Amend **Section 511 - Drilled Shafts** to read as follows:

"SECTION 511 - DRILLED SHAFTS

511.01 Description. This section is for installing, drilling, reinforcing, and concreting of drilled shafts in the locations shown on the plans and in accordance with the Highway Lighting Improvements, Moanalua Freeway Aiea Interchange to Halawa Interchange Geotechnical Recommendations, Technical Memorandum by Geolabs, Inc., March 26, 2020.

511.02 Materials. Materials shall conform to the following:

(A) Portland Cement Concrete. Concrete shall conform to Section 601 - Structural Concrete and Section 511 – Drilled Shafts.

The in-place concrete shall have minimum 28-day compressive strength f'_c = 4500 pounds per square inch and maximum water to cement ratio of 0.40 based on a maximum cementitious material content of 640 pounds per cubic yard.

Proportion the concrete mix designs to get properties of high workability, compaction under self-weight, resistance to segregation, and resistance to excessive bleeding. The maximum nominal aggregate size shall be 0.75 inch. The slump range shall be 7.0 inches ± 1.0 inch for concrete poured into a water free borehole and 8.0 inches ± 1.0 inch for concrete placed under water or under drilling slurry. Slump for the concrete shall be a minimum of four inches after four hours from initial mixing or after the completion of the concrete placement, whichever occurs later. Superplasticizers shall be allowed.

At the time of placement, measured at the point of discharge or at concrete pump, the concrete temperature shall not exceed 85°F. The temperature of the concrete during curing should not exceed 168°F unless the Contractor can justify higher temperatures and it is acceptable to the Engineer.

(B) Reinforcing Steel. Reinforcing steel shall conform to Section 602 - Reinforcing Steel. Federal Aid projects shall comply with "Buy America" requirements.

(C) Casings. Casings shall have inside diameters not less than the required diameter of the shafts and wall thicknesses specified or adequate to withstand construction loads and stresses.

511.03 Preconstruction Requirements.

(A) Installation Plan. At least 30 days before constructing the drilled shafts, submit an installation plan for acceptance by the Engineer. This plan shall at a minimum provide information on the following:

(1) Name and experience record of drilled shaft superintendent who will be in charge of drilled shaft operations for this project. Drilled shaft superintendent shall have minimum three years of experience within the last 10 years in drilled shaft construction similar to type proposed.,

(2) List of proposed equipment such as cranes, drills, augers, bailing buckets, final cleaning equipment, concrete pumps, and casing,

(3) Details of construction operation sequence,

(4) Details of shaft excavation methods including how the excavated material from the drilled shaft will be controlled on site and removed; and method of setting and extracting temporary casing,

(5) If the Contractor plans to use slurry, details of the methods to mix, circulate and desand slurry,

(6) Details of methods to clean the shaft excavation,

(7) Details of reinforcement placement including lifting, support, and centralization methods,

(8) Details of concrete placement including proposed operational procedures for pumping method, and

(9) Proposed concrete mix design, including expected strengths at 3, 7, 14, and 28 days. Submit test results of a trial mix test, a slump loss test, and a unit weight test using two, 6-inch by 12-inch concrete cylinders conducted by an accredited testing laboratory using methods specified in Section 601 - Structural Concrete. Tests shall demonstrate that concrete meets 4-hour plasticity requirement at expected ground ambient temperature and at highest expected ambient air temperature (two separate slump loss tests required).

The Engineer will evaluate the drilled shaft installation plan for conformance with the contract documents. Within 30 days after receipt of the plan, the Engineer will notify the Contractor of additional information required including if applicable, changes necessary to meet the contract requirements. The Engineer will reject parts of the installation plan that are unacceptable. The Contractor shall resubmit changes for re-evaluation within 15 days. The Engineer will have another 30 days to review all resubmittals. Procedural acceptance given by the Engineer shall be subject to trial in the field. The acceptance shall not relieve the

Contractor of the responsibility to complete the work according to the contract.

511.04 Construction Requirement. This subsection shall be applicable to production drilled shafts unless otherwise directed by the Engineer.

(A) Construction Sequence. Complete the excavation to footing elevations before shaft construction begins. Repair the disturbances caused by shaft installation to the footing area before pouring the footing.

When installing drilled shafts with embankment placement, construct drilled shafts after the placement of fills.

Do not cap the drilled shafts before placing the fills as near to final grade as possible. Only leave room for construction of the caps.

