

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

OFFICE ENGINEER

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April 5, 2011

04-SM-280-10.7/11.0

04-1A7704

Project ID 0400000508

ACBHIM-ACIM-280-1(133)E

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN SAN MATEO COUNTY NEAR SAN MATEO AND BELMONT ON ROUTE 280 FROM 0.1 MILE SOUTH TO 0.2 MILE NORTH OF ROUTE 280/92 SEPARATION.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on Tuesday, April 12, 2011.

This addendum is being issued to revise the Notice to Bidders and Special Provisions and the Federal Minimum Wages with Modification Number 22 dated 3/18/2011.

In the Special Provisions, Section 10-1.385, "ALTERNATIVE PILING," is added as attached.

To Bid book holders:

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the Notice to Bidders section of the Notice to Bidders and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the Bid book.

Submit bids in the Bid book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

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This addendum, attachments and the modified wage rates are available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/04/04-1A7704

If you are not a Bid book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,



for REBECCA D. HARNAGEL
Chief, Office of Plans, Specifications & Estimates
Office Engineer
Division of Engineering Services

Attachments

10-1.385 ALTERNATIVE PILING

At the Contractor's option, the Contractor may propose to substitute alternative piling for the State designed micropiling shown on the plans and as specified in these special provisions.

Use of alternative piling is contingent on approval of working drawing submittal and successful performance of the alternative piling under load testing. Development and approval of working drawings and testing will be at the Contractor's expense. There will be no compensation and no extension of contract time allowed for the approval process to permit use of any proposed alternative pile.

It is anticipated that only those vendors with approved generalized working drawings will be able to perform within the working days given for this contract.

Some of the alternative piles listed may not be suitable for this contract, and some may be proprietary or have proprietary components.

Materials.

Alternative piling shall conform to the provisions of Sections 19, "Earthwork," 49, "Piling," 50, "Prestressing Concrete," 51, "Concrete Structures," 52, "Reinforcement," and 75, "Miscellaneous Metal," of the Standard Specifications, these special provisions, and the pile layout shown on the plans.

Alternative piling shall incorporate steel pipe casing with at least the nominal diameter, wall thickness, and length as shown on the plans and shall conform to the material properties for the steel pipe casing specified in these special provisions.

Alternative piling shall incorporate a pile system with a diameter, including grout encasement, that is no more than the maximum dimensions shown on the plans.

Alternative piling shall incorporate at least a 1/4 inch thickness of sacrificial steel for corrosion protection.

Approved Generalized Working Drawings

The vendors listed below have on file generalized working drawings for the given alternative piling that has been successfully system tested and approved by the Engineer.

Required project specific working drawings as specified below in "Working Drawings" shall reference the approved generalized working drawings, and duplicate information shall not be included.

ALTERNATIVE PILE	ADDRESS AND PHONE NUMBER
DBM Micropile System	DBM Contractors Inc. P.O. Box 6139 Federal Way, WA 98063-6139 (800) 851-9629
Malcolm Micropile	Malcolm Drilling Co., Inc. 4926 North Azusa Canyon Rd. Irwindale, CA 91706 (626) 338-0035
Nicholson Pin Pile	Nicholson Construction Company 12 Mc Clane Street Cuddy, PA 15031 (800) 388-2340

Working Drawings

If the Contractor elects to use alternative piling, including any of those listed above, the Contractor shall submit project specific working drawings for the alternative pile system to the Offices of Structure Design (OSD) in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Working drawings for alternative piling shall be 11" x 17". For initial review, 10 sets of drawings shall be submitted. After review, between 6 and 12 sets, as requested by the Engineer, shall be submitted for final approval and use during construction. Within 3 weeks after final approval of the submittal, the Contractor shall furnish to OSD one set of approved working drawings on 11" x 17" sized 20-pound (minimum) bond paper.

Working drawings for alternative piling shall show the State assigned designations for the contract number, bridge number, full name of the structure as shown on the contract plans, and District-County-Route-Post Mile on each drawing and calculation sheet. The pile vendor company name, address, and phone number shall be shown on the working drawings. Each sheet shall be numbered in the lower right hand corner and shall contain a blank space in the upper right hand corner for future contract sheet numbers.

