landslides and to evaluate potential geologic constraints on the development. This task consists of:

a. A field reconnaissance of the site by a Certified Engineer Geologist, for field geological surface mapping of the entire site, including: landslides, rock outcrops; debris flows, creeping soil; etc.
b. Review of all available published and unpublished geological literature;
c. Determine the general geologic and seismic conditions of the site and surrounding area

d. Stereoscopic examination of vertical-angle aerial photographs for landslides, faults and other potential geologic hazards within the site and surrounding areas off site;
e. Preparation of a geology map and preliminary findings report indentifying geologic constraints. We propose to meet with you to discuss the potential impacts the geologic hazards may have on the future planning and layout of the development.

Phase 2: Preliminary Geotechnical Investigation

The purpose of our preliminary geotechnical investigation is to:

i) Determine the nature and sequence of the subsurface materials; and
ii) Provide preliminary recommendations for grading, foundations, slab-on-grade construction, retaining walls, pavement, and drainage.

Our scope of work for this Task consists of:

a. A reconnaissance of the site by the Soil Engineer.
b. Assessment of general seismic conditions.
c. Drilling and sampling of the on site subsurface materials using a truck mounted drill rig. A total of five to six borings are proposed to depths ranging from 20 to 30 feet or refusal in the site. Underground Services Alert (USA) will be contacted to assist in locating utilities. The soil cuttings will be spread on site.
d. Laboratory Testing Program.
e. Engineering analysis of all data obtained.
f. Preparation of a written report summarizing our findings, conclusions and preliminary recommendations for the proposed project.

Phase 3: Final Geology Evaluation

During phase 1, we will review all the available reports and maps and photos pertinent to the project location and determine if a confirmatory fault trench is needed. If a fault trench is needed an exploratory program will be developed and after the trench has been excavated, required set-back from the fault traces will be determined. The trench(s) will be sloped and shored to create a safe working environment. Both walls of the trench(s) will be cleaned, logged, and backfilled. The trench(s) may cross pavement, V-ditch and live utilities. We will restore pavement and V-ditch to its pre-excavation condition to maximum extend possible. Utility lines will be protected. Fencing will be placed along the trench to prevent falling into the trench. The trench will be backfilled with engineered fill under observation of our office. The site will be visited by a Certified Engineer Geologist (CEG) and will be performed under the responsible charge of a Certified Engineering Geologist.

If the existing landslides are deep seated, we will prepare a cost estimate for supplemental field investigation during preparation of our design-level geotechnical report. Our supplemental field investigation will involve test pits and soil borings with continuous sampling.

Associated cost for this phase of study, if required, is highly depend on the length of the fault trench and depth of landslide. Due to lack of information at this stage of the study, no cost is provided for this phase.

Phase 4: Final Geotechnical Investigation

During phase 2, we will perform preliminary geotechnical investigation and provide preliminary recommendations for grading, foundation options, and pavement. After, the layout of the buildings and pavement finalized, we will perform design-level geotechnical investigation using additional exploratory borings, seismic refraction, and supplemental laboratory testing. Exploratory program will be developed using the available data from Phase 2. Seismic refraction will be perform to evaluate rippability of the bedrock. Associated cost for this phase of study highly depend on the our finding in Phase 2 and proposed area of development. Due to lack of information at this stage of the study, no cost is provided for this phase.

FEE

We estimate our total costs for performing the above Phase 1 and Phase 2 work to be $9,400 as itemized below.

Phase 1 – Preliminary Geology Evaluation		
	Site Visit	$ 500
	Review of Aerial Photographs	$ 600
	Document Review	$ 400
	Drafting of Geology Plan	$ 500
	Preliminary Geology Report	$ 600
	Subtotal	**$ 2,600**
Phase 2 – Preliminary Geotechnical Investigation		
	Drill Rig (one day)	$ 2,500
	Engineering Supervision	$ 1,000
	Laboratory Testing	$ 1,400
	Drafting	$ 200
	Reporting	$ 1,700
	Subtotal	**$ 6,800**
	Total Phase 1 and 2	**$ 9,400**

If significant non-uniformity of subsurface conditions is encountered some additional subsurface work may be needed. This will be evaluated immediately after the borings are completed.

