



October 10, 2022

City of McKinney
221 N Tennessee St
McKinney, Texas 75069

Attn: Patricia L. Jackson, PE, RAS
Facilities Construction Manager

**Re: Construction Materials Observation, Engineering, and Testing Services
McKinney Municipal Complex (MMC)
East Virginia Street & Throckmorton Street, McKinney, Texas
Terracon Consultants Inc. Proposal No. PAV221052.Rev.1**

Dear Ms. Jackson,

Thank you for selecting Terracon Consultants, Inc. (Terracon) to provide construction materials testing, observation services, or special inspection services for the above referenced publicly funded project. We are presenting this budget estimate to confirm our understanding of the services to be performed for this project, to obtain written authorization to provide these services, and to present the estimated fee to provide these services. The following sections outline our understanding of the project and provide a description of the tasks to be performed.

A) PROJECT INFORMATION

Topic	Overview Statement
Proposed Structures	New 6-Story Municipal Building at East Virginia and Throckmorton Street in McKinney, Texas 75069 Floor Area – Approximately 270,000 square feet New Central Utility Plant Building
Foundation Types	<ul style="list-style-type: none"> • Drilled straight-shaft piers bearing in the underlying gray limestone • Pavilion piers will bear in tan limestone
Structure	<ul style="list-style-type: none"> • Level 1: 2-way reinforced concrete slab-on-void • Levels 2-6: 2-way reinforced concrete slabs on post-tensioned beams • Cast-in-place concrete columns • Structural steel canopies and pavilion

Dallas
8901 John W. Carpenter Freeway #100
Dallas, TX 75247
(214) 630-1010

Fort Worth
1801 Handley Ederville Road
Fort Worth, TX 76118
(817) 268-8600

Frisco
5908 Stone Creek Drive #120
Lewisville, TX 75056
(469) 347-6000

Proposal for Construction Materials Testing Services

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Terracon was provided with the following construction documents for preparation of this proposal:

- Preliminary Civil Drawings by Parkhill dated August 18, 2022
- Preliminary Structural Drawings by Parkhill dated September 1, 2022
- Specifications dated July 14, 2022
- Geotechnical Report 94215293 by Terracon dated December 21, 2021 and associated Addendum
- Pogue DRAFT Construction Schedule

B) WHY TERRACON?

Construction Materials Testing & Special Inspection Services

Our team of inspectors, technicians, and engineers is experienced with providing materials testing, special inspections, and/or observations of concrete, soils, aggregate, masonry, structural steel, foundations, fireproofing, and asphalt pavement in the local area and are familiar with the recognized building jurisdiction requirements.

Laboratory Capabilities

Our DFW Metro laboratories are accredited by AASHTO Re:source which is recognized by ASTM E329 Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection. The scope of accreditation includes the field of Soils, Aggregates, and Portland Cement Concrete. As a requirement of accreditation, we regularly participate in the Proficiency Sample Programs of both AASHTO Re:source and the Cement and Concrete Reference Laboratory (CCRL). Our office includes a fully equipped laboratory and employs engineering technicians and special inspectors certified by many agencies including the American Concrete Institute (ACI), American Welding Society (AWS), and the International Code Council (ICC). We provide a rigorous internal training program where our staff are evaluated in specific field and laboratory test procedures by internal Terracon auditors and external agencies.

- Accredited by AASHTO Materials Reference Laboratory (AMRL)
- Inspected by Concrete and Cement Reference Laboratory (CCRL)
- Validated by United States Army Corps of Engineers (USACE)

C) SCOPE OF SERVICES

Based on our review and understanding of the documents listed above, Terracon proposes the following scope of services:

Earthwork Observations and Testing:

- Sample materials to be used as building fills, utility trench backfill, wall backfill, general fill, and pavement subgrades. Prepare and test the samples for Atterberg Limits (ASTM D4318), Minus #200 Sieve (ASTM D1140), and moisture-density relationship (ASTM D698).
- Observe proofrolling operations of the building pad and paving subgrades.

