

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>			1. CONTRACT ID CODE N/A	PAGE OF PAGES 1   121
2. AMENDMENT/MODIFICATION NO. 0004	3. EFFECTIVE DATE 03 MAY 5	4. REQUISITION/PURCHASE REQ. NO. N/A		5. PROJECT NO. (If applicable) SPEC. NO. 1143
6. ISSUED BY CODE		7. ADMINISTERED BY (If other than Item 6) CODE		
DEPARTMENT OF THE ARMY CORPS OF ENGINEERS SACRAMENTO 1325 J STREET SACRAMENTO, CALIFORNIA		SEE ITEM 7		

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		(√)	9A. AMENDMENT OF SOLICITATION NO. DACW05-03-B-0004
		×	9B. DATED (SEE ITEM 11) 2 APR 2003
			10A. MODIFICATION OF CONTRACTS/ORDER NO. N/A
			10B. DATED (SEE ITEM 13) N/A
CODE	FACILITY CODE		

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers  is extended,  is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

(√)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor  is not,  is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

NAPA RIVER/NAPA CREEK FLOOD PROTECTION  
NAPA, CALIFORNIA

**NOTE: DELETE SECTION 01320 IN ITS ENTIRETY.**

- 2 ENCLS 1) SF 1442, PRICING SCHEDULE, 00700, 00800, TABLE OF CONTENTS, 01354, 01500, 01505, 02230, 02301, 02310 & 02920L.  
2) NEW & REVISED DRAWINGS G-2, C-2 THRU 5, C-7, C-9, C-14, C-16 THRU 18, C-45, C-49 AND C-50.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)	

<b>SOLICITATION, OFFER, AND AWARD</b> <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO. DACW05-03-B-0004	2. TYPE OF SOLICITATION <input checked="" type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED(RFP)	3. DATE ISSUED 2-Apr-2003	PAGE OF PAGES 1 OF 199
	<b>IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.</b>			

**IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.**

4. CONTRACT NO.	5. REQUISITION/PURCHASE REQUEST NO. W62N6M-3071-2852	6. PROJECT NO.
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7. ISSUED BY DEPARTMENT OF THE ARMY CORPS OF ENGINEERS, SACRAMENTO 1325 J STREET SACRAMENTO CA 95814-2922  TEL:  FAX: (916) 557-7854	CODE DACW05	8. ADDRESS OFFER TO (If Other Than Item 7) CODE  <b>See Item 7</b>  TEL:  FAX:
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9. FOR INFORMATION CALL:	A. NAME JAMES E GARROR	B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) 916-557-5224
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**SOLICITATION**

**NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".**

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS(Title, identifying no., date):

Napa River/Napa Creek Flood Protection Project  
Napa, California

SPECIFICATION NO. 1143

DESCRIPTION: Work consists of excavation of marsh plain terrace and floodplain terrace in the east overbank of the Napa River from Kennedy Park to Imola Avenue. A new levee, with drainage structures, will be constructed to replace the levee removed along the existing riverbank. Existing riverbank stone protection and concrete rubble will be removed. A pedestrian bridge will be constructed over the Old Tulocay Creek. Drainage swales will be excavated in the floodplain terrace. A Storm Water Pollution Prevention Plan will be provided to the Contractor for implementation and maintenance. Asphalt recreation trails will be constructed on top of the levee.

THE BIDDERS ATTENTION IS DIRECTED TO SECTION 00100 IN THE SOLICITATION FOR INFORMATION REGARDING THE TOUR OF THE SITE.

ESTIMATED COST RANGE OF PROJECT: \$1,000,000 - \$5,000,000

NOTE: THIS PROCUREMENT IS RESTRICTED TO ONLY THOSE 8A FIRMS HAVING A VALID OFFICE GEOGRAPHICALLY LOCATED WITHIN THE SAN FRANCISCO SBA DISTRICT BOUNDARIES.

11. The Contractor shall begin performance within 10 calendar days and complete it within 310 calendar days after receiving  award,  notice to proceed. This performance period is  mandatory,  negotiable. (See FAR 52.211-10 \_\_\_\_\_.)

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? (If "YES," indicate within how many calendar days after award in Item 12B.) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	12B. CALENDAR DAYS  10
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13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and 0 copies to perform the work required are due at the place specified in Item 8 by 01:00 PM (hour) local time 15 May 2003 (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee  is,  is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 60 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

## SOLICITATION, OFFER, AND AWARD

*(Construction, Alteration, or Repair)*

### OFFER *(Must be fully completed by offeror)*

14. NAME AND ADDRESS OF OFFEROR <i>(Include ZIP Code)</i>	15. TELEPHONE NO. <i>(Include area code)</i>
	16. REMITTANCE ADDRESS <i>(Include only if different than Item 14)</i>
CODE	FACILITY CODE

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within \_\_\_\_\_ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS	SEE SCHEDULE OF PRICES
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18. The offeror agrees to furnish any required performance and payment bonds.

### 19. ACKNOWLEDGMENT OF AMENDMENTS

*(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)*

AMENDMENT NO.	DATE								

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER <i>(Type or print)</i>	20B. SIGNATURE	20C. OFFER DATE
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### AWARD *(To be completed by Government)*

21. ITEMS ACCEPTED:

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
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24. SUBMIT INVOICES TO ADDRESS SHOWN IN <i>(4 copies unless otherwise specified)</i>	<b>ITEM</b>	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304(c) <input type="checkbox"/> 41 U.S.C. 253(c)
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26. ADMINISTERED BY      CODE	27. PAYMENT WILL BE MADE BY:      CODE
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#### CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

<input type="checkbox"/> 28. NEGOTIATED AGREEMENT <i>(Contractor is required to sign this document and return _____ copies to issuing office.)</i> Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.	<input type="checkbox"/> 29. AWARD <i>(Contractor is not required to sign this document.)</i> Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
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30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN <i>(Type or print)</i>	31A. NAME OF CONTRACTING OFFICER <i>(Type or print)</i>	
30B. SIGNATURE	30C. DATE	TEL:      EMAIL:
		31B. UNITED STATES OF AMERICA BY
		31C. AWARD DATE

PRICING SCHEDULE

CONTRACTOR SHALL FURNISH ALL PLANT, LABOR, MATERIAL, EQUIPMENT, ETC. NECESSARY TO PERFORM ALL WORK IN STRICT ACCORDANCE WITH THE TERMS AND CONDITIONS SET FORTH IN THE CONTRACT TO INCLUDE ALL ATTACHMENTS THERETO.

LINE ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
0001	Clearing and Grubbing	50*	ACRE	\$ _____	\$ _____
0002	Remove Bank Protection Material from Existing River Bank	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0003	Construct and Remove Haul Road to Disposal Site	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0004	Stripping of Topsoil	37,600*	CY	\$ _____	\$ _____
0005	Excavation of Floodplain Terrace ( <b>terrace excavation above 4' NGVD</b> )	79,000*	CY	\$ _____	\$ _____
0006	Excavation of Marshplain Terrace ( <b>terrace excavation Below 4' NGVD</b> )	16,400*	CY	\$ _____	\$ _____
0006A	<b>Excavation of Marshplain Terrace (terrace excavation Below 4" NGVD), hauled to Gasser Disposal Site</b>	57,000*	<b>CY</b>	<b>\$ _____</b>	<b>\$ _____</b>
0007	Excavation of Floodplain Terrace Drainage Swales (1 through 5)	3,200*	CY	\$ _____	\$ _____
0008	Placement of Fill on Floodplain Terrace	2,400*	CY	\$ _____	\$ _____
0009	Excavation of Tidal Breach	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0010	Training Dike Embankment Fill	32,500*	CY	\$ _____	\$ _____
0011	Intermediate Fill (between Training Dike and Railroad Embankment)	3,400*	CY	\$ _____	\$ _____
0012	Recreation Trail/ Maintenance Road Aggregate Base Course	723*	CY	\$ _____	\$ _____

0013	Recreation Trail/ Maintenance Road Bituminous Surface Course	324*	TONS	\$ _____	\$ _____
0014	Planting Berm Fill	8,500*	CY	\$ _____	\$ _____
0015	Remove Existing Ramp With Maintenance Road (Sheet C-16)	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0016	Salvage and Reinstall Fencing in Kennedy Park	1,700*	LF	\$ _____	\$ _____
0017	Salvage and Reinstall Wooden Bollards	50	EA	\$ _____	\$ _____
0018	Install and Remove TemporaryChain Link Safety Fencing	1200*	LF	\$ _____	\$ _____
0019	Re-grade Railroad Ballast For Maintenance Road	2,650*	LF	\$ _____	\$ _____
0020	18" Concrete Culverts	100*	LF	\$ _____	\$ _____
0021	Levee Gates	2	EA	\$ _____	\$ _____
0022	Salvage and Reinstall Signage	5	EA	\$ _____	\$ _____
0023	Prefabricated Pedestrian Bridge	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0024	Pedestrian Bridge Abutments	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0025	Install, Maintain, and Remove Turbidity Curtain	5,200*	LF	\$ _____	\$ _____
0026	Native Grass Seeding	40*	ACRE	\$ _____	\$ _____
0027	Exotic Grass Seeding	30*	ACRE	\$ _____	\$ _____
0028	Soil Testing for Seeding	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0029	Discing for Seeding	40*	ACRE	\$ _____	\$ _____
0030	Pesticide Application for Seeding	3	EA	\$ _____	\$ _____
0031	Grass Seeding As-builts	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0032	Final Establishment Report for Seeding	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____
0033	Installation, Maintenance, and Removal of Storm Water Pollution Prevention Measures	1	<b>LUMP SUM</b>	LUMP SUM	\$ _____

0034 Raise sewer Manhole Rims at  
Gasser Disposal Site 3 EA \$\_\_\_\_\_ \$\_\_\_\_\_

0035 30" HDPE Storm Drain at  
Gasser Disposal Site 330\* LF \$\_\_\_\_\_ \$\_\_\_\_\_

SUBTOTAL ESTIMATED PRICE \$\_\_\_\_\_

OPTION

0036 Excavation of Training Dike  
Material from Secondary  
Borrow Site 8,000\* CY \$\_\_\_\_\_ \$\_\_\_\_\_

TOTAL ESTIMATED PRICE \$\_\_\_\_\_

\* QUANTITY IS AN ESTIMATED AMOUNT. SEE SECTION 00700, FAR 52.211-18, FOR VARIATION IN ESTIMATED QUANTITY CONTRACT CLAUSE.

1. Prices must be submitted on all individual items of this Pricing Schedule. Failure to do so may be cause for rejection of bids.
2. If a modification to a price based on unit price is submitted which provides for a lump sum adjustment to the total estimated price, the applications of the lump sum adjustment to each unit price in the Pricing Schedule must be stated. If it is not stated, the bidder/offeror agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the Pricing Schedule.
3. The bidder/offeror shall distribute his indirect costs (overhead, profit, bond, etc.) over all the items in the Pricing Schedule. The Government will review all submitted Pricing Schedules for any unbalancing of the items. Any submitted Pricing Schedule determined to be unbalanced may be considered nonresponsive and cause the bidder to be ineligible for award.
4. The lump sum, "LS", line items above are not "estimated quantity" line items and therefore are not subject to the Variation in Quantity contract clause.
5. The successful bidder/offeror grants the options listed in the Pricing Schedule to the Government. This option may be exercised any time up to 60 days after receipt of Notice to Proceed. Exercise of the option occurs upon mailing of written notice to the Contractor. Exercise will be made by the Contracting Officer. The price for exercise of the option includes all work and effort associated with the scope of that item. For determination of lowest bid, see paragraph titled EVALUATION OF OPTIONS in Section 00100 of this solicitation. No additional time for contract completion will be allowed when an option is exercised. The given contract completion time was formulated to include time necessary to perform all option work.
6. EFARS 52.214-5000 ARITHMETIC DISCREPANCIES (MAR 1995)

(a) For the purpose of initial evaluation of bids/offers, the following will be utilized in resolving arithmetic discrepancies found on the face of the Pricing Schedule as submitted by bidders/offerors:

- (1) Obviously misplaced decimal points will be corrected;
- (2) Discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected;
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid/offer evaluation, the Government will proceed on the assumption that the bidder/offeror intends the bid/offer to be evaluated on basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid/offer will be so reflected on the abstract of bids/offers.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid/offer is low.

cover stock meeting the 30 percent postconsumer material standard for use in submitting paper documents to the Government, it should use paper containing no less than 20 percent postconsumer material. This lesser standard should be used only when paper meeting the 30 percent postconsumer material standard is not obtainable at a reasonable price or does not meet reasonable performance standards.

(End of clause)

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debar Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the \$25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed \$25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principles, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than **310** calendar days after receipt of notice to proceed. The time stated for completion shall include final cleanup of the premises.

(End of clause)

## Section 00800 - Special Contract Requirements

52.231-5000 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE (MAR 1995)-  
EFARS

(a) This statement shall become operative only for negotiated contracts where cost or pricing data is requested, and for modifications to sealed bid or negotiated contracts where cost or pricing data is requested. This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals, and FAR Part 49.

(b) Allowable cost for CONSTRUCTION and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, CONSTRUCTION Equipment Ownership and Operating Expense Schedule, Region VII. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

NOTE 1: EP 1110-1-8 is available on the Internet at the following location:

<http://www.usace.army.mil/inet/usace-docs/eng-pamphlets/ep.htm>.

NOTE 2: Standard Form 1411 is no longer a current form. The Contracting Officer may require submission of cost or pricing data in the format indicated in Table 15-2 of FAR 15.408, specify an alternative format, or permit submission in the contractor's format. Information other than cost or pricing data may be submitted in the contractor's own format unless the use of a specific format is prescribed elsewhere in this contract.

## 52.232-5001 CONTINUING CONTRACTS (MAR 1995)

*(a) This is a continuing contract, as authorized by Section 10 of the River and Harbor Act of September 22, 1922 (33 U.S. Code 621). The payment of some portion of the contract price is dependent upon reservations of funds from future appropriations and from future contribution to the project having one or more non-federal project sponsors. The responsibilities of the*

Government are limited by this clause notwithstanding any contrary provision of the "Payments to Contractor" clause or any other clause of this contract.

(b) The sum of \$2,000,000\_ has been reserved for this contract and is available for payments to the contractor during the current fiscal year. It is expected that Congress will make appropriations for future fiscal years from which additional funds together with funds provided by one or more non-federal project sponsors will be reserved for this contract.

(c) Failure to make payments in excess of the amount currently reserved, or that may be reserved from time to time, shall not entitle the contractor to a price adjustment under the terms of this contract except as specifically provided in paragraphs (f) and (i) below. No such failure shall constitute a breach of this contract, except that this provision shall not bar a breach-of-contract action if an amount finally determined to be due as a termination allowance remains unpaid for one year due solely to a failure to reserve sufficient additional funds therefore.

(d) The Government may at any time reserve additional funds for payments under the contract if there are funds available for such purpose. The contracting officer will promptly notify the contractor of any additional funds reserved for the contract by issuing an administrative modification to the contract.

(e) If earnings will be such that funds reserved for the contract will be exhausted before the end of any fiscal year, the contractor shall give written notice to the contracting officer of the estimated date of exhaustion and the amount of additional funds which will be needed to meet payments due or to become due under the contract during that fiscal year. This notice shall be given not less than 45 nor more than 60 days prior to the estimated date of exhaustion.

(f) No payments will be made after exhaustion of funds except to the extent that additional funds are reserved for the contract. The contractor shall be entitled to simple interest on any payment that the contracting officer determines was actually earned under the terms of the contract and would have been made except for exhaustion of funds. Interest shall be computed from the time such payment would otherwise have been made until actually or constructively made, and shall be at the rate established by the Secretary of the Treasury pursuant to Public Law 92-41, 85 STAT 97, as in effect on the first day of the delay in such payment.

(g) Any suspension, delay, or interruption of work arising from exhaustion or anticipated exhaustion of funds shall not constitute a breach of this contract and shall not entitle the contractor to any price adjustment under the "Suspension of Work" clause or in any other manner under this contract.

(h) An equitable adjustment in performance time shall be made for any increase in the time required for performance of any part of the work arising from exhaustion of funds or the reasonable anticipation of exhaustion of funds.

(i) If, upon the expiration of sixty (60) days after the beginning of the fiscal year following an exhaustion of funds, the Government has failed to reserve sufficient additional funds to cover payments otherwise due, the contractor, by written notice delivered to the contracting officer at any time before such additional funds are reserved, may elect to treat his right to proceed with the work as having been terminated. Such a termination shall be considered a termination for the convenience of the Government.

(j) If at any time it becomes apparent that the funds reserved for any fiscal year are in excess of the funds required to meet all payments due or to become due the contractor because of work performed and to be performed

***under the contract during the fiscal year, the Government reserves the right, after notice to the contractor, to reduce said reservation by the amount of such excess.***

52.249-5000 BASIS FOR SETTLEMENT OF PROPOSALS (DEC 1995)

Actual costs will be used to determine equipment costs for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a termination settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

- (1) Actual costs for each piece of equipment or groups of similar serial or series equipment need not be available in the Contractor's accounting records to determine total actual equipment costs.
- (2) If equipment costs have been allocated to a contract using predetermined rates, those charges will be adjusted to actual costs.
- (3) Recorded job costs adjusted for unallowable expenses will be used to determine equipment operating expenses.
- (4) Ownership costs (depreciation) will be determined using the Contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).
- (5) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the Contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate.

52.0211-4851 SPECIAL CONSTRUCTION PROCEDURES (OCT 1992)

The Contractor's attention is also directed to Section: GENERAL REQUIREMENTS, paragraph: SPECIAL CONSTRUCTION PROCEDURES.

52.0211-4852 PERFORMANCE PERIOD (OCT 1992)

The Contractor shall complete the entire work ready for use not later than the number of calendar days after the date of receipt of Notice to Proceed as set out in the Completion Schedule below (calendar days are not to be added together):

Completion Schedule:

<u>Description</u>	<u>Calendar Days After Date of Receipt of Notice To Proceed</u>
(1) Excavation, Levee construction and Vegetation Installation	<b>145</b>
(2) Vegetation Establishment Period	<b>310</b>

52.0211.4853 WORK DAYS AND HOURS (APR 1992)

The normal work days and hours for this project will be Monday through Friday, excluding federal holidays, from 6:00 a.m. to 6:00 p.m. Access to the work site may be restricted to these hours and days. Work during other than normal hours and days must be coordinated in advance with the Administrative Contracting Officer.

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## SECTION 01354

## ENVIRONMENTAL PROTECTION FOR CIVIL WORKS

10/95

## PART 1 GENERAL

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## SECTION 01354

ENVIRONMENTAL PROTECTION FOR CIVIL WORKS  
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## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## CODE OF FEDERAL REGULATIONS (CFR)

40 CFR 261 Identification and Listing of Hazardous Waste

## ENGINEERING MANUALS (EM)

EM 385-1-1 (1992) U.S. Army Corps on Engineers Safety and Health Requirements Manual

## 1.2 DEFINITIONS

Environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of plant or animal communities; or degrade the environment from an aesthetic, cultural or historic perspective. Environmental protection is the prevention/control of pollution and habitat disruption that may occur during construction. The control of environmental pollution and damage requires consideration of air, water, land, biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive materials; and other pollutants.

## 1.3 SUBMITTALS

All submittals shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES. The following submittals do not include the entire list in Section 01330 and are only listed to identify the submittals that are applicable to Environmental Protection for Civil Works. Government approval is required prior to construction for all submittals with a "GA" designation. "GA/R" designation is for government approval on a periodic submittal (every 3 months) which must be subsequently forwarded to the RWQCB.

SD-08 Statements

Protection of Features List (paragraph 1.5.1); G.

Environmental Protection Plan (paragraph 1.6 to 1.6.5); G.

Storm Water Pollution Prevention Plan, Memorandum, and Certification by paragraph 3.6.5 ; G.

Work Area Plan (paragraph 3.6.1 and 3.6.2); G.

Self Monitoring Program & certification (paragraph 3.11.3.6); G, R.

Retention Pond Removal Plan (paragraph 3.8), if necessary to remove; G.

Temporary Excavation and Embankment Plan (paragraph 3.1.3), if necessary to excavate; G.

#### 1.4 SUBCONTRACTORS

Compliance with the provisions of this section by subcontractors will be the responsibility of the Contractor.

#### 1.5 ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor shall comply with all applicable Federal, State, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction. [Safety and health documents and procedures for hazardous, toxic, and radioactive waste (HTRW) site activities and underground storage tank (UST) removal are specified in Section 01351 SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST).]

##### 1.5.1 Protection of Features

This section supplements the Contract Clauses PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS; OPERATIONS AND STORAGE AREAS; and CLEANING UP, Section 00700. The Contractor shall prepare a list of features requiring protection under the provisions of the contract clause which are not specially identified on the drawings as environmental features requiring protection. This list of features shall be submitted by the contractor within 15 days of Notice of Award. The list will be signed by both the Contracting Officer and the Contractor upon mutual agreement as to its accuracy and completeness. The Contractor shall protect those environmental features, indicated specially on the drawings, in spite of interference, which their preservation may cause to the Contractor's work under the contract.

##### 1.5.2 Permits

The terms and conditions contained in any permits and environmental commitments obtained by the Government must be made a part of the contract. All construction must be in accordance with these federal and state

permits.

Waste Discharge Requirements (WDR) to meet Section 401 of the Clean Water Act (See paragraph 3.11)

The Biological Opinion to meet Section 7 of the Endangered Species Act (See paragraph 3.4)

General Stormwater Permit Requirements (See Section 01356)

This section supplements the Contractor's responsibility under the contract clause PERMITS AND RESPONSIBILITIES to the extent that the Government has already obtained environmental permits. These permits do not include any local permits. The contractor is responsible to contact the city and county agencies and obtain any necessary local permits. In addition to any local permits that may be needed, the contractor in general is responsible for obtaining any permits or licenses that may be necessary for construction that the Government has not obtained. The contractor shall maintain at the construction sites, copies of all permits and take statements.

#### 1.5.3 Special Environmental Protection Requirements

The Contractor shall comply with the special environmental requirements included at the end of this section. These special environmental requirements are an outgrowth of environmental commitments made by the Government during the project development.

