

EXHIBIT "C"
HIDALGO COUNTY, TEXAS
Agreement #C-18-220-09-25- Work Authorization Form

WORK AUTHORIZATION NO. 1

THIS WORK AUTHORIZATION is made pursuant to and in accordance with the terms and conditions of the Agreement between Hidalgo County, Texas ("County" or "Owner") and Terracon Consultants, Inc., a Delaware Corporation ("Laboratory"), for construction material testing and laboratory services on the 24th day of September, 2018 ("Agreement") for the Hidalgo County Courthouse Project ("Project").

PART 1. WORK DESCRIPTION

The purpose of this Work Authorization is for the Laboratory to provide under the Agreement Services, generally described as follows:

Construction Material Testing and Laboratory Services for New Hidalgo County Courthouse Project

The specific scope of services to be provided by the Laboratory is identified in Work Authorization **EXHIBIT "A" - Scope of Services by the Laboratory** contained within Laboratory's Proposal dated July 23, 2018 attached hereto ("Services").

PART 2. PRICE

The lump sum price for all Services under this Work Authorization is **\$ 370,177.50** ("Price"). This amount is based upon the lump sum price in the Proposal attached hereto **EXHIBIT "C" - Proposal** and includes any and all costs and expenses necessary to completely, properly and timely provide all Services of this Work Authorization.

PART 3. PAYMENT

Payment to the Laboratory for the Services established under this Work Authorization that have been completely, properly and timely provided shall be made in accordance with the terms of the Agreement and any specific additional payment terms in the Proposal to which the Owner agrees.

PART 4. FUNDING

This Work Authorization No. 1 shall be funded through funding source:

Account No. _____

Requisition Number _____ (MUST BE INCLUDED AFTER CC APPROVAL)

PART 5. PERIOD OF SERVICE

The Services shall be provided according to Work Authorization **EXHIBIT "B" - Work Schedule**. This Work Authorization shall become effective on the date of final acceptance of

the parties hereto, and terminate upon the proper completion of the Services, unless the Services are terminated earlier by the County made with or without cause.

PART 6. RESPONSIBILITIES AND OBLIGATIONS

Laboratory shall be responsible for completely, properly and timely providing all Services. This Work Authorization and the Services are subject to all applicable terms and conditions of the Agreement. This Authorization does not waive the parties' responsibilities and obligations provided under the Agreement.

PART 7. ACKNOWLEDGEMENT AND CONFIRMATION

The Program Manager for the Project has reviewed and recommends approval of this Work Authorization.

BY: _____

For: Jacobs Project Management Co. (Program Manager)

PART 8. LIMITATIONS, ACCEPTANCE AND APPROVAL

This Work Authorization is hereby accepted and approved by Hidalgo County, Texas:

- a) Approval for Price of \$50,000.00 or less: by Owner's Designated Representatives Valde Guerra, Michael Leo and Sergio Cruz when acting jointly and unanimously on behalf of the Owner with respect to this Work Authorization or any such other County employee that the County shall designate with prior notice to the Laboratory;
or
- b) Approval for Price greater than \$50,000.00: by Commissioners' Court on _____ as indicated below by signature of County Judge.

[Signature page follows.]

Effective Date: _____

THE LABORATORY:
Terracon Consultants, Inc.

THE OWNER:
Hidalgo County, Texas
(\$50,000.00 or less)

By:

By: Valde Guerra

By: Michael Leo

By: Sergio Cruz

ATTEST:

THE OWNER:
Hidalgo County, Texas
(more than \$50,000.00)

By: Arturo Guajardo, Jr., County Clerk

By: Ramon Garcia, County Judge

LIST OF ATTACHMENTS

Work Authorization EXHIBIT "A" -
Work Authorization EXHIBIT "B" -
Work Authorization EXHIBIT "C" -

Scope of Services by Laboratory under this Work Authorization
Work Schedule
Proposal

EXHIBIT A

PROPOSED SCOPE OF SERVICES FOR CONSTRUCTION MATERIALS OBSERVATION AND TESTING

HIDALGO COUNTY COURTHOUSE TERRACON PROPOSAL NO. P88181128

The proposed scope of services provided by Terracon is described below. The purpose of these services is to observe various components of the construction and conduct specific tests to determine whether or not the materials and construction comply with the project requirements. These services are designed to provide a level of quality assurance (QA) for the client and are not intended to replace quality control (QC) tests and procedures required by the contractors and their suppliers. Terracon requires a complete set of construction plans and specifications approved for construction and any addenda or revisions approved during the construction process that would affect the construction related to the requested QA services.

