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October 20, 2006

12-Ora-90-19.0/20.9
12-056214
HP21L-6212(011)E

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in ORANGE COUNTY IN YORBA LINDA AND ANAHEIM ON ROUTE 90 FROM 0.95 KM EAST OF KELLOGG DRIVE UNDERCROSSING TO LA PALMA AVENUE.

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 November 2, 2006.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions, the Proposal and Contract, and the Federal Minimum Wages with Modification Number 42 dated 10-13-06.

Project Plan Sheets 39, 65, 66, 67, 69, 70, 85, 108, 114, 115, 121, 135, 136, 157, 158, 187, 188, 189, 190, 192, 200, 205, 206, 207, 289, 318, 370, are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 133A, 133B, 133C, 192A are added. Half-sized copies of the added sheets are attached for addition to the project plans.

Project Plan Sheets 80 is deleted.

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the following paragraph is added after the sixth paragraph:

"Demolition of all improvements within the state's right of way will be completed by others prior to the beginning of construction. Attention is directed to the Cooperation Clause within these special provisions regarding parcels no. 102147-1 and 102148."

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In the Special Provisions, Section 10-1.03, "WATER POLLUTION CONTROL," subsection, "RETENTION OF FUNDS," the fourth paragraph is revised as follows:

"During each estimate period that the Contractor fails to conform to the provisions in this section, "Water Pollution Control," the Department may retain an amount equal to 25 percent of the estimated value of the contract work performed."

In the Special Provisions, Section 10-1.093, "TEMPORARY CONCRETE (CURB RAMP)," is added as attached.

In the Special Provisions, Section 10-1.095, "TEMPORARY ASPHALT CONCRETE SIDEWALK," is added as attached.

In the Special Provisions, Section 10-1.097, "TEMPORARY ASPHALT CONCRETE," is added as attached.

In the Special Provisions, Section 10-1.11, "COOPERATION," the following paragraph is added after the second paragraph:

"It is anticipated that work by another contractor to clear the structures on the following parcels (apartments and strip mall) will be complete by the start of the work on this contract. Parcels No. 10247-1 and 102148. (Contract No. 12A1073).

In the Special Provisions, Section 10-1.32, "EARTH RETAINING STRUCTURES," is replaced as attached.

In the Special Provisions, Section 10-1.33, "CONTROLLED LOW STRENGTH MATERIAL," is replaced as attached.

In the Special Provisions, Section 10-1.48, "CONCRETE STRUCTURES," subsection, "GENERAL," the following paragraphs are added after the last paragraph:

"Prior to placing portland cement concrete overlay, curing compound and other deleterious material shall be removed from the bridge deck surface by abrasive blasting.

Surfaces of portland cement concrete overlay for the sidewalk on the bridge shall be broom finished transversely to the line of traffic."

In the Special Provisions, Section 10-1.48, "CONCRETE STRUCTURES," subsection, "MEASUREMENT AND PAYMENT," the following paragraphs are added after the first paragraph:

"Furnishing portland cement concrete overlay will be measured by the cubic meter as furnish deck overlay (concrete).

Placing portland cement concrete overlay will be measured by the square meter as place deck overlay (concrete).

The contract price paid per cubic meter for furnish deck overlay (concrete) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to furnish portland cement concrete overlay material to the site of the work, ready for application, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per square meter for place deck overlay (concrete) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the portland cement concrete overlay, complete in place, including preparing bridge deck by abrasive blasting prior to placing the overlay, as shown on the plans, as specified in these special provisions, and as directed by the Engineer."

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In the Special Provisions, Section 10-1.83, "CONCRETE BARRIER," the third and fourth paragraphs are deleted.

In the Proposal and Contract, the Engineer's Estimate Items 15, 16, 18, 20, 21, 22, 50, 64, 70, 82, 88, 89, 90, 99, 104, 108, 168, 172, 178 are revised, Items 210, 211, 212, 213, 214, 215 are added and Items 1, 173, 209 are deleted as attached.

To Proposal and Contract book holders:

Replace pages 4, 5, 6, 7, 8, 9, 12, and 13A of the Engineer's Estimate in the Proposal with the attached revised pages 4, 5, 6, 7, 8, 9, 12, and 13A of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

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 CONTRACTORS section of the Notice to Contractors 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 proposal.

Submit bids in the Proposal and Contract 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.

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

If you are not a Proposal and Contract 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,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

10-1.093 TEMPORARY CONCRETE (CURB RAMP)

Temporary concrete (curb ramp) shall conform to the provisions in Section 73, "Concrete Curbs and Sidewalks," of the Standard Specifications and these special provisions.

When no longer needed, temporary concrete (curb ramp) shall be removed and disposed of outside the State Right of Way in conformance with the provisions in section 15-2.03, "Disposal," of the Standard Specifications.

Curb ramp detectable warning surface shall consist of raised truncated domes constructed or installed on curb ramps in conformance with the details shown on the plans and these special provisions. At the option of the Contractor, the detectable warning surface shall be prefabricated, cast-in-place, or stamped into the surface of the curb ramp. The color of the detectable warning surface shall be yellow conforming to Federal Standard 595B, Color No. 33538.

Prefabricated detectable warning surface shall be in conformance with the requirements established by the Department of General Services, Division of State Architect and be attached in conformance with the manufacturer's recommendations.

Cast-in-place and stamped detectable warning surfaces shall be painted in conformance with the provisions in Section 59-6, "Painting Concrete," of the Standard Specifications.

The finished surfaces of the detectable warning surface shall be free from blemishes.

