



June 19, 2017

MTP No. 0662-5117

Mr. Carlos Fernandez  
Central Unified School District  
4605 North Polk Avenue  
Fresno, California 93722

**Project:** Tilley Elementary School  
2251 N. Valentine Avenue  
Fresno, California 93722

**Subject: Proposal for Construction Inspection and Materials Testing Services**

Dear Mr. Fernandez:

We appreciate the opportunity to submit this proposal for construction inspection and materials testing services for the Tilley Elementary School project to be located at 2251 N. Valentine Ave. in the City of Fresno, California. This proposal presents our understanding and a brief description of the project, our scope of services, our estimated fees, scheduling details, our assumptions, exclusions, and closing statements.

Moore Twining Associates, Inc. (Moore Twining), established in 1898, has provided engineering and testing services for more than 119 years. Moore Twining is certified as a Disabled Veterans Business Enterprise (DVBE) by the Office of Small Business & Disabled Veteran Business Enterprise Services (OSDS). Our DVBE certification number is 16472. Our firm is certified by the State of California Division of State Architect (DSA), Laboratory Evaluation and Acceptance Program (LEA #065 Fresno, #200 Sand City, #201 Sacramento and #278 Riverside). Our firm is also approved as an inspection agency by the American Association of State Highway Transportation Officials (AASHTO), the State of California Department of Transportation (CALTRANS), the Cement and Concrete Reference Laboratory (CCRL) and the City of Los Angeles. Moore Twining has the qualifications and the experience that are required to provide the material testing and inspection services for this project. Moore Twining also participates in various professional organizations.

Moore Twining has the qualifications and the experience that are required to provide the materials testing and special inspections services for this project.

### **PROJECT DESCRIPTION**

Our understanding of the project is based on a review of the plans prepared by TAM+CZ Architects, dated December 1, 201; the specifications prepared by TAM+CZ Architects, dated December 1, 2016; the geotechnical engineering investigation report prepared by Krazan & Associates (Project No. 012-14034), dated May 13, 2014, and DSA Form 103 (Application No. 02-113972) dated 11/29/2016.

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The proposed project will consist of the construction of three new buildings for Tilley Elementary School with a combined square footage of approximately 70,064 square feet. The school is located at 2251 N. Valentine Avenue in Fresno, CA and currently has six (6) portable classroom buildings that will be removed and relocated to a different site, with the exception of the current cafeteria which will be turned into a kindergarten classroom, and the area will be replanted as a play field to match the existing play field adjacent to the north of the portables. The removal, relocation, and grading work for this area will be performed under a separate DSA application and therefore has been excluded from this proposal

Buildings A and B will both be single story structures while Building C will be a larger, two-story structure.

Building A will be supported by both continuous and spread footings with columns comprised of structural steel for the interior columns and structural steel encased in reinforced concrete for the exterior columns supporting the canopy structure along the northeastern side of the building. The walls will consist of metal studs framing and the roof structure will consist of structural steel beams supporting a corrugated metal deck at both the high roof and low roof sections. In addition, there will be a concrete masonry fence constructed at the southwest corner of the building. Building B will be supported by both continuous and spread footings with columns comprised of structural steel for the interior columns and structural steel encased in reinforced concrete for the exterior columns supporting the canopy structure along the northeastern side of the building and two other locations. The walls will consist of metal studs framing and the roof structure will consist of structural steel beams supporting a corrugated metal deck at both the high roof and low roof sections. Building C will be supported by both continuous and spread footings with columns comprised of structural steel for the interior columns and structural steel encased in reinforced concrete for the exterior columns supporting the canopy structure. The second floor will be comprised of a metal deck covered by concrete which will be supported by structural steel beams. The walls will consist of metal studs and the roof structure will consist of structural steel supporting corrugated metal decking at both the high roof and low roof sections. Building C also has an elevator in the center of the building. In addition to the three buildings, new site concrete and asphalt concrete parking lots will be constructed; and utility trenches will be dug and backfilled to provide utility connections to the buildings. There will also be a canopy that lies between Buildings A and B that will have pier foundations and columns consisting of structural steel encased in reinforced concrete with a structural steel roof.

### **SCOPE OF SERVICES**

The scope of testing and inspection services for the project is based upon the requirements of the project plans, specifications, geotechnical engineering investigation report, and the DSA 103 form. It should be noted that a construction schedule was not provided to our firm to prepare this proposal and fee estimate.

Based on our review of the project documents, our services will consist of the observation and testing of earthwork, structural concrete, masonry, and structural steel. A detailed description of the testing and inspection services that are anticipated for this project is provided below.

## **Earthwork**

The earthwork for this project will consist of the overall grading of the areas of excavation including the building pads, elevator pit, interior slabs-on-grade, exterior sidewalk, and asphalt concrete. We will review the geotechnical engineering investigation report and provide comments to the district.

Our scope of services will include observation and testing of the placement and compaction of fill materials, subgrade preparation, and placement and compaction of aggregate base.

