

Contract Number : BC 12 - 108

D1. Fiscal Year ..... : FY 11-12  
D2. Budget Unit Number (plus -Ship/-Bill codes in paren's) : 054  
D3. Requisition Number ..... : 15  
D4. Department Name..... : Flood Control  
D5. Contact Person..... : Jon Frye  
D6. Phone ..... : 568-3444

K1. Contract Type (check one): [ ] Personal Service [ ] Capital Project/Construction  
K2. Brief Summary of Contract Description/Purpose : engineering design services (LVSP)  
K3. Original Contract Amount ..... : \$580,829  
K4. Contract Begin Date ..... : April 3, 2012  
K5. Original Contract End Date..... : October 15, 2013  
K6. Amendment History (leave blank if no prior amendments):

Seq#EffectiveDateThisAmndtAmtCumAmndtToDateNewTotalAmtNewEndDate      Purpose (2-4 words)  
                                  \$                                   \$                                   \$

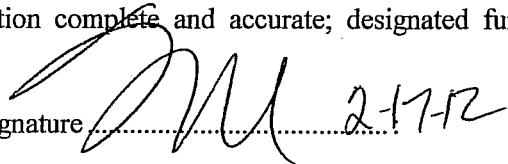
K7. Department Project Number..... : SC8322

B1. Is this a Board Contract? (Yes/No) ..... : yes  
B2. Number of Workers Displaced (if any) ..... : N/A  
B3. Number of Competitive Bids (if any)..... : N/A  
B4. Lowest Bid Amount (if bid) ..... : \$  
B5. If Board waived bids, show Agenda Date..... :  
B6. ... and Agenda Item Number..... : #  
B7. Boilerplate Contract Text Unaffected? (Yes / or cite ¶¶) :

F1. Encumbrance Transaction Code ..... : 1701  
F2. Current Year Encumbrance Amount..... : \$  
F3. Fund Number ..... : 2610  
F4. Department Number ..... : 054  
F5. Division Number (if applicable) ..... : 04  
F6. Account Number..... : 8700  
F7. Cost Center number (if applicable) ..... :  
F8. Payment Terms ..... : Net 30

V1. Vendor Numbers (A=auditor; P=purchasing)..... : 354307  
V2. Payee/Contractor Name..... : HDR Engineering, Inc.  
V3. Mailing Address..... : P.O. Box 3480  
V4. City State (two-letter) Zip (include +4 if known) : Omaha, NE 68103-0480  
V5. Telephone Number ..... : (951) 320-7319  
V6. Contractor's Federal Tax ID Number (EIN or SSN) :  
V7. Contact Person ..... : Gheorghe Rosca Jr.  
V8. Workers Comp Insurance Expiration Date..... :  
V9. Liability Insurance Expiration Date[s] (G=enl; P=rofl) :  
V10. Professional License Number..... : #  
V11. Verified by (name of County staff)..... :  
V12. Company Type (Check one): [ ] Individual [ ] Sole Proprietorship [ ] Partnership [ ] Corporation

I certify: information complete and accurate; designated funds available; required concurrences evidenced on signature page.

Date : Authorized Signature  2-17-12

## AGREEMENT FOR SERVICES OF INDEPENDENT CONTRACTOR

**THIS AGREEMENT** (hereafter Agreement) is made by and between the Santa Barbara County Flood Control and Water Conservation District, a political subdivision of the State of California (hereafter COUNTY) and HDR Engineering, Inc. having its principal place of business at 2280 Market Street, Suite 100, Riverside, CA 92501-2110 (hereafter CONTRACTOR) wherein CONTRACTOR agrees to provide and COUNTY agrees to accept the services specified herein.

**NOW, THEREFORE**, in consideration of the mutual covenants and conditions contained herein, the parties agree as follows:

1. **DESIGNATED REPRESENTATIVE.** Jonathan Frye at phone number (805) 568-3444 is the representative of COUNTY and will administer this Agreement for and on behalf of COUNTY. Gheorghe Rosca Jr. at phone number (951) 320-7319 is the authorized representative for CONTRACTOR. Changes in designated representatives shall be made only after advance written notice to the other party.

2. **NOTICES.** Any notice or consent required or permitted to be given under this Agreement shall be given to the respective parties in writing, by first class mail, postage prepaid, or otherwise delivered as follows:

To COUNTY: Thomas D. Fayram, Santa Barbara, County Flood Control & Water Conservation District, 123 E. Anapamu Street, Suite 240, Santa Barbara, CA 93101

To CONTRACTOR: Mr. Gheorghe Rosca Jr., HDR Engineering Inc., 2280 Market Street, Suite 100, Riverside, CA 92501-2110

or at such other address or to such other person that the parties may from time to time designate. Notices and consents under this section, which are sent by mail, shall be deemed to be received five (5) days following their deposit in the U.S. mail.

3. **SCOPE OF SERVICES.** CONTRACTOR agrees to provide services to COUNTY in accordance with EXHIBIT A attached hereto and incorporated herein by reference.

4. **TERM.** CONTRACTOR shall commence performance on April 3, 2012 and end performance upon completion, but no later than October 15, 2013 unless otherwise directed by COUNTY or unless earlier terminated.

5. **COMPENSATION OF CONTRACTOR.** CONTRACTOR shall be paid for performance under this Agreement in accordance with the terms of EXHIBIT B attached hereto and incorporated herein by reference. Billing shall be made by invoice, which shall include the contract number assigned by COUNTY and which is delivered to the address given in Section 2 **NOTICES.** above following completion of the increments identified on EXHIBIT B. Unless otherwise specified on EXHIBIT B, payment shall be net thirty (30) days from presentation of invoice.

6. **INDEPENDENT CONTRACTOR.** CONTRACTOR shall perform all of its services under this Agreement as an independent contractor and not as an employee of COUNTY. CONTRACTOR understands and acknowledges that it shall not be entitled to any of the benefits of a COUNTY employee, including but not limited to vacation, sick leave, administrative leave, health insurance, disability insurance, retirement, unemployment insurance, workers' compensation and protection of tenure.

7. **STANDARD OF PERFORMANCE.** CONTRACTOR represents that it has the skills, expertise, and licenses/permits necessary to perform the services required under this Agreement. Accordingly, CONTRACTOR shall perform all such services in the manner and according to the standards

observed by a competent practitioner of the same profession in which CONTRACTOR is engaged. All products of whatsoever nature, which CONTRACTOR delivers to COUNTY pursuant to this Agreement, shall be prepared in a first class and workmanlike manner and shall conform to the standards of quality normally observed by a person practicing in CONTRACTOR's profession. CONTRACTOR shall correct or revise any errors or omissions, at COUNTY'S request without additional compensation. Permits and/or licenses shall be obtained and maintained by CONTRACTOR without additional compensation.

8. **TAXES.** COUNTY shall not be responsible for paying any taxes on CONTRACTOR's behalf, and should COUNTY be required to do so by state, federal, or local taxing agencies, CONTRACTOR agrees to promptly reimburse COUNTY for the full value of such paid taxes plus interest and penalty, if any. These taxes shall include, but not be limited to, the following: FICA (Social Security), unemployment insurance contributions, income tax, disability insurance, and workers' compensation insurance.

9. **CONFLICT OF INTEREST.** CONTRACTOR covenants that CONTRACTOR presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to be performed under this Agreement. CONTRACTOR further covenants that in the performance of this Agreement, no person having any such interest shall be employed by CONTRACTOR.

10. **RESPONSIBILITIES OF COUNTY.** COUNTY shall provide all information reasonably necessary by CONTRACTOR in performing the services provided herein.

11. **OWNERSHIP OF DOCUMENTS.** COUNTY shall be the owner of the following items incidental to this Agreement upon production, whether or not completed: all data collected, all documents of any type whatsoever, and any material necessary for the practical use of the data and/or documents from the time of collection and/or production whether or not performance under this Agreement is completed or terminated prior to completion. CONTRACTOR shall not release any materials under this section except after prior written approval of COUNTY.

No materials produced in whole or in part under this Agreement shall be subject to copyright in the United States or in any other country except as determined at the sole discretion of COUNTY. COUNTY shall have the unrestricted authority to publish, disclose, distribute, and other use in whole or in part, any reports, data, documents or other materials prepared under this Agreement.

12. **RECORDS, AUDIT, AND REVIEW.** CONTRACTOR shall keep such business records pursuant to this Agreement as would be kept by a reasonably prudent practitioner of CONTRACTOR's profession and shall maintain such records for at least four (4) years following the termination of this Agreement. All accounting records shall be kept in accordance with generally accepted accounting practices. COUNTY shall have the right to audit and review all such documents and records at any time during CONTRACTOR's regular business hours or upon reasonable notice.

13. **INDEMNIFICATION AND INSURANCE.** CONTRACTOR shall agree to defend, indemnify and save harmless the COUNTY and to procure and maintain insurance in accordance with the provisions of EXHIBIT C attached hereto and incorporated herein by reference.

14. **NONDISCRIMINATION.** COUNTY hereby notifies CONTRACTOR that COUNTY's Unlawful Discrimination Ordinance (Article XIII of Chapter 2 of the Santa Barbara County Code) applies to this Agreement and is incorporated herein by this reference with the same force and effect as if the ordinance were specifically set out herein and CONTRACTOR agrees to comply with said ordinance.

15. **NONEXCLUSIVE AGREEMENT.** CONTRACTOR understands that this is not an exclusive Agreement and that COUNTY shall have the right to negotiate with and enter into contracts with

others providing the same or similar services as those provided by CONTRACTOR as the COUNTY desires.

16. **ASSIGNMENT.** CONTRACTOR shall not assign any of its rights nor transfer any of its obligations under this Agreement without the prior written consent of COUNTY and any attempt to so assign or so transfer without such consent shall be void and without legal effect and shall constitute grounds for termination.

17. **TERMINATION.**

A. **By COUNTY.** COUNTY may, by written notice to CONTRACTOR, terminate this Agreement in whole or in part at any time, whether for COUNTY's convenience or because of the failure of CONTRACTOR to fulfill the obligations herein. Upon receipt of notice, CONTRACTOR shall immediately discontinue all services effected (unless the notice directs otherwise), and deliver to COUNTY all data, estimates, graphs, summaries, reports, and all other records, documents or papers as may have been accumulated or produced by CONTRACTOR in performing this Agreement, whether completed or in process.

1. For Convenience. COUNTY may terminate this Agreement upon thirty (30) days written notice. Following notice of such termination, CONTRACTOR shall promptly cease work and notify COUNTY as to the status of its performance.

Notwithstanding any other payment provision of this Agreement, COUNTY shall pay CONTRACTOR for service performed to the date of termination to include a prorated amount of compensation due hereunder less payments, if any, previously made. In no event shall CONTRACTOR be paid an amount in excess of the full price under this Agreement nor for profit on unperformed portions of service. CONTRACTOR shall furnish to COUNTY such financial information as in the judgment of COUNTY is necessary to determine the reasonable value of the services rendered by CONTRACTOR. In the event of a dispute as to the reasonable value of the services rendered by CONTRACTOR, the decision of COUNTY shall be final. The foregoing is cumulative and shall not effect any right or remedy which COUNTY may have in law or equity.

2. For Cause. Should CONTRACTOR default in the performance of this Agreement or materially breach any of its provisions, COUNTY may, at COUNTY's sole option, terminate this Agreement by written notice, which shall be effective upon receipt by CONTRACTOR.

B. **By CONTRACTOR.** Should COUNTY fail to pay CONTRACTOR all or any part of the payment set forth in EXHIBIT B, CONTRACTOR may, at CONTRACTOR's option terminate this agreement if such failure is not remedied by COUNTY within thirty (30) days of written notice to COUNTY of such late payment.

18. **SECTION HEADINGS.** The headings of the several sections, and any Table of Contents appended hereto, shall be solely for convenience of reference and shall not affect the meaning, construction or effect hereof.

19. **SEVERABILITY.** If any one or more of the provisions contained herein shall for any reason be held to be invalid, illegal or unenforceable in any respect, then such provision or provisions shall be deemed severable from the remaining provisions hereof, and such invalidity, illegality or unenforceability shall not affect any other provision hereof, and this Agreement shall be construed as if such invalid, illegal or unenforceable provision had never been contained herein.

20. **REMEDIES NOT EXCLUSIVE.** No remedy herein conferred upon or reserved to COUNTY is intended to be exclusive of any other remedy or remedies, and each and every such remedy,

to the extent permitted by law, shall be cumulative and in addition to any other remedy given hereunder or now or hereafter existing at law or in equity or otherwise.

21. **TIME IS OF THE ESSENCE.** Time is of the essence in this Agreement and each covenant and term is a condition herein.

22. **NO WAIVER OF DEFAULT.** No delay or omission of COUNTY to exercise any right or power arising upon the occurrence of any event of default shall impair any such right or power or shall be construed to be a waiver of any such default or an acquiescence therein; and every power and remedy given by this Agreement to COUNTY shall be exercised from time to time and as often as may be deemed expedient in the sole discretion of COUNTY.

23. **ENTIRE AGREEMENT AND AMENDMENT.** In conjunction with the matters considered herein, this Agreement contains the entire understanding and agreement of the parties and there have been no promises, representations, agreements, warranties or undertakings by any of the parties, either oral or written, of any character or nature hereafter binding except as set forth herein. This Agreement may be altered, amended or modified only by an instrument in writing, executed by the parties to this Agreement and by no other means. Each party waives their future right to claim, contest or assert that this Agreement was modified, canceled, superseded, or changed by any oral agreements, course of conduct, waiver or estoppel.

24. **SUCCESSORS AND ASSIGNS.** All representations, covenants and warranties set forth in this Agreement, by or on behalf of, or for the benefit of any or all of the parties hereto, shall be binding upon and inure to the benefit of such party, its successors and assigns.

25. **COMPLIANCE WITH LAW.** CONTRACTOR shall, at his sole cost and expense, comply with all County, State and Federal ordinances and statutes now in force or which may hereafter be in force with regard to this Agreement. The judgment of any court of competent jurisdiction, or the admission of CONTRACTOR in any action or proceeding against CONTRACTOR, whether COUNTY be a party thereto or not, that CONTRACTOR has violated any such ordinance or statute, shall be conclusive of that fact as between CONTRACTOR and COUNTY.

26. **CALIFORNIA LAW.** This Agreement shall be governed by the laws of the State of California. Any litigation regarding this Agreement or its contents shall be filed in the County of Santa Barbara, if in state court, or in the federal district court nearest to Santa Barbara County, if in federal court.

27. **EXECUTION OF COUNTERPARTS.** This Agreement may be executed in any number of counterparts and each of such counterparts shall for all purposes be deemed to be an original; and all such counterparts, or as many of them as the parties shall preserve undestroyed, shall together constitute one and the same instrument.

