



Consent Item

RE: Geotechnical Services for Public Works Facility Renovations

Department/Program: Administration

Explanation: The City recently posted a Request for Qualifications (RFQ) for geotechnical services for the public works facility renovation project. The selected vendor will serve throughout the project, but the immediate need is to have boring and core samples done on the site to ensure that the areas that are getting new structures are suitable to build on.

Four responses were received from the following firms:

Intertek

SCI Engineering

TSi

Terracon

City staff and the City's owner's representative, Navigate, have reviewed the RFQ responses and determined that SCI Engineering is the most qualified firm for this project. The ultimate cost of the contract will depend on the hours worked and services performed, based on the attached cost sheet. It is anticipated that the initial cost of the boring work will be \$13,700, which is under the Board threshold for approval, but the overall cost of the contract through construction will be approximately \$20-25,000.

Recommendation:

Award the contract for geotechnical services for the public works renovations to SCI Engineering

Submitted By: Eric Sterman

Date: 10/8/24



SCI ENGINEERING, INC.

EARTH • SCIENCE • SOLUTIONS

GEOTECHNICAL
ENVIRONMENTAL
NATURAL RESOURCES
CULTURAL RESOURCES
CONSTRUCTION SERVICES

September 19, 2024

Office of the City Administrator
City of Ballwin, Missouri
1 Government Center
Ballwin, Missouri 63011

c/o Navigate Building Solutions, LLC
Attn: Joe Sweitzer, Jr. AIA, NCARB, CDT, LEED AP
8419 Manchester Road
Brentwood, Missouri 63144

RE: Geotechnical Services Proposal
Ballwin Public Works
Ballwin, Missouri
SCI No. 2024-1657.10, .G0, .G2

To Whom it may Concern:

At your request, SCI Engineering, Inc. (SCI) is providing this Geotechnical Services proposal for the referenced project. The purpose of our geotechnical services will be to explore the subsurface conditions and develop design and construction recommendations for the foundations and earth-related phases of the project.

PROJECT DESCRIPTION

The City of Ballwin is planning improvements for the existing Public Works facility at 200 Park Drive in Ballwin, Missouri. The site features a two-story, concrete block and frame maintenance shed, and a one-story, concrete block and frame building in the northern portion of the site with paved parking between the buildings and south of the buildings; additionally, there is an existing domed salt shed in the southern portion of the site, which is surrounded by the pavement. Development is also planned for the adjacent property to the north at 300 Park Drive which is developed with an existing two-story brick building, carport canopy, and associated pavement and parking. Topography across the entire development slopes from the southwest down towards the northeast with approximately 50 feet of relief.

Review of historical aerial photographs indicates that the existing buildings in the north were constructed between 1985 and 1986, and the salt dome was constructed between 2004 and 2005. Information regarding the foundation types or structural performance of the existing building was not provided at the time of this proposal.

The planned improvements include three new pre-engineered metal buildings, ranging from approximately 5,000 square feet (sf) to 15,000 sf. Associated parking/drive lanes are planned for the two northernmost buildings. Preliminary structural loads indicate column loads on the order of 30,000 pounds (lbs) with sustained column loads of 15,000 lbs. Slab on grade loading will be approximately 8000 lbs or 350 pounds per square foot. Grading plans were not provided at the time of this proposal; however, we assume cuts and fills on the order of 5 feet or less will be required. Further, we have assumed that there will be no retaining walls. **SCI should be notified if retaining walls are proposed.**

130 Point West Boulevard, St. Charles, Missouri 63301 ■ 636-949-8200

www.sciengineering.com

SCOPE OF SERVICES

Geotechnical Exploration

Nine borings have been requested, as shown on the site plan in the RFP. We will then locate the borings in the field using a handheld global positioning system, and we will interpolate surface elevations at the boring locations using the most recent topographic plan made available to us. If more accurate data are required, we recommend that you retain the project surveyor to stake the boring locations and provide surface elevations.

We will then explore the subsurface conditions by drilling the requested borings to depths of 20 feet each, unless auger refusal terminates drilling at a shallower depth. SCI personnel will be on site to log the borings and direct the sampling during drilling. The borings will be sampled with Standard Penetration Tests (SPTs) at 2½-foot intervals in the upper 10 feet and at 5-foot intervals thereafter. Relatively undisturbed Shelby tube samples will be obtained at selected locations in lieu of the SPTs. Groundwater readings will be recorded during drilling.

The boreholes will be backfilled with soil cuttings and the pavement patched. It should be noted that some settlement of the boreholes will likely occur following completion of the fieldwork and additional pavement patching may be required. We assume monitoring of the borehole backfill after drilling is completed and placement of additional pavement patch will be provided by others. Alternately, the boreholes may be backfilled with sand, gravel or grout which are less prone to settlement; however, additional fees will apply and a suitable area for spoils disposal would need to be coordinated with the owner.

Laboratory Testing Program

Upon completion of the field exploration, the samples will be transported to our laboratory for classification and characterization. We will measure the moisture content of each cohesive sample. Hand penetrometer values, which provide an indication of strength, will be obtained for each apparently intact cohesive sample. Atterberg limits and grain size analysis tests will be performed on selected samples to aid in classification and assess the volume change characteristics of the subgrade soils. Natural density tests, and/or unconfined compression tests to provide additional strength information, will be performed on selected Shelby tube samples.

Geotechnical Report

Our findings and recommendations, along with supporting data, will be presented in a formal report, which will address each of the following:

- Allowable bearing pressures and depths for shallow, spread footing, foundation support;
- Seismic coefficients for building design according to the International Building Code based on the soil encountered in the borings;
- Review of published maps and literature to identify the potential impact of past underground or surface mining or karst activity near the site;
- Anticipated total and differential settlement based on general soil characteristics;
- Shrink/swell potential of subgrade soils;

- Floor slab design criteria;
- Lateral earth pressures as well as surcharge, backfill, and drainage recommendations for the design of temporary shoring, below-grade walls, and retaining walls;
- Pavement design recommendations, based on local experience;
- Drainage considerations for the planned structure and improvements;
- General location, description, and disposition of existing fill materials, if encountered;
- Influence of groundwater and/or bedrock, if encountered, on design and construction;
- Structural fill considerations, including the suitability of on-site soils for use and engineering criteria for placement;
- Site development and geotechnical construction recommendations; and
- Observation and testing recommendations during construction.

Advanced Seismic Analysis (Optional)

Shear wave velocity testing may be beneficial to the project team in order to potentially improve the seismic design criteria for the site. The reduction in design loading due to an improvement in the seismic design criteria can help significantly reduce project costs. We have performed shear wave velocity testing and Site-Specific Seismic Hazard Analyses (SSSHA) on nearby projects and resulted in more favorable seismic design parameters than could be calculated from soil borings alone, which have resulted in significant project savings. This work could be initiated in conjunction with the subsurface exploration to expedite determination of seismic design parameters and allow the structural design to progress.

Phase I: Shear Wave Velocity Data Collection

We will collect shear wave velocity data on the site to evaluate the profile of the subsurface soils to a maximum depth of 100 feet. Our geotechnical engineer will interpret the results of the field testing and generate a shear wave velocity profile of the subsurface with respect to depth. The interpreted shear wave velocity profile will be used to determine the Seismic Site Class. The results of the shear wave velocity testing will initially be emailed to you and then presented in the geotechnical report.