Prior to constructing the cast-in-place or stamping the detectable warning surface, the Contractor shall demonstrate the ability to produce a detectable warning surface conforming to the details shown on the plans and these special provisions by constructing a 600-mm by 600-mm test panel.

The manufacturer shall provide a written 5-year warranty for prefabricated detectable warning surfaces, guaranteeing replacement when there is defect in the dome shape, color fastness, sound-on-cane acoustic quality, resilience, or attachment. The warranty period shall begin upon acceptance of the contract.

Full compensation for constructing or furnishing and installing curb ramp detectable warning surfaces shall be considered as included in the contract price paid per cubic meter for temporary concrete (curb ramp) and no separate payment will be made therefor.

Full compensation for maintaining and, when no longer needed, removing and disposing of temporary concrete (curb ramp) shall be considered as included in the contract price paid per cubic meter for temporary concrete (curb ramp) and no separate payment/additional compensation will be made/allowed therefor.

10-1.095 TEMPORARY ASPHALT CONCRETE SIDEWALK

Temporary asphalt concrete sidewalk shall be constructed, maintained and later removed when no longer required in accordance with the details shown on the plans, as specified in these special provisions and the Standard Specifications and as directed by the Engineer.

The Contractor's attention is directed to the provisions in "asphalt concrete" elsewhere in these special provisions.

temporary asphalt concrete sidewalk shall conform to the provisions in Section 39, "Asphalt Concrete," of the Standard Specifications and these special provisions

Temporary temporary asphalt concrete sidewalk will be measured and paid for by the square meter.

When no longer needed, temporary asphalt concrete sidewalk shall be removed and disposed of outside the State Right of Way in conformance with the provisions in section 15-2.03, "Disposal," of the Standard Specifications.

Full compensation for constructing, maintaining, removing and disposing of temporary asphalt concrete sidewalks shall be considered as included in the contract unit price paid for temporary asphalt concrete sidewalk and no separate payment will be made therefor.

10-1.097 TEMPORARY ASPHALT CONCRETE (MISCELLANEOUS AREA)

Temporary asphalt concrete (miscellaneous area) shall be constructed, maintained and later removed when no longer required in accordance with the details shown on the plans, as specified in these special provisions and the Standard Specifications and as directed by the Engineer.

The Contractor's attention is directed to the provisions in "asphalt concrete" elsewhere in these special provisions.

temporary asphalt concrete (miscellaneous areas) shall conform to the provisions in Section 39, "Asphalt Concrete," of the Standard Specifications and these special provisions

Temporary temporary asphalt concrete (miscellaneous areas) will be measured and paid for by the square meter.

When no longer needed, temporary asphalt concrete (miscellaneous areas) shall be removed and disposed of outside the State Right of Way in conformance with the provisions in section 15-2.03, "Disposal," of the Standard Specifications.

Full compensation for constructing, maintaining, removing and disposing of temporary asphalt concrete (miscellaneous areas) shall be considered as included in the contract unit price paid for temporary asphalt concrete (miscellaneous areas) and no separate payment will be made therefor.

10-1.32 EARTH RETAINING STRUCTURES

Earth retaining structures, consisting of MSE walls, shall conform to the details shown on the plans and these special provisions.

Attention is directed to "Precast Concrete Quality Control" of these special provisions.

At the Contractor's option, one of the following acceptable alternative earth retaining systems may be constructed:

Proprietary Earth Retaining System	Address and Phone Number
Reinforced Earth (1.52 m cruciform concrete face panels; 1.52 m square concrete face panels)	The Reinforced Earth Company 1 Orchard Road, Suite 220 Lake Forest, CA 92630 (949) 587-3060 www.reinforcedearth.com
Retained Earth (1.52 m square concrete face panels)	Foster Geotechnical 1660 Hotel Circle North, Suite 304 San Diego, CA 92108 (619) 688-2400 www.lbfoster.com
MSE Plus (1.52 m square concrete face panels; 1.52 m high by 1.83 m wide concrete face panels)	SSL 4740 Scotts Valley Drive, Suite 'E' Scotts Valley, CA 95066 (831) 430-9300

Only one type of earth retaining system shall be used at any one location.

The above list of acceptable alternative earth retaining systems has been selected from the Department's current list of prequalified earth retaining systems and is limited only to those systems determined to have characteristics suitable for this project. Among the alternatives shown, some systems may be proprietary.

The list of prequalified earth retaining systems has been developed from data previously furnished by suppliers or manufacturers of each system. Approval of additional earth retaining systems is contingent on the system meeting the full range of parameters for which prequalification is required. The prequalification requirements can be obtained from the Office of Structure Design, Mail Station 9-2/9I, 1801 30th Street, Sacramento, CA 95816.

WORKING DRAWINGS

If the Contractor elects to use a proprietary earth retaining system from the list of acceptable alternative systems, the Contractor shall submit complete working drawings for each installation of the system to the Office of Structure Design (OSD) in conformance with the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. For initial review, 4 sets of drawings shall be submitted. After review between 6 and 12 sets, as requested by the Engineer, shall be submitted to OSD for final approval and use during construction.

Working drawings shall be 279 mm x 432 mm in size, and each drawing and calculation sheet shall include 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-Kilometer Post. The design firm's 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.

The Contractor shall verify the existing ground elevations at the site before preparing the working drawings. The working drawings shall contain all information required for the proper construction of the system at each location including existing ground line at face of wall as verified at the site and any required revisions or additions to drainage systems or other facilities. The working drawings shall include "General Notes" which contain design parameters, material notes, and wall construction procedures, including stage construction plan, and shall be accompanied with calculations. The working drawings and calculations shall be stamped and signed by an engineer who is registered as a Civil Engineer in the State of California. The Contractor shall allow the Engineer 8 weeks to review the drawings after a complete set has been received.