Following stripping, demolition activities and fill removal operations, the exposed subgrade in building pad and exterior flatwork areas should be excavated to a depth of at least 12 inches, worked until uniform and free from large clods, moisture conditioned as necessary, and recompact to a minimum of 90 percent of maximum density based on ASTM Test Method D1557. In addition, it is recommended that proposed structural elements be supported by a minimum of 12 inches of engineered fill. If hardpan is encountered, the over-excavation may be terminated at hardpan. Over-excavation should extend to a minimum of 5 feet beyond proposed footing lines. The excavation should be backfilled with engineered fill and compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

Excavations, depressions, or soft and pliant areas extending below planned finish subgrade level should be clean to firm undisturbed soil, and backfilled with engineered fill. Any irrigation lines, septic tanks, debris pits, cesspools, or similar structures should be entirely removed. Concrete footing should be removed to an equivalent depth of at least 3 feet below proposed footing elevations or as recommended by the soils engineer.

The site was previously occupied by an orchard. Several trees and shrubs used to be located throughout the site. Tree and shrub removal operations should include roots greater than 1 inch in diameter. The resulting excavations should be backfilled with engineered fill and compacted to a minimum of 90 percent of maximum density based on ASTM Test Method D1557.

The upper soils, during wet winter months, become very moist due to the absorptive characteristics of the soil. Earthwork operations performed during winter months may encounter very moist unstable soils which may require removal to grade a stable building foundation. Project site winterization consisting of placement of aggregate base and protecting exposed soils during the construction phase should be performed.

Imported fill should be predominantly non-expansive granular material with a plasticity index less than 10 and a UBC Expansion Index less than 15. Imported fill should be free from rocks and clods greater than 4 inches in diameter.

Fill soils should be placed in lifts approximately 6 inches thick, moisture conditioned as necessary, and compacted to achieve at least 90 percent maximum density based on ASTM Test Method D1557. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

Traffic and vibration adjacent to trench walls should be reduced; cyclic wetting and drying of excavation side slopes should be avoided. Utility trench backfill placed in or adjacent to buildings and exterior slabs should be compacted to at least 90 percent of maximum density based on ASTM Test Method D1557. Utility trench backfill placed in pavement areas should be compacted to at least 90 percent of the maximum density based on ASTM Test Method D1557. Pipe bedding should be in accordance with pipe manufacturer's recommendations.

**Special inspection and testing will be required in accordance with DSA-103:**

**1. General:**

- Periodic inspection that the site has been prepared properly prior to placement of controlled fill and/or excavations for foundations, foundation excavations are extended to proper depth and have reached proper material, and materials below footings are adequate to achieve the design bearing capacity.

**2. Compacted Fills:**

- Test fill materials;
- Continuous inspection of materials, lift thicknesses, placement, and compaction during placement of fill;
- Test compaction of fill

**3. Cast-in-Place Deep Foundations (Piers):**

- Continuous inspection of drilling operations and maintain complete and accurate records of each pier;
- Continuous inspection of pier diameters, plumbness, bell diameters (if applicable), lengths, and embedment into bedrock (if applicable);
- Confirm adequate end strata bearing capacity.

Per specifications section 31 23 23, subsection 2.02B, the contractor shall have all imported soils tested and certified by DTSC as clean soil. Testing is to be paid for by the contractor. The testing requirement is waived if the import site has already been cleared by DTSC.

The tasks anticipated for earthwork and the assumed durations are presented in the following table.

<b>Estimated Inspection/Testing Durations for Earthwork</b>			
<b><u>Earthwork Component</u></b>	<b><u>Estimated Trips</u></b>	<b><u>Hours per Trip</u></b>	<b><u>Total Hours</u></b>
Building Pad A	2	8	16
Building Pad B	2	8	16
Building Pad C	3	8	24
Building Pad A Subgrade	1	6	6
Building Pad B Subgrade	1	6	6
Building Pad C Subgrade	1	6	6
Building A Aggregate Base	1	4	4

Building B Aggregate Base	1	4	4
Building C Aggregate Base	1	4	4
Site Concrete Subbase	5	8	40
Site Concrete Aggregate Base	3	6	18
AC Subbase	3	8	24
AC Aggregate base	3	8	24
Utility Trench Backfill Testing	5	8	40
Estimated Inspection Hours:			232

<b>Earthwork Material Tests</b>		
<b>Structural Element</b>	<b>Test</b>	<b>Estimated Quantity</b>
Native Material	Maximum Density and Optimum Moisture	4
Class II Aggregate Base	Maximum Density and Optimum Moisture	1
Utility Trench Bedding	Maximum Density and Optimum Moisture	1

**Cast-In-Place Structural Concrete**

Cast-in-place concrete will be placed for continuous footings, spread footings and slabs on grade for the buildings; and also for the site concrete (exterior sidewalks and monument signs at school entrance). Per the DSA 103 Form for this project, batch plant inspection is also required for this project. The fee estimate in this proposal is based on the modified batch plant inspection requirement which will allow for periodic inspection of the batch plant and not continuous inspection. It has been assumed that the plant providing the concrete complies with DSA 1705A.3.3 Item 1, thus requiring first batch inspection, weighmaster, and batch tickets.

Our scope of services will include inspection of formwork, reinforcing steel, continuous observation of the placement of structural concrete, and sampling and testing of concrete.

