



Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

Wednesday, April 18, 2018

Proposal No. IR18-058

Beverly Hills Unified School District
Facilities Planning Office
241 South Moreno Drive
Beverly Hills, California 90212-3639

Attention: Mr. Jeff Pylman

**Subject: Proposal for Geotechnical and Geoenvironmental Testing
Beverly Hills High School Buildings B1 and B2 Modernization
241 South Moreno Drive
Beverly Hills, Los Angeles County, California
CGS Application No. 03-CGS1922
DSA Application No. 03-116437**

Following our design-development teleconference last Friday, March 16, 2018, Leighton Consulting, Inc. presents this updated proposal to provide geotechnical observation and testing services and geoenvironmental monitoring and testing during the B1 and B2 Modernization project on the Beverly Hills High School (BHHS) campus located in western Beverly Hills, California. This proposal is for us to provide geotechnical observation and testing services and geoenvironmental sampling, monitoring and testing of excavated soils generated from this earthwork during modernization, in addition to ancillary earthwork for utility upgrades and reinstallation.

This is solely a scope and fee proposal to provide construction-phase geotechnical observation and testing during shear wall foundation construction; required to achieve Division of the State Architect (DSA) final approval for reoccupation of this building. Upon request, we can send you information regarding our qualifications. However, Leighton Consulting, Inc. is uniquely qualified to provide these services since we prepared the February 26, 2015 *Supplemental Geotechnical Exploration Report* for this project, and we routinely provide these services for similar public-school projects throughout southern California within DSA jurisdiction. We have three in-house DSA certified geotechnical/materials testing laboratories (e.g. LEA 63) and a deep bench of DSA certified Special Inspectors.

PROJECT DESCRIPTION

Building B Background

Our understanding of this project is based on:

- Our February 26, 2015 *Supplemental Geotechnical Exploration Report* (exterior exploration),
- Saiful-Bouquet Structural Engineers August 10, 2017 DSA-103 Form (*Statement of Structural Tests and Special Inspections*) for this project,
- DSA-approved on August 31, 2017 set of Saiful-Bouquet Structural Engineers (for DLR Group) structural plans (Project No. 75-12202-50) titled *Beverly Hills High School Modernization Package 3 – Building B1 & B2*, and
- Our December 5, 2017 *Supplemental Geotechnical Exploration* report (post-demolition interior exploration).

Buildings B1 and B2 are the southern two components of this long north-south aligned four-section overall Building B; which is located in the center of the BHHS campus. These existing abutting buildings were reportedly designed/constructed in 1926 and 1936, as the initial core of the BHHS campus. Recently, for asbestos remediation, Buildings B1 and B2 interiors have predominantly been removed, leaving only exterior concrete walls and interior wood framing. Buildings B1 and B2 contained conventional classrooms and offices, excluding the auditorium, music and drama classrooms on the north end. There is an existing north-south trending utility tunnel along Column-Line “D” under Building B2.

Based upon our supplemental geotechnical exploration and analysis, proposed Buildings B1 and B2 shear walls can also be founded on conventional spread footings bearing solely on undisturbed native alluvium; matching bearing surface elevations for existing adjacent footings. As previously recommended in our June 18, 2014 *Geotechnical Exploration* report, new shear walls can also be founded on drilled cast-in-place concrete piles (or micro-piles) to penetrate through any existing fill soils for support solely from underlying undisturbed native alluvium, and to provide uplift resistance within a small footprint area. Due to the highly variable nature of fill depths at this previously developed site, it is essential that Leighton Consulting, Inc. provide geotechnical observation during construction, to verify that all foundations penetrate and bear within undisturbed native alluvium.

Proposed Building B1 and B2 Shear Wall Improvements

No new buildings or separate structures are proposed at this time. Provided August 31, 2017 DSA-approved set plans did not include Civil design drawings, with “utility

connections” specifically listed as a deferred approval. ProWest Constructors, the selected contractor provided a March 9, 2018 (detailed) construction schedule based on an April 19, 2018 notice-to-proceed with all foundation construction and earthwork completed by January 2019.

Proposed new foundations and slabs-on-grade within Buildings B1 and B2 are summarized as follows:

- **Micro-Piles:** We counted **146** micro-piles on Saiful-Bouquet's Sheet S1.01 (within Building B2), which will require continuous geotechnical observation during installation and load testing, as specified in Section 1705A.8 of the 2016 California Building Code (CBC; January 1, 2017 “*errata*”). Assuming three piles can be installed each day in this confined interior space (our hypothesis subject to change based on the selected contractor), this will require 48 working days for installation alone.
- **Spread Footings and Tie-Beams:** New spread footings are proposed for new exterior stairs and stoops. In addition, tie-beams (grade beams) are proposed to connect existing spread footings. Also, adjacent new shear walls, existing utility tunnels are to be backfilled. We understand exterior site work to consist of site flatwork, MEP trenches utility point of connections (plumbing, water, fire water, electrical, etc.). All trench subgrade must be evaluated and backfill will need to be density tested.
- **Slabs-On-Grade:** Existing slabs-on-grade are to be replaced throughout Building B2 (see Saiful-Bouquet's Sheet S0.71) and in local area to the north and south. Therefore, extensive and careful subgrade Expansion Index (EI), moisture and density testing will be required under proposed replacement slabs-on-grade.

