

STATE OF CALIFORNIA  
**STANDARD AGREEMENT**

Department Of Transportation

STD 213 (rev 9/01)  
 Division Of Procurement And Contracts (DPAC) A&E Boiler Revision Date 11/13/14

AGREEMENT NUMBER 08A2441	REGISTRATION NUMBER
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- This Agreement is entered into between the State Agency and the Contractor named below:  
 STATE AGENCY'S NAME  
**STATE OF CALIFORNIA**  
**DEPARTMENT OF TRANSPORTATION** (Hereinafter referred to as "Department" or "Caltrans")  
 CONSULTANT'S NAME  
**Stantec Consulting Services Inc. (Hereinafter referred to as "the Consultant")**
- The term of this Agreement is from December 15, 2014 or upon Caltrans approval, whichever is later, through June 30, 2017.
- The maximum amount of this Agreement is: **\$2,500,000.00**  
**Two Million Five Hundred Thousand Dollars and No Cents**
- The parties agree to comply with the terms and conditions of the following exhibits/attachments which are by this reference made a part of the Agreement.

Exhibit A – Scope Of Work And Deliverables	5 Pages
Exhibit B – Budget Detail And Payment Provisions	7 Pages
Exhibit C – General Terms And Conditions 610 (Electronic File: GTC 610*)	1 Page
Exhibit D – Special Terms And Conditions	26 Pages
Exhibit E – Additional Provisions	10 Pages
Exhibit F – Prevailing Wage Requirements	7 Pages
Attachment 1 – Scope Of Work	129 Pages
Attachment 2 – Cost Proposal	76 Pages
Attachment 3 – Sample Task Order Format	5 Pages
Attachment 4 – DBE Participation (form ADM-0227F A&E)	1 Page
Attachment 5 – Disadvantaged Business Enterprises Utilization Report (form ADM-3069)	2 Pages
Attachment 6 – Davis-Bacon Federal Prevailing Wage Determinations (added to final Agreement)	46 Pages

Items shown with an Asterisk (\*) are hereby incorporated by reference and made part of this Agreement as if attached hereto. These documents can be viewed at <http://www.ols.dgs.ca.gov/standard+language/default.htm>.

**IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.**

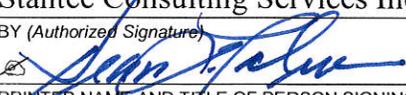
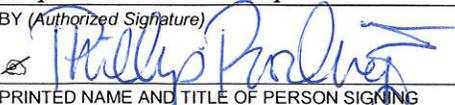
<b>CONTRACTOR (herein referred to as "the Consultant")</b>		California Department of General Services Use Only
CONSULTANT'S NAME (if other than an individual, state whether a corporation, partnership, etc.) <b>Stantec Consulting Services Inc.</b>		
BY (Authorized Signature) 	DATE SIGNED (Do not type) <b>12/4/2014</b>	
PRINTED NAME AND TITLE OF PERSON SIGNING <b>Dean J. Palumbo, Senior V.P.</b>		
ADDRESS <b>25864-F Business Center Drive, Redlands, California 92374</b>		
<b>STATE OF CALIFORNIA</b>		
AGENCY NAME <b>Department of Transportation</b>		
BY (Authorized Signature) 	DATE SIGNED (Do not type) <b>12/10/14</b>	
PRINTED NAME AND TITLE OF PERSON SIGNING <b>Phillip Rodriguez, Office Chief</b>		
ADDRESS <b>Division of Procurement and Contracts, MS 65                  1727 30<sup>th</sup> Street                  Sacramento, CA 95816</b>		
		<input checked="" type="checkbox"/> Exempt per: PCC 10430 (d)

EXHIBIT A  
SCOPE OF WORK AND DELIVERABLES

I. SCOPE OF WORK

The Consultant shall perform consultation, research, professional and technical services required for Hazardous Waste Site Investigation and Design Services, on an “as-needed” basis to support Caltrans in the development and construction of proposed Caltrans transportation facilities.

A. The work to be performed under this Agreement is described in Attachment 1.

B. The services shall be performed in San Bernardino and Riverside Counties.

C. CONFLICT OF INTEREST SUPPORT WORK

1. For services in which the Consultant cannot perform the work free of conflict of interest as defined in this Agreement, the Consultant agrees that Caltrans may obtain these services from another qualified Consultant, whose contract includes the same scope of work, or in any other manner permitted by law.
2. Caltrans may require the Consultant to perform work as described herein but located outside the geographic limits of this Agreement when the consultant contractor for another Caltrans District cannot perform the work free of conflict of interest. For such work, Caltrans will select a consultant to perform the same work by assignment of a Task Order in the following order of priority:
  - a. The consultant contract covers the same District, but not the same geographic area as this Agreement;
  - b. The consultant contract covers the closest area geographically to the geographic jurisdiction of this Agreement;
  - c. The consultant contract covers the next closest area geographically to the geographic jurisdiction of this Agreement; and so on.

EXHIBIT A  
 SCOPE OF WORK AND DELIVERABLES

3. Should the consultant for priority number 1 not exist or be unable to perform the work free of conflict of interest, then Caltrans shall select the consultant for priority number 2 to perform the work, and so on.
- D. This Agreement will commence on December 15, 2014 or upon approval by Caltrans, whichever is later and no work shall begin before that time. This Agreement is of no effect unless approved by Caltrans. The Consultant shall not receive payment for work performed prior to approval of the Agreement and before receipt of notice to proceed by the Caltrans Contract Manager. This Agreement shall expire on June 30, 2017. The services shall be provided during working hours, Monday through Friday, except holidays, or as stipulated in Attachment 1. The parties may amend this Agreement as permitted by law.
- E. All inquiries during the term of this Agreement will be directed to the project representatives identified below:

THE DEPARTMENT	THE CONSULTANT
Caltrans Contract Manager: Chee Ong	Consultant Contract Manager: Kevin Miskin, P.E.
District/Division: Environmental Planning/Environmental Engineering	Office/Branch:
Address: 464 W. 4 <sup>th</sup> Street, MS 645 San Bernardino, CA 92401	Address: 25864-F Business Center Drive Redlands, California 92374
Phone: 909-383-6417	Phone: 909-335-6116
Fax: 909-383-6472	Fax: 909-335-6120
e-mail: Chee.Ong@dot.ca.gov	e-mail: kevin.miskin@stantec.com

F. Work Guarantee

Caltrans does not guarantee, either expressly or by implication, that any work or services will be required under this Agreement.

G. Licenses and Permits

1. The Consultant shall obtain at its expense all license(s) and permit(s) required by law for accomplishing any work required in connection with this Agreement.

EXHIBIT A  
SCOPE OF WORK AND DELIVERABLES

2. In the event the Consultant fails to keep in effect at all times all required license(s) and permit(s), Caltrans may, in addition to any other remedies it may have, terminate this Agreement upon occurrence of such event.

II. TASK ORDER

- A. Specific projects will be assigned to the Consultant through issuance of Task Orders. See sample Task Order format, Attachment 3.
- B. After a project to be performed under this Agreement is identified by Caltrans, Caltrans will prepare a draft Task Order. The draft Task Order will identify the scope of services, expected results, project deliverables, period of performance, project schedule and will designate a Caltrans Project Coordinator. The draft Task Order will be delivered to the Consultant for review. The Consultant shall return the draft Task Order within no more than ten (10) calendar days along with a cost estimate including a written estimate of the number of hours per staff person, any anticipated reimbursable expenses, and total dollar amount. The Consultant agrees that each cost estimate shall be the product of a good faith effort exercise of engineering judgment. After agreement has been reached on the negotiable items, the finalized Task Order shall be signed by both Caltrans and the Consultant. If Caltrans and Consultant are unable to reach agreement, Caltrans may terminate this Agreement in accordance with the provisions of Exhibit D, entitled "Termination."
- C. Task Orders may be negotiated for a Firm Fixed Price or for specific rates of compensation, both of which must be based on the labor and other rates set forth in the Consultant's Cost Proposal, Attachment 2.
- D. A Task Order is of no force or effect until returned to Caltrans and signed by an authorized representative of Caltrans. No expenditures are authorized on a project and work shall not commence until a Task Order for that project has been executed by Caltrans.
- E. The Consultant shall not commence performance of work or services on a Task Order until it has been approved by Caltrans and notification to proceed has been issued by the Caltrans Contract Manager. No payment

EXHIBIT A  
SCOPE OF WORK AND DELIVERABLES

will be made for any work performed prior to approval or after the period of performance of the Task Order.

- F. If the Consultant fails to satisfactorily complete a deliverable according to the schedule set forth in a Task Order, no payment will be made until the deliverable has been satisfactorily completed.
- G. The period of performance for Task Orders shall be in accordance with dates specified in the Task Order. No Task Order will be written which extends beyond the expiration date of this Agreement.
- H. The total amount payable by Caltrans for an individual Task Order shall not exceed the amount agreed to in the Task Order. Task Orders and/or Task Order Revisions require written approval by the Consultant and Caltrans.
- I. If applicable, when a subsequent agreement for the same or similar scope of work is executed within three (3) months prior to the termination of this Agreement, no additional Task Orders shall be executed under this Agreement upon the effective date of the subsequent agreement.
- J. Task Orders may not be used to amend this Agreement and may not exceed the scope of work under this Agreement.

III. CONSULTANT REPORTS AND/OR MEETINGS

- A. The Consultant shall submit progress reports at least once a month. The report should be sufficiently detailed for the Caltrans Contract Manager to determine if the Consultant is performing to expectations and is on schedule, to provide communication of interim findings and to afford occasions for airing difficulties or special problems encountered so remedies can be developed. Separate detail shall be provided for each on-going Task Order.
- B. Progress reports shall identify the total number of hours worked by the Consultants' and Subconsultants' personnel by use of the Caltrans Work Breakdown Structure (WBS) level element(s). The WBS is included in the Guide to Project Delivery Workplan Standards, which can be found at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm>.

EXHIBIT A  
SCOPE OF WORK AND DELIVERABLES

- C. The Consultant's Contract Manager shall meet with the Caltrans Contract Manager as needed to discuss progress on the Agreement.

EXHIBIT B  
BUDGET DETAIL AND PAYMENT PROVISIONS

I. FUNDING REQUIREMENTS

- A. It is mutually understood between the parties that this Agreement may have been written before ascertaining the availability of congressional or legislative appropriation of funds for the mutual benefit of both parties in order to avoid program and fiscal delays that would occur if the Agreement were executed after that determination was made.
- B. This Agreement is valid and enforceable only if sufficient funds are made available to Caltrans by the United States Government or the California State Legislature for the purpose of this program. In addition, this Agreement is subject to any additional restrictions, limitations, conditions, or any statute enacted by the Congress or the State Legislature that may affect the provisions, terms, or funding of this Agreement in any manner.
- C. It is mutually agreed that if the Congress or the State Legislature does not appropriate sufficient funds for the program, this Agreement shall be amended to reflect any reduction in funds.
- D. Caltrans has the option to terminate the Agreement under the 30-day termination clause pursuant to Exhibit D, section III.
- E. Pursuant to Government Code, Section 927.13(d), no late payment penalty shall accrue during any time period for which there is no Budget Act in effect, nor on any payment or refund that is the result of a federally mandated program or that is directly dependent upon the receipt of federal funds by a state agency.

II. COMPENSATION AND PAYMENT

- A. The Consultant will be reimbursed for hours worked at the hourly rates specified in the Consultant's Cost Proposal, (See Attachment 2). The specified hourly rates shall include direct salary costs, employee benefits, prevailing wages, employer payments, overhead, and fee. These rates are not adjustable for the performance period set forth in this Agreement.

EXHIBIT B  
BUDGET DETAIL AND PAYMENT PROVISIONS

- B. In addition, the Consultant will be reimbursed for direct costs, other than salary costs, that are identified in an executed Task Order.
- C. Consultant shall be responsible for any future adjustments to prevailing wage rates including, but not limited to, base hourly rates and employer payments as determined by the Department of Industrial Relations. The Consultant is responsible for paying the appropriate rate, including escalations that take place during the term of the Agreement.
- D. A mistake, inadvertence, or neglect by the Consultant in failing to pay the correct rates of prevailing wage will be remedied solely by the Consultant and will not, under any circumstances, be considered as the basis of a claim against Caltrans on the Agreement.
- E. In compliance with 49 CFR 26.37, revised on February 28, 2011, a Disadvantaged Business Enterprises Utilization Report (form ADM-3069) is required, as specified in this Agreement.
  - 1. The Consultant shall submit a Disadvantaged Business Enterprises Utilization Report (form ADM-3069), Attachment 5, with each invoice. Also refer to Exhibit D, Special Terms and Conditions.
  - 2. Failure to provide the Disadvantaged Business Enterprises Utilization Report (form ADM-3069) with the invoice will result in twenty-five percent (25%) of the dollar value of the invoice being withheld from payment until the form is submitted. The amount will be returned to the Consultant when a satisfactory Disadvantaged Business Enterprises Utilization Report (form ADM-3069) is submitted to the Caltrans Contract Manager.
- F. Transportation and subsistence costs to be reimbursed shall be the actual costs incurred, but not to exceed the rates stipulated in the “Caltrans Travel Guide, Consultant/Contractors Travel Policy.” See <http://www.dot.ca.gov/hq/asc/travel/ch12.htm>. When prevailing wages apply to the services described in Attachment 1, transportation and subsistence costs shall be reimbursed at the minimum rates set by the Department of Industrial Relations (DIR) as outlined in the applicable Prevailing Wage Determination. See <http://www.dir.ca.gov>.

EXHIBIT B  
BUDGET DETAIL AND PAYMENT PROVISIONS

- G. Progress payments:
1. Progress payments will be made monthly in arrears based on services provided at specific hourly rates and allowable direct cost incurred for Task Orders negotiated with specific rates of compensation. Progress payments for Firm Fixed Price Task Orders will be based on the percentage of work completed.
  2. To determine allowable incurred Subconsultant costs that are eligible for reimbursement, in addition to reimbursement for actual costs that are incurred, Caltrans will allow Subconsultant costs that are treated by the Consultant as accrued due to such costs having been billed to the Consultant and recognized by the Consultant and Caltrans as valid, undisputed, due and payable.
  3. By submitting accrued but unpaid Subconsultant costs for reimbursement, the Consultant agrees that within ten (10) days of receipt of reimbursement, the full amount submitted as a reimbursable accrued Subconsultant cost shall be paid to the Subconsultant.
- H. The Consultant shall not commence performance nor will payment be made for any work performed prior to approval of this Agreement by State and written notification to proceed has been issued by the Caltrans Contract Manager, nor will any payment be made for work performed after the expiration date of this Agreement.
- I. The Consultant will be reimbursed in arrears for services satisfactorily rendered and approved by the Caltrans Contract Manager, as promptly as fiscal procedures will permit upon receipt by the Caltrans Contract Manager of itemized invoices in triplicate. Separate invoices itemizing all costs are required for all work performed under each Task Order.
- J. Invoices shall be submitted showing the Caltrans WBS level element for each billable hour increment and/or detail of work performed on each milestone, on each project as applicable. Task Orders and invoicing shall include, but are not limited to, the WBS elements for defined/related services and products. The WBS is included in the Guide to Project Delivery Workplan Standards, which can be found at

EXHIBIT B  
BUDGET DETAIL AND PAYMENT PROVISIONS

<http://www.dot.ca.gov/hq/projmgmt/guidance.htm>. Incomplete invoices shall be returned unpaid to the Consultant for correction. Caltrans shall not pay disputed portions of invoices.

- K. When prevailing wage rates apply, the Consultant must submit with each invoice a certified copy of the payroll for compliance verification. Invoice payment will not be made until the payroll has been verified and the invoice approved by the Caltrans Contract Manager.
- L. The sample invoice format can be found at <http://caltrans-opac.ca.gov/aeinfo.htm>. Invoices shall reference this Agreement number, project title, and Task Order number. Invoices shall be submitted no later than 45 calendar days after completion of each billing period. Any credit, as provided under this Agreement, due Caltrans must be reimbursed by the Consultant prior to the expiration or termination of this Agreement. Invoices shall be mailed to the Caltrans Contract Manager or Consultant Service Unit at the following address:

DEPARTMENT OF TRANSPORTATION

Attention: Chee Ong

Division of Environmental Planning/Environmental Engineering

464 W. 4<sup>th</sup> Street, MS 645

San Bernardino, CA 92401

- M. Task Orders will be encumbered with various types of funding. 49 CFR 18.23 requires that federal funds must be expended within 90 days of the expiration of the funding period. In addition, the encumbrances for state and local funds can be lost if not expended within specified time frames. Accordingly, the invoices for approved monthly services must be submitted by the Consultant and received by the Caltrans Contract Manager within 45 calendar days of the completion of the approved monthly services specified in each Task Order so that encumbered funds can be expended. If Caltrans does not receive invoices from the Consultant by the required deadline, and this results in a loss of funding, Caltrans will reduce the payment on the invoices in the amount of the loss.

EXHIBIT B  
BUDGET DETAIL AND PAYMENT PROVISIONS

- N. The final Task Order invoice shall state the final cost and all credits due Caltrans. The final invoice should be submitted within 60 calendar days after Caltrans Contract Manager notifies the Consultant Contract Manager of completion of the services. Should Caltrans dispute any of the costs billed in the final Task Order invoice, Caltrans shall pay the undisputed portions of the invoice as provided in this Section II. Caltrans will not pay for charges that are in dispute until final resolution of the cost-related disputes.
- O. Payment will be made in accordance with, and within the time specified in, Government Code Chapter 4.5, commencing with Section 927.
- P. The total amount payable by Caltrans, for all Task Orders resulting from this Agreement, shall not exceed \$2,500,000.00. It is understood and agreed that this total is an estimate, and that the actual amount of work requested by Caltrans may be less. There is no guarantee, either expressed or implied, as to the actual dollar amount that will be authorized under this Agreement through Task Orders. In no event shall Task Orders be issued that will exceed this maximum.
- Q. Any written report prepared as a requirement of this Agreement shall contain, in a separate section of such written report, the number and dollar amounts of all agreements and subagreements relating to the preparation of those reports if the combined costs for work by nonemployees of the State exceed \$5,000.00.
- R. Prime Consultant's Indirect Cost Rates (ICR) indicated in Attachment 2, Cost Proposal, are based on 48 CFR, Part 31.
- S. Caltrans, at its sole discretion, may review and/or audit and approve either the Independent CPA's ICR documentation for the Consultant, or the Consultant's and/or Subconsultants' in-house developed ICRs at any time before the execution of this Agreement, while this Agreement is in effect, or after expiration of this Agreement up to the time limit set forth in Exhibit D, section XII, Retention of Records/Audits.
- T. Limitations: Use of the rate(s) contained in this Agreement is subject to any statutory or administrative limitations and is applicable to a given

**EXHIBIT B**  
**BUDGET DETAIL AND PAYMENT PROVISIONS**

contract only to the extent that funds are available. Acceptance of the rate(s) agreed to herein is predicated upon the following conditions:

1. That no costs other than those incurred by the Consultant or allocated to the Consultant were included in its indirect cost pool as finally accepted and that such costs are legal obligations of the Consultant and allowable under the governing cost principles.
2. That the same costs that have been treated as indirect costs have not been claimed as direct costs.
3. That similar types of costs have been accorded consistent accounting treatment to all clients (state, federal, local government, commercial/private) under similar circumstances, and
4. That the information provided by the Consultant which was used as a basis for acceptance of the rate(s) agreed to herein is not subsequently found to be materially inaccurate.

The elements of indirect cost and the type of distribution base(s) used in computing provisional rates are subject to revision when final rates are established. Also, the rates cited in this Agreement are subject to audit.

- U. At the discretion of Caltrans, the indirect cost rate(s) and related Independent CPA workpapers may be reviewed by Caltrans Division of Audits & Investigations (A&I) to verify the accuracy and the CPA's compliance with 48 CFR, Part 31 and related laws and regulations, compliance with Government Auditing Standards, and to determine if the audit report format is acceptable.
- V. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

EXHIBIT B  
BUDGET DETAIL AND PAYMENT PROVISIONS

III. COST PRINCIPLES

- A. The Consultant agrees that Title 48 Code of Federal Regulations (CFR), Part 31, Contract Cost Principles and Procedures (48 CFR 31 et seq.), shall be used to determine the allowability of individual terms of cost.
- B. The Consultant also agrees to comply with Federal procedures in accordance with Title 49 CFR, Part 18, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments (49 CFR 18).
- C. Any costs for which payment has been made to the Consultant that are determined by subsequent audit to be unallowable under 48 CFR 31 or 49 CFR 18 are subject to repayment by the Consultant to Caltrans.
- D. When a Consultant or Subconsultant is a Non-Profit Organization or an Institution of Higher Education, the Cost Principles for Title 2, Code of Federal Regulations, Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards shall apply.
- E. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all the provisions of this clause.

EXHIBIT C  
GENERAL TERMS AND CONDITIONS

NOTE: In this Exhibit C – GTC 610, the General Terms and Conditions are included in this Agreement by reference and made part of this Agreement as if attached hereto. See <http://www.dgs.ca.gov/ols/Resources/StandardContractLanguage.aspx>.

The following language is to be included in lieu of the Standard Indemnification Clauses used in DGS GTC – 610 General Terms and Conditions.

Indemnification

The Consultant agrees to indemnify, defend, and hold harmless Caltrans, its officers, agents, and employees from any and all claims, demands, costs, or liability arising from or connected with the services provided hereunder due to negligent or intentional acts, errors, or omissions of the Consultant. The Consultant will reimburse Caltrans for any expenditure, including reasonable attorney fees, incurred by Caltrans in defending against claims ultimately determined to be due to negligent or intentional acts, errors, or omissions of the Consultant.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

I. AMENDMENT (CHANGE IN TERMS)

- A. No amendment or variation of the terms of this Agreement shall be valid unless made in writing, signed by the parties, and approved as required. No oral understanding or agreement not incorporated in Agreement is binding on any of the parties.
- B. The Consultant shall only commence work covered by an amendment after the amendment is executed and notification to proceed has been provided by the Caltrans Contract Manager.
- C. There shall be no change in the Consultant's Contract Manager or members of the project team, as listed in the cost proposal, which is a part of this Agreement, without prior written approval by the Caltrans Contract Manager. If the Consultant obtains approval from the Caltrans Contract Manager to add or substitute personnel, the Consultant must provide the Personnel Request Form, a copy of the SF330 or resume for the additional or substituted personnel, along with a copy of the certified payroll for that person.

II. DISPUTES

- A. The Consultant shall continue with the responsibilities under this Agreement during any work dispute. Any dispute concerning a question of fact arising under this Agreement that is not disposed of by agreement shall be decided by a committee consisting of the Caltrans Contract Manager and the Caltrans Contract Officer who may consider written or verbal information submitted by the Consultant.
- B. Any dispute not resolved by the committee consisting of the Caltrans Contract Manager and Caltrans Contract Officer may be reviewed by the Consultant Claims Review Committee (CCRC). The CCRC will consist of the Division Chief of Project Delivery (Chairperson), Deputy Director of Administration and the Chief Counsel of Legal Services or their designees. Additional members or their designees may serve on the committee.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

- C. No later than 30 calendar days after Caltrans Contract Manager notifies the Consultant Contract Manager that all deliverables necessary to complete the plans, specifications and estimate (PS&E) have been completed, the Consultant may request review by the CCRC of unresolved claims or disputes that are not resolved by the Caltrans Contract Manager and Caltrans Contract Officer under subsection II.A. above. The request for review will be submitted in writing through the Caltrans Contract Officer to the Chairperson, CCRC. A meeting by the CCRC will be scheduled after the Chairperson concurs. After the meeting, the CCRC will make recommendations to the Deputy Director of the functional program area, who will make the final decision for Caltrans.
- D. Neither the pendency of a dispute nor its consideration by the committee will excuse the Consultant from full and timely performance in accordance with the terms of this Agreement.

III. TERMINATION

This section regarding termination is in addition to GTC 610.

- A. Caltrans reserves the right to terminate this Agreement immediately in the event of breach or failure of performance by the Consultant, any Subconsultant, and by extension, the Consultant's Independent CPA, or upon 30 calendar days written notice to the Consultant if terminated for the convenience of Caltrans.
- B. Caltrans may terminate this Agreement and be relieved of any payments except as provided for under early termination should the Consultant fail to perform the requirements of this Agreement at the time and in the manner herein provided. In the event of such termination, Caltrans may proceed with the work in any manner deemed proper by Caltrans. All costs to Caltrans shall be deducted from any sum due the Consultant under this Agreement and the balance, if any, shall be paid to the Consultant upon demand.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

IV. EARLY TERMINATION OF THIS AGREEMENT OR TASK ORDER(S),  
OR SUSPENSION OF THIS AGREEMENT

General Conditions

- A. In the event this Agreement is terminated, suspended, or a Task Order is terminated for the convenience of Caltrans, the Consultant shall be paid for the percentage of the work completed, relative to the total work effort called for under this Agreement, and for termination costs. No billable costs will be considered payable under the Agreement during suspension.
- B. Within 30 calendar days of the date the Consultant is notified of the early termination of Task Order(s) issued against this Agreement for the convenience of Caltrans, the Consultant shall prepare and submit to the Caltrans Contract Manager, for approval, two (2) separate supplemental cost proposals:
  - 1. A final revised cost proposal for all project-related costs for the revised termination date, and
  - 2. A cost proposal specifically addressing the termination settlement costs only.

V. CONSULTANT'S DELIVERABLES UNDER EARLY TERMINATION

The Consultant shall provide all project-related documents and correspondence required as part of the Scope of Work/Deliverables or included in Task Orders. Project-related documents shall be described, listed, and identified as part of the final revised cost proposal. Project-related documents shall include all documents that are in complete and final form and which have been accepted as complete by Caltrans, or documents in draft and/or incomplete form for those deliverables, which are in progress by the Consultant and have not been accepted as complete. All documents must be received and accepted before the settlement cost invoice is paid.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

VI. INVOICE SUBMITTAL UNDER EARLY TERMINATION

Separate final invoices for project-related costs and termination settlement costs shall be submitted no later than 30 calendar days after the date the Consultant is notified of acceptance of the final cost proposals by the Caltrans Contract Manager. Invoices shall be submitted in accordance with EXHIBIT B. The invoice for termination settlement costs shall include the following, to the extent they are applicable: lease termination costs for equipment and facilities approved under the terms of this Agreement; equipment salvage costs for equipment valued over \$500.00; rental costs for unexpired leases, less the residual value of the lease; cost of alterations and reasonable restorations required by the lease; settlement expenses, e.g., accounting, legal, clerical, storage, transportation, protection and disposition of property acquired or produced under this Agreement, indirect costs, such as payroll taxes, fringe benefits, occupancy costs, and immediate supervision costs related to wages and salaries, incurred as settlement costs.

VII. TERMINATION ISSUES FOR SUBCONSULTANTS, SUPPLIERS, AND SERVICE PROVIDERS

The Consultant shall notify any Subconsultant and service or supply vendor providing services under this Agreement of the early termination date of this Agreement. Failure to notify any Subconsultant and service or supply vendor shall result in the Consultant being liable for the termination costs incurred by any Subconsultant and service or supply vendor for work performed under this Agreement, except those specifically agreed to in the termination notice to the Consultant.

VIII. COST PRINCIPLES UNDER EARLY TERMINATION

Termination settlement expenses will be reimbursed in accordance with 48 CFR, Federal Acquisition Regulations System, Chapter 1, Part 31. Subpart 31.205-42 (c) dealing with initial costs is not applicable to Architectural and Engineering Agreement terminations.

IX. DISPUTES UNDER EARLY TERMINATION CONDITIONS

Disputes under early termination conditions shall be resolved in accordance with this Exhibit.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

X. CONSULTANT CLAIMS AGAINST THIS AGREEMENT OR TASK ORDER(S) UNDER EARLY TERMINATION

The Consultant agrees to release Caltrans from any and all further claims for services performed arising out of this Agreement or its early termination, upon acceptance by the Consultant of payment in the total amount agreed upon as full and final payment of its costs from performance and early termination of this Agreement or Task Order(s).

XI. NON-DISCRIMINATION

This section regarding non-discrimination is in addition to GTC 610.

- A. During the performance of this Agreement, the Consultant and its Subconsultants shall not unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave, and denial of pregnancy disability leave. Consultants and Subconsultants shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment. The Consultant and Subconsultants shall comply with the provision of the Fair Employment and Housing Act (Government Code, Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this Agreement by reference and made a part hereof as if set forth in full. The Consultant and its Subconsultants shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.
- B. Appendix A, relative to nondiscrimination on federally assisted projects, is attached hereto and made a part of this Agreement. (See the last three pages of this Exhibit D.)

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

- C. The Consultant shall comply with the nondiscrimination program requirements of Title VI of the Civil Rights Act of 1964. Accordingly, 49 CFR Part 21, and 23 CFR Part 200 is applicable to this Agreement by reference.
- D. The Consultant shall include the nondiscrimination and compliance provisions of this clause in all subagreements to perform work under this Agreement.

XII. RETENTION OF RECORD/AUDITS

- A. For the purpose of determining compliance with Government Code Section 8546.7, the Consultant, Subconsultants, and Caltrans shall maintain all books, documents, papers, accounting records, Independent CPA Audited Indirect Cost Rate workpapers, and other evidence pertaining to the performance of the Agreement including, but not limited to, the costs of administering the Agreement. All parties, including the Consultant's Independent CPA, shall make such workpapers and materials available at their respective offices at all reasonable times during the Agreement period and for three (3) years from the date of final payment under the Agreement. Caltrans, the State Auditor, FHWA, or any duly authorized representative of the Federal government having jurisdiction under Federal laws or regulations (including the basis of Federal funding in whole or in part) shall have access to any books, records, and documents of the Consultant, Subconsultants, and the Consultant's Independent CPA, that are pertinent to the Agreement for audits, examinations, workpaper review, excerpts, and transactions, and copies thereof shall be furnished if requested without limitation.
- B. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all the provisions of this clause.

XIII. SUBCONTRACTING

- A. Nothing contained in this Agreement or otherwise, shall create any contractual relation between the State and any Subconsultants, and no subagreement shall relieve the Consultant of its responsibilities and obligations hereunder. The Consultant agrees to be as fully responsible

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

to the State for the acts and omissions of its Subconsultants and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by the Consultant. The Consultant's obligation to pay its Subconsultants is an independent obligation from the State's obligation to make payments to the Consultant.

- B. The Consultant shall perform the work contemplated with resources available within its own organization and no portion of the work shall be subcontracted without written authorization by the Caltrans Contract Manager, except that which is expressly identified in the Consultant's Cost Proposal.
- C. Any subagreement in excess of \$25,000, entered into as a result of this Agreement, shall contain all the provisions stipulated in this Agreement to be applicable to Subconsultants unless otherwise noted.
- D. Contractor shall pay its Subconsultants within ten (10) calendar days from receipt of each payment made to the Consultant by the State.
- E. Any substitution of Subconsultants must be approved in writing by the Caltrans Contract Manager in advance of assigning work to a substitute Subconsultant.

XIV. EQUIPMENT PURCHASE

- A. Prior authorization in writing by the Caltrans Contract Manager shall be required before the Consultant enters into any non-budgeted purchase order or subagreement exceeding \$500.00 for supplies, equipment, or Consultant services. The Consultant shall provide an evaluation of the necessity or desirability of incurring such costs.
- B. For purchase of any item, service or consulting work not covered in the Consultant's Cost Proposal and exceeding \$500.00, with prior authorization by the Contract Manager, three (3) competitive quotations must be submitted with the request or the absence of bidding must be adequately justified.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

- C. The Consultant shall maintain an inventory record for each piece of non-expendable equipment purchased or built with funds provided under the terms of this Agreement. The inventory record of each piece of such equipment shall include the date acquired, total cost, serial number, model identification (on purchased equipment), and any other information or description necessary to identify said equipment. Non-expendable equipment so inventoried are those items of equipment that have a normal life expectancy of one (1) year or more and an approximate unit price of \$5,000.00 or more. In addition, theft-sensitive items of equipment costing less than \$5,000.00 shall be inventoried. A copy of the inventory record must be submitted to Caltrans on request by Caltrans.
- D. Any equipment purchased by the Consultant will be returned to Caltrans at the end of this Agreement or, if not returned to Caltrans, it will be disposed of as agreed to by both parties. Both Caltrans and Consultant agree to comply with State Administrative Manual, Section 3520, Disposal of Surplus Personal Property, if Caltrans determines that Caltrans will not retain the equipment.
- E. 49 CFR, Part 18 requires a credit to Federal funds when participating equipment with a fair market value greater than \$5,000.00 is credited to the project.
- F. Any subagreement entered into as a result of this Agreement shall contain all the provisions of this clause.

XV. INSPECTION OF WORK

The Consultant and any Subconsultants shall permit Caltrans and the FHWA to review and inspect the project activities at all reasonable times during the performance period of this Agreement including review and inspection on a daily basis.

XVI. SAFETY

- A. The Consultant shall comply with OSHA regulations applicable to the Consultant regarding necessary safety equipment or procedures. The Consultant shall comply with safety instructions issued by the District

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

Safety Officer and other State representatives. The Consultant's personnel shall wear white hard hats and orange safety vests at all times while working on the construction project site.

- B. Pursuant to the authority contained in Section 591 of the Vehicle Code, Caltrans has determined that within such areas as are within the limits of the project and are open to public traffic, the Consultant shall comply with all of the requirements set forth in Divisions 11, 12, 13, 14, and 15 of the Vehicle Code. The Consultant shall take all reasonably necessary precautions for safe operation of its vehicles and the protection of the traveling public from injury and damage from such vehicles.
- C. The Consultant or Subconsultant(s) must have a Division of Occupational Safety and Health (CAL-OSHA) permit(s) as outlined in California Labor Code Sections 6500 and 6705, prior to the initiation of any practice, work, method, operation, or process related to the construction or excavation of trenches which are five feet or deeper.
- D. Any subagreement, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XVII. INSURANCE

- A. The Consultant shall furnish to Caltrans Certificates of Insurance for the minimum coverage set forth below. The Consultant shall be fully responsible for all policy deductibles and any self-insured retention. All insurance shall be with an insurance company with an A.M. Best's Financial Strength Rating of A- or better with a Financial Size Category of VI or better.
- B. Required Coverages and Limits:
  - 1. Workers Compensation (statutory) and Employers Liability Insurance:
    - \$1,000,000 for bodily injury for each accident
    - \$1,000,000 policy limit for bodily injury by disease
    - \$1,000,000 for each employee for bodily injury by disease

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

If there is an exposure of injury to the Consultant's employees under the U.S. Longshoremen's and Harbor Workers' Compensation Act, the Jones Act, or under laws, regulations, or statutes applicable to maritime employees, coverage shall be included for such injuries or claims.

If work is performed on State owned or controlled property the policy shall contain a waiver of subrogation in favor of the State. The waiver of subrogation endorsement shall be provided in addition to the certificate of insurance.

2. Commercial General Liability Insurance with limits no less than:

\$1,000,000 per occurrence

\$2,000,000 products completed operations aggregate

\$2,000,000 general aggregate

The policy's general aggregate shall apply separately to the Consultant's work under this Agreement by evidencing a per project aggregate endorsement separately attached to the certificate of insurance.

The policy shall include coverage for liabilities arising out of premises, operations, independent consultants, products, completed operations, personal & advertising injury, and liability assumed under an insured Agreement. This insurance shall apply separately to each insured against whom claim is made or suit is brought subject to the Consultant's limit of liability. The policy must include:

Caltrans, State of California, its officers, agents, employees and servants are included as additional insureds, but only with respect to work performed under this Agreement.

This endorsement must be supplied under form acceptable to the Office of Risk and Insurance Management.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

3. Automobile liability, including owned, non-owned and hired autos, with limits not less than \$1,000,000 combined single limit per accident. The same additional insured designation and endorsement required for general liability is to be provided for this coverage.
4. A \$1,000,000 umbrella or excess liability shall include premises/operations liability, products/completed operations liability, and auto liability coverage. The umbrella or excess policy shall contain a clause stating that it takes effect (drops down) in the event the primary limits are impaired or exhausted.

5. Professional Liability insurance with limits no less than:

\$1,000,000 per claim

\$2,000,000 in the aggregate

The policy's retroactive date must be shown on the certificate and must be before this contract is executed or before the beginning of contract work.

Additionally, the Consultant shall maintain, or make a good faith effort to maintain, the Professional Liability insurance for a period of three (3) years after its performance under this Agreement.

6. Environmental/Pollution Liability with limits no less than:

\$2,000,000 per occurrence

\$4,000,000 in the aggregate

The policy must cover the Consultant's liability for bodily injury, property damage and environmental damage resulting from pollution and related cleanup costs incurred arising out of the work or services to be performed under this Agreement. Coverage shall be provided for both work performed on site, as well as during the transport of hazardous materials.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

- C. The insurance above shall be maintained in effect at all times during the term of this Agreement. If the insurance expires during the term of the Agreement, a new certificate must be submitted to the Caltrans Contract Manager not less than ten (10) days prior to the expiration of insurance. Failure to maintain the required coverage shall be sufficient grounds for Caltrans to terminate this Agreement for cause, in addition to any other remedies Caltrans may have available. Inadequate or lack of insurance does not negate the Consultant's obligations under the Agreement.
- D. The Consultant shall provide to the Caltrans Contract Manager within five (5) business days following receipt by Consultant a copy of any cancellation or non-renewal of insurance required by this Agreement. In the event Consultant fails to keep in effect at all times the specified insurance coverage, Caltrans may, in addition to any other remedies it may have, terminate this Agreement upon the occurrence of such event, subject to the provisions of the Agreement.
- E. Any required endorsements requested by Caltrans must be physically attached to all requested certificates of insurance and not substituted by referring to such coverage on the certificate of insurance.
- F. Any required insurance contained in this Agreement shall be primary and not in excess of or contributory to any other insurance carried by Caltrans.
- G. Caltrans will not be responsible for any premiums or assessments on the policy.
- H. For Agreements with hazardous activities, new certificates of insurance are subject to the approval of DGS, and the Consultant agrees that no work or services shall be performed prior to such approval.
- I. The Consultant shall require all Subconsultants to carry insurance based on the cost of the subcontract and the potential risk to Caltrans of the subcontracted work. Notwithstanding any coverage requirements for Subconsultants, the Consultant shall be responsible for ensuring sufficient insurance coverage for all work performed under the Agreement, including the work of Subconsultants.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

XVIII. DAMAGES DUE TO ERRORS AND OMISSIONS

- A. Architect-Engineer Consultants shall be responsible for the professional quality, technical accuracy, and coordination of all services required under this Agreement. A firm may be liable for Caltrans costs resulting from errors or deficiencies in designs furnished under its Agreement.
- B. When a modification to a construction contract is required because of an error or deficiency in the services provided under this A&E Agreement, the Caltrans Contract Officer (with the advice of technical personnel and legal counsel) shall consider the extent to which the A&E Consultant may be reasonably liable.
- C. The Caltrans Contract Officer shall enforce the liability and collect the amount due, if the recoverable cost will exceed the administrative cost involved or is otherwise in Caltrans' interest. The Caltrans Contract Officer shall include in the Agreement file a written statement of the reasons for the decision to recover or not to recover the costs from the firm.

XIX. OWNERSHIP OF PROPRIETARY PROPERTY

For the purposes of this section (Ownership of Proprietary Property) the following definitions shall apply:

Work: As delineated in Attachment 1 (Scope of Work) of the Agreement.

Work Product: As defined as Deliverable in Attachment 1 (Scope of Work) of the Agreement, including but not limited to, all Work and Deliverables conceived or made, or made hereafter conceived or made, either solely or jointly with others during the term of this Agreement and during a period of six (6) months after the termination thereof, which relates to the Work commissioned or performed under this Agreement.

Inventions: Any idea, design, concept, technique, invention, discovery, improvement or development regardless of patentability made solely by the Consultant or jointly with the Consultant's Subcontractor and/or the Consultant's Subcontractor's employee's with one or more employees of the Department of Transportation (hereinafter referred to as "Caltrans"), during

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

the term of this Agreement and in performance of any Work under this Agreement, provided that either the conception or reduction to practice thereof occurs during the term of this Agreement and in performance of Work issued under this Agreement.

A. Ownership of Work Product and Rights

1. Ownership of Work Product

All Work Product derived by the Work performed by the Consultant, its employees or by any of the Consultant's Subcontractor's employees under this Agreement, shall be owned by Caltrans and shall be considered works made for hire by the Consultant's Subcontractor for Caltrans. Caltrans shall own all United States and international copyrights in the Work Product.