**Special inspection and testing will be required in accordance with DSA-103:**

- Periodic verification of use of required mix;
- Perform slump, temperature, air content tests, and sample concrete;
- Test concrete compression strength;
- Test reinforcing steel;
- Periodic inspection of batch plant (if plant complies with 1705A.3.3 Item 1);
- Special Inspection of welding of reinforcing steel;
- Continuous inspection of placement of formwork, reinforcing steel, embedded items; and concrete, inspect curing and form removal.

A set of five (5) 4 inch by 8 inch concrete cylinders will be cast for each 50 cubic yards or fraction thereof for each day that the concrete is placed. The cylinders will be transported to our laboratory and tested for compressive strength. 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 required compressive strength is not met at 28 days. The

temperature tests of the concrete will be measured for each set of compressive strength specimens and one test hourly when air temperature is 40 degrees Fahrenheit and below or 80 degrees Fahrenheit or above.

It is estimated that approximately 2,650 cubic yards of concrete will be required for this project. Based on our review of the project documents, the tasks related to the structural concrete observation and testing and estimated durations are as follows.

<b>Estimated Inspection for Reinforcement of Cast-In-Place Structural Concrete</b>			
<b>Structural Member</b>	<b>Estimated Trips</b>	<b>Hours per Trip</b>	<b>Total Hours</b>
Building A Footings	2	2	4
Building A Slab-on-Grade	1	4	4
Building B Footings	2	2	4
Building B Slab-on-Grade	1	4	4
Building C Footings	2	2	4
Building C Slab-on-Grade	1	4	4
Building C Second Floor Slab	1	4	4
Canopy Footings	1	2	2
Canopy Columns	1	2	2
Site Concrete	3	2	6
Estimated Inspection Hours:			38

<b>Estimated Inspection/Sampling for Cast-In-Place Structural Concrete</b>			
<b>Structural Member</b>	<b>Estimated Trips</b>	<b>Hours per Trip</b>	<b>Total Hours</b>
Building A Footings	2	6	12
Building A Slab-on-Grade	1	6	6
Building B Footings	2	6	12
Building B Slab-on-Grade	1	6	6
Building C Footings	2	6	12
Building C Slab-on-Grade	1	6	6
Building C Second Floor Slab	1	6	6
Canopy Footings	1	4	4
Canopy Columns	1	4	4
Site Concrete	3	4	12
Estimated Inspection Hours:			80

<b>Structural Concrete Material Tests for Cast-in-Place Structural Concrete</b>		
<b>Structural Element</b>	<b>Test</b>	<b>Estimated Quantity</b>
Building A Footings	Concrete Compressive Strength	9 (Set of 5)
Building A Slab-on-Grade	Concrete Compressive Strength	4 (Set of 5)
Building B Footings	Concrete Compressive Strength	4 (Set of 5)
Building B Slab-on-Grade	Concrete Compressive Strength	3 (Set of 5)
Building C Footings	Concrete Compressive Strength	9 (Set of 5)

Building C Slab-on-Grade	Concrete Compressive Strength	7 (Set of 5)
Building C Second Floor Slab	Concrete Compressive Strength	6 (Set of 5)
Canopy Footings	Concrete Compressive Strength	2 (Set of 5)
Canopy Columns	Concrete Compressive Strength	1 (Set of 5)
Site Concrete	Concrete Compressive Strength	14 (Set of 5)
Reinforcing Steel	Bend and Tensile	5

**Post-Installed Anchors**

Post-installed concrete anchors inspection will be required for the wall framing for all buildings for this project.

Our scope of services will include observation for the type and size of the anchor bolts, as well as the diameter, depth, and cleanout of the drilled holes for post-installed anchor bolts. If pull or torque tests are required, these tests can be performed by our firm. The duration for post-installed anchors was not included in the construction schedule; therefore, the duration shown in the table below was estimated.

**Special inspection and testing will be required in accordance with DSA-103:**

- Periodic inspection of post-installed anchors
- Test post-installed anchors.

The following tasks related to the post-installed anchor observation and testing and their estimated durations are as follows:

<b><u>Estimated Inspection/Testing Durations for Post-Installed Anchors</u></b>			
<b><u>Structural Member</u></b>	<b><u>Estimated Trips</u></b>	<b><u>Hours per Trip</u></b>	<b><u>Total Hours</u></b>
Post-Installed Anchors	3	6	18
Estimated Inspection Hours:			18

**Masonry**

Structural Masonry will be used as part of an external fence at the southwest corner of Building A.

Our services will include the inspection and sampling of the reinforcing steel, concrete block, mortar, and grout.

**Special inspection and testing will be required in accordance with the DSA-103:**

- Test reinforcing steel;
- Test masonry units, mortar and grout (unit strength method);
- Verify proportions of site-prepared, premixed or preblended mortar and grout;
- Test core drilled samples;

- Periodic verification of size, location and condition of all dowels, construction supporting masonry etc.;
- Periodic verification of specified size, grade, and type of reinforcement;
- Periodic inspection of placement of reinforcement, connectors, masonry units and construction of mortar joints;
- Periodic verification of protection of masonry during cold weather (temperature below 40 degree Fahrenheit or hot weather (temperature above 90 degree Fahrenheit);
- Continuous inspection of type, size, and location of anchors and all other items to be embedded in masonry including other details of anchorage of masonry to structural members, frames and other construction;
- Continuous inspection of grout space prior to grouting and placement of grout.

