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DIVISION OF ENGINEERING SERVICES
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Be energy efficient!*

**** WARNING ** WARNING ** WARNING ** WARNING ****
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October 1, 2004

04-SCI-87-1.6/8.1
04-4396U4
ACNH-S087(027)E

Addendum No. 3

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SANTA CLARA COUNTY IN SAN JOSE FROM 0.4 KM NORTH OF BRAHNAM LANE OVERCROSSING TO 0.4 KM NORTH OF VIRGINIA STREET OVERCROSSING.

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 October 26, 2004.

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 30, 46, 166, 191, 387, 389, 392, 394, 432, 443, 445, 476, 477, 523, 583, 645, and 792 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheet 621 is omitted. A half-sized copy of the omitted sheet is attached for inclusion to the project plans.

Project Plan Sheet 2 is revised as follows: Note 5, "SEE SHEET D-33" is changed to "SEE SHEET C-41".

Project Plan Sheet 7 is revised as follows: COMPACTION GROUT ZONE, dimension "5.0" is changed to "4.0" at two locations.

Project Plan Sheets 20, 21 and 22 are revised as follows: Structural section, thickness description "610 mm Cl 2 Perm Mtl" is changed to "610 mm Cl 3 Perm Mtl (Blanket)" at five locations.

Project Plan Sheet 138 is revised as follows: Drainage System 41, unit "c" and "e", "SEE NOTE 7" is changed to "SEE NOTE 5".

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Project Plan Sheet 201 is revised as follows: Minor Concrete (Backfill), Grand Total quantity is changed from "29.14" to "80.84" m3.

Project Plan Sheet 429 is revised as follows: two abbreviations are added to symbols and abbreviations:

"IL Induction Luminaire
GPRS General Packet Radio Service"

Project Plan Sheet 430 is revised as follows:

Note 53, description is changed to read, "EXISTING 41C, 2 dlc";
Note 54, description is changed to read, "EXISTING 41C, 10 dlc";
Note 58, description is changed to read, "EXISTING 3-78C, (tos comm)
EXISTING 16 dlc TO REMAIN
REMOVE 1 tc, INSTALL 1 TC";
Note 65, description is changed to read, "EXISTING 53C, 6 dlc";
Note 66, description is changed to read, "EXISTING 53C, 2 dlc";

Project Plan Sheet 431 is revised as follows: Note 159, description is changed from "22 DLC" to "7 DLC".

Project Plan Sheet 433 is revised as follows: Note 269, description is changed from "22 DLC" to "7 DLC"; Note 276, description portion "16 DLC" is deleted.

Project Plan Sheet 435 is revised as follows: Existing Sign No. (01342), description is changed from "2 mv" to "2 IL".

Project Plan Sheet 436 is revised as follows: EQUIPMENT ENCLOSURE No. 01402, LOAD AFTER MODIFICATIONS, description is changed from "2-175 WATT MERCURY" to "2-85 WATT IL".

Project Plan Sheet 437 is revised as follows: EQUIPMENT ENCLOSURE No. 01802, LOAD AFTER MODIFICATIONS, description is changed from "2-175 WATT MERCURY" to "2-85 WATT IL" for two signs; Existing Sign No. (01792), description is changed from "2 mv" to "2 IL".

Project Plan Sheet 438 is revised as follows: Existing Sign No. (01812), description is changed from "2 mv" to "2 IL".

Project Plan Sheet 441 is revised as follows: EQUIPMENT ENCLOSURE No. 02601 LOAD AFTER MODIFICATIONS, description is changed from "2-175 WATT MERCURY" to "2-85 WATT IL"; Existing Sign No. (02621), description is changed from "2 mv" to "2 IL".

Project Plan Sheet 442 is revised as follows: EQUIPMENT ENCLOSURE No. 02842, LOAD AFTER MODIFICATIONS, description is changed from "2-175 WATT MERCURY" to "2-85 WATT IL".

Project Plan Sheet 446 is revised as follows: Sign No. (03613), description is changed from "2 MV" to "2 IL".

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Project Plan Sheet 449 is revised as follows: EQUIPMENT ENCLOSURE No. 04553, LOAD AFTER MODIFICATIONS, description is changed from "2-175 WATT MERCURY" to "3-85 WATT IL" for SIGN No.(04491), and "5-175 WATT MERCURY" to "5-85 WATT IL" for SIGN No.(04523); Sign No. 04491, description is changed from "2 MV" to "3 IL", and Existing Sign No. (04523), description is changed from "5 mv" to "5 IL".

Project Plan Sheet 451 is revised as follows: EQUIPMENT ENCLOSURE No. 04933, LOAD AFTER MODIFICATIONS, description is changed from "2-175 WATT MERCURY" to "3-85 WATT IL", Sign No. 04853, description is changed from "2 MV" to "3 IL".

Project Plan Sheet 459 is revised as follows: Existing Controller Cabinet No. DT127 (Location 1), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly".

Project Plan Sheet 460 is revised as follows: Existing Controller Cabinet No. E37EH (Location 2), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly".

Project Plan Sheet 461 is revised as follows: Existing Controller Cabinet No. E37BT (Location 3), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly"; Item 141, existing identifiers "R1" and "R2" are corrected to "F1" and "F2".

Project Plan Sheet 462 is revised as follows: Existing Controller Cabinet No. DT128 (Location 4), "and GPRS Modem Assembly" is added to the description.

Project Plan Sheet 464 is revised as follows: Existing Controller Cabinet No. DT128-2040 (Location 5), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly".

Project Plan Sheet 465 is revised as follows: Existing Controller Cabinet No. DT129 (Location 6), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly".

Project Plan Sheet 467 is revised as follows: Existing Controller Cabinet Nos. E37BX and E37EV (Locations 8 and 8a), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly"; Item 238, existing identifier is corrected from "R1" to "F1".

Project Plan Sheet 468 is revised as follows: Relocated RM Cabinet (Locations 9), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly [250]" (Note and Item 250 in a box); Note 238, existing identifier is corrected from "R1" to "F1" Lt of 82+40.

Project Plan Sheet 470 is revised as follows: Existing Controller Cabinet No. E37BU (Location 10), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly"; Note 238, existing identifier is corrected from "R1" to "F1" Lt of 89+60.

Project Plan Sheet 472 is revised as follows: Existing Controller Cabinet No. DT130 (Location 11), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly".

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Project Plan Sheet 474 is revised as follows: Relocated Cabinet No. E37ED (Location 12), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly [250]" (Note and Item 250 in a box), and connect a line to Existing Ramp Metering Controller (Cabinet E37ED) Rt 103+40 with symbol [RL]; Note 83, existing identifier "R1" is corrected to "F1" Lt of 103+50.

Project Plan Sheet 475 is revised as follows: Existing Controller Cabinet No. DT131 (Location 13), description is changed from "CDPD Wireless Modem" to "GPRS Modem Assembly".

Project Plan Sheet 509 is revised as follows: Existing Electrolier (04813), note is changed from Sheet "E-57" to "E-73".

Project Plan Sheets 624, 627, 628, 632 are revised as follows: Slope paving under the structure, the slope is changed from "1:2" to "1:1.5" on six dimensions at four locations.

Project Plan Sheet 742 is revised as follows: DRIVE PILE (CLASS 400C MODIFIED), the quantity is changed from "285" to "279" EA.

Project Plan Sheet 788 is revised as follows: FURNISH PILING (CLASS 400C MODIFIED), the quantity is changed from "2410" to "2390" m, and DRIVE PILE (CLASS 400C MODIFIED), the quantity is changed from "125" to "124" EA.

In the Notice to Contractors and Special Provisions book the Highway seal is revised as attached and the Electrical seal is added as attached.

In the Special Provisions, Section 2-1.01 "GENERAL", is revised as attached.

In the Special Provisions, Section 3, "AWARD AND EXECUTION OF CONTRACT," is revised as attached.

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES," is revised as attached.

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In the Special Provisions, Section 5-1.25, "RELATIONS WITH SANTA CLARA VALLEY TRANSPORTATION AUTHORITY," the "LRT Single Tracking Schedule" is revised as follows:

LRT Single Tracking Schedule																									
Location: Light Rail System Within Project Limits																									
FROM HOUR TO HOUR	a.m.											p.m.													
	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
Mondays through Thursdays	X	X	X	X																				X	X
Fridays	X	X	X	X																				X	X
Saturdays	X	X	X	X	X																		X	X	X
Sundays	X	X	X	X	X																		X	X	X
Full Weekend	Single Tracking will be allowed between hours of 10 P.M. Friday through 4:00 A.M. Monday																								
Designated legal holidays																									
Legend:																									
<input type="checkbox"/>																									
<input checked="" type="checkbox"/> LRT Single Tracking allowed																									
<input type="checkbox"/> No work that interferes with the LRT service																									
REMARKS:																									
Lockout and Tag procedures shall be performed before and after the Single Tracking periods given in this table with participation by the Contractor. The estimated time for Lockout and Tag procedures is one hour before and after the Single Tracking period.																									

In the Special Provisions, Section 5-1.33, "INTERNET DAILY EXTRA WORK REPORT" is added as attached.

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the second paragraph is revised as follows:

"The work in Stages 1A (Phase 1) and Stage 1A (Phase 2) shall be completed no later than 120 working days from start of construction."

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the fourteenth paragraph is revised as follows:

"The uppermost layer of new pavement shall not be placed until all detours are completed and underlying conduits and loop detectors have been installed."

In the Special Provisions, Section 10-1.29, "EXISTING HIGHWAY FACILITIES," subsection "REMOVE TRAFFIC STRIPE" is revised as attached.

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In the Special Provisions, Section 10-1.29, "EXISTING HIGHWAY FACILITIES," subsection "CURED-IN-PLACE PIPE (CIPP)," is replaced with the attached "CURED-IN-PLACE PIPE (CIPP) LINER".

In the Special Provisions, Section 10-1.29, "EXISTING HIGHWAY FACILITIES," subsection "TEMPORARY EXCAVATION BRIDGING" is added after subsection "REMOVE SLOPE PROTECTION", as attached.

In the Special Provisions, Section 10-1.33, "HAZARDOUS, RESTRICTED AND NON-HAZARDOUS MATERIAL EXCAVATION," the first paragraph under subheading "MEASUREMENT AND PAYMENT" is revised as follows:

"Transportation and disposal of hazardous and restricted material determined from testing of stockpiles as specified elsewhere in these special provisions, except otherwise specifically provided in these special provisions, will be paid for as extra work in accordance with Section 4-1.03D, "Extra Work," of the Standard Specifications."

In the Special Provisions, Section 10-1.34, "DEWATERING," the following paragraph is added after the sixth paragraph:

"Concentrations of several metals and Total Petroleum Hydrocarbons exceeded the Regional Water Quality Control Board limits in the borings at all bridge locations tested for groundwater."

