DEPARTMENT OF TRANSPORTATION
ES-OE MS #43
1727 30TH Street, 2ND Floor
Sacramento, CA 95816

August 24, 2001

04-CC,Sol-680-40.1/41.4, L0.0/L1.0
04-006034
ACIM-680-1(054)56N

Addendum No. 7

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SOLANO AND CONTRA COSTA COUNTIES IN BENICIA AND MARTINEZ FROM 1.0 km NORTH OF SOLANO AND CONTRA COSTA COUNTY LINE TO 1.1 km NORTH OF MOCOCO OVERHEAD.

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 September 18, 2001.

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

Project Plan Sheet 151 is revised as follows:

The note “2. The contours on this sheet in the area of the abutment do not reflect the grading that has occurred as a result of the 04-006094 Contract. However, the contours, as shown, are necessary for the Contractor to determine the depths and limits of the contaminated and hazardous waste, as shown on the sheet titled “Construction Details Contaminated and Hazardous Waste, C-3”. The contours that exist now and the proposed contours are shown on the sheet titled “Contour Grading, G-2.” is added.

Project Plan Sheet 329 is revised as follows:

In "Section E-E," the call out "#19 @ 300 Vert spacing, alternate hooks (See Note 5)" is revised to "#19 @ 200 Vert spacing, alternate hooks (See Note 5)"

In the Notice to Contractors and Special Provisions the "IMPORTANT SPECIAL NOTICES," "PROJECT FUNDING AND OPENING OF PROPOSALS," is deleted. The funds for this project have been allocated by the funding agencies.

In the Notice to Contractors and Special Provisions and in the Proposal and Contract, the date for the pre-award qualifications review meeting is revised to September 21, 2001 instead of the date of August 23, 2001.

In the Special Provisions, Section 3-1.01A, "AWARD AND EXECUTION OF CONTRACT," the first sentence is revised as follows:

"Bidders are advised that on September 21, 2001 at 10:00 a.m., in the third floor conference room, 1727 - 30th Street, Sacramento, CA 95816, the apparent low bidder shall participate in a pre-award qualifications review meeting conducted by an agent of the Director."

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In the Special Provisions, Section 3-1.01B, "AWARD AND EXECUTION OF CONTRACT," the second paragraph is revised as follows:

"The bidder shall bid the number of working days for it to complete all the work. Bids in which the number of working days bid for completion of all the work exceeding 1280 days will be considered non-responsive and will be rejected."

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," the fifth paragraph is revised as follows:

"The work consisting of constructing Frame 1 shall be diligently prosecuted to completion before the expiration of 1050 working days beginning at 12:01 a.m. on the day after the day of contract award. Attention is directed to, "Order of Work," in these special provisions with regard to Construction of Frame 1.

In the Special Provisions, Section 5-1.34, "ENVIRONMENTAL WORK RESTRICTIONS," subsection “SPECIES OF CONCERN,” the paragraph is revised as follows:

"The work in the water of the Carquniez Strait less than 3 meters deep, as measured from the mean lower low water line, and the dredging of the new channel for the Suisun bay reserve Fleet (SBRF) shall be limited to the period of December 1, 2001 to March 31, 2002 and for the remaining portion of the contract, the restricted time period will be from July 1 through October 31. Work in the water surrounded area (where the water depth is less than 3m) that is fully contained within an earlier cofferdam and is accessed via the Contractor’s access trestle may be during the restricted time period provided there is no disturbance to the area outside the cofferdam."

In the Special Provisions, Section 10-1.06, “WATER POLLUTION CONTROL (STORM WATER POLLUTION PREVENTION PLAN)," the first sentence of the second paragraph is revised as follows:

"This project lies within the boundaries of the San Francisco Bay Regional Water Quality Control Board and shall conform to the requirements of the National Pollutant Discharge Elimination System (NPDES) Permit for General Construction Activities No. CAS000002, Order No, 99-08-DWQ; Modification of Water Quality Order No. 99-08-DWQ, Resolution No. 2001-046; and the NPDES Permit for the State of California Department of Transportation Properties, Facilities, and Activities, No. CAS000003, Order No, 99-06-DWQ issued by the State Water Resources Control Board."