Footings are set on the subgrade soil. Pier Caps are constructed on the pier. Footing and pier cap elevations are referenced to the bottoms of the footings and pier caps.

(B) Construction Methods. Excavate for shafts to the dimensions and elevations shown in the contract. Its methods and equipment shall be suitable for the intended purpose and materials met. Use the permanent casing method only when required by the contract or authorized by the Engineer. Blasting shall not be permitted.

(1) Dry Construction Method. The dry method includes drilling the shaft excavation, removing accumulated water and loose material from the excavation, and placing the reinforcing cage and shaft concrete in a dry excavation. Use this method only at sites where the groundwater table and soil conditions are suitable to permit construction of the shaft in a dry excavation. The Engineer will inspect the sides and bottom of the shaft visually before placing the concrete. Dry excavation is defined as an excavation where maximum depth of water does not exceed 3 inches.

(2) Wet Construction Method. This method includes using water, mineral, or polymer slurry to maintain stability of the hole perimeter while advancing the excavation to final depth, placing the reinforcing cage, and concreting the shaft. Use this method at sites where a dry excavation for placement of the shaft concrete cannot be maintained. Contractor needs to use methods, procedures, and equipment to contain all fluids used and generated by this method within the work area. Reusing of drilling water shall not be permitted.

(3) Casing Construction Method. The casing method may be used when shown in the contract or at sites where the dry or wet construction methods are inadequate. The casing may be placed either in a predrilled

hole or advanced through the ground by twisting, driving, before cleaning the casing.

(C) Excavation.

(1) General. Make the shaft excavations at locations, and to shaft geometry and dimensions shown in the contract. A Geotechnical Engineer shall be on site during construction to determine depth to adjust drilled shaft tip elevations based on the soil conditions encountered during drilling. After acceptance by the Engineer, adjust drilled shaft tip elevations when the material met during excavation is unsuitable and/or differs from that anticipated in the design of the drilled shaft.

Maintain a construction method log during shaft excavation. Submit method log within 24 hours of shaft drilling completion. The log shall contain information such as:

(a) Excavation diameters;

(b) Equipment used;

(c) Type of material excavated with the elevations of the material;

(d) Drilling rate (minutes/foot) including time drilling started, when different material is encountered, tool changes, finish of shaft excavation, and difficulties encountered;

(e) The description of and approximate top and bottom elevation of each soil or rock material encountered.

(f) Elevation and approximate rate of any seepage or groundwater; and

(g) Remarks, including temporary stoppages

Contractor shall include marks on the drilling equipment that the inspector can reference to note the drill depth to estimate the drilling rate information and estimated depth of material changes or obstructions during drilling.

Drilling of shafts within a horizontal distance of 3.0 times the shaft diameter to the hole being drilled, measured from center to center, shall not commence until a minimum of 24 hours after the drilled shaft has been completed by placement of concrete to the top of shaft elevation in order to avoid interaction effects between adjacent shafts.

Furnish drilled shaft concrete required to fill excavations for shafts dimensioned in the contract documents.

Any drilled shaft concrete over the theoretical amount required to fill any excavations for the shafts dimensioned on the plans shall be furnished at no additional cost.

Dispose the excavated material according to Section 203 - Excavation and Embankment.

Do not permit workers to enter the shaft excavation unless:

(a) A suitable casing is in place.

(b) The water level is lowered and stabilized below the level the workers will occupy, and

(c) Adequate safety equipment and procedures are provided, performed and in place.

(2) Excavation and Drilling Equipment. The excavation and drilling equipment shall have adequate capacity including power, torque, and down thrust to excavate a hole to the maximum diameter and to a depth of ten feet or 20% beyond the depths shown in the contract, whichever is greater.

The use of special drilling equipment and/or procedures will be necessary to drill through the hard coral, cobbles, boulders, tuff and basalt. The Contractor shall anticipate an abundance of boulders of various sizes and shall make allowance for difficult drilling in his bid.

The excavation and overreaming tools shall be of adequate design, size, and strength to do the work shown in the contract.

(a) Special Drilling Equipment. When conventional earth augers and/or underreaming tools cannot be used for drilling, provide special drilling equipment including rock core barrels, rock tools, air tools and other equipment as necessary to construct the shaft excavation to the size and depth required. The use of special drilling equipment and/or procedures will be necessary to drill through the cobbles, boulders, tuff and basalt and cost shall be incidental to unclassified shaft excavation.