#### 1.5.4 Environmental Assessment of Contract Deviations

The Contract specifications have been prepared to comply with the special conditions and mitigation measures of an environmental nature which were established during the planning and development of this project. The Contractor is advised that deviations from the drawings or specifications (e.g., proposed alternate disposal areas, staging areas, alternate access routes, etc.) could result in the requirement for the Government to reanalyze the project from an environmental standpoint. Deviations from the construction methods and procedures indicated by the plans and specifications which the Government determines may have an environmental impact will require an extended review, processing, and approval time by the Government. The Contracting Officer reserves the right to disapprove alternate methods, even if they are more cost effective, if the Contracting Officer determines that the proposed alternate method will have an adverse environmental impact.

#### 1.5.5 Environmental Compliance and Monitoring

All construction activity is subject to Federal Environmental laws including, but not limited to: The National Environmental Policy Act (NEPA); The National Historic Preservation Act (NHPA); Endangered Species Act; Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response Liability and Compensation Act (CERCLA); Clean Water Act (CWA); Clean Air Act (CAA); Safe Drinking Water Act (SDWA), Migratory

Bird Treaty Act, and applicable state, regional, and local equivalents. The Contractor is responsible for compliance with these laws. This includes environmental monitoring which is part of these laws.

#### 1.6 ENVIRONMENTAL PROTECTION PLAN

Within 15 calendar days of Notice of Award, the Contractor shall submit an Environmental Protection Plan for review and acceptance by the Contracting Officer. The Government will consider an interim plan for the first 30 days of operations. However, the Contractor shall furnish an acceptable final plan not later than 30 calendar days after receipt of the Notice to Proceed. Acceptance is conditional and is predicated upon satisfactory performance during construction. The Government reserves the right to require the Contractor to make changes in the Environmental Protection Plan or operations if the Contracting Officer determines that environmental protection requirements are not being met. The plan shall detail the actions which the Contractor shall take to comply with all applicable Federal, State, and local laws and regulations concerning environmental protection and pollution control and abatement, as well as the additional specific requirements of this contract. No physical work at the site shall begin prior to acceptance of the Contractor's final plan. The environmental protection plan shall include, but not be limited to, the following:

##### 1.6.1 List of State and Local Laws and Regulations

The Contractor shall provide as part of the Environmental Protection Plan a list of all State and local environmental laws and regulations which apply to the construction operations under the Contract and the requirements imposed by those laws, regulations and permits.

##### 1.6.2 Compliance with Environmental Requirements

The Contractor shall provide as part of the Environmental Protection Plan procedures to be implemented to provide the required environmental protection, to comply with applicable laws and regulations and to correct pollution due to accident, natural causes or failure to follow the procedures of the Environmental Protection Plan. The Environmental Protection Plan must address the requirements identified in this Section, such as the Spill Protection Plan, and particularly the REGULATORY REQUIREMENTS at the end of this Section in paragraph 3.11 that are necessary to ensure compliance with the Waste Discharge Requirements.

##### 1.6.3 Spill Control Plan

The Contractor shall include as part of the environmental protection plan, a Spill Control Plan. The plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or regulations. The Spill Control Plan

supplements the requirements of EM 385-1-1. This plan shall include as a minimum:

- a. The name of the individual who will be responsible for implementing and supervising the containment and cleanup.
- b. Training requirements for Contractor's personnel and methods of accomplishing the training.
- c. A list of materials and equipment to be immediately available at the job site, tailored to cleanup work of the potential hazard(s) identified.
- d. The names and locations of suppliers of containment materials and locations of additional fuel oil recovery, cleanup, restoration, and material-placement equipment available in case of an unforeseen spill emergency.
- e. The methods and procedures to be used for expeditious contaminant cleanup.
- f. The name of the individual who will report any spills or hazardous substance releases and who will follow up with complete documentation. This individual shall immediately notify the Contracting Officer in addition to the legally required Federal, State, and local reporting channels (including the National Response Center 1-800-424-8802) if a reportable quantity spill occurs. The plan shall contain a list of the required reporting channels and telephone numbers.
- g. The Spill Control Plan must also incorporate the Spill Reports requirements provided in the Self-Monitoring Program (SMP) in Attachment 4.1. Any spills of hazardous materials within the delta smelt habitat shall be cleaned up immediately and reported in the Spill Reports and any post-construction compliance reports.

#### 1.6.4 Recycling and Waste Minimization Plan

The Contractor shall submit a Recycling and Waste Minimization Plan as a part of the Environmental Protection Plan. The plan shall detail the Contractor's actions to comply with the following recycling and waste minimization requirements:

- a. The Contractor shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.
- b. Fallen trees should not be openly burned or buried.
- c. Composting.
- d. Recovery of metal from debris and sale to recycling operation with Contractor retaining any money derived from the sale.

e. The Contractor shall collect aluminum cans at the job site for recycling.

#### 1.6.5 Contaminant Prevention Plan

As a part of the Environmental Protection Plan, the Contractor shall prepare a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent accidental or intentional introduction of such materials into the air, water, or ground. The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials. The Contamination Prevention Plan must also comply with the requirements described in the attached Storm Water Pollution Prevention Plan (SWPPP).

#### 1.6.6 Environmental Monitoring

The Contractor shall include in the plan the details of environmental monitoring requirements under the laws and regulations and a description of how this monitoring will be accomplished. Monitoring shall include land, air, and noise impacts.

Monitoring for water impact consists of two separate programs:

- (1) The monitoring requirements specified in the REGULATORY REQUIREMENTS per paragraph 3.11.3.6, which requires the use of a Self Monitoring Program (SMP).
- (2) The maintenance/repair inspection plan. See section 11 of the SWPPP.

NOTE: Post-project Wetland Mitigation Plan and the Wetland Maintenance and Monitoring Plan and related O&M reports are not required by this specification 01354.

## PART 2 PRODUCTS

### 2.1 Turbidity Curtain

The turbidity curtain is made up of a geotextile material that is held on the water surface by floaters. The curtain is weighted at the bottom to keep it vertical in the water column and has external anchors to hold the curtain in place. The turbidity curtains that are to be used for this project were already purchased for contract 1A and will be taken out of storage by the prime construction contractor when required. The curtains are classified as Type II configuration and are designed to be used in areas where there may be small to moderate current running up to 4km/hr or 1m/sec (2 knots or 3.5 feet per second) and/or wind and wave action can effect the curtain. The contractor shall use the existing turbidity curtain from contract 1A. The turbidity curtain is stored **at the Government Field Office located at 833 Water Street, Napa**. Contact the Project Manager (Larry Dacus, 916-557-7519) for further information.

### 2.1.1.1 Installation

Installation shall be in accordance with the supplier's or manufacturer's instructions. These instructions shall be provided to the government field representative for inspection purposes. A brief summary of the installation instructions is as follows:

(1) In rivers or in other moving water (Type II installation) it is important to set all the curtain anchor points. Care must be taken to ensure that anchor points are of sufficient holding power to retain the curtain under the existing current conditions prior to putting the furled curtain into the water. Again, anchor buoys should be employed on all anchors to prevent the current from submerging the flotation at the anchor points. A maximum span of 30 meters (100 feet) between joints (anchor or stake locations) will be followed for stability. A minimum continuous span of 15 meters (50 feet) between joints is a good "rule of thumb". If the moving water into which the curtain is being installed is tidal and will subject the curtain to currents in both directions as the tide changes, it is important to provide anchors on both sides of the curtain for two reasons:

- (a) Curtain movement will be minimized during tidal current reversals.
- (b) The curtain will not overrun the anchors and pull them out when the tide reverses.

When the anchors are secure, the furled curtain should be secured to the upstream anchor points and then sequentially attached to each next downstream anchor point until the entire curtain is in position. At this point, and before unfurling, the "lay" of the curtain should be assessed and any necessary adjustments made to the anchors. Finally, when the location is ascertained to be as desired, the furling lines should be cut to allow the skirt to drop. Due to being in a tidal area, the curtain should never be so long as to touch the bottom. A minimum 300 millimeter (1 foot) "gap" should exist between the weighted lower end of the skirt and the bottom at "mean" low water. Movement of the lower skirt over the bottom due to tidal reverses or wind and wave action on the flotation system may fan and stir the sediments already settled out.

(2) Always attach anchor lines to the flotation device, not to the bottom of the curtain. The anchoring line attached to the flotation device on the downstream side will provide support for the curtain. Attaching the anchors to the bottom of the curtain could cause premature failure of the curtain due to the stresses imparted on the middle section of the curtain.

### 2.1.1.2 Maintenance

The Contractor shall be responsible for daily monitoring and maintenance of

the filter curtain for the duration of the project in order to ensure the continuous protection of the watercourse. Should repairs to the geotextile fabric become necessary, there are normally repair kits available from the manufacturers: manufacturer's instructions must be followed to ensure the adequacy of the repair. When the curtain is no longer required as determined by the inspector, the curtain and related components shall be removed in such a manner as to minimize turbidity. Remaining sediment shall be sufficiently settled before removing the curtain. Sediment may be removed and the original depth (or plan elevation) restored.

### PART 3 EXECUTION

#### 3.1 SPECIAL ENVIRONMENTAL PROTECTION REQUIREMENTS

##### 3.1.1 Tree Protection

Trees are to be removed in accordance with the plans. There is a note in the drawings that states: "Contractor shall remove trees and shrubs within area of work except as noted." At this time, there are no trees in the area of work that are identified to be saved and therefore the following tree protection requirements apply to all trees outside the area of work. For definition purposes, "trees to be saved" or "saved trees" include all trees outside the area of work.

No ropes, cables, or guys shall be fastened to or attached to any tree(s) for anchorage unless specifically authorized by the Contracting Officer. Where such special use is permitted, the Contractor shall provide effective protection to prevent damage to the tree and other land and vegetative resources. Unless specifically authorized by the Contracting Officer, no construction equipment or materials shall be placed or used within the dripline of trees shown on the drawings to be saved. No excavation or fill shall be permitted within the dripline of trees to be saved except as shown on the drawings. Rocks that are displaced into uncleared areas shall be removed. Monuments, markers and works of art shall be protected similarly before beginning operations near them. A preconstruction survey including photographs, and/or video tape if approved by the Contracting Officer, shall be accomplished by the Contractor and a report of survey furnished when required by the Contracting Officer.

##### 3.1.2 Restoration of Landscape Damage

Any saved trees or other landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the Contractor's expense. The Contracting Officer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under requirements for clearing and grubbing. All scars made on trees not designated on the plans to be removed by equipment, construction operations, or by the removal of limbs larger than 1-inch in diameter shall be coated as soon as possible with an approved tree wound dressing. All trimming and pruning shall be performed in an approved

manner by experienced workmen with saws or pruning shears. Tree trimming with axes will not be permitted. Where tree climbing is necessary, the use of climbing spurs will not be permitted. The use of climbing ropes shall be required by the Contracting Officer where deemed necessary for safety. For every tree not approved for removal by the Contracting Officer which are damaged by the Contractor and is beyond saving in the opinion of the Contracting Officer shall be immediately removed and replaced with five nursery-grown trees (15 gallon size) of the same species or another species native to the area and capable of healthy survival in the particular location in which it is to be placed. The contractor shall water, fertilize, and maintain the nursery-grown trees for a period of 90 days after planting using the nursery's recommended maintenance schedule.

### 3.1.3 Temporary Excavation and Embankments

If the Contractor proposes to construct any new and additional temporary roads or embankments and excavations for work areas or transportation to the disposal side, the contractor shall submit the following for approval at least (15) days prior to scheduled start of such temporary work. This submission shall be called a Temporary Excavation and Embankment Plan:

- (a) A layout of all temporary roads, excavations and embankments to be constructed within the work area.
- (b) Details of road construction as required.
- (c) Details of the completed quarry excavation as required.
- (d) Plans and cross sections of proposed embankments and their foundations, including a description of proposed materials.
- (e) A landscaping plan prepared by the Contractor showing the proposed restoration of the area. Removal of any necessary trees and shrubs outside the limits of existing clearing or quarry area shall be indicated. The replacement of five nursery-grown trees for every tree removed and the 90 days maintenance requirements in paragraph 3.1.2 shall apply. The plan shall also indicate location of required guard posts or barriers required to control vehicular traffic passing close to trees and shrubs to be maintained undamaged. The plan shall provide for the obliteration of construction scars as such and shall provide for a reasonably natural appearing final condition of the area. Modification of the Contractor's plans shall be made only with the written approval of the Contracting Officer. No unauthorized road construction, excavation or embankment construction including disposal areas will be permitted.
- (f) The drainage of the road construction must be shown. The drainage must comply with the attached Storm Water Pollution Prevention Plan (SWPPP).

### 3.1.4 Post-construction Cleanup or Obliteration

The Contractor shall obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations of temporary structures, stockpiles of excess or waste materials, or any other vestiges of construction as directed by the Contracting Officer. It is anticipated that excavation, filling and plowing of roadways will be required to restore the area to near natural conditions, which will permit the growth of vegetation. For areas no longer needed for future maintenance and access, seeding for vegetation restoration shall be accomplished by the contractor. Section 02920L and the plans shall be used as a guide for vegetation restoration. Paragraph 3.4.2.3 requires seeding of staging areas and disposal areas with native grass and forbs. After completion and acceptance of post-construction cleanup, the Contractor shall take photographs, and/or video tape, of the same area where pre-construction photographs, or video tape, were taken and shall furnish copies to the Contracting Officer. No separate or direct payment will be made for post-construction cleanup or obliteration and all costs thereof shall be considered incident to and included in the applicable contract unit price items requiring such temporary facilities.

#### 3.1.5 U.S. Department of Agriculture (USDA) Quarantined Considerations

The Contractor shall thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that egg deposits from plant pests are not present. The Contractor shall consult with the USDA Plant Protection and Quarantine (USDA - PPQ) jurisdictional office for additional cleaning requirements to determine if the contractor equipment was previously used in a quarantined area.

#### 3.1.6 Commercial Borrow

The plans describes the borrow sites. However, if the project evolves so that additional borrow soil do become necessary, the Contractor shall provide the Contracting Officer with the location of the pit or pits, the names of the owners and operators, and the types and estimated quantities of materials to be obtained from each source, prior to bringing commercially obtained borrow material onsite. The Contracting Officer or his designated representative must approve this additional borrow soil.

#### 3.1.7 Soil Disposal Areas on Project Site

Material shall be disposed only in those areas designated on the contract drawings. Any hazardous, toxic, and radiological wastes (HTRW) shall be removed from the work area and be disposed in compliance with Federal, State, and local requirements. Disposal operations shall be managed and controlled to prevent erosion of soil or sediment from entering nearby waters or wetlands. Disposal operations shall be developed and managed in accordance with the grading plan shown on the drawings or as approved by the Contracting Officer. The Soil Disposal area is identified in the plans. The soil to be excavated will be tested prior to initiation of the contact for the purposes of characterization of the excavated material. For the purpose of this contract, it is expected that the material will be

characterized as "inert waste" and therefore no special soil handling requirements are necessary except for requirements already identified in this Section. (i.e. dust control, protection of water resources, Regulatory requirements, etc) The Contractor will not be required to sample during construction but should have personnel trained in the identification of contaminated material if unexpected suspect materials are exposed during excavation.

#### 3.1.8 Disposal of Solid Wastes

Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed on a regular schedule. All handling and disposal shall be conducted in such a way as to prevent spillage and contamination. The Contractor shall transport all solid waste off the project site and dispose in compliance with Federal, State, and local requirements.

#### 3.1.9 Clearing Debris

Clearing debris is trees, tree stumps, tree trimmings, and shrubs, and leaves, vegetative matter, excavated natural materials (e.g., dirt, sand, and rock), and demolition products (e.g., brick, concrete, glass, and metals).

a. The Contractor shall collect trees, tree stumps, tree trimmings, shrubs, leaves, and other vegetative matter; and shall transport from Government property for proper disposal in compliance with Federal, State, and local requirements. The Contractor shall segregate the matter where appropriate for proper disposal. Untreated and unpainted scrap lumber may be disposed of or recycled with this debris where appropriate.

b. Excavated natural materials shall be placed in the designated area on the drawings. Any excavated natural materials that are transported from designated areas and outside of the projects site shall be properly disposed, recycled or reused in compliance with Federal, State, and local requirements

c. Demolition products shall be transported from Government property for proper disposal in compliance with Federal, State, and local requirements.

#### 3.1.10 Disposal of Contractor Generated Hazardous Wastes

Hazardous wastes are hazardous substances as defined in 40 CFR 261, or as defined by applicable State and local regulations. Hazardous waste generated by construction activities shall be removed from the work area and be disposed in compliance with Federal, State, and local requirements.

The Contractor shall segregate hazardous waste from other materials and wastes, and shall protect it from the weather by placing it in a safe

covered location; precautionary measures against accidental spillage such as berming or other appropriate measures shall be taken. Hazardous waste shall be removed from Government property within 60 days. Hazardous waste shall not be dumped onto the ground, into storm sewers or open water courses, or into the sanitary sewer system.

#### 3.1.11 Fuels and Lubricants

1. Fueling and lubrication of equipment and motor vehicles shall be conducted in a manner that affords the maximum protection against spills and evaporation.
2. Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.
3. Refueling of construction equipment and vehicles within the leveed floodway shall only occur within a designated, paved, bermed area where possible spills will be readily contained.
4. Equipment and vehicles operated within the leveed floodways shall be checked and maintained daily to prevent leaks of fuels, lubricants, or other fluids to the river.

#### 3.2 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

##### 3.2.1 Known Historic, Archaeological, and Cultural Resources

Known historic, archaeological, and cultural resources within the Contractor's work area are marked on the contract drawings. The Contractor shall install protection for these resources as shown on the drawings and shall be responsible for their preservation during the contract.

##### 3.2.2 Discovered Historic, Archaeological, and Cultural Resources

If during construction activities, items are observed that may have historic or archaeological value (e.g., Native American human remains or associated objects are discovered), such observations shall be reported immediately to the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. The Contractor shall cease all activities that may result in impact to or the destruction of these resources. The Contractor shall prevent his employees from trespassing on, removing, or otherwise disturbing such resources.

#### 3.3 PROTECTION OF WATER RESOURCES

The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or harmful materials. It is the responsibility of the Contractor to investigate and comply with all

applicable Federal, State, County and Municipal laws concerning pollution of rivers and streams. All work under this contract shall be performed in such a manner that objectionable conditions will not be created in streams through or adjacent to the project areas. The contractor shall refer to the REGULATORY requirements in paragraph 3.11 and the In-Water Construction Work in paragraph 3.12 for specific protection of water resources in addition to the general protection requirements listed below.

#### 3.3.1 Storage and Spillage

At all times of the year, special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides and insecticides, and cement and surface drainage from entering public waters. All materials that could cause water pollution (i.e. motor oils, fuel, paint, etc) will be stored and used in a manner that will not cause pollution. All discarded material and any accidental spills will be removed and disposed of at an approved site.

#### 3.3.2 Disposal

Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals etc., in areas adjacent to streams shall be subject to the approval of the Contracting Officer for reasons similar to those stated above. If any waste material is dumped in unauthorized areas the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed of as directed by the Contracting Officer, and replaced with suitable fill material, compacted and finished with topsoil all at the expense of the Contractor.

#### 3.3.3 Wastewater

Any wastewater directly derived from construction activities shall not be discharged before being treated to remove pollutants. Wastewater shall be collected and placed in holding tanks and disposed of in accordance with local, state, and federal laws. The Storm Water Pollution Prevention Plan (SWPPP) is described in section 01356.

#### 3.3.4 Monitoring

The monitoring of water resources affected by construction activities are provided by the Self Monitoring Program (SMP) per paragraph 3.11.3.6 and the maintenance/repair inspection plan in the SWPPP (section 11) in Section 01356.

### 3.4 PROTECTION OF FISH AND WILDLIFE RESOURCES

The Contractor shall at all times perform all work and take such steps required to prevent interference or disturbance to fish and wildlife. The

Contractor will not be permitted to alter water flows or otherwise disturb native habitat adjacent to the project area which, in the opinion of the Contracting Officer, are critical to fish or wildlife. Fouling or polluting of water will not be permitted. The contractor shall ensure that methods are identified and implemented to protect features to be preserved within authorized work areas like trees, shrubs, vines, grasses, and ground cover. If the contractor utilizes water from Napa River or any nearby streams for construction purposes, the contractor shall install appropriate fish screens at the pump intake.

#### 3.4.1 Minimization of Interference Disturbance and Damage

The Contractor shall minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed by the contractor prior to the of construction operations. To that end, the Contractor shall meet all reasonable and prudent measures of the biological opinions from the U.S. Fish and Wildlife Service and National Marine Fisheries Service which have been incorporated into this specification

#### 3.4.2 Specific Commitments from the EIS/EIR to protect woody vegetation

3.4.2.1 All environmental sensitive areas located at and adjacent to the construction areas will be fenced or marked in accordance with the plans. Prior to construction, these areas will be field inspected by a licensed arbonist and all contractor's field personnel will be given oral and/or written instructions to avoid these areas and be made aware of the significant values of these areas to wildlife.

3.4.2.2 In the event that any woody vegetation is destroyed at the staging areas, the contractor shall replace the vegetation at a ratio of five nursery grown plants for each plant replaced. The contractor will also be required to water, fertilize and maintain the new plants for a period of 90 days in accordance with paragraph 3.1.2.

3.4.2.2 All construction staging and disposal areas will be reseeded with native grass and forbs to minimize impacts to grasslands and herbaceous covers in accordance with paragraph 3.1.4.

#### 3.4.3 Other protection of Fish and Wildlife

The contractor shall refer to the permit conditions identified in paragraph 1.5.2 (Permits) to ensure all protection of Fish and Wildlife is being complied with.

The Biological Opinion requires that the contractor must notify the US Fish and Wildlife Service, Endangered Species Division at 916-979-2725 within 24 hours of finding any injured or dead listed species. The listed species are the Salt Marsh Harvest Mouse, Sacramento Splittail, and the Delta Smelt. The contractor shall request a representative from Fish and Wildlife or from the government (USACE Environmental Resource Branch) to provide pictures and a briefing to all workers prior to any soil disturbing activities. Notification of injured or dead species must include date,

time, and precise location of the specimen/incident, and any other pertinent information. Any dead specimen shall be preserved according to standard museum practices and deposited at an appropriate academic institution approved by the Service, or with the Service's Division of Law Enforcement, 3310 El Camino Avenue, Suite 140, Sacramento California 95821-6340 at 916-979-2987. Any killed delta smelt and spittail that have been taken shall be properly preserved in accordance with National History Museum of Los Angeles County policy of accessioning (10% formalin in quart jar or freezing). Information concerning how the fish was taken, length of the interval between death and preservation, the water temperature and outflow/tide conditions, and any other relevant information shall be written on 100% rag content paper with permanent ink and included in the container with the specimen. Any killed harvest mice shall be placed in a sealed plastic bag and frozen. Information concerning how the individual was taken, length of the interval between death and preservation, the date, time and precise location it was taken and any other relevant information shall be written on 100% rag content paper with permanent ink and included in the container with the specimen.