In the Special Provisions, Section 10-1.34, "DEWATERING," the following paragraph is added after the tenth paragraph:

"Contaminated ground water shall be treated to reduce the contaminants of concern. The treated ground water shall be tested for various contaminants of concern. If the test results show that the contaminants are below the regulatory limits established by the Regional Water Quality Control Board, Region 2 the ground water shall be disposed of into the City of San Jose drainage system as per the Batch Permit issued by the City and paid for under the contract lump sum item of dewatering. If the contaminated ground water, after treatment for removing suspended solids and other constituents of concern, still shows after testing that the limits of various contaminants exceed the regulatory limits established the Regional Water Quality Control Board, Region 2, the disposal of the contaminated water 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 10-1.36, "LIGHTWEIGHT EMBANKMENT MATERIAL (CELLULAR CONCRETE)," the second paragraph is revised as follows:

"The Contractor shall furnish a mix design which will produce a cast density (at point of placement) of 6.3 to 6.6 kN/m³ with a minimum compressive strength of 550 kPa at 28 days. The Contractor shall provide the Engineer with a work plan of the equipment and procedures proposed at least 10 working days prior to placement; items in the submittal shall include:

1. Material list of items, manufacturer's specifications;
2. Mix designs, including laboratory data using the mix design verifying mass and strength requirements."

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In the Special Provisions, Section 10-1.85, "REINFORCED CONCRETE PIPE CASING," the first paragraph is revised as follows:

"Reinforced concrete pipe casing shall conform to the provisions for reinforced concrete pipe in Section 65, "Reinforced Concrete Pipe," of the Standard Specifications and to "Reinforced Concrete Pipe" elsewhere in these special provisions."

In the Special Provisions, Section 10-3.09, "CONDUCTORS AND WIRING," is replaced with the attached Section 10-3.09, "CABLES, CONDUCTORS AND WIRING."

In the Special Provisions, Section 10-3.11, "SERVICE", is revised as follows:

"10-3.11 SERVICE

Type III service equipment enclosures shall be the aluminum type.

Circuit breakers shall be the cable-in/cable-out type, mounted on non-energized clips. All circuit breakers shall be mounted vertically with the up position of the handle being the "ON" position.

Type H service shall consist of a conduit and conductors with length and size as required by the serving utility company.

The neutral conductor shall run from the service equipment enclosure to the controller cabinet without splicing to any other neutral conductor.

The clearance between the bottom of the lowest circuit breaker and the bottom of the service equipment enclosure for a Type III-A series shall be 600 mm minimum.

Installation of a barrier type terminal block in service enclosure is not required."

In the Special Provisions, Section 10-3.205 "SIGN LIGHTING FIXTURES – INDUCTION," is added as attached.

In the Special Provisions, Section 10-3.225, "GENERAL PACKET RADIO SYSTEM MODEM," is added as attached.

In the Proposal and Contract, the first and second pages are replaced as attached.

In the Proposal and Contract, the Engineer's Estimate, a significant number of Items are revised, Items 281, 282 and 283 are added and Item 280 is deleted as attached.

To Proposal and Contract book holders:

Replace the entire Engineer's Estimate in the Proposal with the attached revised 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.

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

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

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

Sincerely,

ORIGINAL SIGNED BY

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

Attachments

CONTRACT NO. 04-4396U4

DESIGN OVERSIGHT	REGISTRATION NO.	DATE
ALFREDO ANDRADE	44620	03/31/06

Approved as to impact on State facilities and conformance with applicable State standards and practices and that technical oversight was performed as described in the California Department of Transportation A & E Consultant Services Manual.

**The special provisions contained herein
have been prepared by or under the
direction of the following Registered
Persons.**

HIGHWAYS

Luis M. Garcia

REGISTERED CIVIL ENGINEER



CONTRACT NO. 04-4396U4

DESIGN OVERSIGHT	REGISTRATION NO.	DATE
Name ALFREDO ANDRADE	44620	03/31/06

Approved as to impact on State facilities and conformance with applicable State standards and practices and that technical oversight was performed as described in the California Department of Transportation A & E Consultant Services Manual.

The special provisions contained herein have been prepared by or under the direction of the following Registered Persons.

ELECTRICAL


REGISTERED ELECTRICAL ENGINEER



2-1.01 GENERAL

The bidder's attention is directed to the provisions in Section 2, "Proposal Requirements and Conditions," of the Standard Specifications and these special provisions for the requirements and conditions which the bidder must observe in the preparation of the Proposal form and the submission of the bid.

In addition to the subcontractors required to be listed in conformance with Section 2-1.054, "Required Listing of Proposed Subcontractors," of the Standard Specifications, each proposal shall have listed therein the portion of work that will be performed by each subcontractor listed.

The proposal shall set forth the unit prices, item totals, TOTAL BID (A), the number of working days bid for completion of the work, the product of the working days bid and the cost per day shown on the Engineer's Estimate (TOTAL BID (B)), and the "Total Basis for Comparison of Bids (A+B)," in clearly legible figures, in the respective spaces provided, and shall be signed by the bidder, who shall fill out the blanks in the proposal form as therein required.

The Bidder's Bond form mentioned in the last paragraph in Section 2-1.07, "Proposal Guaranty," of the Standard Specifications will be found following the signature page of the Proposal.

The amount of the bidder's security required in Section 2-1.07, "Proposal Guaranty," of the Standard Specifications shall be based on the "TOTAL BID (A)" set forth on the proposal form.

Submit request for substitution of an "or equal" item, and the data substantiating the request to the Department of Transportation, Submit request for substitution of an "or equal" item, and the data substantiating the request to the Department of Transportation, Division of Construction – Duty Senior, Mail Station: 3 – B, 111 Grand Avenue / P. O. Box 23660, Oakland, Ca 94623-0660, so that the request is received by the Department by close of business on the fourth day, not including Saturdays, Sundays and legal holidays, following bid opening.

In conformance with Public Contract Code Section 7106, a Noncollusion Affidavit is included in the Proposal. Signing the Proposal shall also constitute signature of the Noncollusion Affidavit.

The contractor, sub recipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate. Each subcontract signed by the bidder must include this assurance.

Failure of the bidder to fulfill the requirements of the Special Provisions for submittals required to be furnished after bid opening, including but not limited to DBE or DVBE submittals, or escrowed bid documents, where applicable, may subject the bidder to a determination of the bidder's responsibility in the event it is the apparent low bidder on a future public works contracts.

SECTION 3. AWARD AND EXECUTION OF CONTRACT

The bidder's attention is directed to the provisions in Section 3, "Award and Execution of Contract," of the Standard Specifications and these special provisions for the requirements and conditions concerning award and execution of contract.

Bid protests are to be delivered to the following address: Department of Transportation, MS 43, Attn: Office Engineer, 1727 30th Street, Sacramento, CA 95816 or by facsimile to the Office Engineer at (916) 227-6282.

Bids will be compared on the basis of the Engineer's Estimate of the quantities of work to be done and the number of working days bid for completion of the work. The award of the contract, if it be awarded, will be made within 30 days after the opening of the proposals if the apparent lowest bidder has met the goal for DBE participation. The award of the contract, if it be awarded, will be made within 60 days after the opening of the proposals if the apparent lowest bidder has not met the goal for DBE participation but has claimed good faith efforts to do so. These periods will be subject to extension for such further periods as may be agreed upon in writing between the Department and the bidders concerned. The award, if made, will be to the lowest responsible bidder whose proposal complies with all the requirements prescribed and who has met the goal for DBE participation or has demonstrated, to the satisfaction of the Department, adequate good faith efforts to do so. Meeting the goal for DBE participation or demonstrating, to the satisfaction of the Department, adequate good faith efforts to do so is a condition for being eligible for award of contract. The lowest bid will be determined on the basis of the "Total Basis for Comparison of Bids (A+B)" set forth in the proposal. The contract price for the awarded contract will be the "Total Bid (A)" set forth in the proposal.

Bids in which the number of working days bid for completion of the work exceed 440 will be considered non-responsive and will be rejected.

The contract shall be executed by the successful bidder and shall be returned, together with the contract bonds, to the Department so that it is received within 10 days, not including Saturdays, Sundays and legal holidays, after the bidder has received the contract for execution. Failure to do so shall be just cause for forfeiture of the proposal guaranty. The executed contract documents shall be delivered to the following address: Department of Transportation MS 43, Attn: Office Engineer, 1727 30th Street, Sacramento, CA 95816.

A "Payee Data Record" form will be included in the contract documents to be executed by the successful bidder. The purpose of the form is to facilitate the collection of taxpayer identification data. The form shall be completed and returned to the Department by the successful bidder with the executed contract and contract bonds. For the purposes of the form, payee shall be deemed to mean the successful bidder. The form is not to be completed for subcontractors or suppliers. Failure to complete and return the "Payee Data Record" form to the Department as provided herein will result in the retention of 31 percent of payments due the contractor and penalties of up to \$20,000. This retention of payments for failure to complete the "Payee Data Record" form is in addition to any other retention of payments due the Contractor.

SECTION 4. BEGINNING OF WORK, TIME OF COMPLETION AND LIQUIDATED DAMAGES

Attention is directed to the provisions in Section 8-1.03, "Beginning of Work," in Section 8-1.06, "Time of Completion," and in Section 8-1.07, "Liquidated Damages," of the Standard Specifications and these special provisions.

The Contractor shall furnish the Engineer with a statement from the vendor that the order for the electrical materials required for this contract has been received and accepted by the vendor; and the statement shall be furnished within 15 calendar days after the contract has been approved by the Attorney General, or the attorney appointed and authorized to represent the Department of Transportation. The statement shall give the date that the electrical materials will be shipped. If the Contractor has the necessary materials on hand, the Contractor will not be required to furnish the vendor's statement.

The Contractor shall begin work within 15 calendar days after the contract has been approved by the Attorney General or the attorney appointed and authorized to represent the Department of Transportation.

The work shall be diligently prosecuted to completion before the expiration of **the NUMBER OF WORKING DAYS BID** beginning on the fifteenth calendar day after approval of the contract.

The Contractor shall pay to the State of California the sum of \$15,000 per day, for each and every calendar day's delay in finishing the work after expiration of the number of working days bid.

The Contractor shall pay to the State of California the sums identified in "Relations with Santa Clara Transportation Authority," of these special provisions for finishing working in excess of time identified.

The Contractor shall pay to the State of California the sum of \$4,000 per day for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed for completion of Stage 1A (Phase 1 and Phase 2) as prescribed in "Order of Work" of these special provisions.

The Contractor shall pay to the State of California the sum of \$15,000 per day for each and every calendar day's delay in finishing the work in excess of the number of working days prescribed for completion of the bike path as prescribed in "Order of Work" of these special provisions.

The 72 hours advance notice before beginning work specified in Section 8-1.03, "Beginning of Work," of the Standard Specifications is changed to 5 days advance notice for this project.

5-1.33 INTERNET DAILY EXTRA WORK REPORT

Daily extra work reports shall be submitted in conformance with the provisions in Section 9-1.03C, "Records," of the Standard Specifications and these special provisions.

The Contractor shall send daily extra work reports to the Engineer using the Department's Internet extra work billing system. The reports shall conform to the requirements in the "iCAS User's Guide." The Guide is available from the Department, and is also found on the Internet at http://www.dot.ca.gov/hq/construc/ewb/EWB_INSTRUCTION.pdf. The Department will provide system accounts to the Contractor's authorized representatives when at least one of the representatives has received training. The Department will provide system training to at least one of the Contractor's authorized representatives within 30 days of the Contractor's request for training.

The Department will assign an account and user identification to the Contractor's authorized representative(s), and each Contractor's authorized representative shall maintain a unique password. A daily extra work report that the Contractor's authorized representative sends to the Department using the Internet extra work billing system will be considered signed by the Contractor. A daily extra work report that the Engineer approves using the Internet extra work billing system will be considered signed by the Engineer.