28. **AUTHORITY.** All parties to this Agreement warrant and represent that they have the power and authority to enter into this Agreement in the names, titles and capacities herein stated and on behalf of any entities, persons, or firms represented or purported to be represented by such entity(ies), person(s), or firm(s) and that all formal requirements necessary or required by any state and/or federal law in order to enter into this Agreement have been fully complied with. Furthermore, by entering into this Agreement, CONTRACTOR hereby warrants that it shall not have breached the terms or conditions of any other contract or agreement to which CONTRACTOR is obligated, which breach would have a material effect hereon.

29. **PRECEDENCE.** In the event of conflict between the provisions contained in the numbered sections of this Agreement and the provisions contained in the Exhibits, the provisions of the Exhibits shall prevail over those in the numbered sections.

//  
//

Agreement for Services of Independent Contractor between the **Santa Barbara County Flood Control and Water Conservation District** and **HDR Engineering, Inc.**

**IN WITNESS WHEREOF**, the parties have executed this Agreement to be effective on the date executed by COUNTY.

**SANTA BARBARA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT**


By: \_\_\_\_\_  
Chair, Board of Directors

Date: \_\_\_\_\_

ATTEST:  
CHANDRA L. WALLAR  
CLERK OF THE BOARD

CONTRACTOR  
HDR Engineering, Inc.


By: \_\_\_\_\_  
Deputy

By:   
Title: Sr. Vice President

APPROVED AS TO FORM:  
DENNIS A. MARSHALL  
COUNTY COUNSEL

APPROVED AS TO ACCOUNTING FORM:  
ROBERT W. GEIS, CPA  
AUDITOR-CONTROLLER

By:   
Deputy County Counsel

By:   
Deputy  
Deputy Auditor-Controller  
Gregory Eric Levin  
Advanced and Specialty Accounting

Dept: 054  
Fund: 2610  
Acct: 8700  
Program: 3005

APPROVED AS TO FORM:  
RAY AROMATORIO, ARM, AIC  
RISK MANAGER

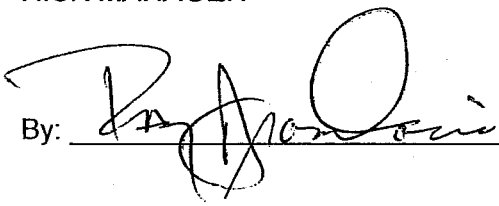
By: 

EXHIBIT A

STATEMENT OF WORK

Table of Contents

---

**Project Background, Location, and Need** ..... 2

**Project Responsibility** ..... 2

    Project A ..... 2

    Project B..... 2

**Project Approach** ..... 3

    Project A ..... 3

    Project B..... 3

**Scope of Services** ..... 3

    Task 1: Project Management..... 3

    Task 2: Geotechnical Support..... 4

    Task 3: Survey ..... 4

    Task 4: 60% PS&E ..... 4

    Task 5: 90% PS&E ..... 6

    Task 6: 100% PS&E ..... 13

    Task 7: Bid & Construction Support..... 17

    Task 8: Hydrology and Hydraulics Analysis ..... 6

**Schedule** ..... 21

    Project A ..... 21

    Project B..... 21

**Appendices:**

    Appendix 1: HDR Fee Estimate

    Appendix 2: Geotechnical Sub-consultant Fee Estimate

    Appendix 3: Surveying Sub-consultant Fee Estimate

## **Project Background, Location, and Need**

---

The Santa Barbara County Flood Control and Water Conservation District (County) is leading an effort to complete capacity improvements along Las Vegas and San Pedro Creek under Calle Real, State Route 101, and Union Pacific Railroad (UPRR). Although implementation and fiscal responsibility for the improvements lie with a number of agencies – the County, Caltrans, UPRR, and the City of Goleta, the County will act as lead agency in the development of a single environmental document for all the proposed capacity improvements. The County has requested a scope of services and fee proposal to provide final design engineering services to support the County's desire to construct the project.

The project area is located in the City of Goleta between Fairview Avenue and Los Carneros Road and north of Hollister Avenue. The Las Vegas Creek and San Pedro Creeks run north to south and travel under Calle Real, State Route 101, and the Union Pacific Railroad facility. The creeks originate in the Santa Ynez Mountains, run south, and discharge into the Goleta Slough at the Pacific Ocean.

Under current conditions, the Las Vegas Creek culverts under State Route 101 and under the Union Pacific Railroad facility have the capacity to carry peak flows of less than a ten year event, while the San Pedro Creek culverts under State Route 101 and under the Union Pacific Railroad facility have the capacity to carry peak flows of about a ten year event. During heavy rains the existing capacity of the culverts under State Route 101 and under the UPRR facility is insufficient and results in overtopping at Calle Real and State Route 101. In 1995, 1998, and 2000 severe flooding occurred in this area causing significant financial losses to adjacent businesses.

## **Project Responsibility**

---

For the purposes of better defining the overall project, the project is subdivided as follows:

### ***Project A***

Project A consists of San Pedro Creek and Las Vegas Creek culvert replacements under Calle Real and State Route 101. This project extends from the north side of Calle Real to Caltrans right of way south of State Route 101 at both San Pedro and Las Vegas Creek locations. This project is the responsibility of Caltrans. HDR will coordinate with Caltrans' design team.

### ***Project B***

Project B consists of the San Pedro and Las Vegas Creeks capacity improvements under the UPRR facility. This project extends from Caltrans right of way south of State Route 101 to the southern UPRR right of way limit. Channel and structure improvements outside the limits of Projects A and B will be performed by others.

The County has also requested that HDR perform all work south of the UPRR ROW along with the flood wall and flood berm.



## Project Approach

---

The following is our approach to accomplishing the goals of this project:

### *Project A*

The responsibility lies with Caltrans.

### *Project B*

The County desires to improve the existing hydraulic capacity at both San Pedro and Las Vegas Creeks through the UPRR right-of-way by replacing or modifying the existing structures. The existing facility maintains one mainline track and is being used by UPRR and Amtrak. The UPRR right-of-way is wide enough to accommodate multiple tracks and based on our field visit, it was observed that the Las Vegas Creek Bridge was designed and is wide enough to carry two tracks. Therefore, UPRR will likely require the County to replace the existing bridges with structures that are wide enough to accommodate two tracks.

HDR will arrange for an early meeting with a local UPRR representative and the County to receive concurrence with our assumption the UPRR construction crews will build the replacement structures. **HDR will take the PS&E effort to a 60% to allow time for UPRR to make a decision on the Construction & Maintenance Agreement. This scope of work shows the overall effort required to complete the project, but shall be limited to the 60% PS&E phase until written approval is provided by the County for HDR to commence work. The flood wall and berm will not be designed until the Hydraulic Models prove this necessity and a subsequent approval is received from The County.**

## Scope of Services

---

### *Task 1: Project Management (Phase 1)*

**Task Objectives:** HDR will provide project management for the duration of the project.

**HDR Activities:** **Task 1A - Project Management:**

Develop and implement a work plan to (1) control and monitor HDR project team activities, (2) provide document control for the project, (3) prepare monthly invoices and progress reports, (4) manage service activities and deliverables with the County Program Manager, Gerald Comati, throughout the project, and (5) as required, support Flood Control in its negotiations with UPRR.

**Task 1B - Quality Control and Quality Assurance:**

HDR will provide quality control and quality assurance for the project based on the HDR QA/QC program.

**Task 1C - Monthly Project Development Team (PDT) Meetings:**

HDR will prepare and attend monthly PDT meetings with its project manager, senior structures, senior civil, and senior hydraulic engineer. This task will also include three (3) coordination meetings with Caltrans and (3) coordination meetings with Union Pacific Railroad.

**Task Deliverables:** Monthly invoices, updated schedules, meeting agendas and minutes, and

monthly action item tracking logs.

**Assumptions:**

Project duration of 6 months for the 60% PS&E. The remainder of the final design on this project will move forward upon further approval from The County of Santa Barbara.

**Task 2: Geotechnical Support (Phase 1)**

**Task Objectives:**

HDR will coordinate with FUGRO and local drillers for the work anticipated to advance the design to 60% PS&E.

FUGRO's scope of services attached in Appendix 2.

**HDR Activities:**

**Task Deliverables:**

- Draft & Final Geotechnical Report (1 hard copy)

**Assumptions:**

- See FUGRO's scope of services attached in Appendix 2.

**Task 3: Survey (Phase 1)**

**Task Objectives:**

Coordinate with the County, the environmental consultant (URS), UPRR, Caltrans, and City of Goleta to facilitate timely completion of the work described in this scope of work.

See attached MNS scope of services

**HDR Activities:**

Coordinate with MNS surveys for the duration of this scope to assist with the development of necessary topography for the final design plans.

See attached MNS scope of services in Appendix 3

**Task Deliverables:**

See attached MNS scope of services in Appendix 3

**Assumptions:**

See attached MNS scope of services in Appendix 3

**Task 4: 60% PS&E (Phase 1)**

**Task Objectives:**

HDR will prepare a 60% Plans, Construction Cost Estimate and Specification Table of Contents for the following disciplines:

**HDR Activities:**

**Task 4A – General Plans:**

HDR will advance the general plans based on the alternative selected. The following are included in the general plans

- Title Sheet
- General Notes, Abbreviations and Legend
- APE (Area of Potential Effect)
- Draft Erosion Control Plans
- Construction Phasing Schematic
- Construction Staging Plans

#### **Task 4B – Track Plans:**

HDR will advance the track plans based on the alternative selected.

- Track Plan and Profile Sheets – 1"=40'; These sheets will show the proposed vertical and horizontal alignment across the proposed structures.
- Typical Sections – 1"=10'; This sheet will establish the type of rail, tie and depth of ballast and subballast through across the structures.

No Cross Sections perpendicular to the track will be provided.

#### **Task 4C – Grading & Drainage Plans:**

HDR will advance the grading and drainage plans based on the alternative selected.

- Creek Plan and Profile – 1"=30'; These sheets will show the plan and profile of the improvements to Las Vegas and San Pedro Creek.
- Typical Sections – 1"=10'; This sheet will show the creeks in typical section to establish side slope and bottom widths.
- Cross Sections – scale to be determined; These sheets will show improvements to Las Vegas and San Pedro Creeks in section view in 50' intervals. Scale will be determined based on readability and convenience.

#### **Task 4D – Bridge Plans:**

HDR will advance the bridge design for two bridges to a 60% PS&E level:

- Provide structural design calculations for the shoofly track bridge and the substructure and foundation design calculations based on selected alternative.
- Provide 60% PS&E level general arrangement plans; plans, elevations, and typical sections for bridge. For each bridge this typically includes:
  - General Plan
  - Bridge Geometry and Design Criteria
  - Foundation Plan
  - Abutment Layout
  - Abutment Details
  - Pier Details No. 1
  - Pier Details No. 2
  - Pier Details No. 3
  - Bridge Typical Section
  - Girder Details
  - Removal Details
  - Railing Details

- Miscellaneous Details No. 1
- Miscellaneous Details No. 2
- Log of Test Borings No. 1 through No. 4
- Provide 60% PS&E level quantity takeoffs for the various structural components of the bridges.
- Provide 60% PS&E level Engineer's Estimate for the structural components of the bridges.
- Submit, as part of the overall 60% PS&E package, the bridge portions of the structural design calculations, bridge plans and details, and engineer's estimate.

**Task 4E – Utility Plans:**

HDR will advance the utility plans based on the information provided by contacted utility companies. HDR will gather and compile this information on the plan and include location, type and ownership information of each utility. The plan will also indicate if any utility may be in conflict and if any pothole information was obtained.

**Task 4F – Specifications:**

HDR will prepare a table of contents of anticipated sections in the project's specifications.

**Task 4G – Construction Cost Estimate:**

HDR will prepare a construction cost estimate based on the proposed design.

**Task Deliverables:**

- 60% Plans – half size (11"x17") six (6) copies
- 60% Table of Contents of Specifications – 8.5"x11" hard copy
- 60% Construction Cost Estimate – 8.5"x11" (PDF & excel)
- 1 CD containing all of the 100% PS&E package in PDF format

**Assumptions:**

- The County's surveyor will provide HDR with existing right of way maps.

***Task 5: Hydrology and Hydraulics Analysis (Phase 1)***

**Task Objectives:**

Upon the County's approval of the preferred alternative, this task includes completion of preliminary design plans for review by UPRR and for use in the development of the final construction documents and bid package. A critical item to the project schedule will be the determination of a need for the flood wall and berm (task 5B) as currently shown on the preliminary engineering plans.

**HDR Activities:**

**Task 5A – Creek & Bridge Improvements:**

HDR hydraulic engineers will perform the following tasks in support of developing grading and drainage plans for the project:

- Collect available relevant background data and information for San

Pedro Creek and Las Vegas Creek in the project area, including Caltrans final construction plans for State Route 101 and Calle Real, associated channel modifications including grading and new drop structure, hydraulic model, and any Caltrans performed field surveys. It is anticipated that this project will require a FEMA CLOMR (Conditional Letter of Map Revision) and future floodway revision; therefore, the effective Flood Insurance Study floodplain hydraulic model and work map will be ordered from FEMA's technical library.

- Perform a site visit to review site drainage characteristics and to observe current conditions.
- Coordinate with design team surveyors and geotechnical engineer for design data.
- Prepare a site drainage study for the project area.
- Layout channel slope grading and transitions for CADD and provide slope protection or revetment design if needed. Slope protection will include transition or end protection, toe protection, and filter design.
- Specifications will be provided for materials and installation requirements.
- The task includes coordination with the design team, QA/QC and a technical summary memorandum.

HDR hydraulic engineers will prepare an updated proposed conditions HEC-RAS hydraulic model to include new survey data in San Pedro and Las Vegas Creek and final design for Caltrans improvements upstream. It is assumed that Caltrans intends to plug the new facilities so that interim hydraulic conditions in each creek will be the same as existing conditions. Therefore, only the proposed ultimate conditions will be studied in the new hydraulic model. Design flow rates will be based on existing effective FEMA peak flow rates except a new flow split will be determined between San Pedro Creek and Las Vegas Creek upstream of Calle Real using the final Caltrans design for State Route 101 and Calle Real improvements. The updated hydraulic model will be used for the following tasks:

- Analyze San Pedro Creek and Las Vegas Creek UPRR replacement bridges for 50-year and 100-year UPRR hydraulic criteria. Provide iterative analyses for design changes to obtain UPRR approval.
- Evaluate bridge scour according to FHWA HEC-18 methods for both replacement bridges for 100-year and 500-year events. It is anticipated that complex pier scour equations will be needed for exposed pile caps. Pressure flow scour will be estimated if structures are overtopped for the design discharges.
- Prepare abutment protection according to FHWA HEC-23 methods for scour countermeasures. Provide layout, design thickness, riprap gradation and filter design.
- Specifications will be provided for materials and installation requirements.