PROPOSED GEOTECHNICAL SCOPE OF WORK

We understand that this project is within the jurisdiction of the Division of the State Architect (DSA). Therefore, our construction-phase geotechnical observation and testing services will be mobilized from our DSA “accepted” laboratory (DSA-LEA 63). Our scope of services for this project will consist of geotechnical observation, testing and consultation, during construction of new shear walls and slabs-on-grade within Building B1 and B2 and exterior flatwork and utility construction.

Site safety is the responsibility of the contractor. Therefore, we will notify your site representative whenever we are on site. We will provide our field representatives with conventional and customary personal protection for construction sites, including a hard hat, orange vest and eye protection, and they will wear hard-sole shoes. Please notify us if any additional personal protection is required specific to this site and project. Our

field personnel will also be pre-screened with the California Department of Justice *Live Scan* program.

Before leaving the site, our field personnel will report to your on-site field representative upon completion of activities for the day. Our *Daily Field Reports* (DFRs) will be brought to the project superintendent or designated field representative (e.g. District's construction manager), for their confirmation of activities and hours worked each day; and for their signature on the DFR to document their confirmation and comprehension of what was reported.

All of our construction phase services will be provided on a time and expense basis. This geotechnical Scope of Work is for Leighton Consulting, Inc. to provide geotechnical observation during micro-pile installation followed by micro-pile load testing observation, spread footing and slab-on-grade subgrade and backfill, exterior flatwork and utility trench soil density testing and documentation. Anticipated tasks for our scope of services will consist of the following field, laboratory and office work, generally presented in chronological order:

- **Structural Plans Review and Pre-Construction Meeting:** We will review Saiful-Bouquet's structural plans for this project and prepare a review letter. At this time, we have budgeted four hours for Senior Principal Engineer review, communication and review letter preparation time. Our Principal Engineering Geologist will attend one pre-construction meeting on site to establish site access and safety protocols, lines of communication and test results reporting preferences.
- **Subgrade Observation and Density Testing:** Exposed new spread footing bearing surfaces and replacement slab-on-grade subgrades, exterior flatwork subgrade and utility trench bottoms observation/evaluation and density testing will be performed on site. Geotechnical laboratory testing of exposed subgrade soils will include Expansion Index (EI) and compaction curve (ASTM D 1557 modified proctor) tests. For utility trench backfill and import soil (aggregate base) we anticipate sieve analysis and sand equivalent for bedding material. In addition, in consideration of exterior flatwork in support of vehicles, we will provide R-value testing upon completion of fill placement to support design, as applicable.
- **Backfill Observation and Density Testing:** Testing all backfill in areas of new foundations for new bearing walls, exterior flatwork, utility trenches, etc. including preparing a DSA-293, will also be performed.
- **Production Micro-Pile Observation and Documentation:** We will provide continuous geotechnical observation and documentation of pile installation, in accordance with Section 1705A.8 and Table 1705A.8 of the 2016 California Building

Code (CBC; January 1, 2017 “*errata*”) and as expected to be specifically required by the Division of the State Architect (DSA). We will continuously observe production pile installation, recording drilling torque, concrete volume and other parameters available from installer’s pumps and equipment; and document daily production and field conditions. Based solely on our hypothesis that three piles can be installed each day, we have budgeted for 48 days (384 hours) of geotechnical observation by a Senior Staff Engineer.

- **Pile Load Tests:** Based on Saiful-Bouquet’s Sheets S0.04 and S1.01 we understand that a total of **146** pile load tests will be required. We assume the installer will be completely equipped to physically test these piles, and we will observe and document these tests. For the purposes of this proposal, we assume the installer will provide calibrated load cell and displacement measurement instrumentation (we can provide such instrumentation at additional cost). Our testing observation services are estimated to require 20 days after installation (192 hours), possibly less if testing is performed simultaneously on two or more piles. But we have budgeted for 160 hours of field engineer time, in addition to management and report production costs.
- **Project Management:** A California licensed Geotechnical Engineer (GE) will review all DFRs and laboratory test results, and staff will prepare reports for distribution. Geotechnical concerns encountered in the field and noted in DFRs, and any soil tested and found to not conform to project specifications, will be brought to the attention of the District’s designated representative and your DSA designated Project Inspector. Supervision, quality and project management will be provided by our Geotechnical Engineer (GE) as Laboratory of Record (LOR).
- **Project Closeout:** Assuming we will have safe access to all soils requiring testing, we will prepare a DSA-293 Form as the DSA inspection card requires and when the project is completed, which will be required by DSA to properly closeout this project. These forms will also be uploaded to the DSA “Box”:

<http://www.dgs.ca.gov/dsa/Programs/progProject/dsabox.aspx> .