Daily extra work reports that include a materials billing shall be substantiated by a valid copy of a vendor's invoice in conformance to the requirements in Section 9-1.03C, "Records," of the Standard Specifications. Each materials invoice shall clearly identify the relative daily extra work report and the associated cost of the materials. Invoices shall be sent by postal service or parcel service. Contractors may send materials invoices by FAX, as an electronic-mail attachment, or be hand-carried if the Engineer approves.

The Contractor shall maintain the Contractor's interface with the Department's Internet extra work billing system. Extra Work Reports submitted by the file transfer process shall conform to the Department's specified file transfer format and process.

Full compensation for furnishing daily extra work reports using the Department's Internet extra work billing system is to be included in the various contract items involved, and no separate compensation will be made or allowed.

REMOVE TRAFFIC STRIPE

Traffic stripe shall be removed at the locations shown on the plans and as directed by the Engineer.

Attention is directed to "Water Pollution Control" of these special provisions.

Waste from removal of yellow thermoplastic and yellow painted traffic stripe contains lead chromate in average concentrations greater than or equal to 5 mg/L Soluble Lead or 1000 mg/kg Total Lead. Yellow thermoplastic and yellow painted traffic stripe exist within the project limits. Residue produced when yellow thermoplastic and yellow paint are removed may contain heavy metals in concentrations that exceed thresholds established by the California Health and Safety Code and may produce toxic fumes when heated.

The removed yellow thermoplastic and yellow paint shall be disposed of at a Class 1 disposal facility in conformance with the requirements of the disposal facility operator within 90 days after accumulating 100 kg of residue and dust. The Contractor shall make necessary arrangements with the operator of the disposal facility to test the yellow thermoplastic and yellow paint residue as required by the facility and these special provisions. Testing shall include, at a minimum, (1) Total Lead and Chromium by EPA Method 7000 series and (2) Soluble Lead and Chromium by California Waste Extraction Test. From the first 3360 L of waste or portion thereof, if less than 3360 L of waste are produced, a minimum of four randomly selected samples shall be taken and analyzed. From each additional 840 L of waste or portion thereof, if less than 840 L are produced, a minimum of one additional random sample shall be taken and analyzed. The Contractor shall submit the name and location of the disposal facility and analytical laboratory along with the testing requirements to the Engineer not less than 21 days prior to the start of removal of yellow thermoplastic and yellow painted traffic stripe. The analytical laboratory shall be certified by the Department of Health Services Environmental Laboratory Accreditation Program. Test results shall be provided to the Engineer for review prior to signing a waste profile as requested by the disposal facility, prior to issuing an EPA identification number, and prior to allowing removal of the waste from the site.

The Contractor shall prepare a project specific Lead Compliance Plan to prevent or minimize worker exposure to lead while handling removed yellow thermoplastic and yellow paint residue. Attention is directed to Title 8, California Code of Regulations, Section 1532.1, "Lead," for specific Cal-OSHA requirements when working with lead.

The Lead Compliance Plan shall contain the elements listed in Title 8, California Code of Regulations, Section 1532.1(e)(2)(B). Before submission to the Engineer, the Lead Compliance Plan shall be approved by an Industrial Hygienist certified in Comprehensive Practice by the American Board of Industrial Hygiene. The Plan shall be submitted to the Engineer at least 7 days prior to beginning removal of yellow thermoplastic and yellow paint.

Prior to removing yellow thermoplastic and yellow painted traffic stripe, personnel who have no prior training, including State personnel, shall complete a safety training program provided by the Contractor that meets the requirements of Title 8, California Code of Regulations, Section 1532.1, "Lead," and the Contractor's Lead Compliance Program.

Personal protective equipment, training, and washing facilities required by the Contractor's Lead Compliance Plan shall be supplied to State personnel by the Contractor. The number of State personnel will be 5.

Where grinding or other methods approved by the Engineer are used to remove yellow thermoplastic and yellow painted traffic stripe, the removed residue, including dust, shall be contained and collected immediately. Sweeping equipment shall not be used. Collection shall be by a high efficiency particulate air (HEPA) filter equipped vacuum attachment operated concurrently with the removal operations or other equally effective methods approved by the Engineer. The Contractor shall submit a written work plan for the removal, storage, and disposal of yellow thermoplastic and yellow painted traffic stripe to the Engineer for approval not less than 15 days prior to the start of the removal operations. Removal operations shall not be started until the Engineer has approved the work plan.

The removed yellow thermoplastic and yellow painted traffic stripe residue shall be stored and labeled in covered containers. Labels shall conform to the provisions of Title 22, California Code of Regulations, Sections 66262.31 and 66262.32. Labels shall be marked with date when the waste is generated, the words "Hazardous Waste", composition and physical state of the waste (for example, asphalt grindings with thermoplastic or paint), the word "Toxic", the name and address of the Engineer, the Engineer's telephone number, contract number, and Contractor or subcontractor. The containers shall be a type approved by the United States Department of Transportation for the transportation and temporary storage of the removed residue. The containers shall be handled so that no spillage will occur. The containers shall be stored in a secured enclosure at a location within the project limits until disposal, as approved by the Engineer.

If the yellow thermoplastic and yellow painted traffic stripe residue is transported to a Class 1 disposal facility, a manifest shall be used, and the transporter shall be registered with the California Department of Toxic Substance Control. The Engineer will obtain the United States Environmental Protection Agency Identification Number and sign all manifests as the generator within 2 working days of receiving sample test results and approving the test methods.

The Contractor shall assume that the yellow paint removed is not regulated under the Federal Resource Conservation and Recovery Act (RCRA). Additional disposal costs for removal residue regulated under RCRA, as determined by test results required by the disposal facility, will be paid for as extra work as provided in Section 4-1.03D, "Extra Work," of the Standard Specifications.

Nothing in these special provisions shall relieve the Contractor of the Contractor's responsibilities as specified in Section 7-1.09, "Public Safety," of the Standard Specifications.

Attention is directed to "Material Containing Aerially Deposited Lead" of these special provisions regarding payment for the Lead Compliance Plan.

Full compensation for providing a written work plan for the removal, storage, and disposal of yellow thermoplastic and yellow painted traffic stripe shall be considered as included in the contract prices paid per meter for remove yellow thermoplastic traffic stripe and remove yellow painted traffic stripe and no separate payment will be made therefor.

CURED-IN-PLACE PIPE (CIPP) LINER

The work shall consist of lining an existing culvert with a thermosetting resin-impregnated flexible fabric tube. At the option of the Contractor one of the following installation methods shall be used:

- A. Inversion process in compliance with ASTM Designation F 1216: the tube is installed using a hydrostatic head or air pressure and steam, or
- B. Pulled-in-place installation in compliance with ASTM Designation F 1743: The tube is pulled into place using a power winch or equivalent as approved by the Engineer, then inflated by hydrostatic head or air pressure and steam.

Attention is directed to Section 7-1.01 G, "Water Pollution", of the Standard Specifications and "Water Pollution Control" of these special provisions regarding handling and disposal of waste water generated by the work. Waste water resulting from the curing work shall not be allowed to enter the waterway and shall be disposed of outside the highway right of way in accordance with Section 7-1.13, "Disposal of Material Outside the Highway Right of Way", of the Standard Specifications.

Prior to beginning any CIPP liner work, the Contractor shall submit documentation to the Engineer certifying that individuals overseeing or performing the installation have successfully performed CIPP liner work on at least three prior independent installations for others, or have been approved by the CIPP liner manufacturer for performing such work. The Contractor shall submit the following documentation to the Engineer:

CIPP Design Calculations

Classification of CIPP unless otherwise specified on the plans is Type II (partially deteriorated) as defined in ASTM D 5813 and in Appendix X1.1.1 of ASTM F 1216. The CIPP liner shall be designed as per Appendix X1.2.1 of ASTM F 1216. Ovality shall be assumed at 5% and groundwater depth shall be determined. The CIPP design shall assume no bonding to the original pipe wall. Calculations determining the proposed CIPP liner thickness at each location shall be provided to the Engineer before liner installation.

Material Safety Data Sheets

Tube and Resin Manufacturer's technical, product, and installation data – including complete physical properties of the CIPP and certification that the resin and catalyst system to be furnished will meet the requirements and be compatible for the intended install method and host pipe material including bituminous material. To verify past performance, the Contractor shall submit a minimum of 5 test results from previous field installations of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the physical properties specified in this specification have been achieved in previous applications.

Required pressures – the minimum pressure required to hold the tube tight against the existing conduit and the maximum allowable pressure so as not to damage the tube.

Lubricants – confirmation of whether a lubricant is recommended for each installation and the specific lubricant(s) that may be used.

(If curing by circulating heated water) - Required pressure, water cure temperature, post-cure temperature and the time period to hold the post-cure temperature.

(If curing by steam) – The required pressure, temperature to be held within the line during the cure period, the post-cure temperature and the time period to hold the post-cure temperature.

Flow Diversion Plan and Calculations

Post-Inspection Written Proposal for Lining

Attention is directed to Section 5-1.08, "Inspection," of the Standard Specifications. The Contractor shall notify the Engineer in writing not less than 2 working days in advance of starting impregnation procedures.

At the time of resin impregnation, the entire fabric tube shall be inspected for defects. The resin shall not contain fillers, except those required for viscosity control, fire retardance, or extension of pot life. Thixotropic agents that do not interfere with visual inspection may be added for viscosity control. Also, the opacity of the plastic coating shall not interfere with visual inspection. Resins may contain pigments, dyes, or colors that do not interfere with visual inspection of the resin-impregnated pipe liner or its required properties. Additives may be incorporated that enhance the physical or chemical resistance, or both.

The fabric tube shall consist of one or more layers of flexible needled felt or an equivalent non-woven or woven material, or a combination of non-woven and woven materials. The outside layer of the tube shall have an impermeable flexible coating to contain the resin during and after fabric tube impregnation.. The material shall be compatible with and be capable of carrying epoxy or epoxy-vinyl ester resin, be able to stretch to fit irregular pipe sections and negotiate bends, and be able to withstand installation pressures and curing temperatures. The approved epoxy or epoxy-vinyl ester resin shall be compatible with the application and pipeline environment be able to cure in the presence of water. The initiation temperature for cure shall be less than 83 degrees C. The approved epoxy or epoxy-vinyl ester resin shall meet the chemical resistance test requirements in accordance with ASTM Designation D 1216, Appendix X2. Upon request from the Engineer, the Contractor shall furnish pipe liner and resin manufacturer's technical, product and installation data, including complete physical properties of pipe liner and certification that the resin and catalyst system to be furnished will meet intended service conditions.

The pipe liner shall comply with ASTM Designation D 5813 and shall have, as a minimum, the following initial structural properties:

Test Description	ASTM Designation	Min. Initial Requirement
Flexural Strength	D 790	31 MPa
Flexural Modulus	D 790	1724 MPa

The Contractor shall provide field-cured samples as directed by the Engineer within 10 days upon written request. The physical properties of the finished CIPP liner shall be verified through a field sampling procedure in accordance with, as appropriate, ASTM Designation F 1216 or ASTM Designation F 1743, and in accordance with ASTM Designation D 5813.