As such, all Work Product shall contain, in a conspicuous place, a copyright designation consisting of a "c" in a circle followed by the four-digit year in which the Work Product was produced, followed by the words "California Department of Transportation." For example, a Work Product created in the year 2003 would contain the copyright designation © 2003 California Department of Transportation.

2. Vesting of Copyright Rights

Consultant, its employees or any of Consultant's Subcontractor's employees agrees to perpetually assign, and upon creation of each Work Product automatically assigns, to Caltrans, its successors and assigns, ownership of all United States and international copyrights in each and every Work Product, insofar as any such Work Product, by operation of law, may not be considered work made for hire by the Consultant's Subcontractor from Caltrans. From time to time upon Caltrans' request, the Consultant's Subcontractor and/or its employees shall confirm such assignments by execution and delivery of such assignments, confirmations or assignment, or other written instruments as Caltrans may request. Caltrans, its successors and assigns, shall have the right to obtain and hold in its or their own name(s) all copyright registrations and other evidence of rights that may be available for Work Product. Consultant hereby agrees to

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

waive all moral rights relating to identification of authorship restriction or limitation on use, or subsequent modifications of the Work.

B. Inventions

1. Vesting of Patent Rights

The Consultant, its employees and any Consultant's Subcontractor hereby agrees to assign to Caltrans, its successors, and assigns, all Inventions, together with the right to seek protection by obtaining patent rights therefore and to claim all rights or priority there under, and the same shall become and remain Caltrans' property regardless of whether such protection is sought. The Consultant, its employees and Consultant's Subcontractor shall promptly make a complete written disclosure to Caltrans of each Invention not otherwise clearly disclosed to Caltrans in the pertinent Work Product, specifically pointing out features or concepts that the Consultant, its employees and Consultant's Subcontractor believes to be new or different. The Consultant, its employees and Consultant's Subcontractor shall, upon Caltrans' request and at Caltrans' expense, cause patent applications to be filed thereon, through solicitors designated by Caltrans, and shall sign all such applications over to Caltrans, its successors, and assigns. The Consultant, its employees and Consultant's Subcontractor shall give Caltrans and its solicitors all reasonable assistance in connection with the preparation and prosecution of any such patent applications and shall cause to be executed all such assignments or other instruments or documents as Caltrans may consider necessary or appropriate to carry out the intent on this Agreement.

2. Agency

In the event that Caltrans is unable for any reason whatsoever to secure the Consultant's, its employees' and/or Consultant's Subcontractor's signature to any lawful or necessary document required or desirable to apply for or prosecute any United States application (including renewals or divisions thereof), Consultant, its employees and Consultant's Subcontractor hereby irrevocably

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

designates and appoints Caltrans and its duly authorized officers and agents, as its agent and attorney-in-fact, to act for and on Consultant, its employees and Consultant's Subcontractor's behalf and stead, to execute and file such applications and to do all other lawfully permitted acts to further the prosecution and issuance of any copyrights, trademarks or patents thereon with the same legal force and effect as if executed by Consultant, its employees and/or Consultant's Subcontractor. Caltrans shall have no obligations to file any copyright, trademark or patent applications.

3. Avoidance of Infringement

In performing services under this Agreement, Consultant and its employees agree to avoid designing or developing any items that infringe one or more patents or other intellectual property rights of any third party. If Consultant or its employees becomes aware of any such possible infringement in the course of performing any Work under this Agreement, Consultant or its employees shall immediately notify Caltrans in writing.

C. Additional Provisions

Subcontractors

Consultant shall affirmatively bind by contract any of its subcontractors or service vendors (hereinafter "Consultant's Subcontractor") providing services under this Agreement to conform to the provisions of Exhibit D, section XIX. Consultant's Subcontractor shall then provide the signed contract to the Consultant, who shall provide it to the Caltrans Contract Manager prior to the commencement of any work. In performing services under this Agreement, Consultant's Subcontractor agrees to avoid designing or developing any items that infringe one or more patents or other intellectual property rights of any third party. If Consultant's Subcontractor becomes aware of any such possible infringement in the course of performing any Work under this Agreement, Consultant's Subcontractor shall immediately notify the Consultant in writing, Consultant will then immediately notify Caltrans in writing.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

XX. OWNERSHIP OF DATA

- A. Upon completion of all work under this Agreement, all intellectual property rights, ownership and title to all reports, documents, plans, specifications, and estimates produced as part of this Agreement will automatically be vested in Caltrans and no further agreement will be necessary to transfer ownership to Caltrans. The Consultant shall furnish Caltrans all necessary copies of data needed to complete the review and approval process.
- B. It is understood and agreed that all calculations, drawings and specifications, whether in hard copy or machine readable form, are intended for one-time use in the construction of the project for which this Agreement has been entered into.
- C. The Consultant is not liable for claims, liabilities or losses arising out of, or connected with, the modification or misuse by Caltrans of the machine readable information and data provided by the Consultant under this Agreement; further, the Consultant is not liable for claims, liabilities or losses arising out of, or connected with, any use by Caltrans of the project documentation on other projects, for additions to this project, or for the completion of this project by others, excepting only such use as may be authorized, in writing, by the Consultant.
- D. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XXI. CLAIMS FILED BY CALTRANS CONSTRUCTION CONTRACTOR

- A. If claims are filed by the Caltrans construction contractor relating to work performed by the Consultant's personnel and additional information or assistance from the Consultant's personnel is required in order to evaluate or defend against such claims, the Consultant agrees to make its personnel available for consultation with Caltrans construction contract administration and legal staff and for testimony, if necessary, at depositions and at trial or arbitration proceedings.
- B. The Consultant's personnel that Caltrans considers essential to assist in defending against construction contractor claims will be made available

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

on reasonable notice from Caltrans. Consultation or testimony will be reimbursed at the same rates, including travel costs, that are being paid for the Consultant's personnel services under this Agreement.

- C. Services of the Consultant's personnel in connection with Caltrans' construction contract claims will be performed pursuant to a written supplement, if necessary, extending the termination date of this Agreement in order to finally resolve the claims.
- D. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XXII. CONFIDENTIALITY OF DATA

- A. All financial, statistical, personal, technical, or other data and information relative to Caltrans' operations, which is designated confidential by Caltrans and made available to the Consultant in order to carry out this Agreement, shall be protected by the Consultant from unauthorized use and disclosure.
- B. Permission to disclose information on one occasion or public hearing held by Caltrans relating to this Agreement shall not authorize the Consultant to further disclose such information or disseminate the same on any other occasion.
- C. The Consultant shall not comment publicly to the press or any other media regarding this Agreement or Caltrans' actions on the same, except to Caltrans staff, Consultant's own personnel involved in the performance of this Agreement, at public hearings, or in response to questions from a Legislative committee.
- D. The Consultant shall not issue any news release or public relations item of any nature whatsoever regarding work performed or to be performed under this Agreement without prior review of the contents thereof by Caltrans and receipt of Caltrans' written permission.
- E. All information related to the construction estimate is confidential and shall not be disclosed by the Consultant to any entity, other than Caltrans.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

F. Any subagreement, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XXIII. STANDARD OF CARE

Consultant represents that it possesses all necessary training, licenses, experience, and certifications to perform the Scope of Work, and shall perform all services in accordance with the degree of skill and care ordinarily used by competent practitioners of the same professional discipline under similar circumstances, and localities, taking into consideration the contemporary state of the practice and the project conditions.

XXIV. EVALUATION OF CONSULTANT

The Consultant's performance will be evaluated by Caltrans. A copy of the evaluation will be sent to the Consultant for comments. The evaluation, together with the comments, shall be retained by Caltrans.

XXV. STATEMENT OF COMPLIANCE

The Consultant's signature affixed herein and dated shall constitute a certification under penalty of perjury under the laws of the State of California that the Consultant has, unless exempt, complied with the nondiscrimination program requirements of Government Code Section 12990 and Title 2, California Code of Regulations, Section 8103.

XXVI. DEBARMENT AND SUSPENSION CERTIFICATION

A. The Consultant's signature affixed herein shall constitute a certification under penalty of perjury under the laws of the State of California, that the Consultant or any person associated therewith in the capacity of owner, partner, director, officer or manager:

1. Is not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
2. Has not been suspended, debarred, voluntarily excluded, or determined ineligible by any federal agency within the past three (3) years;

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

3. Does not have a proposed debarment pending; and
  4. Has not been indicted, convicted, or had a civil judgment rendered against it by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three (3) years.
- B. Any exceptions to this certification must be disclosed to Caltrans. Exceptions will not necessarily result in denial of recommendation for award, but will be considered in determining bidder responsibility. Disclosures must indicate the party to whom the exceptions apply, the initiating agency, and the dates of agency action.

XXVII. CONFLICT OF INTEREST

- A. During the term of this Agreement, the Consultant shall disclose any financial, business, or other relationship with Caltrans or the California Transportation Commission that may have an impact upon the outcome of this Agreement or any ensuing Caltrans construction project. The Consultant shall also list current clients who may have a financial interest in the outcome of this Agreement or any ensuing Caltrans construction project which will follow.
- B. The Consultant hereby certifies that it does not now have nor shall it acquire any financial or business interest that would conflict with the performance of services under this Agreement.
- C. The Consultant hereby certifies that neither the Consultant nor any firm affiliated with the Consultant will bid on any construction contract or on any Agreement to provide construction inspection for any construction project resulting from this Agreement. An affiliated firm is one, which is subject to the control of the same persons, through joint ownership or otherwise.
- D. Except for Subconsultants whose services are limited to providing surveying or materials testing information, no Subconsultant who has provided design services in connection with this Agreement shall be eligible to bid on any construction contract or on any Agreement to provide construction inspection for any construction project resulting from this Agreement.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

- E. All consultant personnel are required to complete security and privacy awareness training each year. See <http://itsecurity.dot.ca.gov/training>.
- F. Any subagreement in excess of \$25,000.00, entered into as a result of this Agreement, shall contain all of the provisions of this clause.

XXVIII. REBATES, KICKBACKS OR OTHER UNLAWFUL CONSIDERATION

The Consultant warrants that this Agreement was not obtained or secured through rebates, kickbacks or other unlawful consideration either promised or paid to any state agency employee. For breach or violation of this warranty, Caltrans shall have the right, in its discretion, to terminate this Agreement without liability, to pay only for the value of the work actually performed, or to deduct from this Agreement price or otherwise recover the full amount of such rebate, kickback or other unlawful consideration.

XXIX. PROHIBITION OF EXPENDING STATE OR FEDERAL FUNDS FOR LOBBYING

- A. The Consultant certifies, to the best of his or her knowledge and belief, that:
  - 1. No State or Federal appropriated funds have been paid or will be paid, by or on behalf of the Consultant, to any person for influencing or attempting to influence an officer or employee of any State or Federal agency, a Member of the State Legislature or United States Congress, an officer or employee of the Legislature or Congress, or any employee of a Member of the Legislature or Congress in connection with the awarding of any State or Federal agreement, the making of any State or Federal grant, the making of any State or Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any State or Federal agreement, grant, loan, or cooperative agreement.
  - 2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with this Federal Agreement,

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

grant, loan, or cooperative agreement, the Consultant shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

- B. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.
- C. The Consultant also agrees by signing this document that he or she shall require that the language of this certification be included in all lower tier subagreements, which exceed \$100,000.00, and that all such subrecipients shall certify and disclose accordingly.

XXX. CONSULTANT CODE OF BUSINESS ETHICS AND CONDUCT (Dec. 2007)

A. Definition

United States, as used in this clause, means the 50 States, the District of Columbia, and outlying areas.

B. Code of Business Ethics and Conduct

- 1. Within 30 calendar days after contract award, the Consultant shall:
  - a. Have a written code of business ethics and conduct; and
  - b. Provide a copy of the code to each employee engaged in performance of the contract.
- 2. The Consultant shall promote compliance with its code of business ethics and conduct.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

C. Awareness Program and Internal Control System for Other Than Small Businesses

This paragraph C does not apply if the Consultant has represented itself as a small business concern pursuant to the award of this contract. The Consultant shall establish within 90 days after contract award:

1. An ongoing business ethics and business conduct awareness program; and
2. An internal control system.
  - a. The Consultant's internal control system shall:
    - (1) Facilitate timely discovery of improper conduct in connection with Government contracts; and
    - (2) Ensure corrective measures are promptly instituted and carried out.
  - b. For example, the Consultant's internal control system should provide for:
    - (1) Periodic reviews of company business practices, procedures, policies, and internal controls for compliance with the Consultant's code of business ethics and conduct and the special requirements of Government contracting.
    - (2) An internal reporting mechanism, such as a hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports;
    - (3) Internal and/or external audits, as appropriate; and
    - (4) Disciplinary action for improper conduct.

D. Subcontracts

The Consultant shall include the substance of this clause, including this paragraph D, in subcontracts, except when the subcontract:

1. Is for the acquisition of a commercial item; or
2. Is performed entirely outside the United States.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

APPENDIX A — FEDERAL FUNDING REQUIREMENTS

I. COMPLIANCE WITH REGULATIONS

The Consultant shall comply with regulations relative to Title VI (nondiscrimination in federally-assisted programs of the Department of Transportation – Title 49 Code of Federal Regulations Part 21 – Effectuation of Title VI of the 1964 Civil Rights Act). Title VI provides that the recipients of federal assistance will implement and maintain a policy of nondiscrimination in which no person in the state of California shall, on the basis of race, color, national origin, religion, sex, age, disability, be excluded from participation in, denied the benefits of or subject to discrimination under any program or activity by the recipients of federal assistance or their assignees and successors in interest.

II. NON-DISCRIMINATION

The Consultant, with regard to the work performed by it during the Agreement shall act in accordance with Title VI. Specifically, the Consultant shall not discriminate on the basis of race, color, national origin, religion, sex, age, or disability in the selection and retention of Subconsultants, including procurement of materials and leases of equipment. The Consultant shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the U.S. DOT's Regulations, including employment practices when the Agreement covers a program whose goal is employment.

III. SOLICITATIONS FOR SUBAGREEMENTS, INCLUDING  
PROCUREMENTS OF MATERIALS AND EQUIPMENT

In all solicitations, either by competitive bidding or negotiation made by the Consultant for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential Subconsultant or supplier shall be notified by the Consultant of the Consultant's obligations under this Agreement and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

IV. INFORMATION AND REPORTS

The Consultant shall provide all information and reports required by the Regulations, or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and facilities as may be determined by the State Department of Transportation or any duly authorized representative of the Federal Government to be pertinent to ascertain compliance with such regulations or directives. Where any information required of a Consultant is in the exclusive possession of another who fails or refuses to furnish this information, the Consultant shall so certify to the State Department of Transportation, or any duly authorized Federal Agency as appropriate, and shall set forth what efforts it has made to obtain the information.

V. SANCTIONS FOR NONCOMPLIANCE

In the event of the Consultant's noncompliance with the nondiscrimination provisions of this Agreement, the State Department of Transportation shall impose such Agreement sanctions as it or any Federal funding agency may determine to be appropriate, including, but not limited to:

- A. Withholding of payments to the Consultant under the Agreement until the Consultant complies, and/or
- B. Cancellation, termination or suspension of the Agreement, in whole or in part.

VI. INCORPORATION OF PROVISIONS

The Consultant shall include the provisions of paragraphs (1) through (6) in every subagreement, including procurements of materials and leases of equipment, unless exempt by the Regulations or directives issued pursuant thereto. The Consultant will take such action with respect to any Subconsultant procurement as the State Department of Transportation or any Federal funding agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event a Consultant becomes involved in, or is threatened with, litigation with a Subconsultant or supplier as a result of such direction, the Consultant may request the State Department of Transportation to enter into such litigation to

EXHIBIT D  
SPECIAL TERMS AND CONDITIONS

protect the interest of the State, and, in addition, the Consultant may request the United States to enter into such litigation to protect the interests of the United States.

FM 94 1984M

EXHIBIT E  
ADDITIONAL PROVISIONS

I. DBE INFORMATION AND CONTRACT GOAL REQUIREMENT FOR DBE PARTICIPATION

- A. This Agreement is subject to Title 49, Code of Federal Regulations, Part 26 (49 CFR 26), entitled “Participation by Disadvantaged Business Enterprises (DBEs) in Department of Transportation Financial Assistance Programs,” in the award and administration of federally assisted Agreements. The regulations in their entirety are incorporated by reference and made part of this Agreement as if attached hereto.
- B. A DBE is a firm that has been certified as a DBE as specified in 49 CFR 26. Only the participation of certified DBEs will count toward any contract goal.
- C. The contract goal for DBE participation for this Agreement is seventeen and one half percent (17.5%). Participation by DBE prime and Subconsultants shall be in accordance with the information contained in the Disadvantaged Business Enterprise (DBE) Information form (ADM 0227F A&E) attached hereto and incorporated as part of this Agreement.
- D. Non-compliance by Consultant or Subconsultant(s) with the requirements of the regulations is a material breach of this Agreement and may result in termination of the Agreement or other such appropriate remedy for a breach of this Agreement, as Caltrans deems appropriate.
- E. Consultant or Subconsultant shall not discriminate on the basis of race color, national origin or sex in the performance of this Agreement. Each subcontract signed by and between Consultant and Subconsultant(s) in the performance of this Agreement must include this assurance.

II. SUBCONSULTANTS

- A. Consultant shall perform the work contemplated with resources available within its own organization and no portion of the work shall be subcontracted without written authorization by the Caltrans Contract Manager.

EXHIBIT E  
ADDITIONAL PROVISIONS

- B. Any subcontract in excess of \$25,000, entered into as a result of this Agreement shall contain all the provisions stipulated in this Agreement to be applicable to Subconsultants.
- C. Any substitution of Subconsultant(s) must be approved in writing by the Caltrans Contract Manager in advance of assigning work to a substitute Subconsultant(s).
- D. Nothing contained in this Agreement or otherwise shall create any contractual relation between the State and any Subconsultant(s), and no subcontract shall relieve Consultant of its responsibilities and obligations hereunder. Consultant agrees to be as fully responsible to the State for the acts and omissions of its Subconsultant(s) and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by Consultant. Consultant's obligation to pay its Subconsultant(s) is an independent obligation from the State's obligation to make payments to Consultant. As a result, the State shall have no obligation to pay or to enforce the payment of any moneys to any Subconsultant.

III. PERFORMANCE OF DBE CONSULTANTS AND OTHER DBE  
SUBCONSULTANTS/SUPPLIERS

- A. A DBE performs a Commercially Useful Function (CUF) when it is responsible for execution of the work of the Agreement and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a CUF, the DBE must also be responsible for materials and supplies used on the Agreement, for negotiating price, determining quality and quantity, ordering the material, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a CUF, evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the Agreement is commensurate with the work it is actually performing, and other relevant factors.
- B. A DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, Agreement, or project through which funds are passed in order to obtain the appearance of DBE participation. In

EXHIBIT E  
ADDITIONAL PROVISIONS

determining whether a DBE is such an extra participant, examine similar transactions, particularly those in which DBEs do not participate.

- C. If a DBE does not perform or exercise responsibility for at least thirty percent (30%) of the total cost of its Agreement with its own work force, or the DBE subcontracts a greater portion of the work of the Agreement than would be expected on the basis of normal industry practice for the type of work involved, presume that it is not performing a CUF.
- D. DBE Subconsultants shall perform the work and supply the materials that they have listed in their response to the Agreement award requirements specified on form ADM 0227F A&E, attached, unless Consultant has received prior written authorization to perform the work with other forces or to obtain the materials from other sources as set forth in the section below entitled "DBE Substitution."
- E. Consultant shall not be entitled to any payment for such work or material unless it is performed or supplied by the listed DBE or by other forces (including those of Consultant) pursuant to prior written authorization of the Caltrans Contract Manager.

IV. EXCLUSION OF RETENTION

- A. In conformance with 49 CFR 26.29 (b) (1), the retention of proceeds required by Public Contract Code (PCC), Section 10261 shall not apply.
- B. In conformance with Public Contract Code (PCC) Section 7200 (b), in subcontracts between Consultant and a Subconsultant and in subcontracts between a Subconsultant and any Subconsultant thereunder, retention proceeds shall not be withheld, and the exceptions provided in PCC Section 7200 (c), shall not apply. At the option of Consultant, Subconsultant(s) may be required to furnish payment and performance bonds issued by an admitted surety insurer.
- C. Any subcontract entered into as a result of this Agreement shall contain all of the provisions of this section.

EXHIBIT E  
ADDITIONAL PROVISIONS

- V. PAYMENT TO DBE AND NON-DBE SUBCONSULTANT(S)
- A. Consultant shall pay its DBE Subconsultant(s) and non-DBE Subconsultant(s) within ten (10) calendar days from receipt of each payment made to Consultant by the State.
  - B. Prior to the fifteenth of each month, Consultant shall submit documentation to the Caltrans Contract Manager showing the amount paid to DBE trucking companies listed in Consultant's DBE information. This monthly documentation shall indicate the portion of the revenue paid to DBE trucking companies, which is claimed toward DBE participation. Consultant shall also obtain and submit documentation to the Caltrans Contract Manager showing the amount paid by DBE trucking companies to all firms, including owner-operators, for the leasing of trucks. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The records must confirm that amount of credit claimed toward DBE participation conforms to the requirements of section VIII below entitled, "DBE Substitutions."
  - C. Consultant shall also submit to the Caltrans Contract Manager documentation showing the truck number, name of owner, California Highway Patrol CA number and if applicable, the DBE certification number of the truck owner for all trucks used during that month for which DBE participation will be claimed. This documentation shall be submitted on the Monthly DBE Trucking Verification form provided to Consultant by the Caltrans Contract Manager.
  - D. Consultant shall return all moneys withheld in retention from a Subconsultant within 30 calendar days after receiving payment for work satisfactorily completed, even if other Agreement work is not completed and has not been accepted in conformance with the terms of the Agreement. This requirement shall not be construed to limit or impair any contractual, administrative, or judicial remedies otherwise available to Consultant or Subconsultant in the event of a dispute involving late payment or non-payment to Consultant or deficient subcontract performance or noncompliance by a Subconsultant.

EXHIBIT E  
ADDITIONAL PROVISIONS

VI. DBE RECORDS

- A. Consultant shall maintain records of all subcontracts entered into with certified DBE Subconsultant(s) and records of materials purchased from certified DBE supplier(s). The records shall show the name and business address of each DBE Subconsultant or vendor and the total dollar amount actually paid each DBE Subconsultant or vendor, regardless of tier. The records shall show the date of payment and the total dollar figure paid to all firms. DBE (prime) Consultant shall also show the date of work performed by their own forces along with the corresponding dollar value of the work.
- B. The Consultant shall prepare and submit a Disadvantaged Business Enterprises Utilization Report (form ADM-3069), Attachment 5, to the Caltrans Contract Manager with every invoice (refer to Exhibit B, Budget Detail and Payment Provisions).

VII. DBE SUBSTITUTIONS

- A. Consultant may not substitute a listed DBE Subconsultant, supplier or, if applicable, a trucking company, without the prior written approval of the Caltrans Contract Manager. Failure to obtain approval of substitute Subconsultants before work is performed, supplies are delivered, or services are rendered may result in payment being denied by Caltrans.
- B. Consultant must make an adequate good faith effort (GFE) to find another certified DBE Subconsultant to substitute for the original DBE Subconsultant. GFE shall be directed at finding another DBE Subconsultant to perform at least the same amount of work under the Agreement as the DBE Subconsultant that was substituted or terminated to the extent needed to meet the contract goal for DBE participation established for the Agreement.
- C. The requirement that DBEs must be certified by the Statement of Qualification due date does not apply to DBE substitutions after award of the Agreement. DBEs substituted after award must be certified at the time of the substitution.

EXHIBIT E  
ADDITIONAL PROVISIONS

- D. Consultants shall submit requests for substitution to the Caltrans Contract Manager. Authorization to use other Subconsultants or suppliers may be requested for the following reasons:
1. Listed DBE, after having had a reasonable opportunity to do so, fails or refuses to execute a written Agreement, when such written Agreement, based upon the terms and conditions for this Agreement or on the terms of such Subconsultant's or supplier's written proposal, is presented by Consultant.
  2. Listed DBE becomes bankrupt or insolvent.
  3. Listed DBE fails or refuses to perform subcontract or furnish listed materials.
  4. Consultant stipulated that a bond was a condition of executing subcontract and listed DBE Subconsultant failed or refuses to meet the bond requirements of Consultant.
  5. Work performed by listed Subconsultant is substantially unsatisfactory and is not in substantial conformance with scope of work to be performed, or Subconsultant is substantially delaying or disrupting the progress of work.
  6. When it would be in the best interest of the State.
- E. At a minimum, Consultant's substitution request to the Caltrans Contract Manager must include a:
1. Written explanation of the substitution reason and, if applicable, Consultant must also include the reason a non-DBE Subconsultant is proposed for use.
  2. Written description of the substitute business enterprise, including its business status, DBE certification number, and status as a sole proprietorship, partnership, corporation, or other entity.
  3. Written notice detailing a clearly defined portion of the work identified both as a task and as a percentage share/dollar amount of the overall Agreement that the substitute firm will perform.

EXHIBIT E  
ADDITIONAL PROVISIONS

- F. Prior to the approval of Consultant's substitution request, the Caltrans Contract Manager must give written notice to the Subconsultant being substituted by Consultant. A copy of the notice sent by the Caltrans Contract Manager must be sent to the Division of Procurement and Contracts (DPAC). The notice must do all of the following:
1. Give the reason Consultant is requesting substitution of the listed Subconsultant;
  2. Give the listed Subconsultant five working days within which to submit written objections to DPAC and copies to the Caltrans Contract Manager;
  3. Notify the Subconsultant that if a written objection is not received or received past the due date, such failure will constitute consent to the substitution; and
  4. Be served by certified or registered mail to the last known address of the listed Subconsultant.

The listed Subconsultant, who has been so notified, shall have five working days within which to submit written objections of the substitution to the Caltrans Contract Manager. Failure to submit a written objection shall constitute the listed Subconsultant's consent to the substitution.

- G. If written objections are filed by the listed Subconsultant, DPAC will render a written decision. DPAC shall give written notice of at least five (5) working days to the listed Subconsultant of a hearing by Caltrans on Consultant's request for substitution.

VIII. DBE CERTIFICATION AND DE-CERTIFICATION STATUS

- A. If a DBE Subconsultant is decertified during the life of the Agreement, the decertified Subconsultant shall notify Consultant in writing with the date of decertification. If a Subconsultant becomes a certified DBE during the life of the Agreement, the Subconsultant shall notify Consultant in writing with the date of certification.
- B. Consultant shall report any changes to the Caltrans Contract Manager within 30 days.

EXHIBIT E  
ADDITIONAL PROVISIONS

IX. DBE ELIGIBILITY

A. The dollar value of work performed by a DBE is credited/counted toward the goal only after the DBE has been paid.

B. Credit for DBE Prime Consultants

Consultant, if a certified DBE, is eligible to claim all of the work toward the goal except that portion of the work to be performed by non-DBE Subconsultants.

C. Credit for Material or Supplies

Credit for materials or supplies purchased from DBEs will be as follows:

1. If the materials or supplies are obtained from a DBE manufacturer, one hundred percent (100%) of the cost of the materials or supplies will count toward the DBE goal. A DBE manufacturer is a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the Agreement and of the general character described by the specifications.
2. If the materials or supplies are purchased from a DBE regular dealer, sixty percent (60%) of the cost of the materials or supplies will count toward the DBE goal. A DBE regular dealer is a firm that owns, operates or maintains a store, warehouse, or other establishment in which the materials, supplies, articles or equipment of the general character described by the specifications and required under the Agreement are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a DBE regular dealer, the firm must be an established, regular business that engages, as its principal business and under its own name, in the purchase and sale or lease of the products in question. A person may be a DBE regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone or asphalt without owning, operating or maintaining a place of business provided in this paragraph.

EXHIBIT E  
ADDITIONAL PROVISIONS

3. If the person both owns and operates distribution equipment for the products, any supplementing of regular dealers' own distribution equipment shall be by a long-term lease agreement and not an ad hoc or Agreement by Agreement basis. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not DBE regular dealers within the meaning of this paragraph.
4. Credit for materials or supplies purchased from a DBE that is neither a manufacturer nor a regular dealer will be limited to the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on the job site, provided the fees are reasonable and not excessive as compared with fees charged for similar services.

D. Credit for DBE trucking companies will be as follows:

1. The DBE must manage and supervise the entire trucking operation for which it is responsible. There cannot be a contrived arrangement for the purpose of meeting the DBE goal.
2. The DBE must itself own and operate at least one fully licensed, insured and operational truck used on the Agreement.
3. The DBE receives credit for the total value of the transportation services it provides on the Agreement using trucks it owns, insures, and operates using drivers it employs.
4. The DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The DBE who leases trucks from another DBE receives credit for the total value of the transportation services the lessee DBE provides on the Agreement.
5. The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit only for the fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total

EXHIBIT E  
ADDITIONAL PROVISIONS

value of the transportation services provided by the lessee, since these services are not provided by the DBE.

6. For the purposes of this paragraph, a lease must indicate that the DBE has exclusive use and control over the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, as long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

X. TERMINATION OF DBE

A. In conformance with 49 CFR 26.53 (f) (1) and 26.53 (f) (2):

1. Consultant shall not terminate for convenience a listed DBE Subconsultant and then perform that work with its own forces (personnel), or those of an affiliate, unless Consultant has received prior written authorization from the Caltrans Contract Manager to perform the work with other forces (other than Consultant's own personnel) or to obtain materials from other sources; and
2. If a DBE Subconsultant is terminated or fails to complete its work for any reason, Consultant will be required to make GFE to replace the original DBE Subconsultant with another DBE Subconsultant to the extent needed to meet the Agreement goal.

B. Noncompliance by Consultant with the requirements of this section is considered a material breach of this Agreement and may result in termination of the Agreement or other such appropriate remedies for a breach of this Agreement as Caltrans deems appropriate.

EXHIBIT F  
PREVAILING WAGE REQUIREMENTS

I. STATE PREVAILING WAGE RATES

- A. The Consultant shall comply with all of the applicable provisions of the California Labor Code requiring the payment of prevailing wages. The General Prevailing Wage Rate Determinations applicable to work under this Agreement are available and on file with the Department of Transportation's Regional/District Labor Compliance Officer. ([http://www.dot.ca.gov/hq/construc/LaborCompliance/LCO\\_District\\_Map.pdf](http://www.dot.ca.gov/hq/construc/LaborCompliance/LCO_District_Map.pdf)). These wage rates are made a specific part of this Agreement by reference pursuant to Labor Code Section 1773.2 and will be applicable to work performed at a construction project site. Prevailing wages will be applicable to all inspection work performed at Caltrans construction sites, at Caltrans facilities and at off-site locations that are set up by the construction contractor or one of its subcontractors solely and specifically to serve Caltrans projects. Prevailing wage requirements do not apply to inspection work performed at the facilities of vendors and commercial materials suppliers that provide goods and services to the general public.
- B. General Prevailing Wage Rate Determinations applicable to this project may also be obtained from the Department of Industrial Relations Internet site at <http://www.dir.ca.gov>.
- C. Payroll Records
1. Each Consultant and Subconsultant shall keep accurate certified payroll records and supporting documents as mandated by Section 1776 of the California Labor Code and as defined in Section 16000 of Title 8 of the California Code of Regulations, showing the name, address, social security number, work classification, straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker, or other employee employed by the Consultant or Subconsultant in connection with the public work. Each payroll record shall contain or be verified by a written declaration that it is made under penalty or perjury, stating both of the following:
    - a. The information contained in the payroll record is true and correct.

EXHIBIT F  
PREVAILING WAGE REQUIREMENTS

- b. The employer has complied with the requirements of Sections 1771, 1811, and 1815 for any work performed by his or her employees on the public works project.
  2. The payroll records enumerated under paragraph (1) above shall be certified as correct by the Consultant under penalty of perjury. The payroll records and all supporting documents shall be made available for inspection and copying by Caltrans representatives at all reasonable hours at the principal office of the Consultant. The Consultant shall provide copies of certified payrolls or permit inspection of its records as follows:
    - a. A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or the employee's authorized representative on request.
    - b. A certified copy of all payroll records enumerated in paragraph (1) above, shall be made available for inspection or furnished upon request to a representative of Caltrans, the Division of Labor Standards Enforcement and the Division of Apprenticeship Standards of the Department of Industrial Relations. Certified payrolls submitted to Caltrans, the Division of Labor Standards Enforcement and the Division of Apprenticeship Standards shall not be altered or obliterated by the Consultant.
    - c. The public shall not be given access to certified payroll records by the Consultant. The Consultant is required to forward any requests for certified payrolls to the Caltrans Contract Manager by both facsimile and regular mail on the business day following receipt of the request.
3. Each Consultant shall submit a certified copy of the records enumerated in paragraph (1) above, to the entity that requested the records within ten (10) days after receipt of a written request.
4. Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by Caltrans shall be marked or obliterated in such a manner as to prevent disclosure of each individual's name, address and social security

EXHIBIT F  
PREVAILING WAGE REQUIREMENTS

number. The name and address of the Consultant awarded the Agreement or performing the Agreement shall not be marked or obliterated.

5. The Consultant shall inform Caltrans of the location of the records enumerated under paragraph (1) above, including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.
  6. The Consultant or Subconsultant shall have ten (10) days in which to comply subsequent to receipt of written notice requesting the records enumerated in paragraph (1) above. In the event the Consultant or Subconsultant fails to comply within the ten-day period, he or she shall, as a penalty to Caltrans, forfeit one hundred dollars (\$100.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Such penalties shall be withheld by Caltrans from payments then due. A contractor is not subject to a penalty assessment pursuant to this section due to the failure of a subcontractor to comply with this section.
- D. When prevailing wage rates apply, the Consultant must submit with each invoice a certified copy of the payroll for compliance verification. Invoice payment will not be made until the payroll has been verified and the invoice approved by the Caltrans Contract Manager.
- E. Penalty
1. The Consultant and any Subconsultant under the Consultant shall comply with Labor Code Sections 1774 and 1775. Pursuant to Section 1775, the Consultant and any Subconsultant shall forfeit to the State or political subdivision on whose behalf the Agreement is made or awarded a penalty of not more than two hundred dollars (\$200.00) for each calendar day, or portion thereof, for each worker paid less than the prevailing rates as determined by the Director of Industrial Relations for the work or craft in which the worker is employed for any public work done under the Agreement by the Consultant or by any Subconsultant under the Consultant in violation of the requirements of the Labor Code and in particular, Labor Code Sections 1770 to 1780, inclusive.

EXHIBIT F  
PREVAILING WAGE REQUIREMENTS

2. The amount of this forfeiture shall be determined by the Labor Commissioner and shall be based on consideration of mistake, inadvertence, or neglect of the Consultant or Subconsultant in failing to pay the correct rate of prevailing wages, or the previous record of the Consultant or Subconsultant in meeting their respective prevailing wage obligations, or the willful failure by the Consultant or Subconsultant to pay the correct rates of prevailing wages. A mistake, inadvertence, or neglect in failing to pay the correct rates of prevailing wages is not excusable if the Consultant or Subconsultant had knowledge of the obligations under the Labor Code. The Consultant is responsible for paying the appropriate rate, including any escalations that take place during the term of the Agreement.
3. In addition to the penalty and pursuant to Labor Code Section 1775, the difference between the prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing wage rate shall be paid to each worker by the Consultant or Subconsultant.
4. If a worker employed by a Subconsultant on a public works project is not paid the general prevailing per diem wages by the Subconsultant, the prime Consultant of the project is not liable for the penalties described above unless the prime Consultant had knowledge of that failure of the Subconsultant to pay the specified prevailing rate of wages to those workers or unless the prime Consultant fails to comply with all of the following requirements:
  - a. The Agreement executed between the Consultant and the Subconsultant for the performance of work on public works projects shall include a copy of the requirements in Sections 1771, 1775, 1776, 1777.5, 1813, and 1815 of the Labor Code.
  - b. The Consultant shall monitor the payment of the specified general prevailing rate of per diem wages by the Subconsultant to the employees by periodic review of the certified payroll records of the Subconsultant.
  - c. Upon becoming aware of the Subconsultant's failure to pay the specified prevailing rate of wages to the Subconsultant's workers,

EXHIBIT F  
PREVAILING WAGE REQUIREMENTS

the Consultant shall diligently take corrective action to halt or rectify the failure, including but not limited to, retaining sufficient funds due the Subconsultant for work performed on the public works project.

- d. Prior to making final payment to the Subconsultant for work performed on the public works project, the Consultant shall obtain an affidavit signed under penalty of perjury from the Subconsultant that the Subconsultant had paid the specified general prevailing rate of per diem wages to the Subconsultant's employees on the public works project and any amounts due pursuant to Section 1813 of the Labor Code.
5. Pursuant to Section 1775 of the Labor Code, Caltrans shall notify the Consultant on a public works project within 15 days of receipt of a complaint that a Subconsultant has failed to pay workers the general prevailing rate of per diem wages.
6. If Caltrans determines that employees of a Subconsultant were not paid the general prevailing rate of per diem wages and if Caltrans did not retain sufficient money under the contract to pay those employees the balance of wages owed under the general prevailing rate of per diem wages, the Consultant shall withhold an amount of moneys due the Subcontractor sufficient to pay those employees the general prevailing rate of per diem wages if requested by Caltrans.

F. Hours of Labor

Eight (8) hours labor constitutes a legal day's work. The Consultant shall forfeit, as a penalty to the State of California, twenty-five dollars (\$25.00) for each worker employed in the execution of the Agreement by the Consultant or any Subconsultant under the Consultant for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any one calendar day and 40 hours in any one calendar week in violation of the provisions of the Labor Code, and in particular Sections 1810 to 1815 thereof, inclusive, except that work performed by employees in excess of eight (8) hours per day, and forty (40) hours during any one week, shall be permitted upon compensation for all hours worked in excess of eight (8) hours per day and forty (40) hours in any week, at

EXHIBIT F  
PREVAILING WAGE REQUIREMENTS

not less than one and one-half times the basic rate of pay, as provided in Section 1815.

G. Employment of Apprentices

1. Where either the prime contract or the subcontract exceeds \$30,000, the Consultant and any subcontractors under him or her shall comply with all applicable requirements of Labor Code sections 1777.5, 1777.6 and 1777.7 in the employment of apprentices.
2. Contractors and subcontractors are required to comply with all Labor Code requirements regarding the employment of apprentices, including mandatory ratios of journey level to apprentice workers. Prior to commencement of work, Contractors and subcontractors are advised to contact the State Division of Apprenticeship Standards, P. O. Box 420603, San Francisco, California 94142-0603, or one of its branch offices, for additional information regarding the employment of apprentices and for the specific journey-to-apprentice ratios for the contract work. The prime Consultant is responsible for all subcontractors' compliance with these requirements. Penalties are specified in Labor Code Section 1777.7.

H. Any subagreement entered into as a result of this Agreement shall contain all of the provisions of this clause.

II. FEDERAL PREVAILING WAGES

A. The work herein proposed will be financed in whole or in part with Federal funds; therefore, all of the statutes, rules, and regulations promulgated by the Federal government are applicable to work financed in whole or in part with Federal funds and will be applicable to work performed at a construction project site.

B. Federal Requirements

1. Federal Requirements for Federal-Aid Construction Projects provisions shall apply to this Agreement and are made a part of the Agreement.

EXHIBIT F  
PREVAILING WAGE REQUIREMENTS

2. The current Federal Prevailing Wage Determinations issued under the Davis-Bacon and related Acts shall apply to this Agreement and are made a part of the Agreement.
- C. When prevailing wage rates apply, the Consultant must submit, with each invoice, a certified copy of the payroll for compliance verification. Invoice payment will not be made until the payroll has been verified and the invoice approved by the Caltrans Contract Manager.
- D. If there is any conflict between the State prevailing wages and the Federal prevailing wages, the higher rate shall be paid.
- E. Any subagreement entered into as a result of this Agreement shall contain all of the provisions of this clause.

