

DEPARTMENT OF TRANSPORTATION

ESC/OE MS #43
1727 30TH STREET 2ND. Floor
SACRAMENTO, CA 95816



October 25, 1999

04-CC,Mrn-580-6.1/7.8,0.0/2.6
04-0438U4

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in CONTRA COSTA AND MARIN COUNTIES IN AND NEAR RICHMOND AND SAN RAFAEL FROM 1.7 MILES EAST TO 2.6 MILES WEST OF CONTRA COSTA/MARIN COUNTY LINE.

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 December 8, 1999.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions, and the Proposal and Contract.

Project Plan Sheets 5, 75, 669, 670, 671, 672, 680, 686, 687, 689, 690 and 691 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

In the Notice To Contractors, the Internet address for posting the addenda is revised to:

"http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/08-16-99/04-0438U4"

In the Special Provisions, before SECTION 1. SPECIFICATIONS AND PLANS, "Annexed to Contract No. 04-043844" is revised to "Annexed to Contract No. 04-0438U4".

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," the WORKING DAYS is revised to 1250.

In the Special Provisions, Section 5-1.22, "FORCE ACCOUNT PAYMENT," the following sentence is added last in the second paragraph:

"These markups shall be applied to all force account work, regardless if the added force account work affects the contract completion date."

In the Special Provisions, Section 5-1.24, "PAYMENTS," second paragraph, the maximum value of the contract item, "Electronic Mobile Daily Diary Computer System Data Delivery" for progress payment purposes is revised to \$51,000.

In the Special Provisions, Section 5-1.34, "ENVIRONMENTAL WORK RESTRICTIONS," under "HARBOR SEAL" of the subsection, "SPECIES OF CONCERN," the first paragraph is revised to read:

"HARBOR SEAL.—No work or activity shall occur anywhere, including in the water or on the structure, between Piers 52 through 57 (inclusive) during the "Closure Period" defined as February 15 to July 31 of any year. In addition, the Contractor shall furnish and install buoys delineating an exclusion zone at the location shown on the plans. A regulatory marker designating a boat exclusion area shall be on all buoys in accordance with the requirements of the U.S. Coast Guard. The words, "Exclusion Area" shall be clearly printed on each marker. Buoys shall be in accordance with the requirements of the U.S. Coast Guard. The Contractor shall obtain a Private Aids to Navigation Permit from the U.S. Coast Guard prior to installing the buoys. Outside of the "Closure Period", water crafts can enter the exclusion zone only when construction equipment is required in this area for work conducted specifically at Piers 52 through 57."

In the Special Provisions, Section 5-1.40, "ACCESS TO JOBSITE," the zip code of the Toll Bridge Program District 04 office is changed to 94612.

In the Special Provisions, Section 10-1.01, "ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY," is revised as attached.

In the Special Provisions, Section 10-1.02, "ORDER OF WORK," the subsection, "CONSTRUCTION PROCEDURE DEMONSTRATION," is revised as attached.

In the Special Provisions, Section 10-1.05, "STABILIZED CONSTRUCTION ENTRANCE," the first paragraph is revised to read:

"Stabilizing construction entrance shall consist of furnishing, placing, maintaining and later removing and disposing of construction entrance stabilization for vehicular ingress's and egresses at the job site, and shall be constructed as shown in the CSWPPP in accordance with these special provisions and the details shown on plans, and as directed by the Engineer."

In the Special Provisions, Section 10-1.06, "TEMPORARY CONCRETE WASHOUT FACILITIES," the last sentence of the third paragraph is revised to read:

"The location of any concrete washout facility, except those facilities on water borne vessels and the bridge deck, shall not be allowed within 150 feet of drainage inlets and 200 feet of defined water bodies or areas designated as Environmentally Sensitive Areas (ESA)."

In the Special Provisions, Section 10-1.13, "PROGRESS SCHEDULE (CRITICAL PATH)," is revised as attached.

In the Special Provisions, Section 10-1.14, "TRANSPORTATION FOR THE ENGINEER," the last paragraph is replaced by the following paragraphs:

"Payment for furnishing a boat, boat operator, and crew within the first 90 days after the award of the contract at the request of the Engineer will be paid for as extra work as provided in Section 4-1 .03D of the Standard Specifications.

Payment for furnishing a boat, boat operator, and crew in excess of the complete duration of the work on the days when the contractor's work is in progress will be paid for as extra work as provided in Section 4-1 .03D of the Standard Specifications. Payment for furnishing a boat, boat operator, and crew in excess of 8 hours per day excluding Sundays and legal holidays on the days when the Contractor's work is not in progress will be paid for as extra work as provided in Section 4-1 .03D of the Standard Specifications.

Payment for furnishing a boat, boat operator, and crew on Sundays and legal holidays when the Contractor's work is not in progress will be paid for as extra work as provided in Section 4-1 .03D of the Standard Specifications.

No additional payment will be made for furnishing the boat, boat operator and the crew in excess of the time specified herein."

In the Special Provisions, Section 10-1.15, "OBSTRUCTIONS," the last paragraph is amended to read:

"Full compensation for coring holes in the bridge deck for inspection and for conforming to the requirements of this section, not otherwise provided for, shall be considered as included in the prices paid for the various contract items of work involved and no additional compensation will be allowed therefor."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the ninth paragraph is amended to read:

"The existing bike paths located between Piers 77 and 78 may be closed to bicycle and pedestrian traffic during the seismic retrofit work on Piers 77 and 78. The maximum closure of the bike paths shall not exceed 90 total days during the life of the project."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the twelfth paragraph is amended to read:

"One bridge deck may be closed to traffic during the hours indicated on the lane closure charts included in this section "Maintaining Traffic". When one bridge deck is closed, the other bridge deck shall remain open for use as two-way public traffic, with one lane in each direction of travel. Attention is directed to Section "Cooperation" elsewhere in these special provisions regarding the closure of the upper deck of the San Francisco-Oakland Bay Bridge starting in the year 2000. No deck closures will be allowed on Sunday mornings when the upper deck of the San Francisco-Oakland Bay Bridge is closed."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the eighteenth paragraph is amended to read:

"Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, Thanksgiving Day, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday shall be a designated legal holiday."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the twenty-first and the twenty-second paragraphs are revised respectively as follows:

"Erection of steel structural members and precast concrete members, pile installation, lifting of loads, equipment and material, and other operations will not be permitted over live traffic. Traffic shall be routed around the work or off the bridge deck as shown on the plans and in accordance with the closures in "Maintaining Traffic" of these special provisions.