Based on the provided plans, the CMU Fence for Building A has a height of 6 feet and an approximate length of 30 feet for a total of approximately 180 square feet. The testing will be performed in accordance with the above DSA-103 requirements. The specifications did not provide sampling or testing frequencies. It was assumed that the mortar will be sampled on the first three (3) days of placement and once a week thereafter. Each type of masonry block will be sampled and tested per 5,000 square feet of wall and grout will be sampled each day it is placed.

Based on our review of the project documents, the tasks related to the structural masonry observation and testing and estimated durations are as follows:

<b><u>Estimated Inspection/Sampling for CMU Walls</u></b>			
<b><u>Structural Member</u></b>	<b><u>Estimated Trips</u></b>	<b><u>Hours per Trip</u></b>	<b><u>Total Hours</u></b>
CMU Walls	1	8	8
Core CMU Walls	1	6	6
Sample Pickup	1	2	2
Estimated Inspection Hours:			16

<b><u>Material Tests for CMU Walls</u></b>		
<b><u>Structural Element</u></b>	<b><u>Test</u></b>	<b><u>Estimated Quantity</u></b>
Mortar	Concrete Compressive Strength	1
Grout	Concrete Compressive Strength	1
Masonry Blocks	Concrete Compressive Strength	1
Compressive Strength of Cores	Concrete Compressive Strength	1

### **Structural Steel, High-Strength Bolts, and Welding**

The structural steel for this project consist of the columns and beams to erect the buildings and canopies at the buildings. Building A will be a single story building with both a low roof and high roof section. Building B will be a single story building with a low roof system only. Building C will be a two story building with structural steel framing for the second floor supporting concrete over metal decking.

Our scope of services includes structural steel and welding inspection at the shop and job site of the proposed project. For estimating purposes, it has been assumed that special inspection will be performed during shop welding, the assembly of the steel members in the field, field welding, erection of steel columns and beams, and the installation of high-strength bolts at the project site.

**Special inspection and testing will be required in accordance with the DSA-103:**

**1. Structural Steel, Cold-Formed Steel, and Aluminum used for Structural Purposes**

- Periodic verification of mill certificates, material sizes, types and grades for compliance with requirements;
- Test unidentified materials;
- Periodic inspection of seam welds of HSS shapes;

**2. High Strength Bolts**

- Continuous verification and documentation of steel fabrication (not applicable to cold-formed steel, except for trusses);
- Periodic inspection of identification markings and manufacturer's certificates of compliance;
- Test high-strength bolts, nuts and washers;
- Periodic inspection of bearing-type ("snug tight") connections;
- Inspection of slip-critical connections (continuous or periodic depends on the tightening method used).

**3. Welding**

- **General:**
  - Periodic inspection of weld filler material identification markings per AWS designation and manufacturer's certificate of compliance;
  - Periodic inspection of WPS, welder qualifications and equipment.
- **Shop Welding:**
  - Continuous inspection of groove, multi-pass fillet welds  $> 5/16"$ , plug and slot welds;
  - Periodic inspection of single pass fillet welds  $\leq 5/16"$ ;
  - Periodic inspection of welding of stairs and railing systems;
  - Periodic verification of reinforcing steel weldability;
  - Continuous inspection of welding of reinforcing steel.
- **Field Welding:**
  - Continuous inspection of groove, multi-pass fillet welds  $> 5/16"$ , plug and slot welds;
  - Periodic inspection of single pass fillet welds  $\leq 5/16"$ ;
  - Periodic inspection of end-welded studs (ASTM A-108) installation (including bend test);
  - Periodic inspection of floor and roof deck welds;
  - Periodic inspection of structural cold-formed steel;
  - Periodic inspection of welding of stairs and railing systems.
- **Anchor Bolts, Anchor Rods, & Other Steel:**
  - Test anchor bolts and anchor rods.

The tasks related to the structural steel observation and testing, and their estimated durations are as follows:

<b>Estimated Inspection/Testing Durations for Structural Steel</b>			
<b>Structural Member</b>	<b>Estimated Trips</b>	<b>Hours per Trip</b>	<b>Total Hours</b>
Fabrication Shop Inspection	9	8	72
Field Welding Inspection	18	8	144
HS Bolting Inspection	12	6	72
Grout Placement	3	8	24
Estimated Inspection Hours:			240

<b>Structural Steel Material Tests</b>		
<b>Structural Element</b>	<b>Test</b>	<b>Estimated Quantity</b>
Non-Shrink Grout	Compressive Strength	3 (Set of 3)
HS Bolt	Wedge, Hardness, and Tensile Strength	2

### Asphalt Concrete

Based on our review of the project requirements, asphalt concrete will be placed in the two new parking lots, the fire lane, and the small area between the existing service yard and the Building A as shown on sheet A0.0 of the plan set.