GEOENVIRONMENTAL WORK

According to Environmental Audits, Inc.’s April 20, 2016 *Soil Management Plan for Non-Remedial Projects*, we understand that sampling and testing of soils disturbed during construction is required at this site. Based on ProWest Constructors’ March 9, 2018 (detailed) construction schedule, with an April 19, 2018 notice-to-proceed and slab-on-grade bedding completed (for “perimeter openings”) on January 25, 2019, we estimate field sampling of newly excavated areas is expected to require **30 field days**. This is 30 days of soil disturbance including excavation and direct loading operations during construction activities. Our scope of work for this option would include (1) notification to SCQAMD in accordance with rules 1166 and 1466; 2) air monitoring of volatile organic

compounds (VOCs), Methane and hydrogen sulfide gases in soils using a photoionization detector (PID) and 4-gas meter in accordance with the South Coast Air Quality Management District (SCAQMD) Rule 1166 during drilling and installation of micropiles and soil disturbance around the exterior of Buildings B1 and B2; (3) fugitive dust monitoring by SCAQMD Rule 1466 and (4) observing excavations for signs of stained soils and/or emitting odors within Area 5. Sampling and analytical testing of impacted soils for reuse and/or disposal profiling will be performed for excavated soils. An estimated 20 waste-profile-suites will be provided assuming there will be five stockpile waste streams over the duration of this project. Details regarding our geoenvironmental tasks are described in the following subsections:

Geoenvironmental Task 1: Pre-Construction Activities

Leighton Consulting, Inc. will prepare a Health and Safety Plan (HSP) to address field personnel safety aspects of work to be performed at this site. Our HSP will be prepared in accordance with Federal Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.120 and California Code of Regulations CCR Title 8, Section 5192. This document will be accessible (electronically and/or hard copy) to Leighton Consulting, Inc. personnel during field activities. This HSP will outline site procedures, potential site-specific chemical and physical hazards, emergency procedures, and contains a hospital location map. All onsite personnel will sign the HSP acknowledging acceptance. In addition, Leighton Consulting, Inc. field personnel will comply with requirements of the construction Contractor's health and safety plan. We have assumed this work can be performed using CFR 1910.120 Level D personnel protective equipment (PPE). Respiratory protection or PPE upgrades may require adjustments to our fees.

Geoenvironmental Task 2: Construction Site Activities

Leighton Consulting, Inc. will provide one staff environmental professional for up to 30 8-hour business days (240 hours) to observe soil excavation. Our field staff will observe soil excavation for signs of hazardous materials such as discolored or stained soils, note odors and use a photo-ionization detector (PID) to "sniff" soils for volatile organic compound (VOC) emissions, 4-gas meter to detect methane (CH₄) and hydrogen sulfide (H₂S) and provide reporting documentation in accordance with SCAQMD Rule 1166.

In accordance with SCAQMD Rule 1466, Leighton Consulting, Inc. will subcontract a certified industrial hygienist (CIH) to provide real time fugitive dust air monitoring and an on-site weather station to evaluate adequacy of dust control measures within the work area and perimeter areas, and advise the contractor of measurement results and mitigation measures to control dust if the action level of 50 micrograms per cubic-meter (ug/m³) or visible emissions are observed. We have assumed air monitoring for a total of

48 field days over the duration of the project. Leighton Consulting, Inc. will provide fugitive dust monitoring reports to the District and contractor. For purposes of this proposal we have assumed 48 days (384 hours) will be required to provide fugitive dust monitoring in accordance with Rule 1466.

Note that **permit compliance and reporting to the SCAQMD will be the responsibility of the construction Contractor**. Our monitoring will be for purposes of soil management and are not designed for worker protection, health exposure monitoring and/or permit compliance; all of which will remain the responsibility of the construction Contractor. Leighton Consulting, Inc. personnel will not enter un-shored excavations in excess of (>) five feet in depth. Our field personnel may request assistance from the construction Contractor to retrieve samples from un-shored or un-benched excavations deeper-than (>) five feet or to perform potholing to achieve required depth.

In the event impacted soils are observed, our field personnel will map the area of observable impacts on site development plans provided by the client, and collect representative samples for laboratory analysis. Sample locations will be recorded on the site plans. Noted soils will be field screened to be segregated into separate stockpiles for later soil handling (reuse or off-site disposal) based on analytical laboratory results.

Soil samples will be collected using clean stainless-steel trowels and transferred to laboratory supplied glass jars, or brass or stainless-steel sleeves, and sub-samples by US EPA 5035 sampling kits for VOC analysis. These samples will be labelled, placed in ice chilled coolers, and transported under chain-of-custody procedures to a California Department of Health Services accredited laboratory.

Geoenvironmental Task 3: Analytical Laboratory Analysis

Exported soil samples will be tested as follows:

Exported Soils: Soil impacts at this site are anticipated to be from past oil field operations and school building remediation. Hazardous materials of concern identified in the Soil Management Plan include:

- total petroleum hydrocarbons as gasoline (TPH-G),
- diesel (TPH-D),
- oil (TPH-O);
- volatile organic compounds (VOCs),
- semi-volatile organic compounds (SVOCs),

- Title 22 metals,
- organochlorine pesticides (OCPs), and
- polychlorinated biphenyls (PCBs).

Therefore, for waste profiling purposes, up to 20 samples collected from suspected contamination impacts will be analyzed for:

- total petroleum hydrocarbons full carbon chain (TPH-cc) by US EPA 8015B,
- VOCs by US EPA Method 8260B,
- Title 22 metals by US EPA Method 6010B/7471A,
- OCPs by US EPA Method 8081A, and
- PCBS by US EPA Method 8082.

Waste profile and export fill samples will be run on a 3-day turn-around time. Rush analysis charges are included in this estimate.

Imported Fill Soils: Import fill environmental suitability assessments will be performed by the contractor.

Geoenvironmental Task 4: Reporting

Leighton Consulting, Inc. will collate and evaluate field and laboratory data, and compare measured/reported hazardous materials concentrations to human health risk screening levels for unrestricted land use and hazardous waste criteria for waste management under California and Federal guidelines. Our report will contain results of soil sampling and analysis along with figures, tables, copies of laboratory reports, statistical analysis of laboratory results (if necessary), and conclusions and recommendations regarding disposition of soil (export and import). Our report will be signed by a California-licensed professional geologist or professional engineer.