Unless otherwise specified, at the completion of each structure for which working drawings were submitted, and if the work detailed in these working drawings is permanent, the Contractor shall submit to the Engineer one set of corrected as-built prints 279 mm x 432 mm in size and on 75-g/m² (minimum) bond paper, showing as built conditions. As-built drawings that are common to more than one structure shall be submitted for each structure.

MATERIALS

Earthwork

Excavation and backfill shall conform to the details shown on the plans, the provisions in Section 19, "Earthwork," of the Standard Specifications, and these special provisions.

Structure backfill for earth retaining structures with soil reinforcement shall be free of organic material and substantially free of shale or other soft materials of poor durability. Structure backfill shall not contain slag aggregate or recycled materials such as glass, shredded tires, portland cement concrete rubble, asphaltic concrete rubble, or other unsuitable material as determined by the Engineer.

Structure backfill for earth retaining structures with soil reinforcement shall conform to the following requirements:

Gradation Requirements		
Sieve Size	Percentage Passing	California Test
159-mm	100	202
75-mm	78 - 100	202
4.75-mm	----	202
600- μ m	0 - 60	202
75- μ m	0 - 15	202

Property Requirements		
Test	Requirement	California Test
Sand Equivalent	12 minimum	217
Plasticity Index	6 maximum	204
Minimum Resistivity	2000 ohm-cm	643
Chlorides	< 250 ppm	422
Sulfates	< 500 ppm	417
pH	5.5 to 10.0	643

If 12 percent or less passes the No. 75- μ m sieve and 50 percent or less passes the No. 4.75-mm sieve, the Sand Equivalent and Plasticity Index requirements shall not apply.

Structure backfill for earth retaining structures with geosynthetic soil reinforcement shall conform to the following requirements:

Gradation Requirements		
Sieve Size	Percentage Passing	California Test
50-mm	100	202
4.75 mm	50 - 80	202
425- μ m	0 - 30	202
75- μ m	0 - 15	202

Property Requirements		
Test	Requirement	California Test
Sand Equivalent	30 minimum	217
Plasticity Index	6 maximum	204
Durability Index	35 minimum	229
PH	4.5 to 9.0	643

Permeable material shall be used for the portion of the structure backfill for earth retaining structures with soil reinforcement within the limits shown on the plans. Permeable material shall be Class 1, Type B, conforming to the provisions in Section 68-1.025, "Permeable Material," of the Standard Specifications.

Permeable material for earth retaining structures with metallic soil reinforcement shall conform to the following requirements:

Property Requirements		
Test	Requirement	California Test
Minimum Resistivity	2000 ohm-cm	643
Chlorides	< 250 ppm	422
Sulfates	< 500 ppm	417
pH	5.5 to 10.0	643

Permeable material for earth retaining structures with geosynthetic soil reinforcement shall conform to the following requirements:

Property Requirements		
Test	Requirement	California Test
pH	4.5 to 9.0	643

Water used for earthwork or dust control within 150 meters of earth retaining structures with metallic soil reinforcement shall conform to the provisions for water in Section 90-2.03, "Water," of the Standard Specifications.

Concrete

Concrete used in precast and cast-in-place reinforced concrete members of earth retaining structures shall conform to the details shown on the plans, the provisions in Section 51, "Concrete Structures," of the Standard Specifications, and these special provisions.

The concrete leveling pads for the Mechanically Stabilized Embankment (MSE) system shall conform to the provisions in Section 90-10, "Minor Concrete," of the Standard Specifications.

Reinforcement

Reinforcement shall conform to the provisions in Section 52, "Reinforcement," of the Standard Specifications and these special provisions.

Galvanizing

Soil reinforcement, connecting elements, and other steel components that are in contact with the earth shall be galvanized in conformance with the provisions in Section 75-1.05, "Galvanizing," of the Standard Specifications.

Inspection Elements

If a proprietary alternative system is selected, inspection elements representative of the particular soil reinforcement shall be furnished in the same number and approximate location as shown on the plans for the MSE system.

When metallic soil reinforcement is used, the threaded end of the inspection wire may be formed before or after galvanizing. The end 100 mm of the wire shall be coated with two applications of an approved unthinned commercial quality zinc-rich primer (organic vehicle type). The threaded end of the wire shall be encapsulated with corrosion inhibiting, mastic filled, round vinyl enclosure secured with a nylon tie as shown on the plans. If the threaded end is galvanized after threading, the threads shall be cleaned before painting. There shall be no damage to the unthreaded portion of the galvanized inspection wire.

Soil Reinforcement

Soil reinforcement shall conform to the details shown on the contract plans, the approved working drawings, the pre-approved proprietary system details, and these special provisions.

MW70 and MW130 steel wire shall conform to the requirements in ASTM Designation: A 82/A 82M. The welded wire mat shall conform to the requirements in ASTM Designation: A 185/A 185M. MD70 and MD130 deformed steel wire may be substituted for MW70 and MW130 steel wire, respectively. The welded wire mat utilizing deformed steel wire shall conform to the requirements in ASTM Designation: A 496/A 496M and ASTM Designation: A 497/A 497M.

The button on button-head wires shall conform to the provisions in Section 50-1.05, "Prestressing Steel," of the Standard Specifications.

The coupler at the wire mat connection shall be a seamless steel sleeve. The coupler shall be applied over the button-head wires and swaged by means of a hydraulic press. The coupler shall develop the minimum tensile strength of the wire without exceeding a total slip of the wires of 5.0 mm.