The Contractor shall provide for the control and diversion of flows in existing culverts being rehabilitated. The bypass system shall be of adequate capacity and size to handle the flow. Prior to beginning any flow diversion work, the Contractor shall submit a plan showing the intended work, any calculations supporting the sizing of the system and a schedule indicating the duration of the flow diversion to the Engineer for approval.

The existing culvert shall be cleaned thoroughly prior to installation of the CIPP liner. Earthy material, trash, cuttings, and other waste materials removed from the existing culverts shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

The Contractor shall inspect the existing pipe via either man-entry or closed-circuit television (CCTV) camera, and the inspection recorded on videotape as specified in these special provisions, and as directed by the Engineer. During this phase of operation all service openings shall be precisely located longitudinally and radially, and logged for subsequent reconnection after the insertion of the liner pipe.

After inspection of the existing pipe, the Contractor shall develop a written proposal describing the planned operations to repair the pipe. At a minimum, the proposal shall describe conditions found that may prevent proper installation of the impregnated tube (such as any sharp or protruding appurtenances that could snag or tear the liner),- and methods proposed by the Contractor for correction of the conditions and lateral pipe re-establishment. . In addition, the proposal shall describe perforations of existing culvert to be lined, their extent, and methods proposed for correction by the Contractor, including necessary grouting and backfilling. The proposal shall describe the Contractor's proposed procedures and schedules for installing the CIPP liner and shall accompany the VHS format inspection recording required above.

The Contractor shall designate the locations where CIPP liner will be resin impregnated. The Contractor shall obtain the approval of the Engineer prior to beginning any repair work

Perforations or spalls in the pipe wall shall be patched with cement mortar conforming to the requirements of Section 65-1.06 of the Standard Specifications. The mortar shall be allowed to dry prior to beginning placement of the CIPP liner.

Any work necessary, as determined by the Engineer, to repair the host prior to CIPP lining will be measured and paid for as extra work as provided in Section 4-1.03D of the Standard Specifications unless addressed elsewhere in these special provisions.

Removal of obstructions, as determined by the Engineer, that cannot be removed by conventional equipment and cleaners, as specified herein, will be measured and paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

The resin impregnation procedure shall conform to the recommendations of the manufacturer. The Contractor shall use a catalyst system compatible with the resin and tube in accordance with the recommendations of the resin manufacturer.

Immediately prior to installation, the fabric tube shall be saturated with resin and maintained at a cool temperature as recommended by the resin manufacturer.

CIPP liner shall be cured by circulating sufficient hot water or steam within the tube to cure the resin into a hard, impermeable lining. When cured, the CIPP liner shall extend over the length of the installation as a continuous and tight fitting pipe-within-a-pipe. The CIPP liner shall prevent both infiltration into the rehabilitated culverts and exfiltration of flows from the rehabilitated culverts.

The Contractor shall use a suitable heat source to cure the CIPP liner. Temperature and pressure gauges shall be installed at the insertion and termination points to monitor internal conditions during the CIPP liner curing process. Additional gauges and monitors shall be installed as required or as directed by the Engineer. The temperatures, durations, and cycles for curing the resin shall be in accordance with the recommendations of the resin manufacturer. The initial cure shall be deemed complete when the temperature controls indicate that the recommended exothermic temperature has been obtained, the recommended duration of cure has elapsed, and the exposed CIPP liner appears hardened, as determined by the Engineer.

At the completion of the curing process, the Contractor shall cool the CIPP liner by circulating measured amounts of cool air or water, while maintaining the internal pressure, until the internal temperature of the CIPP liner is less than 38 °C before relieving the internal pressure.

The bond between CIPP layers shall be strong and uniform. All layers, after cure, must form one homogenous structural pipe wall with no indications that any part of the tube has less than 100% resin saturation.

The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

A delamination test shall be performed in accordance with ASTM F-1216 Section 8.4 at 25% of the locations to receive a CIPP liner. These locations will be selected at the discretion of the Engineer.

The interior of the finished CIPP liner and lateral connections shall be inspected by the Contractor by means of man-entry or CCTV cameras. The completed inspections shall document that the installation has been performed in accordance with these specifications. A copy of the inspection report, including any videotape, shall be submitted to the Engineer prior to project acceptance of the CIPP liner. Format of the videotape shall be VHS.

The finished CIPP liner shall be continuous over the entire length of the culvert and shall be as free from visual defects such as foreign inclusions, concentrated ridges, discoloration, pitting, pin holes, cracking and other deformities, as is commercially practicable. The tube shall be fabricated to a size that when installed will neatly fit the internal circumference of the existing culvert specified.

Any holes, tears, delaminated areas, or if concentrated ridges exceeding 20 mm are present or defects that would affect the performance of the CIPP liner shall be repaired at the Contractor's expense. Defects that are not repairable will be cause for rejection of the installation. At the discretion of the Engineer, in lieu of CIPP liner replacement, concentrated ridges may be ground to conform to the dimensions of the CIPP liner, provided that the Contractor can demonstrate that the proposed repair does not compromise the structural integrity of the CIPP liner. The remaining surface of the concentrated ridge area shall be coated with a compatible resin approved by the manufacturer. Any residue generated from the grinding operation shall be removed at the end of each day's work and shall be disposed of outside the highway right of way in accordance with Section 7-1.13.

Perforations in the host pipe and voids created therefrom with a depth greater than 25 mm shall be patched with cement mortar conforming to the requirements of Section 51-1.135 of the Standard Specifications. The mortar shall be placed so as to conform to the interior dimensions of the host pipe.

Internal repairs may be made to the CIPP liner in accordance with the manufacturer's recommendations and approval by the Engineer. Internal repairs may be made using approved fabric and epoxy or epoxy-vinyl ester resins to restore strength and integrity.

Both ends of the finished CIPP liner shall be sealed at the interface with the host pipe to prevent water movement between the host pipe and the finished CIPP liner. The end sealing material shall be an approved epoxy or sealing material that is compatible with the finished CIPP liner and shall provide a durable watertight seal as approved by the Engineer.

CIPP liner work to be performed under these specifications will be listed in the contract item by size, type, thickness or whatever information is necessary for identification.

The length of CIPP liner to be paid for will be the slope length designated as designated on the plans and confirmed by the Engineer. CIPP liner placed in excess of the length designated will not be paid for.

Disconnecting of the existing downdrains, designated on the plans or encountered in the field, prior to the installation of the pipe liner may be required at some locations. Full compensation for disconnecting and reconnecting the existing downdrain shall be considered as included in the contract price paid per meter for the various sizes of cured-in-place pipe liner in the Engineer's estimate and no additional compensation will be allowed therefor.

The contract price paid per meter for impregnated CIPP liner shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals and for doing all the work involved in furnishing and installing, complete in place, including controlling or diverting existing culvert flow, providing samples, installing temperature and pressure gauges, repairing defects (except for removal of obstructions that cannot be removed by conventional equipment and cleaners), cleaning and closed-circuit inspection of the existing culverts, grinding concentrated ridges, re-establishing lateral connections, cutting, removing, and disposing of a portion of host pipes where CIPP liner is to be installed shall be considered as included in the contract price paid per meter for the various sizes of cured-in-place pipe liner in the Engineer's estimate and no additional compensation will be allowed therefore. as shown on the plans, and as specified in Standard Specifications and these special provisions, and as directed by the Engineer.

TEMPORARY EXCAVATION BRIDGING

Temporary excavation bridging for bridging excavations during abutment anchor head construction work shall be designed, constructed, monitored, maintained and removed as specified in these special provisions.

Attention is directed to "Maintaining Traffic" of these special provisions.

DESIGN AND WORKING DRAWINGS

The Contractor shall submit to the Engineer working drawings and design calculations for the temporary excavation bridging. The drawings and design calculations shall be signed by an engineer who is registered as a Civil Engineer in the State of California. Five sets of the drawings and one copy of the design calculations shall be furnished.

The temporary excavation bridging working drawings shall conform to the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. Working drawings for any part of the temporary excavation bridging shall include, but not be limited to, connection details, modifications to existing bridge abutments, shop details, erection and removal plans, and equipment lists.

The working drawings shall include descriptions and values of all loads, including construction equipment and vehicular live loads, descriptions of equipment to be used, and complete details and calculations for supporting all loads imposed.

The Contractor shall allow 4 weeks for the review of any temporary excavation bridging working drawings after complete drawings, calculations and all support data have been submitted to the Engineer.

Should the Engineer fail to complete the review within the time allowed and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in temporary excavation bridging working drawing review, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The temporary excavation bridging shall be mechanically connected to the existing structure while subjected to vehicular loads and shall not overstress, induce permanent forces into or produce cracking in the existing structure. The temporary excavation bridging may consist of the approach slab modified as necessary for the excavation limits and design loads.

The temporary excavation bridging shall support the vehicular live loads required by Caltrans Bridge Design Specifications dated April 2000, dead loads, construction equipment loads and additional loads imposed by the Contractor's operations. The construction equipment loads shall be the actual weight of the construction equipment.

The temporary excavation bridging shall have a uniform surface texture that provides a coefficient of friction of not less than 0.35.

Manufactured assemblies shall conform to the provisions in Section 51-1.06A(2), "Design Stresses, Loadings, and Deflections," of the Standard Specifications and these special provisions.

CONSTRUCTION

Temporary excavation bridging construction shall conform to the provisions for falsework in the first paragraph of Section 51-1.06B, "Falsework Construction," of the Standard Specifications.

Welding, welder qualification, and inspection of welding shall conform to the requirements of ANSI/AASHTO/AWS D1.5.

Should unanticipated displacements, cracking or other damage occur to the existing structure or to any new components installed at the joint, the construction shall be discontinued until corrective measures satisfactory to the Engineer are performed. Damage to the structure as a result of the Contractor's operations shall be repaired by the Contractor in conformance with the provisions in Section 7-1.11, "Preservation of Property," of the Standard Specifications.

The temporary excavation bridging surface shall not vary more than 6 mm vertically or 13 mm horizontally from the existing adjacent excavation surfaces.

When temporary excavation bridging is no longer needed to bridge the excavation, all temporary excavation bridging and connections shall be removed.

PAYMENT

Full compensation for furnishing, installing and removing temporary excavation bridging shall be considered as included in the contract price paid per cubic meter for structural concrete, bridge and no separate payment will be made therefor.

10-3.09 CABLES, CONDUCTORS AND WIRING

Splices shall be insulated by "Method B".

The minimum insulation thickness, at any point, for Type USE, RHH or RHW wire shall be 1.0 mm for conductor sizes No. 14 to No. 10, inclusive, and 1.3 mm for No. 8 to No. 2, inclusive. The minimum insulation thickness, at any point, for Type THW and TW wires shall be 0.69 mm for conductor sizes No. 14 to No. 10, inclusive, 1.02 mm for No. 8, and 1.37 mm for No. 6 to No. 2, inclusive.

Signal conductors for ramp meters shall be color coded as follows:

Phase	Base	Stripe	Band Symbols
1	Re, Ye, Brn	None	1
2	Re, Ye, Brn	Black	2
3	Re, Ye, Brn	Purple	3
4	Re, Ye, Brn	Orange	4

Traffic signal conductors for phase overlaps shall be double striped as follows:

Signal Phase	Base Color	Double Stripe Color
OLA	Re, Ye, Brn	Black/Blue
OLB	Re, Ye, Brn	Black/Orange
OLC	Re, Ye, Brn	Black/Purple
OLD	Re, Ye, Brn	Black/Gray

Signal cable shall not be used.