(b) Sidewall Overreaming. When the sidewall of the hole has softened, swelled, or degraded, sidewall overreaming will be required by the Engineer. Overreaming thickness shall be a minimum of 0.5 inch and a maximum of 3.0 inches. The Contractor may overream with a grooving tool or overreaming bucket. The

thickness and elevation of sidewall overreaming shall be according to the contract or as directed by the Engineer. A Geotechnical Engineer shall be on site during construction to determine the thickness and depth of the overreaming. Overream sidewall and place additional shaft concrete at no cost to the State.

(3) Unclassified Excavation. All excavation for the production drilled shafts shall be designated as unclassified. The Contractor shall anticipate the presence of cobbles and boulders within the depths of the drilled shafts. The Contractor shall provide the necessary equipment to remove and dispose of materials encountered in forming the drilled shaft excavation, including installation of temporary casing and/or use of slurry, as necessary. The Engineer will not make separate payment for excavation of materials of different densities and character (hardness) or employment of special tools and procedures necessary to excavate. The Engineer will pay for obstruction removal separately.

(4) Obstructions Removal. Remove obstructions at drilled shafts locations when authorized by the Engineer. Obstructions shall include man-made materials such as but not limited to old concrete foundations not shown on the Plans.

The Contractor shall employ special procedures and/or tools after the Contractor cannot advance the hole using conventional augers fitted with soil or rock teeth, drilling buckets, core barrels and/or underreaming tools. Such special procedures/tools may include: chisels, boulder breakers, air tools, hand excavation, temporary casing, and increasing the hole diameter.

Drilling tools and any other equipment, lost in excavation, are not considered obstructions. Remove the drilling tools and any other equipment promptly. The cost due to tools lost in the excavation shall be at no additional cost to the State including costs associated with hole degradation (requiring overreaming or other methods) due to removal operations or the time the hole remains open or any other remedial actions needed to be performed to correct the situation caused by the tool lost.

Natural materials used as fill materials such as cobbles and boulders shall be anticipated at the site during excavation and shall not be considered an obstruction regardless of the size and hardness of the boulder. These natural materials used as fill materials shall not be considered an obstruction under this section.

(D) Casings.

(1) Temporary Casing. The Engineer will consider subsurface casing temporary unless shown in the contract as permanent casing.

Remove the temporary casing before completing the placing of concrete in the drilled shaft. The Contractor may require telescoping, predrilling with slurry, and/or overreaming to beyond the outside diameter of the casing to install casing.

When choosing to remove a casing and substituting a longer or larger diameter casing through caving soils, stabilize the excavation with slurry or backfill before installing the new casing.

Before withdrawing the casing, the level of fresh concrete in the casing shall be the higher of the following:

(a) Minimum of five feet above the hydrostatic water level, or

(b) Level of drilling fluid, outside the casing.

While withdrawing the casing, maintain an adequate level of concrete within the casing to:

(a) Displace the fluid trapped behind the casing upward and

(b) Discharge the fluid at the ground surface without contaminating or displacing the shaft concrete.

When temporary casings become bound or fouled during shaft construction and cannot be removed, the Engineer will consider the drill shaft defective. Improve such defective shafts according to the contract or submit remedial repair for acceptance by the Engineer. Such improvement may consist of removing the shaft concrete and extending the shaft deeper, providing straddle shafts to compensate for capacity loss, or providing a replacement shaft. Do corrective measures including redesign of pier caps caused by defective shafts according to the contract at no cost to the State or extension of the contract time. Any redesign of the pier cap shall be submitted to the Engineer for acceptance. The redesign shall be performed by a structural engineer and a civil engineer specializing in the geotechnical practice both licensed in the State of Hawaii. All remedial repairs shall have drawings and calculations signed and stamped by both of the above licensed engineers. The Engineer will not pay for the casing remaining in place as well as any redesign or remedial repair.

(E) Slurry. Drilling slurry will not be allowed.

(F) Excavation Inspection. Provide equipment for checking the dimensions and alignment of each permanent shaft excavation. Determine the dimensions and alignment according to the contract. Measure the final shaft depths with a suitable weighted tape after final cleaning.