- The task includes coordination with the design team, QAQC and a technical summary memorandum.

**Task 5B – Floodwall & Berm Improvements:**

HDR hydraulic engineers will determine the required height for the proposed levee flood wall adjacent to San Pedro Creek using the updated HEC-RAS hydraulic model. Although preparing a FEMA CLOMR is not a part of this scope of work, certain tasks that will facilitate the future preparation of a CLOMR will be completed. These tasks include:

- Obtain the effective FEMA hydraulic model for the study area.
- Prepare the duplicate effective and corrected effective hydraulic models in HEC-RAS.
- Update the corrected effective model and incorporate known changes, such as removal of concrete-encased sewer line below Hollister Avenue Bridge, and incorporate new survey data within the project limits to create the existing conditions or pre-project model. Determine any impacts or revisions to effective floodway.
- Prepare the proposed conditions or post-project model to include improvements at Caltrans bridges, UPRR bridges and levee/berm along San Pedro Creek.
- Identify the levee reach based on comparison of the 100-year water surface elevation in San Pedro Creek and the elevation of the ground adjacent to the landside levee toe.
- Determine levee height along the profile to meet FEMA freeboard criteria for the 100-year flood
- Perform an interior drainage study for property on the landside of the levee
- Determine the need for closures for any drainage opening through the levee.
- Provide embankment protection and scour protection for the levee face and toe if needed.
- Determine project impacts on FEMA floodplain and floodway. The proposed levee/berm may require conveyance mitigation if located within the effective floodway. Incorporating anything other than minor conveyance modifications into the project will be considered outside this scope of work and require consultation with the County of Santa Barbara on how to proceed.
- Coordinate with the design team geotechnical engineer for geotechnical information needed on the FEMA MT-2 form and address sediment transport for the MT-2 form.
- Specifications will be provided for materials and installation requirements.

- The task includes coordination with the design team, QAQC and a technical summary memorandum.

HDR hydraulic engineers will design the proposed flood berm on the parking lot adjacent to San Pedro Creek to provide protection from the 25-year flood event. This task includes:

- Hydraulic analysis with the updated HEC-RAS model to determine the height of the berm to contain the 25-year flood event.
- Coordination with the design team to determine the appropriate amount of freeboard if any to add to the berm profile.
- Design of a transition and tie-in to the levee flood wall to prevent the 100-year flood water from entering the low area behind the flood wall at the downstream end.
- Evaluate impacts of berm on FEMA floodway and determine if design modifications will address or if conveyance mitigation will be required. Major conveyance modifications for the project are outside this scope of work.
- Specifications will be provided for materials and installation requirements.
- The task includes coordination with the design team, QAQC and a technical summary memorandum.

**Task Deliverables:**

- Final Hydrology and Hydraulics Report (6 copies)

**Assumptions:**

- Caltrans will provide their latest Hydraulic Model to The County for use by HDR team.

**Task 6: Project Management (Phase 2)**

**Task Objectives:** HDR will provide project management for the duration of the project.

**HDR Activities:** **Task 6A - Project Management:**

Develop and implement a work plan to (1) control and monitor HDR project team activities, (2) provide document control for the project, (3) prepare monthly invoices and progress reports, and (4) manage service activities and deliverables with the County Program Manager, Gerald Comati, throughout the project.

**Task 6B - Quality Control and Quality Assurance:**

HDR will provide quality control and quality assurance for the project based on the HDR QA/QC program.

**Task 6C - Monthly Project Development Team (PDT) Meetings:**

HDR will prepare and attend monthly PDT meetings with its project manager, senior structures, senior civil, and senior hydraulic engineer. This task will also include three (3) coordination meetings with Caltrans and (3) coordination

meetings with Union Pacific Railroad.

**Task 6D – Permitting Support for NOAA/CDFG:**

Permitting support to Flood Control as it relates to potential for fish-passage design issues with NOAA and or CDFG. This task captures the effort that might be necessary to secure the F&G and USACOE permits related to fish-passage design under the UPRR bridges.

**Task 6E – Permitting Support for Caltrans:**

Permitting support to Flood Control as it relates to the need for a Caltrans Encroachment Permit for grading construction. This effort is required to secure a Caltrans Encroachment Permit for any grading work within their right of way. The permit application will be prepared by Flood Control. HDR will prepare plan submittals for review and will respond to comments.

**Task Deliverables:** Monthly invoices, updated schedules, meeting agendas and minutes, and monthly action item tracking logs.

**Assumptions:** Project duration of 6 months for the 60% PS&E to 100% PS&E. Phase 2 of the project will move forward upon further approval from The County of Santa Barbara.

***Task 7: 60% PS&E (Phase 2)***

**Task Objectives:** HDR will prepare a 60% Plans, Construction Cost Estimate and Specification Table of Contents for the following disciplines (only after the County provides written approval):

**HDR Activities:** **Task 7A – Flood (Retaining) Wall Plans:**

HDR will advance the flood retaining wall design for one wall approximately 600 lineal feet long to a 60% PS&E level:

- Provide structural design calculations for the flood retaining wall based on selected alternative.
- Provide 60% PS&E level general arrangement plans; plans, elevations, and typical sections for flood retaining wall. This typically includes:
  - General Plan
  - Wall Geometry and Design Criteria
  - Plan and Profile Sheet
  - Pile Data Table
  - Flood Retaining Wall Typical Sections No. 1
  - Flood Retaining Wall Typical Sections No. 2
  - Miscellaneous Details No. 1
  - Miscellaneous Details No. 2
  - Miscellaneous Details No. 3
  - Log of Test Borings No. 1 through No. 3
- Provide 60% PS&E level quantity takeoffs for the various structural



components of the flood retaining wall.

- Provide 60% PS&E level Engineer's Estimate for the structural components of the flood retaining wall.
- Attend meetings with the various agencies involved as they relate to the bridge design and construction. It is anticipated that the number of meetings will not exceed six (6), which will coincide with the meetings for the bridges.
- Submit, as part of the overall 60% PS&E package, the flood retaining wall portions of the structural design calculations, flood retaining wall plans and details, and engineer's estimate.

**Task 7B – Flood Berm Plans:**

HDR will advance the flood berm plan based on the alternative selected.

- Flood Berm Plans – 1"=30'; These sheets will include the geometry in plan view of the flood berm with proposed contours, slopes, proposed grades, and any other elements required to provide direction to the contractor.

**Task 7C – Parking Lot Plans:**

HDR will advance the parking lot plans based on the alternative selected.

- Parking Lot Plans – 1"=30'; These plans will include any improvements required as a result of the construction of the flood berm including striping, signing or other improvements required..

**Task 7D – Right-of-Way:**

HDR will advance right of way plans based on previously recorded documents. HDR will not establish any rights of way or record any rights of way. The County's surveyor will provide existing rights of way for HDR's use in establishing any additional required rights of way.

**Task 7E – Specifications:**

HDR will prepare a table of contents of anticipated sections in the project's specifications.

**Task 7F – Construction Cost Estimate:**

HDR will prepare a construction cost estimate based on the proposed design.

**Task Deliverables:**

- 60% Plans – half size (11"x17") six (6) copies
- 60% Table of Contents of Specifications – 8.5"x11" hard copy
- 60% Construction Cost Estimate – 8.5"x11" (PDF & excel)
- 1 CD containing all of the 100% PS&E package in PDF format

**Assumptions:**

- The County's surveyor will provide HDR with existing right of way maps.

## **Task 8.1: 90% PS&E – UPRR Bridges + Grading (Phase 2)**

**Task Objectives:** Following completion of the 60% design task, a comment/resolution design meeting will be scheduled with the County to discuss and resolve the comments received. The objective of this task is to fully incorporate the resolution of the comments received into a 90% design package and to further develop the project specifications.

### **HDR Activities:**

#### **Task 8.1A – General Plans:**

HDR will advance the general plans based on the resolution of the comments received from the 60% design review meeting. The following are included in the general plans

- Title Sheet
- General Notes, Abbreviations and Legend
- APE (Area of Potential Effect)
- Draft Erosion Control Plans
- Construction Phasing Schematic
- Construction Staging Plans

#### **Task 8.1B – Track Plans:**

HDR will advance the track plans based on the resolution of the comments received from the 60% design review meeting.

- Track Plan and Profile Sheets – 1"=40'; These sheets will show the proposed vertical and horizontal alignment across the proposed structures.
- Typical Sections – 1"=10'; This sheet will establish the type of rail, tie and depth of ballast and subballast through across the structures.

No Cross Sections perpendicular to the track will be provided.

#### **Task 8.1C – Grading & Drainage Plans:**

HDR will advance the grading and drainage plans based on the resolution of the comments received from the 60% design review meeting.

- Creek Plan and Profile – 1"=30'; These sheets will show the plan and profile of the improvements to Las Vegas and San Pedro Creek.
- Typical Sections – 1"=10'; This sheet will show the creeks in typical section to establish side slope and bottom widths.

Cross Sections – scale to be determined; These sheets will show improvements to Las Vegas and San Pedro Creeks in section view in 50' intervals. Scale will be determined based on readability and convenience.

#### **Task 8.1D – Bridge Plans:**

HDR will advance the bridge design for two bridges to a 90% PS&E level:

- Address the agency(s) comments and provide a response to each

comment. This will be addressed soon after receiving the comments so the reviewing parties will be aware of potential issues that may be in disagreement. This will eliminate unnecessary delays in the overall schedule.

- Advance to a 90% PS&E level general arrangement plans; plans, elevations, and typical sections for the bridges.
- Advance to a 90% PS&E level quantity takeoffs for the various structural components of the bridges.
- Advance to a 90% PS&E level Engineer's Estimate for the structural components of the bridges.
- Attend meetings with the various agencies involved as they relate to the bridge design and construction. It is anticipated that the number of meetings will not exceed three (3).
- Submit, as part of the overall 90% PS&E package, the bridge portions of the structural design calculations, bridge plans and details, and engineer's estimate.

**Task 8.1E – Utility Plans:**

HDR will advance the utility plans based on the information provided by contacted utility companies and the resolution of the comments received from the 60% design review meeting. HDR will continue to gather and compile this information on the plan and include location, type and ownership information of each utility. The plan will also indicate if any utility may be in conflict and if any pothole information was obtained.

**Task 8.1F – Specifications:**

HDR will prepare a complete draft of the project specifications in the County preferred format. HDR will utilize the County's standard specifications to develop the project specifications.

**Task 8.1G – Construction Cost Estimate:**

HDR will prepare a construction cost estimate based on the resolution of the comments received from the 60% design review meeting.

**Task Deliverables:**

- 90% Plans – half size (11"x17") six (6) copies
- 90% Specifications – 3 copies in 3-ring binders
- 90% Construction Cost Estimate – 8.5"x11" (PDF & excel)
- 1 CD containing all of the 100% PS&E package in PDF format

**Assumptions:**

***Task 8.2: 90% PS&E – Flood Wall/Berm (Phase 2)***

**Task Objectives:** Following completion of the 60% design task, a comment/resolution design meeting will be scheduled with the County to discuss and resolve the comments

received. The objective of this task is to fully incorporate the resolution of the comments received into a 90% design package and to further develop the project specifications.

**HDR Activities:**

**Task 8.2A – Flood (Retaining) Wall Plans:**

HDR will advance the flood retaining wall design for one wall approximately 600 lineal feet long to a 90% PS&E level:

- Address the agency(s) comments and provide a response to each comment. This will be addressed soon after receiving the comments so the reviewing parties will be aware of potential issues that may be in disagreement. This will eliminate unnecessary delays in the overall schedule.
- Advance to a 90% PS&E level general arrangement plans; plans, elevations, and typical sections for flood retaining wall. This typically includes:
- Advance to a 90% PS&E level quantity takeoffs for the various structural components of the flood retaining wall.
- Advance to a 90% PS&E level Engineer's Estimate for the structural components of the flood retaining wall.
- Attend meetings with the various agencies involved as they relate to the bridge design and construction. It is anticipated that the number of meetings will not exceed three (3), which will coincide with the meetings for the bridges.
- Submit, as part of the overall 90% PS&E package, the flood retaining wall portions of the structural design calculations, flood retaining wall plans and details, and engineer's estimate.

**Task 8.2B – Flood Berm Plans:**

HDR will advance the flood berm plan based on the resolution of the comments received from the 60% design review meeting.

- Flood Berm Plans – 1"=30'; These sheets will include the geometry in plan view of the flood berm with proposed contours, slopes, proposed grades, and any other elements required to provide direction to the contractor.

**Task 8.2C – Parking Lot Plans:**

HDR will advance the parking lot plans based on the resolution of the comments received from the 60% design review meeting

- Parking Lot Plans – 1"=30'; These plans will include any improvements required as a result of the construction of the flood berm including striping, signing or other improvements required.

**Task 8.2D – Right-of-Way:**

HDR will advance right of way plans based on previously recorded documents and the resolution of the comments received from the 60% design review

meeting. HDR will not establish any rights of way or record any rights of way. The County's surveyor will provide existing rights of way for HDR's use in establishing any additional required rights of way.

**Task 8.2E – Specifications:**

HDR will prepare a complete draft of the project specifications in the County preferred format. HDR will utilize the County's standard specifications to develop the project specifications.

**Task 8.2F – Construction Cost Estimate:**

HDR will prepare a construction cost estimate based on the resolution of the comments received from the 60% design review meeting.

**Task Deliverables:**

- 90% Plans – half size (11"x17") six (6) copies
- 90% Specifications – 3 copies in 3-ring binders
- 90% Construction Cost Estimate – 8.5"x11" (PDF & excel)
- 1 CD containing all of the 100% PS&E package in PDF format

**Assumptions:**

***Task 9.1: 100% PS&E – UPRR Bridges + Grading (Phase 2)***

**Task Objectives:** Following completion of the 90% design task, a comment/resolution design meeting will be scheduled with the County to discuss and resolve the comments received. The objective of this task is to fully incorporate the resolution of the comments received into a 100% design package and to further develop the project specification.

**HDR Activities:**

**Task 9.1A – General Plans:**

HDR will advance the general plans based on the resolution of the comments received from the 90% design review meeting. The following are included in the general plans

- Title Sheet
- General Notes, Abbreviations and Legend
- APE (Area of Potential Effect)
- Draft Erosion Control Plans
- Construction Phasing Schematic
- Construction Staging Plans

**Task 9.1B – Track Plans:**

HDR will advance the track plans based on the resolution of the comments received from the 90% design review meeting.

- Track Plan and Profile Sheets – 1"=40'; These sheets will show the proposed vertical and horizontal alignment across the proposed

structures.

- Typical Sections – 1"=10'; This sheet will establish the type of rail, tie and depth of ballast and subballast through across the structures.
- No Cross Sections perpendicular to the track will be provided.