Phase II: Site-Specific Seismic Hazard Analyses (SSSHA, if required)

If no improvement of the Site Class is possible, we will perform Site-Specific Seismic Hazard Analyses in an attempt to improve the Seismic Design Category. The shear wave velocity data collected in Phase I will be used to estimate dynamic soil properties needed for the SSSHA. The SSSHA will then be performed utilizing synthetic earthquake input provided by the USGS website and a commercially available program ProShake¹ to develop a Site-Specific Response Spectrum. The Design Response Spectrum is a composite curve developed following the procedures presented in Section 1613 of the IBC code and Chapter 21 of ASCE 7-16. The results of the SSSHA, including revised seismic parameters and the resulting SDC will be presented in the geotechnical report.

¹ ProShake, Ground Response Analysis Program, Version 1.12, EduPro Civil Systems, Inc., Sammamish, WA.

Private Utility Locate (if needed)

Private utilities, which will not be marked by Missouri One Call (811), may be present near the proposed boring locations. A private utility locate may be required if the Owner cannot mark the location of these utilities or provide plans showing their location. SCI can provide a private utility locate for the fee in Table 1. The private utility locate fee includes scanning the area within a perimeter around each test location and marking identified underground features with spray paint or flags. No other documentation is included in the fee. If the locations of identified underground features are required, we recommend that the project surveyor be retained to document the locations.

Geotechnical Engineer of Record Services

Following issuance of the final geotechnical report, additional services are anticipated as summarized below:

- Review of construction documents to verify compliance of the final plans and specifications with the recommendations in our geotechnical report;
- Provide a sealed geotechnical certification for the project plans; and
- Additional consultation or meetings during bidding and construction, including review and response to Requests for Information (RFIs). We have assumed two meetings in the estimated fee for this service.

The value of these services is to ensure understanding and alignment of the geotechnical recommendations and client-directed approaches, improve the quality and levelness of construction bids received, and streamline construction implementation.

COST AND SCHEDULE

SCI will provide these geotechnical services for the fees shown in Table 1.

Table 1 – Task and Fees

| Task | Lump-Sum Fee (\$) |
|--|--|
| Geotechnical Exploration and Report Preparation | 13,700.00 |
| Advanced Seismic Analysis | |
| Phase I: Shear Wave Velocity Collection and Analysis | 3,500.00 |
| Phase II: Site-Specific Hazard Analysis (if needed) | 3,500.00 |
| Private Utility Locate (if needed) | 2,900.00 |
| Geotechnical Engineer of Record Services | Hourly, per the attached <i>Rate Schedule</i> with an estimated fee of \$3,000.00 |

You will be invoiced for these fees upon project completion and payment is due upon receipt of the invoice. To facilitate prompt payment, SCI accepts Visa and MasterCard in addition to normal payment methods. If you wish to pay via credit card, please contact the undersigned for specific instructions.

We have tentatively scheduled the fieldwork, weather permitting, on October 21, 2024. This assumes we have notice to proceed no later than 4 pm on October 15, 2024. We anticipate that the private utility locate will require one day and drilling will be completed in two days at the site; however, we cannot mobilize the

drill rig unless formal authorization has been received. Laboratory testing and report preparation will require approximately three weeks following the field explorations, with a target submission date of November 22, 2024, per the RFP. Verbal findings should be available within a few days after completion of the exploration. Completion of the Phase II SSSHA, if needed, will add approximately one to two weeks to the report submittal timeframe.

Our estimated schedule assumes our personnel will be allowed access to the site within five working days from formal authorization.

Conditions and Considerations

- The above fee is based on a maximum of 180 feet of soil drilling. If the encountered subsurface conditions indicate that more than the planned total of soil drilling would be beneficial, and you authorize additional exploration, it would be provided for \$45.00 per foot. Our fee includes field exploration, laboratory testing, engineering analysis, and report preparation. Our fees do not include the additional cost of union operators or laborers. Should they be required by the local jurisdiction, you will be immediately advised of any additional cost.
- This proposal assumes that you will provide site access authorization, including access to the proposed boring locations for a conventional, rubber-tired, all-terrain mounted, drill rig. No clearing, grading, or other removal of site obstacles has been included in this proposal. It also assumes that you will provide marked locations of privately owned, below-grade, utility lines within the project area, prior to mobilization of the drill rig. **SCI can provide a private utility locate for the fee shown in Table 1.**
- We routinely contact the Missouri One-Call system to have the locations of public utilities marked; however, we will only be responsible for utilities brought to our attention prior to drilling.
- SCI performs the subsurface utility locating services using geophysical tools in general accordance with the Standard Guideline for Investigating and Documenting Existing Utilities (ASCE/UES/CI 38-22), and in general accordance with the standard of care and the accepted industry principals. However, SCI cannot and does not guarantee the accuracy of the utility locations reported for the following reasons. The geophysical methods are non-invasive and have limitations. The effectiveness of the geophysical instruments used for subsurface utility locating depends on multiple factors such as, but not limited, to utility size, depth, condition, composition (e.g., metal, PVC), congestion, general site conditions (clayey soils, reinforced concrete, subsurface material moisture content), overhead power lines and access to exposed utilities. Not all utilities present within a survey area may be imaged due to these limitations. Some utilities, such as non-metal (e.g., clay and plastics) pipes and fiber optic cables without tracer wires, may not be imaged by the geophysical tools.
- Our fee, which is valid for up to 30 days from the date of this proposal, does not include out-of-scope services that might be added during the course of our work; nor does it include additional services that might be requested following completion of our report, such as attendance at project meetings; subsequent consultation; or review, signing, and sealing of project plans. Such services will be provided in accordance with the enclosed *Acceptance of Proposal for Professional Services*, and billed at our then-current hourly rates, or as otherwise agreed.

CLIENT RESPONSIBILITIES AND AUTHORIZATION

If the scope outlined herein is acceptable, please provide formal authorization to proceed by completing, signing, and returning the enclosed *Acceptance of Proposal for Professional Services* sheet. This sheet provides important information regarding report distribution and invoicing. Formal authorization is necessary prior to initiation of the activities outlined herein. SCI services will be performed for the signatory of the enclosed form. Written consent must be provided by SCI should anyone other than the client (signatory) wish to excerpt, or rely on, the results of our activities. The enclosed *General Terms and Conditions* will also apply to any future services you authorize for this project.

Thank you for the opportunity to submit this proposal. Tim Barrett, P.E., will be your primary point of contact for the services outlined above, please do not hesitate to contact him with any questions. Tim can be reached at 636-757-1065 or tbarrett@sciengineering.com.

Respectfully,

SCI ENGINEERING, INC.