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- Perform in-place moisture and density tests of the building fills, utility trench backfills, wall backfill, general fill, and pavement subgrades using the nuclear method (ASTM D6938) to determine the moisture content and percent compaction of the soil materials.
- Perform field gradations on the pulverized lime soil mixture to document the percent of soil passing through the required sieve sizes at a rate of one test per 10,000 square feet after the final pulverization process has been completed.
- Perform lime depth checks to verify the actual in-place depth of the lime treatment at a rate of one test per 10,000 square feet, once the pavement has been trimmed to the final grade.
- Perform a laboratory lime series from on-site soils using the PI and/or pH method.

Drilled Straight Shaft Pier Observation and Testing:

- Monitor the installation of the drilled pier foundation system including verification of the depth to bearing strata, required and actual depth of penetration into the bearing strata for each pier, total depth of piers, pertinent elevations (if provided by the field engineer), plumbness of the drilled pier hole excavation, cleanliness of bearing surface at completion of drilling, etc.
- Record dimensions and the number, size and length of reinforcing bars used.
- Sample the fresh concrete and perform required tests, including slump, air content, unit weight, ambient and concrete temperature, and cast test specimens (5 cylinders per 100 cy or fraction thereof per mix per day) during placements (ASTM C172, C31, C143, C231, and C1064).
- Perform compressive tests of concrete test cylinders cast in the field (ASTM C617, C39).

Cast-in-Place Concrete Observations and Testing:

- Sample and test the fresh concrete for each mix. Perform tests for slump, air content, ambient and concrete temperatures, and unit weight; and cast test specimens (ASTM C172, C31, C143, C231, C1064, C138). Terracon understands that the contractor will be responsible for maintaining the initial field curing temperature of the concrete test specimens.
- We have assumed the concrete will be sampled at a frequency of one set of five test cylinders every 100 cubic yards or fraction thereof per mix per day for all structural concrete. Terracon requests that a copy of the approved mix design(s) be provided to us prior to placement of the concrete.
- Perform compressive strength tests of concrete test cylinders cast in the field (ASTM C31, C39). Five 4" x 8" concrete cylinders will be prepared for structural concrete having nominal maximum size aggregate of 1 inch or less. One cylinder will be tested at 7 days, three cylinders will be tested at 28 days, and one cylinder will be tested at 56 days (if the 28-day cylinders do not meet the specified strength) or at an age requested by others.

Reinforcing & Post-Tension Steel Observation and Testing:

- Verify the size, number and placement of reinforcing and post-tension steel and check general form dimensions prior to placement of concrete, per construction drawings.
- Observe and log the stressing and measure and log the elongation of each post-tension tendon.
- Sample grout injected into bonded tendon system, transport within 24 hours, cure and perform compressive strength testing of one set of six 2"x2"x2" grout cubes per day of placement or at frequency specified by others.
- Terracon recommends scheduling a minimum of 24 hours prior to concrete placement.

Anchor Bolt Observations:

- Verify the bolt diameter, length, shape, and embedment in concrete. The contractor has the responsibility to schedule this observation prior to placement of concrete. In those cases where anchor bolts are drilled and epoxied into existing concrete foundations, Terracon should be contacted to be present during installation of the bolts in order to verify the bolt hole size, depth, and cleanliness as well as the application of epoxy and installation of bolts.

Masonry Observations and Testing:

- Provide a qualified technician for periodic field observation during load-bearing CMU wall construction.
- Sample mortar for compressive strength testing. (6 mortar cubes 2"x2"x2" per 5,000 SF wall area)
- Sample grout for compressive strength testing. (6 grout prisms 3"x3"x6" per 5,000 SF wall area)

Structural Steel Observations and Testing:

- Terracon recommends that the general contractor schedule a pre-erection meeting to discuss the erection sequence, review welding and bolting requirements and to review welder certification records.
- Provide a Certified Welding Inspector (CWI) in the field to visually observe accessible field bolted/welded connections in accordance with applicable AISC and AWS standards.
- Perform visual inspections of elevated metal decking for placement including overlap, fastener spacing, supports at openings and penetrations, and puddle welds pattern, size and quality.
- Terracon will observe any shear studs in association with composite concrete decks for number, pattern, and bond.
- Perform visual inspections of completed accessible welds to verify that the welds meet the visual acceptance criteria of AWS D1.1.