See also paragraph 3.12.3. for special restrictions on Marshland habitat.

### 3.5 PROTECTION OF AIR RESOURCES

Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations; and the safety requirements under this Contract. If any of the following techniques conflict with the requirements of Federal, State, or local laws or regulations, or safety requirements under this contract, then those requirements shall be followed in lieu of the following.

#### 3.5.1 Particulates

Airborne particulates, including dust particles, from construction activities and processing and preparation of materials shall be controlled at all times, including weekends, holidays, and hours when work is not in progress. The Contractor shall maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, borrow areas, and all other work areas free from airborne dust which would cause a hazard or nuisance.

#### 3.5.2 Dust Control

The Contractor shall maintain all excavations, embankments, stockpiles, haul roads, permanent access roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust which would cause the local standards for air pollution to be exceeded or which would cause a hazard or nuisance to others. The Napa River Final SEIS/EIR identifies several mitigation measures. The Contractor will implement as many of the following mitigation measures as is necessary to ensure that dust does not exceed local air pollution standards or cause a

hazard or nuisance to others.:

The Napa River Final SEIS/EIR identifies several mitigation measures. The Contractor will implement as many of the following mitigation measures as is necessary to ensure that dust does not exceed local air pollution standards or cause a hazard or nuisance to others.

Air Mitigation 1b: All trucks hauling soil, sand, and other loose materials will be covered or will maintain at least two feet of freeboard.

Air Mitigation 1c: All unpaved access roads, parking areas and staging areas at construction sites will be either paved, applied with water three times daily, or have non-toxic soil stabilizers applied.

Air Mitigation 1d: All paved access roads, parking areas, and staging areas at the construction site will be swept daily with water sweepers.

Air Mitigation 1e: Stockpiles of dirt and sand will be enclosed, covered, and will be either watered twice daily or treated with non-toxic soil binders.

Air Mitigation 1f: If dust control is not achieved using the other air mitigation measures, traffic speed on unpaved roads will be limited to 15 mph.

Air Mitigation 1g: Sandbags or other erosion control measures will be installed to prevent silt runoff to public roadways.

To meet the above mitigation requirements to control dust, the Contractor must have sufficient competent equipment on the job to accomplish this. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. The mitigation measures listed above are to incrementally be used until dust control occurs. Not all measures have to be used at all times but the contractor shall increase the use of mitigation measures until dust is under control. No separate or direct payment will be made for dust control and the cost thereof shall be considered incidental to and included in the contract prices for excavation and embankment.

### 3.5.3 Burning

Burning of any material for waste disposal is prohibited.

### 3.5.4 Other Air Pollutants Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to federal and state allowable limits at all times.

### 3.5.5 Noise Suppression

The Napa River Final SEIR/EIR requires that the contractor comply with the following mitigation measures to suppress noise:

Noise Mitigation 1a: Construction equipment will have state of the art muffler system required by current law. Muffler systems shall be properly maintained.

Noise Mitigation 1b: Noisy stationary construction equipment, such as compressors, will be placed away from developed areas off-site and/or provided with acoustical shielding.

Noise Mitigation 1c: Grading and construction equipment will be shut down when not in use.

Noise Mitigation 1d: The contractor will designate a Disturbance Coordinator and the Disturbance Coordinator's telephone number will be conspicuously posted on the construction site. The coordinator will be responsible for coordinating with the public on complaints about disturbances and have the authority to take steps necessary to alleviate the problem.

Noise Mitigation 1e: Pile driving will occur during normal work hours and will not be done at night.

### 3.6 PROTECTION OF LAND RESOURCES

#### 3.6.1 Work Area Plan

The contractor shall provide a plan showing the proposed activity in each portion of the work area and identifying the areas of limited use or nonuse. The plan should include measures for marking the limits of use areas. The plan shall include drawings showing locations of temporary excavations or embankments for haul roads, stream crossings, material storage areas and stockpiles of excess or spoil material. Stockpiling of construction materials, including portable equipment, vehicles and supplies, including chemicals, will be restricted to the designated construction staging areas and exclusive of the wetland avoidance areas. Equipment wash-down will not occur within the leveed floodway. The Work Area Plan shall also show the location and placement of the turbidity curtain.

#### 3.6.2 Contractor Facilities

The Contractor's field offices, staging areas, stockpile storage areas and temporary buildings shall be placed in areas shown on the drawings or as directed by the Contracting Officer. Temporary movement or relocation of contractor facilities shall be made only when approved.

#### 3.6.3 National Pollutant Discharge Elimination System (NPDES) Permit

The contractor shall follow and conform to the NPDES general permit (located

at [www.swrcb.ca.gov/stormwtr/construction.html](http://www.swrcb.ca.gov/stormwtr/construction.html))

#### 3.6.4 Notice of Intent (NOI)

The NOI for this construction activity was already submitted by the Government. The Waste Discharge ID Number should on file with the Contracting Officer or his representative. The NOI obtains coverage under the General Permit for Storm Water Pollution Prevention Program.

#### 3.6.5 Storm Water Pollution Prevention Plan (SWPPP)

A Preliminary SWPPP has been reviewed and concurred by the US Army Corps of Engineers (i.e. Government) and is attached to Specification 01356. The contractor shall refer to specification 01356 for detailed requirements to complete and certify the SWPPP.

#### 3.6.6 Storm Water Monitoring Program and Reporting Requirement

The Contractor shall conduct periodic inspections of the construction site(s) and additional inspections prior to anticipated storm events, during storm events and after actual storm events to identify areas contributing to a discharge of storm water associated with construction activity. The contractor shall evaluate whether the current control practices to reduce pollutant loading identified in the SWPPP are adequate and properly implemented in accordance with the terms of the general permit or whether additional control practices are required. A record of these inspections must be completed on the maintenance/repair inspection record form provided in section 11 of the SWPPP which is attached to Specification 01356. A recent General Stormwater Permit change now requires taking water samples during a storm event. This watering sampling requirement is described in the attached SWPPP.

The Contractor shall annually (each July 1) certify that the construction activity is in compliance with the requirements of the general permit and the SWPPP. This certification will be based upon the site inspections described above.

If the Contractor cannot certify compliance, he shall notify the Contracting Officer or his representative and the California State Water Resources Control Board. The notifications shall identify the type(s) of noncompliance, describe the actions necessary to achieve compliance, and include a time schedule, subject to modification by the Regional Water Board, indicating when compliance will be achieved. Noncompliance notifications must be submitted within 30 days of identification of the noncompliance. All work required to resolve any noncompliance because of the Contractor's negligence, shall be at no additional cost to the Government.

Additional site inspections, reports, certifications, or sampling and analyses required by the Water Board because of the Contractor's negligence will be accomplished at no additional cost to the Government.

In addition to Stormwater Monitoring, the contractor shall monitor the water quality of Napa River during construction in accordance with paragraph 3.11.

### 3.7 INSPECTION

If the Contracting Officer notifies the Contractor in writing of any observed noncompliance with contract requirements or Federal, State, or local laws, regulations, or permits, the Contractor shall inform the Contracting Officer of proposed corrective action and take such action to correct the noncompliance. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action is taken. No time extensions will be granted or costs or damages allowed to the Contractor for any such suspension, unless it was determined that the Contractor was in compliance in accordance with FAR 52.212-12, see Section 00700.

### 3.8 RETENTION POND SEDIMENT REMOVAL

If the Storm Water Pollution Prevention Plan (SWPPP) in paragraph 3.6.5 specify a Retention Pond or a Retention Pond is required for any other purpose and must be removed, the Contractor shall develop a retention pond removal plan and provide it to the Contracting Officer 45 days prior to removal work. The plan shall address testing the sediment collected in the retention pond and the method of removal of the sediment. The plan shall comply with Federal, State, and local transport and disposal regulations. The Contractor shall remove and dispose of the retention pond sediment in accordance with the approved plan.

### 3.9 MAINTENANCE OF POLLUTION CONTROL FACILITIES

The Contractor shall maintain all constructed pollution control facilities and portable pollution control devices for the duration of the Contract or for the length of time construction activities create the particular pollutant.

### 3.10 TRAINING OF CONTRACTOR PERSONNEL

Contractor personnel shall be trained in environmental protection and pollution control. The Contractor shall conduct environmental protection/pollution control meetings for all Contractor personnel monthly.

The training and meeting agenda shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, installation and care of facilities (vegetative covers, etc.), and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants, shall also be discussed. Other items to be discussed shall include recognition and protection of archaeological sites and artifacts.

### 3.11 REGULATORY REQUIREMENTS PER WDR

The contractor shall comply with the following requirements identified by the Waste Discharge Requirements (WDR) issued by the San Francisco Bay Regional Water Quality Control Board. (The provision number of the WDR is in parenthesis).

#### 3.11.1 Discharge Prohibitions and other prohibitions per WDR

The discharge of wastes from soil removal sites or construction areas, to surface waters or surface water drainage courses is prohibited. (Provision A.1)

The contractor can only discharge fill material that is specifically authorized by this contract. For fill material that is not specifically authorized, the discharge of fill as defined under the Section 401 of the Federal Clean Water Act is prohibited. (Provision A.2)

All project activities shall not cause a nuisance as defined in Section 13050(m) of the California Water Code. Section 13050(m) has defined nuisance as meaning anything which meets any of the following: (1) Injurious to health or is indecent or offensive to the senses, or an obstruction to the free use of property, or as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposals of wastes. (Provision A.3)

The discharge of decant water from saturated soil drying sites, to surface waters or surface water drainage areas is prohibited. (Provision A.4)

The discharge of silt, sand, soil, clay, or other earthen materials from excavation activities in quantities sufficient to cause deleterious bottom deposits, deleterious turbidity or deleterious discoloration in surface waters is prohibited. (Provision A.5)

#### 3.11.2 Receiving Water Limitations per WDR

Soil Removal or disposal, or construction activities shall not cause:

- a. Floating, suspended or deposited, macroscopic particulate matter or foam in waters of the State. (Provision B.1.a)
- b. Alteration of apparent color beyond present natural background levels in the waters of the State. For in-stream construction activities, this shall apply at any point beyond 1000 feet

downstream of the point of the activity. (Provision B.1.b)

c. Visible floating, suspended, or deposited oil or other products of petroleum origin in waters of the State. (Provision B.1.c)

d. The Project activities shall not cause Waters of the State to exceed the quality limits at any place: (Provision B.1.d)

(1) Dissolved Oxygen: 5.0 mg/L minimum. When natural factors cause lesser concentrations, then this discharge shall not cause further reduction in the concentration of dissolved oxygen.

(2) pH: A variation of natural ambient pH by more than 0.5 pH units.

(3) Toxic or other deleterious substances: None shall be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

e. Turbidity of the waters of the State, as measured in NTUs, shall not increase above background levels by more than the levels identified below. For in-stream construction activities, this shall apply at any point beyond 1000 feet downstream of the point of activities. NOTE: Receiving water background levels may be measured 75 ft upstream and must represent natural background levels by having no visible plume from any upstream source. (Provision B.2)

Receiving Water Background	Incremental Allowable Increase (Turbidity Limitation as measured 1000 ft downstream)
<50 NTUs	5 NTUs, maximum
50 to 100 NTUs	10 NTUs, maximum

f. The groundwater shall not be degraded as a result of the soil disposal and handling operation or any other activities permitted by this contract. (Provision B.3)

g. To document that the above receiving water limitations are not being exceeded, the contractor shall perform the Self Monitoring Program (SMP) provided as Attachment 4.1.

3.11.3 Waste Discharge Requirements Section C Provisions

3.11.3.1 The contractor shall comply with All Prohibitions, Receiving Water Limitations and provisions of this contract. (Provision C.1)

3.11.3.2 This contractor shall remove and relocate any wastes which are discharged at any sites in violation of this contract. (Provision C.19)

3.11.3.3 Soil removal, transport or disposal operations shall cease immediately whenever violations of requirements are detected through implementation of the Self-Monitoring Program (SMP), and operations shall not resume until alternate methods of compliance are provided. The Contractor shall immediately notify the US Army Corps of Engineer's representative and the Regional Water Quality Control Board whenever violations are detected. A verbal notification meets the immediate notification requirement but must be documented by a formal letter by the contractor within 7 calendar days. (Provision C.20)

3.11.3.4 The contractor are considered to have full responsibility for correcting any and all problems which arise in the event of a failure which results in an unauthorized release of waste or wastewater during soil removal, transport or disposal, or general operations. (Provision C.21)

3.11.3.5 The discharge or disposition of any hazardous, designated or non-designated waste as defined in California Regulations Title 27 shall be in accordance with this contract and/or applicable state/federal regulations. (Provision C.22)

3.11.3.6 The contractor shall comply with all requirements of the Self-Monitoring Program (SMP) provided as Attachment 4.1. One of the purposes of the SMP is to document and ensure compliance with the Receiving Water Limitations in paragraph 3.11.2. Another purpose of the SMP is to document any environmental impact during construction. As described in the SMP attachment, the contractor shall ensure submission of the Self-Monitoring Reports every 3 months to the San Francisco Regional Water Quality Control Board. The government shall review the SMP prior to submission to the Board. (Provision C.25)

3.11.3.7 All reports shall be prepared under the supervision of a suitable professional registered in the State of California. (Provision C.24)

3.11.3.8 During project construction, included but not limited to construction and monitoring of wetlands, the contractor shall permit a Board representative from the State Board or Regional Water Quality Control Board, upon presentation of credentials, (1) entry on the premises on which wastes are located or in which records are kept. (2) access to copy any records required to be kept under this contract, (3) inspection of any treatment equipment, monitoring equipment, or monitoring method required by this contract, and (4) sampling of any discharge or surface water covered by this contract. (Provision C.23)

3.11.3.9 This contract, these specifications, and/or requirements do not authorize commission of any act causing injury to property of another or of the public; do not convey any property rights; do not remove any liability under federal, state, or local laws or authorize the discharge of waste without permits from other agencies. (Provision C.28)

### 3.12 IN-WATER CONSTRUCTION WORK

3.12.1 In-water Construction work involves excavation, filling, or disturbing of soil, sediments and vegetation or trees that are submerged in water during high tide, or can become potentially submerged during high tide, or are saturated with river water or groundwater. This includes any disturbances to marsh habitat area and wetlands. During any in-water construction, the contractor shall avoid damage to submergence and emergent aquatic vegetation to the greatest extent possible.

3.12.2 Some In-Water Construction Requirements are already identified in the REGULATORY REQUIREMENTS paragraph 3.11. Due to the Biological Opinion, In-Water construction is only permitted from June 1 to October 15.

3.12.4 The soil conditions indicate high clay content and therefore In-water Construction Work may potentially generate a turbidity plume, which will exceed the turbidity limitation as identified in paragraph 3.11.2.1.e. To contain the potential turbidity plume, a turbidity curtain shall be installed in accordance with the turbidity curtain manufacturer's instructions. The turbidity curtain is considered necessary in order to perform In-Water Construction without exceeding the turbidity limitations specified in the REGULATORY REQUIREMENT of paragraph 3.11.2. NOTE: A Turbidity Curtain is also called a "Silt Curtain".

3.12.5 A turbidity curtain is mandatory by this specification and shall be installed at the beginning of the project. **The total length of in-water construction is expected to be 5700 feet as measured in the plans. This shoreline is expected to be submerged during high tide.**

3.12.6 The depth of the curtain has been estimated to be 6 feet deep. However, the actual depth must suit actual site conditions. The final depth shall be determined by the contractor and must be sufficient to meet the turbidity limitation of paragraph 3.11.2.e. The contractor shall use a Government-furnished turbidity curtain which was deployed in Contract 1A.

3.12.7 NEW CURTAINS:

The contractor shall inspect the Government-furnished turbidity curtain within 15 days of Award of Contract to verify the the existing curtain is not torn or damaged during storage. If additional new turbidity curtains must be ordered and a contract mod will be necessary to purchase the replacement curtain at Government expense. The contractor shall make this determination early in the project since the turbidity curtain manufacturer may require some lead-time to fabricate the curtain.

The contractor shall make a recommendation to the contracting officer or on-site US Army Corps of Engineer's representative on the need for additional curtains as soon as possible.

Note: A Mark II turbidity curtain, manufactured by American Boom & Barrier Corporation, Cape Canaveral Florida (407) 784-2110, has been known to meet the specification requirements for a Type II turbidity curtain in Attachment 4.5.

3.12.8 The length and depth are specified in paragraph 3.12.5 and

paragraph 3.12.6.

3.12.9 The contractor shall be responsible to install, maintain, operate, and remove the turbidity curtain in accordance with both the manufacturer's recommendations and the installation instructions. If there is a conflict, the manufacturer's recommendations shall take precedent. The top of the curtain should not be allowed to submerge since this will allow turbid water to reach the compliance point. If necessary, signs should be installed on buoys to keep recreational boats and jet-skis away from the curtain.

3.12.10 If applicable, turbidity curtains shall be used around areas of bridge removal, bridge construction and construction of culvert inlets and outlets to prevent the release of suspended particles. If necessary, the contractor may cut the turbidity curtain to suit the actual site conditions to achieve the turbidity limitations.

3.12.11 During in-water construction work, all litter and construction debris shall be removed from below the ordinary high water (OHW) line daily and disposed of at an appropriate site. The mean high tide level can be considered the OHW.

3.12.12 Record all visual requirements, turbidity measurements and other measurements (TSS, pH, DO, temperature) in accordance with Attachment 4.1 Self Monitoring Program (SMP). These measurements must be taken daily when conducting any in-construction work.

3.12.13 Observe for a turbidity plume during outgoing tide. If a plume is visible, the contractor must take additional turbidity measurements every two hours. Any exceedance of any criteria or regulatory requirements identified in Attachment 4.1 and paragraph 3.11 must be reported to the US Army Corps of Engineer's on-site representative. See paragraph 3.11.2.e.

3.12.14 If necessary, change the construction process to maintain water quality and compliance with the WDR. This may include using temporary berms, timing the construction activities, or minimizing in-water construction work until turbidity compliance is achieved. Maximize the use of the turbidity curtain whenever necessary.

3.12.15 Determine the need for additional turbidity curtains. Relocate the existing curtain only if the soil conditions stabilize and the turbidity limitations are not being exceeded.

3.12.16 Submit the SMP to the RWQCB and the US Army Corps of Engineer's on-site representative per Attachment 4.1 quarterly.

3.12.17 Do not remove a turbidity curtain until it has been demonstrated that the turbidity limitations of paragraph 3.11.2.e are not being exceeded without the turbidity curtain.

3.12.18 After construction is complete, the government will determine if turbidity curtain can be reused on other projects or should be disposed of.

If the curtain is reusable, the curtain shall be removed and properly stored in a wooden box or boxes that can be forklifted before transferring the curtain to the government. If the curtain is not reusable, the curtain

shall be disposed by the contractor. The contractor is responsible to notify the government on-site representative for this decision concerning turbidity curtain disposition.

**PART 4**  
**ATTACHMENTS**

ATTACHMENT 4.1 SELF-MONITORING PLAN. (SMP)

**ATTACHMENT 4.1**

WRITTEN BY:

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGIONSELF MONITORING PROGRAM (SMP)  
FOR THE  
US ARMY CORPS OF ENGINEERS  
NAPA RIVER / NAPA CREEK FLOOD CONTROL PROJECT

## PART A

## I. GENERAL:

1. This SMP is invoked by Section 01354, paragraph 3.11.3.6. The contractor is responsible for the reporting requirements specified in this SMP to ensure compliance with the California Water Code and the Regional Water Control Board Waste Discharge Requirements. The word "Discharger" used in this SMP is the construction "contractor".
2. This SMP is not a substitute for the Storm Water Pollution Prevention Plan (SWPPP) for construction activities, which include a monitoring component. This SMP is also not a substitute for any post-construction mitigation and O&M activities which also include a monitoring component.
3. The purpose of the SMP is to document compliance with the waste discharge requirements and prohibitions and to facilitate self-policing by the discharger (i.e. contractor) in the prevention and abatement of pollution arising from waste discharge.

## II SAMPLING AND ANALYTICAL METHODS

1. Sample collection, storage and analysis shall be performed according to Code of Federal Regulations Title 40, Section 136 (40 CFR S136) or other methods approved and specified by the Executive Officer of this Board. A California certified laboratory is familiar with these sampling, storage and analytical requirements and therefore the contractor has the option to hire a qualified sample collector from a analytical laboratory to conduct this program or have the laboratory provide training. An untrained construction worker who is not familiar with these requirements is not permitted to conduct this program. This report must be prepared under the supervision of a suitable professional registered in the State of California.
2. Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DHS) or a laboratory waived by the Executive Officer from obtaining a DHS certification for these analyses.
3. The director of the laboratory whose name appears on the

certification, or his/her laboratory supervisor who is directly responsible for the analytical work performed shall supervise all analytical work including appropriate quality assurance / quality control procedures in his / her laboratory and shall sign all reports of such work submitted to the Regional Water Control Board.

4. Field monitoring for pH, temperature, and dissolved oxygen shall be conducted with monitoring instruments and equipment properly calibrated and maintained to ensure accuracy of measurements.

### III DEFINITION OF TERMS

1. Grab sample: defined as an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the sample is collected.

2. Flow sample: defined as the accurate measurement of the flow volume over a given period of time using a properly calibrated and maintained flow measuring device. Flows calculated from properly maintained pump usage records for an accurately calibrated pump are acceptable.

3. Standard Observations: defined as visual observations conducted from land. The observations must be from a location(s) which enable the observer to make the observations described in Part B accurately and for each area where work is occurring. If necessary, the observer shall make observations from several locations to ensure accuracy.