Regardless of the construction procedure, and the methods and equipment selected, the Contractor shall have all necessary materials and equipment on the site to install piles, erect or remove the pre-cast concrete or steel structural member in any one location prior to any occupation of a traffic lane, and shall install piles, or erect or remove the pre-cast concrete or steel structural member in an expeditious manner in order that inconvenience to public traffic will be a minimum."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the first paragraph of the subsection, "TRAFFIC DELAY PENALTY," is amended to read:

"TRAFFIC DELAY PENALTIES.--Should the Contractor fail to provide all lanes ready for use by public traffic at the times specified in the "Lane Closure Charts" included under "Maintaining Traffic" of these special provisions for either eastbound or westbound direction of the bridge, damages will be assessed by the Department. For each 10 minute period, or fraction thereof, damages in the amount of \$15,500 will be assessed when all lanes are not available for use by public traffic. The Department will permanently reduce the amount of any contract moneys due to the contractors, or that may become due, by the amount of these damages. It is expressly agreed by the parties that the specific degree of damage suffered by the traveling public is uncertain and cannot be readily ascertained with a high degree of accuracy and that, therefor, liquidated damages are appropriately established at the time of entering into the contract."

In the Special Provisions, Section 10-1.20, "MAINTAINING TRAFFIC," the first paragraph of the subsection, "CONTINGENCY PLAN," is amended to read:

"CONTINGENCY PLANS.--To minimize the impact if a catastrophic event should occur during the Contractor's bridge removal or installation operations, at least 90 days prior to the start of any removal and replacement operations, the Contractor shall submit to the Engineer contingency plans to provide temporary bridge deck(s) that spans no less than 125 feet to allow 2 lanes of traffic in each direction of travel at the Trestle bridge section."

In the Special Provisions, Section 10-1.31, "EXISTING HIGHWAY FACILITIES," sixth paragraph, the first item is revised to, "Caltrans Report on Paint Thickness, dated August 1999," and another item is added as follows:

"BCDC - Dredging and Disposal Road Map, dated June 4, 1999"

In the Special Provisions, Section 10-1A.24, "STEEL STRUCTURES," under the subsection, "GENERAL," the first and second paragraphs are deleted.

In the Special Provisions, Section 10-1B.33, "STEEL STRUCTURES," under the subsection, "GENERAL," the first and second paragraphs are deleted.

In the Proposal and Contract, the Engineer's Estimate Item 1 is revised as attached.

To Proposal and Contract book holders:

- REPLACE PAGE 3 OF THE ENGINEER'S ESTIMATE IN THE PROPOSAL WITH THE ATTACHED REVISED PAGE 3 OF THE ENGINEER'S ESTIMATE. THE REVISED ENGINEER'S ESTIMATE IS TO BE USED IN THE BID.
- 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.

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

NICK YAMBAO, Chief
Office of Plans, Specifications &
Estimates
Division of Office Engineer

Attachments

10-1.01 ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY

Attention is directed to Sections 5-1.10, "Equipment and Plants," and 7-1.01A(3), "Payroll Records," of the Standard Specifications, and these special provisions.

The Contractor shall submit to the Engineer a list of each piece of equipment and its identifying number, type, make, model and rate code in accordance with the Department of Transportation publication entitled "Labor Surcharge and Equipment Rental Rate" which is in effect on the date the work is performed, and the names, labor rates and work classifications for all field personnel employed by the Contractor and all subcontractors in connection with the public work, together with such additional information as is identified below. This information shall be updated and submitted to the Engineer weekly through the life of the project.

This personnel information will only be used for this mobile daily diary computer system and it will not relieve the Contractor and subcontractors from all the payroll records requirements as required by Section 7-1.01A(3), "Payroll Records," of the Standard Specifications.

The Contractor shall provide the personnel and equipment information not later than 11 days after the contract award for its own personnel and equipment, and not later than 5 days before start of work by any subcontractor for the labor and equipment data of that subcontractor.

The minimum data to be furnished shall comply with the following specifications:

Data Content Requirements.--

1. The Contractor shall provide the following basic information for itself and for each subcontractor that will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company name.	Alphanumeric; up to 30 characters.
Federal tax ID	Alphanumeric; up to 10 characters.
State contractor license	Alphanumeric; up to 20 characters.
Company type (prime or sub)	Alphanumeric; up to 10 characters.
Address (line 1).	Alphanumeric; up to 30 characters.
Address (line 2).	Alphanumeric; up to 30 characters.
Address (city).	Alphanumeric; up to 30 chars.
Address (2-letter state code).	Alphanumeric; up to 2 characters.
Address (zip code)	Alphanumeric; up to 14 characters.
Contact name.	Alphanumeric; up to 30 characters
Telephone number (with area code).	Alphanumeric; up to 20 characters.
Company code: short company name.	Alphanumeric; up to 10 characters.
Type of work (Department-supplied codes)	Alphanumeric; up to 30 characters

DBE status (Department-supplied codes)	Alphanumeric; up to 20 characters.
Ethnicity for DBE status (Department-supplied codes).	Alphanumeric; up to 20 characters.
List of laborers to be used on this contract (detail specified below).	
List of equipment to be used on this contract (detail specified below).	