Sprayed Fire Resistive Material and Intumescent Mastic Fireproofing:

- Periodically provide visual inspection of Sprayed Fire Resistive Material (SFRM).
- Perform thickness, density, and bond adhesion/cohesion tests on SFRM applied to structural members at frequencies and in accordance with applicable specified test standards (ASTM E605, E736).
- Perform thickness tests on Intumescent Mastic Fireproofing applied to structural members at frequencies and in accordance with applicable specified test standards (IBC 1704.11).

Floor Flatness/Levelness Testing:

- Perform floor flatness/levelness testing in accordance with ASTM E1155.

Firestopping:

- Provide an IFC certified inspector to observe the firestopping materials that are installed in the field.

Project Management and Administration:

- A project manager will be assigned to the project to review the daily activity and assist in scheduling the work. Field and laboratory tests will be reviewed prior to submittal. The project manager will be responsible for monitoring the project budget and will oversee the preparation of the final report.

Special Inspections Letter:

- Upon completion of our services, a special inspection letter will be prepared, if requested. The letter will list services Terracon performed and if our results and/ or observation were in compliance.

D) REPORTING

Results of field tests will be submitted verbally to available personnel at the site. Written reports of field tests and observations will be distributed within five business days. Test reports will be distributed via electronic distribution unless otherwise requested. Please provide Terracon with a report distribution list prior to the beginning of the project. The list should include the company name, address, contact person name, phone number, and e-mail address for each person.

Our reported test locations will typically be estimated by pacing distances and approximating angles and elevations from local control data (staking and layout lines) provided by others on site. The accuracy of our locations will be dependent on the accuracy, availability and frequency of the control points provided by the client and/ or contractor.



E) SCHEDULING

Field testing services will be provided on an "as requested" basis when scheduled by your representative. A minimum of 24-hour notice is required to properly schedule our services. To schedule our services please contact our dispatcher at (817) 591-4907. The dispatch office hours are from 7:00 a.m. to 5:00 p.m. Messages left after business hours will be checked the following business day.

Terracon shall not be held responsible for tests not performed as a result of a failure to schedule our services or any subsequent damage caused as a result of a lack of testing. Terracon recommends that a copy of this proposal be provided to the general contractor, so they understand our scope of services and schedule us accordingly. Please note that the number of tests and trips described in the Scope of Services does not constitute a minimum or maximum number of tests or trips that may be required for this project.

Scheduling Retests:

It is the responsibility of your representative to schedule retests in a like manner to scheduling our original services. Terracon shall not be held responsible for retests not performed as a result of a failure to schedule our services or any subsequent damage caused as a result of a lack of retesting.

Additional Observation and Testing Services:

If you would like us to perform additional observation and testing services, please contact us and we will issue a short Supplement to Agreement form, or Supplemental Proposal, that outlines the additional work to be performed and associated fees. To authorize us to begin additional Observation and testing services, you simply return a signed copy of the Supplemental agreement.

F) COMPENSATION

Based on the project information available for our review and our experience with similar projects we propose an estimated budget of **\$375,854.00** for the services outlined in this proposal. Services provided will be based on the unit rates included in the attached budget estimate. Please note that this is only a budget estimate and not a not-to-exceed price. Many factors beyond our control, such as weather and the contractor's schedule, will dictate the final fee for our services.

For services provided on an "as requested" basis, overtime is defined as all hours in excess of eight hours per day or outside of the normal hours of 7:00 a.m. to 5:00 p.m. Monday through Friday, and all hours worked on weekends and holidays. Overtime rates will be 1.5 times the hourly rate quoted.



A two-hour minimum charge is applicable to all trips made portal to portal (our laboratory) to provide our testing, observation and consulting services. A minimum charge is not applicable for trips to the project site for sample pickup only. All labor, equipment and transportation charges are billed on a portal-to-portal basis from our office.