**SCOPE OF WORK/DELIVERABLES**  
**Hazardous Waste Site Investigation and Design Services**  
**On-Call Contract**

A. Purpose of Work

The Consultant shall perform consultation, research, professional and technical services required for Hazardous Waste Site Investigation and Design Services, on an “as-needed” basis to support the Department of Transportation (Caltrans) in the development and construction of proposed Caltrans transportation facilities. The Caltrans Contract Manager shall assign specific work to the Consultant through the issuance of Task Orders describing in detail the services to be performed. The Consultant shall only perform work that is assigned in an authorized Task Order. This Contract does not guarantee that a Task Order shall be issued. The Consultant may provide services to Caltrans including, but not limited to, site investigation, remedial design work; Phase I Environmental Site Assessments, Initial Site Assessments (Phase I); Site Investigations (Phase II); Aerially Deposited Lead Investigation; Limited site assessments and site investigations (Limited Phase I and Phase II); risk assessments, hazardous materials surveys; record research and review; field review and survey; historic material research and review; submitting findings in a report; site characterizations, applying for and complying with regulatory permits; proposing and evaluating remedial alternatives or feasibility studies; development, design and preparation of plans, estimate and specification (PS&E) for hazardous waste removal/clean-up projects; development and preparing cost estimates for remedial activities; hazardous waste identification; long term soil and/or groundwater monitoring; remediation work plan/preliminary design; remedial investigations; construction-phase design support as requested by the Caltrans Resident Engineer; post-construction monitoring of facility operations; purchase of hazardous wastes radius maps and plans from vendors, who sell these based on "on-line" Geographic Information System and Management Information System related to roadway projects; utilization of a Geographic Information Systems and Management Information System; permit preparation, toxicology studies; evaluation, monitoring, and report of hazardous materials remediation systems impacted with hazardous materials from leaking underground storage tanks (USTs) or other sources; and related work pertaining to the study of known or suspected contamination and/or hazardous waste sites.

**Exclusion of Work**

This Contract does not include services related to the implementation of remedial action or environmental cleanup, as defined in Chapter 6.85 of the California Health and Safety Code Section 25396.

B. Location of Work

The work shall be performed on projects to improve the State transportation system within District 8 (San Bernardino and Riverside Counties) in California. The specific location of the work to be performed shall be identified in each Task Order. It may become necessary for Caltrans' projects to extend into another adjoining District. In such instances, the project work shall not extend more than a thirty (30)-mile radius from the District boundary.

C. Required Services

1. Pursuant to an authorized Task Order, the Consultant shall provide Hazardous Waste Site Investigation and Design Services within the geographical jurisdiction of this Contract set forth in "Location of Work" Section, and all necessary personnel, material, transportation, lodging, instrumentation, and the specialized facilities and equipment necessary to satisfy all appropriate agencies and required to ensure compliance with all applicable Local, State, and Federal statutes, laws, codes, regulations, policies, procedures, ordinances, standards, specifications, performance standards, and guidelines, applicable to the Consultant's services and work product.

Provided in Attachment A is a list of proposed Caltrans projects; however, this list is not exclusive and it does not constitute a commitment that the projects will be initiated or completed or work assigned to the Consultant. Caltrans reserves the right to add or delete from this list projects that are within the geographical jurisdiction of this Contract set forth in "Location of Work" Section.

Caltrans intends to utilize this Contract to complete a specific piece of work as long as it is located within Location of Work in this Contract utilizing the services described in this Scope of Work and as described in a Task Order. In the future, Caltrans may find it necessary to create a separate contract (or contracts) that involves a specific project listed in this Contract and includes part of the work contained in this Contract. Caltrans reserves the right to procure Architectural and Engineering (A&E) services involving the listed projects or unlisted projects (within the geographical jurisdiction of this Contract set forth in "Location of Work" Section) involving in whole or in part the same work using a project-specific agreement if the schedule to complete performance of the specific project extends beyond the term of this Contract or the cost to complete the specific project exceeds the dollar balance remaining in the Contract after accounting for amounts due to the Consultant for work previously performed. Should a project-specific agreement be procured under these provisions, the parties mutually agree that, in accordance with Exhibit D, Section III, Termination of this Contract,

Caltrans shall terminate for convenience the portion of the Contract that includes the common scope of work identified in the project-specific agreement per Exhibit D, Section III, Termination of this Contract. Such partial termination for convenience shall be processed by amendment to this Contract. Unless otherwise required by law, regulation, or Caltrans policy or procedure, the Consultant may compete for these project-specific Contracts.

At the sole discretion of Caltrans, Consultant may be required to work on safety projects, emergency projects, Emergency Storm Damage Projects, excess parcel assessments, or other current/future transportation projects, including minor projects not listed, within the geographical jurisdiction of this Contract set forth in "Location of Work" Section. However, the dollar value of the services not listed herein shall not exceed 10% of the total value of services that are listed and performed herein.

2. The proposed projects may vary in scope and size, and may encompass any type of improvement for the State transportation system including, but not limited to, roadway rehabilitation, widening and/or realignment of existing facilities, relocation of existing facilities, and construction of new facilities. The project location, project limits, and scope of work to be performed shall be described in each Task Order.
3. The Consultant shall perform activities which shall include, but not be limited to, the following:
  - a. Environmental Data Resources (EDR) Reports and Surveys.
  - b. Site Investigation of Soil & Ground Water.
  - c. Ground Water Monitoring.
  - d. Feasibility Study, Treatability Study and Design Work.
  - e. Pre-demolition Inspection Survey.
  - f. Container Inspection and Material Identification.
4. All Site Assessment, Site Investigation, Site survey, groundwater monitoring, and remediation system evaluation, monitoring, and regulatory reporting work shall be completed in accordance with a site-specific Health and Safety Plan developed by the Consultant and signed by a Certified Industrial Hygienist (CIH) for conditions expected during the survey work. The Health and Safety Plan shall be reviewed by the Caltrans Contract Manager or Caltrans designee prior to the start of work. The Consultant shall notify the Caltrans Contract Manager or Caltrans designee in writing at a minimum one (1) week before it begins any investigative or field work. If the nature of the work requires the presence of the CIH during field work, time for the CIH shall be paid. Costs for development of the Health and Safety Plan shall be paid per the Health and Safety Plan.

5. The Consultant and Subconsultant personnel shall not meet, discuss, nor confer with the public, Caltrans personnel, Agency personnel, State personnel, Federal personnel or any person other than the Caltrans Contract Manager or Caltrans designee, and approved Consultant personnel. Any communications with any person, excluding the Caltrans Contract Manager or Caltrans designee and approved Consultant personnel, require prior written approval from the Caltrans Contract Manager.
6. The Consultant shall not negotiate or make decisions in Caltrans' name. Caltrans shall retain responsibility for initiating and managing all final consultation, both informal and formal, with other Consultants; other contractors; Local, State, and Federal resource and regulatory agencies; and other involved agencies, regarding regulatory, project, project impacts, project mitigation proposals, project mitigation, project compensation, project proposals, and any issues. The Consultant shall be available (within 2 working day(s) written notice) to provide advice and to participate in such consultations as required in each Task Order, as directed by the Caltrans Contract Manager, and at the request of Caltrans. Should specific permits or agreements be required, Caltrans may require the Consultant to prepare appropriate information.
7. The Caltrans Contract Manager shall decide the manner in which the coordination of individual matters is undertaken. At the Caltrans Contract Manager's option such coordination may be performed by the Consultant's direct contact personnel, by the Consultant acting on behalf of Caltrans or by Caltrans only. When coordination efforts require agreements, such agreements shall be obtained by Caltrans
8. The Consultant shall assist Caltrans in obtaining necessary approvals and permits. The Consultant shall identify all necessary approvals and permits, prepare signature-ready permit applications, and track the status of permit applications, as specified in each Task Order.

D. Workplan Standards Guide Codes

Task Orders are based on the Caltrans Workplan Standards Guide (WSG). The latest WSG is found in the Guide to Project Delivery Workplan Standards, which is available from Caltrans' Publication Unit and on the Internet at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm> . The WSG references the Work Breakdown Structure (WBS) categories, which are potential and related work activities applicable to this Contract. The WSG references WBC categories which present the potential and related work activities that the Consultant may be required to perform. All revisions to the current version of the Work Breakdown Structure (WBS) shall apply

during the life of this Contract. Task Orders may include, but not be limited to, the Capital Project WBS 165 through WBS 285 elements listed below.

The WBS activities below applicable to this Contract are set forth below:

- 100 Perform Project Management (Contract Management)
  - Prepare Invoices
  - Prepare, circulate, and file correspondence and memos as appropriate
  - Perform scheduling and coordination
  - Progress reports
  - Sub-contract management
- 100.10 Project Management - PA & ED Component
- 100.15 Project Management - PS&E Component
- 160.30.10 Surveys and Mapping For Environmental Studies
- 160.30.15 Property Access Rights for Environmental/Engineering studies
- 165 Perform Environmental Studies and Prepare Draft Environmental Document (See Note 1)
- 165.10.35 Water Quality Studies
- 165.10.80 Hazardous Waste Initial Site Assessments/Investigations
- 165.10.85 Hazardous Waste Preliminary Site Investigations
  - Prepare Work Plans
  - Prepare Health and Safety Plans
  - Provide Traffic Control
  - Perform Soil Gas Surveys and Surface Geophysics
  - Perform Trenching and Drilling
  - Provide Surveys, including using GPS equipment
  - Perform Well Installation, Development, and Destruction
  - Aerially Deposited Lead Investigation Data Evaluation
  - Activity Description
  - Perform Soil and Water Sampling
  - Perform Statistical Data Evaluation
  - Provide Laboratory Sample Handling and Testing, including using mobile Laboratories.
  - Perform Quality Assurance/Quality Control for Office, Field and Laboratory Services
  - Decontamination and Disposal
- 185 Base Maps and Plan Sheets for PS&E Development
- 185.25.25 Water Well Abandonment Needs Determination
- 195 Right Of Way Property Management and Excess Land
- 195.40.30 Hazardous Waste and Hazardous Materials
- 205 Permits and Agreements during PS&E Component
- 205.05 Required Permits

205.10	Permits
235	Mitigate Environmental Impacts and Clean Up Hazardous Waste
235.05	Environmental Mitigation
235.10	Detailed Site Investigation for Hazardous Waste
235.10.05	Right or Permit for Hazardous Waste Site Investigations (SI)
235.10.10	Hazardous Waste Sites Survey
235.10.15	Detailed Hazardous Waste Site Investigation
235.15	Hazardous Waste Management Plan
235.20	Hazardous Waste PS&E
235.30	Certificate of Sufficiency
235.35	Long Term Mitigation Monitoring
255.10	Updated PS&E Package
260.80	Draft Contract Ready
270.20.50	Technical Support (See Note 2)
285.10.15	Other Functional Support (See Note 3)

Notes:

1. (Drafted Obtain Right of Entry for Environmental Studies)
2. (during Construction)
3. (for CCO)

The Consultant shall not work on any projects that are in the planning phase (K-Phase) and the Consultant shall not be reimbursed for any work performed during this phase of a project.

E. General Personnel Requirements

1. The Consultant's personnel shall be capable, competent, and experienced in performing the types of work in this Contract with minimal instruction. Personnel skill level should match the specific classifications and task complexity. The Consultant's personnel shall be knowledgeable about, and comply with, all applicable Local, State and Federal laws and regulations.
2. The Consultant is required to submit a written request and obtain the Caltrans Contract Manager's prior written approval for any substitutions, additions, alterations, or modifications to the Consultant's originally proposed personnel and project organization, as depicted on the proposed Consultant's Organization Chart or the Consultant's cost proposals. Substituted staff is subject to the same qualification requirements as the staff replaced for the work being performed. The staff person shall have significant experience in the work involving a similar transportation facility for at a minimum two (2) previous projects, unless otherwise approved by the Caltrans Contract Manager.

3. In responding to Caltrans' Task Order and in consultation with the Caltrans Contract Manager, the Consultant Contract Manager shall identify the specific individuals proposed for the task and their job assignments. The Consultant shall provide documentation that proposed personnel meet the appropriate minimum qualifications as required by this Contract.
4. The Consultant's personnel shall typically be assigned to and remain on specific Caltrans projects/deliverables until completion and acceptance of the project/deliverables by Caltrans. Personnel assigned by the Consultant shall be available at the start of a Task Order and after acceptance of the project/deliverable by Caltrans.
5. After Caltrans' approval of the Consultant's personnel proposal and finalization of a Task Order, the Consultant may not add or substitute personnel without Caltrans' prior written approval.
6. Resumes containing the qualifications and experience of the Consultant's and Subconsultant's personnel, which include existing, additional, and substitute personnel, and copies of their minimum required certifications, shall be submitted to the Caltrans Contract Manager for review before assignment on a project or Task Order. The resume and copies of current certification for each candidate shall be submitted to the Caltrans Contract Manager within one (1) week of receiving the request.
7. The Caltrans Contract Manager may interview the Consultant's personnel for the qualifications and experience. The Caltrans Contract Manager's decision to select the Consultant's personnel shall be binding to the Consultant and its Subconsultants. The Consultant shall provide adequate qualified personnel to be interviewed by the Caltrans Contract Manager within one (1) week of receiving the request.
8. The Caltrans Contract Manager shall evaluate the adequacy (quality and quantity) of the work performed by the Consultant's personnel, and determining whether the deliverables satisfy the acceptance tests and criteria. The Caltrans Contract Manager may reject any Consultant personnel determined by the Caltrans Contract Manager to lack the minimum qualifications. If at any time the level of performance is below expectations, the Caltrans Contract Manager may direct the Consultant to immediately remove Consultant personnel from the project specified in a Task Order and request another qualified person be assigned as needed. The substitute personnel shall meet the qualifications required by this Contract for performance of the work as demonstrated by a resume and copies of current certifications submitted by the Consultant. Substitute personnel shall receive prior written approval from the Caltrans Contract Manager. Invoices with

charges for personnel not pre-approved by the Caltrans Contract Manager for work on the Contract and for each Task Order shall not be reimbursed.

9. The Consultant shall not remove or replace any existing personnel assigned to Task Orders without the prior written consent of the Caltrans Contract Manager. The removal or replacement of personnel without the written approval from the Caltrans Contract Manager shall be violation of the Contract and may result in termination of the Contract per Exhibit D, Section III, Termination of the Contract.
10. When assigned consultant staff is on approved leave and required by the Caltrans Contract Manager, the Consultant Contract Manager shall provide a substitute employee until the assigned employee returns to work from the approved leave. The substitute personnel shall have the same classification, not exceed the billing rate and meet or exceed the qualifications and experience level of the previously assigned personnel, at no additional cost to Caltrans. Substitute personnel shall receive prior written approval from the Caltrans Contract Manager to work on this Contract.
11. Other project personnel not identified on the Consultant's cost proposal, including, but not limited to, field and laboratory technicians, shall also satisfy appropriate minimum qualifications for assigned Task Orders. Caltrans' prior written approval is required for all personnel not identified on the Consultant's organization chart or the Consultant's cost proposals before providing services under this Contract.
12. The Consultant is responsible to provide fully trained personnel to efficiently perform the work. The Consultant's personnel may be asked to attend certain special training if recommended by the Caltrans Contract Manager. On such occasions, with the approval of the Caltrans Contract Manager, Caltrans shall compensate the Consultant for the Consultant's actual cost for time spent in training only. All other costs, fees, and expenses associated with the training, including any transportation costs and training fees, shall be the Consultant's responsibility. In addition, services to train the Caltrans personnel shall not be provided by the Consultant under this Contract.
13. In location(s) where the Consultant personnel is expected to work for extended period(s) of time, the Consultant shall either relocate the personnel or make every effort to hire local persons.

F. Hazardous Waste Site Investigation and Design Personnel Requirements

1. The Consultant, including the prime Consultant and all Subconsultants, shall throughout the life of the Contract, retain within its firm, a staff of people who shall be properly licensed and certified in accordance with the laws of the State of California and qualified to perform all aspects of the required work described in this Contract and all work specified in a Task Order along with any emergency that may arise during the life of this Contract.

The Consultant shall be prepared to provide additional personnel, as necessary, during the period performance of this Contract to accommodate the work.

2. Consultant Contract Manager

The Consultant Contract Manager shall coordinate work-related matters and Consultant's operations under this Contract with the Caltrans Contract Manager in coordination with the Caltrans Task Order Manager.

The Consultant Contract Manager shall have a minimum of five (5) years of responsible experience performing the duties as a contract manager for similar Hazardous Waste Site Investigation and Design Services contracts. The Consultant Contract Manager shall be an employee of the prime Consultant.

The Consultant Contract Manager shall be a Registered Professional Engineer, Professional Geologist, or Certified Engineering Geologist licensed in the State of California in good standing with the Board of Registration at all times during the Contract period, to perform the tasks described in this Contract and in the Task Orders and shall have a documented minimum ten (10) years of demonstrated experience acceptable to Caltrans in Hazardous Waste Site Investigation and Design Services work.

In addition to other specified responsibilities, the Consultant Contract Manager shall be responsible for all matters related to the Consultant's personnel, Subconsultants, Hazardous Waste Site Investigation and Design Services work, and Consultant's and Sub-Consultants' operations including, but not limited to, the following:

- a. Ensuring that deliverables are clearly defined, acceptance tested and that criteria are specific, measurable, attainable, realistic and time-bound; and that the deliverables satisfy the acceptance tests and criteria.
- b. Supervising, reviewing, monitoring, training, and directing the Consultant's and Sub-Consultants' personnel.

- c. Assigning qualified personnel to complete the required Task Order work as specified on an “as-needed” basis in coordination with the Caltrans Contract Manager.
- d. Administering personnel actions for Consultant personnel and ensuring appropriate actions taken for Subconsultant personnel.
- e. Maintaining and submitting organized project files for record tracking and auditing.
- f. Developing, organizing, facilitating, and attending scheduled coordination meetings, and preparation and distribution of meeting minutes.
- g. Implementing and maintaining quality control procedures to manage conflicts, insure product accuracy, and identify critical reviews and milestones.
- h. Assuring that all applicable safety measures are in place.
- i. Providing invoices in a timely manner and providing monthly Contract expenditures.
- j. Reviewing invoices for accuracy and completion before billing to Caltrans.
- k. Managing Subconsultants.
- l. Managing overall budget for Contract and provide report to the Caltrans Contract Manager.
- m. Monitoring and maintaining required DBE involvement.
- n. Ensuring compliance with the provisions in this Contract and all specific Task Order requirements.
- o. Knowledge and familiarity with prevailing wage issues and requirements in State of California.

3. Consultant Task Order Manager

For each Task Order, the Consultant shall provide a Consultant Task Order Manager to coordinate the Consultant Task Order operations with the Caltrans Contract Manager in coordination the Caltrans Task Order Manager.

The Consultant Task Order Manager shall be accessible to the Caltrans Contract Manager and the Caltrans Task Order Manager, at all times during normal Caltrans working hours that Task Order work is underway.

The Consultant Task Order Manager (who may be other than the Consultant Contract Manager) shall be assigned to conduct, or direct the conduct of, all work assigned under a single Task Order. The Consultant Task Order Manager shall be the primary contact for the assigned Task Order and be available as needed for communication with Caltrans.

The Consultant Task Order Manager shall be a Registered Professional Engineer, Professional Geologist, Professional Geophysicist, Certified Industrial Hygienist

(CIH), Certified Asbestos Consultant (CAC), or Certified Engineering Geologist licensed in the State of California in good standing with the Board of Registration at all times during the Contract period, or Historian with a Master Degree in History, to perform the tasks described in this Contract and in the Task Orders, and shall have a documented minimum five (5) years of demonstrated experience acceptable to Caltrans in Hazardous Waste Site Investigation and Design Services work depending on the substance of the Task Order. The appropriate profession(s) for the Consultant Task Order Manager shall be identified in each Task Order.

4. Consultant Personnel and Team Member Qualifications

The Consultant team member shall be capable of assisting the Consultant Contract Manager in all aspects of the required work. The Consultant team member's required professional qualifications shall be identified in each Task Order.

5. In this Contract, a person who is authorized to review and approve Consultant Hazardous Waste Site Investigation and Design deliverables in place of the Consultant Contract Manager shall be hereafter referred to as the Consultant Hazardous Waste responsible person. The Consultant Hazardous Waste responsible person signing deliverables under this Contract shall be currently employed by the Consultant or its Subconsultants at the time the deliverables are submitted to Caltrans for consideration under the review and acceptance process.

6. All deliverables under this Contract not fully approved by Caltrans bearing the signature of the Consultant Hazardous Waste responsible person who is no longer employed by the Consultant or its Subconsultants, shall be replaced by deliverables under this Contract bearing the signature of a qualified replacement Consultant Hazardous Waste responsible person who is currently employed by the Consultant or its Subconsultants. In such an event, no additional time shall be allowed or cost reimbursed to the Consultant without the prior written approval of the Caltrans Contract Manager.

All of the Consultant's work shall be conducted under the direction of the Consultant Contract Manager who shall have the appropriate experience as described in this Contract. All deliverables under this Contract requiring the Consultant Hazardous Waste responsible person's signature, shall be produced by the responsible Consultant personnel having appropriate experience, and shall be signed by a Consultant Hazardous Waste responsible person.

7. All drilling and sampling shall be under the "Responsible Charge" of a Registered Professional Geologist (R.G.) or Certified Engineering Geologist (C.E.G.), licensed in the State of California in good standing with the Board of Registration

at all times during the Contract period, and shall have a documented minimum two (2) years of demonstrated experience acceptable to Caltrans, who may act as the Consultant Task Order Manager. The R.G. or C.E.G. shall sign the final boring logs. If requested in the Task Order, the R.G. or C.E.G. shall provide field supervision during the investigation.

8. Other Professional Registration, Licensing, Certifications, and Educational Requirements that may apply are as follows:
  - a. Class A General Engineering Contractor's License with a Hazardous Waste Certificate and Hazardous Substance Removal Certification
  - b. Registered Professional Geologist licensed in the State of California
  - c. Certified Engineering Geologist licensed in the State of California
  - d. Certified Hydrogeologist licensed in the State of California
  - e. Professional Land Surveyor licensed in the State of California
  - f. Asbestos Hazard Emergency Response Act training
  - g. Certified Industrial Hygienist
  - h. Registered Professional Geophysicist licensed in the State of California
  - i. Historian with a Master Degree in History, if specified in the Task Order for preparation of a historic land use report or to identify and evaluate historic landscapes while conducting environmental studies.
  - j. Registered Civil Engineer (with experience in environmental engineering) licensed in the State of California
  - k. Certified Asbestos Consultant
  - l. Certified Lead Inspector/Assessor
  - m. Traffic Control License (C31)
  - n. Drilling License (C57) (for drilling that exceeds 10 feet or encroaches on groundwater)
  - o. Hazardous Waste Transporter registered by California Department of Toxic Substance Control
  - p. Laboratory Certification by California Department of Public Health Services (Environmental Laboratory Accreditation Program)
  - q. Certified Mobile Laboratory (Environmental Laboratory Accreditation Program)
  
9. The Consultant personnel (Assistants, and Technicians) shall be experienced in the use of Caltrans' engineering drafting/design software and Computer Aid Drafting & Design (CADD) Based Software including MicroStation, AutoCAD Civil 3D, and Computer Aided Civil Engineering and Surveying System (AutoCAD Civil 3D). The Consultant personnel shall be experienced in working with English and metric units. This personnel shall be familiar in working with Caltrans' coordinate system and datum in transforming the Global Information System field data into Caltrans' mapping platform for site plan plotting both in English and Metric units.

10. It is expected that some of the work may be completed as staff augmentation alongside Caltrans staff at a Caltrans facility, in which the Consultant provides staff to augment the District's personnel.

All staff augmentation Consultant personnel working in a staff augmentation role are required to complete security and privacy awareness training each year (see <http://itsecurity.dot.ca.gov/training>).

#### G. Consultant Availability and Work Hours

1. The typical workday includes all hours worked as identified in the Task Order and also as directed by the Caltrans Contract Manager. Unless otherwise specified in the Task Order or directed by the Caltrans Contract Manager, the normal workday shall be Monday through Friday, from 7.30 a.m. to 4.15 p.m. or any combination of five (5) consecutive days which may include Saturday and/or Sunday, and the normal workweek shall consist of forty (40) hours. If Saturday and/or Sunday are part of a regular work week as determined by Caltrans, then the Saturday and/or Sunday work shall be treated as work performed on a regular workday and no overtime shall be paid for the first eight (8) hours on Saturday or Sunday.

If Caltrans determines that the work cannot be performed during normal business hours or the work is necessary at off hours to avoid danger to life or property, the Consultant's operations may be restricted to specific hours during the week. Night work may be required on projects involving high traffic areas. The Caltrans' construction contractor's operations may be restricted to specific hours during the week, which shall become the normal workday for Consultant's personnel. Changes in hours or schedules shall be documented by amendment of Task Orders. Any shift differential rate pay shall be reimbursed in accordance with the applicable Department of Industrial Relations (DIR) determination.

On days when work is not performed by the construction contractor, such as rainy or unsuitable weather days, Consultant's services shall not be provided unless authorized by the Caltrans Contract Manager.

2. The Consultant shall obtain approval from the Resident Engineer prior to entering any Caltrans' project construction site.
3. The Consultant shall obtain approval from the Caltrans Facility Manager prior to conducting activities within a maintenance station or other Caltrans facility.

## H. General Requirements

1. The Consultant shall prepare the required analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract according to requirements of this Contract and applicable Caltrans Manuals for the work.
2. As directed and as a first order of work, the Consultant shall prepare and update a comprehensive Critical Path Method (CPM) network diagram, Bar Chart Schedule, Logic Network Schedule, and the Caltrans Work Breakdown Structure (WBS) for each Task Order issued by the Caltrans Contract Manager showing a deliverables schedule as well as other relevant data to monitor project progress, Consultant's work control, and Caltrans review of work status, if required in the Task Order. The relevant data shall include a list of activities with budgeted cost, milestones, and target date for completion of each activity. The minimum number of task details shall be identified in the Task Order. This workplan shall be updated once a month to show the approved baseline schedule and the actual progress schedule.  
  
Caltrans shall review these documents and return them to the Consultant with notes and comments as soon as possible in order to validate the planning and cost control procedures within the first calendar month of performance period.
3. The Consultant's timesheet/invoices/expenses shall be subject to the approval of the Caltrans Contract Manager before submitting timesheets, invoices, or expense reimbursement requests for payment.
4. The Consultant shall begin the required work within two (2) working days or per the Task Order after receiving a fully executed Task Order and the issuance of the Notice to Proceed (NTP) from the Caltrans Contract Manager. Some work, however, may require Consultant personnel to mobilize within 24-hour of notifications. Once the work begins, the work shall be prosecuted/performed diligently until all required work has been completed to the satisfaction of the Caltrans Contract Manager.
5. The work shall not be performed when conditions prevent a safe and efficient operation, and shall only be performed with written authorization by Caltrans.
6. The Consultant Contract Manager, Consultant Task Order Manager, and Key Personnel shall be accessible to the Caltrans Contract Manager at all times during normal Caltrans working hours or after hours as required by the Caltrans Contract Manager.

7. The Caltrans Contract Manager may direct the Consultant's employees to work overtime to meet Task Order schedules. All overtime shall be pre-approved by the Caltrans Contract Manager. Overtime shall be worked only when directed in writing by the Caltrans Contract Manager and specifically required by the Task Order, and shall only be paid to persons covered by the Fair Labor Standards Act.
8. All Consultant personnel are required to sign a confidentiality and nondisclosure agreement.
9. The Consultant shall only provide incidental non-Architectural and Engineering (A&E) services, such as Computer Aid Drafting & Design (CADD) support, GIS support, utilities location support, traffic control, office support, field office support, and meeting support, provided (a) such services are necessary for the completion of the A&E tasks and/or deliverables performed by the Consultant described in executed Task Orders and covered by the work in this Contract and (b) the rendering of the services is approved in advance by the Caltrans Contract Manager. These incidental services shall only be provided to support the Consultant's personnel who are performing A&E services, tasks, and deliverables on this Contract. The Contract amount spent on such incidental services shall be relatively minor when compared to the professional A&E services performed. The Consultant shall not be paid or reimbursed for any incidental non-A&E services provided to Caltrans unless provided in the fashion described in this Contract and included in the executed Task Order. The Consultant is responsible for ensuring that Task Orders only include any incidental non-A&E services. Services to train Caltrans personnel shall not be provided by the Consultant under this Contract.
10. The Consultant may not disclose any information to third parties without prior written approval of the Caltrans Contract Manager.
11. The Consultant shall include the Caltrans Contract Manager in written communications to other Caltrans personnel for any clarification on the scope of work.

I. Coordination

1. For each Task Order, the Consultant shall carry out instructions received from the Caltrans Contract Manager, and as directed by the Caltrans Contract Manager, shall coordinate activities and work closely with multiple stakeholders including, but not limited to, Caltrans' various functional units, Caltrans' project managers, local agencies, various environmental groups, other state agencies, Native

American tribal governments, utility companies, railroads, other agencies, other entities with an interest in the project (including, but not limited to, FHWA), other consultants, other contractors, and planning, engineering, and construction firms (and its suppliers and subcontractors) contracted by Caltrans working on the same projects or adjacent projects. In the event an instruction or direction is unclear to the Consultant, the Consultant shall ask the Caltrans Contract Manager to clarify the instruction or direction. The work is a critical element of compatible designs, project planning and construction schedules and shall be accomplished in a timely fashion. Projects having complex and overlapping schedules and therefore Project work may have overlapping and parallel (not serial order) schedules or make work discontinues. Projects have complex and overlapping schedules and field work may be intermittent. Task Orders may be written for treatment of unanticipated finds encountered during project work. When unanticipated finds are encountered, a rapid response shall be necessary to avoid costly construction delays.

2. The foregoing paragraph does not relieve the Consultant of professional responsibility during the performance of this Contract. In instances where the Consultant believes a better standard solution to a task being performed or a issue being addressed is possible, the Consultant shall promptly notify the Caltrans Contract Manager of these concerns, together with the reasons therefore. However, Caltrans shall make all final decisions on the scope of the Consultant's activities and investigations.
3. The Consultant shall be required to work with other Caltrans Functional Units and others (including, but not limited to, Regional Water Quality Control Board - RWQCB) as directed by the Caltrans Contract Manager.
4. The Consultant shall work closely with the Caltrans Contract Manager and the Caltrans designee identified in the Task Order.
5. The Consultant shall have the capability to send to and receive from Caltrans' electronic mail system and file transfer protocol system including, but not limited to, attachments for word processing, photographs, spreadsheets, and databases.
6. The Consultant shall submit job descriptions for all of the personnel that it and its Subconsultants propose to use for this Contract. When the Consultant proposes to add personnel to cost proposals, the Consultant shall submit updated cost proposals to Caltrans. The Caltrans Contract Manager may request that the update be for either the incremental change or the total amount. The Consultant shall provide the electronic copy of the cost proposals and subsequent proposed changes to the cost proposals in Microsoft Excel format, version 2007.

7. Caltrans shall not reimburse the Consultant for costs to relocate its personnel to the service area of this Contract. Caltrans shall not reimburse the Consultant for long-term per diem costs, unless preapproved by the Caltrans Contract Manager. Caltrans shall not reimburse the Consultant for out-of-state travel without prior written approval from the Caltrans Contract Manager.
8. The Consultant shall obtain the Caltrans Contract Manager's approval prior to making presentations at non-Caltrans sponsored conferences or workshops for any services provided under this Contract.
9. The Consultant shall notify the Caltrans Contract Manager or Caltrans designee in writing a minimum one (1) week before it begins any field work, unless the Task Order specifies some other notification date.
10. Caltrans shall not incur costs beyond the funding commitments in the Contract and each Task Order. If the Consultant anticipates that funding for work will be insufficient to complete work, the Consultant shall promptly notify the Caltrans Contract Manager.

J. General Equipment Requirements

1. The Consultant or its Subconsultants shall not incorporate any materials or equipment of a single or sole source origin without the advance written approval of Caltrans.
2. The Consultant may claim reimbursement for providing equipment or supplies. However, such claimed costs shall be in compliance with 48 Code of Federal Regulation, Chapter 1, Part 31 (Federal Acquisition Regulation - FAR cost principles) and be consistent with the Consultant's company-wide allocation policies and charging practices with all clients including federal government, state governments, local agencies, and private clients.

K. Hazardous Waste Site Investigation and Design Equipment Requirements

1. Office Equipment and Supplies (Consultant's Office):

The Consultant shall have and provide adequate office equipment and supplies to complete the work required by this Contract. Such equipment and supplies shall include, but not be limited to, the following:

- a. Office Supplies.

- b. Computers with appropriate software, printers, plotters, fax machines, calculators, data collectors and their necessary attachments and accessories.
  - c. Data processing systems, software packages, reference materials, or other tools, including hardware and software, used in providing deliverables. This includes, but not be limited to, the following:
    - i. Microsoft Office Software (including, but not limited to, Word, Excel, PowerPoint).
    - ii. Processing digital terrain models in Caltrans' approved roadway design format (, AutoCAD Civil 3D).
    - iii. Coordinate geometry calculations (COGO). This software shall use/create coordinate geometry databases; naming and coding conventions in the Caltrans approved formats (, AutoCAD Civil 3D).
  - d. Reference material, or other tools, used in providing deliverables.
  - e. Caltrans shall not purchase any hardware, software, or other equipment (including, but not limited to, batteries, paper, and office supplies) that may be required for the Consultant to perform work required in this Contract. The Caltrans Contract Manager shall approve any Consultant's request for electronic connections and compatibility with current Caltrans Windows-based networks and programs in writing prior to the use and/or installation of any electronic hardware and/or software.
  - f. In-house printing, reproduction, and delivery services.
  - g. Computer Aided Drafting equipment and software capable of producing surveying and Hazardous Waste Site Investigation and Design maps, drawings, and documents in the Caltrans approved format (Microstation, AutoCAD Civil 3D).
  - h. Personal Protective Equipment (PPE) and field testing safety equipment – The Prime Consultant and its Subconsultants shall provide their field personnel personal protective equipment and field testing safety equipment, pursuant to SP-5 and SP-6 of the scope of work.
  - i. GPS hand-held recording unit with accuracy of six (6) inches for field measurement.
2. Field Equipment and Supplies:

Consultant shall have and provide adequate field tools, instruments, equipment, materials, supplies, and safety equipment to complete the required field work and that meet or exceed Caltrans Specifications per the Caltrans Manuals. The tools, instruments, equipment, materials, supplies, and safety equipment required for each Consultant field personnel shall include, but not be limited to, the following, if required by the Task Order:

- a. Sufficient vehicles suitable for the work to be performed and terrain conditions of the project sites. Vehicles shall be fully equipped with all necessary tools, instruments, equipment, materials, supplies, and safety equipment required for the efficient operation of the Consultants' field personnel. Each Vehicle shall have sufficient ground clearance to safely maneuver through highway construction sites while fully loaded with equipment and materials. Each vehicle shall have an overhead flashing amber light, visible from the rear, with a driver control switch. Vehicles without side windows shall not be used. All vehicles shall be clearly marked as to ownership. Each vehicle shall be equipped to meet Caltrans safety requirements.
  - b. A laptop computer with appropriate software.
  - c. Communication device: Mobile telephone, cell phone.
  - d. Hand tools as appropriate for the requested field personnel work.
  - e. All necessary safety equipment including fire extinguisher, hard-soled safety footwear, white hard hats, eye protection, hearing protection, and approved safety vests as appropriate for the requested field work to be performed safely and efficiently within operating highway.
  - f. Traffic cones, at a minimum 25, for traffic control as necessary. Such cones shall be 28 inches, minimum, in height.
  - g. Traffic control devices (including signs, sign bases, flags, and hand held signs) as required to perform the requested field personnel work.
3. The Consultant shall provide all necessary tools, instruments, equipment, materials, supplies, and safety equipment required to perform the work identified in each Task Order and this Contract accurately, efficiently, and safely. The Consultant's personnel shall be fully trained in the use of such necessary tools, instruments, equipment, materials, supplies, and safety equipment. The Consultant shall not be reimbursed separately for tools of the trade, which may include, but not be limited to, the above-mentioned equipment.

L. Consultant Reports and/or Meetings

1. Monthly Progress Report

- a. The Consultant shall submit progress reports at least once a month. The report should be sufficiently detailed for the Caltrans Contract Manager to determine if the Consultant is performing to expectations and is on schedule, to provide communication of interim findings and to afford occasions for airing difficulties or special problems encountered so remedies can be developed. Separate detail shall be provided for each on-going Task Order.

- b. The Consultant shall submit a progress report for each Task Order to the Caltrans Contract Manager and the Caltrans Task Order Manager on or prior to the first (1st) day of each month during which the Task Order is active. The Caltrans Contract Manager may alter the submittal date of the report to coordinate with the Consultant's administrative processes. This report shall contain the following elements:
- i. Time frame of the reporting period.
  - ii. Work completed in the reporting period (activities and accomplishments).
  - iii. Work to be completed in the time period after the reporting period.
  - iv. Total amount of Task Order authority.
  - v. Expenditures in this progress report period.
  - vi. Total expenditures to date.
  - vii. Total expended but not yet invoiced to Caltrans.
  - viii. Remaining Task Order authority.
  - ix. For each milestone, task and deliverable:
    - The budgeted cost.
    - The actual cost to date.
    - The actual cost to date as a percent of the budgeted cost.
    - The percent of the milestone/task/deliverable that has been completed.
    - A schedule of Task Order milestones (including tollgate milestones), the current status of progress toward each milestone (including, but not limited to, on schedule, off schedule with correction in place, or out of schedule with no current correction), and a schedule of deliverables.
    - The total number of hours worked by the Consultants' and Subconsultants' personnel by use of the Caltrans Work Breakdown Structure (WBS) level element(s). The WBS is included in the Guide to Project Delivery Workplan Standards, which can be found at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm>.
  - x. Projected travel costs for the time period after the reporting period with detail about the personnel involved, the purpose of the travel, location of travel and the cost.
  - xi. Comments about other issues that may impact the Task Order's services (e.g., a staff shortage that may delay the timely completion of a deliverable) or cost.
  - xii. If applicable, progress reports shall include actual DBE participation on a monthly and cumulative basis.
- c. When applicable, progress reports shall indicate an estimated percentage of work completed and a corresponding estimate of budget spent for work

deliverables. The estimate of work completion and budget spent shall be for the same time period.

- d. Monthly Progress Reports shall cover the same time period as the monthly invoices.

## 2. Meetings

- a. The Consultant's Contract Manager shall meet with the Caltrans Contract Manager, in person or via teleconference, a minimum of once per month or on an "as-needed" basis to review and discuss procedures and progress on the Contract.
- b. The Consultant Contract Manager shall be responsible for drafting of the minutes of the meetings and submit them to the Caltrans Contract Manager within one (1) week of the meeting for review and comment. The Consultant Contract Manager shall distribute a final version of meeting minutes within two (2) calendar days of final approval. The minutes/notes shall indicate issues discussed and the resolution or action required resolving any issues. The Consultant shall submit at each Progress Meeting, a four-week horizon schedule to be used in monitoring the progress of the work.
- c. Consultant shall be available, on two (2) days' written notice:
  - i. To meet with Caltrans; to participate in internal Project Development Team (PDT) meetings or other Caltrans meetings.
  - ii. To attend public meetings (day and evening) where an expert is required.
  - iii. To participate in any public hearings necessary for a Project.
  - iv. To provide technical expertise on an "as-needed" basis.
- d. Project Coordination Meetings (focus meetings) may be called by Caltrans or the Consultant at any time that any party requires discussion of Project issues. The Consultant shall prepare the minutes of the meeting and submit them to Caltrans three (3) calendar days after the meeting.
- e. Prior to completion of the Contract, the Consultant shall hold a final meeting with the Caltrans Contract Manager to present findings, conclusions, and recommendations and shall submit a comprehensive final report on the project.

M. Standards

1. All work shall be performed in accordance with all applicable Local, State, and Federal statutes, laws, codes, regulations, policies, procedures, ordinances, standards, specifications, performance standards, and guidelines, including the latest Caltrans regulations, policies, procedures, manuals, standards, specifications, performance standards, directives, guidelines, handbooks, guidance documents, forms, templates, policy memo, methodologies, and other informational or directive publications, including compliance with State and Federal Highway Administration (FHWA) guidelines for implementing those requirements; and any permits, licenses, agreements or certifications that apply to specific Task Orders; the terms and conditions of this Contract; and current Caltrans Manuals and any future revisions. Work not covered by the “Manuals” shall be performed as specified in the Task Order. If no standards exist, Task Orders may call for the development of new standards, so long as these standards do not conflict with the requirements of this Contract.
  - a. The Consultant is responsible for obtaining, at its expense, all necessary manuals, reference documents, and other materials.
  - b. Caltrans Manuals generally may be purchased from the Publication Distribution Unit. The Publications staff may be reached at (916) 263-0822, and the center is located at the following address:

State of California  
California Department of Transportation  
Publication Distribution Unit  
1900 Royal Oaks Drive  
Sacramento, CA 95815-3800
  - c. Manuals and documents that are not available from the Caltrans Publication Distribution Center or are not available from Caltrans’ Internet web site may be requested from the Caltrans Contract Manager. Caltrans does not guarantee the availability of publications nor its Internet web pages.
    - i. <http://www.caltrans-opac.ca.gov/publicat.htm>
    - ii. <http://www.dot.ca.gov/manuals.htm>
  - d. Caltrans’ regulations, policies, procedures, manuals, standards, specifications, performance standards, directives, guidelines, handbooks, guidance documents, forms, templates, policy memo, methodologies, and other informational or directive publications, are dynamic documents and subject to change. The Consultant is responsible to verify that the latest version or update is used.