Our scope of services will consist of observing, sampling and conducting in-place density tests of the asphalt concrete (AC) as it is placed and compacted. Bulk samples will be tested each day to determine the maximum theoretical density of the AC, which will be used to calculate the relative compaction of the AC.

Based on our review of the project documents, the tasks related to asphalt concrete inspection and testing and their estimated durations are shown below.

<b>Estimated Inspection/Sampling for Asphalt Concrete</b>			
<b>Structural Member</b>	<b>Estimated Trips</b>	<b>Hours per Trip</b>	<b>Total Hours</b>
Asphalt Concrete	5	8	40
Estimated Inspection Hours:			40

<b>Asphalt Concrete Material Tests</b>	
<b>Test</b>	<b>Estimated Quantity</b>
Theoretical Maximum Density	5

## **PROJECT COORDINATION, REVIEW, ENGINEERING SUPPORT, AND REPORTING**

In addition to the testing services described above, our firm will also provide engineering support. This support would include reviewing material submittals or certificates of compliance when requested, reviewing inspection reports, reviewing laboratory testing reports, and preparing a final report indicating if the work and materials placed for the project, that were included in our scope of services, are in conformity with the requirements of the project documents.

A Project Manager will be assigned to the project for the services provided by Moore Twining. The Moore Twining Project Manager is solely for managing the services provided by Moore Twining and is not related to any aspect of the actual construction which is the responsibility of the General Contractor. To the extent possible, Moore Twining will have one primary inspector, who is qualified to perform the required testing, assigned to the project to provide continuity and quality assurance for the project. Our Project Manager will work closely with the General Contractor to dispatch the inspectors to the job site when they are needed, verify that the dispatched inspectors are certified to perform the required testing, verify that the required testing is being performed, and verify that deviations are being recorded and tracked until resolved.

A critical part of any inspection for projects is the ability to track and verify correction of structural discrepancies. A "Log of Discrepancies" will be maintained. This log is used to track discrepancies and verify these discrepancies are addressed during construction. If a discrepancy requires an RFI or design change, the discrepancy may need to be tracked for some time.

The tasks related to the project coordination, review, engineering support, and reporting and their estimated durations are as follows:

<b><u>Estimated Engineering Support and Project Management</u></b>	
<b><u>Structural Member</u></b>	<b><u>Total Hours</u></b>
Project Management of Testing and Inspection Services	10
Registered Civil Engineer	6
Registered Geotechnical Engineer	24

## **ESTIMATED FEES**

Our fee estimate to provide the testing and inspection services described in this proposal is presented in Table 1 below.

<b>Table 1 - Fee Estimate to Provide Materials Testing &amp; Inspection Services</b>				
<b>Tilley Elementary School</b>				
<b>2251 N. Valentine Ave, Fresno, California</b>				
<b>Scope Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Price</b>	<b>Price</b>
<b>Earthwork</b>				
Soils Technician	Hour	232	\$92.50	\$21,460.00
Lab Maximum Density (ASTM D1557) 4-inch mold	Test	5	\$125.00	\$625.00
Lab Maximum Density (ASTM D1557) 6-inch mold	Test	1	\$135.00	\$135.00
Mileage, Vehicle and Equipment Charge	Trip	32	\$20.00	\$640.00
<b>Subtotal</b>				<b>\$22,860.00</b>
<b>Cast-In-Place Structural Concrete</b>				
Inspection of Reinforcement	Hour	38	\$98.50	\$3,743.00
Inspection and Sampling of Concrete	Hour	80	\$98.50	\$7,880.00
Concrete Compressive Strength	Set	59	\$80.00	\$4,720.00
Reinforcing Steel Bend & Tension Test	Test	5	\$80.00	\$400.00
Mileage, Vehicle and Equipment Charge	Trip	30	\$20.00	\$600.00
<b>Subtotal</b>				<b>\$17,343.00</b>
<b>Post-Installed Anchors</b>				
Inspector	Hour	18	\$92.50	\$1,665.00
Mileage, Vehicle and Equipment Charge	Trip	3	\$20.00	\$60.00
<b>Subtotal</b>				<b>\$1,725.00</b>
<b>Masonry</b>				
Inspection and Sampling of CMU	Hour	8	\$98.50	\$788.00
Core CMU Walls	Hour	6	\$98.50	\$591.00
Sample Pickup	Hour	2	\$50.00	\$100.00
Compressive Strength	Test	4	\$75.00	\$300.00
Mileage, Vehicle and Equipment Charge	Trip	3	\$20.00	\$60.00
<b>Subtotal</b>				<b>\$1,839.00</b>
<b>Structural Steel, High-Strength Bolts, and Welding</b>				
Shop Inspection	Hour	72	\$55.00	\$3,960.00
Inspector - Structural Steel	Hour	168	\$98.50	\$16,548.00
Comp. Strength Tests on Non-Shrink Grout	Set	3	\$80.00	\$240.00
High Strength Bolt Wedge, Hardness, & Tensile Strength	Test	2	\$190.00	\$380.00
Mileage, Vehicle and Equipment Charge	Trip	42	\$20.00	\$840.00
<b>Subtotal</b>				<b>\$21,968.00</b>
<b>Asphalt Concrete</b>				
Inspection, Testing and Sampling	Hour	40	\$92.50	\$3,700.00
Theoretical Maximum Density	Test	5	\$150.00	\$750.00
Mileage, Vehicle and Equipment Charge	Trip	5	\$20.00	\$100.00
<b>Subtotal</b>				<b>\$4,550.00</b>