Sample button-head wire and coupler connectors shall develop the minimum tensile requirements for MW70 and MW130 steel wire in ASTM Designation: A 82/A 82M without exceeding a total slip of the wires of 5.0 mm when tested in conformance with the provisions for tension testing of round wire samples in ASTM Designation: A 370. When MD70 and MD130 deformed steel wire are substituted, samples shall develop the minimum tensile requirements contained in ASTM Designation: A 496/A 496M. An independent testing laboratory shall perform button-head wire and coupler connection testing. Samples shall consist of 2 button-head wires each 600 mm long connected by a swaged coupler.

Prior to the start of wall construction, the Contractor shall furnish test results to the Engineer from tension and slip tests conducted on 6 proposed button-head wire and coupler connections. Failure of any of the proposed button-head wire and coupler connector samples to meet the slip and tensile strength requirements herein shall require the connection be redesigned by the Contractor.

No installation of face panels shall be allowed until the Contractor has successfully completed tension and slip testing for proposed button-head wire and coupler connectors.

During wall construction, the Contractor shall furnish test results to the Engineer from tension and slip testing of 4 samples of production button-head wire and coupler connections for each lot of 500 individual mat wire connections incorporated into the work. Production testing shall consist of testing each of the 4 sample connections for both slip and tensile requirements herein. If 2 or more of the production samples fail to meet slip or tensile test requirements, the entire lot represented by these samples shall be rejected. If one of the production samples fails to meet slip or tensile test requirements, an additional 4 samples shall be tested. Should any of the additional samples fail to meet the slip or tensile requirements, the entire lot represented by these samples shall be rejected.

Splicing of the welded wire mat along its length shall be by mechanical coupler, which shall develop the minimum tensile strength of the wire. The mechanical coupler shall be approved by the Engineer.

Geogrid soil reinforcement roll identification, storage, and handling shall be in accordance with ASTM Designation: D 4873, and as specified in the pre-approved proprietary details. The geogrid shall be shipped and stored such that the material is not placed directly on the ground. The geogrid shall be covered and protected at all times during shipment and storage such that it is fully protected from UV radiation including sunlight, site construction damage, precipitation, chemicals, flames including welding sparks, temperatures less than -29°C or greater than 60°C, or other conditions that may damage the physical property values of the geogrid. The Contractor shall prevent foreign materials from coming into contact with or affixing to the geogrid.

Miscellaneous

Resin bonded cork for horizontal joints shall conform to the requirements in ASTM Designation: D 1752, Type II, with a compressive load of not less than 690 kPa.

Pipe for the pipe pin shall conform to the requirements in ASTM Designation: A 53/A 53M, Standard weight, except the amount of the zinc coating per square meter of actual surface shall average not less than 610 g and no individual specimen shall be less than 550 g.

CONSTRUCTION

Earth retaining structures shall be constructed to the lines, grades, and details shown on the plans, and shall conform to these special provisions.

Earthwork

The foundation for the structure shall be graded level for a width equal to the length of soil reinforcement elements plus 300 mm or as shown on the contract plans. The foundation material shall be compacted to a relative compaction of not less than 95 percent. The Engineer shall approve the compacted foundation area prior to commencement of wall construction.

The contractor shall remove unsuitable material as determined and directed by the Engineer. This work shall be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

Structure backfill material shall be placed and compacted simultaneously with the erection of the facing panels. Placement and compaction shall be accomplished without distortion of the soil reinforcement or displacement of facing panels. Structure backfill at the front of the wall shall be completed prior to backfilling more than 4 m above the bottom of the lowermost face element.

Vertical and horizontal alignment tolerances of panels shall not exceed 20 mm when measured along a 3 m straight edge. The maximum allowable offset in any panel joint shall not exceed 20 mm.

Structure backfill for earth retaining structures with soil reinforcement shall be compacted to a relative compaction of not less than 95 percent.

A relative compaction of not less than 95 percent shall be obtained for embankment under earth retaining structures with soil reinforcement within the limits established by inclined planes sloping 1:1.5 (vertical:horizontal) out and down from lines 0.3-m outside the bottom limits of structure backfill, including permeable material when required.

Soil reinforcement shall be tensioned in the direction perpendicular to the wall face with enough force to remove any slack in the connection or in the soil reinforcement itself. Soil reinforcement shall be secured in place to prevent movement during placement of additional soil reinforcement and structure backfill until the initial lift of structure backfill is compacted.

Geogrid soil reinforcement shall be placed in full-length sections.

Soil reinforcement shall be covered with structure backfill during the same work shift that it is placed.

Placement and compaction of structure backfill shall begin 300 mm from the back face of wall panels and progress towards the free end of the soil reinforcement. Compaction equipment shall be operated parallel to the wall facing. The remaining width of backfill behind the wall panels shall be placed and compacted after soil reinforcement has been covered to a depth of 150 mm.

Sheepsfoot or grid-type rollers shall not be used for compacting material within the limits of the soil reinforcement. Hand-held or hand-guided compacting equipment shall be used to compact structure backfill material within one meter of the facing panels.

Construction equipment shall not be operated directly on the soil reinforcement. A layer of structure backfill material not less than 150 mm in thickness shall be maintained between the soil reinforcement and construction equipment of any type.

Structure backfill material for earth retaining structures with geogrid soil reinforcement shall be placed in lifts not to exceed 150 mm where hand-operated compacting equipment is used and 200 mm where heavy compaction equipment is used.

At each level of the soil reinforcement the structure backfill shall be constructed to a plane 50 mm above the elevation of the soil reinforcement connection and shall start one meter from the back of the face panel and extend for at least the remaining length of soil reinforcement. This grading shall be complete before placing the next layer of soil reinforcement.