Type TW insulation shall not be used for the CMS feeder, nor for the CMS branch circuit conductors between the service pedestal and the CMS.

Splices for cables will not be allowed, except where shown on the plans.

TELEPHONE CABLE

The telephone cable (TC) shall consist of 6 pairs of No. 19 solid copper conductors. Conductors shall be twisted in pairs. Each conductor shall be insulated with a high molecular weight, heat stabilized, color-coded polyethylene material. The insulation shall be 440 μ m nominal.

Color code for TC cable shall be as follows:

1. White/Blue
2. White/Orange
3. White/Green
4. White/Brown
5. White/Gray
6. Red/Blue

The core shall be protected by non-hygroscopic polyester film with a single longitudinally applied 120 μ m thick corrugated copper shield (or 190 μ m thick plastic coated aluminum shield). A moisture barrier of petrolatum-polyethylene compound shall be applied over the core tape and over and under the cable shield to fill all cable interstices.

The cable shall be provided with an outer jacket of extruded, black, high molecular weight, heat stabilized polyethylene material. The outer jacket shall have a thickness of 1.5 mm nominal. The outer diameter of the cable shall be 15.25 mm maximum.

All conductors shall be terminated inside the telephone demarcation cabinet and the controller cabinet as shown on the plans. All connections from the TBO terminal block to the 8-position connecting block shall be via a cable consisting of 2 pairs of No. 22 solid conductors and shall meet the same specifications as the TC cable.

10-3.205 SIGN LIGHTING FIXTURES-INDUCTION

Induction sign lighting fixtures shall conform to the provisions for mercury sign lighting fixtures in Section 86-6.05, "Sign Lighting Fixtures-Induction Light," of the Standard Specifications and these special provisions.

Each fixture shall consist of a housing with door, a reflector, refractor or a lens, a lamp, a power coupler, a high frequency generator and a fuse block. Retrofit kits shall be installed as shown on the plans.

Fixtures shall have a minimum average rating of 60 000 hours. Fixtures shall be for a wattage of 87 W, 120/240 V (ac). The power factor of the fixtures shall be greater than 90 percent and the total harmonic distortion shall be less than 10 percent. Fixtures shall be Underwriter's Laboratories (UL) approved for wet locations and be Federal Communications Commission (FCC) Class A listed.

The weight of the fixture shall not exceed 20 kg. The manufacturer's brand name, trademark, model number, serial number and date of manufacture shall be located on the packaged assembly and permanently marked on the outside and inside of the housing.

MATERIALS

Mounting Assembly

The mounting assembly may be either cast aluminum, hot-dip galvanized steel plate or steel plate that has been galvanized and finished with a polymeric coating system or the same finish that is used for the housing.

Housing

Housings shall have a door designed to hold a refractor or lens. Housing doors shall be designed to be opened without the use of tools. Housings and doors shall have a powder coat or polyester paint finish of a gray color resembling unfinished fabricated aluminum.

Reflector

Reflectors shall be designed to be removed as a unit that includes the lamp and power coupler.

Refractor

Refractors or lenses shall have smooth exteriors. Lenses shall be flat or convex. Convex lenses shall be made from heat resistant, high-impact resistant, tempered glass.

Convex lenses shall be designed or shielded so that no fixture luminance is visible when the fixture is approached directly from the rear and the viewing level is the bottom of the fixture. When a shield is used it shall be an integral part of the door casting.

Lamp

Each fixture shall be furnished with a 85-W induction lamp. Interior lamp walls shall be fluorescent phosphor coated. Lamp light output shall be at least 70 percent at 60 000 hours. Lamps shall have a minimum color-rendering index of 80. Lamps shall be rated at a color temperature of 4 000°C. Lamps shall be removable without the use of tools.

Power Coupler

Power couplers shall consist of a construction base with antenna, heat sink and electrical connection cable. The power coupler shall be designed so that it can be removed with common hand tools.

High Frequency Generator

High frequency generators shall start and operate lamps at an ambient temperature of -25°C or greater for the rated life of the lamp.

Generator output frequency shall be 2.65 MHz +/- 10 percent. The generator radio frequency interference shall meet the requirements of the Federal Communications Commission Title 47, Part 18, regulations concerning harmful interference.

High frequency generators shall operate continuously at ambient air temperatures from -25°C to 25°C without reduction in generator life. High frequency generators shall have a design life of at least 100 000 hours at 55°C.

High frequency generators shall be capable of being replaced with common hand tools. Conductor terminals shall be identified as to the component terminal to which they connect.

High frequency generators shall be mounted to use the fixture upon which they are mounted as a heat sink.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications, and a copy of the high frequency generator test methods and results shall be submitted by the manufacturer with each lot of fixtures. The certificate shall state that the high frequency generators meet the requirements of this section and the generator specifications of the lamp manufacturer.

Retrofit Kit

Each fixture retrofit kit shall consist of a reflector, a lamp, a power coupler and a high frequency generator. The retrofit kit components shall conform to the requirements of this section. The installation of the retrofit kit shall not require modification of existing housing and door.

10-3.225 GENERAL PACKET RADIO SYSTEM MODEM

The General Packet Radio System (GPRS) Modem assembly shall be configured with the following major components :

- A. Modem
- B. Power supply
- C. Modem mounting bracket and hardware
- D. Serial communication cable
- E. Antenna

MODEM

All modems shall be configurable remotely through the wireless network and through the modem serial port. The contractor shall configure all modems prior to acceptance. The contractor shall provide the Engineer with the modem serial and SIM numbers 30 days prior to requiring the PDP context. The Engineer will make available the PDP context comprising the IP (assigned) and APN (obtained from service provider) and configuration parameters (if different from those listed below) after the serial and SIM numbers are provided to the Engineer by the Contractor. All modems shall be complete with all cables, conductors, hardware, antenna and other equipment as required to make the system completely operational. Location and mounting of the equipment shall be directed by the Engineer and details shown on the plans. The modems shall be fully compliant with PCCA STD-101.

Environmental Requirements

The operating temperature range of the modem shall range from -30°C to +70°C, with humidity from 5 percent to 95 percent (non-condensing) and have transmissions at 10 percent duty cycle above 60°C.

Physical Characteristics

The modem shall weigh less than 1 Kg and have overall dimensions of less than 180 mm × 90 mm × 30 mm. The housing shall be constructed of anodized aluminum.

The modem shall have the following status indicators:

- A. Power (on).
- B. Channel Acquired.
- C. Link Status.
- D. Network Registration.
- E. Received Signal Strength Indicator.
- F. Transmit and Receive Data.
- G. Block Errors.

Operational Parameters

The modem shall operate in a dynamic IP addressing environment of GPRS Networks at 1900/850 MHz and meet the following operational parameters:

- A. Transmit frequency: 1850-1910 MHz and 824-849 MHz.
- B. Transmit power at antenna port: 1.0 W for 1900 MHz and 0.8 W for 850 MHz.
- C. Receiver frequency: 1930-1990 MHz and 869-894 MHz.
- D. Receiver sensitivity: -107 dBm (2.439 % bit error rate)
- E. Input voltage: 10 V(dc) to 28 V(dc)
- F. Input current: 40 mA to 200 Ma

Application Interfaces

The modem shall have the following standard interfaces:

- A. The AT command serial character stream uses TCP/IP.
- B. Host communicates with modem using either UDP or TCP packet modes.
- C. Computer terminal platform using Windows 98/2000/NT and Dial-Up Networking communicates with the modem using PPP.

Features

The modem shall have the following features:

- A. 53.6 kbps raw data transfer rate minimum.
- B. Full duplex transceiver.
- C. 1900/850 MHz dual band networking.
- D. Integrated TCP/IP protocol stack with UDP.
- E. Security such to prevent unauthorized access.
- F. Includes a DC power cable at least 1 meter in length with a connector compatible with the modem power connector.
- G. Packet buffering and forwarding feature that provides discipline to the output of the serial port. The packet forwarding time interval shall be configurable from a rate of 0 (undisciplined) to 400 ms in increments of 100 ms or less.
- H. Choice of "Friends Only" access mode.

SYSTEM COMPLIANCE

The modem and associated firmware, software, hardware, protocol, and other features shall be fully and completely compatible with the existing GPRS network currently in use. The existing GPRS network utilizes the AT&T Wireless (now Cingular) cellular system (band compatible with this modem), the AirLink Raven GPRS modem, and the AirLink Gateway. The Contractor shall demonstrate the compatibility to the Engineer by actual installation demonstration or by other means approved by the Engineer.

INSTALLATION

The installation of the modem shall be according to the plans, the manufacturer's instructions, and adjusted per field conditions with the Engineers approval.

CERTIFICATE OF COMPLIANCE

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for all of the modems furnished for the project.

WARRANTY

The manufacturer shall provide a written warranty against defects in materials and workmanship for modems for a period of 12 months after installation for parts and labor. Replacement modems shall be provided within 5 days after receipt of failed modem at no cost to the State, except the cost of shipping the failed modem. All warranty documentation shall be given to the Engineer prior to installation. Replacement modems shall be delivered to Caltrans Maintenance Electrical Shop at 30 Rickard Street, San Francisco, CA 94134, (415) 330-6509.

The software warranty shall be for one (1) year, including upgrades and feature enhancements.

POWER SUPPLY

The power supply shall be vertically mountable on a 483-mm standard rack rail using existing mounting hardware. An existing mounting hardware sample is available upon request; the Contractor may pick it up at 111 Grand Avenue, Oakland. The Contractor shall return the sample if it is not used in the installation. The power supply shall have provision to attach the modem power cable securely without the need for modifying the modem power cable.

The power supply shall meet the following requirements:

Power Cord	Standard 120 V(ac), 3 prong cord, at least 1 meter in length (may be added by Contractor)
Type	Switching mode type
Power Rated	40 W minimum with no minimum load required
Operating Temperature Range	From -30°C to +70°C
Operating Humidity Range	From 5 percent to 95 percent non-condensing
Input Voltage	From 85 V(ac) to 264 V(ac) or 120 V(dc) to 370 V(dc)
Input Frequency	From 47 Hz to 63 Hz
Inrush Current	Cold start, 25 A at 115 V
Output Voltage	12 V(dc), adjustable over a ±10 percent range
Overload Protection	From 105 percent to 150 percent in output pulsing mode
Over Voltage Protection	From 115 percent to 135 percent of output voltage
Setup, Rise, Hold Up Time	800 ms, 50 ms, 15 ms at 115 V(ac)
Withstand Voltage	I/P-0/P:3 kV, I/P-FG:1.5 kV, for 60 seconds
Working Temperature*	70°C@30%
Safety Standards	UL 1012, TUV EN60950
EMC Standards	EN55022 Class B, EN61000-4-2, 3, 4, 5 and EN61000-3-2, 3

* Note: A substitute may be proposed by the Contractor which meets the 70°C environmental rating at a lower load percentage as long as the temperature rating is maintained at the maximum modem load and all other electrical specifications are met.

CERTIFICATE OF COMPLIANCE

The Contractor shall provide the Engineer with a Certificate of Compliance from the manufacturer in accordance with the provisions of Section 6-1.07, "Certificates of Compliance" of the Standard Specifications for all of the power supplies furnished for the project.