If additional services are needed, Terracon should be contacted and requested to modify our proposed scope and estimated cost. The contractor has the responsibility to be familiar with the project requirements and to contact Terracon a minimum of 24 hrs. (one business day) prior to the time our services will be required. Terracon is not responsible for providing specified services if the client does not authorize Terracon to provide the services or if the contractor does not provide adequate notification for our scheduling purposes.

Terracon will provide construction observations and testing services requested by the client as described in our "Scope of Services" in general accordance with the normal standard of care. Our scope of services does not include any design, design review, construction safety, trench safety, construction supervision, or construction management services. Terracon personnel do not have the responsibility or authority to stop the contractor's work, or to accept or reject any construction materials or workmanship, even if they do not comply with the project requirements.

CITY OF EDINBURG SPECIAL INSPECTION ITEMS

The City of Edinburg (COE) Special Inspection program requires that developers retain a "Third Party Special Inspector" to provide construction materials testing and inspection of various items during the building construction. During the permit application process, construction plans are submitted to the city for review. During this process, the plan reviewer identifies those items that will require special inspection and testing and completes a checklist that is issued along with the building permit. Terracon provides construction materials testing and observation services for a majority of the items on the COE Special Inspection Checklist. (We do not provide surveying services, or some other services occasionally required by the City of Edinburg.) A brief summary of the scope of services that Terracon provides (when authorized and requested) for those items on the COE Special Inspection Checklist is provided below. Terracon is not responsible for providing specified services if the client does not authorize Terracon to provide the services or if the contractor does not provide adequate notification for our scheduling purposes. Since the nature, frequency, and extent of our inspection services is determined by our client, Terracon is

not responsible for verifying that the City of Edinburg inspection requirements are met. A complete and final version of the applicable project designs and specifications must be provided in advance of the request and authorization for testing and inspection. Any testing or inspection requested or authorized without supplying the final plans and specifications for those items should not be relied upon as providing meaningful information relating to those items not provided. Terracon is not responsible for making areas containing materials required for inspection accessible or for the performance of any building components unable to be observed due to inaccessible areas or inadequate scheduling of services by the contractor.

1. **Steel (Section 05 12 10, 05 31 23, 05 36 00, and 05 31 23)** – The Terracon scope of services includes visual observations of completed field welds and spot checks of weld sizes. Weld slag should be removed from all field welds prior to scheduling the weld observation. The contractor has the responsibility to schedule these services in a timely manner such that full access is available to all welds. The Terracon scope of services does not include shop fabrication inspection, inspection of welded connections completed during shop fabrication, inspection of joint fit-up and welding procedures/techniques or verification of framing for conformance with field erection tolerances. In addition, the Terracon scope of services includes visual observations of selected bolted connections and spot checking of tightness of randomly selected bolts with a torque wrench when the specifications include bolt torque requirements. These services will be provided on a periodic basis.

2. **Concrete (Section 03 20 00, and 03 08 13)** – The Terracon scope of services includes sampling concrete, and conducting slump and concrete compressive strength tests. Terracon personnel do not have the authority to accept or reject concrete even if it does not comply with the project specifications. The contractor has the responsibility to reject concrete that does not comply with the specifications or is unsuitable for use. Terracon will typically make 4-inch diameter, 8-inch high cylinders for compressive strength testing whenever the aggregate size allows. When larger aggregate is used in the concrete or when the client requires 6-inch diameter, 12-inch high cylinders, a surcharge will be applied for each cylinder made and tested. We will rely on the contractor or his concrete supplier to provide adequate facilities for initial (and field) curing of test cylinders as required by ASTM C 31 test procedures.