Geoenvironmental Limitations and Assumptions

Our budget for these optional services is based on the following assumptions:

- Additional laboratory analysis for RCRA and non-RCRA hazardous waste characterization is not included. If initial results are above waste threshold limits, then additional hazardous waste profiling can be done for an additional fee.
- Disposal of non-hazardous or hazardous waste is not included in this proposal.

- A human health risk analysis above a comparison with standard agency screening levels or a vapor intrusion assessment is not included in our scope, but can be provided for an additional fee, if necessary.
- Safe site access will be provided by the District and/or construction contractor, with free parking, and work can be conducted during normal business hours, Monday-Friday between 7am and 5pm.

SCHEDULING AND DISPATCHING

Basic Scope Geotechnical Observation and Testing

Leighton Consulting, Inc. is prepared to begin this work immediately upon receipt of your written authorization to proceed. We assume the preconstruction meeting will be held on or about May 14, 2018. We would appreciate at least three working days advance notice when scheduling our field personnel on the first day you require our services. Work thereafter may be scheduled with a full (24 hours) one working day advance notice. We will rely on your field representative to contact us to schedule all fieldwork, and to help us avoid unproductive site visits. Calls to our dispatch (**866-LEIGHTON**) on weekends and holidays are not addressed until the first following working day, without prior arrangement. We anticipate our personnel will be on site periodically for both full time and part time observation and testing, as requested by your field representative and as specified on the DSA-103 Form. Our personnel will need to be on site **full time** for pile installation and testing observation, and during the 48-day dust monitoring in accordance with SCQAMD Rule 1466. We request that you “partner-with-us” to manage our budget, by avoiding unnecessary trips to the site. We will work with your field representative to reduce standby time and/or unnecessary trips to the site.

Geoenvironmental Services

Geoenvironmental field activities can be completed during the contractor’s excavation schedule. We request two working days prior notice to mobilize field staff to this site. Laboratory analysis is scoped for 3-business-day turn-around time. Laboratory reports with a summary evaluation will be provided via e-mail upon receipt on work days. Our final report will be prepared within two weeks of receipt of final laboratory reports and soil disposal documentation (i.e. waste profiles and bill of lading) provided by the contractor. Air monitoring reports for SCAQMD Rule 1166 VOC monitoring and Rule 1466 fugitive dust monitoring will be prepared for permit compliance and documentation.

FEES, BUDGET, TERMS AND CONDITIONS

Fee Schedule

These proposed geotechnical-observation-and-testing services during construction will be performed on a time-and-expense basis at unit rates listed on the attached discounted *2018 Professional Fee Schedule* (4 pages). Our hourly rates are based on the assumption that this **is** a California prevailing wage project. Our fees will be reduced if this project is not subject to California prevailing wage requirements.

Time and Expense Budget Estimate

Based on ProWest Constructors' March 9, 2018 (detailed) construction schedule showing an April 19, 2018 notice-to-proceed with slab-on-grade bedding completed (for "perimeter openings") on January 25, 2019, we understand that overall foundation and earthwork construction duration should be on the order of nine months. Based on our assumptions presented previously in this proposal, we have estimated a time and expense budget for these services as follows:

Geotechnical Service Description	Hourly Rate*	Budget Estimate
Geotechnical review of structural plans (4 hours Senior Principal)	\$276	\$1,104
Pre-construction meeting (4 hours Principal Geologist)	\$228	\$912
Prevailing Wage Soils Technician - spread footing and subgrade evaluation including exterior MEP trench, site flat work, utilities etc. (450 hours)	\$132	\$59,400
384 hours (48 days) pile installation (Senior Staff Engineer)	\$152	\$58,368
192 hours (24 days) 6 pile load tests per day in accordance with ASTM D 3689 (Senior Staff Engineer)	\$152	\$29,184
Geotechnical laboratory testing (6 sets modified proctor, sieve analysis, sand equivalent, R-value, expansion index)	various	\$4,760
Geotechnical management, quality review and DSA-293 preparation/upload		\$10,840
<i>Pile Load Test Report</i> (review, production, etc. – budget only)		\$4,000
ESTIMATED GEOTECHNICAL TOTAL:		\$168,568
Optional Geoenvironmental Service Description		Budget Estimate
Leighton Health and Safety Plan (HSP), CIH review and other pre-construction activities		\$14,326
On-site geoenvironmental observation and testing (520 hours, with weather instruments + PID)		\$99,826
Analytical laboratory testing Export Material Only (includes rush fee)		\$24,660
Geoenvironmental Reporting		\$7,000
ESTIMATED GEOENVIRONMENTAL TOTAL:		\$145,812

*See attached discounted 2018 Professional Fee Schedule

A change in the number of piles, production rate and/or a construction schedule will change our scope and budget, and can provide a basis for us to update our fee estimate. Actual scope and cost may vary from what we estimated, if additional time is required on site or if additional observation is required than assumed above. If actual number of our site visits and/or hours requested are less-than assumed, our fee would be less-than estimated. Conversely, if there are numerous rig breakdowns, poor pile installation production, extensive standby and/or unnecessary site visits, numerous small areas of compacted fill tested at a time, numerous failed tests and/or extensive standby or unnecessary site visits, this budget estimate may be insufficient to complete the project, and we will notify you that our budget needs to be augmented. Geotechnical and geoenvironmental testing not referenced in our estimated budget will be charged on a time and expense basis in accordance with our fee schedule.