2. Manuals, Documents, and Websites

The following manuals, documents and links to internet sites are referenced in association with the work in this Contract. The list is not all-inclusive, but is intended to illustrate the types of reference material and sources of information.

- a. Caltrans' Internet Home Webpage  
<http://www.dot.ca.gov/>
- b. Caltrans' Code of Safe Practices  
<http://www.dot.ca.gov/hq/construc/safety/>
- c. California Health and Safety Code  
<http://www.leginfo.ca.gov/cgi-bin/calawquery?codesection=hsc>
- d. Caltrans Manuals Internet Webpage  
<http://www.dot.ca.gov/manuals.htm>
- e. Caltrans Publications Internet Webpage  
<http://caltrans-opac.ca.gov/publicat.htm>
- f. Caltrans Highway Design Manual  
<http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm>
- g. Manual of Uniform Traffic Control Devices (MUTCD)  
California Manual on Uniform Traffic Control Devices  
<http://mutcd.fhwa.dot.gov/>  
<http://www.dot.ca.gov/hq/traffops/engineering/mutcd/index.htm>
- h. Caltrans Traffic Manual and MUTCD 2003 Supplement  
<http://www.dot.ca.gov/hq/traffops/engineering/control-devices/trafficmanual-current.htm>
- i. Caltrans Surveys Manual  
[http://www.dot.ca.gov/hq/row/landsurveys/SurveysManual/Manual\\_TOC.html](http://www.dot.ca.gov/hq/row/landsurveys/SurveysManual/Manual_TOC.html)
- j. Caltrans Construction Manual  
<http://www.dot.ca.gov/hq/construc/constmanual/>

- k. Caltrans Project Development Procedures Manual (PDPM)  
<http://www.dot.ca.gov/hq/oppd/pdpm/pdpmn.htm>
- l. Caltrans CADD Users Manual  
<http://www.dot.ca.gov/hq/oppd/cadd/usta/caddman/default.htm>
- m. Caltrans Safety Manual  
[http://www.dot.ca.gov/hq/opo/safety/safetymanual\\_toc.htm](http://www.dot.ca.gov/hq/opo/safety/safetymanual_toc.htm)
- n. Traffic Safety Guidelines  
[http://www.dot.ca.gov/hq/construc/manual2001/chapter2/chp2\\_2.pdf](http://www.dot.ca.gov/hq/construc/manual2001/chapter2/chp2_2.pdf)
- o. Standard Plans and Standard Specifications  
Specification and Estimate Procedures  
<http://www.dot.ca.gov/hq/esc/oe/standards.php>  
<http://www.dot.ca.gov/hq/esc/oe/conststand.html>  
[http://www.dot.ca.gov/hq/esc/oe/project\\_plans/](http://www.dot.ca.gov/hq/esc/oe/project_plans/)  
[http://www.dot.ca.gov/hq/esc/oe/project\\_plans/highway\\_plans/stdplans\\_U\\_S-customary-units\\_10/viewable\\_pdf/2010-Std-Plns-for-Web.pdf](http://www.dot.ca.gov/hq/esc/oe/project_plans/highway_plans/stdplans_U_S-customary-units_10/viewable_pdf/2010-Std-Plns-for-Web.pdf)  
[http://www.dot.ca.gov/hq/esc/oe/construction\\_contract\\_standards/std\\_specs/2010\\_StdSpecs/2010\\_StdSpecs.pdf](http://www.dot.ca.gov/hq/esc/oe/construction_contract_standards/std_specs/2010_StdSpecs/2010_StdSpecs.pdf)
- p. Standard Special Provisions  
[http://www.dot.ca.gov/hq/esc/oe/2010\\_SSPs.php](http://www.dot.ca.gov/hq/esc/oe/2010_SSPs.php)
- q. Workplan Standards Guide for the Delivery of Capital Projects  
<http://www.dot.ca.gov/hq/projmgmt/guidance.htm>
- r. Guide to Caltrans Workplan Standards for Delivery of Capital Projects (WBS)  
[http://www.dot.ca.gov/hq/projmgmt/documents/wsg/WSG\\_10-2.pdf](http://www.dot.ca.gov/hq/projmgmt/documents/wsg/WSG_10-2.pdf)
- s. Caltrans Right of Way Manual  
<http://www.dot.ca.gov/hq/row/rowman/manual/index.htm>
- t. Caltrans Storm Water Quality Manuals and Handbooks  
<http://dot.ca.gov/hq/construc/stormwater/manuals.htm>
- u. Caltrans Standard Environmental Reference Webpage  
<http://www.dot.ca.gov/ser/>
- v. Caltrans Plans Preparation Manual  
<http://www.dot.ca.gov/hq/oppd/cadd/usta/ppman/default.htm>

<http://www.dot.ca.gov/hq/oppd/cadd/usta/ppman/toc.htm>

- w. Storm Water Project Planning and Design Guide  
Storm Water Quality Handbooks  
Caltrans Storm Water Quality Handbook, Project Planning and Design Guide  
<http://www.dot.ca.gov/hq/oppd/stormwtr/>
- x. Caltrans Environmental Handbook  
<http://www.dot.ca.gov/ser/envhand.htm>
- y. Caltrans Preliminary Environmental Analysis Report (PEAR) Handbook  
Caltrans PEAR Handbook  
<http://www.dot.ca.gov/ser/pear.htm>
- z. Caltrans Environmental Policy Memos  
Environmental Policy Memos  
<http://www.dot.ca.gov/ser/memos.htm>
- aa. Standard Plans 2002 Dual Units  
[http://www.dot.ca.gov/hq/esc/oe/project\\_plans/HTM/stdplns-dual-new02.htm](http://www.dot.ca.gov/hq/esc/oe/project_plans/HTM/stdplns-dual-new02.htm)
- bb. METS Website (Materials Engineering and Testing Services)  
<http://www.dot.ca.gov/hq/esc/Translab/>
- cc. California Test Methods (CTM)  
<http://www.dot.ca.gov/hq/esc/ctms/index.html>
- dd. Federal Highway Administration Title 23, Code of Federal Regulations, 637B (Quality Assurance Procedures for Construction)  
<http://www.fhwa.dot.gov/legregs/directives/fapg/cfr0637b.htm>
- ee. Independent Assurance Manual  
[http://www.dot.ca.gov/hq/esc/Translab/ormt/IA\\_reports/2005\\_IA\\_Manual.pdf](http://www.dot.ca.gov/hq/esc/Translab/ormt/IA_reports/2005_IA_Manual.pdf)
- ff. Manual of Traffic Controls for Construction and Maintenance Work Zones  
<http://www.dot.ca.gov/hq/traffops/engineering/mutcd/pdf/camutcd2012/Part6.pdf>
- gg. Caltrans Guide for the Submittal of Plans, Specification, and Estimates  
<http://www.dot.ca.gov/hq/esc/oe/guidance.html>

- hh. Standard Test Methods (Not a Caltrans Publication)  
<http://www.astm.org/>
- ii. "Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes," Title 22, California Code of Regulations, Division 4 and 4.5, including all revisions through Register 85, No. 38 (9-21-85 or latest revision)  
<http://www.leginfo.ca.gov/calaw.html>  
<http://www.dtsc.ca.gov/LawsRegsPolicies/Title22/index.cfm>  
<http://ccr.oal.ca.gov>  
<https://archive.org/details/gov.ca.ccr.22.3>
- jj. "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," U.S. Environmental Protection Agency, SW-846, Third Edition, Update IIIB (or latest Update), U.S. Environmental Protection Agency (U.S. EPA SW-846), 1987 (or latest edition).  
<http://www.epa.gov/osw/hazard/testmethods/sw846/online/index.htm>
- kk. Title 8 California Code of Regulations, Section 5192 and 1532.  
<http://www.dir.ca.gov/Title8/5192.html>  
<http://www.dir.ca.gov/Title8/1532.html>  
[http://www.dir.ca.gov/Title8/1532\\_1.html](http://www.dir.ca.gov/Title8/1532_1.html)
- ll. "Standard Methods for Chemical Analysis of Water and Wastes," U.S. EPA-600/4-79-020, 18th edition, 1992 (or latest edition).  
<http://www.epa.gov/>  
<http://www.epa.gov/osa/fem/methcollectns.htm>
- mm. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," OSWER Directive 9335.3-01, Draft, March 1988 (or latest edition).  
<http://www.epa.gov/>  
<http://www.epa.gov/superfund/cleanup/rifs.htm>  
<http://www.epa.gov/superfund/cleanup/rdra.htm>
- nn. "Leaking Underground Fuel Tank Field Manual: Guidelines for Site Assessment, Cleanup, and Underground Storage Tank Closure," State Water Resources Control Board, September 2012 (or latest edition).  
[http://www.swrcb.ca.gov/water\\_issues/programs/ust/luft\\_manual.shtml](http://www.swrcb.ca.gov/water_issues/programs/ust/luft_manual.shtml)  
[http://www.waterboards.ca.gov/water\\_issues/programs/ust/luft\\_manual/guidance\\_manual\\_sept2012.pdf](http://www.waterboards.ca.gov/water_issues/programs/ust/luft_manual/guidance_manual_sept2012.pdf)

- oo. “Preliminary Endangerment Assessment Guidance Manual,” State of California, Environmental Protection Agency, Department of Toxic Substances Control, January 1994 (or latest edition).  
<http://www.dtsc.ca.gov/>  
[http://www.dtsc.ca.gov/PublicationsForms/pubs\\_index.cfm](http://www.dtsc.ca.gov/PublicationsForms/pubs_index.cfm)  
<https://dtsc.ca.gov/SiteCleanup/Brownfields/upload/Preliminary-Endangerment-Assessment-Guidance-Manual.pdf>
- pp. ASTM Guideline E 1527-05, Standard Practice Environmental Site Assessments: Phase I Environmental Site Assessment Process, American Society for Testing and Materials (ASTM) E1527-05, 2005 (or latest edition).  
<http://www.astm.org/DATABASE.CART/HISTORICAL/E1527-05.htm>
- qq. “Risk Assessment Guidance for Superfund, Human Health Risk Assessment (RAGS)” Volume 1, Parts A, B, C, United States Environmental Protection Agency.  
<http://www.epa.gov/>  
[http://www.epa.gov/oswer/riskassessment/alpha\\_list.htm](http://www.epa.gov/oswer/riskassessment/alpha_list.htm)  
<http://www.epa.gov/oswer/riskassessment/ragsa>  
<http://www.epa.gov/oswer/riskassessment/ragsb>  
<http://www.epa.gov/oswer/riskassessment/ragsc>
- rr. “Standard Guide for Risk-Based Corrective Action applied at Petroleum Release Sites,” American Society for Testing and Materials (ASTM) E 1739-95 (2010)e1, 2010.  
<http://webstore.ansi.org/>  
<http://www.astm.org/Standard/index.shtml>  
<http://www.astm.org/DATABASE.CART/HISTORICAL/E1739-95E1.htm>  
ASTM E 1739-95e1
- ss. Highway Administration (FHWA) Guidance for Consultants: Procedures for the Protection of Historic Properties - Section 106 Process, and Guide for Consultants: Procedures for Completing the Natural Environment Study and Related Biological Reports.  
<http://www.environment.fhwa.dot.gov/guidebook/index.asp>  
<http://www.fhwa.dot.gov/cadiv/pre/guide3.htm>  
  
<http://www.environment.fhwa.dot.gov/guidebook/chapters/v2ch10.asp>
- tt. Caltrans Guidance Manual: Storm Water Monitoring Protocols.  
<http://www.dot.ca.gov/hq/env/stormwater/index.htm>  
<http://www.dot.ca.gov/hq/env/stormwater/ongoing/monitoring/>

- uu. “United States Environmental Protection Agency (U.S. EPA) Test Methods for Evaluating Solid Waste,” 3rd Edition (SW-846).  
<http://www.epa.gov/wastes/hazard/testmethods/index.htm>  
<http://www.epa.gov/epaoswer/hazwaste/test/main.htm>
- vv. Caltrans Soil and Rock Logging Manual, Classification, and Presentation Manual  
[http://www.dot.ca.gov/hq/esc/geotech/sr\\_logging\\_manual/srl\\_manual.html](http://www.dot.ca.gov/hq/esc/geotech/sr_logging_manual/srl_manual.html)
- ww. State of California, Department of Water Resources, California Well Standards/Well Standards Bulletins, in Bulletins 74-81 and 74-90  
[http://www.water.ca.gov/groundwater/well\\_info\\_and\\_other/well\\_standard\\_s.cfm](http://www.water.ca.gov/groundwater/well_info_and_other/well_standard_s.cfm)  
[http://www.water.ca.gov/groundwater/well\\_info\\_and\\_other/california\\_well\\_standards/well\\_standards\\_content.html](http://www.water.ca.gov/groundwater/well_info_and_other/california_well_standards/well_standards_content.html)
- xx. California Department of Toxic Substances Control Guidance Manual: Monitoring Well Design and Construction for Hydrogeologic Characterization, July 1995.  
[http://www.dtsc.ca.gov/SiteCleanup/upload/SMP\\_Monitoring\\_Well\\_Design.pdf](http://www.dtsc.ca.gov/SiteCleanup/upload/SMP_Monitoring_Well_Design.pdf)
- yy. California Department of Toxic Substances Control Guidance manual: Representative Sampling of Ground Water for Hazardous Substances, July 1995, Revised February 2008.  
[http://www.dtsc.ca.gov/SiteCleanup/upload/SMP\\_Representative\\_Sampling\\_GroundWater.pdf](http://www.dtsc.ca.gov/SiteCleanup/upload/SMP_Representative_Sampling_GroundWater.pdf)
- zz. California Department of Toxic Substances Control (DTSC) Aerially Deposited Lead Variance No. V09HQSCD006, July 1, 2009.
- aaa. Caltrans Manual on High and Low Risk Underground Facilities

N. Field Safety

In addition to the requirements specified elsewhere in this Contract, the following also shall apply:

1. The Consultant shall maintain an awareness of health and safety requirements and enforce applicable regulations and contract provisions for the protection of the project personnel and the public. The Consultant’s personnel shall comply with

all safety provisions of the Caltrans Safety Manual ([http://www.dot.ca.gov/hq/opo/safety/safetymanual\\_toc.htm](http://www.dot.ca.gov/hq/opo/safety/safetymanual_toc.htm)) and Caltrans Code of Safe Practices (<http://www.dot.ca.gov/hq/construc/safety/>). The Consultant shall comply with all Local, State, and Federal Occupational Safety and Health Administration (OSHA) statutes, laws, codes, regulations, policies, procedures, ordinances, standards, rules, and guidelines, and the safety instructions that Caltrans issues for performance of Task Order work, applicable to the work under this Contract, regarding safety equipment and procedures (including, but not limited to, use and operation). Under no circumstance shall the Consultant's safety policies be less stringent than Caltrans'.

2. The field work shall not be performed when conditions prevent a safe and efficient operation, and shall only be performed with written authorization by Caltrans.
3. The Consultant shall provide, at no cost to Caltrans, all safety equipment to perform the required services in a safe manner including, but not limited to: but not limited to: gloves, coveralls, sunscreen, insect repellents, fire extinguisher, hard-soled safety footwear, white hard hats, eye protection, hearing protection, and approved safety vests. The Consultant's personnel shall wear hard-soled safety footwear, white hard hats, eye protection, hearing protection, and approved safety vests at all times while working in the field.
4. The Consultant shall provide, at no cost to Caltrans, appropriate safety training for all the Consultant's and the Subconsultant's office, laboratory, and field personnel, including training required for performing the work in an office setting or in the field to work on and near highways in a safe manner.
5. The Consultant shall be solely responsible for the protection of health and safety of its personnel, Subconsultants, and Subconsultant's personnel in performance of this Contract.
6. Traffic Control
  - a. If specified in the Task Order, Caltrans shall provide Traffic Control to accomplish the work within Caltrans' right-of-way. When Caltrans is to provide Traffic Control, the Consultant shall request the Traffic Control in advance of the work to obtain proper clearance. Limited work hours, night work or weekend work may be necessitated by the closure schedule that is approved by Caltrans for work on State freeways or highways. For work outside of Caltrans' right-of-way, the Consultant shall provide Traffic Control in coordination with the appropriate local jurisdiction and/or private owners.

- b. If the Task Order requires the Consultant to provide traffic control or traffic control devices, the Consultant shall fulfill the following requirements:
- i. Caltrans' 2010 Standard Specifications (Standard Specifications), which shall include any future revisions to this manual: This Contract cites specific portions of the Standard Specifications. Only the sections of the Standard Specifications cited in this Contract are requirements and are hereby incorporated by this reference as if attached to this Contract. All other portions of the Standard Specifications are not applicable to this Contract. The Standard Specifications is accessible via the internet at <http://www.dot.ca.gov/hq/esc/oe/>.
  - ii. Submit a traffic-handling traffic control plan to the Caltrans Contract Manager for review and comment at a minimum ten (10) working days prior to the start of work. The traffic control plan also needs to be provided to Caltrans Permit Office for review and acceptance.
  - iii. Comply with the traffic control requirements in the "Standard Specifications" including future revisions to this manual, specifically Section 7 (Public Convenience, Public Safety) and Section 12 (Temporary Traffic Control), and one or more of the following Caltrans Standard Plans, as applicable: Plan No. T10 (Traffic Control System for Lane Closure on Freeways and Expressways); Plan No. T11 (Traffic Control System for Lane and Complete Closures on Freeways and Expressways); Plan No. T12 (Traffic Control System for Lane Closure on Multilane Conventional Highways); Plan No. T13 (Traffic Control System for Lane Closure on Two Lane Conventional Highways); Plan No. T14 (Traffic Control System for Ramp Closures. (Refer to: <http://www.dot.ca.gov/hq/traffops/signtech/signdel/stdplans.htm>, [http://www.dot.ca.gov/hq/esc/oe/project\\_plans/highway\\_plans/stdplans\\_US-customary-units\\_10/viewable\\_pdf/2010-Std-Plns-for-Web.pdf](http://www.dot.ca.gov/hq/esc/oe/project_plans/highway_plans/stdplans_US-customary-units_10/viewable_pdf/2010-Std-Plns-for-Web.pdf)).
  - iv. Obtain the necessary approvals and encroachment permits prior to providing the traffic control or traffic control devices.
  - v. The Consultant shall provide all labor, equipment, and materials that are required for placing, operating, maintaining, repairing, replacing, transporting and removing of traffic control and traffic control devices.
  - vi. This work includes furnishing, placing and maintaining required signs, safety equipment, and traffic control and warning devices in accordance with the Manual of Traffic Controls published by Caltrans (<http://www.dot.ca.gov/hq/traffops/engineering/>,

current.htm). The manufacturer of products on the list of Prequalified and Tested Signing and Delineation Materials shall furnish the Consultant a Certificate of Compliance in conformance with the provisions in Standard Specifications, Section 6, "Certificates of Compliance," of the Standard Specifications for each type of traffic product supplied. For those categories of materials included on the list of Prequalified and Tested Signing and Delineation Materials, only those products shown within the listing may be used in the work. Other categories of products, not included on the list of Prequalified and Tested Signing and Delineation Materials, may be used in the work provided they conform to the requirements of the Standard Specifications, Section 6.

- vii. Conduct operations so as to offer the least possible obstruction and inconvenience to the public and to have under traffic control no greater length or amount of work than can be prosecuted properly with due regard to the rights of the public. All public traffic shall be permitted to pass through the work with a minimum of inconvenience and delay.
- viii. Implement protective measures that are necessary to prevent accidents or damage or injury to the public. No operations shall create a condition hazardous to traffic or to the public.
- ix. If an accident or other incident (related to or not related to the work being done for Caltrans) occurs within, or close to the work being done for Caltrans, the Consultant shall immediately stop work and remove traffic controls from the highway unless public health, welfare and safety is endangered by unfinished work or by removal of the traffic control devices. After free traffic flow is restored, other work required by the Task Order may be resumed.
- x. Enter and leave the highway via existing ramps and crossover in the direction of public traffic. There shall be no movement across lanes.
- xi. All trucks or other mobile equipment leaving the public traffic lane to enter the work area shall slow down gradually in advance of the turnoff to allow following traffic an opportunity to slow down safely. The Consultant shall use flashing lights on the vehicle to indicate to oncoming traffic of vehicle slowing.
- xii. All work requiring traffic control requires the Consultant to apply for and obtain a lane closure number or prepare an adequate Traffic Management Plan (TMP) in coordination with the Caltrans District Traffic Management (DTM), Division of Traffic Operations before the start of any work that may affect traffic. The Consultant shall request lane closure numbers in accordance with the procedures specified in the Encroachment Permit Projects

Traffic Control Procedures” which is found at the following web site:

[http://www.dot.ca.gov/hq/traffops/developserv/permits/encroachment\\_permits\\_manual/index.html](http://www.dot.ca.gov/hq/traffops/developserv/permits/encroachment_permits_manual/index.html). The Consultant shall use the “Request for Transportation Management Plan Datasheet” to request all lane closures necessary to complete the work. The Consultant shall submit the Request for Transportation Management Plan Datasheet to the Caltrans Contract Manager and the Caltrans Task Order Manager for review and approval. Once the Caltrans Contract Manager and the Caltrans Task Order Manager have reviewed the lane closure request, the Consultant shall then fax the “Request for Transportation Management Plan Datasheet” (see Appendix E on [http://www.dot.ca.gov/hq/traffops/systemops/tmp\\_lcs/index.htm](http://www.dot.ca.gov/hq/traffops/systemops/tmp_lcs/index.htm)) to Caltrans' Division of Traffic Management (DTM). Additional time beyond the minimum seven (7) days advanced notice may be required for obtaining traffic control approval.

- xiii. Any damage caused by the Consultant to existing facilities, landscaping or irrigation within Caltrans' right-of-way shall be replaced in kind by the Consultant at the Consultant's sole expense.
- xiv. Unless otherwise specified in a Lane Closure Chart(s) and/or approved by the District Traffic Manager, Traffic Control shall occur only between 9:00 am and 3:00 p.m., Mondays through Friday except for holidays.

O. Orientation Provided by Caltrans

Caltrans may provide orientation regarding the requirements for this Contract and each Task Order as deemed necessary by Caltrans. The orientation may consist of instructions on Caltrans procedures, practices, and requirements for the specific work to be performed and sharing of project related files and notes. However, if the orientation instructions conflict with the contract or task order requirements, the Contract and the executed Task Order shall prevail over any instructions provided.

P. Monitoring and Review Procedure

- 1. The Caltrans Contract Manager shall have the unilateral right to monitor and review the progress and processes of the Consultant related to work performed under this Contract.
- 2. The performance of the Consultant Contract Manager, key personnel, and team shall be evaluated by the Caltrans Contract Manager, as needed, but no less

frequently than annually, and at the expiration of the Contract. Unsatisfactory reviews of specific consultant personnel may result in Caltrans request to replace the existing Consultant personnel with new personnel; the Consultant shall immediately replace personnel with individuals whose qualifications at a minimum equal those of the personnel replaced at no additional cost to Caltrans. Evaluation includes, but not be limited to, the following:

- a. Job performance.
- b. Quality of Work.
- c. Timely submittal of reports, invoices, and other required documents.
- d. Early detection of problems and timely resolutions.
- e. Requesting timely approval for personnel changes and travel expenditure.
- f. Responsiveness and ability to control costs.
- g. DBE Participation.
- h. Conflicts of interest.

Poor performance and any negative evaluations may result in replacement of the Consultant Contract Manager and/or key personnel; the need to replace key personnel shall reflect adversely on the Consultant's performance evaluation, and if warranted, may result in the termination of the Contract per Exhibit D, Section III, Termination of the Contract.

Q. General Materials to be Provided or made available by Caltrans

Materials (if deemed applicable, necessary, and when available from Caltrans) that may be furnished or made available by Caltrans and where listed in the individual Task Orders and this Contract, are for the Consultant's use only, shall be returned at the end of the Contract. The Consultant shall use the materials in the execution of the specific work described in the Task Order. These materials may include, but not be limited to, the following:

1. Appropriate background or reference information for each Task Order.
2. Project special provisions, full-size and reduced-size sets of project plans, materials information handout, and construction contract and proposal, as necessary.
3. Caltrans standardized forms.
4. Caltrans shall provide Permits to Enter for private property access. The Consultant shall notify Caltrans, in writing, sufficiently in advance of its need to enter upon private property or facility to perform work. The Consultant's notice shall specify the date, purpose, duration, location, and the time of day of the Consultant's activities. The Consultant shall not perform work on property

outside of the Caltrans right-of-way until Caltrans has obtained an entry permit from the property owner. The Consultant is responsible for notifying the property owner 48 hours in advance of entering the property, unless otherwise specified in the Permit. The Consultant shall notify the Caltrans Contract Manager within 48 hours if permission has been denied. The Consultant personnel shall carry the Permits to Enter on their person while performing work outside the Caltrans Right-of-Way. No work shall be performed by the Consultant outside the Caltrans Right-of-Way without Permits to Enter. The Consultant shall comply with all conditions imposed by the Caltrans Contract Manager and requirements set forth in the Permit to Enter. The Consultant shall be responsible for any damages that consultant did to owner property at Consultant's own expense.

5. Appropriate background information, site topographic maps, as-built drawings, blank Caltrans plan sheet overlays, electronic seed files, cell libraries, lane closure request forms, right-of-way alignments and survey limits, preliminary utility location maps, areas where focused studies are needed, Construction Contract Documents, and Shop Drawings, as available, for each Task Order.
  6. Electronic templates of Task Order formats.
  7. For Contract work on Caltrans' Right-of-Way, an executed contract constitutes the consultant's "Encroachment Permit." The consultant (prime as well as any subconsultants) shall carry a copy of the fully executed contract along with the pertinent Task Order(s) at all times while conducting work for Caltrans within Caltrans' Right-of-Way.
  8. All pertinent correspondence and investigations.
  9. The Caltrans Contract Manager may designate a Caltrans Task Order Manager to manage the technical aspects of the Task Order or each specific Task Order.
  10. The Caltrans Contract Manager or Caltrans designee shall review all deliverables for compliance, substance, and quality.
- R. Hazardous Waste Site Investigation and Design Materials to be Provided or made available by Caltrans

Relevant and existing documents, if any are available, that are applicable to the current project within the project limits.

Note: The Consultant is responsible for the return to Caltrans, in original condition, of all items provided for use under this Contract. The Consultant shall replace, at the Consultant's sole expense, all lost or damaged Caltrans data or materials.

S. Materials to be Provided by the Consultant

Unless otherwise specified in this Contract, the Consultant shall provide all materials to complete the required work in accordance with the delivery schedule and cost estimate outlined in each Task Order.

1. The Consultant shall be responsible for obtaining all necessary approvals and permits for Task Order work performed on any property that Caltrans does not own or control, with the exception of private property. The Consultant shall identify all necessary approvals and permits, prepare signature-ready permit applications, and track the status of permit applications, as specified in each Task Order.
2. When performing work within Railroad Company property, the Consultant is required to obtain sufficient and/or adequate insurance coverage that shall comply with the Railroad Company's requirements when performing work within their jurisdiction. The amount of insurance and types of coverage required by the Railroad Company may be above and beyond that required by Caltrans. The Consultant may be required to provide additional Railroad liability insurance including, but not limited to:
  - a. Commercial General Liability Insurance.
  - b. Business Automobile Coverage Insurance.
  - c. Worker Compensation and Employers Liability Insurance.
  - d. Railroad Protective Liability Insurance.
  - e. Umbrella or Excess Insurance.
  - f. Pollution Liability Insurance.

T. Product Approval and Payment

1. All analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items produced by the Consultant in the performance of this Contract, shall be subject to the approval and acceptance by the Caltrans Contract Manager prior to invoicing and payment for these items.
2. All of the deliverables and tasks provided for acceptance under each Task Order shall comply with the terms, covenants and conditions of this Contract.
3. Upon completion of each deliverable or task, the Caltrans Contract Manager shall either accept or reject the completed work. In the event of non-acceptance due to

errors, omissions, or non-compliance with the Caltrans Manuals, as revised as of the time of the Task Order, or the provisions of this Contract, the Consultant shall remedy the errors, omissions, or non-compliance to the satisfaction of the Caltrans Contract Manager at no cost to Caltrans. Caltrans shall withhold payment until the work is satisfactorily completed and approved by the Caltrans Contract Manager.

4. Caltrans shall not pay the Consultant for the Consultant's work under this Contract and the charges incurred by the Consultant that does not conform to the requirements specified in this Contract and to the applicable Task Order, and shall be corrected at the Consultant's sole expense at no additional cost to Caltrans.
5. All reviews, inspections and approvals made prior to the final acceptance of deliverables or Task Orders are intended only to provide interim authorizations to proceed and do not constitute final approval of the deliverable or Task Order.
6. Notwithstanding any other provision of this Agreement, until final acceptance of a Task Order under the Agreement, any acceptance or approval means approval to proceed, but it does not mean acceptance or approval of a deliverable or task, and, it does not reduce or eliminate any of Contractor's duties or responsibilities under this Agreement.

#### U. General Deliverables

All deliverables, intermediate work products, and original documents including, but not limited to, original field notes, photographs, reports, documents, plans, data, data files, edits to field data, adjustment calculations, final results, drawings, specifications, estimates, studies, record search, records, books, maps, manuscripts, manuals, electronic software developed, databases, background information, spreadsheets, procedural scripts, macros developed, and intellectual properties, developed pursuant to this Contract, shall be subject to the provisions of Exhibit D, sections XX, Owner Of Data, and XX, Claims File by Caltrans Construction Contractor, and shall be sent to Caltrans upon completion of each Task Order deliverable and acceptance/approval of the work by the Caltrans Contract Manager or immediately upon request by the Caltrans Contract Manager. The Consultant shall retain a copy of all documents furnished to Caltrans until expiration of the Contract.

Unless otherwise specified in the Task Order, the deliverables shall conform to the following:

1. Data Format for Unprotected and Modifiable Electronic File Transfers.

The Consultant shall deliver unprotected and modifiable electronic files as specified in each Task Order

2. The Consultant shall work in close liaison with the Caltrans Contract Manager. Time is of the essence. Caltrans shall exercise review and approval functions through the Caltrans Contract Manager at key points, as specified in each Task Order. Milestone reviews shall be performed with the Caltrans Contract Manager for the specific performance, products, and deliverables listed in each Task Order.
3. The Consultant shall prepare a cost estimate showing task, subtask, personnel, personnel hours estimated for each task or subtask, and a schedule of deliverables.
4. All analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract shall be prepared on Caltrans standardized forms. Necessary forms shall be provided by Caltrans for the Consultant's use.
5. All analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract shall be submitted in both hardcopy and unprotected and modifiable electronic files in the Caltrans-approved forms and in the Caltrans-approved and designated electronic formats (Microsoft Word, Microstation, , AutoCAD Civil 3D, PhotoShop, 8 1/2 x 11 in green, plastic, three ring binder), in accordance with the guidelines in this Contract and each Task Order, and shall conform to Caltrans standards and the requirements of the Caltrans Office Engineer at the end of Contract or when requested by the Caltrans Contract Manager or Caltrans designee. The unprotected and modifiable electronic files shall include the responsible person's electronic signature and seal. The Consultant shall verify the latest version of software used prior to submittal. The Consultant shall also provide plot parameter (.par) or IPARM (.i) files in accordance with I-Plot standards.
6. The Consultant shall also submit one (1) unprotected and modifiable electronic copy of all analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract in a specified digital device format (CD, DVD, and/or flash drive). The file formats shall be specified in each Task Order. Appropriate documentation shall accompany each digital device indicating the contents of each file.

7. When the Consultant is required to prepare and submit analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract and any approved Task Order to Caltrans, these documents shall be reviewed. They shall be submitted in draft as scheduled and the opportunity provided for Caltrans to provide comments and feedback, prior to final submittal. The specific schedule for Caltrans' review of the Consultant's submittals shall be specified in the Task Order.
8. If the Consultant fails to submit the required analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract and any approved Task Order, Caltrans shall have the right to withhold payment and/or terminate this Contract in accordance with the termination provisions of this Contract per Exhibit D, Section III, Termination. If the Contract is terminated, the Consultant shall, at Caltrans' request, return all materials recovered or developed by the Consultant under the Contract including, but not limited to, photos, field notes, computer data files, maps, artifact collections, catalogs, analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract.
9. For each Task Order, a milestone submittal schedule shall be prepared by the Consultant and approved by the Caltrans Contract Manager. Milestones may be changed by written agreement between the Caltrans Contract Manager and the Consultant Contract Manager through an amendment to the Task Order.
10. The Consultant shall prepare and update the Caltrans Work Breakdown Structure (WBS) as set forth in this Contract for each Task Order issued by the Caltrans Contract Manager showing a deliverables schedule. It is expected that the Consultant shall complete and meet the agreed upon schedule for each Task Order. Failure to complete the work based on the agreed upon schedule in the Task Order may result in termination of the Task Order or this Contract. Caltrans may have work completed in any way allowed by law, for which the Consultant shall be liable for any additional costs incurred by Caltrans to complete the work. Such costs may be deducted from amounts due to the Consultant in pending or future invoices, or if the Contract is terminated, may be recouped by any means allowed by law.
11. The Consultant shall maintain a separate complete set of project files for each Task Order issued by the Caltrans Contract Manager performed under this

Contract. The Consultant shall maintain two sets of these files. One set shall be maintained on site with the Consultant and the other set shall be updated by the Consultant monthly and delivered to the Caltrans Contract Manager and the Caltrans Task Order Manager. These files shall be indexed in accordance with Caltrans' Project Development Uniform File System ([http://www.dot.ca.gov/hq/oppd/pdpm/chap\\_pdf/chapt07.pdf](http://www.dot.ca.gov/hq/oppd/pdpm/chap_pdf/chapt07.pdf)). These files shall be made available to the Caltrans Contract Manager during normal working hours and shall be transferred to Caltrans upon completion of work under the Task Order. If requested by the Caltrans Contract Manager, the Consultant shall provide these project files.

12. Deliverables specified in each Task Order shall be delivered to the attention and address indicated in each Task Order.
13. The Consultant shall be capable of working in either English or Metric units.
14. All deliverables shall be prepared in Imperial English Units unless an exception is approved. The units to be used for deliverables shall be addressed within individual Task Orders.
15. A Task Order may require the Consultant to use software and electronic formats other than those indicated in this Contract as needed to accomplish the objectives of the Task Order.
16. Quality Control Plan:

Prior to the work, the Consultant shall prepare the quality control plan and the minimum standard of work quality and obtain approval from the Caltrans Contract Manager, in effect for each and every Task Order during the entire time the work is being performed under the Contract. The Consultant shall complete the quality control plan and certify at the completion of work that all measures contained therein were satisfied. Caltrans shall perform quality assurance on the quality control plan to assure that quality control was satisfied.

The Consultant's quality control plan shall establish a process whereby:

- a. All deliverables are reviewed for accuracy, completeness, and readability before submittal to Caltrans.
- b. Calculations and plans are independently checked, corrected and re-checked.
- c. All job-related correspondence and memoranda are routed and received by affected persons and then filed in the appropriate Task Order file.
- d. Field activities are routinely verified for accuracy and completeness, such that any discovered deficiencies do not become systemic or affect the result of a Task Order deliverable.

The Consultant shall provide an outline of the quality control program before a specific task begins and shall identify critical quality control reviews within each Task Order. The Caltrans Contract Manager shall periodically request evidence that the quality control/quality assurance plan is functioning. All analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract submitted to the Caltrans Contract Manager for review shall be marked clearly as being fully checked or unchecked, and that the preparation of the material followed the quality control plan established for the work. The Quality Control/Quality Assurance (QC/QA) plan shall contain provisions for the development of appropriate "checklists" to maintain product quality and control. These "checklists" shall be delivered to the Caltrans Contract Manager with the QC/QA plan. The Consultant shall update these documents when directed by the Caltrans Contract Manager. Within thirty (30) calendar days of the Notice to Proceed (NTP), the Consultant shall submit to the Caltrans Contract Manager a job specific QC/QA plan and staffing plan.

17. Subject to Caltrans review, approval, and acceptance, the Consultant has total responsibility for and shall verify the accuracy and completeness of the analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract prepared by the Consultant or its Subconsultants for the projects as specified in this Contract and in each Task Order. All analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract shall be reviewed by Caltrans for conformity with project standards and the requirements in the Task Order and this Contract. The analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract are subject to Caltrans' review, approval, and acceptance. Reviews by Caltrans do NOT include detailed review or checking of major components, quantitative calculations, related details or accuracy of information. The responsibility for accuracy and completeness of such items remains solely that of the Consultant.
18. The Caltrans Contract Manager shall address all questions which may arise as to the quality or acceptability of deliverables furnished and work performed for this Contract.

19. Prepare the analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract in accordance with prevailing industry standards and in a form acceptable to the Caltrans Contract Manager. These items shall identify the preparer, the designated reviewers, and the criteria for acceptance. The deliverables shall satisfy the Caltrans acceptance criteria and tests. The work product shall be complete, of neat appearance, well-organized, technically and grammatically correct, independently checked for error, checked by designated reviewers (Caltrans and Consultant Personnel), dated, and shall conform to industry standards and all applicable Caltrans, State, and Federal Standards, Requirements, and Procedures. All deliverables shall be approved by the Caltrans Contract Manager.

The minimum standard of appearance, organization, and content of analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product, data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract, shall be that of similar types produced by Caltrans and set forth in related Caltrans manuals.

#### V. Hazardous Waste Site Investigation and Design Deliverables

1. The Consultant shall obtain written approval from Caltrans for all deliverables, backup documents, other documents, and other items required by this Contract. If there are no Caltrans standardized forms, the format and content requirements for all deliverables, backup documents, other documents, and other items required by this Contract shall be specified in each Task Order.
2. All Hazardous Waste Site Investigation and Design Services deliverables, backup documents, other documents, and other items required by this Contract performed on computer shall be delivered to Caltrans including, but not limited to, the formats specified below:
  - a. Text-based documents shall be submitted as an Adobe Portable Document Format (“pdf”) file using Adobe Acrobat Professional version 5 or later software. The pdf file shall be inclusive of all graphics (e.g., page orientation, photographs or other images, charts, and tables) and be suitable for printing in final form. The pdf file shall:
    - i. Contain functioning bookmarks, indexes, tables of contents or other hyperlinks as required by the Task Order.

- ii. Be configured (e.g., bookmarks, indexes, table of contents, thumbnails, annotations, signatures, and security settings) as required, or as directed by the Task Order.
    - iii. Be optimized for use by Adobe Acrobat Reader 10 or newer.
  - b. Text-based documents shall also be submitted in Microsoft Word format, version 2007. The document shall include all graphics (e.g., photographs, image graphics, charts, and tables). Photographs shall be in “jpeg” file format. Other image graphics shall be in “gif” format unless otherwise specified.
  - c. All graphics (e.g., photographs or other drawings) shall be submitted separately from the pdf and Microsoft Word documents in archive-type file formats (e.g., photographs and bitmapped drawings as “tif”, Microstation drawings as “dgn”, and vector drawings as “ai”) unless otherwise specified. The intent of this section is for the Consultant to provide Caltrans with a copy of each graphic in an uncompressed file format for archive purposes. The Consultant may suggest alternative formats that are compatible with this goal.
  - d. Spreadsheet files shall be submitted in Microsoft Excel format, version 2007.
  - e. Word processing files shall be submitted in Microsoft Word format, version 2007.
  - f. Database files shall be submitted in Microsoft Access format, version 2007.
  - g. The Consultant shall not format electronic files as “view only” or “read only” unless so specified in the Task Order.
  - h. Other - As specified in the Task Order.
- 3. Engineering CADD plot files shall conform to the requirements of Caltrans standards and requirements in this Contract or as specified in the Task Order.
- 4. As part of the work involved in the preparation of the plans, specifications, estimates (PS&E) and reports), the Consultant shall prepare and furnish work in conjunction with the most recent Caltrans special provisions for items of work for possible inclusion in the plans, which are not currently covered by the "Standard Specifications" and Caltrans approved Special Provisions.

W. Task Order

- 1. The Caltrans Contract Manager has the sole authority and responsibility to make amendments and revisions to the scope, schedule, cost or deliverables in a Task Order.