**Task 9.1C – Grading & Drainage Plans:**

HDR will advance the grading and drainage plans based on the resolution of the comments received from the 90% design review meeting.

- Creek Plan and Profile – 1"=30'; These sheets will show the plan and profile of the improvements to Las Vegas and San Pedro Creek.
- Typical Sections – 1"=10'; This sheet will show the creeks in typical section to establish side slope and bottom widths.
- Cross Sections – scale to be determined; These sheets will show improvements to Las Vegas and San Pedro Creeks in section view in 50' intervals. Scale will be determined based on readability and convenience.

**Task 9.1D – Bridge Plans:**

HDR will advance the bridge design for two bridges to a 100% PS&E level:

- Address the agency(s) comments and provide a response to each comment. This will be addressed soon after receiving the comments so the reviewing parties will be aware of potential issues that may be in disagreement. This will eliminate unnecessary delays in the overall schedule.
- Advance to a 100% PS&E level general arrangement plans; plans, elevations, and typical sections for the bridges.
- Advance to a 100% PS&E level quantity takeoffs for the various structural components of the bridges.
- Advance to a 100% PS&E level Engineer's Estimate for the structural components of the bridges.
- Attend meetings with the various agencies involved as they relate to the bridge design and construction. It is anticipated that the number of meetings will not exceed one (1).
- Submit, as part of the overall 100% PS&E package, the bridge portions of the structural design calculations, bridge plans and details, and engineer's estimate.

**Task 9.1E – Utility Plans:**

HDR will advance the utility plans based on the information provided by contacted utility companies and the resolution of the comments received from the 60% design review meeting. HDR will continue to gather and compile this information on the plan and include location, type and ownership information of each utility. The plan will also indicate if any utility may be in conflict and if any pothole information was obtained.

**Task 9.1F – Specifications:**

HDR will advance the project specifications based on the resolution of the comments received from the 90% design review meeting

**Task 9.1G – Construction Cost Estimate:**

HDR will prepare a construction cost estimate based on the resolution of the comments received from the 90% design review meeting.

**Task Deliverables:**

- 100% Plans – 1 Mylar copy
- 100% Specifications – 3 copies in 3-ring binders
- 100% Construction Cost Estimate – 8.5”x11” (PDF & excel)
- 1 CD containing all of the 100% PS&E package in PDF format

**Assumptions:**

- 

***Task 9.2: 100% PS&E – Flood Wall/Berm (Phase 2)***

**Task Objectives:**

Following completion of the 90% design task, a comment/resolution design meeting will be scheduled with the County to discuss and resolve the comments received. The objective of this task is to fully incorporate the resolution of the comments received into a 100% design package and to further develop the project specification.

**HDR Activities:**

**Task 9.2A – Flood (Retaining) Wall Plans:**

HDR will advance the flood retaining wall design for one wall approximately 600 lineal feet long to a 100% PS&E level:

- Address the agency(s) comments and provide a response to each comment. This will be addressed soon after receiving the comments so the reviewing parties will be aware of potential issues that may be in disagreement. This will eliminate unnecessary delays in the overall schedule.
- Advance to a 100% PS&E level general arrangement plans; plans, elevations, and typical sections for flood retaining wall. This typically includes:
- Advance to a 100% PS&E level quantity takeoffs for the various structural components of the flood retaining wall.
- Advance to a 100% PS&E level Engineer’s Estimate for the structural components of the flood retaining wall.
- Attend meetings with the various agencies involved as they relate to the bridge design and construction. It is anticipated that the number of meetings will not exceed one (1), which will coincide with the meetings for the bridges.
- Submit, as part of the overall 100% PS&E package, the flood retaining wall portions of the structural design calculations, flood retaining wall plans and details, and engineer’s estimate.

**Task 9.2B – Flood Berm Plans:**

HDR will advance the flood berm plan based on the resolution of the comments received from the 90% design review meeting.

- Flood Berm Plans – 1”=30’; These sheets will include the geometry in plan view of the flood berm with proposed contours, slopes, proposed grades, and any other elements required to provide direction to the contractor.

**Task 9.2C – Parking Lot Plans:**

HDR will advance the parking lot plans based on the resolution of the comments received from the 90% design review meeting

- Parking Lot Plans – 1”=30’; These plans will include any improvements required as a result of the construction of the flood berm including striping, signing or other improvements required.

**Task 9.2D – Right-of-Way:**

HDR will advance right of way plans based on previously recorded documents and the resolution of the comments received from the 90% design review meeting. HDR will not establish any rights of way or record any rights of way. The County’s surveyor will provide existing rights of way for HDR’s use in establishing any additional required rights of way.

**Task 9.2E – Specifications:**

HDR will advance the project specifications based on the resolution of the comments received from the 90% design review meeting

**Task 9.2F – Construction Cost Estimate:**

HDR will prepare a construction cost estimate based on the resolution of the comments received from the 90% design review meeting.

**Task Deliverables:**

- 100% Plans – 1 Mylar copy
- 100% Specifications – 3 copies in 3-ring binders
- 100% Construction Cost Estimate – 8.5”x11” (PDF & excel)
- 1 CD containing all of the 100% PS&E package in PDF format

**Assumptions:**

- 

***Task 10: Bid & Construction Support (Phase 2)***

**Task Objectives:** Develop two feasible alternatives to increase the hydraulic capacity through the UPRR right-of-way.

**HDR Activities:** **Task 10A – Bid Support:**

HDR will assist the County with responding to bidder questions.

**Task 10B – Conformed Documents:**

HDR will prepare a conformed set of documents that incorporate any bid



addendums.

**Task 10C – Request for Information (RFI):**

During construction HDR will respond to requests for information (RFI). It is assumed that there will be less than 40 RFI's. HDR will provide a response within 5 working days of receipt of the RFI.

**Task 10D – Submittals:**

HDR will review for approval design related submittals. HDR will provide a response within 10 working days of receipt of the submittal.

**Task 10E – Team Meetings & Site Visits:**

A preliminary construction cost estimate will be prepared for each alternative.

**Task 10F – As-Builts:**

HDR will incorporate contractor developed as-builts into the electronic version of the contract plans.

**Task Deliverables:**

The following documents will be submitted:

- Answers to bidder questions
- Conformed documents
- Responses to RFI's
- Responses to design related submittals
- As-builts

**Assumptions:**

- The Bid and Construction support will be provided on a time and material basis. The hours representing the anticipated level of effort in our attached fee schedule are representative only and can increase depending on the actual work expended.



## Schedule

---

### *Project A*

Not in Contract

### *Project B*

Project Management:	NTP + 24 months
Project Coordination	NTP + 24 months
Geotechnical Report	NTP + 6 months
Survey	NTP + 2 months
Hydrology & Hydraulics Report	NTP + 6 months
60% PS&E	NTP + 6 months
90% PS&E	NTP + 11 months
100% PS&E	NTP + 14 months
Bid & Construction Support	NTP + 24 months

The project schedule noted above is for the overall project delivery. Per the County's direction, this scope of work includes all the services but will only be authorized to conduct work up to the 60% submittal; which translates into 6 months. Therefore, it is anticipated the level of effort for Project Management and Coordination will only span for these 6 months (as shown in task 1). A subsequent scope and fee will be submitted for additional time required. HDR will also not move forward with 90% and 100% PS&E until receiving written authorization to commence work.

## **APPENDIX 1:**

---

### *HDR Fee Estimate*



Santa Barbara County Flood Control and Water Conservation District  
UPRR BRIDGES OVER SAN PEDRO AND LAS VEGAS CREEK REPLACEMENT PROJECT  
FINAL DESIGN PS&E - PHASE 1 (Rev. January 6, 2012)



**MAN-HOUR SUMMARY - PHASE 1**

TASK	Project Principal	Project Manager	Senior Engineer	Project Engineer	Design Engineer	Drafter Tech	Clerical	Task Total	Cost Per Task
<b>Task 1 - Project Management - UPRR Bridges</b>									
1A Project Management	4	24					24	52	
1B Quality Control Review and Quality Assurance			12				12	24	
1C PDT Meetings		40	40				12	92	
<i>sub-total</i>	<b>4</b>	<b>64</b>	<b>52</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>48</b>	<b>168</b>	<b>\$31,260</b>
<b>Task 2 - Geotechnical - UPRR Bridges + Floodwall/Berm</b>									
2A Field Investigation		12						12	
2B DRAFT Geotechnical Report		8	24					32	
2C FINAL Geotechnical Report		8	12					20	
<i>sub-total</i>	<b>0</b>	<b>28</b>	<b>36</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>64</b>	<b>\$14,180</b>
<b>Task 3 - Survey - UPRR Bridges + Floodwall/Berm</b>									
3A Aerial Topography & DTM		16	8					24	
3B Survey Coordination		16	8					24	
<i>sub-total</i>	<b>0</b>	<b>32</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>48</b>	<b>\$10,800</b>
<b>Task 4 - 60% PS&amp;E - UPRR Bridges</b>									
4A General Plans		8	4	24	60	40		136	
4B Track Plans		4	4	20	48	32		108	
4C Grading & Drainage Plans		8	4	24	60	40		136	
4D Bridge Plans		20	120	180	480	300		1100	
4E Utility Plans		4	2	8	16	20		50	
4F Specifications		2	8	8				18	
4G Construction Cost Estimate		6	12	20	30			68	
<i>sub-total</i>	<b>0</b>	<b>52</b>	<b>154</b>	<b>284</b>	<b>694</b>	<b>432</b>	<b>0</b>	<b>1616</b>	<b>\$211,310</b>
<b>Task 5 - Hydrology &amp; Hydraulics Analysis - UPRR Bridges + Floodwall/Berm</b>									
5A Creek & Bridge Improvements			40	60	240			340	
5B Flood Wall & Berm Improvements			32	48	180			260	
<i>sub-total</i>	<b>0</b>	<b>0</b>	<b>72</b>	<b>108</b>	<b>420</b>	<b>0</b>	<b>0</b>	<b>600</b>	<b>\$81,000</b>
<b>Grand Total - FINAL DESIGN PS&amp;E - PHASE 1</b>	<b>4</b>	<b>176</b>	<b>330</b>	<b>392</b>	<b>1114</b>	<b>432</b>	<b>48</b>	<b>2496</b>	<b>\$348,550</b>



Santa Barbara County Flood Control and Water Conservation District  
UPRR BRIDGES OVER SAN PEDRO AND LAS VEGAS CREEK REPLACEMENT PROJECT  
FINAL DESIGN PS&E - PHASE 1 (Rev. January 6, 2012)



**FEE SUMMARY - PHASE 1**

	Project Principal	Project Manager	Senior Engineer	Project Engineer	Design Engineer	Drafter Tech	Clerical	Task Labor Cost
<b>2010 Average Hourly Rate</b>	<b>\$260</b>	<b>\$230</b>	<b>\$215</b>	<b>\$140</b>	<b>\$120</b>	<b>\$100</b>	<b>\$90</b>	
<b>Original Estimated Hours</b>	4	176	330	392	1114	432	48	\$348,550
<b>TOTAL LABOR COST</b>	<b>\$1,040</b>	<b>\$40,480</b>	<b>\$70,950</b>	<b>\$54,880</b>	<b>\$133,680</b>	<b>\$43,200</b>	<b>\$4,320</b>	<b>\$348,550</b>

ESTIMATED LABOR COST PER TASK BREAKDOWN	Task 1 Proj Mgm & Coord	Task 2 Geotech Research	Task 3 Survey Coord	Task 4 60% PS&E	Task 5 H&H Analysis	Est Labor Cost per Task Breakdown
<b>Original Labor Cost</b>	\$31,260	\$14,180	\$10,800	\$211,310	\$81,000	\$348,550
	9.0%	4.1%	3.1%	60.6%	23.2%	
	\$31,260	\$14,180	\$10,800	\$211,310	\$81,000	\$348,550

ESTIMATED DIRECT EXPENSES	Plan Reproduction (Plans, Prints and Copies) (LS)	Technology Charge (\$/hr)	Travel - Car Mileage (miles)	Surveying Services (MNS: Subconsultant)	Geotechnical Services (Fugro: Sub-Consultant) (LS)	Cost
<b>RATE</b>	<b>\$1,500</b>	<b>\$3.70</b>	<b>\$0.51</b>	<b>\$54,452</b>	<b>\$175,250</b>	
<b>Original Quantity</b>	1	0	2112	1	1	\$232,279
<b>Total Estimated Direct Expenses</b>						<b>\$232,279</b>

**TOTAL FEE - PHASE 1** **\$580,829**

## **APPENDIX 2:**

---

### ***Geotechnical Sub-Consultant Fee Estimate***



4820 McGrath Street, Suite 100  
Ventura, California 93003-7778  
Tel: (805) 650-7000  
Fax: (805) 650-7010

September 29, 2011 (Revised November 28, 2011)  
Proposal No. 04.20110585

HDR Engineering Inc.  
2280 Market Street, Suite 100  
Riverside, California 92501-2110

Attention: Gheorghe Rosca

Subject: Proposal for Geotechnical Engineering Services, Replacement UPRR Bridge Structures at Las Vegas and San Pedro Creeks and Flood Channel Improvements, Goleta, Santa Barbara County, California

Dear Mr. Rosca:

Fugro is pleased to present this proposal to provide geotechnical engineering services for the flood capacity improvements at Las Vegas Creek and San Pedro Creek in Goleta, California. On the basis of information provided to us by HDR Engineering Inc., (HDR) and our previous work on the project (Fugro 2007, 2010), we understand that the flood capacity improvements for this project will consist of widening and modifying the existing Las Vegas and San Pedro Creek channels, replacing the existing Union Pacific Railroad (UPRR) bridges spanning Las Vegas and San Pedro Creeks, and constructing a 250-foot-long flood wall and 750-foot-long soil berm on the west-southwest bank of San Pedro Creek downstream of the UPRR corridor. Our proposal is based on project information provided by HDR, our understanding of the project, and previous site visits.

### PROJECT DESCRIPTION

The project will consist of improving the conveyance capacity of the existing Union Pacific Railroad (UPRR) corridor at Las Vegas and San Pedro Creeks and to provide improved flood protection downstream of the bridges. The project is part of a larger project that involves upstream flood improvements within the Highway 101 corridor and at Calle Real. We understand that the proposed capacity improvements in the Highway 101 corridor will be designed to accommodate a 25-year storm and the proposed UPRR improvements will be designed for a 100-year storm, as required by UPRR's standard design criteria.

Fugro prepared preliminary geotechnical reports for proposed improvements (Fugro 2007, Fugro 2010). Preliminary opinions regarding the geotechnical conditions and foundation design considerations were developed for the proposed Caltrans and UPRR structures based on existing geotechnical data acquired by Caltrans and others.