Other assumptions have been made in our budget, as listed below:

- **Inspection Services by Others:** We have assumed that all materials testing and special inspection will be provided by RMA. Upon request, if needed, we can also provide materials testing service, but this is **not** currently budgeted.
- **Prevailing Wage:** The project is governed by the California Prevailing Wage Law. Rates for our on-site technicians will be subject to California mandated changes after June 30, 2018.
- **Site Access:** We assume the site will be readily accessible to our staff and equipment during construction, **including free parking** on site, and safe access to excavations, etc.
- **Overtime:** This fee estimate is also based on the assumption that our field services will be performed during normal weekday daylight-hours, and does **not** include overtime. Overtime work (over 8 hours per day and/or 40 hours per week, weekends and/or holidays) will be billed in accordance with our discounted *2018 Professional Fee Schedule*, beyond our estimated budget.
- **Daily Minimum:** Daily minimum is four hours for the first hours up to four hours. Any hours worked in excess of a four-hour minimum will be charged at eight hours up to eight hours. Hours in excess of eight will be charged at overtime rates. Same-day cancellation will be charged at two-hours per day canceled if the technician is already enroute. If the technician has not left the office, then no charges will apply.
- **Relying on Provided Construction Design Documents:** We rely on others to make us aware of approved plans and specifications modifications and updates. Changes to project drawings and/or specifications, and updates to the construction schedule, may affect our scope and budget.

- **Invoicing:** We assume that our standard time and expense invoice and breakdown of fees will be acceptable for payment. A typical copy can be provided upon request.

Terms and Conditions

We understand that this work will be authorized under a standard Beverly Hills Unified School District *Professional Services Agreement* in the form we have signed previously. If you wish us to proceed, please send us such an agreement to review and sign.

C L O S U R E

We appreciate the opportunity to be of additional service to Beverly Hills Unified School District. If you have any questions, additional information to refine our estimate or if we can be of further service, please contact us at your convenience at **866-LEIGHTON**, directly at the phone extensions or e-mail addresses listed below.

Respectfully submitted,

LEIGHTON CONSULTING, INC.



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TCB:tcb

Distribution: (1) addressee (PDF via e-mail)

Enclosure: 2018 Professional Fee Schedule (4 pages)



2018 PROFESSIONAL FEE SCHEDULE

CLASSIFICATION	\$/HR	CLASSIFICATION	\$/HR
Technician I	81	Project Administrator/Word Processor/Dispatcher	76
Technician II / Special Inspector	94	Information Specialist	105
Senior Technician / Senior Special Inspector	105	CAD Operator	119
Prevailing Wage (field soils / materials tester) *	132	GIS Specialist	133
Prevailing Wage (Special Inspector) *	138	GIS Analyst	157
Prevailing Wage (Source Inspector, NDT and soil remediation O&M)*	143	Staff Engineer / Geologist / Scientist	143
System Operation & Maintenance (O&M) Specialist	133	Senior Staff Engineer / Geologist / Scientist / ASMR	152
Non Destructive Testing (NDT)	143	Operations / Laboratory Manager	171
Deputy Inspector	105	Project Engineer / Geologist / Scientist	171
Field / Laboratory Supervisor	138	Senior Project Engineer / Geologist / Scientist / SMR	190
Source Inspector	128	Associate	209
City of Los Angeles Deputy Building (including Grading) Inspector	147	Principal	228
		Senior Principal	276