The Terracon scope of services also includes observations prior to the placement of concrete at the project, rebar and post-tensioned cable observations will be performed by a PTI Certified Engineering Technician on an as requested basis. Cable elongation observation and measurements will be performed post concrete placement when scheduled by the contractor or other party.

The Terracon scope of services related to anchors cast in concrete includes verification of 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.

- 3. Soils (Section 31 23 00, 31 23 33, and 31 22 00)** – The Terracon scope of services includes sampling and testing of soils, periodic observation of earthwork operations, and moisture-density testing of subgrade and compacted fills. The Terracon scope of services also excludes sampling, testing and evaluation of materials below shallow foundations to determine whether or not they are adequate to achieve the design bearing capacity. The adequacy of shallow footing subgrade soils will be based on recommendations in the geotechnical engineering report (or structural engineer's notes if a geotechnical engineering report is not provided) and visual observations of the foundation excavation bottom.
- 4. Cast-in-Place Deep Foundations (Section 31 63 29)** – The Terracon scope of services includes observing the pier diameter, depth, bearing stratum, and accessible reinforcing steel. Our scope also includes sampling and compressive strength testing of concrete used in the construction of piers. The Terracon scope of services does not include verification of horizontal locations or elevations of piers or any other structural members. While we will attempt to observe final placement of reinforcing steel, client recognizes that the scheduling of pier construction and speed of construction are not within Terracon's control. As a result, it is possible that reinforcing steel for some piers may be observed prior to final placement and that the sequence and schedule will require our technicians to move on to other pier construction activities prior to the final placement of the reinforcing steel. As a result, final position of reinforcing steel may change after our observation. Unless specifically requested by the client and necessary staffing is authorized, we are not responsible for verifying the final in-place position of reinforcement steel or any variances that may occur after we have observed the pier. The Terracon scope of services also excludes sampling, testing and evaluation of materials at or below the bearing surface of deep foundation elements to determine whether or not they are adequate to achieve the design bearing capacity. The adequacy of the bearing stratum soils will be based on recommendations in the geotechnical engineering report (or structural engineer's notes if a geotechnical engineering report is not provided) and our visual observations of the excavated material or bearing surface at the bottom of the deep foundation element. The Terracon scope of services excludes measurement and reporting of concrete volumes in each deep foundation element.
- 5. Structural Masonry (Section 04 22 00, 04 21 13, 04 05 23, and 04 05 13)** – The Terracon scope of services includes visual observation of reinforcing steel placement for both vertical and horizontal bond beam reinforcing steel and observation of grout placement in vertical cells and horizontal bond beams. The sequence of construction may require that these services be provided on a full-time basis during masonry construction in order to have the opportunity to observe the reinforcing steel and grout placement. Our scope of services also includes periodic sampling and compressive strength testing of grout, when required by the project specifications and requested by the client. The contractor is responsible for scheduling observations as frequently as necessary to allow for observation of all vertical and bond beam reinforcing steel and grout placement. The Terracon scope of services does not include observation/verification of the protection of

masonry structures during cold or hot weather.

6. **Floor Flatness & Levelness (Section 03 35 00)** – A representative will visit the site the day after placement of the floor slab sections for determination of flatness (Ff) and levelness (Fl) values for the slab using a Face Dipstick.
7. **Fireproofing Testing and Inspection (Section 07 81 16)** – A representative will visit the site and test thickness and density of spray fire resistive materials applied to structural members in general accordance with ASTM E605. We will also perform bond adhesion and cohesion testing in accordance with ASTM E736.
8. **Curtain Wall Field Testing (Section 08 44 13)** – Terracon will perform water penetration testing in general accordance with AAMA 501.2 *“Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing”* as follows:
 - Coordinate preparedness of the test specimens with the designated representatives prior to test dates. The fees herein assume that the subject assemblies will be ready for testing (including full sealant cure) upon our arrival, that all interior finishes and insulation surrounding the window test specimens will be removed or not yet installed for a distance of at least twelve inches around the specimens prior to our arrival at the project site.
 - Terracon anticipates performing one site visit over one day in order to complete the specified testing in general accordance with AAMA 501.2. The test areas shall be selected by the Client. Terracon anticipates testing up to 250 linear feet of fenestration jointing depending on the size, location and difficulty of each specimen.
 - Provide a written report that summarize all test data.
9. **Concrete Floor Moisture Testing (Section 07 16 04)** – A representative will visit the site after placement of the floor slab sections for determination of RH moisture testing in general accordance with ASTM F2170.