Permeable material and filter fabric shall be placed along with structure backfill as shown on the plans. Permeable material shall be placed in layers not exceeding 0.6-m in thickness. Compaction of the permeable material for the drainage system outside the limits of the soil reinforcement is not required, and equipment shall not be operated directly on the permeable material or filter fabric. If a sloped layer of permeable material is placed to facilitate the work or to satisfy safety considerations, the vertical limits of permeable material shall remain unchanged and the thickness of the layer of permeable material shall be measured normal to the slope.

The Contractor shall grade the reinforced backfill to rapidly drain away from the wall face at the end of each work shift. Berms or ditches shall be provided to direct runoff away from the wall site. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

Filter Fabric

Filter fabric shall be placed at the locations and in conformance with the details shown on the plans and these special provisions.

Immediately prior to placing filter fabric, the subgrade to receive the filter fabric shall conform to the compaction and elevation tolerance specified for the material involved and shall be free of loose or extraneous material and sharp objects that may damage the filter fabric during installation.

Concrete panel surfaces to receive filter fabric shall be dry and thoroughly cleaned of dust and deleterious materials. Adhesive for bonding filter fabric to concrete panels shall be commercial grade.

Filter fabric shall be handled and placed in conformance with the manufacturer's recommendations.

Filter fabric shall be stretched, aligned, and placed in a wrinkle-free manner.

Adjacent borders of filter fabric shall be stitched or overlapped from 300 mm to 450 mm. The preceding roll shall overlap the following roll in the direction the material is being spread or shall be stitched. When filter fabric is joined by stitching it shall be stitched with yarn of a contrasting color. The size and composition of the yarn shall be as recommended by the filter fabric manufacturer. The stitches shall number 2 to 3 per centimeter of seam.

If the filter fabric is damaged during installation, it shall be repaired by placing a piece of filter fabric that is large enough to cover the damaged area and which meets the overlap requirement.

During spreading of the permeable material, a minimum of 150 mm of the material shall be maintained between the filter fabric and the Contractor's equipment. Where structure backfill material is to be placed on filter fabric, a minimum of 450 mm of structure backfill material shall be maintained between the filter fabric and the Contractor's equipment. Equipment or vehicles shall not be operated or driven directly on filter fabric.

Concrete

Concrete for the leveling pads shall be placed at least 24 hours prior to erecting face panels.

Exposed surfaces of precast and cast in place concrete members shall conform to the requirements shown on the plans and in "Architectural Treatment (Textured Concrete)" of these Special Provisions.

After placement of an inspection element and placement of backfill to a level at least 0.6-m above the inspection element, the void in the face panel shall be dry packed with portland cement mortar as shown on the plans. Dry pack shall conform to the provisions in Section 51-1.135, "Mortar," of the Standard Specifications, except that the proportion of cement to sand shall be that required to achieve a 28-day mortar compressive strength of 7 MPa to 10 MPa.

Proprietary Earth Retaining Systems

If the Contractor elects to construct one of the acceptable proprietary alternative earth retaining systems, the structure shall be constructed to the lines and grades shown on the plans. Vertical and horizontal alignment shall be checked at every course throughout the erection process. The construction shall include a drainage system where shown on the plans, and shall conform to the details shown on the approved working drawings, approved proprietary system details, and these special provisions.

The Contractor shall supply a Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications stating the supplied material meets the respective index criteria set forth when the proprietary alternative earth retaining system was prequalified by the Department, as measured in accordance with all test methods and standards specified in the Standard Specifications, these special provisions, and the approved working drawings.

A qualified representative of the proprietary earth retaining system manufacturer shall be present during erection and backfill of the first 3 meters of height of the entire length of the wall and shall be available during any remaining installations. The manufacturer's representative shall not be an employee of the Contractor.

Alternative earth retaining structures shall be constructed to accommodate the wall-mounted lighting, the wall mounted drainpipe, and the panels for future drainage inlets, as shown on the plans.

Alternative earth retaining structures shall consider vehicular impact and wind loading on attached soundwalls.

If the Contractor elects to construct one of the acceptable proprietary alternative earth retaining systems, a review time of 6 weeks will be required for approving aesthetic pattern on new panel size of MSE walls and MSE wall details.

The top of wall profile of alternative earth retaining systems shall conform to the profile shown on the plans. The bottom of face panels shall be at or below the elevations shown on the plans. The height and length to be used for any system shall be the minimums for that system that will effectively retain the earth behind the structure for the loading conditions and the contours, profile, or slope lines shown on the plans. The length of soil reinforcement for any system shall be not less than that shown on the plans. In addition, if the plans or special provisions indicate limiting parameters for alternative systems, the system shall conform to those parameters.

The top of face panels, assuming no leveling pad settlement, shall be covered by the coping lip or concrete barrier slab lip at a minimum of 170 mm.

The top level of soil reinforcement shall be placed parallel to the top of the concrete panel at a distance below the top of the wall as shown on the plans. The top level of soil reinforcement shall also be 1) placed a minimum of 75 mm below the bottom of the barrier slab lip or the bottom of the concrete gutter behind coping and 2) placed a minimum of 125 mm below the top edge of the concrete panel.

MEASUREMENT AND PAYMENT

Earth retaining structures will be measured and paid for by the square meter. Regardless of the type of earth retaining structure actually constructed, the square meter area for payment will be based on the length and vertical height of each section of MSE wall system shown on the plans that was or would have been constructed. The vertical height of each section will be taken as the difference in elevation on the outer face from the bottom of the lowermost face element to the top of wall profile.