WARRANTY

The manufacturer shall provide a written warranty against defects in materials and workmanship for power supplies for a period of 12 months after installation for parts and labor. Replacement power supplies shall be provided within 5 days after receipt of failed power supply at no cost to the State, except the cost of shipping the failed power supply. All warranty documentation shall be given to the Engineer prior to installation. Replacement power supplies shall be delivered to Caltrans Maintenance Electrical Shop at 30 Rickard Street, San Francisco, CA 94134, (415) 330-6509.

MODEM MOUNTING BRACKET AND HARDWARE

The mounting bracket and hardware shall be stainless steel. The mounting bracket shall securely hold the modem in a vertical attitude with all cables and conductors installed. The mounting bracket shall contain the modem using a method that allows the removal of the modem without tools or without removing the bracket from its attachment to the cabinet frame.

D SERIAL COMMUNICATION CABLE

Where the modem is designed to interface with a Model 170E controller, the Contractor shall provide a communication cable known as the C2 cable. The C2 cable shall interface the Model 170E controller C2 connector and the GPRS modem and include all conductors and connectors required for that purpose. The GPRS modem connector shall meet EIA RS-232 standard using a DB-9 connector. The Model 170E controller end connector shall comply with AMP 201360-2-ND or equivalent. All pins in both connectors shall be gold plated. The cable shall have four No. 20 AWG conductors with (UL) Type CM shielded or AWM 2464 80°C 300 Volts – C (UL) CMG. The cable shall be at least 1 meter long. The cable wiring shall comply with the following:

AMP 201360-2-ND -L to DB9-P - 2
AMP 201360-2-ND -K to DB9-P - 3
AMP 201360-2-ND -N to DB9-P - 5
AMP 201360-2-ND -D to AMP 201360-2-ND - H
AMP 201360-2-ND -J to AMP 201360-2-ND – M

ANTENNA

The antenna shall be the low profile type, and shall adhere to the cabinet using a factory installed double-sided waterproof acrylic foam adhesive. The coax cable shall be at least 1 meter in length and shall have a 50 Ω TNC connector on the modem end. In addition, the antenna shall meet the following requirements:

VSWR (at resonant point)	2:1 or less
Frequency	1850-1990 MHz and 824-894 MHz
Nominal Impedance	50 Ω
Gain	2 dB
Radiation Pattern	Omni-directional
Polarization	Vertical
Ground Plane Required	Yes, see note below

Ground plane requirements: The antenna shall require a reflective ground plane to function properly. The required ground plane shall extend beyond the antenna at least 200 mm in all directions.

Federal with Goals 12-01-99

(BECAUSE SOME COLORED INKS WILL NOT REPRODUCE IN COPY
MACHINES, PLEASE USE BLACK INK TO COMPLETE THIS PROPOSAL.)

(DO NOT DETACH)

PROPOSAL TO THE DEPARTMENT OF TRANSPORTATION

CONTRACT NO. 04-4396U4

NAME OF BIDDER _____
BUSINESS P.O. BOX _____
CITY, STATE, ZIP _____
BUSINESS STREET ADDRESS _____
(Please include even if P.O. Box used)
CITY, STATE, ZIP _____
TELEPHONE NO: **AREA CODE ()** _____
FAX NO: **AREA CODE ()** _____
CONTRACTOR LICENSE NO. _____

The work for which this proposal is submitted is for construction in conformance with the special provisions (including the payment of not less than the State general prevailing wage rates or the Federal minimum wage rates), the project plans described below, including any addenda thereto, the contract annexed hereto, and also in conformance with the Department of Transportation Standard Plans, dated July 1999, the Standard Specifications, dated July 1999, and the Labor Surcharge and Equipment Rental Rates in effect on the date the work is accomplished.

The special provisions for the work to be done are dated August 2, 2004 and are entitled:

STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; NOTICE TO CONTRACTORS AND SPECIAL PROVISIONS FOR CONSTRUCTION ON STATE HIGHWAY IN SANTA CLARA COUNTY IN SAN JOSE FROM 0.4 KM NORTH OF BRAHNAM LANE OVER CROSSING TO 0.4 KM NORTH OF VIRGINIA STREET OVERCROSSING

The project plans for the work to be done were approved July 5, 2004 and are entitled:

STATE OF CALIFORNIA; DEPARTMENT OF TRANSPORTATION; PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SANTA CLARA COUNTY IN SAN JOSE FROM 0.4 KM NORTH OF BRAHNAM LANE OVER CROSSING TO 0.4 KM NORTH OF VIRGINIA STREET OVERCROSSING

Bids are to be submitted for the entire work. The amount of the bid for comparison purposes will be the total of the following: the sum of the item totals; and, the product of the number of working days bid to complete the work and the cost per day shown on the proposal form. This amount shall be set forth as the "Total Basis for Comparison of Bids: (A) + (B)."

The bidder shall set forth for each unit basis item of work a unit price and a total for the item, and for each lump sum item a total for the item, all in clearly legible figures in the respective spaces provided for that purpose. In the case of unit basis items, the amount set forth under the "Item Total" column shall be the product of the unit price bid and the estimated quantity for the item.

In case of discrepancy between the unit price and the total set forth for a unit basis item, the unit price shall prevail, except as provided in A. or B., as follows:

CONTRACT NO. 04-4396U4
REPLACED PER ADDENDUM NO. 3 DATED OCTOBER 1, 2004

- A. If the amount set forth as a unit price is unreadable or otherwise unclear, or is omitted, or is the same as the amount as the entry in the item total column, then the amount set forth in the item total column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price;
- B. (Decimal Errors) If the product of the entered unit price and the estimated quantity is exactly off by a factor of ten, one hundred, etc., or one-tenth, or one-hundredth, etc. from the entered total, the discrepancy will be resolved by using the entered unit price or item total, whichever most closely approximates percentagewise the unit price or item total in the Department's Final Estimate of cost.

The bidder shall also set forth the number of working days bid to complete the work and the product of the number of working days and the cost per day shown on the proposal form, in clearly legible figures in the respective spaces provided for that purpose. In the case of a discrepancy between the number of working days and the product, the number of working days shall prevail, except that if the number of working days is unreadable or otherwise unclear, or is omitted, or is the same amount as the entry for the product, then the amount set forth as the product shall prevail and shall be divided by the cost per day shown and the number thus obtained shall be the number of working days.

If both the unit price and the item total are unreadable or otherwise unclear, or are omitted, the bid may be deemed irregular. Likewise if the item total for a lump sum item is unreadable or otherwise unclear, or is omitted, the bid may be deemed irregular unless the project being bid has only a single item and a clear, readable total bid is provided.

Symbols such as commas and dollar signs will be ignored and have no mathematical significance in establishing any unit price or item total or lump sums. Written unit prices, item totals and lump sums will be interpreted according to the number of digits and, if applicable, decimal placement. Cents symbols also have no significance in establishing any unit price or item total since all figures are assumed to be expressed in dollars and/or decimal fractions of a dollar. Bids on lump sum items shall be item totals only; if any unit price for a lump sum item is included in a bid and it differs from the item total, the items total shall prevail.

The foregoing provisions for the resolution of specific irregularities cannot be so comprehensive as to cover every omission, inconsistency, error or other irregularity which may occur in a bid. Any situation not specifically provided for will be determined in the discretion of the Department, and that discretion will be exercised in the manner deemed by the Department to best protect the public interest in the prompt and economical completion of the work. The decision of the Department respecting the amount of a bid, or the existence or treatment of an irregularity in a bid, shall be final.

If this proposal shall be accepted and the undersigned shall fail to execute the contract and return it, together with the contract bonds, to the Department of Transportation so that it is received within 10 days, not including Saturdays, Sundays and legal holidays, after the bidder has received the contract for execution, the Department of Transportation may, at its option, determine that the bidder has abandoned the contract, and thereupon this proposal and the acceptance thereof shall be null and void and the forfeiture of the security accompanying this proposal shall operate and the same shall be the property of the State of California.

The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principals are those named herein; that this proposal is made without collusion with any other person, firm, or corporation; that he has carefully examined the location of the proposed work, the annexed proposed form of contract, and the plans therein referred to; and he proposes, and agrees if this proposal is accepted, that he will contract with the State of California, in the form of the copy of the contract annexed hereto, to provide all necessary machinery, tools, apparatus and other means of construction, and to do all the work and furnish all the materials specified in the contract, in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefor the following prices, to wit:

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	070012	PROGRESS SCHEDULE (CRITICAL PATH METHOD)	LS	LUMP SUM	LUMP SUM	
2	070018	TIME-RELATED OVERHEAD	LS	LUMP SUM	LUMP SUM	
3	071325	TEMPORARY FENCE (TYPE ESA)	M	260		
4	073028	450 MM TEMPORARY CULVERT	M	53		
5	074019	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM	LUMP SUM	
6	074020	WATER POLLUTION CONTROL	LS	LUMP SUM	LUMP SUM	
7	033369	TEMPORARY DRAINAGE INLET PROTECTION	EA	350		
8	033370	TEMPORARY EROSION CONTROL	M2	14 000		
9	033371	TEMPORARY INLET	EA	2		
10	074029	TEMPORARY SILT FENCE	M	6000		
11	074032	TEMPORARY CONCRETE WASHOUT FACILITY	EA	12		
12	074033	TEMPORARY CONSTRUCTION ENTRANCE	EA	15		
13	074034	TEMPORARY COVER	M2	6250		
14	033372	FISH FRIENDLY DIVERSION	LS	LUMP SUM	LUMP SUM	
15 (S)	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM	LUMP SUM	
16 (S)	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
17 (S)	120149	TEMPORARY PAVEMENT MARKING (PAINT)	M2	31		
18 (S)	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	M	60 500		
19	120165	CHANNELIZER (SURFACE MOUNTED)	EA	340		
20 (S)	120300	TEMPORARY PAVEMENT MARKER	EA	12 600		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
21 (S)	128650	PORTABLE CHANGEABLE MESSAGE SIGN	EA	4		
22	129000	TEMPORARY RAILING (TYPE K)	M	26 555		
23 (S)	129100	TEMPORARY CRASH CUSHION MODULE	EA	570		
24	150206	ABANDON CULVERT	EA	4		
25	033373	ABANDON RISER	EA	9		
26	033374	ABANDON PIEZOMETER	EA	10		
27	033375	REMOVE SECURITY FENCE	M	22		
28	150608	REMOVE CHAIN LINK FENCE	M	1780		
29	150668	REMOVE FLARED END SECTION	EA	1		
30	150701	REMOVE YELLOW PAINTED TRAFFIC STRIPE	M	27 100		
31	150711	REMOVE PAINTED TRAFFIC STRIPE	M	24 400		
32	150714	REMOVE THERMOPLASTIC TRAFFIC STRIPE	M	4220		
33	150722	REMOVE PAVEMENT MARKER	EA	12 300		
34	150742	REMOVE ROADSIDE SIGN	EA	25		
35	150760	REMOVE SIGN STRUCTURE	EA	8		
36	033376	REMOVE FRAMED SIGN PANEL	EA	13		
37	150771	REMOVE ASPHALT CONCRETE DIKE	M	410		
38	033377	REMOVE 40 MM PVC WATERLINE	M	30		
39	150805	REMOVE CULVERT	M	1410		
40	033378	REMOVE UNDERDRAIN	M	1710		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	150820	REMOVE INLET	EA	49		
42	150821	REMOVE HEADWALL	EA	1		
43	150826	REMOVE MANHOLE	EA	1		
44	033379	REMOVE 750 MM VCP SEWER PIPE	M	48		
45	150846	REMOVE CONCRETE PAVEMENT	M2	410		
46	150860	REMOVE BASE AND SURFACING	M3	36		
47	151272	SALVAGE METAL BEAM GUARD RAILING	M	1970		
48 (S)	151538	RECONSTRUCT CHAIN LINK RAILING	M	56		
49	152430	ADJUST INLET	EA	32		
50	033380	990 MM PLASTIC PIPE LINER (SDR = 32.5)	M	700		
51	033381	450 MM CURED IN PLACE PIPE	M	380		
52	033382	600 MM CURED IN PLACE PIPE	M	280		
53	033383	750 MM CURED IN PLACE PIPE	M	140		
54	033384	1350 MM CURED IN PLACE PIPE	M	110		
55 (S)	153103	COLD PLANE ASPHALT CONCRETE PAVEMENT	M2	16 300		
56	153210	REMOVE CONCRETE	M3	110		
57	153221	REMOVE CONCRETE BARRIER	M	2680		
58	033385	REMOVE SLOPE PROTECTION (ROCK)	M3	235		
59	033386	REMOVE SLOPE PROTECTION (SACKED CONCRETE)	M3	77		
60	153235	CLEAN BRIDGE DECK	M2	6330		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61	033387	REMOVE AUTOMATIC DRAINAGE GATE	EA	1		
62	033388	CLEANOUT EXISTING DRAINAGE FACILITY	EA	2		
63	153531	ACCESS OPENING, SOFFIT	EA	4		
64	156590	REMOVE CRASH CUSHION (SAND FILLED)	EA	1		
65	157561	BRIDGE REMOVAL (PORTION), LOCATION A	LS	LUMP SUM	LUMP SUM	
66	157562	BRIDGE REMOVAL (PORTION), LOCATION B	LS	LUMP SUM	LUMP SUM	
67	157563	BRIDGE REMOVAL (PORTION), LOCATION C	LS	LUMP SUM	LUMP SUM	
68	157564	BRIDGE REMOVAL (PORTION), LOCATION D	LS	LUMP SUM	LUMP SUM	
69	157565	BRIDGE REMOVAL (PORTION), LOCATION E	LS	LUMP SUM	LUMP SUM	
70	157566	BRIDGE REMOVAL (PORTION), LOCATION F	LS	LUMP SUM	LUMP SUM	
71	157567	BRIDGE REMOVAL (PORTION), LOCATION G	LS	LUMP SUM	LUMP SUM	
72	157568	BRIDGE REMOVAL (PORTION), LOCATION H	LS	LUMP SUM	LUMP SUM	
73	157569	BRIDGE REMOVAL (PORTION), LOCATION I	LS	LUMP SUM	LUMP SUM	
74	157570	BRIDGE REMOVAL (PORTION), LOCATION J	LS	LUMP SUM	LUMP SUM	
75	157571	BRIDGE REMOVAL (PORTION), LOCATION K	LS	LUMP SUM	LUMP SUM	
76	157572	BRIDGE REMOVAL (PORTION), LOCATION L	LS	LUMP SUM	LUMP SUM	
77	160101	CLEARING AND GRUBBING	LS	LUMP SUM	LUMP SUM	
78	170101	DEVELOP WATER SUPPLY	LS	LUMP SUM	LUMP SUM	
79	190101	ROADWAY EXCAVATION	M3	82 500		
80	033389	ROADWAY EXCAVATION (NATURALLY OCCURRING ASBESTOS) (RESTRICTED)	M3	21 200		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81	033390	ROADWAY EXCAVATION (NATURALLY OCCURRING ASBESTOS) (HAZARDOUS)	M3	4900		
82	190110	LEAD COMPLIANCE PLAN	LS	LUMP SUM	LUMP SUM	
83	033391	ASBESTOS HEALTH AND SAFETY PLAN	LS	LUMP SUM	LUMP SUM	
84	033392	DEWATERING	LS	LUMP SUM	LUMP SUM	
85 (F)	192003	STRUCTURE EXCAVATION (BRIDGE)	M3	921		
86 (F)	192008	STRUCTURE EXCAVATION (TYPE A)	M3	104		
87 (F)	192037	STRUCTURE EXCAVATION (RETAINING WALL)	M3	13 977		
88 (F)	193003	STRUCTURE BACKFILL (BRIDGE)	M3	734		
89 (F)	193013	STRUCTURE BACKFILL (RETAINING WALL)	M3	14 115		
90 (F)	193031	PERVIOUS BACKFILL MATERIAL (RETAINING WALL)	M3	924		
91	193114	SAND BACKFILL	M3	32		
92	033393	GROUT BACKFILL	M3	25		
93	033394	COMPACTION GROUTING	M3	2900		
94	194001	DITCH EXCAVATION	M3	5		
95	033395	LIGHTWEIGHT EMBANKMENT MATERIAL (CELLULAR CONCRETE)	M3	15 400		
96 (S)	203001	EROSION CONTROL (BLANKET)	M2	1640		
97 (S)	203003	STRAW (EROSION CONTROL)	TONN	11		
98 (S)	203014	FIBER (EROSION CONTROL)	KG	1590		
99 (S)	203021	FIBER ROLLS	M	3710		
100	203026	MOVE-IN/MOVE-OUT (EROSION CONTROL)	EA	2		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101 (S)	203040	SEED (EROSION CONTROL)	KG	110		
102 (S)	203024	COMPOST (EROSION CONTROL)	KG	4790		
103 (S)	033396	STABILIZING EMULSION (EROSION CONTROL)	KG	360		
104 (S)	204096	MAINTAIN EXISTING PLANTED AREAS	LS	LUMP SUM	LUMP SUM	
105	033397	REMOVE EXISTING IRRIGATION FACILITIES	LS	LUMP SUM	LUMP SUM	
106 (S)	206401	MAINTAIN EXISTING IRRIGATION FACILITIES	LS	LUMP SUM	LUMP SUM	
107	208731	200 MM CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT	M	20		
108	208798	200 MM WELDED STEEL PIPE CONDUIT (6.35 MM THICK)	M	64		
109	208909	EXTEND 200 MM CONDUIT	M	24		
110	250401	CLASS 4 AGGREGATE SUBBASE	M3	32 600		
111	260301	CLASS 3 AGGREGATE BASE	M3	660		
112	033398	CEMENT TREATED BASE	M3	13 100		
113	290211	ASPHALT TREATED PERMEABLE BASE	M3	3680		
114	390153	ASPHALT CONCRETE (TYPE A)	TONN	52 100		
115	394002	PLACE ASPHALT CONCRETE (MISCELLANEOUS AREA)	M2	5050		
116	394040	PLACE ASPHALT CONCRETE DIKE (TYPE A)	M	330		
117	394042	PLACE ASPHALT CONCRETE DIKE (TYPE B)	M	180		
118	394048	PLACE ASPHALT CONCRETE DIKE (TYPE E)	M	150		
119	394049	PLACE ASPHALT CONCRETE DIKE (TYPE F)	M	19		
120	395001	LIQUID ASPHALT, SC-70 (PRIME COAT)	TONN	5		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
121	401000	CONCRETE PAVEMENT	M3	370		
122	404092	SEAL PAVEMENT JOINT	M	1110		
123	490557	FURNISH STEEL PILING (HP 310 X 79)	M	105		
124 (S)	490558	DRIVE STEEL PILE (HP 310 X 79)	EA	4		
125 (S)	490661	1.2 M CAST-IN-DRILLED-HOLE CONCRETE PILING	M	55		
126 (S)	490663	1.5 M CAST-IN-DRILLED-HOLE CONCRETE PILING	M	93		
127 (S)	490669	2.1 M CAST-IN-DRILLED-HOLE CONCRETE PILING	M	61		
128 (S)	490671	2.4 M CAST-IN-DRILLED-HOLE CONCRETE PILING	M	49		
129 (S)	490675	900 MM CAST-IN-DRILLED-HOLE CONCRETE PILING	M	158		
130	490706	FURNISH PILING (CLASS 900C)	M	53		
131 (S)	490707	DRIVE PILE (CLASS 900C)	EA	3		
132	049732	FURNISH CONCRETE PILING (CLASS 625 MODIFIED ALT "X")	M	299		
133 (S)	049733	DRIVE CONCRETE PILE (CLASS 625 MODIFIED ALT "X")	EA	15		
134	049734	FURNISH PILING (CLASS 625C MODIFIED)	M	889		
135 (S)	049735	DRIVE PILE (CLASS 625C MODIFIED)	EA	66		
136	049736	FURNISH PILING (CLASS 400C MODIFIED)	M	24 879		
137 (S)	049737	DRIVE PILE (CLASS 400C MODIFIED)	EA	1359		
138	049738	FURNISH CONCRETE PILING (CLASS 400 MODIFIED ALT "X")	M	222		
139 (S)	049739	DRIVE CONCRETE PILE (CLASS 400 MODIFIED ALT "X")	EA	15		
140 (S)	498030	600 MM CAST-IN-DRILLED-HOLE CONCRETE PILING (SOUND WALL)	M	880		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141 (S)	500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LUMP SUM	LUMP SUM	
142	510000	SEAL COURSE CONCRETE	M3	10		
143 (F)	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M3	145		
144 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	1521		
145 (F)	510060	STRUCTURAL CONCRETE, RETAINING WALL	M3	5871		
146 (F)	510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	M3	993		
147	510087	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE R)	M3	135		
148 (S-F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	M3	333		
149	510526	MINOR CONCRETE (BACKFILL)	M3	88		
150 (F)	511063	FRACTURED FIN TEXTURE	M2	4766		
151	511106	DRILL AND BOND DOWEL	M	310		
152	512232	FURNISH PRECAST PRESTRESSED CONCRETE GIRDER (20 M - 25 M)	EA	6		
153 (S)	512500	ERECT PRECAST PRESTRESSED CONCRETE GIRDER	EA	6		
154 (S)	515076	CORE CONCRETE (201 MM - 250 MM)	M	4		
155 (S)	515077	CORE CONCRETE (251 MM - 300 MM)	M	9		
156 (S-F)	518002	SOUND WALL (MASONRY BLOCK)	M2	3140		
157 (S)	519117	JOINT SEAL (MR 30 MM)	M	213		
158 (S)	519142	JOINT SEAL (MR 40 MM)	M	116		
159 (S)	519144	JOINT SEAL (MR 50 MM)	M	54		
160 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	KG	352 450		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161 (S-F)	520103	BAR REINFORCING STEEL (RETAINING WALL)	KG	410 762		
162 (F)	540102	TREAT BRIDGE DECK	M2	6330		
163	540109	FURNISH BRIDGE DECK TREATMENT MATERIAL (LOW ODOR)	L	2534		
164 (F)	560203	FURNISH SIGN STRUCTURE (BRIDGE MOUNTED WITH WALKWAY)	KG	1360		
165 (S-F)	560204	INSTALL SIGN STRUCTURE (BRIDGE MOUNTED WITH WALKWAY)	KG	1360		
166 (F)	560218	FURNISH SIGN STRUCTURE (TRUSS)	KG	45 900		
167 (S-F)	560219	INSTALL SIGN STRUCTURE (TRUSS)	KG	45 900		
168 (S)	561009	920 MM CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION)	M	33		
169 (F)	562002	METAL (BARRIER MOUNTED SIGN)	KG	1170		
170 (F)	562004	METAL (RAIL MOUNTED SIGN)	KG	330		
171 (F)	033399	METAL (SOUNDWALL MOUNTED SIGN)	KG	360		
172	566011	ROADSIDE SIGN - ONE POST	EA	23		
173	566012	ROADSIDE SIGN - TWO POST	EA	5		
174	568001	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	4		
175	568007	INSTALL SIGN OVERLAY	M2	2		
176	568021	INSTALL FRAMED SIGN PANEL	EA	13		
177	620909	450 MM ALTERNATIVE PIPE CULVERT	M	1110		
178	620913	600 MM ALTERNATIVE PIPE CULVERT	M	140		
179	620924	900 MM ALTERNATIVE PIPE CULVERT	M	52		
180	650069	450 MM REINFORCED CONCRETE PIPE	M	200		