For example, one such set of information for a company might be:

04-072359
XYZ CONSTRUCTION, INC.
94-2991040
AL1649T
SUB
1240 9TH STREET
SUITE 600
OAKLAND
CA
94612
JOHN SMITH
(510) 834-9999
XYZ
PAVING
MBE
BLACK

2. The Contractor shall provide the following information for each laborer who will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company code (as defined above).	Alphanumeric; up to 10 characters.
Employee ID	Alphanumeric; up to 10 characters.
Last name.	Alphanumeric; up to 20 characters.
First name.	Alphanumeric; up to 15 characters.
Middle name.	Alphanumeric; up to 15 characters.
Suffix	Alphanumeric; up to 15 characters
Labor trade (Department-provided codes).	Alphanumeric; up to 10 characters.
Labor classification (Department-provided codes).	Alphanumeric; up to 10 characters.

Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Double-time hourly rate	Alphanumeric; up to (6,2)
Standby hourly rate.	Alphanumeric; up to (6,2)
Ethnicity (Department-provided codes).	Alphanumeric; up to 20 characters.
Gender.	Alphanumeric; up to 1 characters.

For example, one such set of information might be:

04-072359
XYZ
1249
GONZALEZ
HECTOR
VINCENT
JR.
OPR
JNY
22.75
30.25
37.75
0.00
HISPANIC
M

3. The Contractor shall provide the following information for each piece of equipment that will be used on the contract:

Caltrans contract ID	Alphanumeric; up to 15 characters.
Company code (as defined above).	Alphanumeric; up to 10 characters.
Company's equipment ID number.	Alphanumeric; up to 10 characters.
Company's equipment description.	Alphanumeric; up to 60 characters.
Equipment type (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment make (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment model (from Department ratebook).	Alphanumeric; up to 60 characters.
Equipment rate code (from Department ratebook).	Alphanumeric; up to 10 characters

Regular hourly rate.	Alphanumeric; up to (6,2)
Overtime hourly rate.	Alphanumeric; up to (6,2)
Standby hourly rate	Alphanumeric; up to (6,2)
Idle hourly rate.	Alphanumeric; up to (6,2)
Rental flag.	Alphanumeric; up to 1 character.

For example, one such set of information might be:

04-072359
 XYZ
 B043
 CAT TRACTOR D-6C
 TRACC
 CAT
 D-6C
 3645
 28.08
 25.27
 14.04
 0.00
 N

Data Delivery Requirements.--

1. All data described in "Data Requirements" of this section shall be delivered to the Department electronically, on 3 1/2" floppy disks compatible with the Microsoft Windows operating system. The Contractor shall provide a weekly disk and hard copy of the required correct updated personnel and equipment information for the Contractor and all the subcontractors and verified correct by the Engineer.
2. Data of each type described in the previous section (contractor, labor, and equipment information) will be delivered separately, each type in one or more files on floppy disk. Any given file may contain information from one contractor or from multiple contractors, but only one type of data (contractor, labor, or equipment information).
3. The file format for all files delivered to Caltrans shall be standard comma-delimited, plain text files. This type of file (often called "CSV") is the most standard type for interchange of formatted data; it can be created and read by all desktop spreadsheet and desktop database applications. Characteristics of this type of file are:
 - All data is in the form of plain ASCII characters.
 - Each row of data (company, person, equipment) is delimited by a carriage return character.
 - Within rows, each column (field) of data is delimited by a comma character.
4. The files shall have the following columns (i.e., each row shall have the following fields):
 - Contractor info: 16 columns (fields) as specified in "Data Requirements #1", above.
 - Labor info: 15 columns (fields) as specified in "Data Requirements #2", above.
 - Equipment info: 13 columns (fields) as specified in "Data Requirements #3", above.

For each type of file, columns (fields) must be in the order specified under "Data Requirements", above. All columns (fields) described under "Data Requirements" must be present for all rows, even if some column (field) values are empty. The first row of each file may contain column headers (in plain text) rather than data, if desired.

5. Column (field) contents must conform to the data type and length requirements described in the "Data Requirement" section, above. In addition, column (field) data must conform to the following restrictions:
- All data shall be uppercase.
 - Company type shall be either "PRIME" or "SUB".
 - Labor trade and classification codes must conform to a list of standard codes that will be supplied by Department.
 - Contractor type of work codes and DBE status codes must conform to a list of standard codes that will be supplied by Department.
 - Ethnicity codes must conform to standard codes that will be supplied by Department.
 - Data in the "gender" column must be either "M" or "F".
 - Data in the "rental equipment" column must be either "Y" or "N".
 - Equipment owner's description may not be omitted. (The description, together with the equipment number, is how the equipment will be identified in the field.) Include manufacturer, rated capacity & trade description
 - Equipment type, make, model, and ratebook code shall conform to the Department of Transportation Publication entitled "Labor Surcharge and Equipment Rental Rate", which is in effect on the date the work is performed. If the equipment in question does not have an entry in the book then alternate, descriptive entries may be made in these fields as directed by the Engineer.
6. The name of each file must indicate its contents, e.g., "XYZlab.csv" for laborers from XYZ Company, Inc. Each floppy disk supplied to Caltrans must be accompanied by a printed list of the files it contains with a brief description of the contents of each file.

PAYMENT.-- Payment for providing electronic mobile daily diary computer system data delivery will be made on a lump sum basis. The lump sum bid price for electronic mobile daily diary computer system data delivery will be made according to the following schedule:

The Contractor will receive not more than 2.0 per cent per month of the total bid price for electronic mobile daily diary computer system data delivery .

After the completion of the work, 100 per cent payment will be made for electronic mobile daily diary computer system data delivery less the permanent deduction, if any, for failure to deliver complete weekly electronic mobile daily diary computer system data in each month.