## PART B

### I. DESCRIPTION OF SAMPLING AND OBSERVATION STATIONS

#### A. Receiving Waters (Napa River)

<u>STATION</u>	<u>DESCRIPTION</u>
A-1	A point shall be located immediately adjacent to the construction activities.
A-D	The sampling point shall be within 1000 feet downstream of the construction activity. Sample shall be taken at mid-depth of the water column (per Table 1 Schedule) and at slack tide or ebb tide. If a plume of suspended sediment is obvious, the sample shall be taken within the plume.
A-U	Sampling point shall be at least 75 feet upstream of the construction activity. Sample to be taken at mid-depth of the water column (per Table 1 Schedule) and taken at ebb tide. This is a background sample. If additional construction activities are occurring which may affect this sample, then this sample shall be located upstream above these activities and the location noted.

#### B. Land Observations

<u>Station</u>	<u>Description</u>
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L1-Lx Standard Observations shall be conducted from land from a location(s) which enables the observer to make the required observations accurately for each area where work is occurring. If necessary, the observer shall make observations from several locations to ensure delivery.

II SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

A. The Discharger is required to perform observations, sampling, measurements and analyses according to the schedule given in Table 1 below. See contract specifications, Section 01354, paragraph 3.12 for additional information for taking additional turbidity measurements if there is a visible plume during the outgoing tide.

**Table 1  
Schedule for Sampling, Measurements and Analyses**

Type of Sample Parameter	Stations A1, AD, AU Grab	Station L1-Lx Observations
Total Suspended Solids	Daily/per episode <sup>1</sup>	
pH	Daily/per episode	
Dissolved Oxygen	Daily/per episode	
Temperature (C)	Daily/per episode	
Turbidity (NTU)	Daily/per episode	
Standard Observations		Daily / per episode <sup>2</sup>

1 "Episode" is defined as during construction activities which occur below High Water (Higher High Water during timeframe of construction) and are not protected from tidal inundation by berm or other method. "Episode" also includes during any construction activity which the Discharger determines, in consultation with Board staff, may result in a discharge of sediment to the River.

2 A record of Standard Observations shall be maintained on-site and available for Board inspection. Reports submitted to the Board shall only include a summary of Standard Observations as they pertain to compliance with this Order.

B. Standard Observations

1. Equipment Observation: Observation of location and operation of equipment to ensure that equipment and location minimize sediment and habitat disturbance, and there are no discharges of pollutants to Waters of the State.
2. Manual Laborer Observation: Observation of manual laborers to ensure that activities minimize sediment and habitat disturbance, and there are no discharges of pollutants to Waters of the State.
3. Best Management Practices (BMPs) Observations: Observation of the BMPs installed to ensure that they are functioning properly and maintained. (For example, the Turbidity Curtain is a BMP and the SWPPP

identifies other BMPs designed to prevent Storm Water Pollution)

#### 4. Biological Resources and Habitat Observations:

- a. Note any dead or obviously distressed aquatic life (e.g., fish, crabs) that may be associated with Project impacts.
- b. Note any dead or obviously distressed wildlife that may be associated with Project impacts.
- c. Observation of vegetation or other habitat features which have been specified not to be disturbed by Project construction, to ensure that this feature is properly identified and remains identified.
- d. In the event, dead or distressed aquatic life or wildlife is observed, which may be the result of project Impact, the Discharger (i.e. contractor) shall notify the Board (510) 622-2300 and CDF&G (707) 944-5512 immediately.

### III REPORTS TO BE FILED WITH THE REGIONAL BOARD

#### A. SELF-MONITORING REPORTS

Written reports shall be filed regularly for each quarter of Project activity (ending July, October, January, and April) Reports shall be submitted to this Regional Board's office no later than the fifteenth day of the month following the end of each quarter. The reports shall consist of the following:

##### 1. Letter of Transmittal

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, actions taken or planned for correcting noted violations. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under the penalty of perjury, that to the best of the signer's knowledge, the report is true, accurate and complete.

##### 2. Results of Analyses and Observations

Tabulations of the results from all required analyses specified in Table 1 by date, time, type of sample, and sample station. Standard Observations shall be summarized to discuss compliance with relevant conditions of the attached Order (Data sheets need not be included).

##### 3. Certification of the report for the SMP

The report on the SMP must also be prepared under the supervision of a suitable professional registered in the State of California. This professional must be identified in the SMP report and, if applicable, a professional stamp shall be applied on the last page of the report.

#### B. SPILL REPORTS

A report shall be made of any spill of oil or other hazardous material. Spills shall be reported immediately to the Regional Board at (510) 622-2300 during business hours and during non-business hours, Office of Emergency Services (OES) at 1-800-852-7550. Any after hours spill which is reported to OES, shall be reported to the Board the following day by phone.

A written report shall be filed with the regional Board within five working days and shall contain the following information:

- a. Nature of waste or pollutant
- b. Quantity involved
- c. Duration of incident
- d. Cause of spill
- e. Spill Prevention and Contamination Plan (paragraph 1.6.2 of Section 01354)
- f. Estimated size of affected area
- g. Nature of effects (i.e. fishkill, discoloration of receiving waters, etc)
- h. Corrective measures that have been taken or planned, and a schedule of these activities
- i. Person notified

#### C. REPORT OF PERMIT VIOLATION

In the event the Discharger violates or threatens to violate the conditions of the waste discharge requirements and prohibitions, that are identified in Paragraph 3.11, Section 01354, due to:

- a. Maintenance work, power failure, or equipment breakdown;
- b. Accident caused human error or negligence; or
- c. Other causes such as acts of nature

The Discharger (i.e. contractor) shall notify the Regional Board Office and California Department of Fish and Game, by telephone as soon as the Discharger or the Discharger's agents have the knowledge of the incident. Written confirmation of this notification shall be submitted within two weeks of the telephone notification to the Regional Board. The written confirmation shall include the following:

- a. Reasons for non-compliance
- b. What steps taken to correct the problem
- c. The time and dates of non-compliance
- d. Persons at the Regional Board and DF&G who were notified by phone.
- e. Steps being taken to prevent the problem from recurring.
- f. All pertinent information regarding the non-compliance.

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## SECTION 01500

## TEMPORARY CONSTRUCTION FACILITIES

09/99

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## SECTION 01500

## TEMPORARY CONSTRUCTION FACILITIES

09/99

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## DEPARTMENT OF COMMERCE (DOC)

DOC PS 1 (1993) Construction and Industrial Plywood

DOC PS 20 (1970) American Softwood Lumber Standard.

## FEDERAL SPECIFICATIONS (FS)

FS TT-E-2784 (Rev A) Enamel (Acrylic-Emulsion, Exterior)

## AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z535.1 (1991) Safety Color Code

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM F 547 (1977; R 1990) Definitions of Terms  
Relating to Nails for Use with Wood and  
Wood-Base Materials

## U.S. ARMY CORPS OF ENGINEERS

EM 385-1-1 Safety and Health Requirements Manual  
(3 September 1996).

## WEST COAST LUMBER INSPECTION BUREAU (WCLIB)

WCLIB 16 (1970; Rev 1983) Standard Grading and  
Dressing Rules for Douglas Fir, Western  
Hemlock, Western Red Cedar, White Fir,  
Sitka Spruce Lumber

## WESTERN WOOD PRODUCTS ASSOCIATION (WWPA)

WWPA-01 (1991; Supple No. 1) Western Lumber  
Grading Rules 91

## 1.2 GENERAL REQUIREMENTS

### 1.2.1 Site Plan

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired. The site plan shall also include the locations of haul roads within the project limits, and the traffic control plan.

### 1.2.2 Identification of Employees

The Contractor shall be responsible for furnishing to each employee and for requiring each employee engaged on the work to display identification as approved and directed by the Contracting Officer. Prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of any employee. When required, the Contractor shall obtain and provide fingerprints of persons employed on the project. Contractor and subcontractor personnel shall wear identifying markings on hard hats clearly identifying the company for whom the employee works.

### 1.2.3 Employee Parking

Contractor employees shall park privately owned vehicles in an area designated by the Contracting Officer. This area will be within reasonable walking distance of the construction site. Contractor employee parking shall not interfere with existing and established parking requirements.

## 1.3 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

### 1.3.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 915 by 1220 mm (36 by 48 inches) in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

### 1.3.2 Project and Safety Signs

#### (A) General:

The Contractor shall construct and erect project, safety, auxiliary, information, and hard hat signs at locations designated by the Contracting

Officer. The signs shall conform to the requirements of the drawings attached at the end of this section. The signs shall be erected as soon as possible and within 15 days after date of commencement of work under this contract.

(B) Number of Signs:

The Contractor shall furnish the following signs:

Standard sign for Levee and Channel

Projects	<u>1</u>	
Hard Hat Signs	<u>5</u>	at each site while construction is in progress
Auxiliary Sign	<u>2</u>	
Information Sign	<u>1</u>	
Safety Sign	<u>1</u>	

(C) Materials:

(1) Plywood: Exterior.

(2) Bolts, nuts, and nails shall be galvanized, and type, and size best suited for intended for use.

(3) Paint: Exterior. Color of signs and lettering shall be as indicated on the attached drawing. Hard hat signs shall be painted as indicated on the attached drawing.

(4) Decals: Corps of Engineers castle decal and the hard hat decal called for on the signs will be furnished by the Government.

(D) Construction:

(1) Signs shall be constructed as detailed on attached drawings.

(2) All lettering shall be sized as indicated.

(E) Maintenance and Disposal:

The Contractor shall maintain the signs in good condition throughout the life of the project. Signs shall remain the property of the Contractor and upon completion of the project they shall be removed from the site.

1.4 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flagmen, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as

required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads. The Contractor shall be responsible for the repair of any damage to roads caused by construction operations.

#### 1.4.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the Contracting Officer shall be removed.

#### 1.4.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

### 1.5 CONTRACTOR'S TEMPORARY FACILITIES

#### 1.5.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

#### 1.5.2 Storage Area

The Contractor shall construct a temporary 1.8 meter (6 foot) high chain link fence around trailers and materials. The fence shall include plastic strip inserts, colored green, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Trailers, materials, or equipment shall not be placed or stored outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site. Trailers, equipment, or materials shall not be open to public view with the

exception of those items which are in support of ongoing work on any given day. Materials shall not be stockpiled outside the fence in preparation for the next day's work. At the end of each work day mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment, shall be parked within the fenced area.

#### 1.5.3 Appearance of Trailers

Trailers utilized by the Contractor for administrative or material storage purposes shall present a clean and neat exterior appearance and shall be in a state of good repair. Trailers which, in the opinion of the Contracting Officer, require exterior painting or maintenance will not be allowed on the project site.

#### 1.5.4 Maintenance of Storage Area

Fencing shall be kept in a state of good repair and proper alignment. Should the Contractor elect to traverse with construction equipment or other vehicles grassed or unpaved areas which are not established roadways, such areas shall be covered with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation shall be at the Contractor's discretion. Grass located within the boundaries of the construction site shall be mowed for the duration of the project. Grass and vegetation along fences, buildings, under trailers, and in areas not accessible to mowers shall be edged or trimmed neatly.

#### 1.5.5 Security Provisions

Adequate outside security lighting shall be provided at the Contractor's temporary facilities. The Contractor shall be responsible for the security of its own equipment and materials.

### 1.6 GOVERNMENT FIELD OFFICE

#### 1.6.1 Resident Engineer's Office

***No Government office is needed.***

#### 1.6.2 Trailer-Type Mobile Office

***No Government office is needed.***

### 1.7 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 1.07 meters (42 inches) high, supported and tightly secured to steel posts located on maximum 3 meters (10 foot) centers, constructed at the approved location. The safety fencing shall be maintained by the Contractor during the life of the

contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

#### 1.8 HOUSEKEEPING AND CLEANUP

Pursuant to the requirements of paragraph, CLEANING UP and paragraph, ACCIDENT PREVENTION, of the CONTRACT CLAUSES, Section 00700, the Contractor shall assign sufficient personnel to insure strict compliance. The Contractor shall submit a detailed written plan for implementation of this requirement. The plan will be presented as part of the preconstruction safety plan and will provide for keeping the total construction site, structures and accessways free of debris and obstructions at all times. Work will not be allowed in those areas that, in the opinion of the Contracting Officer's representative, have unsatisfactory cleanup and housekeeping at the end of the preceding day's normal work shift. At least once each day all areas shall be checked by the Quality Control person of the Prime Contractor and the findings recorded on the Quality Control Daily Report. In addition, the Quality Control person will take immediate action to insure compliance with this requirement. Housekeeping and cleanup shall be assigned by the Contractor to specific personnel. The name(s) of the personnel shall be available at the project site; each person will be supplied with a distinctively marked hard hat, to be worn from the beginning to the end of the project. Construction debris, waste materials, packaging material and the like shall be removed from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

#### 1.9 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

#### 1.10 AVAILABILITY OF CONSTRUCTION WATER

*Water from the Napa River is not permitted to be used as construction water. Several hydrants are available in the Kennedy Park area. Contractor shall coordinate with the City of Napa for requirements such as permitting and metering, to use City water as a source.*

#### 1.11 PAYMENT

*No separate payment will be made for the work covered under this section and all costs in connection therewith will be considered a subsidiary obligation of the Contractor.*

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

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## SECTION 01505

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## SECTION 01505

## GENERAL REQUIREMENTS

09/99

## PART 1 GENERAL

## 1.1 SCRAP MATERIAL

Materials specified to be removed and become the property of the Contractor are designated as scrap, and the Contractor, by signing this contract, hereby acknowledges that he has made due allowance for value, if any, of such scrap in the contract price.

## 1.2 WRITTEN GUARANTEES AND GUARANTOR'S LOCAL REPRESENTATIVE

Prior to completion of the contract, the Contractor shall obtain and furnish to the Contracting Officer's representative written guarantees for all the equipment and/or appliances furnished under the contract. The Contractor shall furnish with each guarantee: The name, address, and telephone number of the guarantor's representative nearest to the location where the equipment and/or appliances are installed, who, upon request of the Using Service's representative, will honor the guarantee during the guaranty period and will provide the services prescribed by the terms of the guarantee.

## 1.3 PRICING OF CONTRACTOR-FURNISHED PROPERTY

At the request of the Contracting Officer, the Contractor shall promptly furnish and shall cause any subcontractors to furnish, in like manner, unit prices and descriptive data required by the Government for property record purposes of fixtures and equipment furnished and installed by the Contractor.

## 1.4 TEMPORARY ELECTRIC WIRING

## (A) Temporary Power and Lighting:

The Contractor shall provide construction power facilities in accordance with the safety requirements of the National Electrical Code NFPA No. 70 and the SAFETY AND HEALTH REQUIREMENTS MANUAL EM 385-1-1. The Contractor, or his delegated subcontractor, shall enforce all the safety requirements of electrical extensions for the work of all subcontractors. All work shall be accomplished by skilled electrical tradesmen in a workmanlike manner, as approved by the Contracting Officer.

## (B) Construction Equipment:

In addition to the requirements of EM 385-1-1, SAFETY AND HEALTH REQUIREMENTS MANUAL, all temporary wiring conductors installed for operation of construction tools and equipment shall be either Type TW or THW contained in metal raceways, or may be multiconductor cord. Temporary

wiring shall be secured above the ground or floor in a workmanlike manner and shall not present an obstacle to persons or equipment. Open wiring may only be used outside of buildings, and then only in strict accordance with the provisions of the National Electrical Code.

(C) Circuit Protection:

In addition to the present requirements in EM 385-1-1 and the National Electrical Code, all 15 and 20-ampere receptacle outlets used for obtaining power during construction shall have ground fault circuit interrupters (GFCI) for personnel protection. Block and brick saws shall also be equipped with GFCI. The Contracting Officer may allow an exception to this requirement for circuits for concrete vibrators or circuits operating at other than 60 Hertz normal (in both cases an assured grounding program as described in the National Electrical Code, except utilizing the daily inspection frequency of the grounding means of such equipment, may be permitted). The assured grounding program will not be permitted as a substitute for usage of GFCI'S except as described above. All generator-powered 15- and 20-ampere, 60 Hertz receptacle outlets shall have GFCI'S, and shall be properly grounded. A testing means shall be provided which will impose a measured fault of 5 milliamperes, plus or minus 1 milliamperes, and result in tripping the GFCI unit.

1.5 UTILITIES

It is anticipated that pole lines, signs, pipelines and private improvements that would interfere with or are to be replaced by new construction will be removed to new locations by the owners (except as noted otherwise) in advance of construction operations. The Contractor shall notify the Contracting Officer at least 30 days in advance of the date on which work will be started requiring the removal of such utilities or private improvements. Care shall be taken to preserve and protect any such improvements from injury or damage during construction operations. The Contractor shall assume full responsibility for reimbursing the owners for any damage to their properties, utilities, or improvements, or interference with their services caused through his operations. Should such damage be found to have been caused without the Contractor's fault or negligence an equitable adjustment in the amount due under the contract will be made under the applicable CONTRACT CLAUSES, Section 00700.

1.6 GENERAL SAFETY REQUIREMENTS

(A) General:

The Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, (see Contract Clauses, Section 00700, ACCIDENT PREVENTION) and the Occupational Safety and Health Act (OSHA) Standards for Construction (Title 29, Code of Federal Regulations Part 1926 as revised from time to time); General Industry Standards (Title 29, Code of Federal Regulations Part 1910 as revised from time to time); and the National Fire Protection Association Codes are applicable to this contract. In case of conflict the most stringent requirement of the standards is applicable.

(B) The Prime Contractor's superintendent

The Prime Contractor's superintendent shall take an active role in enforcing the safety requirements by participation in safety conferences, hazard analysis (see below), tool box meetings, walk-through inspections, correction of violations, etc., and including that of the subcontractor's work.

(C) Job Hazard Analysis:

Based on the construction schedule, the Contractor shall submit a job hazard analysis of each major phase of work prior to entering that phase of activity. The analysis shall include major or high risk hazards, as well as commonly recurring deficiencies that might possibly be encountered for that operation, and shall identify proposed methods and techniques of accomplishing each phase in a safe manner. The Prime Contractor's superintendent shall take active participation in the Job Hazard Analysis, including the subcontractors' work. Prior to start of actual work a meeting shall be held with Prime Contractor, Government, and affected subcontractor to review the Job Hazard Analysis. In addition, job site meetings shall be held to indoctrinate foreman and workers on details of this analysis.

(D) Violations:

If recurring violations and/or gross violation indicate that the safety performance is unsatisfactory, corrective action shall be taken as directed, and at the discretion of the Contracting Officer the retention or some part thereof will be withheld from the progress payment until corrective action has been completed.

(E) Fire Prevention:

Cutting or welding will be permitted only in areas that are or have been made fire safe. Where possible, all combustibles shall be located at least 35 feet horizontally from the work site. Where such location is impracticable, combustibles shall be protected with fire blankets and/or protective welding screens to prevent slag from running out of the work area. Edges of covers at the floor shall be tight to prevent sparks from going under them. This precaution is also important at overlaps where several covers are used to protect a large pile. Other fire prevention precautions shall be in accordance with the latest National Fire Codes.

(F) Recordkeeping/Reporting Requirements:

On all contract operations, the Prime Contractor shall be responsible for recording and reporting all accident exposure and experience incident work. (This includes exposure and experience of the prime contractor and his/her sub-contractor(s)). As a minimum these records shall include exposure work-hours and a log of occupational injuries and illnesses. (OSHA Form 200 or state equivalent as prescribed by 29 CFR 1904.5) Reference EM 385-1-1, 01.D.04.

(G) Accident Reporting:

In addition to the requirements for reporting accidents in accordance with EM 385-1-1, Section 1, the Prime Contractor will submit at the 50% point and 100% of project completion, a written summary of worker's compensation claims filed by workers on the project. The report will include all subcontractors. The main report covering the Prime Contractor claims will be certified as "correct and true" by the Contractor's compensation insurance carrier. The same certification will be required for subcontractor reports.

#### 1.7 PERMITS

##### (A) General:

Reference is made to the article of the contract entitled "Permits and Responsibilities," which obligates the Contractor to obtain all required licenses and permits. Reference is also made to Section 01354 ENVIRONMENTAL PROTECTION FOR CIVIL WORKS.

##### (B) NPDES Permit:

The Contractor shall comply with the National Pollutant Discharge Elimination System (NPDES) requirements consisting of the SWPPP and the monitoring plan, which have been prepared by the Government. The Government will obtain the Notice of Intent (NOI) and pay for the NPDES permit. The Contracting Officer will provide the Notice of Termination (NOT), with photos, after the project is completed. The Contractor shall diligently cooperate with the Government to meet Permit requirements. See Section 01354 ENVIRONMENTAL PROTECTION FOR CIVIL WORKS.

#### 1.8 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

(A) This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSE, Section 00700, entitled "DEFAULT (FIXED-PRICE CONSTRUCTION)". In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

(1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

(2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

(B) The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY  
WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(07)	(05)	(05)	(04)	(01)	(01)	(00)	(00)	(01)	(02)	(05)	(07)

(C) Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day.

(ER 415-1-15, 31 OCT 89)

1.9 EQUIPMENT DATA FORM

In conjunction with paragraph, EFARS 52.231-5000 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE, in Section 00800, the Contractor shall furnish SPK Form 450 for all necessary equipment to perform work requiring adjustment of contract price and shall submit these forms with the modification proposals. A sample form is at the end of this section.

1.10 SOIL DENSITY TEST (USING METERS CONTAINING RADIOACTIVE MATERIALS)

(A) Nuclear methods are not acceptable for soil and soil-aggregate density tests required by this contract except as stated in DIVISION 2. Testing for official results shall be conducted as specified in DIVISION 2 of this contract. If the Contractor proposes to use meters containing radioactive materials to obtain unofficial results for his own convenience, the Contractor shall adhere to the following requirements:

(B) In accordance with 06.E of EM 385-1-1, Safety and Health Requirements Manual, the Contractor shall obtain a service permit to use, store, operate, or handle a radiation producing machine or radioactive materials. The service permit shall be obtained through the Contracting Officer's Representative. The Contractor should notify the Contracting Officer during the pre-work conference if a radiation producing device will be utilized in order to determine the permit application requirements, and allow a lead time of 45 days for obtaining a permit.

(C) The Contractor is responsible for providing a copy of any Nuclear Regulatory Commission (NRC) licenses per the Code of Federal Regulations 10 CFR "Energy" for all radioactive sources brought onto the site by the Contractor and/or subcontractors. These licenses shall be provided to the Contracting Officer's Representative, before the radioactive sources is allowed on the site.

