



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

January 13, 2011

SUBJECT: Route Rockford Riverwalk
Project TE-00D2 (133)
Section 06-00543-00-BT
Winnebago County
Contract No 85521
Item 1P B
January 21, 2011 Letting

TO PROSPECTIVE BIDDERS:

To clarify information it is necessary to revise the following:

Proposal- Revised pages 28-30 of the Special Provisions

Prime contractors must utilize the enclosed material when preparing their bid and must include any Schedule of Prices changes in their bidding proposal. Bidders using computer-generated bids are cautioned to reflect any and all Schedule of Prices changes, if involved, into their computer programs.

Since the proposal sheets are printed back to back, bidders are cautioned to exercise care when inserting revised and/or added special provisions into their proposals.

Please call 217-782-7806 if any of the above-described material is not included in this transmittal.

Very truly yours,

Scott Stitt
Acting Engineer of Design and Environment

A handwritten signature in black ink, reading "Ted B. Walschleger" followed by "P.E." in smaller letters.

By: Ted B. Walschleger, P. E.
Engineer of Project Management

SUBMITTALS

The wall system supplier shall submit complete design calculations and shop drawings to the Engineer for review and approval no later than 90 days prior to beginning construction of the wall. All submittals shall be sealed by an Illinois Licensed Structural Engineer and shall include all details, dimensions, quantities and cross sections necessary to construct the wall and shall include, but not be limited to, the following items:

- (a) Plan, elevation and cross section sheet(s) for each wall showing the following:
 - 1) A plan view of the wall indicating the offsets from the construction centerline to the face of the wall at all changes in horizontal alignment. The plan view shall show the limits of precast modules and stations where changes in length and/or size of modules occur.
 - 2) An elevation view of the wall indicating the elevations of the top of the modules. These elevations shall be at or above the top of exposed module line shown on the contract plans. This view shall show the elevations at the top of the leveling pads, all steps in the leveling pads and the finished grade line shown in the contract plans. Each module type, size and embedded length shall be designated.
 - 3) A listing of the summary of quantities shall be provided on the elevation sheet of each wall.
 - 4) Typical cross section(s) showing the precast modules, select fill within the modules, porous granular backfill, leveling pad, right-of-way limits, including excavation cut slopes and elevation relationship between existing ground conditions and the finished grade line.
 - 5) All general notes required for constructing the wall as well as the locations of lifting devices and/or support points in the precast modules shall be indicated.
- (b) The concrete leveling pads may be precast or cast in place. All details for the concrete leveling pads, including the steps, shall be shown. The top of the leveling pad shall be located at or below the theoretical top of the leveling pad line shown on the contract plans. The theoretical top of the leveling pad line shall be 3.0 ft. below finished grade line at the front face of the wall, unless otherwise shown on the contract plans. Aggregate leveling pads will be allowed according to manufacturers recommendations; however, Concrete MUST be used where Concrete is shown on the design plans.
- (c) Where concrete coping or barrier is specified, the modules shall extend up into the coping or barrier a minimum of 2" (50 mm). The top of the modules may be level or sloped to satisfy the top of the module line shown on the contract plans. Cast-in-place concrete will not be an acceptable replacement for module areas below the top of module line. Precast coping may be substituted for the CIP coping if approved by the Engineer.
- (d) All module types shall be detailed. The details shall show all dimensions necessary to cast and construct each type of module, all reinforcing steel in the module, and the location of any shear key or connection devices.
- (e) All details of the wall module placement around all appurtenances located behind, on top of, or passing through the wall modules and select fill such as traffic barriers, coping foundations, and utilities, etc. shall be clearly indicated. Any modifications to the design of these appurtenances to accommodate a particular system shall also be submitted.
- (f) When specified on the contract plans, all details of architectural treatment for the exposed surfaces of the module, including color, texture and form liners shall be shown.

- (g) The details of bearing pads, joint filler or other materials used to prevent concrete to concrete contact on the front face as well as any pins, grove or other alignment mechanisms shall be indicated.

The initial submittal shall include three (3) sets of shop drawings and one set of calculations. One set of drawings will be returned to the Contractor with any corrections indicated. After approval, the Contractor shall furnish the Engineer with eight (8) sets of corrected prints and one mylar set for distribution by the City. No work or ordering of materials for the structure shall be done until the submittal has been approved by the Engineer.