The contract lump sum price paid for electronic mobile daily diary computer system data delivery shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in electronic mobile daily diary computer system data delivery as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit electronic mobile daily diary computer system data delivery conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per estimate period in which acceptable electronic mobile daily diary computer system data have not been submitted to the Engineer. Retention's for failure to submit acceptable electronic mobile daily diary computer system data shall be additional to all other retention's provided for in the contract. The retention for failure to submit acceptable electronic mobile daily diary computer system data will be released for payment on the next monthly estimate for partial payment following the date that acceptable electronic mobile daily diary computer system data is submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of electronic mobile daily diary computer system data delivery. Adjustments in compensation for electronic mobile daily diary computer system data delivery will not be made for any increased or decreased work ordered by the Engineer in furnishing electronic mobile daily diary computer system data.

CONSTRUCTION PROCEDURE DEMONSTRATION.--Time is of essence for the completion of the bridge removal, superstructure installation, and continuity post-tensioning of the precast deck elements operations as shown on the contract plans of the concrete trestle portion of the bridge structure each time one of the trestle decks is closed to public traffic.

The bridge lane closure periods, specified in "Maintaining Traffic," of these special provisions, are longer for weekends than they are for weekdays. If the lanes of traffic are not opened on weekdays by the times specified in "Maintaining Traffic," of these special provisions, unacceptable traffic delays will occur. Therefore, the Contractor will only be allowed to perform the bridge removal, superstructure installation, and continuity post-tensioning operations on weekends unless the Contractor can prove to the Engineer that he can perform the work and open up the lanes to traffic in the shorter weekday lane closure periods. The Contractor shall prove this by performing construction procedure demonstrations, as specified below, of the actual work on the structure during weekends but within the shorter weekday lane closure period.

The Contractor shall perform construction procedure demonstrations for bridge removal, superstructure installation, and continuity post-tensioning of the pre-cast deck elements for the concrete trestle on weekends prior to being allowed to perform said work during the week. The purpose of these demonstrations is for the Engineer to conduct actual on-site verification and assessment of the Contractor's planned construction activities, such as the methods, procedures, equipment and personnel used to perform the work. The Engineer will then determine if the work can be successfully executed to complete the bridge removal, superstructure installation, and continuity post-tensioning within the specified time limits of deck closure.

Thirty days in advance of starting the bridge removal, superstructure installation, and the continuity post-tensioning work the Contractor shall submit complete information on methods, procedure, number and types of equipment and personnel that will be used to carry-out the operations. The Engineer shall be allowed twenty one days to review and comment on the complete submittal.

Construction procedure demonstration for bridge removal and superstructure installation shall be satisfactorily performed for a minimum of 4 nights on 2 separate occasions. Each occasion shall take place on 2 consecutive nights and only during Friday and Saturday nights. The scheduling of these operations shall be in accordance with the bridge deck closure requirements specified in "Maintaining Traffic" of these special provisions. The demonstration shall be considered satisfactory if, in the judgement of the Engineer, all the work contemplated in the Contractor's demonstration plan is completed within the allowable weekday closure period specified in "Maintaining Traffic" of these special provisions.

Construction procedure demonstration for continuity post-tensioning of the pre-cast deck elements shall be satisfactorily performed for a minimum of 2 consecutive occasions performed on either a Friday or Saturday night. The scheduling shall be in accordance with the bridge deck closure requirements specified in "Maintaining Traffic" of these special provisions. The demonstration shall be considered satisfactory if, in the judgement of the Engineer, all the work contemplated in the Contractor's demonstration plan is completed within the allowable weekday closure period specified in "Maintaining Traffic" of these special provisions.

When the construction demonstration for bridge removal and superstructure installation has been determined by the Engineer to be unsatisfactory after the initial work occasion, the Contractor shall make corrective measures on their plan and operations and submit such revisions to the Engineer for review before proceeding with the next construction demonstration occasion. The Engineer shall be allowed five days to review and comment on the revised submittal. Upon the Engineer's review of the revised plan of operations, the Contractor shall repeat the construction demonstration for a minimum of 4 nights on 2 separate occasions and in accordance with the requirements specified above until a satisfactory operation will be finally proven effective.

When the construction demonstration for continuity post-tensioning of the precast deck elements has been determined by the Engineer to be unsatisfactory after the initial work occasion, the Contractor shall make corrective measures on their operations and submit such revision to the Engineer for review prior to proceeding with the next construction demonstration occasion. The Engineer shall be allowed five days to review and comment on the revised submittal. Upon the Engineer's review of the revised plan of operations, the Contractor shall repeat the construction demonstration for a minimum of 2 consecutive occasions in accordance with the requirements specified above until a satisfactory operation will be finally proven effective.

In the event that the construction demonstrations are determined to be satisfactory by the Engineer, the construction procedure shall then be the standard of construction operation for the bridge removal, superstructure installation, and continuity post-tensioning of the pre-cast deck elements of the bridge trestle section.

Full compensation for all additional costs occasioned by compliance with the requirements of this section "Construction Procedure Demonstration" shall be considered as included in the contract prices paid for various contract items of work and no additional compensation will be allowed therefor."

10-1.13 PROGRESS SCHEDULE (CRITICAL PATH)

Progress schedules will be required for this contract. Progress schedules shall utilize the Critical Path Method (CPM).

