

ADDENDUM No. 6

ITB No. 4424: W.R. Wheeler (Swift Run) Service Center PUD Non-motorized Improvements – Phase 1

Due: June 9, 2016 at 2:00 p.m. (local time)

The following changes, additions, and/or deletions shall be made to the Invitation to Bid for W.R. Wheeler (Swift Run) Service Center PUD Non-motorized Improvements – Phase 1, ITB No. 4424, on which proposals will be received on/or before June 9, 2016 at 2:00 p.m. (local time).

The information contained herein shall take precedence over the original documents and all previous addenda (if any), and is appended thereto. **This Addendum includes 6 page(s).**

Bidder is to acknowledge receipt of this Addendum No. 6, including all attachments (if any) in its Bid by so indicating on Page ITB-1 of the ITB document. Bids submitted without acknowledgement of receipt of this addendum will be considered nonconforming.

The following forms provided within the ITB document must be included in submitted bids:

- City of Ann Arbor Prevailing Wage Declaration of Compliance
- City of Ann Arbor Living Wage Ordinance Declaration of Compliance
- Vendor Conflict of Interest Disclosure Form
- City of Ann Arbor Non-Discrimination Ordinance Declaration of Compliance

Bids that fail to provide these completed forms listed above upon bid opening will be rejected as non-responsive and will not be considered for award.

I. CORRECTIONS/ADDITIONS/DELETIONS

Changes to the Bid document which are outlined below are referenced to a page or Section in which they appear conspicuously. The Bidder is to take note in its review of the documents and include these changes as they may affect work or details in other areas not specifically referenced here.

Section/Page(s)

Change

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| Detailed Specifications/ADD 5-15 thru 19 | Detailed Specification for Timber Boardwalk and Foundation System; replace with pages ADD 6-2 thru 6 |
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Respondents are responsible for any conclusions that they may draw from the information contained in the Addendum.

CITY OF ANN ARBOR
DETAILED SPECIFICATION
FOR
TIMBER BOARDWALK AND FOUNDATION SYSTEM

WHEELER PUD PH I:
STANTEC/AFT, CAA/DAD

1 of 5

06/06/16

a. Description. This work consists of furnishing all labor, equipment, and materials necessary to construct a timber boardwalk over the wetland area as shown on the plans, including timber framing, decking and structural components, a foundation system using helical piers, railings with treated timber and composite wood, and concrete massive wall unit blocks as the HMA terminus.

All structural members of the boardwalk shall be designed for a uniform pedestrian live load of 90 psf. The pedestrian live load shall be applied to those areas of the walkway so as to produce maximum stress in the member being designed. The boardwalk shall be designed for a maintenance vehicle satisfying the AASHTO H-10 Design Truck configuration. A single truck shall be placed to produce the maximum load effects and shall not be placed in combinations with the pedestrian load.

b. Materials. Wood framing, decking, structural components, footings, and hardware must be in accordance with sections 709 and 912 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction except as modified herein.

Submit the following to the Engineer for approval at least 14 calendar days prior to the start of construction. Work must not begin until all submittals have been received and approved by the Engineer.

1. Working drawings and design calculations for the Helical Piles intended for use. The calculations should include the minimum torque required to install the vertical and battered helical piles based on the specified allowable capacities, the estimated pier installation depth of the helical piles, and a critical buckling load analysis due to the low strength soil conditions on site.
2. A detailed description of the construction procedures proposed for review, including a list of major equipment to be used.
3. Shop drawings for all Helical Pile components that include, but are not limited to:
 - a. Helical Pile design load,
 - b. Type and size of central steel shaft,
 - c. Helix configuration (number and diameter of helix plates),
 - d. Minimum effective installation torque,
 - e. Minimum overall length,
 - f. Inclination of Helical Pile,
 - g. Helical Pile attachment to structure relative to grade beam, column pad, pile cap, etc.,
 - h. Indication of corrosion protection.
4. Soil Analysis Report for detailed bearing capacity.