A minimum of 50% of the base of each shaft shall have less than 0.5 inch of sediment at the time the concrete is placed. The maximum depth of sediment or debris on the base of the shaft shall not exceed 1.5 inches. The Contractor will dewater the shaft, as needed, and measure the shaft cleanliness in the presence of the Engineer by methods deemed appropriate to the Engineer.

Also, for dry excavations the maximum depth of water shall not exceed 3 inches before pouring the concrete.

(G) Reinforcing Steel Cage Construction and Placement. Assemble and place the reinforcing steel cage immediately after the Engineer inspects and accepts the shaft excavation before pouring the concrete. To prevent deformation of the cage while lifting, brace the reinforcing steel cage until the cage is set in its final position. The reinforcing steel cage includes longitudinal bars, ties, cage stiffener bars, spacers, centralizers, and other necessary appurtenances to acceptably complete and place the cage.

Tie and support the reinforcing steel in the shaft so that the reinforcing steel will remain within allowable tolerances given in Subsection 511.05(I) – Construction Tolerances. Use the concrete spacers or other approved non-corrosive spacing devices at sufficient intervals (near the bottom and at intervals not exceeding 10 feet up the shaft) to insure concentric spacing for the entire cage length. Use minimum of four spacers, equally spaced around circumference, at each vertical interval. The spacers shall be constructed of accepted material equal in quality and durability to concrete specified for the shaft, and shall be of adequate dimension to insure a minimum of four inches annular space between the outer portion of the reinforcing steel cage and the side of the excavated hole. Provide accepted cylindrical concrete bottom supports to maintain the proper distance between bottom of the cage and base of the shaft excavation.

Check the elevation of the top of the steel reinforcing cage and center of cage location before, during and after pouring the concrete. When not maintaining the rebar within the specified tolerances, make the corrections needed to bring to within tolerances of the contract. Do not construct additional shafts until after modifying the reinforcing steel cage support according to the contract.

If the depth of the drilled hole is deeper than that shown on the contract documents, the over-drilled portion shall be filled with concrete during the pouring of the drilled shaft concrete. Provide necessary support at the bottom of the drilled hole to elevate the cage to the design elevation.

(H) Concrete Placement.

(1) General. Place the concrete in the drilled shafts using a concrete pump and tremie pipe or other means as accepted by the Engineer using accepted methods as described below.

Concrete shall be placed in the shaft immediately after placing the reinforcing steel.

Concrete placement for the production drilled shaft shall be continuous from the bottom to at least the top of shaft cutoff elevation and until good quality concrete emerges above the top of the shaft cutoff elevation.

A minimum of four and two, 6-inch by 12-inch concrete cylinders shall be made for the compressive strength testing and unit weight testing, respectively. Cylinders shall be stored and cured in accordance with the methods specified in Section 601 - Structural Concrete. Production shafts with compressive strength less than the minimum 28-day compression strength will be considered defective. Production shafts with air-dry core sample unit weight less than three pounds per cubic foot of the air-dry unit weight test cylinders will be considered defective. Contractor shall submit a corrective method plan for the defective shaft to the Engineer for review and approval prior to their use.

The elapsed time from the beginning of concrete placement in the shaft to the completion of the placement shall not exceed two hours. Adjust admixtures accepted by the Engineer so that concrete remains in a workable plastic state throughout 2-hour placement limit. A longer placement time may be requested, and requests shall be submitted to the Engineer for review and acceptance 30 days prior to the time the concrete pour (with a longer placement time) is needed. Should the Contractor exceed the 2-hour limit without obtaining prior acceptance by the Engineer, the Contractor may be required to core the drilled shaft. These drilled shaft corings shall be at no additional cost to the State and no additional time will be granted.

Before placing the concrete, provide results of 3-day, 7-day, 14-day and 28-day compressive strength tests of a trial mix and a slump loss test at least 30 days prior to placement of concrete. Supply a concrete mix that will maintain a slump of four inches or greater after four hours from initial mixing. Conduct the trial mix and slump loss tests using concrete and under ambient temperatures appropriate for the site conditions. The ambient temperature used shall be the temperature at the elevation of existing ground before any excavation started.

The top surface of the drilled shafts shall be leveled, cleaned, and roughened prior to concrete placement for the footing.