Definitions - The following definitions apply to this section "Progress Schedule (Critical Path)":

- 1) Activity: Any task, or portion of a project, which takes time to complete.
- 2) Baseline Schedule: The initial CPM schedule representing the Contractor's original work plan, as accepted by the Engineer.
- 3) Controlling Operation: The activity considered at the time by the Engineer, within that series of activities defined as the critical path, which if delayed or prolonged, will delay the time of completion of the contract.
- 4) Critical Path: The series of activities, which determines the earliest completion of the contract (Forecast Completion Date).
- 5) Critical Path Method: A mathematical calculation to determine the earliest completion of the contract represented by a graphic representation of the sequence of activities that shows the interrelationships and interdependencies of the elements composing a project.
- 6) Current Contract Completion Date: The extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer in accordance with Section 8-1.06, "Time of Completion," of the Standard Specifications.
- 7) Early Completion Time: The difference in time between the current contract completion date and the Contractor's scheduled early forecast completion date as shown on the accepted baseline schedule, or schedule updates and revisions.
- 8) Float: The amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity or group of activities in the network.
- 9) Forecast Completion Date: The completion date of the last scheduled work activity identified on the critical path.
- 10) Fragnet: A section or fragment of the network diagram comprised of a group of activities.
- 11) Free Float: The amount of time an activity can be delayed before affecting a subsequent activity.
- 12) Hammock Activity: An activity added to the network to span an existing group of activities for summarizing purposes.
- 13) Milestone: A marker in a network, which is typically used to mark a point in time or denote the beginning or end of a sequence of activities. A milestone has zero duration, but will otherwise function in the network as if it were an activity.
- 14) Revision: A change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences, or duration's.
- 15) Tabular Listing: A report showing schedule activities, their relationships, duration's, scheduled and actual dates, and float.
- 16) Total Float: The amount of time that an activity may be delayed without affecting the total project duration of the critical path.
- 17) Update: The modification of the CPM progress schedule through a regular review to incorporate actual progress to date by activity, approved time adjustments, and projected completion dates.
- 18) Time Scaled Logic Diagram: A schematic display of the logical relationships of project activities, drawn from left to right to reflect project chronology with the positioning and length of the activity representing its duration.
- 19) Bar Chart (Gantt Chart): A graphic display of scheduled-related information, activities or other project elements are listed down the left side of the chart, date are shown across the top, and activity duration's are shown as date-placed horizontal bars.

Pre-construction Scheduling Conference - The Engineer shall schedule and conduct a Preconstruction Scheduling Conference with the Contractor's Project Manager and Construction Scheduler within seven days after the bidder has received the contract for execution. At this meeting, the requirements of this section of the special provisions will be reviewed with the Contractor. The Contractor shall be prepared to discuss its schedule methodology, proposed sequence of operations, the activity identification system for labeling all work activities, the schedule file numbering system, and any deviations it proposes to make from the Stage Construction Plans. The Engineer shall submit a diskette of a scheduling shell project, displaying an activity code dictionary consisting of fields populated with the Caltrans Scope Breakdown Structure Code. The Contractor shall utilize these codes, and may add other codes as necessary, to group and organize the work activities. Periodically the Engineer may request the Contractor to utilize additional filters, layouts or activity codes to be able to further group or summarize work activities.

Also, the Engineer and the Contractor shall review the requirements for all submittals applicable to the contract and discuss their respective preparation and review duration's. All submittals and reviews are to be reflected on the Interim Baseline Schedule and the Baseline Schedule.

Interim Baseline Schedule - Within 15 days after approval of the contract, the Contractor shall submit to the Engineer an Interim Baseline Project Schedule which will serve as the progress schedule for the first 120 days of the project, or until the Baseline Schedule is accepted, whichever is sooner. The Interim Baseline Schedule shall utilize the critical path method. The Interim Baseline Schedule shall depict how the Contractor plans to perform the work for the first 120 days of the contract. Additionally, the Interim Baseline Schedule shall show all submittals required early in the project, and shall provide for all permits, and other non-work activities necessary to begin the work. The Interim Baseline Schedule submittal shall include a 3 1/2 inch floppy diskette which contains the data files used to generate the schedule.

The Engineer shall be allowed 10 days to review the schedule and to provide comments, including the Contractor's application of the supplied scope breakdown structure. The Interim Baseline Schedule does not require Caltrans approval but all comments are to be implemented into the Baseline Schedule. Re-submittal of the Interim Baseline Schedule is not required. Late review of the Interim Baseline Schedule shall not restrain the submittal of the Baseline Schedule.

Baseline Schedule - Within 30 days, after approval of the contract, the Contractor shall submit to the Engineer a Baseline Project Schedule including the incorporation of all comments provided to the Interim Baseline Schedule. The Baseline Schedule shall have a data date of the day prior to the first working day of the contract. The schedule shall not include any actual start dates, actual finish dates, or constraint dates. The Baseline Progress Schedule shall meet interim milestone dates, contract milestone dates, stage construction requirements, internal time constraints, show logical sequence of activities, and must not extend beyond the number of days originally provided for in the contract.

All task activities shall be assigned to a project calendar. Each calendar shall identify a workweek, and holidays. Use different calendars for work activities that occur on different work schedules.

The Contractor shall not add job inefficiencies or weather days to a project calendar without prior approval by the Engineer.

The Baseline CPM Schedule submitted by the Contractor shall have a sufficient number of activities to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts. The Baseline Schedule shall depict how the Contractor plans to complete the whole work involved, and shall show all activities that defines the critical path. Each construction activity shall have duration's of not more than 20 working days, and not less than one working day unless permitted otherwise by the Engineer. All activities in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor.

The Baseline Schedule shall not attribute negative float to any activity. Float shall not be considered as time for the exclusive use of or benefit of either the State or the Contractor but shall be considered as a jointly owned, expiring resource available to the project and shall not be used to the financial detriment of either party. Any accepted schedule, revision or update having an early completion date shall show the time between the early completion date and the current Contract Completion Date as "total float".

The Contractor shall be responsible for assuring that all work sequences are logical and the network shows a coordinated plan for complete performance of the work. Failure of the Contractor to include any element of work required for the performance of the contract in the network shall not relieve the Contractor from completing all work within the time limit specified for completion of the contract. If the Contractor fails to define any element of work, activity or logic, the Contractor in the next monthly update or revision of the schedule shall correct it.