2. Specific projects will be assigned by the Caltrans Contract Manager to the Consultant through issuance of Task Orders describing in detail the services to be performed. Caltrans shall provide to the Consultant electronic templates of Task Order formats and required standard provisions. See sample Task Order format, Attachment 3.
3. After a project to be performed under this Contract is identified by Caltrans, Caltrans shall prepare a draft Task Order, and a separate cost estimate. The draft Task Order shall identify (with specificity):
  - a. The purpose or goal of the Task Order, including the duties (if any) that is identified with Caltrans Work Breakdown System/Work Breakdown Structure (WBS) activity codes.
  - b. The scope of services.
  - c. The Expected results.
  - d. The Project deliverables.
  - e. The performance criteria or performance tests for the services (which demonstrate that the project deliverables and schedule to submit deliverables satisfy the purpose or goal of the Task Order).
  - f. The performance period, the Task Order term, project schedule, and/or due dates for milestones/deliverables.
  - g. Any milestone or tollgate deliverables (including, but not limited to, any deliverables that shall be delivered and accepted prior to subsequent work being performed).
  - h. Identification of the following information: Contract Number, name of the Caltrans Contract Manager, Task Order Number, and name of Requester.
4. Task Order Assignment Process:
  - a. The draft Task Order shall be delivered to the Consultant for review. The Task Order shall identify the Caltrans Project Manager. The Consultant shall return the draft Task Order to the Caltrans Contract Manager within no more than three (3) calendar days after receipt unless the time frame is extended by the Caltrans Contract Manager. The draft Task Order returned to Caltrans shall clarify the purpose or goal, deliverables, expected results, and project schedule, or other items.
  - b. The Consultant shall also provide a cost estimate, including, at a minimum, the names of the individuals proposed for work on the individual tasks, the individuals' classifications, the duties the individual shall perform along with the Caltrans activity codes (WBS) for such duties, a written estimate of the number of hours per staff person under each duty or activity, any anticipated reimbursable expenses, an estimate of DBE utilization under the individual task, and total dollar amount shall be based on rates in Attachment 2, Cost Proposal of the Contract. The cost estimate shall be in the format prescribed in the draft Task Order.

- The Consultant agrees that each cost estimate shall be the product of a good faith effort exercise of engineering judgment.
- c. Task Orders may be negotiated for a Firm Fixed Price or for specific rates of compensation, both of which must be based on the labor and other rates set forth in the Consultant's Cost Proposal, Attachment 2.
  - d. After agreement has been reached on the negotiable items, the finalized Task Order shall be signed by both Caltrans and the Consultant. If Caltrans and Consultant are unable to reach agreement, Caltrans may terminate the Contract in accordance with the provisions of Exhibit D, entitled "Termination." Task Orders are not valid until approved by Caltrans and subsequently signed by both parties. No payment shall be due or made for any work performed on an unsigned Task Order, and Caltrans shall not pay for any work described on the unsigned Task Order.
  - e. Once the parties reach agreement, each Task Order shall be signed first by the Consultant Contract Manager, and subsequently, by the Caltrans Contract Manager, the Caltrans Functional Manager, and the Caltrans Task Order Manager. A Task Order is of no force or effect until returned to Caltrans and signed by an authorized representative of Caltrans.
5. The Consultant shall only perform work that is authorized and described in a written Task Order ("TO") that has been signed by the parties and approved by Caltrans. No expenditures are authorized nor shall work commence until a Task Order for that project has been executed and approved by Caltrans, and notification to proceed has been issued by the Caltrans Contract Manager. No payment shall be made for any work performed prior to approval or after the expiration date for the Task Order.
  6. If the Consultant fails to satisfactorily complete a deliverable according to the schedule set forth in a Task Order, no payment will be made until the deliverable has been satisfactorily completed.
  7. The schedule for Task Orders shall be identified in the Task Order. No Task Order will be written which extends beyond the expiration date of this Contract.
  8. The total amount payable by Caltrans for an individual Task Order shall not exceed the amount set forth in the Task Order. Task Orders and/or Task Order Revisions require written agreement by the Consultant and Caltrans and approval by the Caltrans Contract Manager.
  9. If applicable, when a subsequent agreement for the same or similar scope of work is executed within three (3) months prior to the termination of this Agreement, no additional Task Orders shall be executed under this Contract upon the effective date of the subsequent agreement.

10. Task Orders may not be used to amend this Contract and may not exceed the scope of work under this Contract.
11. Other information may be included at the request of the Caltrans Contract Manager.
12. All personnel to be used in the Task Order (by name or job classification) shall only be among those identified in the Consultant's Cost Proposals unless a substitution of personnel has been approved in advance by the Caltrans Contract Manager as set forth in the "General Requirements" section.
13. At the Caltrans Contract Manager's direction, the Caltrans Task Order Manager shall assist the Caltrans Contract Manager in monitoring and verification of Consultant's performance and deliverables. The Caltrans Contract Manager shall have the ultimate responsibility and authority to verify Consultant's performance, cost, schedule, and deliverable, and verification that the acceptance and performance criteria and/or performance tests are satisfied. The Caltrans Contract Manager shall verify that the acceptance and performance criteria and/or performance tests are satisfied prior to written acceptance for payment.
14. The following shall apply to negotiated Task Orders:
  - a. The Consultant employee's headquarters and/or primary residence as defined in the Caltrans Travel Guide shall be identified in the Task Order for travel purposes or for the purpose of determining appropriate travel reimbursement.
  - b. Transportation and subsistence costs to be reimbursed shall be the actual costs incurred, but not to exceed the rates stipulated in the Department of Transportation "Caltrans Travel Guide, Consultant/contractors Travel Policy".
  - c. See: <http://www.dot.ca.gov/hq/asc/travel>
  - d. The Caltrans Contract Manager's prior written approval is required for all domestic or international travel.
15. Provided there is a signed and valid Task Order, the Consultant shall be reimbursed for actual hours worked at the hourly rates specified in Attachment 1, Cost Proposal. The specified hourly rates shall include direct salary costs, employee benefits, and overhead. In addition, the Contractor will be reimbursed for actual direct costs, other than the hourly and other costs described above, that are identified in an executed Task Order. Provided the Contract expressly permits for such reimbursement, reimbursement for transportation and subsistence costs shall not exceed the rates to be paid non-represented/excluded State employees under current State Department of Personnel Administration rules detailed in the

Caltrans Travel and Expense Guide; and if the Contract does not expressly permit for reimbursement, no reimbursement shall be made.

16. Consultant shall notify Caltrans at least forty-eight (48) hours before fieldwork is to begin, unless otherwise specified in the Task Order.
17. Schedule of Performance and Time Requirements/Task Order Schedules
  - a. Task Orders shall be issued and executed throughout the duration of this Contract. Task Orders shall be completed in the timeframe identified in the Task Order and prior to the expiration of the Contract.
  - b. Caltrans and the Consultant shall develop and agree to a schedule for the services and deliverables to be completed and delivered, and where appropriate, for acceptance criteria and acceptance tests that the services and deliverables must satisfy as a prerequisite for approval by Caltrans. All deliverables shall satisfy the Standards set forth in “Standards” Section in order to be accepted for payment.
  - c. Services and deliverables identified in a Task Order shall be completed and delivered in the time required by the respective Task Orders and in accordance with the terms of this Contract.
18. Additional standards for specific work may be included in the Task Order. If such additional standards conflict with the standards specified in this Contract, the standards specified in this Contract shall prevail over the Task Order standards.
19. Consultant shall make every effort to choose the most cost effective alternatives in performing the work under this Contract. Utilizing the most cost-effective alternative includes, but not be limited to, personnel assignments, overtime, travel, per-diem and any reimbursable Other Direct Cost items. Cost effectiveness without sacrificing quality is of paramount importance.

X. Conflict of Interest

1. All Hazardous Waste Site Investigation and Design Services provided by the Consultant and deliverables produced by the Consultant shall be free of any conflict of interest and shall be subject to the approval and acceptance of the Caltrans Contract Manager. The consultant shall inform the Caltrans Contract Manager of any ‘perceived’ conflict of interest as soon as discovered.
2. The Consultant shall not receive compensation for all services in which the Consultant is found to have a conflict of interest. In the event of non-acceptance

due to discovery of conflict of interest, the Consultant shall provide replacement deliverables free of any conflict of interest prior to payment. In the event replacement deliverables are not possible, the Consultant shall not receive compensation for the deliverables containing conflict of interest. Examples of conflict of interest include, but not be limited to, the following:

E.g. Consultants who perform design and produce PS&E for hazardous waste remedial/removal/clean-up projects shall not perform actual hazardous waste remediation/clean-up services for the same project.

The above conflict of interest scenario is only a sample of a conflict of interest for the services provided under this Contract, but is not intended to describe all circumstances for potential or actual conflicts.

Y. Licenses and Permits

1. The Consultant shall be an individual or firm licensed to do business in California and shall obtain at its expense all license(s) and permit(s) required by law for accomplishing any work required in connection with this Contract.
2. If the Consultant is located within the State of California, a business license from the city/county of the Consultants headquarter is necessary however, if the Consultant is a corporation, a copy of the incorporation documents/letter from the Secretary of State's Office can be submitted.
3. In the event any license(s) or permit(s) expire at any time during the term of this Contract, the Consultant agrees to provide Caltrans with a copy of the renewed license(s) or permit(s) within 30 days following the expiration date. In the event the Consultant fails to keep in effect at all times all required license(s) and permit(s), Caltrans may, in addition to any other remedies it may have, terminate this Contract upon occurrence of such event, per Exhibit D, Section III, Termination of the Contract.

Z. Detailed Scope of Work

The instruction contained in this Scope of Work and the applicable Task Order shall take precedence over any conflicting instructions found in the manuals listed under this Contract.

All work shall be prepared in English units, unless otherwise specified in a Task Order.

The Scope of the Work may include, but not be limited to, the following:

1. Health & Safety:

Conditions expected during Phase I Environmentally Sensitive Area (ESA) or Initial Site Assessment (ISA) field work and site investigations and/or sampling/removal field work should not pose health and safety problems. However, if conditions in the subject area warrant health and safety considerations, the Consultant shall identify the issues and how they shall be addressed at the Task Order negotiation period, in a work plan, and Task Order meeting prior to start of work. The Consultant shall notify the Caltrans Contract Manager or Caltrans designee in writing at a minimum one (1) week before it begins any investigative or field work.

All elements of the site investigation shall meet standards set by Local, State, and Federal regulatory agencies. The Caltrans Contract Manager or Caltrans designee shall approve deviations from standards in advance, and in writing. The investigative techniques (drilling methods, sampling plan and sample handling procedures, and analytical methods and equipment) shall be procedurally acceptable to the regulatory agencies. See special provision in the Special Provisions Section, SP-4: Health and Safety for more information.

2. Field Review

The Consultant shall conduct a field survey for potential hazardous waste sites of all parcels of land within and adjacent to the project site/proposed right-of-way as specified in the Task Order.

It is not necessary to confirm the actual presence of hazardous waste in soil or groundwater during the ISA.

3. Owner/Regulatory Coordination and Contacts

The Consultant shall only contact property owners/operators as directed by the Caltrans Contract Manager or Caltrans designee. The Consultant shall coordinate with other agencies, including, but not limited to, United States Federal Environmental Protection Agency (U.S. EPA), California Environmental Protection Agency (Cal-EPA), California Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), local environmental health agency, utility companies, and others as necessary to complete the Hazardous Waste Services required by this Contract. Contact with other agencies shall only be made at the direction of the Caltrans Contract Manager or Caltrans designee. The Caltrans Contract Manager or Caltrans designee shall notify and invite the Consultant to all regulatory agency meetings related to this Contract. All written correspondence with regulatory agencies

written for Caltrans shall be submitted to the Caltrans Contract Manager or Caltrans designee for approval and signature and shall only be sent to the agencies by Caltrans. Consultant shall maintain a record of contacts and provide it to Caltrans at a minimum on a monthly basis. The record shall include the name of the person contacted, date of the contact, location where the contact was made by phone or in person, the subject matter/purpose of the contact, outcome of such contact and the dates of contacts. Consultant shall provide the record of contacts to Caltrans.

4. GIS Database

Caltrans Headquarters Division of Environmental Analysis has developed a Hazardous Waste GIS Database to track project-level data. The Consultant shall incorporate Aerially Deposited Lead data into the GIS database to provide ready access data. Data shall be entered into a Microsoft Excel spreadsheet provided by Caltrans. The Microsoft Excel data shall then be imported into the Microsoft Access database.

5. Records Review

Hazardous Waste and Substances Sites List (known as the Cortese list) contains FINDS, CALSITES, HWIS, LTANK, SWRCB, UTANK, SWIS, AGT25, and A1025. However, the individual agency's lists may be updated more frequently. The Consultant shall review the following published lists of hazardous waste sites:

- a. United States Environmental Protection Agency (U.S. EPA).
  - i. NPL - National Priority List.
  - ii. FINDS - Facility Index System.
- b. California Environmental Protection Agency (Cal EPA).
- c. California Department of Toxic Substances Control (DTSC).
  - i. CALSITES - Abandoned Sites Program Information System.
  - ii. HWIS - Hazardous Waste Information System.
  - iii. ENVIROSTOR database
- d. California State Water Resources Control Board.
  - i. LTANK - Leaking Underground Storage Tanks.
  - ii. SWRCB - Waste Discharger System.
  - iii. UTANK - Underground Tanks.
- e. California Integrated Waste Management Board/Department of Resources Recycling and Recovery (CalRecycle).
  - i. SWIS - Solid Waste Disposal Facilities.
- f. California Air Resources Control Board.
  - i. AGT25 - Dischargers of criteria air pollutant (>25 tons).
  - ii. A1025 - Dischargers of criteria air pollutants (10 to 25 tons).
- g. County/City Department of Environmental Health for each county/city.

- h. California Regional Water Quality Control Board (RWQCB) (lists, reports, violations & permits).
  - Geotracker database (contains Underground Storage Tanks (UST), Leaking Underground Storage Tanks (LUST), Report of Waste Discharge, Spills, Leaks, Investigation, and Cleanup (SLIC) database, Landfill Disposal Sites, and Groundwater Monitoring Well data).
- i. Caltrans (right-of-way maps, aerial photos spill records, and/or 'as-built' map files).
- j. Sanborn Fire Insurance Maps - indicates uses of properties at specified dates.
- k. Aerial photograph repositories - allow for identification of historical development of site activities.
  - i. United States Geological Survey 7.5 Minute Topographic Maps provide basis for establishing site location and topographic information.
- l. When requested in the Task Order, the Consultant shall also research the records and information sources as follows:
  - i. Office of Emergency Services (hazardous materials management plans).
  - ii. California Department of Water Resources (maps, well logs, and files).
  - iii. California Department of Conservation, Division of Oil and Gas (maps, oil survey maps, well logs, and files) and California Geological Survey (geologic hazards).
  - iv. Environment Affairs Agency Office of Hazardous Materials Data Management/Superfund Amendment and Reauthorization Act (SARA) Title III, Section 313.
  - v. Local health departments (site lists, permits, and reports).
  - vi. Local fire departments (emergency response activities and hazardous materials storage, business license, plans, site lists, permits, and reports).
  - vii. County Recorder's Office (parcel maps and files).
  - viii. County Tax Assessor's Office - Title records, environmental liens or activity and use limitations (deed restrictions).
  - ix. County Court House (maps and files).
  - x. Utility companies (maps, plans, records).
  - xi. Air Pollution Control District (database).
  - xii. Real estate records.
  - xiii. Property Title Searches.
  - xiv. Other databases including, but not limited to, FirstSearch, Environmental Data Resources, and Vista.

Records on the above lists shall be reviewed to determine past and present land uses and to identify known or potential hazardous waste sites on parcels of land within and adjacent to the proposed right-of-way as specified in the Task Order. The Consultant shall research the entire period extending to when the land was undeveloped or agricultural.

The Consultant shall review published data from the United States Geological Survey (USGS), State, and other available maps and reports in order to compile a general geologic map and general hydrologic profile of the right-of-way.

6. Historic Research and Report

When requested as part of the Task Order the Consultant shall research appropriate sources of historic information to identify historic land uses within the project area and identify those that used hazardous materials and/or may have generated hazardous waste. Sources including, but not limited to, the following shall be researched, as appropriate:

- a. Historic maps.
  - i. Sanborn maps.
  - ii. United States Geodetic Survey maps.
  - iii. Flood control maps.
  - iv. Oil survey maps.
- b. Photographs.
- c. City directories.
- d. State, City and County libraries.
- e. County Recorder's office.
- f. Business License and other business records.
- g. Planning departments.
- h. Newspapers.
- i. State Archives.
- j. Historical Societies.
- k. Public documents.

The Consultant shall research and analyze material gathered from such sources and prepare a report describing the research and results, focusing on those land uses that were likely to result in the deposit of hazardous waste.

Historic research and reporting are to be undertaken by personnel with minimum qualifications of a Bachelor Degree in History and demonstrated competence in local history, primary document and historic land use research.

7. General Site Investigation Requirements

The Consultant shall complete the following requirements:

- a. Perform all work in accordance with a site-specific Health and Safety Plan.
- b. Provide well construction design, acquire drilling permits, and check for utilities and other underground obstacles including, but not limited to, water, electric, gas, and sewer lines. See special provision in the Special Provisions Section, SP-15: Underground Services Alert (USA) for more information.
- c. Ensure that all necessary equipment and materials are present at the site and in good operating condition at the beginning of each workday. The Consultant shall supply backup equipment, as needed on-site for each job. This includes, but not be limited to, extra drill bits, auger flights, cables, fuel, and soil sampling equipment.
- d. Have, or be able to obtain, all the personnel, energy sources, equipment and materials necessary to comply with the provisions of this Contract throughout the contract term. The Consultant's (or Subconsultant's) personnel shall hold all appropriate California Contracts State License Board licenses including, but not limited to, C-57 and/or C-61 licenses.
- e. Obtain all necessary regulatory and/or Caltrans' permits, including encroachment permits. (See special provision in the Special Provisions Section, SP-11: Right of Entry and SP-12: Encroachment Permits for more information.)

8. Basic Work Plan Preparation

The Consultant shall prepare a basic work plan that describes means of accomplishing the Scope of Work outlined in the Task Order. The work plan shall include maps of proposed sampling locations, sampling and analysis methodology, work scheduling, plans for accomplishing the work and for disposing of drill cuttings and any other wastes. The Consultant Task Order Manager shall sign the work plan. The Consultant shall provide a draft work plan for the Caltrans' Contract Manager to review and comment upon prior to commencing field work. The final work plan shall address all Caltrans comments and shall be resubmitted for final approval by the Caltrans Contract Manager or Caltrans designee. Caltrans may prepare a Work Plan in lieu of having one prepared by the Consultant or specify the scope of work in the Task Order. Caltrans Work Plan shall be attached to or included in the Task Order.

9. Site-Specific Work Plan Preparation

In more complex situations, a specific project may require development of a detailed site investigation work plan. The work plan developed by the Consultant shall include:

- a. Preliminary scoping of investigation includes any available ISA information (See "Initial Site Assessments" section).

- b. Review of available information on the site and vicinity.
- c. Site visit and review.
- d. Evaluation of available area groundwater data.
- e. Evaluation of available area geology data.
- f. Investigation strategy and rationale for number and location of borings, number of borings, and sample analysis.
- g. Revision of site investigation objectives as necessary.

The Consultant shall provide a draft work plan for the Caltrans Contract Manager to review and comment prior to commencing field work. The final work plan shall address all Caltrans comments and shall be resubmitted for final approval by the Caltrans Contract Manager or Caltrans designee. Caltrans may prepare a Work Plan in lieu of having one prepared by the Consultant or specify the scope of work in the Task Order. Caltrans Work Plan shall be attached to or included in the Task Order.

Under the direction of the Consultant Contract Manager, appropriate professional personnel shall develop the work plan. Interpretation of geology, hydrogeologic, and/or hydrologic information shall be completed under the supervision of a California Registered Geologist and/or Certified Engineering Geologist. The Registered Geologist and/or Certified Engineering Geologist licensed in the State of California with Hazardous Waste Services experience that supervised the work shall sign the final work plan.

#### 10. Surface Water Sampling

Surface water sampling may be necessary to comply with the RWQCB National Pollutant Discharge Elimination System (NPDES) requirements.

- a. Surface water sampling shall be accomplished using grab sampling at locations and depths specified in the Task Order.
- b. Depending on the type of analysis, the sample bottles should be appropriate for the constituent, including, plastic (inorganic) or glass (organics), and certified pre-cleaned.
- c. All samples shall be collected and analyzed for the constituents as specified in the NPDES permit.

#### 11. Laboratory Sampling Handling Procedures for Aerially Deposited Lead (ADL) Investigation Samples

- a. Soil Sample Collection
  - i. Prior to obtaining surface samples, the location shall be cleared of debris and/or vegetation. Soil samples shall be obtained in an undisturbed state. ADL site investigations shall be conducted in

compliance with the requirements in the latest DTSC Variance (DTSC ADL Variance) requirements issued to Caltrans for management of ADL in soil. Contact the Caltrans Contract Manager or Caltrans designee to check and verify changes in the DTSC Variance (DTSC ADL Variance) requirements.

- ii. Samples shall be collected and preserved in accordance with the latest edition of U.S. EPA SW-846 Test Methods for Evaluating Solid Wastes, Physical and Chemical Methods. Ziploc® or use re-sealable plastic bags shall not be used as a substitute for industry-accepted containers.
- iii. The Chain-of-Custody (COC) documents shall be properly and legibly filled out with all the required information by the Consultant. COC forms shall meet the requirements of Section 3.9 (Documentation) of the most recent version of the State of California Environmental Chemistry Laboratory Users Manual included as a reference in the following website link:
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/1\\_06\\_UM.pdf](http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/1_06_UM.pdf)
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/2\\_06\\_UM.pdf](http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/2_06_UM.pdf)
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/3\\_06\\_UM.pdf](http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/3_06_UM.pdf)
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/4\\_06\\_UM.pdf](http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/4_06_UM.pdf)
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/5\\_06\\_UM.pdf](http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/5_06_UM.pdf)
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/6\\_06\\_UM.pdf](http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/6_06_UM.pdf)
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/7\\_06\\_UM.pdf](http://www.dtsc.ca.gov/AssessingRisk/ECL/upload/7_06_UM.pdf)
  - [http://www.dtsc.ca.gov/AssessingRisk/ECL/hml\\_users\\_manual.cfm](http://www.dtsc.ca.gov/AssessingRisk/ECL/hml_users_manual.cfm). (broken link)
- iv. The Consultant shall ensure that the requirements stipulated in the Task Order are met including, but not limited to, the sampling depth, sample relative location to freeway, Global Information System GIS) collection, approved statistical analysis, data evaluation, and construction staging data grouping.

b. Chemical Analyses

- i. ADL soil samples collected at the project site are not homogeneous. ADL tends to be very soluble and total lead levels as low as 100 mg/kg (ppm) to 150 mg/kg (ppm) may produce soluble lead levels greater than 5 mg/l, the soluble threshold limit concentration (STLC), using the California Waste Extraction Test

(WET). After the total lead analysis is run on a sample and it is determined that a soluble lead test is needed, it is very important to run a solubility test on soil/sediment that is representative of the original total lead test.

- ii. Each sample shall be homogenized adequately in the laboratory and/or in the field according to industry practice. It is the responsibility of the Consultant and its Subconsultants to ensure that soil samples are homogenized according to industry practice. An initial sample aliquot sufficient to cover the amount necessary for the total and a WET method analysis shall be taken. This aliquot shall be homogenized a second time and the total and soluble (if necessary) run on this aliquot. The homogenization process shall not include grinding the samples.
- iii. The soil samples shall be analyzed for total lead concentration for comparison with the Total Lead Concentrations (TTLC), using Federal United States Environmental Protection Agency (U.S.EPA) Method 6010 or 7000 series. When the total lead concentration is greater than, or equal to 50 mg/kg (ppm), the sample shall be tested for soluble lead for comparison with the STLC, using the WET.
- iv. The soluble lead analysis using a modified WET with de-ionized water as the extractant (Di-WET) shall be performed when the soluble lead result of the WET is at or above the regulated threshold of 5 mg/l (ppm).
- v. The Consultant shall ensure that the samples tested for soluble lead (WET) come from the parent sample used to test the total lead for comparison with the TTLC.
- vi. The Toxicity Characteristic Leaching Procedure (TCLP) shall be performed when the results of soluble lead using the WET Method is greater than 1000 kg/mg or the highest TTLC samples.
- vii. The laboratory and/ or the Consultant shall then compare the soluble versus total lead results for the sample set. There should be a high correlation factor using a regression analysis on the data. If the correlation is less than 80 percentile, the laboratory and/or the Consultant should re-examine the sample and determine if sample preparation may have caused the poor correlation and/or re-analysis is needed. If the laboratory and/or the Consultant determine that samples do not warrant the re-examination and analysis, a justification shall be documented in the report.
- viii. The Consultant shall ensure that additional testing including, but not be limited to, Toxicity Characteristics Leaching Procedures (TCLP), pH, and Title 22 metals are in compliance with the DTSC ADL Variance requirements.

c. Statistical Evaluation

Testing data obtained in environmental site investigation shall be statistically analyzed according to:

- i. A statistical analysis of laboratory results shall be provided in accordance with USEPA guidance documents (such as U.S. EPA ProUCL Methods (latest edition); “Test Method for the Evaluation of Solid Waste, Physical/Chemical Methods”, U.S. Environmental Protection Agency, SW-846 method, U.S. Environmental Protection Agency, 1987 (or latest edition) which is accessible at: <http://www.epa.gov/osw/hazard/testmethods/sw846/> (when the data set is not of sufficient size needed for ProUCL Method), Caltrans ADL Guidance Document; and/or the Task Order.
- ii. Normalizing Data and Handling Non-detects (for SW 846 Statistical Data Analysis)

Incorporate non-detects. The presence of non-detects in the lead analysis data may strongly skew sample data toward low values. Classical statistical methods do not work properly in these cases. Therefore, it may be necessary to transform the data in order to achieve normality. A natural log ( $\ln(x)$ ) transformation of the data allows calculation of upper confidence intervals for the mean. Departures from normality shall be checked using graphical representation such as a histogram. A histogram of the data set shall be developed to determine if the data are skewed and if transformation is necessary. If a data set is skewed, appropriate lognormal or nonparametric statistical methods shall be used, such as using the transformation procedures describe in U.S. EPA-ProUCL software (Summary Statistics option for data with NDs and data without NDs); SW 846; and an  $\ln(x)$  transformation and a new histogram developed to document the transformation. Upon transformation, normality of data needs to be re-checked. Other methods of transformation that may be necessary include the square-root, arcsine or power series transformation, which may be used when the natural log  $\ln(x)$  transformation does not yield a mean greater than the variance. The data obtained in environmental site investigation (including Aerially Deposited Lead [ADL]) is frequently nonparametric. If specified in the Task Order, the Consultant shall use the Nonparametric Bootstrap Method to evaluate test data in lieu of the statistical methods outlined in U.S. EPA SW-846.

- iii. The current version of USEPA's ProUCL software may be used to provide statistical evaluation of the sample population.
- iv. Analytical results for total and soluble lead shall have results below the method detection limits. Non-detect results should be numerically set at one-half the detection limit or estimated and all results used in calculations.
- v. Total lead levels are often below 50 mg/kg (ppm) and a follow up Waste Extraction Test (WET) analysis may not be necessary for all samples. Consequently, a project may have, for example, 30 total lead analyses and five (5) Waste Extraction Test (WET) analyses. Of the five (5) Waste Extraction Test (WET) analyses, three (3) may have lead levels, which exceed the regulatory limit for hazardous waste of 5 mg/l. In this case, three (3) out of 30 samples would not necessarily make the sediment next to the road a hazardous waste. On the other hand, a single very high lead level out of many samples may not be representative of the concentrations of lead in sediment at a project and would not be considered representative of the waste. Good judgment and documentation of the data and how it is used are very important. In general, all sample data should be considered and used when evaluating lead levels and determining if a material is hazardous, and/or if it meets the criteria for re-use within the Caltrans' right-of-way, as defined by a Variance issued by the California Department of Toxic Substance Control (DTSC) to Caltrans District for the handling ADL soils. The Consultant shall confer with the Caltrans Contract Manager or Caltrans designee prior to and during the statistical analysis if clarification is needed.
- vi. Correlation of Total and Soluble (ADL) Lead Data - Total lead (TTLC) and soluble lead (STLC) data are bivariate data with a linear structure. The plot of the data shows basically a straight-line trend except for some randomness. A lack of correlation usually means that the total and soluble constituent samples were not pulled from the same sample aliquot. The correlation coefficient may be used as a quality check of the data. A correlation/regression analysis shall be performed on the data comparing soluble constituent levels to total lead levels.

vii. Regression Analysis and Correlation Coefficient Calculation

- The following correlation coefficient formula (or equivalent) shall be used:

$$r = \frac{(\overline{XY}) - X \times Y}{S_x \times S_y} \times \frac{n}{n-1}$$

Where:  $\overline{XY}$  = the average of products or the average of each soluble lead level multiplied by the matching total lead level.

X = the soluble lead average.

Y = the total lead average.

Sx = the standard deviation of soluble lead.

Sy = the standard deviation of total lead.

n = the number of samples.

- Perform linear regression analysis, as required in Task Order, using soluble lead concentrations (STLC) and total lead concentrations (TTLC). The total lead concentration (TTLC) shall represent the independent variable (x), and the soluble lead concentration (STLC) shall represent the dependent variable (y).
- For the linear regression analysis the soluble lead levels vs. the total lead levels shall be graphed and a best-fit straight line shall be derived for the data set. A least squares method shall be used to estimate a straight line. This estimate is easily (and routinely) done by computer. The formula to be used for determining the least squares straight line shall be:
  - The slope of the line = (coefficient) x (standard deviation of the total lead)/(standard deviation of the soluble lead)
  - The intercept of the line = (average total lead concentration) - (line slope) x (average soluble lead level)
- Once the slope and the intercept are found, the line itself is known and may be plotted in the bivariate plot of the data.

This graph may be used to calculate the predicted solubility concentration from the average total concentrations.

- The regression analysis shall be direction based and shall consider the analytical results for all samples as one data set in the same direction.
  - The regression analysis should have a correlation (r-value) equal or greater than 0.8 (80 percentile). If the analysis indicates a correlation coefficient is less than 0.8, this shall be explained in the report or the sample procedures should be adjusted and the samples should be re-analyzed for both total and soluble lead concentrations. The best time to look at this data is at the laboratory where problems may be resolved quickly and within the Task Order schedule. The linear regression analysis shall be used to predict the soluble lead concentration (STLC) during the 90% and 95% Upper Confidence Limit (UCL) calculation.
- viii. Determine the data distribution and associated management of outliers. The appropriateness of any given method depends significantly on the distribution of the data being analyzed. The following three distributions are considered:
- Normal: the typical bell curve distribution.
  - Log-Normal: a positively skewed distribution.
  - Gamma: a distribution that looks similar to the log-normal distribution and is difficult to discern from the log-normal distribution for data sets with fewer than 50 samples.

If data follow one of these distributions, then application of a parametric statistical method may be appropriate. If the data do not follow one of these distributions, then a non-parametric method may be appropriate.

- ix. Upper Confidence Limit (UCL) Calculation
- General Consideration
    - The data shall be analyzed based on the proposed data grouping stipulated in the Task Order.
    - The primary statistical element used to classify ADL-impacted soils is the 95% upper confidence level (UCL) on the mean. Consultant shall select the appropriate method of calculating the 95% UCL, including parametric methods, which are dependent on the distribution of data, and non-

- parametric methods, which are independent of the distribution of data.
- The statistical analysis shall be evaluated for one-tailed 90% and 95% upper confidence limits (UCL). The two-tailed 80% confidence interval is equivalent to the one-tailed 90% UCL as explained in U.S. EPA SW-846 Manual, Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods.
  - The 90% UCL total lead, predicted soluble lead calculation, and DI-WET are used to determine the DTSC Lead Variance applicability or disposal characterization as hazardous waste.
  - The 95% UCL total lead and predicted soluble lead calculation are used for relinquishment to the contractor, or to determine handling and disposal of excess soil. Recommendation and conclusion shall be based upon the statistical analysis results for each group.
- 90% and 95% total (TTLC) and soluble lead (STLC) Upper Confidence Limits (UCLs)
    - 90% and 95% TTLC and STLC UCL calculation shall be performed using the transformed values in accordance with U.S. EPA ProUCL or SW-846 guideline (the calculations shall include the appropriate data transformation).
    - 90% total (TTLC) and soluble lead (STLC) UCL shall be performed to determine if the soil should be characterized as a California hazardous waste and DTSC ADL Variance applicability for on-site soil reuse option.
    - 95% total (TTLC) and soluble lead (STLC) UCL shall be performed to determine the excess soil relinquishment requirements and/or to determine the appropriate handling and disposal of excess soil in accordance with the Health and Safety Code and disposal facility's requirement.
    - Recommendations and conclusions shall be based on the results of the statistical analysis of each grouping as stipulated in this Contract or the Task Order.
    - The Consultant shall review and utilize the applicable provisions of the Caltrans Variance for re-use of soils containing aeriually deposited lead.

- Calculate 90% and 95% UCL for discrete and combined soil layers as appropriate, based on the characteristics of the sample population.
- If the UCL for TTLC is less than 50 mg/kg (ppm), then the calculation is complete.
- If the UCL for TTLC is greater than 50 mg/kg (ppm) (for all layers), analyzed as follows:
  - Step 1 - Proceed by eliminating the first layer (i.e. surface layer) and re-calculate the 90% and 95% TTLC UCL for this layer. Calculate the corresponding predicted STLC using the appropriate regression analysis equation.
  - Step 2 - Perform UCL calculation for the remaining combined layers (i.e. 1 foot + 2 feet + 3 feet, etc). Re-calculate the 90% and 95% TTLC UCL and the predicted STLC for the remaining combined underlying layers. If the UCL is still greater than 50 mg/kg (ppm) at the combined underlying layers, perform step 3.
  - Step 3 - Isolate the top 2 layers (i.e., surface and 1 foot). Considering the values of the two layers as one data set, calculate the 90% and 95% TTLC UCL(s). Calculate the corresponding predicted STLC using the regression analysis equation.
  - Step 4 - Perform the UCL calculation for the remaining underlying combined layers (i.e., 2 feet + 3 feet etc.). Re-calculate the UCL for the combined underlying layers and the predicted STLC.
  - Step 5 - Repeat the layer elimination process for the total investigative depths until both the 90% and 95% UCL for TTLC is less than 50 mg/kg (ppm).
  - Step 6 - When ADL soil is determined to be disposed as hazardous waste, the Consultant is required to perform 95% UCL for TCLP data to evaluate whether the waste is regulated by the State of California or Federally regulated waste.

12. Hazardous Waste Initial Site Assessments/Investigations (WBS 165.10.80)

The Scope of Work under this section of the Contract includes all steps necessary to conduct an Initial Site Assessment (ISA) including, but not limited to, records review, field reconnaissance, interviews, and preparation of investigative report with conclusions and recommendations. The ISA is undertaken to identify hazardous and potentially contaminated areas, and hazardous waste problems within and next to existing and proposed right-of-way, for Caltrans projects. The ISA shall present all pertinent information regarding listed hazardous waste sites and potential hazardous waste sites in the project vicinity. The ISA checklist in the Caltrans Project Development Procedures Manual, found at <http://www.dot.ca.gov/manuals.htm>, shall not be considered as the ISA or substitute for the ISA. The ISA checklist is for guidance use only. ASTM standards 1527 and/or 1528 may also be used as guidance documents for preliminary screening purposes and completion of the ISA.

ISAs may also be used to fulfill the background research requirements of a Preliminary Endangerment Assessment (PEA), following the guidance developed by the California Department of Toxic Substances Control (DTSC). (The background research requirements of the PEA are similar to the ISA except that the Preliminary Endangerment Assessment focuses on impacts to public health and the environment). The data collection portion of the United States Environmental Protection Agency Risk Assessment guidance may also be a required part of the ISA work.

13. Combined Hazardous Waste Preliminary Site Investigations and Detailed Site Investigation for Hazardous Waste (WBS 165.10.85 and 235.10)

The Scope of Work for site investigations includes such items of work as work plans, Health and Safety Plans, surface geophysical investigations, trenching, drilling, sampling, chemical analysis, and reporting.

The Task Orders that shall be issued to the Consultant may include specific drilling & sampling methods, work plans, Health and Safety Plans, soil gas survey, surface geophysics, mobile laboratory and chemical analysis and other site investigation activities. Laboratory Quality Assurance/Quality Control (QA/QC) testing is included as part of this work and shall be performed by a state certified laboratory and not a separate item of work.

- a. The Consultant shall perform all services required to perform site investigations.

14. Feasibility Studies (WBS 235.15)

The Consultant may be directed through the issuance of Task Order to select a remedial response at a specified hazardous waste site. The purpose of the study is to analyze alternative remedial actions and recommend a cost-effective approach within the project scope and schedule which addresses public and environmental concerns. Feasibility Studies may include, but not be limited to:

- a. Preparation of a Feasibility Study work plan.
- b. Review and analysis of available data and definition of any additional data requirements for a complete Feasibility Study.
- c. Development and evaluation of a limited number of the most feasible remedial options through screening all reasonable alternatives, including the "no action" alternative.
- d. Definition and analysis of any and all problems which affect the development and analysis of remedial options.
- e. Definition of the technical, environmental, economic and schedule weighting factors for evaluating remedial options.
- f. Identification of necessary permits for each remedial option.
- g. Initiation or continuation of data acquisition concerning treatability; compatibility, test excavations, pilot studies, and other relevant factors of hazardous waste.
- h. Development of detailed cleanup parameters.
- i. Recommendation of the most cost effective, environmentally acceptable; remedial option given the project scope and schedule.
- j. Estimate of cost for remedial options analyzed.
- k. Analysis of risk for remedial options.
- l. Preparation of a report, which documents the selection process and identifies the recommended remedial option.

15. Pilot Tests/Bench Scale Tests (WBS 235.15)

Pilot Test/Bench Scale Tests shall be performed to provide information on the performance of a recommended treatment option and/or to verify and test process design and process equipment design parameters. Pilot Tests/Bench Scale Tests may include, but not be limited to:

- a. Review of remedial investigation data and the Feasibility Study.
- b. Preparation of a Pilot Test or Bench Scale Test work plan.
- c. Performance of physical testing to test and verify reported information, conclusions, and recommendations, and to provide design information such as scale up data and chemical reagents mix data.
- d. Bench Scale tests shall be conducted in the laboratory to provide information on a recommended treatment option or options in order to provide data and information on which to base design decisions.

- e. Pilot Tests shall be used to test feasibility study report results, conclusions, and recommendations in the field or the laboratory with down-scaled hazardous waste processing equipment (or its equivalent) to verify and test process design and process equipment design parameters.
  - f. Limited site investigation activities may be undertaken to facilitate Bench Scale or Pilot Testing.
  - g. Laboratory analysis of data gathered during the Bench Scale or Pilot Test; and.
  - h. Preparation of a report, which documents the test program.
16. Hazardous Waste Management Plan, Removal Action Work plan, and Remedial Action Plan (WBS 235.15)

The Hazardous Waste Management Plan, Removal Action Work plan, and Remedial Action Plan shall be prepared to describe the selected remediation of a specific hazardous waste site, and shall include preliminary design information, cost estimates, and schedule. These plans may include, but not be limited to:

- a. Description of the site.
- b. Review of the remedial investigation and feasibility study.
- c. Description of the selected remedy, including:
  - i. Description of the selected technologies and rationale for selection performance expectations.
  - ii. Site topographic map and preliminary layouts.
  - iii. Preliminary design criteria.
  - iv. Preliminary process diagrams.
  - v. General operation and maintenance requirements.
  - vi. Long-term monitoring requirements.
- d. Discussion of design and implementation issues:
  - i. Special technical problems.
  - ii. Identification of other project issues or constraints that may have an effect on timing or performance of the remediation.
  - iii. Identification of necessary permits and regulatory requirements.
- e. Access, easements, and right-of-way.
- f. Health and Safety Requirements:
  - i. Community relations activities.
- g. Cost Estimate and Schedule:
  - i. Preliminary remediation cost estimate.
  - ii. Preliminary estimate of annual operation and maintenance cost and duration.
  - iii. Preliminary project schedule.

17. Plans, Specifications, and Estimates (WBS 235.20)

Plans, Specifications, and Estimates shall be prepared following Caltrans standards and requirements as shown in the current Caltrans Standard Specifications and Caltrans Standard Plans, which may be obtained from <http://www.dot.ca.gov/manuals.htm>, Documentation may include, but not be limited to:

- a. Site-specific treatment plans and/or remediation layout.
- b. Written specifications for design, equipment and materials.
- c. Special Provisions.
- d. Detailed remediation cost estimate.
- e. Detailed cleanup levels.
- f. Site-specific hazardous waste transportation plan.
- g. Site security plan, including fencing, signs, lighting, and access requirements.
- h. Any off-site requirements for storage, treatment, or disposal of hazardous wastes from the site.
- i. Definition of any quality control/quality assurance requirements and preparation of appropriate QA/QC plan.
- j. Preparation of all required permit applications, signature ready.
- k. Detailed scheduling requirements.
- l. Any transportation project order of work requirements.
- m. Air monitoring, dust control requirements.
- n. Operation and maintenance plan.