Gabrielle M. Kowalik
Staff Engineer

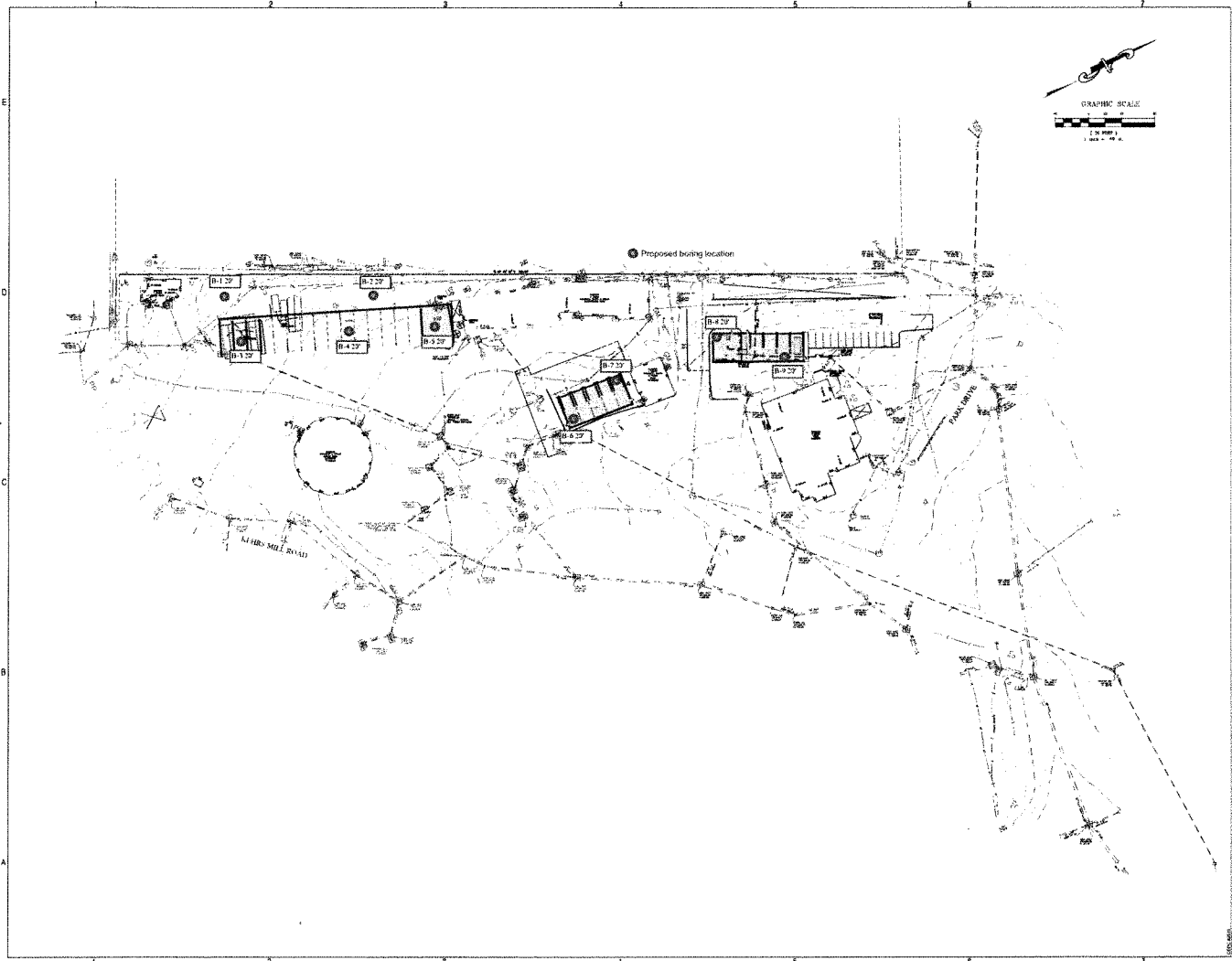


Timothy J. Barrett, P.E., CFM
Geotechnical Services Manager

GMK/TJB/snp

Enclosures

Boring Location Plan
Rate Schedule
Price List
Acceptance of Proposal for Professional Services
General Terms and Conditions



Architects
Architects
 architecture | interiors
 443 West Cheshire Road, St. Louis, Missouri 63102
 Phone: 314.241.1100 | Fax: 314.241.1101

CEDC
 COMMUNITY ENGINEERING DESIGN CONSULTANTS
 1000 N. 1st St., Suite 200
 St. Louis, MO 63102
 Phone: 314.241.1100

Public Works
BALLWIN PUBLIC WORKS
 2000 S. 1st St., Suite 100
 Ballwin, MO 63011
 Phone: 314.241.1100

DRAFT - NOT FOR CONSTRUCTION
 OVERALL PLAN

C3.0



RATE SCHEDULE

City of Ballwin
Ballwin Public Works

September 19, 2024
SCI No. 2024-1657

| Labor Description | Rate |
|---|-------------------|
| Senior Engineer/Scientist III | 280.00 /hour |
| Senior Engineer/Scientist II | 235.00 /hour |
| Senior Engineer/Scientist I | 185.00 /hour |
| Project Engineer/Scientist II | 165.00 /hour |
| Project Engineer/Scientist I | 145.00 /hour |
| Staff Engineer/Scientist II | 130.00 /hour |
| Staff Engineer/Scientist I | 115.00 /hour |
| Senior Geophysicist | 200.00 /hour |
| Project Manager | 150.00 /hour |
| Field Manager I | 95.00 /hour |
| Structural Steel - NDT | 150.00 /hour |
| Special Inspection (Structural Steel) | 135.00 /hour |
| Special Inspection (SFRM/Post-Tension) | 110.00 /hour |
| Special Inspection (Foundation Bearing) | 95.00 /hour |
| Special Inspection (Concrete/Masonry) | 95.00 /hour |
| Construction Material Testing Technician | 78.00 /hour |
| Geologist II | 130.00 /hour |
| Geologist I | 110.00 /hour |
| Field Scientist II | 100.00 /hour |
| Field Scientist I | 88.00 /hour |
| Environmental Technician | 80.00 /hour |
| Senior Archaeologist II | 180.00 /hour |
| Senior Archaeologist I | 145.00 /hour |
| Archaeologist | 110.00 /hour |
| Archaeological Crew Chief | 95.00 /hour |
| Archaeological Technician | 80.00 /hour |
| GIS Specialist | 115.00 /hour |
| GIS Analyst | 145.00 /hour |
| Project Assistant | 100.00 /hour |
| Administrative Assistant | 75.00 /hour |
| Expenses | |
| Vehicle Mileage | 0.80 /mile |
| Transportation, Meals/Per Diem, lodging, subcontractors, subconsultants, etc. | Cost + 15 percent |

Overtime/Night-Time Differential

Overtime is applied for hours worked per individual employee in excess of 8 hours per day, or work performed on Saturdays, Sundays, or SCI Holidays. Overtime for SCI employees will be billed at 1½ times our regular hourly rates. A 10 percent premium, and a minimum of 8 hours, will apply for all services performed during a Night Shift, which includes shifts starting between 6:00pm and 4:00am. An additional fee of \$200 will apply for all material testing/inspection services that are requested or modified the day scheduled.

Expert Testimony

Expert witness testimony for deposition, arbitration, mediation and trial proceeding will be billed at 1½ times the applicable hourly rate.