The Baseline Progress Schedule shall be supplemented with resource allocations for every task activity to a level of detail that facilitates report generation based on labor craft and equipment class for the Contractor and subcontractors. The Contractor shall use average composite crews to display the labor loading of on-site construction activities. The Contractor shall optimize and level labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not duplicated in concurrent activities. Along with the baseline progress schedule, the Contractor shall also submit to the Engineer time-scaled resource histograms of the labor crafts and equipment classes to be utilized on the contract.

The Contractor shall not create hammock activities for the purpose of resources loading.

The Contractor shall require each subcontractor to submit in writing a statement certifying that the subcontractor has concurred with the Contractor's CPM, including major updates, and that the subcontractor's related schedule has been incorporated accurately, including the duration of activities, labor and equipment loading. Should the Baseline Schedule or schedule update, submitted for acceptance, show variances from the requirements of the contract, the Contractor shall make specific mention of the variations in the letter of transmittal, in order that, if accepted, proper adjustments to the project schedule can be made. The Contractor will not be relieved of the responsibility for executing the work in strict accordance with the requirements of the contract documents. In the event of a conflict between the requirements of the contract documents and the information provided or shown on an accepted schedule, the requirements of the contract documents shall take precedence.

Each schedule submitted to the Engineer shall comply with all limits imposed by the contract, with all specified intermediate milestone and contract completion dates, and with all constraints, restraints or sequences included in the contract. The degree of detail shall include factors including, but not limited to:

- 1) Physical breakdown of the project;
- 2) Contract milestones and completion dates, substantial completion dates, constraints, restraints, sequences of work shown in the contract, the planned substantial completion date, and the final completion date;
- 3) Type of work to be performed, the sequences, and the major subcontractors involved;
- 4) All purchases, submittals, submittal reviews, manufacture, fabrication, tests, delivery, and installation activities for all major materials and equipment.
- 5) Preparation, submittal and approval of shop and working drawings and material samples, showing time, as specified elsewhere, for the Engineer's review. The same time frame shall be allowed for at least one resubmittal on all major submittals so identified in the contract documents;
- 6) Identification of interfaces and dependencies with preceding, concurrent and follow-on contractors, railroads, and utilities as shown on the plans or specified in the specifications;
- 7) Identification of each and every utility relocation and interface as a separate activity, including activity description and responsibility coding that identifies the type of utility and the name of the utility company involved.
- 8) Actual tests, submission of test reports, and approval of test results;
- 9) All start-up, testing, training, and assistance required under the Contract;
- 10) Punchlist and final clean-up;
- 11) Identification of any manpower, material, or equipment restrictions, as well as any activity requiring unusual shift work, such as double shifts, 6-day weeks, specified overtime, or work at times other than regular days or hours; and
- 12) Identification of each and every ramp closing and opening event as a separate one-day activity, including designation by activity coding and description that it is a north-bound, south-bound, east-bound, west-bound, and entry or exit ramp activity.

The Baseline Schedule submittal shall include a 3 1/2 inch floppy diskette which contains the data files used to generate the schedule, a schedule narrative describing the critical path, and all schedule reports.

The Engineer shall be allowed 15 days to review and accept or reject the baseline project schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 days, at which time a new 15 day review period by the Engineer will begin.

Project Schedule Reports - Schedules submitted to the Engineer including Interim Baseline, Baseline, and update schedules shall include time scaled network diagrams in a layout format requested by the Engineer. The network diagrams submitted to the Engineer shall also be accompanied by four computer-generated mathematical analysis tabular reports for each activity included in the project schedule. The reports (8 1/2" x 11" size) shall include a network diagram report showing the activity columns only, a predecessor and successor report, a resource report (Interim Baseline and Baseline Schedules), and a scheduling and leveling calculation report. The network diagram reports shall include, at a minimum, the following for each activity:

- 1) Activity number and description;
- 2) Activity codes;
- 3) Original, actual and remaining duration's;
- 4) Early start date (by calendar date);
- 5) Early finish date (by calendar date);
- 6) Actual start date (by calendar date);
- 7) Actual finish date (by calendar date);
- 8) Late start date (by calendar date);
- 9) Late finish date (by calendar date);
- 10) Identify activity calendar ID;
- 11) Total Float and Free Float, in work days and;
- 12) Percentage complete.

Network diagrams shall be sorted and grouped in a format requested by the Engineer reflecting the project breakdown per the Caltrans scope breakdown structure codes. They shall show a continuous flow of information from left to right per the project sorting and grouping codes. E.g., project milestones, submittals sub-grouped by description, and the construction activities sub-grouped by the scope breakdown structure. The primary paths of criticality shall be clearly and graphically identified on the networks. The network diagram shall be prepared on E-size sheets (36" x 48"), shall have a title block in the lower right-hand corner, and a timeline on each page. Exceptions to the size of the network sheets and the use of computer graphics to generate the networks shall be subject to the approval of the Engineer.

Schedule network diagrams the tabular reports shall be submitted to the Engineer for acceptance in the following quantities:

- a) 2 sets of the Network Diagrams;
- b) 2 copies of the tabular reports (8 1/2" x 11" size); and
- c) 3 computer diskettes.

Weekly Schedule Meetings - The Engineer and the Contractor shall hold weekly scheduling meetings to discuss the near term schedule activities, to address any long-term schedule issues, and to discuss any relevant technical issues. The Contractor shall develop a rolling 4-week schedule identifying the previous week worked and a 3-week look ahead. It shall provide sufficient detail to address all activities to be performed and to identify issues requiring engineering action or input.

Monthly Update Schedules - The Contractor shall submit a Monthly Update Schedule to the Engineer once in each month within 5 days of the data date. The proposed update schedule prepared by the Contractor shall include all information available as of the 20th calendar day of the month, or other data date as established by the Engineer. A detailed list of all proposed schedule changes such as logic, duration, lead/lag, forecast completion date, additions and deletions shall be submitted with the update.