(2) Monitoring Concrete Volume. For each drilled shaft, prepare and submit a monitoring record the next working day after concrete placement has been completed. All monitoring shall be performed in the presence of

the Engineer or his representative. As a minimum, the monitoring record shall consist of the following:

(a) A chart that is made up after drilled shaft excavation has been completed and accepted by the Engineer and before concrete placement has commenced. Indicated on the chart, depth of hole plotted with theoretical volume of concrete to fill drilled shaft hole. Plot concrete elevation (surface) along the vertical axis and concrete volume along the horizontal axis.

(b) As concrete is being place, measure concrete surface at an interval of approximately each cubic yard of concrete discharged. Plot concrete volume actually placed at each elevation point. Use this chart to determine if any necking down or enlargement of shaft has occurred during concrete placement.

(c) Keep records of steel and concrete movement to document the following conditions:

(1) When removing temporary or permanent casing, elevation of the top of reinforcing cage shall not rise more than 2 inches from its original elevation;

(2) As temporary casing is extracted, static level of fluid concrete shall not rise.

(3) Concreting by Pump. Concrete pumps and discharge lines for concrete placement in wet or dry excavations shall be used. Pumps and pump lines used to place concrete shall be of sufficient length, weight, and diameter to discharge concrete at the shaft base elevation. The pump and pump lines that will come in contact with concrete shall not contain aluminum parts. Discharge line shall have a minimum diameter of 4 inches and watertight joints. Concrete placement shall not begin until the pump line discharge orifice is at the shaft base elevation.

For wet excavations, use a plug to separate the concrete from the fluid in the hole until pumping begins. Remove the plug from the excavation or use plugs, made from a material accepted by the Engineer that will not cause a defect, if not removed.

The discharge orifice shall remain at least five feet below the surface of the fluid concrete. When lifting the pump line during concreting, reduce the line pressure temporarily until the orifice at a higher level in the excavation has been repositioned.

Upon removal of the pumpline orifice from the fluid concrete column and/or discharging concrete above the rising concrete level during the concrete pour, the Engineer will consider the shaft defective. In such a

case, remove the reinforcing cage and concrete, the necessary sidewall removal specified by the Engineer, and repour the shaft. Costs of replacement of defective shafts shall be at no costs to the State and no additional time will be granted.

(l) Construction Tolerances. The following construction tolerances apply to drilled shafts:

(1) The center of the drilled shaft concrete and reinforcing bars shall be within 1/12 of the shaft diameter or 3 inches, whichever is less, in the horizontal plane at the plan elevation for the top of the shaft.

(2) The vertical alignment of the shaft excavation shall not vary from the plan alignment by more than 0.25 inch per foot of depth.

(3) After placing the concrete, the top of the reinforcing steel cage shall be no more than 6.0 inches above and no more than 3.0 inches below plan position.

(4) The cutoff (top) elevation of the shaft shall have a tolerance of ± 0.5 inch from the plan top of shaft elevation.

(5) The dimensions of casing are subject to American Pipe Institute tolerances applicable to regular steel pipe.

(6) Design the excavation equipment and methods so that the completed shaft excavation will have a flat bottom. The cutting edges of excavation equipment shall be normal to the vertical axis of the equipment within a tolerance of ± 3/8 inch per foot of diameter.

Drilled shaft excavations that cannot be completed within the required tolerances are unacceptable. When accepted by the Engineer, corrections may be made to an unacceptable drilled shaft excavation by accepted combination of the following methods:

(1) Overdrill the shaft excavation to a larger diameter to permit accurate placement of the reinforcing steel cage with the required minimum concrete cover.

(2) Increase the number, size, or length of the reinforcing steel.

(3) Redesign the foundation.

(4) Other methods accepted by the Engineer.

The acceptance of correction procedures is dependent on analysis of the effect of the degree of misalignment and improper positioning. The Contractor is solely responsible to submit remedial repair procedures that

shall make the structure equal to or better than the original design. The Engineer will solely determine if the remedial repair meets the requirements and is acceptable. A Hawaii Licensed Professional Structural Engineer and a Hawaii Licensed Professional Civil Engineer who specializes in Geotechnical Engineering shall stamp and sign the redesign drawings and computations. Correct out of tolerance drilled shaft excavations including engineering analysis and redesign at no cost to the State. No time extension will be granted for any impact to the critical path due to the Contractor's incorrect installation of the drilled shaft.

(J) As-Built Drilled Shaft Location. The Contractor shall provide survey ties to all as-built location of all drilled shafts. All survey work shall be done by a surveyor licensed in the State of Hawaii.