Field and Lab Services

We require a 24-hour notice to schedule field services but will always try to work within the time constraints provided. Coordination and report review will be invoiced at engineering rates. Site testing and inspection services will be invoiced in one hour increments and a minimum charge of 4 hours per site visit will apply. A minimum charge of 2 hours per trip will apply for pickup of test specimens. A fuel surcharge of \$5.00/trip will be applied when the National Average Price for regular unleaded is above \$4.00/gallon and an additional \$5.00/trip will apply for each dollar over \$4.00/gallon thereafter.

SCI Engineering, Inc. is a multi-discipline firm offering services during all phases of projects – from development and design through final construction. Labor Rates for all of our services will be furnished upon request.



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Ballwin Public Works

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| SOIL TESTING | | ASTM/AASHTO | Price | Unit |
|---|--|----------------------|---------------|-----------|
| Laboratory Tests | | | | |
| 1 Compaction Control | | | | |
| | Moisture-Density Relationship | | | |
| | TXDOT 113E/114E | TxDOT 113E/114E | 360.00/310.00 | Ea |
| | Standard Proctor | D698/T99 | 310.00 | Ea |
| | Modified Proctor | D1557/T180 | 340.00 | Ea |
| | California Bearing Ratio (CBR) (moisture-density relationship additional) | | | |
| | Single-Point (unsoaked) | D1883/T193 | 210.00 | Ea |
| | Single-Point (soaked) | | 220.00 | Ea |
| | 3-Point Single Moisture (soaked) | | 495.00 | Ea |
| | Relative Density - Minimum and maximum density | D4253/4254 | Upon Request | Ea |
| 2 Material Characterization | | | | |
| | Manual/Visual Description | D2488 | 36.00 | Ea |
| | TxDOT 104E, 105E, 106E Atterberg Limits | TxDOT 104E,105E,106E | 99.00 | Ea |
| | Atterberg Limits - Method A or B | D4318/T89,90 | 89.00 | Ea |
| | Liquid Limit Only | T89 | 70.00 | Ea |
| | Unit Weight Determination | D7263 | 62.00 | Ea |
| | Grain Size Analysis | | | |
| | Sieve Analysis (includes percent finer than No. 200) | D6913/T88 | 105.00 | Ea |
| | Sieve Analysis with Hydrometer | D7928 | 195.00 | Ea |
| | Percent finer than No. 200 (washed) | D1140 | 70.00 | Ea |
| | Specific Gravity of Soil | D854/T100 | 168.00 | Ea |
| | Moisture Content | D2216/T265 | 15.00 | Ea |
| | Organic Content | D2974/T267 | 78.00 | Ea |
| | Organic Classification Using Atterberg Method | D2487 | 170.00 | Ea |
| | Wet Organic Content | T194 | 156.00 | Ea |
| | TxDOT 121E pH Lime Series Curve | TxDOT 121E | 260.00 | Ea |
| | TxDOT 128E pH Determination | TxDOT 128E | 52.00 | Ea |
| | pH | D4972/T289 | 52.00 | Ea |
| | pH | G51 | 42.00 | Ea |
| | Soil Resistivity | T288 | 220.00 | Ea |
| 3 Strength and Behavioral Properties | | | | |
| | One Dimensional Consolidation Test - Includes laboratory e-log and p-curve | D2435/T216 | 640.00 | Ea |
| | Swell Test | D4546 | 360.00 | Ea |
| | Unconfined Compression Test | | | |
| | Undisturbed Samples (includes dry density) | D2166/T208 | 120.00 | Ea |
| | Using Rimac on ss samples | | 20.00 | Ea |
| | Triaxial Strength Testing | | | |
| | TxDOT 117E Texas Triaxial | TxDOT 117E | 1,800.00 | Ea |
| | Unconsolidated, Undrained (UU) (Q) | D2850/T296 | 178.00 | Pt |
| | Consolidated, Undrained (CU) (R) | D4767/T297 | | |
| | Per Point | | 495.00 | Ea |
| | Additional Multi-Stage Points | | 285.00 | Ea |
| | Consolidated, Drained (CD) | D7181 | | |
| | Per Point | | 675.00 | Ea |
| | Additional Multi-Stage Points | | 285.00 | Ea |
| | Direct Shear | D3080/T236 | | |
| | Non-cohesive | | 275.00 | per point |
| | Cohesive | | 375.00 | per point |
| | Hydraulic Conductivity Tests | | | |
| | Triaxial Flexible Wall | D5084 | 395.00 | Ea |
| | Rigid Wall | D2434/T215 | 310.00 | Ea |
| | Thermal Conductivity | | | |
| | 5-pt Curve | D5334 | 935.00 | Ea |
| | Single Point | | 168.00 | per point |
| | Rock Core | | | |
| | Description/photo | | 88.00 | Box |
| | Unconfined Compression Test | D7012 Method C | 95.00 | Ea |
| | Direct Shear | D3080 | 285.00 | Ea |
| | Remolding Samples | D3080 | | |
| | Samples for Consolidation, Swell, or Direct Shear | | 65.00 | Ea |
| | Samples for QU, UU, CU, or Hydraulic Conductivity | | 95.00 | Ea |
| 4 Chemical Testing | | | | |
| | Total Sulfates | C1580/T290 | 58.00 | Ea |
| | Chlorides | T291 | 58.00 | Ea |
| Field Services | | | | |
| | Nuclear Density Equipment | D2922/T130 | 80.00 | Day |
| | Sand Cone Equipment & Materials per Test | D1556/T191 | 52.00 | Test |
| | Drive Tube Equipment | D2937 | 28.00 | Day |
| | Settlement Plates | D6598 | 375.00 | Ea |