In the Special Provisions, Section 10-1.06 "WATER POLLUTION CONTROL (STORM WATER POLLUTION PREVENTION PLAN),” subsection "STORM WATER POLLUTION PREVENTION PLAN PREPARATION, APPROVAL AND AMENDMENTS," the following paragraph is added after the fifth paragraph:

"The SWPPP shall include a Sampling and Analysis Plan (SAP) to comply with the provisions of the State Water Resources Control Board Resolution No. 2001-046, hereafter referred to as the resolution, adopted on April 26, 2001. This resolution revised Sections A and B of the General Construction NPDES Permit Water Quality Order 99-08-DWQ to provide sampling and analysis strategy for construction projects covered under Order 99-08-DWQ. Section A(1)(e) of the resolution does not apply because storm water from this project does not discharge directly into a Water Body listed for Sedimentation in the Clean Water Act, Section 303(d). The Contractor shall prepare a project SAP in conformance with the resolution using the model SAP provided. The model SAP was prepared as generic guide and reference tool to aid in the development of the project SAP. The contractor shall edit the model SAP according to the scope of work, the resolution, and the Regional Water Quality Control Board’s Basin Plan. The Contractor shall not change the intent of the model SAP, or diminish the sampling requirements, or the analytes contained in it."

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In the Special Provisions, Section 10-1.06, “WATER POLLUTION CONTROL (STORM WATER POLLUTION PREVENTION PLAN),” subsection "PAYMENT," the third paragraph is revised as follows:

"The contract lump sum price paid for water pollution control shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in sampling and analysis, and installing, constructing, removing, disposing of water pollution control practices, including non-storm water and waste management and materials pollution water pollution control practices except those shown on the plans and for which there is a contract item of work, and excluding developing, preparing, obtaining approval of, revising, and amending the SWPPP, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer."

In the Special Provisions, Section 10-1.06, “WATER POLLUTION CONTROL (STORM WATER POLLUTION PREVENTION PLAN),” Subsection "PAYMENT," the following paragraphs are added before the first paragraph:

"Sampling and analysis work required due to the Contractor’s failure to properly implement, inspect, maintain, and repair the BMPs contained in the approved SWPPP shall be at the Contractor’s expense and no additional compensation will be allowed therefor.

Sampling and analysis work required due to the Contractor’s failure to properly implement, inspect, maintain, or repair applicable contract item work shall be at the Contractor’s expense and no additional compensation will be allowed therefor.

Sampling and analysis work due to the Contractor’s failure to immediately clean and properly dispose of spilled materials associated with the contract work shall be at the Contractor’s expense and no additional compensation will be allowed therefor.

If it is determined by the Engineer that the implementation, inspection, maintenance, and repair of the BMP or to the applicable contract item work is to contract standards, and the subsequent laboratory analysis indicates an exceedence in either the Regional Water Quality Control Basin Plan or the identified benchmark standards, then additional work and or BMPs approved by the Engineer shall be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications."

In the Special Provisions, Section 10-1.17, "PROGRESS SCHEDULE (CRITICAL PATH)," is revised as attached.

In the Special Provisions, Section 10-1.34, "DREDGING," subsection “DREDGING OPERATION PLAN,” the first paragraph is revised as follows:

"Prior to beginning any dredging work and access channel dredging, the Contractor shall submit a Dredging Operation Plan in accordance with the Army Corps of Engineer Permit for approval at least 10 calendar days prior to the proposed commencement of dredging. Dredging shall not commence until all comments have been answered and the Army Corps of Engineer has granted written approval. The plan shall include the following:"

In the Special Provisions, Section 10-1.34, "DREDGING," subsection “UPLAND DISPOSAL,” the first paragraph is revised as follows:

"Landfill disposal of dredge material shall be in accordance with the Army Corps of Engineer Permit for the following dredged material:"

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In the Special Provisions, Section 10-1.34, "DREDGING," subsection "MEASUREMENT AND PAYMENT," the third paragraph is revised as follows:

"Full compensation for all dredging, Dredging Operation Plan preparation and updating; preparing and implementing Solid Debris Management Plan; overflow and leakage monitoring; performing control and monitoring surveys; transporting and disposal of all dredged material to upland and aquatic disposal sites, preparation of disposal site verification logs; and performing hydrographic surveys including data collection and preparation of drawings, cross-sections and calculations shall be considered as included in the contract prices paid per cubic meter for access channel dredging, structural excavation (Type A) and structural excavation (Type A) (slag and cinder) and no additional compensation will be allowed therefor. Cast-in-drilled-hole concrete piling shall be measured and paid in conformance with the provisions in "PILING" of these special provisions."