1.11 BID ITEM OVERRUN

Throughout the contract, (at a minimum, every two weeks) the Contractor shall be responsible to monitor placement or installation of unit price items (if any) with respect to the original estimated quantities shown in the contract. If placement or installation indicates a possible overrun

with respect to the original estimated quantities shown in the contract, the Contractor shall immediately provide written notification to the Contracting Officer with revised total estimated quantities.

#### 1.12 PAYMENT

No separate payment will be made for the work covered under this section and all costs in connection therewith will be considered a subsidiary obligation of the Contractor.

#### 1.13 NON CONTRACT WORK

The Contractor and/or his subcontractors shall not perform any work or erect any structure for third parties, landowners or otherwise, within the limits of the rights-of-way without prior approval of the Contracting Officer.

#### 1.14 DAMAGE TO ROADS

The Contractor shall document, on video and photographs, the pre-project condition of the project access road (Steblow Drive) as well as all existing roads within the project right-of-way. A copy of this video will be made available to the Contracting Officer. The Contractor shall preserve and protect all existing private or project access or right-of-way roads and existing landscaped areas. The Contractor shall conform to all applicable load requirements for roads. At the completion of work and prior to the Contractor leaving the project, he shall restore to pre-project conditions all such roads. Repairs shall include replacement of base rock and/or surface treatment as required.

#### 1.15 ENVIRONMENTAL LITIGATION

(A) If the performance of all or any part of the work is suspended, delayed, or interrupted due to an order of a court of competent jurisdiction as a result of environmental litigation, as defined below, the Contracting Officer, at the request of the Contractor, shall determine whether the order is due in any part to the acts or omissions of the Contractor or a subcontractor at any tier not required by the terms of this contract. If it is determined that the order is not due in any part to acts or omissions of the Contractor or a subcontractor at any tier other than as required by the terms of this contract, such suspension, delay, or interruption shall be considered as if ordered by the Contracting Officer in the administration of this contract under the terms of the SUSPENSION OF WORK clause of this contract, see Section 00700. The period of such suspension, delay or interruption shall be considered unreasonable, and an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) as provided in that clause, subject to all the provisions thereof.

(B) The term "environmental litigations", as used herein, means a lawsuit alleging that the work will have an adverse effect on the environment or that the Government has not duly considered, either substantively or procedurally, the effect of the work on the environment.

## 1.16 SPECIAL CONSTRUCTION PROCEDURES

## (A) Adverse Conditions, Tidal Action in Napa River:

The influence of tides on the water surface elevation of the Napa River is significant within the limits of this Contract. The tides are mixed diurnal, meaning that they are characterized by two daily highs and lows in each tidal cycle - a period of 24 hours and 50 minutes. The table below shows the tidal datums in the vicinity of the contract.

Tidal Datums - Project Reach (NOAA 1994)

Elevation, ft (NGVD)	
Mean Higher High Water (MHHW)	3.76
Mean High Water (MHW)	3.24
Mean Tide Level (MTL)	0.67
Mean Low Water (MLW)	-1.9
Mean Lower Low Water (MLLW)	-2.84

The data in this table was obtained from the National Oceanic and Atmospheric Administration (NOAA). The tide data is based on interpolations between the two nearest NOAA tidal gauges - Napa (3.5 miles upstream) and Brazos Drawbridge (3.5 miles downstream). Daily tides can be higher or lower than the mean tide elevations shown in the table. On average, 50% of the daily higher high water elevations are expected to exceed the MHHW elevation of 3.76 feet (NGVD). Approximately 10% of the Higher High Water (HHW) levels reach 4.7 ft (NGVD), and approximately 1% to 3% of the HHW levels are over 5 ft (NGVD). There may be times within the duration of the contract when the high tide elevation exceeds the design grade of the floodplain terrace. Predictions of future tides are available from the NOAA.

The Contractor shall plan the work in this contract accounting for the tidal action in the Napa River, and bid the work accordingly. It is the Contractor's responsibility to monitor the tides throughout the duration of the contract.

## (B) Sequence of Construction:

(1) All required excavation (including the floodplain and marshplain terraces, and excavation of the tidal sloughs), other than the breach in Kennedy Park, shall be completed no later than 1 October. Construction of the training dike, and training dike road surface shall also be completed by 1 October. This is to eliminate the possibility of flood waters inundating the surrounding area due to the lowering of the existing river banks. Final grading of the disposal sites shall be completed no later than 15 October. All work required for the native grass seeding, disposal site seeding, and other seeding shall be completed no later than the dates required in section 02920 GRASS SEEDING.

(2) The breach in Kennedy Park shall be excavated following the completion and acceptance by the Contracting Officer of all **work listed in subparagraph (1) above and the seeding acceptance as described in section**

**02920L, but no later than 15 October.** This is necessary because the excavation of the breaches will open a portion of the project area up to daily tidal influence, and make access to some of the project difficult.

(3) It is highly recommended that the excavation work is phased to limit the risk of a high tide overflowing the lowered river banks for as long as possible during construction. If a high tide were to overflow the lowered river banks prior to completion of construction, it is expected to cause damage to the grading of the floodplain terrace, and inundate an unknown amount of the low ground behind the river banks. The contractor is responsible for monitoring the tides, and planning work accordingly.

(4) Due to environmental restrictions, "in-water" work activities are prohibited from October 15 to June 15 of each year. The potential for extension of this work window exists if surveys (performed by others) show that certain species of concern are not present in the work area. Permission to deviate from this work window must be received in writing from the Contracting Officer. See Section 01354 ENVIRONMENTAL PROTECTION FOR CIVIL WORKS, for further information.

(C) Contractor's Construction Activity

For weekdays Monday through Friday, contractor's construction activities shall be limited to daylight hours but not earlier than **7:00am** and not later than **7:00pm**. On Saturday, contractor's construction activities shall be limited to daylight hours but not earlier than **8:00am** and not later than **4:00pm**. On Sunday, contractor's activities shall be limited to daylight hours but not earlier than 8:00am and not later than **4:00pm**. Work hours shall not vary unless otherwise approved in writing by the Contracting Officer.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

-- End of Section --

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## SECTION 02230

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**06/97**

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## SECTION 02230

CLEARING AND GRUBBING  
06/97

## PART 1 GENERAL

## 1.1 DEFINITIONS

## 1.1.1 Clearing

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees, other vegetation and obstructions designated for removal, including down timber, snags, brush, rubbish, fences, stone, bank protection, abandoned structures, pavement and base course, gravel trails, utilities, and other debris occurring in the areas to be cleared. Vegetation to be removed shall consist of all heavy growth of crops, grass and weeds.

## 1.1.2 Grubbing

Grubbing shall consist of the removal and disposal of stumps, roots larger than 2 inches in diameter, matted roots, old paving and other objectionable matter from the designated grubbing areas. All tap roots, lateral roots, or other projection over 1 1/2 inches in diameter within the areas to receive fill or other structures shall be removed to a depth of three feet below the natural surface of the ground.

## 1.1.3 Limits of Clearing and Grubbing

Except as otherwise specified, and/or indicated areas to be cleared and grubbed will be limited to three feet beyond actual excavation area, areas on which fills and/or structures are to be placed, **the Gasser Disposal Site**, or areas if utilized by the Contractor for staging or stockpiling operations as necessary. The removal of trees, shrubs, turf, and other vegetation outside of the permanent right-of-way lines will not be allowed.

## 1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-18 Records

Material Disposal Plan; .

The Contractor shall submit a plan designating where material generated from the clearing and grubbing operation is to be disposed of. Written permission to dispose of such products on private property shall be filed

with the Contracting Officer.

### 1.3 MEASUREMENT

#### 1.3.1 Measured Clearing and Grubbing

Clearing and grubbing shall be measured in acres of clearing and grubbing actually performed.

### 1.4 PAYMENT

#### 1.4.1 Paid Clearing and Grubbing

Payment will be made at the contract unit price for clearing and grubbing, and this price shall constitute full compensation for all labor, equipment, tools, and incidentals necessary to complete the work specified herein.

### 1.5 ENVIRONMENTAL PROTECTION

All work shall comply with the requirements of Section 01354 ENVIRONMENTAL PROTECTION FOR CIVIL WORKS.

### PART 2 PRODUCTS (Not Applicable)

### PART 3 EXECUTION

#### 3.1 CLEARING

Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter and shall be trimmed of all branches to the heights indicated or directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 1-1/2 inches in diameter shall be painted with an approved tree-wound paint. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require. Clearing shall also include the removal and disposal of structures, stone, concrete rubble, pavement, gravel surfaces, utility pipes and other obstructions that obtrude, encroach upon, or otherwise obstruct the work. Existing structures indicated shall be removed to 3 feet below grade. Holes and other hazardous openings created during clearing operations shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

##### 3.1.1 *Salvage Trees for Future Mitigation*

***Mitigation for endangered plant species displaced by this project will require the construction of two log jams in the future. Construction of***

*these log jams will be performed by others. During clearing and grubbing under this contract, the Contractor shall salvage twenty (20) logs as follows: ten (10) trees approximately 30 feet long and 18 inches in diameter (selected by Contracting Officer) will have all limbs removed but will retain root wads; ten (10) trees approximately 10 feet long and 8 inches in diameter (selected by Contracting Officer) will have all limbs and the root wad removed. All salvaged trees will be left in the Contractor staging area for future use by others.*

### 3.2 GRUBBING

Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract, such as areas to be paved. Depressions made by grubbing shall be filled with suitable material and compacted to make the surface conform with the original adjacent surface of the ground.

### 3.3 DISPOSAL OF MATERIALS

#### 3.3.1 Material Disposal

Logs, stumps, roots, brush, rotten wood, stone, concrete rubble, debris from obstructions designated for removal, and other refuse from the clearing and grubbing operations shall become the property of the Contractor and be disposed of off-site in accordance with all Federal, State, and local regulations and codes, , except when otherwise directed in writing. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed. The contractor shall make every effort possible to keep concrete rubble and rock material removed from the river banks from being disposed in a landfill. This includes, but is not limited to, hauling the material to a recycler or providing the material to an entity that will not be disposing of it in a landfill. Burning of refuse at the project site shall not be permitted.

### 3.4 DUST CONTROL

The amount of dust resulting from clearing and grubbing shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Water sprinkling shall be utilized to control dust. The contractor shall have sufficient equipment and personnel to accomplish sprinkling. Trucks hauling materials shall be covered or the loads dampened to prevent visible dust emissions during hauling or dumping.

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12/97

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-- End of Section Table of Contents --

## SECTION 02301

EXCAVATION  
12/97

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 117	(1995) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregate Washing
ASTM C 136	(1996a) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(1991) Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft <sup>3</sup> (600 kN-m/m <sup>3</sup> ))
ASTM D 2487	(1998) Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 4318	(1998) Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

## ENGINEERING MANUALS (EM)

EM 385-1-1	(1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual
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## DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

CESPK PAM 415-1-2	Construction Control Manual
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## 1.2 SCOPE

The work covered by this section consists of furnishing all plant, labor, and materials, and incidentals, and performing all operations necessary for stripping of the areas specified herein or indicated on the drawings, and excavation of areas specified herein. Excavation shall include excavation

of riverbanks and floodplain terrace drainage swales and obtaining satisfactory fill material from required project excavation. All work under this section shall comply with the requirements of EM 385-1-1.

### 1.3 MEASUREMENT

#### 1.3.1 Stripping

Stripping, except for the secondary borrow site (optional item), shall be measured for payment by the cubic yard as determined by the average end area method. The basis of measurement will be a survey of the ground surface after clearing and grubbing, and a second survey of the same area after completion of stripping to the specified depths. Surveyed cross sections shall be utilized for the purpose of quantity measurement and shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed one hundred (100) feet. If the Excavation of Secondary Borrow Site optional item is exercised by the Government, stripping of the secondary borrow site shall be considered incidental to excavation and no separate measurement for payment shall be made.

#### 1.3.2 Floodplain Terrace Excavation

The approximate limits in plan view for the floodplain terrace excavation are shown on the contract drawings. The pre-construction survey as described in paragraph "Pre-Construction Survey" shall be performed to establish the horizontal limits for excavation. Excavation for the floodplain terrace shall be measured for payment by the cubic yard as determined by the average end area method. The basis of measurement will be a survey of ground surface with the prescribed limits after clearing and grubbing, and a second survey of the same area after the completion of the excavation. Survey cross sections shall be utilized for the purpose of quantity measurement and shall be performed at significant breaks in grade or horizontal extent of excavation except that the maximum distance between cross sections shall not exceed fifty (50) feet. Yardage excavated beyond the lines, grades and elevations shown on the contract drawing will not be included in measurement for payment.

#### 1.3.3 Marshplain Terrace Excavation

Excavation for the marshplain terrace shall be measured for payment by the cubic yard as determined by the average end area method. The basis of measurement will be a survey of ground surface with the prescribed limits after clearing and grubbing and a second survey of the same area after the completion of the excavation. Survey cross sections shall be utilized for the purpose of quantity measurement and shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed fifty (50) feet. Yardage excavated beyond the lines, grades, and elevations shown on the contract drawings will not be included in measurement for payment.

#### 1.3.4 ***Marshplain Terrace Excavation Hauled to Gasser Disposal Site***

***Excavation for the marshplain terrace hauled to the Gasser Disposal Site***

*shall be measured for payment by the cubic yard as determined by the average end area method. The basis of measurement will be a survey of ground surface with the prescribed limits after clearing and grubbing and a second survey of the same area after the completion of the excavation. Survey cross sections shall be utilized for the purpose of quantity measurement and shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed fifty (50) feet. Yardage excavated beyond the lines, grades, and elevations shown on the contract drawings will not be included in measurement for payment.*

#### 1.3.5 Floodplain Terrace Drainage Swale Excavation

Excavation for the floodplain terrace drainage swales shall each be measured for payment, separately, by the cubic yard as determined by the average end area method. The basis of measurement will be a survey of ground surface with the prescribed limits after floodplain terrace excavation and a second survey of the same area after the completion of the drainage swale excavation. Survey cross sections shall be utilized for the purpose of quantity measurement and shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed fifty (50) feet. Yardage excavated beyond the lines, grades and elevations shown on the contract drawings will not be included in the measurement for payment.

#### 1.3.6 Optional Item: Excavation from Secondary Borrow Site

Excavation from the secondary borrow site shall be measured for payment by the cubic yard as determined by the average end area method. The basis of measurement will be a survey of ground surface with the prescribed limits after clearing and grubbing and a second survey of the same area after the completion of the excavation. Survey cross sections shall be utilized for the purpose of quantity measurement and shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed fifty (50) feet. Yardage excavated beyond the lines, grades, and elevations shown on the contract drawings will not be included in measurement for payment.

### 1.4 PAYMENT

#### 1.4.1 Stripping of Topsoil

Payment for stripping, measured as specified, will be made at the contract unit price per cubic yard for Item, "Stripping of Topsoil". Payment shall constitute full compensation for furnishing all plant, labor, equipment, material, stockpiling, transportation, and all operations necessary to complete the work specified. If the Excavation of Secondary Borrow Site optional item is exercised by the Government, stripping of the secondary borrow site shall be considered incidental to excavation and no separate payment shall be made.

#### 1.4.2 Floodplain Terrace Excavation

Payment for the floodplain terrace excavation, measured as specified, will be made at the contract unit price per cubic yard for Item, "Excavation of Floodplain Terrace". Payment shall constitute full compensation for furnishing all plant, labor, equipment, material, stockpiling, transportation, disposal and all operations necessary to complete the specified work. There will be no separate payment for dewatering or care and diversion of water. All costs of constructing facilities to direct or divert flows from the excavation and all pumping costs, shall be considered incidental to the related excavation. All costs of sorting and removing debris from the excavated riverbank levees shall be considered incidental to the related excavation.

#### 1.4.3 Marshplain Terrace Excavation

Payment for the marshplain terrace excavation, measured as specified, will be made at the contract unit price per cubic yard for Item, "Excavation of Marshplain Terrace". Payment shall constitute full compensation for furnishing all plant, labor, equipment, material, stockpiling, transportation, disposal and all operations necessary to complete the specified work. All costs of constructing facilities to direct or divert flows from the excavation and all pumping costs, shall be considered incidental to the related excavation. All costs of sorting and removing debris from the excavated riverbank levees shall be considered incidental to the related excavation.

#### 1.4.4 Marshplain Terrace Excavation Hauled to Gasser Disposal Site

*Payment for the marshplain terrace excavation disposed at the Gasser Disposal Site, measured as specified, will be made at the contract unit price per cubic yard for Item, "Excavation of Marshplain Terrace, hauled to Gasser Disposal Site". Payment shall constitute full compensation for furnishing all plant, labor, equipment, material, stockpiling, transportation, disposal and all operations necessary to complete the specified work. All costs of constructing facilities to direct or divert flows from the excavation and all pumping costs, shall be considered incidental to the related excavation. All costs of sorting and removing debris from the excavated riverbank levees shall be considered incidental to the related excavation.*

#### 1.4.5 Floodplain Terrace Drainage Swale Excavation

Payment for the floodplain terrace drainage swales excavation, measured as specified, will be made at the contract unit price per cubic yard for Item, "Excavation of Floodplain Terrace Drainage Swales (1 through 5)". Payment shall constitute full compensation for furnishing all plant, labor, equipment, material, stockpiling, transportation, disposal and all operations necessary to complete the specified work. All costs of constructing facilities to direct or divert flows from the excavation and all pumping costs, shall be considered incidental to the related excavation.

#### 1.4.6 Tidal Breach Excavation

Payment for the tidal breach will be made at the contract lump-sum price for Item, "Excavation of Tidal Breach". Payment shall constitute full

compensation for furnishing all plant, labor, equipment, material, stockpiling, transportation, disposal and all operations necessary to complete the specified work. All costs of constructing facilities to direct or divert flows from the excavation and all pumping costs, shall be considered incidental to the related excavation.

#### 1.4.7 Optional Item: Excavation from Secondary Borrow Site

Payment for excavation from secondary borrow site, measured as specified, will be made at the contract unit price per cubic yard for Item, "Excavation from Secondary Borrow Site". Payment shall constitute full compensation for furnishing all plant, labor, equipment, material, stockpiling, transportation, disposal and all operations necessary to complete the specified work. All costs of stripping topsoil and sorting and removing debris from the excavated soils shall be considered incidental to the related excavation.

### 1.5 DEFINITIONS

#### 1.5.1 Stripping

Stripping shall consist of the removal and satisfactory disposal of crops, weeds, grass, and other vegetative materials and topsoil to depths specified herein.

#### 1.5.2 Topsoil

At locations specified for topsoil replacement, topsoil shall consist of material obtained from required stripping.

#### 1.5.3 Satisfactory Materials

Satisfactory materials shall be as defined in SECTION 02310, FILLS AND EMBANKMENT.

#### 1.5.4 Unsatisfactory Materials

Unsatisfactory materials shall be as defined in SECTION 02310, FILLS AND EMBANKMENT.

#### 1.5.5 Soil Classification

Materials shall be classified in accordance with ASTM D 2487. Preparation and testing for classification purposes shall be by the wet method. Gradation tests shall be performed with ASTM C 117 and ASTM C 136. Atterberg limits shall be performed in accordance with ASTM D 4318.

#### 1.5.6 Unstable Material

Unstable material is that material that cannot be properly compacted or will not support construction equipment or fill material, due to excess moisture. Potentially unstable materials are fine grained soils with in-place moisture contents near or above the plastic limit as determined by

ASTM D 4318, Method A, or 3 or more percent greater than the optimum moisture content as determined by ASTM D 698.

#### 1.5.7 Excavation in the Wet

Excavation in the wet refers to all excavation efforts which yield material which is wet due to tidal intrusion, channelized flow of any type, or ponded or standing water which occurred due to an overbank event. Additionally, excavation in the wet refers to any excavation effort which may cause any measurable increase in the turbidity of a stream, river, channel, or other body of water, regardless of the volume of flow during the work period.

#### 1.5.8 Excavation in the Dry

Excavation in the dry refers to all excavation not meeting the definition for excavation in the wet.

### 1.6 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330, SUBMITTAL PROCEDURES:

SD-01 Data

Survey Data; .

Submit copies of survey data used for developing quantities for payment purposes, and compliance surveys. The survey data shall include cross sections before excavation and a second survey of the area after completion of the excavation. The submitted survey data shall include certification that the data is accurate and surveying was performed by a licensed surveyor in the state of California.

Pre-Construction Survey; G.

Submit copies of survey data used for developing the pre-construction survey and developing limits for excavation. The survey data shall include cross sections. The submitted survey data shall include certification that the data is accurate and surveying was performed by a licensed surveyor in the state of California.

Equipment; .

Data for equipment to be used for excavation, hauling, and stockpiling and/or disposal shall be submitted and include weight, size, axle loads, and contact pressures.

SD-08 Statements

Plan of Operation; G.

The Contractor shall submit for approval a Plan of Operation for accomplishing all stripping and excavation.

Material Distribution and Stockpiling Plan; G.

Earth material distribution and stockpile plan that describes where material will be obtained, processed, placed and/or stockpiled for usage. The stockpile plan shall include locations, stockpile heights, slopes, limits, and drainage around the stockpile areas. This information shall be provided within thirty (30) days after the notice to proceed.

Earthwork; .

Procedure and location for disposal of the unused satisfactory material within the disposal site.

SD-09 Reports

Testing; G.

Within 24 hours of conclusion of physical tests, 2 copies of test results, including calibration curves and results of calibration tests.

SD-13 Certificates

Testing Facilities; G.

Qualifications of the commercial testing laboratory or Contractor's testing facilities.

SD-18 Records

Earthwork Notification; G.

Advance notice on the opening of excavation. Survey Records.

#### 1.7 SUBSURFACE DATA

Subsurface soil exploration logs are shown on the contract drawings. Available subsurface data and subsurface conditions for this site are described in SECTION 02020, SUBSURFACE DATA.

#### 1.8 CLASSIFICATION OF EXCAVATION

No consideration will be given to the excavation methods and nature of the materials encountered, and all excavation will be designated as unclassified.

#### 1.9 BLASTING

Blasting will not be permitted.