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| GPS Unit | | 50.00 | Day |
|-------------------------------|--|-------------------|----------------------|
| CONCRETE TESTING | | ASTM/AASHTO | Price Unit |
| Laboratory Services | | | |
| 1 Compressive Strength | | | |
| | Cylinders - 4"x8", 3"x6" (Cast by SCI, Tested or held in reserve) | C39/T22 | 22.00 Ea |
| | Cylinders - 6"x12" (Cast by SCI, Tested or held in reserve) | C39/T22 | 30.00 Ea |
| | Cylinders - Cast by Others (Tested or held in reserve) | C39/T22 | 38.00 Ea |
| | 2" x 4" Cylinder | C780 | 22.00 Ea |
| | 2" x 2" Cube | C109/T106 | 22.00 Ea |
| | Drilled Cores (including sawcutting one end) | C42/T24 | 68.00 Ea |
| | CLSM w/Density | D4832 | 98.00 Ea |
| | Sawcut Cylinders (If ends are not in compliance with ASTM standards) | C39 | 30.00 Ea |
| | Nominal 4" x 4" x 8" Grout Sample | C39 | 48.00 Ea |
| | Concrete Masonry Unit | C140 | 116.00 Ea |
| | 2 Cylinder Molds Purchased Separately (4x8 or 6x12) | | 2.00 Ea |
| | 3 Flexural Strength - 6" x 6" x 21" or 24" beam | C78/T97 | 98.00 Ea |
| | 4 Shrinkage/Length Change of Hardened Concrete (Set of 3) | C157/C490 | 560.00 Ea |
| | Alkali-Silica Reactivity - Accelerated Mortar-Bar Method | C1260/C1567 | 1,560.00 Ea |
| | 5 Mix Design/Verification (does not include aggregate tests) | | |
| | Trial Mix Verification (1-point, includes 6 cylinders) | C192 | 1,800.00 Ea |
| | Trial Mix (includes 3-point w/c ratio relationship & 18 cylinders) | | 4,200.00 Ea |
| | 6 Masonry Mortar Mix Test | | 635.00 Ea |
| | 7 Aggregate Characteristics | | |
| | TxDOT 110E Gradation | TxDOT 110E | 98.00 Ea |
| | Sieve Analysis | C136/T27 | 75.00 Ea |
| | Washed Sieve Analysis (includes percent finer than No. 200) | | 105.00 Ea |
| | Washed Sieve Analysis (percent finer than No. 200 only) | C117/T11 | 70.00 Ea |
| | Rapid Turnaround (Stove drying) | | 50.00 Add |
| | Add for samples with nominal maximum sizes greater than 1" | | 30.00 Add |
| | Unit Weight and Voids in Aggregate | C29/T19 | 95.00 Ea |
| | Specific Gravity and Absorption of Coarse Aggregate | C127/T85 | 130.00 Ea |
| | Specific Gravity and Absorption of Fine Aggregate | C128/T84 | 165.00 Ea |
| | Clay Lumps and Friable Particles in Aggregate | C142/T112 | 138.00 Ea |
| | MoDOT Deleterious Determination | TM71 | 85.00 Ea |
| | Surface Moisture in Fine Aggregate | C70 | 33.00 Ea |
| | Soundness (sodium sulfate) | C88/T104 | 610.00 Ea |
| | Soundness (magnesium sulfate) | C88/T104 | 510.00 Ea |
| | TxDOT 116E Wet Ball Mill | TxDOT 116E | 480.00 Ea |
| | Resistance to Abrasion | C131 | 660.00 Ea |
| | Flat & Longated, Flat or Elongated | D4791 | 65.00 Ea |
| | Lightweight Particle | C123/T113 | |
| | Fine Aggregate (2.0SG) | | 120.00 Ea |
| | Coarse Aggregate (2.0SG) | | 188.00 Ea |
| | Coarse Aggregate (2.4SG) | | 338.00 Ea |
| | Organic Impurities in Fine Aggregate for Concrete | C40/T21 | 140.00 Ea |
| | Sand Equivalent | D2419/T176 | 85.00 Ea |
| | 8 Concrete Core Thickness | C174/T148 | 26.00 Ea |
| | 9 Potential Alkali Reactivity of Aggregates (Mortar-Bar Method) | C1260/C1587/C1105 | 990.00 Ea |
| Field Services | | | |
| | 1 Quality Control (includes determination of slump and air content, making cylinders and retrieval) | | |
| | Field Testing | C31/T23 | Per Rate Schedule Hr |
| | 2 Concrete Batch Plant Inspection by Registered Professional Engineer (NRMCA Certification) | | Upon request |
| | 3 Climate Controlled Site Initial Curing Box | | 950.00 Month |
| In-Place Testing | | | |
| | 1 Rebound Hammer Tests | C805 | Per Rate Schedule Hr |
| | 2 Windsor Probe Penetration Tests | C803 | |
| | Field Testing | | Per Rate Schedule Hr |
| | Equipment | | 160.00 Day |
| | Probes (set of three) | | 100.00 Ea |
| | 3 Coring (350.00 minimum) | | |
| | Field Testing | | Per Rate Schedule Hr |
| | Bit Wear | | 6.00 Inch |
| | Coring Machine | | 125.00 Day |
| | 4 Floor Flatness | E1155 | |
| | Field Testing | | Per Rate Schedule Hr |
| | Dipstick Floor Profiler | | 200.00 Day |
| | 5 Vapor Emission Test | F1869 | 75.00 Ea |
| | Field Testing | | Per Rate Schedule Hr |
| | 6 Relative Humidity Loggers in Floor Slab | F2170 | 82.00 Ea |



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September 19, 2024
SCI No. 2024-1657

| | | | Per Rate Schedule | Hr |
|------------------------------------|---|--------------------|-------------------|-------------|
| | Field Testing | | | |
| 7 | Ground Penetrating Radar-Concrete Scanning (4 hour minimum charge) | | 300.00 | Hr |
| ASPHALTIC CONCRETE TESTING | | ASTM/AASHTO | Price | Unit |
| Laboratory Services | | | | |
| 1 | Bitumen Content | | | |
| 2 | Extraction | D2172/T164 | | |
| | Asphalt Content | | 325.00 | Ea |
| | Asphalt Content and Gradation | | 375.00 | Ea |
| 3 | Ignition Oven | | | |
| | Asphalt Content | D6307/T308 | 225.00 | Ea |
| | Asphalt Content and Gradation | D6307/D5444 | 285.00 | Ea |
| 4 | Bulk Specific Gravity | D2726/T166 | 50.00 | Ea |
| 5 | Maximum Theoretical Specific Gravity | D2041/T209 | 150.00 | Ea |
| 6 | Aggregate Correction Factor Determination for Asphalt Ignition Oven | D6307 | 875.00 | Ea |
| 7 | Asphalt Core Thickness | D3549 | 22.00 | Ea |
| Field Services | | | | |
| 1 | Commercial Placement Observation (includes determining maximum density of field mix, monitoring density, estimating thickness, and recording temperature) | | | |
| | Field Testing | D2950 | Per Rate Schedule | Hr |
| | Nuclear Density Equipment | | 80.00 | Day |
| 2 | Coring (350.00 minimum) | | | |
| | Field Testing | | Per Rate Schedule | Hr |
| | Bit Wear | | 4.00 | Inch |
| | Coring Machine | | 125.00 | Day |
| SPECIAL INSPECTIONS TESTING | | | | |
| 1 | Structural Steel Observations (includes visual weld inspection, bolt torque determination, and Skidmore-Wilhem bolt tension calibrator) | | | |
| | Field Inspection | AWS D1.1 | Per Rate Schedule | Hr |
| | Equipment | | 65.00 | Day |
| 2 | Nondestructive Testing | | | |
| | Ultrasonic Inspection | | | |
| | Field Testing | AWS D1.1 | Per Rate Schedule | Hr |
| | Equipment | | 175.00 | Day |
| 3 | Magnetic Particle Inspection | | | |
| | Field Testing | E1444/E709 | Per Rate Schedule | Hr |
| | Equipment | | 90.00 | Day |
| 4 | Dye Penetrant Inspection | E165 | Upon Request | |
| 5 | Welding Operator Qualifications And Inspection (includes welder performance verification and guided bend test) | AWS D1.1 | Upon Request | |
| 6 | Adhesion testing of epoxied items into concrete and masonry (includes pullout testing of epoxied anchor bolts and reinforcing steel) | | | |
| | Field Testing | IBC | Per Rate Schedule | Hr |
| | Testing Equipment | | 130.00 | Day |
| 7 | Bond or Tensile Strength Testing (Pull-off Method) | | | |
| | Field Testing | C1583/D4541/D7234 | Per Rate Schedule | Hr |
| | Testing Equipment | | 130.00 | Day |
| 8 | Spray-applied Fireproofing Density Testing | | | |
| | Field Testing | IBC/E605 | Per Rate Schedule | Hr |
| | Lab Testing | | 45.00 | Ea |
| 9 | Spray-applied Fireproofing Cohesion/Adhesion Testing | | | |
| | Field Testing | IBC/E736 | Per Rate Schedule | Hr |
| | Testing Equipment | | 38.00 | Ea |
| 10 | Intumescent Coating Dry Film Thickness (DFT) Testing | | | |
| | Field Testing | IBC | Per Rate Schedule | Hr |
| | Testing Equipment | | 90.00 | Day |
| MILEAGE FOR ALL SERVICES | | | 0.80 | per mile |

This price list is not inclusive of all tests and services: prices for additional tests and services will be provided upon request.