MATERIALS

The precast modular block walls shall conform to the supplier's standards as previously approved by the Department, AASHTO Specifications for prefabricated modular walls and the following:

- (a) Steel connection hardware shall be galvanized according to AASHTO M232 or AASHTO M 111 as applicable.
- (b) Concrete for the precast modules shall be Class PC according to Section 1042.03 of the Standard Specifications. The precast units shall be produced according to the latest Department's Policy Memorandum for "Quality Control/Quality Assurance Program for Precast Concrete Products."
- (c) Reinforcing steel shall be according to Article 1006.10(a). Welded steel wire fabric for concrete reinforcement shall be according to Article 1006.10(b).
- (d) The select fill, defined as the material within the precast modules, shall be according to the following:

Gradation:

COARSE AGGREGATE	CA 6 THRU CA 16
FINE AGGREGATE	FA 1, FA 2, OR FA 20

Internal Friction Angle (AASHTO T236) 34° min.

Sodium Sulfate Soundness Loss 20% after five cycles (C Quality)

In addition to the above gradations, other aggregate may be used provided the following: the maximum aggregate size does not exceed 1 ½ inches (38 mm), the material passing the #200 (75 micron) sieve does not exceed 15 percent, and the material passing the #40 (425 micron) sieve does not exceed 60 percent.

- (e) The granular embankment, special, behind the precast modules, shall be according to Section 207 of the Standard Specifications.
- (f) The geotextile filter material used across the module joints shall be either a non-woven needle punch polyester or polypropylene or a woven monofilament polypropylene.
- (g) The bearing pads shall be rubber, neoprene, polyvinyl chloride, or polyethylene material of the type and grade as recommended by the wall supplier. Other material recommended by the wall supplier may be used if approved by the Engineer.

FABRICATION

All precast units shall be manufactured according to Section 1042 of the Standard Specifications and the following requirements:

- (a) The minimum module thickness shall be 3 ½ in. (140 mm).
- (b) The minimum reinforcement bar cover shall be 1 ½ in. (38 mm).
- (c) The precast module reinforcement shall be epoxy coated.
- (d) All dimensions shall be within 3/16 in. (5 mm).
- (e) Angular distortion with regard to the height of the module shall not exceed 0.2 in. (5 mm) in 5 ft. (1.5 m).
- (f) Surface defects on formed surfaces measured on a length of 5 ft. (1.5 m) shall not be more than 0.1 in. (2.5 mm).

Concrete Surfaces exposed to view in the completed wall shall be finished according to Article 503.15(a) of the Standard Specifications.

DESIGN CRITERIA

The design shall be according to the ASHTO Design Specifications for Prefabricated Modular Walls except as modified herein. The wall supplier shall be responsible for all external stability aspects of the wall design (including sliding, overturning, bearing pressure and stability of temporary construction slopes). The analyses of settlement and overall slope stability will be the responsibility of the Engineer.

Typical design procedures and details, once accepted by the Engineer, shall be followed. All wall system changes shall be submitted in advance to the Engineer for approval.

External loads, such as those applied through structure foundations, from traffic or railroad, slope surcharge etc., shall be accounted for in the external stability design. The presence of all appurtenances behind, in front of; mounted on, or passing through the wall volume such as drainage structures, utilities, structure foundation elements or other items shall be accounted for in the external stability design of the wall.

Coulomb's lateral earth pressure theory shall be used to calculate the vertical and horizontal forces acting on the rear face of the precast modules. ~~A maximum wall friction angle used in these calculations shall be 33 percent of the friction angle (ϕ) for the backfill material placed behind the precast modules.~~ If Geo-Grid reinforcement is proposed, AASHTO Design Guidelines shall be followed for design. The geo-grid material shall meet or exceed the requirements for Soil Reinforcement outlined in GBSP 64 Segmental Concrete Block Wall.

The overturning calculations shall assume no more than 80 percent of the soil dead within the precast modules available to resist overturning forces. Sliding calculations may use 100 percent of the sliding resistance of the foundation soils and shall be the lesser of the cohesion multiplied by the wall base width or the vertical resultant force multiplied by 0.45. The factors of safety against sliding and overturning must be no less than 1.5 and 2.0, respectively, and the computations shall confirm these factors of safety occur at each module level.

The maximum applied equivalent uniform bearing pressure under each module width shall be clearly indicated on the shop drawings submitted and shall be less than the allowable bearing pressure of the soil shown on the contract plans. Footings or other treatments to satisfy the bearing pressure requirements will be designed by the wall supplier and included in the wall bid price.

If the wall supplier needs additional information to complete the design, the Contractor shall be responsible for obtaining the information at no additional cost to the City.

CONSTRUCTION REQUIREMENTS

The Contractor shall obtain technical assistance from the supplier during wall erection to demonstrate proper construction procedures and shall include any costs related to this technical assistance in the unit price bid for this item.

The foundation soils for the structure shall be graded for a width equal to or exceeding the module width. Prior to wall construction, the foundation shall be compacted with a smooth wheel vibratory roller. Any foundation soils found to be unsuitable shall be removed and replaced, as directed by the Engineer, and shall be paid for separately according to Section 202 of the Standard Specifications.