In the Special Provisions, Section 10-1.45, "CONCRETE STRUCTURES," subsection "LIGHTWEIGHT CONCRETE," the fifth and sixth sentences of the seventh paragraph are revised as follows:

"Lightweight concrete may contain air entraining admixtures in accordance with Section 90-4.07, "Optional Use of Air-entraining Admixtures," of the Standard Specifications, except that the average air content of three successive tests shall not exceed 8 percent and no single test value shall exceed 9.5 percent."

In the Special Provisions, SECTION 10-1.57, "WELDED HEADED BAR REINFORCEMENT," is revised as attached.

In the Special Provisions, Section 10-1.90, "INSTALL SEISMIC MONITORING CASING," the first sentence of the first paragraph is revised as follows:

"Install seismic monitoring casing shall consist of drilling into soil and rock, sampling soil and rock, providing a log of test borings and a boring report, and furnishing and installing casing for seismic monitoring equipment at the downhole locations shown on the plans in the vicinity of Pier 3."

In the Special Provisions, Section 10-1.90, "INSTALL SEISMIC MONITORING CASING," subsection "MATERIALS," the Table is revised as follows:

Grout Type	Downhole	Grout Proportion
A	The shallow hole (11 meters).	4 sacks of cement, and 0.5 sack of bentonite per 190 liters of water.
B	The deep hole (35 meters)	5 sacks of cement, and 0.25 sack of bentonite per 190 liters of water.

In the Proposal and Contract, the Engineer's Estimate Item 176 and 178 are revised as attached.

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To Proposal and Contract book holders:

Replace page 11 of the Engineer's Estimate in the Proposal with the attached revised page 11 of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Attached is a copy of the material information handout which includes the Model Sampling and Analysis Plan (SAP), see attached file "Model(SAP).doc". This is also available at the website:

http://www.dot.ca.gov/hq/esc/tollbridge/index.html?Ben-Mar/006034/MaterialsHandout/MaterialsList.html

Also enclosed is The Army Corps of Engineer Permit is attached. Please make available as a material handout. This is also available at the website:

http://www.dot.ca.gov/hq/esc/tollbridge/index.html?Ben-Mar/006034/MaterialsHandout/MaterialsList.html

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

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

Attachments

10-1.17 PROGRESS SCHEDULE (CRITICAL PATH)

Progress schedules will be required for this contract. Progress schedules shall utilize the Critical Path Method (CPM). Attention is directed to "COOPERATION," and "OBSTRUCTIONS" of these special provisions. Nothing in theses special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7, "Legal Relations and Responsibility," of the Standard Specifications.

DEFINITIONS

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

A. Activity: Any task, or portion of a project, which takes time to complete.
B. Baseline Schedule: The initial CPM schedule representing the Contractor's original work plan, as accepted by the Engineer.
C. 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.
D. Critical Path: The series of activities, which determines the earliest completion of the contract (Forecast Completion Date). This is the longest path of activities having the least amount of float.
E. 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.
F. 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.
G. 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.
H. 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.
I. Forecast Completion Date: The completion date of the last scheduled work activity identified on the critical path.
J. Fragnet: A section or fragment of the network diagram comprised of a group of activities.
K. Free Float: The amount of time an activity can be delayed before affecting a subsequent activity.
L. Hammock Activity: An activity added to the network to span an existing group of activities for summarizing purposes.
M. 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.
N. Revision: A change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences, or durations.
O. Tabular Listing: A report showing schedule activities, their relationships, durations, scheduled and actual dates, and float.
P. Total Float: The amount of time that an activity may be delayed without affecting the total project duration of the critical path.
Q. 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.
R. 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.
S. 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, dates are shown across the top, and activity durations are shown as date-placed horizontal bars.
T. State Owned Float Activity: The activity documenting time saved on the critical path by actions of the Engineer.
U. Near Critical Path: A path having 30 working days or less of total float.