The monthly update of the schedule shall focus on the period from the last update to the current cut-off data date. Changes to activities or logic beyond the data date are classified as revisions and need to be addressed per the schedule revision section of this specification. Activities that have either started or finished shall be reported as they actually occurred and designated as complete, if actually completed. For activities in progress that are forecasted to complete longer than planned, the remaining duration's shall be revised, not the original duration's. All out of sequence activities are to be reviewed and their relationships either verified or changed.

The Monthly Update Schedule submitted to the Engineer shall be accompanied by a Schedule Narrative Report. The report shall describe the physical progress during the report period, plans for continuing the work during the forthcoming report period, actions planned to correct any negative float, and an explanation of potential delays or problems and their estimated impact on performance, milestone completion dates, forecast completion date, and the overall project completion date. In addition, alternatives for possible schedule recovery to mitigate any potential delay or cost increases shall be included for consideration by the Engineer. The report shall follow the outline set forth below:

Contractor's Schedule Narrative Report Outline:

- 1) Contractor's Transmittal Letter
- 2) Work completed during the period
- 3) Description of the current critical path
- 4) Description of problem areas
- 5) Current and anticipated delays
 - a) Cause of the delay
 - b) Corrective action and schedule adjustments to correct the delay
 - c) Impact of the delay on other activities, milestones, and completion dates
- 6) Changes in construction sequences
- 7) Pending items and status thereof
 - a) Permits
 - b) Change Orders
 - c) Time Extensions
 - d) Non-Compliance Notices
- 8) Contract completion date(s) status
 - a) Ahead of schedule and number of days
 - b) Behind schedule and number of days
- 9) Include updated Network Diagram and Reports

The Contractor shall provide to the Engineer a 3 1/2" electronic disk of the schedule, together with printed copies of the network diagrams and tabular reports described under "Project Schedule Reports", and the Schedule Narrative Report.

Portions of the network diagram on which all activities are complete need not be reprinted and submitted in subsequent updates. However, the electronic disk file of the submitted schedule and the related reports shall constitute a clear record of progress of the work from award of contract to final completion.

On a date determined by the Engineer, the Contractor shall meet with the Engineer to review the monthly schedule update. At the monthly progress meeting, the Contractor and the Engineer shall review the updated schedule and shall discuss the content of the Narrative Report. The Engineer shall be allowed 10 days after the meeting to review and accept or reject the update schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 days, at which time a new 5 day review period by the Engineer will begin. All efforts shall be made between the Engineer and the Contractor to complete the review and the approval process prior to the next update schedule cutoff date. To expedite the process a second meeting between the Engineer and the Contractor shall be held.

Schedule Revisions - If the Contractor desires to make a change to the accepted schedule, the Contractor shall request permission from the Engineer in writing, stating the reasons for the change, and proposed revisions to activities, logic and duration. The Contractor shall submit for acceptance an analysis showing the effect of the revisions on the entire project. The analysis shall include:

1. An updated schedule not including the revisions. The schedule shall have a data date just prior to implementing the proposed revisions and include a project completion date;
2. A revised schedule that includes the proposed revisions. The schedule will have the same data date as the updated schedule and include a project completion date;
3. A narrative explanation of the revisions and their impact to the schedule; and
4. Computer files of the updated schedule and the revised schedule sequentially numbered or renamed for archive (record) purposes.

The Engineer will provide a response within 10 days. No revision to the accepted baseline schedule or the schedule updates shall be made without the prior written approval of the Engineer.

The Engineer will request the Contractor to submit a proposed revised schedule within 15 days when:

- a) there is a significant change in the Contractor's operations that will affect the critical path;
- b) the current updated schedule indicates that the contract progress is 30 days or more behind the planned schedule, as determined by the Engineer; or
- c) the Engineer determines that an approved or anticipated change will impact the critical path, milestone or completion dates, contract progress, or work by other contractors.

The Engineer shall be allowed 10 days to review and accept or reject a schedule revision. Rejected schedule revisions shall be revised and resubmitted to the Engineer within 10 days, at which time a new 10 day review period by the Engineer will begin. Only upon approval of a change by the Engineer shall it be reflected in the next schedule update submitted by the Contractor.

Schedule Time Extension Requests - When the Contractor requests a time extension due to contract change orders or delays, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the influence of each change or delay on the current contract completion date or milestone completion date, utilizing the current accepted schedule. Each Time Impact Analysis shall include a schedule revision demonstrating how the Contractor proposes to incorporate the Change Order or delay into the current schedule. The schedule shall include the sequence of activities and any revisions to the existing activities to demonstrate the influence of the delay, the proposed method for incorporating the delay, and its impact into the schedule.

Each Time Impact Analysis shall demonstrate the estimated time impact based on the events of delay, the anticipated or actual date of the contract change order work performance, the status of construction at that point in time, and the event time computation of all activities affected by the change or delay. The event times used in the analysis shall be those included in the latest update of the current schedule in effect at the time the change or delay was encountered.

Time extensions will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total or remaining float along the critical path of activities at the time of actual delay, or at the time the contract change order work is performed. Float time is not for the exclusive use or benefit of the Engineer or the Contractor, but is an expiring resource available to all parties as needed to meet contract milestones and the contract completion date. Time extensions will not be granted nor will delay damages be paid unless:

- a) the delay is beyond the control and without the fault or negligence of the Contractor and its subcontractors or suppliers, at any tier; and,
- b) the delay extends the actual performance of the work beyond the applicable current contract completion date and the most recent date predicted for completion of the project on the accepted schedule update current as of the time of the delay or as of the time of issuance of the contract change order.

Time Impact Analyses shall be submitted in triplicate within 15 days after the delay occurs or after issuance of the contract change order. A schedule file diskette is also to be submitted.