* See Prevailing Wages in Terms and Conditions

GEOTECHNICAL LABORATORY TESTING

METHOD	\$/TEST	METHOD	\$/TEST
CLASSIFICATION & INDEX PROPERTIES		California Bearing Ratio (CBR, ASTM D1883):	
Photograph of sample	10	- 3 point	500
Moisture content (ASTM D2216)	20	- 1 point	185
Moisture & density (ASTM D2937) ring samples	30	R-Value (AASHTO T190/ASTM D2844/CTM 301) untreated	310
Moisture & density (ASTM D2937) Shelby tube or cutting	40	soils/aggregates	
Atterberg limits (ASTM D4318) 3 points:	150	R-Value (AASHTO T190/ASTM D2844/CTM 301) lime or cement	340
- Single point, non-plastic	85	treated soils/aggregates	
- Atterberg limits (organic ASTM D2487 / D4318)	180	SOIL CHEMISTRY & CORROSIVITY	
- Visual classification as non-plastic (ASTM D2488)	10	pH Method A (ASTM D4972 or CTM 643)	45
Particle size:		Electrical resistivity – single point – as received moisture	45
- Sieve only 1½ inch to #200, (AASHTO T27/ASTM C136/ASTM D6913/CTM 202)	135	Minimum resistivity 3 moisture content points (ASTM G187/CTM 643)	90
- Large sieve 6 inch to #200 (AASHTO T27/ASTM C136/ASTM D6913/CTM 202)	175	pH + minimum resistivity (CTM 643)	130
- Hydrometer only (ASTM D422)	110	Sulfate content - gravimetric (CTM 417 B Part II)	70
- Sieve + hydrometer (≤3 inch sieve, ASTM D422)	185	Sulfate screen (Hach®)	30
- Percent passing #200 sieve, wash only (ASTM D1140)	70	Chloride content (AASHTO T291/CTM 422)	70
Specific gravity and absorption of fine aggregate (AASHTO T84/ASTM C128/ASTM D854/CTM 207)	125	Corrosion suite: minimum resistivity, sulfate, chloride, pH (CTM 643)	245
Specific gravity and absorption of coarse aggregate (AASHTO T85/ASTM C127/CTM 206)	100	Organic matter content (ASTM D2974)	65
- Total porosity - on Shelby tube sample (calculated from density & specific gravity)	165	SHEAR STRENGTH	
- Total porosity - on other sample	155	Pocket penetrometer	15
Shrinkage limits (wax method, ASTM D4943)	126	Direct shear (ASTM D3080, mod., 3 points):	
Pinhole dispersion (ASTM D4647)	210	- Consolidated undrained - 0.05 inch/min (CU)	285
Dispersive characteristics (double hydrometer ASTM D4221)	90	- Consolidated drained - <0.05 inch/min (CD)	345
As-received moisture & density (chunk/carved samples)	60	- Residual shear EM 1110-2-1906-IXA	50
Sand Equivalent (AASHTO T176/ASTM D2419/CTM 217)	105	(price per each additional pass after shear)	
COMPACTION & PAVEMENT SUBGRADE TESTS		Remolding or hand trimming of specimens (3 points)	90
Standard Proctor compaction, (ASTM D698) 4 points:		Oriented or block hand trimming (per hour)	65
- 4 inch diameter mold (Methods A & B)	160	Single point shear	105
- 6 inch diameter mold (Method C)	215	Torsional shear (ASTM D6467 / ASTM D7608)	820
Modified Proctor compaction (ASTM D1557) 4 points:		CONSOLIDATION & EXPANSION/SWELL TESTS	
- 4 inch diameter mold (Methods A & B)	220	Consolidation (ASTM D2435):	195
- 6 inch diameter mold (Method C)	245	- Each additional time curve	45
Check point (per point)	65	- Each additional load/unload w/o time reading	40
Relative compaction of untreated/treated soils/aggregates (CTM 216)	250	Expansion Index (EI, ASTM D4829)	130
Relative density (0.1 ft mold, ASTM D4253, D4254)	235	Swell/collapse – Method A (ASTM D4546-A, up to 10 load/unloads w/o time curves)	290
		Single load swell/collapse - Method B (ASTM D4546-B, seat, load & inundate only)	105

METHOD	\$/TEST	METHOD	\$/TEST
TRIAXIAL TESTS		HYDRAULIC CONDUCTIVITY TESTS	
Unconfined compression strength of cohesive soil (with stress/strain plot, ASTM D2166)	135	Triaxial permeability in flexible-wall permeameter with backpressure saturation at one effective stress (EPA 9100/ASTM D5084, falling head Method C):	310
Unconsolidated undrained triaxial compression test on cohesive soils (USACE Q test, ASTM D2850, per confining stress)	170	- Each additional effective stress	120
Consolidated undrained triaxial compression test for cohesive soils, (ASTM D4767, CU, USACE R-bar test) with back pressure saturation & pore water pressure measurement (per confining stress)	375	- Hand trimming of soil samples for horizontal K	60
Consolidated drained triaxial compression test (CD, USACE S test), with volume change measurement. Price per soil type below EM 1110-2-1906(X):		Remolding of test specimens	65
- Sand or silty sand soils (per confining stress)	375	Permeability of granular soils (ASTM D2434)	135
- Silt or clayey sand soils (per confining stress)	500	Soil suction (filter paper method, ASTM D5298)	400
- Clay soils (per confining stress)	705		
- Three-stage triaxial (sand or silty sand soils)	655		
- Three-stage triaxial (silt or clayey sand soils)	875		
- Three-stage triaxial (clay soils)	1,235		
Remolding of test specimens	65		