Currently, we understand that the overall project will consist of replacing the existing RCB's at Highway 101 and Calle Real with single-span bridges at San Pedro and Las Vegas Creeks, replacing the existing UPRR bridges at San Pedro and Las Vegas Creeks, and constructing a flood wall and low berm on the southwest side of San Pedro Creek south of the UPRR corridor. The creek channels within the proposed improvement area will be graded to have natural (soil) bottoms.



Services for this proposal are limited to modifying the existing Las Vegas and San Pedro Creek channels in the UPRR corridor, replacing the existing UPRR bridges spanning Las Vegas and San Pedro Creeks, and constructing a 250-foot-long flood wall and 750-foot-long soil berm along the southwest bank of San Pedro Creek.

We understand that Caltrans will be responsible for developing plans, specifications, and estimates for the improvements within their right-of-way as well as improvements to Calle Real at San Pedro Creek. However, geotechnical data, if acquired (and available) by Caltrans for those improvements, will be reviewed and considered in the proposed project.

## PROPOSED STRUCTURES AND IMPROVEMENTS

Descriptions of the proposed improvements are provided below.

**UPRR Bridges at San Pedro and Las Vegas Creeks.** Proposed flood conveyance capacity improvements at the UPRR bridges at San Pedro and Las Vegas Creeks will consist of replacing the existing bridges with new pre-cast box girder bridges. The proposed San Pedro Creek and Las Vegas Creek bridges will each have abutments and two center bents with overall span lengths of 94 and 90 feet, respectively. Preliminary plans developed by HDR suggest that the abutments and bents for the replacement bridges will be supported on a pair of 4-foot-diameter cast-in-drilled hole piles (drilled piers). The creek channels within the UPRR corridor will be modified to accommodate the new bridges and increased conveyance capacity.

**Flood Wall/Berm on San Pedro Creek.** In order to accommodate the upstream capacity improvements and associated increased water surface elevation, a floodwall and low-height berm will be constructed on San Pedro Creek. The flood wall will begin approximately 350 feet downstream of the UPRR bridge and continue about 600 feet along the southwest bank of San Pedro Creek. We understand that the wall height will range from approximately 7 feet at the upstream end to about 3 feet at the downstream end. We understand that the proposed berm will extend south-southeast from the downstream end of the floodwall, continue for approximately 750 feet across the Santa Barbara Airport overflow parking lot, and terminate near Hollister Avenue. We understand that the berm will most likely be about 3 feet in height with relatively flat side slopes (perhaps as flat as 10h-to-1v). Although the soil berm will be less than a few feet in height and have very flat side slopes, we understand that the berm will need to be analyzed and meet the design requirements of an earthen levee.

On the basis of discussions with HDR, we understand that additional hydraulic analyses will be performed to reassess the need for the flood wall and soil berm. As a result, geotechnical services for the proposed flood wall and soil berm will be performed separately from the proposed UPRR bridges and under a separate authorization.

## SITE CONDITIONS

The project site is located west of the Highway 101-Fairview Avenue overcrossing in the City of Goleta, California. Land use in the project area generally consists of the Union Pacific Railroad (UPRR) transportation corridor, the Twin Lakes Golf Course located south of the UPRR right of way, and light commercial development and airport overflow parking located south-southwest of San Pedro Creek. The terrain surrounding the project area is relatively flat with dense vegetation along the UPRR corridor and San Pedro Creek.





Within the project limits, the UPRR corridor consists of a single track supported on rock ballast. The existing bridge at Las Vegas Creek consists of a single-span bridge with rock abutment walls and steel bridge beams. We anticipate that the existing abutment walls are supported on shallow foundations. The bridge at San Pedro Creek consists of a two-span bridge with sandstone abutment walls and a center bent pier wall. The creek channels beneath the bridges are concrete lined and a concrete drop structure and associated retaining walls are present immediately downstream of the UPRR bridge at San Pedro Creek.

Data obtained for our preliminary reports indicate that the subsurface conditions in the area of Las Vegas Creek consist of 30 to 40 feet of interbedded loose to medium-dense sands and medium-stiff to stiff clays that are underlain by dense to very dense sand.

Existing data in the area of San Pedro Creek suggest that subsurface conditions in that area of the project consist of interbedded or layered loose to medium-dense sands and medium-stiff to stiff clays to the maximum depth explored of about 50 feet. Groundwater is anticipated to be relatively shallow throughout the project area.

### **SCOPE OF SERVICES**

We have assumed that a standalone geotechnical engineering report will be prepared for the UPRR bridge structures and a separate report will be prepared for the proposed flood wall/berm improvements on San Pedro Creek downstream of the UPRR corridor. Based on our project understanding described above, we have developed a scope of services associated with the two project components. Our proposed scope of services for the two standalone geotechnical reports is presented in Appendix A - Scope of Services.

### **FEE ESTIMATE**

We propose to provide the scope of services described in Appendix A on a time-and-expense basis in accordance with our current fee schedule rates. On the basis of our understanding of the proposed project and the level of geotechnical engineering services required, the fee to provide geotechnical services for the UPRR replacement bridges is estimated to be about \$87,250. The fee to provide geotechnical services for the proposed floodwall and berm is estimated to be \$88,000. Alternative scopes of services with corresponding changes in the estimated fee can be provided, and we can be available to discuss modifying the work scope with you at your convenience.

A copy of our current fee schedule is attached in Appendix B - 2011 Fee Schedule. A breakdown of the estimated fee for each scope of work is provided in Appendix C - Cost Breakdown.

### **SCHEDULE**

We are prepared to initiate our work on the project upon receipt of written notice to proceed. We anticipate that encroachment permits from the UPRR can be obtained in about 30 to 60 days after filing the permit application and we expect that the field explorations can begin approximately three weeks after receipt of the permits. Other factors, such as rights-of-entry to private property (if required), subcontractor availability, and weather conditions, could influence the field work schedule. We have assumed that the subsurface exploration work for the replacement bridges and the floodwall/berm will be performed at separate times and with separate mobilizations.



We estimate that a total of 4 days of work will be required to complete the field exploration program within the UPRR ROW and approximately 3 days of work will be required for the proposed floodwall and berm. We expect that the work in the UPRR corridor will require a UPRR flagman on each day.

Selected exploration locations for the floodwall are planned within private property (Goleta Building Materials, County Flood Control, and Santa Barbara Airport). We assume that access to those areas will be provided to us or arranged by others.

We estimate the subsurface exploration work for the project can be completed in less than about 2 weeks and that the geotechnical laboratory testing program can be completed within about 2 weeks after completion of the field program. We anticipate the geotechnical reports for the two UPRR bridges as described in our scope of services can be submitted within about 6 weeks following completion of the geotechnical laboratory testing work. We anticipate a similar schedule for the proposed flood wall and berm improvements.

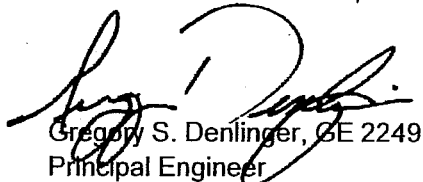
#### CLOSURE

Our proposed scope of field exploration services does not include services for the evaluation of the presence or absence of hazardous substances in the soil or groundwater, or consideration of biologically or culturally sensitive resources.

We anticipate that our services will be provided under the terms and conditions of a standard Fugro agreement. The work can be performed under alternate contract language provided those terms and conditions are acceptable to Fugro. We appreciate the opportunity to submit this proposal for this interesting project. Please contact me if you wish to discuss our proposal.

Sincerely,

FUGRO CONSULTANTS, INC.



Gregory S. Denlinger, GE 2249  
Principal Engineer

Attachments: Appendix A - Scopes of Services  
Appendix B - 2011 Fee Schedule  
Appendix C - Cost Breakdown

Copies:(Pdf) Addressee



## REFERENCES

- Fugro (2007), "Preliminary Geotechnical Engineering Report, Proposed Drainage Structures, Las Vegas and San Pedro Creek Capacity Improvement Project, Goleta, California," prepared for HDR Engineers, Fugro Project No. 3161.012, dated May.
- Fugro (2010), "Preliminary Geotechnical Engineering Report, Proposed Replacement of Union Pacific Railroad Bridges at Las Vegas and San Pedro Creek Capacity Improvement Project, Goleta, California," prepared for HDR Engineers, Fugro Project No. 3161.012, dated May 2007 and revised April 2010

**APPENDIX A  
SCOPE OF SERVICES**



## SCOPE OF SERVICES UPRR BRIDGES

We proposed to prepare a geotechnical engineering report for the proposed UPRR replacement bridges at Las Vegas and San Pedro Creeks. The geotechnical report will incorporate requirements of the American Railway Engineering and Maintenance of Way Association (AREMA). Our work will consist of the following tasks:

### **Task 1: Data Review, Planning, and Site Reconnaissance**

We will review existing geotechnical and geological data relevant to the site and review information provided in Fugro (2010). Work for this task will also consist of project planning, limited pre-project meeting attendance, and overall site reconnaissance work. The site reconnaissance work will be used to evaluate access for field exploration equipment and locate proposed geotechnical exploration locations and to assess the general surface conditions. We anticipate that the following elements will be observed:

- Surface conditions, surface geology and existing facilities,
- Evidence of erosion (floodwall and berm area),
- Evidence of burrowing animals (floodwall and berm area), and
- Site access conditions for exploration.

As part of the general reconnaissance, we will locate and mark potential exploration locations. We will contact Underground Service Alert (USA) to coordinate the location and marking of existing underground utilities in the area of the proposed explorations. Fugro will not be responsible for damage to utilities or infrastructure that are not properly marked/located or for third-party damage resulting from mislocated or unlocated utilities.

Prior to field exploration, we will prepare a site-specific safety evaluation plan proposed reconnaissance and field exploration program. We will also discuss proposed exploration locations with HDR that we selected from our reconnaissance effort.

For this task, we also propose to attend up to two, 2-hour project meetings in the Santa Barbara area (including travel) on an as-requested basis.

### **Task 2: Permitting**

Subsurface exploration work for the UPRR bridges is proposed within the UPRR ROW. Our proposed subsurface exploration program consists of excavating two soil borings and advancing two cone penetrometer test (CPT) soundings within the UPRR ROW at both Las Vegas Creek and San Pedro Creek bridge sites. Exploration locations appear to be limited to the north side of the UPRR tracks and exploration sites will likely need to be accessed from Highway 101 through the Caltrans ROW.

Fugro will complete the UPRR permit application and provide a work plan for the proposed subsurface exploration. Once the permits have been obtained, we will begin coordinating our field exploration program described in Task 4.



In addition to obtaining an encroachment permit from UPRR, Fugro will obtain a one-time license fee and specific project railroad insurance. We also understand that a \$500 fee is required for each additional contractor working at the site. A UPRR flagman is required for work within their ROW.

For preliminary cost estimating purposes, we have assumed that UPRR encroachment permit fees will be approximately \$1,000 and costs associated with the UPRR flagman will be about \$1,250 per day. In addition, we assume that specific training of field personnel by UPRR will consist of ½-day of on-site safety training. Additional Fugro costs associated with the UPRR encroachment permit will consist of the one-time license fee, project-specific railroad insurance, and fees associated with each additional contractor (assumed to be three contractors). We have assumed that project-specific insurance costs associated with our proposed work within the UPRR ROW will be approximately \$4,000.

### **Task 3: Subsurface Exploration**

We have developed a field exploration program to acquire subsurface geotechnical data to aid in the design of the UPRR bridges. The number and type of explorations proposed are primarily based on judgment and site access issues. Anticipated locations of the subsurface explorations can be provided upon request.

The proposed subsurface exploration program for the UPRR bridges will consist of excavating two hollow-stem auger drill holes and performing two CPT soundings at both of the bridge sites. We estimate that the drill holes and CPT soundings will be advanced to depths of about 75 to 100 feet below the ground surface. However, the explorations will be terminated at shallower depths if refusal to drilling or the CPT is encountered. In addition to the hollow-stem-auger borings, we propose to excavate up to 8 shallow hand auger drill holes in the proposed creek bank areas. A more detailed description of the bank sampling is provided in the scope of work outlined for the flood wall and berm.

Soil borings will be excavated with a conventional truck-mounted hollow-stem-auger drill rig (assumed to be a CME-75). The general conditions and material types encountered in the borings will be logged and soil samples will be obtained at approximately 5-foot depth intervals using a driven California liner (ring) sampler or a standard penetration test (SPT) sampler. Recovered samples will be packaged and retained for possible laboratory testing. CPT soundings will be advanced using a standard 20-ton CPT and standard 10-square-centimeter, 60-degree piezocone. We anticipate that the proposed explorations will be located in dirt or vegetated areas about 15 to 25 feet north of the existing railroad tracks. We have assumed that the uncaved depth of the boreholes (following the removal of the drill augers) can be backfilled with soils generated from the drilling process and that special grouting or slurry backfill will not be required. The uncaved depth of the CPT soundings will be backfilled with bentonite chips.

Excess soils generated from the drilling will be dispersed on the ground in the work area or containerized and the containers placed in a central location (as designated by Santa Barbara Flood Control) for subsequent disposal by others. Costs associated with testing or disposal of the containerized soil are not included in this proposal.

Specifically excluded from this scope of services is the search for and evaluation of hazardous materials. In the event that hazardous materials are encountered during exploration, we will be required to follow protocols governed by local and state agencies. Work performed in



association with the discovery of contaminated conditions will be performed on a time-and-expense basis according to fee schedule rates, the cost for which is not provided for in this proposal.

We anticipate that the CPT and hand auger explorations can be completed in 2 days onsite and that the hollow-stem auger drilling work can be completed in 4 days on-site.

#### **Task 4: Laboratory Testing**

We will perform geotechnical laboratory tests on selected samples obtained from the subsurface exploration program to assist in our characterization of selected geotechnical engineering properties and design parameters. The actual tests will be selected on the basis of the soil material types encountered and will likely consist of moisture-density, Atterberg Limit tests, grain size, consolidation, direct shear, undrained shear strength, and corrosion/chemical tests.