18. Construction Bidding Phase (WBS 255.10 & 260.80)

Procedures for advertising, awarding, and administering the construction contract shall be the responsibility of Caltrans. While the project is being advertised for bids, all questions concerning the intent shall be referred to Caltrans for resolution. In the event any items requiring interpretation in the drawings or specifications are discovered during the bidding period, said items shall be analyzed by the Consultant for decision by Caltrans as to the proper procedure required. Corrective action taken shall either be in the form of an addendum prepared by the Consultant and issued by Caltrans, or by a covering change order prepared by Caltrans after award of construction contract.

19. Construction Support Phase (WBS 270.20.50 & 285.10.15)

- a. Construction and implementation of the remedial design shall be the responsibility of Caltrans. During the project construction phase, the Consultant shall be available to work closely with the Resident Engineer (RE) to assist and advise the RE in order to minimize construction conflicts and to expedite project completion.

- b. The Consultant shall receive written notification of the award of a construction contract. Upon such notification, the Consultant shall proceed with the construction support phase services required by the Task Order.
  - c. The Consultant shall be available to attend the pre-construction starting meeting with the successful construction contractor upon notification by Caltrans.
  - d. During construction of the remedial action, the Consultant shall furnish all necessary additional drawings for clarification, correction, and change orders required by errors or omissions of the Consultant. Such drawings shall be requested from the Consultant in writing by Caltrans and shall be at no additional cost to Caltrans. The original tracings for the drawings and construction contract wording for the construction contract change orders shall be submitted to Caltrans for duplication and distribution.
  - e. The Consultant shall be available to visit the job site for on-site review of construction and shall make other visits to the job site as requested by the Caltrans Contract Manager or Caltrans designee.
  - f. The Consultant shall bring to the attention of the Caltrans Resident Engineer any defects or deficiencies in the work by Caltrans' construction contractor that the Consultant may observe.
  - g. The Consultant shall have no authority to issue instructions on behalf of Caltrans nor to deputize another to do so.
  - h. These provisions shall not be construed as holding the Consultant responsible for failure by Caltrans' construction contractor to perform its work in accordance with the construction contract or for the construction means or methods or techniques, sequences, procedures, or safety programs in connection with the construction work.
  - i. The Consultant shall be available to respond in writing to the construction contractor's inquiries through a Resident Engineer's request.
  - j. The Consultant shall be available to review proposed change orders and make recommendations if requested by the Resident Engineer.
20. Post-Construction Monitoring of Remedial Action (WBS 235.35)
- a. After construction of the remediation system, the monitoring of remedial action may be required. The Consultant may be requested to assist in monitoring the remediation system or to take physical samples from monitoring equipment.
  - b. Have, or be able to obtain, all the personnel, energy sources, equipment and materials necessary to comply with the provisions of this Contract throughout the Contract term. Consultant (or Subconsultant) personnel shall hold all appropriate California Contracts State License Board licenses including, but not limited to C-57 and/or C-61 licenses.

- c. The Consultant shall notify the Caltrans Contract Manager or Caltrans designee in writing at a minimum one (1) week before it begins any investigative or field work.

## AA. Work Plan Preparations

### 1. Basic Work Plan Preparation

For many site investigations, Task Orders shall include the general scope of the required investigation. The Task Order shall specify the number of borings and/or wells, approximate location, Data Quality Objectives, rationale for sampling specific media, depth, sampling methodology, number of samples and test methods to be used, additional sampling points where contaminants may preferentially migrate, analytical parameters, analytical methods, and field screening methods when not specified in the Task Order relative to a contaminant source, surface and subsurface features, depth to groundwater, and site stratigraphy. For Task Orders of this nature, the Consultant shall review the work scope and recommend any changes needed to address regulatory requirements, perform work more efficiently, and to improve the overall objectives of the investigation.

The Consultant shall prepare a basic work plan that describes means of accomplishing the Scope of Work outlined in the Task Order. The work plan shall include maps of proposed sampling locations, sampling and analysis methodology, work scheduling, plans for accomplishing the work and for disposing of drill cuttings and any other wastes. The Consultant Task Order Manager shall sign the work plan. The Consultant shall provide a draft work plan for the Caltrans Contract Manager or Caltrans designee to review and comment upon prior to commencing field work. The final work plan shall address all Caltrans comments and shall be resubmitted for final approval by the Caltrans Contract Manager or Caltrans designee. The draft and final work plan shall be completed within the completion schedule presented in the Task Order.

The basic work plan preparation is necessary or normally required as part of a Task Order, without additional compensation from Caltrans. See special provision in the Special Provisions Section, SP-2: Non-Detailed/Other Work for more information.

### 2. Detailed Site-Specific Work Plan Preparation

In more complex situations, a specific project may require development of a detailed site investigation work plan/Scope of Work with—or without—

subsequent field work. A Task Order shall be used to direct the Consultant to prepare the investigation work scope. The work plan/Scope of Work developed by the Consultant shall include:

- a. Preliminary scoping of investigation including any available ISA information.
- b. Review of available information on the site and vicinity.
- c. Site visit and review.
- d. Evaluation of available area ground water data.
- e. Evaluation of available area geology data.
- f. Investigation strategy and rationale for number and location of borings, number of borings, and sample analysis.
- g. Revision of site investigation objectives as necessary.

The Consultant shall provide a draft work plan/Scope of Work to the Caltrans Contract Manager or Caltrans designee to review and comment upon prior to commencing field work. The final work plan/Scope of Work shall address all Caltrans comments and shall be resubmitted for final approval by the Caltrans Contract Manager or Caltrans designee. The draft and final work plan/Scope of Work shall be completed within the completion schedule presented in the Task Order. Caltrans may prepare a Work Plan in lieu of having one prepared by the Consultant or specify the scope of work in the Task Order. Caltrans Work Plan shall be attached to or included in the Task Order.

The work plan/Scope of Work shall be developed by appropriate professional personnel under the direction of the Consultant Contract Manager. Interpretation of geology, hydrogeologic, and/or hydrologic information shall be completed under the supervision of a Registered Professional Geologist or Certified Engineering Geologist licensed in the State of California. The Registered Professional Geologist or Certified Engineering Geologist licensed in the State of California with Hazardous Waste Services experience that supervised the work shall sign the final work plan.

Once the work plan/Scope of Work has been accepted, Caltrans may issue a separate Task Order for the site investigation. The final work plan/Scope of Work shall be implemented as part of future site investigation Task Order.

### 3. Dynamic Detailed Work Plan (DDWP)

A dynamic detailed work plan (DDWP) may be proposed to delineate impacted areas and achieve project goals when deemed necessary or proven to be cost effective. A dynamic detailed work plan is defined in this Contract as a work plan that provides real time data, in-field resolution of any uncertainty about sample location, and allows for the interpretation of results in the field, performance of additional sampling to complete site characterization and project objectives.

4. Health and Safety Plans

- a. All site investigations shall require development of a site-specific Health and Safety Plan. The Consultant shall submit the plan to the Caltrans Contract Manager or Caltrans designee for review, comment, and approval at the Task Order meeting or at a minimum one (1) week prior to the start of field work. The Caltrans Contract Manager or Caltrans designee shall review the plan prior to the start of work. The Health and Safety Plan shall conform to all Local, State, Federal, and regulatory requirements and shall be signed by a Certified Industrial Hygienist including, but not limited to:
  - i. U.S. EPA Order 1440.1-Respiratory Protection.
  - ii. U.S. EPA Order 1440.3 – Health and Safety Requirements for Employees engaged in Field Activities.
  - iii. U.S. EPA Standard Operating Safety Guide (1984).
  - iv. Occupational Safety & Health (OSHA) regulations, particularly in 29 CFR 1910 and 1926.
  - v. Local and State regulations.
  - vi. Other applicable U.S. EPA guidance and State regulations.
  
- b. The plan shall include all of the following elements, unless otherwise specified in the Task Order:
  - i. Objective and Scope of work.
  - ii. Facility description.
  - iii. Description of the known hazards and evaluation of the risks associated with each activity conducted.
  - iv. Identification of key personnel and contact number and alternates for the project, including:
    - a) Consultant Contract Manager.
    - b) Site safety officer (SSO).
    - c) Specific assignments for the project.
    - d) Health and safety responsibilities.
  - v. Job hazard analysis for each work assignment at the site, including administrative and engineering controls.
  - vi. Summary of risk assessment for the project, including:
    - a) Workers/Field personnel.
    - b) Nearby community.
    - c) Environmental receptors.
  - vii. Air monitoring plan for the project, if applicable, including:
    - a) Ambient air quality and action levels and frequency.
    - b) Assessment of community exposure.
    - c) Assessment of worker exposure.
  - viii. Personal protective equipment selected for the project.

- ix. Delineation of work zones on-site and decontamination procedures for personnel and equipment.
  - x. Listing of general safe work practices for on-site activities.
  - xi. Description of security measures established for the site and controlling site access.
  - xii. Emergency response plans established for the project, including:
    - a) On-site emergencies.
    - b) Off-site emergencies.
    - c) Access for emergency personnel and vehicles.
    - d) Nearby community protection procedures.
    - e) Location, map, and direction of nearest emergency care facilities.
    - f) Phone and communication options.
    - g) Phone numbers of key personnel.
    - h) Alternate field communication options.
  - xiii. Worker training requirements for the project.
  - xiv. Medical surveillance program for field personnel that complies with Title 8 CCR, General Industry Safety Orders, Section 5192 and Code of Federal Regulations (CFR), Occupation and Safety Health Standards, Hazardous Waste Operations and Emergency Response, Title 29 Section 1910.120.
  - xv. Description of requirements for an environmental surveillance program.
  - xvi. Spill containment program.
  - xvii. Housekeeping, hygiene facilities, including hand wash station.
  - xviii. Worker safety training requirements for the project.
  - xix. Description of decontamination procedures for personnel and equipment.
- c. The Consultant shall complete all work in accordance with the site Health and Safety Plan as provided to the Caltrans Contract Manager. The Consultant shall ensure that all employees, while on the project site, comply with the plan requirements. All personnel engaged in field investigation work shall be appropriately trained and certified for such activity at no cost to Caltrans. Training shall include, but not be limited to, use of personnel protection equipment (including respirators), decontamination, hazard recognition, and safe operation procedures. The Health and Safety Plan shall be signed and dated by all site workers before beginning Task Order investigative work in accordance with the Special Provisions Section SP-4.
- d. The Consultant shall provide certification that provisions of Title 8 CCR Section 5192 have been met for all employees who are on-site when respirator use becomes necessary. If any site personnel are not certified in the use of required personal protective equipment, the Consultant shall

take immediate and prudent actions to remove uncertified site personnel from the work location.

- e. Throughout the performance of the site investigation, the Consultant shall, at a minimum, fully comply with Level D protection requirements (including, but not limited to, standard white hard hats, eye protection, approved safety vests, and work shoes) at all times while working in the field. The Site Safety Officer (SSO) (See special provision in the Special Provisions Section, SP-5: Site Safety Officer (SSO) for more information.), designated in the Health and Safety Plan shall be responsible for informing the Consultant's work crew and Consultant Task Order Manager of the need to upgrade to Level C. On-site upgrade to Level C may be determined by Photo Ionization Detector (PID) readings for gasoline contamination, or Flame Ionization Detector (FID) reading for diesel contamination during field activities. The personnel defined in the normal operating costs shall be accounted for when level C protection is needed. The equipment to be either worn, carried, or otherwise required under Level C protection shall be listed in the Health and Safety Plan and be available on site, as described in the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, National Institute for Occupational Safety and Health (NIOSH), OSHA, USCG, and U.S. EPA, DHHS (NIOSH) publication No. 85-115, 1985 which is found at or <http://www.cdc.gov/niosh/docs/85-115/>. See special provision in the Special Provisions Section SP-4: Health and Safety for more information and additional health and safety requirements.

## 5. Traffic Control Plan

When requested in the Task Order, the Consultant shall provide traffic control plan.

The Consultant shall fulfill all applicable requirements stated in the Task Order. See special provision in the Special Provision Section, SP-13: Traffic Control for more information and traffic control requirements.

## BB. Field Activities

### 1. General

The Consultant (or the Subconsultants) shall fulfill the following requirements:

- a. The Consultant shall provide and operate all traffic safety devices/vehicles, equipment, and all other work items required for or incidental and necessary to perform the field work for the investigation.

The Consultant shall ensure that all necessary field materials and equipment are present and are in normal operating condition at the beginning of each workday, including performance of all required equipment maintenance and calibration.

- b. Ensure that all equipment is maintained and operated in conformance with the manufacturer's recommendations
- c. Supply all water, electrical power and any other energy sources required for the Consultant's work at each site.
- d. Comply with all Local, State, and Federal laws and regulations regarding trench shoring, confined space entry, and worker safety.
- e. Remove from the site all equipment, unused materials, temporary facilities and other miscellaneous items resulting from or used in the operation and replace or repair any items damaged during the activities at no additional cost to Caltrans.
- f. Provide personnel, sampling equipment and decontamination equipment.
- g. The Consultant shall have the capability to drill, core, and sample all media, including, but not limited to, well indurated, soft or poorly consolidated soil, soil backfill, asphalt concrete, concrete slab, and stockpiled soil. In addition, the drilling activity may include installation/development of monitoring wells.
- h. The Consultant shall provide leak tight containers (including, but not limited to, bins, drums, and baker tanks) for storage of generated waste materials, drill cuttings, excavated materials, and liquids to prevent migration of soil and liquids from the work area. The containers shall be removed from the storage location within 60 days after the date of accumulation.

2. Data and Sample Collection

- a. A sample is defined as collection of specific media at a location (including, but not limited to, borehole, drum, and stockpile) and placement in the sample containers that shall be tested for all constituents necessary.
- b. The Consultant shall provide new or certified clean containers for the collection of in- and/or ex-situ soil and water samples from borings, waste materials, drill cuttings, excavated materials, stockpiles, surface water, groundwater, and liquids to determine types and concentrations of constituents and proper disposal. See special provision in the Special Provisions Section, SP-6: Decontamination and SP-7: Investigation Derived Waste Disposal (decontamination water, well development water, and purge water, and boring cuttings) for more information and decontamination and disposal requirements.

3. Soil Gas Survey

When requested, the Consultant shall provide subsurface soil gas survey sampling and analysis services. The soil gas survey monitoring service is to include field personnel, equipment, and quantitative and qualitative data to provide rapid and cost effective definition of Volatile Organic Compounds (VOC's) present in the subsurface and vadose zone. A mobile laboratory with gas chromatographic/mass spectrometer capability shall be available and provide personnel and sampling equipment capable of extracting soil gases and identifying a broad range of VOC's and their concentrations as well as fixed gases. Soil Gas survey personnel on site shall include a chemist or other experienced professional responsible for equipment operation. The professionals shall be experienced in probe installation, and collection and analysis of samples from soil gas probes.

An active soil gas survey shall be conducted in accordance with the most recent guidance entitled, Advisory - Active Soil Gas Investigations published by the State of California Department of Toxic Substances Control and Regional Water Quality Control Board - Los Angeles and San Francisco Regions, April 2012, or latest revision.

Soil Gas Investigation results are typically included as part of the site investigation. If soil gas testing is required under a separate cover, the Consultant shall generate reports according to the requirements outlined in this Contract. Reports shall include a discussion of field operations, deviations from the approved work plan, data inconsistencies, and other significant operational details.

When requested due to insufficient airflow and suspected semi-volatile or low volatile compounds, a passive soil gas survey may be employed utilizing probes that remain in the ground for days or weeks to adsorb soil-gas constituents on sorbent material.

The Consultant (or the Subconsultants) shall fulfill the following requirements:

- a. Have the capability of sampling through native material of varying densities, engineered fill, asphalt, and concrete in on-road and off-road locations. The Consultant shall provide all necessary equipment.
- b. Drive sample probes to varying depths, with a nominal probe depth of five (5) feet, depending on soil conditions and as specified in the Task Order.
- c. Decontaminate all necessary equipment prior to sampling, upon completion of sampling and analysis, and before leaving the site. See special provision in the Special Provisions Section, SP-6: Decontamination for more information.

- d. Provide a sufficient number of probes so that no equipment is reused without cleaning.
- e. Run ambient air through the entire sampling system from probe (above ground) through the adapter to collect a system blank at the start of each day, after every ten (10) samples, and before reusing any sampling system component.
- f. Collect soil gas samples from the gas stream being withdrawn from the sample probe. The withdrawal of the soil gas shall be measured on a cubic-centimeter-per-minute and/or cubic-inch-per-minute basis. An in-line flow meter placed between the sample probe and vacuum pump shall be used to monitor flow rates during sampling. Three (3) to five (5) probe volumes shall be evacuated prior to withdrawing the first soil gas sample for analysis. After purging the sample extraction device with soil gas, a sample shall be collected.
- g. Backfill boreholes with local soil or granulated bentonite after sampling, and replace removed concrete or asphalt with new patch material.
- h. Decontaminate all equipment per Special Provision SP-6 upon completion of sampling and analysis and before leaving the site.
- i. The Consultant shall maintain a logbook, which contains pertinent sampling, environmental and technical information for each location. This log shall be provided to Caltrans as part of the soil gas survey report. The following information shall be included in the log book:
  - i. Time.
  - ii. Ambient air and soil temperature.
  - iii. Sample number.
  - iv. Sampling depth.
  - v. Evacuation time between samples.
  - vi. Flow rate (cubic centimeters per minute and/or cubic-inch-per-minute).
  - vii. Probe and adapter numbers and volume of the sample probe.
  - viii. Number of sampling points used.
  - ix. Observations (including, but not limited to, ground conditions, presence of concrete or asphalt, paving, soil appearance, surface water, odors, and vegetation).
  - x. Backfill procedure and materials.
  - xi. Actual sample location marked on the site map.

#### 4. Surface Geophysics

The Consultant shall have the capability to mobilize a surface geophysics team for the purpose of acquiring data as specified in the Task Order. The surface geophysical work shall be interpreted by and conducted under the “Responsible Charge” of a Registered Professional Geophysicist licensed in the State of California, who shall be present during the pre-work site visit and during field

work, and included in a formal report as an appendix to the site investigation report unless directed otherwise by the Caltrans Contract Manager and Caltrans designee.

The Caltrans Contract Manager or Caltrans designee shall provide access, specify the area to be investigated, and in consultation with the geophysicist, determine the appropriate method to attain quality resolution of the subsurface features of interest.

Geophysical surveys results are typically included as part of the site investigation. If Geophysical testing is required under a separate cover, the Consultant shall generate reports according to the requirements outlined in this Contract. Reports shall include a discussion of field operations, deviations from the approved work plan, data inconsistencies, and other significant operational details.

The Consultant shall fulfill the following requirements:

- a. Provide and operate all equipment necessary to perform geophysical surveys (including, but not limited to, ground penetrating radar, magnetic survey, electromagnetic (EM), metal detection techniques, utility surveys, and other standard techniques available) to usual maximums for specific equipment under normal conditions to identify the potential for buried objects such as unidentified utilities, drums, underground storage tanks, or other types of buried objects. Utility surveys shall be performed on property that cannot be cleared by Underground Services Alert (USA) and where critical utilities may be present. Utility surveys are not to be done in lieu of a USA clearance.
- b. Procure licenses and/or permits necessary to perform the work as specified in the Task Order. See special provision in the Special Provisions Section, SP-9: Permit Fees, SP-11: Right of Entry, and SP-12: Encroachment Permits for more information.
- c. Ensure that all necessary equipment, materials, and personnel are present and in normal operating condition at the beginning of each workday.
- d. Ensure that equipment operators have the necessary training and certification to operate and handle geophysical devices.

## 5. Trenching

- a. Caltrans may require trenching for shallow site investigation purposes. Excavation may be needed to determine shallow subsurface conditions or to excavate and expose subsurface structures such as tanks, pipes, drains, or sumps. The Consultant shall provide backhoe or other earth moving equipment capable of excavating to a depth of 15 feet, shoring, stockpile liner, personnel, sampling equipment, and decontamination equipment.

- b. The Consultant shall fulfill the following requirements:
  - i. Restore the trenching site to pre-work condition unless otherwise directed by the Caltrans Contract Manager or Caltrans designee.
  - ii. Trenching activities shall be observed and supervised by a site Registered Professional Geologist or Certified Engineering Geologist licensed in the State of California and CIH. The subsurface geologic and geotechnical conditions found during trenching shall be logged by the site Registered Professional Geologist or Certified Engineering Geologist licensed in the State of California. Under normal circumstances, Organic Vapor Analyzer (OVA) or Photo Ionization Detector (PID) measurements shall be taken to monitor the materials excavated and the breathing zone for the health and safety of workers. Material removed from the trench shall be properly collected in containers or stockpiled on plastic sheeting provided by the Consultant. If analytical tests determine that the materials are non-hazardous, they shall be returned to the trench or otherwise legally disposed of by the Consultant. The Consultant shall legally dispose of contaminated and hazardous materials. If contaminated, the material may be returned to the trench or temporarily stored as directed by the Caltrans Contract Manager or Caltrans designee and ultimately disposed of in compliance with regulatory requirements. Backfilling of the trench is included in the normal operating costs. In areas heavily contaminated with VOCs, the Consultant shall check with the local Air Quality Management District prior to excavation to determine if VOCs are at a concentration that may be excavated without remedial action. See special provision in the Special Provisions Section, SP-6: Decontamination and SP-7: Investigation Derived Waste Disposal (decontamination water, well development water, and purge water, and boring cuttings) for more information and decontamination and disposal requirements.
  - iii. Non-geologic materials shall be containerized and characterized for appropriate off-site disposal by Consultant.
  - iv. Geologic Material removed from the trench shall be properly collected in containers or stockpiled on plastic sheeting provided by the Consultant. The Consultant shall take the necessary measures to prevent soil and liquids from migrating away from the stockpile/containers. An inspection should be performed at the start and end of each day.

6. Drilling, Driven Bailer, Direct Push, Hand Augering, and Sampling Capabilities

The Consultant shall have the capability to drill through, core, and sample soft or poorly consolidated material, engineered fill, asphalt, portland cement concrete,

and waste. The Consultant shall also have the capability to properly drill, construct, and develop wells.

Drill rigs shall have the ability to drill and sample 8-inch-diameter boreholes to a depth of at a minimum 100 feet and 12-inch-diameter boreholes to a depth of at a minimum 50 feet. Drill rigs shall also be capable of hydraulically pushing thin-walled soil samplers or driving thick-walled soil samplers or coring sediments. In addition, drill rigs shall be capable of obtaining continuous samples of soil through hollow-stem augers by either wire line method, using thin-walled sample tubes or by a five (5) feet (1.5-meter) sample tube used within the lead auger. Soil samples shall be obtained in stainless steel sample tubes. Glass jars may be used for non-volatile samples from containers, stockpiles, and excavations, if approved by the Caltrans Contract Manager or Caltrans designee.

a. Drilling Equipment

In addition to the equipment requirements listed in this Contract, for all drilling methods the Consultant shall have available all necessary equipment to perform the following functions:

- i. Tremie materials into boreholes.
- ii. Maintain drilling fluids.
- iii. Mix grout or grout mixtures.
- iv. Pump grout in one continuous motion, beginning at the bottom of the space to be grouted.
- v. Decontaminate drilling sections before reuse; the driller is responsible for bringing all necessary support equipment to the site.

b. Driven Bailer

The driven bailer (hydropunch or equivalent) technique shall use a temporary tool emplacement to obtain undisturbed water samples or product samples from ahead of the lead auger. Drill rigs or cone penetrometer rigs shall have the ability to sample ground water by use of a driven bailer to a depth of 100 feet in unconsolidated material. The sample inlet area shall be in hydraulic contact with the water-bearing zone and sample a discrete water interval. The water samples shall be unaltered and uncontaminated by drilling fluids or cuttings. The sampler shall be chemically inert.

c. Direct Push Drilling

Direct push drilling method shall consist of a single or dual tube sampling system with continuous small diameter 1- to 2-inch (25.4 mm to 50.4 mm)

-diameter stainless steel tubes that are pushed or vibrated into the ground and generate minimal drill cutting waste. Clear acetate sleeves, cellulose acetate butyrate (CAB) liners, polyethylene terephthalate glycol (PETG) liners, or polyvinyl chloride (PVC) liners may be used for sample and core collection where samples will not be compromised by incompatibilities between the acetate and chemical contamination in the soil or ground water. Direct push rigs shall have the capability to drill to a depth of 50 feet in unconsolidated materials. This method may be used for soil core lithologic logging, soil vapor sampling, groundwater sampling, product sampling and soil sampling.

In cases where soil samples are not required below a depth of 15 feet and access or space is limited, a compact and/or mobile direct push rig may be required. A compact direct push rig shall employ the same technology as a standard direct push rig, but may be used from a smaller platform and is only required to drill to a maximum depth of 15 feet. Dual tube systems shall be used when cross-contamination of water-bearing zones is possible or in unconsolidated soil where the borehole will not stay open when the single tube is removed. Direct push (dual tube) drilling systems may be used at: limited-space work areas, under low overhead structures that are less than 10 feet in height, in buildings, on uneven/sloping topography, or on soft terrain such as wetlands. Mobile (for instance, pickup truck mounted) rigs may be needed for aerially deposited lead surveys next to roads. Track-mounted rigs shall be required to traverse difficult terrain.

d. Hand Augering

Hand augering may be used to collect soil samples for laboratory analysis, or for detecting utility lines ahead of other drilling methods. All hand augered borings shall be logged using the unified soil classification system unless this requirement is waived by the Caltrans Contract Manager or Caltrans designee. Prevailing wages are required for hand augering work that does not require geologic logging of each individual borehole. This work falls within the "Laborer" classification. Hand augering for the purpose of collecting soil samples for laboratory analysis when boreholes are logged shall be performed by either a registered, or unregistered professional. All hand augering devices shall be cleaned prior to use in each borehole. All hand auger sampling devices shall be cleaned prior to collection of each sample.

e. Sampling Capabilities

Samples collected for laboratory analysis shall be obtained using a drive hammer sampler equipped with stainless steel sample tubes unless the

Caltrans Contract Manager or Caltrans designee specifies otherwise (in writing). At the Caltrans Contract Manager's or Caltrans designee's direction, samples collected to analyze for non-volatiles may be obtained using methods other than a drive hammer and shall be placed in individual containers for delivery to the laboratory.

The Consultant shall provide containers for waste materials and shall control and collect all drill cuttings and fluids for proper disposal. See special provision in the Special Provisions Section, SP-6: Decontamination and SP-7: Investigation Derived Waste Disposal (decontamination water, well development water, and purge water, and boring cuttings) for more information and decontamination and disposal requirements.

f. Borings/Boring Logs

The field geologist or engineering geologist shall log all borings. Borings shall be logged in accordance with current Soil and Rock Logging Manual, Classification, and Presentation Manual (Field Guide), State of California, Department of Transportation, Engineering Service Center, Office of Structural Foundations, which may be found at <http://www.dot.ca.gov/manuals.htm> and [http://www.dot.ca.gov/hq/esc/geotech/sr\\_logging\\_manual/srl\\_manual.html](http://www.dot.ca.gov/hq/esc/geotech/sr_logging_manual/srl_manual.html) Soil and Fill materials shall be logged for content, color, texture, moisture content, and cultural items. At a minimum, samples for logging purposes shall be taken every five (5) feet or when encountering changes in lithology, staining, or odors. Field instrument readings shall be noted on the log corresponding to the depth of the sample.

When borings are completed as monitoring wells, graphic representation of the well construction shall be added to the log and the location surveyed or recorded using GPS. The Consultant Task Order Manager or designee (Registered Professional Geologist or Certified Engineering Geologist licensed in the State of California) shall sign the final boring logs.

All emplacements shall be overseen, described, and signed in the field log by the field geologist or engineering geologist. The Consultant Task Order Manager shall also review and sign the final field log.

The field log shall include, but not be limited to, description of materials penetrated, drilling method, drill penetration rate, bit pressure and drill chatter. When the sampling is complete, the sampler shall be retrieved and the borehole backfilled with grout or neat cement during the same day or as directed by the Caltrans Contract Manager or Caltrans designee.

Borings that are not turned into monitoring wells shall be backfilled with grout, neat cement or bentonite grout during the same day or as directed by the Caltrans Contract Manager or Caltrans designee and as required by permitting agencies and in accordance with the State of California, Department of Water Resources, California Well Standards, in Bulletins 74-81 and 74-90 which may be accessed at [http://www.water.ca.gov/groundwater/well\\_info\\_and\\_other/well\\_standard\\_s.cfm](http://www.water.ca.gov/groundwater/well_info_and_other/well_standard_s.cfm) . Payment for backfilling is included as part of the cost of drilling.

Sample collection shall be performed in accordance with “Soil Sampling” Section.

Upon refusal, Consultant shall make two additional attempts to collect the soil sample before abandoning the proposed location. The additional attempts shall involve moving laterally away from the borehole location one to five feet to avoid the obstruction and use the hand auger to collect the soil samples. Stockpile sampling shall follow the U.S. EPA Environmental Response Team Guidance: Standard Operating Procedures, Waste Pile Sampling (March 13, 2003).

If the Consultant prefers to use alternate drill rigs or samples, a written notification shall be provided and shall be approved by the Caltrans Contract Manager or Caltrans designee at cost proposal preparation stage and/or initial Task Order meeting prior to the field work.

When proven beneficial and cost effective, other direct push technology (e.g., direct drive, drive point, or push technology) to perform subsurface investigations may be used. When choosing the soil sampling equipment, the Consultant shall consider the ability of the sampler to collect samples for lithological description, geotechnical characterization, or chemical analysis. Potential of a sample contamination with a specific sampler shall be considered. Selection of direct push equipment shall consider the methods for sealing direct push holes to prevent spread of contaminants.

## 7. Surveying

Note: All Survey activities shall be limited to any location and mapping in support of activities related to Hazardous Waste Studies.

### a. Third Order Surveys

Third order surveys may be performed under the supervision of a Registered Land Surveyor licensed in the State of California as part of a Task Order work scope. When required in the Task Order, locations shall

be surveyed for X, Y and Z coordinates. Unless specified by the Caltrans Contract Manager or Caltrans designee, the horizontal (X and Y) coordinates shall be surveyed to the nearest 1/2 inch, with the vertical (Z coordinate) measured to the nearest 0.1 inch. The California Coordinate System 1983, epic 1991.35 (CCS 83[1991.35]) coordinates shall be calculated for each location. All vertical measurements shall be based on the North American Vertical Datum of 1988 (NAVD 88) or as required in Caltrans Surveys Manual. Unless otherwise specified in the Task Order, all survey data shall be submitted in Microsoft Excel (version 97 or newer) spreadsheet format, ASCII file, and GIS-ready (Arc/Info or ArcView) format, should include description, X, Y and Z data, and be sufficiently accurate to locate the borehole and shall be reported in Decimal Degree format. When noted in the Task Order survey data shall be submitted in GIS-ready format.

b. Global Positioning System (GPS) Requirements

The Consultant shall provide site boundary and borehole locations within six (6) inches accuracy in either geographic coordinates North American Datum (both vertical and horizontal datum) or California State Plane Coordinates CCS 83 (1991.35) datum. Unless otherwise specified in the Task Order, the GPS survey data shall be submitted in Microsoft Excel (version 97 or newer) spreadsheet format, ASCII file, and GIS-ready (Arc/Info or ArcView) format, and should include description, X, Y and Z data. The locations of collected field data for each boring, sample, test, and drilling performed shall be provided in one of the following digital electronic formats (as directed by the Caltrans Contract Manager or Caltrans designee):

- i. Arc/Info or ArcView Geographic Information System files.
- ii. Trimble SSF or RINEX Global Positioning System files.
- iii. Microsoft Excel spreadsheet format (version 97 or newer).
- iv. Delimited text files.
- v. MicroStation (CADD) files.
- vi. Microsoft Access database format provided by the Caltrans Contract Manager.

All borings specified in a Task Order possess a unique identity predefined by the Caltrans Contract Manager.

Borehole Naming Convention - Boreholes shall bear names consisting of a 3 or 4 digit unique identification number assigned by the Caltrans Contract Manager followed by a dash and the sequential boring number beginning with "101." (Example: for a set of borings where the assigned Unique ID

is 526, the borehole names would be 526-101-0.15, 526-101-0.3, 526-102-0.15, 526-102-0.3, etc.).

This information shall be submitted in a digital electronic format via email, CD-ROM or other electronic storage device, along with the final written report. If requested by the Caltrans Contract Manager or Caltrans designee, Microstation (CADD) files shall be included in the report.

8. Well Installation and Development and Temporary Wells (piezometer)

Monitoring wells may be required to determine if ground water contamination is present, the type, concentration, and extent of any contamination, and the general characteristics of subsurface hydrogeological conditions. Monitoring wells shall be designed and constructed to obtain water samples representative of the formation water. The Consultant shall install 2-inch and 4-inch PVC monitoring wells up to 100 feet deep. Consultant shall submit for review and approval, a Work Plan for design and construction of monitoring well to obtain water samples representative of the formation water. Monitoring wells shall include the following elements:

- a. Prior to drilling and installation of wells, the Consultant shall obtain necessary well permit(s). Copies of these permits shall be included in the final work plan and final reports.
- b. Wells shall be screened and filter packed to match the formation material of the screened zone. Sieve analysis may be required to fulfill this task. A filter bridge of finer sand than used for the filter pack shall be placed above the screen and below the bentonite.
- c. Payment for field sieve analysis is included in the cost of well installation.
- d. Filter pack material shall extend 1.5 to 2.0 feet above the screen, 3/8-inch bentonite pellets shall be placed three (3) to five (5) feet above the filter pack, and cement or cement bentonite grout shall be used to fill the annular space. Well surface completion shall be concrete, which is integrated with the concrete annular seal in the upper two (2) feet of the hole. The materials shall be tremied into the annular space around the casing. Filter pack material shall be clean, inert material; bentonite shall be non-beneficiated.
- e. Grout shall be mixed in correct proportions so as to not affect ground water chemistry.
- f. Grout shall consist of approximately 5% bentonite and 95% cement.
- g. Bentonite and/or grout shall not be allowed to free fall down the annular space if greater than five (5) feet deep.
- h. Centralizers shall be used when wells are not completed within a hollow stem auger.
- i. Monitoring wells shall not provide a conduit for cross-contamination of water bearing zones.

- j. Wells shall be completed at the surface to prevent damage and tampering. Traffic proof covers or monument covers shall be used. Waterproof well caps shall be used in flush-mounted wells.
- k. Screen lengths shall be appropriate to the monitoring task and shall meet regulatory agency requirements.
- l. Wells shall be designed to meet the appropriate regulatory agency requirements.
- m. Wells shall be completed so as to prevent surface water from entering the well or ground water table.
- n. A third order survey shall be completed by a Registered Land Surveyor licensed in the State of California as required in the Caltrans Surveys Manual. All monitoring wells shall be surveyed for X, Y and Z coordinates. Horizontal (X and Y) coordinates shall be surveyed to the nearest 1/2 inch, with the vertical, or top of PVC elevations (Z coordinate) measured to the nearest 0.1 inch. The California Coordinate System - CCS 83 (1991.35) coordinates shall be calculated for each well. All vertical measurements shall be based on NAVD 88 datum. Elevations of the groundwater table shall be calculated based on the top of casing elevations and depth to water measurements. A reference point (notch or mark) shall be placed at the top of casing to ensure consistent and accurate measurements. The elevation of the ground or the top of the concrete slab adjacent to the monitoring well shall also be surveyed, to the nearest one (1) inch. The groundwater elevation data shall be used to determine the direction and gradient of groundwater flow beneath the site.
- o. Wells shall be developed after construction by surging with a vented surge block, or equivalent technology, as approved by the Caltrans Contract Manager or Caltrans designee, and pumped to remove sediments.
- p. Wells shall be surged and pumped as often as necessary to produce sediment free water samples (with a goal of less than 10 Nephelometric Turbidity Units (NTUs)). The Consultant shall measure turbidity in NTUs once per hour during development and once at the end of development. The Consultant shall keep a well development log documenting time, development method, temperature, pH, conductivity, NTUs, and volume of water produced. Costs of any additional work required to obtain sediment free water samples during the field contract period are included for well development and no additional compensation shall be allowed.
- q. The Consultant, prior to drilling and installation of wells, shall obtain necessary well permit(s). Wells shall be registered by the Consultant with the California Department of Water Resources. Copies of these records shall be included in the final Task Order report.
- r. Boring and well cuttings placed in drums and well development water shall be collected and containerized for off-site disposal may be stored at the site or transported to a storage site in the vicinity.

- s. Temporary wells may be completed in open holes advanced by hollow stem auger or direct push methods for the purposes of water level measurements and water sample collection. Temporary wells are intended for use in situations where a water sample cannot be obtained by driven bailer within one (1) hour due to formation permeability. Temporary wells shall be constructed of 1- or 2-inch diameter PVC, remain in place for as long as it takes to collect a water sample, but no more than 24 hours or as directed by the Caltrans Contract Manager or Caltrans designee, and only be used in borings completed to the first water bearing zone. The surface of the temporary well shall be protected from surface water infiltration and vandalism.
- t. Consultant shall install and develop monitoring wells in conformance with this Contract, California Department of Water Resources, Well Standards Bulletins 74-81 and 74-90, and California Department of Toxic Substances Control Guidance Manual: Monitoring Well Design and Construction for Hydrogeologic Characterization, Interim Final August 1994. Well installation and development includes, but not be limited to, drilling, selection of well casing and screen materials, filter pack material, cleaning of equipment prior to installation, annular seal, surface completion requirements, and well development.

9. Well Destruction

The Consultant shall destroy PVC wells in accordance with applicable local and state requirements (DWR Bulletins 74-81 and 74-90 which are found at [http://www.water.ca.gov/groundwater/well\\_info\\_and\\_other/california\\_well\\_standards/well\\_standards\\_content.html](http://www.water.ca.gov/groundwater/well_info_and_other/california_well_standards/well_standards_content.html) ). Reports of well destruction shall be filed with the California Department of Water Resources (per the requirements of California Department of Water Resources, Bulletin 74-81 and Part III section 19, A-1, 2a), which may be accessed at: [http://www.water.ca.gov/groundwater/well\\_info\\_and\\_other/well\\_standards.cfm](http://www.water.ca.gov/groundwater/well_info_and_other/well_standards.cfm) ), and local agencies if required. Copies of these reports shall be included in the draft and final report. Caltrans shall provide site access when necessary. Neat cement (5% bentonite, 95% cement by volume) or sand cement shall be used to decommission wells. Well abandonment shall not commence until Caltrans approves a Work Plan submitted by the Consultant.

The Consultant shall fully describe the well destruction in a report included with the final site investigation report and well destruction log, unless separately requested by the Caltrans Contract Manager or Caltrans designee.

10. Soil Sampling

The objective of soil sampling is to obtain a representative sample of the subsurface soils to determine the level of contamination at a site. The Consultant shall communicate to the laboratory the analyses required on samples and any special criteria for performing analyses. Soil samples shall be obtained using thin and/or thick walled sample barrels with stainless steel inserts (Acetate may be used for direct push core barrels) where appropriate and practical. Soil samples obtained using the Standard Penetrometer Test shall be accomplished according to ASTM D 1586-84 which may be found at <http://www.astm.org/Standard/index.shtml> or <http://webstore.ansi.org>. Soil samples obtained using rotary drilling methods and the Standard Penetrometer Test shall be accomplished according to ASTM Standard D1586-11. Thin-walled Shelby tube samples shall be obtained in accordance with ASTM D 1587-83 which may be found at <http://www.astm.org/Standard/index.shtml> or <http://webstore.ansi.org> and 1587-08. Soil samples obtained using direct push soil sampling equipment shall be accomplished in accordance with ASTM Standard D6282-98(2005). Cost for equipment and supplies, including, but not limited to, sample barrels, tubes, liners, Teflon tape, caps, and sealers are included in the cost of sampling. Thin walled samplers shall be pushed into the soil while thick walled samplers may be driven. Continuous coring of unconsolidated materials or rock may be requested in the Task Order.