SCI ENGINEERING, INC.
 130 Point West Boulevard
 St. Charles, Missouri 63301
 636-949-8200
 www.sciengineering.com

ACCEPTANCE OF PROPOSAL FOR PROFESSIONAL SERVICES

Project Name: Ballwin Public Works Improvements – Geotechnical Services

Project Number: 2024-1657.10, .G0, .G2 / GMK, EVT

Date: September 22, 2024

Fee: Please indicate your selection by placing a check mark in the appropriate box below:

| | |
|--|--|
| Geotechnical Exploration and Report Preparation | \$13,700.00 <input type="checkbox"/> |
| Advanced Seismic Analysis | |
| Phase I: Shear Wave Velocity Collection and Analysis | \$3,500.00 <input type="checkbox"/> |
| Phase II: Site Specific Hazard Analysis (if needed) | \$3,500.00 <input type="checkbox"/> |
| Private Utility Locate (if needed) | \$2,900.00 <input type="checkbox"/> |
| Geotechnical Engineer of Record Services | Hourly, estimated fee of \$3,000.00 <input type="checkbox"/> |

Please provide formal authorization to proceed by completing, signing, and returning this form. The attached terms and conditions will apply to the services outlined in the accompanying proposal.

Accepted By:

Name and Title: _____ Address: _____

Signature: _____ City, State, Zip: _____

Company Name: _____ Telephone: _____

Date: _____ Email: _____

Party responsible for payment: (if different than Accepted By)

Name and Title: _____ Address: _____

Signature: _____ City, State, Zip: _____

Company Name: _____ Telephone: _____

Date: _____ Email: _____

Report Distribution (Note: Additional printed report copies after final submittal will be billed at \$25.00 each)

Company and Contact Name: _____ Address (Printed) or Email (Electronic): _____ No. Printed Reports _____

NOTICE TO OWNER: (FOR SITES IN MISSOURI ONLY)

FAILURE OF THIS CONTRACTOR TO PAY THOSE PERSONS SUPPLYING MATERIAL OR SERVICES TO COMPLETE THIS CONTRACT CAN RESULT IN THE FILING OF A MECHANIC'S LIEN ON THE PROPERTY WHICH IS THE SUBJECT OF THIS CONTRACT PURSUANT TO CHAPTER 429.RSMo. TO AVOID THIS RESULT YOU MAY ASK THIS CONTRACTOR FOR "LIEN WAIVERS" FROM ALL PERSONS SUPPLYING MATERIAL OR SERVICES FOR THE WORK DESCRIBED IN THIS CONTRACT. FAILURE TO SECURE LIEN WAIVERS MAY RESULT IN YOU PAYING FOR LABOR AND MATERIAL TWICE.



SCI ENGINEERING, INC.
130 Point West Boulevard
St. Charles, Missouri 63301
636-949-8200
www.sciengineering.com

GENERAL TERMS AND CONDITIONS

1. **ACCEPTANCE OF AGREEMENT** The terms and conditions of the agreement between the client and SCI ENGINEERING, INC. (hereinafter called SCI) are detailed below and have been established to allocate risks between both. For the purposes of convenience, the client may choose to orally authorize our service, in which case the client agrees that the verbal agreement constitutes formal acceptance of the terms and conditions detailed below. Subsequent to an agreement by both parties to perform the services, modifications to the terms and conditions are prohibited.

2. **SITE ENTRY** You, the Client, will provide for right of entry of SCI or employees of firms working under the direction of SCI, and all necessary equipment, in order to perform the work. Although SCI will exercise reasonable care in performing its services, the Client understands that use of testing or other equipment may unavoidably cause some damage, the correction of which is not part of this agreement. The client agrees, to the fullest extent permitted by law, to indemnify and hold harmless SCI and its subconsultants against any damages, liabilities, or costs, arising or allegedly arising from procedures associated with testing or investigative activities to the fullest extent permitted by law. If you desire or require us to restore the site to its former condition, upon written request, we will perform such additional work as is necessary and you agree to pay all costs incurred.

3. **SUBSURFACE STRUCTURES OR UTILITIES** The Client will furnish to SCI information identifying the type and location of utility lines and other man-made objects beneath the site's surface. SCI will take reasonable precautions to avoid damaging these man-made objects. You agree to waive any claim against SCI, and to defend, indemnify and hold SCI harmless from any claim or liability for injury or loss allegedly arising from SCI's damaging underground utilities or other man-made objects that were not called to SCI's attention, or which were not properly located on plans furnished to SCI.

4. **SAMPLES** Soil, rock, water, or other samples obtained from the project site are your property. SCI shall preserve such samples for no longer than thirty (30) calendar days after the issuance of any document that includes the data obtained from them, unless other mutually agreed arrangements are documented.

Concrete test specimens will be discarded after testing. If project specification strengths are met, "hold" cylinders will be discarded at that time.

If in SCI's opinion any of the samples collected may be affected by regulated contaminants, SCI shall package such samples in accordance with applicable law and client shall arrange for lawful disposal procedures. SCI shall not, under this agreement, arrange for or be responsible for the disposal of substances affected by regulated contaminants. Furthermore, unless detailed in a specific work scope, SCI is not responsible for any soil cuttings or produced groundwater generated for the purpose of sample collection that may be affected by regulated contaminants that are left at a job site and were generated for the collection of soil and groundwater samples. SCI will, at the client's request, help the client identify appropriate alternatives for the off-site treatment, storage, or disposal of these materials, for additional fees.

5. **GENERAL LIABILITY AND LIMITATION** SCI agrees to hold you harmless and to indemnify you on account of any liability due to bodily injury or property damage to the extent directly caused by our negligent operational acts, but such hold harmless and indemnity will be limited to that covered by our comprehensive general liability insurance. At your request, SCI will provide certificates evidencing such coverage and will purchase additional limits of liability that you may require as a separate cost item to be borne by you.

You shall not be liable to SCI and SCI shall not be liable to you for any consequential damages incurred by either due to the fault of the other, regardless of the nature of this fault, or whether it was committed by you or SCI, their employees, agents, or subcontractors. Consequential damages include, but are not limited to, loss of use, loss of profit, loss of business, loss of income, loss of reputation or any other consequential damage that any party may have incurred from any cause of action, including, but not limited to negligence, strict liability, breach of contract, or breach of warranty.