The contract price paid per square meter for earth retaining structure at each location shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the earth retaining structure and inspection elements, including earthwork, piles, footings, and drainage systems, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per square meter for earth retaining structure at each location shown on the plans shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the earth retaining structure and inspection elements(except drainage systems), including earthwork, leveling pad, coping, and bearing pads, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The contract price paid per cubic meter for structural concrete, barrier slab shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the barrier slab, complete in place, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Full compensation for furnishing and testing sample mechanical connectors shall be considered as included in the contract price paid per square meter for earth retaining structure, and no separate payment will be made therefor.

Full compensation for revisions to the barrier support, drainage system, or other facilities made necessary by the use of an alternative earth retaining system shall be considered as included in the contract price paid per square meter for earth retaining structure, and no separate payment will be made therefor.

10-1.33 CONTROLLED LOW STRENGTH MATERIAL

Controlled low strength material shall consist of a workable mixture of aggregate, cementitious materials, and water and shall conform to the provisions for slurry cement backfill in Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications and these special provisions.

At the option of the Contractor, controlled low strength material may be used as structure backfill for pipe culverts, except that controlled low strength material shall not be used as structure backfill for culverts having a diameter or span greater than 6.1 m.

When controlled low strength material is used for structure backfill, the width of the excavation shown on the plans may be reduced so that the clear distance between the outside of the pipe and the side of the excavation, on each side of the pipe, is a minimum of 300 mm. This minimum may be reduced to 150 mm when the height of cover is less than or equal to 6.1 m or the pipe diameter or span is less than 1050 mm.

Controlled low strength material in new construction shall not be permanently placed higher than the basement soil. For trenches in existing pavements, permanent placement shall be no higher than the bottom of the existing pavement permeable drainage layer. If a drainage layer does not exist, permanent placement in existing pavements shall be no higher than 25 mm below the bottom of the existing asphalt concrete surfacing or no higher than the top of base below the existing portland cement concrete pavement. The minimum height that controlled low strength material shall be placed, relative to the culvert invert, is 0.5 diameter or 0.5 height for rigid culverts and 0.7 diameter or 0.7 height for flexible culverts.

When controlled low strength material is proposed for use, the Contractor shall submit a mix design and test data to the Engineer for approval prior to excavating the trench for which controlled low strength material is proposed for use. The test data and mix design shall provide for the following:

- A. A 28-day compressive strength between 345 kPa and 690 kPa for pipe culverts having a height of cover of 6.1 m or less and a minimum 28-day compressive strength of 690 kPa for pipe culverts having a height of cover greater than 6.1 m. Compressive strength shall be determined in conformance with the requirements in ASTM Designation: D 4832.
- B. Cement shall be any type of portland cement conforming to the requirements in ASTM Designation: C 150; or any type of blended hydraulic cement conforming to the requirements in ASTM Designation: C 595M or the physical requirements in ASTM Designation: C 1157M. Testing of cement will not be required.
- C. Admixtures may be used in conformance with the provisions in Section 90-4, "Admixtures," of the Standard Specifications. Chemical admixtures containing chlorides as Cl in excess of one percent by mass of admixture, as determined in conformance with the requirements of California Test 415, shall not be used. If an air-entraining admixture is used, the maximum air content shall be limited to 20 percent. Mineral admixtures shall be used at the Contractor's option.

Materials for controlled low strength material shall be thoroughly machine-mixed in a pugmill, rotary drum or other approved mixer. Mixing shall continue until the cementitious material and water are thoroughly dispersed throughout the material. Controlled low strength material shall be placed in the work within 3 hours after introduction of the cement to the aggregates.

When controlled low strength material is to be placed within the traveled way or otherwise to be covered by paving or embankment materials, the material shall achieve a maximum indentation diameter of 76 mm prior to covering and opening to public traffic. Penetration resistance shall be measured in conformance with the requirements in ASTM Designation: D 6024.

Controlled low strength material used as structure backfill for pipe culverts will be considered structure backfill for compensation purposes.

ENGINEER'S ESTIMATE
12-056214

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	BLANK					
2	070012	PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LS	LUMP SUM	LUMP SUM	
3	070018	TIME-RELATED OVERHEAD	WDAY	850		
4	071322	TEMPORARY FENCE (TYPE CL-1.8)	M	780		
5	071325	TEMPORARY FENCE (TYPE ESA)	M	460		
6	073029	600 MM TEMPORARY CULVERT	M	75		
7	074019	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM	LUMP SUM	
8	074020	WATER POLLUTION CONTROL	LS	LUMP SUM	LUMP SUM	
9	074032	TEMPORARY CONCRETE WASHOUT FACILITY	EA	2		
10	074033	TEMPORARY CONSTRUCTION ENTRANCE	EA	2		
11	074041	STREET SWEEPING	LS	LUMP SUM	LUMP SUM	
12 (S)	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM	LUMP SUM	
13 (S)	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
14 (S)	120120	TYPE III BARRICADE	EA	16		
15 (S)	120149	TEMPORARY PAVEMENT MARKING (PAINT)	M2	140		
16 (S)	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	M	22 700		
17 (S)	120165	CHANNELIZER (SURFACE MOUNTED)	EA	250		
18 (S)	038950	TEMPORARY PAVEMENT MARKER (RETROREFLECTIVE)	EA	3330		
19 (S)	128650	PORTABLE CHANGEABLE MESSAGE SIGN	LS	LUMP SUM	LUMP SUM	
20 (S)	129000	TEMPORARY RAILING (TYPE K)	M	2880		