Acceptance or rejection of each Time Impact Analysis by the Engineer will be made within 15 days after receipt of the Time Impact Analysis, unless subsequent meetings and negotiations delay the review. A copy of the Time Impact Analysis accepted by the Engineer shall be returned to the Contractor and the accepted schedule revisions illustrating the influence of the contract change orders or delays shall be incorporated into the project schedule during the first update after acceptance.

Final Schedule Update - Within 15 days after the acceptance of the contract by the Director, the Contractor shall submit a final update of the schedule with actual start and actual finish dates for all activities. This schedule submission shall be accompanied by a certification, signed by an officer of the company and the Contractor's Project Manager stating "To the best of my knowledge, the enclosed final update of the project schedule reflects the actual start and completion dates of the activities contained herein."

Equipment and Software - The Contractor shall provide for the State's exclusive possession and use a complete computer system specifically capable of creating, storing, updating and producing CPM schedules. Before delivery and setup of the computer system, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. The minimum computer system to be furnished shall include the following:

- 1) Complete computer system, including keyboard, mouse, 20 inch color SVGA monitor (1,024x768 pixels), Intel Pentium 350 MHz micro processor chip, or equivalent, or better;
- 2) Computer operating system software, compatible with the selected processing unit, for Windows 95 or later, or equivalent;
- 3) Minimum sixty-four (64) megabytes of random access memory (RAM);
- 4) A 3.2 gigabyte minimum hard disk drive, a 1.44 megabyte 3 1/2 inch floppy disk drive, 32x speed minimum CD-ROM drive, Ethernet card and 56k modem;
- 5) A color-ink-jet plotter with a minimum 36Megabytes RAM, capable of 300 dots per inch color, 600 dots per inch monochrome, or equivalent. Capable of printing fully legible, timescaled charts, and network diagrams, in four colors, with a minimum size of 36 inches by 48 inches (E size) and is compatible with the selected system. Capable of plotting 3 E sized sheets within one hour. Plotter paper and ink cartridges throughout the contract.
- 6) CPM software shall be Primavera Project Planner, the latest version for Windows 95, or later;
- 7) Scheduler Analyzer Pro or equivalent – a suite of programs to assist in schedule analysis, the latest version for Windows 95, Windows NT or later and,
- 8) Microsoft Office software, the latest version for Windows 95, Windows NT or later, and McAfee Virus software or equivalent.

The computer hardware and software furnished shall be compatible with that used by the Contractor for the production of the CPM progress schedule required by the Contract, and shall include original instruction manuals and other documentation normally provided with the software.

The Contractor shall furnish, install, set up, maintain and repair the computer hardware and software ready for use at a location determined by the Engineer. The hardware and software shall be installed and ready for use by the first submission of the baseline schedule. The Contractor shall provide 24 hours of formal training for the Engineer, and three other agents of the department designated by the Engineer, in the use of the hardware and software to include schedule analysis, reporting, and resource and cost allocations. An authorized vendor of Project Primavera shall perform the training.

All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. When claims involving contract progress are pending, computer hardware or software shall not be removed until the final estimate has been submitted to the Contractor.

Payment - Progress schedule (critical path) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path) shall include full compensation for furnishing all labor, materials (including computer hardware and software), tools, equipment, and incidentals; and for doing all the work involved in preparing, furnishing, updating and revising CPM progress schedules. Also for maintaining and repairing the computer hardware and training the Engineer in the use of the computer hardware and software as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for progress schedule (critical path) will be made as follows:

Interim baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.

Baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.

Monthly update schedules accepted, then 75 percent payment for progress schedule (critical path) will be made equally for each update.

Final schedule update accepted, then 5 percent payment for progress schedule (critical path) will be made.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit an interim baseline, baseline, revised or updated CPM schedule conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per estimate period in which acceptable CPM progress schedules have not been submitted to the Engineer. Retention's for failure to submit acceptable CPM progress schedules shall be additional to all other retention's provided for in the contract. The retention for failure to submit acceptable CPM progress schedules will be released for payment on the next monthly estimate for partial payment following the date that acceptable CPM progress schedules are submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of progress schedule (critical path). Adjustments in compensation for the project schedule will not be made for any increased or decreased work ordered by the Engineer in furnishing project schedules.

ENGINEER'S ESTIMATE**04-0438U4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	047865	TIME RELATED OVERHEAD	WDAY	1,250		
2	047866	ESTABLISH MARINE ACCESS	LS	LUMP SUM	LUMP SUM	
3	016600	ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM DATA DELIVERY	LS	LUMP SUM	LUMP SUM	
4	016601	TEMPORARY STOCKPILE COVER	SQYD	2,000		
5	016602	STABILIZED CONSTRUCTION ENTRANCE	EA	2		
6	016603	TEMPORARY CONSTRUCTION ROAD	SQYD	1,700		
7	016604	TEMPORARY STRAW BALE BARRIER	LF	3,500		
8	016605	TEMPORARY CONCRETE WASHOUT FACILITIES	LS	LUMP SUM	LUMP SUM	
9	016606	TRANSPORTATION FOR THE ENGINEER	LS	LUMP SUM	LUMP SUM	
10	016607	INFORMATIONAL SIGN BOARD	EA	2		
11	070010	PROGRESS SCHEDULE (CRITICAL PATH)	LS	LUMP SUM	LUMP SUM	
12	074019	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM	LUMP SUM	
13	074020	WATER POLLUTION CONTROL	LS	LUMP SUM	LUMP SUM	
14	074029	TEMPORARY SILT FENCE	LF	6,000		
15 (S)	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM	LUMP SUM	
16 (S)	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
17 (S)	120151	TEMPORARY TRAFFIC STRIPE (TAPE)	LF	70,800		
18 (S)	120152	TEMPORARY PAVEMENT MARKING (TAPE)	SQFT	540		
19 (S)	120300	TEMPORARY PAVEMENT MARKER	EA	4,750		
20 (S)	128650	PORTABLE CHANGEABLE MESSAGE SIGN	EA	14		