PRECONSTRUCTION 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 (SBS) Code. The SBS structure will be finalized after submittal of the accepted Baseline schedule. 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 durations. All submittals and reviews are to be reflected on the Baseline Schedule and subsequent update schedules.

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 in the first one hundred and twenty days of 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 two schedule narratives and three 3 l/2 inch floppy diskette which contains the data files used to generate the schedule.

The Engineer shall be allowed 10 working 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 acceptance 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 (except for Contract Milestone dates.) The Baseline 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. Activities for the preparation and the review of submittals plus fabrication are to be assigned to the same calendar.

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

The Contractor shall not assign negative lags to any activities.

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 define the critical path. Each activity shall have durations 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. Multiple critical paths and near-critical paths shall be kept to a minimum, as determined by the Engineer. A total of not more than 50 percent of the baseline schedule activities shall be critical or near-critical, unless otherwise approved by the Engineer.

The Baseline Schedule shall not attribute negative float to any activity. State owned float shall be considered a resource for the exclusive use of the State. The Engineer may accrue State owned float by the early completion of review of any type of required submittal when it saves time on the critical path. The Contractor shall conduct a time impact analysis, when directed by the Engineer, to determine the effect of the action as described in "Time Impact Analysis" specified herein. The Engineer will document State owned float by directing the Contractor to update the State owned float activity on the next schedule update. The Contractor shall include a log of the action on the State owned float activity and include a discussion of the actions in the narrative report. The Engineer may use State owned float to mitigate past or future State delays by offsetting potential time extensions for contract change work orders.

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 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. On the P3 resource dictionary, each resource should have the normal and maximum limits for the specified period of time. Based on the resource limits, 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:

A. Physical breakdown of the project;
B. 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;
C. Type of work to be performed, the sequences, and the major subcontractors involved;
D. All purchases, submittals, submittal reviews, manufacture, fabrication, tests, delivery, and installation activities for all major materials and equipment, including submittal of requests for audits of manufacturers and fabricators in conformance with "Manufacturing and Fabrication Qualification Audit for Materials" of these special provisions;
E. 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;
F. 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;
G. 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;
H. Actual tests, submission of test reports, and approval of test results;
I. All start-up, testing, training, and assistance required under the Contract;
J. Punchlist and final clean-up;

K. 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;
L. 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;
M. Separate resources graphs for the Contract's labor, equipment and critical path labor, with an accompanying analysis of each and explanation for any variances (i.e., example front-end resource loading of schedules); and
N. Equipment and labor shall be differentiated by a cost account code within the resource dictionary.
O. State owned float as the last activity in the schedule, at the end of which is the Scheduled Completion Date.

The Baseline Schedule submittal shall include three 3 l/2 inch floppy diskette which contains the data files used to generate the schedule, a schedule narrative describing the critical path, narratives providing additional schedule detail as requested by the Engineer 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, update schedules and final update schedule 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 report~~s~~ shall include, at a minimum, the following for each activity:

A. Activity number and description;
B. Activity codes;
C. Original, actual and remaining durations;
D. Early start date (by calendar date);
E. Early finish date (by calendar date);
F. Actual start date (by calendar date);
G. Actual finish date (by calendar date);
H. Late start date (by calendar date);
I. Late finish date (by calendar date);
J. Identify activity calendar ID;
K. Total Float and Free Float, in work days; and
L. 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.
D. 2 copies of the schedule narratives.

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-weeks schedule identifying the previous week worked and a 3-week look ahead. It shall provide sufficient detail to include the actual and planned activities of the Contractor and all the subcontractors for offsite and construction activities, addressing all activities to be performed and to identify issues requiring engineering action or input.

Each activity in the 4 week rolling schedule should be identified by an associated CPM schedule activity ID numbering system. This schedule should not be hand written. To create the 4 weeks rolling schedules, the Contractor should utilize the use of EXCEL spreadsheet, or Primavera scheduling software, as acceptable by the Engineer. The Engineer will provide the format of the schedule. This schedule should be electronically submitted to the Engineer one day prior to the scheduled meeting date.