5. Copies of calibration reports for each torque indicator or torque motor, and all load test equipment to be used on the project. The calibration tests must have been performed within 45 working days of the date submitted. Helical Pile installation and testing must not proceed until the Engineer has received the calibration reports.

Helical piers as specified must conform to the applicable building code.

The helical lead sections and extension sections must be solid steel, round cornered square shaft, or round steel pipe shaft, or composite steel and grout shaft configured with one or more helical bearing plates welded to the shaft. Bolts and couplings shall be per manufacturer's recommendations for each helical pier type.

All helical pile material must be corrosion protected by hot dip galvanization after fabrication in accordance with ASTM A 123 and/or ASTM A 153.

Installation units consist of a rotary type torque motor with forward and reverse capabilities.

Appropriate helical pier selection will consider design load plus safety factor, soil parameters and the installation torque vs. capacity equation as per the manufacturer's recommendations.

Design of helical screw piers and anchors must be performed by an entity as required in accordance with existing local code requirements or established local practices. This design work shall be performed by a licensed professional engineer licensed in the state of Michigan.

Piers must have U-shape bracket sleeves to mount lateral support beams for joist and deck structure. All component materials must be protected by hot dip galvanization in accordance with ASTM A 153.

The minimum block dimensions for the concrete massive wall units shall be 12 inches high x 72 inches wide x 14 inches deep and have a minimum block weight of 850 pounds.

The concrete massive wall units shall meet the aesthetic requirements for the site.

The concrete massive wall units shall have a minimum 28-day compressive strength of 5000 psi as tested in accordance with ASTM C 140. The concrete shall have a maximum moisture absorption rate of 5 percent to ensure adequate freeze-thaw.

The drainage pipe used in the HMA path terminus section shall be perforated corrugated HDPE or PVC pipe, with a minimum diameter of 4 inches, protected by a geotextile filter to prevent the migration of soil particles into the pipe.

All timber and lumber shall be treated and in accordance with section 912 of the MDOT 2012 Standard Specifications for Construction. Lumber shall be S4S (surfaced four sides) according to ASTM D245. All lumber sizes are nominal. All lumber shall be stamped by the rating agency and certifications shall be provided to verify the preservative treatment including net retention, pressure process used, and compliance to current standards.

Fasteners, unless specifically noted, may be screws or nails in accordance with MDOT 2012 Standard Specifications for Construction.

c. Construction. Construction must be in accordance with section 709 and 912 of the MDOT 2012 Standard Specifications for Construction except as modified herein.

Protection in Transit. A coat of end sealer must be applied to ends of all wood members as soon as practicable after end trimming. Wood members must be protected until installed.

Field Storage and Handling. If products are stored temporarily at the job site after arrival, wood members must be placed on blocking, well off the ground and be separated by wood blocking so air can circulate around each member. Place water resistance paper over the top but do not use opaque polyethylene.

Butt Joints, if used, must be placed over supports and must be staggered a minimum of 3 feet apart for adjacent planks.

Centerline of Helical Piles must not be more than 3 inches from indicated plan location. Helical Pile must be plumb within 2 degrees of design alignment. Top elevation of Helical Pile must be within +1 inch to -2 inches of the design vertical elevation.

Helical Piles must be installed by an authorized installer who has satisfied the certification requirements of the manufacturer. Provide the Engineer proof of current manufacturer's certification.

Adequate soil boring information for estimated bearing capacity and pier depths are available from the geotechnical report within the proposal. Installation of Helical Pile locations on the project site will be necessary to generate a presumptive soil profile using the well-known installed torque vs. capacity attribute of helical piles to determine an appropriate helical pier to meet the required capacity.

A torque indicator must be used during Helical Pile installation. The torque indicator can be an integral part of the installation equipment or externally mounted in-line with the installation tooling and must be properly calibrated. The torque indicator shall be capable of providing continuous measurement of applied torque throughout the installation. Installation units must be capable of developing a torque capacity 15% greater than the torsional strength rating of the central steel shaft to be installed.