CONSTRUCTION MATERIALS LABORATORY TESTING

METHOD	\$/TEST	METHOD	\$/TEST
CONCRETE STRENGTH CHARACTERISTICS		AGGREGATE PROPERTIES	
Concrete cylinders compression (ASTM C39) (6" x 12")	25	Bulk density and voids in aggregates (AASHTO T19/ASTM C29/CTM 212)	50
Concrete cylinders compression (ASTM C39) (4" x 8")	22	Organic impurities in fine aggregate sand (AASHTO T21/ASTM C40/CTM 213)	60
Compression, concrete or masonry cores (testing only) ≤6 inch (ASTM C42)	40	LA Rattler-smaller coarse aggregate <1.5" (AASHTO T96/ASTM C131/CTM 211)	200
Trimming concrete cores (per core)	20	LA Rattler-larger coarse aggregate 1-3" (AASHTO T96/ASTM C535/CTM 211)	250
Flexural strength of concrete (simple beam-3rd pt. loading, ASTM C78/CTM 523)	85	Apparent specific gravity of fine aggregate (AASHTO T84/ASTM C128/CTM 208)	130
Flexural strength of concrete (simple beam-center pt. loading, ASTM C293/CTM 523)	85	Clay lumps, friable particles (AASHTO T112/ASTM C142)	175
Non shrink grout cubes (2 inch, ASTM C109/C1107)	25	Durability Index (AASHTO T210/ASTM D3744/CTM 229)	200
Drying shrinkage - four readings, up to 90 days, 3 bars (ASTM C157)	400	Moisture content of aggregates by oven drying (AASHTO T255/ASTM C566/CTM 226)	40
Length of drilled concrete cores (CTM 531)	40	Uncompacted void content of fine aggregate (AASHTO T304/ASTM C1252/CTM 234)	130
HOT MIX ASPHALT (HMA)		Percent of crushed particles (AASHTO T335/ASTM D5821/CTM 205)	135
Resistance of compacted HMA to moisture-induced damage (AASHTO T283/CTM 371)	2,100	Flat & elongated particles in coarse aggregate (ASTM D4791/CTM 235)	215
Hamburg Wheel, 4 briquettes (modified) (AASHTO T324)	900	Cleaness value of coarse aggregate (CTM 227)	210
Superpave gyratory compaction (AASHTO T312/ASTM D6925)	350	Soundness, magnesium (AASHTO T104/ASTM C88/CTM 214)	225
Extraction by ignition oven, percent asphalt (AASHTO T308/ASTM D6307/CTM 382)	150	Soundness, sodium (AASHTO T104/ASTM C88/CTM 214)	650
Ignition oven correction/correlation values (AASHTO T308/ASTM D6307/CTM 382)	1,350		
Extraction by centrifuge, percent asphalt (ASTM D2172)	150	MASONRY	
Gradation of extracted aggregate (AASHTO T30/ASTM D5444/CTM 202)	135	Mortar cylinders (2" by 4", ASTM C780)	25
Stabilometer, S-Value (ASTM D1560/CTM 366)	265	Grout prisms (3" by 6", ASTM C1019)	25
Bituminous mixture preparation (AASHTO R30/CTM 304)	80	Masonry cores compression, ≤6" diameter (testing only, ASTM C42)	40
Moisture content of HMA (AASHTO T329/ASTM D6037/CTM 370)	60	CMU compression to size 8" x 8" x 16" (3 required, ASTM C140)	45
Bulk specific gravity of compacted HMA, molded specimen or cores, uncoated (AASHTO T166/ASTM D2726/CTM 308)	50	CMU moisture content, absorption & unit weight (6 required, ASTM C140)	40
Bulk specific gravity of compacted HMA, molded specimen or cores, paraffin-coated (AASHTO T275/ASTM D1188/CTM 308)	55	CMU linear drying shrinkage (ASTM C426)	175
Maximum density - Hveem (CTM 308)	200	CMU grouted prisms (compression test ≤8" x 8" x 16", ASTM C1314)	180
Theoretical maximum density and specific gravity of HMA (AASHTO T209/ASTM D2041/CTM 309)	130	CMU grouted prisms (compression test > 8" x 8" x 16", ASTM C1314)	250
Thickness or height of compacted bituminous paving mixture specimens (ASTM D3549)	40	Masonry core-shear, Title 24 (test only)	70
Rubberized asphalt (add to above rates)	+ 25%	BRICK	
		Compression (cost for each, 5 required, ASTM C67)	40

METHOD	\$/TEST	METHOD	\$/TEST
REINFORCING STEEL		SPRAY APPLIED FIREPROOFING	
Rebar tensile test up to ≤ No. 10 bars (ASTM A370)	45	Unit weight (density, ASTM E605)	60
Rebar tensile test > No. 10 bars ≤ No. 17, (ASTM A370)	100	BEARING PADS/PLATES AND JOINT SEAL	
Rebar bend test, up to ≤ No. 10 bars (ASTM A370)	45	Elastomeric Bearing Pads (Caltrans SS 51-3)	990
Rebar bend test > No. 10 bars ≤ No. 17, (ASTM A370)	150	Elastomeric Bearing Pad with Hardness and Compression Tests (Caltrans SS 51-3)	1230
Epoxy coated rebar/dowel film thickness (coating) test (ASTM A775)	45	Type A Joint Seals (Caltrans SS 51-2)	1620
Epoxy coated rebar/dowel continuity (Holiday) test (ASTM A775)	65	Type B Joint Seals (Caltrans SS 51-2)	1530
Epoxy coated rebar flexibility/bend test, up to No. 11 (ASTM A775)	45	Bearing Plates (A536)	720
Tensile strength, ≤100,000 pounds axial load (ASTM A370)	45	STREET LIGHTS/SIGNALS	
Prestressing wire, tension (ASTM A416)	150	100W HPS Lighting (Caltrans RSS 86)	1296
Sample preparation (cutting)	50	SAMPLE TRANSPORT	
Resistance Butt-Welded Hoops/Bars, up to No. 10 (CTM 670)	180	Pick-up & delivery (weekdays, per trip, <50 mile radius from Leighton office)	90
Post-Tensioned Bars (ASTM A772)	420		