Working drawings for alternative piling shall contain all information required for the construction and quality control of the piling, including the following:

- A. Information on headroom and space requirements for installation equipment.
- B. Step-by-step procedure describing all aspects of pile installation including materials, personnel, testing, and equipment to assure quality control. This step-by-step procedure shall be shown on the working drawings in sufficient detail so that the Engineer can monitor the construction and quality of the alternative piles. Installation procedure and materials specified for use in the pile system shall conform to the provisions in the Standard Specifications and these special provisions. When the Standard Specifications are not fully applicable, the section(s) shall be cited and the exceptions noted on the working drawings. If no applicable Standard Specification is available, ASTM or other industry standard specifications shall be referenced.
- C. Details of the anchorage of the pile to the pile cap.
- D. Details of pile splices.
- E. Details of bar reinforcement, centralizers, and bar reinforcement splices.
- F. Grout mix designs.
- G. Details of the pile load test frame, connections, and anchor piling.
- H. Details of the testing procedures involved in testing the piles.
- I. Details and procedures involved in testing components including grout.
- J. Information on the minimum cure time and strength requirements of the pile system for performance test piles and proof test piles.
- K. Minimum pile tip elevations.

A supplement to the working drawings shall include the following:

- A. Independently checked calculations for pile design including:
 - 1. Analysis of pile structural capacity based on the nominal strength as defined in Caltrans Bridge Design Specifications (Article 8.1.3) or the nominal resistance as defined in the LRFD Bridge Design Specifications (Article 1.3.2.1).
 - 2. Complete structural details and calculations related to the pile system such as member element size, material specifications, connections to the pile cap, and connections for load testing that satisfy the nominal strength requirement.
 - 3. Geotechnical assessment of information provided by the State for this site. At the Contractor's option, the Contractor may conduct additional geotechnical investigation for the purpose of designing alternative piles.
 - 4. Analysis of the ductility of the alternative pile system for lateral footing deflections of up to 6 inches for compatibility with the State designed pile footing shown on the plans.
 - 5. Analysis of geotechnical capacity of pile system based on the given loads and the minimum pile tip elevations shown on the working drawings.
- B. Calculations for design capacity of the load frame.
- C. Information on provisions for proximity to underground facilities and for isolating piles from settling embankments.
- D. Construction details, structural details, and load test results from at least 3 previous successful installations by the proposed alternative pile vendor. The installations shall be from 3 separate test sites. The installations shall be similar to those proposed for this contract.

The working drawings and supplement shall be stamped and signed by an engineer who is licensed as a Civil Engineer in the State of California. The Engineer will notify the Contractor in writing when the submitted working drawings and supplement have been determined to be complete.

For alternative piles listed above with approved generalized working drawings on file, the Contractor shall allow the Engineer 4 weeks to review the working drawing submittal after a complete set has been received.

For alternative piles listed below with only approved pile system load testing on file, the Contractor shall allow the Engineer 8 weeks to review the working drawing submittal after a complete set has been received.

No alternative pile shall be installed until the Engineer has determined that no aspect of the design will be compromised by the use of that alternative piling and has approved in writing the working drawing submittal for alternative piling.

Should the Engineer fail to review the complete working drawing submittal within the time specified and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the working drawing submittal, an extension of time commensurate with the delay in completion of the work thus caused will be granted in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Construction

Drill cuttings resulting from installing alternative piling shall be disposed of in conformance with the provisions in Section 19-2.06, "Surplus Materials," of the Standard Specifications. Material resulting from grouting or placing concrete in alternative piles, including slurry, shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications unless otherwise permitted in writing by the Engineer.

System Testing

Alternative piles shall be system tested, by the Contractor. System testing includes demonstration and documentation of installation and load testing to design load in tension and to geotechnical failure in compression. System pile load testing shall be in conformance with "Performance Testing" as specified below except that the maximum load required to achieve geotechnical failure may exceed the maximum load specified for performance load testing. Geotechnical failure occurs when the total vertical movement at the top of the pile measured relative to the top of the pile before the start of load testing, exceeds a value of at least 10 percent of the pile system diameter, or 2 inches, whichever is greater. Higher capacity load frames than those used for performance testing may be required.

Approved Pile System Load Testing

The alternative pile vendors listed below have on file pile system load test results that have been approved by the Engineer, and additional system testing is not required. Generalized working drawings have not been approved for the vendors listed below.

ALTERNATIVE PILE	ADDRESS AND PHONE NUMBER
GeoJet Foundation System	Condon Johnson.& Associates, Inc. 480 Roland Way, Suite 200 Oakland, CA 94621 (510) 556-8569

Performance and Proof Testing

The Contractor shall conduct performance tests consisting of both tension and compression load testing and shall also conduct proof tension load tests. Submitted performance test results shall be approved by the Engineer before installing production piling at locations shown on the plans.