The Contractor shall notify the Engineer prior to performing the survey work and the Contractor shall survey the drilled shafts under the supervision of the Engineer or the Engineer's representative. A copy of the survey notes and the scaled plan locating all the completed drilled shafts for each footing shall be submitted to the Engineer for review and acceptance. The submitted plan shall show the plan location of the drilled shafts and the as-built location, indicate that difference in location if any. The submittal shall be stamped and signed by the Hawaii licensed surveyor who did the work. Submit accepted copy of the survey notes and the scaled plan.

No form work for any footing shall proceed until the drilled shafts are found acceptable by the Engineer.

(K) Integrity Testing. Drilled shafts shall be visually inspected and tested for density, strength and soundness. Integrity testing will be performed on drilled shafts as determined by the Engineer. Integrity testing shall consist of partial or full depth concrete coring at drilled shafts determined by the Engineer. Coring shall be performed by the Contractor at the locations designated by the Engineer in the presence of the Engineer. The Engineer will solely determine if the cored shaft is acceptable or defective. Defective shafts shall be replaced or repaired using drawings and computations by a Hawaii Licensed Professional Engineers in the Structural Branch and Civil Branch (specializing in the Geotechnical field) in the employment of the Contractor. The drawings and computations shall be stamped and signed. The Contractor shall submit the drawings and computations for acceptance to the Engineer. The Engineer may reject the submittal and have the contractor resubmit its proposal until, in the sole opinion of the Engineer, it is acceptable. If no acceptable proposal is made by the Contractor, the Engineer may provide one. The Contractor shall reimburse the Engineer the design and administration costs in a manner acceptable to the Engineer, e.g., deduction from monthly payment, check to the State of Hawaii. Costs of the repair shall be solely borne by the contractor; no contract time will be given. The Contractor shall core vertical holes at locations and depths determined by the Engineer. The number of core holes to be done shall be determined by the Engineer. The core hole shall be accepted by the Engineer. The recovered core samples shall have a

minimum diameter of 3.3 inches or 3 times the nominal maximum aggregate size of the concrete mix, use whichever is larger. When cores that are recovered are too small for compression testing, it may be used to reject the shaft or be an indicator that the drilled shaft is defective and needs remedial repairs.

Provide concrete cores properly marked in a core box with labels of the drilled depth at each interval of core recovery to the Engineer for evaluation and testing. Cores shall be stored and cured in accordance with the methods specified in Section 601 - Structural Concrete. The Engineer will be allowed a minimum of 7 working days for evaluation and testing of the core samples. The cored holes shall be filled with prepackaged, non-shrink, non-metallic, non-gaseous grout of the same minimum strength as the drilled shaft.

Cost of coring performed on acceptable production drilled shafts with no defects will be borne by the State. Cost of coring performed on any drilled shaft that has defects shall be borne by the Contractor. If the drilled shaft in question is on the critical path, a time extension and the linear foot payment for coring will be the sole remedy given if the drilled shaft has no defects. The delay will be calculated from the end of the 20 working days review period of the cores to when the last core was taken. Contractor shall submit a corrective methods plan for the defective shafts to the Engineer for review and approval prior to their use. The corrective methods plan shall restore the defective drilled shaft to a condition equal or better that of a drilled shaft that had no defects. Do not begin repair operations until receiving the Engineer's acceptance of the corrective methods plan for that defective drilled shaft.

511.06 Measurement.

(A) Furnishing drilled shaft drilling equipment will be paid on a lump sum basis. Measurement for payment will not apply.

(B) The Engineer will measure drilled shaft per linear foot. The Engineer will compute length between plan top of shaft elevation and final bottom of shaft elevation.

(C) The Engineer will measure unclassified shaft excavation per linear foot, along shaft centerline. The Engineer will compute length between plan top of shaft elevation to plan estimated tip elevation.

(D) The Engineer will measure formed top of drilled shaft pedestal per each. Measurement for payment will apply.

511.07 Payment. The Engineer will pay for the accepted pay items listed below on a contract lump sum basis. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for each of the following pay items when included in the proposal schedule:

Pay Item	Pay Unit
Furnishing Drilled Shaft Drilling Equipment	Lump Sum
Drilled Shaft (24-inch Diameter)	Linear Foot
Unclassified Shaft Excavation	Linear Foot
Formed Top of Drilled Shaft Pedestal	Each

END OF SECTION 511