6. **SHARED RISK ALLOCATION** The Client and SCI agree to allocate certain of the risks so that, to the fullest extent permitted by law, SCI's total aggregate liability to the Client is limited to \$50,000.00 for any and all injuries, damages, claims, losses, expenses, or claim expenses (including attorney's and expert witness' fees) arising out of this AGREEMENT from any cause or causes. Such causes include, but are not limited to, SCI's negligence, errors, omissions, strict liability, statutory liability, breach of contract, breach of warranty, negligent misrepresentation, or other acts giving rise to liability based upon contract, tort, or statute. Higher limits may be available upon request and additional negotiated fee.

Limitations on liability, waivers and indemnities in this Agreement are business understandings between the parties and shall apply to all legal theories of recovery, including breach of contract or warranty, breach of fiduciary duty, tort (including negligence), strict or statutory liability, or any other cause of action. You agree that you will not seek damages in excess of the contractually agreed-upon limitation directly or indirectly through suits against other parties who may join the Consultant as third-party defendant. None of the insurance or indemnity obligations under this agreement shall be deemed to be with a waiver of this limitation of liability provision.

7. **INVOICES** You will make all payments in accordance with SCI's invoices, and payment is due upon receipt of invoice. A fee of 1½ percent per month will be payable on any amounts not paid within thirty (30) days, payment thereafter to be applied first to accrued interest and then to your unpaid amount. You agree to pay invoices under these terms and to bear collection fees, court costs, or any other reasonable expense involved in the collection of amounts not paid.

8. **HAZARDOUS MATERIALS; NOTIFICATION OF AND DISCOVERY OF** When hazardous materials are known, assumed, or suspected to exist at a site, SCI is required to take appropriate precautions to protect the health and safety of its personnel, to comply with applicable laws and regulations, and to follow procedures that SCI deems prudent to help minimize physical risks to employees and the public. You warrant that you have provided to SCI all available information about type and location of known and suspected hazardous materials on, under, or adjacent to the project site.

The discovery of unanticipated hazardous or suspected hazardous materials will constitute a changed condition mandating termination of services if SCI and you are unable to renegotiate the scope of service in a timely manner. SCI will notify you as soon as practically possible should SCI encounter unanticipated hazardous or suspected hazardous materials.

The discovery of unanticipated hazardous or suspected hazardous materials may make it necessary for SCI to take measures that in SCI's professional opinion are needed to help preserve and protect the health and safety of SCI's personnel and of the public, and/or to preserve and protect the environment. As a condition precedent to the provision of service for this project, you agree to

compensate SCI for the additional fees and costs associated with any such measures and further agree to defend, indemnify, and hold harmless from any claim or liability for injury or loss arising from SCI's encountering unanticipated hazardous or suspected hazardous materials.

9. CONTAMINATION OF AN AQUIFER

Unavoidable contamination of soil or groundwater may occur during subsurface exploration, as when drilling or sampling tools penetrate a contaminated area, linking it to an aquifer, underground stream, or other hydrous body not previously contaminated and capable of spreading contaminants. Because subsurface exploration is an essential aspect of the services that SCI will provide on your behalf, you shall indemnify, defend, and hold SCI harmless from any claim or liability for injury or loss which may arise as a result of contamination allegedly caused by subsurface exploration to the fullest extent permitted by law.

10. SITE SAFETY

With respect to project site safety, SCI shall be responsible only for the on-site activities of its employees and subcontractors, and this responsibility shall not be construed to relieve you or the general contractor from your obligation to maintain a safe project site. Neither the professional activities of SCI, nor the presence of SCI's employees or subcontractors shall be construed to imply that SCI has any responsibility for any methods of work performance, procedures, superintendence, sequencing of operations, or safety in, on, or about the project site other than SCI's and SCI's subconsultants. You agree that the general contractor is responsible for project site safety and warrant that this intent shall be made evident in your agreement with the general contractor.

11. CONSTRUCTION COST ESTIMATES

An opinion of construction cost prepared by SCI represents our judgment as a design professional and is supplied for your general guidance only. Since we have no control over the cost of labor and material, nor over competitive bidding or market conditions, we do not guarantee the accuracy of our opinion as compared to other sources, such as, contractor bids of actual cost to the owner.

12. DEFECTS IN SERVICE

You and your personnel, contractors, and subcontractors shall promptly report to SCI any defects or suspected defects in SCI's work, in order that SCI may take prompt effective measures which in SCI's opinion will minimize the consequences of any such defect.

13. TERMINATION

Any or all services being provided for you by SCI under these General Terms and Conditions or under separate contract may be terminated by either party upon seven (7) days prior written notice. In the event of termination, SCI shall be compensated by you for all services performed up to and including the termination date, including reimbursable expenses.

14. FORCE MAJEURE

Any delays or failure of performance by SCI shall not constitute a default under this Agreement, if such delays or failures of performance are caused by occurrences beyond the reasonable control of SCI. Performance under this Agreement shall resume promptly once the cause or delay or failure ceases and SCI's schedule for performance shall be extended to the extent of such delay. Each party shall take reasonable steps to mitigate the impact of any such delay or failure.

15. ENVIRONMENTAL SITE ASSESSMENT

An Environmental Site Assessment is conducted to render an opinion about the possibility of regulated contaminants being present on, in, or beneath the site specifically at the time services were conducted. Client understands that no matter how thorough an Environmental Site Assessment is, SCI cannot know or state factually that a site is unaffected by reportable quantities of regulated contaminants. Furthermore, even if SCI believes that reportable quantities are not present, the client bears the risk that such contaminants may be present or may migrate to the site after the study is complete. Likewise, the client agrees to hold SCI harmless from any claim or liability for injury or loss arising from the unanticipated discovery of hazardous materials or suspected hazardous materials to the fullest extent permitted by law.

16. FAILURE TO FOLLOW RECOMMENDATIONS

SCI disclaims any and all responsibility and liability for problems that may occur during implementation of SCI's plans, specifications, or recommendations when SCI is not retained to observe such implementation.

17. ALTERATION OF INSTRUMENTS OF SERVICE

Client agrees that designs, plans, specifications, reports, proposals, and similar documents prepared by SCI are instruments of professional service, and as such, they may not under any circumstances be altered by any party except SCI. Client warrants that SCI's instruments of service will be used only and exactly as submitted by SCI. Accordingly, Client shall waive any claim against SCI and shall, to the fullest extent permitted by law, indemnify, defend, and hold SCI harmless of any claim or liability for injury or loss arising from unauthorized alteration of SCI's instruments of service.

18. MOLD DISCLAIMER

The services performed by SCI, unless specifically addressed in our scope of services, are not intended to take into account indoor amplification of mold. SCI's services may comment on depth to groundwater and site drainage, but in no instance is this to be interpreted that we were specifically intending to reduce moisture contents and/or humidity measurements within the structure as they may relate to mold. Client understands our services, unless specifically expressed in our work scope, are in no way intended to address the potential for mold infestation, and, as such, agrees to indemnify and hold SCI harmless from any claim alleging that SCI's services caused or aggravated a mold infestation to the fullest extent permitted by law.