You will be invoiced on a monthly basis for services actually performed and/or as authorized or requested by you or your designated representative. Terracon's total invoice fee is due within thirty days following final receipt of invoice. Quantities and costs associated with re-tests, cancellations and stand-by time are not included in our estimated fee.

G) SITE ACCESS AND SAFETY

Client shall secure all necessary site related approvals, permits, licenses, and consents necessary to commence and complete the services and will execute any necessary site access agreement. Terracon will be responsible for supervision and site safety measures for its own employees but shall not be responsible for the supervision or health and safety precautions for any third parties, including Client's contractors, subcontractors, or other parties present at the site.

H) TESTING AND OBSERVATION

Client understands that testing and observation are discrete sampling procedures, and that such procedures indicate conditions only at the depths, locations, and times the procedures were performed. Terracon will provide test results and opinions based on tests and field observations only for the work tested. Client understands that testing and observation are not continuous or exhaustive and are conducted to reduce – not eliminate - project risk. Client agrees to the level or amount of testing performed and the associated risk. Client is responsible (even if delegated to contractor) for notifying and scheduling Terracon so Terracon can perform these services. Terracon shall not be responsible for the quality and completeness of Client's contractor's work or their adherence to the project documents, and Terracon's performance of testing and observation services shall not relieve contractor in any way from its responsibility for defects discovered in its work or create a warranty or guarantee. Terracon will not supervise or direct the work performed by contractor or its subcontractors and is not responsible for their means and methods.

I) AUTHORIZATION

This proposal for services and accompanying limitations shall constitute the exclusive terms, conditions and services to be performed for this project. This proposal is valid only if authorized within sixty days from the listed proposal date.

Proposal for Construction Materials Testing Services

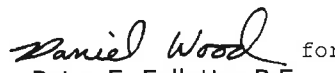
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East Virginia Street & Throckmorton Street, McKinney, Texas
October 10, 2022 ■ Terracon Proposal No. PAV221052.Rev.1



We appreciate this opportunity to continue working with you and we look forward to another successful project together.

Sincerely,
Terracon Consultants, Inc.
(Texas Registration No. F-3272)


Jonathan P. O'Connor, PMP
Senior Associate

 for
Peter E. Falletta, P.E.
DFW Regional Materials Manager

Attachments:

(1) Budget Estimate



BUDGET ESTIMATE
McKinney Municipal Complex
E. Virginia at Throckmorton Street, McKinney, TX 75069
Terracon Proposal No. PAV221052.Rev.1
10/10/2022