Installation units must be capable of positioning the helical pier at the proper installation angle and location as indicated on the plans. The Helical Pile sections shall be engaged and advanced into the soil in a smooth, continuous manner at a rate of rotation of 5 to 20 RPM's. Extension sections shall be provided to obtain the required minimum overall length and installation torque as shown on the shop drawings and calculations. Connect sections together using coupling bolt(s) and nut and 40 ft-lb of torque. Sufficient down pressure shall be applied to uniformly advance the Helical Pile sections approximately 3 inches per revolution. The rate of rotation and magnitude of down pressure shall be adjusted for different soil conditions and depths.

Helical Piles must be installed so that the top helical plate is at minimum 42" below ground level.

Battered Helical Piles must be installed to the minimum torque value required to provide 6 kip allowable load capacities. Vertical Helical Piers must be installed to the minimum torque

value required to provide 15 kip allowable load capacities. The average torque for the last three feet of penetration shall be used as the basis of comparison with the minimum installation torque. The average torque shall be defined as the average of the last three readings recorded at on-foot intervals.

Installation torque must be monitored throughout the installation process. Measured torque shall never exceed the torsional strength rating of the central steel shaft.

If reasonable doubt exists as to the accuracy of the torque measurements, the torque indicator shall be re-calibrated on-site.

Install the piers within the construction area with the least amount of disturbance to the wetlands as possible.

Accurately record location, type, torque and depth of piers and provide the Engineer with a copy of this data.

Helical Pile capacity in soil shall not be relied upon from the soil layers indicating peat, marl, or loose sands as shown in the geotechnical report. End-bearing on the helix plates must be in appropriate soil strata.

The bottom row of wall modules for the HMA path terminus section shall be placed on the prepared leveling base as shown on the plans. Care shall be taken to ensure that the wall modules are aligned properly, leveled from side to side and front to back and in complete contact with the base material.

The wall modules above the bottom course shall be placed such that the tongue and groove arrangement provides the design batter as indicated on the plans.

The wall modules shall be swept clean before placing additional levels to ensure no dirt, concrete, or other foreign materials become lodged between successive lifts of the wall modules.

The contractor shall check the level of wall modules with each lift to ensure that no gaps are formed between successive lifts.

Care shall be taken to ensure that the wall modules are not broken or damaged during handling and placement.

Install timber decking planks with a maximum 1/8 inch gap between planks.

Use 4 inch self tapping screws to attach timber decking planks to joists and/or beams. Attach planks with at least two fasteners at each end and at every joist and/or beam. Drill planks prior to installation of screws to prevent splitting.

Fasten joists to header beams using tie down clips/brackets.

d. Measurement and Payment. The completed work, as described, will be measured and paid for at the contract unit prices using the following pay items:

| Pay Item | Pay Unit |
|-------------------------|-----------------|
| Timber Boardwalk | Foot |
| Helical Pier | Foot |
| HMA Path Terminus | Each |
| Safety Railing | Foot |

Timber Boardwalk as measured shall be paid for based on the length in feet of boardwalk installed, and includes all labor, equipment, and materials for furnishing and installing the boardwalk over the wetland including all wood members, hardware and fasteners, and appurtenances for a complete installation and as shown on the plans.

Helical Pier as measured shall be paid for based on the length in feet, and includes all labor, equipment, and materials for furnishing and installing the boardwalk foundation piers in the wetland including drilling equipment, hardware and fasteners, and appurtenances for a complete installation and as shown on the plans.

HMA Path Terminus as measured shall be paid for based on the number each of units installed, and includes all labor, equipment, and materials for furnishing and installing the HMA terminus at the ends of the boardwalk including all concrete massive wall unit blocks, required backfill, limestone base, geotextile fabric, and perforated drain as shown on the plans.

Safety Railing as measured shall be paid for based on the length in feet of boardwalk safety railing installed, and includes all labor, equipment, and materials necessary for furnishing and installing the safety railings on the boardwalk including all wood members, hardware and fasteners, and appurtenances for a complete installation and as shown on the plans.