EXHIBIT B

PROPOSED SCHEDULELINE FOR CONSTRUCTION MATERIALS OBSERVATION AND TESTING

HIDALGO COUNTY COURTHOUSE TERRACON PROPOSAL NO. P88181128

Project documents available for review at the time of this proposal include:

- Proposal Schedule – dated July 11, 2018
- Construction Plans (Architectural, Civil and Structural) & Project Specifications – dated June 27, 2018 (preliminary).

Terracon's services will be performed on an as-requested basis with scheduling by the Client or the client's designated representative. Terracon will not be responsible for scheduling our services and will not be responsible for tests or observations that are not performed due to failure to schedule our services on the project. Since our personnel will not be at the site on a resident basis, it will be imperative that we be advised when work is in progress. Services should be scheduled a minimum of 24 hours in advance. Scheduling personnel will be on an as-available basis which may require changes in personnel assigned to the project. For instances of short-notice requests, personnel may have to be utilized which have a higher rate than those normally assigned and this higher cost may be passed on to the client.

All requests for services should be submitted to the Pharr, Texas office at the following phone number: (956) 283-8254. Services should not be scheduled through our field personnel. We recommend the scope of services described in this proposal be provided to the person(s) responsible for scheduling our services so they are aware of the services that are proposed.

EXHIBIT C

COST ESTIMATE FOR CONSTRUCTION MATERIALS OBSERVATION AND TESTING

HIDALGO COUNTY COURTHOUSE TERRACON PROPOSAL NO. P88181128

Our scope of services will be determined by your authorization for specific services as requested by your project superintendent or other representative. Charges for our services will be based on the quantities of services provided and the unit rates shown on the attached "Exhibit C." Additional services that may be requested (but are not included in the attached cost estimate) can be provided or upon request. The cost of our services will be determined by the construction schedule and the quantity of services provided. Based on our review of the construction plans and specifications and our experience with similar construction projects and information provided by the contractor, our fee estimate to provide the proposed scope of services is **\$370,177.50**. Many factors, including those out of our control, such as weather and the contractor's schedule, responses to requests for information, and how often we are called to the site, will dictate the final fee for our services. Furthermore, all costs associated with deviations, re-testing and re-inspections of failing items, on-site standby time, overtime, and short-notice premiums are not included in our estimated cost. We recommend that a contingency fee of **\$52,900** (about 15% of the estimated fee) be added to the contract. **Please recognize that this is an estimate. Terracon will only invoice for the actual services and required laboratory services which are required/requested to fulfill the project's needs.**

The applicable field rate will be invoiced for all hours worked, including travel time, report and sample preparation. Technician time will be invoiced on a portal-to-portal basis from our office. Overtime rates of 1.5 times the regular hourly rates will be charged for time worked outside normal workday hours of 8:00 am to 5:00 pm and over eight (8) hours per day, Monday through Friday and all day Saturday. Hours worked on Sunday, or holidays will be invoiced at the rate of 2.0 times the regular hourly rates. A minimum three (3)-hour charge will be invoiced per visit to the project site, Project Management/Clerical services will be invoiced on hours worked, unless otherwise noted on the attached below spreadsheet. Hours will be rounded up to the next whole number.