#### **Task 5: Geotechnical Evaluation and Report Preparation**

On the basis of information obtained from our data review and field exploration and results of laboratory testing, we will evaluate the conditions at the site and prepare a geotechnical engineering report providing our recommendations for the UPRR bridges. The geotechnical report will incorporate requirements of the American Railway Engineering and Maintenance of Way Association (AREMA). Logs of our subsurface explorations, results of laboratory testing, and relevant calculations and analyses will be included in the report. The geotechnical engineering report will address the following:

- Summary of soil and groundwater conditions encountered;
- Site geology and fault setting;
- Site-specific seismic hazard analyses and developing peak ground accelerations for 100-, 475- and 2,400-year return period events (assumed to be consistent with AREMA Ground Motion Levels 1, 2, and 3, respectively). Peak ground accelerations will be evaluated using information in the AREMA manual or using the web-based seismic hazard analyses available from the USGS;
- Seismic hazard assessment regarding strong ground shaking, ground surface rupture, liquefaction, and seismic settlement (we have assumed that liquefaction evaluations will be based on a 475-year return period event or Level 2 ground motions);
- Foundation design recommendations for pile foundations regarding pile embedment depth, axial and lateral capacity, settlement, uplift resistance, and potential down-drag. Lateral capacity evaluation will be performed using the computer program LPILE and results of pile deflection, bending moments, shear forces, and p-y springs for selected depths and soil types will be provided;
- Evaluation of the corrosion potential of selected onsite soils/surface water and corrosion considerations for design of subsurface structures in accordance with Caltrans guidelines;
- Recommendations regarding the proposed channel improvement consisting of slope basic/general stability analysis and excavation considerations;
- Lateral earth pressures for abutment and wing walls; and



- Construction considerations related to pile construction, groundwater and dewatering, subgrade stabilization, adjacent structures, and temporary excavations.

One copy of the draft report, along with a pdf copy, can be provided for review. Once comments are available from the draft report, the report can be finalized within about two to three weeks.





## SCOPE FOR GEOTECHNICAL STUDY SAN PEDRO CREEK FLOODWALL AND BERM

### GENERAL

The scope of work includes geotechnical engineering services to aid in the design and construction of the proposed floodwall and low-height berm and to complete geotechnically pertinent floodwall sections of the FEMA Structures Form (086-0-27B). Services for the work will also consist of creek bottom and creek bank sampling and grain size testing for use in scour evaluations and the design creek bank erosion protection to be performed by others. As noted previously, we understand the geotechnical services for the proposed flood wall and berm will be performed separately from the work for the UPRR bridges and under a separate authorization.

### GEOTECHNICAL STUDY WORK SCOPE

Geotechnical engineering services for the floodwall and low height berm will consist of the following tasks:

#### Task 1: Site Reconnaissance

The site reconnaissance work will be used to evaluate access for field exploration equipment, to locate proposed geotechnical exploration locations, and to assess the general surface conditions. As part of the general reconnaissance, we will locate and mark/stake potential exploration locations. We will contact Underground Service Alert (USA) to coordinate location and marking of existing underground utilities in the area of the proposed explorations. Fugro will not be responsible for damage to utilities or infrastructure that are not properly marked/located or for third party damage resulting from mislocated or unlocated utilities.

Prior to field exploration, we will prepare a site-specific safety evaluation plan proposed reconnaissance and field exploration program. We will also discuss proposed exploration locations with HDR that we selected from our reconnaissance effort.

#### Task 2: Subsurface Exploration

**Subsurface Exploration.** Subsurface exploration will be performed along the proposed floodwall and berm alignment with drill holes and CPT explorations. Two drill holes and three CPTs are proposed along the flood wall alignment. Two additional drill holes and two additional CPTs are proposed along the alignment of the low-height soil berm. In general, we anticipate that the CPTs will be located adjacent to the drill hole locations and that the explorations will extend to a depth of about 50 to 80 feet below the existing ground surface.

Exploration drill hole/CPT pair locations will be located along the floodwall/berm alignment as access permits, but with locations near-equally spaced along the alignment.

Approximate drill-hole footage is about 200 feet and approximate CPT footage is 260 feet. If possible, the CPTs will be performed before the drill holes so that the near-continuous data can be used to refine the drilling program. CPTs will be located near drill holes for correlation purposes and will aid targeting of sample intervals for drill holes.



Work for this task will also consist of collecting grab samples at locations within the Las Vegas and San Pedro Creek (designated by HDR as Pit samples). We will also collect samples from the creek banks in the area of the proposed UPRR replacement bridges. We will collect up to 4 samples (designated by HDR as Bank Samples) at each bridge area.

**CPTs.** CPTs are performed by hydraulically pushing an instrumented 1.4-inch-diameter, cone-tipped probe into the ground. Electrical transducers measure tip resistance and sleeve friction near-continuously (every 2 cm) during the sounding, and the data are recorded in the field with a computer. Data are then processed and correlated to provide engineering information (e.g., soil classification, shear strength, liquefaction potential) and the data also can be correlated with information from the drill holes. A Fugro engineer or geologist will coordinate and supervise CPT operations and review the CPT logs.

**Drill Holes.** Drill holes will be excavated using a truck-mounted drill rig equipped with hollow-stem-auger or rotary wash equipment. Sampling methods will include Standard Penetration Test (SPT) samplers, California liner samplers, and possibly Shelby tubes. Sampling intervals will generally be between 2-1/2 to 5 feet, with additional sampler intervals targeted based on CPT logs, as appropriate. A Fugro engineer or geologist will log earth materials encountered and obtain samples for visual examination, classification, and laboratory testing.

One piezometer will be constructed in a selected drill hole located along the floodwall alignment for extended groundwater monitoring. The piezometer will consist of 2-inch, slotted PVC pipe, embedded in a sand backfill. A cement/bentonite seal will be placed near the surface and the top will be protected by an appropriate traffic box. During the course of the study, we will measure water levels in the piezometer intermittently to obtain no more than 4 measurements. Because the piezometer will be used solely to monitor groundwater elevation and a short-term in situ permeability test, we have assumed that a well permit from the County of Santa Barbara Environmental Health or the Fire Department will not be required. In addition, no scope or budget is included herein for piezometer destruction.

**Pit and Bank Samples.** As requested by HDR, we propose to collect pit samples in the creek bottom area of Las Vegas and San Pedro Creek. Approximately 4 samples will be collected from San Pedro Creek and two samples will be collected from Las Vegas Creek. We anticipate that water will be present in the creeks and the samples will be collected from sediments within the upper 12 to 18 inches of the channel bottom using hand tools (shovel or post-hole digger). Samples will be visually classified and placed in bulk bags for subsequent geotechnical laboratory testing.

Bank samples will be collected from shallow hand auger drill holes excavated in the general locations designated by HDR. However, actual locations will be determined on the basis of site access and other constraints. We have assumed the hand auger drill holes will be performed concurrently with the explorations planned in the UPRR corridor and will be excavated to a maximum depth of 10 feet below the ground surface. Samples will be collected at selected depths using a 6-inch-long, lined, split-barrel sampler driven with a hand-operated slide hammer. The samples will be visually classified in the field and packaged for subsequent geotechnical laboratory testing.

**Permitting.** We have assumed that no permits will be required to perform the subsurface exploration program and that access to private property will be facilitated/provided to us by the County of Santa Barbara or others. Permitting work associated with the work to collect the bank samples is addressed in the scope of services for the UPRR bridges.



**Drill Hole Backfill and Cutting Disposal.** Upon completion, explorations will be backfilled with soil cuttings and excess soils will be placed in DOT drums. The drums will be labeled (assumed non-hazardous) and will be left on-site for disposal by others. Fugro can arrange for disposal, however, work associated with disposal of soil cuttings will be performed as additional services.

**In Situ Permeability Testing.** One in situ field permeability test is proposed to aid development of permeability values for seepage evaluations. The in situ permeability test will consist of short-term step discharge and constant-rate pumping tests in the piezometer.

### **Task 3: Laboratory Testing**

Laboratory tests will be performed on selected samples obtained from the drill holes for classification and to evaluate density, gradation, compressibility, permeability, and shear strength. We anticipate that laboratory testing will include moisture content, dry unit weight, sieve analysis, hydrometer, Atterberg Limits, unconsolidated undrained triaxial shear, direct shear, consolidation, and corrosion tests, as appropriate. Test type and frequency will be based on the subsurface conditions actually encountered in the drill holes and CPT soundings.

Grain size analyses will be performed on the pit (grab) samples and the bank samples. Additional testing (such as Atterberg Limits, undrained shear strength, and permeability) for the bank samples, if required, will be performed as additional services on a unit rate basis.

### **Task 4: Engineering Evaluations**

**General.** Geotechnical engineering evaluations will be performed on selected cross sections along the proposed floodwall alignment in order to satisfy 44 CFR Section 65.10 requirements for seepage, stability, and settlement. Cross-section selection and analyses will be assessed based hydraulic and topographical considerations, geologic/geomorphic mapping and once field exploration and laboratory testing is complete.

Geotechnical engineering analyses will include the following:

- Synthesis of collected data, development of subsurface conditions, and profile development.
- Assessment of material properties needed for engineering evaluations (e.g., shear strength, permeability, compressibility).
- Grain size data (and other laboratory test data as collected) for the pit and bank samples.
- Analyses for steady seepage to evaluate exit gradients and pore pressures.
- Global wall and berm stability for long-term steady seepage and short term (seismic) cases.
- Assessment of seepage and stability for the low berm.
- Development of strong ground motion parameters.
- Liquefaction potential to assess the factor of safety against liquefaction, liquefaction-related settlement, and undrained residual shear strength.



- Allowable bearing pressures, passive resistance, and sliding resistance for static and seismic conditions.
- Settlement from static loads and seismic shaking.

Proposed evaluations and analyses are described below.

**GIS Database.** Topographic, geologic/geomorphic, subsurface exploration data, physical features, hydraulic levels, and other applicable data will be incorporated into a geographical information system (GIS) database for use in presentation and engineering evaluation. This will facilitate development of longitudinal and transverse cross sections for engineering evaluations.

Up to four cross sections are anticipated for this work scope. Actual sections to be analyzed will be assessed after the field activities are completed and the GIS attributes (e.g., geometry, subsurface conditions, physical features) are available in the GIS database.

**Floodwall Design.** Working with the project team, preliminary floodwall geometry will be developed for evaluation purposes.

**Steady Seepage.** Seepage analyses will be performed for the FEMA certification flood elevation for long-term steady seepage conditions, assuming reasonable boundary conditions. Analytical methods will utilize a suitable finite element program such as SEEP/W. Steady-seepage analyses will be used to evaluate potential underseepage, pore pressures along the base of the wall and low-eight berm, and exit gradients near the landward wall toe and slope.

Permeability estimates will be developed based on gradation analyses and empirical correlations, field permeability tests, existing information on soil classification and permeability, and experience and judgment in the local area.

**Wall Stability/Berm Stability.** Global wall and berm stability will be evaluated using software incorporating limit equilibrium methods, such as SLOPE/W for the FEMA certification flood elevation and seismic cases. Allowable bearing pressures, sliding resistance, and passive resistance parameters will be provided for use by the structural engineer for wall design (overturning and sliding factors of safety).

**Strong Ground Motions.** In accordance with US Army Corp of Engineers, Technical Letter (TL) No. 1110-2-570, a site-specific probabilistic seismic hazard analysis (PSHA) will be performed to estimate peak horizontal ground accelerations (pga), mean and modal magnitude and source distance, and spectral ordinates for an exceedance probability of 10 percent in 50 years (475 year return period) using the USGS website.

**Liquefaction.** Liquefaction evaluations will be performed using empirical procedures for conditions along the levee alignment using subsurface data (CPTs and drill holes) for the design seismic event to estimate the factor of safety against liquefaction, seismic settlement, and undrained residual shear strengths for liquefiable soils.

**Settlement.** Static and seismic settlement evaluations will be performed for selected sections along the floodwall and berm alignment in order to assess the potential for loss of freeboard from settlement and to estimate additional freeboard/wall height increase.



## **Task 5: Design Report Preparation**

The result of our field exploration, laboratory testing, and engineering analyses will be presented in a geotechnical report for the proposed levee alignment. The report will include findings, evaluations, discussion, conclusions, and recommendations for the following:

- Results of literature review.
- Geologic/geomorphic mapping and evaluation.
- Description of field exploration procedures, drill hole and CPT logs, and field test results.
- Description of laboratory test procedures along with test results.
- Site characterization, including surface and subsurface description, and longitudinal and transverse cross sections.
- Results of engineering evaluations.
- Recommendations for design and construction of the flood wall developed by the project team in compliance with FEMA/USACE requirements. As part of this work, we will complete selected components of FEMA Structures Form (086-0-27B).

One copy of the draft report along with a pdf copy can be provided for review. Once comments are available for the draft report, the report can be finalized within about two to three weeks.

**APPENDIX B**  
**2011 FEE SCHEDULE**



4820 McGrath Street, Suite 100  
 Ventura, California 93003-7778  
 Tel: (805) 650-7000  
 Fax: (805) 650-7010

**SOUTHERN CALIFORNIA 2011 FEE SCHEDULE  
 FOR CONSULTING SERVICES**

PROFESSIONAL STAFF	HOURLY RATE
Staff Professional .....	\$ 110
Senior Staff Professional.....	120
Project Professional .....	140
Senior Project Professional.....	150
Senior Professional .....	165
Associate.....	185
Principal.....	215
Senior Principal.....	240

**TECHNICAL AND OFFICE STAFF**

Field Technician/Inspector - Non-Prevailing Wage, Straight Time.....	95
Field Technician/Inspector - Prevailing Wage, Straight Time .....	105
Construction Inspector .....	110
Construction Services Manager.....	125
Engineering Assistant .....	110

Office Assistant .....	60
Word Processor/Clerical .....	75
Laboratory Technician.....	75
Technical Assistant/Illustrator .....	80
Illustrator II.....	85
CADD Operator .....	95
GIS Technician.....	95
HSE Manager.....	155

*Overtime Rates for Technical and Office Staff:*

- a. Saturday or over 8 hours/day during weekdays ..... 1.3 x straight time
- b. Saturdays over 8 hours or Sundays/holidays ..... 1.5 x straight time
- c. Swing or graveyard shift premium..... 1.3 x straight time

**Fees for expert witness preparation, testimony, court appearances,  
 or depositions will be billed at the rate of \$325 per hour.**

**OTHER DIRECT CHARGES**

Subcontracted Services .....	Cost Plus 15%
Outside Reproduction .....	Cost Plus 15%
Outside Laboratory.....	Cost Plus 15%
Out-of-Pocket Expenses .....	Cost Plus 15%
Travel and Subsistence.....	Cost Plus 15%
Field Vehicle and Basic Sampling Equipment .....	125/day
Specialized Software Applications .....	30/hr
Finite Element/Finite Difference Packages .....	25/hr

Report reproduction and data reporting costs per staff hourly rates

A surcharge of \$1 per linear foot of test boring depth will be added to cover the cost of standard engineering field supplies including sample tubes and caps, stakes, etc.