ENGINEER'S ESTIMATE
12-056214

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21 (S)	129100	TEMPORARY CRASH CUSHION MODULE	EA	280		
22 (S)	129150	TEMPORARY TRAFFIC SCREEN	M	2880		
23	150206	ABANDON CULVERT	M	135		
24	150608	REMOVE CHAIN LINK FENCE	M	1630		
25	150668	REMOVE FLARED END SECTION	EA	1		
26 (S)	150704	REMOVE YELLOW THERMOPLASTIC TRAFFIC STRIPE	M	4730		
27 (S)	150705	REMOVE YELLOW THERMOPLASTIC PAVEMENT MARKING	M2	15		
28 (S)	150711	REMOVE PAINTED TRAFFIC STRIPE	M	1540		
29 (S)	150713	REMOVE PAVEMENT MARKING	M2	100		
30 (S)	150714	REMOVE THERMOPLASTIC TRAFFIC STRIPE	M	9510		
31 (S)	150715	REMOVE THERMOPLASTIC PAVEMENT MARKING	M2	310		
32 (S)	150722	REMOVE PAVEMENT MARKER	EA	3860		
33	150742	REMOVE ROADSIDE SIGN	EA	67		
34	150771	REMOVE ASPHALT CONCRETE DIKE	M	1940		
35	038951	REMOVE RAISED ISLAND	M2	900		
36	150801	REMOVE OVERSIDE DRAIN	EA	9		
37	150805	REMOVE CULVERT	M	120		
38	150820	REMOVE INLET	EA	12		
39	150821	REMOVE HEADWALL	EA	5		
40	150860	REMOVE BASE AND SURFACING	M3	1860		

ENGINEER'S ESTIMATE
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Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	151224	REMOVE DELINEATOR	EA	30		
42	038952	RELOCATE CRASH CUSHION (TYPE ADIEM)	EA	1		
43	152390	RELOCATE ROADSIDE SIGN	EA	15		
44	153214	REMOVE CONCRETE CURB	M	520		
45	153215	REMOVE CONCRETE (CURB AND GUTTER)	M	320		
46	153218	REMOVE CONCRETE SIDEWALK	M2	1280		
47	153220	REMOVE CONCRETE (CHANNEL)	M3	26		
48	153246	REMOVE CONCRETE (MISCELLANEOUS)	M3	77		
49	160101	CLEARING AND GRUBBING	LS	LUMP SUM	LUMP SUM	
50	190101	ROADWAY EXCAVATION	M3	77 100		
51 (F)	192003	STRUCTURE EXCAVATION (BRIDGE)	M3	1500		
52 (F)	192037	STRUCTURE EXCAVATION (RETAINING WALL)	M3	1030		
53 (F)	192049	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	M3	2000		
54 (F)	192055	STRUCTURE EXCAVATION (SOIL NAIL WALL)	M3	270		
55 (F)	193003	STRUCTURE BACKFILL (BRIDGE)	M3	1850		
56 (F)	193013	STRUCTURE BACKFILL (RETAINING WALL)	M3	1920		
57 (F)	193028	STRUCTURE BACKFILL (SOIL NAIL WALL)	M3	20		
58 (F)	193029	STRUCTURE BACKFILL (SOLDIER PILE WALL)	M3	240		
59 (F)	193119	LEAN CONCRETE BACKFILL	M3	370		
60	040266	900 MM DRILLED HOLE	M	1460		

ENGINEER'S ESTIMATE**12-056214**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61	194001	DITCH EXCAVATION	M3	310		
62	040267	STEEL SOLDIER PILE (W250 X 80)	M	1310		
63	040268	STEEL SOLDIER PILE (W610 X 140)	M	380		
64	040269	STEEL SOLDIER PILE (W610 X 174)	M	270		
65	040270	STEEL SOLDIER PILE (W610 X 195)	M	85		
66 (F)	197021	EARTH RETAINING STRUCTURE, LOCATION A	M2	1680		
67 (F)	197022	EARTH RETAINING STRUCTURE, LOCATION B	M2	1415		
68 (F)	197023	EARTH RETAINING STRUCTURE, LOCATION C	M2	1370		
69 (S)	197060	SOIL NAIL ASSEMBLY	M	1060		
70	198001	IMPORTED BORROW	M3	84 300		
71	200114	ROCK BLANKET	M2	600		
72 (S)	203003	STRAW (EROSION CONTROL)	TONN	19		
73 (S)	203014	FIBER (EROSION CONTROL)	KG	4050		
74 (S)	203024	COMPOST (EROSION CONTROL)	M3	1120		
75 (S)	203026	MOVE-IN/MOVE-OUT (EROSION CONTROL)	EA	4		
76 (S)	203045	PURE LIVE SEED (EROSION CONTROL)	KG	140		
77 (S)	203061	STABILIZING EMULSION (EROSION CONTROL)	KG	920		
78	208038	NPS 3 SUPPLY LINE (BRIDGE)	M	110		
79 (S)	208732	250 MM CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT	M	83		
80	250201	CLASS 2 AGGREGATE SUBBASE	M3	6090		