The drilling and test pit investigation can commence within one week of your authorization to proceed for Phase 2, depending on rig availability and weather conditions. Our written report for Phases 1 and 2 will be transmitted within three to four weeks from completion of the fieldwork. If required, preliminary results could be made available within two to three days after completion of

fieldwork. We will coordinate our services with all professionals involved with the project in order that information may be furnished promptly and in a timely manner.

LIMITATIONS

The following terms apply if no formal contract between Terrasearch, Inc. and you is prepared. If a formal contract between you and Terrasearch, Inc. is prepared then those terms will supersede the following terms.

Terrasearch will perform its services in a manner consistent with the standard of care and skill ordinarily exercised by members of the profession practicing under similar conditions in the geographic vicinity and at the time the services will be performed. Therefore, no warranty or guarantee, expressed or implied, is part of the services offered by this proposal, nor does it create any fiduciary responsibility to Terrasearch, Inc., its officers and directors and employees. Client recognizes and understands that professional opinions relating to geotechnical (and geologic conditions if geologic services are expressly included in the scope of services) are based on limited data and that actual conditions may vary from those encountered at the times and locations where the data are obtained, despite the use of due professional care.

The liability of Terrasearch, its employees, officers, directors, engineers, technicians and agents (collectively referred to as Terrasearch), for Client's claims of loss, injury, death, damage or expense, including, without limitation, Client's claims for contribution and indemnity, express or implied, with respect to any claims related to any services provided by Terrasearch pursuant to this Agreement shall not exceed in the aggregate the lesser of the cost of the services or the sum of two hundred thousand dollars ($200,000) for claims arising out of claims of professional negligence, including errors, omissions, or other professional acts, and including unintentional breach of contract. Further, Client expressly waives any claims against Terrasearch for, lost profits, consequential damages or liabilities for reduction in property value. Client has the option to purchase a higher level of insurance coverage. Upon request with the additional limits desired, Terrasearch will provide a quote for that coverage.

Terrasearch's work shall not include determining, supervising, or implementing the means, methods, techniques, or procedures of construction. Terrasearch shall not be responsible for evaluating, reporting or affecting job conditions concerning health, safety or welfare, except for its own employees. Contractor, owners, subcontractors and suppliers have the responsibility to adhere to all contract documents regardless whether Terrasearch employees are on or off the job at any particular point in time

Client shall fully indemnify, defend and hold harmless Terrasearch (including its officers, employees, shareholders, and directors) from and against all suits, claims, judgments, losses, expenses, costs, including reasonable attorney's fees and expert costs, interest, penalties and judgments with respect to breaches of this Agreement by Client and negligence of Client, its contractors, sub-contractors and other design professionals. These indemnity rights shall survive the termination or completion of Terrasearch's services pursuant to this Agreement. Client agrees that if it sells the project to a third party that this indemnity obligation shall be expressly included in the sales agreement to ensure the buyer is bound by this indemnity provision.

This proposal includes a not to exceed restriction based on the anticipated scope of work. If the scope of work changes due to site conditions or change in project type, Client understands that a new scope of work will result and Terrasearch shall not continue working on the project once the budget limit is reached unless and until Client has approved a new scope and budget acceptable to Terrasearch.

Client acknowledges that Terrasearch can provide testing for sulfates on any project involving soil issues. Client understands that any concrete specifications for building foundations should be determined after conducting appropriate sulfate testing.

Client understands and accepts that any geotechnical and/or geologic reports or opinion letters issued by Terrasearch are time dated and cannot be relied on if more than 2 years has passed since date of issuance, unless there is a written up-date issued by Terrasearch.

Client understands and agrees that any opinions, recommendations, engineering or other work product by Terrasearch rendered on behalf of Client is limited solely to Client with respect to use and/or reliance, unless there is a written permission from Terrasearch to broaden the scope of use and/or reliance for the benefit of a third party.

The decision whether or not to allow broader use or reliance rests solely within the discretion of Terrasearch.

Should this proposal meet with your approval, please sign one copy and return it as your authorization to do the work.

We appreciate the opportunity of proposing our services to you and look forward to working with you on this project. Should there be any questions or should you require any additional information, please contact our office at your convenience.

Very truly yours,
TERRASEARCH, inc.

K. Ghiassi

Kamran Ghiassi, Ph.D., P.E., G.E.
Senior Engineer

The undersigned agrees to the terms and conditions, set forth in this proposal and authorizes ***TERRASEARCH, inc.***, to begin work.

CLIENT: _____ DATE: _____