MONTHLY UPDATE SCHEDULES

The Contractor shall submit a Monthly Update Schedule to the Engineer once in each month within 5 working 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 durations shall be revised, not the original durations. 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:

A. Contractor's Transmittal Letter;
B. Work completed during the period;
C. Description of the current critical path;
D. Description of current problem areas;
E. Current and anticipated delays;
    1. Cause of the delay;
    2. Corrective action and schedule adjustments to correct the delay; and
    3. Impact of the delay on other activities, milestones, and completion dates;
F. Changes in construction sequences;
G. Pending items and status thereof;
    1. Permits;
    2. Change Orders;
    3. Time Extensions; and
    4. Non-Compliance Notices;
H. Contract completion date(s) status;
    1. Ahead of schedule and number of days; and
    2. Behind schedule and number of days; and
I. Include updated Network Diagram and Reports.

The Contractor shall provide to the Engineer three 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 7 working days after the meeting to review and accept or reject the update schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 working days, at which time a new 5 working 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 acceptance process prior to the next update schedule data 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:

A. An updated schedule not including the revisions. The schedule shall have a data date just prior to implementing the proposed revisions and includes a project completion date;
B. 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;
C. The Contractor should add resources for all new activities, also adjust resources for those activities that their remaining duration were changed;
D. A narrative explanation of the revisions and their impact to the schedule; and
E. 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 7 working days to Contractor proposed schedule revisions.

Within 10 working days, the Contractor shall submit a revised CPM network for approval when requested by the Engineer, or when any of the following occurs:

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 4 weeks 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 7 working days to review and accept or reject a schedule revision. Rejected schedule revisions shall be revised and resubmitted to the Engineer within 7 working days, at which time a new 7 working 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. The revised schedule shall also include a narrative explanation of the revisions and their impact to the schedule.

SCHEDULE TIME ADJUSTMENTS

When the Contractor requests a time adjustments due to contract change orders or delays, or if the Contractor or the Engineer considers that an approved or anticipated change will impact the critical path or contract progress, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the impact of each change or delay on the current scheduled completion date or milestone completion date, utilizing the current accepted schedule. Each Time Impact Analysis shall include a schedule update and schedule revision, both with the same data dates, demonstrating how the Contractor proposes to incorporate the Change Order or delay into the current schedule. The schedule revision shall include the sequence of activities and any revisions to the existing activities to demonstrate the impact of the delay, or change 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. 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 scheduled 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 10 working 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 impact of the contract change orders or delays shall be incorporated into the project schedule during the first update after acceptance. Until such time that the Contractor provides the analysis, the Engineer may, at his option, construct and utilize the project as-built schedule or other recognized method to determine adjustments in contract time.

FINAL SCHEDULE UPDATE

Within 10 working 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:

A. Complete computer system, including keyboard, mouse, 20 inch color SVGA monitor (1024x768 pixels), Intel Pentium 1 GHz microprocessor chip, or equivalent;
B. Computer operating system software, compatible with the selected processing unit, for Windows 2000 or later or equivalent;
C. Minimum 512 megabytes of random access memory (RAM);
D. A 20 gigabytes minimum hard disk drive, a 1.44 megabyte 3 1/2 inch floppy disk drive, 48x speed minimum CD-RW drive, Ethernet card and 56k modem;
E. A color-ink-jet plotter with a minimum 36 megabyte 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, an HP Design Jet 1055 CM or equivalent, plotter stand, roll paper assembly and automatic paper cutter, and provide plotter paper and ink cartridges throughout the contract;
F. CPM software shall be Primavera Project Planner, the latest version for Windows 2000, or later;
G. Scheduler Analyzer Pro or equivalent (a suite of programs to assist in schedule analysis) in the latest version for Windows 2000, Windows NT or later; and
H. Microsoft Office Software, the latest version for Windows 2000, Windows NT or later and McAfee Virus software or equivalent.
I. Milestone 2000.

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, installation disks/CDs 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 5 days after the contract approval. 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. The training shall be scheduled and completed within 60 days after the contract is approved.

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 al l 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:

A. Interim baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.
B. Baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.
C. Monthly update schedules accepted, then 75 percent payment for progress schedule (critical path) will be made equally for each update.
D. 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.

10-1.57 WELDED HEADED BAR REINFORCEMENT

Headed bar reinforcement, consisting of furnishing and friction welding or integrally forging heads onto one or both ends of bar reinforcement, shall conform to the requirements in ASTM Designation: A 970/A 970M including appendixes, the provisions of Section 52, "Reinforcement," of the Standard Specifications, the details shown on the plans, and these special provisions. On the plans, in the Engineer's Estimate and in these special provisions, all references to welded headed bar reinforcement or epoxy coated welded headed reinforcement shall be considered as referring to headed reinforcement in accordance with this special provision.