Fee Schedule is subject to revision periodically

**LABORATORY AND SPECIALTY TESTING AND EQUIPMENT..... See Separate Schedules**



**FUGRO CONSULTANTS, INC.**  
**2011 FEE SCHEDULE**  
**LABORATORY AND MATERIALS TESTING**



**CLASSIFICATION TESTS**

Moisture Content and Visual Classification (ASTM D2216/D2488) .....	\$ 25
Total and Dry Density (ASTM D2937).....	\$ 35
- add for shelly tube with above tests.....	\$ 20
Irregular Shape Density .....	\$ 55
Plastic and Liquid Limits (ASTM D4318) .....	\$ 150
Specific Gravity (ASTM D854).....	\$ 80
Organic Content (ASTM D2974) .....	\$ 75
Sand Equivalent (ASTM D2419) .....	\$ 95
Sieve Analysis (ASTM D422) .....	\$ 105
- add for coarse fraction (>#4 sieve) .....	\$ 60
Percent Passing #200 Sieve (ASTM D1140).....	\$ 70
Hydrometer and Sieve (ASTM D422).....	\$ 175
Quick Hydrometer Analysis .....	\$ 90

**VOLUME CHANGE TESTS**

Incremental Consolidation (ASTM D2435).....	\$ 375
- additional load increment .....	\$ 40
Quick Cons., Max 8 Loads (16 ksf Max) .....	\$ 260
Constant Rate of Strain Consolidation	
- to 16 ksf max (ASTM D4186).....	\$ 425
- with intermediate rebound and reload.....	\$ 500
Expansion Index (ASTM D4829/UBC 29-1).....	\$ 235
Swell and Collapse Tests	
- wet after load, 4 points (ASTM D4546-A) .....	\$ 600
- wet after load, 1 point (ASTM D4546-B).....	\$ 160
- load after wet, 1 point (ASTM D4546-C).....	\$ 200

**STATIC STRENGTH TESTS**

Hand Penetrometer.....	\$ 15
Torvane .....	\$ 25
Miniature Vane (ASTM D4648) .....	\$ 50
Miniature Vane with Residual .....	\$ 55
Unconfined Compression	
- Soil (ASTM D2166) .....	\$ 100
- Rock, excludes strain (ASTM D7012-C).....	\$ 130
- Rock, includes strain (ASTM D7012-D).....	\$ 200
Triaxial Compression	
- Unconsolidated Undrained (ASTM D2850) \$	140
- add for back pressure saturation.....	\$ 85
- Consolidated Undrained with pore pressure measurements, per point (ASTM D4767) .....	\$ 440
- Consolidated Drained, per point.....	\$ 650
Direct Shear, 3 points, (ASTM D3080).....	\$ 435
- add for residual strength, per point .....	\$ 50
Point Load Index (ASTM D5731).....	\$ 60

**HYDRAULIC CONDUCTIVITY TESTS**

Constant Head, 2-3" Dia. (ASTM D2434).....	\$ 290
Constant Head, 6" Dia. (ASTM D2434).....	\$ 375
Flexible Wall (ASTM D5084) .....	\$ 290
- add for additional effective stress.....	\$ 100

**CHEMISTRY TESTS**

Soil Chemistry For Corrosion (pH, chloride, sulfate, resistivity).....	\$ 250
pH (soil).....	\$ 25
pH (water) .....	\$ 30

**EARTHWORK TESTS**

Standard Proctor, 4 points (ASTM D698)	
- 4-inch mold .....	\$ 200
- 6-inch mold .....	\$ 240
Modified Proctor, 4 points (ASTM D1557)	
- 4-inch mold .....	\$ 235
- 6-inch mold .....	\$ 275
California Impact Compaction (Cal 216) .....	\$ 250
Moisture - Density Check Point	
- 4-inch mold .....	\$ 75
- 6-inch mold .....	\$ 100
- rock correction for above.....	\$ 90
Soil Cement - Moisture/Dens. (ASTM D558) ...	\$ 275
Index Density and Unit Weight (ASTM D4253)	
Maximum .....	\$ 315
Minimum .....	\$ 135
R-Value (ASTM D2844/Cal 301) .....	\$ 310
Treated Soil .....	\$ 325
Aggregate Base .....	\$ 335
Base with Admixture .....	\$ 350
CBR, per point (ASTM D1883).....	\$ 340
Proctor Compaction with above CBR.....	\$ 210
Surcharge for Admixture .....	\$ 50
Sample Preparation for Soil with PI>20.....	\$ 55

**AGGREGATE TESTS**

Sieve Analysis (ASTM C136/Cal202)	
- Coarse Aggregate .....	\$ 60
- add for samples > 5000g.....	\$ 30
- Fine Aggregate .....	\$ 110
Sand Equivalent (ASTM D2419/Cal 217).....	\$ 95
Cleanness Value (ASTM C142/Cal 227).....	\$ 140
Durability Index (ASTM C3744/Cal 229)	
- Coarse Fraction .....	\$ 140
- Fine Fraction.....	\$ 140
Specific Gravity & Absorption	
- Coarse Aggregate (ASTM C127/Cal206) ..	\$ 80
- Fine Aggregate (ASTM C128/Cal 207) .....	\$ 125
% Crushed Particles (ASTM D5821/Cal 205) ..	\$ 100
Moisture Content (ASTM C566) .....	\$ 60
Sulfate Soundness, per sieve fraction (ASTM C88/Cal 214) .....	\$ 125
L.A. Abrasion 500 rev. (ASTM C131/Cal 211) \$	215
Percent Passing #200 Sieve (ASTM C117) .....	\$ 85
Unit Weight and Voids (ASTM C29/Cal 212) ...	\$ 95
Organic Impurities (ASTM C40) .....	\$ 50



FUGRO CONSULTANTS, INC.  
2011 FEE SCHEDULE  
LABORATORY AND MATERIALS TESTING



**ASPHALT CONCRETE TESTS**

Stabilometer Value (ASTM D1560/Cal 366) ....	\$	160
Lab Compacted Unit Weight		
- each briquette (Cal 304/Cal 308).....	\$	110
- surcharge for rubberized AC.....	\$	20
Unit Weight of AC Cores (Cal 308).....	\$	65
Theoretical Max. S.G. (Cal 309).....	\$	150
Extraction and Sieve (ASTM D2172/D5444)....	\$	315
Asphalt Content by Ignition (Cal 382).....	\$	150
Calibration Curve for Ignition Test .....	\$	300
Slurry Wet Track Abrasion (ASTM D3910) .....	\$	70

**CONCRETE, MASONRY, AND STEEL TESTS**

Concrete Compression		
- Each 6x12 or 4x8 Cylinder (ASTM C39).....	\$	30
- Add for Elastic Modulus (ASTM C469).....	\$	185
- Hold or Additional Test.....	\$	30
- Light Weight Concrete (CTM 548) .....	\$	40
Cylinder Molds with Lids .....	\$	8
Compression of Core (ASTM C42) .....	\$	90
Soil-Cement Compression (ASTM D1633) .....	\$	40
Shrinkage of Mortar and Concrete 3 Bars (ASTM C157).....	\$	440
Unit Weight of Concrete Cylinders		
- Air-Dried.....	\$	30
- Oven-Dried .....	\$	40
Shotcrete Panel, Lab Coring & Compression		
- 3 cores (ASTM C42).....	\$	375
Grout and Mortar Compression (ASTM C39)		
- Grout.....	\$	45
- Mortar .....	\$	35
Composite Prism Compression (ASTM E447)		
- 8x8 .....	Quote	
- 8x12 .....	Quote	
- 8x16 .....	Quote	
CMU Block Compression (ASTM C140).....	Quote	
CMU Absorption & Moisture (ASTM C140).....	\$	95
Concrete Moisture Emission Test Kit, each .....	\$	60
Rebar - Tensile and Bend (ASTM A-370) .....	Quote	

**MISCELLANEOUS LABORATORY TESTS AND CHARGES**

Sample Remold Surcharge .....	\$	50
Special Processing .....	Hourly Rates	
Extrude Tube Sample and Visually Classify....	\$	70
Sample Tube Cutting, each cut.....	\$	25
Sample Preparation - Non-Routine .....	\$	100
Steel Drum - 55 Gallon with Lid.....	\$	80
Gas Powered Generator.....	\$	80
Shelby Tube with Caps.....	\$	45
Addition of Soil Admixtures and Curing.....	\$	95
Capping of Strength Test.....	\$	40
Weight of Roofing Materials (ASTM D2829)....	\$	50
Density of Sprayed Fireproofing Materials .....	\$	60
Static Friction Test		
- Per Surface Location (ASTM C1028) ...	\$	375

**MISCELLANEOUS LABORATORY TESTS AND CHARGES (continued)**

Coring Equip/Bit Charge, per half day .....	\$	85
Bit Charge - Difficult Materials, per half day ...	\$	100
Specimen End Prep		
- Less than 4" Diameter, per cut.....	\$	12
- 4" to 8" Diameter, per cut .....	\$	18
Special Capping of Specimen .....	\$	40
Patch or Grout Core Hole .....	\$	35
Photograph of Sample.....	\$	40
Additional Copies of Photographs .....	Cost + 15%	
Local Site Pick up of Bulk or AC Sample		
- within 30-mile radius, per sample.....	\$	60

**NOTES:**

- 1) Fugro Consultants, Inc.'s laboratories are accredited or validated by AASTHTO (R-18), Caltrans, USACE, DSA/(LEA)
- 2) The following are included at NO CHARGE:
  - Visual classification, natural water content and density with all triaxial, direct shear, volume change, and permeability tests.
  - Sample photographs for triaxial hydraulic conductivity, and PLI tests.
- 3) Rates for other tests and test variations, including mix designs, can be furnished on request.
- 4) Rush assignments are subject to a 25% surcharge. Weekend or Holiday test assignments are subject to a 50% surcharge.
- 5) Testing for contaminated samples (EPA Level C & D) will be invoiced at 1.5 times listed rates.
- 6) Shipping or other outside costs at cost +15%.

FUGRO CONSULTANTS, INC.  
2011 FEE SCHEDULE  
FIELD EQUIPMENT AND SUPPLIES



**FIELD INSTRUMENTATION/EQUIPMENT**

Inclinometer Probe and Readout Device.....	\$ 185/day	Baroid Drilling Fluid Test Kit.....	\$ 30/day
Rotary Hammer.....	\$ 40/day	Conductivity Probe (in situ) .....	\$ 55/day
Portable Photoionization Detector (PID) ....	\$ 125/day	CPN Corp. Hydroprobe .....	\$ 75/day
Gas Tech .....	\$ 50/day	Double-Ring Infiltrometer .....	\$ 75/day
Portable Flame Ionization Detector (FID)....	\$ 150/day	Downhole Soil Samplers .....	\$ 75/day
Field Computer.....	\$ 30/day	(2½-inch California liner, SPT)	
Manometer.....	\$ 55/day	Fisher TW-6 Metal Detector .....	\$ 50/day
Dynamic or Stainless Steel Penetrometer..	\$ 50/day	Gas Powered Generator .....	\$ 80/day
Brass or Stainless Steel Sample Sleeves ..	\$ 8/each	Groundwater Modeling Software.....	\$ 25/day
Well Bailer - Disposable .....	\$ 15/each	Hermit 1000C and Transducer .....	\$ 135/day
Keyed-Alike Locks.....	\$ 8/each	ISCO Peristaltic Air Pump .....	\$ 25/day
55-gallon Drum.....	\$ 80/each	Positive Displacement Pump .....	\$ 25/day
Field Filter .....	\$ 25/unit	Temperature-pH-Conductivity Meter .....	\$ 25/day
Nuclear Gauge.....	\$ 50/day	Transducer (in situ) .....	\$ 75/day
Stainless Steel Hand-Auger Sampler.....	\$ 50/day	Water Level Recorder .....	\$ 20/day
Teflon Tape - 4" roll.....	\$ 35/roll	Water Sampling Pump .....	\$ 200/day
Liquinox.....	\$ 20/bottle	(Bladder Pump or Electric Submersible)	
Tyvek .....	\$ 15/each	Water Sampling Pump (Well Wizard).....	\$ 200/day
Respirator Cartridges .....	\$ 10/set	Well Bailer - Standard .....	\$ 25/day
Water Level Indicator .....	\$ 20/day	Disposable Camera.....	\$ 15/each
Kernlevel .....	\$ 20/day	Digital Camera .....	\$ 25/day
Well Cap 2" .....	\$ 22/each		
12 Channel Seismograph.....	\$ 150/day		
2-inch Diameter Water Meter .....	\$ 20/day		
4-inch Diameter Water Meter .....	\$ 40/day		
Asphalt Patch.....	Cost + 15%		

**APPENDIX C  
COST BREAKDOWN**



### COST BREAKDOWN

We propose to conduct the proposed work on a time-and-expense basis in accordance with the current fee schedule. The estimated fee will not be exceeded unless authorization is provided based on the additional proposed scope of work. Our estimated fee for the proposed geotechnical engineering services is tabulated as follows:

#### UPRR Bridges

Task	Estimated Fee
Task 1. Data Review, Planning and Site Reconnaissance	\$ 6,500
Task 2. UPRR Permitting	\$ 13,500
Task 3. Subsurface Exploration	
Estimated Fugro Costs	\$ 6,000
Estimated Direct Costs - Drilling & CPT	20,000
Estimated Direct Costs - Flagman	\$5,750
Task 4. Laboratory Testing	\$ 10,500
Task 5. Geotechnical Evaluation and Report Preparation	\$ 25,000
<b>Total Estimated Fee:</b>	<b>\$87,250</b>

#### Flood Wall/Berm Improvements

Task	Estimated Fee
Task 1. Site Reconnaissance	\$ 2,000
Task 2. Subsurface Exploration	
Estimated Fugro Costs	\$ 12,500
Estimated Direct Costs	23,000
Task 3. Laboratory Testing	\$ 12,000
Task 4. Engineering Evaluations	\$ 18,500
Task 5. Design Report Preparation	\$ 20,000
<b>Total Estimated Fee:</b>	<b>\$ 88,000</b>

**APPENDIX 3:**

---

*Surveying Sub-Consultant  
Fee Estimate*



SANTA BARBARA  
201 N. Calle Cesar Chavez, Suite 300  
Santa Barbara, CA 93103  
805.692.6921 Phone

September 12, 2011

Mr. Gheorghe Rosca Jr. PE, MBA  
HDR Engineering, Inc.  
2280 Market Street, Suite 100  
Riverside, CA 92501-2110

RE: LVSP Survey Proposal for Final PS&E

Dear Mr. Rosca:

Thank you for requesting a proposal for our professional surveying services for the Las Vegas/San Pedro creek project. The following is our proposed scope of services and estimated fee.