#### 1.10 PLAN OF OPERATION

The Contractor shall submit for approval a Plan of Operation for accomplishing all stripping and excavation. The plan shall include but not be limited to the Contractor's proposed sequence of construction for stripping and excavation operations, and methods and type of equipment to be utilized for all excavation operations, including transporting, stockpiling, disposal, and any site dewatering. The plan shall also include areas identified as excavation in the wet, the Contractor's proposed road pattern, and plan for implementing dust control measures.

#### 1.10.1 Equipment

Data for equipment to be used for excavation, hauling, stockpiling and/or disposal shall be submitted and include equipment weight, size, axle loads and contact pressure shall be submitted. The maximum equipment contact pressure **for equipment working on the foundation of the training dike** shall be 8 psi below elevation 4 feet and 15 psi above elevation 4 feet.

#### 1.11 GENERAL CONDITIONS

Factors such as site conditions, tidal stages, regulatory permit restrictions, and use of excavated material for fill, can influence whether excavation in the dry or in the wet can be utilized. Time restrictions for excavating in the wet are found in SECTION 01505, GENERAL REQUIREMENTS. Excavation in the wet is subject to regulatory and permitting requirements for which the Contractor shall be responsible. Excavation in the wet shall not start until all regulatory requirements have been met and written approval by the Contracting Officer has been provided. Groundwater will be encountered or affect ground conditions as described in SECTION 02020, SUBSURFACE DATA.

#### 1.12 EXCAVATION FROM RIVER SIDE

Excavation from the river side will not be permitted including dredging or excavation from barges.

#### 1.13 UTILIZATION OF EXCAVATED MATERIALS

Unsatisfactory materials removed from excavations shall be disposed of in the disposal sites shown on the contract drawings and in accordance with paragraph "DISPOSAL SITE MATERIAL PLACEMENT". If the optional item "Excavation of Secondary Borrow Site" is exercised by the Government, then the secondary borrow site may be used as a secondary disposal site by the Contractor. No debris or rubble from the project excavations shall be placed in the secondary borrow/disposal site. Unsatisfactory material being wasted in the disposal sites shall be free of petroleum products, trash, and contaminated soil. This material shall become the property of the Contractor and disposed of off-site in accordance with all Federal, State, and local regulations and codes, except as otherwise directed. The Contractor shall not abide by such directives unless they are in writing. Rock riprap, concrete rubble, and wood debris from the required project excavations may be crushed to pieces no larger than 3 inches in any dimension and placed in the disposal site **in Kennedy Park (plan sheet C-48)** to a maximum elevation of 8 feet. A minimum of 4 feet of soil cover shall be placed over the crushed rubble in the **Kennedy Park** disposal site.

Alternatively, this material shall become the property of the Contractor and disposed of off-site in accordance with all Federal, State, and local regulations, except as otherwise directed in writing. Satisfactory material removed from excavations shall be used, insofar as practicable, in the construction of fills and embankments. The sequencing and utilization of excavated material for fill material shall be in accordance with SECTION 02310, subparagraphs "Training Dike Fill". No satisfactory excavated material shall be wasted without specific written authorization. Stripped topsoil shall be used to construct the planting berm and to cover the **Kennedy Park** disposal site. **All marshplain terrace excavation below the elevation of 3' NGVD shall be disposed of at the Gasser Disposal Site (plan sheet C-49 and C-50)** Any excess satisfactory material to be wasted shall be disposed of in the disposal sites shown on the contract drawings, **as approved by the Contracting Officer.**

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

Clearing and grubbing as described in SECTION 02330, CLEARING AND GRUBBING, shall be performed prior to stripping, excavation, or stockpiling.

3.2 PRE-CONSTRUCTION SURVEY

After clearing and grubbing as described in SECTION 02330, CLEARING AND GRUBBING, a pre-construction survey shall be taken for the area to be excavated for the floodplain terrace area to establish the limits for excavation and/or stripping. The survey of the ground surface shall be performed at significant grade breaks or changes in horizontal extent of excavation, except that the maximum distance between cross sections shall not exceed fifty (50) feet. The objective of this survey is to establish accurate field representation of the limits for excavation and for use as part of the as-built drawings.

3.3 STRIPPING

Prior to stripping, the area shall be cleared and grubbed in accordance with SECTION 02330, CLEARING AND GRUBBING. Stripped material shall be stockpiled at locations convenient to areas that are to receive topsoil replacement as indicated in SECTION 02310, FILLS AND EMBANKMENTS. Topsoil shall be kept separate from other excavated materials, debris, litter, and other materials that would interfere with seeding for re-vegetation.

3.3.1 Training Dike and Ramps

The foundation for the training dike and ramps shall be stripped to a depth of six (6) inches below existing ground. Care shall be exercised to ensure that the depth of stripping does not exceed that specified.

3.3.2 Floodplain Terrace

Prior to stripping, the pre-construction survey shall be approved by the Contracting Officer. The floodplain terrace excavation limits based on the pre-construction survey shall be stripped to a depth of eight (8) inches below existing ground and shall include the side slopes and crown of existing embankment. The extent of stripping shall be limited to where excavation cuts are eight (8) inches or greater in depth.

### 3.3.3 Optional Item: Secondary Borrow Site

Prior to stripping, the pre-construction survey shall be approved by the Contracting Officer. The secondary borrow site excavation limits based on the pre-construction survey shall be stripped to a depth of six (6) inches below existing ground.

## 3.4 EXCAVATION

### 3.4.1 General

Excavation shall not start until the Plan of Operation and pre-construction survey limits have been approved by the Contracting Officer. The Contractor shall perform excavation of every type of material encountered within the limits of the project to the lines, grades, and elevations indicated and as specified. Grading shall be in conformity with the contract drawings and the tolerances specified in paragraph FINISHING. Selective excavation for satisfactory material will be required. Excavated satisfactory materials shall be transported to the location where fill or embankment is to be placed. When the sequence or rate of excavation and/or need for moisture conditioning do not allow direct transportation and placement, the satisfactory materials shall be stockpiled. Unsatisfactory material shall be transported to the designated disposal site. Excavation in the wet shall not start until all regulatory and permitting and specification requirements have been met and written approval by the Contracting Officer has been received.

### 3.4.2 Floodplain Terrace Excavation

No excavation shall start until approval of the pre-construction survey limits by the Contracting Officer. No excavation shall be paid for prior to the approval of the pre-construction survey limits. Excavation shall start after stripping has been performed. Excavated satisfactory material shall be used in accordance with SECTION 02310, FILLS AND EMBANKMENTS subparagraph "Training Dike Fill". As noted on the logs of explorations, there is buried debris, consisting primarily of wood, asphalt, concrete, and clothing with some trash, in the existing levees along the bank of the Napa River between the Kennedy Park boat ramp and Old Tulocay Creek. According to the exploration logs, from Kennedy Park to Pelusi Road the debris is primarily buried on the water side of the levee section. According to the exploration logs, from Pelusi Road to Old Tulocay Creek the debris is buried throughout the levee section. The amount of buried debris varies along the levee alignment but is estimated to be no more than 40 percent by volume. The Contractor shall remove the buried debris from the excavated soils prior to use of the soils in the

training dike or planting berm embankments or wasting in the **designated** disposal site. No pieces of debris larger than 3 inches shall be placed in any embankment or in the disposal site. The maximum amount of debris under 3 inches which may be placed in any embankment is 5 percent by volume. The removed debris shall become the property of the Contractor and shall be disposed of in accordance with subparagraph "Utilization of Excavated Materials" in this section.

#### 3.4.3 Marshplain Terrace Excavation

Excavation for this project feature shall not start until completion of the floodplain terrace excavation. As noted on the logs of explorations, there is buried debris, consisting primarily of wood, asphalt, concrete, and clothing with some trash, in the existing levees along the bank of the Napa River between the Kennedy Park boat ramp and Old Tulocay Creek. According to the exploration logs, from Kennedy Park to Pelusi Road the debris is primarily buried on the water side of the levee section. According to the exploration logs, from Pelusi Road to Old Tulocay Creek the debris is buried throughout the levee section. The amount of buried debris varies along the levee alignment but is estimated to be no more than 40 percent by volume. The Contractor shall remove the buried debris from the excavated soils prior to use of the soils in the training dike or planting berm embankments or wasting in the disposal site. No pieces of debris larger than 3 inches shall be placed in any embankment or in the **designated** disposal site. The maximum amount of debris under 3 inches which may be placed in any embankment is 5 percent by volume. The removed debris shall become the property of the Contractor and shall be disposed of in accordance with subparagraph "Utilization of Excavated Materials" in this section.

#### 3.4.4 Floodplain Terrace Drainage Swale Excavation

Excavation for the floodplain terrace drainage swales shall not start until completed surveys of the existing ground surface have been submitted and written approval has been received from the Contracting Officer to start work. No payment for excavation will be made until written approval to start work has been received from the Contracting Officer.

#### 3.4.5 Tidal Breach

Excavation for the tidal breach shall not start until completion and acceptance by the Contracting Officer of all other work in this contract. Excavation for the tidal breach shall not start until a completed survey of the finished terrace excavations have been submitted and written approval has been received from the Contracting Officer to start work. No payment for material excavated will be made until written approval to start work has been received from the Contracting Officer and any material excavated before receiving written approval will be immediately replaced at the Contractor's own expense.

#### 3.4.6 Optional Item: Excavation of Secondary Borrow Site

The primary source of material for construction of the training dike is the

floodplain and marshplain terrace excavations above elevation 4 feet or above the groundwater level, whichever is lower in elevation. A secondary borrow site is identified on the contract drawings. The secondary borrow site shall only be utilized if insufficient suitable embankment soils are obtained from the floodplain and marshplain terrace excavations. No excavation of the secondary borrow site shall take place without written authorization from the Contracting Officer. No excavation shall be paid for prior to the approval of the pre-construction survey limits. Excavation shall start after stripping has been performed. Excavated satisfactory material shall be used in accordance with SECTION 02310, FILLS AND EMBANKMENT, subparagraph "Training Dike Fill". As noted on the logs of explorations, there is buried debris, consisting primarily of wood, asphalt, concrete, and clothing with some trash, in the secondary borrow site. The amount of buried debris varies throughout the site but is estimated to be no more than 10 percent by volume. The Contractor shall remove the buried debris from the excavated soils prior to use of the soils in the training dike or wasting in the disposal site. No pieces of debris larger than 3 inches shall be placed in any embankment or in the disposal site. The maximum amount of debris smaller than 3 inches which may be placed in any embankment is 5 percent by volume. The removed debris shall become the property of the Contractor and shall be disposed of in accordance with subparagraph "Utilization of Excavated Materials" in this section.

### 3.5 MATERIAL DISTRIBUTION AND STOCKPILING PLAN

Earth material distribution and stockpile plan describing where material will be obtained, processed, placed and/or stockpiled shall be submitted for approval to the Contracting Officer. Stockpiles used for stripping material, satisfactory fill material and material to be disposed of offsite shall be separated. Stockpiles shall be located as to not adversely surcharge or make unstable any adjacent slopes. The maximum allowable height of stockpile material without causing instability of the ground or excavation shall be determined by the Contractor. Upon completion of construction operations, all remaining stockpiles shall be removed and disposed of.

### 3.6 DISPOSAL SITE MATERIAL PLACEMENT

Material designated for disposal, as described in paragraph "UTILIZATION OF EXCAVATED MATERIALS" shall be placed at the disposal sites shown on the contract drawings. Material shall be placed in horizontal layers distributed uniformly over the disposal site. Material that is saturated or has free water shall be aerated to achieve water contents near the plastic limit of the material, as determined by ASTM D 4318, to assure traffic ability and compaction before subsequent layer placement. Aeration may be performed within or outside the disposal site.

#### 3.6.1 Kennedy Park Disposal Site Material Placement

**Material layer shall be compacted by track walking equipment having an operating weight of at least 80,000 pounds with a minimum of three complete passes. Routing construction equipment over the material can be used for**

*compaction if it can be demonstrated to the Contracting Officer that the degree of compaction is equal to or greater than track walking. The final grade shall be in accordance with paragraph "FINISHING".*

### **3.6.2 Gasser Disposal Site Material Placement**

*Area to receive fill shall be cleared and grubbed as per section 02230 CLEARING AND GRUBBING, including the top 2 inches of topsoil. Topsoil shall be stockpiled and spread on site prior to final seeding. The upper 12 inches of native ground shall be scarified and moisture-conditioned as needed and compacted to 90% as determined by ASTM D1557-91. Once preparation of subgrade has been approved by Contracting Officer, fill shall be placed at 8 to 12 inch uncompacted thickness and compacted to a minimum relative compaction of 92%. The fill material should not contain rocks or lumps over 6 inches in greatest dimension and not more than 15% larger than 2.5 inches. Contractor QC testing shall be performed in accordance with Construction Control Manual requirements for backfill and embankment. A third party other than the government will be onsite performing QA testing, Contractor shall accommodate this party.*

### **3.7 DRAINAGE**

Surface water control shall be accomplished in coordination with the required excavation. Surface water control may necessitate the use of temporary diversion ditches, dikes and grading. Excavation shall be performed so that the site and the area immediately surrounding the site and affecting the site shall be continually and effectively drained. Methods for care of surface water and for controlling the surface water or groundwater levels shall be subject to approval of the Contracting Officer.

### **3.8 FINISHING**

#### **3.8.1 General**

The surface of excavations and the disposal site shall be constructed to the lines, grades, and/or elevations shown on the contract drawings and verified by compliance surveys performed by the Contractor. The finished surface shall be a smooth surface free from gullies, humps, bulges or depressions in the surface.

#### **3.8.2 Excavations**

Excavations shall have a construction tolerance of three (3) inches above or below the prescribed lines, grades or elevations.

#### **3.8.3 Disposal Site**

The material at the disposal site side slopes and top shall have a constructed tolerance of three (3) inches above or below the prescribed grade or elevations provided that surface drains in the direction indicated on the drawings.

### **3.9 SLIDES**

In case sliding occurs in any part of the excavations prescribed in this section after they have been excavated, but prior to final acceptance of all work under the contract, the Contractor shall repair the slide as directed by the Contracting Officer. In case the slide is caused through the fault of the Contractor, it shall be repaired at no cost to the Government. In case the slide is due to no fault of the Contractor, an equitable adjustment in the contract price will be made for the repairs in accordance with the Contract Clause CHANGES.

-- End of Section --

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## SECTION 02310

## FILLS AND EMBANKMENT

## PART 1 GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

## AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 117	(1995) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregate Washing
ASTM C 136	(1996a) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(1991) Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft <sup>3</sup> (600 kN-m/m <sup>3</sup> ))
ASTM D 1556	(1990; R 1996 e1) Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 2216	(1998) Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D 2487	(1998) Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 4318	(1998) Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

## ENGINEERING MANUALS (EM)

EM 385-1-1	(1996) Safety and Health Requirements Manual
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## DEPARTMENT OF THE ARMY, CORPS OF ENGINEERS

## 1.2 SCOPE

This section consists of furnishing all plant, labor, and materials, and incidentals, and performing all operations in connection with foundation preparation for fill and embankments, subgrade preparation for aggregate base course, and placement and compaction of fill.

## 1.3 DEFINITIONS

The terms used in this section are defined as follows:

### 1.3.1 Satisfactory Material

Satisfactory materials are materials classified by ASTM D 2487 as GM, GC, SM, SC, and CL and any combination thereof. In addition, satisfactory material shall contain not less than 15 percent by weight of soil passing the No. 200 sieve, be free of roots and other organic matter, particles greater than 3 inches in size, biodegradable material, rubble, debris, frozen materials, contaminated soil, and other deleterious material.

### 1.3.2 Unsatisfactory Materials

Unsatisfactory materials are those materials classified by ASTM D 2487 as CH, ML, MH, OL, PT, OH, GW, GP, SW, and SP and any combination thereof. In addition, all roots and other organic matter, biodegradable material, stripping material, rubble, stone protection, debris, frozen materials, and contaminated soil are unsatisfactory materials. All unsatisfactory materials, except for rubble, contaminated soil, debris and stone protection, shall be wasted within the disposal site. All rubble, contaminated soil, debris and stone protection becomes the property of the Contractor and shall be removed from the project site.

### 1.3.3 Soil Classification

Materials shall be classified in accordance with ASTM D 2487. Preparation and testing for classification purposes shall be by the wet method. Gradation tests shall be performed in accordance with ASTM C 117 and ASTM C 136. Atterberg limits shall be performed in accordance with ASTM D 4318.

### 1.3.4 Moisture Content

Moisture content is the ratio of the weight of water to the weight of solid matter in the soil expressed as a percentage and determined by ASTM D 2216.

### 1.3.5 Unstable Material

Unstable material is that material that cannot be properly compacted or will not support construction equipment or satisfactory material, due to excess moisture. Potentially unstable materials are fine grained soils with in-place moisture contents near or above the plastic limit as determined by ASTM D 4318, Method A, or 3 or more percent greater than the optimum moisture content as determined by ASTM D 698.

#### 1.3.6 Embankment Toe

The embankment toe shall be the intersection of two lines i.e. one line projected along the average embankment slope and the other line projected from the average ground surface. If the location is not definable from the given definition, it shall be at a location approved by the Contracting Officer and staked in the field.

#### 1.3.7 Degree of Compaction

Degree of compaction shall be expressed as percentage of the maximum density obtained by the test procedure presented in ASTM D 698.

#### 1.4 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

##### SD-01 Data

##### Survey Data;

Submit copies of survey data used for developing quantities for payment purposes and compliance surveys. The survey data shall include cross sections. The submitted survey data shall include certification that the data is accurate and surveying was performed by a licensed surveyor in the state of California.

##### Equipment Data;

Equipment data used for hauling, fill placement, compaction, and moisture conditioning shall be submitted and include weights, size, and contact pressures.

##### SD-04 Drawings

##### As-Built Profile; G

Scale drawing showing profile with elevations and typical cross sections of the completed vineyard dike, access roads, embankments and ramps.

##### SD-08 Statements

##### Plan of Operation; G

The Contractor shall submit for approval a Plan of Operations for accomplishing all embankment and fill construction.

##### SD-09 Reports

##### Quality Control Testing;

The Contractor shall submit all test results in accordance with the CONSTRUCTION CONTROL MANUAL. Supervision of tests and report preparation shall be by a professional civil engineer licensed in the state of California. All reports shall bear said professional engineer's signature and stamp. Distribution of the copies to the Contracting Officer shall be within 48 hours after sampling or initiating the test. Minimum information reported shall conform to the test report forms found in the CONSTRUCTION CONTROL MANUAL.

#### Test Data Summaries;

Summaries comparing test results with specified requirements. These summaries shall be provided in electronic format (Microsoft Excel compatible) and hard copy, demonstrate contract compliance, and be submitted with all requests for progress payments.

### 1.5 MEASUREMENT

#### 1.5.1 Fill Material

Fill materials placed as specified for the training dike and ramps, **intermediate fill**, and the planting berm shall each be measured for payment separately by the cubic yard as determined by the average end area method. The basis for measurement will be surveyed cross sections of the areas to be filled taken after stripping and immediately prior to fill placement and the actual cross sections of the embankments constructed within the specified tolerance. Surveyed cross sections shall be performed at significant breaks in grade except that the maximum distance between cross sections shall not exceed one hundred (100) feet and shall extend at least three (3) feet from the dike and embankment waterside and landside toes. The following conditions on measurements shall apply:

(1) Embankments and fills not constructed to design grade and section including allowable tolerance as indicated on the Contractor's compliance survey will not be accepted for measurement for payment.

#### 1.5.2 Water

Water for fill and embankment compaction and dust control shall be furnished in accordance with the contract. No measurement or payment will be made for water used for compaction and dust control.

### 1.6 PAYMENT

#### 1.6.1 Training Dike

Payment for fill material placed for the training dike and ramps, measured as specified, will be made at the contract unit price per cubic yard for Item, "Training Dike Embankment Fill". Payment shall constitute full compensation for furnishing all plant, labor, equipment and material, except earth material excavation and transportation, and performing all

operations necessary for foundation preparation, processing, placing, and compacting the material and Quality Control testing.

#### 1.6.2 Intermediate Fill

*Payment for fill material placed for the intermediate fill, measured as specified, will be made at the contract unit price per cubic yard for Item, "Intermediate Fill (between Training Dike and Railroad Embankment)". Payment shall constitute full compensation for furnishing all plant, labor, equipment and material, except earth material excavation and transportation, and performing all operations necessary for foundation preparation, processing, placing, and compacting the material and Quality Control testing.*

#### 1.6.3 Planting Berm Fill

Payment for fill material placed for the planting berm, measured as specified, will be made at the contract unit price per cubic yard for Item, "Planting Berm Fill". Payment shall constitute full compensation for furnishing all plant, labor, equipment and material, except earth material excavation and transportation, and performing all operations necessary for foundation preparation, processing, placing, and compacting the material and Quality Control testing.

#### 1.7 PLAN OF OPERATION

The Contractor shall submit for approval a Plan of Operation for accomplishing all embankment and fill construction. The plan shall include but not be limited to the Contractor's proposed sequence of construction for embankment and fill operations, and methods and types of equipment to be utilized for all embankment and fill operations, including transporting, processing, placing and compaction. Data for equipment to be used for embankment and fill operations shall include equipment weight, size, axle loads, and contact pressure. This plan shall also include the names and addresses of the independent commercial laboratories which will perform the soil testing. No fill or embankment construction shall start until written approval by the Contracting Officer has been provided. Additional information on the Plan of Operation submittal is located in 01505, GENERAL REQUIREMENTS.

### PART 2 PRODUCTS

#### 2.1 FILL MATERIAL

Fill material shall consist of satisfactory materials classified in accordance with paragraph "Soil Classification". Fill material shall be obtained from the required project excavation above elevation 4 feet or above the groundwater elevation, whichever is lower in elevation and, if necessary, from the secondary borrow site shown on the plans. Material from the required project excavation and the secondary borrow site will require selective removal, processing, and stockpiling. The Contractor is to insure that the material meets the specification requirements which will include testing to classify the material at the sources.

### 2.1.1 Training Dike Fill *and Intermediate Fill*

Fill material for the training dike including ramps *and intermediate fill* shall be obtained from the required project excavation of the floodplain terrace excavation including existing embankment. The utilization of fill material from the floodplain terrace excavation shall be to the maximum extent possible. If the fill requirements for the training dike including ramps exceed the available satisfactory fill from the required project excavation, additional fill material shall be obtained from the secondary borrow site shown on the plans.

### 2.1.2 Planting Berm Fill

The planting berm fill material shall be topsoil strippings from the required project excavations.