Attention is directed to "Integrated Drawings" of these special provisions.

GENERAL

Prior to performing any manufacturing, the Contractor shall submit to the Engineer the manufacturer's Quality Control (QC) manual for the fabrication of headed bar reinforcement. As a minimum, the QC manual shall include the following:

A. The pre-production procedures for the qualification of materials and equipment;
B. The methods and frequencies for performing QC procedures during production;
C. The calibration procedures and calibration frequency for all equipment;
D. A system for the identification and tracking of all friction welds. The system shall have provisions for permanently identifying each weld and the parameters used to perform it;
E. The welding procedure specification (WPS) for friction welded headed bar reinforcement; and

- A system for marking headed bar reinforcement.

Quality Control is the responsibility of the Contractor. As a minimum, the Contractor shall perform inspection and testing prior to, during, and after welding or forging, and as necessary to ensure that materials and workmanship conform to the requirements of the specifications.

A daily production log for the manufacture of headed bar reinforcement shall be kept by the manufacturer for each production lot. The log shall clearly indicate the production lot numbers, the heats of bar material and head material used in the manufacture of each production lot, the number of bars in each production lot, welding or forging records, including tracking and production parameters for welds or forgings, and results of all tests performed.

A production lot of friction welded or integrally forged headed bar reinforcement is defined as 150 reinforcing bars, or fraction thereof, of the same bar size, with heads of the same size and type, produced from bar material of a single heat number and head material of a single heat number. A new production lot shall be started if the heat number of either the bar material or the head material changes before the maximum production lot size of 150 is reached.

The daily production log shall be submitted in writing to the Engineer within 7 days following the manufacture of any headed bar reinforcement.

The manufacturer shall furnish Certificates of Compliance accompanied by a copy of the mill test report to the Engineer in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications for each shipment of headed bar reinforcement delivered to the job site.

Forging of heads or integrally forged headed bar reinforcement shall conform to the requirements in ASTM Designation: A 788.

Welding, welder qualifications, and inspection of welding shall conform to the requirements for friction welding in ANSI/AWS C6.1.

Welding or forging shall be performed at an established and permanent fabrication facility.

Equipment used to perform friction welding shall be fitted with an effective in-process monitoring system to record essential production parameters that describe the process of welding the head onto the bar reinforcement. As a minimum, the parameters to be recorded shall include friction welding force, forge force, rotational speed, friction upset distance and time, forge upset distance and time, and other elements of the production process. The data from this in-process monitoring shall be recorded and preserved by the manufacturer for a minimum of one year after manufacture of the friction welded headed bars and shall be provided to the Engineer upon request.

Epoxy-coated headed bar reinforcement shall conform to the provisions in Section 52-1.02B, "Epoxy-coated Reinforcement," of the Standard Specifications and these special provisions.

Only round or elliptical heads with 3mm minimum radiused edges shall be used for epoxy coated headed bar reinforcement. Sharp edges and burrs shall be ground smooth before applying epoxy coating.

The Contractor may submit a request to the Engineer in writing, to use alternative head dimensions which are different from those specified in Table 1 of the ASTM Designation: A 970/A 970M. The alternative head dimensions shall be designed using the concrete compressive strength shown on the plans and shall be in conformance with these special provisions. Alternative head dimensions will not be considered for approval unless the Contractor can prove that the alternative heads have been successfully produced and have had at least 2 years of satisfactory service in conditions similar to this application. The Contractor shall furnish, at the Contractor's expense, documentation satisfactory to the Engineer that the alternative head dimensions are suitable for the intended application. The documentation shall include, but not be limited to, calculations and test reports showing the following:

A. The alternative head is capable of resisting the nominal tensile strength of the reinforcing bar when the bar reinforcement with the welded or forged head is embedded in concrete; and
B. Shear or bending forces do not cause premature failure of the alternative head or crushing failure of the concrete under the alternative head.

ACCEPTANCE TESTS

Acceptance tests shall be performed at the Contractor's expense, at the manufacturer's plant or at a qualified laboratory with traceability to the National Institute of Standards and Technology (NIST), and in the presence of the Engineer, unless otherwise directed in writing.