<b>Project Coordination, Review, Engineering Support, and Reporting</b>				
Project Manager	Hour	10	\$65.00	\$650.00
Registered Civil Engineer	Hour	6	\$100.00	\$600.00
Registered Geotechnical Engineer	Hour	24	\$120.00	\$2,880.00
<b>Subtotal</b>				<b>\$4,130.00</b>
<b>Total Estimated Fee for Testing and Inspection Services</b>				<b>\$74,415.00</b>

A fee estimate was prepared based on our review of the project documents and our communications. It should be noted that the total fee for our services is directly influenced by the construction schedule, weather conditions, scheduling by the Client, efficiency of the contractor and subcontractors performing the work and other factors outside our control; thus, our fees could be more or less than estimated. Since these items are beyond our control, our services will be provided on a time and materials basis and the estimated fee presented in this proposal should serve as a budget estimate for these services. Moore Twining will only charge for those services performed and billed in accordance with the fees and invoicing section of this proposal. Our firm will notify you of any scope changes that occur during the course of the project if these scope changes increase our fees.

Please note that it has been assumed that there would be no over-time or weekend work for this project and therefore has been excluded in our fee estimate.

**FEES AND INVOICING**

It is our understanding that **this project is subject to State of California prevailing wage** requirements for work performed on site and prevailing wage requirements for work performed off site. Our fees are based on a two-hour minimum billing and two-hour increments thereafter for inspectors, field technicians and engineers portal-to-portal. The rates presented in Table 1 are based on 8-hour workdays, Monday through Friday. Overtime (beyond eight hours per day or after forty hours in five days per week) or premium (including Saturdays) is billed at 150% of our stated hourly rates. Double-time (beyond 12 hours per day) and Sundays or holidays will be billed at 200% of our stated hourly rates. If additional testing is required beyond the scope of this proposal, those services would be billed in accordance with our current 2017 Non-Prevailing Wage Fee Schedule.

An itemized listing of the tests and inspections performed will be provided on each invoice. Payment is due on the 10th of the next succeeding month following the date of invoice and is considered past due thereafter. A finance charge of 1.5% per month service charge (18% per annum) may be assessed on past due accounts.

**DELIVERABLES**

Moore Twining will provide a daily field report for each day that an inspection is performed at off-site fabrication shops and on the project site. These reports will be followed by reports signed by the project manager or project engineer. Laboratory reports will be provided for the materials tested in the laboratory. These reports will be signed by the Laboratory Manager.

Moore Twining will provide a daily field report for each day that an inspection is performed on the project site. These reports will be followed by reports signed by a registered engineer. Copies of reports will be sent to the Central Unified School District and others as directed by the Central Unified School District. In addition, a Geotechnical Verified Report (DSA Form 293) will be prepared and uploaded to DSA BOX as required by DSA upon notice by the Project Inspector. In addition, DSA Form 291 will be issued as required for the project upon notice by the Project Inspector.

Copies of reports will be sent to the Central Unified School District and others as directed by the Central Unified School District.

### **PRECONSTRUCTION MEETING**

It is recommended that a preconstruction meeting be held with the client, the architect, the structural engineer, the general contractor, and the testing laboratory to discuss the details of scheduling, reporting, invoicing, and other issues affecting the project.

### **SCHEDULING**

It is our understanding that a representative of Central Unified School District will be responsible for scheduling the testing and inspection services for the project. Moore Twining can only be responsible for those inspections and tests our firm is notified of either by facsimile or electronic mail. To provide for your schedule, our firm should be notified at least one week prior to the start of construction and a 48-hour notice before each testing and/or inspection event is requested. Inspection services can be scheduled by contacting our Central California office at (559) 268-7021.

### **NOTIFICATIONS AND EXCLUSIONS**

The following items were excluded from our scope of services and our fee estimate:

- Retests, re-inspections, standby time, and cancellations without proper notice;
- Modifications or changes to the project and/or construction schedule after the date of our proposal;
- Compliance testing of asphalt concrete;
- Asphalt concrete mix design;
- Testing of unidentified materials;
- Installation Inspections or Testing of Underground Utilities;
- SWPPP Inspections and monitoring;
- Inspection of landscaping and irrigation systems;
- Inspection and testing of mechanical systems;
- Inspection and testing of electrical systems;
- Testing of Concrete Trial Batches;
- Floor Flatness and Levelness Testing;

- Providing access to all construction elements requiring inspection; and
- Any items not so indicated in this proposal.