Soil samples shall be obtained in as undisturbed state as possible. Soil samples shall be obtained in stainless steel sleeves during drilling or hand sampling. The Caltrans Contract Manager or Caltrans designee on a case-by-case basis may revise this requirement. At the discretion of the Caltrans Contract Manager or Caltrans designee, glass jars may be used for aerial deposited lead samples and acetate liners may be used for direct push samples where there is no chemical incompatibility. Reused sampling equipment shall be decontaminated before and after each use with a mild non-phosphate detergent and triple rinsed. The last rinse shall be with deionized water. No fluids shall be introduced into sample boring except in special cases approved by the Caltrans Contract Manager or Caltrans designee. Sample tubes shall be capped with Teflon film or aluminum foil and plastic caps, sealed with appropriate taping (not electrical or duct tape), marked to indicate depth interval and top/bottom, and preserved immediately at 39° F (4° C). When soil is to be analyzed for other contaminants, preservation shall be in accordance with the procedures specified in U.S. EPA SW-846 for that particular constituent. Soil samples shall be delivered to the laboratory for analysis within 24 hours of sampling unless specified otherwise in the Task Order. Soil samples to be analyzed for volatile organic compounds shall be preserved with dry ice. For metals analysis of soil samples, when the total metal concentration is greater than ten times the soluble threshold limit concentration

(STLC) the laboratory shall contact the Consultant, who shall contact the Caltrans Contract Manager or Caltrans designee for approval before proceeding with the waste extraction test (WET).

In some cases soil samples shall be obtained using U.S. EPA Method 5035, which may be found at <http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/5035.pdf>, the Closed-System Purge-and Trap and Extraction for Volatile Organics in Soil and Waste Sample. Consultant shall collect samples for volatile organic compounds (VOC) analysis using soil sample syringes to collect 5-gram aliquots of soil from the target sampling depth. The sub-cored soil sample shall then be extruded from the syringe into pre-labeled 40-mL volatile organic analysis (VOA) vials, containing pre-measured quantities of preservatives (such as methanol and sodium bisulfate) as described in U.S. EPA Method 5035. The vials shall be kept in an upright position at all times to ensure sample remains submerged in the preservative. The Consultant shall be directed in the Task Order to collect samples using this procedure and shall be responsible for supplying all equipment and trained personnel for performing U.S. EPA Method 5035. If the Task Order does not require the Consultant to prepare a work plan, sampling locations and depths at which samples are to be collected shall be provided in the Task Order. When sampling locations and depths are not defined in the Task Order, the Consultant shall provide a work plan with the rationale for each sampling location and depth.

It is the Consultant's responsibility to be aware of any special handling procedures, or collection or preservation requirements to obtain high quality, defensible data. Data collection and/or analysis not consistent with the procedures specified in U.S. EPA SW-846, the Contract, and the Task Order shall not receive reimbursement.

#### 11. Water Sampling

Water samples may be taken from surface sources, undeveloped borings made by hollow stem auger, direct push, Cone Penetrometer Test (CPT) systems, temporary wells, or from monitoring wells. Samples taken from undeveloped borings shall be obtained with clean, dedicated or decontaminated stainless steel or Teflon bailers within the hollow stem auger or pump tubing within the shell of the boring equipment or temporary slotted casing. Water samples may be obtained from monitoring wells after the well has been developed and purged. Well water shall be monitored for temperature, pH, and conductivity during purging. A minimum of three (3) well volumes shall be purged prior to sampling. Purging shall continue until measurements of temperature, pH, and conductivity have stabilized (reproducible within 10%). This information shall be documented on a well purge log. These requirements may be waived in the case of low yielding wells that would be pumped dry during purging. This monitoring shall

be done during development and sampling and no additional compensation shall be allowed. Bailer systems that agitate the water sample excessively are prohibited.

Samples shall be placed in SW-846 required sterilized Volatile Organic Compounds (VOC) containers, and preserved immediately at 39° F (4° C). Water samples shall be delivered to the laboratory within 24 hours of sampling unless specified otherwise in the Task Order. A trip blank shall be included in each ice chest with samples being tested for volatile compounds. When sample preservation in the field is necessary, the laboratory shall supply containers with the added preservative for water samples. Water samples shall be packed or secured in such a manner so as to prevent cross contamination of samples and freezing or breaking of containers. When wells are installed to determine if a chemical-free product is present, the well shall be sampled to determine if such a product exists before purging the well to test for dissolved constituents.

The objective of groundwater sampling is to obtain a representative sample of the groundwater to determine the types of contaminants and concentrations. The Consultant shall communicate with the laboratory regarding the analyses required on samples and any special criteria for performing the analyses.

The pre-sampling activities (i.e., measurement of static water level elevation, detection of immiscible layers, well purging), selection and use of sampling equipment, collection of samples, in-situ or field analyses, samples containers, preservation, and handling, chain-of-custody and records management, analytical methods, field and laboratory quality assurance and quality control, documentation for sampling, and evaluation of the groundwater monitoring data shall conform to the California Department of Toxic Substances Control Guidance manual: Representative Sampling of Ground Water for Hazardous Substances, July 1995.

Requirements for filtering shall also be communicated to the laboratory. If a sample is to be filtered before analysis for metals, no preservatives or acid shall be added until after filtration. Samples taken for dissolved metal determination shall be filtered through a 0.45 um filter. Filtration shall not be done for total metal analyses. If filtration is performed, it shall be done in-line or in the field immediately following sampling.

The Consultant shall obtain new samples without expense to Caltrans if Quality Assurance/Quality Control (QA/QC) data shows any of the following:

- a. Cross contamination has occurred.
- b. Sample collection and handling or analytical tests were not consistent with the procedures specified in U.S. EPA SW-846, the Contract, Task Order, and/or approved work plan.

- c. Samples were held too long before analysis.
- d. Samples were compromised while in the custody of the Consultant prior to delivery for analysis.
- e. Any chain of custody violation. Payment shall be denied for unapproved chemical testing.

12. Survey and Testing of Tanks, Structures, and Stored Materials

The scope of services under this section of the Contract includes surveying inspection, and testing, as applicable, of above ground or underground storage tanks, buildings, structures, miscellaneous structures, stored materials, tank contents and containers to determine whether hazardous waste or other materials are present. Typical surveys would include Asbestos Containing Materials (ACM) in buildings, bridges, and utilities; Lead-based paint on surfaces of bridges, buildings, and yellow traffic striping; Polychlorinated biphenyls (PCB)-containing materials in transformers, equipment and containers; inspections for fuels and other chemicals in tanks, barrels, and storage containers; and Hazardous materials being used or stored in buildings or structures.

a. Asbestos Survey

Prior to demolition, the Consultant shall conduct a pre-sampling survey of all accessible areas of structures and facilities to determine the presence of ACM requiring removal.

In the asbestos survey Work Plan, the Consultant shall provide documentation that Consultant's personnel who conduct asbestos surveys have, as a minimum, current Asbestos Hazard Emergency Response Act (AHERA) training for building inspections and sampling, and that they comply with Title 8, California Code of Regulations certification requirements for asbestos Consultant and site surveillance technicians. After the Work Plan has been submitted and reviewed by Caltrans, representative samples of suspect materials shall be taken, as delineated in the Task Order and Work Plan, and analyzed using State-certified laboratory procedures.

b. Lead-Based Paint Survey

The Consultant shall conduct a pre-sampling survey of all accessible areas of structures and facilities to determine the presence of lead-based paint and the condition of paint. The use of an XRF analyzer may be used to help identify what materials are to be tested for lead. Samples may be collected from bridges, buildings, yellow traffic striping and other surfaces as directed by the Task Order.

In the survey Work Plan, the Consultant shall provide documentation that personnel who conduct lead surveys have, as a minimum, current Certified Lead Inspector/Assessor training for building inspections and sampling and that they comply with California Department of Public Health Services (Title 17, CCR, Sections 36000 and 36001). After the Work Plan has been submitted and reviewed by Caltrans, samples representative of the suspect painted material (including, but not limited to, wood, steel, asphalt, concrete, dry wall, or other painted materials) shall be analyzed using State-certified laboratory procedures. Paint chip samples may be placed in individual containers, including self-sealing plastic bags, or glass jars.

c. Tanks, Barrels, Storage Containers Survey

The Consultant shall conduct a pre-sampling survey of the designated site. Samples may be collected from aboveground or underground tanks, barrels, or storage containers.

The survey Work Plan shall provide a container-sampling plan including recommended analysis and sampling equipment. The Consultant shall pay particular attention to Health and Safety and recommend any specific sampling safety requirements for unknown materials. After the Work Plan has been submitted and reviewed by Caltrans, samples from aboveground or underground tanks, barrels, or storage containers shall be analyzed using State-certified laboratory procedures.

If, in the judgment of the Consultant, this work appears to be dangerous or requires more than Level C safety protection, the Consultant shall stop work and contact the Caltrans Contract Manager and Caltrans designee.

CC. Laboratory

1. General Information

Laboratories performing chemical analyses shall be certified by the California Department of Public Health Services Environmental Laboratory Accreditation Program (CDPHS-ELAP) for the specific laboratory test methods listed in List of Chemical Analyses. The Consultant shall provide a current CDPHS-ELAP certification and Fields of Testing for all Contract test methods throughout the life of the Contract. For specific test methods not as yet certified by CDPHS-ELAP, the laboratory may perform laboratory analysis only if presently certified by CDPHS-ELAP for comparable test methods (for example, volatile organics, semi-

volatile organics or other specific hazardous substances), or if it is a currently certified U.S. EPA Contract laboratory. Water sample analysis shall be considered to include, but not be limited to, surface water, ground water, rinse water, monitoring, well samples, other water sources, and other required contract components. Standard turnaround time for chemical analysis shall not exceed five (5) business days. Expedited laboratory turnaround time may be required at the discretion of the Caltrans Contract Manager and shall be specified in the Task Order.

All laboratory costs shall be borne by the Consultant. Laboratories shall be physically located within the Contract Region in which the Task Order work is being performed. Under extenuating circumstances, laboratories outside the Contract Region in which the Task Order work is being performed may be used with written permission from the Caltrans Contract Manager. The Consultant shall be responsible for sample transport from worksite to the laboratory, for providing decontaminated or new sample containers, labels, appropriate preservation, and chain of custody records. Costs of these services and materials are included for laboratory analyses listed in List of Chemical Analyses.

Remaining and unused portions of samples shall be stored in a chilled state 39° F (4° C) at the laboratory for 30 days following completion of the last analysis for that group of samples listed on the same chain of custody form. Disposal of samples shall be the responsibility of the Consultant and/or laboratory.

Retention of samples beyond the 30-day period following the last analysis for a sample or set of samples and additional laboratory work not listed in List of Chemical Analyses shall be performed by the Consultant only when the Caltrans Contract Manager or Caltrans designee provides a written request to the Consultant.

The Consultant and the laboratory shall be responsible to provide clear and accurate explanation of analytical results including graphical presentations and summaries of the validated laboratory data in reports.

Consultant shall be responsible for validation of all analytical data and provide a summary of the level of data validation and findings in the report. The data validation procedure shall be based on the principles of the U.S. EPA National Functional Guidelines (U.S. EPA 2008, 2010, 2011) and were designed to ensure completeness and adequacy of the data set. The Consultant shall contact the Caltrans Contract Manager or Caltrans designee to check and verify the level (such as Level I, II, or III) of data validation required for the data quality objective if the level is not specified in the Task Order. The data validation report shall be part of the draft and final investigation report submittals.

2. Caltrans Samples

Situations may arise that require Caltrans personnel to collect field samples for laboratory analysis. The samples shall primarily be soil samples collected for ADL investigations but may include other constituents of concern and water samples as determined by Caltrans. Caltrans may also require analysis of soil or water samples acquired as split samples.

When requested, the Consultant shall provide new sample containers, labels, and blank chain of custody forms to the Caltrans Contract Manager or Caltrans designee.

Caltrans shall be responsible for sample collection, sample container labeling, preservation of the sample, and filling out the chain of custody form. The Consultant shall be responsible for arranging sample transport from the project site or Caltrans office to the designated laboratory and maintaining chain of custody.

3. Mobile Laboratory

Mobile laboratories shall be certified by the CDPHS-ELAP for analyses which are specified in the Task Order. Mobile laboratory gas chromatograph equipment shall be calibrated on-site at the beginning of each working day as follows: Mobile laboratories shall record gas chromatograph system parameters on the first page of each day's chromatograms. The parameters include the temperatures of the injector, column, and detector; integrator parameters of the injector, peak markers, and baseline offset; column type, length and diameter; and packing material. The name of the operator and the date shall also be included. Any changes to the system parameters shall be documented.

4. Quality Assurance/Quality Control (QA/QC)

a. Field QA/QC

Field QA/QC procedures shall be reported in summary form for all samples submitted. Field QA/QC procedures shall include the following:

- i. One (1) equipment blank for every chain of custody shall be collected by pouring de-ionized water onto the sampling device and into a laboratory container.
- ii. For water or soil sampling events, one (1) trip blank for every ice chest or sample shipment container. Water samples shall require one (1) laboratory prepared trip blank for each individual group of water samples transported to the laboratory. Soil samples collected by U.S. EPA Method 5035 shall require vials containing the same

preservative that the soil samples are preserved in (including, one vial with methanol, two vials with sodium bisulfate, or all three). The contents of each ice chest or refrigerated container constitute an individual group of water or soil samples. The trip blank is a clean water or soil sample that shall be opened at the site in the same location as the field sampling. The trip blank shall be analyzed for the same compounds as the other samples.

- iii. A trip or travel blank consists of sample containers, which are filled in the laboratory with purified water, taken into the field, and added to each cooler before it is transported to the laboratory. These travel blanks are especially important for volatile samples in which other samples containing high concentration of contaminants of interest may leak in the cooler and contaminate other samples. Travel blanks are generally not used for other contaminants.
- iv. Field blanks consist of purified water such as High Performance Liquid Chromatography or pesticide grade water which is taken into the field and transferred from the water container to the individual sample containers in the field as a check on contamination in the atmosphere at the site. If the purified water is also poured through sampling equipment before being added to the sample containers, the field blanks may also substitute for equipment blanks. Field blanks, when deemed necessary shall be collected at the frequency of one per sampling day.
- v. When deemed necessary, or at the request of the Caltrans Contract Manager or Caltrans designee, background samples may be collected from the site. Background samples are to be collected in the exact manner as the regular samples. Background samples may be used as a quality control sample, especially for non-aqueous samples, to look for sampling or laboratory effects on concentration. The more common use for background samples is to establish a background concentration for parameters, which occur in the area of the site, and distinguish between site-specific related contamination and naturally occurring or anthropogenic contaminant levels.
- vi. Background samples shall be collected for each medium investigated. These samples shall be collected at or near the site but not in areas likely to be influenced by contamination from the site or operations from nearby sites. These samples shall be collected from locations up gradient or up-stream of any suspected contamination or source areas. A minimum of four (4) locations to determine the average concentration that is not a result of releases from the site. The number and locations may be determined in the field or pre-selected prior to field work. The minimum number or

samples may be increased at the discretion of the Caltrans Contract Manager or Caltrans designee. Under no circumstances are the samples collected in areas of potential contamination to be considered as background samples.

- vii. When deemed necessary or at the request of Caltrans, the Consultant shall collect field replicate samples. Field replicates may either be co-located samples or split samples. Replicates shall be collected at a minimum frequency of five (5) percent (%), with a minimum of one (1) duplicate per day, whichever is greater.

b. Laboratory QA/QC

Quality Assurance/Quality Control (QA/QC) shall be performed for each method of analysis with specificity for every appropriate analyte requested and/or representative analytes listed in the test method's QA/QC. QA/QC data shall be reported in summary form for all samples submitted. Laboratory QA/QC procedures specified by each test method shall include the following:

- i. One (1) method blank for every ten (10) samples, batch of samples or type of matrix, whichever is more frequent.
- ii. One (1) sample analyzed in duplicate for every ten (10) samples, batch of samples or type of matrix, whichever is more frequent.
- iii. One (1) spiked sample for every ten (10) samples, batch of samples or type of matrix, whichever is more frequent, with spike made at ten (10) times the detection limit or at the analyte level.

Where the test method does not specify QA/QC procedures, all of the above shall apply.

Trip blank(s), laboratory blank(s), spiked samples, and duplicate sample analyses shall be reported on either the laboratory testing report or the QA/QC summary report. Spiked samples shall be reported as percent spike recovery.

c. Other QA/QC Requirements

Acetone, methylene chloride, chloroform, and methyl ethyl ketone (MEK) detected in soil and ground water contaminants/samples shall be considered laboratory contaminants. It shall be the laboratory's responsibility to determine if the laboratory processes introduced these chemicals to the samples or if they are valid detections. The mere presence of common laboratory contaminants in the sample is not sufficient to conclude that the detections are the result of laboratory contamination. An evaluation of the data is necessary to support any such

claims. If the detections are the result of laboratory contamination, measures shall be taken by the laboratory to correct the problem. A discussion of suspected laboratory contamination, the evaluation, determination, and corrective measures taken shall be included in the report.

With the draft Site Investigation report, the Consultant shall submit to Caltrans the laboratory's written discussion documenting QA/QC evaluation and analytical checks.

Task Orders which require more than 50 soil or ground water samples, Work Plans, and Reports, shall also include a holding timetable. The holding timetable shall include the sample collection date, the date the sample should be and was received at the laboratory and the dates the sample should be and was extracted and analyzed.

The discussion in the report shall provide information on the guidance used to evaluate analytical results.

All costs for laboratory QA/QC work and reporting are included in the proposal for each test method listed in List of Chemical Analyses.

The detection limits used shall be at or below the regulatory limits and/or action levels whichever is lower. Analytical methods used for each sample and matrix shall be specified in the report.

d. Quality Assurance/Quality Control (QA/QC) Report

The QA/QC summary reports shall include:

- i. Temperature of incoming samples.
- ii. Constituent/analyte.
- iii. Specific test method.
- iv. Date (include holding timetable for more than 50 samples).
- v. Detection limit of the specific test method (mg/kg or mg/liter).
- vi. Percent accuracy.
- vii. Percent precision.
- viii. Signature of laboratory manager or director.

e. GeoTracker Requirements

Some Task Orders shall include investigation at sites under State Water Resources Control Board (SWRCB) oversight. Analytical results, data and reports for these Task Orders shall be submitted by the Consultant to the SWRCB GeoTracker program which may be accessed at

[http://www.waterboards.ca.gov/ust/electronic\\_submittal/](http://www.waterboards.ca.gov/ust/electronic_submittal/) . Caltrans shall obtain a third party authorization for the purpose of uploading the groundwater information. Costs to laboratories and Consultants shall be compensated based on actual cost.

- f. List of Chemical Analyses
- i. (ICAP) U.S. EPA method 6010
  - ii. Any single element, including lead
  - iii. ARB Method 435
  - iv. Aromatic and Halogenated Volatile Organics
  - v. CA Waste Extraction Test (WET)
  - vi. CCR approved U.S. EPA series 200 methods
  - vii. Chlorinated Herbicides
  - viii. Combined GC/MS for Volatile Organics
  - ix. Cr, Hexavalent by U.S. EPA 7195
  - x. Diesel Fuel: Modified U.S. EPA 8015
  - xi. U.S. EPA 8000 series (GC only)
  - xii. U.S. EPA 8000 series (GC/MS)
  - xiii. Ethylene Glycol
  - xiv. Filtration for dissolved constituents
  - xv. Fish Bioassay
  - xvi. Gasoline Analysis Package: U.S. EPA 8015
  - xvii. Gasoline: Modified U.S. EPA 8015
  - xviii. GC/MS for Fuel Oxygenate Compounds
  - xix. GC/MS for Semi-volatile Organics
  - xx. GC/MS for Volatile Organics
  - xxi. Hydraulic Conductivity
  - xxii. ICAP any single element. U.S. EPA 6010
  - xxiii. Inorganic element analysis - element
  - xxiv. Inorganic element analysis - Extraction
  - xxv. Moisture Content
  - xxvi. Nonhalogenated Volatile Organics
  - xxvii. Oil and Grease
  - xxviii. Organochlorine pesticides
  - xxix. Organolead: per Title 22
  - xxx. Organophosphorus Pesticides
  - xxxi. PCB's
  - xxxii. Phased Contrast Microscopy
  - xxxiii. Phenols
  - xxxiv. Polarized Light Microscopy (PLM)
  - xxxv. Polynuclear Aromatic Hydrocarbons
  - xxxvi. Semivolatile organic compounds
  - xxxvii. Sieve Analysis
  - xxxviii. Soil pH

- xxxix. Specific Gravity
- xl. Total and Amenable Cyanide
- xli. Total Dissolved Solids
- xlii. Total Organic Carbon
- xliii. TPH Oil: Modified U.S. EPA 8015
- xliv. Transmission Electron Microscopy
- xlv. Turbidity in NTUs
- xlvi. Unit Weight (Bulk Density)
- xlvii. Volatile organic compounds
- xlviii. WET Analysis
- xlix. Lead

## DD. Report Requirements

### 1. Reporting Format

See minimum reporting requirement based on the type of investigation. The Consultant shall follow the reporting format specified below:

- a. Title sheet shall identify the Contract and Task Order numbers, all Expenditure Authorizations (EA's) and Project Numbers (EFIS) included in the report, project name, project location (shown in Postmile), Consultant name, name and title of author, and date prepared.
- b. Signature page shall include signature, title, professional registration seal, registration number, and expiration date of the Registered Geologist, Professional Engineer, or Certified Engineering Geologist licensed in the State of California responsible for the report and is the Consultant Task Order Manager.
- c. Table of Contents.
- d. Executive/Investigative Summary - This section shall present and summarize the findings of the report/investigation.
- e. Project Description - This section shall provide a brief description of the project for which the work was undertaken, the objective(s) of the work, a short chronology of the site activities, a summary of the previous site work and item of work completed for the work.
- f. Site Description including physical setting (geology, hydrogeology, hydrology, topography of site), location, legal description, site and vicinity characteristics, current use of the property, structures, roads, use of adjacent properties, maps, and copies of aerial photos.
- g. Investigative Methods - This section shall describe in detail the field methods used for the investigation work and any deviation from the work plan. This section shall also include a description of the investigative methodology employed including test procedures employed for the investigation purpose.

- h. Investigative Results and Field Observations - This section shall include a discussion of the conditions observed during the investigation, including site geology, historic data, hydrogeologic conditions, observed during the investigation, laboratory analytical results, and chemical test results (to be further described in “Laboratory” and “Laboratory Test Reports” Sections). The data shall be presented clearly and concisely, including reference to previous work or results, and shall be summarized in table form.
- i. Field deviation - includes discussion to address field deviation from the scope of the Task Order/work plan and the justification for the deviation.
- j. Field and Laboratory QA/QC information/discussion – Laboratory Data Validation Report shall be required for all Task Orders. Description of the measures that were implemented to ensure high quality and defensible data was obtained. Both field and laboratory procedures and any corrective action taken to correct problems need to be discussed.
- k. Decontamination Procedures – description of the procedure for reusable equipment and analytical results of equipment blanks.
- l. Chain of Custody forms.
- m. Discussion regarding the effects of contamination found in the laboratory QA/QC samples and method blanks.
- n. Conclusions and Recommendations - This section shall describe the type, lateral and vertical extent, estimated amount, and concentration of contamination present in the soil, soil vapor, surface water, and/or ground water. Regulatory concentration limits and level of any detected contamination shall be clearly identified and the impact of such limits to the project assessed. Recommendations shall be provided, clearly describing the next phase of investigation or no further investigation required, and the rationale for the recommendation. Recommendations for any necessary additional work to characterize the site and the estimated cost of that work shall be included in this section.
- o. Appendices - Reports shall contain, or be accompanied by appendices that contain, all data used to support statements of the report including, but not limited to:
  - i. Well and boring logs for both existing and new well and soil borings. This includes all wells that may influence hydrogeologic conditions of the site, not just wells used to develop cross sections. Both field and final logs shall be included in the report.
  - ii. Copies of well permits from the California Department of Water Resources, county regulatory agencies, or other applicable permits.
  - iii. Laboratory analysis of each sample tested. Laboratory reports shall include copies of completed and signed Chain of Custody forms that contain required U.S. EPA and California Department of Public Health Services information, Laboratory incoming sample receipt form, and test report cover letter signed by the

Laboratory Quality Assurance Officer or responsible personnel. The Laboratory reports shall include a narrative of any laboratory quality assurance test discrepancy with an evaluation of the reliability and usability of the data. (See “Laboratory Test Reports” Section for reporting requirements).

- iv. Tables containing the data for each type of contaminant and media sampled.
- v. Maps, cross-sections, photographs.
- vi. Surveyed elevations and horizontal positions of wells and borings, bench marks and monuments (third order survey). Map showing relative positions and coordinates of these features.
- vii. Reference List.

2. Initial Site Assessment (ISA) Reports /Phase I Environmental Site Assessment (ESA, Phase I ESA) Report

The reporting format shall conform to what is specified in ASTM Standard E1527-05 or its latest revision and Caltrans Initial Site Assessment Guidance Documents to identify the recognized environmental conditions from present and past activities for selected sites and adjacent properties.

The Initial Site Assessment (ISA) report shall include, but not be limited to, the following:

- a. Title sheet shall identify the Contract and Task Order numbers, all Expenditure Authorizations (EA’s) and Project Numbers (EFIS) included in the report, project name, project location (shown in Postmile), Consultant name, name and title of author, and date prepared.
- b. Signature page shall include signature, title, professional registration seal, registration number, and expiration date of the Registered Geologist, Professional Engineer, or Certified Engineering Geologist licensed in the State of California responsible for the report and is the Consultant Task Order Manager.
- c. Table of Contents.
- d. Investigative Summary - This section shall present and summarize the findings of the investigation.
- e. Project Description - This section shall provide a brief description of the project for which the investigation work was undertaken, the objective(s) of the work, a short chronology of the site activities, a summary of the previous site work and item of work completed for the work.
- f. Background section including:
  - i. Aquifer descriptions (depth to ground water, gradient, flow direction, conductivity, yield, quality and beneficial uses). Public sources such as California Department of Water Resources (DWR)

- reports, area site investigations, and United States Geologic Survey (USGS) reports shall be typical sources for this information.
- ii. Geologic units. Geologic and Hydrologic information should be scaled to the freeway project. The shallow subsurface conditions, for less than five (5) feet, shall have the greatest impact on construction. However, this does not preclude the Consultant from providing information on subsurface conditions greater than 50 feet in the vadose and saturated zones.
  - iii. Location and use of ground water monitoring wells in the project vicinity. Public sources such as the California Department of Water Resources, Regional Water Quality Control Boards, cities, and counties will have well records.
  - iv. A detailed description of contaminated sites identified in the records review, including the source, type and concentrations of contaminants, lateral and vertical extent of contamination, and active or past remedial actions including impact to the regional groundwater contamination, if any.
- g. Historical background summary.
- h. Investigative narrative including:
- i. Investigative methods and evaluation criteria.
  - ii. Known hazardous waste sites (include data including, but not limited to: problem type, Federal or State, impact, schedule for cleanup).
  - iii. Potential hazardous waste sites (name, type of operation, why suspect, potential area of impact).
  - iv. The following information for all known and potential hazardous waste sites:
    - The name, addresses, and telephone number of the business/owner(s) of each such site.
    - The type of hazardous waste/material containers involved at each site, including, but not limited to, sludge pits, ponds, underground or aboveground storage tanks, other container, and other variables.
    - Chemicals/hazardous materials that have been stored/used in the past at each site, and the known generators (if available) of that material.
    - Permits, violations, plans, records and any other information reviewed.
    - Site sketches, site photographs, and descriptive comments to identify important features such as major utilities at each site.
    - Site maps for every site with features of concern identified, at a scale of 1:1000 unless otherwise specified in the Task Order, and depicting the relationship between the

contamination and the proposed right-of-way and pertinent project features.

- i. Maps including site features, topography, corresponding symbols, locations of all borings and wells, and physical features such as geologic units, aquifer descriptions, and depth to ground water. All maps shall have title blocks, scale and north arrow. The Consultant shall obtain the Caltrans Contract Manager's approval of map scales.
- j. A description of how project work will affect, or impinge upon, the suspect site (for example, area of soil contamination in relation to construction excavation).
- k. The Consultant may be required to perform preliminary endangerment assessment (PEA) work. If the suspected contamination is impacted by the project, a description of how the suspect site will affect public health and the surrounding environment shall be required.
- l. When requested as part of the Task Order, for prediction of impact on the public, a description of how the suspect site will affect public health and the surrounding environment if that suspected contamination is impacted by the project (for Preliminary Endangerment Assessment work).
- m. A list of sites that are recommended for detailed site investigations. To facilitate scheduling these future site investigations, the sites on this list shall be prioritized—ranked by magnitude of potential hazardous waste problem and estimated expense for follow-up investigations, monitoring and mitigation. The rationale used for this prioritizing of sites shall be fully explained in the report.
- n. Description of the magnitude of each hazardous waste problem in terms of length of time and approximate costs for mitigating the problem.
- o. Description of future plans, if any, (by the U.S. Environmental Protection Agency, California Department of Toxic Substances Control, Regional Water Quality Control Board, or others) to remediate the hazardous waste sites listed in the ISA.
- p. Resumes of personnel performing the ISA.
- q. Reference list.

The Consultant shall describe the ISA development process the Consultant followed and identify individuals or agencies contacted in developing the information included in the ISA. The Consultant shall include a complete list of contact names, phone numbers, dates contacted, and information reviewed. The Consultant shall explain any limitations in the adequacy and/or conclusions reached in the assessment.

3. Historic Research Report

Historic research reports that are prepared for Initial Site Assessments (ISAs) shall include the following, in addition to the standard title sheet, table of contents, investigative summary, and project description required for ISA reports:

- a. Survey scope and methods.
- b. Results of the research, focusing on properties which used or may have used hazardous materials and/or generated or may have generated hazardous waste.
- c. Interpretation of results.
- d. Recommendations.
- e. Sources consulted.
- f. Maps and figures, both historic and recent, depicting properties of interest.

Historic research reports shall be prepared and signed by an historian with a Master Degree in History.

4. Phase II Site Investigation Reports

The site investigation report at a minimum shall include the following items in the format described:

- a. Title sheet shall identify the Contract and Task Order numbers, all Expenditure Authorizations (EA's) and Project Numbers (EFIS) included in the report, project name, project location (shown in Postmile), Consultant name, name and title of author, and date prepared.
- b. Signature page shall include signature, title, professional registration seal, registration number, and expiration date of the Registered Professional Geologist, Professional Engineer, or Certified Engineering Geologist licensed in the State of California responsible for the report and is the Consultant Task Order Manager for the investigation.
- c. Table of Contents.
- d. Investigative Summary - This section shall present and summarize the findings of the investigation.
- e. Project Description - This section shall provide a brief description of the project for which the site investigation work was undertaken, the objective(s) of the work, a short chronology of the site activities, a summary of the previous site work and item of work completed for the work.
- f. Introduction -This section shall include the general objectives of the investigation, a short chronology of site activities, a summary of the previous site work, and items of work completed for the investigation.
- g. Site Description including physical setting (geology, hydrogeology, hydrology, topography of site), location, legal description, site and vicinity

- characteristics, current use of the property, structures, roads, use of adjacent properties, maps, and copies of aerial photos.
- h. Investigative Methods - This section shall describe in detail the field methods used for the investigation work and any deviations from the work plan.
  - i. Investigative Results and Field Observations -This section shall include a discussion of the conditions observed during the investigation, including site geology, historic data, hydrogeologic conditions observed during the investigation, laboratory analytical results, and chemical test results (to be further described in “Laboratory” and “Laboratory Test Reports” Sections). The data shall be presented clearly and concisely, including reference to previous work or results, and shall be summarized in table form.
  - j. Field deviation - includes discussion to address field deviation from the scope of the Task Order/work plan and the justification for the deviation.
  - k. Field and Laboratory QA/QC information/discussion - Laboratory Data Validation Report shall be required for all Task Orders. The Laboratory Data Validation Report shall include a description of the measures that were implemented to ensure that high quality and defensible data was obtained, and a discussion of both field and laboratory procedures and any corrective action taken to correct problems.
  - l. Discussion regarding the effects of contamination found in the laboratory QA/QC samples and method blanks.
  - m. Description of any contacts with regulatory agencies or personnel.
  - n. Internal Data Validation - The Consultant shall perform data validation for each Task Order. Data validation shall be performed in conformance with U.S. EPA Region IX Data Validation Guidance.
  - o. Data Evaluation and Discussion - Site investigation results shall be evaluated in the report. Data evaluation shall include:
    - i. Maps showing the site, topography, feature locations, boring and well locations, vertical and horizontal extent of contamination, contour maps of contaminant concentrations, and hydraulic gradient. All maps shall have title blocks, scale, and north arrow. The Consultant shall obtain the Caltrans Contract Manager’s or Caltrans designee’s approval of map scales.
    - ii. Site maps with sample points and depths indicated, concentrations that exceed action levels and/or regulatory limits noted and depth and contaminant specific concentration contours demonstrating source areas, including the locations of any field tests.
    - iii. Cross sections showing subsurface structural features, geologic and hydrologic conditions, sampling results, and estimated extent of contamination. The Consultant shall estimate the volumes of contaminated soil and ground water present and shall describe

- fully the assumptions and calculations on which estimates are based.
- iv. Charts showing contamination levels of soil, soil vapor, surface water, and/or ground water in specific, identifiable locations.
  - v. Consultant shall use Trimble Pathfinder Pro XR or XRS or comparable GPS unit to record the locations. Positions shall have a horizontal accuracy of less than one meter. Features shall be collected as point, line or area features based on need including: 1. Trimble format raw data files (.ssf) and 2. corrected data files (.cor). Corrected data shall be submitted in two formats: 1) Point data as latitude/longitude, WGS 1984 datum and decimal-degree units, and 2) US State Plane 1983, for the appropriate CA zone, and have units of meters.
  - vi. Data that has a spatial reference and is included in mapping for the project shall be delivered in shapefile format. Coordination shall be made with the Caltrans GIS specialist in order to receive basemap data for the subject mapping, and to address coordinate system and attribute requirements for the shapefiles. The final product delivered to Caltrans shall include a standard writeable CD labeled with project information and CD contents that includes the final report, maps, GPS information and tables.
  - vii. Color photographs that document the site surroundings, the investigation area with flagged boring locations, and any significant geological features. If specified in the Task Order or requested by the Caltrans Contract Manager, the Consultant shall provide additional photographs that document the progress of the investigation and any significant areas or activities.
  - viii. Statistical analysis of sampling results, estimating trends, contaminant distribution, and average concentration.
  - ix. Maps, cross sections, and graphs that shall be supported by data and shall be included in the reports.
  - x. Summary of laboratory results.
  - xi. Table summarizing all sampling results, including sample location, media, sample depth, field and laboratory identification numbers, and analytical results.
  - xii. GPS data collection and results.
- p. Conclusions and Recommendations - This section shall describe the type, lateral and vertical extent, estimated amount, and concentration of contamination present in the soil, soil vapor, surface water, and/or ground water. Regulatory concentration limits and level of any detected contamination shall be clearly identified and the impact of such limits to the project assessed. Recommendations shall be provided, clearly describing the next phase of investigation or no further investigation required, and the rationale for the recommendation. Recommendations for

any necessary additional work to characterize the site and the estimated cost of that work shall be included in this section.

- q. Identification of Consultant and Subconsultants personnel performing work, including resumes, if this information was not provided in the cost proposals or work plan.
- r. Appendices- Reports shall contain, or be accompanied by appendices that contain, all data used to support statements of the report including, but not limited to:
  - i. Well and boring logs for both existing and new well and soil borings. This includes all wells that may influence hydrogeologic conditions of the site, not just wells used to develop cross sections. Both field and final logs shall be included in the report.
  - ii. Copies of well permits from the California Department of Water Resources, county regulatory agencies, or other applicable permits.
  - iii. Laboratory analysis of each sample tested. Laboratory reports shall include copies of completed and signed Chain of Custody forms that contain required U.S. EPA and California Department of Public Health Services information. Laboratory incoming sample receipt form and test report cover letter signed by the Laboratory Quality Assurance Officer or responsible personnel. The Laboratory reports shall include a narrative of any laboratory quality assurance test discrepancy with an evaluation of the reliability and usability of the data. (See “Laboratory Test Reports” section for reporting requirements).
  - iv. Tables containing the data for each type of contaminant and media sampled.
  - v. Maps, cross-sections, photographs.
  - vi. Surveyed elevations and horizontal positions of wells and borings, bench marks and monuments (third order survey). Map showing relative positions and coordinates of these features.
- s. Reference list.

## 5. Groundwater Monitoring Well Installation Reports

The monitoring well installation reports shall include the following items specific to drilling activities:

- a. Summary of Procedures – drilling, construction, development and sampling procedures, including type and size of drilling rig, screen, casing, and equipment used for collecting samples, and other drilling procedure documents.
- b. Maps – includes a map showing well locations and adjacent pertinent structures.
- c. Well Data - includes monitoring well as-built construction diagrams, well construction details, diameter and total depth of borings and wells

installed, drilling fluids used, well logs with soil description, daily well drilling details, wellhead elevations, wellhead completion information, grout mixture, methods of grout emplacement, casing length, screened intervals and depth, locations of centralizers, sanitary seals, and filter pack material.

- d. X, Y and Z survey data.
- e. A Registered Geologist or Certified Engineering Geologist licensed in the state of California shall certify that the well was installed in compliance with all appropriate regulatory requirements.

#### 6. Monitoring Well Reports

Monitoring well reports shall include a summary of any field activities and observations, water level measurements, groundwater gradient, and a summary of the laboratory results and conclusions from the work. Analytical results for samples taken from permanent monitoring wells shall be uploaded to the State Water Resources Control Board GeoTracker electronic reporting system. The following shall be included as appendices, as appropriate to the investigation or as specified by the Caltrans Contract Manager or Caltrans designee:

- a. Site Background.
- b. Base maps with groundwater gradient.
- c. Discussion of changes noted from last season or monitoring event. Base maps with contaminant concentrations.
- d. Charts of changes in ground water elevation with time, elevation vs. contaminant concentrations.
- e. Groundwater sampling field data sheets.
- f. Cumulative tables of well elevations, analytical and water data.
- g. Laboratory reports (in tabular form).
- h. Chain of Custody forms.
- i. Purge water disposal documentation.
- j. Geotracker submittal confirmation number.

#### 7. Soil Gas Survey Reports/Soil Gas Investigation Reporting Requirements

When soil gas activities are included in the Task Order the following categories of information shall be included in the report, in addition to the general site investigation reporting requirements:

- a. Title sheet shall identify the Contract and Task Order numbers, all Expenditure Authorizations (EA's) and Project Numbers (EFIS) included in the report, project name, project location (shown in Postmile), Consultant name, name and title of author, and date prepared.
- b. Signature page shall include signature, title, professional registration seal, registration number, and expiration date of the Registered Geologist, Professional Engineer, or Certified Engineering Geologist licensed in the

State of California responsible for the report and is the Consultant Task Order Manager.

- c. Executive Summary – Summarize the findings of the report.
- d. Data Evaluation - Detailed description of field activities, any deviations from the work plan, analytical methods used, laboratory analytical results, source areas, lateral and vertical extent of vapor contaminant plume, special distribution of volatile organic compounds (VOCs) in the subsurface and recommendations for additional work.
- e. Maps showing location of the soil vapor probes, other relevant site features, such as boring and monitoring well locations, boring logs, vapor probe construction diagrams, cross sections incorporating information from the vapor sampling, and iso-concentration maps. Maps and cross sections shall include title blocks, scales, and north arrows.
- f. Data Presentation
  - i. Concentration contour map of sample area with the property boundaries indicated and probe location (logged and numbered) shown.
  - ii. Explanation of data anomalies.
- g. Description of Soil Gas Survey/Daily Work Description Summary
  - i. Daily logs of sampling procedures and results.
  - ii. Chronology of daily sampling and probe hole logs.
  - iii. Documentation of borehole filling procedures.
- h. Quality Assurance/Quality Control (QA/QC) Summary
  - i. description of procedures, results, corrective action taken and effect on data, field and laboratory, leak check, purge volume test, surrogates, vacuum test, duplicate samples, blanks, etc.
  - ii. table comparing QA sample results with known QA sample concentrations
- i. Decontamination Procedures – description of the procedure for reusable equipment and analytical results of equipment blanks
- j. Log Book
  - i. Sample date and time.
  - ii. Ambient air and soil temperature.
  - iii. Weather conditions.
  - iv. Sample number.
  - v. Sample depth.
  - vi. Evacuation time between samples.
  - vii. Flow rate (cubic centimeters per minute).
  - viii. Probe and adapter numbers and volume of the sample probe.
  - ix. Number of purge volumes, leak check test compounds; surrogates used, locations of duplicate samples.
  - x. Number of sampling points.