The Contractor shall install at least five (5) non-production alternative test pile groups, each group consisting of a test pile and anchor piles, that are constructed outside of a proposed or existing footing at the following locations as approved by the Engineer. The Contractor shall notify the Engineer one week before installing an alternative test pile group that is to be performance tested.

TEST LOCATIONS	CONTROL LOCATIONS
25.5 ft Rt 'RAM1' Sta 184+35	Br. No. 35-0244G, Bent 3 Br. No. 35-0245F, Bent 4
25.5 ft Rt 'RAM1' Sta 184+35 46.0 ft Lt 'RAM1' 189+66	Br. No. 35-0245F, Bent 5
46.0 ft Lt 'RAM1' 189+66	Br. No. 35-0245F, Bent 6
28.5 ft Lt 'RGM' 193+74	Br. No. 35-0244G, Bent 9

The Contractor shall tension proof test five percent of the alternative piles and not less than 2 per footing after all the piles have been installed at a given footing. The piles to be tested will be selected by the Engineer.

Alternative piles shall be tested under tension loads before testing under compression loads.

The apparatus for applying tension test loads shall have a capacity of at least 120 percent of the tension resistance of the test pile structural section, but need not exceed 150 percent of the maximum nominal resistance shown on the plans. In addition, the apparatus for applying compression test loads shall be capable of imparting loads of substantial magnitude to allow geotechnical failure of the pile.

If an alternative pile that is performance tested fails to meet any of the acceptance criteria for testing as determined by the Engineer, that pile will be rejected and the Contractor shall modify the design or construction procedures and submit revised working drawings including these modifications. The Contractor shall install and performance test another alternative pile, or abandon the alternative pile option and install the State designed piling shown on the plans. Pile installation operations shall not continue until the Engineer has approved the revised working drawings in writing. No extension of time or compensation will be made for modifying working drawings nor for installing and testing additional alternative piling.

If an alternative pile that is tension proof tested fails to meet any of the acceptance criteria for testing as determined by the Engineer, that pile will be rejected, and all the remaining alternative piles in that same footing shall be tension proof tested. The Contractor shall submit to the Engineer for approval a plan for replacing piling or for installing additional alternative piling that includes details for piling and footing modifications as required to provide the total piling support as shown on the plans. No extension of time or compensation will be made for the review of the plan nor for replacing or installing additional alternative piling.

Performance Tension Load Testing

Tension load testing shall conform to ASTM Designation: D 3689-90 and these special provisions. The loading apparatus described as "Load Applied to Pile by Hydraulic Jack(s) Acting at One End of Test Beam(s) Anchored to the Pile" will not be used.

For performance tension load tests, the loads applied and the corresponding durations shall be as shown in the following table:

PERFORMANCE TENSION LOAD TEST
SCHEDULE

LOAD	DURATION
0	1 minute
0.1T	5 minutes
0.2T	5 minutes
0.3T	5 minutes
0.4T	5 minutes
0.5T	5 minutes
0.6T	5 minutes
0.7T	5 minutes
0.8T	5 minutes
0.9T	5 minutes
1.0T	5 minutes
0.75T	1 minute
0.5T	1 minute
0.25T	1 minute
0	1 minute
0.1T	1 minute
0.2T	1 minute
0.3T	1 minute
0.4T	1 minute
0.5T	1 minute
0.6T	1 minute
0.7T	1 minute
0.8T	1 minute
0.9T	1 minute
1.0T	1 minute

T = Nominal tension resistance of an alternative pile.
 *After a 5 minute interval, remove the full load from the pile in four approximately equal decrements with 5 minute intervals between each decrement.

CONTRACT NO. 04-1A7704
 ADDED PER ADDENDUM NO. 1 DATED APRIL 5, 2011

The acceptance criteria for tension load testing of alternative piles is as follows:

- A. The pile shall achieve and sustain for 5 minutes the first tension test load applied which is equal to nominal tension resistance with no more than 1/2 inch total vertical movement at the top of the pile that is measured relative to the top of the pile before the start of tension load testing.

Performance Compression Load Testing

Compression testing shall conform to ASTM Designation: D 1143-81 and these special provisions.