ENGINEER'S ESTIMATE

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Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81	260201	CLASS 2 AGGREGATE BASE	M3	4330		
82	390102	ASPHALT CONCRETE (TYPE A)	TONN	24 900		
83	390108	ASPHALT CONCRETE BASE (TYPE A)	TONN	23 100		
84	394048	PLACE ASPHALT CONCRETE DIKE (TYPE E)	M	1460		
85	394049	PLACE ASPHALT CONCRETE DIKE (TYPE F)	M	38		
86	490566	FURNISH STEEL PILING (HP 360 X 132)	M	4340		
87 (S)	490567	DRIVE STEEL PILE (HP 360 X 132)	EA	284		
88 (S)	490655	400 MM CAST-IN-DRILLED-HOLE CONCRETE PILING	M	1770		
89 (S)	490656	450 MM CAST-IN-DRILLED-HOLE CONCRETE PILING	M	710		
90 (S)	038953	1220 MM CAST-IN-DRILLED-HOLE CONCRETE	M	10		
91 (S)	500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LUMP SUM	LUMP SUM	
92 (S)	500050	TIEBACK ANCHOR	EA	103		
93 (F)	040271	STRUCTURAL CONCRETE, ANCHOR SLAB	M3	235		
94 (F)	510050	STRUCTURAL CONCRETE	M3	780		
95 (F)	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M3	600		
96 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	3530		
97 (S)	038954	STRUCTURAL CONCRETE (TRAFFIC SIGNAL)	M3	46		
98 (F)	510060	STRUCTURAL CONCRETE, RETAINING WALL	M3	502.2		
99 (F)	510072	STRUCTURAL CONCRETE, BARRIER SLAB	M3	955		
100 (F)	510088	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N MODIFIED)	M3	220		

ENGINEER'S ESTIMATE

12-056214

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101 (F)	510220	CLASS 3 CONCRETE (BACKFILL)	M3	490		
102 (F)	510413	CLASS 1 CONCRETE (BOX CULVERT)	M3	132.4		
103 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	M3	196.3		
104	510524	MINOR CONCRETE (SOUND WALL)	M3	82		
105 (F)	511064	FRACTURED RIB TEXTURE	M2	2500		
106	511127	FURNISH DECK OVERLAY (CONCRETE)	M3	50		
107 (F)	511128	PLACE DECK OVERLAY (CONCRETE)	M2	370		
108 (S-F)	518002	SOUND WALL (MASONRY BLOCK)	M2	6277		
109	518025	FOOTING (SOUND WALL)	M3	9		
110 (S-F)	518201	MASONRY BLOCK WALL	M2	42		
111 (S-F)	038955	INSTALL METAL SOUND WALL	M2	220		
112 (S)	519144	JOINT SEAL (MR 50 MM)	M	90		
113 (S-F)	040272	BAR REINFORCING STEEL, ANCHOR SLAB	KG	13 800		
114 (S-F)	520101	BAR REINFORCING STEEL	KG	68 900		
115 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	KG	614 000		
116 (S)	038956	BAR REINFORCING STEEL (TRAFFIC SIGNAL)	KG	1700		
117 (S-F)	520107	BAR REINFORCING STEEL (BOX CULVERT)	KG	17 968		
118 (S-F)	530100	SHOTCRETE	M3	60		
119 (F)	560218	FURNISH SIGN STRUCTURE (TRUSS)	KG	10 400		
120 (S-F)	560219	INSTALL SIGN STRUCTURE (TRUSS)	KG	10 400		

ENGINEER'S ESTIMATE**12-056214**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161	038961	BARRIER MOUNTED DELINEATOR	EA	17		
162	820133	OBJECT MARKER (TYPE N)	EA	8		
163	820141	OBJECT MARKER (TYPE K-1)	EA	2		
164 (S-F)	833020	CHAIN LINK RAILING	M	108		
165 (S-F)	833031	CHAIN LINK RAILING (TYPE 6)	M	388		
166 (S-F)	833088	TUBULAR HANDRAILING	M	110		
167 (S)	038962	GALVINIZED HANDRAIL (STAIRWAY)	M	150		
168 (S)	839541	TRANSITION RAILING (TYPE WB)	EA	6		
169 (S)	839585	ALTERNATIVE FLARED TERMINAL SYSTEM	EA	6		
170 (S)	839603	CRASH CUSHION (ADIEM)	EA	3		
171	839701	CONCRETE BARRIER (TYPE 60)	M	1150		
172	839704	CONCRETE BARRIER (TYPE 60D)	M	640		
173	BLANK					
174	839726	CONCRETE BARRIER (TYPE 736A)	M	110		
175 (F)	839727	CONCRETE BARRIER (TYPE 736 MODIFIED)	M	714		
176 (F)	038963	CONCRETE BARRIER (TYPE 736-1 MODIFIED)	M	200		
177 (F)	038964	CONCRETE BARRIER (TYPE 736-2 MODIFIED)	M	100		
178	839734	CONCRETE BARRIER (TYPE 736SV)	M	540		
179 (S)	840515	THERMOPLASTIC PAVEMENT MARKING	M2	290		
180 (S)	840561	100 MM THERMOPLASTIC TRAFFIC STRIPE	M	8690		

ENGINEER'S ESTIMATE
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Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
201	150224	ABANDON SEWER MANHOLE	EA	1		
202	150824	REMOVE SEWER MANHOLE	EA	2		
203	150841	REMOVE SEWER PIPE	M	74		
204	490570	FURNISH STEEL PILING (HP 360 X 174)	M	466		
205 (S)	490571	DRIVE STEEL PILING (HP 360 X 174)	EA	37		
206	010444	300 MM PVC SEWER PIPE	M	180		
207	010445	1525 MM SEWER MANHOLE	M	11		
208	010446	1825 MM SEWER MANHOLE	M	16		
209	BLANK					
210	010807	PLACE TEMPORARY ASPHALT CONCRETE SIDEWALK	M2	440		
211	010808	TEMPORARY CONCRETE (CURB RAMP)	M3	1.0		
212	490657	600MM CAST-IN-DRILLED- HOLE CONCRETE PILING	M	74		
213	010809	CONCRETE BARRIER (TYPE 736SV)	M	110		
214	010810	PLACE TEMPORARY ASPHALT CONCRETE (MISCELLANEOUS AREA)	M2	160		
215	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____