Earthwork Observation/Testing				
Service	Quantity	Unit	Unit Rate	Estimate
Moisture/Density Curve (ASTM D698)	12	Each	\$ 225.00	\$ 2,700.00
Moisture/Density Curve (ASTM D1557)	2	Each	\$ 250.00	\$ 500.00
Atterberg Limits (ASTM D4318)	15	Each	\$ 60.00	\$ 900.00
Sieve Analyses (ASTM C136 & C117)	15	Each	\$ 70.00	\$ 1,050.00
Nuclear Gauge Fee	140	Each	\$ 40.00	\$ 5,600.00
Senior Technician, Regular Rate	525	Hour	\$ 65.00	\$ 34,125.00
Senior Technician, Overtime Rate	75	Hour	\$ 97.50	\$ 7,312.50
Vehicle Trip Charge	75	Per Trip	\$ 30.00	\$ 2,250.00
Subtotal, Earthwork				\$ 54,437.50

This estimate is based on providing one density test per 2,500 square feet of building pad subgrade, a minimum of 3 density tests per 6 inch lift for building select fill with an estimated building pad select fill thickness not to exceed 6 feet, and one density test per 100 linear feet of trench backfill as required by the project specifications. We are **assuming** a full-time technician for the duration of 10/1/2018 through 12/7/2018 (60 days). Additional trips are assumed on an 'as needed' basis.

Drilled Pier Observation				
Service	Quantity	Unit	Unit Rate	Estimate
Senior Technician, Regular Rate	480	Hour	\$ 65.00	\$ 31,200.00
Senior Technician, Overtime Rate	120	Hour	\$ 97.50	\$ 11,700.00
Concrete Cylinders, (ASTM C31 & C39)	250	Each	\$ 15.00	\$ 3,750.00
Vehicle Trip Charge	50	Per Trip	\$ 30.00	\$ 1,500.00
Project Engineer	5	Hour	\$ 125.00	\$ 625.00
Subtotal, Drilled Piers				\$ 48,775.00

This estimate is based on **the proposal** schedule of 50 days to complete the pier drilling.

Reinforcing Steel Observation				
Service	Quantity	Unit	Unit Rate	Estimate
Engineering Technician, Regular Rate	180	Hour	\$ 55.00	\$ 9,900.00
Engineering Technician, Overtime Rate	0	Hour	\$ 82.50	\$ -
Vehicle Trip Charge	60	Per Trip	\$ 30.00	\$ 1,800.00
Subtotal, Reinforcing Steel				\$ 11,700.00

This estimate is based on 60 trips for reinforcing steel observation.

Concrete Observation/Testing				
Service	Quantity	Unit	Unit Rate	Estimate
Engineering Technician, Regular Hours	1000	Hour	\$ 55.00	\$ 55,000.00
Engineering Technician, Overtime Hours	120	Hour	\$ 82.50	\$ 9,900.00
Concrete Cylinders, (ASTM C31 & C39)	1100	Each	\$ 15.00	\$ 16,500.00
Vehicle Trip Charge	280	Per Trip	\$ 30.00	\$ 8,400.00
Subtotal, Concrete				\$ 89,800.00

This estimate is based on 140 trips for concrete observation and testing. This estimate also includes 140 trips to the project site to pick up concrete test cylinders cast the previous day.

Floor Flatness Observation/Testing				
Service	Quantity	Unit	Unit Rate	Estimate
Senior Technician, Regular Rate	200	Hour	\$ 65.00	\$ 13,000.00
Senior Technician, Overtime Rate	0	Hour	\$ 97.50	\$ -
Floor Flatness Equipment	25	Per Day	\$ 150.00	\$ 3,750.00
Vehicle Trip Charge	25	Per Trip	\$ 30.00	\$ 750.00
Subtotal, Floor Flatness				\$ 17,500.00

This estimate is based on 25 trips for floor flatness observation/testing.