For performance compression load tests, the loads applied and the corresponding durations shall be as shown in the following table:

PERFORMANCE COMPRESSION LOAD TEST SCHEDULE	
LOAD	DURATION
0	1 minutes
0.1C	5 minutes
0.2C	5 minutes
0.3C	5 minutes
0.4C	5 minutes
0.5C	5 minutes
0.6C	5 minutes
0.7C	5 minutes
0.8C	5 minutes
0.9C	5 minutes
1.0C	5 minutes
0.75C	1 minute
0.5C	1 minute
0.25C	1 minute
0	1 minute
0.1C	1 minute
0.2C	1 minute
0.3C	1 minute
0.4C	1 minute
0.5C	1 minute
0.6C	1 minute
0.7C	1 minute
0.8C	1 minute
0.9C	1 minute
1.0C	1 minute
1.1C	5 minutes
1.2C*	5 minutes
1.5C*	5 minutes
To Failure	
C = Nominal compression resistance of an alternative pile. * After a 5 minute interval, remove the full load from the pile in four approximately equal decrements with 5 minute intervals between each decrement.	

The acceptance criteria for compression load testing of alternative piles is as follows:

- A. The pile shall achieve and sustain for 5 minutes the first compression test load applied which is equal to the nominal compression resistance with no more than 1/2 inch total vertical movement at the top of the pile measured relative to the top of the pile before the start of compression load testing.

Proof Tension Load Testing

For proof tension load tests, the loads applied and the corresponding durations shall be as shown in the following table:

PROOF TENSION LOAD TEST SCHEDULE	
LOAD	DURATION
0	1 minutes
0.25T	5 minutes
0.5T	5 minutes
0.75T	5 minutes
1.0T*	5 minutes

T = Nominal tension resistance of an alternative pile.
*After a 5 minute interval, remove the full load from the pile in four approximately equal decrements with 5 minute intervals between each decrement.

Test Submittals

At the completion of a performance or proof test, the Contractor shall submit to the Engineer four copies of the complete test results for the alternative pile tested. Data for each test shall list key personnel, load testing equipment, alternative pile location, pile tip elevation, and length of reinforcement. Test data shall also list quantity of grout and grout pressure used or amount of concrete placed; location grout or concrete is placed; amount of ground water encountered; and the time and dates of reinforcement installation, grouting or concrete placement, and pile testing. The alternative pile movements at each load and corresponding duration, as shown in the load test schedule, shall be included in the test data.

Measurement and Payment.

The quantities for alternative piles will be computed on the basis of the dimensions and details for the type of State designed piling shown on the plans, and payment will be made based on the quantities shown in the Engineer's Estimate for said piling. No change in the quantities to be paid for will be made because of the use by the Contractor of alternative piling.

Full compensation for furnishing and installing casings, shells, prestressing system, grout, concrete, reinforcement, cutting tips, drill bits, and any other material used in furnishing and installing the alternative piles shall be considered as included in the contract price paid for the State designed piling of the type shown on the plans and in the Engineer's Estimate, and no additional compensation will be allowed therefor.

Full compensation for driving, jetting, drilling, vibrating, prestressing, removal of casings, and for disposal of material resulting from alternative pile installation, including performance and proof testing alternative piling shall be considered as included in the contract price paid for the State designed piling of the type shown on the plans and in the Engineer's Estimate, and no additional compensation will be allowed therefor.

Full compensation for revisions to other facilities made necessary by the use of an alternative pile shall be considered as included in the contract price paid for the State designed piling of the type shown on the plans and in the Engineer's Estimate, and no separate payment will be made therefor.

Full compensation for system, performance, and proof testing alternative piling, including placing additional reinforcement, load test anchorage, and for cutting off piles as specified, shall be considered as included in the contract price paid for the State designed piling of the type shown on the plans and in the Engineer's Estimate, and no additional compensation will be allowed therefor.

No payment will be made for alternative piles that fail to meet any of the acceptance criteria.

No compensation will be made for additional excavation, backfill, concrete, reinforcement, nor any other costs incurred from footing enlargement resulting from replacing rejected alternative piles or for placing additional alternative piling in footings with piles that failed to meet the specified testing requirements.

The quantities of earthwork, concrete, and reinforcement will be computed on the basis of the dimensions and details for the State designed pile footing shown on the plans, and payment will be made based on the quantities shown in the Engineer's Estimate. No change in the quantities of earthwork, concrete, and reinforcement to be paid for will be made because of the use by the Contractor of alternative pile footings.

Sections 4-1.03B, "Increased or Decreased Quantities," 4-1.03B(1), "Increases of more than 25 Percent," 4-1.03B(2), "Decreases of more than 25 Percent," and 4-1.03C, "Changes in Character of Work," of the Standard Specifications shall not apply to piles listed under "Alternative Piling" of these special provisions.