EQUIPMENT, SUPPLIES & MATERIALS

	\$/UNIT		\$/UNIT
1/4 inch Grab plates	5 each	Manometer	25 day
1/4 inch Tubing (bonded)	0.55 foot	Mileage (IRS Allowable)	0.545 mile
1/4 inch Tubing (single)	0.35 foot	Moisture test kit (excludes labor to perform test, ASTM E1907)	60 test
3/8 inch Tubing, clear vinyl	0.55 foot	Nuclear moisture and density gauge	88 day
4-Gas meter (RKI Eagle or similar)/GEM 2000	130 day	Pachometer	25 day
Air flow meter and purge pump (200 cc/min)	50 day	Particulate Monitor	125 day
Box of 24 soil drive-sample rings	120 box	pH/Conductivity/Temperature meter	55 day
Brass sample tubes	10 each	Photo-Ionization Detector (PID)	120 day
Caution tape (1000-foot roll)	20 each	Pump, Typhoon 2 or 4 stage	50 day
Combination lock or padlock	11 each	QED bladder pump w/QED control box	160 day
Compressed air tank and regulator	50 day	Resistivity field meter & pins	50 day
Concrete coring machine (≤6-inch-dia)	150 day	Slip / threaded cap, 2-inch or 4-inch diameter, PVC Schedule 40	15 each
Consumables (gloves, rope, soap, tape, etc.)	35 day	Slope inclinometer	200 day
Core sample boxes	11 each	Soil sampling T-handle (Encore)	10 day
Crack monitor	25 each	Soil sampling tripod	35 day
Cutoff saws, reciprocating, electric (Sawzall®)	75 day	Stainless steel bailer	40 day
Disposable bailers	12 each	Submersible pump, 10 gpm, high powered Grunfos 2-inch with controller	160 day
Disposable bladders	10 each	Submersible pump/transfer pump, 10-25 gpm	50 day
Dissolved oxygen meter	45 day	Support service truck usage (well installation, etc.)	200 day
DOT 55-gallon containment drum with lid	65 each	Survey/fence stakes	8 each
Double-ring infiltrometer	125 day	Tedlar® bags	18 each
Dual-stage interface probe	80 day	Traffic cones (≤25)/barricades (single lane)	50 day
Dynamic Cone Penetrometer	400 day	Turbidity meter	70 day
Generator, portable gasoline fueled, 3,500 watts	90 day	Tyvek® suit (each)	18 each
Global Positioning System/Laser Range Finder	80 day	Vapor sampling box	55 day
Hand auger set	90 day	Vehicle usage (carrying equipment)	20 hour
HDPE safety fence (≤100 feet)	40 roll	VelociCalc	35 day
Horiba U-51 water quality meter	135 day	Visqueen (20 x 100 feet)	100 roll
Light tower (towable vertical mast)	150 day	Water level indicator (electronic well sounder) <300 feet deep well	60 day
Magnehelic gauge	15 day	ZIPLEVEL®	15 day

Other specialized geotechnical and environmental testing & monitoring equipment are available, and priced per site

TERMS & CONDITIONS

- **Expiration:** This fee schedule is effective through December 31, 2018 after which remaining work will be billed at then-current rates.
- **Proposal Expiration:** Proposals are valid for at least 30 days, subject to change after 30 days; unless otherwise stated in the attached proposal.
- **Prevailing Wages:** Our fees for prevailing wage work based upon California prevailing wage laws and wage determinations.
- **Overtime:** Overtime for field personnel will be charged at 1.5 times basic hourly rates when exceeding 8 hours up to 12 hours per 24 hour interval, and 2 times basic hourly rates when exceeding 12 hours in 24 hours or on Sunday, and 3 times basic hourly rates on California official holidays.
- **Expert Witness Time:** Expert witness deposition and testimony will be charged at 2 times hourly rates listed on the previous pages, with a minimum charge of four hours per day.
- **Minimum Field Hourly Charges:** For Field Technicians, Special Inspectors or any on-site (field) materials testing services:
 - 4 hours: 4-hour minimum charge up to the first four hours of work
 - 8 hours: 8-hour minimum charge for over four hours of work, up to eight hours.
 Project time accrued includes portal to portal travel time.
- **Outside Direct Costs:** Heavy equipment, subcontractor fees and expenses, project-specific permits and/or licenses, project-specific supplemental insurance, travel, subsistence, project-specific parking charges, shipping, reproduction, and other reimbursable expenses will be invoiced at cost plus 18%, unless billed directly to and paid by client.
- **Insurance & Limitation of Liability:** These rates are predicated on standard insurance coverage and a limit of Leighton's liability equal to our total fees for a given project.
- **Invoicing:** Invoices are rendered monthly, payable upon receipt in United States dollars. A service charge of 1½-percent per month will be charged for late payment.
- **Client Disclosures:** Client agrees to provide all information in Client's possession about actual or possible presence of buried utilities and hazardous materials on the project site, prior to fieldwork, and agrees to reimburse Leighton for all costs related to unanticipated discovery of utilities and/or hazardous materials. Client is also responsible for providing safe and legal access to the project site for all Leighton field personnel.
- **Earth Material Samples:** Quoted testing unit rates are for soil and/or rock (earth) samples free of hazardous materials. Additional costs will accrue beyond these standard testing unit rates for handling, testing and/or disposing of soil and/or rock containing hazardous materials. Hazardous materials will be returned to the site or the site owner's designated representative at additional cost not included in listed unit rates. Standard turn-around time for geotechnical-laboratory test results is 10 working days. Samples will be stored for 2 months, after which they will be discarded. Prior documented notification is required if samples need to be stored for a longer time. A monthly storage fee of \$10 per bag and \$5 per sleeve or tube will be applied. Quoted unit rates are only for earth materials sampled in the United States. There may be additional cost for handling imported samples.
- **Construction Material Samples:** After all designated 28-day breaks for a given sample set meet specified compressive or other client-designated strength, all "hold" cylinders or specimens will be automatically disposed of, unless specified in writing prior to the 28-day break. All other construction materials will be disposed of after completion of testing and reporting