19. OTHER PROVISIONS

You agree that this contract is entered into by the parties for the sole benefit of the parties to the contract, and that nothing in the contract shall be construed to create a right or benefit for any third party.

a. You agree that any and all limitations of SCI's liability and indemnifications by you shall include and extend to those individuals and entities SCI retains for performance of the services under this Agreement, including but not limited to SCI's officers, directors, and employees and their heirs and assigns, and SCI's subconsultants.

b. In an effort to resolve any conflicts that arise during or following completion of the project, you and SCI agree that all disputes between us arising out of or related to this Agreement shall be submitted to non-binding mediation as a condition precedent to institution of any formal legal proceeding, unless the parties mutually agree otherwise in writing.

c. THE PARTIES TO THIS CONTRACT HEREBY AGREE TO SUBMIT ANY SUCH DISPUTE TO THE CIRCUIT COURT OF ST. CHARLES COUNTY, STATE OF MISSOURI.

d. Test borings and test pits are an accepted and informative means of subsurface exploration. However, in the nature of things, they cannot indicate with absolute certainty the nature of the subsurface conditions between and sample locations of the exploration and below the termination of the borings or pits. Therefore, a report based on test borings, test pits, or other exploration method cannot ascertain the nature of the subsurface conditions between and beyond the specific sample locations. If conditions different than are indicated in our report come to your attention after you receive the report, it is recommended that you contact SCI immediately to inform SCI completely of what you have discovered and to authorize further evaluation, if appropriate.

e. Any recommendations provided in any correspondence, reports, plans, etc. from SCI are for the exclusive use of our client and are specific to the project covered by this contract. Recommendations provided by SCI are not meant to supersede more stringent requirements of local ordinances.

f. You may not assign this agreement to any other person or entity without the prior written consent of SCI. Any transfer of fifty percent or more of your equity interest or voting interest shall be deemed to be an assignment for this purpose.

g. SCI will perform all services under this agreement using the standard of care ordinarily used by firms performing such services in the locale where the services are being rendered. However, many factors influence the results from those services. As such, SCI expressly disclaims any warranty or guaranty as to the accuracy of such results. SCI's performance shall be solely judged against the foregoing standard of care.

Important Information about This

Geotechnical Engineering Proposal

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Participate in Development of the Subsurface Exploration Plan

Geotechnical engineering begins with the creation of an effective subsurface exploration plan. This proposal starts the process by presenting an initial plan. While that plan may consider the unique physical attributes of the site and the improvements you have in mind, it probably does not consider your unique goals, objectives, and risk management preferences. Subsurface exploration plans that are finalized without considering such factors presuppose that clients' needs are unimportant, or that all clients have the same needs. *Avoid the problems that can stem from such assumptions* by finalizing the plan and other scope elements directly with the geotechnical engineer you feel is best qualified for the project, along with the other project professionals whose plans are affected by the geotechnical engineer's findings and recommendations. If you have been told that this step is unnecessary; that client preferences do not influence the scope of geotechnical engineering service or that someone else can articulate your needs as well as you, you have been told wrong. No one else can discuss your geotechnical options better than an experienced geotechnical engineer, and no one else can provide the input you can. Thus, while you certainly are at liberty to accept a proposed scope "as is," recognize that it could be a unilateral scope developed without direct client/engineer discussion; that authorizing a unilateral scope will force the geotechnical engineer to accept all assumptions it contains; that assumptions create risk. *Manage your risk. Get involved.*

Expect the Unexpected

The nature of geotechnical engineering is such that planning needs to *anticipate the unexpected*. During the design phase of a project, more or deeper borings may be required, additional tests may become necessary, or someone associated with your organization may request a service that was not included in the final scope. During the construction phase, additional services may be needed to respond quickly to unanticipated conditions. In the past, geotechnical engineers commonly did whatever was required to oblige their clients' representatives and safeguard their clients' interests, taking it on faith that their clients wanted them to do so. But some, evidently, did not, and refused to pay for legitimate extras on the ground that the engineer proceeded without proper authorization, or failed to submit notice in a timely manner, or failed to provide proper documentation. *What are your preferences? Who is permitted to authorize additional geotechnical services on your project? What type of documentation do you require? To whom should it be sent? When? How?* By addressing these and similar issues sooner rather than later, you and your geotechnical engineer will be prepared for the unexpected, to help prevent molehills from growing into mountains.

Have Realistic Expectations; Apply Appropriate Preventives

The recommendations included in a geotechnical engineering report are *not final*, because they are based on opinions that can be verified only during construction. For that reason, most geotechnical engineering proposals offer the construction observation services that permit the geotechnical engineer of record to confirm that subsurface conditions are what they were expected to be, or to modify recommendations when actual conditions were not anticipated. *An offer to provide construction observation*

is an offer to better manage your risk. Clients who do not take advantage of such an offer; clients who retain a second firm to observe construction, can create a high-risk “Catch-22” situation for themselves. *The geotechnical engineer of record cannot assume responsibility or liability for a report’s recommendations when another firm performs the services needed to evaluate the recommendations’ adequacy.* The second firm is also likely to disavow liability for the recommendations, because of the substantial and possibly uninsurable risk of assuming responsibility for services it did not perform. Recognize, too, that no firm other than the geotechnical engineer of record can possibly have as intimate an understanding of your project’s geotechnical issues. As such, reliance on a second firm to perform construction observation can elevate risk still more, because its personnel may not have the wherewithal to recognize subtle, but sometimes critically important unanticipated conditions, or to respond to them in a manner consistent with your goals, objectives, and risk management preferences.

Realize That Geoenvironmental Issues Have Not Been Covered

The equipment, techniques, and personnel used to perform a geoenvironmental study differ significantly from those used to perform a geotechnical study. *Geoenvironmental services are not being offered in this proposal. The report that results will not relate any geoenvironmental findings, conclusions, or recommendations.* Unanticipated environmental problems have led to numerous project failures. If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the express purpose of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may be addressed as part of the geotechnical engineering study described in this proposal, the geotechnical engineer who would lead this project *is not* a mold prevention consultant; *none of the services being offered have been designed or proposed for the purpose of mold prevention.*

Have the Geotechnical Engineer Work with Other Design Professionals and Constructors

Other design team members’ misinterpretation of a geotechnical engineering report has resulted in costly problems. Manage that risk by having your geotechnical engineer confer with appropriate members of the design team before finalizing the scope of geotechnical service (as suggested above), and, again, after submitting the report. *Also retain your geotechnical engineer to review pertinent elements of the design team members’ plans and specifications.*

Reduce the risk of unanticipated conditions claims that can occur when constructors misinterpret or misunderstand the purposes of a geotechnical engineering report. Use appropriate language in your contract documents. Retain your geotechnical engineer to participate in prebid and preconstruction conferences, and to perform construction observation.

Read Responsibility Provisions Closely

Clients, design professionals, and constructors who do not recognize that geotechnical engineering is far less exact than other engineering disciplines can develop unrealistic expectations. Unrealistic expectations can lead to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their proposals. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks, thus to encourage more effective scopes of service. *Read this proposal's provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Rely on Your Geotechnical Engineer for Additional Assistance

Membership in the Geoprofessional Business Association (GBA) exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit to everyone involved with a construction project. Confer with a GBA-member geotechnical engineer for more information. Confirm a firm's membership in GBA by contacting GBA directly or at its website.



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