Structural Masonry Observation/Testing				
Service	Quantity	Unit	Unit Rate	Estimate
Mortar Cube (ASTM C780 & C109)	270	Each	\$ 10.00	\$ 2,700.00
Grout Prisms (ASTM C1019)	180	Each	\$ 15.00	\$ 2,700.00
Non-Shrink Grout (ASTM C1019)	20	Each	\$ 15.00	\$ 300.00
Masonry Technician, Regular Rate	300	Hour	\$ 55.00	\$ 16,500.00
Masonry Technician, Overtime Rate	60	Hour	\$ 82.50	\$ 4,950.00
Vehicle Trip Charge	90	Per Trip	\$ 30.00	\$ 2,700.00
Subtotal, Masonry				\$ 29,850.00

This estimate is based on **an assumed** schedule of 45 trips to complete the CMU block installation and the project specifications requiring full-time observation, which includes the reinforcing steel observation. This estimate also includes 45 trips to the project site to pick up masonry samples cast the previous day. The contractor's schedule was not available for our review.

Structural Steel Observation				
Service	Quantity	Unit	Unit Rate	Estimate
Visual & Bolt Torque, CWI, Regular Rate	300	Hour	\$ 90.00	\$ 27,000.00
Visual & Bolt Torque, CWI, Overtime Rate		Hour	\$ 135.00	\$ -
Vehicle Trip Charge	60	Per Trip	\$ 30.00	\$ 1,800.00
Subtotal, Structural Steel				\$ 28,800.00

This estimate is based on 5 hour trips for structural steel observation. This estimate does not include shop inspection or non-destructive testing of welded connections.

Spray Applied Fireproofing (SFRM) Observation /Testing				
Service	Quantity	Unit	Unit Rate	Estimate
Senior Technician, Regular Rate	100	Hour	\$ 65.00	\$ 6,500.00
Senior Technician, Overtime Rate	20	Hour	\$ 97.50	\$ 1,950.00
SFRM Density Test (ASTM E605)	10	Each	\$ 50.00	\$ 500.00
SFRM Cohesion/Adhesion Test (ASTM E736)	10	Each	\$ 50.00	\$ 500.00
Vehicle Trip Charge	10	Per Trip	\$ 30.00	\$ 300.00
Subtotal, Spray Applied Fireproofing				\$ 9,750.00

This estimate is based on 10 trips for spray applied fireproofing thickness, density and bond strength testing. This estimate includes the collection of 10 samples of the spray applied fireproofing for density measurements and 10 cohesion /adhesion tests.

Concrete Floor Slab RH Testing				
Service	Quantity	Unit	Unit Rate	Estimate
Senior Technician, Regular Rate	140	Hour	\$ 65.00	\$ 9,100.00
Senior Technician, Overtime Rate	20	Hour	\$ 97.50	\$ 1,950.00
In-situ RH Probes (ASTM F2170)	120	Each	\$ 80.00	\$ 9,600.00
SFRM Cohesion/Adhesion Test (ASTM E736)	10	Each	\$ 50.00	\$ 500.00
Vehicle Trip Charge	40	Per Trip	\$ 30.00	\$ 1,200.00
Subtotal, Concrete Floor Slab RH Testing				\$ 22,350.00

This estimate is based on 20 trips for installation of In-situ RH Probes. This estimate includes 20 trips after

Post Tension (PTI)				
Service	Quantity	Unit	Unit Rate	Estimate
Senior Technician, Regular Rate	70	Hour	\$ 65.00	\$ 4,550.00
Senior Technician, Overtime Rate	0	Hour	\$ 97.50	\$ -
Vehicle Trip Charge	18	Per Trip	\$ 30.00	\$ 540.00
Subtotal, Through Penetration Fire Stop				\$ 5,090.00

This estimate is based on 18 trips for post tension pre-pour inspection and measure tendon elongation

Curtain Wall Field Testing				
Service	Quantity	Unit	Unit Rate	Estimate
Curtain Wall Field Testing	1	Lump Sum	\$ 16,500.00	\$ 16,500.00
Subtotal, Through Penetration Fire Stop				\$ 16,500.00

This estimate is based on 1 trip to perform air and water testing at 3 locations. Does not include retesting. Contractor provides swing stage, lift, and water source.

Project Management	300	Hour	\$ 90.00	\$ 27,000.00
Clerical	100	Hour	\$ 45.00	\$ 4,500.00
Senior Principal, P.E.	25	Hour	\$ 165.00	\$ 4,125.00

ESTIMATE TOTAL				\$ 370,177.50
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