**Proposed Scope of Services:**

MNS will provide surveying services to support HDR Engineering in the development of final PS&E documents. The scope of services will include:

1. Aerial photogrammetry to cover floodplain area for future CLOMR. The mapping will be at a scale of 1"=100' with 2-foot contour intervals. A color, digital ortho-photo will also be provided.
2. Surveyed cross sections in both creeks upstream and downstream of bridges and at every 200 feet approximately and extend to 50 feet beyond top of bank when feasible. In residential areas where the back yard is enclosed with walls or fences, the field survey will stop at that feature. The aerial mapping will include spot shots on the opposite sides of the wall or fence close to the house on each lot.
3. Survey creek cross sections along proposed levee to extend at least 50 feet beyond top of bank where levee is proposed to determine lowest adjacent landside elevation.
4. Structure survey for Hollister Street Bridge (locate piers, abutments, low chord, channel bottom).
5. Structure survey for golf cart bridge where Las Vegas Creek grading ends.
6. Structure survey for Las Vegas Creek Calle Real Bridge and 2 bridges upstream of Calle Real within floodplain topographic mapping area.
7. Shots on manholes, top of curb near end of parking lot berm, locate utility boxes, power poles, etc. within APE.
8. Provide ROW property lines in and around APE. Retrace flood control easements in and around APE. Boundary retracements to include Railroad RW, Highway RW, Calle Real RW, City of Santa Barbara property south of railroad, and private property along San Pedro Creek north of Calle Real.
9. Top of rail on both rails @ 100' intervals on tangents and 50' intervals on curves. The aerial photography limits will be the limits for the Top of Rail shots.
10. The ground-based surveying will be incorporated into the previous work we have performed for this project. The aerial mapping will be a separate map and not be merged with the ground-based mapping.

**Cost Estimate:**

The estimated cost to provide these services is \$54,452.00.

**Deliverables:**

Deliverables for the aerial mapping will include a pdf and AutoCAD file of the contour map along with a color, digital ortho-photo tiff image. Deliverables for the ground-based surveying will include a pdf of the map and an AutoCAD file.

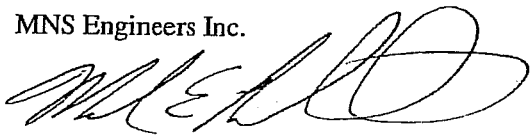
**Schedule:**

We estimate to be able to complete the project within four to six weeks following the notice to proceed.

If you have any questions or would like us to proceed with this work, please contact me at 805-692-6921 or at [mreinhardt@mnsengineers.com](mailto:mreinhardt@mnsengineers.com).

Sincerely,

MNS Engineers Inc.

A handwritten signature in black ink, appearing to read 'M. Reinhardt', written over a white background.

Mark E. Reinhardt, PLS

Las Vegas/San Pedro Creeks Survey Proposal for Final PS&E

PROPOSED STAFF UTILIZATION

STAFF TYPE	RATE (\$)	TASK 1		TASK 2		TASK 3		TASK 4		TASK 5		TASK 6		TASK 7		TASK 8		TOTAL COST (\$)	
		HRS	COST (\$)	HOURS	COST (\$)	HOURS	COST (\$)	HOURS	COST (\$)	HOURS	COST (\$)	HOURS	COST (\$)	HOURS	COST (\$)	HOURS	COST (\$)		
Principal Surveyor	185.00	4.0	740.00	4.0	740.00	2.0	370.00	2.0	370.00	12.0	2,220.00	8.0	1,480.00	2.0	370.00	2.0	370.00	38.0	6,660.00
Senior Land Title Analyst	125.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	8.0	1,000.00	0.0	0.00	0.0	0.00	0.0	0.00	8.0	1,000.00
Assistant Project Surveyor	115.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
Party Chief	125.00	8.0	1,000.00	48.0	6,000.00	8.0	1,000.00	8.0	1,000.00	24.0	3,000.00	0.0	0.00	8.0	1,000.00	16.0	2,000.00	120.0	15,000.00
Chainperson	110.00	8.0	880.00	48.0	5,280.00	8.0	880.00	8.0	880.00	24.0	2,640.00	0.0	0.00	8.0	880.00	0.0	0.00	104.0	11,440.00
Supervising CADD Technician	105.00	4.0	420.00	0.0	0.00	0.0	0.00	0.0	0.00	32.0	3,360.00	40.0	4,200.00	0.0	0.00	0.0	0.00	76.0	7,980.00
One-Person Survey Crew	185.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	8.0	1,320.00
<b>LABOR TOTALS</b>		<b>24.0</b>	<b>3,940.00</b>	<b>100.0</b>	<b>12,020.00</b>	<b>18.0</b>	<b>2,262.00</b>	<b>18.0</b>	<b>2,262.00</b>	<b>100.0</b>	<b>12,220.00</b>	<b>48.0</b>	<b>5,660.00</b>	<b>18.0</b>	<b>2,250.00</b>	<b>28.0</b>	<b>3,590.00</b>	<b>352.0</b>	<b>43,412.00</b>
<b>Total Task Cost</b>			<b>14,080.00</b>		<b>12,020.00</b>		<b>2,262.00</b>		<b>2,262.00</b>		<b>12,220.00</b>		<b>5,660.00</b>		<b>2,250.00</b>		<b>3,590.00</b>		<b>54,452.00</b>

Task Key

- Task 1 Aerial Mapping
- Task 2 Creek Cross-Sections
- Task 3 Structures
- Task 4 Rail Survey
- Task 5 ROW, Property and Easements
- Task 6 CADD Topo Mapping
- Task 7 Topo for APE, etc.
- Task 8 Control Survey and all Field Survey Processing



## EXHIBIT B

### PAYMENT ARRANGEMENTS

#### Periodic Compensation (with attached Schedule of Fees)

- A. For CONTRACTOR services to be rendered under this contract, CONTRACTOR shall be paid a total contract amount, including cost reimbursements, not to exceed **\$ 580,829**.
- B. Extra Work required to complete the project may be authorized only if CONTRACTOR receives written approval by the COUNTY's designated representative as identified in Paragraph 1 of the Agreement at the same rate per unit as defined in **Attachment B1**. The total amount of this contingency fund is 10% of the agreement amount or **\$58,082.90**.
- C. Payment for services and /or reimbursement of costs shall be made upon CONTRACTOR's satisfactory performance, based upon the scope and methodology contained in **EXHIBIT A** as determined by COUNTY. Payment for services and/or reimbursement of costs shall be based upon the costs, expenses, overhead charges and hourly rates for personnel, as defined in **Attachment B1** (Schedule of Fees). Invoices submitted for payment that are based upon **Attachment B1** must contain sufficient detail to enable an audit of the charges and provide supporting documentation if so specified in **EXHIBIT A**.
- D. **Monthly**, CONTRACTOR shall submit to the COUNTY DESIGNATED REPRESENTATIVE an invoice or certified claim on the County Treasury for the service performed over the period specified. These invoices or certified claims must cite the assigned Board Contract Number. COUNTY REPRESENTATIVE shall evaluate the quality of the service performed and if found to be satisfactory and within the cost basis of **Attachment B1** shall initiate payment processing. COUNTY shall pay invoices or claims for satisfactory work within 30 days of presentation.
- E. COUNTY's failure to discover or object to any unsatisfactory work or billings prior to payment will not constitute a waiver of COUNTY's right to require CONTRACTOR to correct such work or billings or seek any other legal remedy.

**ATTACHMENT B1**

October 17, 2011

Mr. Jonathan S. Frye, P.E.  
Santa Barbara County Flood Control and Water Conservation District  
123 E. Anapamu Street  
Santa Barbara, CA 93101

Subject: Contract 47-0680568  
San Pedro & Las Vegas Creek Capacity Improvement Project  
Request for Billing Rate Modification

Dear Mr. Frye:

In accordance with the terms of this contract, a modification is requested to update the original billing rates executed on December 1, 2009.

Below is the fee summary for the requested changes:

<b>CLASSIFICATION</b>	<b>CURRENT RATE</b>	<b>PROPOSED RATE</b>
Project Principal	\$260.00	\$275.00
Project Manager	\$230.00	\$245.00
Senior Engineer	\$215.00	\$228.00
Project Engineer	\$140.00	\$148.00
Design Engineer	\$120.00	\$128.00
Drafter/Technician	\$100.00	\$110.00
Clerical/Administrative	\$90.00	\$95.00

Please call me should you have any questions. I can be reached at (714) 730.2323. HDR appreciates the opportunity to be of service to the Santa Barbara County Flood Control and Water Conservation District.

Sincerely,

**HDR Engineering, Inc.**

Robert Klovsky  
Project Manager

RK/mgm

## EXHIBIT C

### for contracts REQUIRING professional liability insurance

#### INDEMNIFICATION

Indemnification pertaining to other than Design Professional Services:

CONTRACTOR shall defend, indemnify and save harmless the COUNTY, its officers, agents and employees from any and all claims, demands, damages, costs, expenses (including attorney's fees), judgments or liabilities arising out of this Agreement or occasioned by the performance or attempted performance of the provisions hereof; including, but not limited to, any act or omission to act on the part of the CONTRACTOR or his agents or employees or other independent contractors directly responsible to him; except those claims, demands, damages, costs, expenses (including attorney's fees), judgments or liabilities resulting from the sole negligence or willful misconduct of the COUNTY.

CONTRACTOR shall notify the COUNTY immediately in the event of any accident or injury arising out of or in connection with this Agreement.

Indemnification pertaining to Design Professional Services:

CONTRACTOR shall defend, indemnify, and hold COUNTY, its officers, employees, and agents harmless from and against any and all claims, demands, damages, costs, expenses (including attorney's fees), judgments or liabilities that arise out of, pertain to or relate to the negligence, recklessness, or willful misconduct on the part of the CONTRACTOR or his agents or employees or other independent contractors directly responsible to him to the fullest extent allowable by law.

CONTRACTOR shall notify the COUNTY immediately in the event of any accident or injury arising out of or in connection with this Agreement.

#### INSURANCE

Without limiting the CONTRACTOR's indemnification of the COUNTY, CONTRACTOR shall procure the following required insurance coverages at its sole cost and expense. All insurance coverages are to be placed with insurers which (1) have a Best's rating of no less than A: VII, and (2) are admitted insurance companies in the State of California. All other insurers require the prior approval of the COUNTY. Such insurance coverage shall be maintained during the term of this Agreement. Failure to comply with the insurance requirements shall place CONTRACTOR in default. Upon request by the COUNTY, CONTRACTOR shall provide a certified copy of any insurance policy to the COUNTY within ten (10) working days.

1. Workers' Compensation Insurance: Statutory Workers' Compensation and Employers Liability Insurance shall cover all CONTRACTOR's staff while performing any work incidental to the performance of this Agreement. The policy shall provide that no cancellation, or expiration or reduction of coverage shall be effective or occur until at least thirty (30) days after receipt of such notice by the COUNTY. In the event CONTRACTOR is self-insured, it shall furnish a copy of Certificate of Consent to Self-Insure issued by the Department of Industrial Relations for the State of California. This provision does not apply if CONTRACTOR has no employees as defined in Labor Code Section 3350 et seq. during the

entire period of this Agreement and CONTRACTOR submits a written statement to the COUNTY stating that fact.

2. **General and Automobile Liability Insurance:** The general liability insurance shall include bodily injury, property damage and personal injury liability coverage, shall afford coverage for all premises, operations, products and completed operations of CONTRACTOR and shall include contractual liability coverage sufficiently broad so as to include the insurable liability assumed by the CONTRACTOR in the indemnity and hold harmless provisions [above] of the Indemnification Section of this Agreement between COUNTY and CONTRACTOR. The automobile liability insurance shall cover all owned, non-owned and hired motor vehicles that are operated on behalf of CONTRACTOR pursuant to CONTRACTOR's activities hereunder. CONTRACTORS shall require all subcontractors to be included under its policies or furnish separate certificates and endorsements to meet the standards of these provisions by each subcontractor. COUNTY, its officers, agents, and employees shall be Additional Insured status on any policy. A cross liability clause, or equivalent wording, stating that coverage will apply separately to each named or additional insured as if separate policies had been issued to each shall be included in the policies. A copy of the endorsement evidencing that the policy has been changed to reflect the Additional Insured status must be attached to the certificate of insurance. The limit of liability of said policy or policies for general and automobile liability insurance shall not be less than \$1,000,000 per occurrence and \$2,000,000 in the aggregate. Any deductible or Self-Insured Retention (SIR) over \$10,000 requires approval by the COUNTY.

Said policy or policies shall include a severability of interest or cross liability clause or equivalent wording. Said policy or policies shall contain a provision of the following form:

"Such insurance as is afforded by this policy shall be primary and if the COUNTY has other valid and collectible insurance, that other insurance shall be excess and non-contributory."

If the policy providing liability coverage is on a 'claims-made' form, the CONTRACTOR is required to maintain such coverage for a minimum of three years following completion of the performance or attempted performance of the provisions of this agreement. Said policy or policies shall provide that the COUNTY shall be given thirty (30) days written notice prior to cancellation or expiration of the policy or reduction in coverage.

3. **Professional Liability Insurance.** Professional liability insurance shall include coverage for the activities of CONTRACTOR's professional staff with a combined single limit of not less than \$1,000,000 per occurrence or claim and \$2,000,000 in the aggregate. Said policy or policies shall provide that COUNTY shall be given thirty (30) days written notice prior to cancellation, expiration of the policy, or reduction in coverage. If the policy providing professional liability coverage is a on 'claims-made' form, the CONTRACTOR is required to maintain such coverage for a minimum of three (3) years (ten years [10] for Construction Defect Claims) following completion of the performance or attempted performance of the provisions of this agreement.

CONTRACTOR shall submit to the office of the designated COUNTY representative certificate(s) of insurance documenting the required insurance as specified above prior to this Agreement becoming effective. COUNTY shall maintain current certificate(s) of insurance at all times in the office of the designated County representative as a condition precedent to any payment under this Agreement. Approval of insurance by COUNTY or acceptance of the certificate of insurance by COUNTY shall not relieve or decrease the extent to which the CONTRACTOR may be held responsible for payment of damages resulting from CONTRACTOR'S services of operation pursuant to the contract, nor shall it be deemed a waiver of COUNTY'S rights to insurance coverage hereunder.

In the event the CONTRACTOR is not able to comply with the COUNTY'S insurance requirements, COUNTY may, at their sole discretion and at the CONTRACTOR'S expense, provide compliant coverage.

The above insurance requirements are subject to periodic review by the COUNTY. The COUNTY's Risk Program Administrator is authorized to change the above insurance requirements, with the concurrence of County Counsel, to include additional types of insurance coverage or higher coverage limits, provided that such change is reasonable based on changed risk of loss or in light of past claims against the COUNTY or inflation. This option may be exercised during any amendment of this Agreement that results in an increase in the nature of COUNTY's risk and such change of provisions will be in effect for the term of the amended Agreement. Such change pertaining to types of insurance coverage or higher coverage limits must be made by written amendment to this Agreement. CONTRACTOR agrees to execute any such amendment within thirty (30) days of acceptance of the amendment or modification.