Service	Quantity	Unit	Unit Rate	Estimate
BUILDING				
Earthwork Observation and Testing (Grade Beam/ Void Backfill)				
Soils Technician, hour (min. 2 hours)	128	hour	\$65.00	\$8,320.00
Soils Technician, (Overtime)	20	hour	\$97.50	\$1,950.00
Vehicle Charge	32	trip	\$60.00	\$1,920.00
Moisture Density Relationship (ASTM D698)	4	each	\$175.00	\$700.00
Sieve Analysis (Minus 200) (ASTM D1140)	4	each	\$25.00	\$100.00
Atterberg Limits (ASTM D4318)	4	each	\$60.00	\$240.00
Nuclear Density Gauge	32	day	\$50.00	\$1,600.00
			Sub-total	\$14,830.00
Foundation Observation and Testing (Drilled Straight Shaft)				
Foundation Technician, (min. 2 hours)	294	hour	\$75.00	\$22,050.00
Foundation Technician, (Overtime)	140	hour	\$112.50	\$15,750.00
Vehicle Charge	42	trip	\$60.00	\$2,520.00
Concrete Test Cylinders (ASTM C39)	150	each	\$21.00	\$3,150.00
			Sub-total	\$43,470.00
Reinforcing & Post-Tension Steel Observation and Concrete Testing				
Reinforcing Steel/Concrete Technician, (min. 2 hours)	644	hour	\$56.00	\$36,064.00
Reinforcing Steel/Concrete Technician, (Overtime)	228	hour	\$84.00	\$19,152.00
Post-Tension Observation, (min. 2 hours)	240	hour	\$65.00	\$15,600.00
Post-Tension Observation, (Overtime)	30	hour	\$97.50	\$2,925.00
Grout Cubes	30	each	\$18.00	\$540.00
Vehicle Charge	230	trip	\$60.00	\$13,800.00
Concrete Test Cylinders (ASTM C39)	838	each	\$21.00	\$17,598.00
			Sub-total	\$105,679.00
Masonry				
Masonry Technician, (min. 2 hours)	40	hour	\$75.00	\$3,000.00
Masonry Technician, (Overtime)	10	hour	\$112.50	\$1,125.00
Vehicle Charge	10	trip	\$60.00	\$600.00
Mortar Cubes	60	each	\$18.00	\$1,080.00
Grout Prisms	60	each	\$35.00	\$2,100.00
			Sub-total	\$7,905.00
Structural Steel Observation				
Certified Welding Inspector (CWI), (min. 2 hours)	192	hour	\$125.00	\$24,000.00
Vehicle Charge	48	trip	\$60.00	\$2,880.00
			Sub-total	\$26,880.00
Fireproofing				
Fireproofing Technician, (min. 2 hours)	40	hour	\$110.00	\$4,400.00
Vehicle Charge	10	trip	\$60.00	\$600.00
Density of Sprayed Applied Fireproofing	20	each	\$50.00	\$1,000.00
Bond Strength Testing	20	each	\$100.00	\$2,000.00
			Sub-total	\$8,000.00
Firestopping Observation				
Firestopping Inspector, (min. 2 hours)	72	hour	\$125.00	\$9,000.00
Vehicle Charge	18	hour	\$60.00	\$1,080.00
			Sub-total	\$10,080.00
Floor Flatness				
Floor Flatness Technician, (min. 2 hours)	72	hour	\$125.00	\$9,000.00
Vehicle Charge	18	hour	\$60.00	\$1,080.00
			Sub-total	\$10,080.00



BUDGET ESTIMATE

McKinney Municipal Complex

E. Virginia at Throckmorton Street, McKinney, TX 75069

Terracon Proposal No. PAV221052.Rev.1

10/10/2022

Service	Quantity	Unit	Unit Rate	Estimate
SITWORK				
Earthwork Observation and Testing				
Soils Technician, hour (min. 2 hours)	360	hour	\$65.00	\$23,400.00
Soils Technician, (Overtime)	80	hour	\$97.50	\$7,800.00
Vehicle Charge	90	trip	\$60.00	\$5,400.00
Moisture Density Relationship (ASTM D698)	8	each	\$175.00	\$1,400.00
Sieve Analysis (Minus 200) (ASTM D1140)	8	each	\$25.00	\$200.00
Lime Series Determination (Atterberg Limits, 5 points)	3	each	\$300.00	\$900.00
Atterberg Limits (ASTM D4318)	8	each	\$60.00	\$480.00
Nuclear Density Gauge	90	day	\$50.00	\$4,500.00
			Sub-total	\$44,080.00
Reinforcing Steel Observation and Concrete Testing				
Concrete Technician, (min. 2 hours)	348	hour	\$56.00	\$19,488.00
Concrete Technician, (Overtime)	218	hour	\$84.00	\$18,312.00
Vehicle Charge	139	trip	\$60.00	\$8,340.00
Concrete Test Cylinders (ASTM C39)	970	each	\$21.00	\$20,370.00
			Sub-total	\$66,510.00
ADMINISTRATION				
Senior Project Engineer	16	hour	\$225.00	\$3,600.00
Senior Project Manager	176	hour	\$145.00	\$25,520.00
Project Assistant	118	hour	\$70.00	\$8,260.00
Vehicle Charge	16	trip	\$60.00	\$960.00
			Sub-total	\$38,340.00
Estimated Project Total				\$375,854.00