## 2.2 TOPSOIL

Topsoil shall be obtained from required project stripping, as described in SECTION 02301, EXCAVATION.

## PART 3 EXECUTION

### 3.1 GENERAL CONDITIONS

#### 3.1.1 Conduct of Work

The Contractor shall maintain and protect fill and embankment in a satisfactory condition at all times until final completion and acceptance of all work under the Contract. Any approved fill material which is rendered unsuitable after being placed and before final acceptance of the work shall be replaced by the Contractor in a satisfactory manner and no additional payment will be made therefor. The Contractor shall excavate and remove from the embankment or fill, any material which is unsatisfactory and shall also dispose of such material and refill the excavated area as directed, all at no cost to the Government.

#### 3.1.2 Protection of Existing Man-Made Facilities and Natural Features

Embankment and fill construction shall be conducted in such a manner as to avoid damage to trees left standing and trees outside the embankment areas, existing buildings, man-made facilities and natural features which are to remain undisturbed, with due regard to safety of employees and others, and in compliance with EM 385-1-1.

#### 3.1.3 Drainage

The foundation receiving fill shall be kept thoroughly drained. Surface water shall be directed away from the foundation and construction sites so as to prevent erosion, damage to work in progress and instability of foundations. Diversion ditches, dikes and grading shall be provided and maintained as necessary during construction. Fill and embankment slopes

shall be protected to prevent erosion and sloughing until the project is completed and accepted.

#### 3.1.4 Subsurface Data

Available subsurface data and subsurface conditions for this site are described in SECTION 02020, SUBSURFACE DATA.

### 3.2 EQUIPMENT

#### 3.2.1 General

The Contractor shall furnish all necessary plant and equipment required in the performance of work and shall be maintain the equipment in a safe and satisfactory working condition at all times. Equipment safety requirements can be found in EM 385-1-1. The equipment shall have adequate capability for hauling, spreading, moisture conditioning, and compacting earth material. Due to the presence of soft, wet soil conditions **at the foundation of the training dike**, no equipment shall be used which has a contact pressure of greater than 8 psi below elevation 4 feet msl, and no equipment shall be used which has a contact pressure greater than 15 psi above elevation 4 feet msl.

#### 3.2.2 Spreading Equipment

Spreading equipment shall consist of motorized graders or other approved equipment with adequate capability for meeting specified thickness control and grade control.

#### 3.2.3 Compaction Equipment

Compaction equipment shall consist of tamping rollers that are pulled or self-propelled, hand power tampers, and/or walk-behind compactors. Self-propelled compaction equipment shall not be operated at speeds greater than 3.5 mph. Compaction equipment shall be selected based on material characteristics and space restrictions.

#### 3.2.4 Sprinkling Equipment

Sprinkling equipment best suited for moisture conditioning or dust control shall be selected. Sprinkling equipment shall include tank trucks, pressure distributors, or other equipment designated to apply water uniformly and in controlled quantities to variable surface widths. This equipment shall be used regularly to assist in moisture conditioning the satisfactory material and to reduce dust and particulate generation at construction sites and along unpaved roads.

#### 3.2.5 Miscellaneous Equipment

Scarifiers, discs, spring tooth or spike tooth harrows, and other types of equipment shall be suitable for embankment and earthwork construction.

##### 3.2.5.1 Disc

A disc shall be used to mix, blend and assist moisture conditioning of the satisfactory material. The disc shall have a minimum of two gangs hooked in tandem and shall be adjustable to penetrate through a surface lift into the lift below. The angle and depth of cut shall be adjustable while the disc is in operation. The width of the disc cut shall not be less than 10 feet. The disc blades shall be serrated, spaced a minimum of 16 inches, and have a minimum new diameter of at least 30 inches. Blades shall be replaced when wearing exceeds 5 percent of the new disc diameter. The disc shall be equipped with self cleaning scrapers to prevent accumulation of mud and debris between and on the disc blades. The design and operation of the disc shall be suitable for embankment and earthwork construction.

### 3.3 PREPARATION OF FOUNDATIONS TO RECEIVE FILL

After clearing and grubbing (as described in SECTION 02230, CLEARING AND GRUBBING) and stripping (as described in SECTION 02301, EXCAVATION) has been performed, the sides of cavities or depressions shall be broken down so as to flatten out the slopes, and the sides shall be scarified to provide bond between the foundation material and the fill. Scarification shall be performed parallel to the centerline of the embankment. Unless otherwise directed, each depression shall be filled with the same material type that is to be placed immediately above the foundation. The fill shall be placed in layers, moisture conditioned, and compacted in accordance with the applicable provisions of paragraphs "PLACEMENT", "MOISTURE CONDITIONING" and "COMPACTION" of this specification.

After filling of depressions and immediately prior to placement of compacted fill, the foundation shall be loosened thoroughly by scarifying, plowing, discing or harrowing to a minimum depth of six (6) inches and moisture conditioned in accordance with paragraph "MOISTURE CONDITIONING", of this specification. The recondition surface shall be compacted in accordance with the applicable provisions of paragraphs "COMPACTION".

### 3.4 PLACEMENT

#### 3.4.1 General

Prior to beginning fill placement on the foundation, the Contractor shall notify the Government that the foundation is ready to receive fill. No fill shall be placed on any part of the embankment until such areas have been inspected and given final approval by the Contracting Officer. Fill placement on the foundation without approval shall be removed at the Contractor's own expense. No fill shall be placed on surfaces that are wet, muddy, unstable or contain excessive moisture. Fill material shall be to the lines, grades and/or elevations shown on the contract drawings.

#### 3.4.2 Placement

Fill material shall be placed and spread in horizontal layers not more than eight (8) inches in uncompacted thickness. For restricted spaces, or where compaction equipment weight limitations apply, material shall be placed in horizontal layers not more than four (4) inches in uncompacted thickness when using hand power tampers, and/or walk-behind compactors. Layers shall be started full out to the slope stakes and shall be carried substantially

horizontal with sufficient crown or slope to provide satisfactory drainage during construction. The fill shall be placed in layers parallel to the embankment alignment.

Cut slopes or existing slopes shall be benched or stepped prior to placing fill to insure proper bonding. The benching or stepping shall extend a minimum of two (2) feet horizontally into the slope and a minimum of eight (8) inches vertically or equal to the uncompacted thickness. The surface of any compacted layer shall not be smooth to insure proper bonding with the succeeding layer. The surface of any compacted layer shall be scarified, and moistened if required, before the succeeding layer is placed.

### 3.5 MOISTURE CONDITIONING

The moisture conditioning shall be accomplished at the stockpile site or source. The moisture conditioning shall be uniformly distributed throughout the layer prior to compaction and be between optimum to 2 percent above optimum water content. It is the intent of these specifications to secure satisfactory fill material meeting or exceeding the required density within the water content limits described above. If the material is too dry for proper compaction, the Contractor will be required to adjust the pre-wetting of the material in the stockpile or source area or to uniformly distribute sufficient moisture in each layer before spreading to permit the desired degree of compaction. The final adjustment of moisture shall be made at the placement location, as required. Discing at the fill placement location will be required to blend and moisture condition the material until a uniform distribution of material and moisture is obtained. Water applied on a layer of fill shall be accurately controlled in amount so that free water will not appear on the surface during or subsequent to compaction. Should too much water be added to any area, so that the material is too wet to obtain the desired compaction, the compaction and all work on that section shall be delayed until the moisture content of the material is reduced to an amount required for proper compaction. If the material is too wet for proper compaction, the Contractor will be required to aerate the material to a moisture content within the required limits prior to compaction.

### 3.6 COMPACTION

Each moisture conditioned layer shall be sufficiently compacted. The uppermost (top) layer of training dike fill shall be compacted to not less than 100% of maximum density as determined by ASTM D 698. The remainder of the training dike fill shall be compacted to not less than 95 percent of maximum density as determined by ASTM D 698. The planting berm fill **and the intermediate fill** shall be compacted to not less than 90% of maximum density as determined by ASTM D 698. When material does not meet the specified degree of compaction and moisture conditioning, the material shall be removed, replaced, or reworked, and recompact to meet specified requirements, at no cost to the Government. Compaction shall be performed to the limits of the layer placed.

### 3.7 COMPACTION ADJACENT TO STRUCTURES AND UTILITIES

Heavy equipment for spreading and compacting fill shall not be operated

within four (4) feet of wall, structures, or utilities, except as otherwise specified. Limitations on equipment within the four (4) feet shall be as follows. The gross weight of any piece of equipment, or the combined weight of any combinations of equipment coupled together, used to place, moisten and/or compact fill shall not exceed 35,000 pounds, including dynamic forces. However, material placed within two (2) feet of any walls, structures, or utilities shall be compacted using hand operated compactors.

### 3.8 FINAL GRADING AND GRADE TOLERANCES

#### 3.8.1 General

The training dike including ramps, *intermediate fill*, and planting berm shall be constructed to the lines, grades, and/or elevations shown on the contract drawings and verified by compliance surveys performed by the Contractor. The embankments shall be brought to not less than the prescribed gross section, grade, or slope and have no abrupt humps, bulges or depressions in the surfaces.

#### 3.8.2 Embankment Side Slopes

Embankment side slopes shall have a constructed tolerance of 0 to plus 4 inches for final dressing.

#### 3.8.3 Embankment Crowns and Top of Ramps

Embankment crowns and top of ramps shall have a constructed tolerance of 0 to plus 1 inches for final dressing.

### 3.9 QUALITY CONTROL

#### 3.9.1 General

As a part of the Contractor Quality Control (CQC) system required by SECTION 01451 CONTRACTOR QUALITY CONTROL, the Contractor shall establish and maintain field quality control for foundation preparation and fill operations to assure compliance with contract requirements and maintain detailed records of field quality control. Reference is made to the Sacramento District Construction Control Manual for the compilation and submittal of quality control test results. The horizontal and vertical locations of all test/sample shall be determined with respect to a project coordinate system, established by the Contractor and approved by the Contracting Officer, and shall be to the nearest 1-foot. A master test log, summarizing Quality Control testing and the results of the tests shall be submitted. The summaries shall include the test results and the specification requirements and shall be submitted in an electronic format (Microsoft Excel compatible) and a hard copy. In addition to the test log, individual test data sheets shall be submitted to the Contracting Officer.

#### 3.9.2 Quality Control Sampling and Testing

Sampling and testing shall be the responsibility of the Contractor. Quality Control sampling and testing shall be performed by an approved independent commercial testing laboratory or by an approved Contractor

onsite laboratory meeting the requirements of SECTION 01451 CONTRACTOR QUALITY CONTROL. When test results indicate that compaction or moisture content is not as specified, the material shall be removed, replaced, or reworked and compacted to meet specified requirements at no additional cost to the Government.

#### 3.9.3 Maximum Density

The maximum density shall be determined in accordance with ASTM D 698. At least one five point maximum density test shall be made for each series of 4 field density tests (with not less than one per type of material). Maximum densities for satisfactory material shall be determined prior to start of construction. The soil used for each maximum density shall be classified in accordance with subparagraph "Soil Classification", of this specification.

#### 3.9.4 Field Density and Moisture Content

Field or in-place densities shall be determined in accordance with ASTM D 1556 except for the following requirements: The weight of the soil sample representing the full depth of layer being tested shall not be less than 10 pounds for fine-grained soils or sandy materials. Nuclear methods used to determine density and moisture content shall be for Contractor's monitoring of earthwork progress only and not for acceptance. If used, the Contractor shall also be responsible for obtaining any necessary operating permit(s) for nuclear testing devices and calibration tests. Soil used for field or in-place densities shall be classified in accordance with subparagraph "Soil Classification" of this specification.

#### 3.9.5 Frequency of Testing

The following minimum number of tests are required for various project features. The Quality Control representative observing construction may require additional tests when necessary. Minimum density test frequency shall be in accordance with subparagraph "Minimum Density", of this specification, unless otherwise noted.

Project Feature	Minimum Test Test	Frequency
Foundation for Training Dike	Field Density and Moisture Content	1 per 700 yard <sup>2</sup>
Foundation for Planting Berm	Field Density and Moisture Content	1 per 1000 yard <sup>2</sup>
Training Dike Fill	Field Density and Moisture Content	1 per 500 yard <sup>3</sup>
Planting Berm Fill	Field Density and Moisture Content	1 per 600 yard <sup>3</sup>

### 3.10 QUALITY ASSURANCE TESTING

During the life of this contract, the Government or its Contractors will perform quality assurance tests. The Quality Assurance testing shall be performed, as the Contracting Officer deems necessary to check the Contractor's Quality Control.

-- End of Section --

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**02/02**

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## SECTION 02920L

GRASS SEEDING  
02/02

## PART 1 GENERAL

## 1.1 DESCRIPTION

The goal of this work is to establish vigorous stands of California native grass that provide erosion control and wildlife habitat, and to utilize exotic erosion control grasses for soil stabilization. This section provides grass seeding to help meet permitted requirements of the Regional Water Quality Control Board and shall be coordinated with Section 01356 STORM WATER POLLUTION PREVENTION MEASURES. The work shall consist of seeding grasses to all disturbed soil areas of the project and/or as designated on the plans. The Contractor shall provide all necessary labor, material, equipment, and services for grass seeding and mulching for all designated areas.

## 1.2 DEFINITIONS

The terms referenced herein are defined as follows:

## 1.2.1 CO:

Contracting Officer

## 1.2.2 COR:

Contracting Officer's Representative

## 1.2.3 Contractor:

The company that is awarded this contract and its sub-contractors.

## 1.2.4 Seeding:

The act of installing or placing seed, and harrowing it into the soil.

## 1.2.5 Grass:

When used herein, this term shall refer to all grasses specified herein, including either California native and/or non-native grasses, also referred to as exotic grasses.

## 1.2.6 Native Grass:

Grasses endemic to California.

## 1.2.7 Exotic Grass:

Non-native grasses to California.

## 1.3 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AGRICULTURAL MARKETING SERVICE (AMS)

AMS-01 (Amended thru: Aug 1988) Federal Seed Act Regulations (Part 201-202)

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1909 (Basic) Fertilizer  
FEDERAL

SPECIFICATIONS (FS)

FS O-F-241 (Rev D) Fertilizers, Mixed, Commercial

## 1.4 QUALIFICATIONS

**All work shall be done by an experienced Contractor familiar with California native grasses and its horticulture, and industry methods and standards for grass seeding.** The Contractor shall employ modern equipment and state of the art methods and techniques. The Contractor shall have a minimum of 2 years of applicable on the job experience with native grass seeding and weed control.

## 1.5 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for information only. When used, a designation following the "G" designation identifies the office that will review the submittal for the Government. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Qualifications; G

Documentation(resume or other)that the contractor performing seeding operations is experienced and familiar with California native grasses and its horticulture, and industry methods and standards for native grass seeding. Documentation showing a minimum of 2 years of applicable on the job experience with native grass seeding and weed control.

SD-03 Product Data

Equipment List;

Provide a list of equipment to be used for the seeding and mulching operations, including descriptive data and calibration tests. State equipment brand, model and supplier.

Fertilizer;Mulch;Tackifier;Fiber;

Provide data for fertilizer, mulch, tackifier and fiber to be used.

SD-05 Design Data

As-built Drawings; G

As-built drawings, which provide current factual information showing installed seeding locations and identifying seed mix species and seeding rates.

Monthly Establishment Records; G

Written monthly maintenance records identifying work performed and site conditions.

SD-06 Test Reports

Soil Test;

A soil analysis, analyzing specific soil properties, shall be submitted to the Contracting Officer. For results that prove contrary to project requirements, recommendations shall be made based on the results of the analysis and which support using alternative approaches to fertilizer selection or soil amendments to improve soil properties for plant growth.

Final Establishment Report; G

Written report of records of maintenance work performed on native grasses, photos, and site observations. Reports shall include monthly establishment record,as-built plans and color photos.

SD-07 Certificates

Seed; G

Provide certificates of all seed used on the project. Show where seed was purchased from, date purchased, seed species, and purity and germination percentages.

Pesticide;

The material supplier's or equipment manufacturer's statement, that the supplied material or equipment meets specified requirements. Each certificate shall be signed by an official authorized to certify in behalf of material supplier or product

manufacturer and shall identify quantity and date or dates of shipment or delivery to which the certificates apply. Certificates of compliance certifying that herbicide materials meet the requirements specified, before the delivery of materials.

Pesticide material shall include EPA registration number and registered uses. Certificates shall be submitted to the Contracting Officer before work is started for work for which it pertains.

## 1.6 INSPECTIONS

It is the Contractor's responsibility to notify the Contracting Officer at least 5 days prior to each anticipated inspection. The Contracting Officer may at anytime inspect work without notification. The following are key inspection events:

### 1.6.1 Inspection of Seed, Equipment & Quantities

Seed suppliers are subject to inspection of methods, materials, and processing. Contractor shall provide supplier names and addresses upon award of contract. Seed shall be inspected upon arrival at the job site by the Contracting Officer for conformity to species and quality in accordance with paragraph MATERIALS.

#### 1.6.1.1 Upon Arrival at the Site

The Contractor shall provide the Contracting Officer with receipts of the seed purchased and delivered to the site. Receipts shall provide name of company from which the seed was purchased, seed species, composition, quantity, germination rate, and pure-live-seed percentage. Other material shall be inspected for meeting specified requirements. Unacceptable materials shall be removed from the job site and replaced by the Contractor.

#### 1.6.1.2 Calibration Test

Immediately prior to commencement of seeding operations, the Contractor shall adjust and calibrate equipment as per manufacturer's specifications and field test in the presence of the Contracting Officer.

### 1.6.2 Inspection of Seeding Operation

Seeding operation shall be inspected during equipment calibration, material loading and seed application.

### 1.6.3 Seeding Acceptance

A final inspection shall be held by the Contracting Officer to determine any deficiencies in work after completion of seeding operations. Upon receipt and approval of the punch list items, a letter of acceptance will be issued by the Contracting Officer.

#### 1.6.3.1 Preliminary Seeding Inspection

Prior to the completion of the Seeding Period, a preliminary seeding

inspection shall be held by the Contracting Officer. Time for the inspection shall be requested in writing by the Contractor at least 5 working days prior to desired date. The quantity and type of species seeded, clean up requirements and the acceptability of the seeding operation, in accordance with the requirements stated herein, shall be determined and noted in writing.

#### 1.6.3.2 Final Seeding Inspection

A final inspection shall be requested in writing by the Contractor at least 5 working days prior to the desired date. At the final seeding inspection, the Contracting Officer will evaluate the deficiencies noted in the preliminary seeding inspection, to ensure they have been corrected. Time for the inspection shall be established in writing. A "Seeding Acceptance" will be given after all seeding requirements have been satisfactorily completed and approved by the Contracting Officer. PARTIAL ACCEPTANCE OF ANY ITEM OR COMBINATION OF ITEMS WILL NOT BE GIVEN. A written acceptance by the Contracting Officer of all project components, in addition to requirements specified in this section, shall constitute the beginning of the Establishment Period.

#### 1.6.3.3 Final Establishment Inspection

Prior to the completion of the Establishment Period, a Final inspection shall be held by the Contracting Officer. The Contractor shall request time for the inspection in writing at least 5 working days prior to the desired date. All deficiencies shall be noted at that time and corrected within 10 working days. The acceptability of the grass in accordance with the Establishment Period shall be determined. Once acceptability of the establishment period has been determined a written acceptance by the Contracting Officer shall be issued.

### 1.7 SHIPMENT, DELIVERY, STORAGE AND HANDLING

#### 1.7.1 Shipment

Preparation for shipment shall be done in a manner that will not cause damage to seeds, fertilizers, pesticides and all other material.

#### 1.7.2 Deliver

Seeds, fertilizers, pesticides and all other material shall be protected from weather and contamination during delivery.

#### 1.7.3 Storage

Material shall be stored in areas approved by the Contracting Officer. Seed and fertilizer shall be stored in cool, dry locations out of direct sunlight and away from contaminants. Chemical and pesticide material shall not be stored with other landscape materials and shall be stored in a spillage contained area. Mulch shall be kept covered from rain.

#### 1.7.4 Handling

Except for bulk deliveries, material shall not be dropped or dumped from vehicles.

## 1.8 TIMES AND CONDITIONS

### 1.8.1 Seeding Times

All grasses shall be seeded at the earliest available time and be completed by 15 October **2003**. No variance to the start date will be allowed unless given in writing by the Contracting Officer.

### 1.8.2 Seeding Period

The Seeding Period begins, when the Notice to Proceed is given and continues until all requirements indicated in this specification are completed and approved and a written acceptance is given by the Contracting Officer.

### 1.8.3 Seeding Conditions

Seeding and construction operations shall be performed only during periods when beneficial results can be obtained. When excessive moisture, winds or other unsatisfactory conditions prevail, the work shall be stopped when directed by the Contracting Officer. The Contractor shall schedule planting in the mornings to avoid stressing plants during seeding, if the planting schedule calls for installation when the temperature is expected to be 90 degrees Fahrenheit/32 degrees Centigrade or greater. When special conditions warrant a variance to the planting operations, a proposed seeding time shall be submitted in writing to, and approved by, the Contracting Officer. The Contractor shall be prepared to seed at the earliest time when all conditions (weather, moisture, temperature, tides and river flows, etc...) are acceptable.

### 1.8.4 Establishment Period

The "Establishment Period" begins, when all items indicated for seeding installation have been satisfactorily completed and the Contracting Officer has given an "Installation Acceptance" in writing.

#### 1.8.4.1 Native Grasses

The establishment period for Native grasses shall terminate on 1 April **2004** and upon written acceptance of the "Native grass establishment Period" by the Contracting Officer

#### 1.8.4.2 Exotic Grass

The establishment Period Shall for Exotic Grasses shall be for 60 continuous days.

## 1.9 MEASUREMENT AND PAYMENT

Measurement and payment for each requirement stated herein shall be as indicated below:

#### 1.9.1 Native Grass Seeding

Native grass seeding shall be measured by the number of acres seeded in accordance with plans and specifications and as directed by the Contracting Officer. Payment for "Native Grass Seeding" shall be made at their respective unit price per acre, and shall be in full compensation for all labor, materials, and costs associated with native grass seeding. Payment shall include, but not be limited to: seed, storage, handling, delivery, equipment calibration, endomycorrhizal inoculum application, composting, seeding, fiber, fertilizing and harrowing.