ENGINEER'S ESTIMATE
04-4396U4

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
181	650075	600 MM REINFORCED CONCRETE PIPE	M	4		
182	650077	750 MM REINFORCED CONCRETE PIPE	M	69		
183	650084	1200 MM REINFORCED CONCRETE PIPE	M	46		
184	655458	JACKED 450 MM REINFORCED CONCRETE PIPE (CLASS IV)	M	130		
185	655459	JACKED 600 MM REINFORCED CONCRETE PIPE (CLASS IV)	M	160		
186	033400	600 MM BITUMINOUS COATED CORRUGATED STEEL PIPE (1.32 MM THICK)	M	42		
187	033401	750 MM BITUMINOUS COATED CORRUGATED STEEL PIPE (1.32 MM THICK)	M	14		
188	033402	450 MM BITUMINOUS COATED SLOTTED CORRUGATED STEEL PIPE (1.32 MM THICK)	M	980		
189	680933	200 MM PERFORATED PLASTIC PIPE UNDERDRAIN	M	1780		
190	681067	250 MM PERFORATED PLASTIC PIPE UNDERDRAIN	M	880		
191	681134	80 MM PLASTIC PIPE (EDGE DRAIN)	M	5210		
192	681137	80 MM PLASTIC PIPE (EDGE DRAIN OUTLET)	M	53		
193	681140	80 MM PLASTIC PIPE (APPROACH SLAB DRAIN OUTLET)	M	140		
194	682049	CLASS 3 PERMEABLE MATERIAL (BLANKET)	M3	6500		
195	690275	450 MM BITUMINOUS COATED CORRUGATED STEEL PIPE DOWNDRAIN	M	200		
196	692385	450 MM ANCHOR ASSEMBLY	EA	16		
197	703450	WELDED STEEL PIPE CASING (BRIDGE)	M	23		
198	705336	450 MM ALTERNATIVE FLARED END SECTION	EA	2		
199	705567	750 MM AUTOMATIC DRAINAGE GATE	EA	1		
200	033403	1220 MM PRECAST CONCRETE PIPE MANHOLE	M	21		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
201	033404	40 MM POLYVINYL CHLORIDE WATERLINE	M	31		
202	033405	300 MM REINFORCED CONCRETE PIPE CASING	M	10		
203 (S)	033406	750 MM VITRIFIED CLAY SEWER PIPE	M	51		
204	721011	ROCK SLOPE PROTECTION (BACKING NO. 2, METHOD B)	M3	120		
205	721024	ROCK SLOPE PROTECTION (1/4T, METHOD B)	M3	320		
206	721410	CONCRETE (GUTTER LINING)	M3	80		
207 (F)	721810	SLOPE PAVING (CONCRETE)	M3	169		
208 (F)	049740	SLOPE PAVING (PRECAST PANEL)	M3	5		
209	729010	ROCK SLOPE PROTECTION FABRIC	M2	490		
210 (S)	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	M3	120		
211 (F)	731517	MINOR CONCRETE (GUTTER)	M	504		
212 (S-F)	750001	MISCELLANEOUS IRON AND STEEL	KG	16 100		
213 (S-F)	750496	MISCELLANEOUS METAL (RESTRAINER - PIPE TYPE)	KG	2950		
214 (S-F)	750497	MISCELLANEOUS METAL (RESTRAINER - BAR TYPE)	KG	930		
215 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	2970		
216 (S-F)	750502	MISCELLANEOUS METAL (RETAINING WALL)	KG	244		
217 (S)	033407	SECURITY FENCE	M	33		
218 (S)	033408	SECURITY FENCE GATE	EA	1		
219 (S-F)	800386	CHAIN LINK FENCE (TYPE CL-1.2, VINYL-CLAD)	M	1034		
220 (S)	033409	CHAIN LINK FENCE (TYPE CL-1.2, BARRIER MOUNTED)	M	310		

**ENGINEER'S ESTIMATE
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Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
221 (S)	800390	CHAIN LINK FENCE (TYPE CL-1.5, VINYL-CLAD)	M	670		
222 (S)	800391	CHAIN LINK FENCE (TYPE CL-1.8)	M	370		
223 (S)	802584	0.9 M CHAIN LINK GATE (TYPE CL-1.8)	EA	9		
224 (S)	802592	2.4 M CHAIN LINK GATE (TYPE CL-1.8)	EA	6		
225 (S)	802595	3.0 M CHAIN LINK GATE (TYPE CL-1.8)	EA	1		
226	820130	OBJECT MARKER	EA	11		
227 (S)	832003	METAL BEAM GUARD RAILING (WOOD POST)	M	46		
228 (S)	833032	CHAIN LINK RAILING (TYPE 7)	M	290		
229 (F)	833125	CONCRETE BARRIER (TYPE 25)	M	39		
230	833127	CONCRETE BARRIER (TYPE 25B)	M	620		
231 (F)	833159	CONCRETE BARRIER (TYPE 27A MODIFIED)	M	1323		
232 (F)	833160	CONCRETE BARRIER (TYPE 27)	M	23		
233 (F)	833161	CONCRETE BARRIER (TYPE 27A)	M	441		
234	833162	CONCRETE BARRIER (TYPE 27B)	M	110		
235	833165	CONCRETE BARRIER (TYPE 27B MODIFIED)	M	42		
236 (F)	833184	CONCRETE BARRIER (TYPE 27SV MODIFIED)	M	175		
237 (F)	833187	CONCRETE BARRIER (TYPE 27 MODIFIED)	M	422		
238	839481	CONCRETE BARRIER (TYPE 50)	M	2380		
239	839487	CONCRETE BARRIER (TYPE 50C)	M	110		
240	033410	CONCRETE BARRIER (TYPE 50G2)	M	5		

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
241 (S)	839565	TERMINAL SYSTEM (TYPE SRT)	EA	6		
242 (S)	033411	CRASH CUSHION (QUAD-GUARD)	EA	1		
243 (S)	839603	CRASH CUSHION (ADIEM)	EA	1		
244	839701	CONCRETE BARRIER (TYPE 60)	M	900		
245 (F)	049741	CONCRETE BARRIER (TYPE 60A MODIFIED)	M	144		
246	839703	CONCRETE BARRIER (TYPE 60C)	M	220		
247 (F)	839704	CONCRETE BARRIER (TYPE 60D)	M	525		
248	839705	CONCRETE BARRIER (TYPE 60E)	M	3		
249 (S)	840515	THERMOPLASTIC PAVEMENT MARKING	M2	200		
250 (S)	840561	100 MM THERMOPLASTIC TRAFFIC STRIPE	M	37 000		
251 (S)	840563	200 MM THERMOPLASTIC TRAFFIC STRIPE	M	5720		
252 (S)	033412	PAINT POSTMILE MARKING	M2	10		
253 (S)	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	8440		
254 (S)	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	4830		
255 (S)	860300	SIGNAL AND LIGHTING (CITY STREET LOCATION 1)	LS	LUMP SUM	LUMP SUM	
256 (S)	033413	LIGHTING (CITY STREET, LOCATION 1)	LS	LUMP SUM	LUMP SUM	
257 (S)	033414	LIGHTING (CITY STREET, LOCATION 2)	LS	LUMP SUM	LUMP SUM	
258 (S)	033415	LIGHTING (CITY STREET, LOCATION 3)	LS	LUMP SUM	LUMP SUM	
259 (S)	860415	LIGHTING (STAGE CONSTRUCTION)	LS	LUMP SUM	LUMP SUM	
260 (S)	860460	LIGHTING AND SIGN ILLUMINATION	LS	LUMP SUM	LUMP SUM	

**ENGINEER'S ESTIMATE
04-4396U4**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
261 (S)	033416	POWER AND COMMUNICATION (VTA)	LS	LUMP SUM	LUMP SUM	
262 (S)	033417	TRAFFIC OPERATION SYSTEMS	LS	LUMP SUM	LUMP SUM	
263 (S)	033418	TRAFFIC OPERATION SYSTEMS (STAGE CONSTRUCTION)	LS	LUMP SUM	LUMP SUM	
264 (S)	033419	TRAFFIC OPERATION SYSTEMS (COUNTY)	LS	LUMP SUM	LUMP SUM	
265 (S)	033420	TRAFFIC OPERATION SYSTEMS (LOCATION 1)	LS	LUMP SUM	LUMP SUM	
266 (S)	033421	TRAFFIC OPERATION SYSTEMS (LOCATION 2)	LS	LUMP SUM	LUMP SUM	
267 (S)	033422	TRAFFIC OPERATION SYSTEMS (LOCATION 3)	LS	LUMP SUM	LUMP SUM	
268 (S)	033423	TRAFFIC OPERATION SYSTEMS (LOCATION 4)	LS	LUMP SUM	LUMP SUM	
269 (S)	033424	TRAFFIC OPERATION SYSTEMS (LOCATION 5)	LS	LUMP SUM	LUMP SUM	
270 (S)	033425	TRAFFIC OPERATION SYSTEMS (LOCATION 6)	LS	LUMP SUM	LUMP SUM	
271 (S)	033426	TRAFFIC OPERATION SYSTEMS (LOCATION 7)	LS	LUMP SUM	LUMP SUM	
272 (S)	033427	TRAFFIC OPERATION SYSTEMS (LOCATION 8)	LS	LUMP SUM	LUMP SUM	
273 (S)	033428	TRAFFIC OPERATION SYSTEMS (LOCATION 9)	LS	LUMP SUM	LUMP SUM	
274 (S)	033429	TRAFFIC OPERATION SYSTEMS (LOCATION 10)	LS	LUMP SUM	LUMP SUM	
275 (S)	033430	TRAFFIC OPERATION SYSTEMS (LOCATION 11)	LS	LUMP SUM	LUMP SUM	
276 (S)	033431	TRAFFIC OPERATION SYSTEMS (LOCATION 12)	LS	LUMP SUM	LUMP SUM	
277 (S)	033432	TRAFFIC OPERATION SYSTEMS (LOCATION 13)	LS	LUMP SUM	LUMP SUM	
278 (S)	033433	TRAFFIC OPERATION SYSTEMS (LOCATION 14)	LS	LUMP SUM	LUMP SUM	
279 (S)	033434	TRAFFIC OPERATION SYSTEMS (LOCATION 15)	LS	LUMP SUM	LUMP SUM	
280	BLANK					