Test samples shall be randomly selected by the Engineer from each production lot of friction welded or integrally forged headed bar reinforcement, which is ready for shipment to the job site. The Engineer shall be notified in writing at least 7 days prior to conducting any tests.

A minimum of 3 samples of friction welded or integrally forged headed bar reinforcement from each production lot shall be tested. One tensile test shall be conducted on each sample.

Tensile tests shall conform to the requirements specified in Section 7 of ASTM Designation: A 970/A 970M, except that at rupture, there shall be visible signs of necking in the reinforcing bar at a minimum distance of one bar diameter away from the head to bar connection. If one of the test specimens fails to meet the specified requirements one retest shall be performed on one additional sample, selected by the Engineer, from the same production lot. If the additional test specimen, or if more than one of the original test specimens, fail to meet these requirements all friction welded or integrally forged headed bar reinforcement represented by the tests will be rejected in conformance with the provisions in Section 6-1.04, "Defective Materials," of the Standard Specifications.

All headed bar reinforcement of each bar size from each production lot to be shipped to the site shall be tagged in a manner that each production lot can be accurately identified at the job site. All unidentified headed bar reinforcement received at the job site will be rejected.

MEASUREMENT AND PAYMENT

Quantities of welded headed bar reinforcement will be measured as units determined from the number of friction welded or integrally forged heads shown on the plans, as specified in these special provisions or as directed by the Engineer.

The contract unit price paid for welded headed bar reinforcement or welded headed bar reinforcement(epoxy coated) shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in furnishing heads and friction welding or integrally forging heads onto bar reinforcement, including conformance with all testing requirements, as shown on the plans, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Bar reinforcement to be used in the manufacture of headed bar reinforcement will be measured and paid for as specified in Section 52, "Reinforcement," of the Standard Specifications, except that the lengths to be used in the computation of calculated masses of the bar reinforcement shall be the entire length of the completed headed bar, including heads.

Full compensation for placing the completed headed bar reinforcement into the work shall be considered as included in the contract price paid per kilogram for the bar reinforcement involved and no additional compensation will be allowed therefor.

ENGINEER'S ESTIMATE
04-006034

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161 (S)	020661	PIER 3 SUBSTATION CONDUIT LAYOUT	LS	LUMP SUM	LUMP SUM	
162 (S)	020662	CONDUIT LAYOUT IN PIERS 6 THROUGH 8	LS	LUMP SUM	LUMP SUM	
163 (S)	020663	CONDUIT LAYOUT IN PIERS 9 THROUGH 15	LS	LUMP SUM	LUMP SUM	
164 (S)	020664	PIER 3 SUBSTATION GROUNDING LAYOUT	LS	LUMP SUM	LUMP SUM	
165 (S)	020665	MARINE NAVIGATIONAL AIDS SYSTEM	LS	LUMP SUM	LUMP SUM	
166	869072	SEISMIC MONITORING SYSTEM	LS	LUMP SUM	LUMP SUM	
167	048465	HEALTH MONITORING SYSTEM	LS	LUMP SUM	LUMP SUM	
168	048466	HEALTH MONITORING SYSTEM (SHIPPING CHANNEL SPAN)	LS	LUMP SUM	LUMP SUM	
169	020666	RELOCATE PARK FACILITIES	LS	LUMP SUM	LUMP SUM	
170	994629	RELOCATE TRAILER	LS	LUMP SUM	LUMP SUM	
171	994650	BUILDING WORK	LS	LUMP SUM	LUMP SUM	
172	BLANK					
173 (S)	048520	LOAD TEST PILE	LS	LUMP SUM	LUMP SUM	
174 (S)	048521	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LUMP SUM	LUMP SUM	
175 (S)	048522	OVER REAM AND FILL (2.8 M MINIMUM DIAMETER)	M	681.4		
176 (S)	048523	OVER REAM AND FILL (3.2 M MINIMUM DIA)	M	99.2		
177	BLANK					
178	022480	ACCESS CHANNEL DREDGING	M3	31 000		
179	203026	MOVE-IN/MOVE-OUT (EROSION CONTROL)	EA	3		
180 (F)	192003	STRUCTURE EXCAVATION (BRIDGE)	M3	380		