- xi. Observations (including, but not limited to: ground conditions, presence of concrete, or asphalt paving, soil appearance, surface waters, odors, vegetation).
- xii. Backfill procedure and materials.
- xiii. Electronic data deliverables submitted in the format specified by the regulating agency.

## 8. Geophysical Reports

A Registered Professional Geophysicist licensed in the State of California shall sign geophysical reports. When geophysical activities are included in the Task Order, the following additional categories of information shall be presented in the site investigation report:

- a. Data Presentation and Data Evaluation shall be presented in a manner that may be interpreted by a layperson including the use of common language to describe anomalies, use of graphics, and explanations of how the geophysical tool works. Specific information includes:
  - i. Maps showing the survey area with property or site boundaries.
  - ii. Mapping at a scale no smaller than 1:1000.
  - iii. Identification of sampling points for magnetometer surveys measured at no greater than five (5) feet intervals, unless the Caltrans Contract Manager or Caltrans designee approves greater intervals.
  - iv. Cross sections along lines of investigation illustrating subsurface conditions, delineating the boundaries, man-made objects, and others as appropriate.
  - v. QA/QC - instrument calibration, verification, corrections, interferences.
- b. Description of field work.
- c. Interpretation of all data, conclusions, and recommendations for additional work.
- d. Microsoft Excel or ACSII - compatible format computer files of the site investigation and evaluation data including a summary of all supporting data used to compile the report, if requested by the Caltrans Contract Manager or Caltrans designee.
- e. Raw data if requested by the Caltrans Contract Manager or Caltrans designee.
- f. A thorough discussion of field work and any deviations from the work plan. Limitations of the geophysical methods and equipment employed.

9. Trenching Reports

When trenching activities are included in the Task Order the following additional categories of information shall be included in the site investigation report:

- a. Detailed description of the trench and subsurface conditions with color photographs and sketches to illustrate subsurface features.
- b. A description of the field activities, type of equipment used for excavation of trench, area used to store excavated materials, backfill operations, implementation of Health and Safety Plan.
- c. A summary table of OVA (Organic Vapor Analyzer) and PID (Photo Ionization Detector) readings, when they were taken, measurement times, and summary tables of the sample results.
- d. A map showing the trench locations, trench logs showing sampling locations within the trenches, as well as other relevant site features, such as boring and monitoring well locations, stratigraphy, changes in lithology, and structural features, and cross sections incorporating information from the trench log and sampling. Maps, logs, and cross sections shall include title blocks, scales, and north arrows.
- e. Data Evaluation shall provide an analysis of the subsurface conditions found in the trench and how the results relate to conditions found in any other phase of the investigation.
- f. Copies of required permits for trench excavation.

10. Risk Based Corrective Action (RBCA) Reports

- a. The reporting format shall follow the general Site Investigation format requirements. The contents shall follow ASTM Designation E 1739-5/1739-95, Standard Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites. See <http://webstore.ansi.org/> and <http://www.astm.org/Standard/index.shtml>. Risk assessments may be performed for human receptors, for biological/ecological system receptors, or for both as specified in the Task Order.
- b. Tier 1 or Tier 2 evaluations may be completed as directed in the Task Order
- c. Reporting shall follow ASTM E1739 6.11. See <http://webstore.ansi.org/> and <http://www.astm.org/Standard/index.shtml>.

11. Laboratory Test Reports

Complete copies of all laboratory reports, including QA/QC summary reports, shall be placed in an appendix of the laboratory report. Draft copies of raw laboratory data shall be faxed, or electronically submitted, to the Caltrans Contract Manager or Caltrans designee when requested. Chromatographs,

graphical presentations and summaries of the laboratory data shall be provided with the laboratory reports at no additional cost to Caltrans. The Consultant shall keep the chromatographs on file and shall provide them upon Caltrans' request. Laboratory test reports shall contain all of the following information:

- a. Name of analytical laboratory.
- b. Address of laboratory.
- c. Telephone number of laboratory.
- d. Laboratory number for each sample reported.
- e. Consultant's number for each sample reported, if applicable.
- f. Date sample(s) collected.
- g. Date sample(s) received by laboratory.
- h. Date of laboratory testing.
- i. Brief sample description (including, but not limited to soil, water, sludge).
- j. Specific test method.
- k. Extraction method utilized (if not unique to test method).
- l. Test result for each sample and method (reported in mg/kg or mg/liter as appropriate).
- m. Limit of detection for each test method (reported in mg/kg or mg/liter as appropriate).
- n. Written explanation of higher detection limits, dilution factors, laboratory contaminants, or other unusual results.
- o. Samples which failed QA/QC procedures and why.
- p. Date of test report.
- q. U.S. EPA Region IX's current Preliminary Remedial cleanup Goals (PRG) for industrial sites for the contaminants of concern when requested by the Caltrans Contract Manager or Caltrans designee.
- r. Signature and title of the director of the laboratory.

12. Hazardous Waste Management Plan/Remedial Action Options Report/Remedial Action Alternative Analysis

The Remedial Action Options Report shall be a separate report, which includes a review of all potentially feasible remedial actions and their potential costs. The review shall be of sufficient depth and breadth for Caltrans to make an informed decision on the most appropriate remedial technology for a specific hazardous waste problem at a specific site. The development of a Remedial Action Options Report does not include the design of a remedial action or cleanup. The options report shall include:

- a. An analysis of the "do nothing" alternative and analyses of a minimum of two (2) other remedial alternatives. The analysis of each alternative should address time; operation and maintenance requirements; risks to health and environment; cost-effectiveness; level of cleanup; potential economic impact on the responsible party; the physical limitations of the

- site; and the impact of the cleanup methods on the continuing site activities, future construction activities and use by Caltrans.
- b. Prediction of each treatment alternative's effectiveness on the material in question, and the applicability of the alternative relative to the project life.
  - c. Reliability of each alternative in terms of its demonstrated degree of effectiveness at other sites and its operation and maintenance requirements.
  - d. Ability to implement each alternative, in the context of the site conditions, location, and time frame.
  - e. Discussion of any possible adverse impacts to public and site-worker health and safety presented by alternative treatments.
  - f. The regulations that will control each alternative and the permits required to implement the alternative.
  - g. Identification of the public health concerns of the current site conditions, as well as those during and after the treatment or alternative action.
  - h. Direct and indirect capital costs, including engineering, equipment, labor and materials for the installation and construction of each remedial action alternative.

If the Consultant finds that any additional data and information are needed before a remedial action alternative may be chosen and designed, the Consultant shall describe them in the report.

### 13. Survey Reports

This section describes standard reporting requirements for all types of surveys (including, but not limited to, asbestos, lead-based paint, PCBs, containers, barrels, tanks, and any other survey type required by this Contract).

The report shall include, but not be limited to:

- a. Title Sheet shall identify the Contract and Task Order numbers, all Expenditure Authorizations (EA's) and Project Numbers (EFIS) included in the report, project name, project location (shown in Postmile), Consultant name, name and title of author, and date prepared.
- b. Signature page shall include signature, title, professional registration seal, registration number, and expiration date of the Registered Professional Geologist, Professional Engineer, or Certified Engineering Geologist licensed in the State of California responsible for the report and is the Consultant Task Order Manager for the investigation. Additionally the certified asbestos or lead inspector responsible for asbestos or lead survey work shall sign the report.

- c. Table of Contents.
- d. Investigative Summary of Survey - This section shall present and summarize the findings of the survey.
- e. Project Description - This section shall provide a brief description of the project for which the survey work was undertaken, the objective(s) of the work, a short chronology of the site activities, a summary of the previous site work and item of work completed for the work.
- f. Introduction - This section shall describe the general objective of the investigation, a short chronology of the site, previous site work, and items of work completed for the survey investigation.
- g. Investigative Results and Field Observations - This section This section shall include a discussion of the conditions observed during the investigation, including site geology, historic data, hydrogeologic conditions, observed during the investigation, laboratory analytical results and chemical test results (to be further described in “Laboratory” and “Laboratory Test Reports” Sections). The data shall be presented clearly and concisely including reference to previous work or results, and shall be summarized in table form. It shall include, but not be limited to, a discussion of at least the following items:
  - i. Location of items including, but not limited to, Asbestos Containing Material (ACM), lead-based paint, Polychlorinated biphenyls (PCB), barrel(s), tank(s), and other potential hazardous materials.
  - ii. Estimated quantities of items including, but not limited to, ACM, PCB, barrel(s), tank(s), and other potential hazardous materials.
  - iii. Type of material (including, but not limited to, tiles, acoustical spray-on and insulation).
  - iv. Condition/distribution of material.
  - v. Locations where obvious flaking lead-based paint would have to be removed prior to demolition.
  - vi. Drawing or plan showing location of the following (at a scale no greater than 1:200, unless otherwise specified in the Task Order):

- Sampling points.
  - ACM - friable or non-friable
  - Containers - including, but not limited to, barrels, and tanks
  - Hazardous materials/waste storage
- h. Photographs of the exterior of structures, of sample locations, of representative surface conditions, and of any significant areas, as requested by the Caltrans Contract Manager or Caltrans designee.
- i. Chemical Test Results - As stated in – “Laboratory” and “Laboratory Test Reports” Sections
- j. Naturally-occurring asbestos laboratory results shall include point counting, as per California Air Resources Board (ARB) Method 435, Section 7, which may be found at <http://www.arb.ca.gov/toxics/asbestos/tm435/tm435.htm>.
- k. The Consultant shall also discuss whether there is a need for National Emissions Standards for Hazardous Air Pollutants (NESHAP) and Air Quality Management District notifications during construction and/or demolition.
- l. Appendices - Reports shall contain, or be accompanied by appendices that contain, all data used to support statements of the report including, but not limited to:
- i. Copies of permits needed to gain access to site (if applicable).
  - ii. Laboratory analysis of each sample tested. Laboratory reports shall include copies of completed and signed Chain of Custody forms that contain required U.S. EPA and California Department of Public Health Services information. Laboratory incoming sample receipt form and test report cover letter signed by the Laboratory Quality Assurance Officer or responsible personnel. The Laboratory reports shall include a narrative of any laboratory quality assurance test discrepancy with an evaluation of the reliability and usability of the data. (See “Laboratory Test Reports” section for reporting requirements.)
- m. The Survey Report shall include a discussion of waste disposal requirements, including waste classification, packaging requirements, USDOT transportation requirements, manifesting and generator ID requirements.

14. Aerially Deposited Lead (ADL) Reports/Lead in Soil Investigation Report

The lead in soil investigation report shall include the following items in the format described below:

- a. Title sheet shall identify the Contract and Task Order numbers, all Expenditure Authorizations (EA's) and Project Numbers (EFIS) included in the report, project name, project location (shown in Postmile), Consultant name, name and title of author, and date prepared.
- b. Signature page shall include signature, title, professional registration seal, registration number, and expiration date of the Registered Geologist, Professional Engineer, or Certified Engineering Geologist licensed in the State of California responsible for the report and is the Consultant Task Order Manager.
- c. Table of Contents.
- d. Executive/Investigative Summary - This section shall present and summarize the findings of the report/investigation.
- e. Project Description - This section shall provide a brief description of the project for which the work was undertaken, the objective(s) of the work, a short chronology of the site activities, a summary of the previous site work and item of work completed for the work.
- f. Investigative Methods -This section shall describe in detail the field methods used for the investigation work and any deviations from the work plan.
- g. Investigative Results and Field Observations - This section shall include a discussion of the sediment conditions observed during the investigation, including site geology, historic data, hydrogeologic conditions observed, during the investigation, laboratory analytical results, and chemical test results (to be further described in "Laboratory" and "Laboratory Test Reports" Sections). The data shall be presented clearly and concisely, including reference to previous work or results, and shall be summarized in table form.
- h. Data Evaluation and Discussion - Site investigation results shall be evaluated in the report. The data evaluation and discussion shall include, but not be limited to, the following:
  - i. Maps showing the site, boring locations, depths, total and soluble lead levels found in each boring. Each map shall include a title block, scale, and north arrow. The Caltrans Contract Manager shall approve map scale. Map sheets supplied by the Caltrans Contract Manager shall have the Engineer's stamp removed from the maps used in the report.
  - ii. Table of laboratory results showing total and soluble lead levels in soil samples with specific locations identified. Extraction ratio for total versus soluble shall be included.

- iii. Statistical evaluation, tables, graphs, including histograms of original data and transformations, and showing the mean, median, standard deviation with 80% (two-tail) or 90% (one-tail) and 95% upper confidence limit (UCL) percentiles of the total lead and soluble lead distributions (as specified in the Task Order) shall be calculated and presented.
- iv. Calculated lead distributions using the current statistical method as specified in this Contract or by Caltrans including a diagram showing concentrations expected in each layer of soil, a graph showing the total versus soluble lead levels and a least squares (or other method) regression line, a determination of the concentration and show the total and soluble lead concentrations that would be expected in each layer of soil depending on how the various levels of soil were segregated, and comparison data to California Code of Regulations (CCR) Title 22 Criteria and DTSC ADL Variance. The statistical results shall be clearly described in the text.
- v. Data supporting all maps, cross sections, photographs, and graphs shall be included in the reports.
- vi. Conclusion and Recommendations - the discussion shall include descriptions of the type, extent, and estimated amount of lead contamination present in the soil and recommendations for material handling based on DTSC ADL Variance requirements or exceptions.
- i. Identification of Consultant and Subconsultants personnel performing work, including resumes, if this information was not provided in the cost proposals or work plan.
- j. Laboratory analysis of each sample tested. Laboratory reports shall include copies of completed and signed Chain of Custody forms that contain required U.S. EPA and California Department of Public Health Services information, Laboratory incoming sample receipt form and test report cover letter signed by the Laboratory Quality Assurance Officer or responsible personnel. The Laboratory reports shall include a narrative of any laboratory quality assurance test discrepancy with an evaluation of the reliability and usability of the data. (See "Laboratory Test Reports" Section for reporting requirements).
- k. At a minimum one representative typical cross-section shall be prepared showing average statistical lead concentrations (80% UCL and 95% UCL) for both TTLC and STLC data, relative to the depth and distance from the edge of roadway pavement.

15. Soil Boring Reports

Reports shall include the following specific documentation:

- a. Summary of Procedures – description of type of augers used and sample collection procedures.
- b. Maps showing boring locations and adjacent structures.
- c. Soil boring data.
- d. Soil boring logs with soil classification and certifying signature.
- e. Soil boring details, including surface elevations, number of borings, depths, diameter, backfill materials, and methods of grout emplacement after sampling.
- f. Field QA/QC and Laboratory Data Validation Report.

16. Plans, Specifications and Estimates (PS&E)

All plans, specifications and quantity calculations shall conform to Caltrans' requirements and shall be made available to Caltrans at stages specified in the Task Order milestones schedule, or upon request by the Caltrans Contract Manager.

- a. Design & Plans
  - i. Construction details for each design shall be prepared on Caltrans plan sheets. Blank reproducible sample plan sheets or electronic copies shall be provided by Caltrans.
  - ii. Electronic plan files shall be submitted to the Caltrans Contract Manager or Caltrans designee. Compression of the files may be required using PKZip (.zip) version 2.04. Information on zip compression may be accessible at: <http://www.winzip.com>.
  - iii. Construction details shall be submitted as Microstation 5.\* and above (.dgn) files shall use the Caltrans standard tables and conform to the Caltrans CADD user Manual, found at: <http://www.dot.ca.gov/hq/oppd/cadd/usta/caddman/english/toc.htm>.
  - iv. Each plan sheet shall bear the Registered Professional Engineer licensed in the State of California registration seal with the signature, license number and registration certificate expirations date of the engineer who is in "Responsible Charge" for developing the plan.
  - v. Each sheet shall be signed by the engineer who prepared the design.
  - vi. All designs shall be independently checked by a qualified Registered Professional Engineer licensed in the State of

- California. Each sheet shall be signed by the engineer who performed the independent design check.
- vii. The calculations for both the design and the independent design check (indexed with page numbers) shall be submitted as part of the 65%, 90% and 100% submittal requirements. The respective calculations shall bear the Registered Professional Engineer licensed in the State of California registration seal with the signature, license number and registration certificate expiration date of the Design engineer and independent check engineer.
  - viii. All analytical results, plans, designs, specifications, estimates, notes, calculations, analysis, reports, graphics, drawings, visual simulations, studies, product , data, manuals, details, deliverables, backup documents, other documents, and other items required by this Contract shall be submitted in both hardcopy and unprotected and modifiable electronic files in the Caltrans-approved forms and in the Caltrans-approved and designated electronic formats, in accordance with the guidelines in this Contract and each Task Order, and shall conform to Caltrans standards and the requirements of the Caltrans Office Engineer at the end of Contract or when requested by the Caltrans Contract Manager or Caltrans designee. The unprotected and modifiable electronic files shall include the responsible person's electronic signature and seal. The Consultant shall verify the latest version of software used prior to submittal. The Consultant shall also provide plot parameter (.par) or IPARM (.i) files in accordance with I-Plot standards.
  - ix. All electronic software(s) developed, database generated, spread sheet, and intellectual properties developed during the life of this Contract shall become the property of Caltrans.

b. Project Specifications

- i. The Standard Special Provisions (SSP) are available for use by the Consultant on the Caltrans web site ([http://www.dot.ca.gov/hq/esc/oe/construction\\_standards.html](http://www.dot.ca.gov/hq/esc/oe/construction_standards.html)). The Special Provisions shall be prepared by the Consultant using Microsoft Word. The Caltrans Contract Manager shall supply any Standard Special Provisions to the Consultant that are not available on the internet. Also, the Special Provisions shall be submitted to Caltrans on a zip disk, formatted for the Mac Computer
- ii. The Consultant shall edit the Standard Special Provisions in conformance with the "Guide for the Submittal of Plans, Specifications, and Estimates", which is available on the Caltrans web site, found at:
- iii. <http://www.dot.ca.gov/hq/oppd/cadd/usta/ppman/default.htm>

- iv. Included in the Special Provisions shall be a construction contract item list for each structure along with a construction contract item list for all the structures. The Special Provisions shall contain a signed signature seal sheet of the Engineer who prepared the Special Provisions, or, of the Engineer under whose direction they were prepared
  - v. The Special Provisions shall be prepared in conformance with Section IV of the State document "Guide for the Submittal of Plans, Specifications, and Estimates" and with "Standards for the Preparation of construction contract Special Provisions," found at: <http://www.dot.ca.gov/hq/esc/oe/standards.php>
- c. Project Estimates
- i. A Consultant shall prepare a Cost Estimate in accordance with the requirements of Caltrans Policy and Guidelines, found at : <http://www.dot.ca.gov/hq/oppd/costest/costest.htm>
  - ii. Standard construction contract pay items are available to the Consultant on the Caltrans Policy and Guidelines web site. Additional construction contract pay items may be added to accommodate a specific project.
  - iii. A Suggested Working Day Schedule shall be prepared along with a total Working Day Schedule for the entire project
  - iv. Quantities for all construction contract items shall be substantiated by calculations. Quantity calculations shall be neat and orderly and shall show all sketches, diagrams, and dimensions necessary to allow them to be independently used by field inspectors

EE. Special Provisions

The Consultant shall adhere to the following Special Provisions:

- 1. SP-1: Caltrans and Consultant Representation
  - a. The Caltrans Contract Manager or Caltrans designee shall monitor the work performed by the Consultant under each Task Order. The Caltrans Contract Manager or Caltrans designee may consult with and be advised by representatives of the applicable Local and/or State regulatory agencies for the purpose of directing the Consultants' work about hazardous waste site investigation standards and cleanup goals necessary for the performance of this Contract.
  - b. The Consultant shall always be represented by professional/senior staff personnel who have experience in the performance of the work detailed in the Task Order when work is in progress on the site.

- c. The Consultant Task Order Manager or the Consultant's Field Supervisor shall be present when a Subconsultant is performing field work. Field work includes geophysical, asbestos survey, lead survey, drilling, trenching, sampling, mobile laboratory analysis, and drum removal.
2. SP-2: Non-Detailed/Other Work
    - a. The Consultant shall perform items of work not mentioned or completely detailed in this Contract, those are necessary or normally required as part of a Task Order development process, without additional compensation from Caltrans. Examples of items of "non-detailed or other work" are work plan development and work plan estimates.
    - b. Caltrans may encounter certain site-specific conditions that cannot reasonably be foreseen at the time of the Task Order. Where these conditions clearly impose an unreasonable cost burden on the Consultant due to changed conditions, Caltrans may amend the Task Order to add the additional requirements and costs in accordance with this Contract and address unforeseen and changed conditions at the project site.
3. SP-3: Investigation Completion Schedule
    - a. A preliminary investigation completion schedule based on the overall project schedule requirements shall be included in the Task Order offered to the Consultant. The Consultant may request a schedule modification if the requested schedule cannot be met. The Caltrans Contract Manager shall review the requested modification and may approve or deny the request. If the Consultant cannot accept the proposed schedule modification, the Task Order will not be offered to the Consultant.
    - b. The typical activities/deliverables for completing a site investigation are:
      - i. Task Order meeting/site visit
      - ii. Site investigation work plan
      - iii. Health & Safety plan
      - iv. Begin field work
      - v. Complete field work
      - vi. Task Order progress meetings
      - vii. Draft report
      - viii. Transmit Final report
      - ix. Drum removal/disposal of Investigative-Derived Waste (IDW)
    - c. As work progresses, the schedule may be amended and updated as agreed between the Consultant and the Caltrans Contract Manager.

4. SP-4: Health and Safety

For the Initial Site Assessment, Site Investigations, Surveys, Inspections and Testing, and any field work, the Consultant shall apply the following:

- a. The Consultant shall be solely responsible for the health and safety protection of its employees, Subconsultants, and Subconsultants' employees in performance of this Contract. The Consultant shall require all Subconsultant's Health and Safety Plan to be consistent with the Health and Safety Plan prepared for the Task Order. Caltrans assumes no responsibility for the health and safety of the Consultant or its Subconsultant employees or other non-State employees.
- b. All work performed by the Consultant shall conform to all applicable occupational health and safety rules, statutes, laws, codes, regulations, policies, procedures, ordinances, standards, specifications, performance standards, and guidelines, established by the State of California and the U.S. Government as applicable and safety instructions issued by Caltrans in the performance of this Contract. The Consultant shall be responsible for implementation of measures needed for the protection of field personnel.
- c. The site Health and Safety Plan shall be developed by an Industrial Hygienist, which shall characterize the potential Task Order site hazards. The site Health and Safety Plan shall be signed by a Certified Industrial Hygienist. During site investigation activities, a site safety officer (SSO) shall be designated and shall be responsible for enforcing the Health and Safety Plan.
- d. Before the field investigation begins, a copy of the Health and Safety Plan shall be distributed to all field personnel and they shall certify by signing the Health and Safety Plan that they have read, understand, and agree to comply with the site Health and Safety Plan.
- e. Non-compliance by the Consultant, the Consultant's personnel, or Subconsultant's personnel with the site Health and Safety Plan is grounds for suspension of the work without cost to Caltrans during that time, or for termination of Contract per Exhibit D, Section III, Termination of the Contract.
- f. The Consultant shall provide safe access to the Task Order worksite for the Caltrans Contract Manager or Caltrans designee and representatives of the applicable local and/or state regulatory agencies during normal field investigations work hours. Designated observation areas outside the work zone shall be established for these site visits. The site safety officer (SSO) shall accompany the representatives while on the site.
- g. All hazardous materials survey work may require the presence of the Certified Industrial Hygienist (CIH) who developed and approved the Health and Safety Plan.

5. SP-5: Site Safety Officer (SSO)
  - a. The Consultant shall designate a Task Order specific site safety officer (SSO) for each Task Order and site that is under active investigation. The site safety officer (SSO) shall present the Health and Safety Plan and provide and implement pre-field work safety awareness training in accordance with the Health and Safety Plan before the start of work. A site safety officer (SSO) or designated representative shall be present at all times at each site under active investigation. The site safety officer (SSO) shall be familiar with and shall be responsible for implementing the hazardous waste laws and regulations in California and with California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) and Federal OSHA requirements.
  - b. The site safety officer (SSO) or designated representative shall be available to accompany and provide safe access to the work-site for the Caltrans Contract Manager or Caltrans designee and/or representatives of the applicable Local, State, and/or Federal regulatory agencies during normal work hours or while they are on-site. Designated observation areas outside the work zone shall be established for these site visits.
  - c. The site safety officer (SSO) shall direct the implementation and operation of the Health and Safety Plan. The site safety officer (SSO) shall enforce compliance with the Health and Safety Plan by all persons while they are on-site.
  
6. SP-6: Decontamination
  - a. All personnel and equipment shall be decontaminated before leaving the site exclusion zone as specified in the site Health and Safety Plan.
  - b. The Consultant shall equip, supply, and maintain an on-site decontamination station for the drilling, installation, and sampling equipment. The Consultant shall ensure that this station has the capacity to contain all decontamination fluids used in the decontamination procedure. The Consultant shall collect these fluids in appropriate containers. The Consultant shall manage and dispose of these materials as part of the Task Order in compliance with all applicable regulations and permits.
  - c. The Consultant shall wash and clean all equipment before initiating work at the site. This includes drilling machines, pipe, rods, samplers, pumps, casing, screens and any other material brought on-site. Before reuse of any equipment at another drilling location at the site, all equipment shall be decontaminated.
  - d. General requirements for decontamination include:



- c. Task Order work under this Contract shall conform to the requirements of National Pollutant Discharge Elimination System (NPDES) Permit for the State of California Department of Transportation Properties, Facilities, and Activities, Order No. 99-06-DWQ, No. CAS000003, issued by the State Water Resources Control Board. This permit, hereafter referred to as the "Permit," regulates storm water discharges associated with construction activities
  - d. For ADL investigations, Consultant may use judgment to determine if IDW soil and water are non-hazardous waste and may be disposed on-site (soil placed back in borehole or spread around borehole, decontamination and ground water poured onto ground and allowed to infiltrate) as specified in the U.S. EPA publication OSWER Directive 9345.3-02 entitled "Management of Investigation-Derived Waste During Site Inspections". If Consultant determines that IDW are hazardous waste, then the IDW shall be disposed as specified in this Contract.
8. SP-8: Project Diary/Time sheets
- a. A Project Diary shall be maintained and prepared by the Consultant Contract Manager and/or the Consultant Project Engineer to document the conditions of all work performed under this Contract and a specific Task Order. The diary shall be filled out and signed to affirm its accuracy, shall identify the Consultant's employee who is responsible for project management and include, at minimum, the following:
    - i. Contract and Task Order numbers, all Expenditure Authorization (EA's) and Project Numbers (EFIS), and date prepared.
    - ii. Project name and location (shown in Postmile).
    - iii. Name and title of the personnel performing the work, including Subconsultants.
    - iv. Name of Consultant or Subconsultant performing work.
    - v. Date work is performed.
    - vi. Actual start and end times of work.
    - vii. Description of work being performed.
    - viii. Additional notations, observations, or remarks (such as field deviations from Task Order or work plan and rationale) to further characterize the site.
    - ix. Clarify work being performed.
  - b. The Consultant is required to submit a daily field notes to the Caltrans Task Order Manager with the required information incorporated.
  - c. A copy of the signed project diary shall be included with invoices submitted for payment to support all hours shown as billed on the invoice. Copies of actual time sheets (signed) and certified payroll records shall be furnished to the Caltrans Contract Manager to substantiate hours submitted for payment.

9. SP-9: Permit Fees

All permits (such as well/drilling permits) shall be paid at actual cost, with the exception of encroachment permits. See Special Provision SP-12 concerning encroachment permits.

10. SP-10: Site Access

During work hours the Consultant shall provide the Caltrans Contract Manager (or Caltrans designees) with safe access to the worksite during the field investigation and shall furnish, at no cost to its employees, Caltrans employees, and visitors, adequate safety equipment and personal protective equipment for such visits at the project site. The worksite is defined for these purposes as the areas of the site generally outside of the immediate exclusion zone in which such work as drilling is taking place. Mandated minimum safety equipment and Personal Protective Equipment shall include hard hats, safety vests, eye protection, tyvec coveralls, gloves, and boot covers. The Consultant shall be prepared to furnish these appropriate safety equipment and personal protective equipment for a maximum of six (6) visitors at any one time. All work performed and all materials furnished shall be subject to inspection by the Caltrans Contract Manager or Caltrans designee.

11. SP-11: Right of Entry

For Contract work on property not owned or controlled by Caltrans, all permits, agreements, and permissions shall be obtained by Caltrans in the advance of Consultant's activities, however:

- a. The Consultant shall not enter property or facilities not owned by Caltrans without prior permission or permit obtained through Caltrans.
- b. The Consultant shall notify Caltrans, in writing, in advance of their need to enter upon private property or facility to perform work.
- c. The Consultant's notice shall specify the date, purpose, duration, location, and the time of day of the Consultant's activities.
- d. The Consultant shall comply with all conditions imposed by the Caltrans Contract Manager and requirements set forth in the Permit To Enter.

The conditions of the Permit to Enter to the property shall be communicated to the Consultant during the Task Order meeting.

12. SP-12: Encroachment Permits

For Contract work on Caltrans' Right-of-Way, an executed contract constitutes the consultant's "Encroachment Permit." The Consultant (prime as well as any

Subconsultants) shall carry a copy of the fully executed Contract along with the pertinent Task Order(s) at all times while conducting work for Caltrans within Caltrans' Right-of-Way.

13. SP-13: Traffic Control

Traffic control (barricades, portable flashing beacons, and detours) necessary to accomplish the Contract work within Caltrans' right-of-way shall be performed by the Caltrans unless the Consultant is directed to provide traffic control in the Task Order. When Caltrans is to provide the traffic control, the Consultant shall request traffic control in advance of the work and obtain proper clearance. Traffic control, which is necessary outside of Caltrans' right-of-way, shall be the responsibility of the Consultant in coordination with the appropriate local agency.

14. SP-14: Hazardous Waste Manifest

The Caltrans Contract Manager or Caltrans designee shall sign all Hazardous Waste Manifests for hazardous waste removed from the site. The Consultant shall not sign the Hazardous Waste Manifest as the waste generator.

15. SP-15: Underground Services Alert (USA)

Before any Task Order work involving disturbance of the ground beyond surface sampling begins, the Consultant shall obtain an inquiry identification number from USA, documentation of which shall be given to the Caltrans Contract Manager or Caltrans designee prior to the start of any field work. The information shall be documented in the final report. In Northern and Southern California the Consultant should call 1-800-642-2444, 1-800-227-2600, or 811. USA should respond within 48 hours.

16. SP-16: Cost

The Consultant shall bear the cost of meeting the conditions of the Special Provisions (SP). The Consultant shall provide all technical personnel, labor, material, equipment, tools, field and office support services and incidental items necessary to accomplish any or all of the items of work.

FF. Remediation System Evaluation, Monitoring, and Reporting

1. Introduction

a. The purpose of these services is to evaluate, monitor, and report on remediation systems installed to mitigate past releases from underground storage tanks, indiscriminant dumping of wastes or other sources.

Mitigation or treatment processes shall vary and may include physical, chemical, thermal and biological.

- b. The purpose of these services is to maintain compliance with applicable laws and regulatory agencies. Applicable Federal laws and regulations may include, but not be limited to, Comprehensive Environmental Resource Compensation and Liability Act (CERCLA), Superfund Amendment and Reauthorization Act (SARA), and Resource Conservation and Recovery Act (RCRA). Local and State laws and regulations may include, but not be limited to those of the following agencies:
  - i. Regional Water Quality Control Board
  - ii. Department of Toxics Substance Control
  - iii. Integrated Waste Management Board
  - iv. Local Air Pollution Control Districts
  - v. Local Environmental Health Department.
- c. The scope of environmental remediation services that may be carried out under a Task Order encompasses the methods and activities necessary to evaluate, monitor, and report on the operation of the installed remediation systems to the appropriate regulatory agency. Using professional judgment, the Consultant shall recommend any repairs or modifications identified during the system monitoring and evaluation in the report to ensure that reports prepared for regulatory agencies are complete and representative of system operation.

## 2. General Requirements

- a. The Consultant shall review the Plans and Specifications, along with any Evaluation Monitoring Plan, that are provided by Caltrans for any remediation system prior to evaluating, monitoring, or reporting on the operation of any remediation system to regulatory agencies.
- b. Caltrans shall rely on the Consultant's expertise in recognizing problematic issues and make recommendations to address those issues.
- c. The Consultant shall perform all work in accordance with Local, State, and Federal statutes and regulations.
- d. Recommended remedies shall conform to environmental permits, decision document requirements and other applicable legal requirements.
- e. The Consultant shall identify all necessary approvals and permits, prepare signature ready permit application, and track the status of permit applications, as specified in each Task Order.
- f. The Consultant shall document and report on monitoring activities when requested by the Caltrans Contract Manager, and shall evaluate and advise Caltrans personnel on how to perform certain activities including operation, maintenance, repair, and reporting, as required.
- g. Monitoring activities shall be planned and implemented in a manner that protects existing site utilities, structures, surface features, service

operations, monitoring and other types of wells and other the general site environment. This includes the protection of trees, shrubs, and other vegetation.

- h. The Consultant shall conduct all activities with the intent of reducing the amount of pollution generated.
- i. Specific areas to be focused on are generation of solid waste, use of hazardous materials, use of ozone depleting chemicals, generation of hazardous waste and use of energy and water.

3. Specific Requirements

- a. The Consultant shall be capable of and provide engineering support with sufficient resources (either through in-house personnel or Subconsultant's personnel) to perform all required or requested activities including, but not limited to:
  - i. Assure compliance with Local, State, and Federal laws and coordinate with Local, State, and Federal regulatory agencies when applicable.
  - ii. Evaluate and monitor system performance.
  - iii. Prepare reports for Caltrans and/or regulatory agencies.
  - iv. Analyze and track system operation and performance.
  - v. Recommend system enhancement
  - vi. Identify maintenance needs of remediation system, components and media
  - vii. Collect environmental samples, analyze samples, and interpret the results in accordance with Local, State, and Federal regulatory requirements and protocols.
  - viii. Furnish site-specific health and safety plans.
  - ix. Electronically submit laboratory data (in compliance with AB 2886) to the State Water Resources Control Board (SWRCB Geotracker) on behalf of Caltrans.
  - x. Final reports shall include a confirmation number provided by the SWRCB that signifies the data was received.
  - xi. Obtain or maintain required permits.
  - xii. Provide field reviews and reconnaissance of the remediation enclosure.
  - xiii. Furnish and deliver all materials necessary to perform monitoring.
  - xiv. Provide technical support to ensure the systems operate at optimum performance.
  - xv. Provide remediation recommendations with the goal of achieving site closure and No Further Action from the regulatory agencies as cost-efficiently as possible.
- b. Specific remediation systems and remedial actions that the Consultant may encounter include, but not be limited to:
  - i. Containment

- ii. Soilvapor extraction
  - iii. Enhanced bioremediation
  - iv. pump and treat
  - v. Ozone sparging
  - vi. Air sparging
  - vii. Bioventing
  - viii. Natural attenuation
  - ix. Excavation
- c. The Consultant shall evaluate, and may occasionally make recommendations to revise elements of a remediation system as necessary, for effective and/or efficient performance of the system. Any recommended modifications shall be in concurrence with regulatory permit(s) and requirements and existing plans and specifications.
  - d. The Consultant shall provide engineering support to ensure that installed remediation systems are monitored for optimum system performance. The Consultant may be requested to develop manuals to operate and maintain new or modified systems and components.
  - e. When required, the Consultant shall develop and update a long-term operation and maintenance plan to maintain the effectiveness of the remediation systems.
  - f. The Consultant shall provide engineering or geologic support to evaluate and assess the remediation of impacted media, to document performance of the remediation technologies or comply with regulatory requirements.
  - g. The Consultant shall report results, conclusions, and recommendations to Caltrans and/or regulatory agencies. The Consultant shall collect samples from any media necessary to document system performance.
  - h. The Consultant shall interpret and evaluate data to determine the appropriate level of treatment and determine if any modifications to the system or operating parameters as required by subsurface conditions or regulatory agency direction are needed.
  - i. When conducting engineering evaluation of a treatment technology or remediation method, the Consultant may develop and implement a sampling plan for the treatment facilities and/or the zone of remediation.

#### 4. Sampling

- a. The Consultant shall supply:
  - i. An example of how the samples are to be collected including what laboratory will be performing the sample analysis.
  - ii. For each sample location, the constituents and pollutant parameters for which chemical analyses will be obtained.
  - iii. The method(s) of chemical analysis to be used.
  - iv. A description of the quality assurance (QA) and quality control (QC) procedures including the specific QA/QC samples to be taken.

- v. An estimate of analysis cost of sufficient detail to allow Caltrans to make decisions on the value of each sampling point.
- vi. All sampling activities shall have a quality assurance program to verify data credibility. Data may be for field and laboratory work.

5. Reporting

- a. As specified by the Task Order, Evaluation and Monitoring reports may include:
  - i. Narratives and maps of geologic cross sections and groundwater tables.
  - ii. Summary of all activities actually performed during evaluation and monitoring including field data collection, chemical testing, and remediation system monitoring.
  - iii. Regulatory criteria standards and cleanup goals for the subject site
  - iv. Summary of the results of site activities.
  - v. Chemical sampling and analysis data.
  - vi. Remediation and monitoring system modification capabilities, performance, operational information, system failures, and adjustments made to the remediation system during the reporting period.
  - vii. Comparison of the results to applicable cleanup levels and relevant historical groundwater monitoring and chemical data.
  - viii. Conclusions and recommendations with regard to the results of evaluation and monitoring activities conducted at the site.
  - ix. Recommendations and explanations regarding future monitoring, remedial action or closure at the site identified in Task Orders.

GG. Remediation System Design

- 1. The Consultant shall provide professional engineering services to design remediation systems as specified in a remedial action plan or similar document. This includes preparation of plans and specifications of such quality and detail that the remediation may be constructed from those plans and specifications.
- 2. Specific remediation systems that the Consultant may be tasked to design include, but not be limited to:
  - a. Containment
  - b. Soil vapor extraction
  - c. Enhanced bioremediation
  - d. Pump and treat
  - e. Ozone sparging
  - f. Bioventing

EA	Project #	Project Description	Location: Co/Rte/P.M.	Work To Be Performed
0F030	08-0002-0358	REMOVE & REPLACE OC STRUCTURE	SBD-60-0.9/1.8	ACM/ADL
0H470	08-1200-0074	WIDEN SHEEP CREEK BRIDGE	SBD-2-2.4	ACM/ADL
0K841	08-1400-0073	RECONSTRUCT OFFICE BLDG	SBD-215-6.4	ACM
0L710	08-0000-0431	CONSTRUCT SIDEWALKS	SBD-142-3.8/5.7	ADL
0N670	08-0000-0536	CONSTRUCT RAISED MEDIAN CURB	RIV-74-28.1/37.4	ISA/ADL
0N970	08-0000-0550	CONSTRUCT 4' MEDIAN BUFFER AND WIDEN EXISTING SHOULDER TO 8'. CONSTRUCT CENTERLINE RUMBLE STRIPS	SBD-395-35.5/45.9	ISA UPDATE/ ADL
0P390	08-0000-1025	WIDEN EXISTING SHOULDER TO 5' AND CONSTRUCT CENTERLINE AND SHOULDER RUMBLE STRIPS	SBD-18-101.5/115.9	ISA/ADL
0Q120	08-0002-0125	CONSTRUCT RAISED MEDIAN	SBD-18-99.45/100.9	ADL
0Q230	08-0002-0308	SIGNALIZE INTERSECTION	SBD-18-110.84	ADL
0R340	08-1200-0072	BRIDGE REHAB. SANTA ANA RIVER BRIDGE 54-0407	SBD-38-30.86	ACM
0P390	08-0000-1025	WIDEN SHOULDERS	SBD-18-101.5/115.9	ADL
1C250	08-1200-0274	RELOCATE ROADSIDE FACILITIES	SBD-10-5.97/6.33	ADL
1E050	08-1300-0139	LEFT TURN & WIDEN SHOULDER	RIV-74-R15.0	ADL
1E060	08-1300-0140	CONSTRUCT RAISED MEDIAN CURB/WIDEN HWY	SBD-18-98.08/99.45	ADL
34040	08-000-0610	REALIGN/WIDEN	SBD-395-R4.0/48.0	ISA
34770	08-0000-0616	MITIGATION LAND REALIGN & WIDEN TO 4-LANE EXPWY/FRWY	SBD-58-0.0/12.9	ISA/SITE INVEST.
36850	08-0000-0628	COMMERCIAL VEHICLE ENFORCEMENT FACILITY	SBD-15-177.3/181.1	ACM
38852	08-1200-0124	ASBESTO SURVEY- CITY CREEK BRIDGE REPLACE BRIDGE RAILS	SBD-330-32.4/33.7	ACM