#### 1.9.2 Exotic Grass Seeding

Exotic grass seeding shall be measured by the number of acres seeded in accordance with plans and specifications and as directed by the Contracting Officer. Payment for "Exotic Grass Seeding" shall be made at their respective unit price per acre, and shall be in full compensation for all labor, materials, and costs associated with exotic grass seeding. Payment shall include, but not be limited to: seed, storage, handling, delivery, equipment calibration, application seeding, fiber, tackifier, harrowing, and exotic grass establishment.

#### 1.9.3 Soil Test

Soil Testing shall not be measured. Payment for "Soil Testing" shall be at a lump sum price in accordance with plans and specifications and as directed by the Contracting Officer. Payment shall be in full compensation for all labor, materials, and costs associated with, but not limited to: soil sample collection, analyzing, documenting and recommending fertilizer and soil amendment variations.

#### 1.9.4 Discing

Discing shall be measured by the number of acres disced in accordance with plans and specifications and as directed by the Contracting Officer. Payment for "Discing" shall be made at their respective unit price per acre, and shall be in full compensation for all labor, materials, and costs associated with Discing. Payment shall include, but not limited to: discing or tilling, plowing and raking (for rock removal), and ring rolling.

#### 1.9.5 Pesticide Application

Pesticide Application shall be measured by the number of events in accordance with plans and specifications and as directed by the Contracting Officer. Payment for "Pesticide application" shall be made at their respective unit price per event, and shall be in full compensation for all labor, materials, and costs associated with pesticide application. Payment shall include, but not be limited to: pesticide spraying. pesticide application shall apply to Native grass areas only.

#### 1.9.6 Grass Seeding As-builts

Grass seeding as-builts shall not be measured. Payment for "Grass Seeding

As-builts" shall be at a lump sum price in accordance with plans and specifications and as directed by the Contracting Officer. Payment shall be in full compensation for all labor, materials, and costs associated with Grass Seeding As-builts, but not limited to: preparing base mapping, updating data on drawings and submitting required drawings and electronic files to the Government.

#### 1.9.7 Final Establishment Report

Final establishment report shall not be measured. Payment for "Final Establishment Report" shall be at a lump sum price in accordance with plans and specifications and as directed by the Contracting Officer. Payment shall include, but not be limited to: reporting, monthly establishment records, as-maintained drawings, and colored photographic documentation.

## PART 2 PRODUCTS

### 2.1 SEED

#### 2.1.1 Seed Clarification

State-certified seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for percentages of mixture, purity, germination, hard seed, weed seed content, and inert material. Labels shall be in conformance with AMS-01 and applicable state seed laws. AOSCA / CCIA certifications for seeds are encouraged.

#### 2.1.2 Seed Quality

Weed seed shall not exceed 1 percent by weight of the total mixture. Wet, moldy, insect infested, or otherwise damaged seed shall be rejected and removed from project site. Open containers of seed or improperly tagged containers will be rejected and removed from project site.

##### 2.1.2.1 Sampling

For all seeds or containers, it is the option of the government to take random samples for each species, and require the Contractor to provide analysis of samples at no extra cost to the government.

#### 2.1.3 Seeding Mix

The mixing of seed shall be performed by the Contractor, in the presence of the Contracting Officer, on site as directed by the Contracting Officer.

#### 2.1.4 Substitutions

Substitutions will not be allowed without written request and approval from the Contracting Officer.

### 2.2 SEED SPECIES AND SEEDING RATES

2.2.1 Native Grass, Dry Mix

Native grass seed species and seeding rates for sites located above 6' NGVD to include upper portions of the planting berm and training dike shall be as follows:

Botanical Name	Native Grass Dry Mixture		Pounds Pure Live Seed per Acre		
	Common Name	Drill Seeding	Broadcast Seeding	Hydro-seeding	
Elymus glaucus	Blue Wildrye	2	4	4	
Leymus triticoides	Creeping Wildrye	2	4	4	
Nassella pulchra	Purple Needlegrass	10	17	17	
Nassella cernua	Nodding Needlegrass	3	5	5	
Poa Secunda	Pine Bluegrass	3	5	5	
TOTAL		20	35	35	

2.2.2 Native Grass, Wet Mix

Native grass seed species and seeding rates for locations below 6' NGVD to include the floodplain terrace and lower sections of the planting berm and training dike are as follows:

Botanical Name	Native Grass Wet Mixture		Pounds Pure Live Seed per Acre		
	Common Name	Drill Seeding	Broadcast Seeding	Hydro-seeding	
Hordeum brachyantherum	Meadow Barley	8	15	15	
Leymus triticoides	Creeping Wildrye	11	19	19	
TOTAL		19	34	34	

2.2.3 Exotic Grass

Exotic grass seed species and seeding rates for all locations located land side of the training dike, to include staging areas, haul roads, disposal sites and all other areas disturbed by construction activities shall be as follows:

Botanical Name	Exotic Grass Mixture		Pounds Pure Live Seed per Acre		
	Common Name	Drill	Broadcast	Hydro-	

Exotic Grass Mixture		Seeding	Seeding	Seeding
Vulpia myuros	Zorro Fescue	6	10	10
Bromus hordeaceus	Blando Brome	12	20	20
Trifolium Hirtum	Rose Clover	8*	17*	17*
Eschscholzia californica	California Poppy	3	5	5
Lupinus bicolor	Lupine	6	10	10
TOTAL		35	62	62

\*Rose clover shall be inoculated. The seeding rate shown reflects the weight of seed without the inoculum.

2.3 PESTICIDES

2.3.1 Contact Pesticide

The contact pesticide shall be selected by the Contractor and approved by the Contracting Officer before application. It shall be a glyphosate based spraying or wicking program.

2.3.2 Broadleaf Pesticide

The broadleaf pesticide shall be selected by the Contractor and must be approved by the Contracting Officer before application. It shall be 2-4D, MCPA, bromozynil, dicamba, Transline w/ Surfactant or approved others.

2.3.3 Pre-emergent Pesticide

The pre-emergent pesticide shall be selected by the Contractor and must be approved by the Contracting Officer before application. It shall be diuron, chlor-sulfuron, pendamenthalin, or approved others

2.4 MULCH

Mulch shall be free from noxious weeds and seeds, mold, and other deleterious materials.

2.4.1 Straw

Straw shall be stalks from, in order of preference: native grasses or rice furnished in air-dry condition and with a consistency for placing with commercial mulch-blowing equipment.

2.4.2 Wood Cellulose Fiber

Wood cellulose fiber be commercially available and produced from virgin wood fiber. Fiber shall be of such character that fiber will disperse into a uniform slurry when mixed with water. The water content of the fiber before mixing into the slurry shall not exceed 15 percent of the dry weight of the fiber. The moisture content of the fiber shall be clearly marked on the package.

Fiber shall not contain more than 7 percent ash as determined by the Technical Association of the Pulp and Paper Industry (TAPPI) Standard T

413, and shall be nontoxic to plant or animal life.

Fiber shall have a water-holding capacity by weight of not less than 1,200 percent. Water-holding capacity of the fiber shall be marked on the package.

Fiber shall be colored to contrast the area on which the fiber is to be applied. The material used for color shall be nontoxic to plant and animal life and shall not stain concrete or painted surfaces.

#### 2.4.3 Paper Fiber

Paper fiber mulch shall be recycled news print that is shredded for the purpose of mulching seed. It shall not contain any growth or germination-inhibiting factors and shall be dyed an appropriate color of green to facilitate placement during application. Composition on air-dry weight basis: 9 to 15 percent moisture, pH range from 4.5 to 6.0. **Paper fiber shall not be used in native grass seeding locations.**

#### 2.5 TACKIFIER

Tackifier shall be a concentrated, biodegradable and organic derivative of the Plantago plant (*Plantago insularis*). Tackifier shall be non-toxic to plant and animal life, non-corrosive, and non-crystalline and be non-staining to concrete or painted surfaces. Tackifier shall conform to Sections 20-2.11 and Special Provisions Section 10-1.19 of the State of California Department of Transportation Standard Specifications for "Stabilizing Emulsion".

#### 2.6 COMPOST

Compost shall be derived from green material consisting of chipped, shredded, or ground vegetation or clean, processed, recycled wood products or a Class A, exceptional quality biosolids composts, as required by the United States Environmental Protection Agency (EPA), 40 CFR, Part 503c regulations or a combination of green material and biosolids compost. The compost shall be processed or completed to reduce weed seeds, pathogens, and deleterious material, and shall not contain paint, petroleum products, herbicides, fungicides, or other chemical residues that would be harmful to plant or animal life. Other deleterious material, plastic, glass, metal, or rocks shall not exceed 0.1 percent by weight or volume.

A minimum internal temperature of 57°C shall be maintained for at least 15 continuous days during the composting process. The compost shall be thoroughly turned a minimum of 5 times during the composting process and shall go through a minimum 90-day curing period after the 15-day thermophilic compost process has been completed. Compost shall be screened through a maximum 9.5-mm screen.

The moisture content of the compost shall not exceed 35 percent. Compost products with a higher moisture content may be used provided the weight of the compost is increased to equal the compost with a moisture content of 35-40 percent. Moist samples of compost on an as-received basis shall be dried in an oven at a temperature between 105°C and 115°C until a constant



Officer, in writing immediately and before the Contractor commences construction or installation of all other requirements. Based upon this analysis, an alternate fertilizer may be recommended by the Contractor if the fertilizer specified is not capable of supporting the plants growth. Sufficient soil samples shall be taken to determine the post excavation soils affect on the proposed plant growth.

#### 3.1.1 Testing Locations

**Soils test are only required from designated native grass seeding locations.**

The Contractor shall perform tests at three representative separate locations within the site boundaries. The test locations shall be representative of site conditions **after excavation** has been completed. One vertical tests shall be performed at each location at six inches below the soil surface. Record, map and submit the analysis with the first year annual reports.

#### 3.2 Discing

The Contractor shall disc all designated **native grass** seeding areas to a depth of six (6) inches. The Contractor shall make as many cross passes as necessary to thoroughly incorporate all herbaceous vegetation and soil amendments into the soil. The Contractor may utilize tilling in-place of discing, if so desired.

#### 3.2.1 Smoothing and Ring Rolling

In designated **native grass** seeding areas, soil conditions such as large clods may require smoothing with a land plane or ring roller prior to seeding, as determined by the Contracting Officer.

#### 3.3 SEEDING

The Contractor shall seed all **native grass** locations with slopes less than 3:1 using the drill method. Drill seeded areas shall include the floodplain terrace and planting berm. All native grass locations with slopes greater than 3:1 shall be seeded using the broadcast or hydroseed method. Broadcast or hydroseed native grass areas shall include the training dike slopes. It shall be the Contractors option to utilize drill, broadcast or hydroseed methods for all locations receiving exotic seed mix. Prior to seeding, any previously prepared seedbed areas compacted or damaged by interim rain, traffic or other cause, shall be reworked to restore the ground for optimum seedbed conditions.

#### 3.3.1 Broadcast Seeding

Seed shall be uniformly broadcast using mechanical broadcast seeders at the rate as specified under paragraph SEED SPECIES AND SEEDING RATES. Half of seed shall be broadcast in one direction, and the remainder at right angles to the first direction. Seed shall be covered to an average depth of  $\frac{1}{4}$  inch by harrowing with steel mat or chain drag, cultipacker, or other approved device. For slopes steeper than 2H:1V or inaccessible areas, hand broadcasting may be required and harrow or hand raking where practical.

### 3.3.1.1 Native Grasses

The Contractor shall employ the following steps when broadcast seeding native grasses:

- A. Broadcast endomycorrhizal inoculum (at rate specified)
- B. Spread organic compost at 3000 lbs per acre
- C. Disc and incorporate compost and endomycorrhizal inoculum into soil (endomycorrhizal inoculum shall be incorporated into soil within 3 hours of broadcasting)
- D. Seed Mix, as specified and at rate specified
- E. Broadcast Fertilizer (Biosol or approved equal), at a rate of 10000 lbs per acre
- F. Harrow seed and fertilizer

### 3.3.2 Drill Seeding

Seed shall be uniformly drilled to a maximum  $\frac{1}{2}$  inch depth and at the rate specified under paragraph SEED SPECIES AND SEEDING RATES, using equipment having drills a maximum 7 inches apart. Row markers shall be used with the drill seeder. The drilling equipment shall be maintained, at minimum, with half full seed boxes during the seeding operations. Furrows created from drill seed operations shall run perpendicular to slopes, to minimize erosion.

#### 3.3.2.1 Native Grasses

The Contractor shall employ the following steps when Drill seeding native grasses:

- A. Broadcast organic compost at 3000 lbs per acre
- B. Disc and incorporate compost into soil
- C. Drill Seed Mix and endomycorrhizal inoculum as specified and at rate specified
- D. Broadcast Fertilizer (Biosol or approved equal), at a rate of 10000 lbs per acre

### 3.3.3 Hydroseeding

Seed species shall be mixed to ensure a seeding rate as specified under paragraph SEED SPECIES AND SEEDING RATES. When utilized, wood cellulose fiber shall be added to the mixture after the water and other mixture components have been thoroughly mixed to produce a homogeneous slurry. The slurry shall have the proper consistency to adhere to the earth slopes without lumping or running. The time period for the seed to be held in the slurry shall be a maximum 24 hours. Slurry shall be uniformly applied under pressure over the entire designated area. The hydroseeded area shall not be rolled.

#### 3.3.3.1 Native Grasses

The Contractor shall employ the following two-step hydroseeding process:

Step 1: Apply the first step as a complete mixture as indicated below

- A. Wood Cellulose Fiber, at a rate of 1000 lbs per acre
- B. Organic Compost, at a rate of 1,500 lbs per acre
- C. Seed Mix, as specified and at rate specified
- D. Fertilizer (Biosol or approved equal), at a rate of 10000 lbs per acre
- E. Endomycorrhizal Inoculum, at a rate of 3,600,000 propagules per acre

Step 2: Apply the second step as a complete mixture as indicated below:

- A. Wood Cellulose Fiber, at a rate of 500 lbs per acre
- B. Tackifier, at a rate of 100 lbs per acre

#### 3.3.3.2 Exotic Grasses

The Contractor shall employ the following one-step hydroseeding process:

Step 1: Apply the first step as a complete mixture as indicated below.

- A. Seed Mix, as specified and at rate specified
- B. Fertilizer (16-20-0), at a rate of 300 lbs per acre
- C. Hydromulch fiber, at a rate of 1,500 per acre
- D. Tackifier, at a rate of 80lbs per acre

#### 3.4 APPLYING ENDOMYCORRHIZAL INOCULUM

The Contractor shall apply Endomycorrhizal inoculum to all locations receiving **native grass** seeding as per requirements for method used.

##### 3.4.1 Application with Broadcast Seeding

The Contractor shall incorporate Endomycorrhizal Inoculum by broadcasting prior to seeding operations. Inoculum shall be applied at the rate of 3,600,000 propagules per acre based on the supplier's certification or an analysis returned by an independent laboratory. The broadcast device shall not grind or unduly compress the carrier granules or fungal spores. The inoculum shall be incorporated into the soil within three hours of broadcasting by discing the soil and shall result in incorporation of 80% of the inoculum granules to a depth of 1 to 6 inches.

##### 3.4.2 Application with Drill Seeding

The Contractor shall incorporate Endomycorrhizal Inoculum as part of seed drilling operations. Inoculum shall be applied at the rate of 3,600,000 propagules per acre (8,900,000 per hectare) based on the supplier's certification or an analysis returned by an independent laboratory. The inoculum shall be added to the seed bin of the drill seeder and mixed into the seeds and such materials as wheat bran. Endomycorrhizal inoculum must not be placed in any equipment that has heated up in the sun to a temperature higher than 90 degrees F (32 degrees C). If the seed drill is equipped with a separate bin for mycorrhizal inoculum, the inoculum shall be dispensed from the separate bin in accordance with the operating procedures specified for the equipment.

3.4.3 Application with Hydroseeding

Endomycorrhizal inoculum shall be applied at the rate of 3,600,000 propagules per acre (8,900,000 per hectare) based on the supplier's certification or an analysis returned by an independent laboratory before or in the same application as the seeds. Inoculum must be applied within one hour of addition to the mixing tank. In no case shall Endomycorrhizal inoculum be applied after the seeds. Inoculum must be applied within one hour of addition to the mixing tank. A second pass with mulch at the rate of is required to cover exposed seed and inoculum. If temperatures will exceed 90 degrees F (32 degrees C), remaining erosion control applications must be applied within three ours of the application of the inoculum.

### 3.5 MULCH AND TACKIFIER

All seeded areas, as identified in the Storm Water Pollution Protection Plan, shall be mulched and tackified after seeding operations.

#### 3.5.1 Applying Straw

Straw mulch shall be applied to designated seeded areas upon completion and approval of the seeding application by the Contracting Officer. Mulch shall be spread by hand, blower-type mulch spreader or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of a steep slope and continued uniformly until the area is covered. The mulch shall be applied loose and not be bunched. All designated areas shall be mulched within 48 hours of seeding. Rate of mulch application shall be 2 tons per acre of native grass straw or 1-1/2 tons per acre for rice straw.

#### 3.5.2 Applying Tackifier

All straw mulch areas shall be anchored with a commercially available dyed organic tackifier.

#### 3.5.3 Crimping or Punching

As a substitute for tackifying, all straw areas shall be mechanically crimped or punched into soil.

#### 3.5.4 Applying Fiber

Wood cellulose fiber (native grasses), paper fiber (option for exotic grasses), or recycled paper(option for exotic grasses) shall be applied as part of the hydroseeding operation. The mulch shall be mixed and applied in accordance with the manufacturer's recommendations.

### 3.6 MAINTENANCE DURING SEEDING PERIOD

Maintenance shall begin immediately after seeding is completed and shall continue throughout the Seeding Period. Maintenance of the seeded areas shall include the following until Seeding Acceptance is given: regular observations of the site, spraying for weed control, and repair of damaged areas.

#### 3.6.1 Weed Control After Seeding

If weeds germinate after seeding installation and prior to seeding acceptance the Contractor shall provide pesticide spraying over designated **native grass** seeded area(s) for broadleaf and annual grasses. This weeding effort shall be 1 of the 3 projected Pesticide Application for Seeding events as stated in the pricing schedule, and shall be separate from weeding efforts conducted during the native grass establishment period. At no time shall pesticide application affect the health and vigor of native grasses. Application rate shall be as per manufacturer's recommendations for targeted species. Weeding operations

### 3.6.2 Repair

All Contractor damaged areas shall be repaired by the Contractor to their original condition within 5 working days.

### 3.7 CLEANUP

Excess and waste material shall be removed from the seeded and staging areas and shall be disposed of off the site.

### 3.8 NATIVE GRASS ESTABLISHMENT

The following requirements shall apply to designated native grass seeding areas only.

#### 3.8.1 Weed Control

Site conditions shall govern whether weed control measures shall occur. The Contractor is required to perform the following projected quantity tasks, (2 of the 3 Pesticide Application for Seeding events as stated in the pricing schedule), and shall be exercised at the discretion of the Contracting Officer. Application rate shall be as per manufacturer's recommendations for targeted species.

##### 3.8.1.1 Pesticide application

A. Annual Grass Weeds: If and when temperature and soil moisture conditions cause annual grass germination prior to the germination of native grasses then the contractor shall apply pesticide to said annual grasses. Annual grass shall be clearly identified and no signs of native grass germination shall be present prior to pesticide application. Application of pesticide to annual grasses shall occur within 5 working days of detection of annual grass germination.

B. Broadleaf Weeds: If and when Broadleaf weeds are detected on site the contractor shall apply selective pesticide to said broadleaf weeds. Pesticide application for broadleaf weeds shall occur a minimum of 6-8 weeks after seeding installation acceptance.

### 3.9 EXOTIC GRASS ESTABLISHMENT

#### 3.9.1 Establishment Duration

The Contractor shall be required to provide maintenance for exotic species seeded areas for a period of 60 continuous days starting from Seeding Acceptance.

### 3.9.2 Establishment Tasks

The Contractor shall perform the following tasks:

### 3.9.3 Repair

All locations damaged by contractor operations or natural caused shall be restored to their condition at the time of Seed Installation Acceptance.

## 3.10 FINAL ESTABLISHMENT REPORT

The Contractor shall provide project information which documents past and current conditions of the **native grass seeding areas only** and prepare and submit to the Contracting Officer as indicated below:

### 3.10.1 As-Maintained Drawings

The Contractor shall prepare as-maintained drawings of the work completed herein. The as-maintained drawings shall be based upon the as-built drawings. These drawings shall be updated to include all current conditions, impacts and results of the seeding.

### 3.10.2 Monthly Establishment Records

The Contractor shall prepare and keep current a record of monthly maintenance performed on the project. The report shall identify at a minimum, project name, planting zones, date and establishment period. It shall identify and discuss weed control performed, irrigation activity and maintenance, plant health, vandalism, site feature conditions, general observations, total precipitation for the month, personnel onsite, and any other pertinent information describing site conditions and activities performed during the month. See Form A for example of outline attached at the end of this section.

### 3.10.3 Final Report

The Contractor shall submit a final report to the Government. Each report shall be submitted in 8.5"x11" report format, as well as a current electronic copy in MS Word. When drawings are submitted, folded 11"x17" sheets are acceptable.

The yearly reports shall document current plant and site condition, as well as, conditions during the past year. The Contractor shall survey grass survival and document as a percentage in the report.

The yearly reports shall be bond with a title sheet and table of contents and include copies of the following: As-Maintained Drawings (reduced to 8.5"x11" or 11"x17" format), Monthly Establishment Records, Survival results, soil test results and a color photographic documentation of the

site which is representative of plant and site conditions, as well as, a discussion of the maintenance activities performed.

**PART 4**  
**ATTACHMENTS**

**ATTACHMENT 4.1**

(Example)  
FORM A  
Monthly Establishment Record  
For Revegetation Projects

Project:  
Planting Zone:  
Date:  
Establishment Period:

**OUTLINE**

Briefly discuss the events listed below

1. Weed Control: (discuss when, where, and what was done)  
Mowing, Pesticide Application, Discing, Burning, etc...
2. Plant Health:
3. Vandalism:
4. Site Feature Condition:  
Access Road, Fences, Signs, etc...
5. Site Condition:
6. General Observations:
7. Precipitation (total for month):
8. Personnel:
9. Other:

-- End of Section --