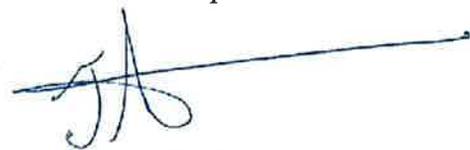
If any of these items are required during the course of the project, upon request, we can provide the aforementioned services and provide associated fees. Moore Twining is a full-service testing and inspection firm capable of meeting your needs on this project. Our estimated fee assumes the contractor will provide access to all construction elements requiring inspection at the time requested by our firm. The contractor is solely responsible for job site safety including excavation safety, support, etc.

### CLOSING REMARKS

We encourage you to consider our firm's full service capabilities and relevant project experience as you proceed with your selection process. It is understood that if this proposal is found to be acceptable, Central Unified School District will sign the attached agreement for our services and return it to our firm to execute. Should you have any questions or comments, or if we may be of any service to you, please contact us at (559) 268-7021.

We sincerely appreciate the opportunity to provide this proposal and look forward to working with Central Unified School District on this project.

Respectfully submitted,  
**Moore Twining Associates, Inc.**  
Construction Inspection Division

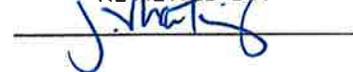


Tyler Street, E.I.T.  
Staff Engineer



Philip Tohme, RCE  
Assistant Division Manager

REVIEWED BY:



# PROFESSIONAL SERVICES AGREEMENT

Between Central Unified School District and **Moore Twining Associates, Inc.**

Agreement entered into in Fresno, California

made this 19<sup>th</sup> day of June, 2017, by and between

**Client**

Name Central Unified School District  
Address 4605 North Polk Avenue  
Fresno, CA 93722  
Phone No. (559) 250-1721  
Fax No.  
Contact Person Mr. Carlos Fernandez

**Consultant**

Name Moore Twining Associates, Inc.  
Address 2527 Fresno Street  
Fresno, California 93721  
Phone No. (559) 268-7021  
Fax No. (559) 268-7126

Central Unified School District (Hereafter referred to as Client) and Moore Twining Associates Inc. agree as follows

- A. Client will retain Moore Twining Associates, Inc. to render certain professional services at the location of:

2251 N. Valentine Avenue, Fresno, California 93722

- B. Moore Twining Associates, Inc., agrees to perform the following scope of services:

Special Inspections and Materials Testing per MTP No. 0662-5217

During the term of this Agreement and subject to the terms and conditions herein set forth, Client will call upon Moore Twining to provide testing services as deemed necessary and as requested by the Client.

- C. Client agrees to compensate Moore Twining for such services as follows:

Per Moore Twining Proposal No. 0662-5217

Moore Twining will perform testing services on a time and materials basis. A finance charge will be added to all balances over thirty days old. The finance charge is computed at a rate of 1.5% per month which is an annual rate of 18%.

IN WITNESS WHEREOF, the parties hereby execute this agreement on the dates and upon the provisions stated.

Client Central Unified School District  
By \_\_\_\_\_  
Name/Title \_\_\_\_\_  
Date Signed \_\_\_\_\_

Consultant Moore Twining Associates, Inc.  
By \_\_\_\_\_  
Name/Title \_\_\_\_\_  
Date Signed \_\_\_\_\_

## PROVISIONS OF AGREEMENT

Moore Twining \_\_\_\_\_ Client \_\_\_\_\_  
MTP \_\_\_\_\_ 0662-5117 \_\_\_\_\_

Central Unified School District and Moore Twining agree that the following provisions shall be part of their agreement:

1. This agreement shall be binding upon the heirs, executors, administrators, successors and assigns of Central Unified School District and Moore Twining. This agreement shall not be assigned by either Central Unified School District or Moore Twining without the prior written consent of the other.
2. All documents produced by Moore Twining under this agreement shall remain the property of Moore Twining and may not be used by Central Unified School District for any other endeavor without the written consent of Moore Twining.
3. Unless otherwise stated, Moore Twining will have access to the Site for activities necessary for the performance of their services. Moore Twining will take precautions to minimize damage due to these activities, but have not included in the fee the cost of restoration of any resulting damage.
4. Unless otherwise specified, this agreement shall be governed by the laws of the State of California.
5. Central Unified School District agrees not to permit any other person to use plans, drawings, or other work product prepared by Moore Twining, which plans, drawings, or other work product are not final and which are not signed, and stamped or sealed by Moore Twining. If Moore Twining's work product exists in electronic or computerized format, or is transferred in electronic or computerized format, the stamp, seal and signature shall be original and may not be a computer-generated copy, photocopy, or facsimile transmission of the original.
6. Central Unified School District agrees that if Central Unified School District requests services not specified pursuant to the scope of services description within this agreement, Central Unified School District agrees to pay for all such additional services as extra work according to Moore Twining's current fee schedule.
7. This agreement may be terminated by the Central Unified School District or Moore Twining should the other fail to perform its obligations hereunder. In the event of termination, Central Unified School District shall pay Moore Twining for all services rendered to the date of termination, all reimbursable expenses, and reimbursable termination expenses.
8. Central Unified School District acknowledges that Moore Twining is not responsible for the performance of work or Site safety by third parties including, but not limited to, the construction contractor and its subcontractors.
9. Central Unified School District shall pay the costs of checking and inspections fees, zoning and annexations applications fees, assessment fees, soils engineering fees, soils testing fees, aerial topography fees, and all other fees, permits, bond premiums, title company charges, blueprints and reproductions, and all other charges not specifically covered by the terms of this agreement.
10. Moore Twining is not responsible for delay caused by activities or factors beyond Moore Twining's reasonable control, including but not limited to, delays by governmental agencies, acts of God, failure of Central Unified School District to furnish timely information or approve or disapprove of Moore Twining's services or work product promptly, faulty performance by Central Unified School District or other contractors or governmental agencies. When such delays beyond Moore Twining's reasonable control occur, Central Unified School District agrees Moore Twining is not responsible for damages nor shall Moore Twining be deemed to be in default of this agreement.
11. Moore Twining shall not be liable for damages resulting from the actions or inactions of governmental agencies including, but not limited to permit processing, environmental impact reports, dedications, general plans and amendments thereto, zoning matters, annexations or consolidations, use or conditional use permits, project or plan approvals, and building permits.
12. Moore Twining makes no representation concerning the estimated quantities and probable costs made in connection with maps, plans, specifications, reports or drawings other than that all such costs are estimates only and actual costs will vary. It is the responsibility of client to verify costs. In addition, estimates of land areas provided under this agreement are not to be considered precise unless consultant specifically agrees to provide the precise determination of such areas.
13. Central Unified School District agrees that in accordance with generally accepted construction practices, construction contractor will be required to assume sole and complete responsibility for job site conditions during the course of construction of the project, including all safety of all persons and property; that this requirement shall be made to apply continuously and not be limited to normal working hours, and client further agrees to defend, indemnify and hold Moore Twining harmless from any and all liability, real or alleged, in connection with the performance of service on this project, excepting liability arising from the sole negligence of Moore Twining.
14. Moore Twining makes no warranty, either expressed or implied, as to its findings, recommendations, plans, specifications, or professional advice except that the service or work product were performed pursuant to generally accepted standards of practice in California in effect at the time of performance.
15. In the event the Central Unified School District agrees to, permits, authorizes, constructs or permits construction of changes in the plans, specifications, and documents or does not follow recommendations or reports prepared by Moore Twining pursuant to this agreement, which changes are not consented to in writing by Moore Twining, Central Unified School District acknowledges that the changes and their effects are not the responsibility of Moore Twining and Central Unified School District agrees to release Moore Twining from all liability arising from the use of such changes and further agrees to defend, indemnify and hold harmless Moore Twining, its officers, directors, principals, agents and employees from and against all claims, demands, damages or costs arising from the changes and their effects.
16. In the event Central Unified School District discovers or becomes aware of changed field or other conditions which necessitate clarification, adjustments, modifications or other changes during any phase of the project, Central Unified School District agrees to notify Moore Twining and engage Moore Twining to prepare the necessary clarifications, adjustments, modifications or other changes to Moore Twining's services or work product before activities commence or further activity proceeds. Further, Central Unified School District agrees to have a provision in its construction contracts for the project which requires the contractor to notify Central Unified School District of any changes in field or other conditions so that Central Unified School District may in turn notify Moore Twining pursuant to this paragraph.
17. Central Unified School District shall indemnify and hold harmless Moore Twining and all of its personnel from and against any and all claims, damages, losses, and expenses (including reasonable attorney fees) arising out of or resulting from the performance of the services, provided that any such claim, damage, loss, or expense is caused in whole or in part by the negligent act, omission, and/or strict liability of Central Unified School District, anyone directly or indirectly employed by the Central Unified School District (except Moore Twining), or anyone for whose acts any of them may be liable.
18. In recognition of the relative risks, rewards, and benefits of the project to both Central Unified School District and Moore Twining, the risks have been allocated such that Central Unified School District agrees that, to the fullest extent permitted by law, Moore Twining's total liability to Central Unified School District and to all contractors and subcontractors for any and all injuries, claims, losses, expenses, damages, or claim expenses arising out of this agreement from any cause or causes, shall not exceed ten (10) times Moore Twining's fee or \$10,000.00 whichever is less. Such causes include, but are not limited to, Moore Twining's negligence, errors, omissions, strict liability, breach of contract, or breach of warranty.
19. (a) Notwithstanding any other provision of the Agreement and except for the provisions of (b) and (c), if a dispute arises regarding Moore Twining's fees pursuant to this contract, and if the fee dispute cannot be settled by discussions between Central Unified School District and

## PROVISIONS OF AGREEMENT

Moore Twining \_\_\_\_\_ Client \_\_\_\_\_  
MTP 0662-5117

Moore Twining, both Central Unified School District and Moore Twining agree to attempt to settle the fee dispute by mediation through the American Arbitration Association [or other mediation service] before recourse to arbitration. If mediation does not resolve the fee dispute, such dispute shall be settled by binding arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association, and judgment upon the award rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof. (b) does not preclude or limit Moore Twining's right to elect to file an action for collection of fees if the amount in dispute is within the jurisdiction of the small claims court. (c) does not preclude or limit Moore Twining's right to elect to perfect or enforce applicable mechanics lien remedies.